THE GOODSYARD

Heritage Statement: Appendix C – Heritage Fabric Assessment

September 2019

ballymore.

Hammerson

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THE GOODSYARD

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1.0 INTRODUCTION

1.1 PREFACE

1.1.1 This Heritage Fabric Assessment has been prepared by FaulknerBrowns Architects, with technical input from KMHeritage, Spacehub, WSP and DP9 Ltd.

1.1.2 The report has been prepared following a meeting held with officers at the GLA, LB Tower Hamlets and LB Hackney on 4th February 2019 where the proposed interventions into the heritage assets at The Goods Yard was discussed.

1.1.3 This report provides further information regarding the current fabric condition of the existing structures and summarises previous reports carried out in 2009 and 2014.

1.1.4 The report also provides technical information, as requested by officers and justi cation for the highlighted works proposed.

1.1.5 Previous Applications

1.1.5.1 As a starting point, the listed building consent applications are revisions to the previously submitted to both Boroughs (ref. 2014/2427 and PA/14/02096) which were also recovered by the Mayor, acting as the local planning authority.

1.1.5.2 The Boroughs considered the main application for the redevelopment of The Goods Yard and the above associated applications for listed building consent at their respective committees in December 2015.

1.1.5.3 As part of the committee reports, a series of conditions to be imposed on any grant of listed building consent by the Mayor were suggested by the Boroughs, should the Mayor have granted consent. These conditions remain valid and meet the required tests to be imposed on any grant of listed building consent.

Fig 1.1.1: View along London Road

Fig 1.1.2: Grade II listed Braithwaite Viaduct

Fig 1.1.3: Evidence of Historic Use

Fig 1.1.4: Goodsyard Western Entrance c.1955

Fig 1.1.5: The Oriel bay feature c.2005

1.1.5.4 As such, the imposition of these conditions on the future grant of listed building consent would seem appropriate and are included in appendix 5.1 of this document.

1.1.6 Approach to Preserving Heritage Significance

1.1.6.1 A substantial amount of assessment and analysis of the heritage signi cance of the Goods Yard and its fabric was undertaken in connection with the listed building consent applications, of which the present proposals are a revision.

1.1.6.2 These applications were accompanied by a Heritage Statement with appendices, which included an Audit of Historic Structures Heritage Assets, a Context Appraisal, an assessment of proposed structural interventions and a Tower of London World Heritage Site Setting Study.

1.1.6.3 A separate Environmental Statement chapter concerning heritage was also supported by this assessment and analysis work.

1.1.6.4 This understanding, developed in discussion with the London Boroughs of Hackney and Tower Hamlets, as well as with Historic England and the GLA, has formed the overarching context for the design of proposals. It is sufficiently detailed to permit the design of proposals to be developed to this point.

1.1.6.5 A consensus exists between the design team and these authorities as to the location, nature and extent of signi cance in and around the site, whether that derives from statutory designation or otherwise.

1.1.6.6 The focus of work now is to understand the physical implications of proposed changes to heritage assets on the site.

1.1.6.7 This document summarises how previous structural and fabric assessment has informed present proposals and what further investigation requires to be done to inform detail design and repair methodologies.

2.0 CONDITION SURVEYS

2.1 VISUAL INSPECTION

2.1.6.1 Visual condition surveys generally from ground level of the following existing structures on the site were undertaken by Alan Baxter in October 2009 and November 2013:

- Braithwaite viaduct and adjacent arches
- London Road - Upper deck jack arch structures
- Oriel and listed arches fronting Commercial Street
- Sliver arches below the ramp west of Wheler Street
- Boundary wall along Sclater Street

2.1.1 Summary of Alan Baxter 2009 Condition Survey

2.1.1.1 The 2009 Structural Engineering condition survey was limited to the following viaduct structures:

- The Braithwaite Arches
- Masonry Arches South of Braithwaite Arches - east and west of Wheler Street
- Jack Arch and Iron/Steel Beam structures over London Road

2.1.1.2 Braithwaite Arches

2.1.1.2.1 The Braithwaite Arches constructed in the 1840's was recorded as being in good condition for its age and type. There was no apparent sign of settlement and no sign of cracking or frost damage to the brickwork. It was noted that the northern face of the Braithwaite Viaduct appeared to be cut back to accommodate an extension which has since been demolished leaving the rendered cut face exposed.

Fig 2.1.1: Braithwaite Arches Platform Level

Fig 2.1.2: Bariathwaite Arches Vault looking south

Fig 2.1.3: Gothic style cross vaults

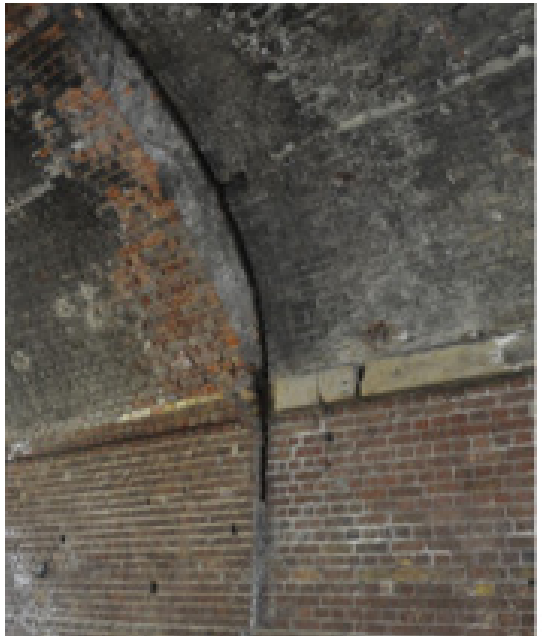


Fig 2.1.4: Joint between 1860s & 1840s Braithwaite arches

Fig 2.1.5: 1880s arches indicating localised missing brickwork

Fig 2.1.6: 1880s arches : Evidence of settlement

Fig 2.1.7: 1880s arches: Evidence of defected repair to brickwork crack

2.1.1.3 Masonry Arches South of Braithwaite Arches

2.1.1.3.1 It was noted that the 1860's and 1880's arches to the east of Wheler Street had been subject to settlement in the past which had caused cracking of the arch brickwork in some locations. The cracks appeared to have been monitored in the past with rendered tell-tale patches cast over them some of which date back to the 1960's which were still in place at the time. Therefore, these sections of the viaduct appear not to have moved much over the past 40 years and generally can be considered in reasonable condition for their age and type. The cracks were not considered structurally signi cant.

2.1.1.3.2 The 1880's arches to the west of Wheler Street again appeared to be in reasonable condition for their age and type, although it was stated there were localised areas of lost or damaged brickwork.

2.1.1.3.3 It was also noted the arches had su ered from localised brick deterioration as a result of water ingress.

Fig 2.1.8: London Road jack arch structure looking west

Fig 2.1.9: Evidence of corrosion to steel beams

Fig 2.1.10: Corrosion and water ingress

Fig 2.1.11: Significant deterioration of steel work

Fig 2.1.12: Severe deterioration to supporting edge beam

2.1.1.4 Jack Arch and Iron/Steel Structures over London Road

2.1.1.4.1 The jack arch section over London Road was constructed in the 1880's and consists of a series of brick arches spanning between built up rivetted iron/steel beams. It was noted that whilst the masonry elements of the structure were in good condition for its age and type overall the jack arches were in poor condition with signi cant deterioration /corrosion to the steel / iron beams evident.

2.1.1.4.2 The worst of the corrosion was noted as being along the southern most exposed side of the structure, at the edge of the viaduct. Further closer observations and opening made reference to water penetration to the jack arch structures and that this needed to be dealt with to prevent further corrosion of the steel / iron beams.

2.1.2 Summary of Alan Baxter 2013 Condition Survey

2.1.2.1 The 2013 Structural Engineering condition survey was undertaken of the following areas:

- Braithwaite viaduct and adjacent arches
- London Road – Upper deck jack arch structures
- Oriel and listed arches fronting Commercial Street
- Sliver arches below the ramp west of Wheler street
- Boundary wall to be retained along Sclater Street

2.1.2.2 Braithwaite Viaduct and adjacent arches

2.1.2.2.1 The Alan Baxter 2009 report recorded that the Braithwaite viaduct generally appeared to be in good condition for its age and type, whilst historic settlement of the adjacent 1860 and 1880 southern arches was evident.

2.1.2.2.2 The observations from the 2013 report state there were no obvious signs of any change in the condition of the Braithwaite viaduct structure since their 2009 report.

2.1.2.2.3 Water ingress through the adjacent arches was still evident seeping through from above and through the joints between the di erent phases of construction. Further locations on the arch soffits where locally bricks were loose or missing were recorded. This can be easily dealt with by stitching in new bricks and undertaking general pointing.

2.1.2.3 London Road - Upper Jack Arch Deck Structure

2.1.2.3.1 The Alan Baxter 2009 report noted that whilst the masonry elements of the jack arch structure spanning between the riveted beams were in reasonable condition, signi cant corrosion of the beams was evident.

2.1.2.3.2 The Alan Baxter 2013 report states the Jack Arch structure is in extremely poor condition with further deterioration of the jack arch beams and supporting beams having taken place. Where water continues to penetrate the structure very signi cant loss to sections of the beams is apparent.

2.1.2.4 The Listed Oriel and Arches Fronting Commercial Street

2.1.2.4.1 The Alan Baxter 2013 report states the Listed Oriel is in very poor condition with large parts of the stonework having eroded with numerous cementitious repairs evident.

2.1.2.4.2 The supporting structure iron / steel beams to the underside of the structure appeared to be severely corroded and delaminated, it was recommended that temporary support be provided to those beams.

2.1.2.4.3 It was further stated that the appropriate approach may be for the Oriel structure to be carefully dismantled and refurbished by a specialist which would enable uncomplicated access to the iron / steel beams supporting th oor structure and Oriel to be repaired or replaced.

2.1.2.4.4 Access was not obtained to the Commercial Street Arches, it was however observed from the street that there was some general spalling along the length of the brickwork probably caused by freeze/thaw action. Bulging of the brickwork on the curved section of the wall fronting Commercial Street was also evident.

Fig 2.1.13: Severe delamination and twisting to the flange plates

Fig 2.1.14: Severe deterioration to supporting edge beam

Fig 2.1.15: Severe delamination and corrosion to the underside of the supporting Oriel structure

Fig 2.1.16: Severe delamination and corrosion to the underside of the supporting Oriel structure

Fig 2.1.17: Cornice stone missing under the Oriel with patch repair visible

Fig 2.1.18: Evidence of cementitious repairs to the Oriel have eroded

2.1.2.5 Sliver Arches Below Ramp

2.1.2.5.1 The existing Sliver arches form the support structure to the original Wheler Street access ramp and are situated to the south of the Bishopsgate Goods Yard.

2.1.2.5.2 These are robust masonry arch structures located in a cutting fronting the main line rail route into Liverpool Street Station south of the Suburban line.

2.1.2.5.3 The rooms are made up of a series of brick arch structures below the existing ramp up from Wheler Street to the upper levels of the site.

2.1.2.5.4 On the north side of the 'sliver', the arches forming the underside of the ramp extend across only to the south side of the large brick piers (approx 3.0m square) which exist on the south side of the surburban line tunnel. The roof over the suburban line tracks extends only to the north side of these brick piers. There is a void over the width of the brick piers, which extends up to the roof over London Road one level above the surburban line.

2.1.2.5.5 The Alan Baxter condition survey was limited in this area due mainly to this area being in complete darkness.

2.1.2.5.6 From what could be seen, the arches appeared to be in reasonably good condition for their age and there did not appear to be any noticeable visible cracking in the brickwork associated with movement due to settlement from the foundations.

2.1.2.5.7 Water markings were noted to the underside of the brickwork arch soffits, which most probably has been caused from water seeping in from above, but there was no evidence of spalling to the brick arches due to weathering. Missing bricks to the fascia fronting the main line railway to a few arches were noted.

Fig 2.1.19: General view of the Sliver arches overlooking the main line

Fig 2.1.20: Evidence of water marking to brickwork

Fig 2.1.21: Missing brickwork to face of arch

Fig 2.1.22: Boundary Wall: Remnants of iron/steel beams visible

Fig 2.1.23: Evidence of temporary timber prop to brickwork

Fig 2.1.24: Spalled brickwork and Buddleia type vegetation growing along the length of the Boundary Wall

2.1.2.6 Boundary Wall Along Sclater Street

2.1.2.6.1 The existing Sclater Street masonry brick wall forms the boundary to the north of the Bishopsgate Goods Yard site and extends from Brick Lane to the east, to Wheler Street in the west.

2.1.2.6.2 The present stand-alone boundary wall was originally part of the Goods Yard site, which was demolished to make way for the new East London Line Railway circa 2007

2.1.2.6.3 The original structure adjacent the wall would have taken the form of jack arched brickwork with iron/steel beams, and evidence of this was found to the inside of the boundary wall, where iron/ steel stubs bearing on large stone pad stones protrude out of the brickwork wall.

2.1.2.6.4 Access to the boundary wall was limited due to long sections of the wall being enclosed by football pitches to the south and private businesses blocking access to the northern elevation fronting Sclater Street.

2.1.2.6.5 A signi cant portion of the wall was however accessible adjacent Wheler Street extending toward brick lane. The wall is a substantial masonry structure up to approximately 1.8m thick. The wall appeared to be reasonably plumb with no visible signs of any movement due to settlement having taken place.

2.1.2.6.6 Vegetation going outwards trough the brickwork was evident in many locations causing spalling to the facing brickwork fronting Sclater Street. Spalling of brickwork was also observed along the length of the wall probably caused by freeze / thaw action. There was an area of brickwork at parapet level which had fallen away and this had been temporarily propped using wooden propping which Alan Baxter suggested should be made good by re-stitching in brickwork to match the existing.

3.0 STRUCTURAL PRINCIPLES & CONSTRAINTS

3.1 STRUCTURAL DESIGN PRINCIPLES AND CONSTRAINTS

3.1.1 This section of the report sets out the proposed design principles and constraints associated with the areas of the development built over existing viaduct structures. The structural design principles have been assessed based on the historic site usage and structural design loadings and estimated historic platform levels.

3.1.2 Whilst The arch /viaduct structures have the potential to carry substantial loads provided these are appropriately distributed, the principal scheme design strategy is to not impart any increased loading onto the crown of the arches from the originally designed dead and superimposed loads applied to the arches.

3.1.3 In addition to ensuring we do not overload / surcharge the crown of the arch, we need to review the amount of any potential load that would be removed permanently by way of lowering/scraping the current landscaped / vegetation levels to ensure the arch does n ex / heave.

3.1.4 The design principles for supporting the landscaped Public Realm areas and proposed development low rise structures will be discussed in more detail.

3.1.5 The Viaduct / arch structures to be retained along with non-listed structures to be demolished are de ned i gure 3.11. A more detailed demolition plan is included in appendix 5.2.

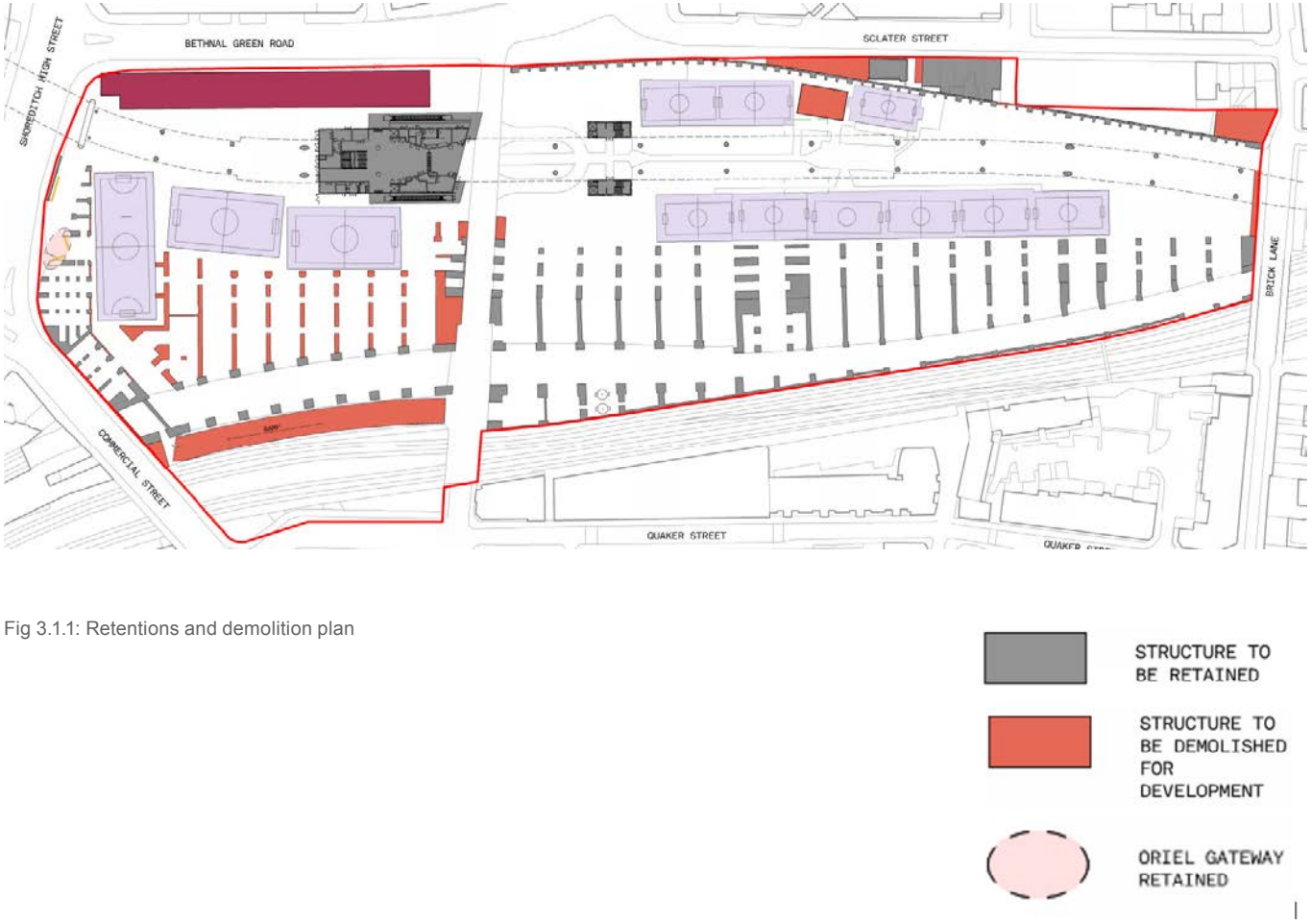


Fig 3.1.1: Retentions and demolition plan

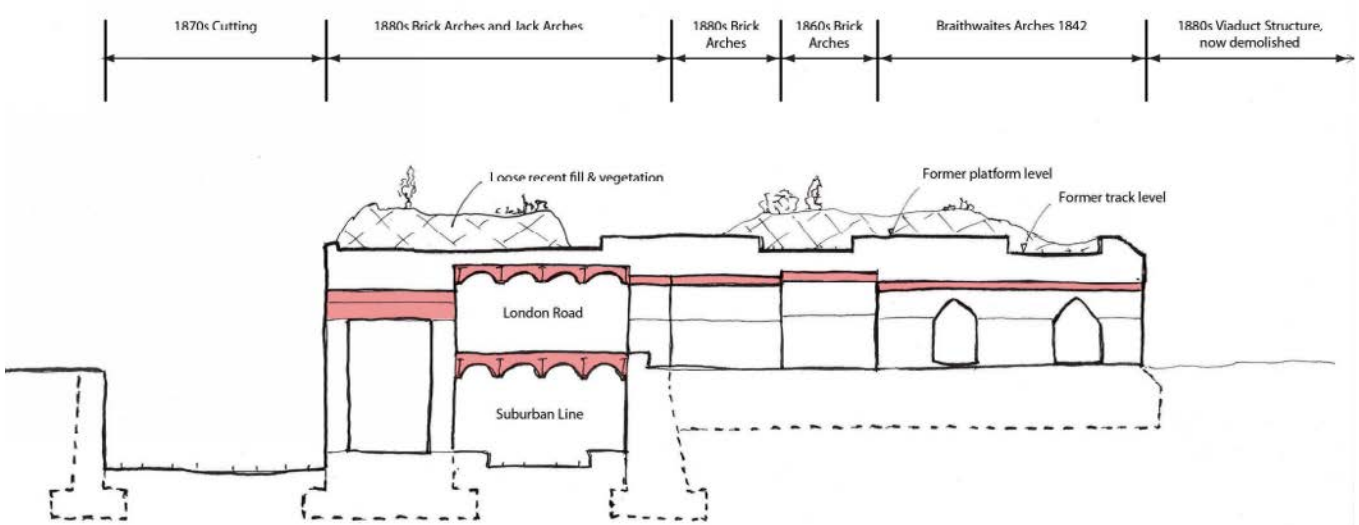


Fig 3.1.2: Typical section through Viaduct (east of Wheler Street)

3.1.6 Surviving Structures

3.1.6.1 The structures that survive on the site comprise the following:

- a) The Braithwaite viaduct, which extends from Brick Lane on the east to west of Wheler Street in the west.
- b) The Southern Arches which are vaulted structures built up against the Braithwaite viaduct to form the goods yard at the upper level on the site.
- c) The jack arch and beamed structures over London Road along the edge of the suburban line tracks.
- d) The gateway (oriel) structures are located at the western end of the site, fronting onto Shoreditch High Street. The structures comprise: a brick gateway with stone decoration and a large projecting stone oriel above facing Shoreditch High Street; two stretches of tall brick wall which run north and south either side of the gateway; two tall moulded cast iron gate piers, which stand on the western side of the gateway, either side of what was once the external access ramp to the upper level of the goods Yard. The central gateway led into the viaduct arches beneath the Goods Shed, which was used for goods storage.

3.1.6.2 In addition, there are retaining structures which form the edge of the railway lines out of Liverpool Street Station and the roof over the suburban lines which is a jack arch and beamed structure.

3.1.6.3 The surviving viaducts have the potential to carry substantial loads based on their construction and former usage which will be discussed in more detail. The section below is a section through the viaduct east of Wheler Street looking west and indicates former track and platform level over the arches and current extensiv ll and vegetation.

3.1.7 Structural Principles for supporting the Public Realm

3.1.7.1 The design principles for setting the current proposed platform landscaped levels currently air on the conservative side due to unknowns ie, existin nished soft landscaped build up/levels in certain areas and arch extrados (top of arch) levels.

3.1.7.2 Whilst the intrados (underside arch) levels are generally known across the site through surveyed information the extrados levels are not, however the intrados and extrados levels of the Braithwaite Arch over Wheler Street are known and this information regarding arch thickness etc has been adopted elsewhere to help form the current structural principals.

3.1.7.3 The unknown extrados arch levels will be validated at a later stage through a series of trial pits post planning.

3.1.7.4 Based o gure 3.13 the following design principals have set the current proposed landscape levels indicated on Spacehub drawings / details

- Arch extrados not to be exposed
- 1500mm from Intrados level is assummed
- A minimum of 500mm of existing soil / compacte ll to remain in place above the arch extrados
- Where deeper existing landscaping levels exists and there is a requirement to reduce the proposed platform levels as much as possible a maximum of one third (1/3) of the existing platform build up over the arches is considered acceptable to be removed.

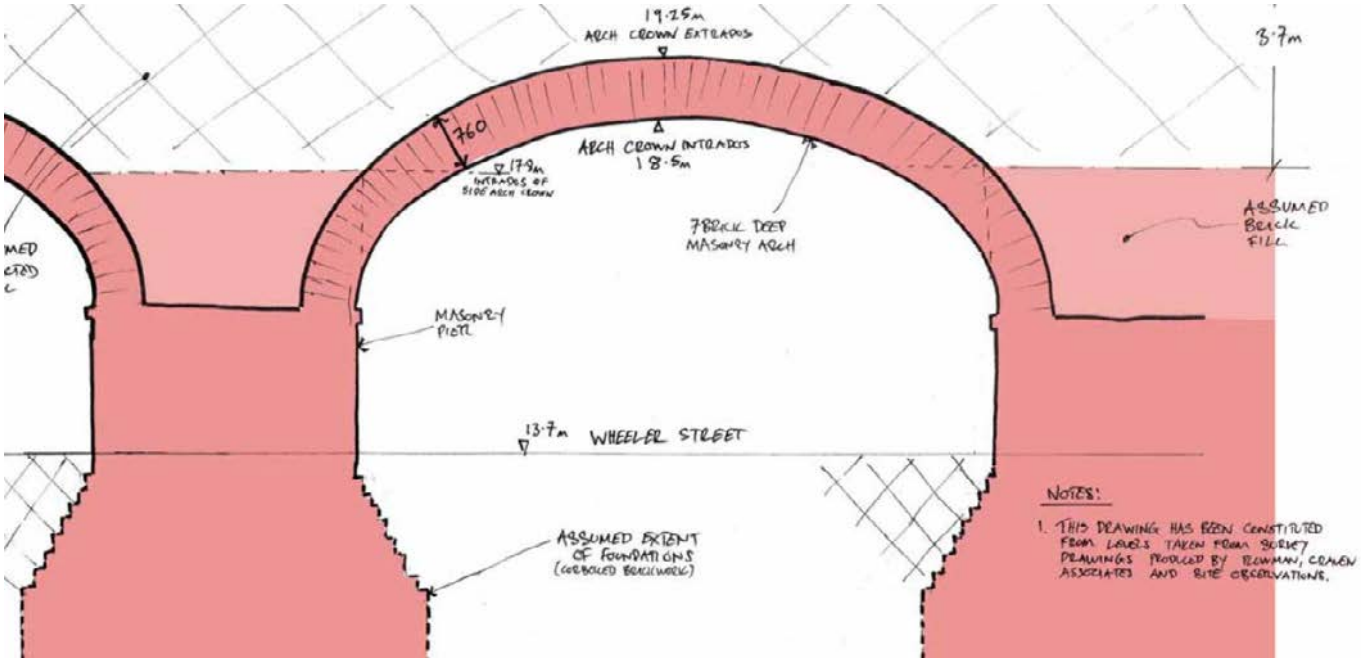


Fig 3.1.3: Indicative section through Braithwaite Arch over Wheler Street

Fig 3.1.4: Extensive vegetation looking east over London Road

Fig 3.1.5: Extensive vegetation to the edge of the Braithwaite Viaduct

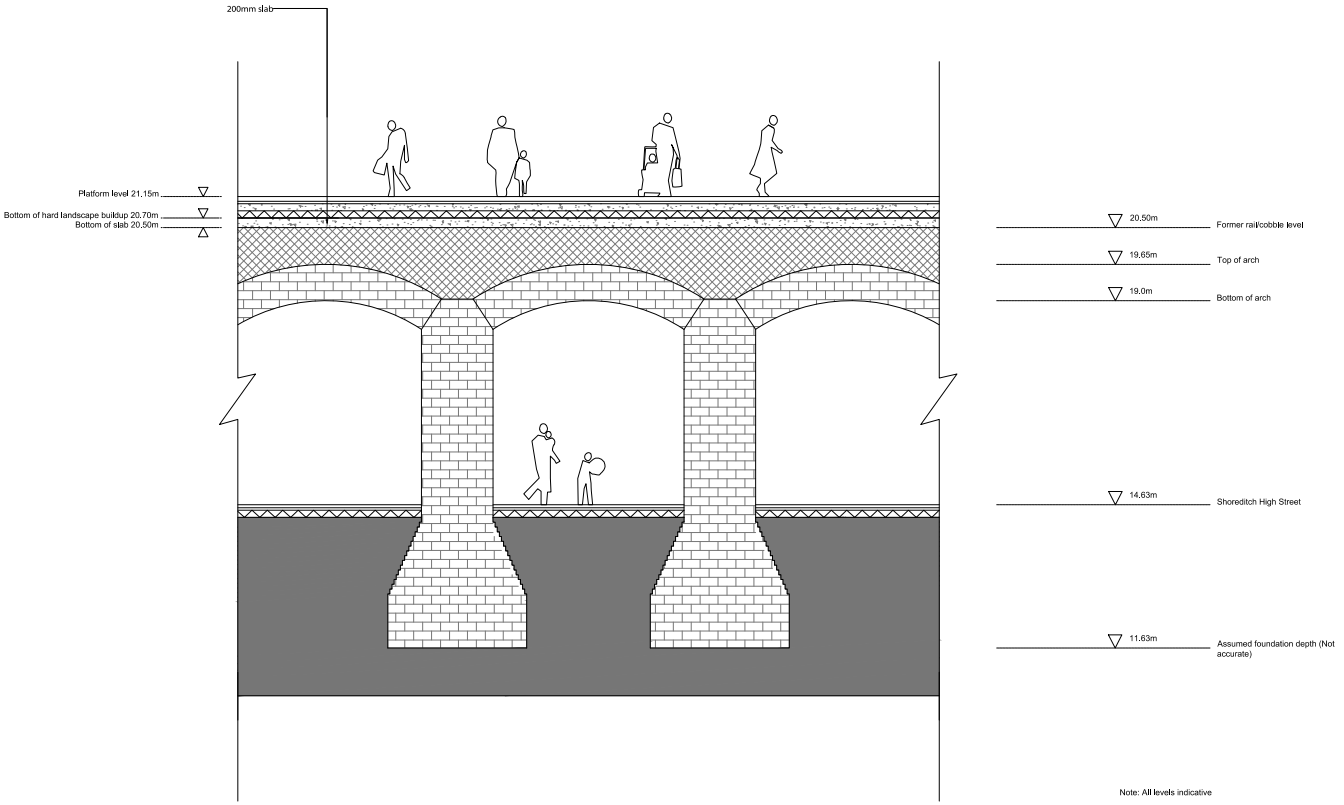


Fig 3.1.6: Typical public realm and landscape build up over arches

3.1.7.5 Any further percentage removal of material over and above the one third rule noted above or a reduction in the minimum 500mm o ll over the crown of the arch, would need to be reviewed on a case by case basis post planning during the detailed design stage of the project where intrusive works may be required.

3.1.8 Landscape Build Up

3.1.8.1 The landscape build-up is achieved b rstly, carefully removing a minimum of 200 to 300mm of existing soft / hard landscaping to achieve the required formation level.

3.1.8.2 Any soft spots / voids are in lled and along with the formation level proof rolled.

3.1.8.3 The formation / sub-base level is then capped with a 200mm concrete cover protection slab from which the insulation, waterproo ng, water attenuation and planting layers are installed.

3.1.8.4 The general proposed landscaping build-up does not increase the dead and superimposed design loads over the brick arch or Jack arch structures which were previously designed to support low rise structures and run goods vehicles over.

3.1.8.5 There is currently extensive loos ll / materials and vegetation over the viaduct / arch structures which in areas extends over 1.5 to 2.0 metres in height.

3.1.8.6 The measures set out for forming the formation levels and the proposed landscape build up will ensure there is sufficient permanent load on the arches to ensure they do n ex / heave.

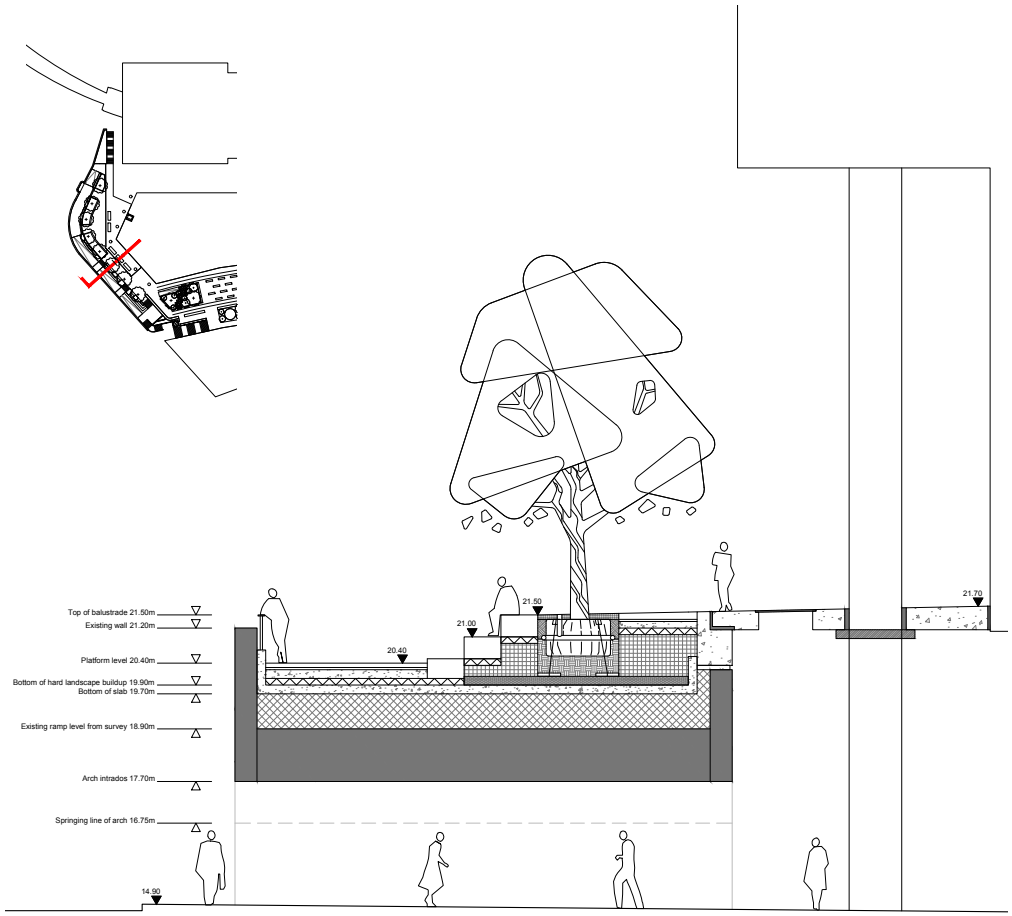


Fig 3.1.7: Typical public realm and landscape build up at the Oriel arches

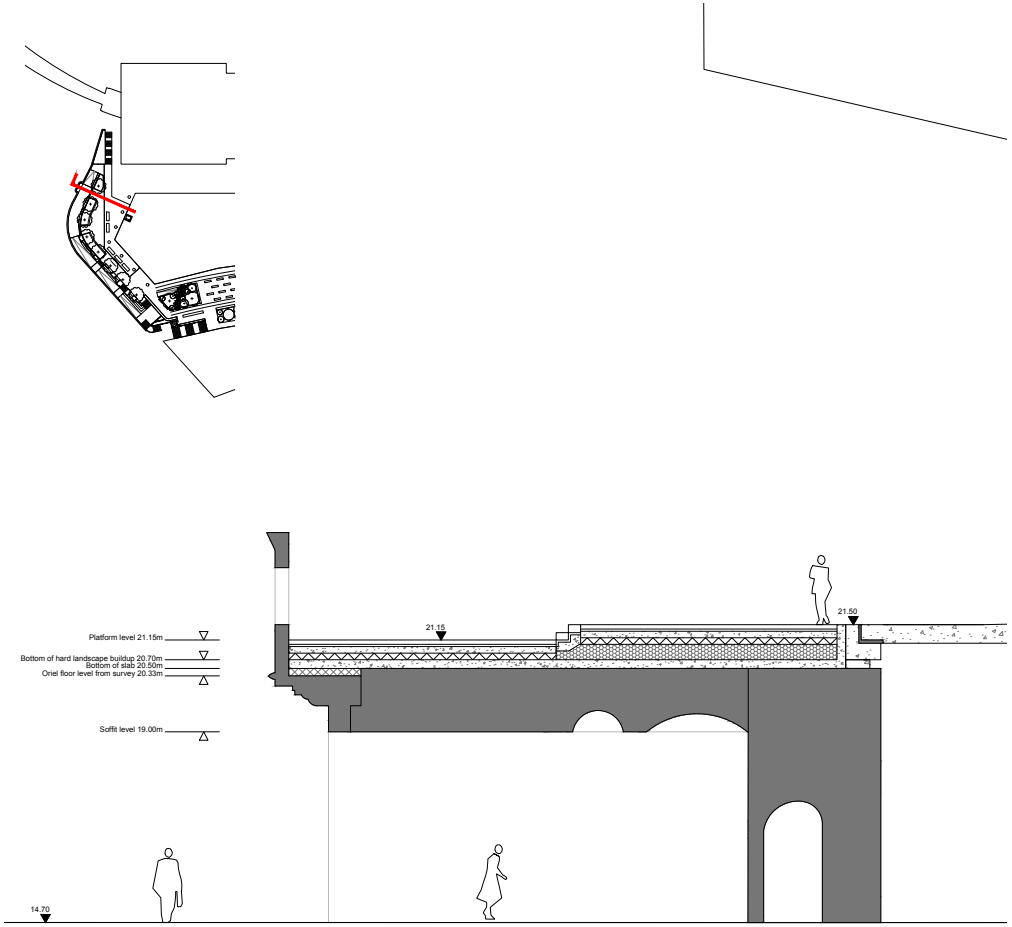


Fig 3.1.8: Typical public realm and landscape build up at the Oriel Bay

3.1.9 Landscape Build Up: Oriel Gateway

3.1.9.1 There is a desire to lower the platform level adjacent to Oriel / western arch structure to circa +19.40m AOD in order the existing boundary wall at circa +20.60m AOD can act as the balustrade to the edge of the development.

3.1.9.2 The Oriel arch extrados levels are currently unknown although the 700mm crown thickness currently assumed based on the available Braithwaite arch information is considered conservative based on the western arches being smaller. A series of hand dug trial pits will be required through the existin ll material above the arches to con rm the extrados levels and depth o ll material above.

3.1.9.3 The arch intrados at the location indicated on the below extract from Space Hub drawings / details is +17.70m AOD, setting the platform level in this location at +19.40 will provided a maximum balustrade height at the top of the existing wall of 1.2 metres and would result in a maximum of 300mm of existin ll material retained above the crown of the arch to the formation (underside) level of the concrete capping / protection slab. The 300m ll whilst lower than the conservative minimum 500mm referred to above we feel subject to further detailed design locally in this area is achievable.

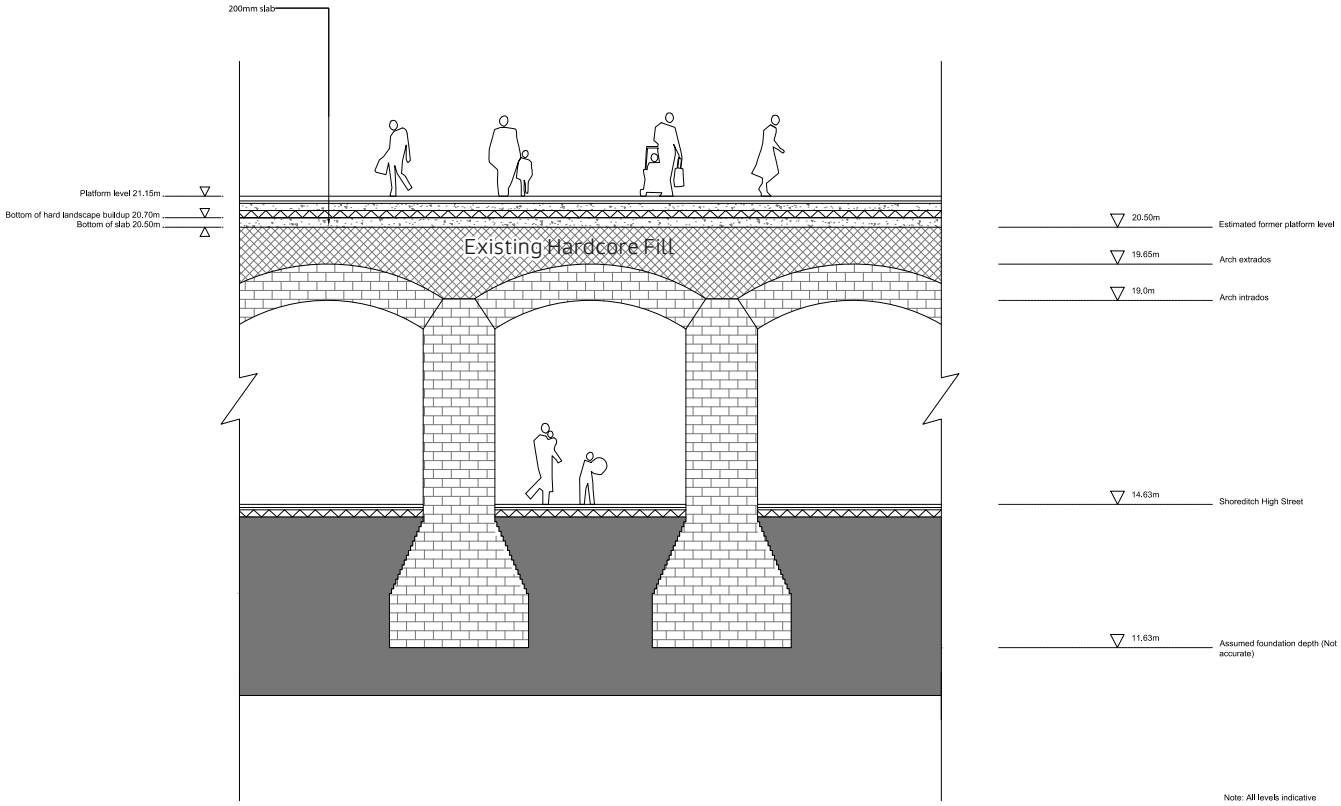


Fig 3.1.9: Typical public realm and landscape build up over Commercial Street arches

3.1.10 Landscape Build Up: Braithwaite Arches (Adjacent Wheeler St)

3.1.10.1 Arch intrados levels vary circa 18.5m to +18.8m with a proposed platform level of +22.2m and a proposed top of park tree planting level of +22.65.

3.1.10.2 Whilst not a loading issue we would suggest planters where ever possible are positioned o the crown of the arch and positioned as close to the arch support as possible.

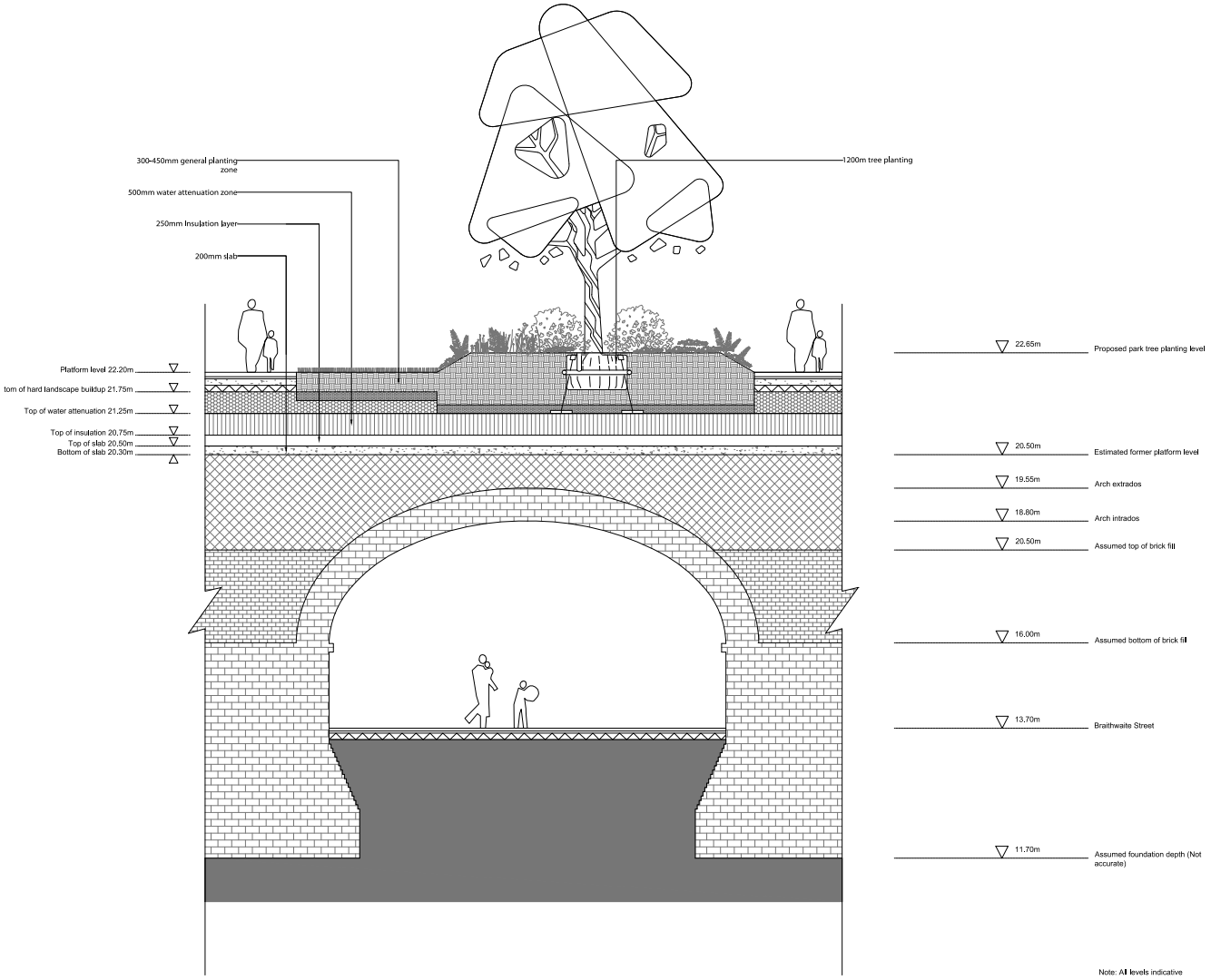


Fig 3.1.10: Typical public realm and landscape build up over Braithwaite Arches (west end)

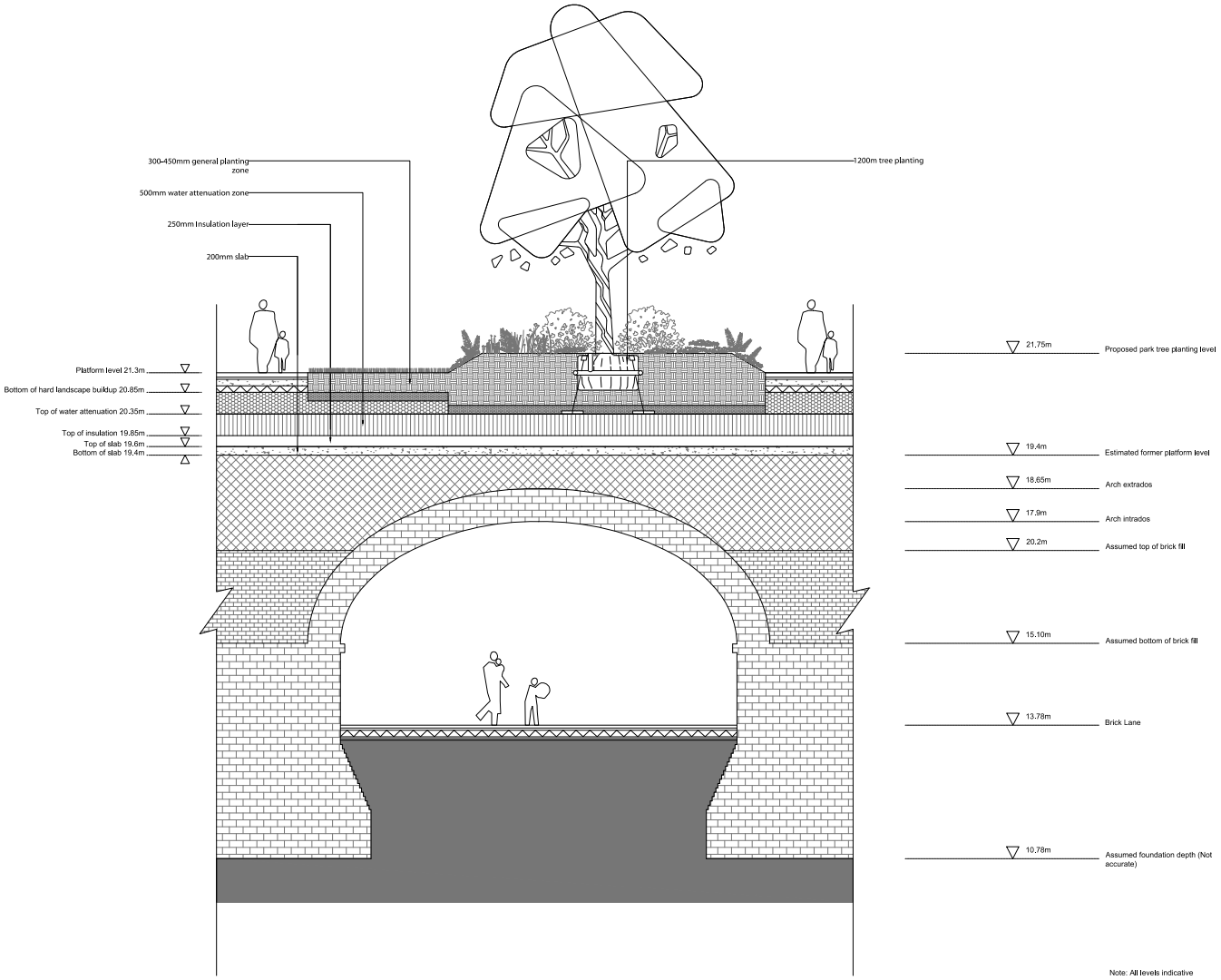


Fig 3.1.11: Typical public realm and landscape build up over Braithwaite arches (east end)

3.1.11 Landscape Build Up: Braithwaite Arches East (Adjacent Brick Lane)

3.1.11.1 Arch intrados level is at +17.9 with a proposed platform level of +21.3m and a proposed top of park tree planting level of +21.75.

3.1.11.2 Planters where possible are to be positioned o the crown of the arch and positioned as close to the arch support as possible.

3.2 BUILDING OVER THE VIADUCT

3.3 As previously stated the surviving structures have the potential to carry substantial loads provided these are appropriately distributed.

3.4 Historically the Goods Yard included a large warehouse and goods station on the upper deck over the existing arches / viaduct with wagon lifts working the upper and lower levels allowing railway wagons to be lowered down and shunted around on tracks.

3.5 The Braithwaite arches are in good condition and show no signs of major settlement.

3.6 We believe they can support up to four storeys of light weight construction supported on a reinforced concrete raft foundation spreading the load over the arches. However there is potential scope to further increase the load / building height by placing strip footings / pad foundations over the viaduct supports.

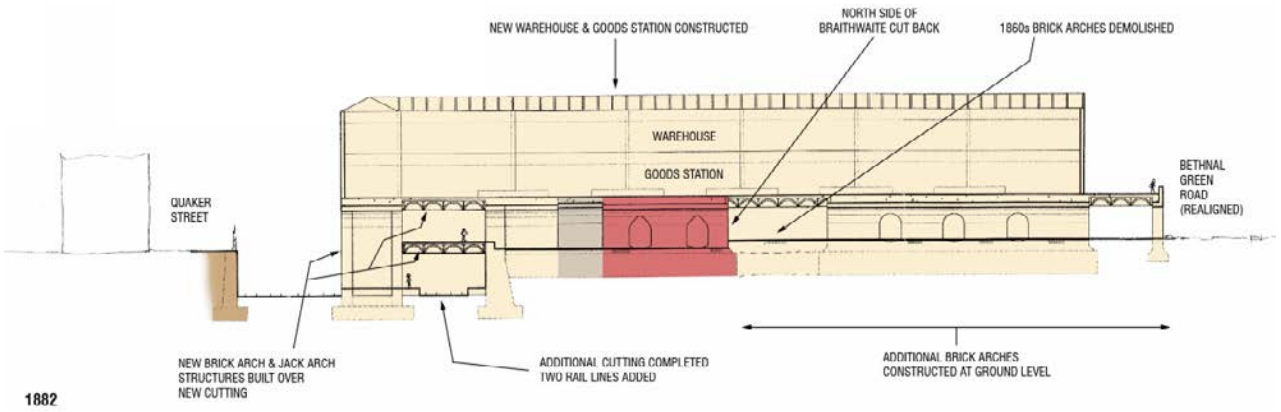


Fig 3.6.1: Evolution Viaduct structure 1882

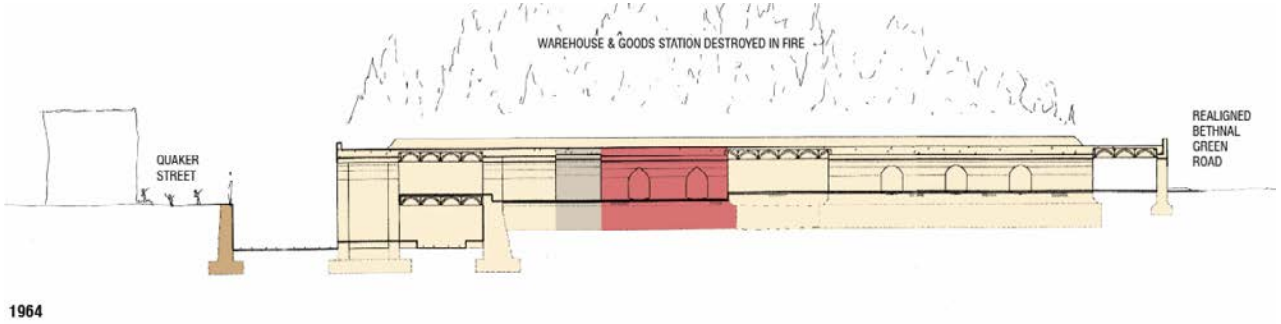


Fig 3.6.2: Evolution Viaduct structure 1964

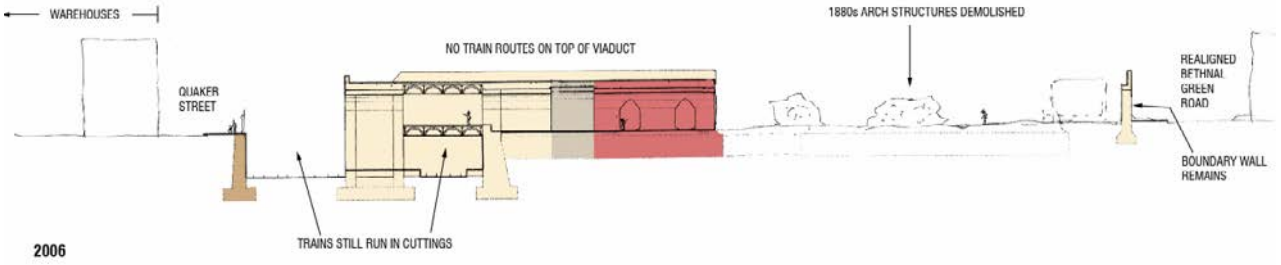


Fig 3.6.3: Evolution Viaduct structure 2006

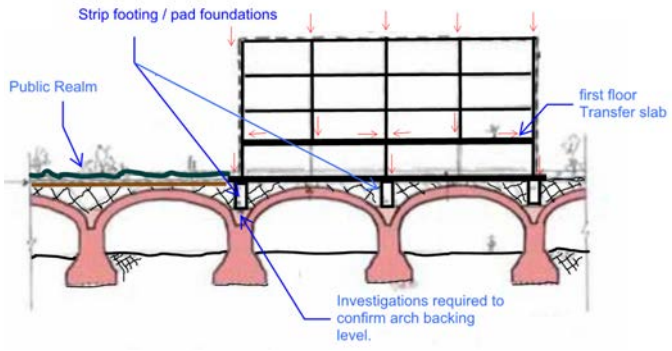


Fig 3.6.4: Indicative section through viaduct showing proposed framing

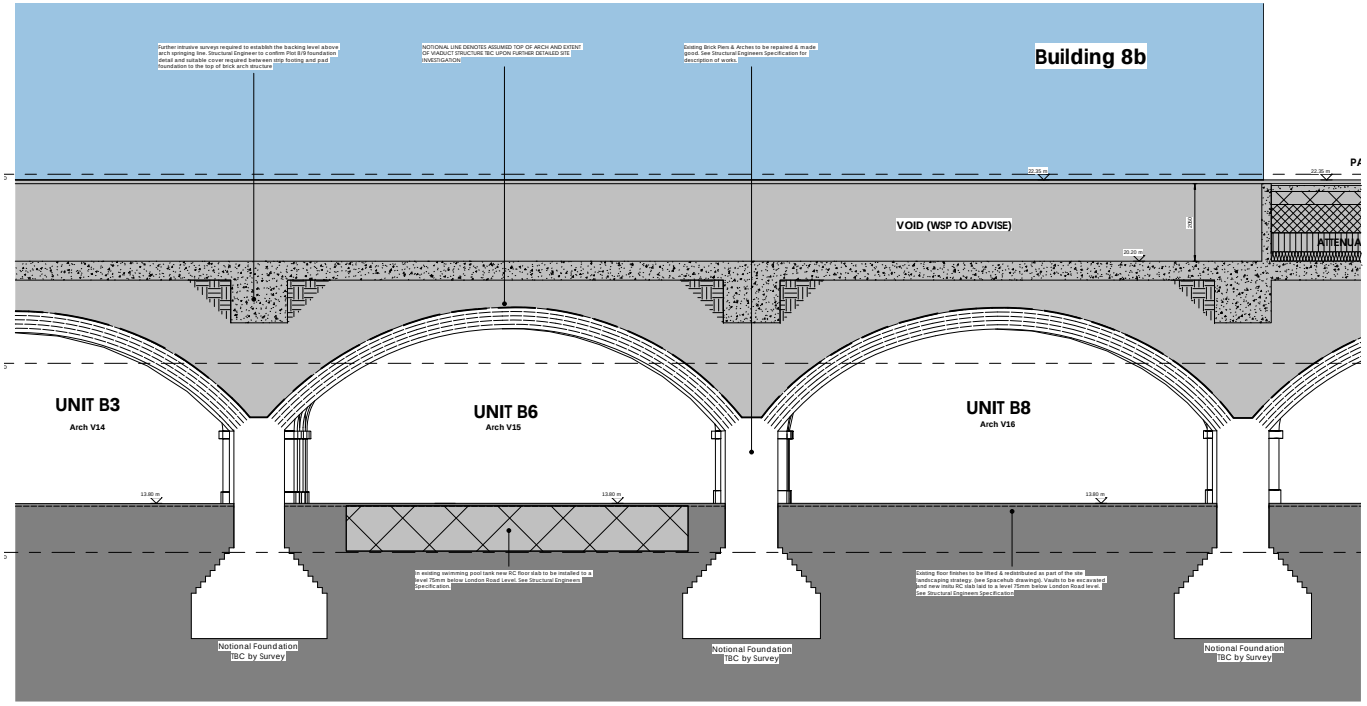


Fig 3.6.5: Example of detailed drawing section through Braithwaite Arches

3.6.1 Plot 8 Residential/Hotel Building

3.6.1.1 The building on plot 8 the proposed Hotel / Residential building is the most signi cant building in height terms supported over the existing viaduct structures at 4 storeys. The current proposal is for the building to either be supported on a reinforced concrete raft slab to spread the load evenly over the existing arches or support the building on strip footings / pad foundations over the arch supports (gure 3.2.4 opposite).

3.6.1.2 For this option columns will be located on the strip footings with a transfer sla rs oor level to allow column positiona exibility to suit hotel / residential room layouts above. The transfer slab will ensure the main building superstructure loads are transferred to the columns located over the foundations / arch supports.

3.6.2 Structural Calculation To Compare Historical Loading And Proposed Loading

3.6.3 The following calculation demonstrates the vertical design loads applied to the arches from the original 2 storey warehouse and goods station which burnt down in 1964 are in excess the loads for the proposed new 4 storey (lightweight construction) hotel on building plot 8. For this exercise the façade cladding loadings have been ignored which for the brick built warehouse were well in excess of the loads for the proposed hotel.

3.6.4 The historic design live loads used in the calculations have been derived from **Dorman Long and Co Handbook 1895** (along with other relevant publications) which list Warehouses at the time being designed for between 120 to 320lbs per Sqft and machinery warehouses between 250 to 500lbs per Sqft. For calculation purposes a conservative assessment based on the historic usage has been taken of **220lbs per Sqft.** (100lbs per Sqft equates to 4.8kN/m2).

3.6.5 The conservative historic design dead loads have been derived from construction techniques and materials used for the time and proposed usage.

3.6.6 The current proposals for the design of the hotel are yet to b nalised but 2 construction options are currently under review:

- 1. Steel framed building with a 130mm concrete slab cast on metal decking.
- 2. Steel framed building with cold formed 'C' sections spanning between the steel sections with 2 layers of timber boarding an nishes applied to the top of the cold formed 'C' sections.

3.6.7 For the purposes of the calculations option 1 the heavier form of construction has been used in the calculation.

3.6.8 Based on the conservative loadings overleaf the original 2 storey Warehouse applied greater loads to the Braithwaite arches than the proposed 4 storey hotel construction.

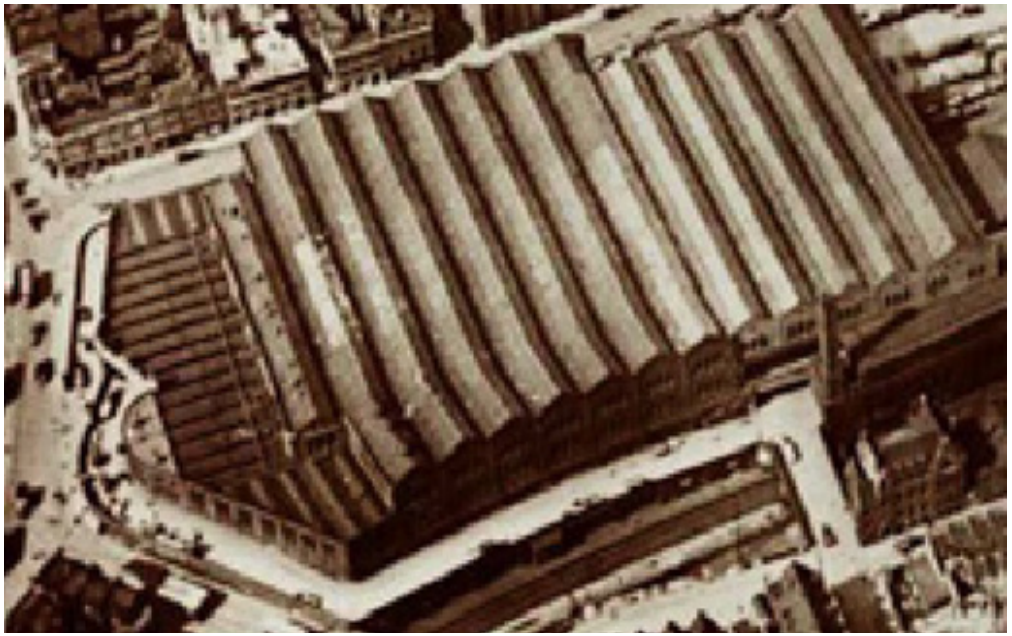


Fig 3.6.6: Arial view of Warehouse and Goods Station burnt down in 1964

3.6.9 Historic Warehouse Design Loads

Floor live loads

Ground Floor: 10.6 kN/m2 (220lbs/sqft)

First Floor: 10.6 kN/m2

Roof: 1.5 kN/m2

Total live load = 22.7 kN/m2

Dead Loads

Ground Floor:

400mm concrete slab: 9.6 kN/m2

First Floor:

300 thick Filler Joist Floor: 4.35 kN/m2

Self wt of Steel frame: 0.35 kN/m2

Partitions: 1.00 kN/m2

Timbe oo nish: 0.20 kN/m2

Services 0.3 kN/m2

Total Load 6.20 kN/m2

Roof:

Self wt Steel Frame 0.25 kN/m2

Hot rolled steel purlins 0.15 kN/m2

Services 0.3 kN/m2

Clay sheeting / tiles 1.10 kN/m2`

Total Load 1.50 kN/m2

Summary of Warehouse Loads

Total Live Load = 22.70 kN/m2

Total Dead Load = 17.30 kN/m2

Total combined Load = 40.00 kN/m2

3.6.10 Proposed Hotel Design Loading

Floor live loads

Ground Floor: 4.0 kN/m2

First Floor: 2.0 kN/m2

Second Floor: 2.0 kN/m2

Third Floor: 2.0 kN/m2

Roof 1.5 kN/m2

Total Live load = 11.5 kN/m2

Dead Loads

Ground Floor:

400mm concrete RC raft slab: 9.6 kN/m2

Typical upper floor (3No):

140mm concrete Holorib slab: 3.10 kN/m2

Self wt of Steel frame: 0.30 kN/m2

Partitions 0.50 kN/m2

Floo nishes 0.35 kN/m2

Services 0.30 kN/m2

Suspended ceiling 0.15 kN/m2

Total Load 4.70 kN/m2 per floor

Roof:

Self wt Steel Frame 0.20 kN/m2

Cold rolled purlins 0.03 kN/m2

Services 0.30 kN/m2

Standing seam roo ng system 0.72 kN/m2

Suspended ceiling 0.15 kN/ m2

Total Load 1.40 kN/m2

Summary of Hotel Loads

Total Live Load = 11.50 kN/m2

Total Dead Load = 25.10 kN/m2

Total combined Load = 36.60 kN/m2

3.6.11 Removal of Non-Listed Arch Over Wheeler Street

3.6.11.1 The removal of the non-listed arch over Wheler Street is required to facilitate the current servicing strategy which locates the service yard to the West of Wheler Street in Plot 2.

3.6.11.2 The masterplanning team have explored other solutions to the access proposed but site constraints prohibit access on three sides of the plot as shown i gure 3.2.7.

3.6.11.3 The alignment of the listed arch and the non listed arch proposed to be demolished is clearly visible in the brickwork within the viaduct (gure 3.2.10).

3.6.11.4 The proposed entrances to the residential and hotel lobbies will be via a glazed opening in the existing gothic cross vault.

3.6.11.5 This proposal represents an instance of intervention in a heritage context where signi cance needs to be weighed against the practical requirements of the development.

3.6.11.6 Alternatives have been examined and what is proposed represents the optimum balance of change versus preservation.

3.6.11.7 This approach will permit efficient servicing with the minimum loss of signi cant fabric.

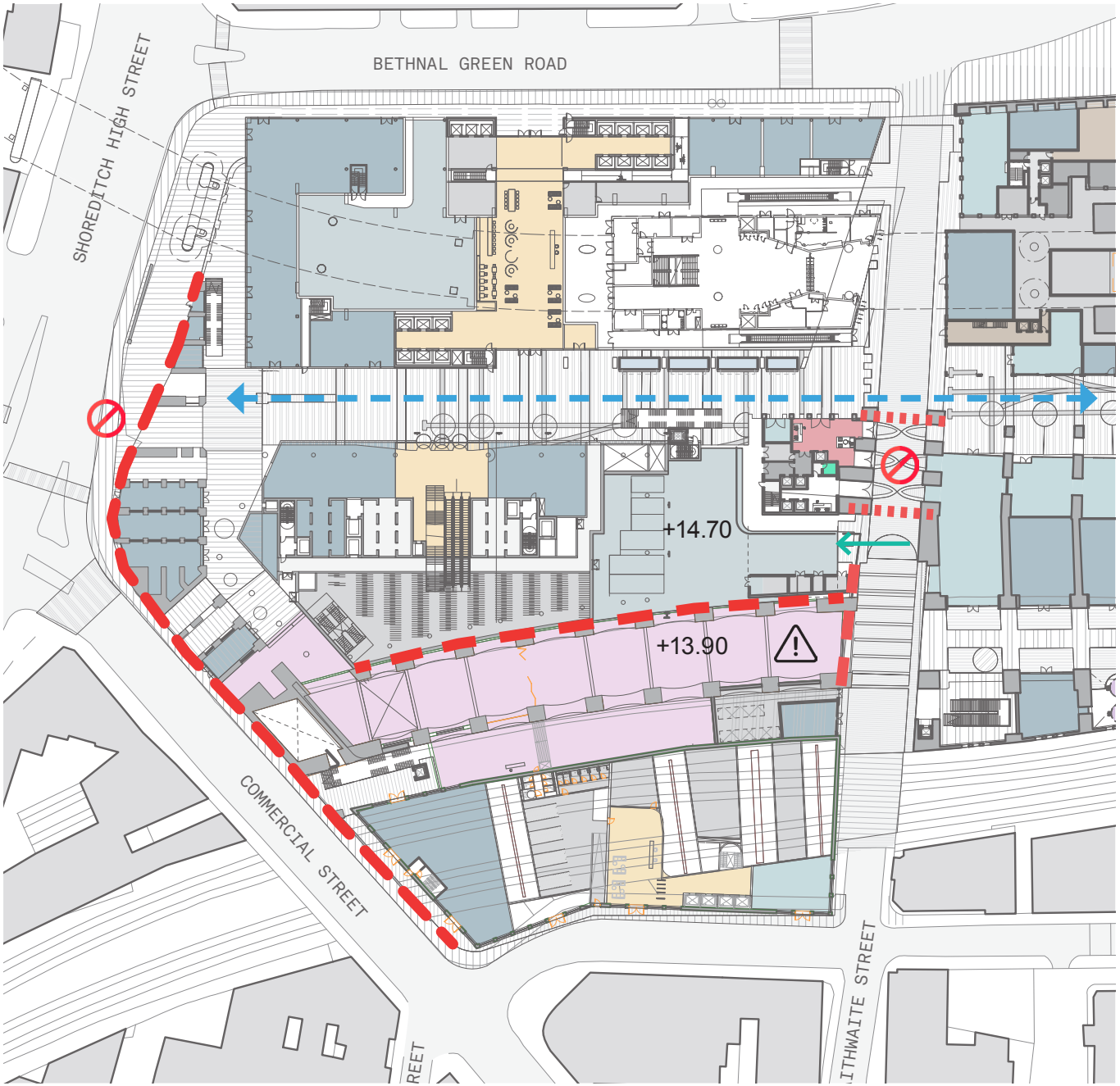


Fig 3.6.7: Plan diagram showing restrictions to access for serving arrangement

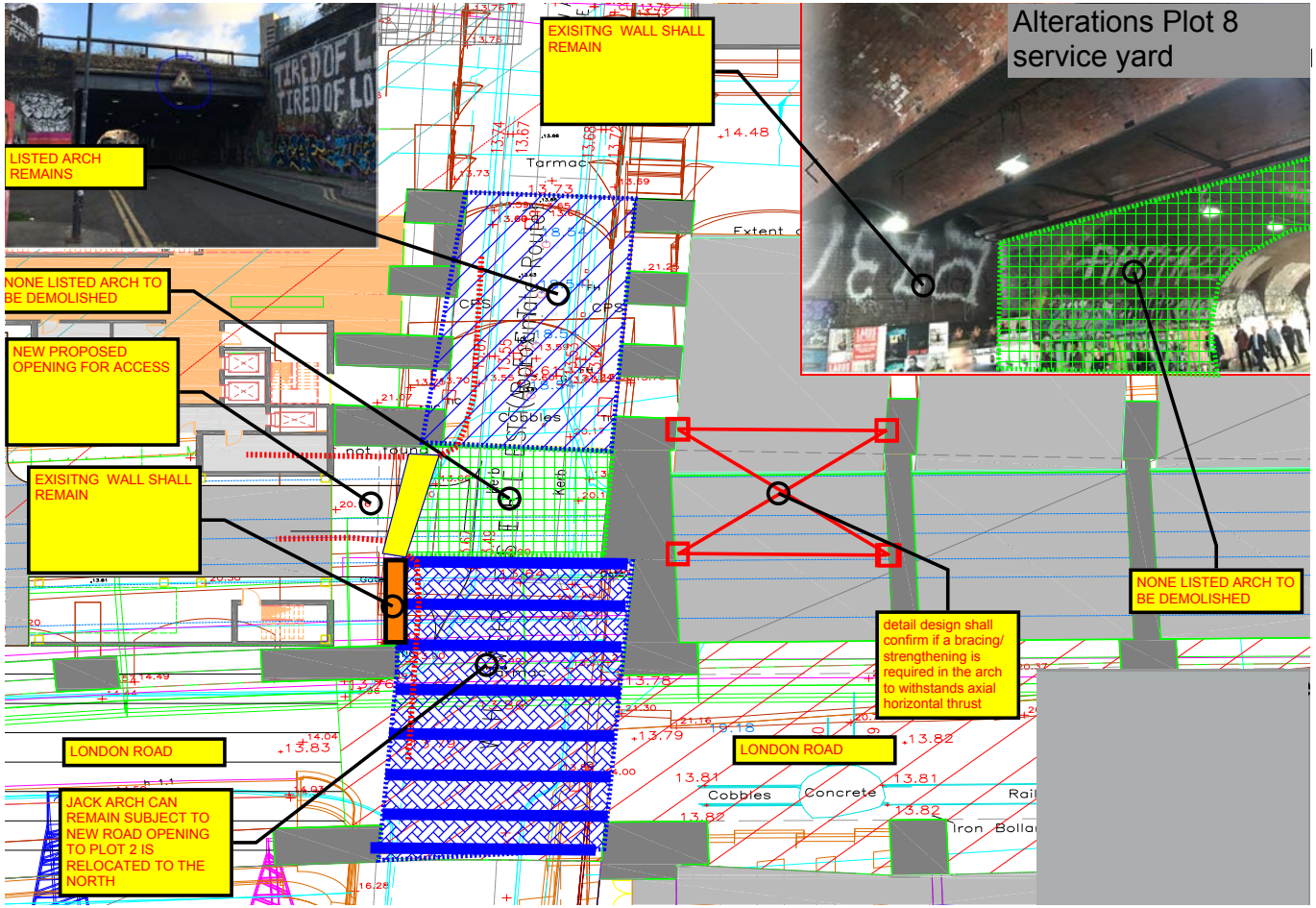


Fig 3.6.8: Plan indicating structural strategy to listed retained and demolished non-listed

Fig 3.6.9: Photo of the non-listed barrel vault c.2012

Fig 3.6.10: Clear demarcation in brickwork between the two periods of vault

3.6.11.8 Prior to the removal of the non-listed barrel-vaulted arch a temporary braced frame will need to be constructed in the last arch east of Wheler Street to resist any potential horizontal thrust due to the removal of the jack arch.

3.6.11.9 A new replacement bridge decked structure will be constructed above Wheler Street to replace the removed non-listed arch.

3.6.11.10 The new bridging structure is likely to be formed in either a series of steel beams spanning from a new reinforced concrete wall east of Wheler Street to a new supporting structure West of Wheeler Street within building Plot 8 or a series of precast concrete planks / beams.

3.6.11.11 Arched concrete in Ils between the steel beam option to replicate the jack arches could be adopted although a concrete or steel concrete encased structure would provide better corrosion protection / durability.

3.6.11.12 The new deck over Wheler Street will be designed to restrain the arches allowing the temporary props in the arch to be removed once the new bridging structure is in place.

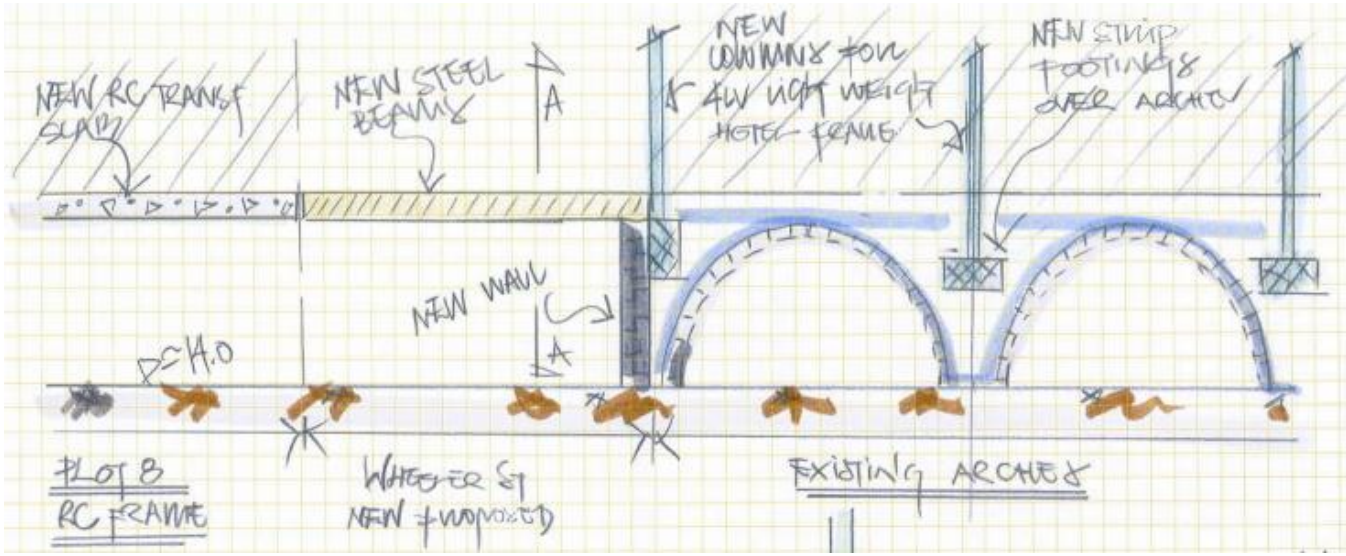


Fig 3.6.11: Section through Wheler Street indicating new wall to the east and new decked structure over the street

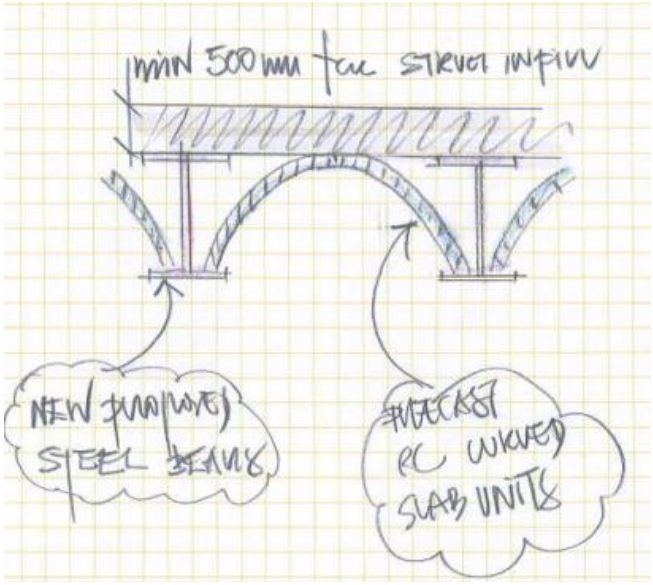


Fig 3.6.12: Indicative section through new decked structure over street

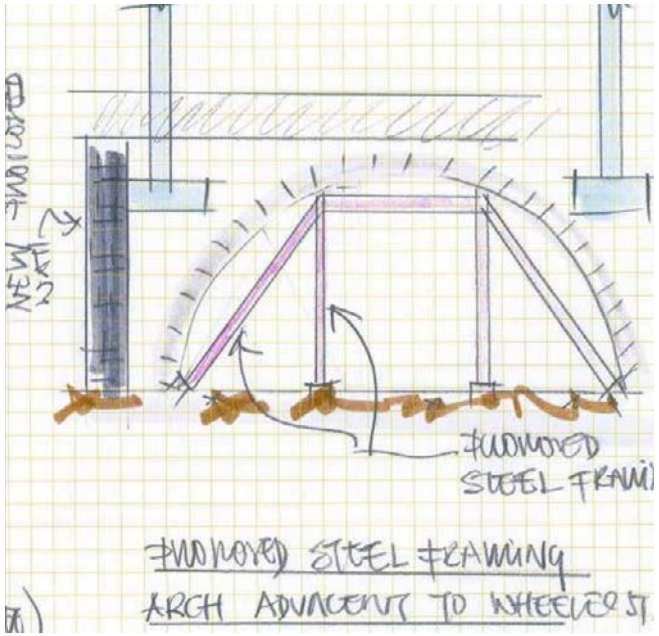
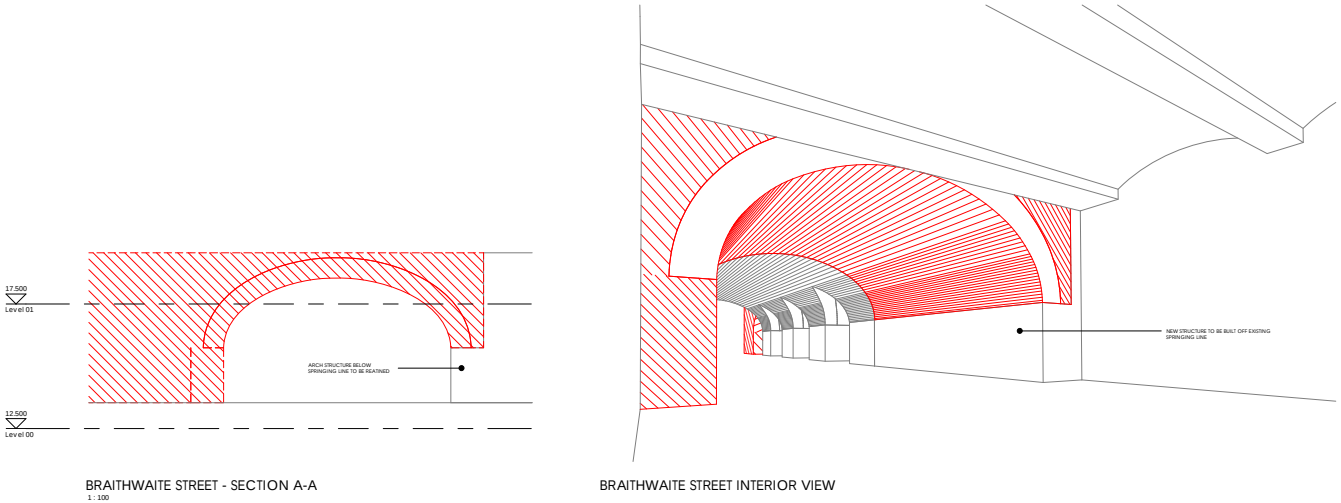
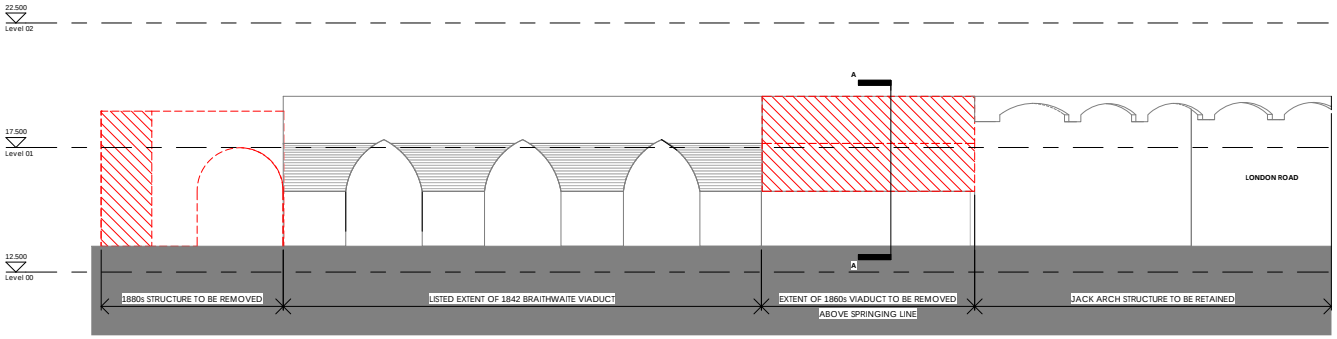


Fig 3.6.13: Proposed temporary steel framing to resist any potential thrust

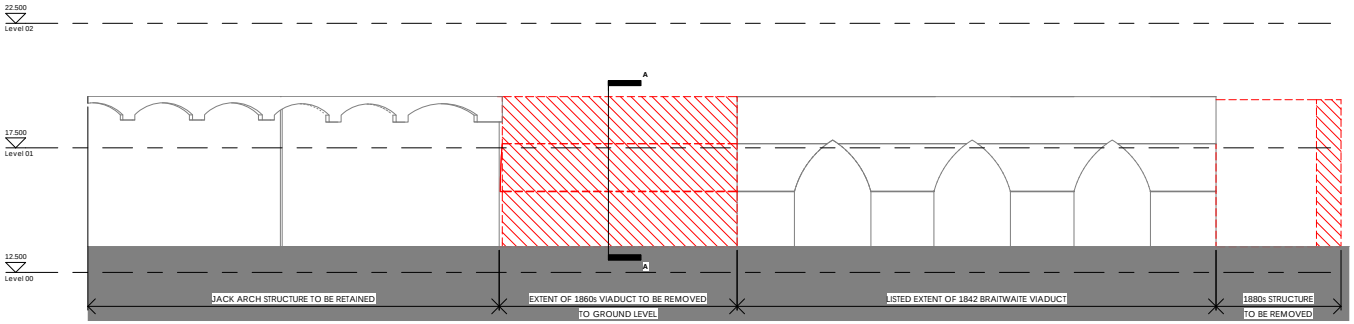


BRAITHWAITE STREET - SECTION A-A
1 : 100

BRAITHWAITE STREET INTERIOR VIEW

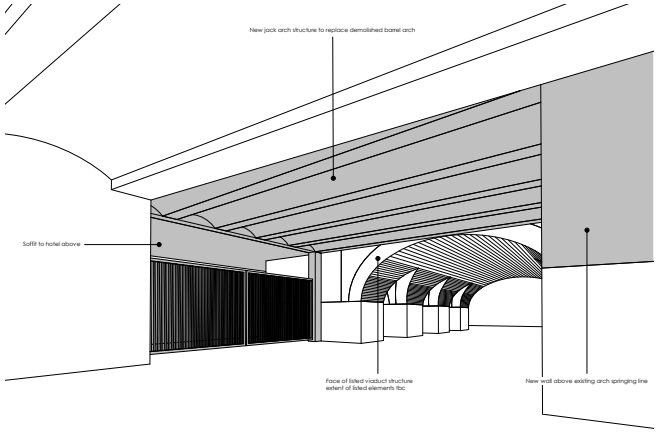


BRAITHWAITE STREET ELEVATION 1
1 : 100



BRAITHWAITE STREET ELEVATION 2
1 : 100

Fig 3.6.14: Illustration of area to be demolished



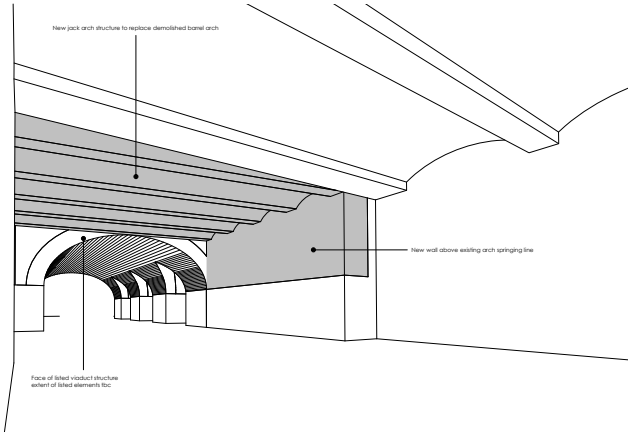


Fig 3.6.15: Illustration of proposed new structure

3.6.12 Jack Arch Structures Over London Road

3.6.12.1 Above London road and the SLT a series of steel and brick jack arches span across the line at London Road level and at Park level. The condition of the Jack Arch structure is poor as previously reported by Alan Baxter's in their reports of 2009 & 2013.

3.6.12.2 The steelwork to the jack arches at the upper and lower levels are heavily corroded and a number are likely to have to be replaced. Alan Baxter in their report of 2009 proposed a possible solution where the existing steel beams remain in place and are hung from a new reinforced concrete structure installed above the beams.

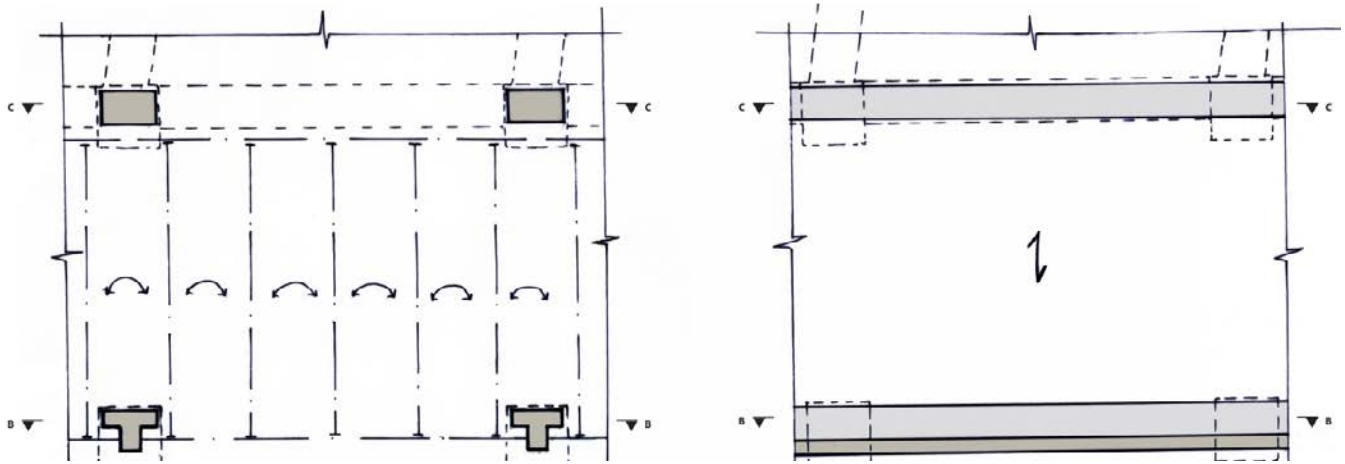


Fig 3.6.16: Existing jack arch deck with proposed support locations for new concrete deck

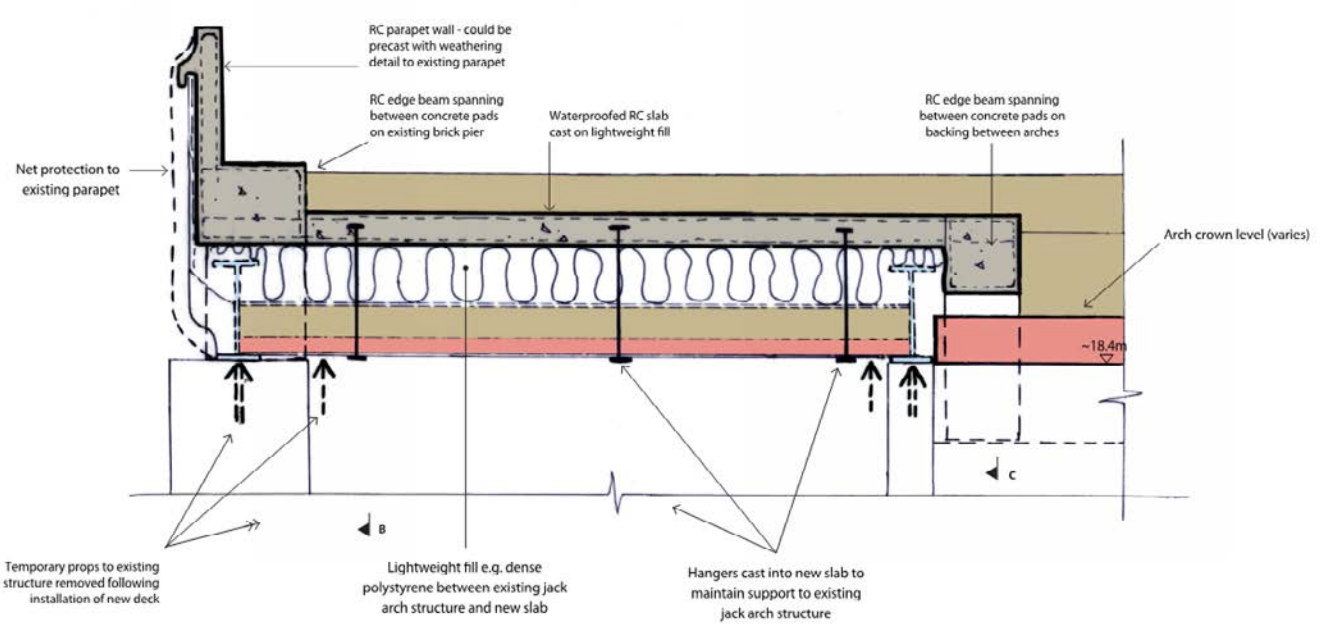


Fig 3.6.17: Cross section through proposed jack arch over decking

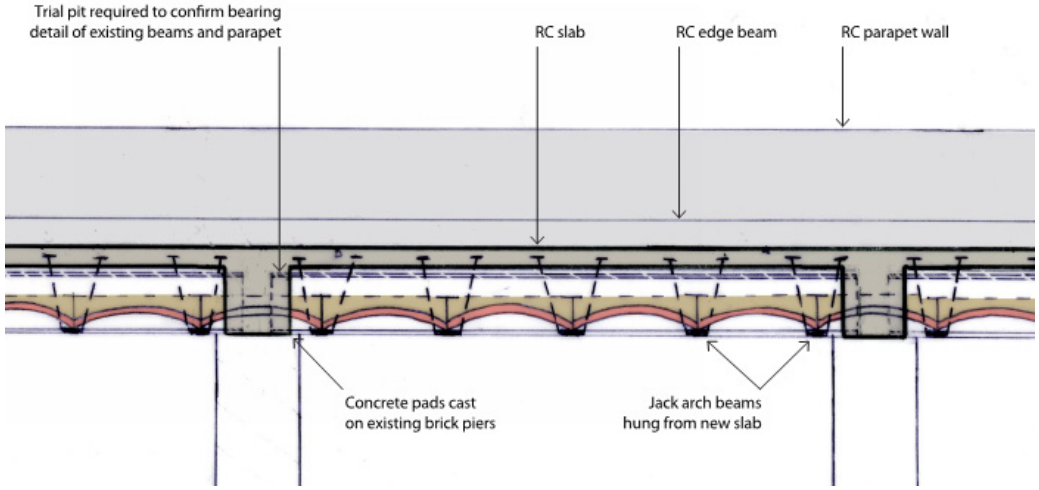


Fig 3.6.18: Longitudinal section through proposed jack arch over decking

Fig 3.6.19: Existing view of jack arches forming the lid to London Road (2013)

3.6.13 Future Surveys and Investigative Works

3.6.13.1 Further topographical surveys are currently taking place between 8th to 18th Feb 2019 of the following areas:

- Western Arches G1 to G9, V1 & V2 (arches to Commercia Street and Oriel structures)
- External Roadways
- Braithwaite Arches

3.6.13.2 Whilst the topographical surveys are taking place, WSP will undertake visual inspections of those areas accessible to verify if any of the brick / jack arch structures have signi cantly deteriorated over the past 6 years compared to the Alan Baxter 2103 condition survey.

3.6.13.3 Post planning, prior RIBA Stage 3 Design site wide intrusive works will need to be undertaken which are likely to comprise but not limited to:

- Trial pits to con rm existing arch / viaduct crown (extrados) levels
- Trial pits to con rm existing arch foundations and arch backing level where either a new building is to be built over the arches or alterations to the arches are required.
- Bricks and mortar sampling and testing to assess strength.
- Chloride/carbonation tests and concrete strength tests to assist con rmation of extent of damage to buried structural members

3.6.14 Future Survey & Investigative Works

3.6.14.1 Further topographical surveys and visual inspections were undertaken between 8th to 18th Feb 2019 of the following areas

- Western Arches G1 to G9, V1 & V2
- External Roadways
- Braithwaite Arches

3.6.15 WSP under took a visual inspection of those areas accessible to verify if any of the brick / jack arch structures had signi cantly deteriorated over the past 6 years compared to the Alan Baxter 2013 condition survey.

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- Bricks and mortar sampling and testing to assess strength.
- Chloride/carbonation tests and concrete strength tests to assist con rmation of extent of damage to buried structural members

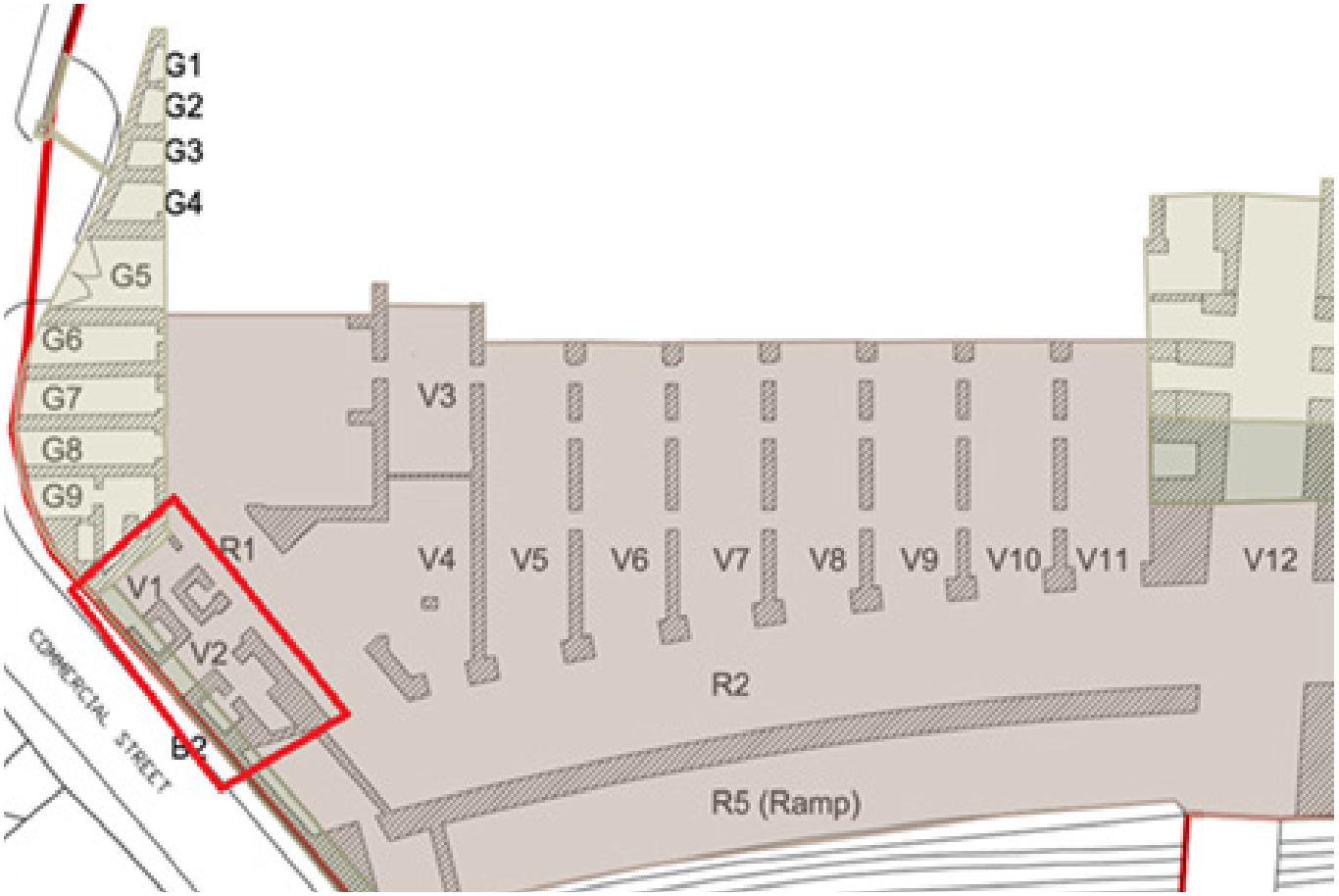


Fig 3.6.20: Extent of survey in western arches

4.0 NEW PROPOSALS

4.1 THE ORIEL

4.1.1 Context

4.1.1.1 The Oriel gateway sits at the western edge of The Goodsyard site fronting onto Shoreditch High Street. This collectively includes some of the site's key historic features; the Oriel, forecourt walls, two listed gates, gateposts and winding mechanism within adjacent wall. All of the Oriel Gateway structures have Grade II listed status.

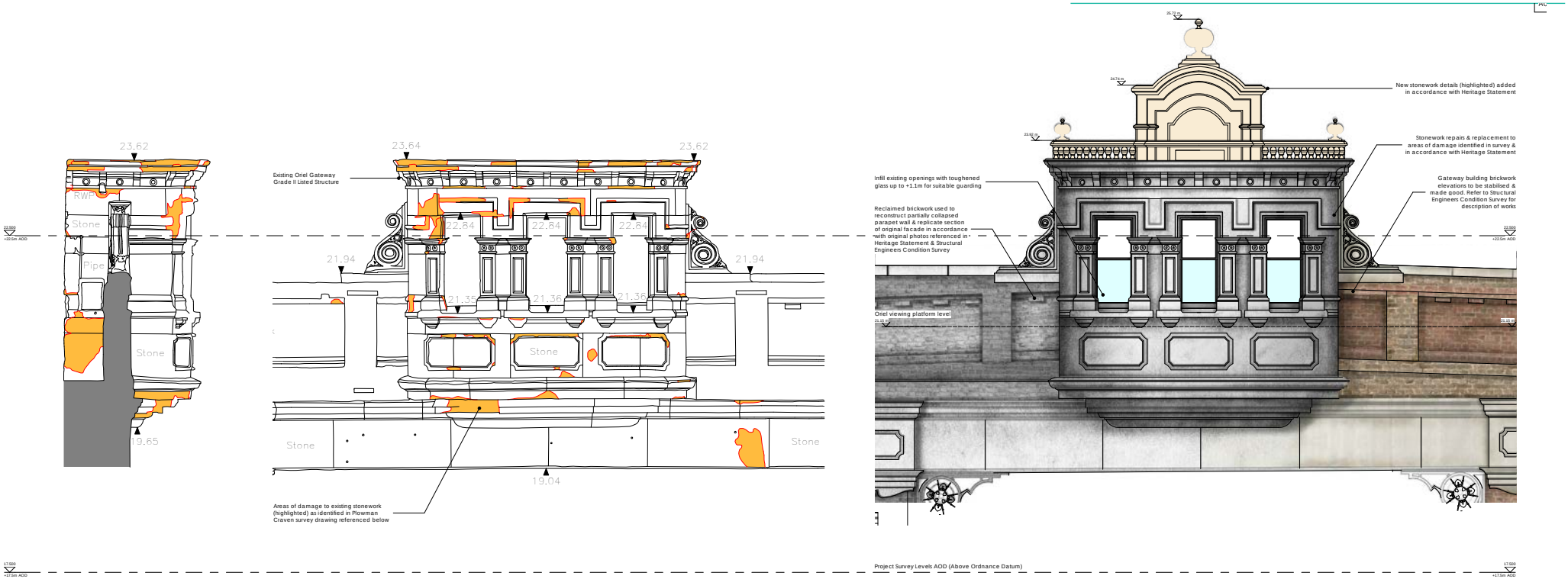
4.1.1.2 The unique character of the historic arches and the curved frontage of the landmark Oriel Gateway play a signi cant role in delivering the retail strategy vision for new public reuse in the historic fabric.

4.1.1.3 The remaining existing structures of the Oriel Gateway were built during the 1870s, when Bishopsgate Station terminus was transformed into the Goods Yard, and collectively formed the Western Gateway. These historic features provide a unique opportunity to celebrate the site's heritage and form an impressive gateway into the new development.

4.1.1.4 The Oriel feature, recognised as a former weigh bridge office, is a prominent moulded stone feature projecting out from the top of the gateway wall. Over the years it has lost some of its crowning stonework detailing. It is proposed that these details are reinstated as part of the restoration works proposed in the Listed Building Application. The Oriel is currently hoarded for protection.

4.1.1.5 Figure 4.1.2 shows an intended restoration drawing to be submitted as part of the listed building application.

Fig 4.1.1: Artists illustration of the restored gateway threshold to the site



3 **Plot 7A - Existing Oriel Elevation Side**
1 : 20

1 **Plot 7A - Existing Oriel Elevation Front**
1 : 20

2 **Plot 7A - Proposed Oriel Elevation**
1 : 20

Existing Photos
Views of Oriel Structure from Shoreditch Highstreet

Archive Photo
Oriel Structure view from Shoreditch Highstreet (circa 1924)

NOTE:
REFER TO SPACE HUB DRAWINGS FOR SITE-WIDE LEVELS, PUBLIC REALM & LANDSCAPING

REFER TO PLOWMAN CRAVEN SURVEY DRAWINGS:
15532-0108-04 (A) - Oriel Drawings

FOR DETAIL OF LISTED STRUCTURES REFER TO:
KMH HERITAGE STATEMENT & **ALAN BAXTER** CONDITION SURVEY

Fig 4.1.2: Proposed Oriel Bay restoration intent drawing

Fig 4.1.3: Proposed Landscape plan: Ground Level

Fig 4.2.1: Existing patina: cobbles and rails

Fig 4.2.2: Existing turntables on London Road

4.2 PUBLIC REALM

4.2.1 Ground Level

4.2.1.1 Levels Strategy

4.2.1.1.1 Creating an inclusive environment is a key consideration within the design proposals. The existing land rises gently from east to west and also from south to north. The level di erence in both instances is circa 1 metre in height.

4.2.1.1.2 Buildings are set at levels to coordinate with this and create a ground level public realm that is free of steps and ramps throughout.

4.2.1.1.3 Existing levels are to be retained at site boundary and interfaces with all existing historic structures

4.2.1.2 Materials Strategy

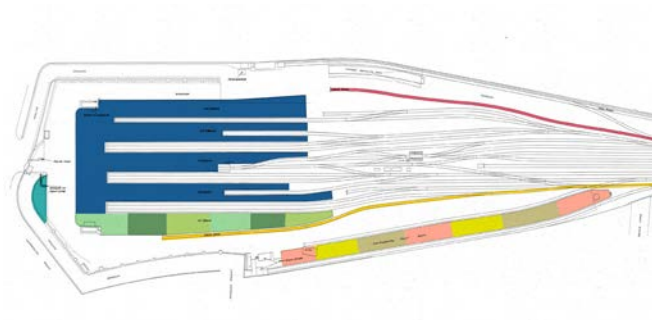
4.2.1.2.1 The ground level public realm celebrates the unique culture of Shoreditch, whilst referencing historic street patterns, the old Shoreditch Terminus, and the Bishopsgate Goods Yard.

4.2.1.2.2 Inspired by the textile tradition of the area, the public realm 'weaves ' various references and narratives together. The 'warp' follows the main routes of circulation; the weft brings more intricate textures, related to the speci c spaces and connections. The chosen textures derive from the materials found in the local area plus more allegorical elements that relate to the history of the place.

4.2.1.2.3 The tapestry includes the restoration and re-use of areas where historic materials remain in place, primarily on London Road and Braithwaite Street. The historical narrative within the remainder of the site is to be created re-using the existing granite setts and other materials from the site, supplemented where appropriate with additional new materials such as granite setts, yorkstone and brick paving.

4.2.1.2.4 Where existing paving materials are re-used they are to be re-laid to create a safe and trip-free surface for all users

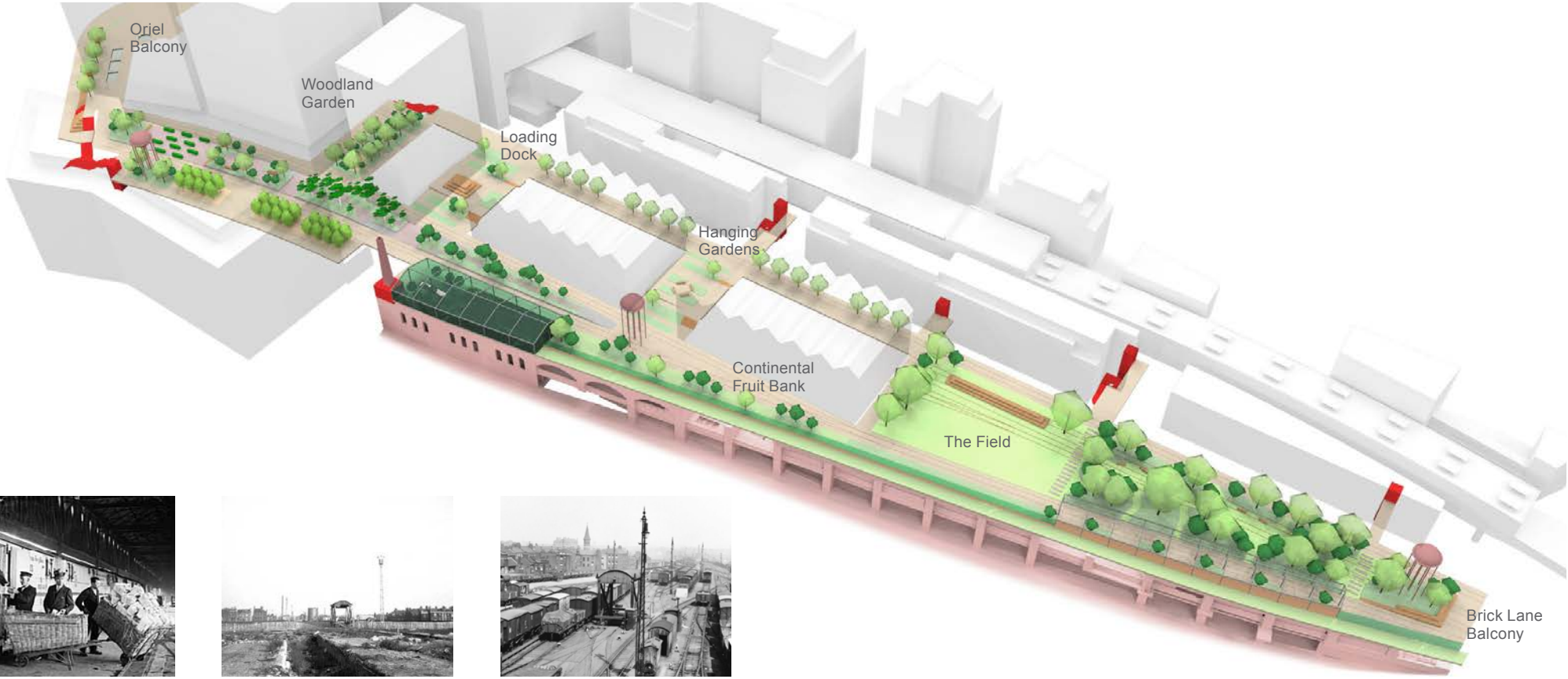
4.2.1.2.5 New materials may include steel and concrete as complementary to the retained historic structures that are primarily of brick.



The Platforms - 1890s

Character areas

Illustrative plan



Overview

Continental Fruit Bank

Loading dock - Hydraulic hoist

The Field

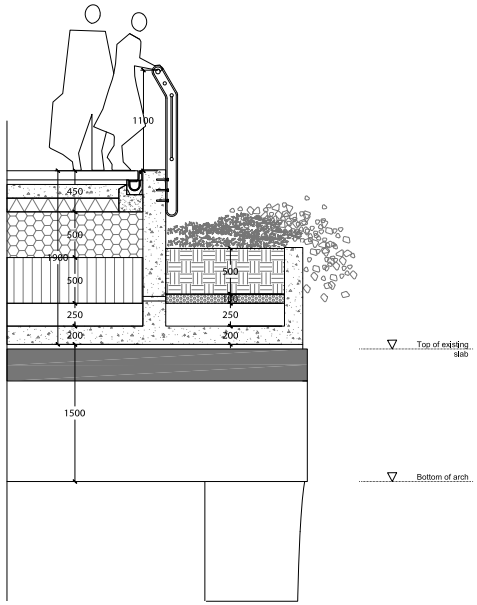


Fig 4.2.3: Proposed north edge detail to the Braithwaite Arches

Fig 4.2.4: Artists impression of proposed edge detail

4.2.2 Platform Level

4.2.2.1 Attenuation

4.2.2.1.1 Signi cant volumes are required for water attenuation across the site. These are provided through implementation of blue roofs on buildings and below the hard and soft landscape nishes across the full extent of The Platform Level where possible.

4.2.2.1.2 As part of the site wide water management strategy water will also be collected in a series of water towers to be used to supplement the required irrigation for the gardens.

4.2.2.1.3 In order to minimise surface water run-o nd reduce site attenuation requirements areas of hard surfacing are minimised where possible to create a permeable landscape.

4.2.2.2 Landscaping

4.2.2.2.1 The robust engineering of historic structure is able to support a substantial and varied planted landscape environment for both visual amenity and ecological enhancement.

4.2.2.2.2 The design proposals provide appropriate growing conditions (soil depths/soil volumes/ irrigation/drainage) for a robust and signi cant landscape that is to evoke a sense of nature, surprise and enhance biodiversity value of the site. The planting is to include trees of varying scale, hedge, shrub, climbing plants, green walls, groundcover planting, community growing beds, lawn, wild ower, herbaceous planting and biodiverse roof planting

4.2.2.3 Edge Condition

4.2.2.3.1 Balustrading is required to provide safe and inclusive access at stairways, bridges and edges to The Platform Level.

4.2.2.3.2 Balustrading at interfaces with retained heritage elements is to minimise impact on existing structure and is to be of appropriate design and character.

4.2.2.3.3 Planting included adjacent to and above retained heritage elements and is to be accommodated within self-contained planter enclosures.

4.2.2.4 Approach to Found Historic Fabric

4.2.2.4.1 Existing heritage structures including perimeter wall and vaults are in varying state of completeness, with some part ‘crumbling’.

4.2.2.4.2 The design intent is to avoid sanitising the character of the heritage by over restoring to pristine original condition, rather the intent is to sensitively repair and make good with minimal intervention and so retain the existing character where practicable and possible.

4.3 APPROACH TO SHOPFRONTS

4.3.1 The team identi ed four needs when developing the shopfront designs:

- To create engaging, double-sided retail streets open to the environment
- To ensure that retail frontages have visible presence
- To encourage public interaction with the historic structures
- To provide a variety of unit sizes and retail environments

4.3.2 Given the length, scale and historic importance of the listed Viaduct and accompanying arches, the team agreed that an uncluttered painted steel shopfront system incorporating all signage and lighting would both respect the historic setting as well as tie the retail street together. This will be considered the ‘base scheme’ for the Listed Building Application.

4.3.3 The three principle options proposed relate to the appropriate use class -

- Option A1 glazed crittal shopfront (shop/retail)
- Option A1 glazed crittal shopfront with setback door (café)
- Option A3 glazed crittal shopfront (restaurant)

4.3.4 Relationship between Shopfront and Heritage

4.3.4.1 The relationship of the shopfront within the arch is important both to achieve a sensitive architectural intervention, but also to create tenant visibility on the street.

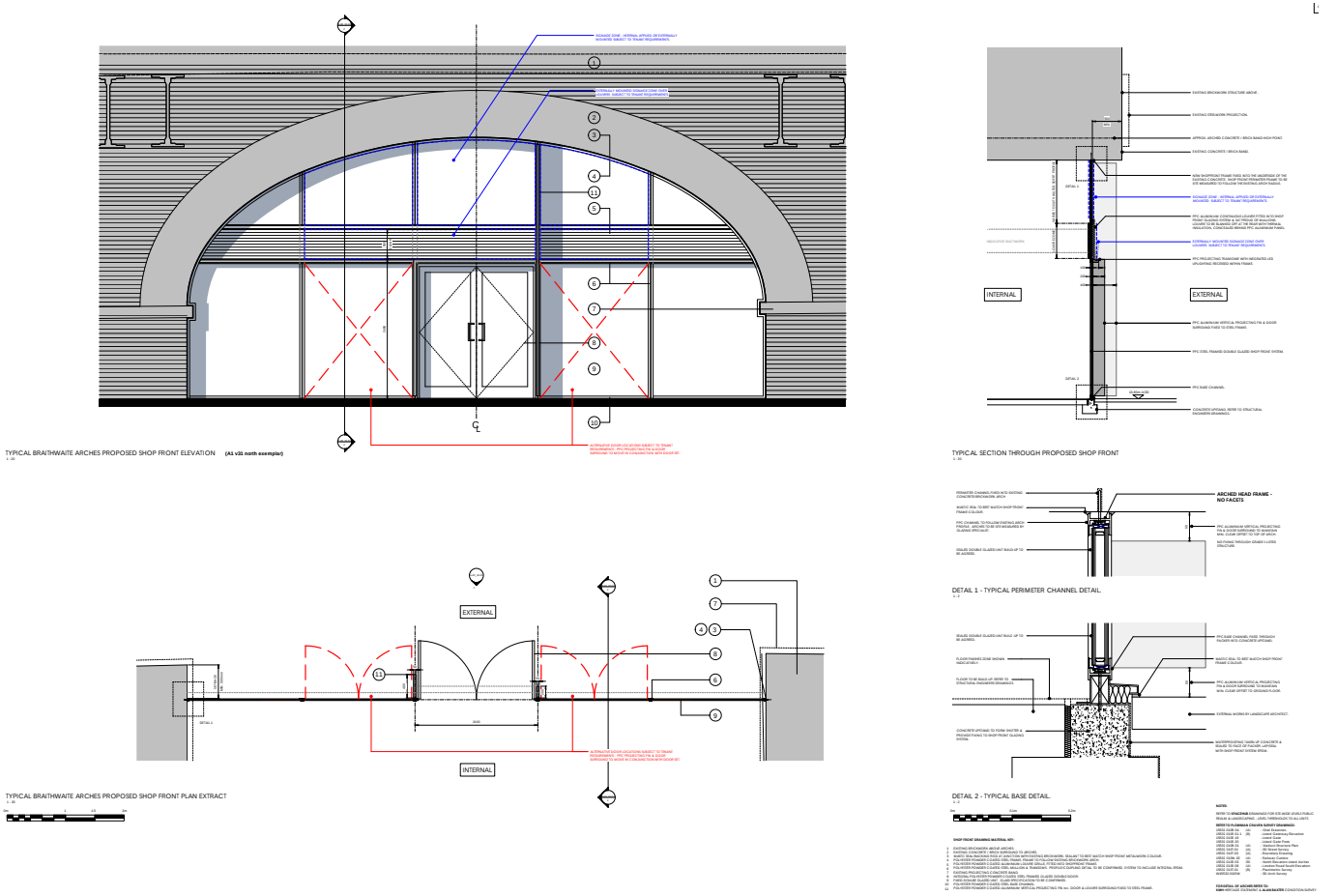


Fig 4.3.1: Example of proposed shop front to Braithwaite Arches

Fig 4.3.2: Artists impression showing arches with hotel building over

Fig 4.3.3: Artists impression inset shop frontages on Middle Road

Fig 4.3.4: Artists impression of shop frontages within vaults

4.3.4.2 Shopfront ush with the arches are not proposed and will not be supported. Shopfronts which sit proud of the arches between masonry piers are not proposed and will not be supported.

4.3.4.3 It is proposed that shopfronts are generally recessed 500mm back from the front face of the arch, although in speci c locations, the retail frontage is set deeper, beyond th rst cross vault, to allow greater public realm at key nodal positions along the street.

4.3.4.4 Signage plays an important part in communicating the range and quality of occupiers in a streetscape. Tenants will be encouraged to carefully consider their own signage and window displays, with guidance on good practice provided in the Tenant Design Guide.

4.3.4.5 Designated signage and lighting zones will ensure visual clarity, balancing the need to provid exibility for the tenant whilst working harmoniously with the historic fabric.

4.3.4.6 Shopfront types have been developed with in-buil exibility provided by generous doorways, signage and lighting zones to communicate design standards.

4.3.4.7 As discussed and agreed with the Boroughs, this provides a mechanism for alternative designs to be submitted by tenants under Condition for large scale details, avoiding the need for additional individual Listed Building Applications for each tenancy.

4.4 BOILER ROOM

4.4.1 The boiler room was located on the east side of Wheler Street and was characterised by a brick chimney which is proposed to be re-instated.

4.4.2 The proposal seeks to install an new public stair and lift connecting this important public node on Braithwaite Street to platform level.

4.4.3 At platform level, a new single storey glazed cafe will sit in the location of the former continental fruit bank store, with a canopy extending out over the head of the staircase.

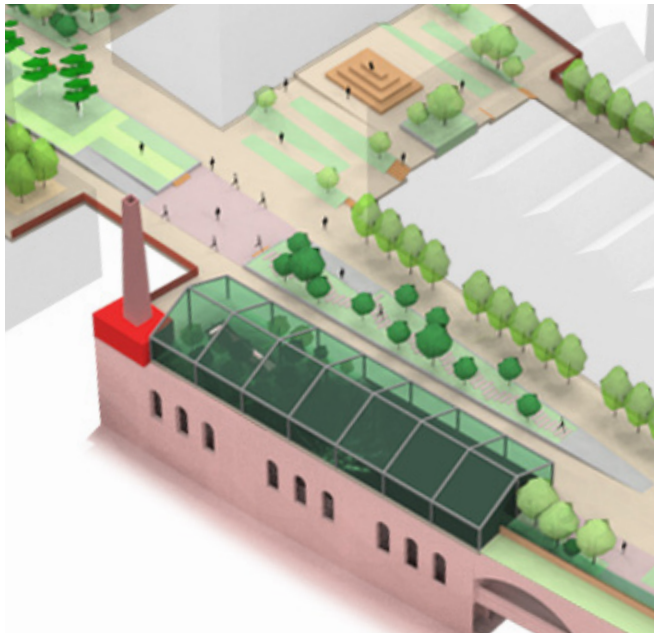
4.4.4 The Accumulator

4.4.5 The largest and most signi cant piece of existing engineering that remains on site is the Hydraulic Accumulator (HA) within arch V36 on the south side of London Road.

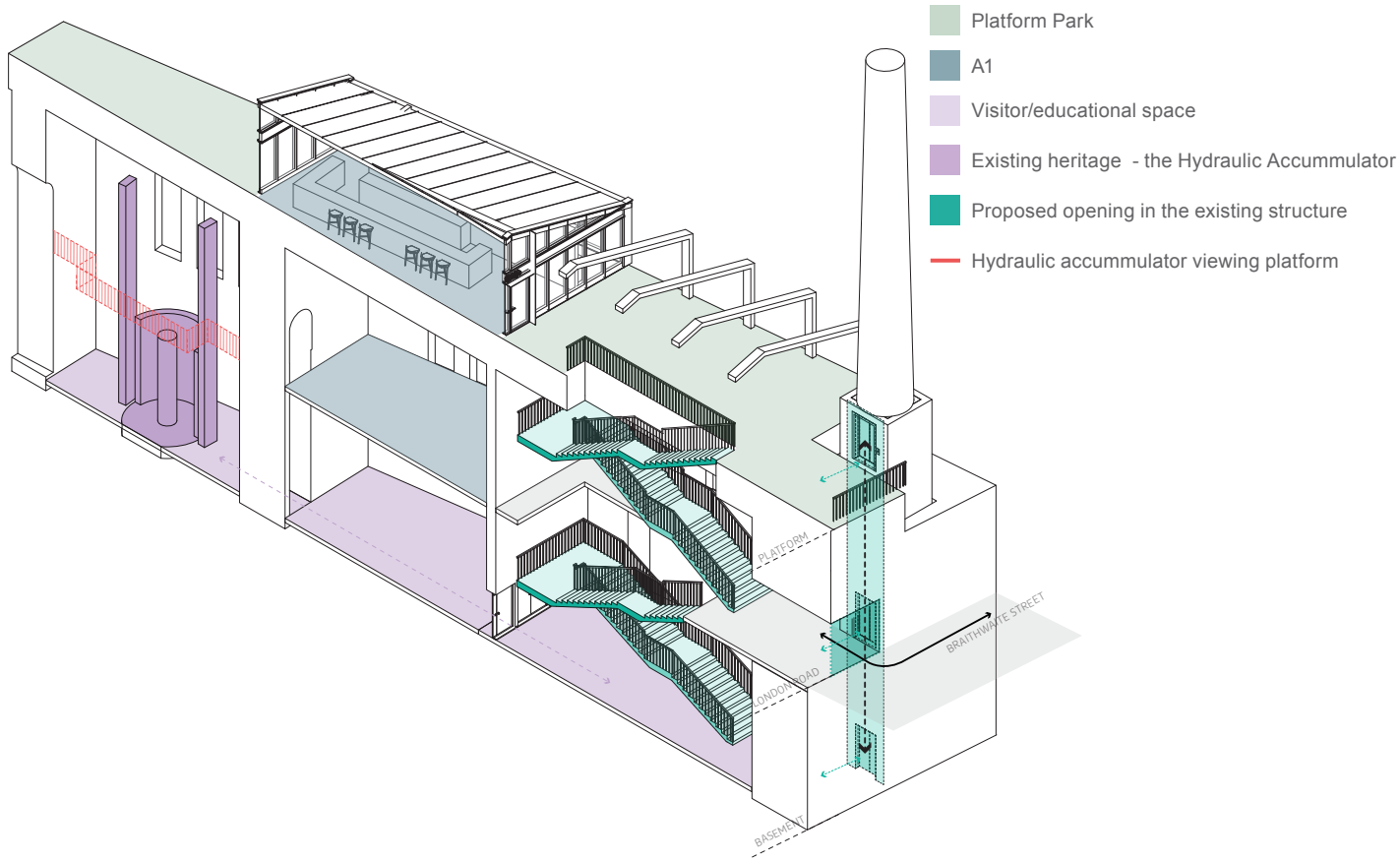
4.4.6 The hydraulic accumulator sits within the old Boiler Room, a double height volume (track level-park), and in the 19th century would have been responsible for providing hydraulic pressure to power lifts and hoists throughout The Goodsyard. Whilst not listed, the hydraulic accumulator is a unique and important fragment of the site's rich industrial heritage. Therefore the team strongly believes that the proposal must celebrate the engineering and allow for visibility of the structure from London Road.

4.4.7 It is proposed that the hydraulic accumulator is restored and opened to the public as a visitor attraction, with a new visitor platform proposed o ondon Road. This will be supported by a designated education and visitor o ering, located in the adjoining spaces at basement level.

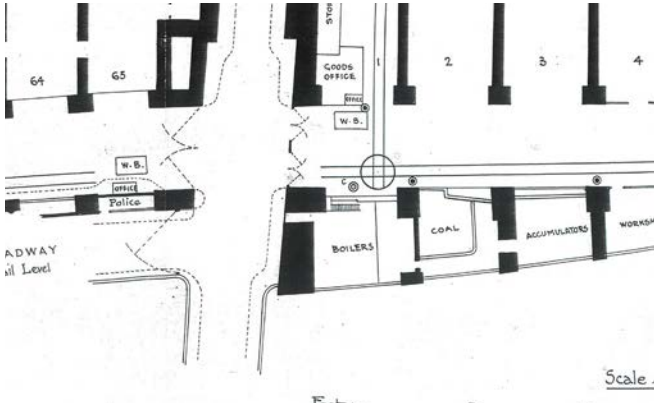
Fig 4.3.5: Photograph of the existing Accumulator double height area showing current condition c.2018



Platform level stair and lift arrangement



Cut away section showing stair, boiler room and accumulator



Layout 1918: The Boiler Room & Hydraulic Accumulator

Illustrative plan

The Chimney on the corner of Braithwaite Street

5.0 APPENDIX

5.1 DRAFT CONDITIONS (2015)

5.1.1 LB Hackney Draft Listed Building Consent Conditions (As set out in Commitee Report December 2015)

5.1.1.1 1) Pre-commencement approval and implementation of scheme to protect the Oriel Gate during construction;

5.1.1.2 2) Pre-commencement approval and implementation of plans and drawings which, notwithstanding the approved drawings, detail a scheme for the buil nish of the southern edge of the Oriel Gate in matching brickwork, with relocation of the proposed roof access stairs to provide a more appropriate plan form;

5.1.1.3 3) Pre-commencement approval and implementation of further plans and drawings which, notwithstanding the approved drawings, detail a scheme for matching shopfronts to the west face of G7 to G9;

5.1.1.4 4) Pre-commencement approval and implementation of further plans and drawings which, notwithstanding the approved drawings, detail a scheme for a brick or glazed perimeter to the roof of the Oriel Gate.

5.1.1.5 5) Pre-commencement approval and implementation of further plans and drawings which, notwithstanding the approved drawings, detail a scheme for the use, refurbishment and alterations and extensions to Vaults G1 to G4.

5.1.1.6 6) Pre-commencement approval and implementation of further plans and drawings which, notwithstanding the approved drawings, detail a scheme for one over one pane, single glazed, dark painted timber sash windows within the Oriel Gate itself.

5.1.1.7 7) Pre-commencement approval and implementation of plans and details for the reinstatement of the stonework upper elements (the show of arms and balustrade parapet visible on historical imagery) above the west face of the Oriel Gate at roof level.

5.1.1.8 8) Pre-commencement condition requiring further archival research to be undertaken, together with opening up works of the current hoarding, to ascertain the nature and extent of survival of the original enclosure of the east elevation of the roof level part of the Oriel Gate. This condition should require the pre-commencement provision and approval of plans and details for the provision of a suitable enclosure to the structure.

5.1.1.9 9) A pre-commencement condition requiring further detail including a full survey of the structure, with colour coded drawings of the brickwork indicating the nature and extent of any brickwork and other repairs at the Oriel Gate. The condition should also require the pre-commencement provision and approval of a method statement for brick repair, brick replacement and the pointing material and method, together with pre-commencement approval of proposed replacement bricks, with the pre-commencement submission and approval of physical brick samples and a 1 metre square sample panel of the pointing material and method.

5.1.1.10 10) A pre-commencement condition requiring a report from a suitably quali ed and experienced person on the current condition of the metal double gates within the Oriel Gate, the large single gate and the associated metal pier to the west of the Oriel Gate and the associated winding mechanism and other metal components. This report should indicate their condition and any proposed works of repair, renovation and enhancement and the proposed materials and methods to be used and the proposed paint or othe nish to be applied. The condition should require that further detail of the proposed works should be provided and approved prior to commencement. Further detail should be provided as part of this condition on any proposals for the use of the gates and whether and how they will b xed open or closed. The condition should require that further detail of the proposed works should be provided and approved prior to commencement.

5.1.1.11 11) A pre-commencement condition requiring the provision and approval of further plans and drawings which, notwithstanding the approved drawings, will propose a scheme for the retention and functional and meaningful linkage of the forecourt wall (and its associated winding mechanism) to the west of the Oriel Gate with the Oriel Gate itself and the rest of the proposed development.

5.1.1.12 12) A pre-commencement condition requiring the provision and approval of a full photographic and textual recording to Historic England Level 3 of any Undesignated Heritage Assets to be demolished, including particularly, but not limited to, Vaults V1 to V11, Roadways R1 and R2 and Roadway R5. The recording should be in line with Historic England guidance document Understanding Historic Buildings: A Guide to Good Recording Practice (English Heritage, 2006). The recording should be at Level 3 as described in Paragraph 5.3 and the record preserved as described in Paragraphs 7.1 to 7.3 of that document.

5.1.2 LB Tower Hamlets Draft Listed Building Consent Conditions (As set out in Commitee Report December 2015)

5.1.2.1 1) Three year time limit.

5.1.2.2 2) Compliance with approved plans.

5.1.2.3 3) A method statement for the protection of the Heritage at Risk assets.

5.1.2.4 4) All new external and internal works and nishes and works of making good shall match the existing original work adjacent in respect of materials used, detailed execution an nished appearance, except where indicated otherwise on the drawings hereby approved or as required by any condition(s) attached to this consent.

5.1.2.5 5) Full details of the openings to be made within the Braithwaite Viaduct and the way in which these openings are to b nished.

5.1.2.6 6) Proposals for the cleaning and repointing of brickwork/masonry shall be submitted to and approved by the local planning authority before prior to the commencement of the relevant works and the work shall be carried out in accordance with the details so approved.

5.1.2.7 7) Details of new staircase access to the park, including the opening and the staircase itself.

5.1.2.8 8) Details of the new opening through the wall to be created to access Brick Lane and create the new public square.

5.1.2.9 9) Details of all new shop fronts within the Braithwaite Viaduct including surrounds an t outs.

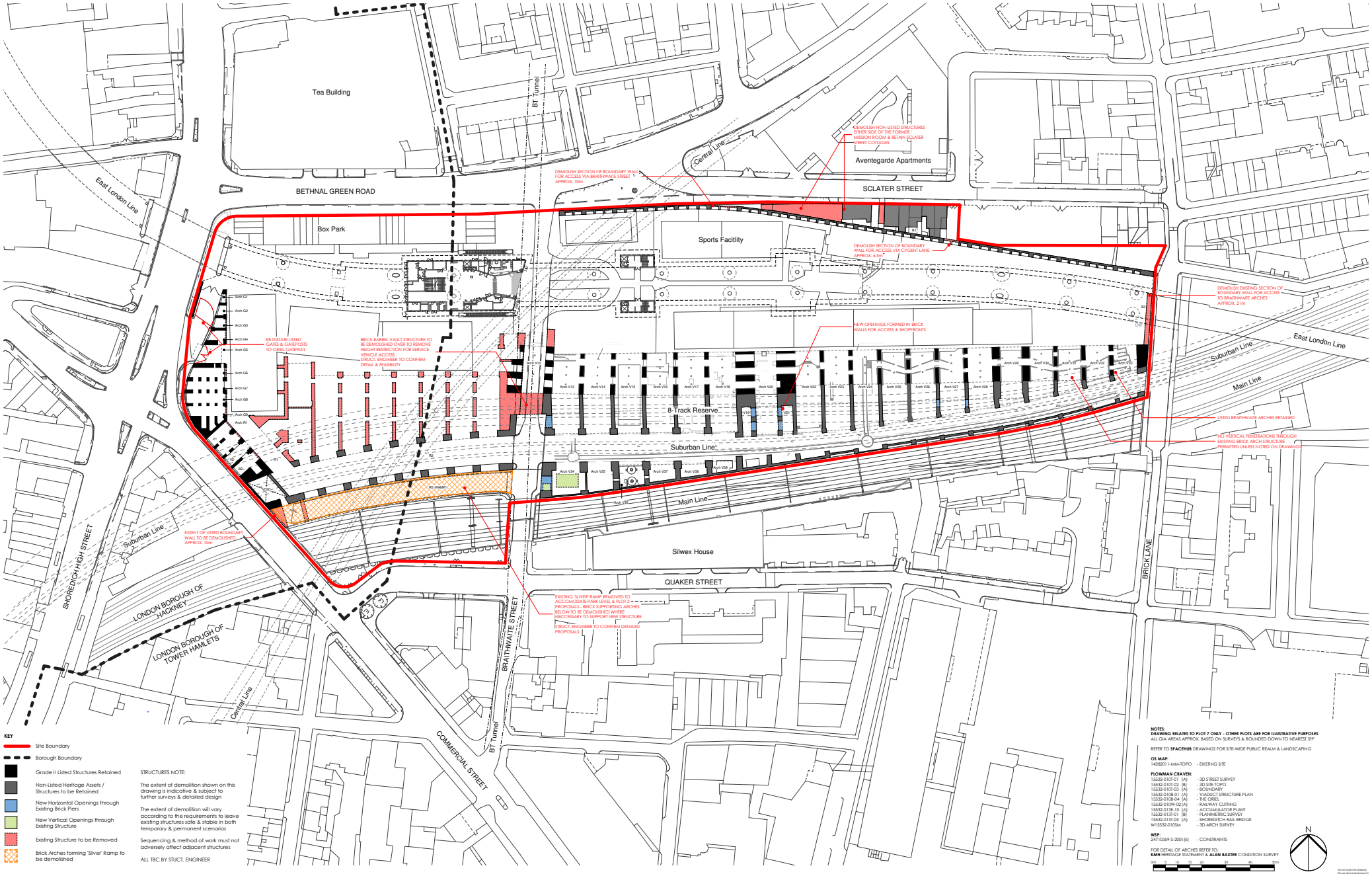
5.1.2.10 10) Details of th xing of new partitions.

5.1.2.11 11) Details of a signage strategy governing the location and size of signage within the shop fronts.

5.1.2.12 12) Details of the service corridor to the north of the Braithwaite Viaduct and how it adjoins the viaduct.

5.1.2.13 13) Details of provisions needed to meet Building Control requirements including acoustic treatments re protection measures, smoke curtain box and the service moat at viaduct level including and its appearance.

5.2 APPENDIX 2: DEMOLITION PLAN


Tea Building
BT Tunnel
BETHNAL GREEN ROAD
East London Line
Box Park
Central Line
Aventegarde Apartments
SCLATER STREET
Sports Facility
DEMOLISH SECTION OF BOUNDARY WALL FOR ACCESS VIA BRAITHWAITE STREET APPROX. 10m
DEMOLISH NON-LISTED STRUCTURES EITHER SIDE OF THE FORMER MISSION ROOM & RETAIN SCLATER STREET COTTAGES
DEMOLISH SECTION OF BOUNDARY WALL FOR ACCESS VIA CYGENT LANE APPROX. 4.5m
DEMOLISH EXISTING SECTION OF BOUNDARY WALL FOR ACCESS TO BRAITHWAITE ARCHES APPROX. 21m
RE-INSTATE LISTED GATES & GATEPOSTS TO ORIEL GATEWAY
BRICK BARREL VAULT STRUCTURE TO BE DEMOLISHED OVER TO REMOVE HEIGHT RESTRICTION FOR SERVICE VEHICLE ACCESS STRUCT. ENGINEER TO CONFIRM DETAIL & FEASIBILITY
NEW OPENINGS FORMED IN BRICK WALLS FOR ACCESS & SHOPFRONTS
8-Track Reserve
Suburban Line
Main Line
East London Line
LISTED BRAITHWAITE ARCHES RETAINED
NO VERTICAL PENETRATIONS THROUGH EXISTING BRICK ARCH STRUCTURE PERMITTED UNLESS NOTED ON DRAWINGS
Silwex House
QUAKER STREET
BRICK LANE
SHOREDITCH HIGH STREET
LONDON BOROUGH OF HACKNEY
LONDON BOROUGH OF TOWER HAMLETS
EXTENT OF LISTED BOUNDARY WALL TO BE DEMOLISHED APPROX. 10m
EXISTING 'SLIVER' RAMP REMOVED TO ACCOMODATE PARK LEVEL & PLOT 2 PROPOSALS - BRICK SUPPORTING ARCHES BELOW TO BE DEMOLISHED WHERE NECCESSARY TO SUPPORT NEW STRUCTURE STRUCT. ENGINEER TO CONFIRM DETAILED PROPOSALS
BRAITHWAITE STREET
COMMERCIAL STREET
KEY
Site Boundary
Borough Boundary
Grade II Listed Structures Retained
Non-Listed Heritage Assets / Structures to be Retained
New Horizontal Openings through Existing Brick Piers
New Vertical Openings through Existing Structure
Existing Structure to be Removed
Brick Arches forming 'Sliver' Ramp to be demolished
STRUCTURES NOTE:
The extent of demolition shown on this drawing is indicative & subject to further surveys & detailed design
The extent of demolition will vary according to the requirements to leave existing structures safe & stable in both temporary & permanent scenarios
Sequencing & method of work must not adversely affect adjacent structures
ALL TBC BY STUCT. ENGINEER
NOTES:
DRAWING RELATES TO PLOT 7 ONLY - OTHER PLOTS ARE FOR ILLUSTRATIVE PURPOSES
ALL GIA AREAS APPROX. BASED ON SURVEYS & ROUNDED DOWN TO NEAREST 5ft²
REFER TO SPACEHUB DRAWINGS FOR SITE-WIDE PUBLIC REALM & LANDSCAPING
OS MAP:
1428501-MM-TOPO - EXISTING SITE
PLOWMAN CRAVEN:
I.5532-0107-01 (A) - 3D STREET SURVEY
I.5532-0107-02 (B) - 3D SITE TOPO
I.5532-0107-03 (A) - BOUNDARY
I.5532-0108-01 (A) - VIADUCT STRUCTURE PLAN
I.5532-0108-04 (A) - THE ORIEL
I.5532-0109K-02 (A) - RAILWAY CUTTING
I.5532-0136-10 (A) - ACCUMULATOR PLANT
I.5532-0137-01 (B) - PLANIMETRIC SURVEY
I.5532-0131-05 (A) - SHOREDITCH RAIL BRIDGE
W15532-0105M - 3D ARCH SURVEY
WSP:
247103S9-S-2001(E) - CONSTRAINTS
FOR DETAIL OF ARCHES REFER TO:
KMH HERITAGE STATEMENT & ALAN BAXTER CONDITION SURVEY
N

ballymore.

Hammerson