BOW COMMON GASWORKS

MITIGATION HIERARCHY

JULY 2020
<table>
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<td>FOR PLANNING</td>
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Doc. Number: 0337-SEW-ZZ-RP-T-PLD002
This Mitigation Hierarchy document was prepared by Studio Egret West (SEW) on behalf of St William, during post-planning submission consultation. This document was produced in response to comments raised by the London Borough of Tower Hamlets' Biodiversity Officer and the Friends of Tower Hamlets Cemetery Park regarding the potential impacts to biodiversity.

The document describes the measures undertaken throughout the planning application process to avoid adverse impacts and illustrate where these have been unavoidable. Where this has been the case, the development proposals have aimed to minimise potential adverse effects and offset them by providing a significant gain in biodiversity on the subject site. These measures have been implemented with a commitment to enhancing borough-wide urban ecology, through the proposed creation of new habitats and a commitment to sustainable management processes appropriate to the green infrastructure recommended.
MITIGATION HIERARCHY

AVOIDANCE + MINIMISING IMPACT
HOUSING NEED

The current London Plan and adopted LBTH Local Plan (2020) identify a ten-year minimum housing supply target of 39,314 homes within Tower Hamlets over the period 2015-2025, which equates to a minimum requirement of 3,931 homes per annum. The LBTH adopted Local Plan (2020) states at paragraphs 9.2 and 9.3 that “the London Plan does not set out specific housing targets beyond 2025 but expects boroughs to ‘roll forward’ their annual target. The London Plan ten-year target, plus the annual rolled forward target, results in a housing supply target for the borough (2016-2031) of 58,965 homes. This target is greater than our objectively assessed need of 46,458 homes, reflecting the fact that the borough is expected to significantly contribute towards meeting London’s strategic housing need”.

SITE ALLOCATIONS

This pressure on housing delivery is also reflected by the Site’s allocation within the adopted Poplar Riverside Housing Zone designated by the Mayor of London, which is intended to increase housing delivery. Furthermore, the site is also located within the draft new London Plan ‘Poplar Riverside Opportunity Area’ which is identified for 9,000 homes and 3,000 jobs. Opportunity Areas are identified in the London Plan are the areas that will see the most significant change where housing capacity should be met and exceeded and boroughs are expected to clearly set out how they will encourage and deliver the growth potential of Opportunity Areas.

In accordance with borough’s strategies for delivering growth, LBTH has allocated the Bow Common Gas Works site within their adopted Local Plan (2020) for housing, employment, a secondary school and strategic open space as part of Site Allocation 2.1. The Site Allocation sets out a number of requirements for the Site alongside its primary objective to deliver residential led redevelopment. This includes the need for development to respond positively to the setting of the two conservation areas: Tower Hamlets Cemetery and Swaton Road and the local nature reserve, as well as the scale, height, massing and fine urban grain of the surrounding built environment. It also requires the delivery of 1ha of new open space, which is consolidated and designed to provide multi-functional leisure and recreational uses; improvements to the public realm with active site edges, specifically along Bow Common Lane and to provide active frontages along the railway to enhance the use and setting of the railway arches as a non-designated heritage asset. All of these requirements result in the proposed form of development being pushed out to the edges of the site in order to deliver a consolidated 1ha of open space that is accessible to all and provide active site edges and frontages along the railway. The proposed form of development therefore fully accords with planning policy requirements.

THE LOCAL PLAN & THE SUBMISSION

In relation to height, the adopted LBTH Local Plan 2020 (policy D-H6) sets out the requirements for tall buildings including being proportionate to their role, function and importance of the location in the local, borough-wide and London context; achieving exceptional architectural quality; enhancing the character and distinctiveness of an area without adversely affecting designated townscapes and landscapes; presenting a human scale of development at street level and comprise an attractive and legible streetscape and provide high quality private communal open space, play areas and the public realm for which occupants of the building can use (amongst others). The planning application is supported by a full suite of documents including a Design and Access Statement, Environmental Impact Assessment which includes a Townscape and Visual Impact Assessment and Design Code. These documents together confirm that the proposed form of development is appropriate in the context of the site’s strategic importance within LBTH and also does not generate any adverse environmental impacts. The Design Code provides assurance over the quality of design and architecture that will come forward for the proposals within the outline phases.

CONSULTATION WITH THE GLA

Finally, as the proposed development is referable to the Mayor, comments on the application were received in his Stage 1 report dated 3rd February. Specifically in relation to scale and massing, the Mayor confirmed his support for the proposed arrangement stating that “the heights and massing arrangement across the masterplan area is broadly supported, subject to confirmation on daylight/sunlight testing and micro-climatic studies. In townscape terms, positioning the tallest building to mark a key entrance into the site from the cemetery, as well as helping to maximise the number of units with views towards the open space to the west is supported” (paragraph 43).

CONSULTATION WITH LBTH

The LBTH Urban Design Officer has concluded “It is considered that the general arrangement and massing distribution fits appropriately into the site context, and the proposed large public green open space is inspiring for the new development. As such, the principles in the outline application are fully supported.”

ALIGNMENT WITH POLICY

On this basis, in planning and planning policy terms the proposed form of development fully aligns with planning policy requirements, has responded to comments from LBTH planning officers and has the support of the Greater London Authority.
**2.1: Bow Common Lane**

**Design principles**

Development will be expected to:

- a. respond positively to the setting of the two conservation areas: Tower Hamlets Cemetery and Swaton Road and the local nature reserve, as well as the scale, height, massing and fine urban grain of the surrounding built environment
- b. integrate the site with Tower Hamlets Cemetery Park through new or improved pedestrian and cycle routes
- c. ensure safe pedestrian and cycling access to the secondary school
- d. locate family housing overlooking the publicly accessible open space
- e. provide new open space with a minimum size of one hectare, which is consolidated and designed to provide multi-functional leisure and recreational uses
- f. integrate the site into the green grid route along Knapp Road and Bow Common Lane
- g. improve biodiversity and ecology within the open space and green infrastructure
- h. improve walking and cycling connections to, from and through the site, specifically to address poor permeability created by the site. These should align with the existing urban grain to support legibility, specifically joining Knapp Road to Bow Common Lane
- i. improve public realm with active site edges, specifically along Bow Common Lane
- j. provide active frontages along the railway to enhance the use and setting of the railway arches as a non-designated heritage asset, and
- k. implement noise screening measures for a green buffer in areas bordering the railway line.

**Delivery considerations**

- a. Development should address the impact of air quality through mitigation measures.
- b. Development should acknowledge the associated costs of decommissioning the gasworks and the relocation of any significant equipment and address any environmental pollution and on site decontamination requirements caused by the gasworks.
- c. Prior to demolition, the gas holders on the site did not accommodate any employment floorspace and therefore this floorspace does not need to be re-provided as part of any new scheme.
- d. Development should accord with any flood mitigation and adaptation measures stated within the borough’s Strategic Flood Risk Assessment and the sequential test.
- e. An assessment should be carried out to understand the potential contamination on site prior to any development taking place.

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<tr>
<th>Address</th>
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<td>Size (hectares)</td>
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<tr>
<td>Infrastructure requirements</td>
<td>Strategic open space (minimum of 1 hectare), Secondary school</td>
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**Key Site Allocations**

- 1ha of consolidated open space
- A secondary school
- Activation of Bow Common Lane
- Respond positively to the Cemetery Park, Swaton Rd & Ropery St Conservation Areas, as well as scale, height, massing and fine urban grain of the surrounding built environment
- Improve biodiversity and ecology within the open space and green infrastructure
• Proposals deliver on the policy requirements by creating over 1 hectare of ecologically driven public open space, while responding to the industrial heritage.

• Creating a consolidated, central open space, where more homes can feel ownership of the space and by aligning with the clear desire lines - previously fragmented communities are welcomed in.
A consolidated central common of 1ha is only achieved by pushing development to the perimeters.
The principles underpinning the formation of ‘place’ within the site of the former Bow Common Gasworks can be summarised by passages from a short essay prepared for St William, on the subject of Landscape-led development:

First LIFE, then SPACES, then BUILDINGS

**First Life:** Roots lead to Routes within Bow Common.

Common: Belonging to or involving the whole of a community or the public at large. The common comprises shared resources in which the community as a whole has an interest. The common gives a community identity and roots them together.

**Then Spaces:** Generous and Well Programmed

The common includes the connections between public streets and public facilities for the health of human communities.

**Then Buildings:** Framing & Delight

The common provides important scenic vistas, architectural character, hierarchy and environmental resources.
Locate a central public common in the heart of the site to maximise its radial size for greatest flexibility, access in all directions, views, and security.

POLICY: Deliver 1ha of new, consolidated public open space that provides multi-functional leisure and recreational uses.

Provide residential-led mixed use accommodation around the common to create active frontages to the common and the edges.

POLICY: Provide housing (primary objective), employment, a secondary school and strategic open space as allocated in the Site Allocation of the Local Plan (2020).

Provide a network of landscape-led legible streetscapes with active frontage connecting to existing access routes and safeguarding future routes.

POLICY: Comprise an attractive and legible streetscape.

Locate separation distances between existing buildings for private communal open space, daylight to and through the site, views and privacy.

POLICY: Provide public open space that provides multi-functional leisure and recreational uses.

Articulate a low height datum in the architectural treatment, concentrating activity, detail and interest at the human and street level.

POLICY: Present a human scale of development at street level.

Balance scale for views to open space, daylight into the most usable open space, visibility from Conservation Areas, and impact to neighbours. Add scale where it creates street edges, legibility and townscape distinction with height to mark key entrance into the site.

POLICY: Locate height where it is proportionate to their role and function in meeting the planning objectives as well as where it enhances the character and distinctiveness of the area; Respond to the scale, height, massing and fine urban grain of the surrounding built environment; Respond to the setting of the conservation areas, of particular note: Tower Hamlets Cemetery, Swaton Road and the local nature reserve.
The masterplan is placed and arranged in relation to the Urban Design Moves. Significant consideration has been given to the buildings height, scale, massing and locations. Extensive alternative scenarios have been considered throughout the consultation process and can be found in the Design Evolution of this document, the Design and Access Statement and the Environmental Statement. Updates to these documents since the October 2019 planning submission can be found in the Design and Access Statement Addendum and Environmental Statement Addendum. While alterations in one area may present isolated benefits and/or constraints, the coordinated effort for overall maximum benefit and best placemaking was found in the current masterplan arrangement. Specifically as it reflects to scale and massing near the eastern raised railway edge, the following non-exhaustive considerations were made:

**Consideration: Phase 1 Gaps and Chambers Between Buildings**
- Optimise sunlight into open space in the northwest
- Minimise shadows
- Increase views to sky and views to existing and new landscapes

**Consideration: Phase 1 Roofscape Stepping**
- Maximise sunlight into open space in the northwest
- Optimise afternoon/evening sunlight into the key open space and biodiverse character areas of heath, wetland and pond
- Optimises views into the public open space

**Consideration: Tallest Building as Point Block**
- Point block geometry reduces the building facade length as compared to traditional slab block geometry
- Rotation provides most diverse elevational views from neighbouring open space
- Marks key entrance into the site and provides distinctiveness to the townscape balance

**Consideration: Living Roofs**
- Provides species-rich green roofs
- Provides additional open mosaic habitat
- Hosts protected species and calcareous grasslands
- Extends the existing corridor of wildlife
As the scheme developed, it led towards improving the central common space, with linear and point blocks forming the boundary edges to a new public open space, while framing key routes and desire lines into the site.

An iterative and explorative design process led to a series of design options which captured the key design criteria of:

- a centrally located common space
- point blocks along the east and north of the site where the context is open, and with a need for safeguarding multiple future desire lines
- linear blocks along the west and south of the site where the context is laid out on more of a grid, with primarily linear block typologies within contemporary context. Each linear block is centred on a podia which frame key access and desire lines into the site.

Early Design Development - Various Arrangement Options
A walking tour of the Site and surroundings was arranged with LBTH Planning, Design and Conservation Officers. This also included access to 120 Bow Common Lane and Bow Cottage. Following the site walk a discussion was held at the Soanes Centre on project focus and initial concepts.

During the tour, the significant site constraints were noted, in particular the level change to the south and east boundaries. LBTH encouraged a review of forming ‘at grade’ or ‘level’ connections to provide links with future development.

Following the tour a workshop was held, whereby the key spatial concept strategy and preliminary masterplan arrangements were presented by SEW/ St William. The resulting discussion provided a clear direction for further development and investigation into scheme design improvement and optimisation.
LBTH Pre-App Meeting (20/02/19)

At the Pre-Application meeting with LBTH of 20/02/19, the height strategy was as follows:

Linear blocks along the railway edge and Bow Common Lane are set at heights in keeping with local context to the south as well as being sensitive to existing smaller scale development to the south-east.

The Radial typology blocks are arranged in descending height hierarchy from north to south, framing the central common space whilst allowing visual connection and light penetration to adjacent residential areas and within the central common space.

The landmark building provides a visual marker at the end of the Ackroyd Drive Green Link.

Podia rise up out of the landscape to provide covered areas for cycle and car parking as well as back of house spaces. They create a 'human scale' low level perimeter edge, while anchoring the taller building elements.

LBTH (03/05/19)

At the pre-application meeting with LBTH of 03/05/19 the key massing and arrangement adjustments made were as follows:

The linear blocks along the railway edge and Bow Common Lane remain set out at a height in keeping with local context to the south, however have been re-organised across one fewer podia to increase the prominence of the spatial connections and desire lines through the Site and between the spaces framed by 120 Bow Common Lane, and the central common.

The podia shape and location frame the desire lines, but are in keeping with human-scale, activated perimeter aspiration.

The arrangement of the radial typology blocks maintains and optimises spatial and visual movement and connections, with general heights increased to north of the Site.

The arrangement of massing has been amended to create a crossroads axis of movement from east to west and north to south, with new key access routes formed from the south-east corner, opposite St Paul’s Way Trust School, and from the east along Knapp Road.

The landmark building provides the high point of massing, with the north-most radial building a secondary height priority.
CADAP (24/06/19)

At the presentation to the Conservation and Design Advisory Panel (24/06/19) the below summarises the key massing and arrangement adjustments:

- The linear blocks aligned to the railway line are rotated to soften the perceived rigid edge (in response to LBTH comments 03/05/19). The four linear blocks anchored to the northern podium are reorganised to create a strong edge to the common, while the linear blocks along Bow Common Lane are re-arranged to form a bookend to Julia Scurr Street.
- Steps within each building massing are introduced to encourage light infiltration to the first floor podium amenity space and to the common.
- The general block heights reduce from north to south in response to the scale of adjacent properties to the south.
- The crossroads axis of movement from east to west and north to south is maintained, however one key adjustment in arrangement has seen the Sixth Form Centre relocated to front Bow Common Lane, to improve connection to St Paul’s Way Trust School, while reducing the height and massing opposite Leopold Estate.
- Undercrofts beneath the Croll buildings throughout the site are removed to create a strengthened ground perimeter edge. During the Immersive Reality review it is agreed that the Croll building to the north of the common should be removed to enhance the open space provision.
- Landmark Building was moved further southeast, away from Railway line and changed in form, to minimise impacts of shadows to the neighbouring Scrapyard Meadows.

Immersive Reality Dome Visit (10/07/19)

The design team held an immersive reality workshop, together with LBTH, in the Soluis Immersive Reality Dome (10/07/19):

Following comments received from CADAP, the massing and arrangement of buildings within proposals are amended to create a more consolidated area for the central common. Podium shapes and volumes are further reviewed and rationalised to address the existing road network, desire lines, and to respond to a perceived porous arrangement of buildings within the Site.

Massing of linear typologies along Bow Common Lane are adjusted to create a more formal and orthogonal arrangement of massing, aligning to the existing street grain, whilst maintaining a strong connection to the common space. Building heights respond to the existing context, but with slight height increases where appropriate.
LBTH (31/07/19)

At the Pre-Application meeting with LBTH of 31/07/19, and following the IR Dome workshop with LBTH (10/07), the key recommended height adaptations were followed:

The Croll building to the north of the Common has been removed, with minor height adjustments replaced within the development to replace lost provision of homes. The improvement to size of the open space is significant.

The proximity of two linear block ‘end’ elevations with an opening between along the south-west frontage of the common space (as viewed in the IR Dome) has been replaced with a single volume ‘wrapping’ linear typology which presents a formal, well-defined street edge condition, while optimising views and amenity space both within the common and the first floor podium. The massing has been articulated further to break up the scale into a mix of 2 and 3 storey volumes, improving the scale of the perimeter edge ground condition.

The massing along Bow Common Lane, opposite the Leopold Estate, has been reduced to improve relationship with the neighbouring development to the south. The landmark building has shifted away from the Ackroyd Drive Green Link extension.

Following consultation with Friends of the Tower Hamlets Cemetery and the London Wildlife Trust, the massing of the linear blocks along the Railway line are adjusted to provide stepping down in height towards the centre of the podium (between the 2 linear buildings). This allows more light into Tower Hamlets Cemetery Park and Scrapyard Meadows to the north-west.

LBTH (18/09/19)

During pre-application meetings throughout the months of August and September, minor changes were made to massing and arrangement:

Heights of linear and radial blocks remain similar to previous iterations following review to townscape, daylighting and overshadowing assessments.

The building heights take into account views, access, movement and experience through the site for both future occupants, current neighbours, and future neighbours.

Massing of the linear blocks along the railway edge are further adjusted to decrease the height of the southern block. The distance between the two linear blocks aligned to the Railway Line are also increased.

The massing and height updates provide a further improvement to the light levels within Tower Hamlets Cemetery Park and Scrapyard Meadows to the north-west.

Further review of landscape proposals has suggested, through this period, that Heath Hill (to the north of the common) will benefit from some softening of edges and increased porosity and permeability for pedestrian and cycle movement into and through the common.
Oct 2019 Planning Submission

Following pre-application meetings with LBTH (18/09, 25/09 & 02/10), and presentation to the GLA (13/09), the massing and arrangement has led to the current design proposal, as set out throughout subsequent sections of this document.

The key change during this period surrounded the experience within the central common, in particular associated with a small link structure between Croll blocks E & F, at the north-east corner of the site, facing Knapp Road.

To maximise permeability, the link building has been removed, introducing a pedestrian and cycle access route in this area.

In addition, Heath Hill was ‘softened’ in shape by omitting the retaining wall at first floor level, adjacent Willow Way. This provides a gentler transition from the common level up to the top of the Heath Hill.

An extension of the Heath Hill transition around to meet the base of Block E has improved the relationship of building structure to landscape, without compromising the opportunity for a generous publicly accessible destination at the top of the hill. The intention is to provide a point of interest for the local community at this location.

June 2020 Masterplan

Following the October 2019 submission, the heights strategy responded to post-submission feedback taken over a 7 month period regarding perceived impact to the Tower Hamlets Cemetery Park and Conservation Areas. This updated strategy was presented to the LBTH and The Friends of Tower Hamlets Cemetery Park in early June 2020.

Prior to this, several stakeholders were consulted. The team met with Historic England in March 2020 to clarify the Urban Design Principles, Masterplan Structure, and Townscape Narrative arrived at following the design development period.

Several ecology-focused meetings were held with the London Borough of Tower Hamlets (planning manager, case officer, and ecologist) and The Friends of Tower Hamlets Cemetery Park to review the interface of Tower Hamlets Cemetery Park and the development proposals.

In response to the historic, existing, and emerging local context, heights along the railway boundary were shifted west to the central region where the interface with the surrounding context is less sensitive.
Final Design Proposal July 2020

Following further discussions and feedback from LBTH and the FoTHCP, an updated heights strategy was developed and presented in mid-June. These design moves/changes were welcomed by LBTH and FoTHCP.

These design moves included further design development that was carried out in response to comments from Historic England and The Friends of Tower Hamlets Cemetery Park regarding the impact of the application proposals on surrounding conservation areas. Heights to Buildings D and S were further reduced, making enhancements to daylight/sunlight, townscape and placemaking.

In Summary

• Significant consideration has been given to the buildings’ height, scale, massing, and locations throughout the pre-application process.

• Multiple iterations and adjustments have occurred throughout, in order to assist and increase light penetration into the Tower Hamlets Cemetery Park across the majority of the year.

• Priority given throughout the design process to increasing size and quality of the central common space, which pushed height to the buildings along the periphery of the site.

• Gaps and stepped terraces are used to minimise overshadowing of Tower Hamlets Cemetery Park

• Heights to the south and south-east are kept fairly fixed in order to protect daylighting levels of neighbours.
Throughout development of the masterplan framework, townscape narrative and massing height strategy have been developed over a series of workshops with LBTH, the GLA, CADAP, stakeholders such as Historic England and the Friends of Tower Hamlets Cemetery Park, and within the Design Team. Further alterations to the heights reflects post-submission consultation. Height reductions were taken along the railway boundary and redistributed further west to the central buildings north and south of the concentrated open space.

The Townscape Principles remain unaltered:
• Marker building of key site entrance
• Railway linear boundary condition
• Response to new central public open space
• Response to height sensitivity of existing context
FURTHER MITIGATION
SITE WIDE HEIGHT REVISION
The height and massing strategy for the Site follows a response to the historic, existing and emerging local context. Furthermore, the heights strategy has responded to post-submission feedback taken over a 7 month period regarding perceived impact to the Tower Hamlets Cemetery Park and Conservation Areas.

Therefore, the heights along the railway boundary will shift west to the central region with interface with context is less sensitive.

A summary of the revisions to heights is set out in the diagram to the right.

Annotation of Proposed Height Changes to the October 2019 Submitted Design (Maximum Parameter Massing)
SUNLIGHT + OVERSHADOWING STUDY
TECHNICAL ANALYSIS FROM EB7
Responding to concerns raised by the Friends of Tower Hamlets Cemetery Park relating to the effects of the redevelopment of Bow Common Lane Gasworks, further analysis has been undertaken which supports the findings within the Environmental Statement.

Additional assessments for both transient shadow (3 key dates during the year) and sunlight amenity have been increased to include the full extents of the THCP. It should be noted that the majority of this area has tree cover which is not included within the technical assessment. The trees would limit the sun reaching the ground across the area, especially in the summer months when they are in full leaf.

The extended transient shadow assessment shows that the full extent of the shadow as a result of the maximum parameter proposal for both March and June is within the assessment area submitted in the Environmental Statement chapter. As would be expected, the shadows in winter are longer due to the sun being lower in sky. The extent of this shadow across the THCP continues beyond the previous assessment area and is shown in the updated transient shadow assessment. The shadow shown in the revised extents sits a considerable distance from the site and as such would pass over the THCP quickly and be largely intermittent due to the varied heights of the proposed buildings and the gaps between them. It should also be noted that the amended scheme shows noticeable reductions in the extent of shadow across Scrapyard Meadows and THCP. These improvement have been quantified and presented on key dates/times of the year.

The second additional assessment considers the sunlight amenity to Scrapyard Meadows and THCP (full area rather than the partial area assessed in the ES). The BRE recommends that at least half of the amenity space should receive at least 2 hours direct sunlight on the 21st of March. Assessment shows that Scrapyard Meadows sees 2 hours of direct sunlight across 100% of its area with the maximum parameter proposal in place and the full extents of Tower Hamlets Cemetery Park see this level of sunlight to 99.7% of its area. Given the ecological importance of these areas, and in order to show that these are well in excess of the BRE recommendations, a further assessment has been undertaken considering the area that will see 5 hours of sunlight or more on the 21st March. This assessment shows that 86.8% of Scrapyard Meadows and 99.3% of Tower Hamlets Cemetery Park will see 5 hours or more direct sunlight with the maximum parameters Proposed Development in place. This is well above the levels recommended in the BRE guidelines and as such the sunlight for amenity to the spaces assessed significantly exceeds the recommendations set out in the guidance.

Further to this a wide area transient shadow assessment has been undertaken. The shadow shown in the wider area extents sits a considerable distance from the site and as such would pass over the THCP quickly and be largely intermittent due to the varied heights of the proposed buildings and the gaps between them. It should also be noted that the amended scheme shows noticeable reductions in the extent of shadow across Scrapyard Meadows and THCP. These improvement have been quantified and presented on key dates/times of the year.

Whilst we acknowledge that the Proposed Development will cast a level of shadow across Scrapyard Meadows and THCP, this has been minimised through design as set out in the Mitigation Hierarchy and is well within the recommendations of the BRE guidelines. The level of shadow to these areas has been noticeably reduced as a result of the changes made to the scheme following the original submission.
Neighbouring Areas
BRE’s Sun on Ground - 21st March

Day: 21st March
Latitude: 51.4°N
Effective day length: 10 hours
*Min solar angle 10°
(BR209 3.3.8)

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*Sunlit Area = Area receiving at least 2hrs. of sunlight on 21st March

Table 1: Results
Table 2: Results

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*Sunlit Area = Area receiving at least 5hrs. of sunlight on 21st March

**Neighbouring Areas**

BRE’s Sun on Ground - 21st March
**Neighbouring Areas**

Sunlight Amenity - 21st March

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**Fig. 6: Sunlight Amenity - Existing Scenario**

**Fig. 5: Sunlight Amenity - Maximum Parameter Scenario**

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**Day:** 21st March

**Latitude:** 51.4°N

**Effective day length:** 10 hours

*Min solar angle 10°*

(BR209 3.3.8)
Lat: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

21st March (equinox)
Hourly Shadows

TRANSIENT OVERSHADOWING
HOURLY SHADOWS 21.03
Bow Common - Transient Overshadowing

21st March (equinox)
Hourly Shadows

Latitude: 51.4°N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

Maximum Parameter
Existing
Illustrative

TRANSIENT OVERSHADOWING
HOURLY SHADOWS 21.03
21st March (equinox)
Hourly Shadows

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

TRANSIENT OVERSHADOWING

HOURLY SHADOWS 21.03
21st March (equinox)
Hourly Shadows

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

TRANSIENT OVERSHADOWING

Illustrative
Maximum Parameter
Existing
### 21st March (equinox)

**Hourly Shadows**

**Bow Common - Transient Overshadowing**

- **Latitude:** 51.4N
- **Min. solar altitude 10 degrees (BR209 3.3.8)**
- **Intervals displaying solar times (LAT)**

**Illustrative Maximum Parameter**

16:00

- **Existing**
- **Maximum Parameter**
- **Illustrative**

17:00

- **Existing**
- **Maximum Parameter**
- **Illustrative**
Ref. | Page no. | Date
--- | --- | ---
| | | 13/07/2020
Bow Common - Transient Overshadowing

21st June (summer solstice)
Hourly Shadows

Longitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

TRANSIENT OVERSHADOWING

HOURLY SHADOWS 21.06

**Existing**

**Maximum Parameter**

**Illustrative**

Bow Common - Transient Overshadowing

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)
21st June (summer solstice)
Hourly Shadows

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)
21st June (summer solstice)
Hourly Shadows

TRANSIENT OVERSHADOWING
HOURLY SHADOWS 21.06

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)
21st June (summer solstice)
Hourly Shadows

Latitude: 51.4N
Min. solar altitude 10 degrees (BR205 3.3.8)
Intervals displaying solar times (LAT)

TRANSIENT OVERSHADOWING

Hourly Shadows 21.06
Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 2.3.8)
Intervals displaying solar times (LAT)

21st June (summer solstice)
Hourly Shadows

TRANSIENT OVERSHADOWING
HOURLY SHADOWS 21.06
21st June (summer solstice)
Hourly Shadows

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)
21st June (summer solstice)
Hourly Shadows

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

TRANSIENT OVERSHADOWING Hourly Shadows 21.06
Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

21st December (winter solstice)
Hourly Shadows

Bow Common - Transient Overshadowing
21st December (winter solstice)
Hourly Shadows

LATITUDE: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

TRANSIENT OVERSHADOWING

Hourly Shadows 21.12

Existing
Maximum Parameter
Illustrative

NORT

Bow Common - Transient Overshadowing
21st December (winter solstice)  
Hourly Shadows  

Bow Common - Transient Overshadowing
### Further Improvements to Transient Shadows Across Tower Hamlets Cemetery Park - March 21 8:00AM

#### Bow Common - Transient Overshadowing

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)

**Intervals displaying solar times (LAT)**

**Scheme**

<table>
<thead>
<tr>
<th>Date</th>
<th>Shadow (sqm)</th>
<th>(%) *</th>
<th>Reduction (sqm)</th>
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* From entire area
** From 2019 (application)

---

Fig. 61: 2019 Submitted Scheme
Fig. 62: Revised Scheme
Fig. 63: Difference

---

21st March @ 8:00 LAT
Scrapyard Meadows - Illustrative & Detailed Scenario

---

NORTH
Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)
21st March @ 9:00 LAT
Scrapyard Meadows - Illustrative & Detailed Scenario

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* From entire area
** From 2019 (application)
FURTHER IMPROVEMENTS TO TRANSIENT SHADOWS ACROSS TOWER HAMLETS CEMETERY PARK - MARCH 21 10:00AM

Ref. 20/07/2020 3588_R10_TS02 Page 27

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

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* From entire area
** From 2019 (application)

Fig. 67: 2019 Submitted Scheme
Fig. 68: Revised Scheme
Fig. 69: Difference

21st March @ 10:00 LAT
Scrapyard Meadows - Illustrative & Detailed Scenario

Bow Common - Transient Overshadowing
FURTHER IMPROVEMENTS TO TRANSIENT SHADOWS ACROSS TOWER HAMLETS CEMETERY PARK - MARCH 21 11:00AM

Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

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<tr>
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<th>(%)</th>
<th>Reduction (sqm)</th>
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* From entire area
** From 2019 (application)
### FURTHER IMPROVEMENTS TO TRANSIENT SHADOWS ACROSS TOWER HAMLETS CEMETERY PARK - MARCH 21 12:00 NOON

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<tr>
<td><strong>From 2019 (application)</strong></td>
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</table>

Fig. 73: 2019 Submitted Scheme
Fig. 74: Revised Scheme
Fig. 75: Difference
FURTHER IMPROVEMENTS TO TRANSIENT SHADOWS ACROSS TOWER HAMLETS CEMETERY PARK - MARCH 21 1:00PM

21st March @ 13:00 LAT
Scrapyard Meadows - Illustrative & Detailed Scenario

<table>
<thead>
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<th>Scheme</th>
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* From entire area
** From 2019 (application)
Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)

Intervals displaying solar times (LAT)

<table>
<thead>
<tr>
<th>Scheme</th>
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* From entire area
** From 2019 (application)

Fig. 13: 2019 Submitted Scheme
Fig. 14: Revised Scheme
Fig. 15: Difference
### Scheme @ 9:00 LAT

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<th>Scheme</th>
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* From entire area
** From 2019 (application)
Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

21st June (summer solstice) @ 8:00 LAT
Scrapyard Meadows - Illustrative & Detailed Scenario

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Date</th>
<th>Shadow (sqm)</th>
<th>(%)*</th>
<th>Reduction (sqm)</th>
<th>(%)**</th>
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* From entire area
** From 2019 (application)
Latitude: 51.4N
Min. solar altitude 10 degrees (BR209 3.3.8)
Intervals displaying solar times (LAT)

21st June (summer solstice) @ 9:00 LAT
Scrapyard Meadows - Illustrative & Detailed Scenario

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Date</th>
<th>Shadow (sqm)</th>
<th>(%)*</th>
<th>Reduction (sqm)</th>
<th>(%)**</th>
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<tr>
<td>21st June @ 9:00 LAT</td>
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<td>716</td>
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<td>60.3%</td>
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* From entire area
** From 2019 (application)

FURTHER IMPROVEMENTS TO TRANSIENT SHADOWS ACROSS TOWER HAMLETS CEMETERY PARK - JUNE 21 9:00AM
MITIGATION HIERARCHY

RESTORE + ENHANCE
Biodiversity Plan - Further Opportunities

Phase 1
- Semi-natural Vegetation: 636sqm
- Wetland or open water: 0sqm
- Living Roof (Substrate minimum settled depth of 150mm): 1676sqm
- Standard trees (in natural soils or soil volume greater than two thirds the projected mature canopy): 115sqm
- Flower Rich Perennial Planting: 964sqm
- Rain Garden or vegetated SUDS element: 283sqm
- Hedges: 755sqm
- Green wall: 875sqm
- Groundcover planting: 300sqm
- Amenity grassland: 351sqm
- Permeable paving: 755sqm

Phase 2+
- Semi-natural Vegetation: 4432sqm
- Wetland or open water: 471sqm
- Living Roof (Substrate minimum settled depth of 150mm): 7709sqm
- Standard trees (in natural soils or soil volume greater than two thirds the projected mature canopy): 190sqm
- Flower Rich Perennial Planting: 1033sqm
- Rain Garden or vegetated SUDS element: 955sqm
- Hedges: 251sqm
- Green wall: -
- Groundcover planting: 872sqm
- Amenity grassland: 280sqm
- Permeable paving: 237sqm

Potential space for calcareous grassland (10,700m²)
Scrapyard meadows (3780m²)
BIODIVERSITY TYPES

- living roofs
- pond
- flower rich perennial planting
- woodland understorey
- hedgerows
- parkland groves
- forb rich grassland
- reprovides existing open mosaic habitat
- has the potential to support protected species such as streaked bombardier beetle and black redstart
- calcareous grasslands are relatively straightforward to create on a green roof, can be extremely species-rich, and contain many plant species that are ideally suited to green roof conditions

- an oases for all urban wildlife but particularly for frogs, newts, water beetles, dragonflies and much more
- local and national BAP priority habitat

- 'Ecological horticulture'
- low-input systems based on semi-natural vegetation types (such as calcareous grassland)
- combining native plants with ornamental species, specifically chosen for their benefits to wildlife, climate change resilience and long flowering periods

- shade from trees and buildings lead to a low maintenance, semi natural habitat
- suitable space for boulders, where water can gather and mosses can grow
- suitable space for logpiles and tree stumps that encourage invertebrates, birds and small mammals

- large urban hedgerows preferred over clipped hedges
- high percentage of native species
- rambling species such as Honeysuckle and Wild Rose provide extra food and habitat for nesting birds

- densely planted trees of a variety of sizes and forms provide spatial complexity (thinned out as and when appropriate over the long term)
- a combination of native and non native trees are chosen for their associated benefits
- studies show that native trees support far greater numbers of insects and lichens, while non-natives can add further resilience to climate change and extend seasonal interest

- significant areas of grass are allowed to grow, reducing the use of petrol powered lawn mowers and increasing habitat and food for wildlife
- an ever more appreciated sustainable alternative to lawns
- low nutrient substrate and semi parasitic species such as Yellow Rattle ensure a diverse and forb rich sward
MITIGATION HIERARCHY
OFFSET
In 2016, The Berkeley Group became the first major house builder in the UK to commit to biodiversity net gain on all their developments and have developed a guide called ‘The Nine Concepts: Nature and Beauty’.

This guide has helped Berkeley Group to ensure that nature is in a better condition after the development than it was before, and is part of the St William and Berkeley Group’s strategic plan called ‘Our Vision’.

London Wildlife Trust has helped to develop and assess this particular design proposal and concluded that it produces a 60% biodiversity net gain, which is significantly above the HM Government’s draft target recommendation of 10% net gain.

Another helpful tool to ensure developments result in a greener city is the GLA’s Urban Greening Factor that is a part of the emerging Draft New London Plan. The Mayor recommends a target score of 0.4 or 40% of residential development consists of green infrastructure. Both the Detail and Outline Applications for Bow Common Gasworks exceed a score of 0.5 or 50%.

Refer to appendix A for further information.

“It is great to be working with such an influential yet progressive placemaker as St William. They are constantly striving to ensure that nature is at the heart of their developments and that both people and wildlife have a home. I look forward to the day when all developers not only think but act this way”

David Mooney, Director of Development
London Wildlife Trust
<table>
<thead>
<tr>
<th>SURFACE TYPE COVER</th>
<th>FACTOR</th>
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<th>TOTAL SITE AREA (M²)</th>
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<td>WETLAND OR OPEN WATER (SEMI-NATURAL; NOT CHLORINATED)</td>
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<tr>
<td>STANDARD TREES PLANTED IN NATURAL SOILS OR IN CONNECTED TREE PITS</td>
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<td>FLOWER-RICH PERENNIAL PLANTING</td>
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<td>RAIN GARDENS AND OTHER VEGETATED SUSTAINABLE DRAINAGE ELEMENTS</td>
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<tr>
<td>STANDARD TREES PLANTED IN PITS</td>
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</tr>
<tr>
<td>GREEN WALL–MODULAR SYSTEM OR CLIMBERS ROOTED IN SOIL</td>
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<tr>
<td>GROUNDCOVER PLANTING</td>
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<tr>
<td>AMENITY GRASSLAND (SPECIES-POOR, REGULARLY MOWN LAWN).</td>
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<tr>
<td>EXTENSIVE GREEN ROOF OF SEDUM MAT THAT DO NOT MEET GRO CODE 2014</td>
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<td>SEALED SURFACES (E.G. CONCRETE, ASPHALT, WATERPROOFING, STONE).</td>
<td>0</td>
<td>0</td>
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</table>

**URBAN GREENING FACTOR** 0.5

- Current illustrative plans reach an urban greening factor score of 0.5. This is above the rarely achieved recommendation of 0.4.

(Where some areas may come down during detailed design, vertical greening will increase. Due to the difficulty in measuring vertical greening in an outline application, this has not been factored in. Vertical greening is featured in the detailed application and forms a key part of the architectural materiality)
POTENTIAL MITIGATION + GREEN ROOF STRATEGY
GREEN INFRASTRUCTURE CONSULTANCY
A Potential strategy for Bow Common development

Creation of calcareous species rich green roof modules as pro-active mitigation

Introduction

This short report provides an outline of a potential strategy to address two issues at the Bow Common Development:

- Creation of temporary habitat at Bow Common to mitigate against impact on current calcareous grassland in Tower Hamlets Cemetery
- The want to provide extensive biodiverse green roofs on the new development

This is only an overview of a potential way forward. Further work is to be undertaken to work to provide a more detail programme which will address a number of important elements including costs/process/construction cycle on site etc.

Rationale

Green roofs designed for biodiversity are calcareous in nature. Good green roofs, whilst replicating brownfield habitat, have a ph. that allows plants associated with dry calcareous grasslands to thrive depending on the depth of substrate. Therefore, whilst the provision of a temporary habitat on the development site using neat chalk or other calcareous material would mitigate for any negative impacts on the existing calcareous habitat within the cemetery, this could be achieved using a green roof approach.

Creating an area of green roof species rich dry grassland at ground level would require:

- The green roof elements to be movable – use of green roof cassettes is becoming increasingly popular as a method of installation, otherwise an alternative method could be investigated
- The green roof dry grassland area would need to be maintained and monitored

This would ensure that on installation onto new blocks within in the development, mature dry grassland green roofs could be installed. Another advantage of this approach would allow colonisation of invertebrate species that are often absent from green roofs as they are not aerial colonisers.
Green roof cassettes

Engineered elements
Movable green roof cassettes could be created to include drainage and moisture retention layers.

Substrate growing medium
Substrate at an average depth of 125mm would be installed within the cassettes. The saturated load would not exceed that expected on a new build in London.

Vegetation
Whilst it is common practice to seed and plug-plant green roofs with commercially available seeds and plants, in this instance it could be proposed that the cassettes would be seeded with seed harvested from an appropriate site within London. For instance, Tower Hamlets Cemetery Park or Saltbox Hill in London Borough of Bromley is a calcareous grassland in the ownership of the London Wildlife Trust. Most of the species of wildflowers associated with London living roofs seed mix are prevalent at Saltbox hill. Over species which are absent such as Echium vulgare could additionally be harvested from existing green roofs within London and seeded into the mix.

Process/Timeline

Prior to development commencing
The exact area of mitigation to be agreed by all parties.

Where possible, the green roof mitigation area to be established in the autumn prior to commencement of the development to allow the establishment of calcareous wildflowers in preceding year. Ideally this would be on site at Bow Common or offsite.

Year One
A proportion of the green roof mitigation area would be removed to an available roof (on-site or elsewhere) and replaced with new cassettes. This would create new immature habitat to be created to compliment the mature habitat of the original cassettes. This is important from an ecological point of view.

Stewardship of the green roofs will include weeding of unwanted vegetation, in particular Conyza species and Buddleia colonisation.

Year Two/Three... etc
As in year one except that when roofs become available at Bow Common to have the green roof cassettes installed, the cassettes will be removed from ground and taken to roof. Once established on roof, the maintenance/stewardship will be decided. Ideally an annual mow and seed collection to feed the London green roof market will continue.

ADDITIONAL CONSIDERATIONS

Maintenance/stewardship. GIC is currently working on the creation of a Net Gain Green roof approach that focuses on reducing embedded carbon and increasing sequestration with in extensive green roofs designed for biodiversity. This uses materials -engineered elements and substrate that have negative carbon value on delivery to London. Furthermore, GIC is working with a supplier to increase sequestration within the vegetation and substrate on a yearly basis.

Therefore, further investigation should be given to the possibility of creating green roof cassettes which provide the habitat required whilst providing a ‘net gain’ in terms of carbon.

PROS AND CONS

PROS
Adequate and effective mitigation provided at ground level during early stages of construction

Well-established green roofs are created at ground level can ensure quality green roofs are installed when moved to roof level.

Establish a seed collection method for roofs on the development, where calcareous habitats are feasible

Establish a potential model for other developments within Berkeley Group and potentially other developers in London and beyond.

Ensure the green roofs are well established and performing ecologically so that they continue to do so once installed.

CONS
Meanwhile mitigation area whether green roof or more conventional approach takes up space on the development site

New approach will require the establishment of a new partnership between various parties – NGOs/developer/green roof industry. Whilst this could be perceived as a potential barrier it could lead to new methods of delivering green roofs for biodiversity and carbon Net Gain.
Nesting habitat for ground nesting hymenopteran will be limited within the green roof cassettes. Therefore, supplementary features will need to be create at ground level for these species that can be removed to roof at the appropriate time. Such habitat features have been created on green roofs – notably Nomura Bank in the City and Green Roof Shelters have created similar features for use both at ground and roof level.

**Opportunity**

Whilst there is a pressing need to consider how to mitigate the impact of the development on Tower Hamlets cemetery, this challenge presents a unique opportunity. An opportunity to create a new approach to green roof provision in major developments both in London, the UK and beyond. All too often green roofs are being installed that are of poor quality ecologically. When green roofs are not planted and seeded correctly they do in the medium term become a problem from a building integrity perspective. Many plants that colonise green roofs that are poorly planted or seeded potentially can damage waterproofing and drainage outlets.

This new approach ensures that this should not be the case. The approach also ensures that biodiversity net gain and, potentially, carbon net gain is achieved at commencement of the development phase. The use of locally derived seed material will also ensure a new approach to vegetating green roofs. An approach that is truly of local native provenance and helps creates a new relationship, in this case, the London Wildlife Trust with the developer.

Although more work needs to be undertaken, it would be hoped that the approach could lead to costs savings in the long term in delivering green roofs designed for net gain biodiversity.
CASE STUDIES
MEANWHILE OFFSET OPPORTUNITIES
Meanwhile pollinator gardens, designed specifically as open mosaic habitats with Kidney Vetch, could be provided through the construction phases to support the Small Blue Butterfly and other species found at Scrapyard Meadows.
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CASE STUDIES
BERKELEY GROUP COMMITMENT TO BIODIVERSITY
CORRESPONDENCE
BIODIVERSITY CORRESPONDENCE
BETWEEN LBTH AND TEC
Biodiversity Correspondence

BLACK TEXT = LB Tower Hamlets Biodiversity Officer (John Archer)
PURPLE TEXT = Project Ecologist (Dr Alex Ramsay, Associate Director at The Ecology Consultancy and Fellow of the Royal Entomological Society (FRES))

RECEIVED 17.01.20 | INITIAL TEC RESPONSE IN PURPLE TEXT PROVIDED 04.02.20

Headline comments:

- The development should be reconfigured to avoid shading of Tower Hamlets Cemetery Park, moving the nearest buildings further back and the tallest tower further south-east.
- The S.106 Agreement should include a suite of measures, agreed with the Friends of Tower Hamlets Cemetery Park, to mitigate the additional visitor pressure on the Local Nature Reserve.
- Before work commences, a site-wide ecology strategy must be approved, setting out minimum areas of calcareous grassland, other LBAP priority habitats, and features of priority species to be provided by the overall development and in each phase. Detailed landscape plans for each phase would need to be approved before commencement of that phase, and must comply with the site-wide strategy.

Comments on the Environmental Statement:

17.4.1: While it is probably correct to take the remediated (or partially remediated) site surveyed in April 2019 as the baseline, consideration should also be given to the state of the site before remediation commenced, as this would probably have included more and better habitats. Information on the pre-remediation habitats is likely to be available from surveys undertaken for the remediation planning application PA/18/01835.

The habitats recorded in the PEA undertaken on 3rd April 2019 are identical to those recorded by The Wood Group in their PEA undertaken on the site on 28th August 2018, which was undertaken prior to commencement of remediation work on site. The remediation work began in June 2019. Therefore, the baseline at the time of the 2019 PEA survey is the correct baseline.

Table 17.2 on page 17-13 (should be table 17.3 as there is a table 17.2 on page 17-11): The reasons for designation of Tower Hamlets Cemetery Park mention at least 18 species of butterfly – the correct number is 32 species, including Silver-washed Fritillary at probably its only inner London breeding site. The total quoted of 194 species of spider is also wrong, the correct figure is 151.

These figures were originally obtained from the citation for the LNR, which has subsequently been updated, rather than for the SINC designation.

17.5.9: 0.27ha of ephemeral/short perennial vegetation is quite a large amount in a Tower Hamlets context.

As noted in paragraph 17.5.9 of ES, the 0.27ha is the combined total of smaller areas of habitat, none of which were floristically diverse, so although the combined area is large, the habitat quality was low.

17.5.20/17.5.23/17.5.25: the bird and invertebrate surveys should have been undertaken before the application was submitted.

17.6.12: it is not clear whether the disturbance referred to in this paragraph relates only to features on the site itself, or to Tower Hamlets Cemetery Park. Such a large development immediately adjacent to the LNR is certain to significantly increase disturbance there. To confirm the disturbance relates also to adjacent habitat areas.

17.7.36/table 17.5: the proposed habitats to be created include 0.06ha of heathland. No mention is made of the inappropriateness of this habitat in a Tower Hamlets context. What is the rationale behind creating heathland on the site?

The illustrative landscape proposals outlined in 17.7.5 include a range of high quality habitats proposed for creation, and as noted in 17.7.6, “is indicative only, and the details of the landscaping proposed will be agreed with LBTH at the reserved matters stage.”

17.7.31: while for a long time it was believed that the Small Blue butterfly has a maximum dispersal range of 200m, it is now accepted that this is not the case, and the species is capable of dispersing very much further than this. Indeed, assuming its presence in Tower Hamlets Cemetery Park to be natural (we can find no evidence of deliberate introduction, and all the kidney vetch on the site was from seed so it could not have come in with plants), it would have had to disperse several kilometres to get there. There are a number of other examples in south London of Small Blues appearing on sites far from existing colonies.

Dispersal and colonisation of the small blue is dependent on both good connectivity and suitable host plant areas, and colonisation of new colonies in the south of London has occurred where these are relatively close and connected to existing sites on the North Downs. The Thames and urban development is likely to be a significant barrier and if existing (and undetected) colonies are present to act as a donor population to Tower Hamlets (and assuming that they have not been accidentally introduced to the site) then these would be along the rail lines adjacent to the site, however the isolation of the site renders it vulnerable to local extinction even with active management, however anecdotal records (Friends of Tower Hamlets cemetery website) exist for 2011, 2017 and 2019, with a maximum of two individuals recorded in 2019, so a small population could be present.

17.7.30: while it is probably correct to take the remediated (or partially remediated) site surveyed in April 2019 as the baseline, consideration should also be given to the state of the site before remediation commenced, as this would probably have included more and better habitats. Information on the pre-remediation habitats is likely to be available from surveys undertaken for the remediation planning application PA/18/01835.

As stated in Table 17.1 of the ES, “surveys have not been undertaken for breeding birds, black redstart and invertebrates (specifically the Streaked Bombardier beetle) due to the constraints inherent in a Site that is currently undergoing active remediation. These would need to be undertaken before construction occurs on the Proposed Development, and should be secured by planning condition. A number of remediation measures are outlined in this chapter, should these surveys confirm the presence of target species on Site.” As a precautionary approach the site has been assessed as being of national importance for black redstart (ES, paragraph 17.5.19, and of metropolitan importance for streaked bombardier beetle (ES, paragraph 17.5.24.

Is there evidence or expert opinion to back up the claim that morning shading in spring and summer will not have significant adverse impacts on the Small Blue? The adult butterfly is active from late May, and its larvae could also be impacted.

Shading (based on the transient overshadowing model) on the maze area of Scrapyard Meadow (where kidney vetch is solely present) is not predicted beyond 0900 in May and June when the adult is active. For the larvae, in
July the maze area is unshaded by 0800 and largely unshaded by 0900 in August. By September shading persists on the maze area intermittently between 0900 and 1100 but remains unshaded following this. As the caterpillar moves below ground following this period the impacts would be minimal, however there is a small shading impact in September.

And 13.7.32: what is the rationale behind translocation of kidney vetch from Scrapyard Meadow (where there is not much to spare), rather than sowing seed from elsewhere? The presence of kidney vetch in Scrapyard Meadow and elsewhere in Tower Hamlets Cemetery Park is through sowing of seed, so there is no local genetic strain to preserve.

Noted. Seed if required can be locally sourced, ideally of local provenance, or via specialist supplier. Use of plant material from Scrapyard Meadow will include eggs / early stages of other invertebrates which can help to disperse invertebrates into newly created habitats if required.

17.8.3: have the proposals for different management of parts of Tower Hamlets Cemetery Park been discussed with the Friends of Tower Hamlets Cemetery Park, who manage the site?

Management proposals have not been discussed in detail. Initial discussions were briefly held to set out site proposals.

As discussed for 13/7/32 above, what is the rationale for using plant stock from Scrapyard Meadow, as this was created from seed, not a natural chalk grassland.

Noted. Seed if required can be locally sourced, ideally of local provenance, or via specialist supplier. Use of plant material from Scrapyard Meadow will include eggs / early stages of other invertebrates which can help to disperse invertebrates into newly created habitats if required.

The ES talks about mitigating any impacts, but the correct approach to ecological impacts is first to try to avoid impacts before considering mitigation, where possible. It would be perfectly possible to avoid any shading of the LNR, while still providing the same amount of development, by moving the 11- and 13-storey buildings in phase 1 further away from the LNR, and relocating the proposed 85m tower in parcel 5 further south-east, to where parcel 4 is currently proposed. I strongly recommend seeking a reconfiguration of the development to avoid any shading of the LNR.

Design evolution provides justification of masterplan layout.

If the development is not reconfigured, and hence shading of calcareous grassland habitat requires mitigating, this will have to be done through habitat creation on the application site. The Cemetery Park Manager, who knows the site far better than anyone else, does not think there is any significant opportunity to create additional calcareous grassland habitat within the LNR, contrary to the suggestion in the ES. This would cause a significant issue, as much of the shading will result from phase 1 of the development. In order to mitigate these impacts, meanwhile calcareous grassland habitat would have to be established within the development site, as close as possible to Scrapyard Meadow, before phase 1 works lead to shading of existing habitat. This is a further reason for reconfiguring the development to avoid any shading in the first place.

To be discussed between the Applicant (St William) and LBTH.

Light spill from the occupied development could have an adverse impact on nocturnal wildlife, including bats, in the LNR. Due to the railway embankment forming a barrier, ground-level lighting within the development site will not directly impact on the LNR (though it should still be kept to a minimum). The main light spill onto the LNR will be from the tall buildings in phase 1. Moving these buildings further away from the LNR, as suggested above with regard to shading, would reduce the lighting impact too.
As stated in the ES (paragraph 17.7.29), “A lighting strategy will be prepared that will minimise light spill onto retained or newly created habitat features such as the adjacent LNR, artificial bat roosts or foraging resources. Mitigation measures will be in-line with those given by the Bat Conservation Trust and include light exclusion zones within the newly created habitat areas and along the boundary to the adjacent railway and LNR, the use of directional lighting, the use of LED lighting and restriction of lighting levels at dusk and dawn.”

The creation of so much new housing immediately adjacent to the LNR will inevitably lead to increased visitor pressure, including trampling, disturbance and litter. Pets, particularly cats, from the occupied development could also have adverse impacts on birds, small mammals and amphibians. Mitigating these impacts will need to involve improved signage and access in the LNR, and possibly more staffing. The Section 106 Agreement should include a suite of measures, agreed with the Friends of Tower Hamlets Cemetery Park, to mitigate the impacts of increased visitor pressure. Impacts identified for the operational phase of the development are listed in the ES, paragraphs 17.6.12-17.6.16, and include disturbance, lighting, overshadowing and predation effects (from domestic pets). Embedded mitigation measures are to be developed as part of the LEMP as outlined in sections 17.7.25-17.7.29 in the ES.

To be discussed between the Applicant (St William) and LBTH.

Impacts on ecology within the application site:

The application site contains low-quality wildlife habitats, mostly ephemeral and ruderal vegetation. These habitats are locally significant due to their extent. Prior to remediation it contained more extensive and varied habitats. It has the potential to support scarce and protected species, including streaked bombardier beetle and black redstart. Further surveys for these species are still to be undertaken. The results of these should ideally be available before the application is determined.

The habitats recorded in the PEA undertaken on 3rd April 2019 are identical to those recorded by The Wood Group in their PEA undertaken on the site on 28th August 2018, which was undertaken prior to commencement of remediation work on site. The remediation work began in June 2019. Therefore, the baseline at the time of the 2019 PEA survey is the correct baseline. As stated in Table 17.1 of the ES, “surveys have not been undertaken for breeding birds, black redstart and invertebrates (specifically the Streaked Bombardier beetle) due to the constraints inherent in a Site that is currently undergoing active remediation. These would need to be undertaken before construction occurs on the Proposed Development, and should be secured by planning condition. A number of remediation measures are outlined in this chapter, should these surveys confirm the presence of target species on Site.” As a precautionary approach the site has been assessed as being of national importance for black redstart (ES, paragraphs 17.5.19), and of metropolitan importance for streaked bombardier beetle (ES, paragraph 17.5.24).

The landscape proposals include extensive habitat creation, both at ground level and on biodiverse green roofs. This will be more than sufficient to ensure biodiversity net gain within the application site, and will help to mitigate impacts on the LNR.

The illustrative landscape proposals, quoted in paragraph 17.7.5 of the ES, set out the area of each of a range of habitats to be created. These include calcareous grassland, which is particularly important in this location, as well as other Local Biodiversity Action Plan (LBAP) priority habitats such as pond, mixed native hedge, wildflower meadow, woodland and biodiverse roofs. It also includes heathland, which seems a very strange habitat to be creating in Tower Hamlets, where natural heathland has never occurred and the nearest existing heathland is over ten kilometres away in Epping Forest. Calcareous grassland, in sunny places at ground level or on low roofs (higher roofs are unlikely to be used by the Small Blue and other key invertebrates), is the key habitat.

However, these proposals are only indicative, and details of landscaping will be agreed in a series of reserved matters applications over a period of 20 or more years. Therefore, before work commences, there is a need for a site-wide ecology strategy to be approved. This should set parameters for the total area, and minimum area in each phase of the development, of wildlife habitats to be created. This must include specific parameters for calcareous grassland (in minimally-shaded areas at ground or low roof level), and could include a breakdown of other LBAP priority habitats, as well as features for priority species such as bird (peregrine falcon, swift, black redstart, house sparrow, house martin), bat and insect boxes.

Detailed plans for these habitats would then be approved for each phase of the development before work on that phase commences. These would need to demonstrate that they meet the parameters set in the site wide ecology strategy.

Discussion required as to whether these can be committed now or through planning process.

Discussion required as to whether these can be committed now or through planning process.
Reduced direct solar exposure can lead to plants not reaching full maturity, flowering full stop. Many plants don’t just begin growing and develop blooms in accordance with temperature, they require several hours of direct sunlight to produce nectar that pollinators can feed on. For example, the dandelion, which is an important pollen and nectar source for bees, will only produce nectar after 3 hours of uninterrupted direct sunlight. Others like legumes also require an hour or more of direct sunlight and warm conditions before they will secrete nectar. The shading issue means that parts of the meadow would not be able to produce the quantities of nectar needed to sustain its bee population until early to mid-afternoon. This could restrict foraging success of bees, including rare specialist species that use that specific area of the park. Many plants that sustain the cemetery’s population of locally and nationally rare bees require several hours of direct solar exposure before they produce nectar that pollinators can feed on. For example, the dandelion, which is an important pollen and nectar source for bees, will only produce nectar after 3 hours of uninterrupted direct sunlight. Others like legumes also require an hour or more of direct sunlight and warm conditions before they will secrete nectar. The shading issue means that parts of the meadow would not be able to produce the quantities of nectar needed to sustain its bee population until early to mid-afternoon. This could restrict foraging success of bees, including rare specialist species that use that specific area of the park. Many plants that sustain the cemetery’s population of locally and nationally rare bees require several hours of direct solar exposure before they produce nectar that pollinators can feed on. For example, the dandelion, which is an important pollen and nectar source for bees, will only produce nectar after 3 hours of uninterrupted direct sunlight. Others like legumes also require an hour or more of direct sunlight and warm conditions before they will secrete nectar.

John Archer’s comments via email 30/01/20:

Further to my own comments on this application, I’ve received the following from two invertebrate specialists, which confirm my concerns about the impacts on invertebrates of shading of Scrapyard Meadow, the nearest part of the Local Nature Reserve to the application site.

From bee specialist Mark Patterson of Api:Cultural and the London Bee Keepers Association:

Looking at the overshadowing appendix it looks like a month either side of summer solstice when the sun is highest in the sky the scrapyard meadow and chalk maze won’t receive full sunlight until 10-11am, earlier in spring when the sun is lower in the sky and the days shorter I imagine the shade will be cast even longer.

This could affect thermogenic species of hymenoptera that nest in the bare chalk - they need the sun’s warmth to dry out the ground where they excavate their nest burrows and they need warmth of the sun on the ground to incubate their eggs and larvae. They don’t nest in cold, shaded environments.

Not only could shading reduce nectar availability in flowering plants important for pollinators, but it could also affect flowering full stop. Many plants don’t just begin growing and develop blooms in accordance with temperature, they develop in response to solar exposure. Reduced direct solar exposure can lead to plants not reaching full maturity, producing fewer flowers and less vegetative growth. This could have serious consequences for species like Small Blue butterfly which feeds on flower/seed heads of kidney vetch. The plants that grow in the meadow are species of wide open natural habitats that thrive on full solar exposure.

From spider specialist and general entomologist Edward Milner:

The effect of the current proposal would be to alter the habitat substantially from open, unshaded meadow to partially-shaded grassland. This would of course have a major effect on the vegetation (benefitting shade-loving species but discouraging those that thrive in open habitats) and thus all the insects and other invertebrates living or visiting the site. I think it would disproportionately affect butterflies and hymenoptera (bees and wasps) many of which require bright sun, especially in the mornings. Spiders would be affected and I would expect the specialist open grassland species such as jumping spiders like Talavera aequipe,s to gradually disappear from the meadows. My own research and that of others has shown that the spider fauna of shaded grassland differs markedly from unshaded grassland, although I can’t give you chapter and verse as it would need careful extraction of data from different sources. The overall diversity would surely be reduced but, more than that, the specialist species would be lost.

These views from experts confirm my own opinion that the current configuration of the development would have a significant adverse impact on one of our two statutory Local Nature Reserves, and on populations of nationally scarce invertebrates. We should seek a reconfiguration of the development to remove any shading of the Local Nature Reserve.

Response from Dr Alex Ramsay, Associate Director at The Ecology Consultancy:

Current shading predicted impacts (based on the transient overshadowing model) on the maze area of Scrapyard Meadow is not predicted beyond 0900 in May and June, so predicted impacts are minimal in these months. In July the ‘maze’ area of Scrapyard Meadow (with shortest vegetation present suitable for a range of invertebrates) is unshaded by 0800 and largely unshaded by 0900 in August. By September shading persists on the maze area intermittently between 0900 and 1100 but remains unshaded following this, so a small shading impact is predicted in September.

Comments regarding Small Blue have been addressed previously (04-02-20).

Not that some of species mentioned above also utilise other meadow areas created within Cemetery Park (e.g. Bombus humilis). Note also that species noted above such as Talavera aequipe are widespread with no specific conservation status, and can occur in other habitats such a railway embankments, and it is likely that provision of suitable mitigation habitats would benefit these species, as they are not solely restricted to open meadows. Species such as Bombus humilis are mobile species and can forage some distance from nest sites, and not restricted to calcareous habitats. Melitta leporina can also occur in gardens where suitable nesting habitats are available. The nationally scarce Andrea laibiata typically nests in sandy soil so its presence at Scrapyard Meadow is likely only for foraging, and provision of additional habitat for both nesting and foraging would benefit these species. The Large Scabious Mining Bee (presumably Andrea buttornana not Andrea haefortana as stated) has a specific requirement for scabious flowers which should be included in planting schemes on site to provide additional habitat.

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