UPDATE REPORT

BY THE DIRECTOR OF ECONOMIC GROWTH AND NEIGHBOURHOOD SERVICES
READING BOROUGH COUNCIL **ITEM NO. 13**
PLANNING APPLICATIONS COMMITTEE: 17th July 2019

Ward: Abbey
Application Nos.: 190441/VAR, 190442/VAR, 190465/REM, 190466/REM
Address: Station Hill, Reading
Proposals:
190441/VAR:
Application under s.73 for amendments to Outline Planning Permission ref. 151427, including alterations to the wording of Conditions 3, 5, 7, 8, 17, 19, 54 and 57. [Plot F 'Station Hill']

190442/VAR:
Application under s.73 for amendments to Outline Planning Permission ref. 151426, including alterations to the wording of Conditions 3, 5, 6, 7, 8, 16, 17, 21, 37 and 50.

190465/REM:
Application for the approval of reserved matters (access, scale, appearance, layout and landscaping) for Plot E within the development site known as Station Hill submitted pursuant to Outline Planning Permission ref. 190442,and submission of details for approval pursuant to Conditions attached to that permission. The proposals comprise the construction of a 12 storey building (plus basement storey) containing 370 Build to Rent residential units (Use Class C3), 1,151sqm (GEA) of flexible retail floorspace (Use Classes A1, A2, A3, A4, A5), cycle storage, car parking, servicing, plant areas, landscaping, new public realm and other associated works (amended description).

190466/REM:
Application for approval of reserved matters (access, scale, appearance, layout and landscaping) for Plot F within the development site known as Station Hill submitted pursuant to Outline Planning Permission ref. 190441, and submission of details for approval pursuant to Conditions attached to that permission. The proposals comprise construction of a 12 storey (plus basement storey) building containing 168 Build to Rent residential units (Use Class C3), 390sqm (GEA) of flexible retail floorspace (Use Classes A1, A2, A3, A4, A5, D2), 656sqm (GEA) of leisure floorspace (Use Class D1 or D2), cycle storage, car parking, servicing, plant areas, landscaping, new public realm and other associated works (amended description).

Applicant: SH Reading Master LLP
Dates received (valid): 20 March 2019
13 Week target decision dates: 19 June 2019
26 Week dates: 18 September 2019
PPA: Agreed target: 2 August 2019 (agreed EOT)

Amendments to Recommendation:

Additional S106 Head of Terms (190441/VAR and 190442/VAR):

For the owner and building operator to ensure all dwellings within the scheme and all associated residential areas of the building draw all their electricity from 'Green Supply Tariffs' with all power coming from renewable sources.

The owner and building operator to submit annual reports to the local planning authority demonstrating that all dwellings within the scheme and all associated residential areas of the building have drawn all their electricity from 'Green Supply Tariffs' with all power coming from renewable sources for the preceding year.

Amended conditions:
190441/VAR

4. The development hereby permitted shall be commenced before either (a) 9 January 2020 or (b) the expiration of three years from the date of approval of the last reserved matter (whichever is the later).

19. Notwithstanding the submitted Energy Strategy dated 14 March 2019 no development shall be commenced on any Plot (excepting demolition) until details of the sustainability/environmental performance measures for that Plot have been submitted to and approved in writing by the Local Planning Authority. The submitted details shall demonstrate that: i) for the residential element of the Plot (through a Design Stage Standard Assessment Procedure (SAP) Assessment), all approved dwellings within the Plot shall achieve a minimum of a 35% improvement in the dwelling emission rate over the target emission rate, as defined in The Building Regulations for England Approved Document L1A: Conservation of Fuel and Power in New Dwellings (2013 edition) when using "SAP10" carbon factors (0.233kg/kwh); and ii) all non-residential floorspace within each Plot shall achieve a BREEAM Very Good rating with a minimum of 62.5 points. Where feasible, the office use within each Plot shall achieve a BREEAM Excellent rating.
ii) The development of each Plot shall thereafter be carried out and retained in accordance with the approved details of the sustainability/environmental performance.

190442/VAR
19. Notwithstanding the submitted Energy Strategy dated 14 March 2019 no development shall be commenced within the site (excepting demolition) until details of the sustainability/environmental performance measures have been submitted to and approved in writing by the Local Planning Authority. The submitted details shall demonstrate that: i) for the residential element of the site (through a Design Stage Standard Assessment Procedure (SAP) Assessment), all approved dwellings within the site shall achieve a minimum of a 35% improvement in the dwelling emission rate over the target emission rate, as defined in The Building Regulations for England Approved Document L1A: Conservation of Fuel and Power in New Dwellings (2013 edition) when using "SAP10" carbon factors (0.233kg/kwh); and ii) all non-residential floorspace within the Site shall achieve a BREEAM Very Good rating with a minimum of 62.5 points. ii) The development of each Plot shall thereafter be carried out and retained in accordance with the approved details of the sustainability/environmental performance.

Amend Recommendations *190465/REM and 190466/REM, as follows:*

Delegate to the Head of Planning, Development and Regulatory Services to GRANT reserved matters approval following the GRANT of s73 outline planning permission for applications 190441/VAR and 190442/VAR. Subject to the following conditions …

ALL OTHER RECOMMENDATIONS AS PER THE MAIN AGENDA

1. ENERGY

1.1 Paragraph 6.98 of the main report states the following:
"The Council's Sustainability Manager objects to the use of SAP10 calculations in the context of Reading Borough as these would not result in a comparable energy improvement for the proposed buildings under current policy requirements. It is understood that the draft SAP10 carbon emission figures are now being applied in Greater London but within the context of more stringent Zero Carbon policy targets. Emerging policy CC2 in the Reading Borough Draft Local Plan will also require a residential scheme of the scale of Station Hill to meet Zero Carbon standards, but this is not yet adopted and the Applicant and Officers are working to the less stringent requirements of Policy CS1. As things stand currently the Council's standard approach requiring 19% improvement DER/TER on the SAP 2012 (Building Regulations, 2013) is recommended to be secured by condition in order to secure the minimum policy requirement and make an otherwise unacceptable development acceptable. Officers will continue to work with the applicant on this point and any alternative (but equivalent) option that may be agreed will be reported to Committee in an Update Report."

1.2 Officers have continued to discuss this matter with the applicant since publication of the agenda. The applicant has submitted *their* assessment of the energy credentials of the scheme and this is appended to this Update at Appendix 1.

1.3 The applicant is adamant that SAP10 is the appropriate measure for carbon intensity on the basis that the national grid is on a trajectory to reduce carbon emissions within the context of the legal requirement for the UK to achieve zero carbon by 2050. It is accepted that this is the direction of travel and Officers agree that the national grid has decarbonised to a level somewhat lower than the 0.519 kg CO_2/kWh which current Building Regulations (SAP2012) assume to be the case.

1.4 The SAP10 carbon intensity figure of 0.233 kg CO_2/kWh promoted by the applicant is considered to be overly lenient at the current time as the national grid appears to be operating at an average carbon intensity closer to 0.300 kg CO_2/kWh. i.e. somewhere between the current SAP2012 standard and the emerging SAP10 standard (as currently drafted). The average for 2018 quoted at http://electricityinfo.org/forecast-carbon-intensity/ is 0.270kg CO_2/kWh. Furthermore there appears to be a lack of certainty nationally over the amount, speed and method of further decarbonisation.

1.5 There is an expectation that there will be some form of revision to the current Part L Building Regulations to reflect the decarbonising trend in electricity supply and there is a good deal of speculation in the industry press that SAP10 will be adopted as the new Building Regulations standard.

1.6 What is clear is that the current proposal, to build the scheme to current Building Regulations (based on SAP2012 energy use calculations) but to use the carbon factors from draft SAP10, does not comply with current, or emerging Development Plan policy.

1.7 The applicant proposes that the current design using SAP10 carbon factors (0.233kg) would achieve a 35% improvement in emissions over the Building Regulations target across the residential parts of the scheme. The difficulty is determining the degree of equivalence between this and the 19% improvement for half the dwellings required under current policy due to the differences in methodology between SAP2012 and SAP10 and the complex set of variables that both comprise.

1.8 The applicant also proposes to source a 100% renewable energy supply (green supply tariff) for all dwellings and residential parts of the building. Again this is not a solution referred to in existing or emerging development plan policy. At face value it appears that the green supply tariff could offer some compensation for the lack of policy compliance. It is considered that the Build-to-Rent model would allow this to be secured through tenancy agreements and managed long term by the single building owner and operator in a way which would not be possible for individual flats with multiple owners or landlords. (This is a benefit of the Build to Rent approach and further justification for securing the buildings as such for the maximum 20 year period.)

1.9 There is some debate nationally over whether green supply tariffs are genuinely zero carbon, although they are marketed as such and that is clearly the intention. Perhaps a more fundamental question exists over the long term sustainability of this approach if demand for *renewable* electricity were to exceed availability of supply through the National Grid, resulting in supply reverting to fossil fuel in order to meet demand. Despite significant improvements, the Grid is remains largely powered by natural gas. This is a view adopted by National Grid which sees the future of domestic heating being powered more by decentralised provision (heat pumps, CHP, hydrogen etc) if the 2050 national carbon targets are to be achieved – (see: http://fes.nationalgrid.com/media/1363/fes-interactive-version-final.pdf). This is one reason why local policy supports a decentralised (on-site generation) approach to domestic heating rather than 'using up' grid capacity which might be otherwise better used; for example to power the predicted increase in electric vehicles. It is not desirable for significant numbers of new dwellings in the Borough to be drawing power from the national grid for domestic heating.

1.10 The proposed approach does not comply with policy and uncertainty remains over the degree of equivalence between SAP2012 and SAP10. In this particular case this is mitigated to an extent by the proposed legal obligation to source all electricity from renewable sources, which is intended to achieve a zero carbon electricity supply. This is made possible by the institutional nature of the Build to Rent model where a single electricity supplier can be maintained long term. It is important to note that Officers are entertaining the proposed approach as a one-off solution to the problems encountered on this site. It is not something which should be encouraged, or accepted as a precedent for future schemes (including the remainder of the Station Hill site) where the normal expectation is that decentralised energy will be 'designed in' from the outset and energy calculations will be based on existing and emerging development plan policy.

2. WIND

2.1 Paragraph 6.95 of the main report refers to wind and microclimate matters being subject to BRE advice as follows. " …*[BRE] findings are awaited and will be reported to Committee in an Update. Failing that, officers request delegated authority to finalise assessment and issue permission once the wind and microclimate matter is resolved. Such an approach would be consistent with the approach approved under 170326/FUL at Land between Weldale Street and Chatham Street*".

2.2 At the time of writing BRE require further clarification from the applicant on some points of detail and will need to undertake further assessment once these are received. It is therefore recommended that this is resolved under delegated authority. The matter will be reported back to Committee for determination in the event that BRE have unresolved substantive objections to the scheme, or if material changes are required to the scheme design.

3. ECOLOGY

3.1 In response to para 4.55 of the main report, the applicant has pointed out that the February version of the Ecological Management Plan has been superseded by the revised *Ecological Management Plan WIE14788-100-R-7-3-3-EMP Third Issue, dated May 2019* (correctly referenced in recommended Condition 1 of 190465 and 190466 at Appendix 1 of the main agenda). Appendix A to this revised report *does* confirm the location of 6 no. bat boxes on Plots E and F.

4. DRAWINGS

4.1 A full list of submitted drawings for approval is included at Appendix 2 of this Update.

5. RECOMMENDATION WORDING and CONDITIONS

5.1 Recommendations 3 and 4 need to be reworded as the Reserved Matters approval can only be granted after the s73 permissions (decision notices) are issued. It is not sufficient to grant the RMAs subject to a *resolution* to grant on the s73 permissions.

5.2 Condition 4 of 190441 and 190442 should set the same date limits as the extant permissions (5 years from 9 January 2015) as it is not possible to extend the time limit for commencement under s.73. Amended wording is provided in the recommendation above.

6. CONCLUSION

6.1 The energy characteristics of the proposal form the main focus of this Update. Officers note the uncertainty in terms of the national context, the difficulties comparing SAP2012 and SAP10 and the lack of direct policy compliance. However Officers also remain mindful of the strategic importance of the proposed development and the desirability of securing the regeneration benefits identified in the conclusion to the main report as well as the need to determine applications in a positive and proactive manner. It is considered that the conclusion at para 6.119 of the main report remains valid; that in this particular case the considerable benefits of the scheme outweigh the less favourable aspects and it is recommended that Planning Permissions 190441 and 190442, followed by Reserved Matters approvals 190465 and 190466, be granted (subject to further Wind and

Microclimate assessment and completion of the S106 legal agreement) as set out in the recommendation in the main report as amended by the recommended changes set out at the head of this Update report.

Station Hill – Energy.
Response to the Planning Committee Report.

The all electric strategy put forward is exemplary in terms of energy performance. It avoids using out of date and superseded date on carbon generation (from 2013) and makes a legal obligation/commitment to sourcing green energy. It is future proofed for the ongoing decarbonisation of the electricity grid and should be recognised as such.

Summary - all electric strategy:

- **Zero carbon green energy;**
- **Zero tonnes CO2 Emission per annum;**
- **100% improvement over Part L 2013 (policy target requires 35%);**
- **Zero impact on Air Quality in the area;**
- **Zero impact on overheating of the residential units that would subsequently need more energy to cool;**
- **Significantly reduced materials and waste (circa 16,000m of pipework alone) and associated construction activities ie deliveries, with all electric strategy;**
- **Thousands of litres of water saved through not having to flush and clean pipework systems; and**
- **Other technologies such as Combined Heat and Power (CHP) plant, Biomass Boilers and GSHP are not suitable for this development.**

	All Electric			CHP + Boilers (60/40)			GSHP + Boilers (30/70)		
	SAP 2012	SAP 10	Green Energy	SAP 2012	SAP 10	Green Energy	SAP 2012	SAP 10	Green Energy
Baseline Emissions (tonnes CO_2 per Annum)	559	355	0	387	345	319	423	520	482
Achieved Emissions (tonnes CO_2 per Annum)	553	231	0	261	341	415	361	275	210
Improvement over Part L 2013	**1%**	**35%**	**100%**	**32%**	**1%**	**+30%**	**15%**	**47%**	**56%**

The results clearly demonstrate that our proposed option of All-Electric is compliant with the emerging RBC policy of zero-carbon and when using realistic carbon factors, even without our legal commitment to use only green energy, generates the least number of tonnes of Carbon Dioxide per year of all the options considered. It also achieves the minimum carbon reduction required by the emerging policy without the additional

commitment to green energy. Lincoln Property Company has prided itself and been recognised globally with the highest awards for their commitment to prioritising green initiatives for their communities and residents.

1. Introduction.

This note has been prepared to outline Lincoln Property Company's approach to achieving a **zero-carbon** development for Phase 1 of the Station Hill development. Lincoln Property Company has prided itself and been recognised globally with the highest awards for their commitment to prioritising green initiatives for their communities and residents. For example, in the US to earn certification to the National Green Building Standard (during construction), a multifamily/BTR building must meet rigorous criteria in six categories -- Lot and Site Development; Resource Efficiency; Energy Efficiency; Water Efficiency; Indoor Environmental Quality; and Homeowner Education. In addition, once operational a 'green guide' for residents/staff/communities - encouraging and advising residents on sustainable matters - will be issued to anyone involved in the Reading scheme.

This approach includes a legal commitment to sourcing green energy on bulk for the rental community that ensures the zero-carbon approach is achieved in the long term and residents also benefit from the bulk rates. This also reflects Lincoln's approach to build to rent as an owner / operator with a long-term approach to sustainability and operation in use.

This note also addresses the points made in the planning report around 'decentralised' energy, the use of the 'SAP 10' carbon factors and why Ground Source Heat Pumps (GSHP) are not feasible for this site.

Even without the commitment to green energy it is evident that when using realistic carbon factors for electricity and gas, the all-electric approach generates less kg of CO_2 than any other feasible approach to meeting the proposed planning condition. Alongside this there are a number of wider sustainability benefits including;

- No impact on Air Quality in the area;
- No impact on overheating of the residential units that would subsequently need more energy to cool;
- Reduced materials and waste (circa 16,000m of pipework alone) and associated construction activities ie deliveries
- Thousands of litres of water saved through not having to flush and clean pipework systems.
- Simpler and easier to build and operate meaning housing and affordable housing gets delivered quicker

The strategy put forward is exemplary in terms of energy performance and reflects actual performance rather than adopting an approach that may have been correct 5 years ago but does not reflect the fast-moving world of green energy production and the move towards low carbon environment. It avoids using input figures for the energy calculations that are inaccurate, and out of date, and hence distort the final analysis. Our approach is future proofed for the ongoing decarbonisation of the electricity grid and should be recognised as such.

2. Decarbonising of the Electricity Grid.

Grid electricity has significantly decarbonised since the last update of Part L in April 2014. The UK government announced that it will implement the closure of all coal-fired power stations by 2025. This is in line with the increase in renewable power generation.

2017 saw times where low-carbon generation, such as wind, solar and nuclear, generated more energy than coal and gas combined; showing very real progress towards a low-carbon future. In April 2018, Britain went for more than 3 days without the need for coal power and in May 2019 passed a week without the need for this fossil fuel; the first time since 1882. It is clear that the grid in 2019 is much cleaner than in past years and so it is therefore a hindrance that our new buildings still utilise the emissions rates of 2014 that give a false position of gas being less green than electricity.

What is a Carbon Factor?

A carbon emission factor (carbon factor) is the average emission rate of a given greenhouse gas for a given source, relative to units of activity.

SAP 10 Carbon Factors

In July 2018 the Government published updated carbon emission factors (SAP 10), demonstrating how the grid is decarbonising. The table below details the carbon factors for electricity under SAP 2012, SAP 10, Actual (last 3 months), Actual (last year) and a source of green energy. They reflect the general decarbonisation of the grid.

	Emissions kg CO_{2e} per kWh				
	SAP 2012 (2014)	**SAP 10 (July 2018)**	**Actual (last 3 months)**	**Actual Last Year (2018)**	**Green Energy (Bulb)**
Electricity	0.519[1]	0.233[2]	0.191[3]	0.225[4]	0[5]

1: SAP 2012: https://www.bregroup.com/sap/standard-assessment-procedure-sap-2012/
2: SAP 10 (please note this is just the carbon factors not the SAP 10 methodology itself): https://www.bregroup.com/sap/sap10/
3: Britain's Electricity Demand: https://electricinsights.co.uk/#/dashboard?period=3-months&start=2019-04-09&&_k=nk712c
4. Attached SSE's fuel mix for last year that confirms the national average of 0.225 for 2017-2018
5. Bulb's Fuel Mix: https://bulb.co.uk/fuelmix/

This clearly demonstrates the use of SAP 10 carbon factors is appropriate for current day energy modelling. As section 6.98 of the committee report notes the GLA has mandated this approach since the 1st January 2019 to all energy strategies across London. It is also noted in the committee report that this is in the context of more stringent zero carbon requirements and we assume RBC will want to embrace this current and more proactive approach to reducing carbon and overall sustainability to support its climate emergency.

3. Site Wide Carbon Reduction.

The table below shows the tonnes of carbon produced for the various energy strategy options investigated for the proposed scheme. It includes a theoretical GSHP system that may be achievable with the site constraints. The results have been provided using the SAP 2012, SAP 10 and Green Energy carbon factors

	All Electric			CHP + Boilers (60/40)			GSHP + Boilers (30/70)		
	SAP 2012	SAP 10	Green Energy	SAP 2012	SAP 10	Green Energy	SAP 2012	SAP 10	Green Energy
Baseline Emissions (tonnes CO_2 per Annum)	559	355	0	387	345	319	423	520	482
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The results clearly demonstrate that our proposed option of All-Electric is compliant with the emerging RBC policy of zero-carbon and when using realistic carbon factors, even without our legal commitment to only use green energy, generates the least number of tonnes of Carbon Dioxide per year. It also achieves the minimum carbon reduction required by the emerging policy without the additional commitment to green energy.

4. Decentralised Energy.

Although the name can be misleading the term decentralised energy actually means the provision of a centralised system for energy production across the site. The committee report refers to Combined Heat and Power (CHP) plant, Biomass Boilers and GSHP have briefly summarised below why none of these technologies are suitable for this development.

It should be noted that all of these systems will introduce hot pipes to be distributed around the building that will impact the overheating of the apartments and the floor to ceiling heights which will require redesign of the scheme. We note the committee report states that GSHP could provide cooling to address the overheating, but it seems counter intuitive to introduce additional cooling units and energy to address a problem caused by a system that is supposed to be more sustainable.

Biomass Boilers

Large biomass systems are not suitable for city centre locations due to the impact on air quality both from burning the wood and the vehicles needed to deliver wood to site. These deliveries will also impact traffic flow in the city centre.

CHP

CHP used in conjunction with gas fired boilers has been the standard way of providing decentralised energy for large residential schemes over recent years. When this technology is assessed against current policy and SAP 2012 it will be possible to meet the proposed planning condition. However, when considered against realistic carbon factors (SAP10 of 2018) the system barely achieves compliance with the Building Regulations (due to the increased amount of fuel that a CHP uses to produce heat, compared with a gas fired boiler). As the building regulations are due to change in 2020 using the SAP 10 carbon factors means the building could be out of date as soon as it's built. Alongside this the gas fired CHP and boilers will have a negative impact on the surrounding air quality.

GSHP

In order to provide a system capable of serving all of the Phase 1 heating load approximately 250 boreholes would be required alongside around 8,000m2 space to maintain suitable spacing between boreholes and avoid impact on ground conditions. This is based on the heating load, but in order to work effectively a balanced cooling load will be needed. As noted in a previous report submitted to RBC there is insufficient space to accommodate a system of this size, and piling drawings showing all of the existing piles being retained alongside new ones needed have been provided to illustrate this. It is worth noting that this system runs at lower heating temperatures, so gas fired boilers will also be required to generate hot water at suitable temperatures which will impact on air quality.

It is quite clear from the above and the detailed work undertaken that none of the decentralised systems are feasible for Phase 1 of the Station Hill development. However, all technologies including air source heat pumps will be reviewed for suitability for Phases 2 and 3 of the development to ensure that consideration of the impact of design proposals and measures on the sustainable credentials of the development are made throughout the design development and the construction process. We would expect to assess all technologies against realistic carbon factors.

5. Summary.

Lincoln Property Company have proposed an all-electric solution for Phase 1 of Station Hill and in conjunction with their legal commitment to green energy are achieving a zero-carbon development. They are proposing to use up to date carbon factors to assess the energy performance reflecting the current state of energy

generation in the UK. We would urge RBC to embrace this and take it on board as part of their drive towards zero carbon.

Alongside exemplary energy performance the all-electric proposal has a number of other wider sustainability benefits as follows;

- No impact on Air Quality in the area;
- No impact on overheating of the residential units that would subsequently need more energy to cool;
- Reduced materials and waste (circa 16,000m of pipework alone) and associated construction activities i.e. deliveries;
- Thousands of litres of water saved through not having to flush and clean pipework systems; and
- Simpler and easier to build and operate meaning housing and affordable housing gets delivered quicker.

These benefits can be coupled with a number of other sustainable aspects of the scheme including;

- Optimised façade and window design, including solar control glazing to limit energy demand;
- A substantial Photo Voltaic array at roof level to generate electricity; and
- Mechanical ventilation with full heat recovery in every retail unit.

APPENDIX 2 – DRAWINGS

SUBMITTED DRAWINGS – FOR APPROVAL

To be referred to in all relevant conditions under 190441/190442/190465/190466.

190441 and 190442 (OUTLINE)		
Drawing Title	**Drawing No.**	**Revision Date or Number**
Site - Location Plan	SHR-CRL-SB-ZZ-PL-A-100-001	14/3/19
Site - Plot E - Location Plan	SHR-CRL-SB-ZZ-PL-A-100-002	P11 - 28/6/19
Site - Plot F - Location Plan	SHR-CRL-SB-ZZ-PL-A-100-003	P11 - 28/6/19
Site - Plot E Existing Site Plan	SHR-CRL-SB-ZZ-PL-A-100-004	P11 - 28/6/19
Site - Plot F Existing Site Plan	SHR-CRL-SB-ZZ-PL-A-100-005	P11 - 28/6/19
Site - Plot E Proposed Site Plan	SHR-CRL-SB-ZZ-PL-A-100-006	P11 - 28/6/19
Site - Plot F Proposed Site Plan	SHR-CRL-SB-ZZ-PL-A-100-007	P11 - 28/6/19
Site - Plot E Topography	SHR-CRL-SB-ZZ-PL-A-100-008	P11 - 28/6/19
Site - Plot F Topography	SHR-CRL-SB-ZZ-PL-A-100-009	P11 - 28/6/19
Existing - Plot E Typical Floor Plan	SHR-CRL-SB-ZZ-PL-A-100-010	
Existing - Plot F Typical Floor Plan	SHR-CRL-SB-ZZ-PL-A-100-011	P11 - 28/6/19
Existing Elevation - Friars Street & Garrard Street	SHR-CRL-SB-ZZ-PL-A-100-012	14/3/19
Existing Elevation - Merchants Place	SHR-CRL-SB-ZZ-PL-A-100-013	14/3/19
Building Parameters - Indicative Sequence	SHR-CRL-SB-ZZ-PL-A-100-100	P10
Building Parameters - Application Boundary	SHR-CRL-SB-ZZ-PL-A-100-101	P10
Building Parameters - Demolition and Retained Buildings	SHR-CRL-SB-ZZ-PL-A-100-102	P11
Building Parameters - Building Plots	SHR-CRL-SB-ZZ-PL-A-100-102	P11
Building Parameters - Public Realm	SHR-CRL-SB-ZZ-PL-A-100-103	P10
Building Parameters - Access Routes	SHR-CRL-SB-ZZ-PL-A-100-104	P11
Building Parameters - Ground Floor Uses	SHR-CRL-SB-ZZ-PL-A-100-105	P10
Building Parameters - Upper Floor Uses	SHR-CRL-SB-ZZ-PL-A-100-106	P10
Building Parameters - Plot E - Application Boundary	SHR-CRL-SB-ZZ-PL-A-100-003	P10
Building Parameters - Plot E - Demolition and Retained Buildings	SHR-CRL-SB-ZZ-PL-A-100-111	P10

APPENDIX 2 – DRAWINGS

Building Parameters - Plot E - Building Plots	SHR-CRL-SB-ZZ-PL-A-100-110	P10
Building Parameters - Plot E - Public Realm	SHR-CRL-SB-ZZ-PL-A-100-111	P10
Building Parameters - Plot E - Access Routes	SHR-CRL-SB-ZZ-PL-A-100-112	P11
Building Parameters - Plot E - Ground Floor Uses	SHR-CRL-SB-ZZ-PL-A-100-113	P10
Building Parameters - Plot E - Upper Floor Uses	SHR-CRL-SB-ZZ-PL-A-100-114	P10
190465 and 190466 (RESERVED MATTERS PLOTS E and F)		
Floorplans		
Plot E - Lower Ground Floor Level (39 AOD)	SHR-CRL-SB-LG-PL-A-130-001	P12
Plot E - Mezzanine Floor Level (41.3 - 42.1 AOD)	SHR-CRL-SB-MZ-PL-A-130-002	P11
Plot E - Ground Floor Level (45.7 AOD)	SHR-CRL-SB-GF-PL-A-130-003	P12
Plot E - Floor Level 01-02	SHR-CRL-SB-ZZ-PL-A-130-004	P10
Plot E - Floor Level 03-04	SHR-CRL-SB-ZZ-PL-A-130-005	P10
Plot E - Floor Level 05-06	SHR-CRL-SB-ZZ-PL-A-130-006	P11
Plot E - Floor Level 07-08	SHR-CRL-SB-ZZ-PL-A-130-007	P10
Plot E - Floor Level 09-10	SHR-CRL-SB-ZZ-PL-A-130-008	P10
Plot E - Floor Level 11-Roof Level	SHR-CRL-SB-ZZ-PL-A-130-009	P10
Plot F - Lower Ground Floor Level (39 AOD)	SHR-CRL-SB-ZZ-PL-A-130-101	P13 – 4/7/19
Plot F - Mezzanine Floor Level (41.3 - 42.1 AOD)	SHR-CRL-SB-ZZ-PL-A-130-102	P13 – 4/7/19
Plot F - Ground Floor Level (45.7 AOD)	SHR-CRL-SB-ZZ-PL-A-130-103	P10
Plot F - Floor Levels 01-04	SHR-CRL-SB-ZZ-PL-A-130-104	P10
Plot F - Floor Levels 05-08	SHR-CRL-SB-ZZ-PL-A-130-105	P10
Plot F - Floor Levels 09-11 and Roof Plan	SHR-CRL-SB-ZZ-PL-A-130-106	P10
Elevations		
Site - Garrard Street Elevation Blocks E and F	SHR-CRL-SB-ZZ-PL-A-200-001	P10
Site - Friar Street Elevation Block E	SHR-CRL-SB-ZZ-PL-A-200-002	P10
Site - Friars Walk East Elevation Block E	SHR-CRL-SB-ZZ-PL-A-200-003	P10
Site - Friars Walk West Elevation Block F	SHR-CRL-SB-ZZ-PL-A-200-004	P10
Site - Greyfriars Road West Elevation Block E	SHR-CRL-SB-ZZ-PL-A-200-005	P10

APPENDIX 2 – DRAWINGS

Site - Merchants Place East Elevation Block F	SHR-CRL-SB-ZZ-PL-A-200-006	P10
Block E Elevations - South and North	SHR-CRL-SB-ZZ-PL-A-200-101	P10
Block E Elevations - East and West	SHR-CRL-SB-ZZ-PL-A-200-102	P10
Block E Elevations - South and North Courtyard	SHR-CRL-SB-ZZ-PL-A-200-103	P10
Block F Elevations	SHR-CRL-SB-ZZ-PL-A-200-201	P10
Sections		
Plot E Section AA & Section B-B	SHR-CRL-SB-ZZ-PL-A-300-001	P10
Plot E Section CC	SHR-CRL-SB-ZZ-PL-A-300-002	P10
Plot E & F Section DD & Section EE	SHR-CRL-SB-ZZ-PL-A-300-003	P10
Plot F Section AA & Section BB	SHR-CRL-SB-ZZ-PL-A-300-100	P10
Large Scale Plan Sections And Elevations		
Block E - Friar St. - Bay Elevation	SHR-CRL-BE-ZZ-DR-P-400-001	14/3/19
Block E - Friar St. - Bay Elevation	SHR-CRL-BE-ZZ-DR-P-400-002	14/3/19
Block E - Friar St. - Bay Elevation	SHR-CRL-BE-ZZ-DR-P-400-003	14/3/19
Block E - Friars Walk - Bay Elevation	SHR-CRL-BE-ZZ-DR-P-400-004	14/3/19
Block E - North Courtyard - Bay Elevation	SHR-CRL-BE-ZZ-DR-P-400-005	14/3/19
Block E - South Courtyard - Bay Elevation	SHR-CRL-BE-ZZ-DR-P-400-006	14/3/19
Block E - Garrard St. - Bay Elevation	SHR-CRL-BF-ZZ-DR-P-400-101	14/3/19
Block E - Garrard St. - Bay Elevation	SHR-CRL-BF-ZZ-DR-P-400-102	14/3/19
Landscaping General Arrangement		
WILDLIFE INSTALLATION PLAN	SHR-LDA-SB-ZZ-DR-L-100-110	P04
TREE PLANTING PLAN (SUPERSEDED BY DETAILED SOFTWORKS PLANS)	SHR-LDA-SB-ZZ-DR-L-100-120	
GREEN ROOF AREA PLAN	SHR-LDA-SB-ZZ-DR-L-100-130	P04

APPENDIX 2 – DRAWINGS

HERBACEOUS PLANTING PLAN (SUPERSEDED BY DETAILED SOFTWORKS PLANS)	SHR-LDA-SB-ZZ-DR-L-100-140	
Hard Landscaping		
PLOT E&F LOWER GROUND FLOOR GENERAL ARRANGEMENT GARRARD STREET	SHR-LDA-SB-LG-DR-L-110-101	P06
PLOT E&F GROUND FLOOR GENERAL ARRANGEMENT FRIARS WALK & COURTYARD	SHR-LDA-SB-GF-DR-L-110-102	P07
PLOT E&F LEVEL 01 GENERAL ARRANGEMENT PODIUM TERRACES	SHR-LDA-SB-01-DR-L-110-103	
PLOT E&F LEVEL 06 GENERAL ARRANGEMENT ROOF TERRACE AND GREEN ROOF	SHR-LDA-SB-06-DR-L-110-104	
PLOT E&F LEVEL 10 GENERAL ARRANGEMENT GREEN ROOF	SHR-LDA-SB-10-DR-L-110-105	P04
PLOT E&F LEVEL 11 GENERAL ARRANGEMENT ROOF TERRACE AND GREEN ROOF	SHR-LDA-SB-11-DR-L-110-106	P04
PLOT E&F LEVEL 12 GENERAL ARRANGEMENT GREEN ROOF	SHR-LDA-SB-12-DR-L-110-107	P04
Soft Landscaping		
BLOCK E&F LOWER GROUND FLOOR DETAIL SOFTWORKS GA GARRARD STREET SHEET 1 OF 3	SHR-LDA-SB-LG-DR-L-320-101	P02
BLOCK E&F LOWER GROUND FLOOR DETAIL SOFTWORKS GA GARRARD STREET SHEET 2 OF 3	SHR-LDA-SB-LG-DR-L-320-102	P02
BLOCK E&F LOWER GROUND FLOOR DETAIL SOFTWORKS GA GARRARD STREET SHEET 3 OF 3	SHR-LDA-SB-LG-DR-L-320-103	P02
BLOCK E&F GROUND FLOOR COURTYARD LEVEL 00 DETAIL SOFTWORKS GA	SHR-LDA-SB-GF-DR-L-320-104	P01
BLOCK E&F GROUND FLOOR DETAIL SOFTWORKS GA FRAR'S WALK & FRIAR'S STREET SHEET 1 OF 3	SHR-LDA-SB-GF-DR-L-320-105	P02
BLOCK E&F GROUND FLOOR DETAIL SOFTWORKS GA FRAR'S	SHR-LDA-SB-GF-DR-L-320-106	P03

APPENDIX 2 – DRAWINGS

WALK & FRIAR'S STREET SHEET 2 OF 3		
BLOCK E&F GROUND FLOOR DETAIL SOFTWORKS GA FRAR'S WALK & FRIAR'S STREET SHEET 3 OF 3	SHR-LDA-SB-GF-DR-L-320-107	P02
BLOCK E LEVEL 01 DETAIL SOFTWORKS GA -NORTHERN TERRACE	SHR-LDA-SB-01-DR-L-320-108	P01
BLOCK E LEVEL 01 DETAIL SOFTWORKS GA -SOUTHERN TERRACE	SHR-LDA-SB-01-DR-L-320-109	P01
BLOCK E LEVEL 06 DETAIL SOFTWORKS GA - ROOF TERRACE	SHR-LDA-SB-01-DR-L-320-110	P01
BLOCK F LEVEL 11 DETAIL SOFTWORKS GA - ROOF TERRACE	SHR-LDA-SB-01-DR-L-320-111	P01
Landscaping Sections		
BLOCK E&F SITE SECTION FRIARS WALK LOOKING EAST	SHR-LDA-SB-ZZ-DR-L-400-101	P04
BLOCK E&F SITE SECTION THROUGH BLOCK E AND FRIARS WALK LOOKING NORTH	SHR-LDA-SB-ZZ-DR-L-400-102	P04
BLOCK E&F SITE SECTION THROUGH BLOCK E, FRIARS WALK AND BLOCK F LOOKING NORTH	SHR-LDA-SB-ZZ-DR-L-400-103	P04
BLOCK E&F SITE SECTION THROUGH GARRARD STREET LOOKING SOUTH	SHR-LDA-SB-ZZ-DR-L-400-104	P04
BLOCK E&F SITE SECTION THROUGH BLOCK E LOOKING WEST	SHR-LDA-SB-ZZ-DR-L-400-105	P03
Landscaping Details		
PODIUM EDGE TYPE DETAILS FRIAR'S WALK SHEET 1 OF 2	SHR-LDA-SB-GF-DR-L-500-231	P05
BLOCK E LEVEL 00 COURTYARD EDGE TYPE DETAILS	SHR-LDA-SB-01-DR-L-500-241	P03
BLOCK E LEVEL 01 TERRACE EDGE TYPE DETAILS	SHR-LDA-SB-ZZ-DR-L-500-251	P02
BLOCK E AND F LEVEL 06 AND 10 TERRACE EDGE TYPE DETAILS	SHR-LDA-SB-ZZ-DR-L-500-261	P02
PUBLIC REALM FURNITURE TYPE DETAILS GARRARD STREET SHEET 1 OF 2	SHR-LDA-SB-LG-DR-L-500-311	P04
PUBLIC REALM FURNITURE TYPE DETAILS GARRARD STREET	SHR-LDA-SB-LG-DR-L-500-312	P02

APPENDIX 2 – DRAWINGS

SHEET 2OF 2		
PUBLIC REALM FURNITURE TYPE DETAILS FRIAR STREET	SHR-LDA-SB-GF-DR-L-500-321	P03
PODIUM FURNTURE TYPE DETAILS FRIAR'S WALK	SHR-LDA-SB-GF-DR-L-500-331	P04

LANDSCAPE AND PUBLIC REALM ILLUSTRATIVE SITE PLAN	SHR-LDA-SB-ZZ-DR-L-100-100	P01
Soft Landscaping		
Softworks Typologies - Sheet 1 of 8	SHR-LDA-SB-ZZ-DR-L-100-141	P01
Softworks Typologies - Sheet 2 of 8	SHR-LDA-SB-ZZ-DR-L-100-142	P01
Softworks Typologies - Sheet 3 of 8	SHR-LDA-SB-ZZ-DR-L-100-143	P01
Softworks Typologies - Sheet 4 of 8	SHR-LDA-SB-ZZ-DR-L-100-144	P01
Softworks Typologies - Sheet 5 of 8	SHR-LDA-SB-ZZ-DR-L-100-145	P01
Softworks Typologies - Sheet 6 of 8	SHR-LDA-SB-ZZ-DR-L-100-146	P01
Softworks Typologies - Sheet 7 of 8	SHR-LDA-SB-ZZ-DR-L-100-147	P01
Softworks Typologies - Sheet 8 of 8	SHR-LDA-SB-ZZ-DR-L-100-148	P01
Landscaping Details		
Paving		
PUBLIC REALM PAVING DETAILS GARRARD STREET	SHR-LDA-SB-LG-DR-L-500-111	P01
PUBLIC REALM PAVING DETAILS FRIAR STREET	SHR-LDA-SB-GF-DR-L-500-121	P01
PODIUM PAVING DETAILS FRIAR'S WALK	SHR-LDA-SB-GF-DR-L-500-131	P01
BLOCK E LEVEL 00 COURTYARD PAVING DETAILS	SHR-LDA-BE-GF-DR-L-500-141	P01
BLOCK E LEVEL 01 TERRACE PAVING DETAILS	SHR-LDA-BE-01-DR-L-500-151	P01
BLOCK E AND F LEVEL 06 AND 10 TERRACE PAVING DETAILS	SHR-LDA-SB-ZZ-DR-L-500-161	P01
BLOCK E AND F LEVEL 06, 10, 11, 12 GREEN ROOF DETAILS	SHR-LDA-SB-ZZ-DR-L-500-171	P01
Edging		
PUBLIC REALM EDGE TYPE DETAILS GARRARD STREET	SHR-LDA-SB-LG-DR-L-500-211	P01
PUBLIC REALM EDGE TYPE DETAILS FRIAR STREET	SHR-LDA-SB-GF-DR-L-500-221	P01
PODIUM EDGE TYPE DETAILS FRIAR'S WALK	SHR-LDA-SB-GF-DR-L-500-231	P01
BLOCK E LEVEL 00 COURTYARD EDGE TYPE DETAILS	SHR-LDA-SB-01-DR-L-500-241	P01

APPENDIX 2 – DRAWINGS

BLOCK E LEVEL 01 TERRACE EDGE TYPE DETAILS	SHR-LDA-SB-ZZ-DR-L-500-251	P01
BLOCK E AND F LEVEL 06 AND 10 TERRACE EDGE TYPE DETAILS	SHR-LDA-SB-ZZ-DR-L-500-261	P01
Furniture		
PUBLIC REALM FURNITURE TYPE DETAILS GARRARD STREET	SHR-LDA-SB-LG-DR-L-500-311	P01
PUBLIC REALM FURNITURE TYPE DETAILS FRIAR STREET	SHR-LDA-SB-GF-DR-L-500-321	P01
PODIUM FURNTURE TYPE DETAILS FRIAR'S WALK	SHR-LDA-SB-GF-DR-L-500-331	P01
BLOCK E LEVEL 00 COURTYARD FURNITURE TYPE DETAILS	SHR-LDA-SB-01-DR-L-500-341	P01
BLOCK E LEVEL 01 TERRACE FURNITURE TYPE DETAILS	SHR-LDA-SB-ZZ-DR-L-500-351	P01
BLOCK E AND F LEVEL 06 AND 10 TERRACE FURNITURE TYPE DETAILS	SHR-LDA-SB-ZZ-DR-L-500-361	P01
Steps		
STEPS DETAILS TO PUBLIC REALM	SHR-LDA-SB-ZZ-DR-L-500-411	P01
FRIAR ST - HIGHWAY ALTERATIONS	44470/5501/010	27/6/19
GARRARD ST – HIGHWAY ALTERATIONS	44470/5501/011	27/6/19

… and all drawings originally approved under 151427 and documents relating to the Plots A, B, C, D, and G only (the North Site) including:

698_PP_07_001 Parameter Plan 1: application boundary P3
698_PP_07_002 Parameter Plan 2: demolition and retained buildings P5
698_PP_07_003 Parameter Plan 3: building plot (including heights) P5
698_PP_07_004 Parameter Plan 4: public realm P4
698_PP_07_005 Parameter Plan 5: vehicle and pedestrian access routes P6
698_PP_07_006 Parameter Plan 6: ground floor uses P5
698_PP_07_007 Parameter Plan 7: upper floor uses P5