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PHV.9.01	SI1 A 1) A	<p>A London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced:</p> <p>A)1) D development plans and proposals should not:</p> <ul style="list-style-type: none"> a) moved to B1 b) moved to B1 c) moved to A d) moved to B1 <p>A Development plans, through relevant strategic, site specific and area-based policies should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.</p>
PHV.9.02	SI1 B	<p>B To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:</p> <p>1 Development proposals should not:</p>

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		<ul style="list-style-type: none"> a) lead to further deterioration of existing poor air quality b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits c) create unacceptable risk of high levels of exposure to poor air quality. <p>2. In order to meet the requirements in Part 1, as a minimum:</p> <ul style="list-style-type: none"> a) Development proposals must be at least air quality neutral b) Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures c) Major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1 d) Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people, which do not demonstrate that

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		design measures have been used to minimise exposure should be refused.
PHV.9.03	SI1 B 2)	B 2) Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality (moved to B2). Particular care should be taken with developments that are in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people.
PHV.9.04	SI1 A 3) C	<p>3) C The development of large-scale redevelopment areas, such as Opportunity Areas and Masterplans and development briefs for large-scale development proposals these subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part propose methods of achieving of an Aair Qquality Ppositive approach through the new development. All other developments should be at least Air Quality Neutral. To achieve this a statement should be submitted demonstrating:</p> <p style="padding-left: 40px;">a) How proposals have considered ways to maximise benefits to local air quality, and</p>

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		b) What measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.
PHV.9.05	SI1 A 3A) D	D 3A) — major development proposals must be at least air quality neutral and be submitted with an Air Quality Assessment.
PHV.9.06	SI1 A 4) E D	E 4) D In order to reduce the impact on air quality during the construction and demolition phase D development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance ¹¹⁵ .
PHV.9.07	SI1 A 5)	5) — Air Quality Assessments (AQAs) should be submitted with all major developments, unless they can demonstrate that transport and building emissions will be less than the previous or existing use.
PHV.9.08	SI1 A 6) F E	F 6) E D development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable , this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures provision is impractical or inappropriate , off-site measures to improve local air

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		quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development.
PHV.9.09	SI1 Paragraph 9.1.1	Poor air quality is a major issue for London which is failing to meet requirements under legislation. Poor air quality has direct impacts on the health, quality of life and life expectancy of Londoners. The impacts tend to be most heavily felt in some of London's most deprived neighbourhoods, and by people who are most vulnerable to the impacts. London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced.
PHV.9.10	SI1 Paragraph 9.1.1A	The Mayor is committed to making air quality in London the best of any major world city, which means not only meeting and maintaining achieving compliance with legal limits for Nitrogen Dioxide as soon as possible and maintaining compliance where it is already achieved but also working to achieve World Health Organisation targets for other pollutants such as Particulate Matter.
PHV.9.11	SI1 Paragraph 9.1.1B	Where this policy refers to 'existing poor air quality' this should be taken to include areas where legal limits for any pollutant, or World Health Organization targets for Particulate Matter, are already exceeded and areas where current pollution levels are within 5% of these limits^{116A}.

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		<p>116A This is based on the Institute of Air Quality Management Guidance on Land-Use Planning & Development Control: Planning for Air Quality (January 2017), which indicates that even very small impacts on ambient air quality cannot be considered ‘negligible’ where existing levels are within 5% of limits.</p>
PHV.9.12	SI1 Paragraph 9.1.2	<p>...This means that new developments, as a minimum, must not cause new exceedances of legal air quality standards, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits¹¹⁶. ...</p> <p>116 Air Quality Standards Regulations 2010, or subsequent revisions thereof http://www.legislation.gov.uk/ukxi/2010/1001/contents/made</p>
PHV.9.13	SI1 Paragraph 9.1.2A	<p>Where this policy refers to ‘existing poor air quality’ this should be taken to include areas where legal limits for any pollutant, or World Health Organization targets for Particulate Matter, are already exceeded and areas where current pollution levels are within 5% of these limits^{116A}.</p> <p>116A This is based on the Institute of Air Quality Management Guidance on Land-Use Planning & Development Control: Planning for Air Quality (January 2017), which indicates that even very small impacts on ambient air quality cannot be considered ‘negligible’ where existing levels are within 5% of limits.</p>

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PHV.9.14	SI1 Paragraph 9.1.3	For larger-scale development areas such as Opportunity Areas, or those large enough to already require an Environmental Impact Assessment, there should be an aim to be Air Quality Positive by implementing measures across the area that will actively reduce air pollution. This could be achieved, for example, by the provision of low or zero-emission heating and energy, or improvements to public transport, walking and cycling infrastructure, and designing out features such as street canyons that prevent effective dispersion of pollutants. Data from the use of smart infrastructure such as sensors could contribute to beneficial design solutions.
PHV.9.15	SI1 Paragraph 9.1.6	Assessment of the impacts of a scheme on local air pollution should include fixed plant, such as boiler and emergency generators, as well as expected transport-related sources. The impact assessments part of an Air Quality Assessment should always include all relevant pollutants. ...
PHV.9.16	SI1 Paragraph 9.1.6A	The impact assessment should provide decision makers with sufficient information to understand the scale and geographic scope of any detrimental, or beneficial, impacts on air quality and enable them to exercise their professional judgement in deciding whether the impacts are acceptable, in line with best practice.
PHV.9.17	SI1	Meeting the Air Quality Neutral benchmarks^{116B}, although necessary to control the growth in London's regional emissions, will not always be sufficient to prevent

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	Paragraph 9.1.6B	<p>unacceptable local impacts, as these may be affected by other factors, such as the location of the emissions source, the rate of emissions (as opposed to annual quantum) and the layout of the development in relation to the surrounding area. As developments can still have significant local impacts that are not captured by Air Quality Neutral, for example by concentrating emissions, increasing exposure or preventing dispersion in particular locations, it is still important for these impacts to be assessed and mitigated.</p> <p>116B See glossary</p>
PHV.9.18	SI1 Paragraph 9.1.6C	<p>For most minor developments achieving Air Quality Neutral will be enough to demonstrate that they are in accordance with Part B1 of this policy. However, where characteristics of the development or local features raise concerns about air quality, or where there are additional requirements for assessments in local policy, a full Air Quality Assessment may be required. Additional measures may also be needed to address local impacts. Guidance on Air Quality Neutral will set out streamlined assessment procedures for minor developments.</p>
PHV.9.19	SI1 Paragraph 9.1.6D	<p>An air quality positive approach is linked to other policies in the London Plan, such as Healthy Streets, energy masterplanning and green infrastructure. One of the keys to delivering this will be to draw existing good practice together in a holistic fashion, at an early stage in the process, to ensure that the development team can identify</p>

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		<p>which options deliver the most improvement to air quality. Large schemes, subject to EIA, commonly have project and design teams representing a range of expertise, that can feed in to the development of a statement to set out how air quality can be improved across the proposed area of the development.</p>
PHV.9.20	SI1 Paragraph 9.1.6E	<p>Single-site schemes, including referable schemes, are often constrained by pre-existing urban form and structure, transport and heat networks. These constraints may limit their ability to consider how to actively improve local air quality. By contrast large schemes, particularly masterplans, usually have more flexibility to consider how new buildings, amenity and public spaces, transport and heat networks are deployed across the area and will therefore have greater opportunities to improve air quality and reduce exposure through the careful choice of design and infrastructure solutions. Delivery of an air quality positive approach will be project specific and will rely on the opportunities on site or in the surrounding area to improve air quality.</p>
PHV.9.21	SI1 Paragraph 9.1.6F	<p>Statements for large scale development proposals, prepared in response to Part C of this policy, should set out:</p> <ul style="list-style-type: none"> • How air quality is intended to be analysed and opportunities for its improvement identified as part of the design process.

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		<ul style="list-style-type: none"> • How air quality improvements have informed the design choices made about layout and distribution of buildings, amenity spaces and infrastructure. • What steps will be taken to promote the uptake and use of sustainable and zero emission modes of transport beyond minimum requirements. This may include specific measures in transport plans or the delivery against Healthy Streets indicators. • How air pollutant emissions from the buildings or associated energy centres can be reduced beyond the minimum requirements set out in Part B of this policy. This may include specific measures in heating masterplans or working with existing heat network providers to reduce or eliminate energy centre emissions. • How specific measures that are identified to deliver air quality improvements will be evaluated and secured, including whether more detailed design specifications will be required so that the final development meets the desired performance.

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PHV.9.22	SI1 Paragraph 9.1.6G	The GLA will produce guidance in order to assist developers and boroughs in identifying measures and best practice to inform the preparation of statements for developments taking an air quality positive approach.
PHV.9.23	SI1 Paragraph 9.1.6H	Where the Air Quality Assessment or the air quality positive approach assumes that specific measures are put in place to improve air quality, prevent or mitigate air quality impacts, these should be secured through the use of planning conditions or s106 agreements. For instance, if ultra-low NOx boilers are assumed in the assessment, conditions should require the provision of details of the installed plant prior to the occupation of the building, or where larger plant is used for heating, post installation emissions tests should be required to ensure that the modelled emission parameters are achieved.
PHV.9.24	SI1 Paragraph 9.1.8	Air Quality Focus Areas (AQFA) are locations that not only exceed the EU annual mean limit value for nitrogen dioxide (NO ₂) but are also locations with high human exposure. AQFAs are not the only areas with poor air quality but they have been defined to identify areas where currently planned national, regional and local measures to reduce air pollution may not fully resolve poor air quality issues. ...
PHV.9.25	SI1	AQFAs are distinct from Air Quality Management Areas. Air Quality Management Areas (AQMAs) are declared by the London boroughs in response to modelled or measured existing exceedances of legal air quality limits. The analysis underpinning

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	Paragraph 9.1.8A	AQMAs is often more spatially detailed than London-wide modelling and may include the identification of additional air quality hot spots or other local issues.
PHV.9.26	SI1 Paragraph 9.1.8B	All London boroughs have declared AQMAs covering some or all of their area. Boroughs are required to produce Air Quality Action Plans setting out the actions they are taking to improve local air quality; planning decisions should be in accordance with these action plans and developers should take any local requirements in Air Quality Action Plans into account.
PHV.9.27	SI1 Paragraph 9.1.8C	AQFAs are defined based on GLA modelling forecasts that incorporate actions taken by the GLA and others as well as broader changes in emissions sources and are not intended to supplant the role of AQMAs in planning decisions. In practice developers will need to consider both designations where they overlap.
PHV.9.28	SI1 Paragraph 9.1.10	Where there have been significant improvements to air quality resulting in an area no longer exceeding air quality limits, Development Plans should not take advantage of this investment and worsen the local air quality back to a poor level. The sustainability appraisal for local plans should consider the effect of national, London-wide and local programmes to improve air quality to ensure that any potential conflicts are avoided.

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PHV.9.29	SI1 Paragraph 9.1.11	Further guidance will be published on Air Quality Neutral and Aair Qquality Ppositive approaches standards as well as guidance on how to reduce construction and demolition impacts.
PHV.9.30	SI2 A	<p>A Major development should be net zero-carbon^{116C}. This means reducing carbon dioxide greenhouse gas emissions from in construction and operation, and minimising both annual and peak energy demand in accordance with the following energy hierarchy:</p> <ol style="list-style-type: none"> 1) Bbe lean: use less energy and manage demand during construction and operation. 2) Bbe clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly. Development in Heat Network Priority Areas should follow the heating hierarchy in Policy SI3 Energy infrastructure. 3) Bbe green: maximise opportunities for renewable energy by generate producing, storeing and using renewable energy on-site. <p>3A) be seen: monitor, verify and report on energy performance.</p> <p>116C Where zero-carbon is used in the Plan it refers to net zero-carbon – see glossary for definition.</p>

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PHV.9.31	SI2 B	B Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy and will be expected to monitor and report on energy performance.
PHV.9.32	SI2 C	C In meeting the zero-carbon target a A minimum on-site reduction of at least 35 per cent beyond Building Regulations ¹¹⁷ is expected required for major development . Residential development should aim to achieve 10 per cent, and non-residential development should aim to achieve 15 per cent through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided, in agreement with the borough, either: <ol style="list-style-type: none"> 1) through a cash in lieu contribution to the relevant borough's carbon offset fund, and/or 2) off-site provided that an alternative proposal is identified and delivery is certain. <p>¹¹⁷ Building Regulations 2013. If these are updated, the policy threshold will be reviewed https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-1</p>
PHV.9.33	SI2 D	D Boroughs must establish and administer a carbon offset fund. Offset fund payments must be ring-fenced to implement projects that deliver greenhouse gas carbon

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		reductions. The operation of offset funds should be monitored and reported on annually.
PHV.9.34	SI2 DA	DA Major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions.
PHV.9.35	SI2 DB	DB Development proposals referable to the Mayor should calculate whole life-cycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.
PHV.9.36	Figure 9.2	Figure 9.2 - The energy hierarchy and associated targets <i>(MAP AMENDED)</i>
PHV.9.37	SI2 Paragraph 9.2.4	A zero-carbon target for major residential developments has been in place for London since October 2016 and applies to. This target will be extended to include major non-residential developments from 2019 on final publication of this Plan (expected 2019).
PHV.9.38	SI2	To meet the zero-carbon target, an on-site reduction of at least 35 per cent beyond the baseline of part L of the current Building Regulations is required ¹¹⁹

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	Paragraph 9.2.5	119 Building Regulations 2013. If these are updated, the policy threshold will be reviewed. https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-1
PHV.9.39	SI2 Paragraph 9.2.5A	The Mayor recognises that Building Regulations use outdated carbon emission factors and that this will continue to cause uncertainty until they are updated by Government. Interim guidance has been published in the Mayor's Energy Planning Guidance. Further guidance on the use of appropriate emissions factors. This guidance will be updated again once Building Regulations are updated will be set out in the Mayor's Energy Planning Guidance to help provide certainty to developers on how these policies are implemented.
PHV.9.40	SI2 Paragraph 9.2.6	Developments are expected to achieve carbon reductions beyond part L from energy efficiency measures alone to reduce energy demand as far as possible. Residential development should aim to achieve 10 per cent and non-residential development should aim to achieve 15 per cent over part L. ...
PHV.9.41	SI2 Paragraph 9.2.7	...New development is expected to get as close as possible to zero-carbon on-site, rather than relying on offset fund payments to make up any shortfall in emissions. However, offset funds do have the potential to unlock carbon savings from the existing building stock

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		through energy efficiency programmes and by installing renewable technologies – typically more expensive to deliver in London due to the building age, type and tenure.
PHV.9.42	SI2 Paragraph 9.2.8	<p>The Mayor provides support to boroughs by advising those which are at the early stages of setting up their carbon offsetting funds, and by setting out guidance on how to select projects. To ensure that offset funds are used effectively to reduce carbon whilst encouraging a holistic approach to retrofitting, Mayoral programmes offer additional support¹²¹.</p> <p>121 For examples see London Environment Strategy 2018.</p>
PHV.9.43	SI2 Paragraph 9.2.9A	<p>Operational carbon emissions will make up a declining proportion of a development's whole life-cycle carbon emissions as operational carbon targets become more stringent. To fully capture a development's carbon impact, a whole life-cycle approach is needed to capture its unregulated emissions (i.e. those associated with cooking and small appliances), its embodied emissions (i.e. those associated with raw material extraction, manufacture and transport of building materials, and construction) and emissions associated with maintenance, repair and replacement as well as dismantling, demolition and eventual material disposal). Whole life-cycle carbon emission assessments are therefore required for development proposals referable to the Mayor. Major non-referable development should calculate unregulated emissions and are encouraged to undertake whole life-cycle carbon</p>

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		assessments. The approach to whole life-cycle carbon emissions assessments, including when they should take place, what they should contain and how information should be reported, will be set out in guidance.
PHV.9.44	SI2 Paragraph 9.2.10	<p>The Mayor may publish further planning guidance on sustainable design and construction¹²² and will continue to regularly update the guidance on preparing energy strategies for major development. Boroughs are encouraged to request energy strategies for other development proposals where appropriate. As a minimum, energy strategies should contain the following information:</p> <ul style="list-style-type: none"> a. Aa calculation of the energy demand and carbon dioxide emissions covered by Building Regulations and, separately, the energy demand and carbon dioxide emissions from any other part of the development, including plant or equipment, that are not covered by the Building Regulations (i.e. the unregulated emissions), at each stage of the energy hierarchy. b. Pp proposals to reduce carbon dioxide emissions beyond Building Regulations through the energy efficient design of the site, buildings and services, whether it is categorised as a new build, a major refurbishment or a consequential improvement. c. Pp proposals to further reduce carbon dioxide emissions through the use of zero or low-emission decentralised energy where feasible, prioritising connection to

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		<p>district heating and cooling networks and utilising local secondary heat sources. (Development in Heat Network Priority Areas should follow the heating hierarchy in <u>Policy SI3 Energy infrastructure</u>).</p> <p>d. Proposals to further reduce carbon dioxide emissions through-by maximising opportunities to produce the-generation and use of-on-site on-site renewable energy on-site, utilising storage technologies where appropriate.</p> <p>e. Proposals to address air quality risks (see <u>Policy SI1 Improving air quality</u>). Where an air quality assessment has been undertaken, this could be referenced instead.</p> <p>f. The results of dynamic overheating modelling which should be undertaken in line with relevant Chartered Institution of Building Services Engineers (CIBSE) guidance, along with any mitigating actions (see <u>Policy SI4 Managing heat risk</u>).</p> <p>g. Proposals for demand-side response, specifically through installation of smart meters, minimising peak energy demand and promoting short-term energy storage, as well as consideration of smart grids and local micro grids where feasible.</p>

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		<ul style="list-style-type: none"> <li data-bbox="712 443 1892 560">h. a plan for monitoring and annual reporting of Proposals for how energy demand and carbon dioxide emissions post-construction will be monitored annually (for at least five years). <li data-bbox="712 603 1921 676">i. Pproposals explaining how the site has been future-proofed to achieve zero-carbon on-site emissions by 2050. <li data-bbox="712 719 1563 754">j. Cconfirmation of offsetting arrangements, if required. <li data-bbox="712 794 1951 911">k. Proposals to minimise the embodied carbon in construction a whole life-cycle carbon emissions assessment, and actions to reduce life-cycle carbon emissions (for development proposals referable to the Mayor). <li data-bbox="712 954 1883 1027">l. Aanalysis of the expected cost to occupants associated with the proposed energy strategy. <li data-bbox="712 1070 1921 1187">m. Proposals that connect to, or create new, heat networks should include details of the design and specification criteria and standards for their systems as set out in SI3.
PHV.9.45	SI3 A	A Boroughs and developers should engage at an early stage with relevant energy companies and bodies to establish the future energy requirements and infrastructure

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		<p>requirements arising from large-scale development proposals such as Opportunity Areas, Town Centres, other growth areas or clusters of significant new development.</p>
PHV.9.46	SI3 B	<p>B</p> <p>Energy masterplans should be developed for large-scale development locations (such as those outlined in Part A and other opportunities) which establish the most effective energy supply options. Energy masterplans should identify:</p> <p>...</p> <p>3) major heat supply plant including 4) possible opportunities to utilise heat from energy from waste plants</p> <p>5) secondary heat sources, including both environmental and waste heat</p> <p>6) opportunities for low and ambient temperature heat networks</p> <p>...</p> <p>11) implementation options for delivering feasible projects, considering issues of procurement, funding and risk, and the role of the public sector.</p> <p>11A) opportunities to maximise renewable electricity generation and incorporate demand-side response measures.</p>

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PHV.9.47	SI3 C	<p>C Development Plans should:</p> <ol style="list-style-type: none"> 1) identify the need for, and suitable sites for, any necessary energy infrastructure requirements including energy centres, energy storage and upgrades to existing infrastructure 2) identify existing heating and cooling networks, identify proposed locations for future heating and cooling networks and identify opportunities for expanding and inter-connecting existing networks and as well as establishing new networks.
PHV.9.48	SI3 D	<p>D Major development proposals within Heat Network Priority Areas should have a communal low-temperature heating system</p> <ol style="list-style-type: none"> 1) the heat source for the communal heating system should be selected in accordance with the following heating hierarchy: <ol style="list-style-type: none"> a) connect to local existing or planned heat networks b) use available-zero-emission or local secondary heat sources (in conjunction with heat pump, if required, and a lower temperature heating system) c) generate clean heat and/or power from zero-emission sources

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		<p>d) use fuel cells (if using natural gas in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)</p> <p>e) use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network) (in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)</p> <p>f) use ultra-low NOx gas boilers.</p> <p>2) CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that they meet the requirements of policy SI1 Part B (A) there is no significant impact on local air quality.</p> <p>3) Wwhere a heat network is planned but not yet in existence the development should be designed to allow for the cost-effective for connection at a later date.</p>
PHV.9.49	SI3 E	<p>E Heat networks should achieve good practice design and specification standards for primary, secondary and tertiary systems comparable to those</p>

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		set out in the CIBSE CP1 Heat Networks: Code of Practice for the UK or equivalent.
PHV.9.50	SI3 Paragraph 9.3.2	London is part of a national energy system and currently sources approximately 95 per cent of its energy from outside the GLA boundary. Meeting the Mayor's zero-carbon target by 2050 requires changes to the way we use and supply energy so that power and heat for our buildings and transport is generated from local clean, low-carbon and renewable sources. London will need to shift from its reliance on using natural gas as its main energy source to a more diverse range of low and zero-carbon sources, including renewable energy and secondary heat sources. Decentralised energy and local secondary heat sources will become an increasingly important element of London's energy supply and will help London become more self-sufficient and resilient in relation to its energy needs.
PHV.9.51	SI3 Paragraph 9.3.2A	Many of London's existing heat networks have grown around combined heat and power (CHP) systems. However, the carbon savings from gas engine CHP are now declining as a result of national grid electricity decarbonising, and there is increasing evidence of adverse air quality impacts. Heat networks are still considered to be an effective and low-carbon means of supplying heat in London, and offer opportunities to transition to zero-carbon heat sources faster than individual building approaches. Where there remains a strategic case for low-emission CHP systems to support area-wide heat networks, these will continue to be considered on a case by case basis. Existing networks will need to establish decarbonisation plans. These should include

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		<p>the identification of low and zero carbon heat sources that may be utilised in the future, in order to be zero carbon by 2050. The Mayor will consider how boroughs and network operators can be supported to achieve this.</p>
PHV.9.52	SI3 Paragraph 9.3.3	<p>Developments should connect to existing heat networks, wherever feasible. New and existing networks should incorporate good practice design and specification standards comparable to those set out in the CIBSE CP1 Heat Networks: Code of Practice for the UK or equivalent. They should also register with the Heat Trust or an equivalent scheme. This will support the development of good quality networks whilst helping network operators prepare for regulation and ensure that customers are offered a reliable, cost-competitive service. Stimulating the delivery of new district heating infrastructure enables the opportunities that district heating can provide for London's energy system to be maximised. The Mayor has identified Heat Network Priority Areas, which can be found on the London Heat Map website¹²³. These identify where in London the heat density is sufficient for heat networks to provide a competitive solution for supplying heat to buildings and consumers. Data relating to new and expanded networks will be regularly captured and made publicly available. Major development proposals outside Heat Network Priority Areas should select a low-carbon heating system that is appropriate to the heat demand of the development, provides a solution for managing peak demand, as with heat networks, and avoids high energy bills for occupants.</p>

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PHV.9.53	SI3 Paragraph 9.3.4	Where developments are proposed within Heat Network Priority Areas but are beyond existing heat networks, the heating system should be designed to facilitate cost-effective future connection . This may include for example, allocating space in plant rooms for heat exchangers and thermal stores, safeguarding suitable routes for pipework from the site boundary and making provision for connections to the future network at the site boundary. The Mayor is taking a more direct role in the delivery of district-level heat networks so that more new and existing communally-heated developments will be able to connect into them, and has developed a comprehensive decentralised energy support package. Further details are available in the London Environment Strategy.
PHV.9.54	SI3 Paragraph 9.3.5	To ensure heat networks operate efficiently, effectively and reliably, the Mayor supports standards such as the CIBSE CP1 Heat Networks: Code of Practice for the UK and the Heat Trust standard. These set out principles for good design, specification and operation of networks and can help ensure fairness for customers of heat networks. The Mayor also supports the development of low-temperature networks for both new and existing systems as this allows cost-effective use of low-grade waste heat. It is expected that network supply temperatures will drop from the traditional 90°C-95°C to less than 70°C and less depending on system design and the temperature of available heat sources. Further guidance on designing and operating heat networks will be set out in the updated London Heat Network Manual.

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PHV.9.55	SI3 Paragraph 9.3.6	<p>Further information about the relevance of CHP in developments of various scales will also be provided in the Energy Planning Guidance document, which will be kept updated as technology changes. However, it is not expected that gas engine CHP will be able to meet the standards required within areas exceeding air quality limits with the technology that is currently available. Low-emission CHP in this policy refers to those technologies which inherently emit very low levels of NOx. It is not expected that gas engine CHP will fit this category with the technology that is currently available. Further details on circumstances in which it will be appropriate to use low-emission CHP and what additional emissions monitoring will be required will be provided in further guidance. This guidance will be regularly updated to ensure that it reflects changes in technology.</p>
PHV.9.56	SI3 Figure 9.3	<p>Figure 9.3 - Heat Network Priority Areas <i>(MAP AMENDED)</i></p>
PHV.9.57	SI3 Paragraph 9.3.7	<p>Increasing the amount of new renewable and secondary energy sources in London developments is supported and development proposals should identify opportunities to maximise both secondary heat sources and renewable energy production on-site. This includes the use of energy from waste schemes that are connected to a heat network, as well as solar photovoltaics, heat pumps and solar thermal, both on buildings and at a larger scale on appropriate sites. There is also potential for wind and hydropower-based</p>

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		renewable energy in some locations within London. Innovative low- and zero-carbon technologies will also be supported.
PHV.9.58	SI3 Paragraph 9.3.8	<p>Electricity is essential for the functioning of any modern city. Demand is expected to rise in London in response to a growing population and economy, the increased take up of electric vehicles, and the switch to electrifying heating systems (such as through heat pumps). It is of concern that the electricity network and substations are at or near to capacity in a number of areas, especially in central London. The Mayor will work with the electricity and heat industry, boroughs and developers to ensure that appropriate infrastructure is in place and integrated within a wider smart energy system designed to meet London's needs.</p> <p>Energy masterplans are expected to identify any necessary electricity infrastructure.</p>
PHV.9.59	SI3 Paragraph 9.3.9	<p>Demand for natural gas in London has been decreasing over the last few years, with a 25 per cent reduction since 2000¹²⁴. This trend is expected to continue due to improved efficiency and a move away from individual gas boilers. Alongside the continuing programme of replacing old metal gas mains (predominantly with plastic piping), local infrastructure improvements may be required to supply energy centres, associated with heat networks, that will support growth in Opportunity Areas and there may also be a requirement for the provision of new pressure reduction stations. These requirements should be identified in energy masterplans.</p> <p>124 Based on data from London Energy and Greenhouse Gas Inventory (LEGGI) https://data.london.gov.uk/dataset/leggi</p>

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PHV.9.60	SI3 Paragraph 9.3.10	National Grid Cadent Gas and Southern Gas Networks SGN operate London's gas distribution network. Both companies are implementing significant gasholder de-commissioning programmes , replacing them with smaller gas pressure reduction stations. The Mayor will work with key stakeholders including the Health and Safety Executive to achieve the release of the resulting brownfield sites for redevelopment including energy infrastructure where appropriate.
PHV.9.61	SI3 Paragraph 9.3.11	Land will be required for energy supply infrastructure including energy centres . These centres can capture and store energy as well as generate, supply and distribute it. The ability to efficiently store energy as well as to generate it can could reduce overall energy consumption, reduce peak demand and integrate greater levels of make renewable energy into the energy system more effective.
PHV.9.62	SI4 A	A Development proposals should minimise internal heat gain and the adverse impacts on of the urban heat island through design, layout, orientation, and materials and the incorporation of green infrastructure.
PHV.9.63	SI4 B	B Major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the following cooling hierarchy:

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		<p>1) <i>Moved. See below.</i></p> <p>2) reduce the amount of heat entering a building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green roofs and walls infrastructure</p> <p>4) 2A) minimise internal heat generation through energy efficient design</p>
PHV.9.64	SI4 Paragraph 9.4.1	Climate change means London is already experiencing higher than historic average temperatures and more severe hot weather events. This, combined with a growing population, urbanisation and the urban heat island effect, means that London must manage heat risk in new developments, using the cooling hierarchy set out above Whilst the cooling hierarchy applies to major developments, the principles can also be applied to minor development.
PHV.9.65	SI4 Paragraph 9.4.2	... The urban heat island effect is caused by the extensive built up area absorbing and retaining heat during the day and night leading to parts of London being several degrees warmer than the surrounding area. This can become problematic on the hottest days of the year as daytime temperatures can reach well over 30°C and not drop below 18°C at night. These circumstances can lead many people to feel too hot or not be able to sleep, but for those with certain health conditions, and 'at risk' groups such as some young or elderly

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		Londoners, the effects can be serious and worsen health conditions be potentially lethal . Green infrastructure-roofs can provide some mitigation of this effect by shading roof surfaces and through evapotranspiration. Development proposals should incorporate green infrastructure in line with Policies G1 Green infrastructure and G5 Urban greening.
PHV.9.66	SI4 Paragraph 9.4.3	Many aspects of building design can lead to increases in overheating risk, including high proportions of glazing and an increase in the air tightness of buildings. Single-aspect dwellings are more difficult to ventilate naturally and are more likely to overheat, and should normally be avoided in line with Policy D4 Housing quality and standards. There are a number of low-energy- intensive measures that can mitigate overheating risk . These include solar shading, building orientation and solar-controlled glazing. Occupant behaviour will also have an impact on overheating risk. The Mayor's London Environment Strategy sets out further detail on actions being taken to address this.
PHV.9.67	SI4 Paragraph 9.4.4	Passive ventilation should be prioritised, taking into account external noise and air quality in determining the most appropriate solution. The increased use of air conditioning systems is not desirable as these have significant energy requirements and, under conventional operation, expel hot air, thereby adding to the urban heat island effect. Therefore, passive ventilation should be prioritised.

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PHV.9.68	SI4 Paragraph 9.4.5	The Chartered Institution of Building Services Engineers (CIBSE) has produced guidance on assessing and mitigating overheating risk in new developments , which can also be applied to refurbishment projects. TM 59 should be used for domestic developments and TM 52 should be used for non-domestic developments. In addition, TM 49 guidance and datasets should also be used to ensure that all new development is designed for the climate it will experience over its design life. The GLA's Energy Planning Guidance provides further information will be provided in guidance on how these guidance documents and datasets should be used.
PHV.9.69	SI5 B	B Development Plans should promote improvements to water supply infrastructure to ensure contribute to security of supply. This should be done in a timely, efficient and sustainable manner taking energy consumption into account.
PHV.9.70	SI5 C	C Development proposals should: 1) through the use of Planning Conditions minimise the use of mains water in line with the Optional Requirement of the Building Regulations (residential development), achieving mains water consumption of 105 litres or less per head per day (excluding allowance of up to five litres for external water consumption) 2) achieve at least the BREEAM excellent standard for the 'Wat 01' water category^{124A} or equivalent (commercial development)

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		<p>3) be encouraged to incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise future-proofing.</p> <p>124A Achieve at least a 12.5% improvement over defined baseline performance standard</p>
PHV.9.71	SI5 D	<p>D In terms of water quality, Development Plans should:</p> <p>...</p> <p>2) support strategic wastewater treatment infrastructure investment to accommodate London's growth and climate change impacts. ...</p>
PHV.9.72	SI5 E	<p>E Development proposals should:</p> <p>1) seek to improve the water environment and ensure that adequate wastewater infrastructure capacity is provided</p> <p>2) be designed to ensure that take action to minimise the potential for misconnections between foul and surface water networks are eliminated and not easily created through future building alterations.</p>
PHV.9.73	SI5 EA	<p>EA Development Plans and proposals for strategically or locally defined growth locations with particular flood risk constraints or where there is insufficient</p>

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		water infrastructure capacity should be informed by Integrated Water Management Strategies at an early stage.
PHV.9.74	SI5 Paragraph 9.5.1	Londoners consume on average 156 149 litres of water per person per day – around 17 8 litres above the national average. ...
PHV.9.75	SI5 Paragraph 9.5.2	<p>An important aspect of avoiding the most severe water restrictions is to ensure that leakage is reduced and water used as efficiently as possible. The Optional Requirement set out in part G of the Building Regulations should be applied across London¹²⁵. ...</p> <p>125 Planning Practice Guidance: Paragraph 014 of 'Housing: optional technical standards' (DCLG, 27 March 2015) Reference ID: 56-014-20150327: Where there is a clear local need, boroughs local planning authorities can set out Local Plan policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110 litres/person/day.</p>
PHV.9.76	SI5 Paragraph 9.5.4	Thames Water has set out through the water resource management planning process in its draft Water Resources Management Plan its preferred approach to Variations of the following four strategic water supply options to serve London and parts of the Wider South East. are under consideration through Thames Water's Water Resource Management Plan process and one or a combination of some of these are expected to be

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		<p>proposed to serve parts of the Wider South East including London: These include: It is considering a suite of options, including a potential new reservoir, effluent reuse, water transfers and new groundwater sources.</p> <ul style="list-style-type: none"> • direct river abstraction from the Thames linked to augmenting river flows using treated sewage works effluent in east and west London • treatment / re-use of effluent from sewage treatment works — likely within London • desalination — potentially within London • transfer of river water from the River Severn to the River Thames catchment • a new reservoir — likely to be near the Upper Thames in Oxfordshire.
PHV.9.77	SI5 Paragraph 9.5.5	<p>The Mayor is reviewing has reviewed the available information on each of the supply options alongside evidence of their impacts on Londoners and Mayoral priorities. A strategic approach to water supply networks to ensure future water resilience and in particular the timely planning for a new strategic water resource to serve London and the Wider South East is important. In preparing its draft Water Resource Management Plans, Thames Water is exploring has explored coordinated supply options with the other water companies serving London and the South East of England working with through the Water Resource South East expert group. Water Resource East is undertaking has</p>

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		undertaken similar work in the East of England area. All this will involves partnership working with key stakeholders within London and beyond its boundaries.
PHV.9.78	SI5 Paragraph 9.5.8	<p>In relation to wastewater and improvements to the water environment, Water Framework Directive requirements should be maintained through the Thames River Basin Management Plan and the Catchment Plans prepared by the Catchment Partnerships, of which there are 12 in London. These Partnerships share lessons, experiences and best practice, and help achieve a coordinated approach to delivering the Thames River Basin Management Plan. Development Plans should be supported by evidence, which demonstrates that the development planned for:</p> <ul style="list-style-type: none"> a. will not compromise the Thames River Basin Management Plan objective of achieving ‘Good’ status, or cause deterioration in water quality; and b. will be supported by adequate and timely provision of wastewater treatment infrastructure.
PHV.9.79	SI5 Paragraph 9.5.10	<p>The Thames Tideway Tunnel is under construction and will help to improve the water quality of the River Thames by significantly reducing the frequency of untreated sewage being discharged into the Thames (known as combined sewer overflows). Thames Water is also planning a major sewer tunnel in the Counters Creek catchment of west London. Sustainable drainage measures are of particular importance in areas with sewer capacity limitations and their widespread implementation over the coming decades will help the</p>

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		resilience of London and avoid the need for further major sewer tunnel projects. Thames Water is taking a long-term approach to drainage and wastewater management planning. Its London 2100 plan will identify the most appropriate strategy for ensuring London's drainage and wastewater systems can meet the needs of London over the next 80 years in the most sustainable way.
PHV.9.80	SI5 Paragraph 9.5.11	... Conversely, if surface water is misconnected to the foul system, sewer capacity issues are created within sewers and at sewage treatment works. Development proposals should therefore be designed to ensure that take action to minimise the potential for misconnections is eliminated .
PHV.9.81	SI5 Paragraph 9.5.12	Integrated Water Management Strategies should be considered for major development locations such as Opportunity Areas, where particular flood risk and water-related constraints such as limited sewer capacity require an integrated approach to the provision of infrastructure and management of risk Development Plans and proposals should demonstrate that they have considered the opportunities for integrated solutions to water-related constraints and the provision of water infrastructure within strategically or locally defined growth locations. These could be Opportunity Areas or growth locations defined in Local Plans. Where such opportunities are identified, development plans should require an integrated and collaborative approach from developers. This could for example lead to the establishment of local water reuse

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		systems or integrated drainage networks. Integration with the planning of green infrastructure could deliver further benefits.
PHV.9.82	SI5 Paragraph 9.5.13	A water advisory group with representatives from across the water sectors in London has been established to advise the Mayor and share information on strategic water and flood risk management issues across the capital.
PHV.9.83	SI5 Figure 9.4	Figure 9.4 - Spatial illustration of the wastewater drainage capacity across London <i>(MAP AMENDED)</i>
PHV.9.84	SI5 Paragraph 9.5.14	... The modelling does not consider how waste water is routed through the network, so it should be noted that some 'green' areas will flow into 'red' areas and hence increasing flows upstream will exacerbate performance in the downstream catchments. The hatched area on the map shows the portions of the sewer system that are generally combined sewers, which means they capture both waste water and surface water flows.
PHV.9.85	SI6 A	A To ensure London's global competitiveness now and in the future, development proposals should:

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		<p>1) achieve greater digital connectivity than set out in part R1 of the Building Regulations</p> <p>2) ensure that sufficient ducting space for future digital full fibre connectivity infrastructure is provided to all end users within new developments, unless an affordable alternative 1GB/s-capable connection is made available to all end users</p> <p>3) meet requirements expected demand for mobile connectivity within generated by the development and</p> <p>3A) take appropriate mitigation measures to avoid reducing mobile connectivity in surrounding areas; where that is not possible, any potential reduction would require mitigation</p> <p>4) support the effective use of rooftops and the public realm (such as street furniture and bins) to accommodate well-designed and suitably located mobile digital infrastructure.</p>
PHV.9.86	SI6 B	<p>B Development Plans should support the delivery of full-fibre or equivalent digital infrastructure, with particular focus on areas with gaps in connectivity and barriers to digital access.</p>

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PHV.9.87	SI6 Paragraph 9.6.3	Better digital connectivity with a focus on capability , affordability, security, resilience and the provision of appropriate electrical power supply should be promoted across the capital. The specific requirements of business clusters, such as a symmetrical -capable service with the same upload and download speeds, should also be met.
PHV.9.88	SI6 Paragraph 9.6.4	Given the fast pace at which digital technology is changing, a flexible approach to development is needed that supports innovation and choice . Part R1 of the Building Regulations 2010 requires buildings to be equipped with high-speed (at least 30 MB/s) ready in-building physical infrastructure, however new developments using full fibre to the property or other higher-grade infrastructure could can achieve connectivity speeds closer to of 1GB/s. Developers should engage early with a range of network operators, to ensure that, and development proposals need to be appropriately are designed to be capable of providing this level of connectivity to all end users. Mechanisms should also be put in place to enable further future infrastructure upgrades. ...
PHV.9.89	SI6 Paragraph 9.6.4A	Development proposals should also demonstrate that mobile connectivity will be available throughout the development and should not have detrimental impacts on the digital connectivity of neighbouring buildings. Early consultation with network operators will help to identify any adverse impact on mobile or wireless connectivity and appropriate measures to avoid/mitigate them.

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PHV.9.90	SI6 Paragraph 9.6.4B	Access for network operators to rooftops of new developments should be supported where an improvement to the mobile connectivity of the area can be identified. Where possible, other opportunities to secure mobile connectivity improvements should also be sought through new developments, including for example the creative use of the public realm.
PHV.9.91	SI6 Paragraph 9.6.5	... Warehouse-based data centres have emerged as a driver of industrial demand in London over recent years and this will need to be taken into account when assessing demand for industrial land (see <u>Policy E4 Land for industry, logistics and services to support London's economic function</u> , <u>Policy E5 Strategic Industrial Locations (SIL)</u> , <u>Policy E6 Locally Significant Industrial Sites</u> and <u>Policy E7 Industrial Intensification, co-location and substitution of land for industry, logistics and services to support London's economic function</u>).
PHV.9.92	SI6 Paragraph 9.6.6	The Mayor will work with providers network operators , developers, councils and Government to develop guidance and share good practice to increase awareness and capability amongst boroughs and developers of the effective provision of digital connectivity and to support the delivery of policy requirements. The Mayor will also help to identify spatial gaps in connectivity and overcome barriers to delivery to address this form of digital exclusion, in particular through his ' not-spot ' Connected London work. Boroughs

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		should encourage the delivery of high-quality / world-class digital infrastructure as part of their Development Plans digital strategies or corporate plans .
PHV.9.93	SI6 Paragraph 9.6.7	Digital connectivity supports smart technologies in terms of the collection, analysis and sharing of data on the performance of the built and natural environment, including for example, resource including water and energy consumption, waste , air quality, noise and congestion. Development should be fitted with smart infrastructure, such as sensors, to enable better collection and monitoring of such data.
PHV.9.94	SI6 Figure 9.5	Figure 9.5 - Broadband speed 2016 (MAP AMENDED)
PHV.9.95	SI7 A	<p>A Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:</p> <p>1) promoteing a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible</p>

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		<p>2) encouraging waste minimisation and waste avoidanceprevention through the reuse of materials and using fewer resources in the production and distribution of products</p> <p>3) ensuring that there is zero biodegradable or recyclable waste to landfill by 2026</p> <p>3A) meet or exceed the municipal waste recycling target of 65 per cent by 2030¹²⁷</p> <p>4) meeting or exceeding the recycling targets for each of the following waste and material streams and generating low-carbon energy in London from suitable remaining waste:</p> <p>a) municipal waste¹²⁷ — 65 per cent by 2030</p> <p>b) construction, and demolition and excavation waste — 95 per cent reuse/recycling/recovery by 2020</p> <p>c) excavation waste – 95 per cent beneficial use^{127A} by 2020</p> <p>5) designing developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate</p>

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		<p>collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food.</p> <p>127 Based on the EU definition of municipal waste being household waste and other waste similar in composition to household waste. This includes business waste collected by local authorities and y-collected waste and waste collected by the private sector.</p> <p>127A All inert excavation waste should be used for beneficial uses.</p>
PHV.9.96	SI7 B	<p>B Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted, to demonstrate:</p> <p>...</p> <p>2) how the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life</p> <p>...</p> <p>4) adequate and easily accessible storage space and collection systems to support recycling and re-use</p>

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		<p>5) how much waste the proposal is expected to generate, and how and where the waste will be handled managed in accordance with the waste hierarchy.</p> <p>6) how performance will be monitored and reported</p>
PHV.9.97	SI7 C	<p>C Development Plans that apply circular economy principles and set local lower thresholds for the application of Circular Economy Statements for development proposals are supported.</p>
PHV.9.98	SI7 Paragraph 9.7.1	<p>... London should move to a more circular economy as this will save resources, increase the resource efficiency of London's businesses, and help to reduce carbon emissions. The successful implementation of circular economy principles will help to reduce the volume of waste that London produces and has to manage. A key way of achieving this will be through incorporating circular economy principles into the design of developments (see also Policy D1B) as well as through Circular Economy Statements for referable applications.</p>
PHV.9.99	SI7 Paragraph 9.7.1A	<p>The adoption of circular economy principles for referable applications means creating a built environment where buildings are designed for adaptation, reconstruction and deconstruction. This is to extend the useful life of buildings and allow for the salvage of components and materials for reuse or recycling. Un-used or discarded materials should be brought back to an equal or comparable level of</p>

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		quality and value and reprocessed for their original purpose (e.g. recycling glass back into glass, instead of into aggregate).
PHV.9.100	SI7 Paragraph 9.7.6 9.7.1B	To assist with the introduction of Circular Economy principles, the Mayor will be providing further guidance on Circular Economy Statements will be produced . These Circular Economy Statements are intended to cover the construction phase whole life cycle of development. This will apply to referable schemes and encouraged for other major infrastructure projects within London. however Boroughs are encouraged to set lower local thresholds through development plans.
PHV.9.101	SI7 Paragraph 9.7.3A	Modelling^{128A} suggests that if London achieves the Mayor's reduction and recycling targets set out above, it will have sufficient Energy from Waste capacity to manage London's non-recyclable municipal waste, once the new Edmonton and Beddington Lane facilities are operational. 128A See Objective 7.4 London Environment Strategy, May 2018
PHV.9.102	SI7 Paragraph 9.7.3	The London Environment Strategy sets out a pathway to achieving municipal recycling target of 65 per cent by 2030 and outlines the Mayor's approach to municipal waste management in detail. The Mayor is committed to meeting or exceeding the targets set out in Policy SI7. This includes London achieving a 50 per cent reduction in food waste and associated packaging waste per person by 2030, and London local authorities

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		<p>needing to provide a minimum level of recycling service, including separate food waste, to residents by 2020. To achieve these recycling targets, it will be important that recycling, storage and collection systems in new developments are appropriately designed. Further detail on how developments should do this is set out in guidance for each of the following waste streams, and to generating low-carbon energy in London from suitable remaining waste:</p> <ul style="list-style-type: none"> • municipal waste¹²⁹ — 65 per cent reuse/recycling/composting by 2030 • construction, and demolition and excavation waste — 95 per cent recycling by 2020 <p>129- Based on CDE waste data interrogator data 2015. Estimate only as actual CDE waste performance data is not available and not a requirement to report. Actual performance likely to be higher as waste reused or recycled on-site is not reported through the waste data interrogator.</p>
PHV.9.103	SI7 Paragraph 9.7.4	<p>A pathway to achieving the municipal recycling target of 65 per cent by 2030 is set out in the London Environment Strategy — this pathway demonstrates that the target is achievable within the established timeframe. Re-use and recycling rates for construction, demolition and excavation waste and material (CD&E) in London is estimated between 50 - 60 per cent¹³⁰ for 2015 with some large construction projects including the Olympic Park achieving 85 – 95 per cent recovery recycling rates. The targets for CD&E waste and material are already being set on some projects, but better data (particularly reuse on site) is</p>

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		needed to inform performance. The adoption of circular economy principles in referable applications (and promoted in local plans) is expected to help London to achieve the CD&E waste and material recovery targets early in the Plan period.
PHV.9.104	SI7 Paragraph 9.7.4AA	<p>The movement and management of household, commercial and industrial, and construction, demolition and excavation waste achievement of the targets will be monitored in collaboration with other stakeholders through available data sets (including the Environment Agency’s Waste Data Interrogator tool and WasteDataFlow) and reporting against commitments in Circular Economy Statements. This will inform reporting on and monitoring of the achievement of the targets set out in Policy SI7. Further details of monitoring requirements will be set out in Circular Economy Statement Guidance. Nevertheless, more beneficial and higher order uses of inert waste for example in conjunction with land reclamation or coastal defences. A combination of mobile facilities on construction sites, effective use of existing waste processing sites and, where appropriate, safeguarded wharves, as well as the provision of recycling facilities at aggregate extraction sites, should be capable of meeting the anticipated future requirement within London to achieve a more beneficial re-use of this material.</p>
PHV.9.105	SI7	<p>Policy SI7 Part A4 reflects recent changes to the regulatory regime that mean that It is recognised that the particular characteristics of excavation waste are such that make it is extremely difficult to recover this waste stream. The Mayor will continue to</p>

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	Paragraph 9.7.4A	<p>work with stakeholders to understand the implications of this regulatory change and to promote its beneficial use and limit the amount sent to landfill. The Mayor expects referable applications to demonstrate through a supporting Circular Economy Statement that tThe best environmental option practicable for the management of excavation material will should be used. This could, for example, include using the material as a resource within the construction of the proposed development, or seeking opportunities for such material to be used in other local construction projects, or using the material in habitat creation, flood defences, or landfill restoration. In line with circular economy principles, the management of excavation waste should be focused on-site or within local projects.</p>
PHV.9.106	SI7 Paragraph 9.7.5	<p>When it is intended to export-send waste to landfill outside of London, it will be important to show evidence that the receiving authority facility has the capacity to deal with waste over the lifetime of the development. This information should be made available to the relevant waste planning authority will also to help receiving authorities plan for future needs.</p>
PHV.9.107	SI7 Paragraph 9.7.6	<i>Moved to 9.7.1B</i>

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PHV.9.108	SI8 B	<p>B Development Plans should:</p> <p>1A) plan for identified waste needs</p> <p>...</p> <p>2) allocate sufficient land sites, identify suitable areas, (sites and/or areas) and identify waste management facilities to provide the capacity to manage the apportioned tonnages of waste, as set out in Table 9.2 - boroughs are encouraged to collaborate by pooling their apportionment requirements</p> <p>3) identify the following as suitable locations to manage borough waste apportionments:</p> <p>...</p> <p>b) Strategic Industrial Locations and Locally Significant Industrial Employment Sites land</p> <p>...</p>
PHV.9.109	SI8 BA	<p>BA Mayoral Development Corporations must cooperate with host boroughs to meet identified waste needs.</p>

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PHV.9.110	SI8 C	<p>C The following are particularly encouraged – Development proposals which for materials and waste management sites are encouraged where they:</p> <ol style="list-style-type: none"> 1) deliver a range of complementary waste management and secondary material processing facilities on a single site 2) support prolonged product life and production of secondary repair, refurbishment and remanufacture of materials and assets 3) contribute towards renewable energy generation, especially renewable gas technologies from organic/biomass waste, and/or 4) provide are linked to low emission combined heat and power and/or combined cooling heat and power (CHP is only acceptable where it will enable the delivery or extension of an area-wide heat network consistent with Policy SI3 Part D1e) 5) contain proposals to effectively deal with CD&E waste and material on site and minimise export to landfill.
PHV.9.111	SI8 D	<p>D Developments proposals for new waste sites or to increase the capacity of existing sites should be evaluated against the following criteria:</p>

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		<p>1) the nature of the activity, its scale and location</p> <p>2) effective implementation of the waste hierarchy and its contribution to London's circular economy</p> <p>2) job creation and social value benefits including skills, training and apprenticeship opportunities</p> <p>3) achieving a positive carbon outcome (i.e. re-using and recycling high carbon content materials) resulting in significant greenhouse gas savings – all facilities generating energy from waste will need to meet, or demonstrate that steps are in place to meet, a minimum performance of 400g of CO₂ equivalent per kilowatt hour of electricity produced</p> <p>...</p>
PHV.9.112	SI8 E	<p>E</p> <p>When planning for new waste sites or to increase the capacity at existing sites the following should be considered:</p> <p>1) job creation and social value benefits, including skills, training and apprenticeship opportunities</p> <p>2) local need</p>

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		3) accessibility of services for local communities and businesses
PHV.9.113	SI8 Table 9.1	Table 9.1 - Forecast arisings of Household and Commercial & Industrial waste by borough 2021-2041 (000's tonnes) <i>(table amended)</i>
PHV.9.114	SI8 Table 9.2	Table 9.2 - Borough-level apportionments of Household and Commercial & Industrial waste 2021-2041 (000's tonnes) <i>(table amended)</i>
PHV.9.115	SI8 Table 9.3	Table 9.3 - Projected <i>net</i> exports of Household and Commercial & Industrial waste from London (000's tonnes)
PHV.9.116	SI8 Paragraph 9.8.1	... Approximately 1.3mt of waste was exported overseas. The term net self-sufficiency is meant to apply to all waste streams, with the exception of excavation waste. The particular characteristics of this waste stream mean that it will be <i>very</i> challenging for London to provide either the sites or the level of compensatory provision needed to apply net self-sufficiency to this waste stream.

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PHV.9.117	SI8 Paragraph 9.8.2	... Some 32 per cent of London's waste that was biodegradable or recyclable was sent to landfill. The Mayor is committed to sending zero biodegradable or recyclable waste to landfill by 2026 (see Table 9.3).
PHV.9.118	SI8 Paragraph 9.8.3	...The Mayor will work with boroughs, the London Waste and Recycling Board, and the London and neighbouring Regional Technical Advisory Bodies to address cross-boundary waste flow issues . An e Examples of joint working would be include ongoing updates to the London Waste Map and, sharing data derived from Circular Economy Statements, the monitoring of the primary waste streams and progress to net self-sufficiency, supporting the Environment Agency's annual monitoring work, and collaboration on management solutions for of waste arisings from London.
PHV.9.119	SI8 Paragraph 9.8.4	Waste is deemed to be managed in London if any of the following activities take place within London: ... • it relates to the production of solid recovered fuel (SRF), or it is high-quality refuse-derived fuel (RDF) meeting the Defra RDF definition as a minimum ¹³¹ which is destined for energy recovery

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		<ul style="list-style-type: none"> • it is sorted or bulked for re-use (including repair and re-manufacture) reprocessing or for recycling (including anaerobic digestion) • It is reused, or recycled (including anaerobic digestion) or reprocessed.
PHV.9.120	SI8 Paragraph 9.8.6	<p>... Boroughs are encouraged to collaborate by pooling their apportionment requirements. Boroughs with a surplus of waste sites should offer to share these sites to with those boroughs facing a shortfall in capacity before considering site release.</p>
PHV.9.121	SI8 Paragraph 9.8.7	<p>Boroughs should examine in detail how capacity can be delivered at the local level and demonstrate how this can be provided for through site allocations the allocation of sufficient sites and the identification of suitable land areas in Development Plans to meet their apportionments, and should aim to meet their waste apportionment as a minimum. However, this It may not always be possible and for boroughs to meet their apportionment within their boundaries and in such circumstances boroughs will need to agree the transfer of apportioned waste. Boroughs should identify suitable additional sites for waste including waste transfer sites where practicable....</p>
PHV.9.122	SI8	<p>Mayoral Development Corporations (MDCs) should must cooperate with host boroughs to meet identified waste needs; ensure that the this includes boroughs' apportionment</p>

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	Paragraph 9.8.7AA	requirements are met . This could be widened to cover boroughs in the relevant waste disposal authority planning group where appropriate .
PHV.9.123	SI8 Paragraph 9.8.7A	Boroughs Waste planning authorities and groups should plan to meet the identified waste management needs of their local area and are encouraged to identify suitable additional capacity for waste, including those waste streams not apportioned by the London Plan, where practicable. This could include, waste transfer sites, new sites managing construction, demolition and excavation waste, or the reconfiguration and intensification of existing uses that increase management capacity.
PHV.9.124	SI8 Paragraph 9.8.7B	Waste plans should be responsive to strategic opportunities across borough and joint waste planning boundaries for optimising capacity on existing waste sites, or that help to unlock investment in developing new waste sites. Where a waste site may be lost, compensatory capacity should first be explored within the borough. In cases where this can't be provided, and suitable capacity is found in another borough, the receiving borough or joint waste planning group is encouraged to take on the apportionment and include it as part of their Development Plan.
PHV.9.125	SI8	As noted above, waste flows across boundaries and London exported 3.4mt of Household and Commercial & Industrial waste in 2015. To meet the Mayor's policy commitment of net self-sufficiency by 2026 there needs to be a reduction in exports or an increase in imports over the decade in the lead up to 2026. Table 9.3 is included to help neighbouring

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	Paragraph 9.8.9	authorities plan for London's expected Household and Commercial & Industrial waste exports.
PHV.9.126	SI8 Paragraph 9.8.10	... As the reliability of CD&E waste data is low, apportionments for this waste stream are not set out. For a fuller discussion of the issues around CD&E waste data see paragraph 9.74 and the SLR consulting report (task 2) (May 2017).
PHV.9.127	SI8 Paragraph 9.8.11	To support the shift towards a low-carbon circular economy, all facilities generating energy from waste should meet, or demonstrate that they can meet in future, a measure of minimum greenhouse gas performance known as the carbon intensity floor (CIF). The CIF is set at 400g of CO ₂ equivalent generated per kilowatt hour (kwh) of electricity generated. The GLA's free on-line ready reckoner tool can assist boroughs and applicants in measuring and determining performance against the CIF ¹³³ 133 http://www.london.gov.uk/priorities/environment/putting-waste-good-use/making-the-most-of-waste https://www.london.gov.uk/file/665524/download?token=Q28HNWvK
PHV.9.128	SI8 Paragraph 9.8.13	Examples of the ' demonstrable steps ' required under Part D3 of <u>Policy SI8 Waste capacity and net waste self-sufficiency</u> are:

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		<ul style="list-style-type: none"> • Aa commitment to source truly residual waste – waste with as little recyclable material as possible. • Aa commitment (via a Section 106 obligation) to deliver the necessary means for infrastructure to meet the minimum CO₂ standard, for example investment in the development of a heat distribution network to the site boundary, or technology modifications that improve plant efficiency. • Aa n agreed timeframe (via a Section 106 agreement) as to when proposed measures will be delivered. • Tthe establishment of a working group to progress the agreed steps and monitor and report performance to the consenting authority.
PHV.9.129	SI8 Paragraph 9.8.15	In 2015 around 324,000 tonnes of hazardous waste was produced in London. Hazardous waste makes up a component of all waste streams and is included in the apportionments for household, commercial and industrial waste set out in Table 9.2.
PHV.9.130	SI9 C	C Waste plans should be adopted before considering the loss of waste sites. The proposed loss of an existing waste site will only be supported where appropriate compensatory capacity is made within London that must be at or above the same

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		level of the waste hierarchy and at least meet, and should exceed, the maximum achievable throughput of the site proposed to be lost.
PHV.9.131	SI9 D	D Development proposals that would result in the loss of existing sites for the treatment and/or disposal of hazardous waste should not be permitted unless compensatory hazardous waste site provision has been secured in accordance with this policy.
PHV.9.132	SI9 E	E Development proposals for the relocation of waste sites within London are supported where strategic waste management outcomes are achieved.
PHV.9.133	SI9 Paragraph 9.9.2	Any proposed release of current waste sites release or those identified for future waste management capacity should be part of a plan-led process, rather than done on an ad-hoc basis. Waste sites should only be released to other land uses where waste processing capacity is re-provided elsewhere within London, based on the maximum achievable throughput of the site proposed to be lost. When assessing the throughput of a site, the maximum throughput achieved over the last three five years should be used, where this is not available potential capacity of the site should be appropriately assessed.
PHV.9.134	SI9	<u>Policy SI8 Waste capacity and net waste self-sufficiency</u> promotes capacity increases at waste sites where appropriate to maximise their use. If such increases are implemented

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	Paragraph 9.9.3	over the Plan period, it may be possible to justify the release of waste sites without capacity re-provision if it can be demonstrated that there is sufficient capacity available elsewhere in London at appropriate sites over the Plan period to meet apportionment and that the target of achieving net self-sufficiency is not compromised. In such cases, sites could be released for other land uses.
PHV.9.135	SI9 A	<p>A An adequate supply of aggregates to support construction in London will be achieved by:</p> <ol style="list-style-type: none"> 1) encouraging re-use and recycling of construction, demolition and excavation waste within London, including on-site 2) extracting land-won aggregates within London 3) importing aggregates to London by sustainable transport modes. 4) meeting the target of 95 per cent recycling/re-use of construction, demolition and excavation waste by 2020 and recycling 50 per cent of that waste as aggregates by 2020.
PHV.9.136	SI10 B	<p>B 4) Development Plans should:</p>

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		<p>1) make provision for the maintenance of a landbank (i.e. seven years' supply) of at least five million tonnes of land-won aggregates up to 2041, in particular through a landbank apportionment of:</p> <ul style="list-style-type: none"> 4a) at least 1.75 mt to London Borough of Havering 2b) at least 0.7 mt to London Borough of Redbridge 3c) at least 1.75 mt to London Borough of Hillingdon 4d) at least 0.7 mt to London Borough of Hounslow. <p>2) ensure sufficient capacity of aggregates wharves and aggregate rail depots is available to ensure a steady and adequate supply of imported and marine aggregate to London and maximise the movement of aggregates by sustainable modes-</p> <p>3) support the production of recycled/secondary aggregate and, where practicable, expand capacity at/or adjacent to aggregate wharves and rail depots and quarries during their operational life, within or adjacent to major construction projects.</p>

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PHV.9.137	SI10 C	<p>C All Mineral Planning Authorities in London, should, identify and safeguard aggregate resources in Development Plans: including aggregate recycling facilities.</p> <p>1) identify mineral safeguarding areas to protect sand and gravel resources from development that would otherwise sterilise future potential extraction.</p> <p>2) identify and safeguard sites and facilities, including wharves and railheads, with existing, planned or potential capacity for transportation, distribution, processing and/or production of primary and/or secondary/recycled aggregates.</p>
PHV.9.138	SI10 D	<p>D To reduce the environmental impact of aggregates sites and facilities Development Plans development proposals should,</p> <p>1) ensure demonstrate that appropriate measures to deal with use is made of planning conditions dealing with aftercare, restoration and re-use of minerals sites following extraction are in place; with particular emphasis on promoting green infrastructure and especially biodiversity</p> <p>2) safeguard wharves and/or railheads with existing or potential capacity for aggregate distribution and/or processing to minimise the movement of aggregates by road and maximise the movement of aggregates by sustainable modes.</p>

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		<p>2A) ensure that potential impacts, in particular to the natural and historic environment and to human health, are assessed and are planning conditions are imposed on new aggregate facilities so that noise, dust vibration, ground and surface water quality, light pollution and traffic impacts effectively controlled.</p>
PHV.9.139	SI10 E	<p>E 2B Development proposals should be ensure that new development in proximity to safeguarded sites is designed to avoid and mitigate potential conflicts with sites safeguarded for the transportation, distribution, processing and/or production of aggregates, in line with the Agent of Change principle.</p>
PHV.9.140	SI10 Paragraph 9.10.1	<p>London needs a reliable supply of construction materials to support continued growth. National planning policy requires Mineral Planning Authorities to maintain a steady and adequate supply of aggregates. These include land-won sand and gravel, crushed rock, marine sand and gravel, and recycled materials and secondary aggregates created from construction, demolition and excavation (CDE) and industrial waste. ...</p>
PHV.9.141	SI10 Paragraph 9.10.2	<p>A realistic landbank figure (i.e. seven years' supply) of at least 5 million tonnes of land-won aggregates for London throughout the Plan period has been apportioned to boroughs as set out in the Policy SI10 Aggregates. There remains some potential for extraction beyond the four boroughs identified in Policy SI10 Aggregates, including within the Lee Valley, and</p>

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		<p>bBoroughs with aggregates resources should consider extraction opportunities when preparing Development Plans.</p>
PHV.9.142	SI10 Paragraph 9.10.2A	<p>Those boroughs with an apportionment should plan to meet their landbank target and for the steady and adequate supply of minerals through the identification of specific sites where viable resources are known to exist, preferred areas where known resources are likely to get planning permission, and areas of search where mineral resources might reasonably be anticipated.</p>
PHV.9.143	SI10 Paragraph 9.10.3	<p>Aggregates are bulky materials so Development Plans should maximise their use and re-use and minimise their movement, especially by road. The objective of proximity dictates that the best option is the and most local use of local materials that can be extracted in London, where feasible. ...</p>
PHV.9.144	SI10 Paragraph 9.10.4	<p>Boroughs should protect identify and safeguard existing, planned and potential sites for aggregate extraction, and transportation, processing and manufacture – and recognise where there may be benefits in their co-location. Existing and future wharf capacity is essential, especially for transporting marine-dredged aggregates, and should be protected in accordance with <u>Policy S115 Water transport</u>. Equally important are railway depots for importing crushed rock from other parts of the UK. Railheads are vital to the sustainable movement of aggregates and boroughs should protect safeguard these sites them in line with Policy T7. Boroughs should also protect safeguard sites for the production and distribution of aggregate products.</p>

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PHV.9.145	SI10 Paragraph 9.10.4A	Development proposals and planning decisions should ensure that impacts to environment, heritage and amenity values are considered, including the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality. Principal issues include noise, dust, air quality, lighting, archaeological and heritage features, traffic, land contamination, impacts to surface and ground water and land stability.
PHV.9.146	S10 paragraph 9.10.6	Mineral Planning Authorities are required to prepare an annual Local Aggregates Assessment (LAA). The Mayor will work with boroughs and the London Aggregates Working Party to explore options for the preparation of joint LAAs in the future. It is not reasonable to expect boroughs without mineral resources or aggregate facilities to produce their own LAAs, so the Mayor will continue to prepare a joint London-wide LAA to supplement individual LAAs from boroughs with resources and facilities.
PHV.9.147	SI11 Paragraph 9.11.4	In addition to avoiding or mitigating adverse construction and operational impacts (noise, dust, visual intrusion, vehicle movements and lighting, on both the natural and built environment, including air quality and the water environment), any fracking proposal would need to take full account, where relevant, of the following environmental constraints : ... <ul style="list-style-type: none"> • Gggroundwater or surface water

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PHV.9.148	SI12 A	A Current and expected flood risk from all sources (as defined in paragraph 9.12.2) across London should be managed in a sustainable and cost-effective way in collaboration with the Environment Agency, the Lead Local Flood Authorities, developers and infrastructure providers.
PHV.9.149	SI12 B	B Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Surface Water Management Plan Local Flood Risk Management Strategies , where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks. Boroughs should co-operate and jointly address cross-boundary flood risk issues including with authorities outside London.
PHV.9.150	SI12 C	C Development proposals which require specific flood risk assessments should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.
PHV.9.151	SI12 F	F Development proposals adjacent to flood defences will be required to protect the integrity of flood defences and allow access for future maintenance and upgrading. Where possible Unless exceptional circumstances are demonstrated for not doing so , development proposals should be set permanent built development back

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		from flood defences to allow for any foreseeable future maintenance and upgrades in a sustainable and cost-effective way.
PHV.9.152	SI12 FA	FA Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat.
PHV.9.153	SI12 Paragraph 9.12.1	In London, the boroughs are Lead Local Flood Authorities (LLFAs) and are responsible, in particular, for local surface water flood risk management and for maintaining a register of flood risk management assets register . They identify areas of flood risk to help inform appropriate locations for development produce Local Flood Risk Management Strategies . LLFAs should cooperate on strategic and cross-boundary issues.
PHV.9.154	SI12 Paragraph 9.12.3	The Environment Agency's Thames Estuary 2100 Plan (TE2100), published by the Environment Agency, and endorsed by Government , focuses on a partnership approach to tidal flood risk management. ...
PHV.9.155	SI12 Paragraph 9.12.4	The concept of Lead Local Flood Authorities producing Riverside Strategies was introduced through the TE2100 Plan to improve flood risk management in the vicinity of the river, create better access to and along the riverside, and improve the riverside environment. The Mayor will support these strategies.

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PHV.9.156	SI12 Paragraph 9.12.5	The Environment Agency's Thames River Basin District Flood Risk Management Plan is part of a collaborative and integrated approach to catchment planning for water. Measures to address flood risk should be integral to development proposals and considered early in the design process. This will ensure they provide adequate protection, do not compromise good design, do not shift vulnerabilities elsewhere, and are cost-effective. Natural flood risk management in the upper river catchment areas can also help to reduce risk lower in the catchments. ...
PHV.9.157	SI12 Paragraph 9.12.6	In terms of mitigating residual risk , it is important that a strategy for resistance and then resilience including safe evacuation and quick recovery to address such risks is in place; this is also the case for utility services. ...
PHV.9.158	SI12 Paragraph 9.12.7	Development adjacent to flood defences will be required to protect the integrity of existing flood defences. Wherever possible it should be set back from the banks of watercourses and flood defences to allow their management, maintenance and upgrading to be undertaken in a sustainable and cost-effective way.
PHV.9.159	SI13 A	A Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks.

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		Increases in surface water run-off outside these areas also need to be identified and addressed.
PHV.9.160	SI13 B	<p>B Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy. There should also be a preference for green over grey features, in line with the following drainage hierarchy:</p> <ol style="list-style-type: none"> 1) rainwater use as a resource (for example rainwater harvesting, (including a combination of green and blue roofs for irrigation) 2) rainwater infiltration to ground at or close to source techniques and green roofs 3) rainwater attenuation in open water green infrastructure features for gradual release (for example green roofs, rain gardens) 4) rainwater discharge direct to a watercourse (unless not appropriate) 5) rainwater attenuation above ground (including blue roofs) 6) rainwater attenuation below ground¹³⁶ 7) controlled rainwater discharge to a surface water sewer or drain

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		<p>8) controlled rainwater discharge to a combined sewer.</p> <p>136-The benefit of attenuation above compared to below ground or in a basement is that pumping is normally not required to empty the attenuation tank.</p>
PHV.9.161	SI13 C	<p>C Development proposals for impermeable paving surfacing should be refused where appropriate unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.</p>
PHV.9.162	SI13 D	<p>D Drainage should be designed and implemented in ways that address issues promote multiple benefits including increased of water use efficiency, improve river water quality, and enhance biodiversity, urban greening, amenity and recreation.</p>
PHV.9.163	SI13 Paragraph 9.13.1	<p>London is at particular risk from surface water flooding, mainly due to the large extent of impermeable surfaces. Lead Local Flood Authorities have responsibility for managing surface water drainage through the planning system, as well as ensuring that appropriate maintenance arrangements are put in place. Local Flood Risk Management Strategies and Surface Water Management Plans should ensure they address flooding from sewers, drains multiple sources including surface water, and groundwater, and run-off from land and small watercourses that occurs as a result of heavy rainfall.</p>

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PHV.9.164	SI13 Paragraph 9.13.2	<p>Development proposals should aim to get as close to greenfield run-off rates¹³⁷ as possible depending on site conditions. The well-established drainage hierarchy set out in this policy helps to reduce the rate and volume of surface water run-off. Rainwater should be managed as close to the top of the hierarchy as possible. and There should be a preference for green over grey features, and drainage by gravity over pumped systems.</p> <p>...</p> <p><small>137 The runoff that would occur from a site in undeveloped natural state.</small></p>
PHV.9.165	SI13 Paragraph 9.13.3	<p>... In some cases, direct discharge into the watercourse is an appropriate approach, for example rainwater discharge into the tidal Thames or a dock. This should include suitable pollution prevention filtering measures, ideally by using soft engineering or green infrastructure. In addition, if direct discharge is to a watercourse where the outfall is likely to be affected by tide-locking, suitable storage should be designed into the system. ...</p>
PHV.9.166	SI14 AA	<p>AA Development Plans and development proposals should address the strategic importance of London's network of linked waterways, including the River Thames, and should seek to maximise their multifunctional social, economic and environmental benefits.</p>

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PHV.9.167	SI14 AB	AB Boroughs are encouraged to work together on policies or other appropriate area-based strategies that address cross boundary waterways issues.
PHV.9.168	SI14 B	B To reflect the distinctiveness of areas that specifically relate to the River Thames, relevant Development Plans should designate, and ensure the maintenance of, Thames Policy Areas (TPAs) . Setting the boundary of TPAs should be done in consultation with neighbouring boroughs, including those across the river. Boroughs are encouraged to plan for TPAs through joint Thames Strategies.
PHV.9.169	SI14 9.14.6 BB	9.14.6 BB Joint Thames Strategies and other area-based joint waterways strategies should consider: <ul style="list-style-type: none"> • the local character of the river/waterway • water-based passenger and freight transport nodes • development sites and regeneration opportunities • opportunities for environmental/ecological and urban design improvements • sites of ecological, historic, or archaeological importance

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		<ul style="list-style-type: none"> • sites, buildings, structures, landscapes and views of particular sensitivity or importance • focal points of public activity • inclusive public access • strategic cultural value • recreation and marine infrastructure • river crossings and other structures • indicative flood risk and water quality.
PHV.9.170	SI14 BA	<p>BA — Development Plans and development proposals should seek to maximise the multifunctional benefits waterways provide</p>
PHV.9.171	SI14 Paragraph 9.14.1	<p>The term ‘waterways’ does not only refer to the River Thames, its tributary rivers and canals, but also to other water spaces including docks, lakes and reservoirs. This network of linked waterways – also known as the Blue Ribbon Network - is of strategic importance for London. Every London borough contains some waterways – 17 border the Thames and 15 contain canals (see Figure 9.6).</p>

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PHV.9.172	SI14 Figure 9.6	Figure 9.6 - London's Network of Waterways (the Blue Ribbon Network)
PHV.9.173	SI14 Paragraph 9.14.2	London's waterways are multifunctional assets . They provide transport and recreation corridors; green infrastructure; a series of diverse and important habitats; a unique backdrop for important heritage sites assets, including World Heritage Sites , landscapes, views, cultural and community activities; and as well as drainage, flood and water management and urban cooling functions. As such, they provide environmental, economic and health and wellbeing benefits for Londoners and play a key role in place making of neighbourhoods. They also provide a home for Londoners living on boats. The waterways They are protected and their water-related use - in particular safe and sustainable passenger and freight transport, tourism, cultural, community and recreational activities, as well as biodiversity - is promoted. Many of these functions are also supported by boroughs' local Riverside Strategies, the Environment Agency's Thames River Basin Management Plan and the Port of London Authority's Vision for the Thames. In addition to the Thames, other water spaces, and in particular canals, have a distinct value and significance for London and Londoners.
PHV.9.174	SI14	As London's waterways cross borough boundaries, it is important to plan for their management strategically. Boroughs are encouraged to work together to develop

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	Paragraph 9.14.3A	appropriate policies or joint area-based waterways strategies to maximise the multifunctional benefits waterways provide.
PHV.9.175	SI14 Paragraph 9.14.4	The River Thames is a strategically-important and iconic feature of London. It is a focal point for London's identity reflecting its heritage, natural and landscape values as well as cultural opportunities. ...
PHV.9.176	SI14 Paragraph 9.14.5	Setting the boundary of TPAs should be done in consultation with neighbouring authorities, including those across the river. In defining TPA these boundaries, boroughs should work collaboratively and have regard to the following: ...
PHV.9.177	SI14 Paragraph 9.14.6	<i>moved to BB</i>
PHV.9.178	SI14 Paragraph 9.14.7	Joint Thames Strategies should specifically identify and address deficiencies in: water-based passenger, tourism and freight transport; sport, leisure and mooring facilities; marine support infrastructure; and inclusive access and safety provision.

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PHV.9.179	SI14 Paragraph 9.14.8	Additional stretches of the River Thames should not be designated as Metropolitan Open Land, as this may restrict the use of the river for transport infrastructure related uses.
PHV.9.180	SI14 Paragraph 9.14.9	The interface between terrestrial land-side and marine planning is at the centre of on-going coordination and engagement with the Marine Management Organisation (MMO). The South East Inshore Marine Plan is currently under development as part of a suite of Marine Spatial Plans ¹³⁹ under the Marine Policy Statement. ...
PHV.9.181	SI15 B	B Existing boatyard sites should be protected and development proposals to increase their capacity or range of services should be supported. Alternative use of a boatyard site should only be accepted if the facilities of the site are re-provided at a site with equivalent or enhanced facilities in Greater London . Proposals for a new strategic-scale boatyard site, at an appropriate site within London, will be supported.
PHV.9.182	SI15 C	C Development proposals to facilitate an increase in the amount of freight transported by river on London's waterways should be supported.
PHV.9.183	SI15 D	D The Mayor will keep the network of safeguarded wharves under regular review. Boroughs should protect existing locations and identify new locations for additional

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		waterborne freight. There may be opportunities to consolidate wharves as part of strategic land use change, in particular, within Opportunity Areas; these will need to ensure that the existing and potential capacity and operability of safeguarded of the wharves is retained and where possible expanded.
PHV.9.184	SI15 F	F Development proposals which increase the use of safeguarded wharves for waterborne freight transport, especially on the reactivation of wharves which are currently not handling freight by water, will be supported.
PHV.9.185	SI15 G	G Development proposals on a safeguarded wharf that include the provision of a water freight use below or alongside another land use, must ensure that the water freight use is secured long-term, on a safeguarded Wharf, with other land uses above or alongside will need to be ensure that the development is designed so that there are no conflicts of use and that the freight-handling capacity of the wharf is not reduced.
PHV.9.186	SI15 H	H Development proposals adjacent to or opposite safeguarded wharves (including vacant wharves) should be designed to minimise the potential for conflicts of use and disturbance, in line with the Agent of Change principle.

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PHV.9.187	SI15 Paragraph 9.15.2	The PLA and Transport for London's Pier Strategy will promotes extending river services to East London and its growth areas to encourage modal shift to the river. ...
PHV.9.188	SI15 Paragraph 9.15.5	... The Mayor will regularly review wharf safeguarding to ensure the changing need for waterborne freight is addressed. Where the transition of wharves from waterborne freight to other uses is acceptable, the re-use of those wharves for waterborne public transport use should be considered.
PHV.9.189	SI15 Paragraph 9.15.6A	Where a development proposal for a safeguarded wharf includes land uses unrelated to the handling of waterborne freight, the design of the development must not result in conflicts of use between wharf operations and the other land uses, nor constrain the long-term use and viability of the safeguarded wharf. The freight-handling capacity of the wharf must not be reduced and the reactivation of the wharf for waterborne freight handling must be delivered and secured for the long term in order for proposals to be deemed acceptable.
PHV.9.190	SI16 A	A Development Plans and development proposals should protect and enhance waterway infrastructure to enable water dependent uses.

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PHV.9.191	SI16 B	<i>B Moved to AB</i>
PHV.9.192	SI16 C	<i>C Moved to AA</i>
PHV.9.193	SI16 C-AA	C-AA Development proposals for should protect and enhance, where possible, water-related cultural, educational and community facilities and events, and new facilities should be supported and promoted, but should take into consideration the protection and other uses of the waterways.
PHV.9.194	SI16 B-AB	B-AB Development proposals that increase the provision of water sport centres and associated new infrastructure will be supported if a deficit in provision has been identified locally, and if the infrastructure does not negatively impact on navigation or on the protection of the waterway (see Policy SI17 Protecting and enhancing the London's waterways) .
PHV.9.195	SI16 D	D New mooring facilities should be: Development proposals adjacent to waterways should protect and enhance, where possible, existing moorings. The provision of new moorings and/or required facilities (such as power, water and waste disposal) should be supported if they are:

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		<p>1) supported as part of development proposals, but should be off-line from main navigation routes, in basins or docks, unless there are no negative impacts on navigation or on the protection of the waterway (see Policy SI17 Protecting and enhancing London's waterways)</p> <p>1A) appropriately designed including the provision of wash mitigation, where necessary</p> <p>...</p>
PHV.9.196	SI16 E	E — Major development schemes adjacent to waterways should consider the provision of new moorings.
PHV.9.197	SI16 G	G Development proposals along waterways should protect and enhance inclusive public access to and along the waterway front and explore opportunities for new, extended, improved and inclusive access infrastructure to/from the waterways.
PHV.9.198	SI16 H	H Development proposals should improve and expand the Thames Path and the towpaths, improve alignment with the waterway where relevant, enhance them as walking routes, and provide better linkages to the transport network. This will require collaboration with relevant partners including the London boroughs, the PLA and the Canal and River Trust, the Environment Agency and Natural England, as

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		well as landowner, developer and community representatives. These paths will be public and not private spaces.
PHV.9.199	SI16 Paragraph 9.16.1	New development should utilise the waterways (also known as the Blue Ribbon Network) for transport purposes where possible, but also for active water-based leisure, and for informal waterside recreation or access. In order to make the maximum use of London's waterways a range of supporting infrastructure is required including jetties, moorings, slipways, steps and waterside paths and cycleways (piers, wharves and boatyards are addressed in <u>Policy SI15 Water transport</u>). ...
PHV.9.200	SI16 Paragraph 9.16.2	Moorings and, moored boats, and continuous cruiser boats, as well as live-aboard boat dwellers are an integral part of the character of the waterways. There has been a significant increase in the number of boats on London's waterways (from 2,000 in 2010 to 5,000 in 2016), with a notable increase in central and eastern parts of London's canal network. There is a deficit of short-stay and long-term residential leisure, and commercial moorings and required facilities (such as power, water and waste disposal) to meet the this increase in demand, including for residential, leisure, visitor and commercial uses.
PHV.9.201	SI16	The Canal and River Trust is producing a London Mooring Strategy which will provide an overview of the number of people living on boats on the canal network. It will identify zones for potential additional moorings. Some community-based projects to create residential

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	Paragraph 9.16.2A	moorings may be considered as community-led housing (Part A 4 of <u>Policy H2 Small sites and small housing developments</u>). In addition, a number of creative businesses such as artists' studios and post-production facilities are located on boats. Development proposals for residential moorings in particular should consider innovative solutions to address site-specific conditions, including wash, to enable the creation of new appropriate moorings without detrimentally impacting on navigation.
PHV.9.202	SI16 Paragraph 9.16.3	Historic steps and slipways to the Thames foreshore are vital for enabling access for to/from activities and events. The Thames Path and the towpaths are particularly important in terms of providing safe access for a large number of Londoners along the waterways, facilitating their enjoyment of the river as well as providing health and wellbeing benefits as walking routes
PHV.9.203	SI16 Paragraph 9.16.4	Complementing development proposals for cultural facilities and events, the Mayor's is producing, in partnership with the Port of London Authority, a case for a Cultural Strategy Vision for the River Thames . It aims to increase Londoners' engagement with the River for culture and leisure purposes , including an increase in night-time use and engagement with focusing on under-used areas. It also provides information on the heritage and importance of the River Thames and its banks to London's cultural life, especially in Opportunity Areas .
PHV.9.204	SI17	Policy SI17 Protecting and enhancing London's waterways

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PHV.9.205	SI17 AA	AA Development Plans should support river restoration and biodiversity improvements.
PHV.9.206	SI17 A	A Development proposals that facilitate river restoration, including opportunities to open culverts, naturalise river channels, protect and improve the foreshore, the floodplain, riparian and adjacent terrestrial habitats, water quality as well as and increase the heritage and habitats value, should be supported if appropriate . Development proposals to impound and constrain narrow waterways should be refused.
PHV.9.207	SI17 B	B Development proposals should support and improve the protection of the distinct open character and heritage of waterways and their setting .
PHV.9.208	SI17 C	C Development proposals into the waterways, including permanently moored vessels and development into the waterways should generally only be supported for water-related uses or to support enhancements of water-related uses purposes.
PHV.9.209	SI17 D	D Development proposals along London's canal network, docks, other rivers and water space (such as reservoirs, lakes and ponds) should respect their local character, and environment and biodiversity and should contribute to their accessibility and active water-related uses. Development Plans should identify opportunities for

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		increasing local distinctiveness and recognise these water spaces as environmental, social and economic assets.
PHV.9.210	SI17 E	E On-shore power at water transport facilities should be provided considered at wharves and residential moorings to help reduce air pollution.
PHV.9.211	SI17 Paragraph 9.17.2	Generally, permanently-moored vessels and development into waterways should only be permitted for water-related uses. However, ancillary uses, such as bars and restaurants (for example ancillary to a passenger pier), can support enhancements of water-related uses, and as well as improved access to or along waterways and related public realm. Ancillary uses can also add to the diversity, vibrancy and regeneration of waterways, in particular in basins or docks. The specific siting of such facilities requires careful consideration so that navigation, hydrology, biodiversity and the character, access to , and use of waterways are is not compromised. The waterways should not be used as an extension of developable land in London, nor should parts be a continuous line of moored craft.
PHV.9.212	SI17 Paragraph 9.17.3	... A baseline is being established jointly with key stakeholders including TfL and the PLA, along with appropriate measures and investment to minimise impact. This includes the requirement in this policy to provide consider providing on-shore power at wharves and moorings.