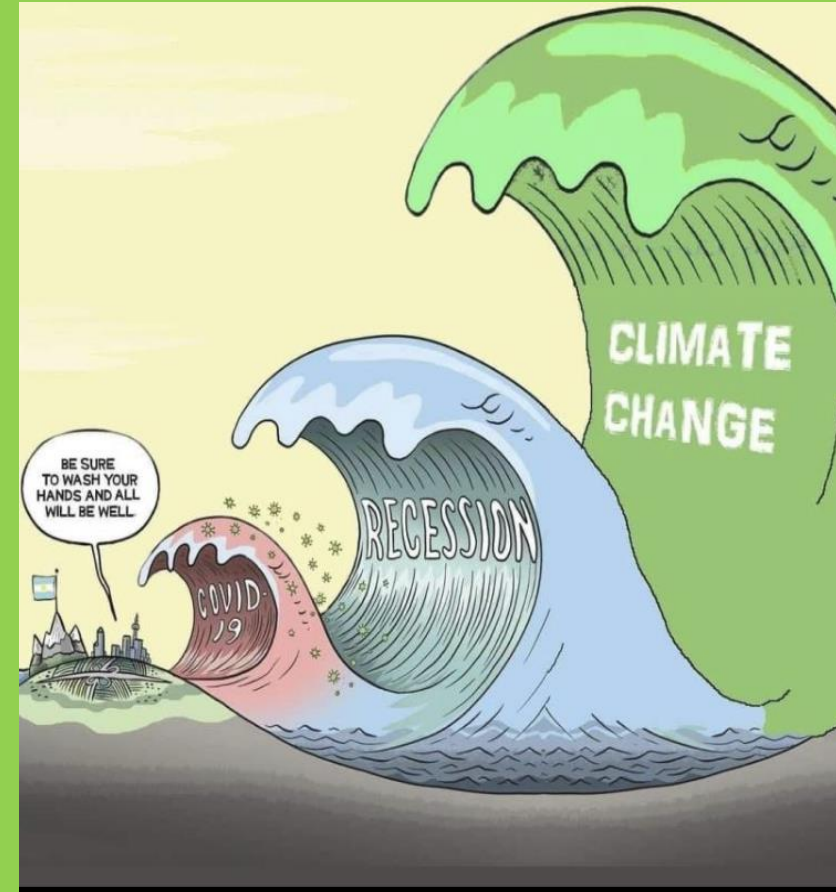


Contaminated land officer – views and experience

Presented by:

Robert Tyler | Contaminated Land Officer
RBKC Pollution Regulatory Team

Email address: robert.tyler@rbkc.gov.uk

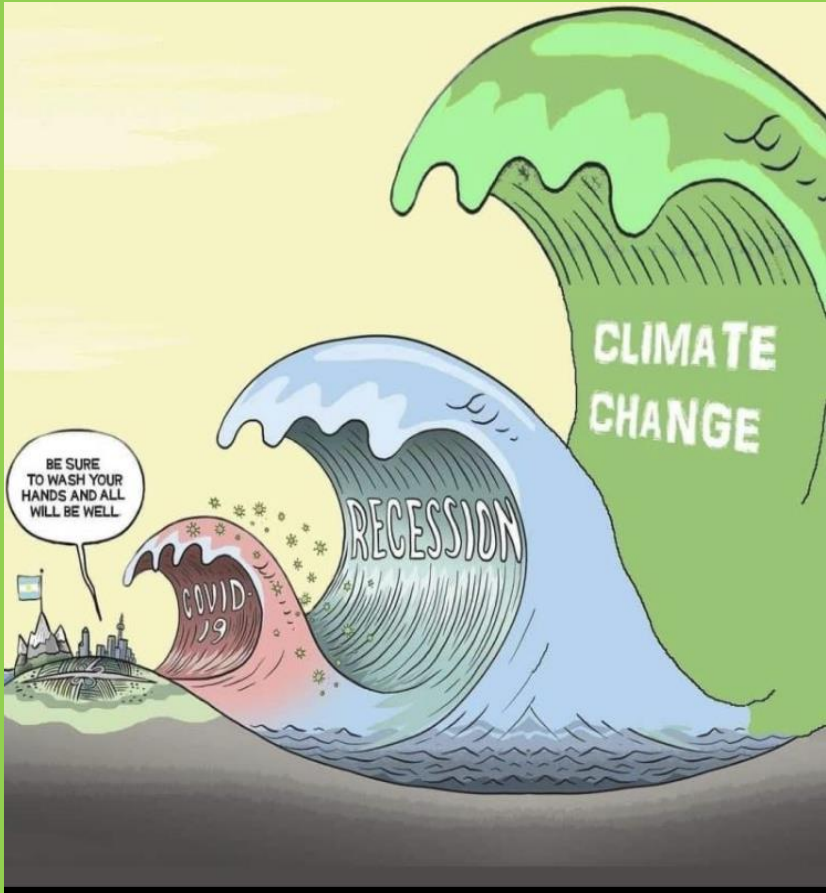


Live Green
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Borough



THE ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

Part 1: What we're doing



Live Green
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Our Green Plan to carbon-neutral by 2030

The Green Plan Vision



Environment & Climate Change is a key priority.

Holistic view – Green Plan vision/umbrella sets out the five environmental priorities. Synergies and collaboration.

These priorities will help us to “build back better” and deliver a Green Recovery.

URGENCY! We need to go further, faster to achieve our shared ambition.

Sources of emissions

BOROUGH-WIDE GREENHOUSE GAS EMISSIONS BASELINE 2018

Commercial & Industrial Buildings

50%

445 ktCO₂e

of borough-wide greenhouse gas emissions is from energy consumption in commercial & industrial buildings.



Residential Buildings

30%

276 ktCO₂e

of borough-wide greenhouse gas emissions is from energy consumption in residential buildings.



Transport

17%

147 ktCO₂e

of borough-wide greenhouse gas emissions is related to transport (cars, motorcycles, buses and rail).



Waste

3%

28 ktCO₂e

of borough-wide greenhouse gas emissions are from waste generation and disposal.



1% are Council emissions

896 ktCO₂e in total

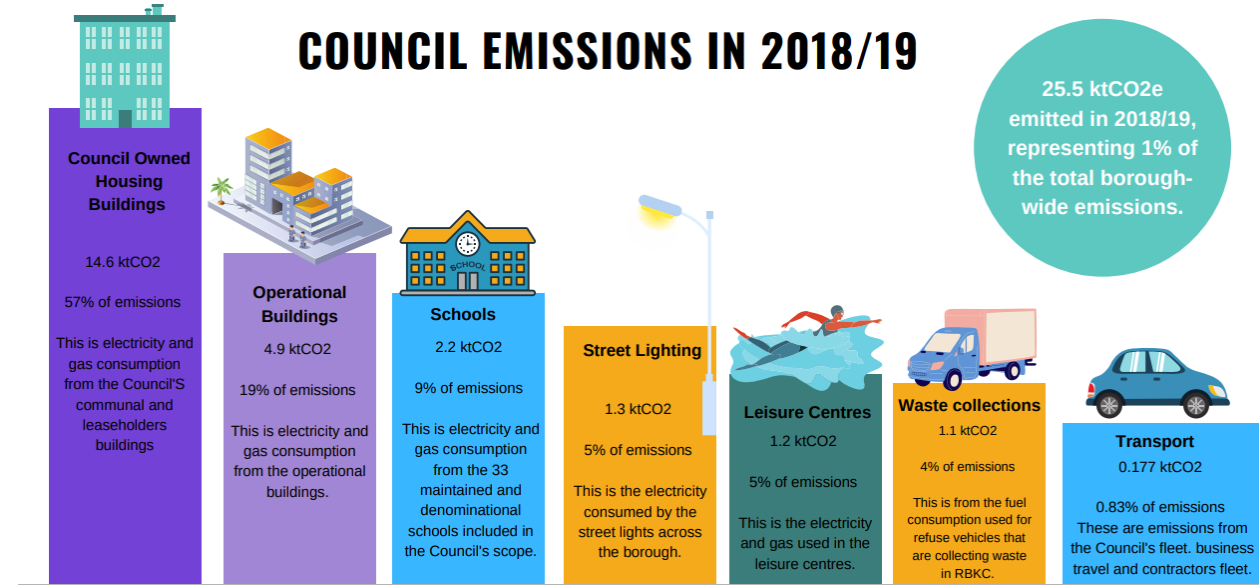


1,984 ktCO₂e

If consumption emissions were included they would have been 69% of the total borough-wide emissions.

Sector	2018 (kt CO ₂ e)	% of total emissions
Residential (electricity)	111	12%
Residential (gas/other fuels)	165	18%
Commercial and Industrial (electricity)	276	31%
Commercial and Industrial (gas/other fuels)	169	19%
Transport (buses and rail)	32	4%
Transport (cars/motorbikes)	78	9%
Transport (HGVs/LGVs)	37	4%
Transport (other)	0.004	0.0004%
Waste	28	3%
Land use	-0.2	-
Total	896 kt CO₂e	

COUNCIL EMISSIONS IN 2018/19



For borough-wide we use the BEIS data published every year for Las

Council's emissions represent 1%, so we need all organisations/businesses to take action!



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What we've done so far on climate change

Carbon Neutral Pathways and GHGs inventories developed.

Improve carbon data, CHROM analysis, annual Carbon Performance Reports

Stakeholder engagement: 3 big events: Community, Big Institutions and Schools events. Citizens Panel on the Environment Survey.

Joint work with AQ & Biodiversity colleagues: align timescale, APs development and identify synergies.

Project delivery (NKCE, Homes4Health, EV charging points, LEDs in schools, Solar Together, EcoFurb, Green Homes Grant project, decarbonisation plans for schools etc.).

New policies/strategies: Green Plan, Greening Supplementary Planning Guidance, Sustainability & Fuel Poverty Housing Strategy, LWS Sustainability Strategy, Green Fleet Action Plan, Standards for New Homes Programme, Sustainable Procurement etc.

Governance:

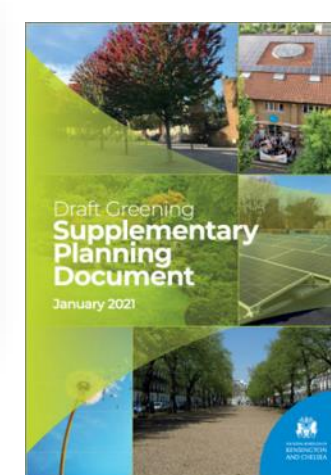
Internal: Green Strategic Board & Green Task Force, Net Zero Housing Strategic Board.

External: In the process of setting up a Climate/Environment Coalition/Steering Group.

Attract additional funding: Internal: Green Fund, Carbon Offset, Green Recovery, Public Health etc; External: Public Decarbonisation Fund, Green Homes Grant – LAD, GLA, WHF, 2030 Future Neighbourhoods etc

Green Recovery Task and Finish Group

Our vision is for Lancaster West to become a model net-zero carbon estate 2030



Struggling with your energy bills?



We can help

- Your local energy expert - the Green Doctors - are offering phone consultations to help you save money and stay out of debt.
- This consultation is provided by a registered charity for anyone on a low income or over 65 or with a long term health condition or disability.
- Your Green Doctor will help you:
- Save money on your energy bills
 - Switch energy providers to save you money
 - Access the Warm Home Discount
 - Apply for grants for energy or water heat
 - Get additional support

Book a phone consultation or refer someone else!
 0300 365 5003 | greendoctors-london.org

There is no charge for this service. Call your phone and we're here!

GREEN DOCTORS is part of The Octavia Foundation, a registered charity No. 1212123

h&f | OCTAVIA HOUSING



Solar Together London

Group-buying for solar panels and battery storage

Register for free and without obligation

#SolarTogetherLondon



Built Environment & Energy

- Retrofit Council owned buildings (including Housing) by 2030. Whole life retrofit . fabric first approach.
- Replacing gas boilers with low carbon heating systems.
- Install 1MW of public community owned solar in the next 4 years on public buildings.
- Renewable heat network at Lancaster West.
- **New major developments to be net zero.**
- Audits and retrofitting school buildings.
- Support fuel poor residents.



Sustainable Transport & Travel

- Encourage active travel.
- Work towards no diesel cars parked on our roads by 2030.
- Upgrade existing cycle routes to provide higher levels of service and improved public realm.
- Cycle Training.
- Council fleet to be electric by 2030.
- **Support businesses to reduce their emissions from deliveries by use of zero emission vehicles and e-cargo bikes.**
- Bike by default -require zero emission and electric or hybrid vehicles as a default for any courier or taxi booking for people or deliveries.



Places & Greener Borough

- New community kitchen garden projects.
- Install energy gardens on tube stations starting with North Kensington.
- Plant more trees across the borough.
- Increase access to and connection with nature by identifying and addressing the barriers faced by the people living and working in the Borough. Reduce the inequalities in access to green space.
- Expand the bee superhighway project across the borough.



Climate Emergency Action Plan 2022-2027

Become a net zero carbon organisation by 2030
Become a carbon neutral borough by 2040



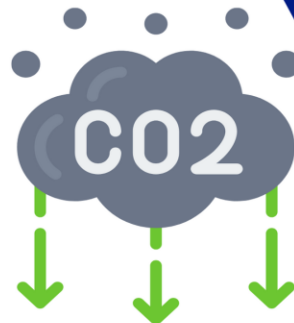
Leading by example

- Environmental charters for businesses and schools.
- Pilot innovative refurbishment and leading-edge refurbishment at Lancaster West estate to help with becoming a model net-zero carbon estate by 2030.



People & Partnerships

- Develop a Green Champions Network across the borough.
- Create an Environmental Coalition /Steering Group.
- Offer free carbon literacy training to residents and businesses.
- Deliver training programme for young people 16 -19 yrs old.



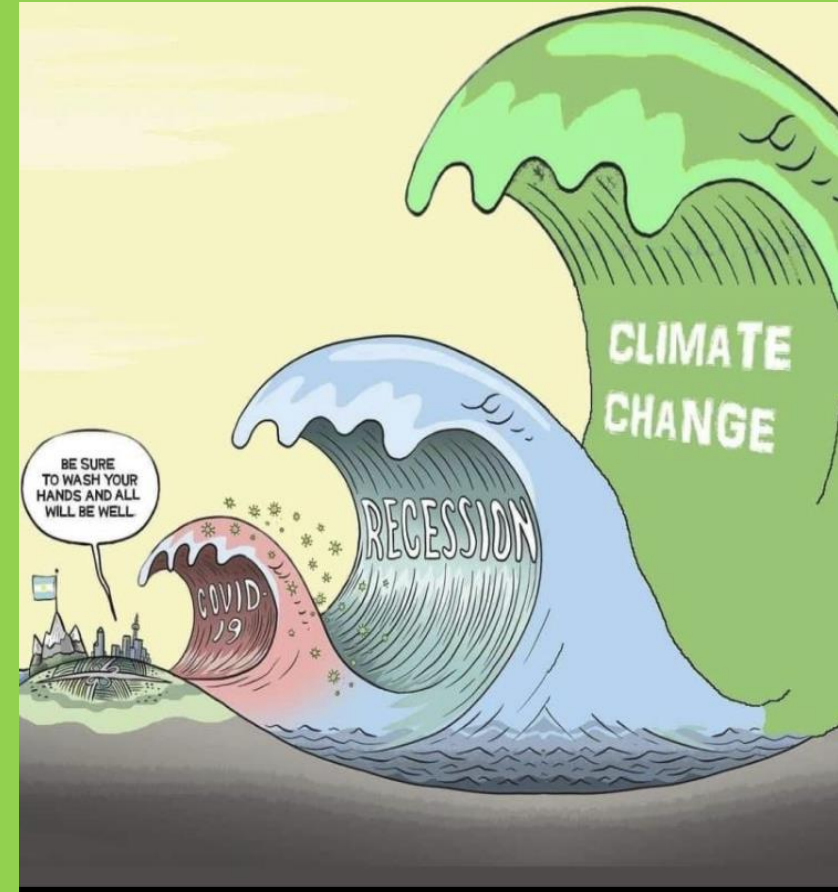
Waste & Circular Economy

- **Reduce waste generation and increase recycling rates.**
- **Encourage all major developments to submit a circular economy statement.**



Part 2: What can we do?

- **Planning policies**
- **Conland sustainability hierarchy**
- **Case studies**



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National Planning Policy Framework

Section 2, paragraph 8: Three overarching sustainability objectives of planning:

“an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”

Section 2, paragraph 11: “For plan making this includes:

- a) all plans should promote a sustainable pattern of development that seeks to: meet the development needs of their area; align growth and infrastructure; improve the environment; mitigate climate change (including by making effective use of land in urban areas) and adapt to its effects; “

152. The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.



National Planning Policy Framework

Section 14, paragraph 153:

“Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts...”

Section 14, paragraph 154:

“New development should be planned for in ways that: a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures...”



London Plan and Sustainable design and construction SPG (April 2014)

“Section 4.2.3 **Bioremediation works are encouraged**, where they are suitable. Bioremediation is the treatment of contaminated soil using micro-organisms and accelerating the culture by use of chemicals as nutrients and the addition of oxygen producing aerobic conditions for the remediation. This process is not suitable for all contaminants”



EA's LCRM

“Sustainable remediation

It is important to consider a sustainable approach to remediation.”

“Step 1: Develop a remediation strategy

You need to develop and produce a single remediation strategy that will deal with the site as a whole.

The remediation strategy needs to include a clear set of remediation activities and how you will implement and verify them. It is a record of how you will meet and carry out the remediation objectives.

It needs to:

- ...[]...
- provide a sustainable approach
- ...[]...”



Draft RBKC Local Plan

Policy GB20: Contaminated Land

GB20: Contaminated Land

- A. A preliminary risk assessment of contaminated land is required at the planning application stage for all major development and the following smaller scale sensitive development.
- Conversions and refurbishments (excluding smaller occupier led refurbishments) that increase, maintain or reduce the number of units.
 - Basement developments.
 - Increase in or reduction of ground levels or extensions of garden, yard, or open space areas.
 - Extensions on or within 20m of a potentially significant source of ground gases or vapours.
 - Any development that may be impacted by land contamination or pose risks off-site.
- B. Where a satisfactory preliminary risk assessment identifies it is necessary, an intrusive site investigation and quantitative risk assessment are also required, in some cases at the planning application stage.
- C. Where the conclusions of thea satisfactory intrusive site investigation and quantitative risk assessment identifies it is necessary, an options appraisal and remediation strategy will be required, in all cases to be followed by a verification report, in some cases at the planning application stage.
- D. Where less sensitive development may be impacted by land contamination or pose risks off-site, they should be addressed as set out in criteria A - C.
- E. The requirements of criteria A – D must be undertaken in line with best practice guidance and by a competent environmental specialist as defined in the Environment Agency Land Contamination Risk Management guidance, NPPF and PPG.
- F. Where possible the excavation and disposal of ground materials offsite and the importation of clean soils should be minimised using quantitative risk assessment and sustainable onsite remedial techniques.
- G. Development that proposes potentially contaminating or polluting activities, or is located in close proximity to hazardous installations or uses, must incorporate mitigation of harmful effects to people and the environment, and where it is considered necessary, provide monitoring of any impact.
- H. On Opportunity Area sites and other large sites within the Borough, developers should work collaboratively to consider the feasibility of a strategic approach to land remediation where feasible.

Water Pollution

- I. New development must not pose an unacceptable risk to water quality. Development which has the potential to adversely impact water quality, in the opinion of the Council or the Environment Agency, will be required to provide appropriate monitoring and mitigation to alleviate the risk.
- I. Source Protection Zones (SPZs) should be taken into account when considering the environmental impact of a development.

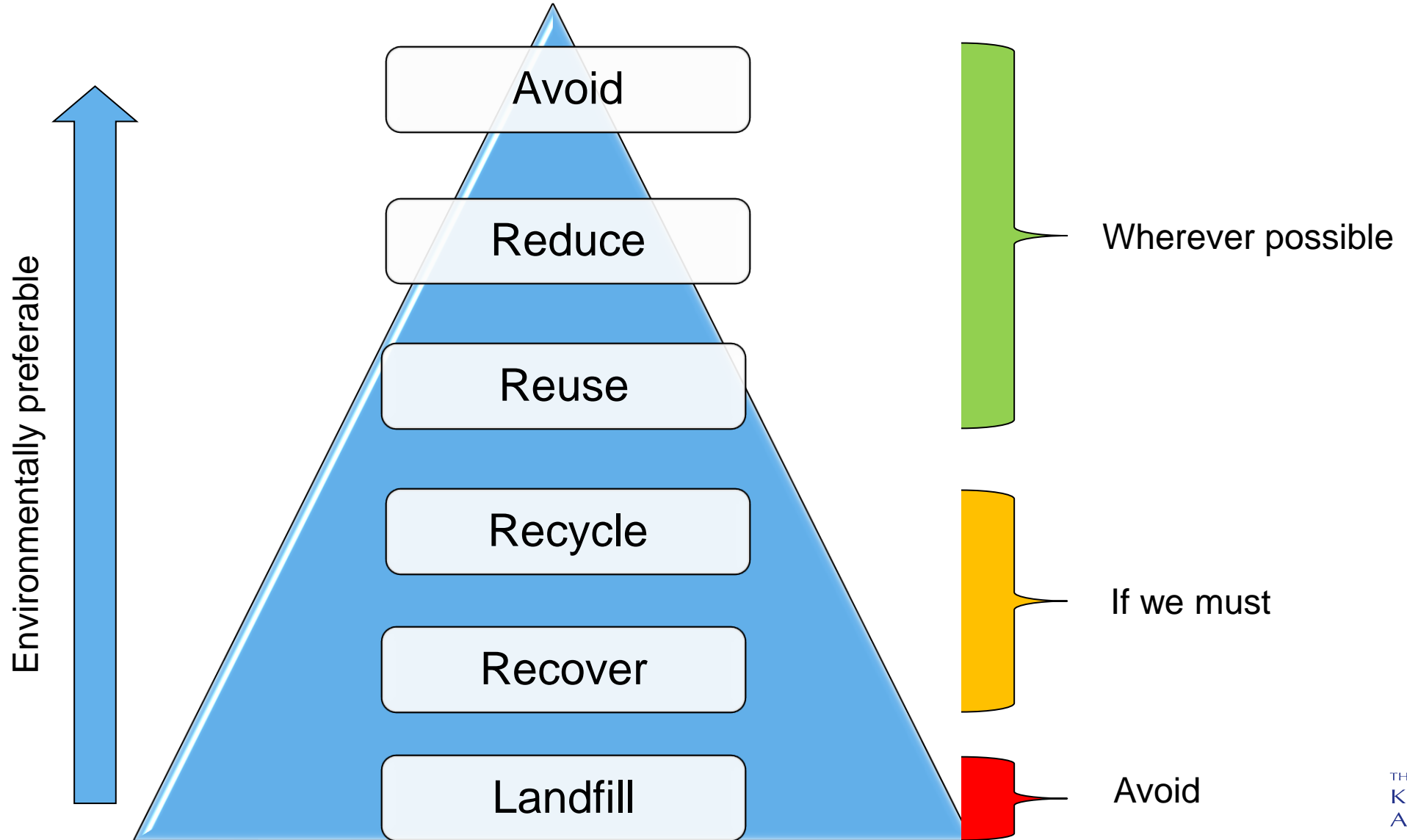
F. Where possible the excavation and disposal of ground materials offsite and the importation of clean soils should be minimised using quantitative risk assessment and sustainable onsite remedial techniques.

H. On Opportunity Area sites and other large sites within the Borough, developers should work collaboratively to consider the feasibility of a strategic approach to land remediation where feasible.

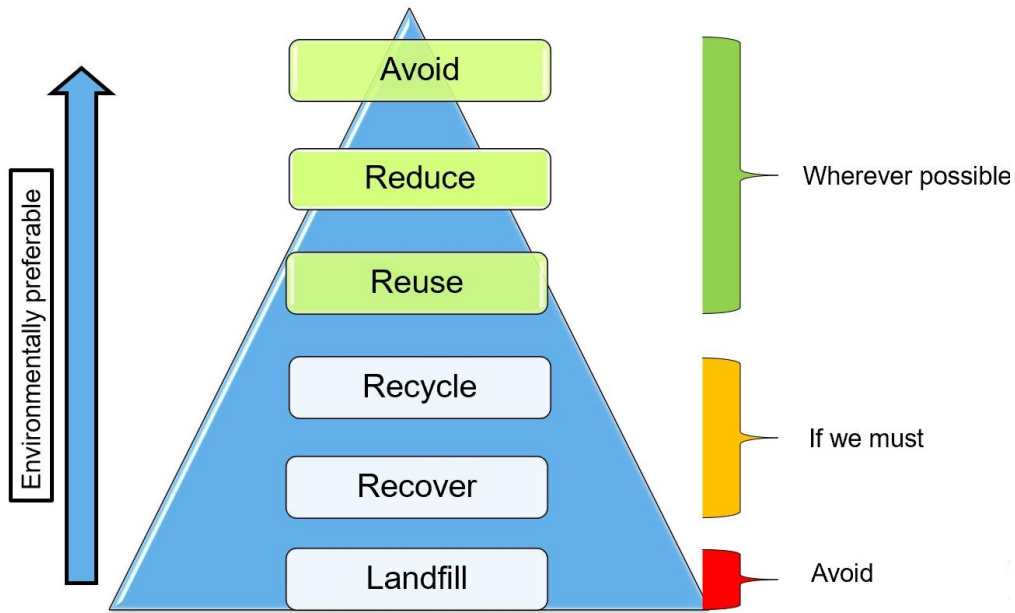
No contaminated land SPG – incorporating sustainability requirements into contaminated land planning guidance



Contaminated land sustainability hierarchy



Wherever possible:



Avoid:

- DQRA/do nothing/Leave in-situ

Reduce:

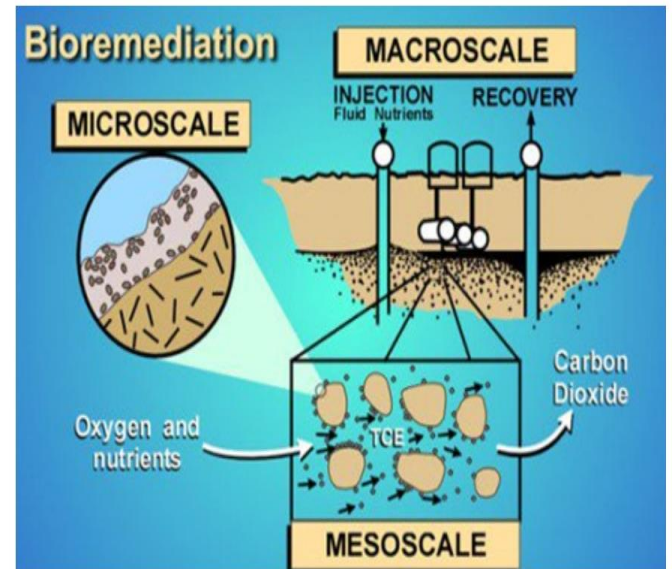
- DQRA
- Treat in-situ/contain onsite

Reuse:

- DQRA
- Treat Insitu or Ex-situ for reuse onsite

Combined approaches

- Treat/contain onsite



One of the two soil hospitals which formed part of the enabling works, processing tonnes of contaminated soil to be reused on site to create the landforms and remediating the ground for future land uses



Wherever possible:

	Lead (mg/kg)			
	Larger garden (25m ² +))	Small garden (<25m ²)	Very small garden (<10m ²)	Without HGP
Cat4SL	200			310
USEPA recommended SIR	+20			+82
EF 270 days	+60			+212
Bio accessibility UBM 80%	+27			+78
EF HGP 270 days	+11			0
EF Garden size	n/a	+29	+49	0
Result (mg/kg)	318	347	367	682

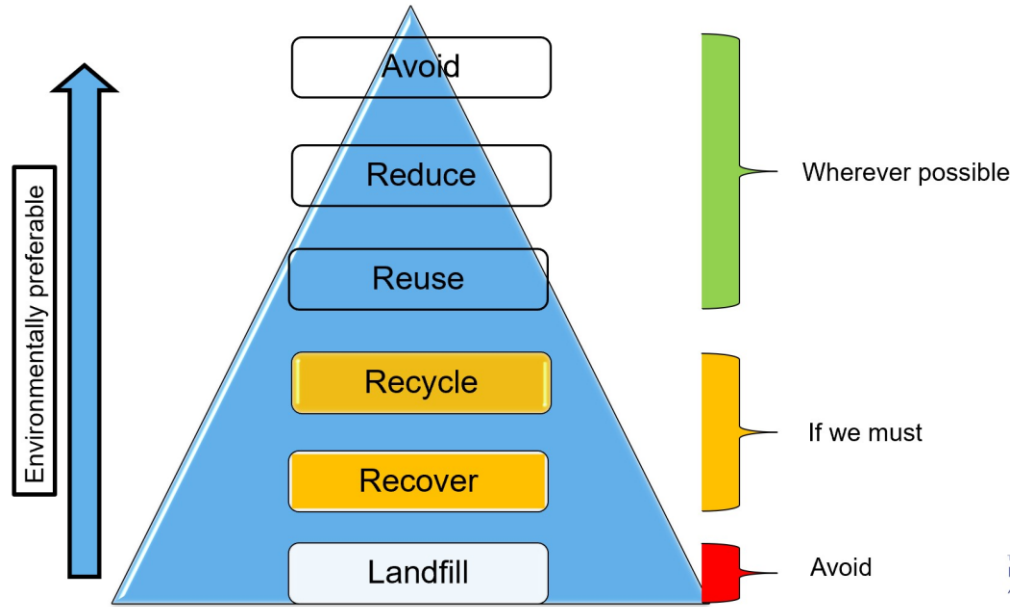
Larger garden – rear garden 25 square meters or more

Small garden – rear garden <25 square meters

Very small garden - <10 square meters



If we must:



Recycle:

- GQRA/DQRA
- Reuse offsite

Recover:

- GQRA/DQRA
- Treat Insitu or Ex-situ (on site or offsite) for reuse offsite



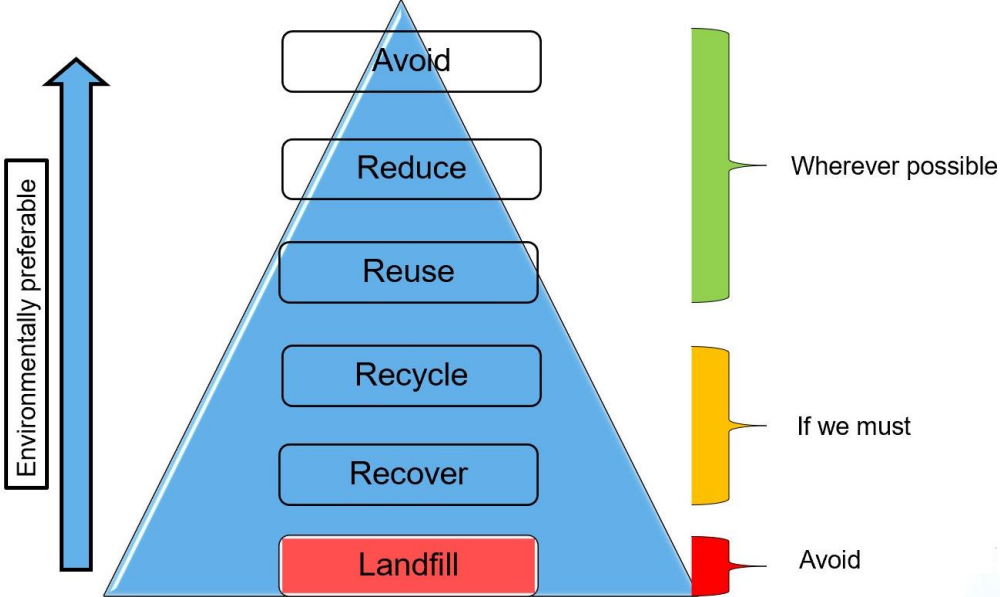
One of the two soil hospitals which formed part of the enabling works, processing tonnes of contaminated soil to be reused on site to create the landforms and remediating the ground for future land uses

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Avoid:



Landfill:

- Last resort
- Avoid



Case study I: Olympic Legacy Site

BBC Sign in Home News Sport Weather iPlayer Sounds

NEWS

Home Cost of Living War in Ukraine Coronavirus Climate UK World Business Politics Tech Science

England Local News Regions

'Horroric smell' halts construction near Olympic Park

15 October 2018



Hackney Gazette

Construction work in Hackney Wick halted after complaints of odour affecting schoolchildren

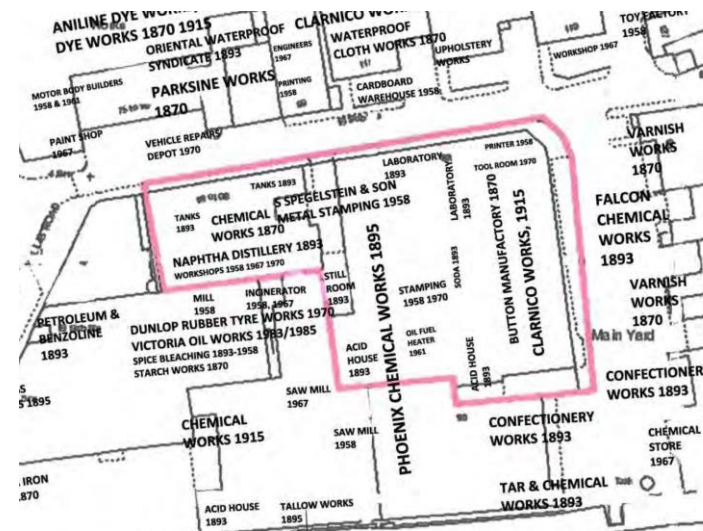
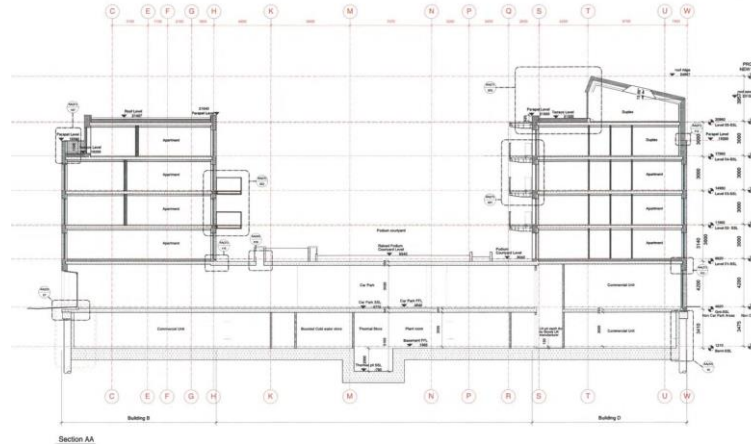
Sam Gelder

Published: 4:45 PM September 21, 2018 Updated: 10:46 AM October 14, 2020



Here East and Mossbourne Riverside Academy. Picture: Sludge G (CC BY-SA 2.0) - Credit: Archant

Construction work at an old studio site in Hackney Wick has been halted after complaints that odours from the ground were giving children at a nearby primary school headaches.



RegenOx

CHEMICAL OXIDATION REDEFINED...

RegenOx is an advanced in situ chemical oxidation technology designed to treat organic contaminants including high concentration source areas in the saturated and vadose zones.

PRODUCT FEATURES:

- Rapid and sustained oxidation of target compounds
- Easily applied with readily available equipment
- Destroys a broad range of contaminants
- More efficient than other solid oxidants
- Enhances subsequent bioremediation
- Avoids detrimental impacts to groundwater aquifers



HOW IT WORKS:

RegenOx maximizes in situ performance using a solid alkaline oxidant that employs a sodium percarbonate complex with a multi-part catalytic formula. The product is delivered as two parts that are combined and injected into the subsurface using common drilling or direct-push equipment. Once in the subsurface, the combined product produces an effective oxidation reaction comparable to that of Fenton's Reagent without a violent exothermic reaction. RegenOx safely, effectively and rapidly destroys a wide range of contaminants in both soil and groundwater (Table 1).

ACHIEVES RAPID OXIDATION VIA A NUMBER OF MECHANISMS:

RegenOx directly oxidizes contaminants while its unique catalytic complex generates a suite of highly charged, oxidative free radicals that are responsible for the rapid destruction of contaminants. The mechanisms by which RegenOx operates are:

- Surface-Mediated Oxidation: (see Figure 1 and description below)
- Direct Oxidation: $C_2O_4 + 2 Na_2CO_3 + 3 H_2O_2 + 2 H_2O \rightarrow CO_2 + 4 NaCl + 4 H_2O + 2 H_2CO_3$
- Free Radical Oxidation:
 - Peroxyl Radical (RO₂•)
 - Hydroxyl Radical (OH•)
 - Superoxide Radical (O₂•⁻)

Figure 1. RegenOx™ Surface-Mediated Oxidation

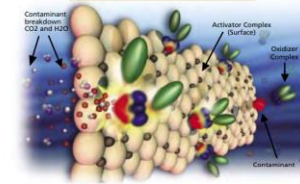


Figure 1. Surface-Mediated Oxidation is responsible for the majority of RegenOx contaminant destruction. This process takes place in two stages. First, the RegenOx activator complex coats the subsurface. Second, the oxidizer complex and contaminant react with the activator complex surface destroying the contaminant.



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Case study 2: Earls Court development site



- Design: Consider contamination in master plan
- Remediation: Site specific and sustainable onsite remediation wherever possible
- Waste management: Deal with contaminated and other waste onsite with innovative waste collection – wherever possible avoid

a) Contaminated land

Any intrusive site investigation, risk assessment and land remediation should be approached in a site-specific way to, first off, attempt to demonstrate suitability for use and where necessary, follow the principles of sustainable remediation.

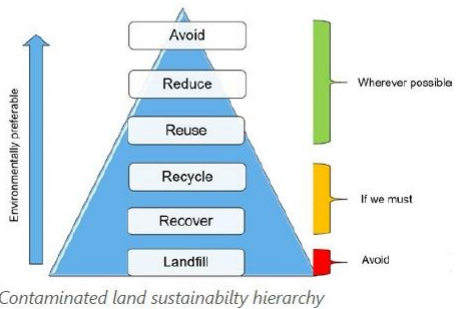
To minimise movement of soils and other materials within, onto and off site, reducing disruption to neighbours and preventing unnecessary carbon use.



- a minimum of 1,050 homes
- a minimum of 40,000 square metres of non-residential floorspace, including offices and research and development
- a significant world-class cultural facility
- retail and other uses to serve the day-to-day needs of the new development
- other non-residential, social and community uses
- a series of interlinked public green spaces and a new public park
- an on-site early-years education facility

The framework

Priority 1 Public realm first		Landscape before buildings Working with natural systems and the inherited landscape Open space for everyone
Priority 2 Exemplar of environmental sustainability		Vision for sustainability Strategies for managing environmental impacts
Priority 3 Part of the city		Completing Earls Court Convenient and appealing connections Sensitive integration
Priority 4 Varied and rich urban life		A place to settle The value of active uses Putting Earls Court back on London's cultural map



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