External Windows - Waste Stream, Recycling

External windows to the facade are single glazing and consistent in style with 3 typical configurations - single, double or triple bay. Where facing habitable rooms, some windows have been retrofitted with a secondary window frame and glazed panel. The windows have thin metal frame and mullions and the glazing is estimated to be 6mm thick. There isn't currently an established marketplace for external window reuse due to new buildings complying with updated environmental requirements and specifications. While there are secondary markets and donation schemes available, the age and style of these windows makes reuse an unlikely pathway. MI has designated the material to be recycled.

Exterior_Credit Material Index

Left: External windows to northwest elevation. Right: Internal window retrofit for double glazing

Ceiling Systems - Waste Stream, Recycling

Ceiling grid systems are still to be determined, however, there is potential for reuse off-site. A takeback scheme for the panels can be investigated once more information is confirmed. The ceiling grid system is likely to go to the waste stream.

Interior_Credit Material Index

Ceiling grids and lighting.

Recycling and Responsible Demolition

If items cannot be reused and during the deconstruction process then recommended options for specialist companies that engage in waste stream recycling include:

Glass

Recommendations: A specialist glass recycler is contacted to see whether any of the glass is suitable for recycling into new flat glass, or if the glass can be collected for recycling into lower grade applications such as glass bottles. The glass should be separated on site and sent to a licensed waste management contractor for recycling.

Potential waste management contractors:
URM offer a glass collection service for all types of glass - www.urm.co.uk/

Metal

Metal should be segregated on site. Any non ferrous metals (e.g. stainless steel) should be separated from other metals as they have a higher resale value. The metal should be removed by a licensed waste management company for recycling.

Horn Lane Metals

http://www.hornlanemetals.co.uk/index.html

020 8992 4609

Carpet

All carpets should be taken back if possible and if not recycled through:

Interface Carpet

https://www.interface.com/GB/en-GB.html

+44 (0) 800 313 4465

Countrystyle Recycling

Members of Carpet Recycling UK and collect, recycle and recover all types of mixed carpet.

http://www.countrystylerecycling.co.uk/about-us/

0344 880 7700

Ceiling Tiles

Armstrong World Industries Ltd will take back and re-use any of their ceiling tile products.

www.armstrongceilings.co.uk

recycleyourceilings@armstrong.com

All recycling enquiries welcomed, some restrictions may apply.

Knauf AMF Ceilings Ltd

www.amfceilings.co.uk

recycling@amfceilings.co .uk

Minimum quantity 2,000m2

Refer to Knauf AMF's recycling programme document.

Ceramics

Ceramics from bathrooms and tiles are intended to be removed. They should be separated on site and taken to a specialist waste contractor and crushed and used as Recycled Aggregates (RA). Potential waste management contractors:

Hintons

https://www.hintonswaste.co.uk/waste-management/construction-waste-recycling/

Reston Waste Management

http://www.restonwaste.co.uk/

Timber

Powerday provides wood recycling across London. They can create wood chips for remanufacturing into composite boards, or for energy recovery producing a high quality renewable biomass fuel. Contact: info@powerday.co.uk

Timber should be segregated on site by timber-based manufactured boards or solid timber, as MDF and other manufactured boards are harder to recycle due to the adhesives. Solid timber unable to be reused can be recycled for chipboard, and the manufactured boards can be sent for energy recovery. Most solid timber can be recycled, usually into chipboard.

Following new guidance from the Construction Demolition Waste Forum new guidance has been produced on hazardous wood waste where timber coated with preservatives prior to 2007 in large quantities should be tested.

Concrete

O'Donovan Waste Disposal: https://www.odonovan.co.uk/services/recycled-aggregates/

Hintons: www.hintonswaste.co.uk/

Reston Waste Management: www.restonwaste.co.uk/

Vinyl flooring

Recommendations: It can be difficult to remove and in the volumes found on site unlikely to be suitable for reuse.

If vinyl can be removed easily recycling options include:

The Recofloor: www.recofloor.org/about-us/

Recovinyl: www.axionconsulting.co.uk/

If this is not possible, the flooring should be removed by a licensed waste management contractor.

Plasterboard

Waste must be segregated (either on-site or off-site) and recycled by a licensed waste company or sent to landfill where it must be deposited in a separate cell where no biodegradable waste has been accepted. Further guidance on the disposal of plasterboard waste is available from the Environment Agency and CIWM.

Insulation

No insulation items within wall or ceiling or ceiling panels are currently deemed suitable for reuse. The difficulty of extraction plus the limited secondary market for 'non-natural' insulation materials makes it unlikely they could be re-used off-site. A licensed waste management company should be used during demolition to assess if insulation should go to energy recovery or to landfill. The determining factor is often the presence of foam insulation which is typically a hazardous waste and requires high temperature incineration.

Hazardous Materials

Fluorescent tubes and CFL bulbs: These should be separated on site, collected and disposed of by a licensed hazardous waste carrier.

Asbestos: If an asbestos survey has not been undertaken it is recommended. All asbestos materials should be managed according to the Control of Asbestos Regulations 2012. Detailed information is available from the Health and Safety Executive (www.hse.gov.uk) about how to manage asbestos including when licensed contractors must be used, training of operatives and how to dispose of the waste material.

Specific Advice - Reuse and Challenges

Relevant reuse partners have been contacted and have expressed an interest in visiting the site to determine the reuse of key elements: particularly steel and brick.

Challenges include making sure the careful dismantling of components for reuse, which is often technically possible but difficult, does not add additional or insurmountable cost to the project. Challenges that are often faced in careful deconstruction, such as the storage of components, or access by grab lorries, or on-site storage, are not such in this scenario.

General advice for increasing retention and reuse

Longer sales time: If it is possible to enter a property earlier to conduct a PDA, the longer sales time would allow a greater chance of a buyer being found. In this scenario we have placed many of the components in a single batch so they could be sold quickly prior to the contractor entering the building.

Information on deconstruction/construction proposals: Decisions on future pathways for materials within a space are always client prerogative. Provision of design information on the next life of the space (demolition and/or design drawings) can assist Material Index to make assessments on which components can be reused. Material Index is willing to coordinate with design teams and contractors to ensure as many components as possible are retained/reused or recycled at their highest value.

Conclusion and Recommendations

Recycling/Reuse targets

The estimated percentage of materials leaving the site for recycling/downcycling/waste stream is currently **76%**, leaving **24%** retained or reused. A few factors may have a considerable impact on these figures; both whether reuse and retained pathways can be secured for many items, and there is relatively high degrees of uncertainty on the current extent of plasterboard removal, and the overall scope of refurbishment area. The total volume of waste arising is estimated to be approximately **3,559** tonnes (pending review).

In the appendices to this report items that are currently designated for reuse on-site, or re-use off-site have been itemised on a component basis. The status of these items may change following further discussions with the client, the demolition contractor and the manufacturing industry.

At least **17%** retain in-situ for this site is considered appropriate given that three of the external facades are being retained in the new development. At least **6%** reuse on-site is considered appropriate given that the final facade is being rebuilt.

Storage and Site Separation

All items designated for retain, reuse on-site or reuse off-site should be protected during works. Separate areas should be established on site during works for this purpose. It is recommended that items to be reused off-site are protected during site deconstruction. Items set aside for reuse through resale should be prepared for pick-up: ie. labelled, palletted and on ground floor level.

For other items in the recycling/waste stream the following items should be site separated: timber; ferrous metals (steel); non-ferrous metals (stainless steel, copper); plasterboard; ceramic items and /porcelain tiles. Hazardous waste should be segregated and must be removed by a licensed hazardous waste contractor.

Diversion from Landfill

For the items entering the waste stream, given the relatively low expected amounts of insulation and bituminous products relative to other material categories, it is recommended the deconstruction contractor has a target of **98%** diversion of waste from landfill.

Existing building deconstruction: Distribution by material							
Material	**European Waste Code**	**Total Weight (kg)**	**Embodied Carbon (kgCO2)**	**Total Volume (m3)**	**Total Weight (%)**	**Total Volume (%)**	**Diversion from Landfill Requirement (%)**
Concrete	17-01-01	3,629,187	436,954	1,512	77.18%	73%	100.00%
Brick	17-01-02	725,267	150,783	345	15.42%	17%	95.00%
Metal	20-01-40	275,917	1,134,019	138	5.87%	7%	100.00%
Timber	17-02-01	19,617	9,667	49	0.42%	2%	100.00%
Steel	17-04-05	18,800	21,620	2	0.40%	0.1%	100.00%
Glass	17-02-02	11,420	16,411	5	0.24%	0.2%	100.00%
Electronics	20-01-36	11,289	37,366	23	0.24%	1.1%	95.00%
Carpet	20-01-11	5,436	1,087,200	4	0.12%	0.2%	100.00%
Gypsum	17-08-02	3,370	438	2.93	0.07%	0.1%	95.00%
Bitumen	17-03-02	2,205	882	2.21	0.05%	0.1%	80.00%
Ceramic	17-01-03	1,710	1,949	0.68	0.04%	0.0%	100.00%
Fabric	20-01-11	400	0	0.40	0.01%	0.0%	100.00%
Plastic	17-02-03	287	0	0.21	0.01%	0.0%	100.00%
Stone	01-04-13	240	794	0.08	0.01%	0.0%	100.00%
Grand Total		4,705,145					

Table 3: Existing Building Diversion

Comparison of Actual/Forecast Rates

If requested, Material Index can record how much waste is diverted from waste during the deconstruction operation, and this report can be re-issued As-Deconstructed. In accordance with the BRE Code of Practice Pre-redevelopment Audit (2017) MI seeks to measure actual performance versus estimated. Following project completion Material Index can issue recommendations for improvements to diversion to reuse procedure.

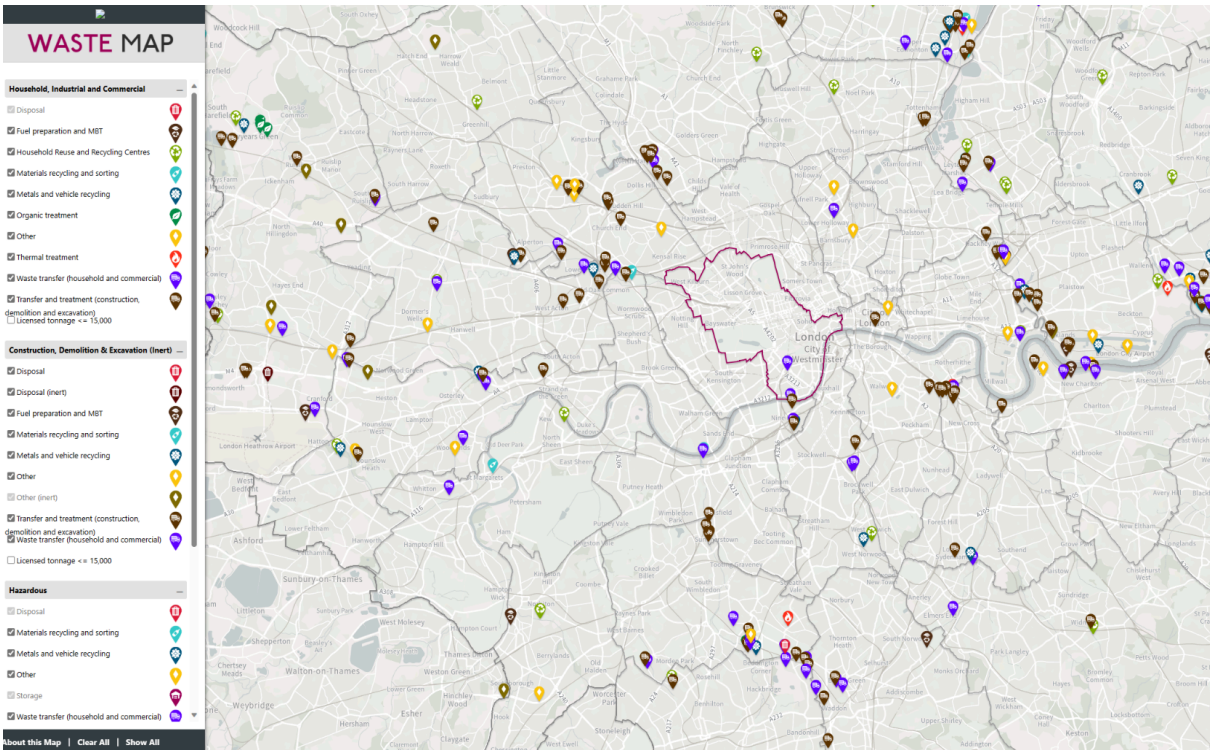
Deconstruction Tendering and Training

Skips and waste vans should be loaded with one designated waste stream at a time. The deconstruction training on Environmental Issues, or Monitoring and Record Keeping of waste transfer during construction. Induction training carried out to site shall include Environmental issues. Inductions will specifically include a reminder to all staff on the expected levels of recycling and waste control and the standard of segregation required for acceptable disposal. Material Index can also report on any lessons learned in relation to waste management.

Destination

Name: Walbrook Wharf
Web: corygroup.co.uk
Address: Upper Thames Street London EC4R 3TD.
Suitable for Construction and Deconstruction Waste: Yes
Phone: 020 7329 6721

Name: Wandsworth Transfer Station, Western Riverside Waste Authority
Web: wrwa.gov.uk
Address: Western Riverside Transfer Station, Wandsworth, London SW18 1JS
Suitable for Construction and Deconstruction Waste: Yes
Speciality: Reuse, Recycling, Including Construction and demolition (C&D) waste
Phone: 020 8871 2788
Email: info@wrwa.gov.uk



London Waste Map: waste processing facilities in vicinity of the site. Source: https://apps.london.gov.uk/waste/

End of Report

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