TILLEY & BARRETT

Claire Fundrey

Environmental & Sustainability Manager

Toureen Group

SOLVING COMPLEX CHALLENGES SINCE 1992

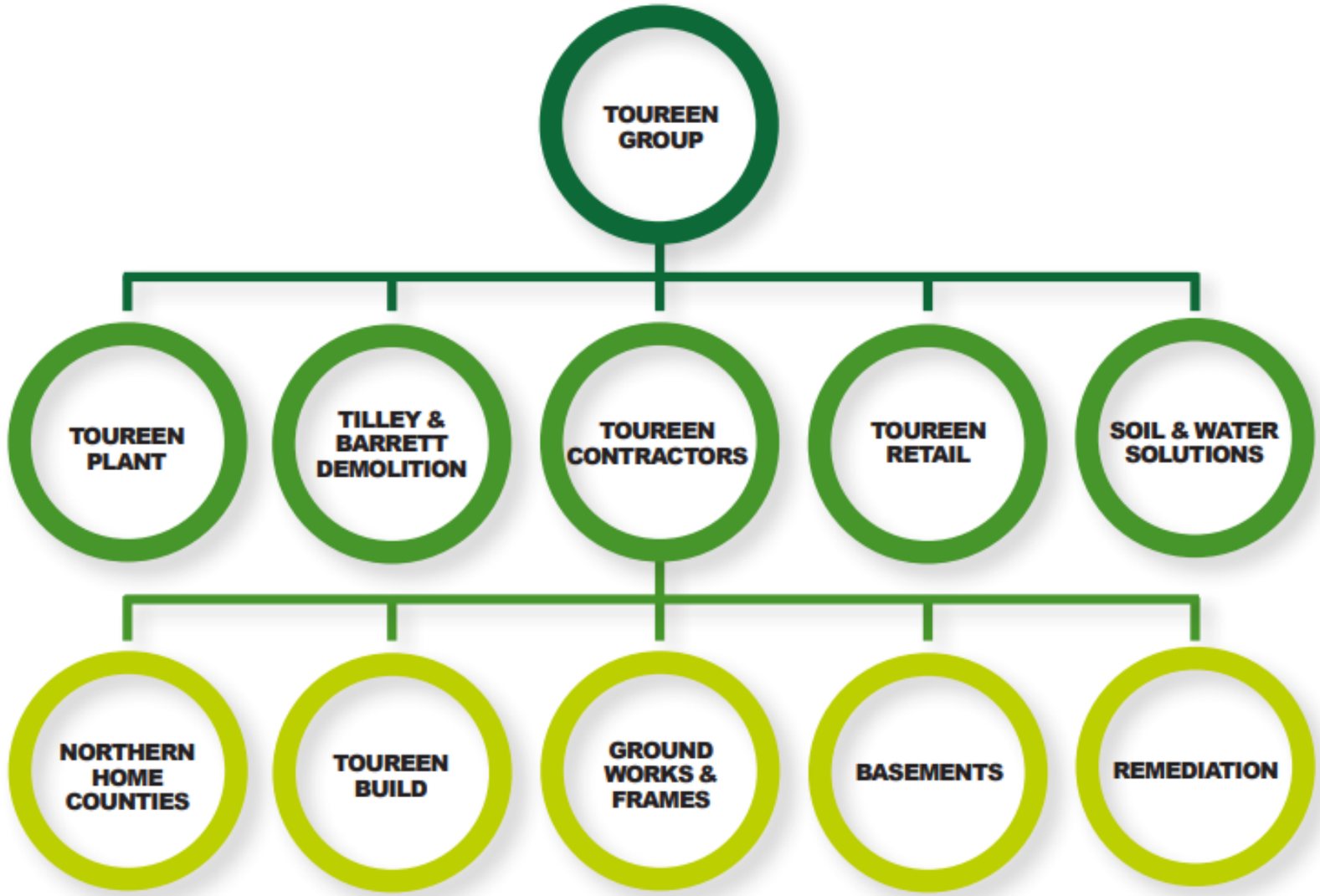
Toureen Group

TOUREEN GROUP

THE TOUREEN GROUP IS A MULTIFACETED, AWARD WINNING CONSTRUCTION SERVICES ORGANISATION OPERATING THROUGHOUT THE UK.

FOUNDED IN 1992, TODAY THE GROUP OFFERS A RANGE OF INTEGRATED COMPANY SOLUTIONS TO MEET THE NEEDS OF ITS CLIENT BASE. THE GROUP'S SERVICES CAN BE CONTRACTED SINGULARLY OR COMBINDED TO CREATE A TURNKEY SERVICE THROUGH AN INTEGRATED GROUP SOLUTION.

OUR GOAL IS TO ADD QUALITY OF SERVICE TO EACH PROJECT, DELIVING TO CLIENT REQUIREMENTS, SAFETY, VALUE AND QUALITY THROUGH CREATIVE, INNOVATIVE SOLUTIONS TO COMPLEX CHALLENGES.



THE PROBLEM

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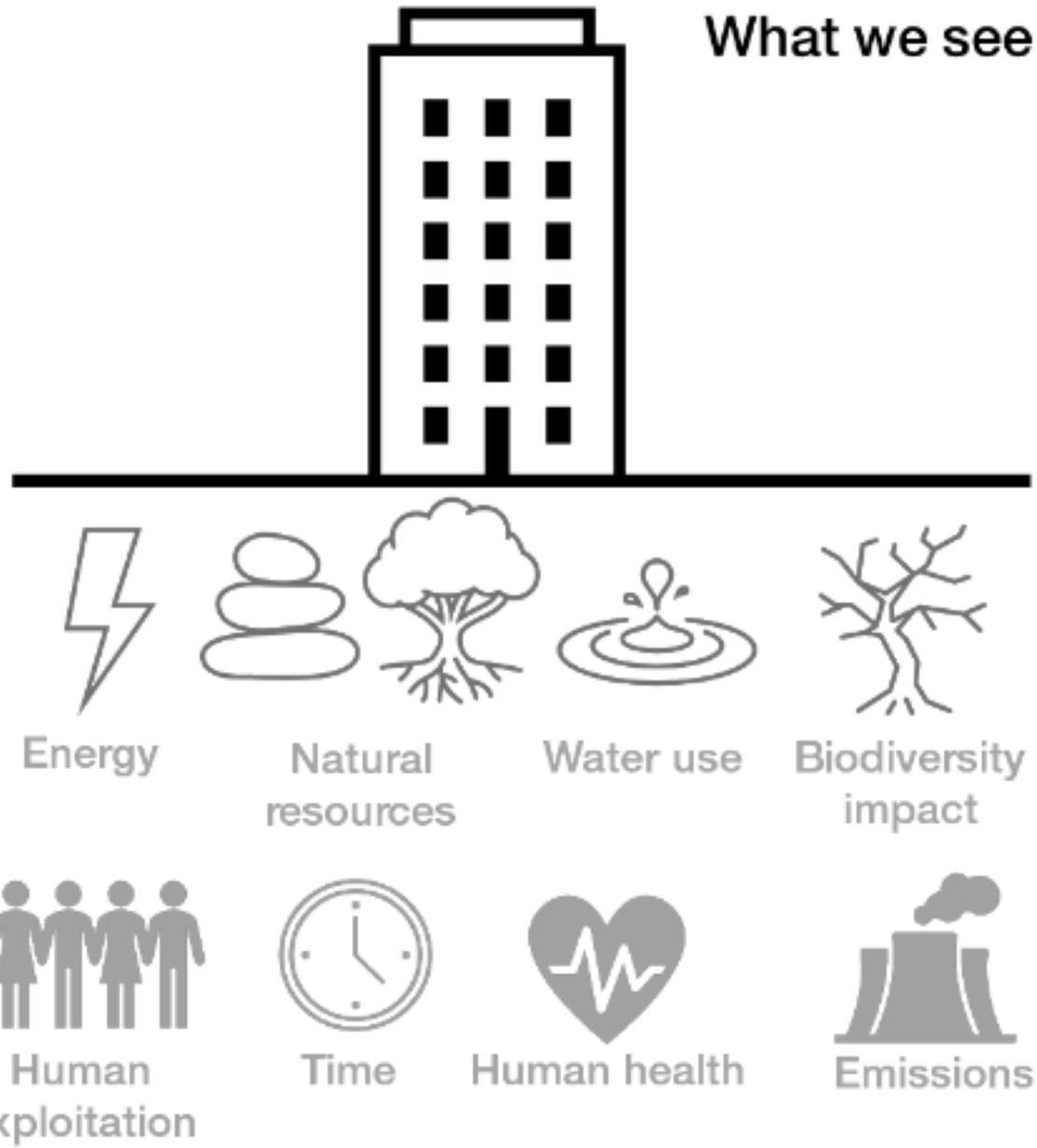

Material Extraction

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In just 50 years, global use of materials has nearly quadrupled, outpacing population growth

Between COP21 in Paris 2015, and COP26 in Glasgow 2021, 70% more virgin materials were extracted than the earth can safely replenish

Earth Overshoot day

August 2nd 2023

Source: The Circularity Gap Report 2022, Circle Economy (2022)

CIRCULAR ECONOMY TODAY

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Doing the best possible reuse - buildings we see today haven't been designed for adaption and deconstruction

- **Demolition**

  reuse first, materials & carbon saved today

- **Design for adaption**

  materials & carbon saved in 20-30 years time

- **Design for deconstruction**

  materials & carbon saved in 50-100 years time

How can we move more quickly to deconstruction?

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Early involvement of demolition specialists

Market for reuse

Demolition contracts to accommodate / incentivise deconstruction

Improve the information available about asset as early as possible

Better specification of client objectives for material reuse

Improve recertification and warranties for reclaimed materials

Legislation – e.g. reduce cheaper material imports, materials vs. waste

Engagement & knowledge sharing – across a development value chain and amongst contractors

Overcoming some of the challenges..

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- Opportunity to link with consultants involved earlier in planning process of projects
  - Joint learning – blue sky thinking meets practicalities
  - Out of the box thinking

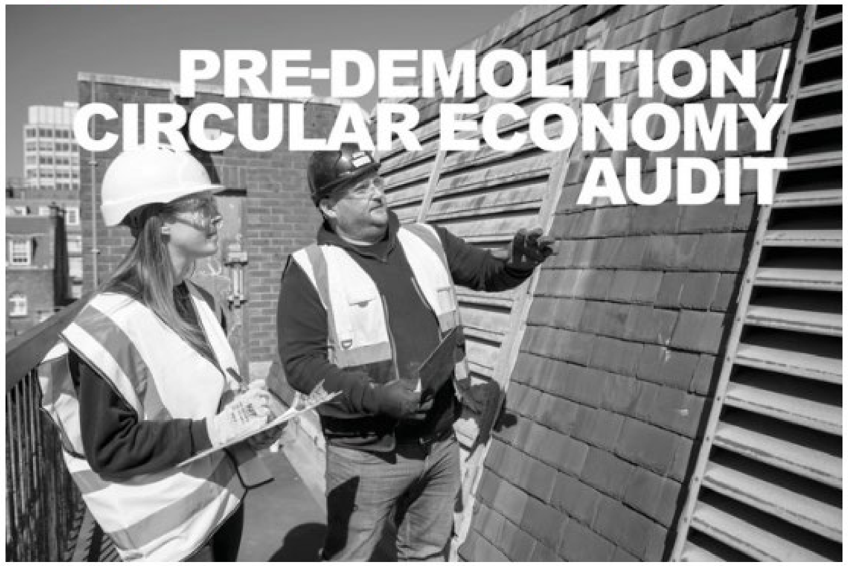
- Engagement – workshops to enhance pre-demolition audit activities involving several stakeholders
  - Challenging the thought process in every decision

Enhanced Pre-demolition Audit Workshop

Pre-demolition / Reuse workshops with key project stakeholders

Tilley & Barrett DEMOLITION

Pre-demolition / Circular Economy Audit



Key Contacts		
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Tilley & Barrett DEMOLITION

Pre-demolition / Circular Economy Audit

Definitions	
Key term	**Definition**
Refurbish	Redeveloped for similar needs and uses but meeting / exceeding current regulations and standards through restoring, refinishing and future proofing, while minimising changes and avoiding replacement of any parts. Parts of historical significance incorporated in the design and carefully preserved. Designed for longevity, adaptability or flexibility to prolong the new life of the development.
Repurpose	Redeveloped to accommodate different needs and/or uses (e.g. from industrial use to mixed use) but exceeding current regulations and standards through significant changes and replacement of shorter-life parts. Parts of historical significance are incorporated in the design and carefully preserved. Designed for longevity, adaptability or flexibility to prolong the new life of the development.
Upcycling	To transform products and materials into higher quality and/or higher value products and materials.
Downcycling	The opposite of upcycling; the transformation of products and materials into lower quality and/or lower value products and materials.

Reuse potential		
Feasibility	**Definition**	**Examples**
High reuse onsite / insitu	Elements being reused insitu / onsite in future development in existing form with little to no processing needed	Facades, adaptive reuse of the structure in situ, elements of the building where developer / architect incorporate elements into future design
High reuse offsite	Commonly reclaimed elements in sufficient quantities and in good condition	Bricks, Steel beams & collumns
Medium reuse offsite	Elements that are available in the reuse market but the quantity or quality is not sufficient to be of interest to resellers. However, considered easy to remove and reuse potential for smaller contractors	Structural timber, roof slates, sanitary equipment, tiles, wood flooring, lighting, doors, technical installations (e.g. ventillation plant), other finishing elements
Reuse offsite - other industrys & purposes	Reclaimed materials that are of interest to resellers in other industries and markets e.g. farming, manufacturing, household, creative arts & entertainment, non-UK	Potentially wide ranging - smaller steel sections, timber, electrical installations, ceramics, other fittings & finishing elements - furniture, cupboards etc.
Recycle	Waste reprocessed into products and materials whether for original or other purposes	Inert material - concrete, hardcore, glass, broken ceramics, plasterboard, encased steel, mixed metal fittings etc.
Recovery	Operation which means that the element remains a waste, but serves a useful purpose e.g. anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy	Low grade timber, plastics, composite materials, mixed waste streams, municipal waste
Landfill	Disposal by sending the waste to a landfill site	Asbestos, hazardous materials

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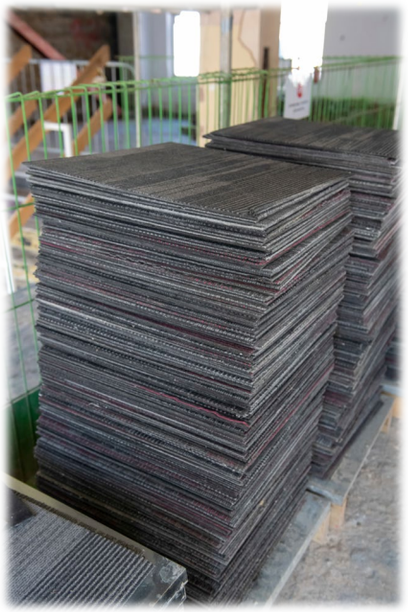
Pre-Demolition / Circular Economy Aud

Inventory & Opportunity's										
Material Evaluation & Reuse Feasibility	**Material / EWC Code**	**Location**	**Estimated Quantities**	**Reuse potential**	**Challenges to overcome / potential impacts?**	**Further investigations / testing required?**	**Existing method of fixing**	**Can be removed without damage?**	**What is needed to facilitate removal?**	**Can it be stored onsite / offsite?**
Substructure										
Foundations	Concrete & rebar	Basement 1 Level	33 m2	High reuse onsite / insitu	[illegible]	[illegible]	N/A	N/A	N/A	N/A
Basement	Concrete	Basement 1 Level	122 m3	Recycle	[illegible]	[illegible]	N/A	N/A	[illegible]	[illegible]
Superstructure										
Frame - groundfloor	Steel / 17 04 05	Groundfloor		High reuse onsite / insitu	[illegible]	[illegible]	Bolted	[illegible]	[illegible]	[illegible]
Frame - upper floors	Steel / 17 04 05	Beams and columns Ground to 7th floor		High reuse onsite / insitu	[illegible]	[illegible]	Bolted	[illegible]	[illegible]	[illegible]
Frame	Concrete planks	Ground floor - 6th floors	380 m2	Recycle	[illegible]	[illegible]	N/A	[illegible]	N/A	N/A
Frame	Thermalite planks	7th floor	100 m2	Recovery	[illegible]	N/A	N/A	N/A	N/A	N/A
Upper floors	RC Concrete	All floors in slabs and columns	1291 m3	Recycle	[illegible]	N/A	N/A	[illegible]	N/A	N/A
Roof structure	Timber	Roof	30m3	Recycle	[illegible]	[illegible]	[illegible]	[illegible]	N/A	[illegible]
Roof coverings	Slates	Roof	120 m2	High reuse onsite / insitu	[illegible]	[illegible]	Nails	Yes - mostly	[illegible]	[illegible]
External walls	Bricks	External walls	470 m3	High reuse offsite	[illegible]	[illegible]	Mortar	[illegible]	[illegible]	[illegible]
External walls	Stone façade	Front elevation façade	10m3	High reuse onsite / insitu	[illegible]	N/A	N/A	Yes	[illegible]	Offsite
Windows	Glass	All floors	30m3	Recycle	[illegible]	[illegible]	N/A	N/A	N/A	N/A
External doors	Fire doors - composite	All floors	10m3	Recovery	[illegible]	N/A	N/A	[illegible]	N/A	N/A
Internal walls & partitions	[illegible]	All floors	40m3	Recycle	[illegible]	N/A	[illegible]	Yes	[illegible]	N/A
Internal doors	Timber / Glass	All floors	20m3	Recycle	[illegible]	[illegible]	[illegible]	Yes	[illegible]	[illegible]
Internal finishes										
Wall finishes	Timber / plastic	[illegible]	30m3	Recovery	[illegible]	N/A	[illegible]	[illegible]	N/A	N/A
Floor finishes	[illegible]	[illegible]	2426 m2	Medium reuse offsite	[illegible]	[illegible]	[illegible]	[illegible]	N/A	[illegible]
Ceiling finishes	Metal	All floors	2426 m2	Recycle	[illegible]	[illegible]	[illegible]	Yes	[illegible]	[illegible]
Services										



- Heritage
- Bricks
- Steel
- Slates
- Carpet T
- Raised AF
- Glass
- Concrete
- Furniture
- Ceiling T
- Plastics

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Easier wins becoming the new normal

High value, easy to remove, existing reselling market etc.

Vs. the harder / smaller wins

Harder to remove, lower value, higher H&S risk, no established reselling market, issues with warranties etc.

GREEN APPLE AWARDS 2023

TILLEY & BARRETT

FOR ENVIRONMENTAL BEST PRACTICE

Tilley & Barrett

PROJECT ACHIEVEMENTS

20-22 BERKELEY SQUARE

- Enhanced Pre-Refurbishment Audit
- Minimal demolition of structure – focus on refurbishment to facilitate a more efficient building
- Our strategic soft strip suppliers salvaged material for storage and onward reuse
- 32m2 of timber parquet flooring salvaged
- 40 number timber doors and 10 number frames salvaged for reuse
- Various furniture, fixtures and fittings salvaged – furniture, fridges, light switches, plug sockets etc.
- 275m3 of concrete removed from floors recycled for engineering fill at Toureen's recycling facility Powercourt

GROSVENOR GARDENS

- Retained façade to 3 number elevations
- 400,000 bricks salvaged
- 82 fireplaces removed
- 60 doors and doorframes
- 4000m2 of floorboards and structural timber deconstructed and sent to salvage company
- 90 radiators salvaged
- All salvaged items catalogued and sent for storage

PALL MALL

- Enhanced pre-demolition audit workshop led by T&B but involving multiple project stakeholders
- Front façade retained. And part of it dismantled and removed for reinstallation
- Computer flooring salvaged & sent to reseller partner
- Carpet tiles salvaged & sent to reseller partner
- Steel salvage to GF & Low-level floors – to be refabricated and used in temporary works