Beyond the Crusher: Rethinking Concrete

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Land Profits Land Lapping Course

Business as usual...

Traditional Demolition Techniques:

- Utilises hydraulic breakers and jackhammers to fragment concrete structures
- Facilitates ease of removal and access to embedded reinforcement (rebar)

Post-Demolition Processing
Reinforcing elements are segregated for recycling or disposal
Concrete is either:

- Processed on-site into Recycled Concrete Aggregate (RCA)
- Transported off-site for aggregate recovery and reuse

Current Recycling/Circular Practice:

- RCA is repurposed in sub-base layers, non-structural concrete, or fill material
- Reduces landfill waste and demand for virgin aggregates

BUT...is there a more circular route that concrete elements can go down to boost reuse and reduce carbon emissions in future projects?

The solution? PRECS?

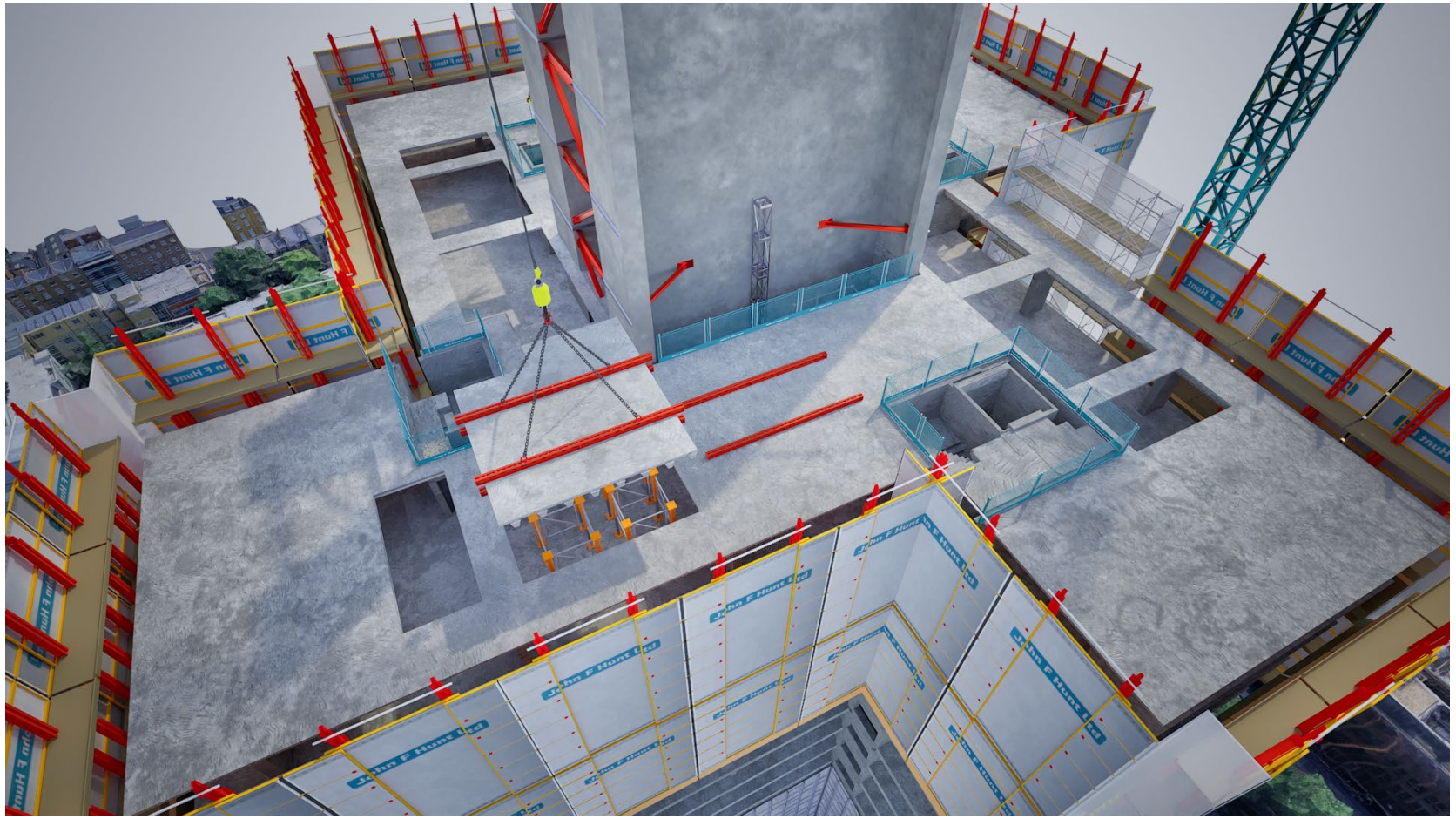
PRECS – Piecemeal Reclamation of Existing Concrete Slabs

- Cutting and removal of elements of concrete slabs for future reuse
- Can be reused in future slab construction or in other concrete elements of the new development
- PRECS slabs can be either processes on site or taken off site for remodelling
- Reduces need for new concrete in future developments and reduce demolition waste.

PRECS- Piecemeal Reclamation of Existing concrete Slabs

The removal strategy consists of:

- Mark out slab locations and give them ID (See labelling structure), QR code and place on asset register
- Conduct cover meter / ferro scanning and input results onto the asset register
- Prop the floors below cut areas
- Install lifting hooks / eyes
- Mark out cut line and use floor saw to make first cut
- Use the crane to lift out larger sections of slab to ground level
- Measure and cut slabs to intended size at ground level
- Transport to storage
- Unload at storage yard and assign location ID



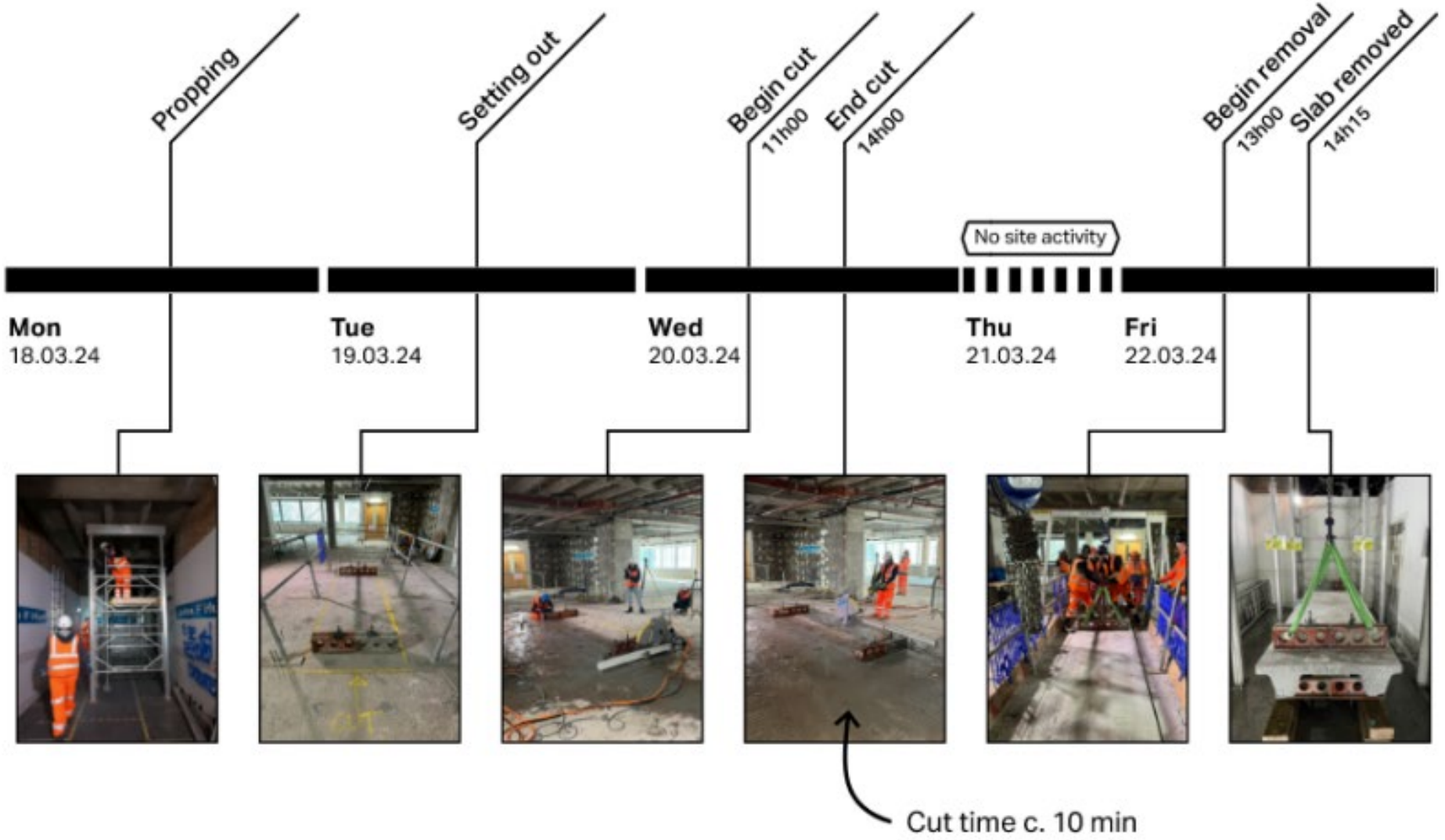


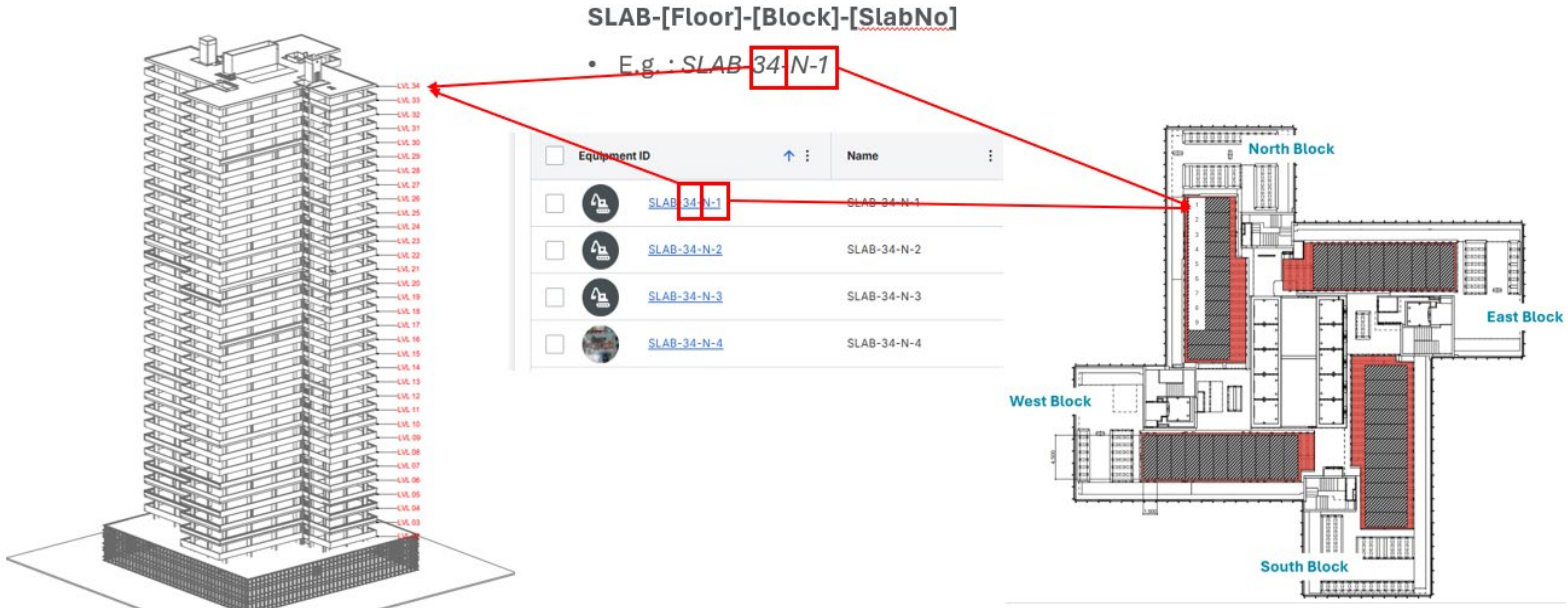
Figure 17: Activities on site, diagram by 3XN/GXN

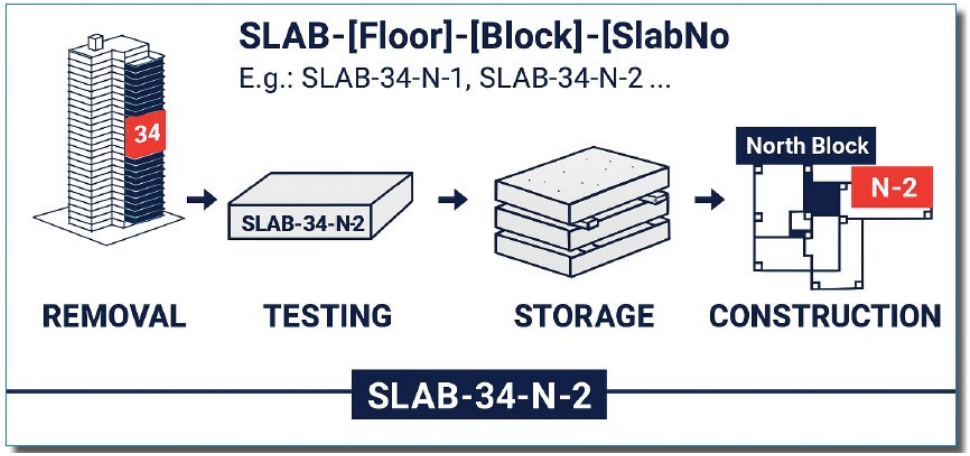
PRECS- Material Passporting

- Careful dismantling give the opportunity for accurate material passporting for PRECS slabs to go into the future development.

Example Process:

- Asset register will be created on Digital Platform
- ID and label slabs – Naming structure example e.g. SLAB-34-N-4
- Generate QR code for each slab
- Input testing details onto Digital Platform for each slab (cover meter data & measurements)
- Include photo visual survey of each slab once cut
- Document the time and day slab removed from site
- Condition survey on receipt of slab at storage facility
- Slab location noted on the Digital Platform database for future reference
- Any further ongoing testing will be recorded on the Digital Platform database
- All information can be exported / downloaded on request (PDF/CSV)





PRECS- Material Passporting

SLAB-34-N-4

Edit

Information

Equipment photo

Specification information

Category	Type	Make
PRECS	Slab Material Passport	--
Model	**Serial No.**	**Year**
--	--	2025

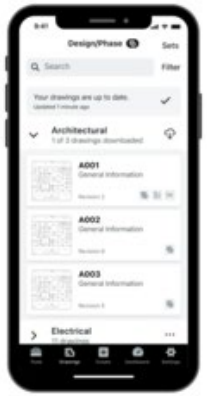
General information

Equipment ID	Equipment name	Rate/hr
SLAB-34-N-4	SLAB-34-N-4	--
Status	**Ownership**	**Assignee(s)**
Active	Owned	--

On-site
Yes

Notes
Dimensions: 4.5m x 1.5m
Delivery Date: 29/7/25
Delivery Vehicle Reg: GJ24 KNM
Storage Location ID: STORE-A-5-3
Ferro Scan/Cover meter data Attached: Yes / No

Other:



ID: SLAB-34-N-4
SLAB-34-N-4

Benefits of PRECS

Embodied Carbon Reduction in New Builds:

- Implementing PRECS (Precast Element Circular Strategy) during demolition significantly reduces the demand for virgin concrete in raft slab construction for new developments.
- Optimising concrete mix designs through reuse strategies leads to measurable reductions in embodied carbon, supporting net zero targets and PAS 2080 compliance.

Reduction in Demolition Waste:

- Selective dismantling of existing concrete elements minimises demolition waste and reduces reliance on energy-intensive recycling processes.
- This approach aligns with circular economy principles and contributes to improved waste diversion rates.

Minimised Extraction of Virgin Aggregates:

- Reclaimed concrete can substitute primary aggregates in sub-base layers, general fill, and even structural concrete applications, reducing environmental impact from raw material extraction.
- Supports responsible sourcing and enhances compliance with ISO 20400 and BS 8500 standards.

Enhanced Material Tracking and Passporting:

- Preexisting elements can be tested, certified, and digitally tracked, enabling accurate material passporting and robust Life Cycle Assessments (LCAs).
- Facilitates transparent reporting and improves traceability across the supply chain, supporting both regulatory and client-driven sustainability goals.