



ST. VINCENT'S HOSPITAL FAIRVIEW REDEVELOPMENT Demolition Works Justification Report

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ST VINCENTS FAIRVIEW REDEVELOPMENT - DEMOLITION WORKS JUSTIFICATION REPORT

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ABOUT PASSIVE DYNAMICS

Passive Dynamics was set up in 2020 with a vision that expert knowledge and passion can empower.

We are a multidisciplinary team with backgrounds in engineering and building physics. Our diverse experience and in-depth technical knowledge position us to provide exceptional added value to design teams, developers, and corporate clients, working as lead consultants, engineers or sustainability champions overseeing the client's sustainability goals.

Our team are passionate about reducing both operational and embodied carbon and are inspired by the fact that making better decisions now will positively impact the generations of the future.

We remain at the forefront of innovation in the built environment and a driven by the fact that projects we work on will reap the benefits of our passion to constantly find more sustainable solutions. Expert knowledge and passion can empower.

Passive Dynamics are a registered IGBC member.





ACCREDITATIONS AND AFFILIATIONS

Passive Dynamics Sustainability Consultants have the following accreditations and affiliations with Sustainability bodies.





1. INTRODUCTION

The purpose of this report (referred to as a *demolition justification report),* which has been prepared by Passive Dynamics Sustainability Consultants is to provide justification for the demolition of some of the existing buildings on the St Vincent's Hospital site as part of a wider gain to the overall scheme. This report is in direct response to Chapter 15, section 15.7.1 of Dublin City Development Plan 2022-2028 - Re-use of Existing Buildings.

2. BACKGROUND CONTEXT

The author of this report, the client and the design team are aware that from a sustainability point of view the starting point shall always be to reuse and repurpose existing buildings rather than to seek to demolish them. The proposal is therefore to retain as much as possible of the Protected Structures in addition to the Chapel which is of some merit and of historical interest. Section 15.7.1 of the Dublin City Climate Action Plan (2022-2028) states that;

"Where development proposal comprises of existing buildings on the site, applicants are encouraged to reuse and repurpose the buildings for integration within the scheme, where possible in accordance with Policy CA6 and CA7. Where demolition is proposed, the applicant must submit a demolition justification report to set out the rational for the demolition having regard to the 'embodied carbon' of existing structures and demonstrate that all options other than demolition, such as refurbishment, extension or retrofitting are not possible; as well as the additional use of resources and energy arising from new construction relative to the reuse of existing structures.

Existing building materials should be incorporated and utilised in the new design proposals where feasible and a clear strategy for the reuse and disposal of the materials should be included where demolition is proposed".



3. OVERVIEW

As part of the proposed development of the complex of St Vincent's Hospital Fairview the design team have identified the following buildings (highlighted in red for clarity) that need to be demolished in order to make the overall scheme viable. Some of these buildings where constructed in the late 19th century, early 20th century and in the 1980's.



The largest of these buildings to be demolished is St Theresa's & Freeman Wing and the Hospital wing which is no longer in use. The residential scheme funds the new proposed hospital. Therefore, the development needs to maximise the number of new units. A reduction in unit numbers will have a financial impact for the development of the new hospital and could jeopardise its development. A new block of 30 apartments is scheduled for construction on the site of St Teresa's location.



Of the buildings to be demolished, St Theresa's & Freeman Wing and the Hospital wing are the most significant in area.

Buildings to be Demolished	Area m ²
St Theresa's Wing and Freeman Wing	2,339.6m²
Extension to Main Complex	302m²
St. Josephs Adolescent School	416m²
Separate Hospital Buildings from 1980s	2,200m²
Extensions to Laundry Building	97.4m²
Crannog Day Hospital	490m²
Extension to Rose Cottage	7m²
Total	5,872m²

Area schedule for the buildings whereby their demolition is proposed.

Part demolition of St Teresa's is required in the first phase of construction to allow for access to the hospital. A new permanent route will be built at the north end of the building's footprint to promote footfall and access to the north side of the historic Block J and to the hospital. The building is aligned on a north/south axis and cuts the central park in half, disrupting permeability across the site. The proposed scheme will conserve and rehabilitate approx. 3500 m2 of historic buildings and find new sustainable uses for them. Some areas within buildings and entire buildings are currently obsolete, disused and dilapidated. St Teresa's was last used as proper hospital accommodation in 2014. The conservation of the historic buildings will be a considerable cost and the developer is investing heavily in Block J, the laundry, Richmond House, Brooklawn and the wider site.



The deconstruction of the building is proposed to be carried out in such a way as to salvage a portion of materials as reasonably practical for reuse and recycling. The methodology will be agreed between the contractor and the design team. Some fabric from St Teresa's will carefully be salvaged for reuse in or repair to the main hospital.



4. REFERENCED DOCUMENTS

The following documents were reviewed while preparing this Demolition Justification Report.







5. RATIONAL FOR THE DEMOLITION WORKS

Both the client and the design team are very cognizant that from an embodied carbon point of view the most sustainable option is generally to reuse and repurpose existing buildings. Having considered this in detail, some demolition works are justified for the following reasons;

Wider Benefit to the Overall Scheme

The demolition of the late 19th and 20th century buildings to the west will enable the new Central Park to flow across the site, open up the North facades of the main historic complex and provide easy, visible public access to the refurbished buildings. This allows the Central Park to extend to 300m in length, the full width of the site from West to East, unifying the development, drawing the public into the heart of the scheme and providing access to Community facilities all along the Northern side. As such for the wider gain of the scheme some demolition works are unavoidable.

Embodied Carbon

While the client and the design team are aware that there is increased embodied carbon associated with the demolition of any existing building(s) and subsequent replacement of new buildings, where demolition is necessary there is opportunities to mitigate the impact. Some of the materials, which would have the largest carbon impact, such as brickwork, concrete, slates, glazing / façade can be reused within the site as part of the proposed works. Where it is not possible to use all the materials the next priority will be to recover materials for suitable salvage yards. Crushed rubble from the site can also be recovered to form recycled aggregate. From an embodied carbon viewpoint and considering the fact that this site will align with the requirements of EU Taxonomy it will be a client specific objective to reduce, recover and recycle where possible to enhance the circular economy of this project and other projects that will benefit from the salvaged materials.



Operational Energy and Associated Carbon Emissions

Given the age of the St.Teresa's and The Freeman Wings, which consist of the largest buildings to be demolished, their current performance in terms of heat retention and overall building performance would be poor. While it would be possible to insulate these buildings to potentially a B rated BER, the overall performance levels in terms of operational energy / carbon would not reach the standard associated with that of a new building achieving NZEB. This is due to the fact (in part) that there will be thermal bridges associated with the original building envelope where it is not possible to design out at this stage.

Unsuitable Building Layout and Future Upgrades

The existing building layouts and many of the internal finishes would need to be updated if the buildings where to be retained. It is likely that a significant strip out of the existing materials would be required to both repurpose the building and insulate it to todays standards. According to LETI (London Energy Transformation Initiative Climate Emergency Design Guide) up to 35% of a buildings embodied carbon is associated with internal finishes (4%), Mechanical and Electrical Services (15%) and Façade (16%). It is worth noting that even in a best-case scenario whereby these buildings were to be retained, due to the level of works and upgrades required, further embodied carbon would be added in any event.

Unsuitable building height

St Theresa's Wing and Freemans Wing is one of the largest buildings which is proposed to be demolished (circa. 2,339.6m2). This building, for the most part is double height and from an energy point of view would result in excessive energy to heat the space. While the ceiling could be lowered this would result in significant adjustments to the internal configuration and would be challenging with the existing window heights. The works to reconfigure the building in terms of more suitable floor to ceiling height would be significant and by this very



nature would require many new materials which would add to the embodied carbon result for the building.

Proposed Hospital Viability

The largest of these buildings to be demolished is St Theresa's & Freeman Wing and the Hospital wing which is no longer in use. The residential scheme funds the new proposed hospital. Therefore, the development needs to maximise the number of new units. A reduction in unit numbers will have a financial impact for the development of the new hospital and could jeopardise its development. A new block of 30 apartments is scheduled for construction on the site of St Teresa's location.



6. EMBODIED CARBON MITIGATION MEASURES

Both the client and the design team are very cognizant that from an embodied carbon point of view the most sustainable option is generally to reuse and repurpose existing buildings. Having considered this in depth and all available options the design team have identified that demolition works are necessary for the wider gain to the scheme. This section of the report lists out the embodied carbon mitigation strategy for the reuse and disposal of the materials.

Demolition Phase - Construction Programme

The design team shall ensure that there is sufficient time allocation in the overall construction programme to sufficiently allow for the demolition of buildings such that proper reuse and recycling of materials is possible. Traditionally demolition, refurbishment, and repair works generate high volumes of wastes that require significant resources to manage, at substantial cost. Demolition materials may range from whole assemblies (i.e. structural steel frames or steel portal frames) to elements (i.e. columns, beams, portal frames, curtain walling, etc.) to materials (i.e. floor finishes, doors, bricks, slate, roofing tiles, concrete blocks, etc.). Management of mechanical and electrical items such as boilers, pipework and lighting (especially fluorescent and other mercury containing lamps) will be given due consideration in demolition plans. Careful consideration of any planned demolition works can significantly reduce the volume of residual material to be managed.

Specialist Demolition Contract Appointment & Pre-Demolition Audit

Prior to any works happening on site the client will instruct the main building contractor to appoint as suitably competent demolition contractor. The Main / Demolition contractor will be instructed to prepare a pre-demolition audit detailing resource recovery best practice, i.e. deconstruction and disassembly where feasible and practicable. This audit shall identify materials / building components that can be reused / recycled. It is necessary to understand the type and amount of elements and materials that will be deconstructed and/or



demolished, and to issue recommendations on their further handling. An assessment of the viable recovery routes for materials can also be given (including reuse and the potential reuse value, recycling on- and offsite and the associated cost savings and energy recovery).

Set Recycling / Reuse Targets in Demolition Contacts

Under EU Taxonomy (which will be pursued for this project) at least 70 % (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material referred to in category 17 05 04 in the European List of Waste established by Decision 2000/532/EC) generated on the construction site is prepared for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol. There is a commitment to achieve reuse, recycling and recovery rates that are much higher than 70% where possible. A target range of 80-90% has been established.

Take Back Schemes

Where possible in addition to using Salvage Yards for an existing building products that cant be reused on site it will be investigated to see if the "Take Back Scheme" could be used. A "Take Back Scheme" is an initiative organised by a manufacturer to collect used products or materials from consumers and reintroduce them to the original processing and manufacturing cycle.

Hazardous Materials

The Main / Demolition contractor shall undertake a specific audit for potentially hazardous material (asbestos, polychlorinated biphenyls (PCBs), persistent organic pollutants (POPs), etc.) and document procedures for removal of same prior to main demolition works.



Material Reuse On-Site

There is a commitment from the client to reuse and recycle deconstructed components, elements and materials within the new build if in compliance with functionality, regulatory and performance requirements. The reuse and recycling of deconstructed components, elements and materials must be carried out in compliance with relevant requirements relating to by-product, end-of-waste and waste data reporting.

For this site specifically it has been identified that some bricks, roof slates, guttering, timber flooring and windows could be reused as part of the proposed overall scheme and for repairs within existing buildings to be retained.

Material Reuse Off Site

For this site specifically it has been identified that many materials such as bricks, roof slates, timber flooring etc could be provided to a salvage yard for reuse on other projects. Structural elements such as rubble and concrete could be taken off site and used as recycled aggregate.

EU Taxonomy - Circular Economy

The project will comply with the requirements as set out in EU taxonomy which states that "at least 70 % (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material referred to in category 17 05 04 in the European List of Waste established by Decision 2000/532/EC) generated on the construction site is prepared for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol. Operators limit waste generation in processes related to construction and demolition, in accordance with the EU Construction and Demolition Waste Management Protocol and taking into account best available techniques and using selective demolition to enable removal and safe handling of hazardous substances



and facilitate reuse and high-quality recycling by selective removal of materials, using available sorting systems for construction and demolition waste".

The EU taxonomy for sustainable activities is a classification system established to clarify which investments are environmentally sustainable, in the context of the European Green Deal. The aim of the taxonomy is to prevent greenwashing and to help investors make greener choices.



APPENDIX A - SPECIFIC SALVAGE ITEMS WITH IDENTIFIED NEW LOCATION

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6.5 SPECIFIC SALVAGE ITEMS WITH IDENTIFIED NEW LOCATION

6.5.1 FIREPLACES

 Description	Painted cast-iron fireplace.				
Current Location	Room G235, G236, G237, 1216, 1217, 1218	Proposed Location	4no. Main Hospital Building – Room tbc, and 2no. Rose Cottage – Room tbc		
Quantity	6				
Dimension	Height: 1.24m; W	idth: 1.01m;			
Condition	Good Condition. these are to be sa relevant fireplace	Where hearthst lvaged and re-i	ones have survived, nstalled within		

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Description	Decorated cast Iron inner frame with modest tiled surrounds. Painted timber chimneypiece. Tiled hearth slab.					
Current Location	Room G238	Proposed Location	Main Hospital Building – Room tbc			
Quantity	1					
Dimension	Height: 1.35m; Width: 1.61m;					
Condition	Good Condition. Hearth slab to be salvaged and re- installed within the fireplace.					

6.5.2 HANDRAIL

	Description	Oak handrail with curved ends is fitted to both walls of main stairwell and east side of the stair in the passageway.				
	Current Location	Room G230 (Passageway) and Main Stairwell	Proposed Location	Main Hospital Building – Central Staircase		
	Quantity	8 sections of handrails with 26no brackets.				
	Dimension	In G230: 2 sections of 1 Stairwell: 2 sections of 2 sections of 2.55m with 4.55m with 8no bracket	.80m with 6no 2.45m with 6no 6no brackets, a s.	brackets. In o brackets, 2 and 2 section of		
	Condition	Good Condition.				



APPENDIX B - MATERIAL TO BE SALVAGED FOR REUSE ON SITE

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6.6 MATERIAL TO BE SALVAGED FOR REUSE ON SITE

The materials below have been identified as salvageable materials for repair subject to agreement with the architect.

6.6.1 SLATES

	Description	Slates.			
	Current Location	T-building main roof, Passageway roof	Proposed Location	Conservation repair works of the Main Hospital building	
	Quantity	Approx. Area: 460 m ²			
	Dimension	tbc			
	Condition	Reasonable condition. It is anticipated that a good quantity of the existing slate will be sound and shall be salvaged for reuse. Quantity/Percentage tbc.			

6.6.2 QUOIN STONES

Description	Granite quoin stones.					
Current Location	Façade corners on the T-building. Façade corners on the Concert Hall.	Proposed Location	Conservation repair works of the Main Hospital building.			
Quantity	126no at the T-building; 38.no on the Concert Hall					
Dimension	Height: 380mm; Width: 370mm; Length: 600mm;					
Condition	Good condition. It is anticipated that most of the existin quoins stones will be sound and shall be salvaged for reuse. Surplus to be salvaged and reused on the landscaping. Quantity/Percentage tbc.					

6.6.3 BRICKWORK

	1				
Description	Good quality red brick with fire skin.				
Current Location	All elevations.	Proposed Location	Conservation repair works of the Main Hospital building.		
Quantity	Approx. Area: 600 m ² tbc				
Dimension					
Condition	Reasonable condition. It is anticipated that 30% (tbc) of the existing brickwork will be sound and shall be salvaged for repairs to scars and replacement of damaged bricks.				



6.6.4 RAINWATER GOODS

	Description Profiled cast iron gutter.			
	Current Location	All elevations – on T building, on the passageway.	Proposed Location	Conservation repair works of the Main Hospital building.
	Quantity	Approx. Perimeter: 90m		
	Dimension	tbc		
	Condition	Reasonable condi fair quantity of the will be sound and repairs/replaceme salvage tbc.	tion. It is anti e existing gut shall be salva ent. Estimate	icipated that a tters sections aged for d 40% for



Description	Cast iron downpipe + brackets.				
Current Location	West Elevation, East Elevation – on T building. Proposed Location		Conservation repair works of the Main Hospital building.		
Quantity	7				
Dimension	Diameter: 100mm				
Condition	Good condition. It is anticipated that a fair quantity of the existing downpipe sections will be sound and shall be salvaged for repairs/replacement. Estimated 80% for salvage tbc.				



Description	Cast iron downpipe + brackets + Hopper.			
Current Location	West Elevation, East Elevation – on Concert Hall. Proposed Location Hospit buildin		Conservation repair works of the Main Hospital building.	
Quantity	6 downpipes with 6 hoppers.			
Dimension	Diameter: 100mm			
Condition	Good condition. It is anticipated that 80% (tbc) of the existing downpipes and hoppers will be sound and shall be salvaged for repairs/replacement.			



6.6.5 EXTERNAL VENT GRILLE PANELS



Description	Painted decorative cast-iron vent grille panels.				
Current Location	Refers to Salvage Strategy Drawings	Proposed Location	Replace poor quality modern vents on the Main Hospital Building		
Quantity	Approx. 30				
Dimension	Height: 225mm; Width: 225mm;				
Condition	Reasonable condition. It is anticipated that 50% (tbc) of the existing vent grille panels will be sound and shall be salvaged for replacement.				

6.6.6 WINDOWS

	Description	Single-pane timber sash window.			
	Current Location	South Elevation, West Elevation, North Elevation – on T building.	Proposed Location	Conservation repair works of windows on the main hospital building.	
	Quantity	8			
	Dimension	Height: 2.55m; Width: 0.92m;			
	Condition	Reasonable condition existing windows will reuse on the conserva main hospital buildin merchant.	n. It is anticipated be sound and sha ation repair works g. Surplus to be so	that 20% (tbc) of the all be salvaged for s of windows on the old to a salvage	



	Description	16-over-16 pane timbe	r sash window.			
	Current Location	West Elevation, and East Elevation	Proposed Location	Conservation repair works of windows on the main hospital building		
	Quantity	14				
	Dimension	Height: 2.55m; Width: 0.92m;				
	Condition	Reasonable condition. It is anticipated that 20% (tbc) of the existing windows will be sound and shall be salvaged for reuse on the conservation repair works of windows on the main hospital building. The remaining could be sold to a salvage merchant.				

6.6.7 FLOORING



	Description	Timber floorboards.			
	Current Location	Room G245, G251, G252, G253 and G254.ProposedConservatio repair works 		Conservation repair works on the main hospital building.	
	Quantity	Approx. Area: 290 m ²			
	Dimension	Width: 100mm			
	Condition	Reasonable conditi (tbc) of the existing sound and shall be remaining can go t	Reasonable condition. It is anticipated that 30% (tbc) of the existing timber floorboard will be sound and shall be salvaged for repairs. The remaining can go to a reputable salvage merchant.		



	Description	Ceramic tiles.				
	Current Location	Room G232 and G233.	Proposed Location	Conservation repair works of the Main Hospital building.		
//	Quantity	Approx. Area: 25 m ²				
	Dimension	tbc				
	Condition	Reasonable condition. It is anticipated that 30% (tbc) of the existing tiles will be sound and shall be salvaged for repairs.				

6.6.8 INTERNAL VENT GRILLE PANELS

	Description	Painted decorative	cast-iron vent	grille panels.	
	Current Location	Refers to Salvage Strategy DrawingsProposed LocationReplace poor quality moder 			
	Quantity	Approx. 14			
	Dimension	(tbc) Height: 250mm; Width: 250mm;			
	Condition	Reasonable condition existing vent grille p salvaged for reuse.	on. It is anticip banels will be s Estimated 60%	ated that the sound and shall be 6 for salvage tbc.	



APPENDIX C - SALVAGED MATERIALS FOR LANDSCAPING

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6.7 SALVAGE MATERIALS FOR LANDSCAPING

6.7.1 GRANITE STEPS AND THRESHOLD

Description	Granite steps.		
Current Location	West Elevation – Concert Hall Entrance.	Proposed Location	Salvage to be reused on the landscaping.
Quantity	6		
Dimension	4 pieces - Height: 150mm; Width: 2080mm; Length: 320mm; 2 pieces - Height: 160mm; Width: 1350mm; Length: 315mm;		
Condition	Good Condition. It is anticipated that 90% of the existing granite steps will be sound. These shall be salvaged for reuse on the landscaping. Quantities to salvage TBC with Landscape Architect.		t 90% of the These shall be ng. Quantities to ct.

6.7.2 GRANITE SILLS

	Description	Granite sills.		
	Current Location Quantity	All elevations Approx. 30	Proposed Location	Salvage to be reused in the landscaping.
	Dimension	Height: 120mm; Width: 1280mm; Length: tbc >210mm		
	Condition	Good Conditic the existing gr Quantities to Architect.	on. It is antici anite sills wi salvage TBC v	pated that 90% of Il be sound. with Landscape

6.7.3 GRANITE GABLE CAPPING

	Description	Granite parapet capping.		
	Current Location	T-building main roof, passageway roof	Proposed Location	Salvage to be reused in the landscaping.
	Quantity	Approx. Perimeter: 23m		
	Dimension	tbc		
	Condition	Reasonable cor 80% of the exis sound. Quanti Landscape Arch	ndition. It is ar ting granite ca ties to salvage nitect.	nticipated that apping will be TBC with



Proposed

Location

Salvage to be

reused in the

landscaping.

6.7.4 GRANITE PLINTH



6.7.5 GATE PIERS





APPENDIX D - SALVAGE DIRECT TO A REPUTABLE SALVAGED MERCHANT

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6.8 SALVAGE DIRECT TO A REPUTABLE SALVAGE MERCHANT

Effort should be made to have good quality, undamaged materials sold to a reputable salvage yard to minimise the waste of resources. This is to be discussed and agreed with the contractor and design team prior to commencement.

6.8.1 RIDGE TILES

Description	Crested terracotta ridge tiles. This element is only presented in the St Teresa building.
Current Location	Roof on the T-building main, and the Passageway.
Condition	Reasonable condition. Small number of cracked/broken ridge tiles.

6.8.2 JOINERY

	Description	Timber structure of the Concert Hall Stage.
	Current Location	Room 251
	Condition	Good condition.

Description	Original Timber panelled doors and partitions.
Current Location	Room 1220
Condition	Good condition.







Description	Timber window Architraves.
Current Location	Refers to Salvage Strategy Drawings.
Condition	Good condition.



Description	Timber window shutter with brass hinges and cast-iron lock bar.
Current Location	Refers to Salvage Strategy Drawings
Condition	Very good condition.



6.8.3 WINDOWS



Description	Single-pane timber sash window.
Current Location	South Elevation, West Elevation, North Elevation – on T building.
Quantity	8
Dimension	Height: 2.55m; Width: 0.92m;
Condition	Reasonable condition.



Description	16-over-16 pane timber sash window.
Current Location	West Elevation, and East Elevation
Quantity	14
Dimension	Height: 2.55m; Width: 0.92m;
Condition	Reasonable condition.

	Description	12-over-12 pane timber sash window.
	Current Location	West Elevation, and North Elevation
	Quantity	8
	Dimension	tbc
	Condition	Reasonable condition.



	Description	6-over-6 pane timber sash window.
	Current Location	Concert Hall - North Elevation
	Quantity	2
	Dimension	tbc
	Condition	Reasonable condition.

6.8.4 PENDANT LAMP







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