KAVANAGH
MANSFIELD
& PARTNERS
CONSULTING
STRUCTURAL
ANDCIVIL
ENGINEERS

CL 2357

NDFA SOCIAL HOUSING
BUNDLES 04 AND 05
STRUCTURAL SURVEY REPORT ON
BUILDINGS TO BE DEMOLISHED

STANLEY STREET

Rev. No.	Date	Author	Description
0	09.08.2023	MS	Issued for Comments
1	04.10.2023	MS	Issue after comments

Contents

1. INTRODUCTION

Kavanagh Mansfield and Partners were asked to assess the structural adequacy and provide a pre-demolition survey of the existing structure highlighting any areas of concern and outline any recommendations for the demolition sequence of the structure.

2. EXECUTIVE SUMMARY

A pre-demolition survey was conducted on 31/07/2023 to assess the structure of the building on site. The site comprises a total of 11. Four of these Buildings (Buildings 04, 05, 07, and 09) exhibit characteristics of new constructions and are in good structural condition considering their age. The defects identified in these buildings are generally minor. On the other hand, Seven buildings (01, 02, 03, 06, 08, 10 and 11) are older structures that looks like have been in existence for more than 50 years. Some of these buildings have not been used for years. We recommend that the demolition plan for these buildings take into account the integrity of the materials used (masonry and steel). During our visit, it was not possible to fully assess the integrity of all the materials."
Regarding the roofs of older buildings, they are covered with asbestos material. Asbestos poses a high environmental risk.

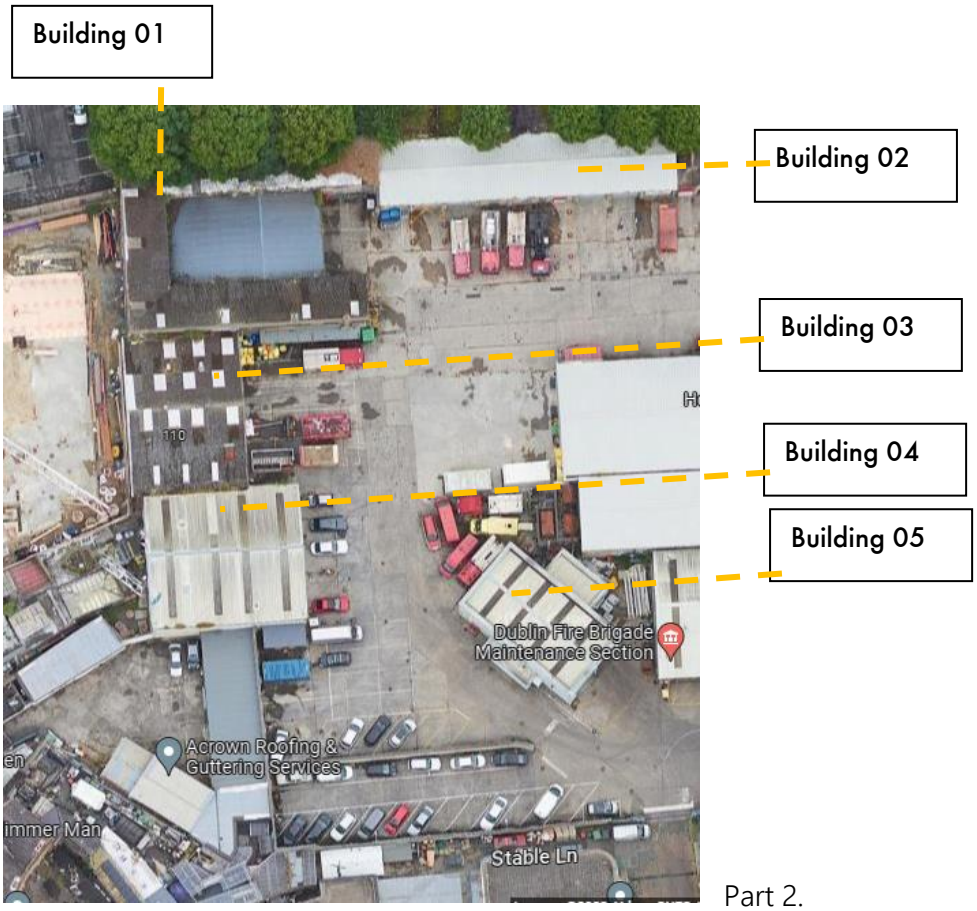
In such cases, we recommend, before commencing demolition, a risk assessment be carried out by the demolition contractor. It is recommended to salvage recyclable materials, such as steel elements, whenever possible. Additionally, all waste should be disposed of offsite at a licensed waste facility

3. SITE DESCRIPTION

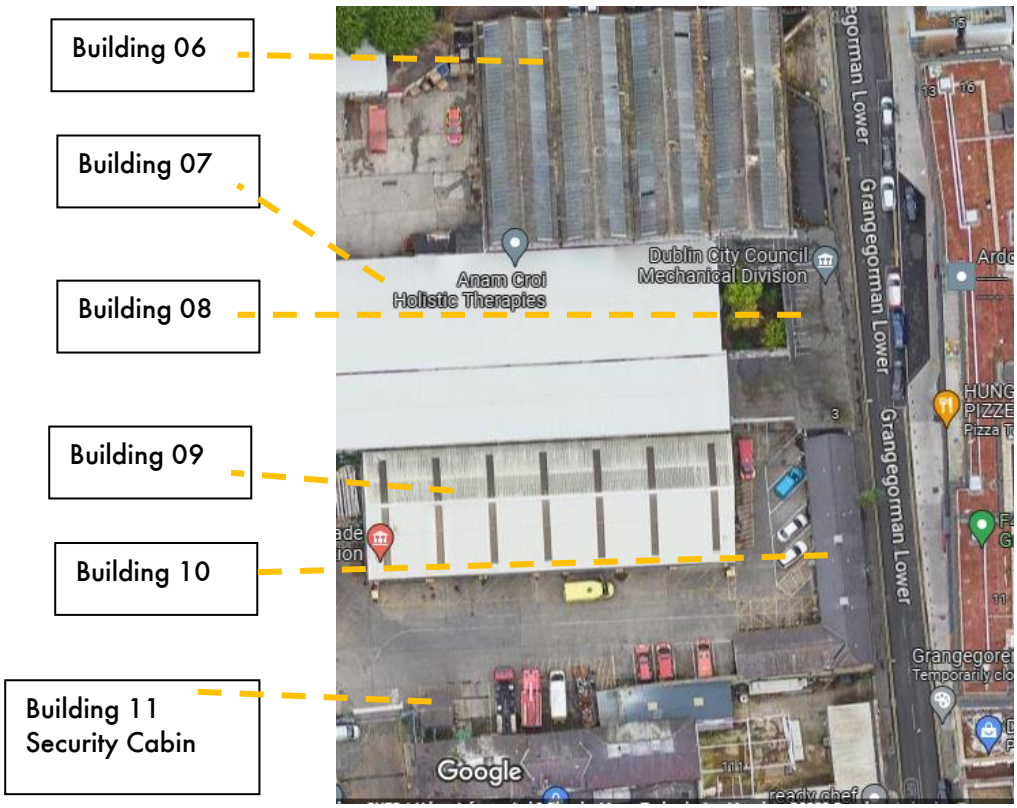
Stanley Street

The site is currently used as a Service and Maintenance Depot by Dublin City. The site is located in the north-west city centre area. The site is bounded to the north by Stanhope Street Girls Secondary School, to the south by Brunswick Street N, east by Grange Gorman Lower, and to the west by Manor Street. The property contains 11 buildings located around the site, with some newer buildings and others older ones. The site contains 3 administrative buildings (2 in use and 1 inactive), 7 sheds, (6 in use and 1 inactive), and 1 security cabin. Additional photos are contained in the Appendices at the back of this report.

Part 1.

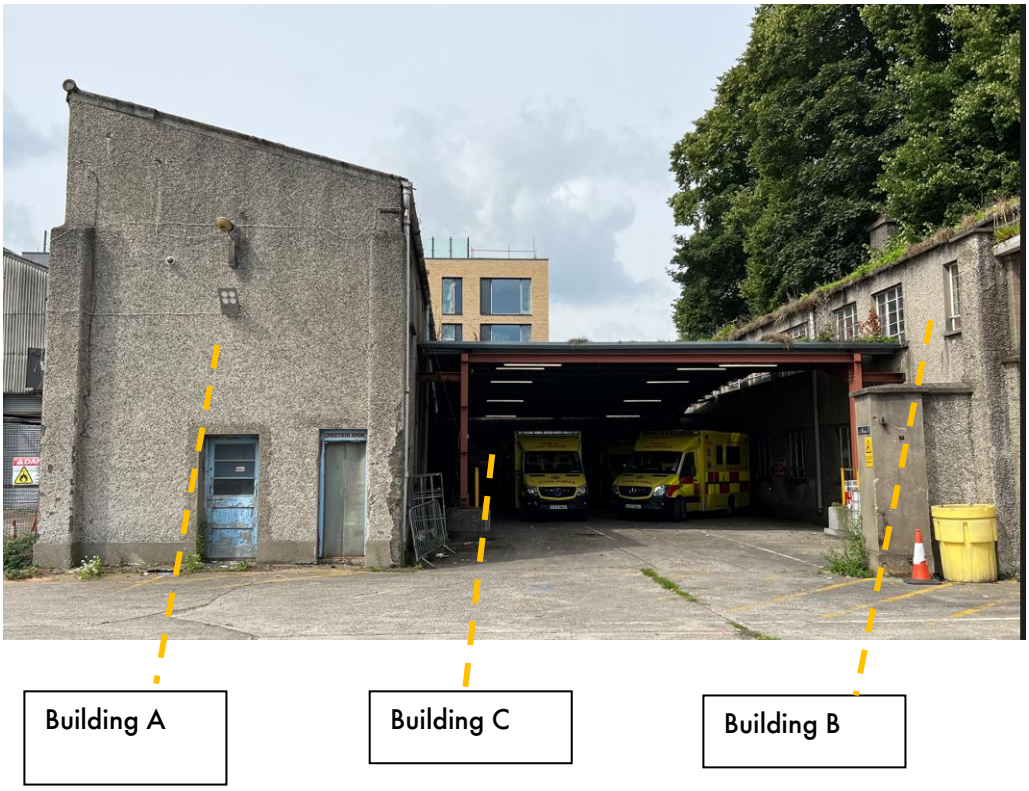

Building 01
Building 02
Building 03
Building 04
Building 05
Dublin Fire Brigade Maintenance Section
Acrown Roofing & Guttering Services
Stable Ln

Part 2.


Building 06
Building 07
Building 08
Building 09
Building 10
Building 11
Security Cabin
Anam Croi Holistic Therapies
Dublin City Council Mechanical Division
Grangegorman Lower
Google

A Structural Survey was be carried out on the premises and all existing buildings on the site, see below a table with a structural description of the buildings:

3.1. BUILDING 1



Building 1 is a complex with 3 buildings 2 main two storey buildings (A&B) with a single storey infill (C).

ELEMENT	DESCRIPTION	COMMENT
Ground Floor, Buildings A, B Ground Floor, Building C	The Floor slab is a insitu concrete slab in all of the rooms (Photo 1) The yard slab forms the floor	No Opening Up was carried out to expose the foundation, the type of the foundation and depth aren`t possible to identify.
1st Floor A&B	The first floor features timber flooring that is supported by timber joints measuring approximately 100/150mm and 500/700mm centers. The flooring is further supported by steel beams with spans of approximately 3.00/4.00 meters, which are in turn supported by mansory columns (Photo 1).	
Roof – High Level	the roof is a mono-pitch roof made of asbestos sheets which are supported by Purlins, which in turn are supported by primary and secondary steel beams, the roof in the building on the right has a timber ceiling throughout. (photo 2 & 3)	All asbestos must be removed prior to demolition by a licensed waste disposal company
Roof – Low	The roof is made of a metal roof deck, supported	

Level (C)	on purlins which are supported by a steel portal frame, which are bolted to a foundation block. Stability in the plane perpendicular to the portal frames is provided by steel bracing (photo 4)	
External Wall (GF & 1st floor)	The external wall is made of solid blocks on flat with 400mm. There are also some columns made of flat blockwork with approximately 430mmx430mm to supports the ceiling structure. (photo 5 & 6)	
Internal Wall (GF & 1st floor)	The internal wall is made of a masonry wall and some partition wall which seems to have an average thickness of 215mm. (photo 5 & 6)	No opening up was carrying out during our visit.

Actions on Structures

Vertical Loads

All the vertical loads of the buildings A & B (roof, 1st-floor slab, joist, brickwork walls, light wall partition, etc.) are supported by loadbearing masonry walls which transfer loads to the foundation level.
In the case of building C vertical loads are conveyed to the foundations by the portal frames

Stability
In buildings A & B the Horizontal loads are transmitted to the foundation via floor plates acting as a diaphragm which transfer the loads to the shear walls and then to the foundations. In the case of Building C in-plane horizontal loads are conveyed to the foundations by the portal frames and by bracing in the perpendicular plane.

Structural Defects

Despite the absence of any structural defects found during our survey, both roofs of the building have been damaged due to prolonged exposure to weather conditions, likely because the building had been unused for years.

3.2. BUILDING 2

Building 2 is tall single storey building. The building is subdivided into 5 compartments by internal partitions. The roof is made of a metal deck roofing except for the last compartment which has a concrete slab.

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The Floor slab is in-situ concrete in all of the rooms(photo 7)	No Opening Up was carried out to expose the foundation, type of the foundation and depth isn`t possible to identify.
Roof	The roof is made of metal deck roofing with two slopes and is supported by purlins, which are supported by fink trusses. The exception is the last room on the right side of the building which has a concrete slab which is supported by concrete beams which are supported by the load bearing wall (photo 8 & 9)	
External Wall	The external walls are made of a 215 concrete blocks on flat. (Photo 10).	No opening up was made to determine if it was a cavity wall or a single/double solid block, it is necessary to carry out an investigation during the demolition plan.
Internal Wall – GFL	Internal partitions are made of 215 concrete blocks on flat. (photos 7, 8 & 9)	No opening up was carrying out during our visit.

Actions on Structures

Vertical Loads

All the vertical loads of the building (Concrete roof slab, steel roof, concrete beam, etc.) are supported by the loadbearing masonry walls which transfer loads to the foundation level.

Stability

The Horizontal loads are transmitted to the foundation via shear Walls which transfer the loads directly to the foundation.

Structural Defects

No structural defects were found during the course of our survey

3.3. BUILDING 3

Building 3 comprises 1 level (Ground floor and roof slab).

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The Floor slab is an in-situ concrete in all of the rooms (photo 11)	No Opening Up was carried out to expose the foundation, type of the foundation and depth isn`t possible to identify.
Roof	The duo pitch roof is made of metal trapezoidal sheet roofing supported by purlins, which are supported by steel fink trusses (photo 12).	
External Wall/Cladding	The side and rear walls are constructed using an average of 215mm masonry walls laid flat. The front elevation of the building is clad with metal trapezoidal sheets. There are 2 large roller shutter doors at the front elevation of the building. (photo 13 &14)	No opening up was carrying out during our visit. Thickness need to be confirmed.
Portal Frame	The portal frame is made of a steel columns and a Steel trusses (photos 13,14 and photo 15)	

Note:

There is a metal container structure installed inside the shed that was used to paint the fire trucks which fill a quarter of the internal space.

Actions on Structures

Vertical Loads

All the vertical and horizontal loads of the building are supported by a steel portal frame which transfers all the loads to the foundation level.

Stability

The Horizontal loads are transmitted to the foundation via a steel portal frame (columns beams and truss which transfer the loads to the Foundation) and by bracing in the walls.

Structural Defects

No structural defects were found during the course of our survey

3.4. BUILDING 4

Building 4 is a warehouse steel building with just 1 level (Ground floor and roof slab), the building is a portal frame steel structure.

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The ground Floor is a insitu concrete in all of the rooms (photo 15) ;	No Opening Up was carried out to expose the foundation, type of the foundation and depth isn`t possible to identify.
Roof	The roof is made of metal decking with two slopes and is supported by Purlins, which are supported by steel pitched rafter roof metal/Steel portal frame (photo 16).	
External Cladding/wall	The masonry walls appears to be constructed using an average of 400mm concrete block. The front elevation of the building is clad with metal trapezoidal sheets. There are 3 large roller shutter doors at the front elevation of the building. (Photo 17 & 18).	There is a small room made of flat blocks, with just one level in the rear of the building

Actions on Structures

Vertical Loads

All the vertical loads of the building (roof slab, self-weight and wind.) are supported by steel frame which transfers loads to the foundation level.

Stability

The Horizontal loads are transmitted to the foundation via a steel frame (columns beams and truss which transfer the loads to the Foundation).

Structural Defects

No structural defects were found during the course of our survey

3.5. BUILDING 5

Building 5 comprises 1 level (Ground floor and roof slab), Ground floor walls comprises steel deck metal frame, a steel frame structure, and a steel deck roof to cover the top of the structure. The Building has two annex buildings that are made up of the same type of structure and are installed on a reinforced concrete slab.

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The Floor slab is insitu concrete in all of the room (photo 19);	No Opening Up was carried out to expose the foundation, the type of the foundation and depth aren`t possible to identify.
Roof	The roof is made of metal trapezoidal sheet roofing tile with two slopes and is supported by Purlins, which are supported by steel pitched rafters (photo 20);	
External Wall/cladding	The external cladding is made of metal trapezoidal sheets ; the walls are supported by sheeting rails (photo 20);	

Annex building – Ground Floor	The ground Floor is a concrete raft slab (photo 22);	
Annex building – Roof	The roof is made of metal trapezoidal sheet roofing tile with two slopes and is supported by purlins which is supported by steel beams UB (photo 21 & 22);	
External Wall/cladding	The external walls is made of a Metal cladding .There are also two larges roller shutters door to the front elevation of the building (photo 21 & 22);	

Vertical Loads

All the vertical loads of the building (roof slab, self-weight and wind.) are supported by steel frame which transfers loads to the foundation level.

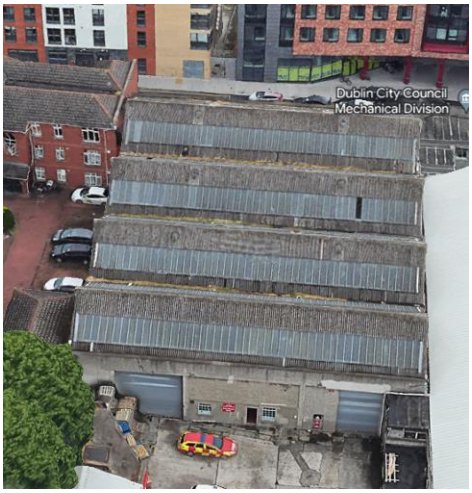
Stability

The Horizontal loads are transmitted to the foundation via a steel frame (columns beams and truss which transfer the loads to the Foundation).

Structural Defects

No structural defects were found during the course of our survey

3.6. BUILDING 6



Building 6 is a two-level structure that comprises a ground floor, a mezzanine, and a roof. The roof consists of four slopes, each with asbestos sheets, which are interconnected by the roof valley. The mezzanine has only two levels and covers just a small portion of the internal space.

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The floor slab is insitu concrete in all of the rooms (photo 23);	No Opening Up was carried out to expose the foundation, type of the foundation and depth isn`t possible to identify.
Roof	The roof is constructed with asbestos material, featuring two slopes. It is further enhanced with a few lines of translucent sheets. The roof is supported by purlins, which are in turn supported by primary and secondary steel beams. (Photos 23, 24, 25 & 26).	The mono-pitch asbestos must be removed prior to demolition by a licensed waste disposal company
External Wall	The masonry walls appear to be constructed using an average of 215mm concrete block. (photos 26)	No opening up was made, because of the mortar on the wall is not possible to identify whether it was made from a hollow block or a flat solid block, need to be confirmed during demolition plan.
Internal wall	The internal walls are made of an average of 215 mm concrete blocks (photos 26, 27 & 28)	
Concrete Frame	The roof are supported by a concrete frame , which comprises concrete beams and concrete columns (photos 25, 26 & 27)	

Actions on Structures

Vertical Loads

All the vertical loads of the building (roof, masonry walls, trusses, etc.) are supported by a common concrete structure, which comprises concrete beams and concrete columns that transfer the loads to the foundation level.

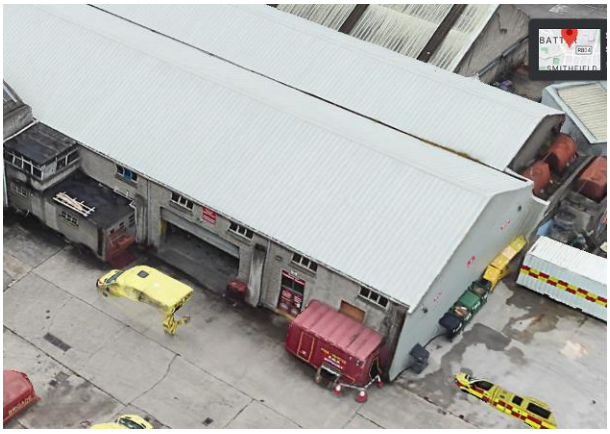
Stability

The Horizontal loads are transmitted to the foundation via a reinforced concrete frame (Columns and concrete beams) which transfers the loads to the Foundation.

Structural Defects

No structural defects were found during the course of our survey

3.7. BUILDING 07



Building 07 comprises of 1 level (Ground Floor, and 2 roofs connected in the middle). Inside of the building, there is an annex structure with 2 levels (Ground Floor and First Floor) which comprises internal and external walls, and the roof which is made of metal decking. This Building is also internally connected with buildings 8 & 9.

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The Floor slab is in-situ concrete in all of the rooms (photo 29);	No Opening Up was carried out to expose the foundation, type of the foundation and depth aren`t possible to identify.
Roof	There are two roof structures connected to each other. The roofs are made of metal trapezoidal sheet roofing tile with two slopes each and is supported by Purlins, which are supported by fink truss roof metal (photo 29 & 30)	
Mezzanine floor	Mezzanine floor is made of timber	No Opening Up was carried out to expose the slab, it seems to be a timber floor slab, although needs to be check on site. (photo 32 & 33)
1st floor– internal mezzanine	Mezzanine floor is made of timber . The internal wall is made of 215mm masonry wall (photo 32 & 33)	No Opening Up was carried out to expose the slab, it seems to be a timber floor slab, although needs to be checked on site. (photo 32 & 33)
External Wall	The external walls are made of 400mm mansory wall (photo 31).	No opening up was made to confirm if it is a concrete wall or a masonry wall, it is necessary to carry out an investigation during the demolition plan.
Internal wall	The internal walls are made of 215mm masonry wall. (Photo 32).	

Actions on Structures

Vertical Loads

All the vertical loads of the building (roof, 1st-floor slab, joist, brickwork walls, etc.) are supported by a concrete wall and some steel columns in the middle of the building, which transfers loads to the foundation level.

Stability

The Horizontal loads are transmitted to the foundation via shear walls which transfer the loads directly to the foundation.

Structural Defects

No structural defects were found during the course of our survey

3.8. BUILDING 08

Building 08 comprises 2 levels (Ground Floor, 1st floor and roof). This building is directly connected to the building 9 for the rear right side on the first floor and with the building 10 for the ground floor.

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The Floor slab is in-situ concrete in all of the rooms (photo 35)	No Opening Up was carried out to expose the foundation, the type of the foundation and depth isn`t possible to identify.
1st Floor	The 1st floor seems to be a timber floor supported by loadbearing masonry walls (photo 36)	No Opening Up was carried out to expose the slab, it seems to be a timber floor slab, although need to be check on site. (photo 36)
Roof	the roof seems to be made of corrugated asbestos sheet metal with one slope and is supported by Purlins.(Photo 37)	No Opening Up was carried out to expose the slab, it seems to be a timber floor slab, although need to be check on site. (photo 37)
External Wall (GF & 1st floor)	The external wall seems to be made of a 400mm cavity wall (photo 37 & 38)	No opening up was carried out during our visit.

Internal Wall (GF & 1st floor)	The internal wall seems to be made of a 215mm masonry wall and some partition walls (photo 39 & 40)	No opening up was carried out during our visit.

Actions on Structures

Vertical Loads

All the vertical loads of the building (roof, 1st-floor slab, joist, brickwork walls, light wall partition, etc.) are supported by loadbearing masonry walls which transfers loads to the foundation level.

Stability

The Horizontal loads are transmitted to the foundation via floor plates acting as a diaphragm which transfers the loads to the shear Walls and the Foundation

3.9. BUILDING 09

Building 9 comprises 1 level (Ground floor and roof slab), with a steel frame structure (UB beams and UC steel columns) and a steel deck roof. This building is directly connected to the building 7 for the rear right side.

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The ground floor is made of concrete slab; there are some openings in the floor for vehicle maintenance (photo 41, 42)	No Opening Up was carried out to expose the foundation, type of the foundation and depth isn`t possible to identify.
Roof	The roof is made of metal trapezoidal sheet roofing tile with two slopes and is supported by Purlins, which are supported by fink truss roof metal.(43 ,44 and 45)	
External Wall	The external wall seems to be made of a 400mm-500 mm concrete wall – (photo 45 & 46).	No opening up was carried out during our visit. Thickness need to be confirmed.

Vertical Loads

All the vertical loads of the building (roof, brickwork walls, etc.) are supported by a concrete wall, which transfers loads to the foundation level.

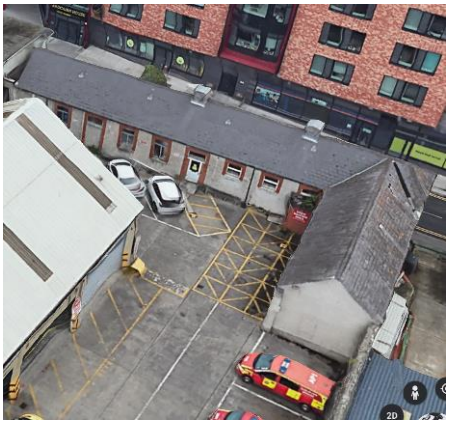
Stability

The Horizontal loads are transmitted to the foundation via shear Walls which transfer the loads directly to the foundation.

Structural Defects

No structural defects were found during the course of our survey

3.10. BUILDING 10



Building 10 comprises 1 level (Ground floor and roof slab). This building is directly connected to the building 8 for the rear side

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The floor slab is made of insitu concrete in all of the rooms; (photo 47, 48)	No Opening Up was carried out to expose the foundation, the type of the foundation and depth aren`t possible to identify.
Roof	The roof is made of slate roofing, which are supported by trusses.(49,50)	No Opening Up was carried out to expose the roof structure, type of the roof structure isn`t possible to identify
External Wall	The external wall appears to be made of a 350mm masonry wall - concrete block (photo 51 & 52)	No opening up was carried out during the visit
Internal Wall	The internal wall are also 215 masonry wall with some lightweight partition walls (photos 53 & 54)	No opening up was carrying out during our visit.

Vertical Loads

All the vertical loads of the building (roof, joist, brickwork walls, light wall partition, etc.) are supported by loadbearing masonry walls which transfers loads to the foundation level.

Stability

The Horizontal loads are transmitted to the foundation via shear Walls which transfer the loads directly to the foundation.

Structural Defects

No structural defects were found during the course of our survey

3.11. BUILDING 11/SECURITY CABIN

Building 11 comprises 1 level (Ground floor and roof slab),

ELEMENT	DESCRIPTION	COMMENT
Ground Floor	The floor slab is made of insitu concrete; (photos 56 and 57)	No Opening Up was carried out to expose the foundation, the type of the foundation and depth aren`t possible to identify.
Roof	The roof is made of slate roofing with concrete tile , which are supported by trusses.(49,50)	No Opening Up was carried out to expose the roof structure, type of the roof structure isn`t possible to identify
External Wall	The external wall is made of 315 mm masonry wall (photo 51 & 52)	

Vertical Loads

All the vertical loads of the building (roof, joist, brickwork walls, light wall partition, etc.) are supported by loadbearing masonry walls which transfers loads to the foundation level.

Stability

The Horizontal loads are transmitted to the foundation via shear Walls which transfer the loads directly to the foundation.

Structural Defects

No structural defects were found during the course of our survey

J Marco Silva Jr
For
KAVANAGH MANSFIELD & PARTNERS
Consulting Engineers

CONDITIONS:

Inspections by Kavanagh Mansfield and Partners are carried out subject strictly to the following conditions unless otherwise expressly agreed in writing:

1. Initial inspections are non-intrusive, 'walkaround', preliminary assessments of structures. They are concerned with the strength, stability and durability of the basic structure of the building and they are carried out generally on the basis recommended in 'Surveys and Inspections of Buildings and Similar Structures' published by the Institution of Structural Engineers. They are *not* 'structural surveys' as that term is used by, for example, the Society of Chartered Surveyors; some aspects of non-structural elements/matters - such as electrical, drainage and other services, completions and finishes, doors and windows, water- and weather-tightness - may be noted in passing and commented on but are not dealt with comprehensively.

2. Initial inspections of structures are limited to noting and commenting on observed visible defects which in our opinion may prove to be symptomatic of significant inherent structural distress. No substantial opening-up to expose or uncover the structure is carried out; note in this respect that it is not possible to state that structural elements that are covered, unexposed or inaccessible are free from defects. A more detailed structural investigation and appraisal can be carried out on request.

3. Structural inspections do *not* deal with the following *inter alia*: the condition of timber and the presence or extent of fungal or insect infestation such as dry rot (a timber decay specialist's advice should be sought in relation to these); the presence or extent of asbestos (an asbestos specialist's advice should be sought in relation to these); the presence or extent of IAPS (invasive alien plant species) including Japanese knotweed; planning permission and other building control approvals; fire risk assessment; the possible presence of radon gas (the Radiological Protection Institute of Ireland will facilitate a radon survey for a small charge); legal rights of ownership (such as whether dividing/boundary walls are party walls or are owned by one person).

4. Any suggested remedial (or other) works in our inspection reports are indicative & subject to subsequent detailed design and specification.

5. No verification of any information or documentation supplied by others has been carried out by us.

6. Reports are strictly for the private and exclusive use of the commissioning client and, further, solely for the purpose for which originally commissioned. They may not be assigned to third parties. They shall not be used or relied upon by third parties.

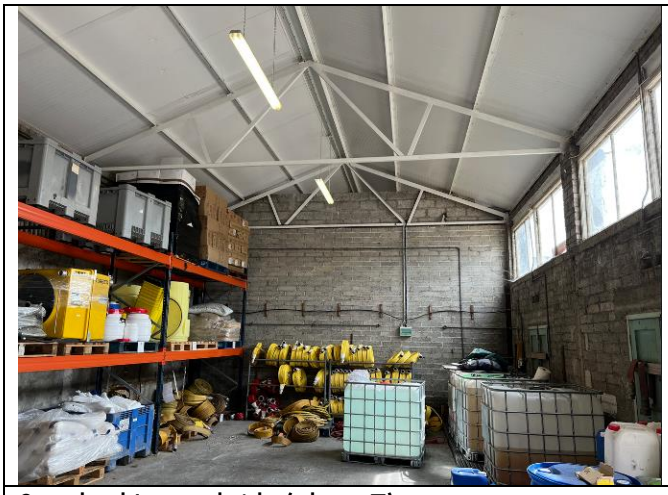
7. Kavanagh Mansfield & Partners is the trading name of Piconsult Limited. We provide professional inspection and reporting services in accordance with the current Conditions of Engagement of Consulting Engineers, Agreement RA9101 ("Report and Advisory Work"), published by Engineers Ireland (tel. 01-6684341); a photocopy of Agreement RA9101 will be provided by us on request. Limitations on the liability of Kavanagh Mansfield & Partners as specified in Agreement RA9101 shall apply except as may otherwise be agreed in writing with the commissioning client. No warranty is offered or implied.

APPENDIX 1A

Building 1

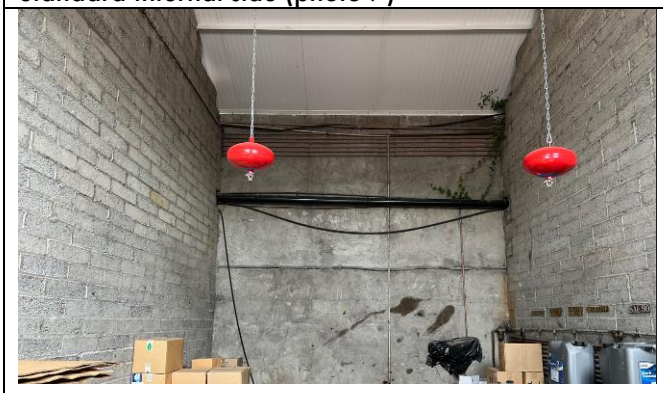
	
G.F - Standard Internal side (photo 1)	1st floor -Left Building- Internal side/roof (photo 2)
	
1st floor –Right Building- Internal side/roof (photo 3)	External roof - Low Level (photo 4)
	
Standard Internal side wall (photo 5)	Standard Internal side wall (photo 6)

Building 2



Standard Internal side (photo 7)

Internal view – standard room (photo 8)



Standard Internal side (photo 9)

External View (photo 10)

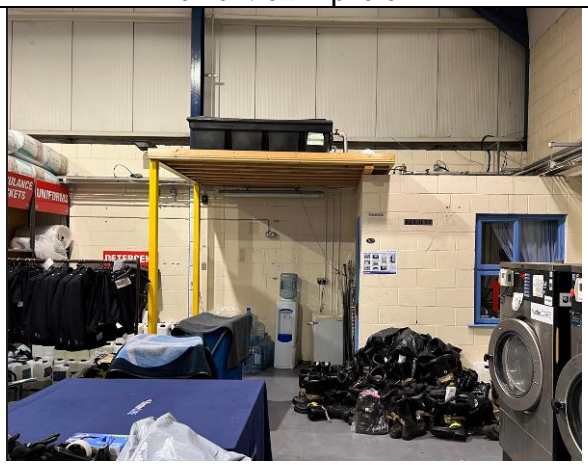
Building 3

Internal view (photo 11)

Internal view – roof structure (photo 12)

	
Internal view – front elavation of the building (photo 13)	Internal view – external wall, Right side (photo 14)

Building 4

	
Internal view – photo 15	Internal view – photo 16
	
External/Internal wall – photo 17	External/Internal wall – photo 18

Building 5

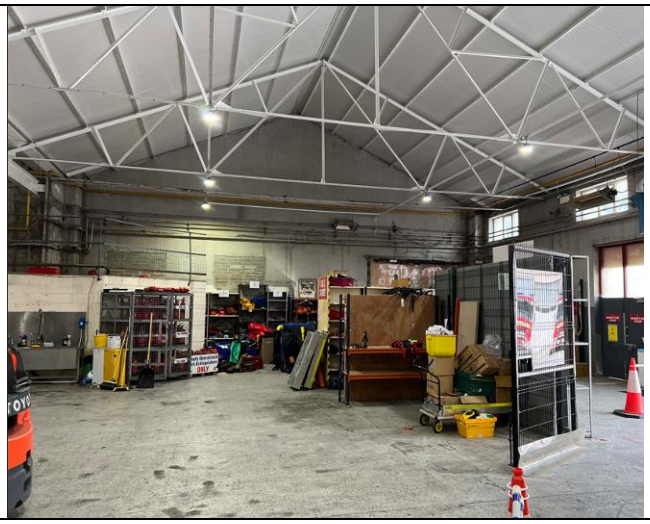
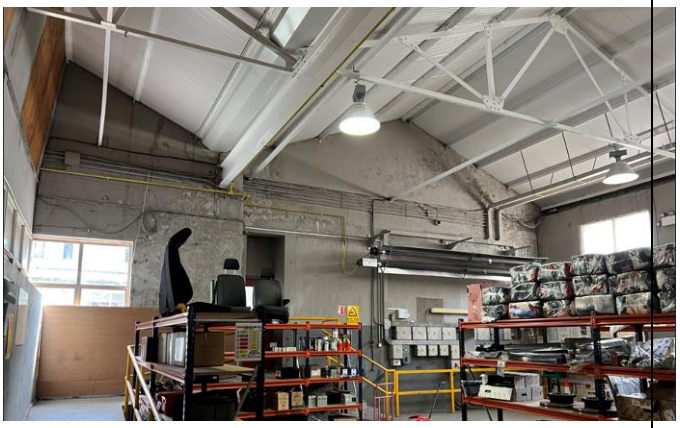
	
Internal View –Back to front (photo 19)	Internal view – Front to back (photo 20)
	
Internal View – standard room (photo 21)	External View – rear side (photo 22)

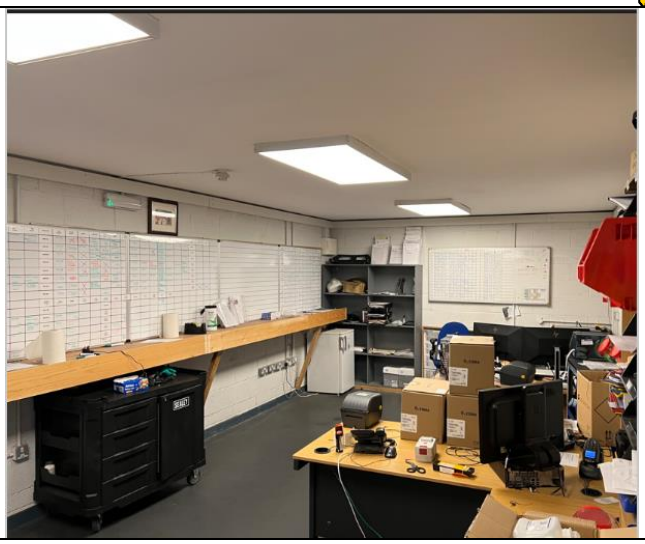
Building 6

	
Internal View (Photo 23)	Internal view –rear side (photo 24)
	
Internal Side view (photo 25)	Internal Side view (photo 26)

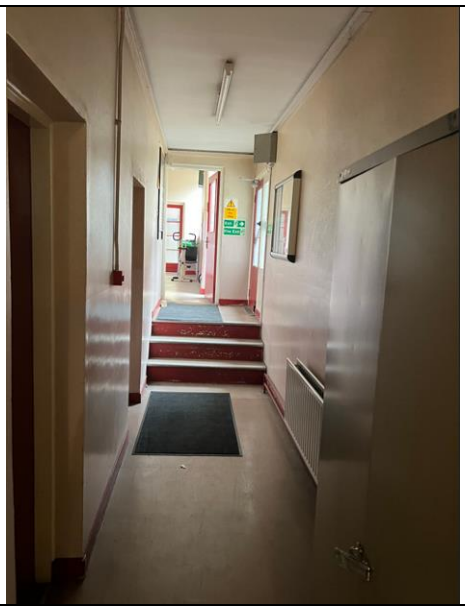
	
Roof view (photo 27)	internal View – internal room (photo 28)

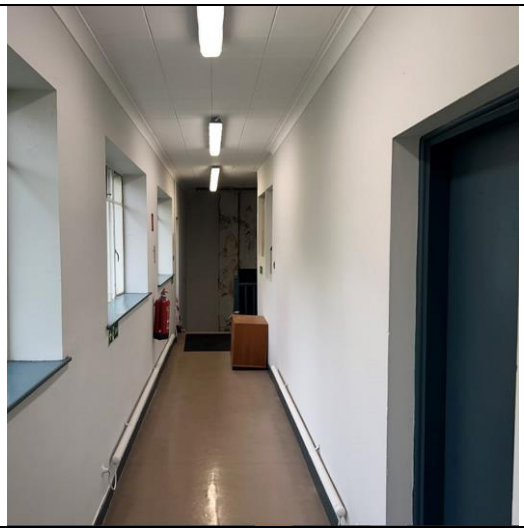
Building 7

	
Internal View (Photo 29)	Internal view –back side (photo 30)
	
Internal Side view (photo 31)	Internal Side view (photo 32)

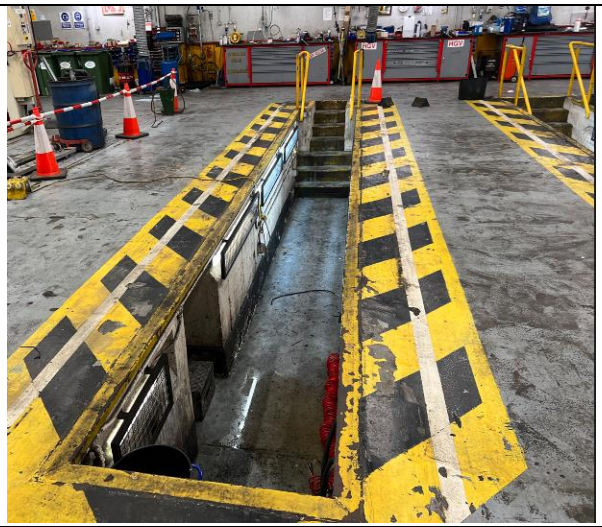
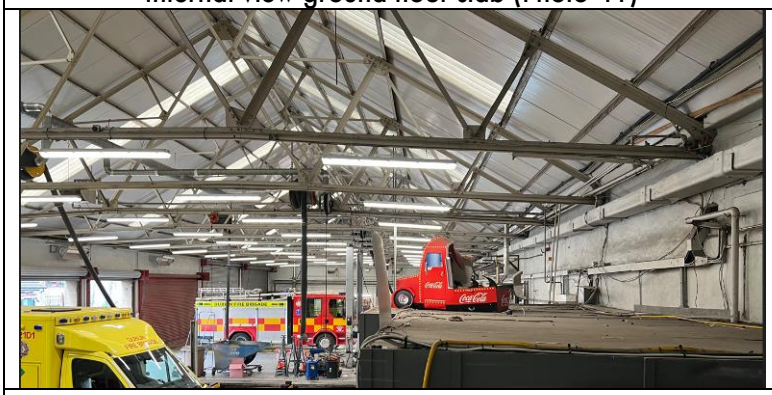
	
Standard Internal side of the annex building (photo 33)	Standard Internal side of the annex building (photo 34)

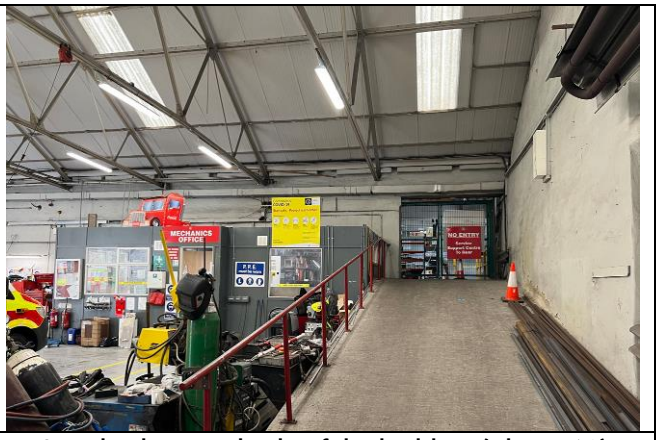
Building 8

	
Internal View (Photo 35)	Internal view –back side (photo 36)
	
external Side view (photo 37)	External Side view (photo 38)

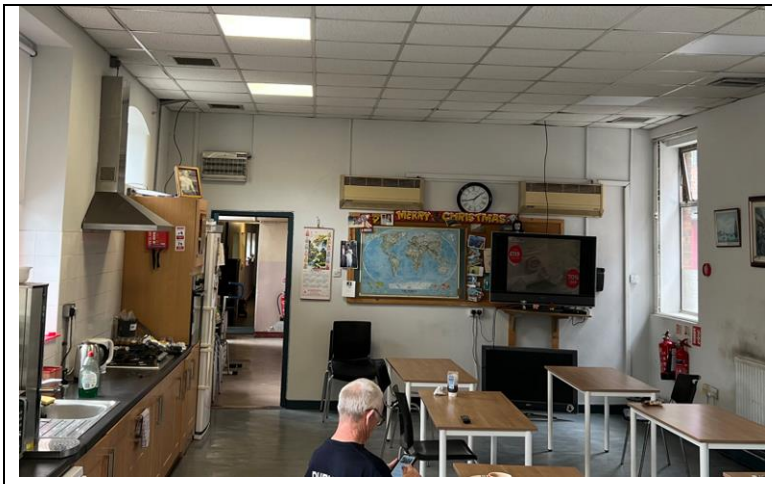
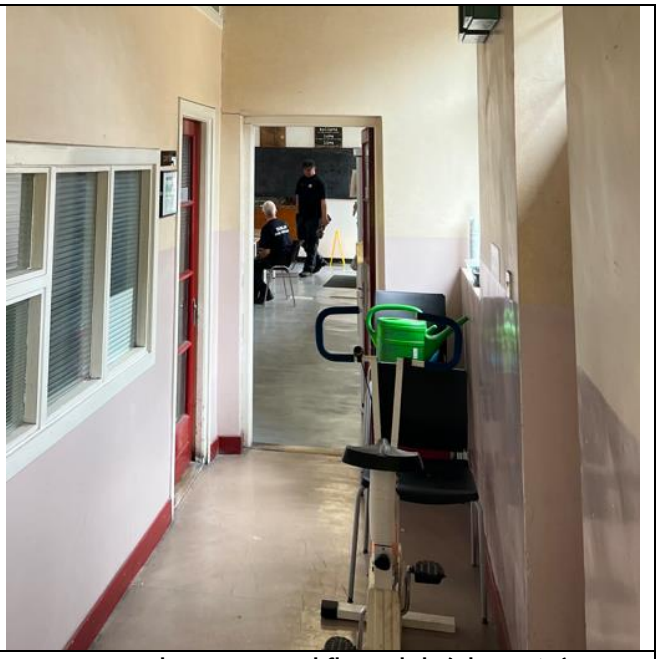
	
Standard rooms (photo 39)	Standard Internal side of the building (photo 40)

Building 9

	
Internal view ground floor slab (Photo 41)	Internal view ground floor slab (Photo 42)
	
Roof view (photo 43)	Roof view (photo 44)

	
Roof view external side (photo 45)	Standard Internal side of the building (photo 46)

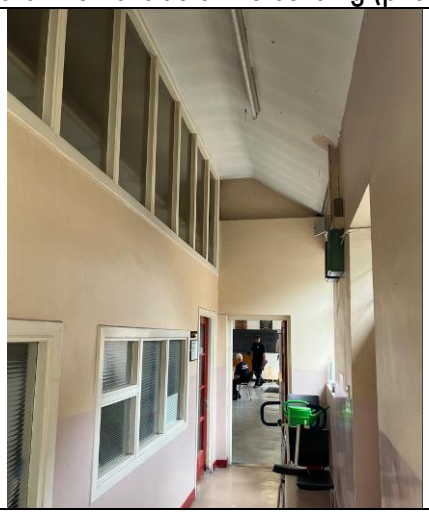
Building 10

	
Internal view ground floor slab (Photo 47)	Internal view ground floor slab (Photo 48)
	
Roof view (photo 49)	Roof view external side (photo 50)

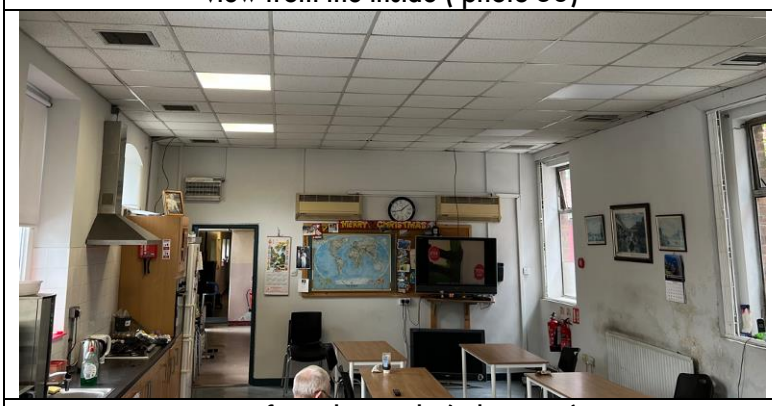
view external side (photo 51)

Standard Internal side of the building (photo 52)

view from the inside (photo 53)



view from the inside (photo 54)



view from the inside (photo 55)

Building 11

External view (Photo 56)

External view (Photo 57)

External view (Photo 58)

External view (Photo 59)