Comhairle Cathrach & Contae Luimnigh

Limerick City & County Council

LA Construction & Maintenance
Limerick City & County Council

ENGINEERING PLANNING REPORT

for

Proposed Refurbishment Works

at

Cappamore Fire Station, Co. Limerick

LA Construction & Maintenance,
Limerick City and County Council,
Merchants Quay,
Limerick,

EIRCODE V94 EH9

t: +353 (0) 61 557180

DOCUMENT CONTROL

DOCUMENT TITLE:	Engineering Planning Report
DIGITAL TITLE & LOCATION:	https://limerickcouncil.sharepoint.com/sites/TRN/DD-3.2-BLDNEWPR/trn-dd-3.2-bldnewpr-005/DD 0064 Cappamore Fire station Refurbishment/Stage II - Design/02.Engineering/210312.DD0064.Cappamore.cl.Engineering Planning Report.docx
PROJECT:	Cappamore Fire Station
PREPARED BY:	Cian Lynch
REVIEWED BY:	
DATE:	09.06.2022
REVISION:	

1 INTRODUCTION

The Civil and Structural Engineering section of Limerick City & County Council's (LCCC) LA Housing Construction & Maintenance Department has been tasked with providing engineering design services for the proposed refurbishment works to Cappamore Fire Station in County Limerick. This report has been prepared for the purposes of obtaining planning permission for the aforementioned project and sets out the relevant civil and structural engineering considerations and proposals.

The proposed works to the station are as follows:

- Renovations of the existing permanent structure to house a canteen, lecture room, office space and welfare facilities
- Demolition of the temporary structures and construction of a new, steel framed permanent structure to house the fire tenders, muster room and storage areas
- Provision of new M&E services within the two structures
- Upgrades to the existing drainage, electrical and telecom services within the site confines
- Works to external areas; pavements, surfaces and boundary treatments

2 SITE

The site is located in Cappamore Town, adjacent to the Community Centre on the eastern side of town. It is triangular in shape, bordered on two sides by Kyle Road and Doon Road and by the Cappamore Community Centre to the rear. The site is serviced by a combined foul drainage network, public water mains, low voltage electricity supply and telecoms. There is also a culverted stream running through the centre of the site. Approximately 70% of the site is hardstanding (pavement, footpaths, buildings) with the remaining areas being made up of landscaping. The existing buildings on site consist of the permanent fire station which houses two fire tenders, the muster room, welfare facilities and a lecture space and additional temporary structures which house a further fire tender, office space, a canteen and training areas.

Figure 1: Site location

2.1 SITE SURVEY

A GPR site survey was carried out by Precision Surveys. The resulting utilities survey is shown on attached drawing PUM-10721-U-DR-0001-01. A site topographical survey was carried out by Control Surveys, the resulting survey is shown on the attached drawing 12-121-01.

2.2 SITE INVESTIGATION

A site investigation was carried out by Michael Punch and Partners and comprised of the excavation of five trial holes. The findings of this testing are detailed in the attached site investigation drawings. The ground conditions beneath the proposed structures are general comprised of fill over clays over sandy/gravelly clays.

3 FLOOD RISK

A review of the OPW National Flood Hazard Mapping utility indicates that Cappamore Town has experienced several historic flood events. Furthermore it indicates that the site in question is not susceptible to a high to medium risk flood event, 1 in 10 and 1 in 100 years respectively, but is susceptible to a low risk flood event, 1 in 1000 years. A review of the closest monitoring points indicates a maximum expected water level of 54.54m which is below the proposed FFL, 54.65m.

Given the extent of works proposed and the nominal changes to current building footprints and site levels it is not considered that these works will increase the risk of flooding to neighbouring properties.

4 CIVIL ENGINEERING SERVICES

4.1 EXISTING SERVICES

The site is currently serviced by a combined foul and surface water drainage network which runs down the western site boundary. Water is provided via a connection to the public mains running through Doon Road. There is also an existing stream which has been culverted and runs through the centre of the site.

4.2 PROPOSED STORM WATER DRAINAGE

The existing site run-off rates are shown below along with the expected run-off rates resulting from the proposed works:

	Existing	Proposed	
Qbar1	0.93	1.22	l/s
Qbar30	1.84	2.42	l/s
Qbar100	2.19	2.87	l/s

The site run-off is expected to increase by 30%, this is primarily due to the existing rear gravel yard being replaced with a concrete alternative to better facilitate training and maintenance activities by the fire service. This increase is equivalent to 16m3 of water during a 1:100 year, 6 hour storm event. The proposed drainage network; manholes, pipework, will provide approximately 8.5m3 of long term storage. This will be sufficient to attenuate the additional runoff resulting from the proposed works in all but a 1:30 and 1:100 year, 6 hour storm event.

A new SW connection to the combined sewer will be made to separate the foul and SW runoff from the site. This will allow for a future connection to a separate public SW mains if one is installed. The SW network within the site will be re-built with new manholes and pipework provided and alterations made to the layout to accommodate the proposed works. A new petrol interceptor will be added to the network to prevent any contaminants entering the mains.

The existing culverted stream is to be diverted along the eastern edge of the site. The proposed SW drainage network is shown on drawing DRAWING REF, attached.

4.3 PROPOSED FOUL WATER DRAINAGE

The existing connection to the combined sewer is to be retained. The foul network within the site is to be re-constructed in accordance with IW guidelines "*Code of Practice for Wastewater*

Infrastructure, July 2020". The proposed foul drainage network is shown on the attached drainage drawing DRAWING REF.

4.4 PROPOSED MAINS WATER SUPPLY

An existing public water mains supply is present on site which will be retained. The water main network within the site will be re-laid in accordance with IW guidelines "*Code of Practice for Water Infrastructure, July 2002".*

4.5 ROADS

As part of the works the existing hard surface areas within the site will be re-laid. Any works to existing road networks outside the site i.e. where tie-ins are required will be carried out in accordance with the requirements of the Department of Transport, Tourism and Sport's guidance document *"Guidelines for Managing Opening in Public Roads".*

5 STRUCTURAL ENGINEERING SERVICES

The existing structure to be retained is a blockwork and concrete walled structure with a timber framed roof on a concrete slab-on-grade floor. Internal layout changes will be achieved by constructing new lightweight partition walls, suspended ceilings and creating new openings as needed. The new fire tender shed will be constructed from a steel framed structure with insulated infill panels, on a new concrete slab-on-grade floor and pad footings. The roof will be constructed with proprietary insulated panels and the building will be clad with a fibre cement rain screen system.

6 DEMOLITION WORKS

The temporary structures are to be demolished and removed off site as part of the works. Existing underground drainage elements will be removed and replaced with new elements to the revised layouts. All demolition waste will be disposed of at licenced waste facilities.

7 CONCLUSION

It is proposed to carry out renovation works to Cappamore Firestation. This project consists of removing the temporary structures on site, replacing them with a new permanent, lightweight building to house the fire tenders, muster room and storage areas. The existing permanent building will be refurbished to provide a canteen and training space, an office and welfare facilities. Existing drainage and water services within the site will be upgraded as needed to facilitate these works. Elsewhere, hardstanding areas within the site will be refurbished. As part of the planning application for this project the Civil and Structural Engineering section of LCCC's LA Housing Construction &

Maintenance Department have prepared this report which outlines how the engineering services will be provided.

We believe that this report provides sufficient information on the proposed engineering services for the purpose of obtaining planning permission. If further clarification is required on the contents of this report then please contact LA Housing Construction & Maintenance, Limerick City and County Council.

Enclosed:

1 no. copy	GPR site survey drawing
1 no. copy	Topographical site survey drawing
1 no. copy	Site investigation drawing
1 no. copy	Civil Engineering drawing pack