

BUTLER GALLERY

ENGINEERING SERVICES REPORT

FOR KILKENNY COUNTY COUNCIL

PROJECT NO. M821

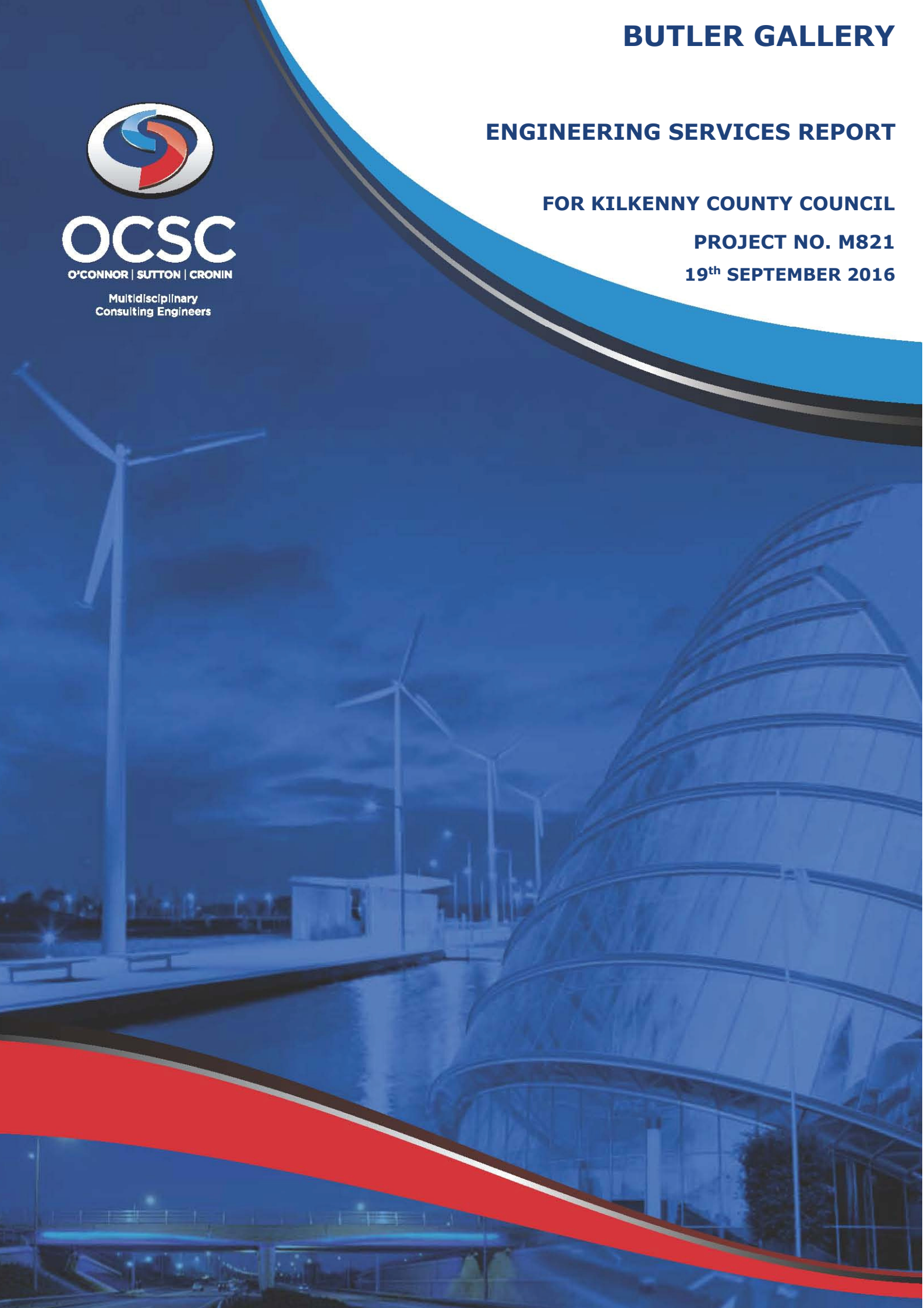
19th SEPTEMBER 2016



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1.0 INTRODUCTION

This report is prepared for the purpose of a Part 8 Planning Submission to Kilkenny County Council. It outlines the Civil and Structural Engineering aspects of the proposed refurbishment/redevelopment of the Evans Home, provision of a new extension and associated siteworks under the Butler Gallery project.

The project was previously part of a Part 8 Planning Submission in September 2010. As part of this process, a number of the engineering aspects of the project were agreed in principle with the local authority. The proposals outlined within this report for the revised scheme have been based upon and developed from the agreement in principle from the original application.

2.0 EXISTING SITE

The Existing Evans Home and proposed site for the Butler Gallery is located in Kilkenny City. The site is enclosed by an old stone wall to its perimeter with a gated archway at the south east corner of the site and a pedestrian gateway to the south west boundary of the site.

The site is bounded by a public library and carpark to the south west, a one-way public roadway to the north west and a series of dwellings located on Michael Street to the north east of the site. A church and burial ground is located to the south east of the site. Vehicular access to the site is gained through the gated archway at the end of Barrack Lane off Lower John Street.

The existing site contains a two storey stone wall with timber floor joist structure. The building, known as Evans Home, is H-shaped on plan and is currently used for material storage. The structure dates back to 1818 and was constructed on the site of an old Barracks.

The site generally slopes upwards from a level of 45.35m OD at the archway entrance to a level of c.46m outside the existing buildings. The levels over the site to the rear of the existing building vary from approximately 46m to 46.5m. An archaeological investigation was undertaken to a large portion of the site to the front of the Evans Home in 2012 which resulted in the lowering of the levels in these locations.

The boundary wall on the south west and north west elevations act as retaining walls with a drop of approximately 1.5m to 1.75m between the site and the adjoining Library Carpark and public roadway.

3.0 FOUL AND SURFACE WATER DRAINAGE

Existing drainage records for the area have been obtained from Kilkenny County council and reproduced in Appendix A of this report. These records indicate a 600mm diameter combined sewer to the south of the site.

An existing manhole on the combined sewer is located adjacent to the pedestrian access along the south western elevation of the site.

It is proposed that all foul drainage from the refurbished/redeveloped Evans Home and the new extension will be collected in a 225mm diameter pipe and discharge to the existing combined sewer.

It is proposed that all storm water from the existing building, new extension and new areas of hardstanding be collected in a separate 225mm diameter pipe. The storm drainage will be gathered and passed through an attenuation tank before connecting to the foul sewer before it discharges

into the existing combined sewer. A dead leg connection will be provided to accommodate a change over to any future separate storm sewer system.

It is noted that the proposed new hardstanding areas will be to facilitate access around the Evans Home and new extension together with occasional deliveries to the gallery. As the hardstanding area will be accessed by delivery vehicles, a class 1 petrol interceptor will be provided. In order to minimise the size of same, the petrol interceptor shall be provided downstream of the attenuation tank.

The required volume of storage for the attenuation tank has been assessed based on a number of factors. Full attenuation to a 1 in 100 year level will be proposed for the new build extension and new hardstanding areas proposed as part of the scheme. This equates to a storage volume of 41m³. However, it is also proposed to gather the drainage from the existing roof of Evans Home in the same storm sewer network. Thus, an assessment of the level of service for the entire site is more appropriate. The volume of storage required for a 1 in 30 year event for the entire site has been calculated at 47m³. The proposed storm attenuation tank is sized at 4.5m x 8m x 1.25m to provide sufficient storage to cover both circumstances.

The attenuation calculations for both circumstances are included in Appendix C. The proposed foul and surface water drainage layouts, together with standard manhole details and pipe bedding details, are included in Appendix D of this report.

It is noted that the site contains items of archaeological interest. This will require careful consideration during both the detailed design and construction phase of the project. If any potential clashes between the proposed drainage layout/attenuation arrangements with existing archaeology are discovered, then the details of any required alterations to the drainage layout/attenuation arrangements will be discussed and agreed with the Local Authority.

4.0 WATER SUPPLY

Watermain records received from Kilkenny County Council and included in Appendix B of this report indicate an existing 100mm diameter cast iron main located in Barrack Lane. It is proposed to connect to this public watermain at the entrance to the site. The supply will be metered at the site entrance with a 75mm diameter feed to the new extension.

Details of the proposed watermain layout are included in Appendix E of this report.

5.0 SITE ACCESS AND EGRESS

Existing vehicular access to the site is via Barrack Lane. However, no carparking is proposed within the site as part of the proposed development with the majority of visitors envisaged to arrive by foot. Pedestrian access is provided via Barrack Lane or via the carpark off Johns Quay.

Vehicular access will be required periodically for deliveries to/from the gallery. This will be by means of Johns Quay with a portion of the boundary wall to be removed and replaced with a gate to allow delivery vehicles to access the site.

6.0 PROPOSED STRUCTURAL WORKS

The existing Evans Home structure consists of load bearing masonry walls supporting timber floor joists at first floor level and timber trusses at roof level. The proposed works to the Evans Home will include:

- Provision of new concrete ground floor slab with associated membrane, insulation and substrate;
- Repair and replacement of timber floor joists as necessary;
- Removal of sections of existing walling to achieve the required layout to suit the gallery and the ancillary facilities;
- Works to the roof.

The new extension is proposed to consist of:

- Mini-pile foundations;
- Cast in situ concrete walls and floor slabs;
- Cast in suit concrete roof.

The proposed structural works will be further developed through the detailed design phase of the project and may be subject to change dependant on the findings of opening up works.



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Appendix A

Existing Drainage Records



Appendix B

Existing Watermain Records



Appendix C

Attenuation Calculations



Appendix D

Proposed Drainage Layouts



Appendix E

Proposed Watermain Layout