



Cork
County Council
Comhairle Contae Chorcaí

MITCHELSTOWN PUBLIC REALM ENHANCEMENT PROJECT

PRELIMINARY STORMWATER DRAINAGE REPORT



Mitchelstown Public Realm Enhancement Project

Preliminary Stormwater Drainage Report

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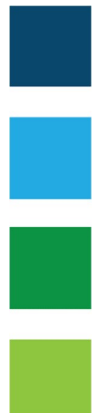


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Appendices

Appendix A – Ground Penetrating Radar Survey Drawings

Appendix B – Preliminary Stormwater Layout Design

1.0 Purpose of Report

Tobin Consulting Engineers has been appointed by REDscape Landscape Architects, to provide a Preliminary Drainage Design Report for the site boundary (see figure 1) as part of Mitchelstown Public Realm Enhancement Project.

The purpose of a Preliminary Drainage Design Report is to examine the existing stormwater network to determine its adequacy for servicing the design. The Preliminary Drainage Design Report will also be used to determine if the existing drainage infrastructure is to be utilised or if a new separate stormwater system is to be designed.

The Stormwater Drainage Design will progress during the detailed design stage of the project as the detailed design surface is finalised

1.1 Location And Extent of Study Area

The study area, as part of the project includes, New Market Square, Kings Square, Georges St, Kings College Wood, Kings Street and short sections of Church Street, Mitchelscourt Estate and Kildorrery Road, Mitchelstown Co. Cork.



Figure 1 - Study Area Outlined in Red

2.0 Existing Conditions

A large area within the redline boundary is served by combined sewer. These areas include:

- Kings Square
- South Georges Street and,
- Kings Street.

A large portion of New Market Square is serviced by a 1000mm diameter designated stormwater main located on Cork Street. Whilst South Georges Street is serviced by a 500mm diameter designated stormwater main.

The topography of the area is quite favourable for surface water runoff with natural topography falling consistently in the northeast direction.

There is some existing open drainage within the redline boundary on Georges Street which is somewhat historic in design for an urban area, however appears functional.



Figure 2 – Existing Open Channel Drain

It should be noted that the topography of New Market Square is quite steep with a west-east crossfall of approximately 7 % and the area being predominately paved, has potential for heavy rates of stormwater runoff at high velocities during periods of intense rainfall.



Figure 3- New Market Square showing existing steep gradient

2.1 Existing System Capacity

No evidence of localised flooding due to system constraints has been discovered at the time of writing this report which would indicate that the existing stormwater systems are adequately sized despite the use of combined sewers.

The results of the Ground Penetrating Rader Survey carried out in September indicate the use of 150mm- 225mm diameter pipes in the combined sewer sections, however, the designated stormwater pipes were found to be 1000mm diameter and 500mm diameter.

3.0 Proposed Design

As part of the Mitchelstown Public Realm enhancement project. It is proposed to alter a large portion of the site geometrically, to include cycle lanes, optimise carriage way widths and improve pedestrian connectivity. It is yet to be determined if a separate designated stormwater system is to be designed to collect stormwater currently being discharged to the combined sewer.

Although the proposed design intends to alter the landscape geometrically, the effects of changes to the greenfield runoff rate are negligible as the permeable areas will greatly remain the same with some allowance for the introduction of SUDS to improve drainage systems.

Given that the design calls for raised tables on locations throughout Georges Street and the Kings Square area, it will be necessary to install additional stormwater inlet pits on the high points of the raised tables to capture runoff as the general topography of the site consistently slopes for the south west toward the north east.

If it is recommended that a separate Stormwater System be designed for the Kings Square Area, further topographical and site investigation surveys will be required to allow for the design of the pipe work connecting to the appropriate outfall.

A draft preliminary layout of proposed drainage lines is attached in Appendix B.

4.0 Recommendations

It is recommended that, in consultation with Irish Water, Cork County Council determine to install a designated Stormwater System or utilise the existing Combined Sewer System.

5.0 Conclusion

As there is currently no evidence of localised flooding at the time of writing this report it is reasonable to assume that the existing stormwater drainage system is adequate to the catchment area.

The stormwater design will be further developed during the detailed design stage of the Mitchelstown Public Realm enhancement Project.

During the detailed design stage, it will need to be determined by Cork Council and Irish Water if a Separate Designated Stormwater Sewer is to be designed as part of the Mitchelstown Public Realm Enhancement Project. Also, to the extent to which existing properties are connected to the designated stormwater system.

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