Our Case Number: ABP-318476-23

Planning Authority Reference Number: SD22A/0412

An Bord Pleanála

South Dublin County Council
Planning Department
County Hall
Tallaght
Dublin 24

PLANNING DEPARTMENT
22 NOV 2023

Date: 21 November 2023

Re: Social housing development of 10 one bed units in a two to three storey apartment building, associated car parking and bicycle parking, new vehicular and pedestrian access onto Old Nangor Road, landscaping, boundary treatments, public lighting and all associated site and engineering works.
Lands at Old Nangor Road, Clondalkin, Dublin 22

Dear Sir / Madam,

Enclosed is a copy of an appeal under the Planning and Development Act, 2000, (as amended).

Submissions of documents etc., to the Board. N.B. Copies of I-plans are not adequate, all drawings and maps should be to scale in accordance with the provisions of the permission regulations.

1. The planning authority is required to forward specified documents to the Board under the provisions of section 128 and section 37(1)(b) of the Planning and Development Act, 2000, (as amended). Please forward, within a period of 2 weeks beginning on the date of this letter, the following documents:-
(i) a copy of the planning application made to the planning authority and a copy of any drawings, maps (including ordnance survey number) particulars, evidence, a copy of any environmental impact statement, other written study or further information received or obtained by your authority in accordance with regulations under the Acts. If practicable, the original of any drawing with coloured markings should be provided or a coloured copy,

(ii) a copy of any technical or other reports prepared by or for the planning authority in relation to the application,

(iii) a certified copy of the relevant Manager's Order giving the decision of the planning authority,

(iv) a copy of the notification of decision given to the applicant,

(v) particulars of the applicant's interest in the land or structure, as supplied to the planning authority,

(vi) a copy of the published notice and a copy of the text of the site notice erected on the land or structure.

Teil	**Tel**	(01) 858 8100
Glao Áitiúil	**LoCall**	1800 275 175
Facs	**Fax**	(01) 872 2684
Láithreán Gréasáin	**Website**	www.pleanala.ie
Ríomhphost	**Email**	bord@pleanala.ie

64 Sráid Maoilbhríde
Baile Átha Cliath 1
D01 V902

64 Marlborough Street
Dublin 1
D01 V902

(vii) a copy of requests (if any) to the applicant for further information relating to the application under appeal together with copies of reply and documents (if any) submitted in response to such requests,

(viii) a copy of any written submissions or observations concerning the proposed development made to the planning authority,

(ix) a copy of any notices to prescribed bodies/other authorities and any responses to same,

(x) a copy of any exemption application/certificate within Part V of the 2000 Act, (as amended), applies,

(xi) a copy of the minutes of any pre-planning meetings.

2. To ensure that the Board has a full and complete set of the material specified above and that it may proceed with full consideration of the appeal, please certify that the planning authority holds no further material relevant to the case coming within the above list of items by signing the certification on page 3 of this letter and returning the letter to the Board.

3. In addition to the documents mentioned above, please supply the following:-

Particulars and relevant documents relating to previous decisions affecting the same site or relating to applications for similar development in near proximity. "History" documents should include;

a) Certified Manager's Order,

b) the site location, site layout maps, all plans and

c) particulars and all internal reports.

Copies of I-plan sheets are not adequate.

Where your records show that a decision was appealed to the Board, it would be helpful if you would indicate the Board's reference.

Submissions or observations by the planning authority.

4. As a party to the appeal you may, under section 129 of the 2000 Act, (as amended), make submissions or observations in writing to the Board in relation to the appeal within a period of 4 weeks beginning on the date of this letter.

Please note when making a response/submission only to the appeal it may be emailed to appeals@pleanala.ie and there is no fee required.

Any submissions or observations received by the Board outside of that period shall not be considered, and where none have been validly received, the Board may determine the appeal without further notice to you.

Contingency Submission

5. If the decision of your authority was to refuse permission, you should consider whether the authority wishes to make a contingency submission to the Board as regards appropriate conditions which, in its view, should be attached to a grant of permission should the Board decide to make such a grant. In particular, your authority may wish to comment on appropriate conditions which might be attached to a permission in accordance with section 48 and/or 49 of the 2000 Planning Act, (as amended), (Development / Supplementary Development Contributions) including any special condition which might be appropriate under section 48(2)(c) of the Act.

Teil	**Tel**	(01) 858 8100
Glao Áitiúil	**LoCall**	1800 275 175
Facs	**Fax**	(01) 872 2684
Láithreán Gréasáin	**Website**	www.pleanala.ie
Ríomhphost	**Email**	bord@pleanala.ie

64 Sráid Maoilbhríde
Baile Átha Cliath 1
D01 V902

64 Marlborough Street
Dublin 1
D01 V902

DOWNEY

29 Merrion Square,
D02RW64

+353 (0) 1 253 0220

info@dwny.ie

The Secretary
An Bord Pleanála,
64 Marlborough Street,
Dublin 1

17th November 2023

RE: First Party Appeal - Proposed Development on lands at Old Nangor Road, Clondalkin, Dublin 22

Applicant: Dublin Simon Community

South Dublin County Council Reg. Ref.: SD22A/0412
Date of Planning Authority Decision: 23/10/23
Final Date for Lodgement of First Party Appeal: 20/11/23

Dear Sir/Madam,

DOWNEY, Chartered Town Planners, 29 Merrion Square, Dublin 2, D02RW64, have been instructed by our client and the applicant, Dublin Simon Community, 5 Red Cow Lane, Dublin 7, to prepare and submit this First Party Appeal against the decision of South Dublin County Council to refuse permission under Reg. Ref. SD22A/0412 for a proposed development on lands at Old Nangor Road, Clondalkin, Dublin 22.

DOWNEY have been appointed to act as planning agents in respect of this appeal and therefore request that all correspondence from An Bord Pleanála relating to this appeal be issued to DOWNEY, 29 Merrion Square, Dublin 2, D02RW64.

The proposed development, as per the statutory notices, provides for the following:

> *"Planning permission is sought by Dublin Simon Community for a proposed social housing development on lands at Old Nangor Road, Clondalkin, Dublin 22. The proposed development will consist of 10 no. one bed units in a two-to-three storey apartment building, associated car parking and bicycle parking, bin store, water pump house, new vehicular access onto Old Nangor Road, new pedestrian access onto Old Nangor Road, landscaping, boundary treatments, public lighting, and all associated site and engineering works necessary to facilitate the development."*

This appeal meets the relevant appeal requirements being made within the relevant statutory period; providing the name and address of the persons and agent making the submission; providing a copy of the decision of South Dublin County Council; and enclosing the statutory fee of €1,500 (by cheque).

To that end, we enclose the following in support of the appeal:

- 1 no. cheque of the requisite fee of €1,500;
- 1 no. copy of SD22A/0412 decision by South Dublin County Council;
- 1 no. copy of the First Party Appeal Statement prepared by DOWNEY which also includes appendices containing the ecological letter prepared by OPENFIELD Ecological Services; the Culvert Hydraulic Assessment Report prepared by IE Consulting; the Proposed Culvert Hydraulic Design Report prepared by IE Consulting; the legal opinion prepared by Peter Bland SC; an alternative site layout design option drawing prepared by Walsh Associates; and a note on the alternative site layout design option drawing prepared by Haynes Higgins Partnership.

DOWNEY respectfully request An Bord Pleanála to consider this appeal and overturn the refusal decision of South Dublin County Council, and therefore grant planning permission for the proposed development on lands at Old Nangor Road, Clondalkin, Dublin 22, subject to appropriate conditions as necessary.

We trust that the enclosed documents and particulars for this first party appeal are in order. We would be grateful for a written acknowledgement of this submission at your earliest possible convenience and look forward to the Board's decision in due course.

Yours sincerely,

Eva Bridgeman, MIPI
Director
For and on behalf of DOWNEY

DOWNEY

FIRST PARTY APPEAL

Lands at Old Nangor Road, Clondalkin, Dublin 22

South Dublin County Council

Reg. Ref. SD22A/0412

Applicant: Dublin Simon Community

November 2023

TABLE OF CONTENTS

Downey Planning Document Control			
	Name	Date	Version
Prepared by	Sean Slevin Assistant Planner	14/11/2023	DRAFT_V01
Approved by	Eva Bridgeman Director	15/11/2023	FINAL_V01

1.0 INTRODUCTION

DOWNEY, Chartered Town Planners, 29 Merrion Square, D02RW64, have prepared this First Party Appeal on behalf of our client and the applicant, Dublin Simon Community, 5 Red Cow Lane, Dublin 7, against South Dublin County Council's decision, dated the 23rd of October 2023, to refuse planning permission for the construction of 10 no. social housing apartment units under planning application Reg. Ref. SD22A/0412 on lands at Old Nangor Road, Clondalkin, Dublin 22.

The proposed development, as per the description contained within the statutory planning notice provides for:

> *"Planning permission is sought by Dublin Simon Community for a proposed social housing development on lands at Old Nangor Road, Clondalkin, Dublin 22. The proposed development will consist of 10 no. one bed units in a two-to-three storey apartment building, associated car parking and bicycle parking, bin store, water pump house, new vehicular access onto Old Nangor Road, new pedestrian access onto Old Nangor Road, landscaping, boundary treatments, public lighting, and all associated site and engineering works necessary to facilitate the development."*

This first party appeal shall provide a full rebuttal of the Planning Authority's reason for refusal of the proposed development. The applicant is of the opinion that the matter of the culvert has not been fully considered in the assessment of the application as extensive documentation regarding the significant studies/assessments carried out on the culvert and design options in the context of the culvert were included as part of the application and as part of the additional information during the planning application process of the application Reg. Ref. SD22A/0412.

The culvert is a manmade drain with the purpose of providing an overflow from the old mill pond via a concrete tank with a controlled flow into a stone channel leading to a sump manhole to the level of the culvert. These are all manmade structures. Setbacks to the proposed culvert is not possible due to significant site constraints regarding the site's configuration and it being an urban infill development. Various alternative options were explored by the design team over the past number of months including discussions between IE Consulting and Hayes Higgins Partnership. The least onerous proposal was agreed which included 3 no. 900mm pipes in lieu of the existing culvert. This is further supported by the project ecologist, OPENFIELD ecological services, who have stated the following:

> *"It is my view that daylighting the culvert through which the mill race runs would provide minimal ecological benefit for aquatic species and would provide no benefit at all in terms of reaching the aims of the Water Framework Directive.* ***It is also my view that because it is not a water course, GI3 Objective 3 of the County Development Plan does not apply.***"

At this juncture, it must be stressed that a previous planning permission was secured for the same development on this site (granted under Reg. Ref. SD16A/0450). Dublin Simon Community were in advanced stages of the construction tender process for implementing the 2017 permission including appointment of consultants, appointment of contractors, production of tender/construction drawings and completion of extensive site investigation work. However, due to unforeseen circumstances which occurred during the lifetime of the planning permission including the Covid-19 pandemic, supply chain

issues, etc., Dublin Simon Community could not commence the development prior to its expiration. Efforts were made to extend the life of the permission but with the removal of economic, commercial, and technical grounds from planning legislation, the extension of duration application was refused as substantial works had not been carried out, a requirement under the Planning and Development Act, 2000 (as amended).

In light of these circumstances, the new planning application essentially represented the resubmission of the previous planning permission granted on the site and incorporated much of the planning compliance submission matters of the 2017 planning permission and engineering matters which have since transpired following extensive site investigation work.

In addition, Dublin Simon Community sought a legal opinion on the culvert and An Bord Pleanála are invited to refer to the letters prepared by Peter Bland SC in this regard. A significant amount of work has been carried out on this matter in recent years including hydraulic engineering reports prepared following the discovery of the culvert in 2018, the compliance information on that permission and design solutions, and the feasibility of other design options.

Dublin Simon Community is a charity organisation and supports people in making homes a reality, and the proposed development would support these policies and objectives in providing housing stock for those who are more vulnerable within society, in which there is a significant demand that needs to be met where a recorded figure of almost 13,000 persons live in emergency accommodation as of August 2023[1]. The provision of 10 social housing units would help alleviate the demand and contribute to the Housing for All policy, as well as the SDCC Housing Delivery Action Plan 2022 - 2026. The proposed development therefore represents an appropriate use of this infill urban site.

This first party appeal should be read in consultation with the overall planning documents that were submitted to South Dublin County Council under Reg. Ref. SD22A/0412 in support of the planning application. The statutory appeal fee of €1500 is enclosed with this appeal. The applicant respectfully requests that An Bord Pleanála overturn the decision of the Planning Authority and grant planning permission in this case.

2.0 SITE LOCATION AND PROPOSAL DESCRIPTION

The subject site is situated on Old Nangor Road, Clondalkin, Dublin 22, and is therefore within the administrative area of South Dublin County Council. Clondalkin is a large suburban centre that is situated 11 kilometres west of Dublin City Centre and offers a wide range of amenities and services.

The subject site itself extends to an area of approximately 0.121 ha. The site is roughly L–shaped and is bounded for the most part by a high block wall. The front boundary is delineated by a stone wall and entrance which is angled to the road. The entrance shares a set back with the adjoining entrance to the local pitch and putt club. The site is bounded to the east by a vacant protected structure. The surrounding area is predominantly mixed-use residential/commercial with a row of two-storey terraced houses directly across the road from the subject site and a fast-food restaurant, snooker club and the Mill Shopping Centre in close proximity.

[1] Irish Times, "*Homeless figures rise again with almost 13,000 in emergency accommodation*"

The site is well served by public transport, having access to the 13, 68, 69, 76, L54, 68, and the 76A Dublin Bus routes. The Clondalkin Fonthill train station is located approximately 1.5 kilometres, a 17-minute walk from the subject site to the north. The M50 is situated a 5-minute drive away which provides the area with access to the national motorway network and Dublin City.

Figure 1: Aerial View of the Subject Area, with subject site [approximate boundary in red] (Aerial Source: Google Earth)

Figure 2: Aerial View of the Subject Site [approximate boundary in red] (Aerial Source: Google Earth)

Figure 3: Street view of the Subject Site

The proposed apartment building is a two-three storey structure consisting of 10 no. 1-bed units. The proposed building has been sited to the rear of the subject site. Access to the site and car parking area will be provided via a vehicular access onto Old Nangor Road. There will be a total of 7 no. car parking spaces including 1 no. disabled car parking space. Given the site's central urban location within a town centre in close proximity of public transport and within walking distance of a wide range of amenities, services and employment opportunities in the heart of Clondalkin, it is considered that the quantum of car parking proposed is appropriate in this case and accords with the '*Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities*' and the proper planning and sustainable development of the area. In addition, bicycle parking is being provided as part of the overall development.

Overall, planning permission is being sought for the development of this infill urban site, which is considered underutilised zoned, serviced lands. The proposed development will provide for the renewal of the subject site by delivering a high-quality scheme that will integrate with the existing surrounding area. It is submitted that the proposed development addresses the immediate need for social housing in South Dublin County as identified in the Housing Action Plan 2022 to 2026.

3.0 PLANNING HISTORY

DOWNEY carried out a search of the relevant planning history pertaining to the subject site which shall be summarised below.

The subject site:

- **Reg. Ref. SD03A/0978; ABP Ref. PL06S.206553** – On 22nd December 2003, a planning application was made to South Dublin County Council for the following development: *"Construction of 9 no. apartments in 2 blocks comprising: 2 no. 2 bedroom apartments in block*

no. 1 (2 storey) and 7 no. 2 bedroom apartments in block no. 2 (4 storeys) and associated site works, landscaping and boundary treatment". Planning permission was refused by South Dublin County Council on 23rd February 2004 and this decision was upheld by An Bord Pleanála on 22nd July 2004, following a first party appeal. There were 2 no. reasons for refusals raised concerns regarding the design of the proposal and the inconsistency of the proposal with the open space zoning objective designated for the lands at the time.

- **Reg. Ref. SD05A/0370 –** On 11th May 2005, a planning application for the following development was made to South Dublin County Council: *"Apartment building containing 6 no. two bedroom apartments and 1 no. one bedroom apartment with associated car-parking, boundary treatment, landscaping and all associated site development works with access/egress to Old Nangor Road".* By Order dated 4th December 2006, South Dublin County Council granted planning permission for this proposed development, subject to 18 no. conditions. This permission was not implemented and has since expired.

- **Reg. Ref. SD16A/0450:** By order dated 21st July 2017, South Dublin County Council granted Dublin Simon Community planning permission subject to conditions for a proposed development consisting of the following: *'A social housing development comprising of 10 one bed units in a three storey apartment building, associated car parking and bicycle parking, bin store, new vehicular access onto Old Nangor Road, new pedestrian access to replace existing vehicular entrance, landscaping, boundary treatments and all associated site and engineering works necessary to facilitate the development.'* A pre-planning meeting took place prior to the making of the application between Downey Planning (Agent), Michael Mohan Architects, Dublin Simon Community and South Dublin County Council.

- **Reg. Ref. SD22A/0412:** By order dated 23rd October 2023, South Dublin County Council issued a decision to refuse Dublin Simon Community permission for a proposed development consisting of *"Social housing development consisting of 10 one bed units in a two to three storey apartment building, associated car parking and bicycle parking, bin store, water pump house, new vehicular access onto Old Nangor Road, new pedestrian access onto Old Nangor Road, landscaping, boundary treatments, public lighting and all associated site and engineering works necessary."* This decision is now the subject of this first party appeal.

The aforementioned planning permission pertaining to the application site confirms that a residential apartment development is appropriate and acceptable for this town centre site. It must be reiterated that Dublin Simon Community were in advanced stages of the construction tender process for implementing the 2017 permission including appointment of consultants, appointment of contractors, production of tender/construction drawings and completion of extensive site investigation work. However, due to unforeseen circumstances which occurred during the lifetime of the planning permission including the Covid-19 pandemic, supply chain issues, etc., Dublin Simon Community could not commence the development prior to its expiration. Efforts were made to extend the life of the permission but with the removal of economic, commercial, and technical grounds from planning legislation, the extension of duration application was refused as substantial works had not been carried out, a requirement under the Planning and Development Act, 2000 (as amended). Planning application Reg. Ref. SD16A/0450/EP refers.

In light of these circumstances, the planning application essentially was the resubmission of the previous planning permission granted on the site and incorporated much of the planning compliance submission matters of the 2017 planning permission and engineering matters which have since transpired following extensive site investigation work. Design alterations were made through the further information stage of the application process in which the proposal was amended to address the matters raised by South Dublin County Council. The issue of the culvert was also explored in full detail, and the design option put forward in the further information response was deemed the most appropriate design solution for the site.

4.0 GROUNDS OF FIRST PARTY APPEAL

DOWNEY will now set out the grounds for this first party appeal against the decision of South Dublin County Council to refuse permission under Reg. Ref. SD22A/0412 for 1 no. reason. The reason for refusal was stated as the following:

> *"Notwithstanding the grant of planning permission for similar development under planning reference SD16A/0450, the proposals to build over an existing culvert and the absence of a setback contravene IE3 Objective 2 of the South Dublin County Development Plan (CDP) 2022-2028 and would be prejudicial to public health and would give rise to risk of localised flooding as a result of blockage and inadequate maintenance access. Moreover the replacement of existing culvert with three concrete pipes exacerbates the risk of blockage and localised flooding contrary to the proper planning and sustainable development of the area and in contravention of the CDP 2022-2028."*

The Planner's Report provides further information on this reason for refusal, which was stated to be the following:

> *"Having regard to the existing culverted stream and the layout and design of the proposed development, including the proposed replacement of the culvert with three concrete pipes, it is considered that the proposed development would be prejudicial to public health and contravene IE3 Objective 2 of the South Dublin County Development Plan 2022-2028 and should therefore be refused permission.*
>
> *Replacing the existing culvert with three pipes would increase the risk of blockage and would be more difficult to maintain. A setback distance of any proposed building from the culvert is required for maintenance and access purposes and to reduce the risk of flooding."*

With regards to Policy IE3 Objective 2, this reads as follows within the Development Plan:

> *'To maintain and enhance existing surface water drainage systems in the County and to require Sustainable Drainage Systems (SuDS) in new development in accordance with objectives set out in section 4.2.2 of this Plan including, where feasible, integrated constructed wetlands, at a local, district and County level, to control surface water outfall and protect water quality.'*

DOWNEY submit to An Bord Pleanála that this reasoning for refusal fails to fully take into consideration the *Culvert Hydraulic Assessment Report* prepared by IE Consulting, the *Proposed Culvert Hydraulic Design Report* prepared by IE Consulting, the ecological opinion prepared by OPENFIELD ecological services, and the legal opinion, all of which were submitted under cover of Reg. Ref. SD22A/0412 as part of the planning application's overall documentation.

DOWNEY have now prepared this appeal against the refusal which will address why it is considered that the proposed development is in accordance with the proper planning and sustainable development of the area, providing for a rebuttal of the refusal. DOWNEY respectfully request An Bord Pleanála to consider the documentation lodged under the cover of the application Reg. Ref. SD22A/0412, in conjunction with this appeal statement.

4.1 Culvert

The proposed development was refused on the basis that there is an existing culvert that transverses the site; and it was referenced within the reason for refusal that it is the policy of South Dublin County Council through IE3 Objective to maintain and enhance existing surface water drainage systems.

A *Culvert Hydraulic Assessment Report* was prepared by IE Consulting, and the *Proposed Culvert Hydraulic Design Report* was prepared by IE Consulting to investigate the culvert that transverses the site, and the most feasible design solutions.

In their initial assessment of the planning application, South Dublin County Council issued a decision requesting for additional information on the 22nd of December 2022. Additional information request no. 1 consisted of the following (annotated by DOWNEY to put emphasis on justification if alternative solutions have to be incorporated):

> *"The Planning Authority has concerns regarding the proposed development located directly over an existing culverted stream. It is council policy to open culverted streams where possible and to require a minimum setback distance of 10m to a structure. (i) the applicant is required to investigate the culvert and to provide further details with relation to its location, quality, flow, and course. (ii) the applicant is required to explore alternative design solutions to provide for a minimum 10m setback from the culvert* ***or alternatively demonstrate that development as proposed is appropriate by including all necessary mitigation measures or engineering details / design solutions to ensure that the proposal would not result in an unacceptable impact on the culverted stream or riparian zones****. The applicant shall and also address the following points: 1. Details of compliance with the Greater Dublin Regional Code of Practice for Drainage works. 2. Details of SuDS proposed in the development to attenuate surface water. 3. Details of surface water attenuation calculations to determine what attenuation in m3 is required for the site. 4. Clarification and provide details of the existence of a public surface water sewer northeast of site. The applicant is advised to consult with the Water Services Section prior to responding"*

With regards to the culvert, it has been confirmed by the extensive reports and surveys conducted to date, by the applicant and the design team, that the culvert is in fact a manmade drain with the

purpose of providing an overflow from the old mill pond via a concrete tank with a controlled flow into a stone channel leading to a sump manhole to the level of the culvert. These are all manmade structures.

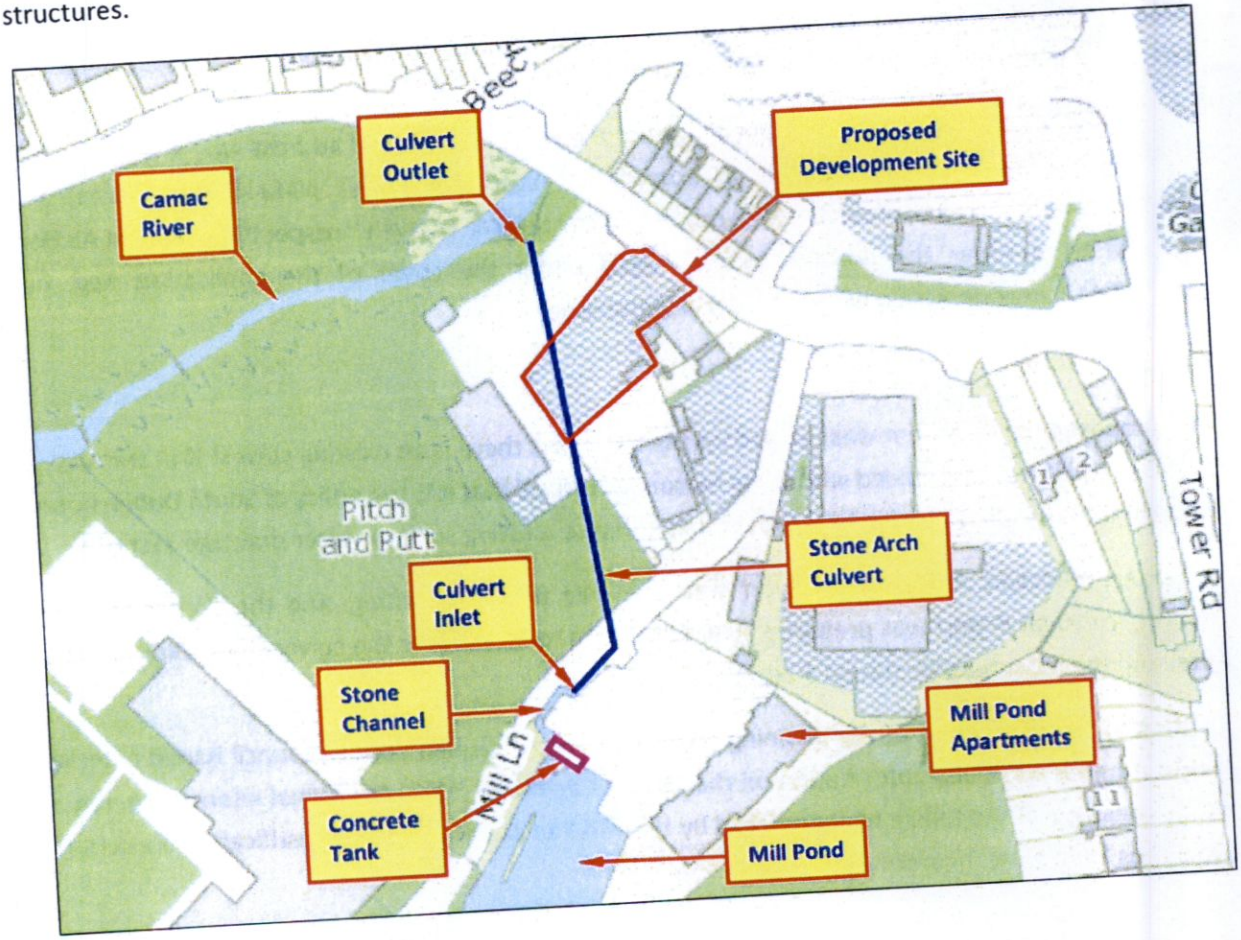


Figure 4: Extract indicating the culvert layout plan

A site walkover survey was carried out by an Engineer from IE Consulting on the 31st of January 2020. This included meeting with the Area Engineer Graham Murphy from South Dublin County Council (SDCC). A visual inspection was carried out of the culvert inlet and culvert outlet as well as the pond feeding the culvert, upstream concrete tank, and stone channel. Refer to Appendix A for photographs of the visual inspection carried out within the *Proposed Culvert Hydraulic Design Report* prepared by IE Consulting.

A topographical survey and culvert inspection survey was carried out by Murphy Surveys on the 6th of March 2020, in which an Engineer from IE Consulting and Graham Murphy from SDCC were also present on site. The culvert inspection was carried out at the culvert inlet which included man-entry. Access into the culvert was however not possible as the culvert was almost completely full of stone. It was noted by the surveyor that a manhole chamber/wall structure was constructed with the culvert aperture a short distance (estimated by the surveyor to be approximately 8m) downstream of the culvert inlet.

Water Services recommended refusal of the proposal, stating that if a design option was to be considered, it would be a design option that provides a 3-metre set-back to the culvert.

"If this development was to be granted, then consideration can be given to have a minimum setback distance of 3m set back distance to culvert subject to suitable structural development of culvert. Changing culvert to three pipes is not acceptable because it increases the risk of blockage and is more difficult to maintain. A setback distance is required for maintenance and access proposes because there will need to be access for maintenance works to adjacent stream or culvert. A greater setback distance is preferable for the same reason and biodiversity. The foundation of development will also need to be at or below the invert level of adjacent culvert."

DOWNEY submit to An Bord Pleanála that setbacks to the proposed culvert is not possible due to significant site constraints regarding the site's configuration and it being an urban infill development along with the surrounding context of the site. Various alternative options were explored by the design team over the course of the planning application, including discussions between IE Consulting and Hayes Higgins Partnership. The least onerous proposal was agreed which included 3 no. 900mm pipes in lieu of the existing culvert. This is further supported by an enclosed letter from OPENFIELD ecological services, who have stated the following:

"It is my view that daylighting the culvert through which the mill race runs would provide minimal ecological benefit for aquatic species and would provide no benefit at all in terms of reaching the aims of the Water Framework Directive. ***It is also my view that because it is not a water course, GI3 Objective 3 of the County Development Plan does not apply."***

DOWNEY also would contend the reasoning for refusal citing Policy IE3 Objective 2. Policy IE3 Objective 2 states the following:

'To maintain and enhance existing surface water drainage systems in the County and to require Sustainable Drainage Systems (SuDS) in new development in accordance with objectives set out in section 4.2.2 of this Plan including, where feasible, integrated constructed wetlands, at a local, district and County level, to control surface water outfall and protect water quality.'

DOWNEY submit to An Bord Pleanála that the selected design choice would lead to the unblocking of the drain and would enhance the water drainage system currently in place, which is in poor condition. We wish to note that South Dublin County Council have cited blockage and potential flooding as design issues when the proposed solution has identified the capacity to be in excess of the requirements. The culvert is also presently blocked at 60-80% capacity, and there has been no recorded flooding in the area. We invite An Bord Pleanála to the *Culvert Hydraulic Assessment Report* prepared by IE Consulting, which includes for site photographs depicting the extent in which the current drainage in place is significantly blocked. An extract of the report regarding the condition of the culvert states the following:

"In order to determine the peak flow discharging from the Mill Pond a hydraulic model was developed using HEC RAS software of the outlet from the concrete tank, the stone channel, and the inlet into the sump at the culvert inlet. The existing stone arch culvert has not been included in the hydraulic assessment. It is currently significantly blocked with

stone, however if it was free from blockage the capacity of the culvert would be significantly greater than the rate of discharge from the Mill Pond."

We invite An Bord Pleanála to the *Proposed Culvert Hydraulic Design Report* prepared by IE Consulting, which has been informed by surveys of the existing site. Haynes Higgins Partnership stated the following in their cover letter regarding the selected design:

"Following discussions between IE Consulting and 2HP, the least onerous proposal was agreed which included 3No. 900mm pipes in lieu of the existing culvert. The proposed route follows the route of the existing culvert. The use of the 900mm pipes mitigated the impact that the introduction of the pipes would have on the overall height of the structure. On receipt of the proposed culvert design, Hayes Higgins Partnership designed the structure that was required for bridging the culvert. The proposed structure is piled foundations and ground beams due to the risk of differential settlement that would be present bearing on different subgrades and due to the large loads exerted each side of the culvert structure. The design of the culvert includes manholes upstream and downstream of the building for maintenance access if required. In addition to the engineering design of the culvert a legal opinion if the existing culvert is provided."

Dublin Simon Community have also sought a legal opinion on the culvert and An Bord Pleanála are invited to refer to the letters prepared by Peter Bland SC in this regard. It must be recognised that a significant amount of work has been carried out on this matter since the previous planning permission was secured for the same development on this site (granted under Reg. Ref. SD16A/0450) including hydraulic engineering reports prepared following the discovery of the culvert in 2018, the compliance information on that permission and design solutions, and the feasibility of other design options. The legal opinion was attached as part of the overall documentation to support the AI response that was submitted under cover of SD22A/0412, and we invite An Bord Pleanála to refer to the content of this submission for further details.

DOWNEY submit that the design team has carried out significant studies on the culvert and exhausted all alternative solutions assessing the viability of same. It has been deemed that the chosen methodology as now presented and justified within the application is the most appropriate for the subject site, and the applicant will ensure that all mitigation measures that have been identified by Hayes Higgins Partnership are to be implemented and maintained as part of the development.

South Dublin County Council have identified a delivery target further need for 3,671 social housing units, that comprises of 3,341 new build homes and 290 leased homes over the period of 2022 to 2026. The proposed development will contribute to the supply of social housing units required to meet the demand through collaboration with South Dublin County Council Housing Department and the applicant, Dublin Simon Community.

We respectfully request An Bord Pleanála to consider this appeal and the overall documentation submitted under the cover of planning application Reg. Ref. SD22A/0412 and overturn the refusal decision of South Dublin County Council and as such grant permission for the proposed development, subject to the appropriate conditions necessary to facilitate the development.

5.0 ALTERNATIVE DESIGN OPTION ADDRESSING ADDITIONAL SDCC CONCERNS

DOWNEY wish to take this opportunity to address some additional matters raised by South Dublin County Council which were expressed within their Planner's Report regarding certain aspects of the proposal. These have been divided into their respective sub-sections. We wish to note that we have also included for a revised site layout plan as a potential alternative design solution prepared by Walsh Associates Architects which seeks to address the comments expressed by South Dublin County Council, which is presented below for the consideration of An Bord Pleanála.

Figure 5: Extract of alternative design option omitting the car parking area

We believe that given the site's context and location, and its zoning i.e. *'TC – Town Centre'*, that the possible omission of the initially proposed car parking would be considered appropriate in this instance due to the proximity of the site to Clondalkin town centre which provides for a wide range of active transport options within a 15-minute radius which was highlighted within the Planning Statement initially prepared by DOWNEY.

Figure 6: Clondalkin Town Centre with significant surrounding amenities & services available in 10-minute immediate vicinity, with public transport routes outlined in yellow (Source: Google Earth)

The proposed development can be considered as infill development, in which there is significant limited capacity to provide for public open space within the development as well as green infrastructure proposals. **Policy H8 Objective 3** states the following:

> *"To enhance the recreational value of open spaces that serve existing residential areas as part of any future infill developments or where appropriate provide for the upgrade of other parks in the immediate area (applying the 10-minute concept) through a financial contribution in lieu, where a proposed development is not capable of providing the full open space standards on site."*

Section 12.6.10 states the following:

> *"Student accommodation, housing for older persons and **one-bedroom units** are excluded from the requirements in relation to children's play."*

The shortfall has been compensated by the provision of semi-private and private open spaces that are included within the proposed development, and the proximity of public open spaces to the subject site. This follows Section 8.7.4 and COS5 Objective 5 of the South Dublin Development Plan 2022 – 2028 which identifies circumstances in which open space cannot be provided for.

The surrounding area is rich in green space provision, which also includes for Corkagh Park which is a 120 hectares regional park situated to the south-west of the subject site at a distance of 1 kilometre

(13-minute walk distance). *Figure 7* illustrates the extent of the public parks, leisure centres and outdoor activities that are within walking distance from the subject site (no. 4 within a 15-minute walking distance):

Figure 7: Open spaces / Public parks / Leisure amenities that are within walking distance of the subject site.

Given the context of the site and its close proximity to Clondalkin Town Centre, public transit and a wide range of amenities and leisure situated within a 15-minute distance, we submit that the alternative design option of omitting car parking for the proposed development would be a feasible design option.

The omission of the car parking area would provide for a high-quality communal open space to the front of the site. This would alleviate the impact of the proposed development on the adjacent Architectural Conservation Area and protected structure. This would also lead to more sustainable urban drainage of the site in the provision of green infrastructure and the omission of the requirement of an attenuation tank, which would address South Dublin County Council's additional concerns regarding the lack of SuDs provision on site and the inclusion of an attenuation tank. Please refer to the Appendix note document prepared by Haynes Higgins Partnership for further details on the impact the alternative design option would have on the SuDs management of the site.

DOWNEY are therefore of the professional opinion that given the site context, its location within a town centre and the impact the alternative design would have; the omission of the initially proposed car parking would be a feasible design option, and we invite An Bord Pleanála to take this into account and impose appropriate conditions in this regard should a grant of permission be forthcoming.

5.1 Conservation Department Concerns

The conservation department expressed concern with the proposed design of the development. DOWNEY wish to note that within the initial Planner's Report (which is also outlined within the Planner's Report addressing the AI items) the following was stated:

> *"A report was not available from the Conservation Officer. However, a similar proposal was submitted under SD16A/0450 & SD16A/0450/EP, and Additional Information concerns were addressed and submitted on 17th May 2017. Therefore, the applicant was deemed to have addressed the Items of concern by the Conservation Officer, and they were considered acceptable."*

DOWNEY submit to An Bord Pleanála that no major design changes were made to scheme due to SDCC's acceptance that the proposal had addressed the previous items of concern. The applicant therefore focused their efforts on demonstrating and complying with the further information request. However, at this juncture, the applicant is now proposing that the boundary wall can be retained and repaired as required using good conservation practices.

The applicant is also amenable to liaising with South Dublin County Council regarding the selected material finishings of the brick and cladding, to take into consideration the modern development occurring to the rear of the site at a separation distance greater than 45 metres.

DOWNEY respectfully invite An Bord Pleanála, to impose appropriate conditions in this regard should a grant of permission be forthcoming.

5.2 Design Concerns

5.2.1 Roads Department Concern regarding Bin Storage & Sightlines

There was concern expressed from the SDCC Roads Department regarding the location of bins, the sightlines being achieved on site and truck reversal. *"As stated above, the location and design of the vehicular entrance should be revised as part of any further consideration of development on this site."*

DOWNEY respectfully invite An Bord Pleanála to refer to the assisting cover letter and engineering pack prepared by Hayes Higgins Partnership as part of the Additional Information response pack that was submitted for South Dublin County Council's consideration. DOWNEY submit that the applicant had addressed the requested additional information items and had complied with the information that South Dublin County Council were seeking, and we wish to reiterate that it is noted that the provision of a new pedestrian and vehicle access had previously been permitted under Reg. Ref. SD16A/0450 and it was understood that the entrance arrangements would be of a similar nature.

However, at this juncture, the applicant is now proposing a possible alternative design solution for the consideration of An Bord Pleanála which provides for the omission of the car parking area on site. This would result in the omission of the vehicular entrance (sightlines and truck reversal no longer an issue) and the relocation of the bin store such that the bins would be closer to the entrance of the property which would enable ease of bin access and collection, all of which would be managed on a weekly basis by the management company of this small scheme with the relevant waste operator. It must be noted that roadside collection of refuse waste is common practice in town centre settings such as this and the applicant notes that a successful roadside collection service currently operates on this road. We invite An Bord Pleanála to consider the alternative design solution site layout plan drawing prepared by Walsh Associates, which seeks to address the concerns expressed by South Dublin City Council in this regard.

DOWNEY respectfully submit to An Bord Pleanála that the initial entrance was permitted under Reg. Ref. SD16A/0450; however, as noted above, an alternative design option is now also being submitted for the consideration of An Bord Pleanála and the applicant would welcome appropriate conditions on the most appropriate design choice for the proposed development should a grant of planning permission be forthcoming.

5.2.2 Planning Department concern regarding privacy

SDCC's Planner's Report also expressed concern with certain aspects of the design in terms of privacy. We have included an alternative site layout plan which has been prepared by Walsh Associates, which we invite An Bord Pleanála to consider as part of this appeal.

The alternative design option significantly increases the depth and potential for landscape screening to the northeast and west of the relevant apartments. As a result, the amended high-level windows can be reverted to the original design option submitted for Unit 3 and 4 as opposed to the additional information design that provided for high level windows.

The applicant has proposed to move the entrance and glazing to the staircase to the northwest elevation to address the planner's concerns regarding possible "nuisance" being caused to apartments 4 and 8.

DOWNEY wish to submit that the applicant is open and eager to engage with South Dublin County Council's departments in agreeing these minor design revisions and would be amenable to a condition requesting for such matters to be submitted and agreed with South Dublin County Council should An Bord Pleanála be minded to grant permission for the proposed development.

6.0 CONCLUSION

DOWNEY have been engaged by Dublin Simon Community to prepare this first party appeal against South Dublin County Council's decision to refuse planning permission for the construction of 10 no. one bed units in a two-to-three storey apartment building, associated car parking and bicycle parking, bin store, water pump house, new vehicular access onto Old Nangor Road, new pedestrian access onto Old Nangor Road and all ancillary works required to facilitate the development.

Dublin Simon Community is a charity organisation and supports people in making homes a reality, and the proposed development would support these policies and objectives in providing housing stock for those who are more vulnerable within society, in which there is a significant demand that needs to be met where a recorded figure of almost 13,000 persons live in emergency accommodation as of August 2023[2]. The provision of 10 social housing units would help alleviate the demand and contribute to the Housing for All policy, as well as the SDCC Housing Delivery Action Plan 2022 - 2026. The proposed development therefore represents an appropriate use of this infill urban site.

South Dublin County Council have identified a delivery target further need for 3,671 social housing units, that comprises of 3,341 new build homes and 290 leased homes over the period of 2022 to 2026. The proposed development will contribute to the supply of social housing units required to meet

[2] Irish Times, "*Homeless figures rise again with almost 13,000 in emergency accommodation*"

the Housing for All and the Housing Delivery Action Plan objectives through collaboration with South Dublin County Council Housing Department and the applicant, Dublin Simon Community.

DOWNEY on behalf of the applicant respectfully disagree with the assessment regarding the culvert that transverses the site and ultimate refusal of the scheme as a result. We have provided for a comprehensive assessment and rationale for the design choices that were made in cognisance of the existing culvert and in conjunction with the site constraints as an infill urban development.

An alternative design option has been submitted that details how the proposal can be amended to respond to the additional points South Dublin County Council have expressed regarding certain design choices. We invite An Bord Pleanála to take this into consideration in their assessment of the proposal.

In light of the above, DOWNEY respectfully request An Bord Pleanála to consider this appeal and overturn the refusal decision of South Dublin County Council, and therefore grant permission for the proposed development on lands at Old Nangor Road, Clondalkin, Dublin 22, subject to appropriate conditions as necessary.

APPENDIX A: OPENFIELD ECOLOGICAL LETTER

APPENDIX B: CULVERT SURVEY & PROPOSED CULVERT DESIGN REPORTS PREPARED BY IE CONSULTING

APPENDIX C: PETER BLAND LEGAL LETTERS

APPENDIX D: WALSH ASSOCIATES ALTERNATIVE SITE LAYOUT DESIGN OPTION DRAWING

APPENDIX E: HAYES HIGGINS PARTNERSHIP NOTE ON SUDS IN ALTERNATIVE DESIGN PROPOSAL

APPENDIX F: COPY OF PLANNING AUTHORITY DECISION

APPENDIX G: PLANNING POLICY CONTEXT

Housing for All

In September 2021, the Government launched the *Housing for All* policy, which is the Government's mission to tackle the housing crisis, through increasing the supply of housing to 33,000 annually on a national scale between 2021 and 2030. It is a multi-annual, multi-billion investment plan which seeks to improve Ireland's housing system and deliver a range of housing tenures across the country, with various housing needs and demands met.

Projected Housing Output (New Build) 2022 – 2030

Tenure	2022	2023	2024	2025	2026	2027	2028	2029	2030
Social homes	9,000	9,100	9,300	10,000	10,200	10,200	10,200	10,200	10,200
Affordable & Cost Rental homes	4,100	5,500	6,400	6,400	6,100	6,300	6,400	6,300	6,300
Private Rental and Private Ownership homes	11,500	14,400	17,750	18,200	19,800	20,400	21,500	23,000	24,000
Total Homes	24,600	29,000	33,450	34,600	36,100	36,900	38,100	39,500	40,500

Figure 8: Projected Housing Output on annual basis up to 2030

It is the objective of the Government through Housing for All to deliver good quality homes to every citizen within the State through:

- *Purchasing or Renting at an affordable price;*
- *Built to a high standard and in the appropriate location;*
- *Offer a high quality of life.*

Housing for All contains four pathways in achieving the policy objectives through:

- *Supporting home ownership and increasing affordability;*
- *Eradicating homelessness, increasing social housing delivery and supporting social inclusion;*
- *Increasing new housing supply;*
- *Addressing vacancy and efficient use of existing stock.*

There are a set of objectives that aim to achieve the vision of implementing the housing strategy on a national level. The housing policy objectives that are relevant to the application on Old Nangor Road are the following:

HPO1: *Enable Homeownership and Increase Affordability*

HPO3*: Work towards Ending Homelessness by 2030*

HPO4*: Increase Social Housing Delivery*

HPO12*: Deliver a new approach to active land management*

HPO19*: Address Vacancy in housing*

***HPO21**: Drive social sustainability and foster sustainable communities*

The proposed residential scheme of 10 social housing units would contribute to meeting the objectives and vision of the *Housing for All* government strategy, and it is a development that is dedicated to social housing supply delivery.

Project Ireland 2040: National Planning Framework

The *National Planning Framework*, under Project Ireland 2040, provides the overarching vision and development strategy to shape the national, regional, and local spatial development of Ireland to 2040. It composes of 10 National Strategic Outcomes which highlight the investment priorities to achieve sustainable development throughout Ireland.

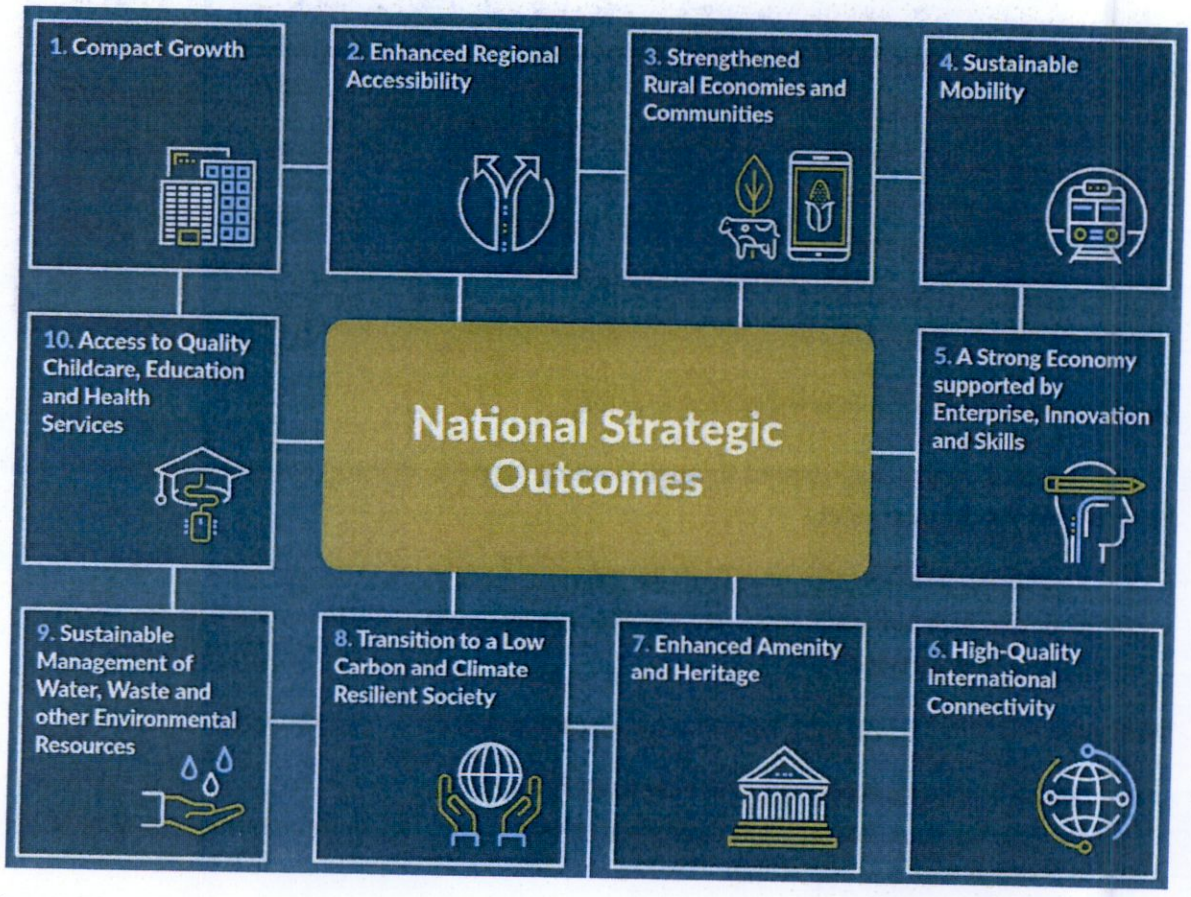


Figure 9: The 10 National Strategic Outcomes for Project Ireland 2040

A key focal point within the NPF within Chapter 2.6 is a focus on compact and sustainable growth in development, putting an emphasis on the livability and quality of life within urban spaces and ensuring that regeneration and redevelopment initiatives are encouraged.

Chapter 4 of the NPF outlines the need to enhance the experience of people living and working in urban places within Ireland, and must put an emphasis on making cities, towns, and villages become more viable and attractive. It is **Objective 4** of the NPF to:

> *Ensure the creation of attractive, liveable, well designed, high quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and well-being.*

A sustainable approach to housing is essential in the development of vibrant neighbourhood environments that residents can interact with. It is important for planning and development to take a holistic sustainable approach, especially with the revitalisation of vacant buildings, infill and brownfield sites that are derelict or vacant and not in use.

Below is a suite of National Policy Objectives that are relevant to the current application:

> **NPO 3a:** *Deliver at least 40% of all new homes nationally, within the built-up footprint of existing settlements.*
>
> **NPO 3b:** *Deliver at least half (50%) of all new homes that are targeted in the five Cities and suburbs of Dublin, Cork, Limerick, Galway and Waterford, within their existing built-up footprints.*
>
> **NPO 4:** *Ensure the creation of attractive, liveable, well designed, high quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and well-being.*
>
> **NPO6:** *Regenerate and rejuvenate cities, towns and villages of all types and scale as environmental assets, that can accommodate changing roles and functions, increased residential population and employment activity and enhanced levels of amenity and design quality, in order to sustainably influence and support their surrounding area*
>
> **NPO13:** *In urban areas, planning and related standards, including in particular building height and car parking will be based on performance criteria that seek to achieve well-designed high-quality outcomes in order to achieve targeted growth. These standards will be subject to a range of tolerance that enables alternative solutions to be proposed to achieve stated outcomes, provided public safety is not compromised and the environment is suitably protected.*
>
> **NPO28:** *Plan for a more diverse and socially inclusive society that targets equality of opportunity and a better quality of life for all citizens, through improved integration and greater accessibility in the delivery of sustainable communities and the provision of associated services.*
>
> **NPO32:** *To target the delivery of 550,000 additional households to 2040.*
>
> **NPO33:** *Prioritise the provision of new homes at locations that can support sustainable development and at an appropriate scale of provision relative to location.*
>
> **NPO34:** *Support the provision of lifetime adaptable homes that can accommodate the changing needs of a household over time.*
>
> **NPO35:** *Increase residential density in settlements, through a range of measures including reductions in vacancy, reuse of existing buildings, infill development schemes, area or site-based regeneration and increased building heights.*

The proposed development will meet multiple National Strategic Outcomes regarding sustainable development for the future. This is further supported on a regional and local level, with more specific objectives, which will be explored in the next sections.

Regional Spatial and Economic Strategy Eastern and Midland Regional Assembly

The *Eastern Midlands Regional Assembly Regional Spatial and Economic Strategy 2019 - 2031 (RSES)* provides the 12-year strategic development framework for the Eastern and Midland Region. The principal purpose of the RSES is to support the implementation of *Project Ireland 2040*, by providing a more in-detail strategic plan that applies to the relevant area. The RSES is to be implemented by local authorities through the establishment of Development Plans and Economic and Community Plans that resonate with the policies set out.

Within Chapter 2, the RSES sets out the Strategic Vision for settlement and economic growth for the Eastern Midlands Regional Assembly area. These are supported by the 16 Regional Strategic Outcomes that align with policy recommendations in achieving sustainable development. The three key principles behind sustainable development of urban settlements are healthy placemaking, climate action and economic opportunity.

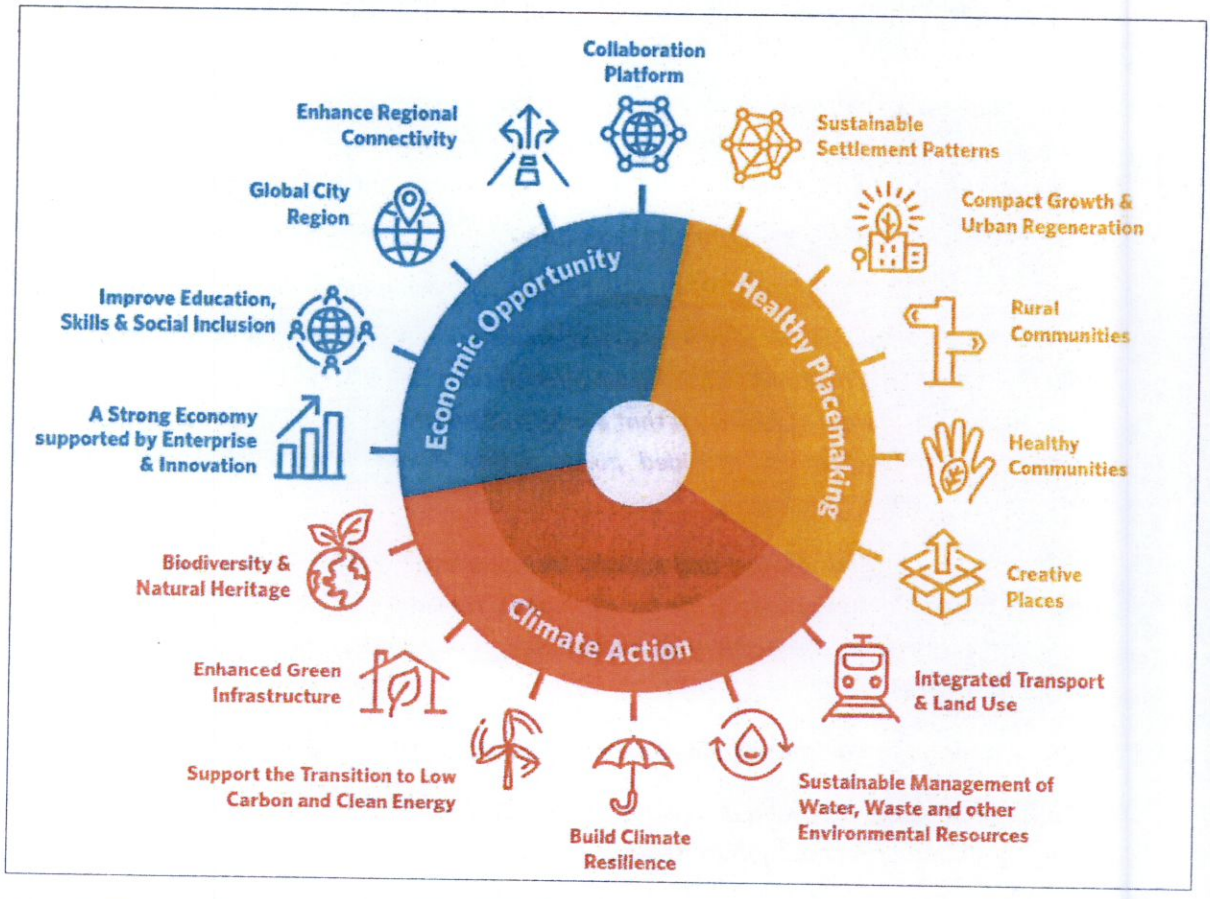


Figure 10: The 16 Regional Strategic Outcomes within the RSES

The RSES sets out the settlement hierarchy and provides guidance and objectives to encourage for sustainable development within the hierarchy to the discretion of local authorities to adopt the vision of the RSES. The applicants site falls under the Dublin Metropolitan Area Strategic Plan (MASP), which is a 12-to-20-year strategic planning and investment framework for the Dublin metropolitan area that underpins the National Planning Framework. Within the MASP, the site falls under the *'Dublin City & Suburbs'* boundary of the Metropolitan plan for Dublin. Regarding housing development, a priority objective the MASP aims to achieve is the following:

'Compact sustainable growth and accelerated housing delivery – To promote sustainable consolidated growth of the Metropolitan Area, including brownfield and infill development, to achieve a target of 50% of all new homes within or contiguous to the built-up area of Dublin City and suburbs, and at least 30% in other settlements. To support a steady supply of sites and to accelerate housing supply, in order to achieve higher densities in urban built up areas, supported by improved services and public transport' pp. 101.

Policies that are relevant to the development of housing within the MASP region that apply to the application site are the following:

***RPO 5.4**: Future development of strategic residential development areas within the Dublin Metropolitan area shall provide for higher densities and qualitative standards as set out in the 'Sustainable Residential Development in Urban Areas'13, 'Sustainable Urban Housing: Design Standards for New Apartments' Guidelines and 'Urban Development and Building Heights Guidelines for Planning Authorities'*

***RPO 5.5**: Future residential development supporting the right housing and tenure mix within the Dublin Metropolitan Area shall follow a clear sequential approach, with a primary focus on the consolidation of Dublin and suburbs, and the development of Key Metropolitan Towns, as set out in the Metropolitan Area Strategic Plan (MASP) and in line with the overall Settlement Strategy for the RSES. Identification of suitable residential development sites shall be supported by a quality site selection process that addresses environmental concerns.*

***RPO 9.1:** Local authorities shall ensure the integration of age friendly and family friendly strategies in development plans and other relevant local policy and decision making, including provision for flexible housing typologies, buildings and public spaces that are designed so that everyone, including older people, disabled people and people with young children can move around with ease, avoiding separation or segregation*

***RPO 9.12:** In Planning policy formulation and implementation local authorities and other stakeholders shall be informed by the need to cater for all levels of disability, through the appropriate mitigation of the built environment, and in particular for the needs of an ageing population*

The proposed development will contribute to the surrounding area in the context of these RPOs, that support the National Planning Framework, which have been set out to guide sustainable development on a regional basis, which is further supported by local policy and objectives.

Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2020)

The '*Sustainable Urban Housing: Design Standards for New Apartments*' build on the content of the 2015 apartment guidance, much of which remains valid, particularly with regard to design quality safeguards such as internal space standards for apartments, internal storage and amenity space. The Guidelines state that, "*in the longer term to 2040, the Housing Agency has identified a need for at least 45,000 new homes in Ireland's five cities (Dublin, Cork, Limerick, Galway and Waterford), more than*

30,000 of which are required in Dublin City and suburbs, which does not include additional pent-up demand arising from under-supply of new housing in recent years."

The Guidelines also state that, *"aspects of previous apartment guidance have been amended and new areas addressed in order to:*

- *enable a mix of apartment types that better reflects contemporary household formation and housing demand patterns and trends, particularly in urban areas;*
- *make better provision for building refurbishment and small-scale urban infill schemes;*
- *address the emerging 'build to rent' and 'shared accommodation' sectors; and*
- *remove requirements for car-parking in certain circumstances where there are better mobility solutions and to reduces costs."*

The HQA prepared by Walsh Associates submitted as part of this application outlines how the proposed development is consistent with these standards.

South Dublin County Development Plan 2022 - 2028

The *South Dublin County Development Plan 2022 – 2028* provides the overarching spatial planning framework for the subject area. The main objective of the Development Plan is putting a focus on the places where people live, the places where people work and the interaction and movement between these places while sustainably managing the environment. There is an emphasis on making the most efficient use of land and existing infrastructure by focusing development on urban infill and brownfield lands, in an aim to rejuvenate these lands and reduce urban sprawl challenges.

The subject site is zoned under Objective TC (Town Centre), which provides for the following:

To protect, improve and provide for the future development of Town Centres.

A range of use classes that are permitted in principle and open for consideration within Objective TC zones can be found in *Table 1*. The proposed development is permitted in principle under zoning objective TC.

Whilst the subject site is not located within an Architectural Conservation are (ACA), it is situated near the boundary of the Clondalkin Village ACA. Due consideration has been given to this area through the design evolution of the proposed development.

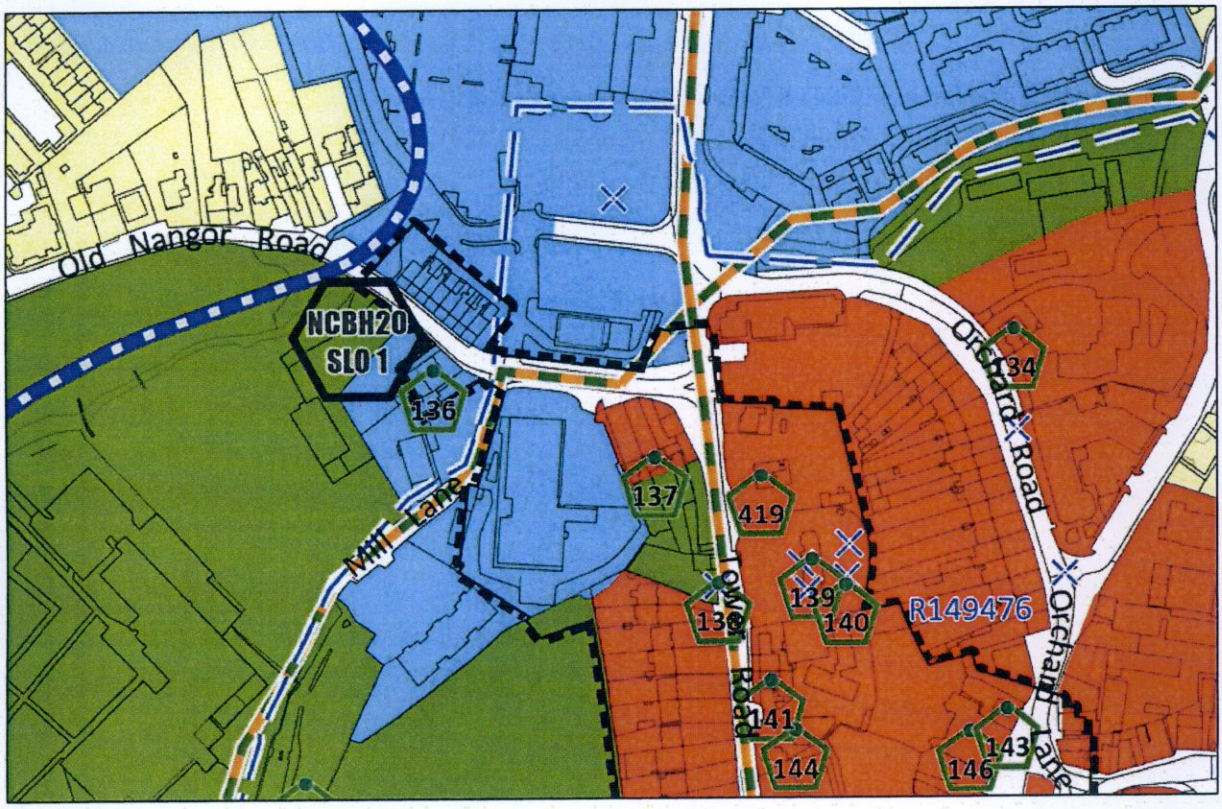


Figure 11: Zoning Land-Use Map within South Dublin County Development Plan with Subject Site Lands

Use Classes Relating to Zoning Objective TC	
Permitted in Principle	Advertisements and Advertising Structures, Bed & Breakfast, Betting Office, Car park, Childcare Facilities, Community Centre, Conference Centre, Crematorium, Cultural Use, Doctor / Dentist, Education, Embassy, Enterprise Centre, Funeral Home, Garden Centre, Guest House, Health Centre, Home Based Economic Activities, Hospital, Hotel / Hostel, Housing for Older People, Industry-Light, Live-Work Units, Nightclub, Nursing Home, Office-Based Industry, Offices less than 100 sq. m, Offices 100 sq. m-1,000 sq. m, Offices over 1,000 sq. m, Off-Licence, Open Space, Petrol Station, Place of Worship, Primary Health Care Centre, Public House, Public Services, Recreational Facility, **Residential**, Residential Institution, Restaurant / Café, Retail Warehouse, Retirement Home, Shop Local, Shop-Major Sales Outlet, Shop-Neighbourhood, Sports Club / Facility, Stadium, Social Club, Veterinary Surgery, Work-Live Units.
Open for Consideration	Allotments, Industry-General, Motor Sales Outlet, Outdoor Entertainment Park, Recycling Facility, Science and Technology Based Enterprise, Service Garage, Transport Depot, Traveller Accommodation, Warehousing, Wholesale Outlet.

Table 1: South Dublin Development Plan 2022 - 2028 Zoning 'TC' Objectives

Development Management

A suite of policies that are relevant to the planning application that contributes to the provision of 10 social residential units are as follows:

> **Policy CS4:** *Facilitate the re-use and regeneration of vacant sites and landbanks through various measures to promote compact urban growth in line with the Core Strategy.*
>
> **Policy CS7:** *Promote the consolidation and sustainable intensification of development within the Dublin City and Suburbs settlement boundary*
>
> **Policy H1**: *Implement South Dublin County Council Housing Strategy and Interim Housing Needs and Demand Assessment 2022-2028 (and any superseding Housing Strategy agreed by the Council) and to carry out a review of the Housing Strategy as part of the mandatory Two-Year Development Plan review.*
>
> **H3:** *Support the provision of accommodation for older people and people with disabilities and / or mental health issues within established residential and mixed-use areas offering a choice and mix of accommodation types within their communities and at locations that are proximate to services and amenities.*
>
> **Policy H13:** *Promote and support residential consolidation and sustainable intensification at appropriate locations, to support ongoing viability of social and physical infrastructure and services and meet the future housing needs of the County*
>
> **PHP32:** *It is a Policy Objective to support the provision of homeless accommodation and/or support services throughout the County.*

Policy H1 is further supported by Objectives 3, 4 and 6 which are the following:

> **Objective 3**: *To ensure that adequate and appropriate housing is available to meet the needs of people of all incomes and needs including traveller households, older persons, people with disabilities, and the homeless, through an appropriate mix of unit types and tenures provided in appropriate locations and in a manner appropriate to their specific needs.*
>
> **Objective 4**: *To recognise the urgent need for the increased provision of social and affordable housing to ensure that all residents in South Dublin County have access to a home. Such provision shall be made through working with approved housing bodies and co-operatives to provide for social and genuinely affordable housing accommodation to meet housing needs. This shall be carried out through a range of delivery mechanisms including new builds, acquisitions, renovations and acquisitions of vacant homes, cost rental leasing, and housing supports including RAS and HAP or any other mechanism promoted under Government Housing Policy, with priority given to new builds and renovations whenever available.*
>
> **Objective 6:** *To provide social and affordable housing over the Plan period to meet forecast future housing need as identified in the Housing Strategy and interim HNDA.*

As Dublin Simon Community is an identified Approved Housing Body, the proposed development would support these policies and objectives in providing housing stock for those who are more vulnerable within society, in which there is a significant demand that needs to be met. The provision

of 10 social housing units would help alleviate the demand and contribute to the Housing for All policy, as well as the Housing Delivery Action Plan 2022 - 2026. The proposed development represents an appropriate use of the infill site.

In regard to the creation of sustainable neighbourhoods, the following policy applies:

> **Policy QDP2**: Overarching – Successful and Sustainable Neighbourhoods: *Promote the creation of successful and sustainable neighbourhoods through the application of the eight key design principles to ensure the delivery of attractive, connected, and well-functioning places to live, work, visit, socialise and invest in throughout the County.*
>
> **12.5.2**: *Applications for new development shall be accompanied by a statement from a suitably qualified person detailing how 'the plan approach' has been taken into consideration and incorporated into the design of the development, including the materials and finishes proposed, and demonstrating how the eight overarching principles for the achievement of successful and sustainable neighbourhoods have been addressed.*

The statement of how the 'plan approach' has been taken into consideration and incorporated within the design of the development, through the 8 criterions, is provided below, and further supported by the Architectural Design Statement prepared by Walsh Associates. Relevant policies throughout the Development Plan that are applicable to the plan approach will be provided in how the proposed development is in accordance with the proper planning and sustainable development of the area:

The Context

> **Policy QDP3**: *Support and facilitate proposals which contribute in a positive manner to the character and setting of an area.*

The proposed development will rejuvenate a site that is currently derelict and underutilised, and represents an appropriate development for the area, as it is situated within a Town Centre, in which there is a wide range of amenities and services. It achieves the 15-minute city that is advocated for throughout the RSES and Development Plan in establishing strong communities that have a high level of access to local goods and services.

Healthy Placemaking

> **Policy QDP4**: *Promote the delivery of neighbourhoods that are attractive, connected, vibrant and well-functioning places to live, work, visit, socialise and invest in*

Inclusive and sustainable placemaking has been incorporated into the design of the proposed development, with inclusivity at the forefront, which also connects with *5. The Delivery of High-Quality and Inclusive Development.* Semi-private and private amenities have been provided throughout the proposed development and exceed the minimum standards, which achieves the policy objectives of **Policy H9**: *Ensure that all dwellings have access to high quality private open space and semi-private open space (where appropriate) and that such space is carefully integrated into the design of new residential developments.*

High-quality landscaping is proposed as part of the overall development. The Landscaping Report submitted as part of this planning application details the soft and hard landscaping plans for the proposed site which will contribute to the placemaking of the area. The 10 residential units are

disability access friendly, ensuring that the landscape plans are accessible for those with limited mobility. The design holistically takes into account healthy placemaking.

Connected Neighbourhoods

> **Policy QDP5**: *Promote short distance neighbourhoods and strive towards the achievement of 10-minute settlements over the lifetime of the Plan, promoting a more compact development form, sustainable movement, and ease of access to services, community facilities, jobs and amenities*

The proposed development incorporates the concept of the 10-minute neighbourhood, by being within the town centre of Clondalkin. There is a wide range of amenities, goods, services, employment opportunities and open spaces present within a 10-minute walking distance from the subject site.

It is a well-connected neighbourhood, with a wide range of bus public transport options available. The proposed development will be sufficiently served by surrounding amenities, employment, services, and transport options. It will also provide bike storage within the semi-private amenity area, and the provision of 7 car parking spaces including 1 disabled car parking space.

Public Realm

> **Policy QDP6**: *Promote a multi-disciplinary and co-ordinated approach to the delivery and management of the public realm within South Dublin County.*

The public realm is important for the enjoyment of the residents and their interaction with the surrounding environment. The proposed development has incorporated elements of public realm within the proposed design, in which green infrastructure, landscape plans, lighting plans and structural layout has been taken into consideration in the formulation and presentation of the final design. The old stone wall to the front of the site will be restored and contribute to the public realm on Old Nangor Road. The subject site is also well served by amenities, leisure facilities, surrounding open spaces and parks in the vicinity of the neighbourhood.

The Delivery of High-Quality and Inclusive Development

> **Policy QDP7**: *Promote and facilitate development which incorporates exemplary standards of high-quality, sustainable and inclusive urban design, urban form and architecture.*

The delivery of high-quality and inclusive development is important and the proposed development exceeds the minimum standards that are set out within the Sustainable Urban Housing: Design Standards for New Apartment Guidelines 2020 in relation to floor plans space, private open spaces, etc. An inclusive approach has been taken, in ensuring for universal access within and from the apartment building. The proposed development is in accordance with the delivery of a high-quality and inclusive development, and this can be seen through the architectural drawings prepared by Walsh Associates.

Appropriate Density and Building Heights

> **Policy QDP8**: *Adhere to the requirements set out in the Urban Development and Building Height Guidelines (2018) issued by the DHLGH through the implementation of the Assessment Toolkit set out in the South Dublin County's Building Heights and Density Guide 2021.*

Policy QDP9: *Apply a context driven approach to building heights in South Dublin, as supported by South Dublin's Building Heights and Density Guide*

The proposed design has an appropriate setback from Old Nangor Road, in which a two-to-three storey design approach has been taken to ensure that overlooking will not occur and that the proposed development will not dominate the streetscape or detract from the existing buildings in the surrounding vicinity of the site. Regard has been given to the protected site adjacent to the development, in which an appropriate set-back has been implemented.

As the subject site is zoned as Town Centre, the Development Plan highlights the importance of compact development within these land-use zones. Under Policy QDP8 and QDP9, SDCC is to encourage for a context approach, in this instance of more compact infill developments to occur within the boundary of the town centre, in order for the long-term sustainability of residential development within these areas due to their close proximity to amenities and services.

Downey are of the considered opinion that the proposed density of the two-to-three storey design of the building is in compliance with the policies and objectives set out within the Development Plan, taking into account the surroundings adhering to the building and apartment guideline standards, and the *appendix 10* of the Development Plan: *Building Height and Density Guide 2022*.

Mix of Dwelling Types

The proposed development consists of 10 no. 1 bed apartment units. This planning application essentially represents the resubmission of the previous planning permission granted on the site for 10 no. 1 bed units (Reg. Ref. SD16A/0450) and incorporates much of the planning compliances matters of the 2017 planning permission and engineering matters which have since transpired following extensive site investigation work. There is clear recognition in this case of the need for single social housing residential units within the area between South Dublin County Council and Dublin Simon Community. It is a social housing development, in which **Policy H1** objectives acknowledges that lesser provision of the requirement of a residential mix may be considered regarding specific demand.

Materials, Colours and Textures.

Policy QDP11: *Promote high-quality building finishes that are appropriate to context, durable and adhere to the principles of sustainability and energy efficiency*

The design incorporates material, colours and textures that tie in with the surrounding streetscape of the area. The landscape plan submitted as part of this planning application, as well as the landscape report, justifies the material, colours and texture choices that were made in relation to hard landscaping finishes.

It is submitted that the overarching eight key design principles have been considered and these are applied throughout the residential scheme, which represents a high-quality development and will contribute to the proper planning and sustainable development of Clondalkin's Town Centre area and is in compliance with **Policy QDP1** of Chapter 5 within the Development Plan of creating a healthy sustainable community.

Open Space

The provision of open space that is appropriately designed and located is a key element in the provision of high-quality residential developments. There should be active and passive recreational value within the site plan. The policy that applies to the provision of open spaces is follows:

> **Policy H8:** *Ensure that all residential development is served by a clear hierarchy and network of high quality public open spaces that provide for active and passive recreation and enhances the visual character, identity and amenity of the area.*
>
> **Policy H11:** *Promote a high standard of privacy and security for existing and proposed dwellings through the design and layout of housing*

The proposed development has taken into consideration the hard and soft landscape features that would enhance the open space of the area and provide clear hierarchies of the open spaces. There is a clear hierarchy with the proposed development, with a separation between the open space and the semi-private amenity space. It is submitted that the proposed development is in compliance with Policy H8 and fulfils Policy H11 in conjunction with Policy H9 which provides for the clear distinction of open spaces and semi-private spaces in the development.

In conjunction with open spaces, it is important that dwellings provide for a high-quality provision of semi-private and private open spaces in the design. The following policy sets out the provision for semi-private and private open spaces:

> **Policy H9**: *Ensure that all dwellings have access to high quality private open space and semi-private open space (where appropriate) and that such space is carefully integrated into the design of new residential developments.*

The proposed development is in compliance with the minimum standards set out within the *Sustainable Urban Housing: Design Standards for New Apartments 2020*, in which there is a high provision of open spaces incorporated into the design. All residential units are provided with their own private spaces, in the form of patios at ground floor level and balconies on the upper floors that meet the minimum standards. These also serve as passive surveillance onto the surrounding open spaces and frontage of the apartment, ensuring for the privacy and security of the residents.

In light of the above, it is submitted that the proposed development is in compliance with the policies and objectives of the South Dublin County Development Plan 2022 – 2028.

Housing Delivery Action Plan 2022 – 2026

Housing for All required all local authorities to produce a Housing Delivery Action Plan for the period 2022 to 2026. This is a plan to set out the details of social and affordable housing delivery by local authorities.

South Dublin County Council have identified a delivery target further need for 3,671 social housing units, that comprises of 3,341 new build homes and 290 leased homes over the period of 2022 to 2026. The proposed development will contribute to the supply of social housing units required to meet the Housing for All and the Housing Delivery Action Plan objectives through collaboration with South Dublin County Council and the applicant, Dublin Simon Community.

An Rannóg Talamhúsáide, Pleanála agus Iompair
Land Use, Planning & Transportation Department

Telephone: 01 4149000 Fax: 01 4149104 Email: planningdept@sdublincoco.ie

Comhairle Contae
Átha Cliath Theas
South Dublin County Council

Downey Planning
29, Merrion Square
Dublin 2
D02RW64

NOTIFICATION OF DECISION TO REFUSE PERMISSION PLANNING & DEVELOPMENT ACT 2000 (as amended) AND PLANNING REGULATIONS THEREUNDER

Decision Order No.	**1252**	**Date of Decision**	23-Oct-2023
Register Reference	SD22A/0412	**Date**	26-Sep-2023

Applicant: Dublin Simon Community

Development: Social housing development consisting of 10 one bed units in a two to three storey apartment building, associated car parking and bicycle parking, bin store, water pump house, new vehicular access onto Old Nangor Road, new pedestrian access onto Old Nangor Road, landscaping, boundary treatments, public lighting and all associated site and engineering works necessary.

Location: Lands at, Old Nangor Road, Clondalkin, Dublin 22

Time extension(s) up to and including:

Additional Information Requested/Received: 20-Dec-2022/26-Sep-2023

Clarification of Additional Information Requested/Received:

DECISION: Pursuant to the Planning and Development Act 2000 (as amended), dated as above a decision to **REFUSE PERMISSION** is hereby made for the said development for the reason(s) set out on the Schedule hereto.

REASON(S)

1. Notwithstanding the grant of planning permission for similar development under planning reference SD16A/0450, the proposals to build over an existing culvert and the absence of a setback contravene IE3 Objective 2 of the South Dublin County Development Plan (CDP) 2022-2028 and would be prejudicial to public health and would give rise to risk of localised flooding as a result of blockage and inadequate maintenance access. Moreover the replacement of existing culvert with three concrete pipes exacerbates the risk of blockage and localised flooding contrary to the proper planning and sustainable development of the area and in contravention of the CDP 2022-2028.

Please note that upon receipt of this document you are obliged to remove the planning site notice in compliance with Article 20 of the Planning and Development Regulations 2001 (as amended).
Please note that any valid submissions or observations received in accordance with the provisions of the Planning and Development Regulations 2001 (as amended), have been considered in the determination of this application.

Register Reference: **SD22A/0412**

Signed on behalf of the South Dublin County Council.

Yours faithfully,

Pamela Hughes 23-Oct-2023
for **Senior Planner**

NOTES

(A) REFUND OF FEES SUBMITTED WITH A PLANNING APPLICATION

Provision is made for a partial refund of fees in the case of certain repeat applications submitted within a period of twelve months where the full standard fee was paid in respect of the first application and where both applications related to developments of the same character or description and to the same site. An application for a refund must be made in writing to the Planning Authority and received by them within a period of two months beginning on the date of the Planning Authority's decision on the second application. For full details of fees, refunds and exemptions the Planning & Development Regulations. 200 I should be consulted.

(A) APPEALS

1. An appeal against the decision may be made to An Bord Pleanála. The applicant or ANY OTHER PERSON who made submissions or observations to the Local Authority may appeal within FOUR WEEKS beginning on the date of this decision. (N.B. Not the date on which the decision is sent or received).
1. Every appeal must be made in writing and must state the subject matter and full grounds of appeal. It must be fully complete from the start. In the case of a third party appeal it must be accompanied by the acknowledgement by the Planning Authority of receipt of the submissions/observations. Appeals should be sent to:
2. The Secretary, An Bord Pleanála, 64 Marlborough Street, Dublin 1.
3. An Appeal lodged by an applicant/ agent or by a third party with An Bord Pleanála will be invalid unless accompanied by the prescribed fee. A schedule of fees is at 7 below.
4. A party to an appeal making a request to An Bord Pleanála for an Oral Hearing of an appeal must, in addition to the prescribed fee, pay to An Bord Pleanála a further fee (see 7 (g) below).
5. A person who is not a party to an appeal must pay a fee to An Bord Pleanála when making submissions or observations to An Bord Pleanála in relation to an appeal.
6. If the Council makes a decision to grant permission/grant permission consequent on a grant of outline permission and there is no appeal to An Bord Pleanála against this decision, PERMISSIONIPERMISSION CONSEQUENT ON A GRANT OF OUTLINE PERMISSION will be granted by the Council as soon as may be after the expiration of the period for the taking of such an appeal. If any appeal made in accordance with the Acts has been withdrawn, the Council will grant the PERMISSION/PERMISSION CONSEQUENT ON A GRANT OF OUTLINE PERMISSION/RETENTION as soon as may be after the withdrawal.
7. Fees payable to An Bord Pleanála from 10th December 2007 are as follows:

(a) Appeal against a decision of a Planning Authority on a planning application relating to commercial development made by the person by whom the planning application was made. where the application relates to unauthorised development ..... €4.500.00 or €9.000 if an E.I.A.R. is involved

(b) Appeal against a decision of a planning authority on a planning application relating to commercial development made by the person by whom the planning application was made. other than an appeal mentioned at (a)..... €1.500.00 or €3,000.00 if an E.I.A.R. is involved

(c) Appeal made by the person by whom the planning application was made, where the application relates to unauthorised development other than an appeal mentioned at (a) or (b) €660.00

(d) Appeal other than an appeal mentioned at (a). (b), (c) or (f) €220.00

(e) Application for leave to appeal €110.00

(f) Appeal following a grant of leave to appeal €110.00

(g) Referral €220.00

(h) Reduced fee (payable by specified bodies) €110.00

(i) Submission or observations (by observer) €50.00

(j) Request from a party for an Oral Hearing €50.00

If in doubt regarding any of the above appeal matters, you should contact An Bord Pleanála for clarification at

Telephone 01-858 8100

Pádraic Fogarty, MSc MIEMA
OPENFIELD Ecological Services,
12 Maple Avenue
Castleknock
Dublin 15
D15 YX7V
01-8236145 / 087-2959811
padraic@openfield.ie / www.openfield.ie

Dublin Simon Community
c/o Eva Bridgman
Downey Planning

Planning Reference: SD22A/0412

15th September 2023

Dear Eva,

With reference to your project at Old Nangor Road, Clondalkin, Dublin 22 it is noted that South Dublin Council have made the following observations as part of their request for further information dated November 1st 2022:

1. The Planning Authority has concerns regarding the proposed development located directly over an existing culverted stream. It is council policy to open culverted streams where possible and to require a minimum setback distance of 10m to a structure.

(i) the applicant is required to investigate the culvert and to provide further details with relation to its location, quality, flow and course.
(ii) the applicant is required to explore alternative design solutions to provide for a minimum 10m setback from the culvert or alternatively demonstrate that development as proposed is appropriate by including all necessary mitigation measures or engineering details / design solutions to ensure that the proposal would not result in an unacceptable impact on the culverted stream or riparian zones.

The council policy that is referred to relates to Green Infrastructure and is taken from the South Dublin County Development Plan 2022-2028:

***GI3 Objective 3**:*
To promote and protect native riparian vegetation along all watercourses and ensure that a minimum 10m vegetated riparian buffer from the top of the riverbank is maintained / reinstated along all watercourses within any development site.

There are good reasons for this objective as many of the waterways in and around Dublin have been culverted or enclosed in artificial embankments, resulting in negative effects to biodiversity and water quality. These kinds of modifications remove riparian habitats and particularly impact upon migratory fish, such as Atlantic Salmon *Salmo salar,* European Eel *Anguilla anguilla* and Lamprey *Lampetra sp.* 'Day-lighting' (i.e. reopening) culverts can restore the upper reaches of rivers for these species as well as offering opportunities to reinstate riparian habitat. It can also provide resilience to changes in hydrological patterns, particularly in view of changes to the climate.

The proposed development occurs on a site through which a former mill race flows. This is a diversion from the nearby River Camac. The route of the mill race was investigated by IE Consulting for this FI response and the figure below is reproduced from this report. It shows that water from the mill pond, south of the proposed development site, enters a culvert on Mill Lane and travels in a straight line, in a northerly direction, to the culvert outlet at the River Camac.

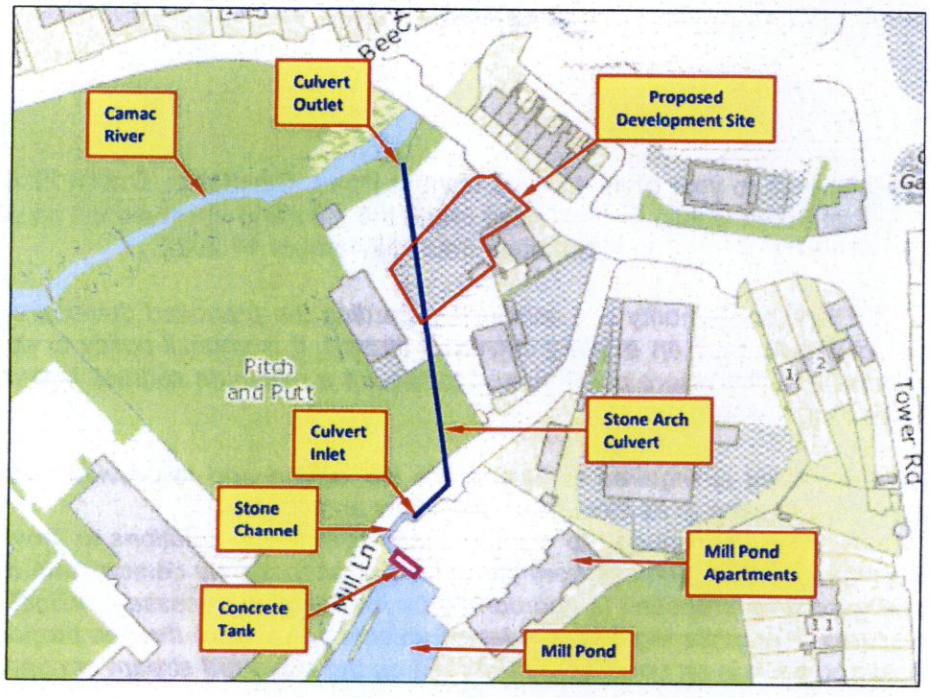


Figure 1 - Culvert Layout Plan

This shows that the mill race is not a natural water course. Indeed, it is not identified as a water course by the Environmental Protection Agency.

The River Camac in this location (water body code: IE_EA_09C020500) is assessed as 'poor status' under the Water Framework Directive period 2016-2021. The river has not been identified as a priority area for action. This sub-catchment (Liffey SC_090) has been analysed and in 2019 21 out of the 34 water bodies were failing to reach the required 'good status'. The significant

pressures include culverts as well as combined sewer overflows, diffuse run-off, industry, farm yards and unidentified 'anthropogenic pressures'.

Indeed, substantial portions of the River Camac are culverted including under the Mill Shopping Centre and the Ninth Lock Road, immediately downstream of the proposed development site, while further downstream it flows under a number of roads, including the M50 motorway. Substantial sections are culverted underneath the JFK Industrial Estate.

In 2022, the EPA proposed designating two waterbodies along the River Camac as 'highly modified', which would essentially remove the requirement for restoration of hydromorphology in order to achieve 'good status'. A decision on this has not yet been made and the third River Basin Management Plan has not been published.

The mill race underneath the proposed development site is not a natural water course and never was. For this reason objective GI3 Objective 3 of the County Development Plan does not apply.

Daylighting this culvert would not improve ecological connectivity for aquatic species as it is already diverted from the main channel of the River Camac and it would not help in the work needed to achieve 'good status' throughout the length of the River Camac (as it is not a water course to start with).

Following receipt of the FI, written consultation was requested of Inland Fisheries Ireland (IFI). This outlined the proposed project and why it is the view of the developer that daylighting the culvert, and instating a 10m setback would render the project inviable. A written response from IFI was not received.

The possibility of diverting the culvert around the footprint of the proposed building was explored. According to Hayes Higgins Partnership:

The current layout of the culvert and possible alternative layouts and design of the culvert on the site were considered with IE consulting as part of the overall design for the development. Opening up of the culvert on the site was considered however, there is a risk of drowning, possibility it could be subject to pollution by waste given its proximity to residential units and also the increased risk of vermin associated with such watercourses. Also, opening up of the culvert can present a residual flood risk due to potential culvert blockage and/or culvert surcharge which would present a significant risk to this development. On this basis opening up of the culvert is not considered feasible. Good practice is for culverts to be as straight runs where possible to maintain a steady hydraulic profile through the culvert and limit the potential for blockage. Having considered this, it is deemed best to maintain the current location of the culvert.

This text is taken from the FI response.

Therefore the only option left to the developer is to reinstate the culvert along its existing route.

It is my view that daylighting the culvert through which the mill race runs would provide minimal ecological benefit for aquatic species and would provide no benefit at all in terms of reaching the aims of the Water Framework Directive. It is also my view that because it is not a water course, GI3 Objective 3 of the County Development Plan does not apply.

Yours sincerely,

Pádraic Fogarty

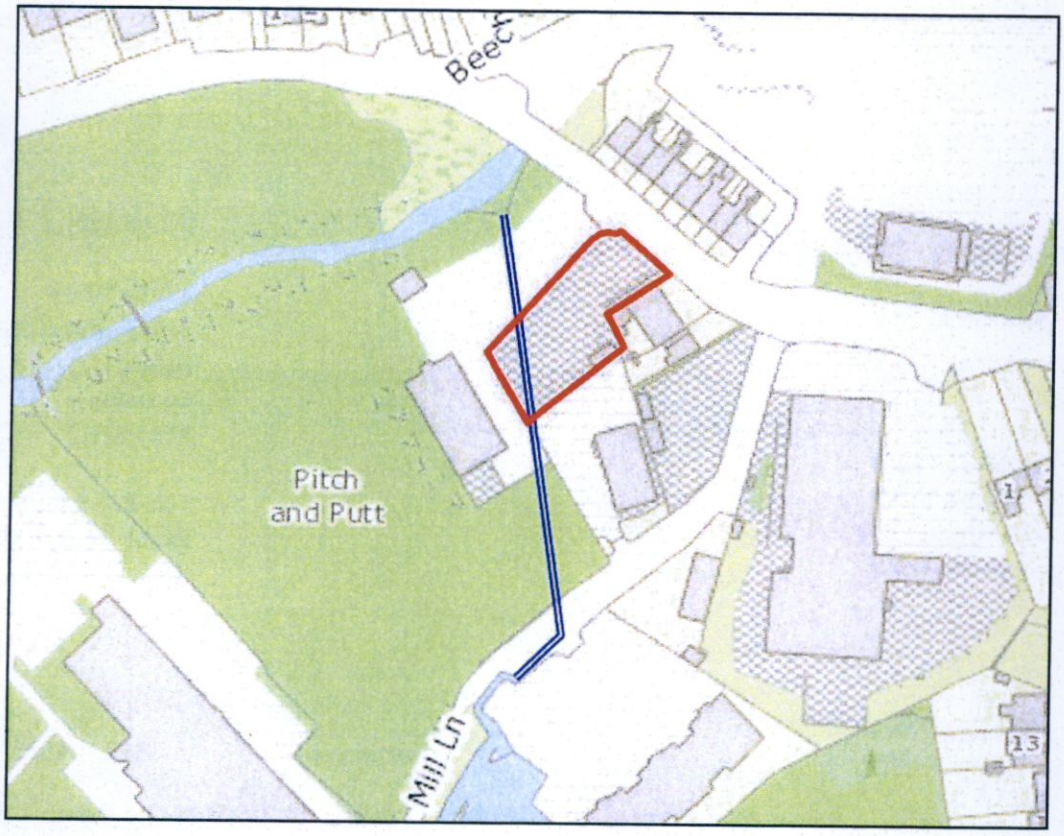
About OPENFIELD Ecological Services

OPENFIELD Ecological Services is headed by Pádraic Fogarty who has worked for 25 years in the environmental field and in 2007 was awarded an MSc from Sligo Institute of Technology for research into Ecological Impact Assessment (EcIA) in Ireland. Since its inception in 2007 OPENFIELD has carried out numerous EcIAs for Environmental Impact Assessment (EIA), Appropriate Assessment in accordance with the EU Habitats Directive, as well as individual planning applications. Pádraic is a full member of the Institute of Environmental Management and Assessment (IEMA).

DUBLIN SIMON COMMUNITY

PROPOSED DEVELOPMENT SITE, OLD NANGOR ROAD, DUBLIN 22

EXISTING CULVERT HYDRAULIC ASSESSMENT REPORT



IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Integrated Engineering Consulting

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

DUBLIN SIMON COMMUNITY

PROPOSED DEVELOPMENT SITE, OLD NANGOR ROAD, DUBLIN 22

EXISTING CULVERT HYDRAULIC ASSESSMENT REPORT

IE Consulting - Carlow Office

Innovation Centre
Green Road
Carlow

Tel: 059 91 33084
Fax: 059 91 40499
Email: info@iece.ie
Web: www.iece.ie

IE Consulting - Newry Office

1 RDC House
WIN Business Park
Newry
Co Down
BT35 6PH

Tel: 028 3025 7974
Email: info@iece.ie
Web: www.iece.ie

Client :-
Dublin Simon Community
5-7 Red Cow Lane
Dublin 7

Document No:	IE1978-4525
Issue No:	01-ISSUE
Project No:	IE1978
Date:	27th March 2020
Revision:	2.0
Prepared By:	N O'Malley BE CEng MIEI
Checked By:	P McShane BEng(Hons) MIEI

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Table of Contents

1 Introduction

IE Consulting was requested by Hayes Higgins Partnership, on behalf of the Dublin Simon Community, to assess the hydraulic capacity of an existing culvert located beneath a site to be developed for social housing at Old Nangor Road, Dublin 22. The proposed development was granted planning permission by South Dublin County Council on the 17th of May 2017 for a three-storey apartment building and all associated works. It is proposed to divert the existing culvert within the boundary of the site to enable to development to proceed in accordance with the planning permission granted.

The culvert is a stone arch culvert, which was constructed as part of a paper mill that is no longer in operation. It is approximately 2.47m wide and 1.56m high. Waters spill from the Camac River into the Mill Pond located upstream of the culvert. These waters discharge to a concrete tank, which in turn discharges to a stone channel located on Mill Lane and into the culvert inlet via a large sump. The location of the culvert is shown on *Figure 1* below.

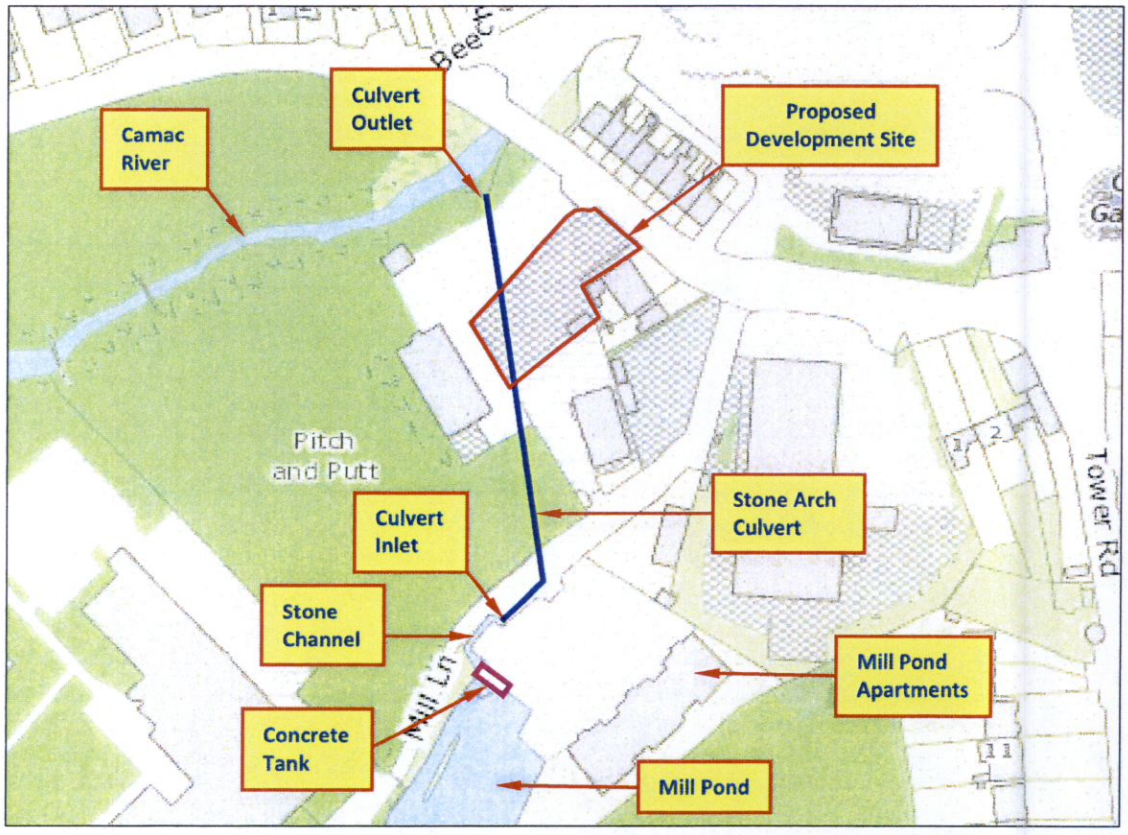


Figure 1 - Culvert Layout Plan

2 Site Investigation Works

A site walkover survey was carried out by an Engineer from IE Consulting on the 31st of January 2020. This included meeting with the Area Engineer Graham Murphy from South Dublin County Council (SDCC). A visual inspection was carried out of the culvert inlet and culvert outlet as well as the lake feeding the culvert, upstream concrete tank and stone channel. Refer to *Appendix A* for photographs of the visual inspection carried out.

A topographical survey and culvert inspection survey were procured by IE Consulting and the works were awarded to Murphy Surveys. The purpose of these surveys was to determine the culvert structural condition, any surface water connections from adjacent developments and to determine the flows catered for by the culvert.

The surveys were carried out by Murphy Surveys on the 6th of March 2020, an Engineer from IE Consulting and Graham Murphy from SDCC were also present on site. The culvert inspection was carried out at the culvert inlet which included man-entry. Access into the culvert was however not possible as the culvert was almost completely full of stone. It was noted by the surveyor that a manhole chamber was constructed with the culvert aperture a short distance (estimated by the surveyor to be approximately 8m) downstream of the culvert inlet.

There was no evidence of a manhole from the road surface in this location and therefore the manhole was likely to have been paved over. The SDCC Area Engineer subsequently located the manhole from the surface with a metal detector and plans to have the cover level raised. Refer to *Appendix A* for the location of the manhole identified.

No further access to the culvert was possible and no attempt to access the culvert from the outlet was carried out due to the risk of collapse identified during a previous inspection survey carried out in 2019. The topographical survey of the culvert inlet and outlet was completed with no issue. Refer to *Appendix B* for the culvert inspection report and topographical survey prepared by Murphy Surveys.

3 Existing Culvert Flow Estimation

3.1 Contributing Flow from Mill Pond

The culvert was originally constructed as part of a paper mill, which is no longer in existence. It does however provide a hydraulic conveyance function to allow waters that spill into the Mill Pond from the Camac River to flow back into the river downstream. The rate of discharge from the pond is limited by an opening in the side of the concrete tank located upstream of the culvert inlet as shown in *Figure 2* below.

Figure 2 – Concrete Tank Outlet

In order to determine the peak flow discharging from the Mill Pond a hydraulic model was developed using HEC RAS software of the outlet from the concrete tank, the stone channel and the inlet into the sump at the culvert inlet. The existing stone arch culvert has not been included in the hydraulic assessment. It is currently significantly blocked with stone, however if it was free from blockage the capacity of the culvert would be significantly greater than the rate of discharge from the Mill Pond. The extent of the model is shown in *Figure 3* below:

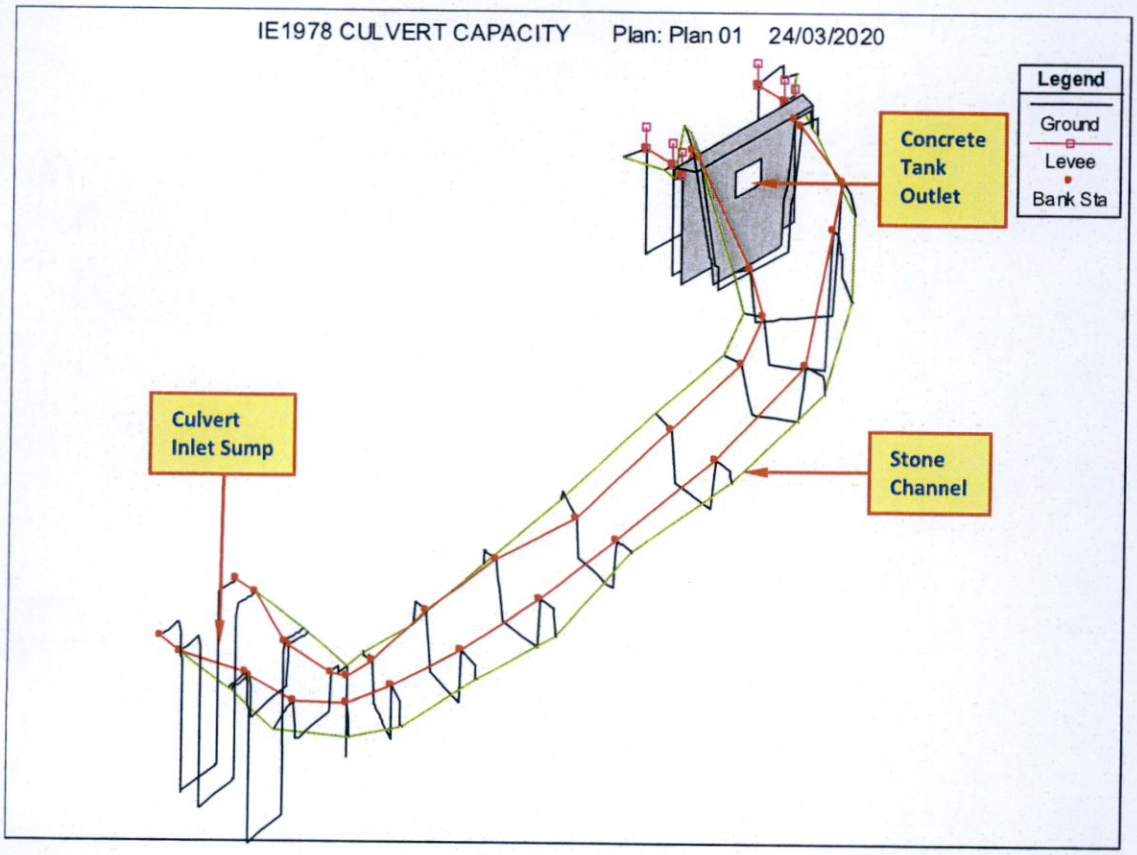


Figure 3 – Hydraulic Model

The flow limiting factor into the culvert is likely to be the Concrete tank outlet, which was assessed by increasing the flow into the hydraulic model until such time that the water levels surcharge above the top of the concrete tank roof level.

A peak flow of 0.695m^3/s was determined to be the peak flow that may discharge from the outlet of the concrete tank.

The model simulation is represented by a longitudinal profile through the modelled reach as shown in *Figure 4* below.

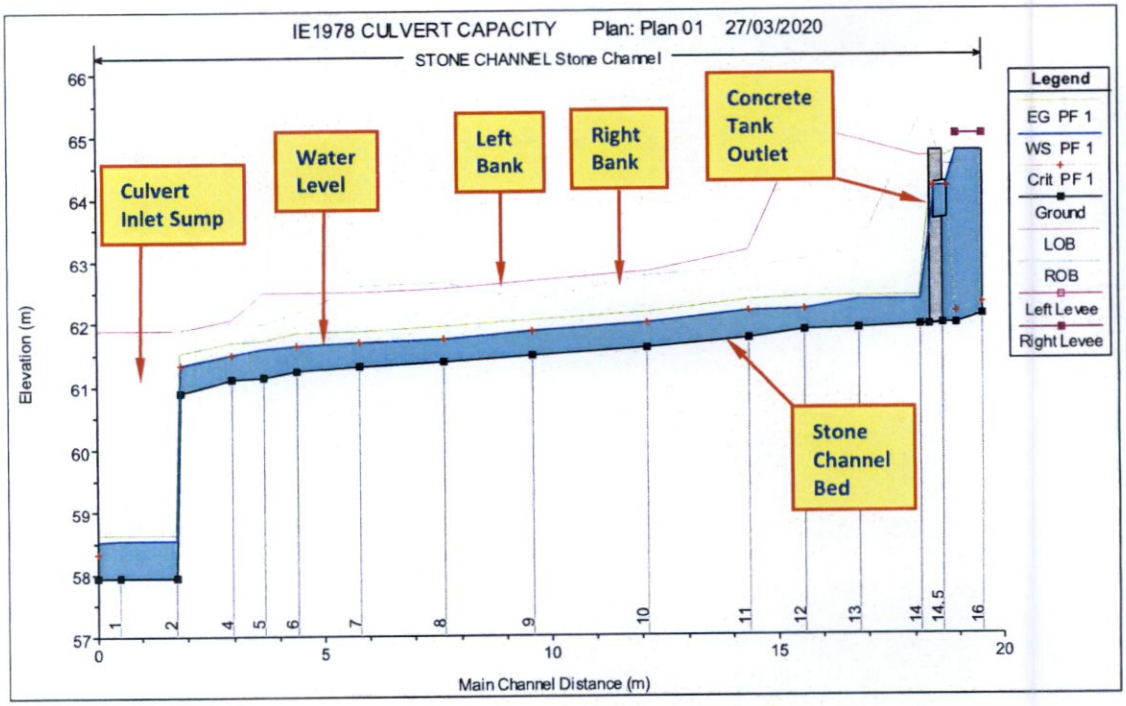


Figure 4 – Model Longitudinal Profile

3.2 Contributing Flow from Stormwater Connections

Drainage records were obtained from SDCC and Irish Water to determine the location of any stormwater connections to the culvert. These records do not show the presence of any connections to the culvert. The SDCC online planning system was utilised to review planning applications in the vicinity of the culvert. There was no information available that showed any stormwater connections to the culvert. Refer to *Appendix C* for details of the drainage records obtained.

The culvert inspection survey was not able to determine the location of any stormwater connections discharging to the culvert from adjacent properties due to significant blockage at the culvert inlet. It is likely however that the Mill Pond Apartments and the Pitch and Putt facility may have a stormwater connection to the culvert. The manhole identified within the culvert is likely to be the connection point from the Mill Pond apartments. There are also two stormwater gullies located within the car park of the Pitch and Putt. It is possible given their location that these are connected to the stone arch culvert. The anticipated location of these connections is shown in *Figure 5* below. Although the stormwater connection from the Pitch and Putt is likely to be located downstream of the proposed development site for the purposes of this assessment it is assumed to be located upstream of the site as a possible manhole was identified upstream of the site as shown in *Figure 5* below.

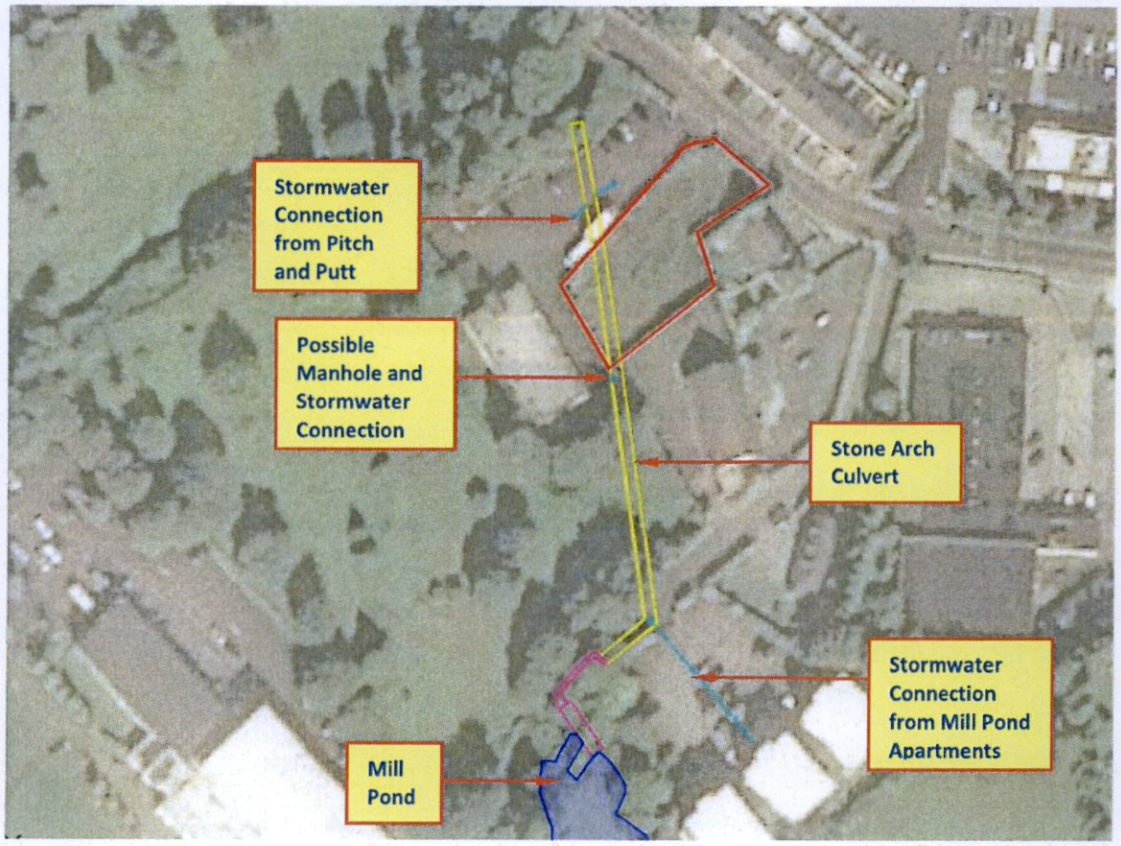


Figure 5 – Potential Stormwater Connections

Hard standing and paved areas have been divided into two categories of surface areas which can drain into the existing stormwater drainage system from the Mill Pond apartments and the Pitch and Putt. The contributing catchment areas from each area are as follows:

Mill Pond Apartments

Roof Area = 801m^2

Paved Area = 1180m^2

Total Area = 1981m^2

Pitch and Putt

Roof Area = 423m^2

Paved Area = 1455m^2

Total Area = 1878m^2

Typical rainfall runoff co-efficents are applied to hard standing areas of 90% for roofs and 85% for roads and paved areas. However, for the purposes of this assessment it is assumed that 100% rainfall runoff drains from these surfaces to the existing stormwater drainage system.

3.3 *Peak Flow Discharging into Existing Culvert*

In order to determine the combined peak flow discharging into the existing stone arch culvert from the Mill Pond and the existing developments of the Mill Pond apartments and the Pitch and Putt, a stormwater drainage model was developed using Micro Drainage software.

The following assumptions have been made in the drainage model assessment:

- 100% rainfall runoff from paved and roof areas;
- Rainfall return period simulations included 5, 30, and 100 year event for durations ranging from 15 minutes to 6 hours;
- 20% increase in rainfall depths to allow for future climate change;
- 20% factor of safety applied to flow discharging from Mill Pond;
- Existing culvert dimensions are 2.5m wide and 1.5m high arch culvert;
- The culvert is free from obstructions, blockages or collapse;
- The outfall to the Camac River is not restricted or impeded by high river levels.

The peak flow in the stone arch culvert is estimated to be 1.02m^3/s.

Refer to the Micro Drainage output sheets enclosed in *Appendix D* for further details.

4 Conclusions and Recommendations

The above hydraulic assessment shows the estimated peak flow in the existing stone arch culvert is significantly greater than what may currently flow through this culvert. There are a number of obstructions within the culvert at present that would likely impede a flow rate of 1.02m^3/s from discharging to the Camac River, therefore this flow rate is considered to be conservative. It is recommended that the proposed culvert should be designed in consideration of this flow rate rather than the existing full bore capacity of the stone arch culvert. The existing full bore capacity is no longer required or appropriate as the paper mill is no longer in existence.

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX A

Visual Inspection Photographs

Photo 1: Mill Pond

Photo 2: Pond Outlet into Concrete Tank

Photo 3: Concrete Tank Outlet

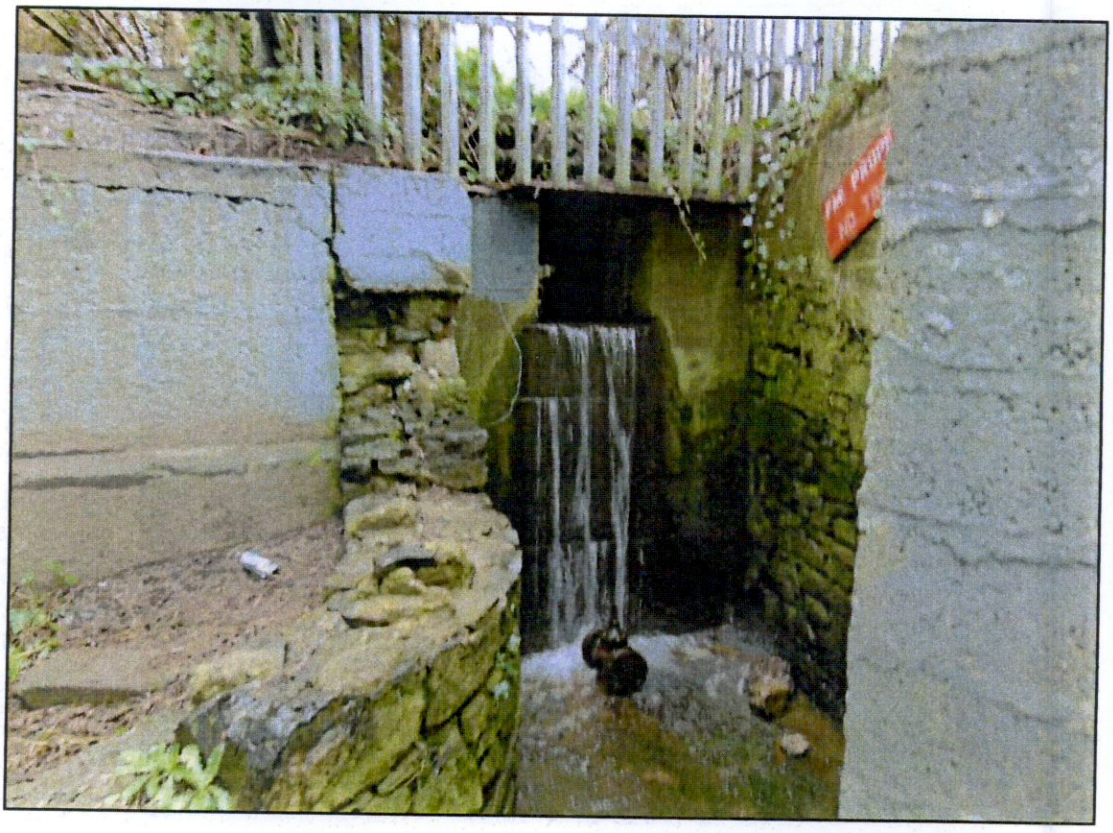


Photo 4: Stone Channel Upstream End

Photo 5: Stone Channel Downstream End

Photo 6: Sump Inlet & Grill

Photo 7: Culvert Outlet to Camac River

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX B

Culvert Condition Inspection Report & Topographical Survey

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Confined Space Inspection Survey Report

Old Nangor Road, Clondalkin, Dublin 22

murphy
SURVEYS
GLOBAL CONSULTING SURVEYORS

Submitted: March 2020

TABLE OF CONTENTS

	Name	Date
Inspection Team:	Brian Keegan Conor Lee	06/03/2020
Prepared by:	Brian Keegan	10/03/2020
Reviewed by:	Paraic Quirke	12/03/2020

CLIENT:
IE CONSULTING
INNOVATION CENTRE
GREEN ROAD
CARLOW

ie
IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

CONSULTANTS:
MURPHY SURVEYS
KILCULLEN BUSINESS CAMPUS
KILCULLEN
CO. KILDARE

murphy
SURVEYS
GLOBAL CONSULTING SURVEYORS

1.0 PROJECT DETAILS

Project Name: 35588 Old Nangor Road, Clondalkin

Project Description: Confined Space Survey of Culvert

Project Number: 35588

Project Date: 6/03/2020

Standard: Sewer Rehabilitation Manual, 5th Edition

2.0 PROJECT DESCRIPTION

A confined space inspection was carried out on a surface water culvert connecting a landscaped lake with the River Camac in Clondalkin. The culvert is approximately 110 m in length. The upstream end is accessed via a steel grate while the downstream end is an open-ended culvert discharging into the River Camac. A previous sewer survey carried out by McBreen Environmental in February 2019 commenced at the downstream end and detected a blockage approximately 8 m from the downstream end that could not be passed.

Murphy Surveys accessed the culvert from the upstream end via the steel grate that was opened by representatives from South Dublin County Council.

3.0 CULVERT LOCATION MAP

Figure 1: Location Map (Map courtesy of Google Maps)

The culvert is located between a storm attenuation tank and the river Camac. It crosses under the The Mill Pond Road, off the Old Nangor Road in Clondakin, Dublin 22.

4.0 INSPECTION FINDINGS

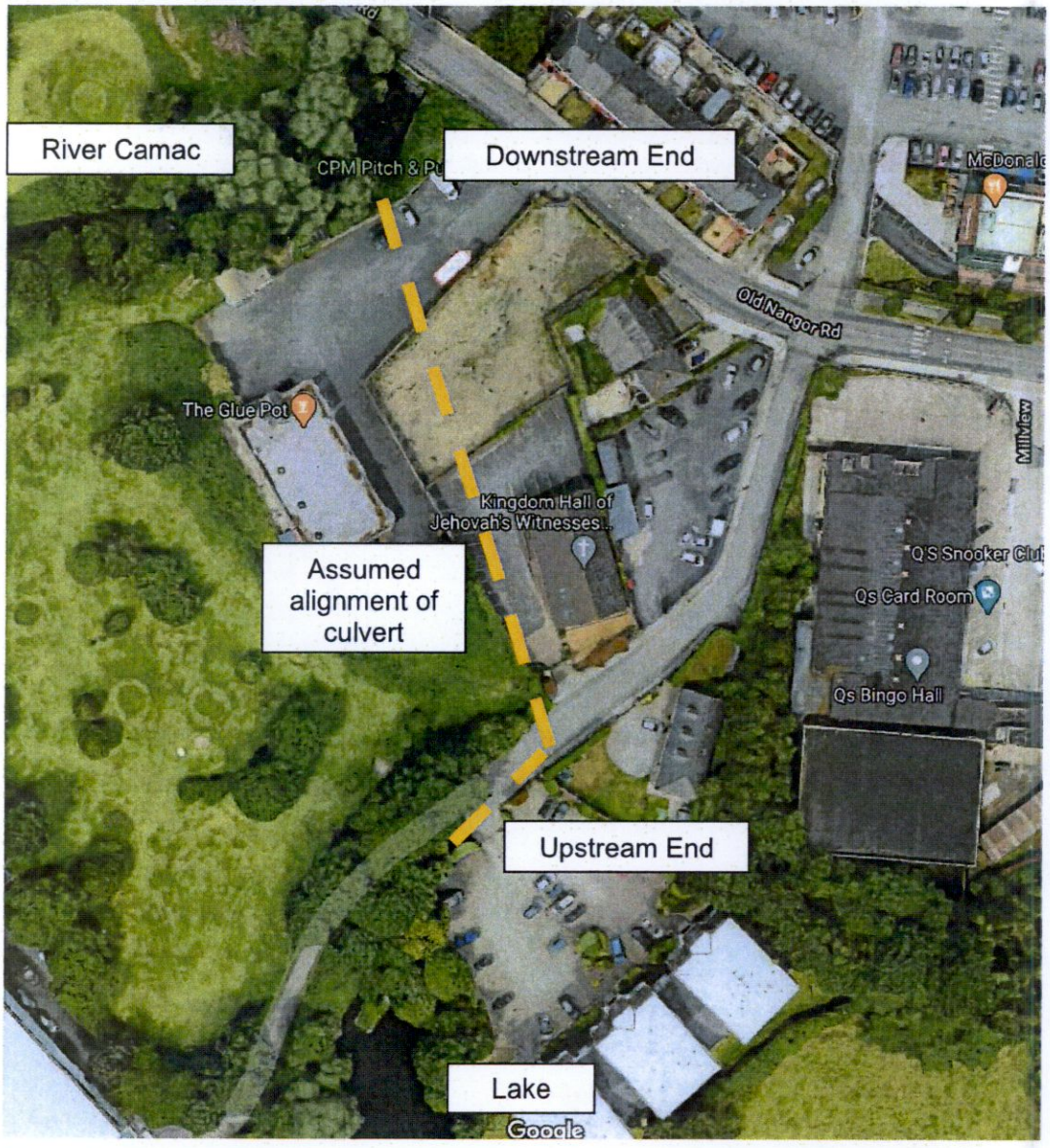


Figure 2: Location Plan

The inspection commenced at the upstream end via a steel grate. Confined space operatives attempted to walk down the culvert but were unable to proceed beyond a blockage in the culvert at the upstream end.

There is a small sized chamber between the steel grate and what appears to be the fascia of an old masonry arch bridge. The water level is up to approximately 300 mm of the arch barrel soffit. A build up of coarse gravel material and debris is present at the old bridge fascia. This blockage, and high-water level prevented progress further downstream. There is a block chamber approximately 8m downstream from the

upstream fascia of the culvert. The chamber can been seen in photograph number three below. South Dublin County Council stated they were going to go back and scan the road, to see if they can find a manhole lid under the road carriageway.

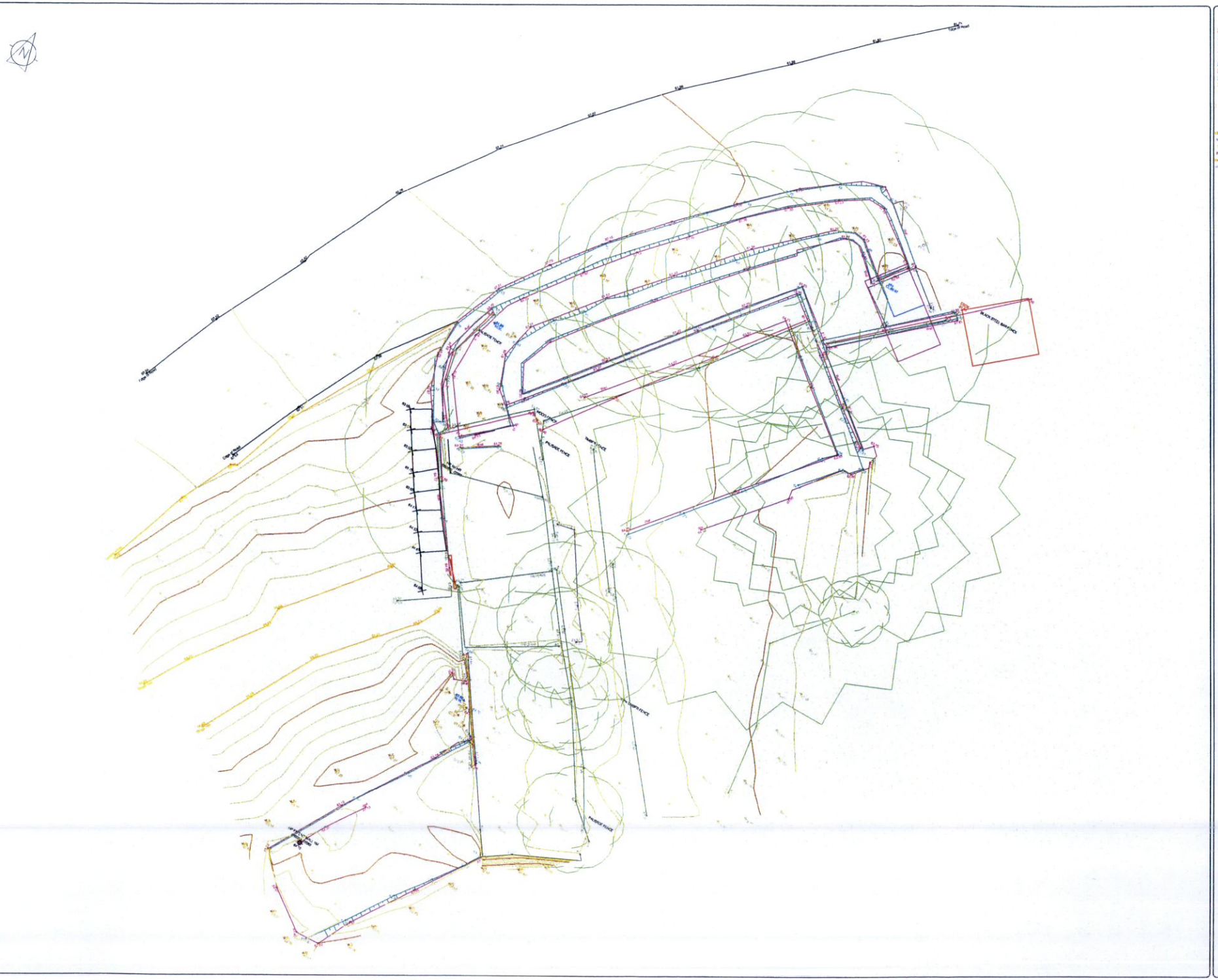
Appendix A: Photographs

Photograph No. 1 Upstream end. Old bridge fascia.

Photograph No. 2 Upstream End @ 2 m. Blockage in Arch Barrel

Photograph No. 3 Upstream End @ 2 m. Arch Barrel

Photograph No. 4 Upstream End @ 2 m. Arch Barrel



LEGEND

Street furniture & Services

Natural Features

Golf

Built Features

Roads & Road Markings

Other

Murphy Surveys Ltd Disclaimer

The user or recipient of this survey data understands and acknowledges this data may be inaccurate or contain errors or omissions and the user or recipient assumes full responsibility for any risks or damages resulting from, arising from, or in connection with any use of or reliance upon data disclosed herein. Although significant care has been exercised to produce surveys that satisfy survey accuracy standards, these surveys are only as accurate as the source data from which they were compiled. Although all reasonable steps have been taken to locate all features visible at the time of the survey, there is no guarantee that all will be shown on the drawing, as some above ground features may have obstructed the survey. Wherever possible, areas unable to be surveyed will be labelled as 'UTS'.

The Company shall not be liable for any inaccuracy of the data provided beyond the specified scale or accuracy, or for any matters resulting from their use for purposes other than that stated in the Contract. No liability shall attach to the Surveyor in respect of any consequential loss or damages suffered by the Client.

The Client must promptly notify the Company of any errors in mapping of which it becomes aware. If misleading, inaccurate or otherwise inappropriate information is brought to the Company's attention or the Company itself identifies any such imperfection or error in a survey, it shall use its reasonable endeavours to fix or remove it and if necessary in certain instances, the Company being on notice of any such misleading, inaccurate or otherwise inappropriate information, it will re-conduct the survey and reproduce the data in within the specified scale or accuracy

North

Site Location

Map Sheet Layout

No.	Date	Description
0	09.03.2020	First Drawing
1	20.03.2020	Added to Chandler

murphy SURVEYS

GLOBAL CONSULTING SURVEYORS

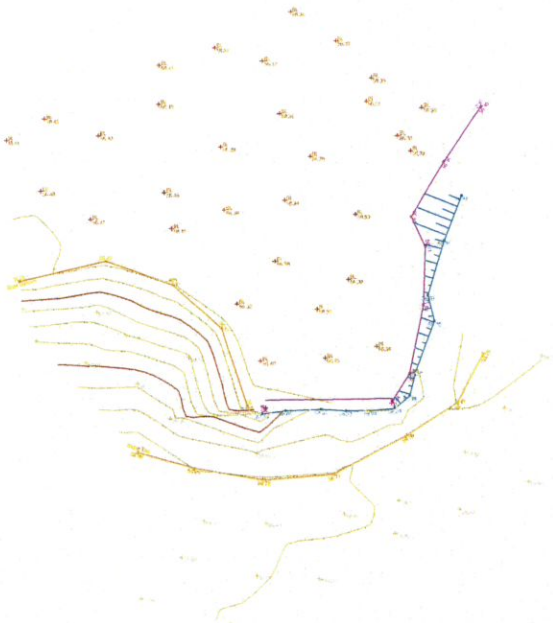
Kildare Cork Belfast Glasgow London

Head Office

Global House
Kilcullen Business Campus
Kilcullen Co Kildare
Ireland

Phone: (+353) 045 484040
Fax: (+353) 045 484004
Email: info@murphysurveys.ie

Client :	IE Consulting Engineers
Project :	35588 Old Nangor Road, Clondalkin, Dublin 22
Date : 09.03.2020	Scale : 1:50@A1
Description :	Topographical Survey
Drawing Number :	MSL35588_clondalkin_PLAN_01



LEGEND

Street furniture & Services

Natural Features

Golf

Other

Built Features

Roads & Road Markings

Murphy Surveys Ltd Disclaimer

The user or recipient of this survey data understands and acknowledges this data must be inaccurate or contain errors or omissions and the user or recipient assumes full responsibility for any risks or damages resulting from, arising from, or in connection with any use of or reliance upon data displayed herein. Although significant care has been exercised to produce surveys that satisfy survey accuracy standards, these surveys are only as accurate as the source data from which they were compiled. Although all reasonable steps have been taken to locate all features visible at the time of the survey there is no guarantee that all will be shown on the drawing, as some above ground features may have obstructed the survey. Wherever possible, areas unable to be surveyed will be labelled as "UTS".

The Company shall not be liable for any inaccuracy of the data provided beyond the specified scale or accuracy, or for any matters resulting from their use for purposes other than that stated in the Contract. No liability shall attach to the Surveyor in respect of any consequential loss or damages suffered by the Client.

The Client must promptly notify the Company of any errors in mapping of which it becomes aware. If misleading, inaccurate or otherwise inappropriate information is brought to the Company's attention or the Company itself identifies any such imprecision or error in a survey, it shall use its reasonable endeavours to fix or remove it and if necessary in certain instances, the Company being on notice of any such misleading, inaccurate or otherwise inappropriate information, it will re-conduct the survey and reproduce the data to within the specified scale or accuracy.

North

Site Location

Map Sheet Layout

Map Sheet 0000

Surveyed by:	MSL	Date:	MARCH 2020	Datum:	Main Head
Drawn by:	CF	Date:	MARCH 2020	Grid System:	
Checked by:	EK	Date:	09/03/2020	Irish National Grid ☐ ITM ☒	

Revisions

Rev	Date	Description
0	09.03.2020	First Drawing
1	18.03.2020	Added to Checklist

murphy SURVEYS
GLOBAL CONSULTING SURVEYORS

Kildare Cork Belfast Glasgow London

Head Office
Global House
Kilcullen Business Campus
Kilcullen Co. Kildare
Ireland

Phone: (+353) 045 484040
Fax: (+353) 045 484404
Email: info@murphysurveys.ie

Client :
IE Consulting Engineers

Project :
35588 Old Nangor Road, Clondalkin, Dublin 22

Date : 09.03.2020 | Scale : 1:50@A1

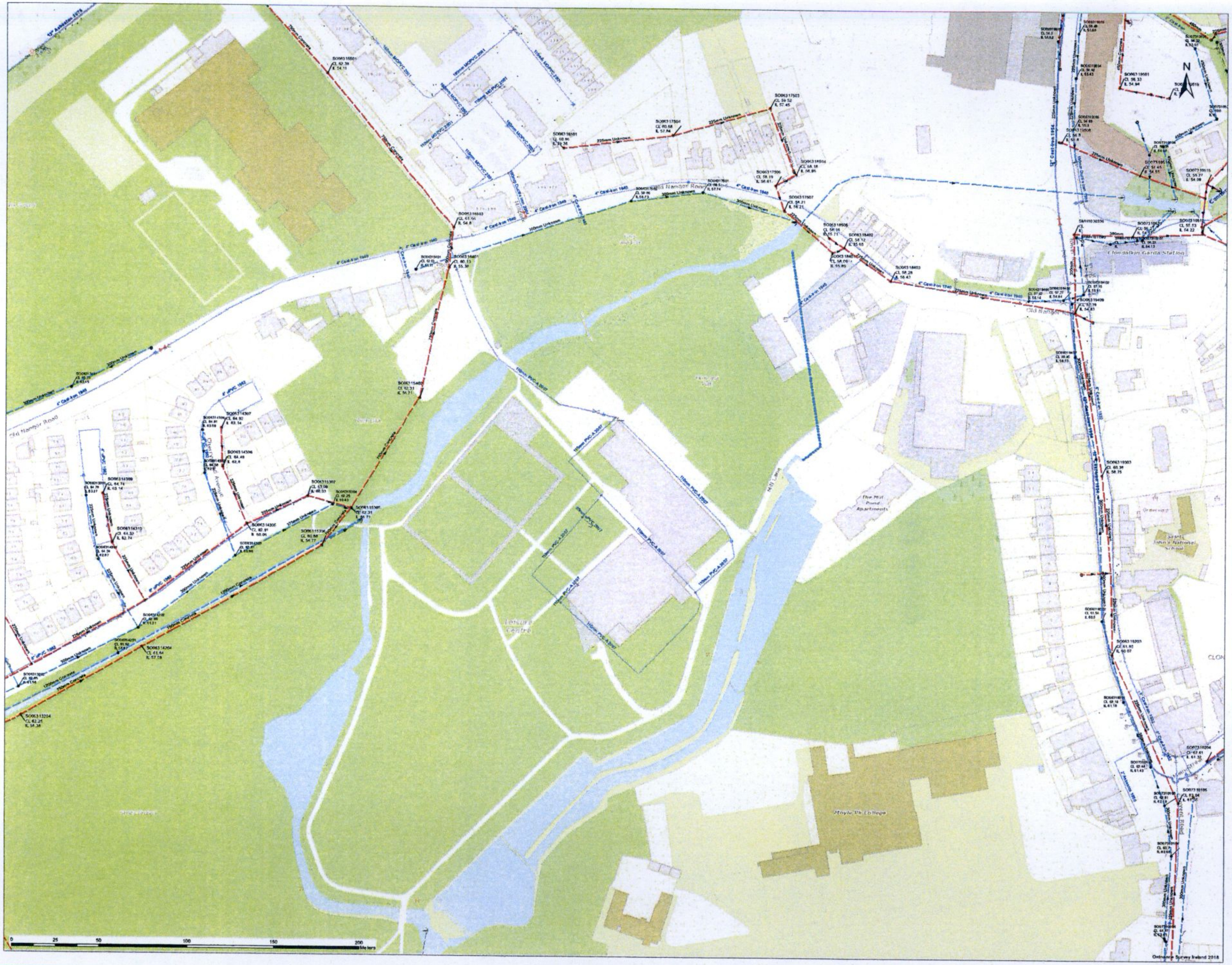
Description :
Topographical Survey

Drawing Number : MSL35588_clondalkin_PLAN_02

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX C

Drainage Records



UISCE ÉIREANN : IRISH WATER

Legend

- Pump Stations
- Irish Water
- Private
- Irish Water
- Non IW
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

1. No part of this drawing may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Irish Water as copyright holder except as agreed for use on the project for which the document was originally issued.

2. Whilst every care has been taken in its compilation, Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water.
Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions.
This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX D

Micro Drainage Output

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
S1.000	13.199	0.030	440.0	0.000	1.00	695.0	0.600	[]	-1	Pipe/Conduit
S1.001	54.036	0.122	442.9	0.198	3.00	0.0	0.600	[]	-1	Pipe/Conduit
S1.002	30.320	0.068	445.9	0.189	3.00	0.0	0.600	[]	-1	Pipe/Conduit
S1.003	27.047	0.063	429.3	0.000	0.00	0.0	0.600	[]	-1	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
S1.000	56.699	0.000	695.0	2.31	7608.0
S1.001	56.669	0.198	695.0	2.30	7582.5
S1.002	56.547	0.387	695.0	2.29	7557.1
S1.003	56.479	0.387	695.0	2.34	7702.3

Conduit Sections for Storm

NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \/ open channel, oo dual pipe, ooo triple pipe, O egg.

Section numbers < 0 are taken from user conduit table

Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m^2)
-1	[]	2500	1500	90.0		1.839	3.295

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.000	0.000	0.000
1.001	-	-	100	0.198	0.198	0.198
1.002	-	-	100	0.189	0.189	0.189
1.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.387	0.387	0.387

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	20.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	16.400	Storm Duration (mins)	30
Ratio R	0.277		

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	20.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.277
Region	Scotland and Ireland	Cv (Summer)	0.750
M5-60 (mm)	16.400	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360
Return Period(s) (years)	5, 30, 100
Climate Change (%)	20, 20, 20

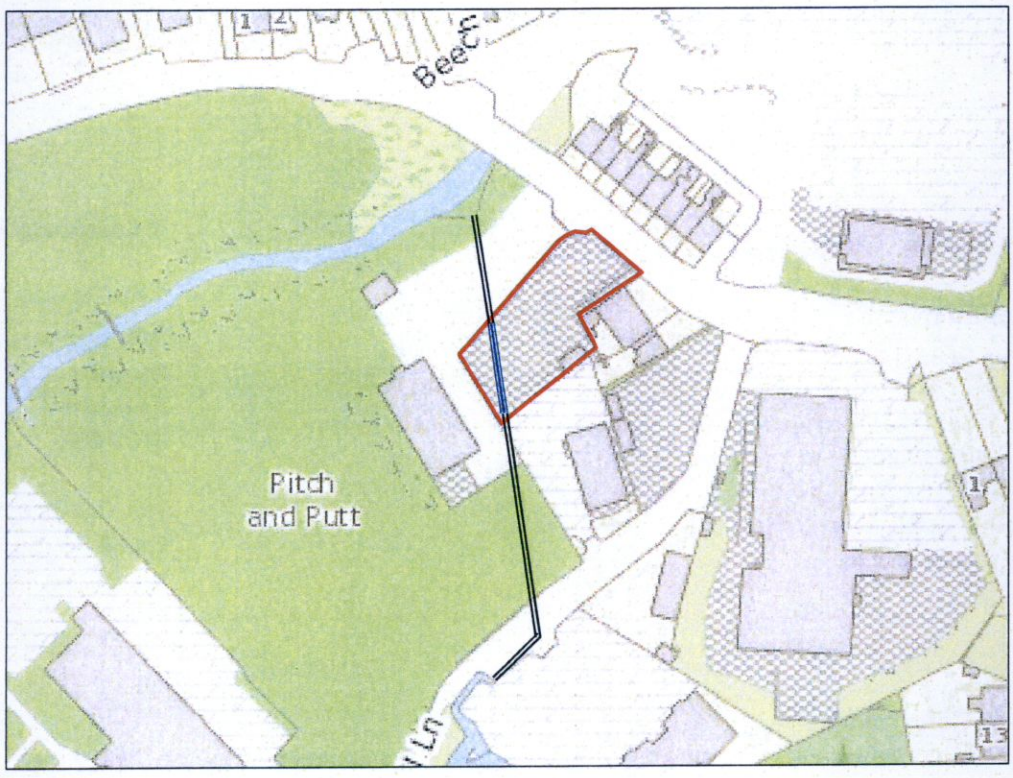
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	100	+20%					57.128
S1.001	S2	15 Summer	100	+20%					57.090
S1.002	S3	15 Summer	100	+20%					56.976
S1.003	S4	15 Summer	100	+20%					56.888

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-1.071	0.000	0.31		834.9	OK	
S1.001	S2	-1.079	0.000	0.18		936.4	OK	
S1.002	S3	-1.071	0.000	0.23		1019.7	OK	
S1.003	S4	-1.091	0.000	0.24		1015.9	OK	

DUBLIN SIMON COMMUNITY

PROPOSED DEVELOPMENT SITE, OLD NANGOR ROAD, DUBLIN 22

PROPOSED CULVERT HYDRAULIC DESIGN REPORT



IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Integrated Engineering Consulting

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

DUBLIN SIMON COMMUNITY

PROPOSED DEVELOPMENT SITE, OLD NANGOR ROAD, DUBLIN 22

PROPOSED CULVERT HYDRAULIC DESIGN REPORT

IE Consulting - Carlow Office

Innovation Centre
Green Road
Carlow

Tel: 059 91 33084
Fax: 059 91 40499
Email: info@iece.ie
Web: www.iece.ie

IE Consulting - Newry Office

1 RDC House
WIN Business Park
Newry
Co Down
BT35 6PH

Tel: 028 3025 7974
Email: info@iece.ie
Web: www.iece.ie

Client :-
Dublin Simon Community
5-7 Red Cow Lane
Dublin 7

Document No:	IE1978-4571
Issue No:	02-ISSUE
Project No:	IE1978
Date:	15th August 2023
Revision:	2.0
Prepared By:	N O'Malley BE CEng MIEI
Checked By:	P McShane BEng(Hons) MIEI

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Table of Contents

1 Introduction

IE Consulting was requested by Hayes Higgins Partnership, on behalf of the Dublin Simon Community, to assess the hydraulic capacity of an existing culvert located beneath a site to be developed for social housing at Old Nangor Road, Dublin 22. The proposed development was granted planning permission by South Dublin County Council on the 17th of May 2017 for a three-storey apartment building and all associated works.

It is proposed to rebuild the existing culvert along the existing culvert alignment underneath the foundation of the proposed social housing development using three 900mm pipe culverts laid side by side within the boundary of the site.

The purpose of this report is to summarise the Hydrological and Hydraulic Assessment for the construction of the three 900mm culverts within the site.

Quoted ground levels and estimated flood levels relate to Ordnance Datum Malin.

The following information is enclosed herein:

- Appendix A Site Investigation Photographs
- Appendix B Culvert Condition Inspection Report & Topographical Survey
- Appendix C Drainage Records
- Appendix D Micro Drainage Output
- Appendix E Drawing Number IE1978-001-A Proposed Culverts Plan and Sections

2 Site Description

2.1 General

The site is located within Clondalkin Village in Dublin 22. A stone arch culvert drains through the site and provides a hydrological discharge point for the Mill Pond located to the south of the site into the Camac River located to the north of the site as shown in *Figure 1* below.

The stone arch culvert was constructed as part of a paper mill that is no longer in operation. It is approximately 2.47m wide and 1.56m high. Waters spill from the Camac River into the Mill Pond located upstream of the culvert. These waters discharge to a concrete tank, which in turn discharges to a stone channel located on Mill Lane and into the culvert inlet via a large sump. The location of the culvert is shown on *Figure 1* below.

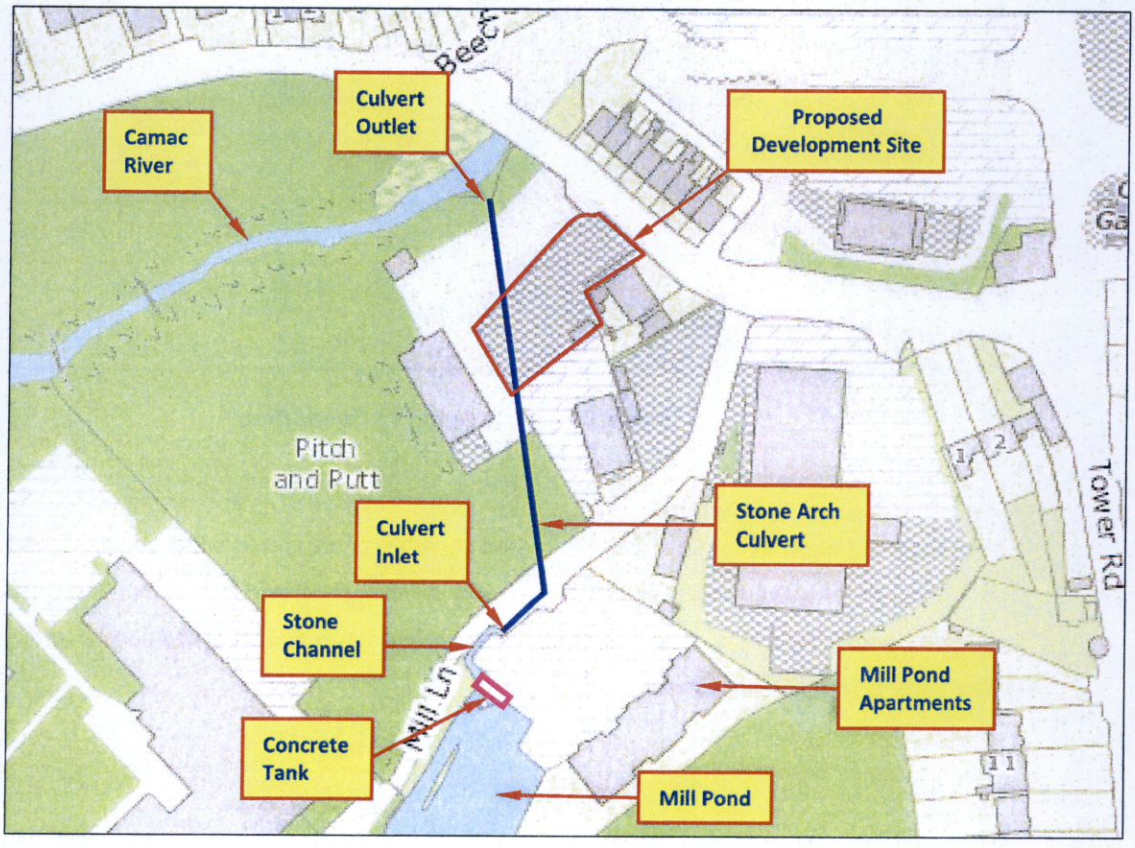


Figure 1 - Culvert Layout Plan

2.2 Existing Structures

The existing stone arch culvert is approximately 125m in length from the inlet adjacent to the Mill Pond apartments to outlet where is discharges to the Camac River. The culvert outlet is shown in *Figure 2* below.

Figure 2 - Culvert Outlet to Camac River

There are a number of hydraulic structures located upstream of the culvert which convey the flow from the Mill Pond into the culvert including a concrete tank, stone channel and inlet sump. These structures are shown in *Figure 3, Figure 4* and *Figure 5* below. Please refer to *Appendix A* for additional photographs of the culvert and its surrounding features.

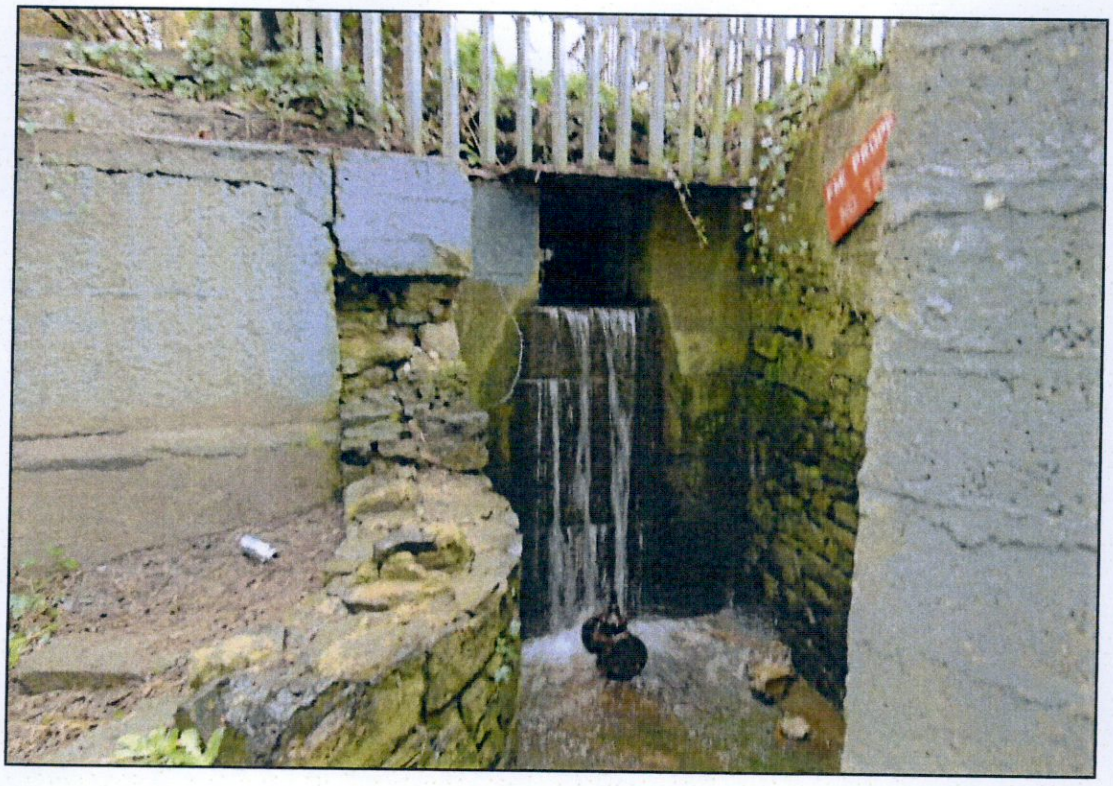


Figure 3 – Concrete Tank Outlet

Figure 4 – Stone Channel

Figure 5 – Inlet Sump

2.3 Site Investigation Works

A site walkover survey was carried out by an Engineer from IE Consulting on the 31st of January 2020. This included meeting with the Area Engineer Graham Murphy from South Dublin County Council (SDCC). A visual inspection was carried out of the culvert inlet and culvert outlet as well as the lake feeding the culvert, upstream concrete tank and stone channel. Refer to *Appendix A* for photographs of the visual inspection carried out.

A topographical survey and culvert inspection survey was carried out by Murphy Surveys on the 6th of March 2020, an Engineer from IE Consulting and Graham Murphy from SDCC were also present on site. The culvert inspection was carried out at the culvert inlet which included man-entry. Access into the culvert was however not possible as the culvert was almost completely full of stone. It was noted by the surveyor that a manhole chamber/wall structure was constructed with the culvert aperture a short distance (estimated by the surveyor to be approximately 8m) downstream of the culvert inlet.

There was no evidence of a manhole from the road surface in this location and therefore the manhole was likely to have been paved over. The SDCC Area Engineer subsequently located the manhole from the

surface with a metal detector and had the cover exposed and raised to road level. A further inspection of the culvert was carried out in this location by SDCC in May 2020. This identified a pipe connection emanating from the direction of the Mill Pond Apartments. The existing culvert in this location appears to have been rebuilt with concrete blocks, which has substantially reduced the aperture of the existing stone arch culvert. It is estimated that this opening has reduced the existing culvert capacity by more than 50%. This is believed to be the reason for the substantial blockage at the culvert inlet.

No further access to the culvert was possible and no attempt to access the culvert from the outlet was carried out due to the risk of collapse identified during a previous inspection survey carried out in 2019. The topographical survey of the culvert inlet and outlet was completed with no issue. Refer to *Appendix B* for the culvert inspection report and topographical survey prepared by Murphy Surveys. Refer to *Appendix A* for photographs taken by SDCC during the May 2020 Inspection.

3 Hydraulic Assessment

3.1 Existing Culvert Peak Flow Estimation

3.1.1 Contributing Flow from Mill Pond

The culvert was originally constructed as part of a paper mill, which is no longer in existence. It does however provide a hydraulic conveyance function to allow waters that spill into the Mill Pond from the Camac River to flow back into the river downstream. The rate of discharge from the pond is limited by an opening in the side of the concrete tank located upstream of the culvert inlet as shown in *Figure 2* above.

In order to determine the peak flow discharging from the Mill Pond a hydraulic model was developed using HEC RAS software of the outlet from the concrete tank, the stone channel and the inlet into the sump at the culvert inlet. The existing stone arch culvert has not been included in the hydraulic assessment. It is currently significantly blocked with stone, however if it was free from blockage the capacity of the culvert would be significantly greater than the rate of discharge from the Mill Pond. The extent of the model is shown in *Figure 6* below:

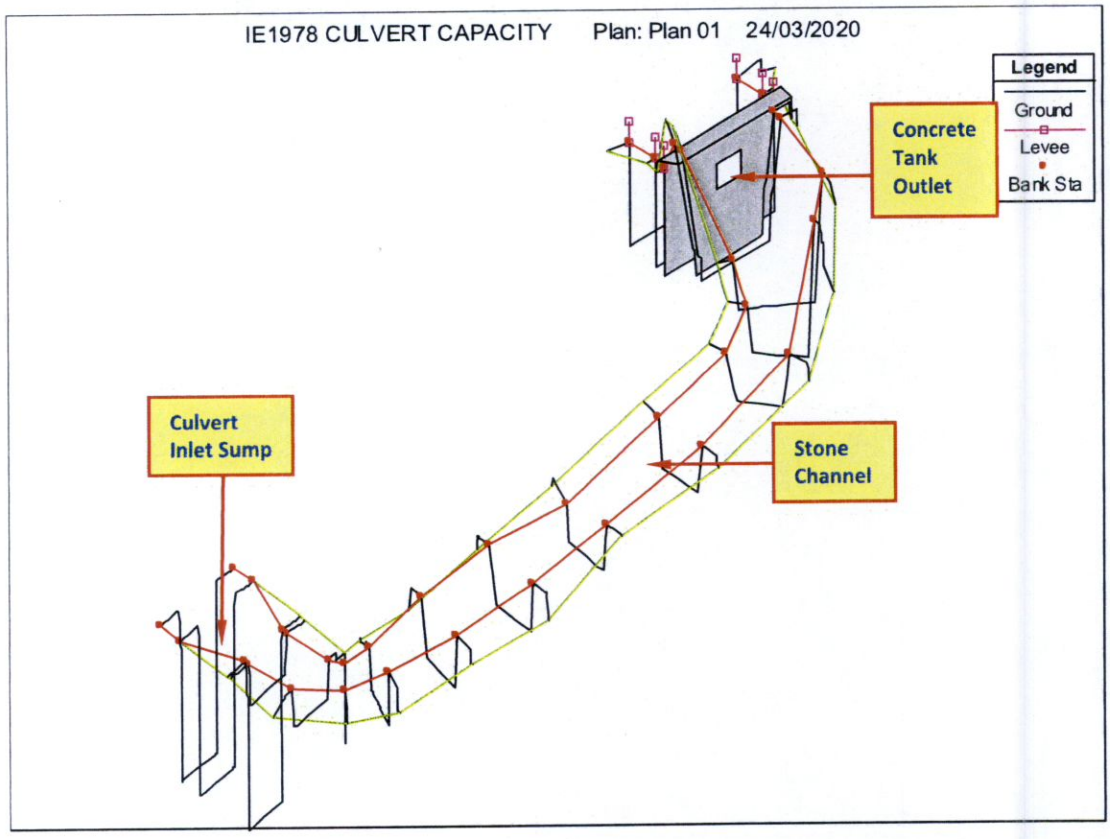


Figure 6 – Hydraulic Model

The flow limiting factor into the culvert is the concrete tank outlet, which was assessed by increasing the flow into the hydraulic model until such time that the water levels surcharge above the top of the concrete tank roof level.

A peak flow of 0.695m^3/s was determined to be the peak flow that may discharge from the outlet of the concrete tank.

The model simulation is represented by a longitudinal profile through the modelled reach as shown in *Figure 7* below.

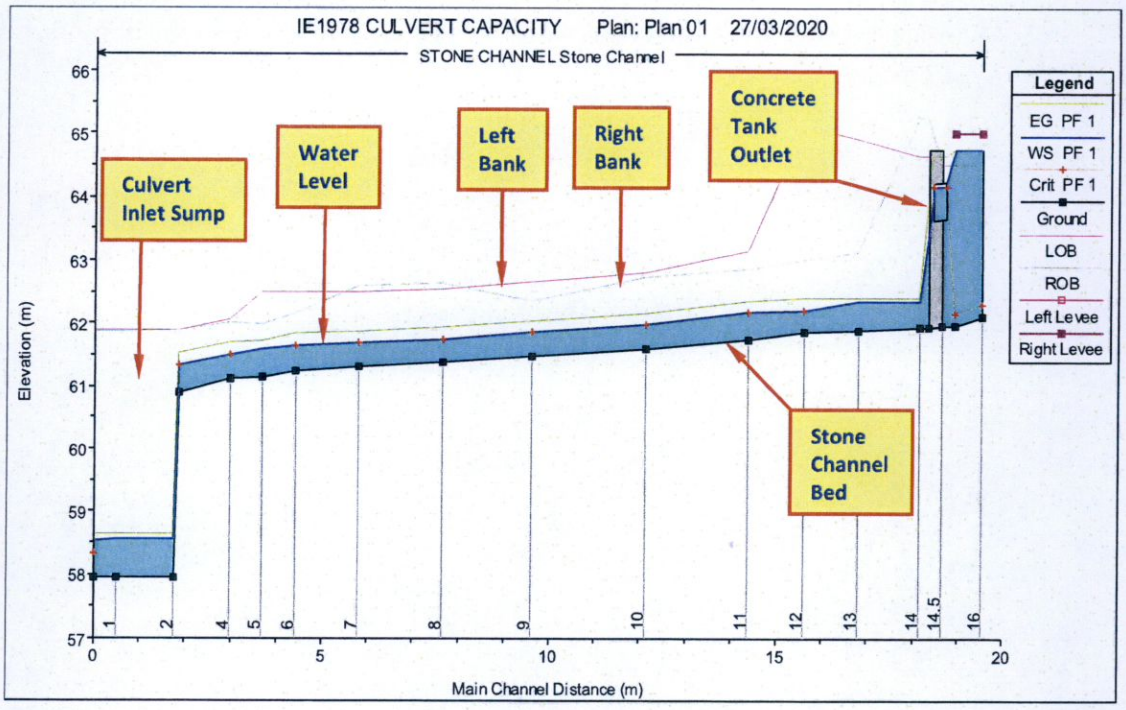


Figure 7 – Model Longitudinal Profile

3.1.2 Contributing Flow from Stormwater Connections

Drainage records were obtained from South Dublin County and Irish Water to determine the location of any stormwater connections to the culvert. These records do not show the presence of any connections to the culvert. The SDCC online planning system was utilised to review planning applications in the vicinity of the culvert. There was no information available that showed any stormwater connections to the culvert. Refer to *Appendix C* for details of the drainage records obtained.

A culvert inspection survey carried out in March 2020 which showed a substantial blockage was not able to determine the location of any stormwater connections discharging to the culvert from adjacent properties due to significant blockage at the culvert inlet. However, a further inspection by South Dublin County

Council identifies a pipe connection emanating from the direction of the Mill Pond apartments and therefore it is likely the surface water runoff from this development discharges to the stone arch culvert. It is also likely that the Pitch and Putt facility may have a stormwater connection to the culvert. The manhole identified within the culvert is likely to be the connection point from the Mill Pond apartments. There are also two stormwater gullies located within the car park of the Pitch and Putt. It is possible given their location that these are connected to the stone arch culvert. The anticipated location of these connections is shown in *Figure 8* below. Although the stormwater connection from the Pitch and Putt is likely to be located downstream of the proposed development site for the purposes of this assessment it is assumed to be located upstream of the site as a possible manhole was identified upstream of the site as shown in *Figure 8* below.

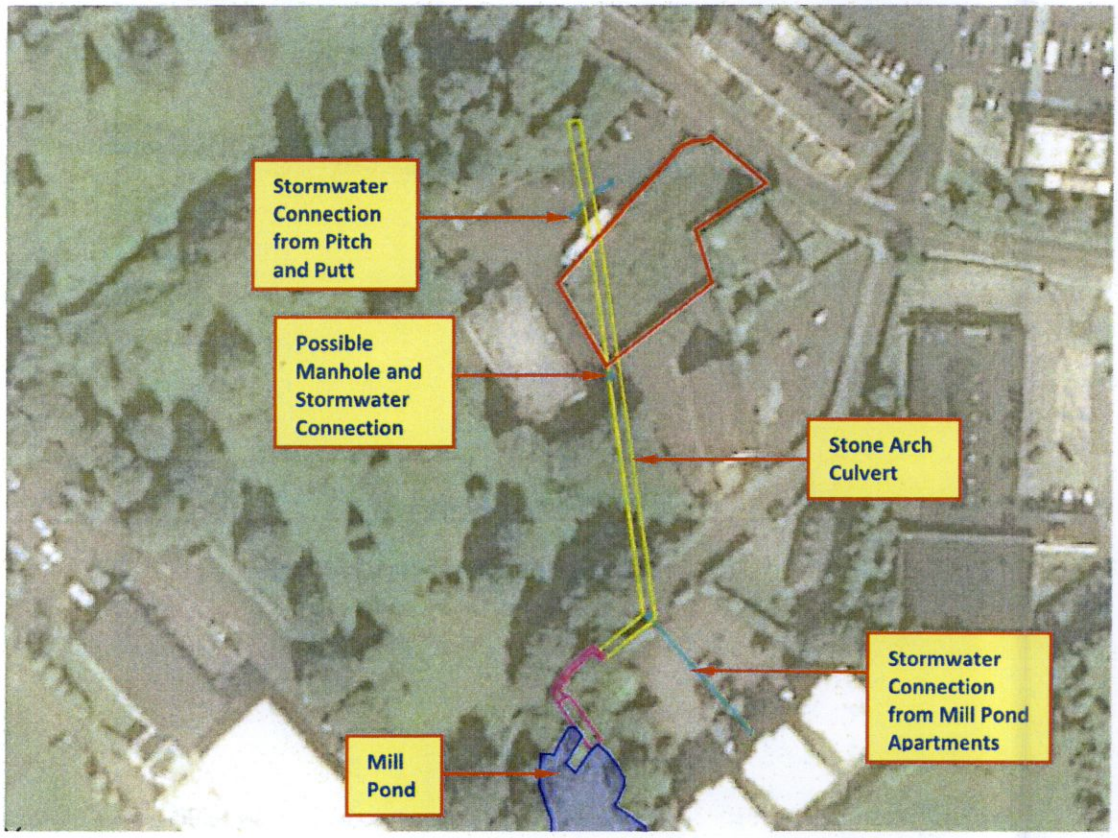


Figure 8 – Potential Stormwater Connections

Hard standing and paved areas have been divided into two categories of surface areas which can drain into the existing stormwater drainage system from the Mill Pond apartments and the Pitch and Putt. The contributing catchment areas from each area are as follows:

Mill Pond Apartments

Roof Area = 801m^2

Paved Area = 1180m^2

Total Area = 1981m^2

Pitch and Putt

Roof Area = 423m^2

Paved Area = 1455m^2

Total Area = 1878m^2

Typical rainfall runoff co-efficents are applied to hard standing areas of 90% for roofs and 85% for roads and paved areas. However, for the purposes of this assessment it is assumed that 100% rainfall runoff drains from these surfaces to the existing stormwater drainage system.

3.2 *Hydraulic Analysis of Existing Stone Arch Culvert*

A hydraulic model was developed of the existing stone arch culvert using Micro Drainage software from the culvert inlet to the discharge point to the Camac River along a channel reach length of approximately 125m. This model also includes stormwater connections from the existing developments of the Mill Pond apartments and the Pitch and Putt. This allows the rainfall runoff from the roof and paved areas to be routed from their source into the stone arch culvert and analysed.

The purpose of developing the hydraulic model is to estimate the peak flow that may enter the culvert from the Mill Pond and the stormwater connections as well as determining the peak water levels during a 1 in 100 year rainfall event including 20% climate change.

The extent of modelled reach length is illustrated in *Figure 9* below:

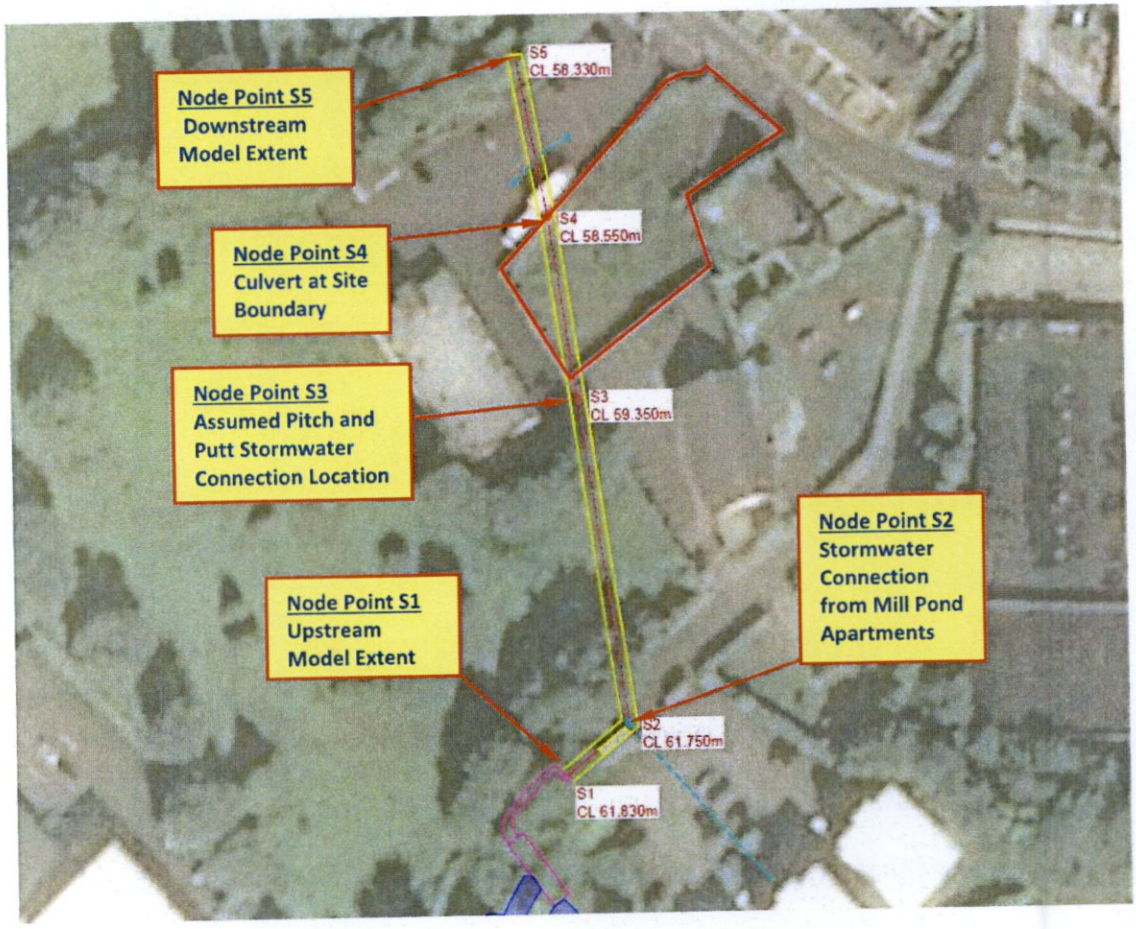


Figure 9 – Micro Drainage Hydraulic Model Extents

The model length of culvert includes five node points as shown in *Figure 9* above to represent various locations or manholes/connections along its length.

3.2.1 *Hydraulic Model Assumptions*

The following assumptions have been made in the hydraulic model assessment:

- 100% rainfall runoff from paved and roof areas;
- Rainfall return period simulations included 5, 30, and 100 year event for durations ranging from 15 minutes to 6 hours;
- The stormwater connections pipes have not been modelled and therefore there is no restriction on the rate of rainfall runoff as a result of the stormwater pipe capacity.
- 20% increase in rainfall depths to allow for future climate change;

- 20% factor of safety applied to flow discharging from Mill Pond;
- Existing culvert dimensions are 2.5m wide and 1.5m high arch culvert;
- The culvert is free from obstructions, blockages or collapse;
- The outfall to the Camac River is not restricted or impeded by high river levels.

The restriction identified during the site investigation works between Node Point S1 and Node Point S2 has been excluded from the hydraulic assessment as this is located upstream of the proposed development site. It is likely to restrict flows downstream and therefore excluding this will only provide a more conservative assessment of the extreme water levels in the culvert downstream of this location.

3.2.2 *Existing Scenario Simulation Results*

The model simulation is represented by a longitudinal profile through the reach modelled. *Table 1* below summarises the predicted 1 in 100 Year + 20% flood levels along the modelled reach of the stone arch culvert for the existing scenario.

Node Point	1 in 100 Years (1% AEP) + 20% Water Level (m OD)
S1	57.128
S2	57.090
S3	56.976
S4	56.888

Table 1 – Existing Scenario: Predicted 1 in 100 Year + Climate Change Flood Levels

Figure 10 below illustrates the longitudinal profile of the predicted 1 in 100 year + 20% flood levels along the existing stone arch culvert.

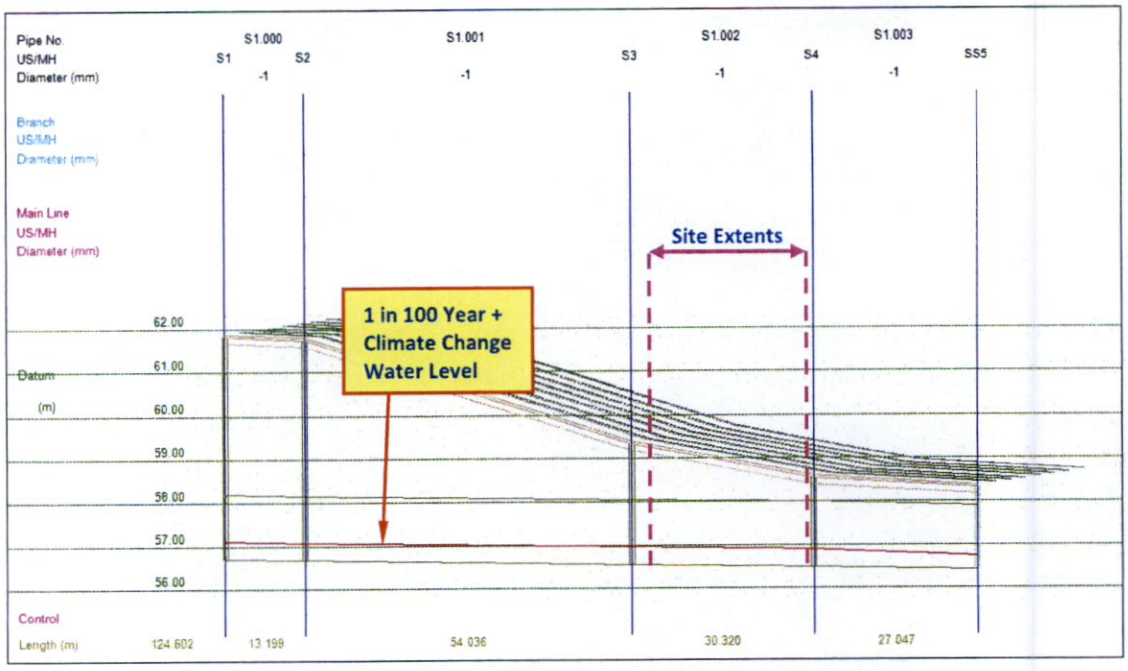


Figure 10 – Existing Scenario: 1 in 100 Year + 20% Longitudinal Profile

The peak 1 in 100 year + climate change flow rate that may discharge from the culvert into the Camac River is 1.02m^3/s.

Refer to the Micro Drainage output sheets enclosed in *Appendix D* for further details.

3.3 *Hydraulic Analysis of Proposed Culvert*

It is proposed to replace the existing stone arch culvert within the boundary of the proposed development site with three 900mm pipe culverts laid side by side along the same alignment as the existing culvert. This is to allow a housing development to be constructed within the boundary of the site above the line of these culverts. Although it is not preferable to construct a building above a culvert there is no room available within the site boundary to divert the culvert around the building.

The original capacity of the existing 2.5m wide and 1.5m high stone arch culvert is no longer required as it no longer provides the same hydraulic function for which it was built in the operation of a paper mill. The actual capacity required is 1.02m^3/s.

The hydraulic model was updated to include three 900mm pipes within the boundary of the site. The model simulation is represented by a longitudinal profile through the reach modelled. *Table 2* below summarises the predicted 1 in 100 Year + 20% flood levels along the modelled reach of the existing stone arch culvert and compares it to the proposed three 900mm pipes within the boundary of the site.

Node Point	1 in 100 Years (1% AEP) + 20% Water Level (m OD)
S1	57.138
S2	57.101
S3	56.992
S4	56.890

Table 2 – Proposed Scenario: Predicted 1 in 100 Year + Climate Change Flood Levels

Figure 11 below illustrates the longitudinal profile of the predicted 1 in 100 year + 20% flood levels along the existing stone arch culvert.

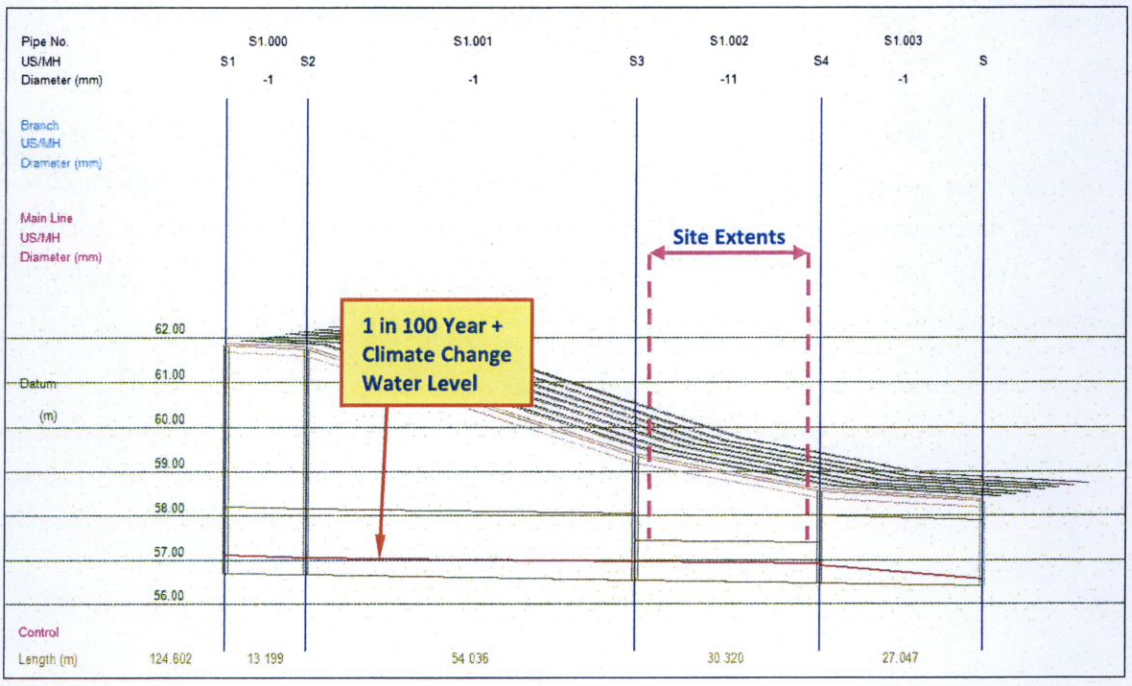


Figure 11 – Proposed Scenario: 1 in 100 Year + 20% Longitudinal Profile

The proposed three 900mm pipe culverts have sufficient hydraulic capacity to convey the 1 in 100 year + 20% climate change flow. The depth of freeboard is 445mm at the upstream end and 411mm at the downstream end of the culverts respectively. The proposed culvert plan and section details are shown on drawing number *IE1978-001-A, Appendix E*.

Refer to the Micro Drainage output sheets enclosed in *Appendix D* for further details.

4 Conclusions

The estimated 1 in 100 year + 20% climate flow rate in the stone arch culvert is 1.02m^3/s. This flow rate is conservative as it assumes the following:

- 100% rainfall runoff from paved and roof areas;
- The stormwater connections pipes have not been modelled and therefore there is no restriction on the rate of rainfall runoff as a result of the stormwater pipe capacity.
- 20% increase in rainfall depths to allow for future climate change;
- 20% factor of safety applied to flow discharging from Mill Pond;
- The culvert is free from obstructions, blockages or collapse;
- The restriction identified during the site investigation works has been excluded from the hydraulic assessment

The existing full bore capacity of the stone arch is no longer required or appropriate as the paper mill is no longer in existence. There is also a substantial in the reduction of the culvert aperture location at the culvert inlet in front of the Mill Pond Apartments. The existing culvert in this location appears to have been rebuilt with concrete blocks, which has substantially reduced the existing culvert capacity by more than 50%.

It is proposed to replace the existing culvert within the boundary of the proposed development site with three 900mm pipe culverts laid side by side. The hydraulic assessment shows the proposed culverts have sufficient hydraulic capacity to convey the predicted 1 in100 year + 20% flow ratee of 1.02m^3/s. The depth of freeboard is 445mm at the upstream end and 411mm at the downstream end of the culverts respectively.

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX A

Site Investigation Photographs

Photo 1: Mill Pond

Photo 2: Pond Outlet into Concrete Tank

Photo 3: Concrete Tank Outlet

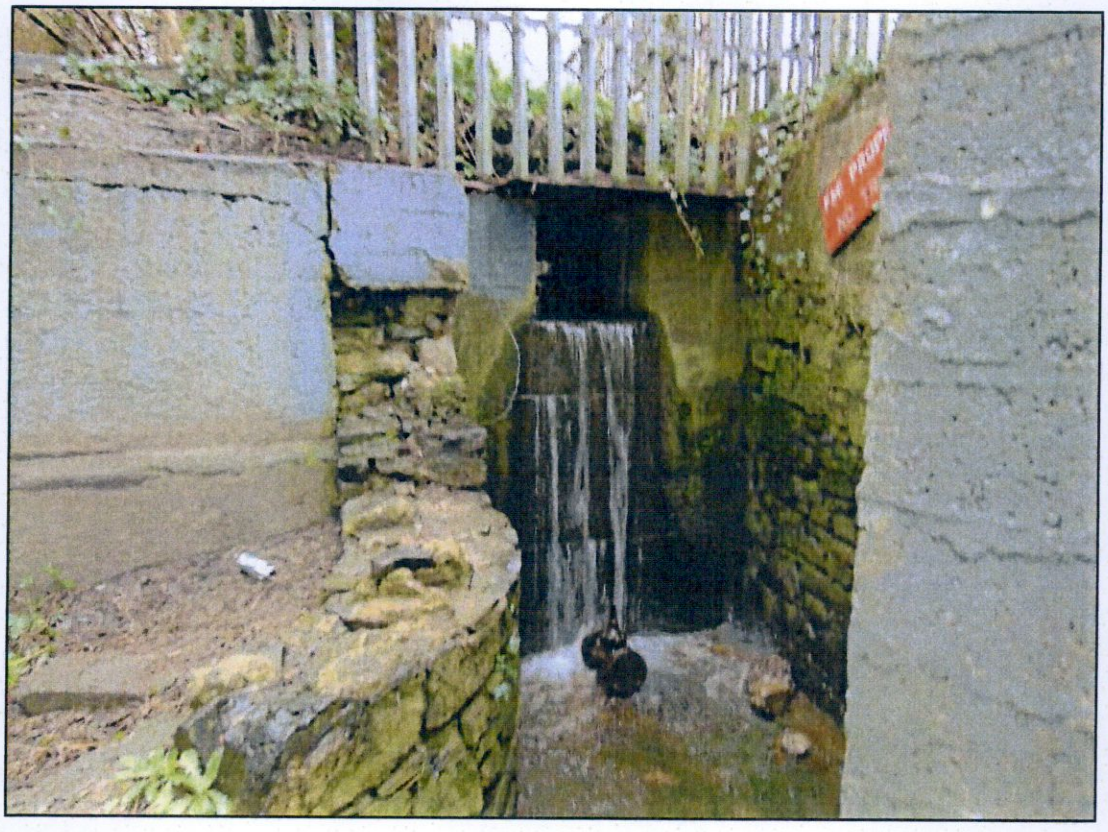


Photo 4: Stone Channel Upstream End

Photo 5: Stone Channel Downstream End

Photo 6: Sump Inlet & Grill

Photo 7: Culvert Outlet to Camac River

Photo 8: Rebuilt Culvert Outside Mill Pond Apartments Looking Upstream

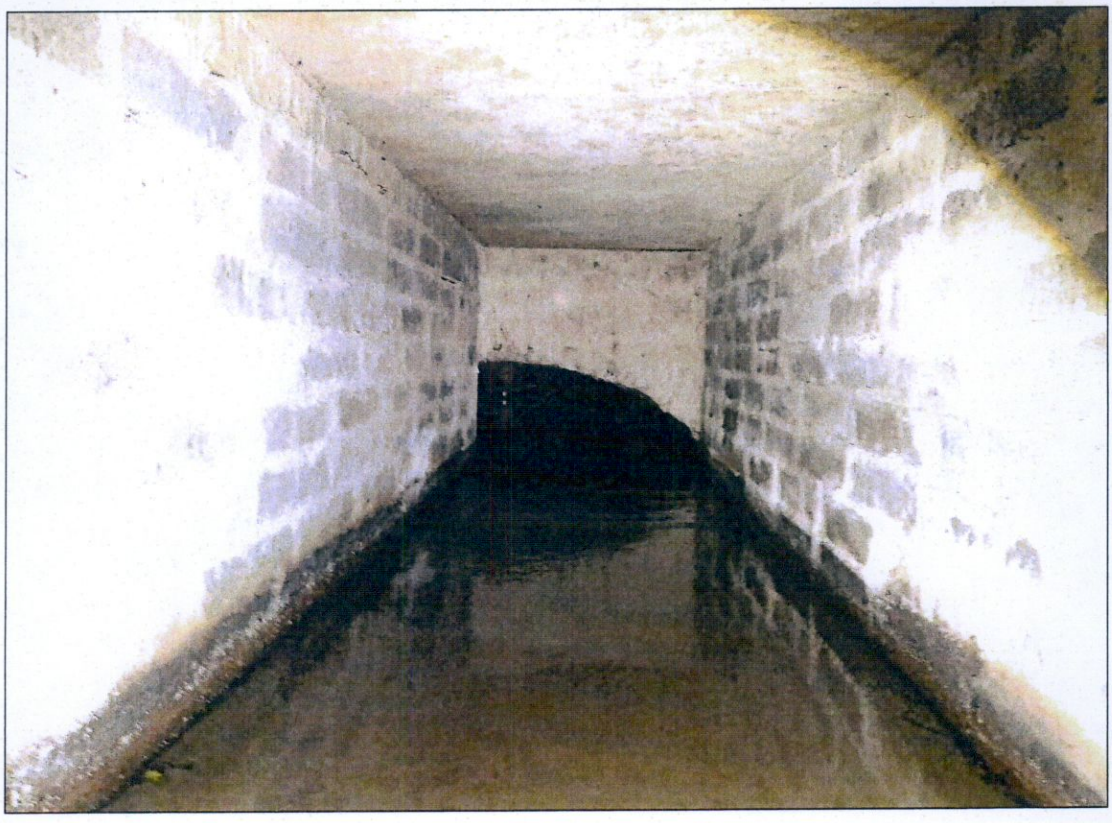


Photo 9: Stormwater Connection from Mill Pond Apartments

Photo 10: Culvert Looking Downstream from Rebuilt Section

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX B

Culvert Condition Inspection Report & Topographical Survey

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Confined Space Inspection Survey Report

Old Nangor Road, Clondalkin, Dublin 22

murphy
SURVEYS
GLOBAL CONSULTING SURVEYORS

Submitted: March 2020

TABLE OF CONTENTS

	Name	Date
Inspection Team:	Brian Keegan Conor Lee	06/03/2020
Prepared by:	Brian Keegan	10/03/2020
Reviewed by:	Paraic Quirke	12/03/2020

CLIENT:
IE CONSULTING
INNOVATION CENTRE
GREEN ROAD
CARLOW

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

CONSULTANTS:
MURPHY SURVEYS
KILCULLEN BUSINESS CAMPUS
KILCULLEN
CO. KILDARE

murphy SURVEYS
GLOBAL CONSULTING SURVEYORS

1.0 PROJECT DETAILS

Project Name: 35588 Old Nangor Road, Clondalkin

Project Description: Confined Space Survey of Culvert

Project Number: 35588

Project Date: 6/03/2020

Standard: Sewer Rehabilitation Manual, 5th Edition

2.0 PROJECT DESCRIPTION

A confined space inspection was carried out on a surface water culvert connecting a landscaped lake with the River Camac in Clondalkin. The culvert is approximately 110 m in length. The upstream end is accessed via a steel grate while the downstream end is an open-ended culvert discharging into the River Camac. A previous sewer survey carried out by McBreen Environmental in February 2019 commenced at the downstream end and detected a blockage approximately 8 m from the downstream end that could not be passed.

Murphy Surveys accessed the culvert from the upstream end via the steel grate that was opened by representatives from South Dublin County Council.

3.0 CULVERT LOCATION MAP

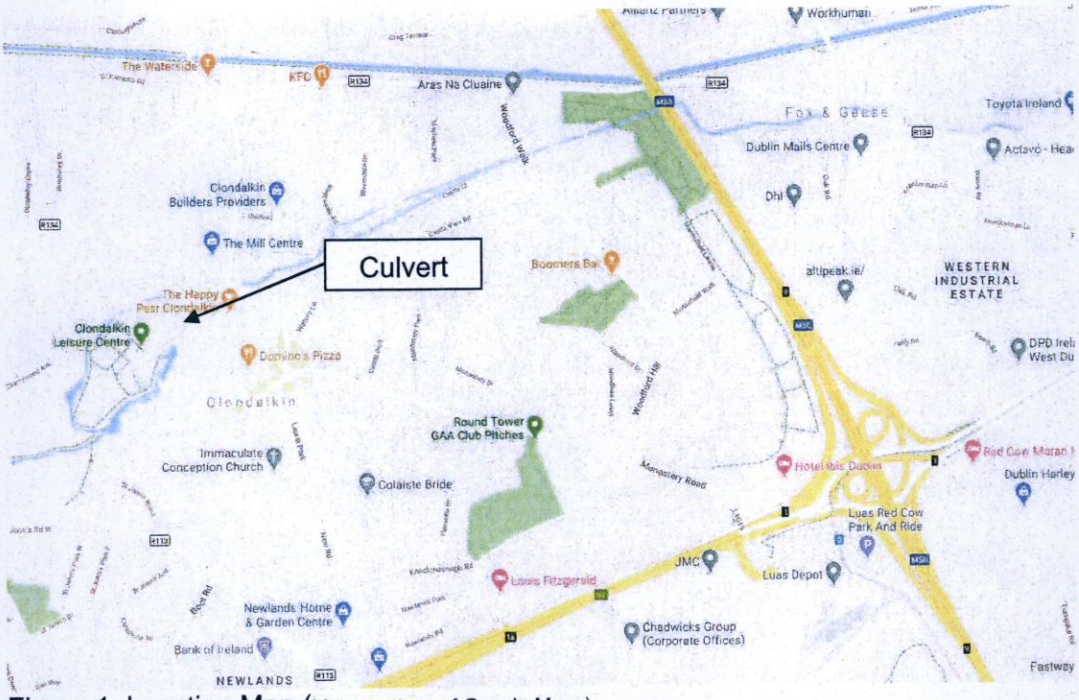


Figure 1: Location Map (Map courtesy of Google Maps)

The culvert is located between a storm attenuation tank and the river Camac. It crosses under the The Mill Pond Road, off the Old Nangor Road in Clondakin, Dublin 22.

4.0 INSPECTION FINDINGS

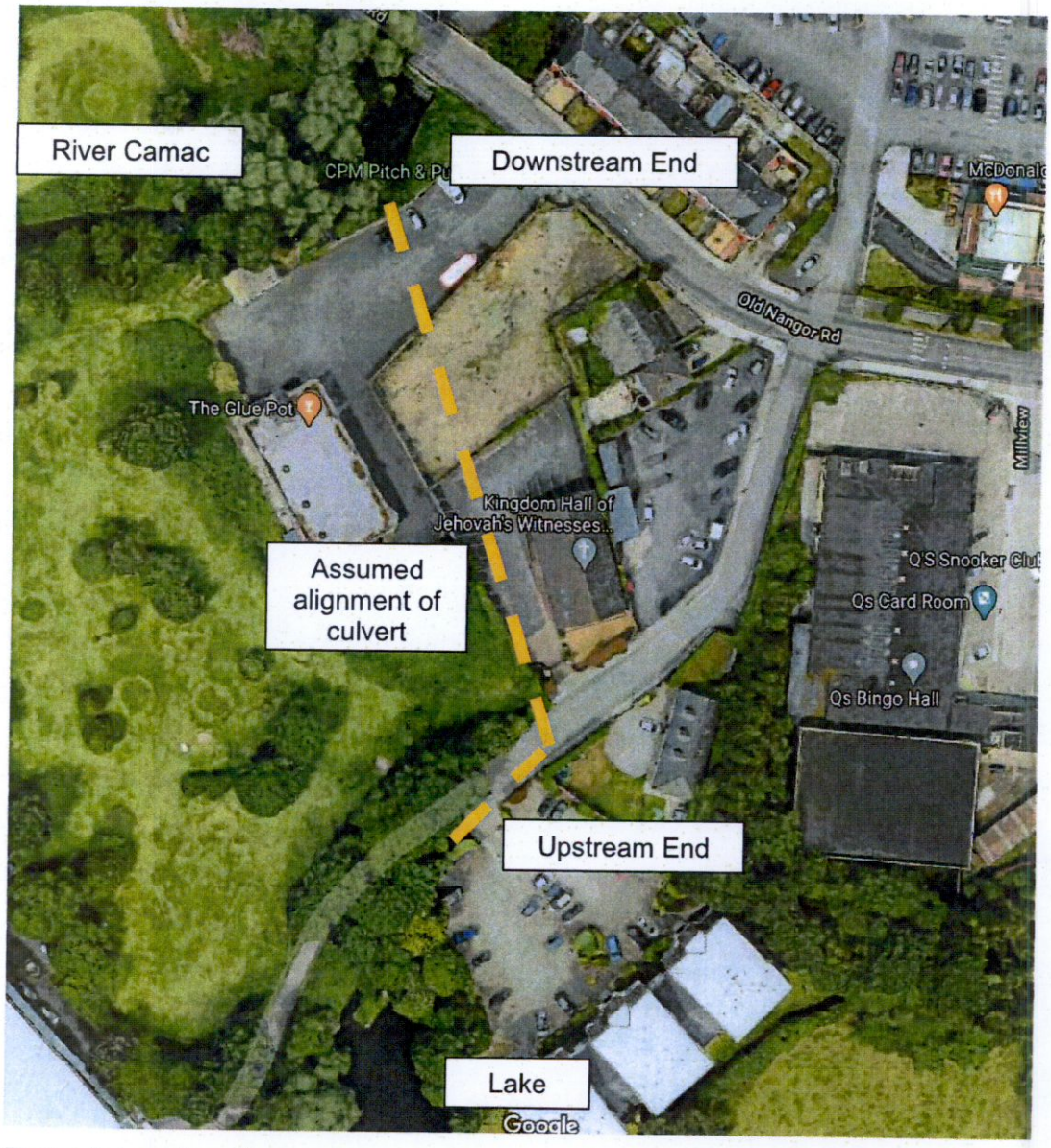


Figure 2: Location Plan

The inspection commenced at the upstream end via a steel grate. Confined space operatives attempted to walk down the culvert but were unable to proceed beyond a blockage in the culvert at the upstream end.

There is a small sized chamber between the steel grate and what appears to be the fascia of an old masonry arch bridge. The water level is up to approximately 300 mm of the arch barrel soffit. A build up of coarse gravel material and debris is present at the old bridge fascia. This blockage, and high-water level prevented progress further downstream. There is a block chamber approximately 8m downstream from the

upstream fascia of the culvert. The chamber can been seen in photograph number three below. South Dublin County Council stated they were going to go back and scan the road, to see if they can find a manhole lid under the road carriageway.

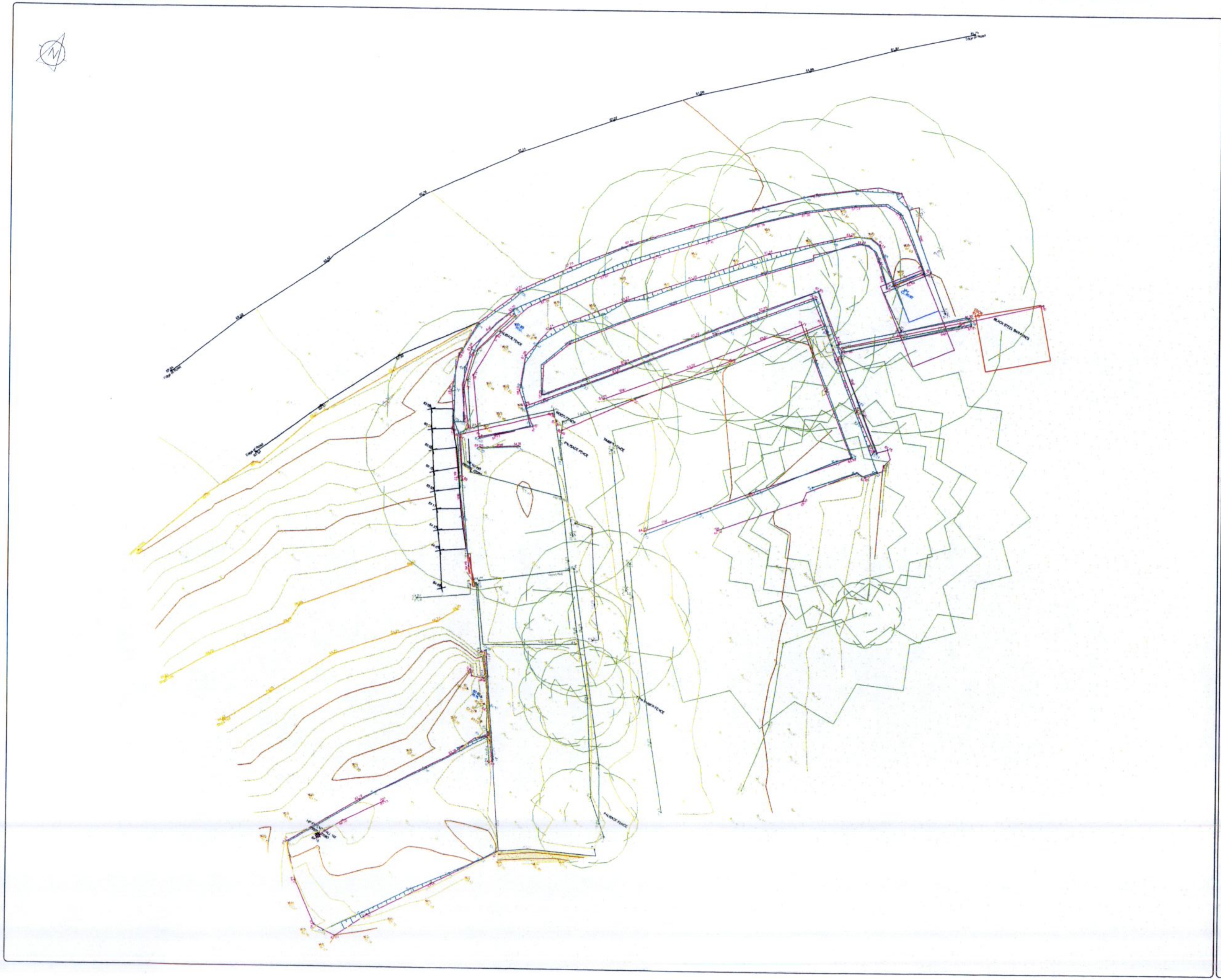
Appendix A: Photographs

Photograph No. 1 Upstream end. Old bridge fascia.

Photograph No. 2 Upstream End @ 2 m. Blockage in Arch Barrel

Photograph No. 3 Upstream End @ 2 m. Arch Barrel

Photograph No. 4 Upstream End @ 2 m. Arch Barrel



LEGEND

Street furniture & Services

Natural Features

Grill

Other

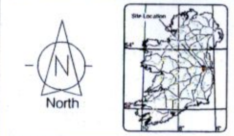
Built Features
Roads & Road Markings

Murphy Surveys Ltd. Disclaimer

The user or recipient of this survey data understands and acknowledges this data may be inaccurate or contain errors or omissions and the user or recipient assumes full responsibility for any risks or damages resulting from, arising from, or in connection with any use of or reliance upon data displayed herein. Although significant care has been exercised to produce surveys that satisfy survey accuracy standards, these surveys are only as accurate as the source data from which they were compiled. Although all reasonable steps have been taken to locate all features visible at the time of the survey, there is no guarantee that all will be shown on the drawing, as some above ground features may have obstructed the survey. Wherever possible, areas unable to be surveyed will be labelled as "UTS".

The Company shall not be liable for any inaccuracy of the data provided beyond the specified scale or accuracy, or for any matters resulting from their use for purposes other than that stated in the Contract. No liability shall attach to the Surveyor in respect of any consequential loss or damages suffered by the Client.

The Client must promptly notify the Company of any errors in mapping of which it becomes aware. If misleading, inaccurate or otherwise inappropriate information is brought to the Company's attention or the Company itself identifies any such imprecision or error in a survey, it shall use its reasonable endeavours to fix or remove it and if necessary in certain instances, the Company being on notice of any such misleading inaccurate or otherwise inappropriate information, it will re-conduct the survey and reproduce the data to within the specified scale or accuracy.



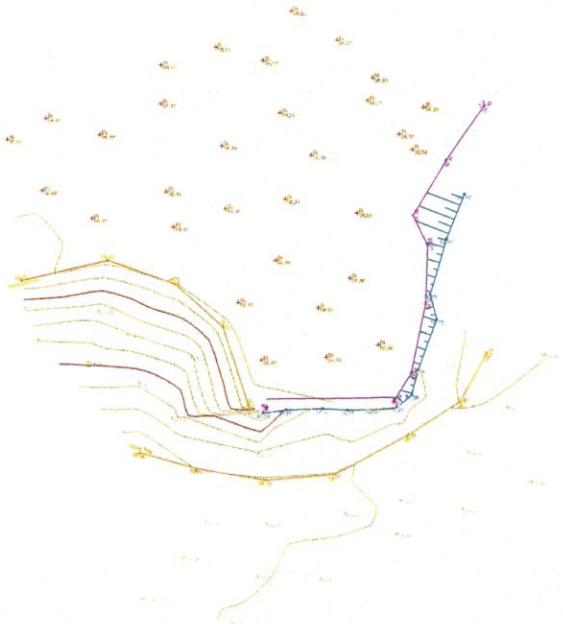
murphy SURVEYS
GLOBAL CONSULTING SURVEYORS

Kildare Cork Belfast Glasgow London

Head Office
Global House
Kilcullen Business Campus
Kilcullen Co. Kildare
Ireland

Phone: (+353) 045 484040
Fax: (+353) 045 484004
Email: info@murphysurveys.ie

Client :	IE Consulting Engineers
Project :	35588 Old Nangor Road, Clondalkin, Dublin 22
Date : 09.03.2020	Scale : 1:50@A1
Description :	Topographical Survey
Drawing Number :	MSL35588_clondalkin_PLAN_01



LEGEND

Street furniture & Services

Natural Features

Built Features

Roads & Road Markings

Murphy Surveys Ltd. Disclaimer

The user or recipient of this survey data understands and acknowledges this data may be inaccurate or contain errors or omissions and the user or recipient assumes full responsibility for any risks or damages resulting from, arising from, or in connection with any use of or reliance upon data displayed herein. Although significant care has been exercised to produce surveys that satisfy survey accuracy standards, these surveys are only as accurate as the source data from which they were compiled. Although all reasonable steps have been taken to locate all features visible at the time of the survey, there is no guarantee that all will be shown on the drawing, as some above ground features may have obstructed the survey. Wherever possible, areas unable to be surveyed will be labelled as "UTS".

The Company shall not be liable for any inaccuracy of the data provided beyond the specified scale or accuracy, or for any matters resulting from their use for purposes other than that stated in the Contract. No liability shall attach to the Surveyor in respect of any consequential loss or damages suffered by the Client.

The Client must promptly notify the Company of any errors in mapping of which it becomes aware. If misleading, inaccurate or otherwise inappropriate information is brought to the Company's attention or the Company itself identifies any such impression or error in a survey, it shall use its reasonable endeavours to re or remove it and if necessary in certain instances, the Company being on notice of any such misleading inaccurate or otherwise inappropriate information, it will re-conduct the survey and reproduce the data to within the specified scale or accuracy.

North

Site Location

Map Sheet Layout

murphy SURVEYS

GLOBAL CONSULTING SURVEYORS

Kildare Cork Belfast Glasgow London

Head Office
Global House
Kilcullen Business Campus
Kilcullen Co. Kildare
Ireland

Phone: (+353) 045 484040
Fax: (+353) 045 484004
Email: info@murphysurveys.ie

Client : IE Consulting Engineers

Project : 35588 Old Nangor Road, Clondalkin, Dublin 22

Date : 09.03.2020 | Scale : 1:50@A1

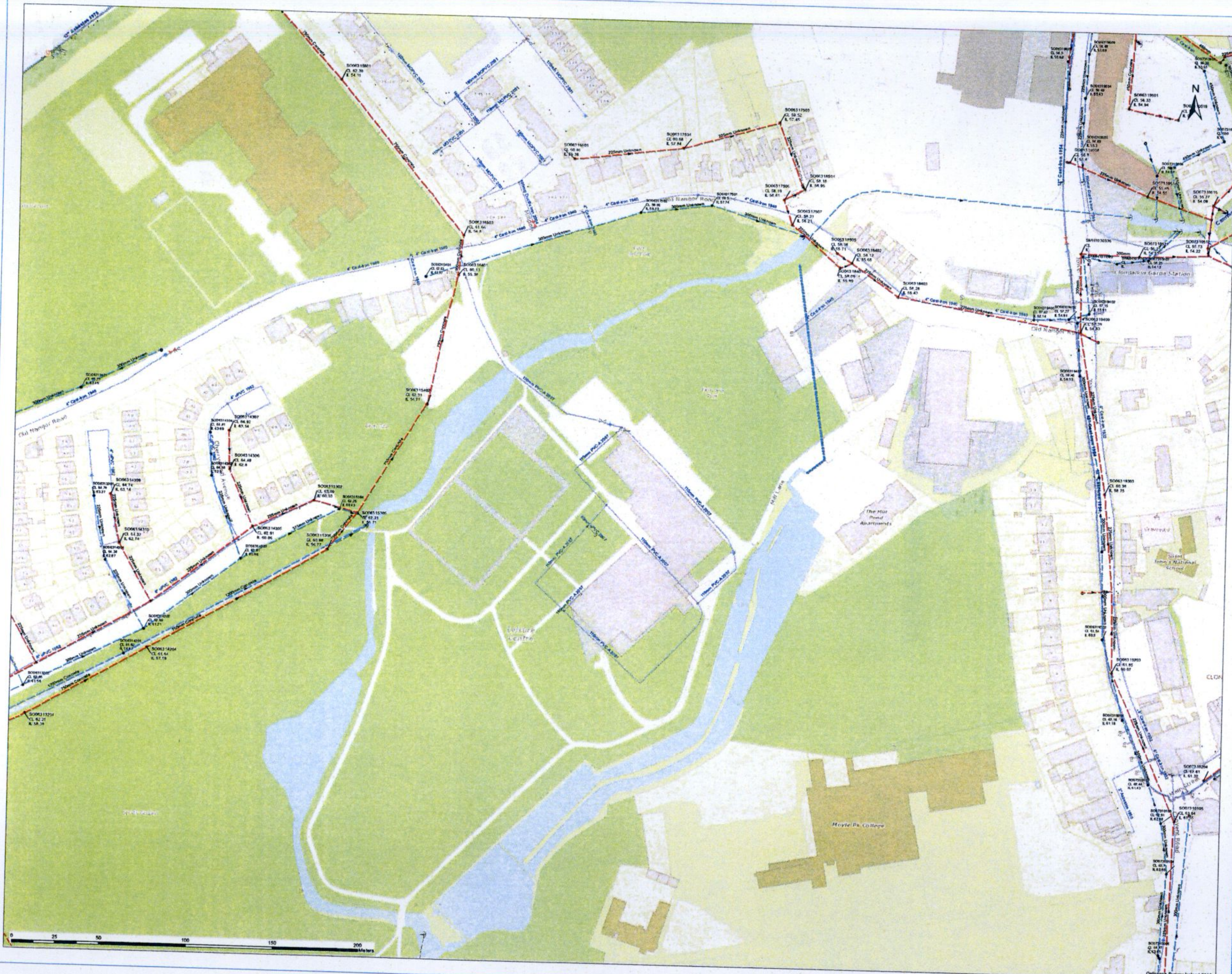
Description : Topographical Survey

Drawing Number : **MSL35588_clondalkin_PLAN_02**

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX C

Drainage Records



UISCE
EIREANN : IRISH
WATER

Legend

- Pump Stations
- Irish Water
- Private
- Irish Water
- Non IW
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX D

Micro Drainage Output

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
S1.000	13.199	0.030	440.0	0.000	1.00	695.0	0.600	[]	-1	Pipe/Conduit
S1.001	54.036	0.122	442.9	0.198	3.00	0.0	0.600	[]	-1	Pipe/Conduit
S1.002	30.320	0.068	445.9	0.189	3.00	0.0	0.600	[]	-1	Pipe/Conduit
S1.003	27.047	0.063	429.3	0.000	0.00	0.0	0.600	[]	-1	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
S1.000	56.699	0.000	695.0	2.31	7608.0
S1.001	56.669	0.198	695.0	2.30	7582.5
S1.002	56.547	0.387	695.0	2.29	7557.1
S1.003	56.479	0.387	695.0	2.34	7702.3

Conduit Sections for Storm

NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \/ open channel, oo dual pipe, ooo triple pipe, O egg.

Section numbers < 0 are taken from user conduit table

Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m^2)
-1	[]	2500	1500	90.0		1.839	3.295

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.000	0.000	0.000
1.001	-	-	100	0.198	0.198	0.198
1.002	-	-	100	0.189	0.189	0.189
1.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.387	0.387	0.387

Network Classifications for Storm

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S1	-1	3.581	3.631	Unclassified	3000	0	3.631	Unclassified
S1.001	S2	-1	1.303	3.581	Unclassified	3000	0	3.581	Unclassified
S1.002	S3	-1	0.571	1.303	Unclassified	3000	0	1.303	Unclassified
S1.003	S4	-1	0.414	0.571	Unclassified	3000	0	0.571	Unclassified

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.003	SS5	58.330	56.416	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	20.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	16.400	Storm Duration (mins)	30
Ratio R	0.277		

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	20.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.277
Region	Scotland and Ireland	Cv (Summer)	0.750
M5-60 (mm)	16.400	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360
Return Period(s) (years)	5, 30, 100
Climate Change (%)	20, 20, 20

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	100	+20%					57.128
S1.001	S2	15 Summer	100	+20%					57.090
S1.002	S3	15 Summer	100	+20%					56.976
S1.003	S4	15 Summer	100	+20%					56.888

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-1.071	0.000	0.31		834.9	OK	
S1.001	S2	-1.079	0.000	0.18		936.4	OK	
S1.002	S3	-1.071	0.000	0.23		1019.7	OK	
S1.003	S4	-1.091	0.000	0.24		1015.9	OK	

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
S1.000	13.199	0.030	440.0	0.000	1.00	695.0	0.600	[]	-1	Pipe/Conduit
S1.001	54.036	0.122	442.9	0.198	3.00	0.0	0.600	[]	-1	Pipe/Conduit
S1.002	30.320	0.068	445.9	0.189	3.00	0.0	0.600	ooo	-11	Pipe/Conduit
S1.003	27.047	0.063	429.3	0.000	0.00	0.0	0.600	[]	-1	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
S1.000	56.699	0.000	695.0	2.31	7608.0
S1.001	56.669	0.198	695.0	2.30	7582.5
S1.002	56.547	0.387	695.0	1.48	2818.5
S1.003	56.479	0.387	695.0	2.34	7702.3

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.000	0.000	0.000
1.001	-	-	100	0.198	0.198	0.198
1.002	-	-	100	0.189	0.189	0.189
1.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.387	0.387	0.387

Network Classifications for Storm

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S1	-1	3.581	3.631	Unclassified	3000	0	3.631	Unclassified
S1.001	S2	-1	1.303	3.581	Unclassified	3000	0	3.581	Unclassified
S1.002	S3	-11	1.171	1.903	Unclassified	3000	0	1.903	Unclassified
S1.003	S4	-1	0.414	0.571	Unclassified	3000	0	0.571	Unclassified

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.003	S5	58.330	56.416	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	20.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	16.400	Storm Duration (mins)	30
Ratio R	0.277		

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	20.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.277
Region	Scotland and Ireland	Cv (Summer)	0.750
M5-60 (mm)	16.400	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360
Return Period(s) (years)	5, 30, 100
Climate Change (%)	20, 20, 20

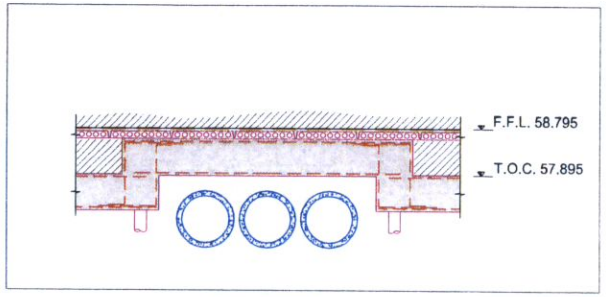
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	100	+20%					57.138
S1.001	S2	15 Summer	100	+20%					57.101
S1.002	S3	15 Summer	100	+20%					56.993
S1.003	S4	15 Summer	100	+20%					56.890

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-1.061	0.000	0.31		835.0	OK	
S1.001	S2	-1.068	0.000	0.18		937.1	OK	
S1.002	S3	-0.454	0.000	0.49		1024.4	OK	
S1.003	S4	-1.089	0.000	0.24		1022.1	OK	

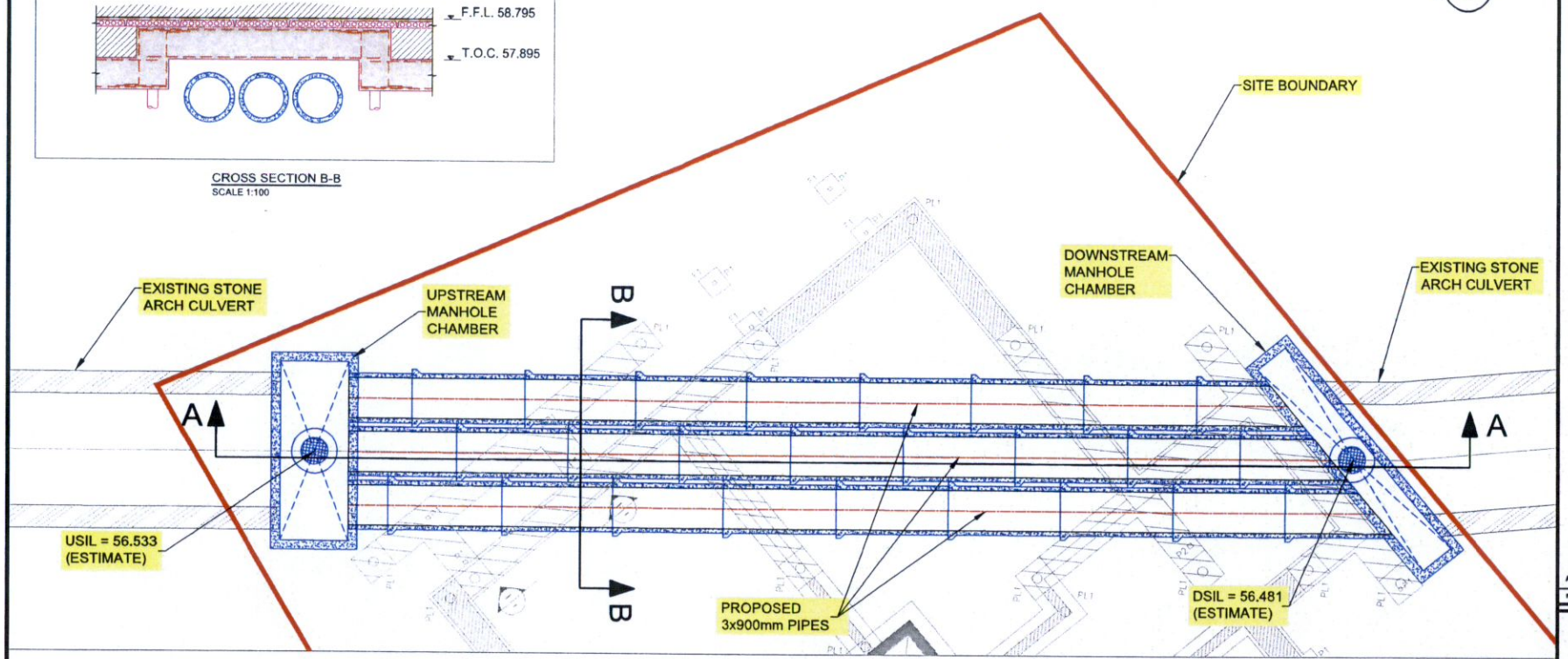
IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

APPENDIX E

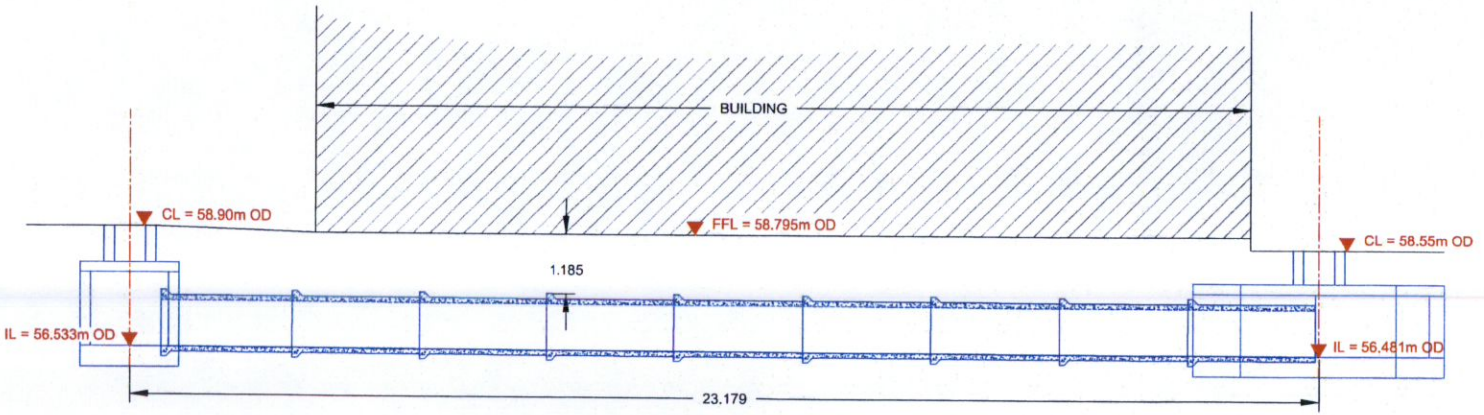
Drawing Number IE1978-001-A Proposed Culverts Plan and Sections



CROSS SECTION B-B
SCALE 1:100



PLAN
SCALE 1:100



LONG SECTION A-A
SCALE 1:100

LEGEND

NOT TO BE USED FOR CONSTRUCTION

rev.	date	amendment	drn	chd
A	22.05.20	DESIGN	NOM	PMS

DUBLIN SIMON COMMUNITY

10 UNITS AT OLD NANGOR ROAD
DUBLIN 22

PROPOSED 3 x 900mm PIPE CULVERTS
PLAN & SECTION DETAILS

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL
CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248
NEWRY OFFICE:
1 RDC HOUSE
WIN BUSINESS PARK
NEWRY, BT35 6PH

file location: N/IE1978/DRAWINGS		scale: 1:150	A3
drawing status: PLANNING		datum: MALIN	
		drawn: NOM	
drawing no. IE1978-001	rev A	checked: PMS	
		approved: PMS	
		date: 22.05.2020	

Peter Bland SC

Law Library Building, 158/9 Church Street, Dublin 7

086-2475044 peterblandsc@gmail.com DX 815306 B

Matthew Ryan, Esq,
Ryan Solicitors,
46 Harrington Street,
Portobello,
Dublin 8,
DX 109003 Fitzwilliam.

14th May 2019

Re: Dublin Simon Community.

Dear Matthew,

I am instructed that Querist acquired a site at Old Nangor road in Clondalkin in 2018. Planning permission has been granted for the development of a small block of apartments on the site. It was discovered that there is a reasonably large culvert running across the rear of the site. Although the deed map indicated pipe work traversing the site, a survey carried out prior to contract did not identify the culvert.

Querist has received engineering advice to replace the existing culvert structure with two modern pipes following the same course and of equal capacity. These pipes could be bridged over to secure the orderly and efficient development of the site.

The culvert is not in the charge of South Dublin County Council, and it should be confirmed also that Irish Water confirms that it is not vested in it under the Water Services Acts, 2007-2014. The belief is that the culvert originally served a mill that was located about 100 metres away from the site. The mill no longer exists, and it has been replaced by the Old Mill apartment complex.

Working on the premise that the culvert is an artificial watercourse that historically served a mill, it would follow that the mill owner is likely to have held an easement of conduit in respect of the culvert. This right probably came into existence either on the severance of the dominant and servient tenement as an implied right by way of grant or reservation, or it could have been asserted as a prescriptive right. In any event, the culvert inspection report of Owen Moran of the 3rd of January, 2019 records that it is understood that the culvert may have been blocked off during the building of the Old Mill apartment complex, but this cannot be confirmed. I cannot tell from the report whether it is believed that the former mill premises utilises the culvert for any purpose, such as surface water drainage. If it is the case that the conduit was blocked on the Old Mill apartment complex and it no longer serves that tenement by way of drainage or otherwise, then it can be argued that such right as may have existed for the benefit of the Old Mill premises over Querist's site has been extinguished by implied release under the doctrine of abandonment.

If A has a right of conduit over B's lands to serve a mill, and the mill is demolished with access to the culvert sealed, with such works having the character of permanence, then the non-user coupled with evidence of intention to permanently relinquish the right is sufficient to give rise to an inference of abandonment. The

principle of abandonment was described in *Gotobed v. Pridmore* (1970) 115 SJ 78 by Cumming Bruce LJ as follows:

> "To establish abandonment of an easement the conduct of the dominant owner must, in our judgement, have been such as to make clear that he had at the relevant time a firm intention that neither he nor any successor in title of his should thereafter make use of the easement .... abandonment is not, we think, to be lightly inferred. Owners of properties do not normally wish to divest themselves of it unless it is to their advantage to do so, not withstanding that they may have no present use of it."

It is often repeated that mere non-use does not amount to abandonment. For example, in *Cullen v. Dublin Corporation*, Unreported, Supreme Court, 22nd of July,1960, an easement of watercourse that was not utilised for 32 years, Kingsmill Moore J said that where the right is valuable the question arises as to why any owner would abandon it when it potentially enhances the value of his lands. Therefore, there must be non-user coupled with evidence of an intention to abandon, such as the blocking of a right of way with a wall followed by a long period of non-user.

In the case where a dye works had a right to build a stream but where the works had been demolished, the person who claimed to commence the pollution 25 years later under the same right was unsuccessful: *Crossley & Sons ltd .v. Lightowler* (1867) LR 3 Eq 279.

Review of the planning file leading to the Old Mill apartment complex might possibly reveal whether the culvert is being utilised for any means of drainage.

The demolition of the mill could also be fatal to an express grant or prescriptive acquisition of the right to a millrace for such right could no longer be exercised.

Section 39 of the Land and Conveyancing Law Reform Act, 2009 introduced a provision for the automatic statutory extinguishment of unregistered easements and profits acquired by prescription or implication on the expiration of a 12 year continuous period of non-user, provided that at least three years of the period of such non-user occurred after the commencement of the Act on the 1st of December,2009. Statutory abandonment is easier to establish than common law abandonment since statutory abandonment only requires a "12-year period of non-user" and there is no further requirement to adduce evidence sufficient to raise the inference of an intention to abandon.

A further important distinction between statutory abandonment and common law abandonment is that common law abandonment can be relied upon to extinguish rights acquired by any means, but statutory abandonment under section 39 is only effective in respect of unregistered rights acquired by prescription or implied grant of reservation.

Such right as may be claimed in this case is not registered, but it could conceivably have been created by an express grant or reservation.

In so far as I can ascertain from the culvert inspection report, the culvert is not dry in that, for example, photograph 002/015 illustrates water coming from the breached culvert into a trial hole. The water may come from the former mill premises, or alternatively, it could come from an alternative location such as the community hall as contemplated by Mr Morgan in his note to photograph 002/009.

On the relatively limited information to hand, it does seem to be a viable proposition that such right as originally existed for the benefit of the mill premises has been abandoned when the mill was demolished. The concern is that there may be some other parasitic rights acquired by either the mill premises of other properties who could have joined connections to the culvert. If such connections took place secretly, or in circumstances

where the owner of Querist's premises could not reasonably become aware of the connection, then no rights could be acquired by prescription as subsequent user would no be as of right in that it would be, in the language of easements, *clam*.

The next question that arises is whether, working under the premise that there is a right of conduit held by some party in respect of the culvert, Querist as servient owner is entitled to remove the culvert and replace it with pipes to facilitate the development of its premises. Although there has been some debate on the issue, the better view is that a right to lay pipes or culverts in land and use them exclusively is an easement and no title to the land comprised in the conduit passes to the dominant owner. The servient owner accordingly owns the culvert, subject to the dominant owner's right to use it.

Prima facie the chattel is part of the land acquired by Querist. The dominant owner has implied rights to enter onto the servient land to repair the pipe, and can effectively be under a duty to do so if it leaks, since he has no right to create a nuisance by a leaking pipe. Where the servient owner uses the pipe, he is also entitled to repair it. Unless required by statute or contract, there is no obligation on the servient owner to repair a pipe.

There is no definitive authority on the question as to whether a servient owner can effect repairs to the certain matter of an easement without agreement with the dominant owner or against the dominant owner's wishes. I do not see any difficulty in principle with the servient owner doing so. By analogy, in the case of a right of way, the servient owner can do whatever he wants on his land so long as he does not interfere with the lawful use and enjoyment of the right of way, and it cannot reasonably be argued that the resurfacing, repair and improvement of the right of way amounts to a real and substantial interference with its exercise. Similarly, the replacement of an old culvert with new pipes cannot be said to interfere with the exercise of right of conduit if there is a preservation of the flow. If the culvert is leaking at any point, or it can be established that it is likely to leak, then the servient owner would be acting within his right in abating the nuisance or apprehended nuisance. Again, working by analogy, just because there is a right of way over my land does not mean that I have to suffer it descending into potholes just because the dominant owner does not exercise his ancillary right to carry out repairs.

The dominant owner could not replace the conduit with pipes as such would alter the character of the right and in theory at least increase the burden on the servient tenement. But, again, I see no difficulty in principle to the servient owner changing the character of the conduit, when there is no real or substantial interference with the exercise of the right (if any).

In summary, the following conclusions arise:

(a) There is no evidence of the existence of any rights in respect of the culvert, but there is a risk that at some time historically the mill premises enjoyed a right in respect of it, and that other properties may drain into it.

(b) It is safe to conclude that any right that formerly existed for the benefit of the mill has been released by abandonment.

(c) It would be difficult for owners who connected into the culvert to assert prescriptive rights if the owner of Querist's premises could not have reasonably ascertained the fact of those connections.

(d) Operating under the premise that there may be prescriptive rights to use the culvert as a drain from premises on its route, Querist is entitled to improve the watercourse by changing it from a culvert to pipes of a similar capacity provided that doing so would not create any real and substantial interference with the exercise of any such rights. Querist's right to do so would be strengthened if Querist's land drained into

the culvert at any point.

(e) Whether or not Querist's lands are also served by the culvert, or whether the culvert is leaking at any point so as to justify abatement of that nuisance, I am satisfied to conclude that Querist will not be restrained from replacing the culvert with pipes of a similar capacity ensuring that there is no material change to the efficacy of the water course.

I enclose a note of suggested fees.

Please do not hesitate to contact me if I can be of any further assistance.

Best wishes,

Yours sincerely,

Peter Bland SC

Enc.

Peter Bland SC

Law Library Building, 158/9 Church Street, Dublin 7

086-2475044 peterblandsc@gmail.com DX 815306 B

Matthew Ryan, Esq,
Ryan Solicitors,
46 Harrington Street,
Portobello,
Dublin 8,
DX 109003 Fitzwilliam.

6th June 2020

Re: Dublin Simon Community.

Dear Matthew,

I have advised previously that on the instructions received, there is no evidence of the existence of any rights in respect of the culvert, but there was a risk that at some time historically the mill premises enjoyed a right in respect of it. As the mill is no longer in existence, I am fully satisfied any right that formerly existed for the benefit of the mill has been released by abandonment.

I have been advised that further investigations have revealed that three potential storm water connections outside the boundary of the site that may have a parasitic connection to the culvert. As these were connected without the knowledge of the owner of the site, the use has been *clam*, and not as of right, so that no prescriptive rights could be acquired.

Even if there were prescriptive rights, those rights would be to discharge from the dominant tenement, and would not extend to a right to require the drainage conduit or conduits on the servient tenement to remain preserved in their original state. If there is a right to discharge into a conduit on my land, I may replace that conduit so long as I do so with a similar or improved structure so that there is no infringement of the right. The measure of the right is the history of the use, and has been identified by technical assessment.

As previously advised, Querist is entitled to improve the watercourse by changing it from a culvert to pipes of a similar capacity provided that doing so would not create any real and substantial interference with the exercise of such theoretical and unlikely third party rights by ensuring that there is no material change to the efficacy of the watercourse.

I have read and considered the IE Consulting assessment report, which outlines the assessment of the existing culvert and the design capacities required for a proposed replacement, the report of Rory O'Moore which identifies and explains the proposed design solution of three 900mm diameter concrete pipes and the map prepared by Hayes Higgins Partnership of the route of the proposed new system which tracks the route of the existing culvert.

I am satisfied from my understanding of this material that the proposed works will not infringe any third party rights that may possibly exist in the respect of the former culvert. The design capacity of the proposed

solution has been fully modelled to provide storm water drainage capacity for all potential flow rates based on the surrounding lands and the potential connections.

As such the proposed design solution should not create any real or substantial interference to the identified potential drainage connections.

Please do not hesitate to contact me if I can be of any further assistance.

Best wishes,

Yours sincerely,

Peter Bland SC

Enc.

HAYES HIGGINS PARTNERSHIP
CHARTERED ENGINEERS • PROJECT MANAGERS

Our Ref: 17D070/02

Project Ref: Nangor Road

Re: Surface Water Drainage
South Dublin County Council Preplanning Ref: SD22A/041

Date: 16th November 2023

2HP have undertaken a a review surface drainage and site strategy with regards to SuDS. All possible SuDs mechanisms have been explored, refer to the justification matrix for SuDs enclosed. The site investigation confirms an infiltration rate of 3.067×10^{-5} m/s is available. Given the infiltration rate we can utilise natural infiltration of the surface water generated on site within the site and a connection to the public system may not be required required. Further exploration of the on-site conditions can be carried out as required. As such an attenuation tank is not required for this site.

SuDS measures to be utilised on this site include;

- Permeable surfacing – will be used within the pathways, this will allow natural infiltration.
- Soakaway – will be used to deal with the roofs area. The soakway has been suitably sized to also allow for some surface run-off from path hard standing.
- Rain gardens / planting – will be utilized also as required

To alleviate any possible risk of flood the on-site surface water system is designed for a 1 in 100-year storm (+30%). A 30% increase in runoff due to global warming is included. Site specific MET Eireann Rainfall data has been used in the surface water drainage and soakaway design.

Encls.
Soakaway Calculation, SuDs Matrix Document, Infiltration Rate

John Hayes BE CEng FIEI ACIArb MSAE **Donal Higgins** BE Ceng FIEI EurIng **Niall Patterson** B.Sc.(Eng) CEng MIStructE MIE
Sean Murphy BEng CEng MIStructE MIEI **Paul Nolan** BEng(Hons) MSc CEng MIEI **Ross Lynam** BEng CEng Dip StructEng CertEng MIEI MIstructE

2nd Floor, The Glass House, 11 Coke Lane, Smithfield, Dublin 7.
Tel: +353 (0)1 661 2321 **Email:** admin@hayeshiggins.ie
Web: www.hhp.ie

Job Title: Nangir **Job Number:** 17D070
Calculation by: LM **Date:** Nov-23
Checked by:

Soakway Design: BRE Digest 365 1-100+30%

	Storm Frequency & Duration	Rainfall (mm)	I Inflow imper. area (m3)	O Outflow from soakaway during rainfall (m3)	Sreq Allowing for infiltration (m3)	Sufficient storage required	ts50 Time to empty half storage vol. (hours)	ts50 < 24 hours
5	M100-5	20.88	16.58	0.28	16.3	pass	2.5	pass
10	M100-10	29.16	23.15	0.55	22.6	pass	3.4	pass
15	M100-15	34.32	27.25	0.83	26.4	pass	4.0	pass
30	M100-30	42.48	33.73	1.66	32.1	pass	4.8	pass
60	M100-60	52.68	41.83	3.31	38.5	pass	5.8	pass
120	M100-120	65.28	51.83	6.62	45.2	pass	6.8	pass
240	M100 - 4hr	81.00	64.31	13.25	51.1	pass	7.7	pass
360	**M100-6 hr**	91.80	**72.89**	**19.87**	**53.0**	**pass**	**8.0**	**pass**
720	M100-12 hr	113.88	90.42	39.74	50.7	pass	7.7	pass

Run-off 0 l/s
Imp. Area 794 m^2 Full hardstanding

Soakaway Details

width 10
depth 1.5
length 10

as50 30 volume 150
actual vol 60
filtration 3.06667E-05 m/s (GRANULAR 40% voids)

0.00184 m/m
3.06667E-05 m/s

SUDS/Green Infrastructure feasibility checklist – 17D070 – November 2023

SuDS Measures	Measures to be used on this site	Rationale for selecting/not selecting measure
Source Control		
Swales	N	There is limited space within the site for same.
Tree Pits	N	Tree pits maybe included in landscape design – to be reviewed. Not included in the SuDs calculations, but they will contribute.
Rainwater Butts	TBC	Usage will be reviewed with architect and client.
Rainwater harvesting	TBC	Will be reviewed with the architect and client to see if it is a viable option.
Soakaways	Y	Included for hardstanding roof and path areas.
Infiltration trenches	N	Not required.
Permeable pavement	Y	Permeable surfacing will be provided to allow infiltration directly to the ground.
Green Roofs	N	Not viable due to nature of development
Filter strips	N	Filter strips maybe included in landscape design – to be reviewed. Not included in the SuDs calculations, but they will contribute.
Bio-retention systems/Raingardens	N	Raingardens maybe included in landscape design – to be reviewed. Not included in the SuDs calculations, but they will contribute. Site space is limited.
Blue Roofs	N	Not cost effective over the lifespan due to maintenance.
Filter Drain	N	Not currently proposed.
Site Control		
Detention Basins	N	No available room on site for large bodies of water and poses a potential drowning hazard.
Retentions basins	N	No available room on site for large bodies of water and poses a potential drowning hazard.
Regional Control		
Ponds	N	No available room on site for large bodies of water and poses a potential drowning hazard
Wetlands	N	No available room on site for large bodies of water and poses a potential drowning hazard.
Other		
Petrol/Oil interceptor	N	Not required.
Attenuation tank – only as a last resort where other measures are not feasible	N	Not required.

The boreholes confirm the presence of MADE GROUND extending from ground level at each location. The thickness of fill varies from 0.40 metres at BH01 to 2.10 metres at BH05. The fill is generally of gravelly clay composition, containing traces of brick, roots, plastic and organics.

Below the fill is a thin stratum of firn to stiff grey black gravelly CLAY (boulder clay). The boulder clay continues to depths ranging from 1.60 to 4.00 metres, where refusal was recorded following a period of abortive chiselling at each location.

It is probable that the final refusal depths are indicative of the weathered shaley limestone bedrock horizon. However limestone boulders may also have resulted in borehole refusal. Proof core drilling to confirm bedrock parameters was not scheduled for this investigation.

No groundwater was noted during the course of the borehole investigation. A standpipe was installed at BH01 to facilitate future groundwater observations.

b. Trial Pits

Trial Pits were opened at five locations using a 14 tonne excavator under engineering supervision. Excavations were carefully logged and photographed and samples were recovered for laboratory analysis. Detailed records are presented in Appendix 2.

The trial pit records confirm the presence of MADE GROUND over the site area. The thickness of fill ranged from 0.80 to 1.80 metres.

At TP01 the made ground extends to 1.70 with refusal recorded at this point.

The remaining trial pits encountered a thin stratum of stiff dark grey gravelly CLAY (black boulder clay) below the fill. Excavator refusal generally on black shale / limestone was noted at depths between 1.80 and 2.10 metres.

Slight water seepage was noted at the base of TP04 and TP05. The remaining excavations were dry.

c. BRE Digest 3 65 Soakaway

A soakaway tests was carried at one excavated trial pit where made ground extended to 1.90 metres with shale fragments at the base of the excavation.

The test was performed in accordance with BRE Digest 365, over two stages following initial soakage. Test data is presented in Appendix 3.

The infiltration rate calculated from the final phase of test are as follows:

SA1 Infiltration Rate (f) = 0.00184 metres/minute