Proposed Residential Development at 49/50 Old Market Place, Gurranabraher, Cork City

ENGINEERING INFRASTRUCTURE REPORT & DRAINAGE IMPACT ASSESSMENT

Prepared for:	HRP Construction
Prepared by:	MMOS Consulting Engineers
Date:	24.02.2026
Job Number:	21021
Reference:	21021-MMS-XX-XX-RP-C-0001

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS

MMOS Consulting Civil & Structural Engineers,
The Chapel, Blackrock House, Blackrock Road, Cork, T12 KRK7.
T 00353 (0)21 4317608 mmosengineers.com

Prepared for: HRP Construction

Report Title: Engineering Infrastructure Report & Drainage Impact Assessment
Project Title: Proposed Residential Development at 49/50 Old Market Place, Gurranabraher, Cork City.

REVISION CONTROL TABLE

Document reference: 21021-MMS-XX-XX-RP-C-0001

Revision	Date	Issue	Author	Checked
00	13.09.2024	Issued for Planning	KC	PM
01	15.11.2024	Revised for Planning Clarifications	KC	PM
02	09.12.2024	Revised for Planning Clarifications	KC	PM
03	09.01.2025	Revised for Planning Clarifications	KC	PM
04	12.02.2026	Revised for Planning Clarifications	KC	PM
05	24.02.2026	Revised for Planning Clarifications	KC	PM

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

MMOS Consulting Engineers were requested to undertake this report on behalf of HRP Construction (the Applicant) as part of a planning application to Cork City Council for a low-rise residential apartment development at 49/50 Old Market Place, Gurranabraher, Cork City, Co. Cork.

The Applicant is applying for Part 8 planning permission for a total of 14 no. residential apartment units and ancillary facilities as further detailed in Section 1.2. This engineering drainage report is to be read in conjunction with all planning drawings and relevant architect's drawings.

1.1. SITE LOCATION

The site for the proposed development is located within the Gurranabraher region of Cork City in proximity to the intersection of Glen Ryan Road, Wolfe Tone Street, and Cattle Market Avenue. This brownfield site is bounded by Glen Ryan Road to the south and established residential property to the west, north, and east. An aerial site view and location are shown in Figure 1 which indicates an outline of the proposed development boundary.

Figure 1 – Aerial Site View

The existing site levels slope from +34.80mOD in the northwestern area of the site to +32.71 mOD at the southeastern end of the site. Along the section of Glen Ryan Road and Wolfe Tone Street which fronts this development, the road slopes from +32.00mOD near the southwestern boundary, to +31.78mOD near the southeastern boundary.

1.2. PROPOSED DEVELOPMENT

This report accompanies the planning application for a 3-storey apartment building containing 14 no. residential units and all ancillary site development works.

The proposed development includes the provision of a ramped and stepped pedestrian access route to the site from the existing Glen Ryan Road northern footpath.

This development will also include the provision of paths, open space fronting the apartment building, boundary treatments, tree planting, and Sustainable Urban Drainage Systems (SuDS).

The proposed development includes all associated and ancillary development and servicing works above and below ground to facilitate the construction and operation of the development.

Please refer to the architects' drawings attached to this application for full site details and unit elevations.

1.3. SCOPE OF REPORT

This report describes the civil engineering infrastructure for the proposed development and how it connects to the local public infrastructure. This report has been prepared by reviewing available data from the client, design team, local authority sources, national bodies, and through onsite surveys completed to date, and it addresses the following:

- Surface Water Drainage
- Wastewater Drainage
- Potable Water Supply

This report is to be read in conjunction with all planning and relevant architect's drawings

1.4. CONSULTATION

In advance of preparing this report, we have consulted with Uisce Éireann, Cork City Council Drainage, and the Cork City Development Plan 2022-2028.The Cork City Development Plan 2022-2028 advises on the discharge of surface water into the public system and SuDS to be implemented in all future developments.

Uisce Éireann previously issued a Confirmation of Feasibility stating that both wastewater and water connections were feasible based on the existing Uisce Éireann infrastructure within the vicinity of the development area. In response to clarification requests from Cork City Council and ongoing consultation with Cork City Council Drainage, a new Pre-Connection Enquiry has been submitted to Uisce Éireann as further detailed in the following sections.

2. EXISTING SERVICES

A confirmation of feasibility, as enclosed in Appendix C, and existing services records were received from Uisce Éireann.

The existing Uisce Éireann services record maps indicate a 6" cast-iron and a 450mm ductile iron Uisce Éireann owned water pipe running along Glen Ryan Road as shown in Figure 2.

The existing Uisce Éireann services record map for the wastewater sewer network indicates a 225mm diameter combined sewer of unknown material type along Glen Ryan Road as shown in Figure 3.

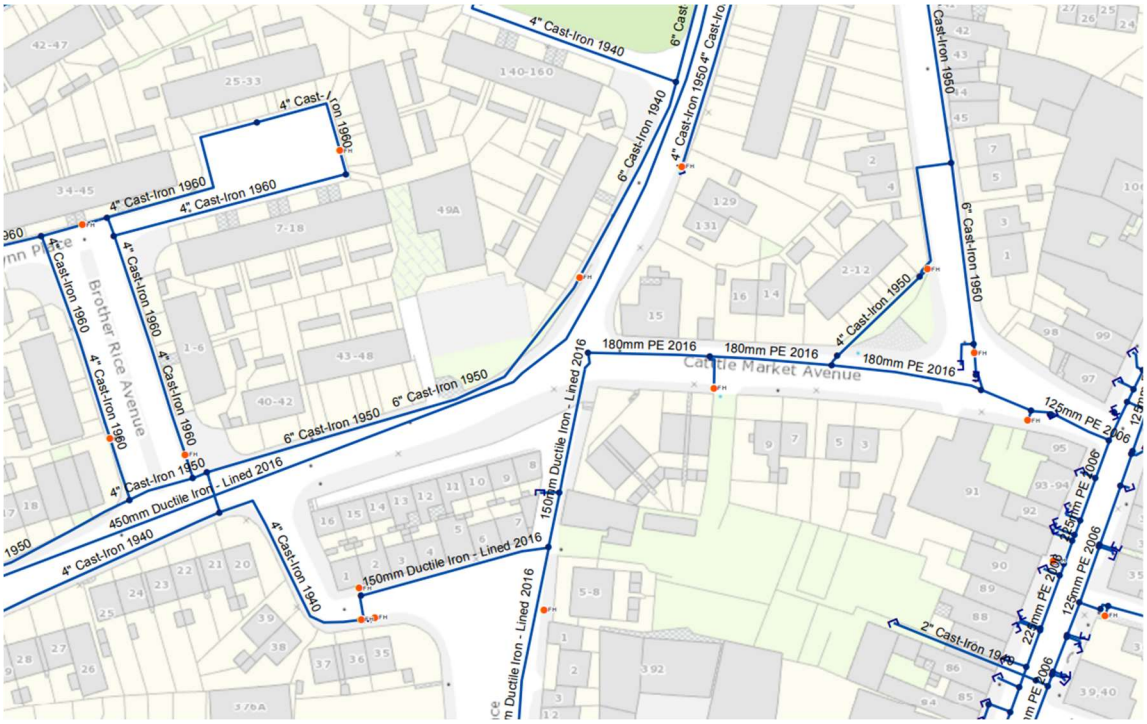


Figure 2 – Watermain record map (Uisce Éireann)

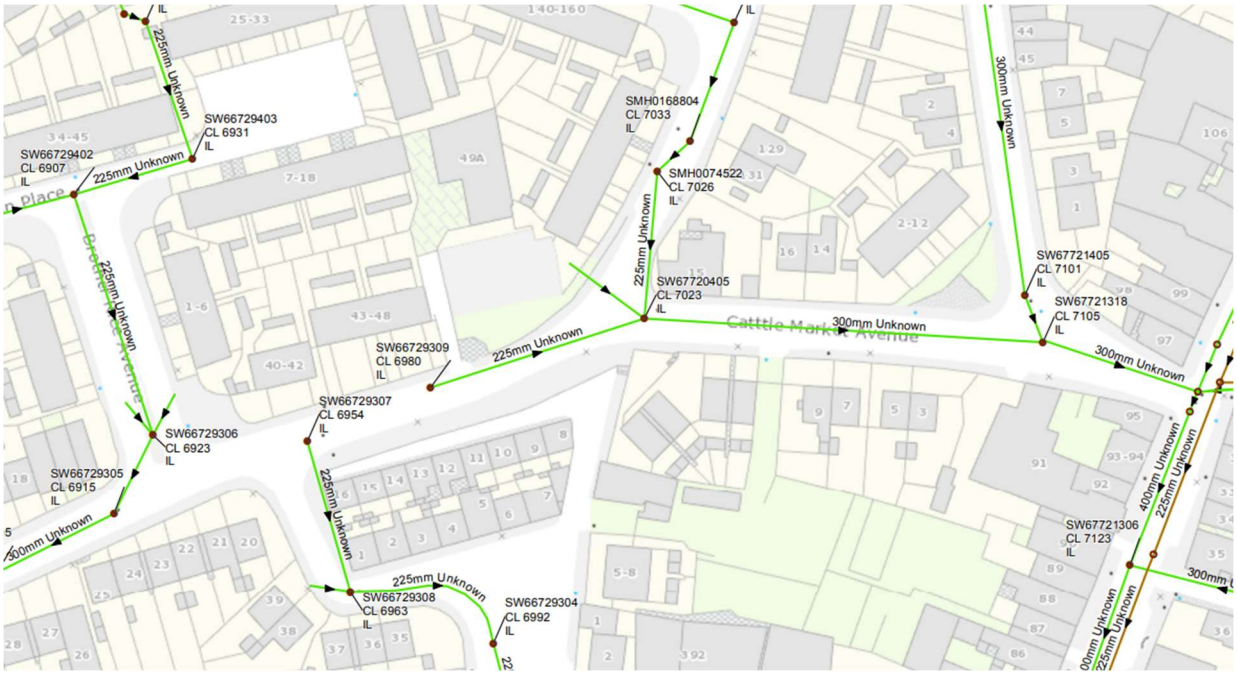


Figure 3 – Wastewater record map (Uisce Éireann)

3. SURFACE DRAINAGE PROPOSAL

3.1. REQUIREMENTS OF THE DEVELOPMENT PLAN

Objective 9.4 of the Cork City Development Plan 2022-2028 specifies that “all planning applications for new developments incorporate SuDS in so far as possible.” Such proposals shall be accompanied by a comprehensive SuDS assessment including run-off quantity, run off quality, and impacts on habitat and water quality. As such, SuDS implementation is at the core of the proposed surface water drainage strategy for this development to allow for the application of nature-based solutions (NBS) which, whilst providing temporary water retention, will also allow for the integration of green infrastructure within this development.

As part of this planning application, we have undertaken a review of all possible SuDS measures which can be incorporated into the scheme including measures such as the introduction of permeable pavements, tree pits, swales, storage ponds, constructed wetlands, and soakaways. This review is undertaken with consideration given to the spatial planning of this development and the housing density.

Cork City Council also advises that "In some exceptional cases, and at the discretion of the Council, where it is demonstrated that SuDS devices are not feasible, approval may be given to install underground attenuation tanks or enlarged pipes in conjunction with other devices to achieve the required water quality. Such alternative measures will only be considered as a last resort. Proposals for surface water attenuation systems should include maintenance proposals and procedures".

3.2. SUDS MEASURES ASSESSED

3.2.1. Storage Ponds

It will not be practical to incorporate surface water storage ponds within this development from a space planning perspective.

3.2.2. Tree Pits

To the front of the development facing onto Glen Ryan Road, it is considered that there is potential viability in the incorporation of tree pits.

3.2.3. Permeable Paving

Permeable paving is proposed for the rear of this development.

3.2.4. Soakaways

It will not be practical to incorporate soakaways within this development from a space planning perspective.

3.2.5. Wetlands

Rain gardens are proposed for a section to the south of the development.

3.2.6. Wetlands

It will not be practical to incorporate wetlands within this development from a space planning perspective.

3.2.7. Swales

It will not be practical to incorporate swales within this development from a space planning perspective.

3.3. SUDS MEASURES ADOPTED

3.3.1. Tree Pits

The installation of tree pits along the front of the development is proposed due to the relative sizing of such installations. Tree Pits will be provided in conjunction with the landscaping design where surface water will be directed to the tree pits to provide infiltration and surface water cleaning. An overflow pipe back to the main surface water runs will be provided to prevent against flooding in scenarios where the tree pits are overwhelmed during periods of excessive rainfall.

There exists potential for the tree pits to filter out pollutants from runoff, thus reducing the potential pollutant loadings within receiving waters. Further environmental benefits may be experienced through the promotion of biodiverse habitats associated with the introduction of tree pits. This incorporation is in alignment with the SuDS hierarchal selection order proposed by local authorities whereby source control is idealised inclusive of tree pits.

3.3.2. Rain Gardens

Rain Garden/Planters are proposed for the rear space within the development. These installations will allow for surface water drainage from the paved or roofed areas as applicable, whilst simultaneously providing ancillary biodiversity benefits.

This incorporation is in alignment with the SuDS hierarchal selection order proposed by local authorities whereby source control and interception is idealised, inclusive of Rain Gardens.

3.3.3. Permeable Paving

Within the development, to assist with the management of surface water runoff following heavy rainfall, permeable paving is proposed for the rear of the development as indicated on the drawing *"21021-MMS-ZZ-ST-DR-C-10002 – Proposed Surface Drainage Layout Plan"* enclosed in Appendix A. Simultaneously, it will assist with maintaining a hydrological balance which reduces the quantity and speed of surface water discharge through the stormwater system.

This incorporation is in alignment with the SuDS hierarchal selection order proposed by local authorities whereby source control is idealised inclusive of permeable paving.

3.3.4. Attenuation Tank

Due to the previously identified constraints in implementing various SuDS measures with the exception of tree pits, rain gardens, and permeable paving, a below-ground attenuation tank is proposed for the management of surface water from the roofed and paved areas within the development as further discussed in Section 3.4.

3.4. SURFACE WATER DESIGN

Through the use of tree pits, it will allow for the temporary storage and filtration of surface water from this development whilst providing ancillary biodiversity benefits.

The proposed surface water drainage will connect to the existing combined sewer of 225mm diameter running along Glen Ryan Road; however, further information is required regarding surface water drainage in this area. It is proposed that a surface water discharge to this combined sewer will be controlled with a vortex flow control manhole set at a rate of 2 l/s. The proposed surface water drainage system is indicated on drawing *"21021-MMS-ZZ-ST-DR-C-10002 – Proposed Surface Drainage Layout"* enclosed in Appendix A.

Attenuation storage is proposed to be provided in a 14.05 m^3 off-line below ground tank as indicated on the surface water drainage drawing enclosed in Appendix A. The attenuation calculations are presented in Appendix B.

The attenuation storage holds capacity for a 1 in 100 year storm event and includes a 20% increased allowance for climate change. The off-line attenuation system is designed to allow water to pass through to the combined sewer until the flow limit equal to 2 l/s is reached and the vortex flow control manhole limits the flow. Following this, the preceding proposed 225mm diameter surface water pipe begins to fill, and surface water is returned to the manhole which is connected to the attenuation tank. Within this manhole, the inlet to the attenuation tank is located above the normal dry weather flow level. Once the surface water reaches this level, it then enters the attenuation tank.

A greenfield theoretical rate (Qbar) of 0.3 l/s has been determined for the total site area of approximately 536.9 m^2, and the calculation is enclosed in Appendix B.

A net site contributing area of approximately 461m^2 has been determined by applying an impermeability factor of 90%, 85%, and 30% to the roofed, paved, and landscaped areas respectively. The calculation is enclosed in Appendix B.

As previously discussed, a new Pre-Connection Enquiry was submitted to Uisce Éireann on the 15.11.2024 (REF: CDS24009984) which indicated the requirement of explicit consent for the discharge of surface water to the combined system.

It should be noted that all surface water drainage works will be undertaken in accordance with the local authority requirements and Cork City Council standards.

3.5. SUSTAINABLE DRAINAGE MAINTENANCE

3.5.1. Tree Pits

Table 1 – Tree Pits – Sustainable Drainage Maintenance

REGULAR MAINTENANCE	**FREQUENCY**
Remove litter and debris.	Monthly/As required
Manage other vegetation and remove nuisance plants.	Monthly/As required
Inspect inlets and outlets	Inspect monthly/As required
OCCASIONAL TASKS	**FREQUENCY**
Check tree health and manage tree appropriately.	Annually
Replace mulch as necessary.	As required
Water the tree.	As required
Remove silt build-up from inlets and surface.	Annually/As required
Inspect underdrain system for blockage	As required
REMEDIAL WORK	**FREQUENCY**
Even when a tree is planted in optimal conditions, scenarios like pest infection, disease, and car	As required

accidents can cause the premature death of tree being necessary removal and replating of a tree.	
MONITORING	**FREQUENCY**
Inspect silt accumulation rates and establish appropriate removal frequencies.	Half-yearly

3.5.2. Permeable Paving

Table 2 – Permeable Paving Maintenance

REGULAR MAINTENANCE	**FREQUENCY**
Brush regularly and remove sweepings from all hard surfaces. Based on site-specific observations of clogging or manufacturer's recommendations.	Monthly/ After autumn leaf fall
OCCASIONAL TASKS	**FREQUENCY**
Brush and vacuum surface once a year to prevent silt blockage and enhance design life.	Annually
Stabilise and mow contributing and adjacent areas	As required
Removal of weeds or management using direct application of appropriate herbicide	As required – Once per year on less frequently used pavements
REMEDIAL WORK	**FREQUENCY**
Monitor effectiveness of permeable pavement and when water does not infiltrate immediately advise Client of possible need for reinstatement of top layers or specialist cleaning.	As required
Recent experience suggests jet washing and suction cleaning will substantially reinstate pavement to 90% efficiency.	As required
Remediate any landscaping which has been raised to within 50mm of the paving level due to vegetation maintenance or soil slip.	As required

Remedial work to any depressions, rutting, and cracked or broken block which may be considered detrimental to the structural performance or hazardous to users. Lost jointing material should also be replaced.	As required
Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required if infiltration performance is reduced due to significant clogging.
MONITORING	**FREQUENCY**
Initial inspection	Monthly for three months after installation
Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Every three months/48hr after large storms during the first six months
Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually
Monitor inspection chambers	Annually

3.5.3. Rain Gardens

Table 3 – Rain Gardens/Bioretention Systems – Sustainable Drainage Maintenance

REGULAR MAINTENANCE	FREQUENCY
Inspect infiltration surfaces for silting and ponding.	Quarterly
Assess de-watering and standing water times to determine if maintenance is necessary.	Quarterly
Assess operation of underdrains by inspection of flows following rain.	Annually
Assess plants for disease, poor growth, and the presence of invasive species. Replace as necessary.	Quarterly
Remove litter, surface debris, and weeds.	Quarterly/As required

Replace any plants to maintain planting density.	As required
Remove sediment build-up and litter from around inlets or from forebays.	Quarterly/Biannually
OCCASIONAL TASKS	**FREQUENCY**
Raking away surface mulch, scarifying of surface medium and replacing mulch to repair minor silt accumulation.	As required
Infill any holes or scour in the surface medium and improve erosion protection if required.	As required
REMEDIAL WORK	**FREQUENCY**
Remove and replace filter medium and vegetation above.	As required

3.5.4. Attenuation Tank

The proposed attenuation tank will likely be constructed as a reinforced concrete underground tank or a StormTech tank. This tank will be provided with an access chamber on both ends, with a sump located within to allow for jet wash cleaning and extraction of silt for maintenance purposes. Maintenance plans and schedules are developed based on the type of tank adopted. These specific maintenance needs should be monitored, and schedules adjusted to suit requirements. The maintenance needs discussed in Table 4 may be appropriate.

Table 4 – Attenuation Tank – Sustainable Drainage Maintenance

REGULAR MAINTENANCE	FREQUENCY
Inspect and identify any area that are not operating correctly.	Monthly for three months then annually
Remove debris from the catchment surface where it may pose a risk to the tank system.	Monthly

Remove sediment from pre-treatment structures and/or internal forebays	Annually/As required
REMEDIAL WORK	**FREQUENCY**
Repair/rehabilitate inlets, outlet, overflows, and vents.	As required
MONITORING	**FREQUENCY**
Inspect inlets/outlets/vents/overflows to ensure they are in good working condition and operating as intended.	Annually
Survey the inside of tank for sediment build-up and remove if necessary	5 Years/As required

4. WASTEWATER DRAINAGE PROPOSAL

The wastewater drainage for the proposed development has been designed as a separate system to the storm with the final discharge to the suspected existing 225mm combined sewer along Glen Ryan Road. All wastewater drainage stacks from the units are to be collected beneath the ground floor slab and directed to the proposed new wastewater network onsite, which is proposed to then discharge to the existing wastewater sewer to the north of the site as outlined in Appendix A.

The proposed residential development is to comprise a total of no. 14 units. The proposed wastewater flow for this development has been estimated as 0.072 l/s for the average Dry Weather Flow (DWF), and 0.433 l/s for the peak DWF.

We note that the most recent Pre-Connection Enquiry was been submitted to Uisce Éireann regarding the proposed wastewater discharge for the development on the 20.10.2025 (REF: CDS25007987) and a Confirmation of Feasibility was issued by Uisce Éireann for that application six weeks later. The Confirmation of Feasibility is enclosed in Appendix C. As previously discussed, a Pre-Connection Enquiry was also submitted to Uisce Éireann on the 15.11.2024 (REF: CDS24009984) which indicated the requirement of explicit consent for the discharge of surface water to the combined/foul system.

Details of the proposed wastewater drainage layout are shown indicatively on the *'21021-MMS-ZZ-ST-DR-C-10003 – Proposed Wastewater Drainage Layout Plan'* drawing enclosed in Appendix A of this report. It should be noted that all wastewater drainage works will be undertaken in accordance with Uisce Éireann standard details and codes of practice for wastewater as required.

5. WATER SUPPLY PROPOSAL

The proposals for the water supply will involve taking a feed from the existing watermain outside the site which services the Glen Ryan Road. Sluice valves will be provided at appropriate locations to facilitate isolation and purging of the system. Details of the proposed watermain and hydrant layout are shown on the *'21021-MMS-ZZ-ST-DR-C-10004 – Proposed Watermain Layout Plan'* drawing enclosed in Appendix A.

The proposed water demand for the entire development has been estimated as 0.082 l/s for the average demand, and 0.410l/s for the peak hours.

As per Uisce Éireann requirements, the dwelling units will have an onsite water storage tank to satisfy the water demand storage requirement and cater for possible system shutdowns.

We note that the most recent Pre-Connection Enquiry has been submitted to Uisce Éireann with regards to the water supply for the proposed development on the 20.10.2025 (REF: CDS25007987) and a Confirmation of Feasibility was issued by Uisce Éireann for that application six weeks later. The Confirmation of Feasibility is enclosed in Appendix C. As previously discussed, a Pre-Connection Enquiry was also submitted to Uisce Éireann on the 15.11.2024 (REF: CDS24009984) which indicated the requirement of explicit consent for the discharge of surface water to the combined/foul system.

It should be noted that all watermain works will be undertaken in accordance with Uisce Éireann standard details and codes of practice for water as required.

APPENDIX A

(i) Proposed Overall Services Layout Plan: 21021-MMS-ZZ-ST-DR-C-10001

(ii) Proposed Surface Water Drainage Layout Plan: 21021-MMS-ZZ-ST-DR-C-10002

(iii) Proposed Wastewater Drainage Layout Plan: 21021-MMS-ZZ-ST-DR-C-10003

(iv) Proposed Watermain Layout Plan: 21021-MMS-ZZ-ST-DR-C-10004

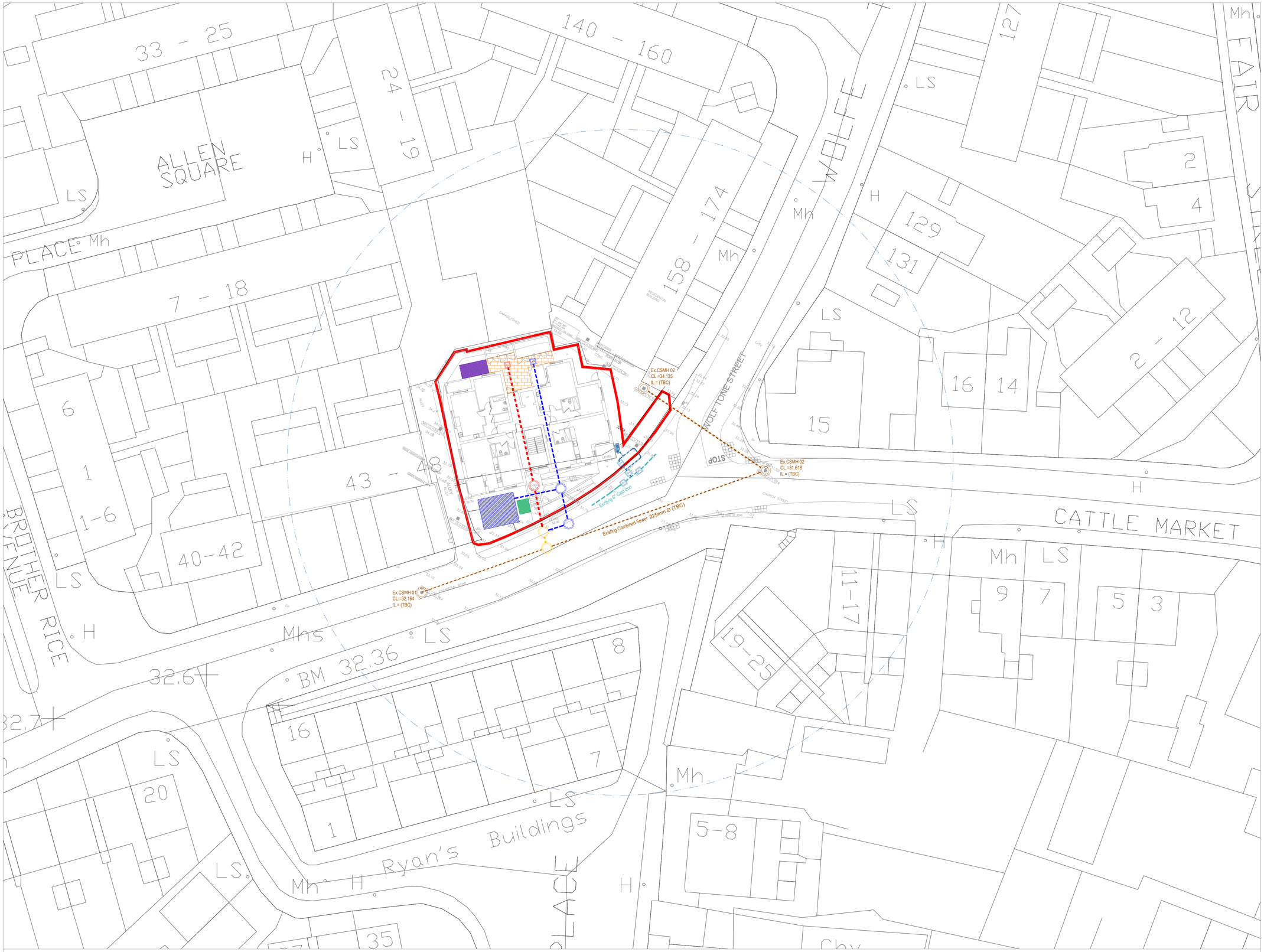
(v) Typical Manhole Details: 21021-MMS-ZZ-ST-DR-C-10005

(vi) Typical Trench Details: 21021-MMS-ZZ-ST-DR-C-10006

(vii) Typical Gully & Footpath Details: 21021-MMS-ZZ-ST-DR-C-10007

(viii) Typical Watermain Details: 21021-MMS-ZZ-ST-DR-C-10008

(ix) Typical Stormtech Attenuation Tank Details: 21021-MMS-ZZ-ST-DR-C-10009



PROPOSED OVERALL SERVICES LAYOUT

Scale 1:250 (A1) / 1:500 (A3)

LEGEND:

DENOTES PLANNING BOUNDARY

CIVIL LEGEND

- Ex. WATERMAIN
- IW APPROVED WATERMAIN 110MMØ HDPE
- PROPOSED COMBINED
- Ex. COMBINED SEWER
- PROPOSED WASTEWATER
- PROPSOED STORMWATER
- ATTENUATION TANK
- PERMEABLE PAVING
- TREE PIT
- RAIN GARDEN
- SLUICE VALVE (SV)
- FIRE HYDRANT (FH)
- METER BOX / MANIFOLD
- INSPECTION CHAMBER (IC)
- ACCESS JUNCTION (AJ)

Rev	Sts.	Description	Date
P01	S2	Issue for Planning	25.09.25
P02	S2	Issue for Planning	22.10.25

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
The Chapel, Blackrock House, Blackrock Road, Cork.
Tel : 353 21 4317608

PROJECT

Proposed Residential Development at 49/50 Old Market Place, Cork

CLIENT

HRP Construction

TITLE

Proposed Overall Services Layout Plan

DRAWN BY	CHECKED BY	APPROVED
KC	PM	PM

SCALE	PROJECT NUMBER
As Shown	21021

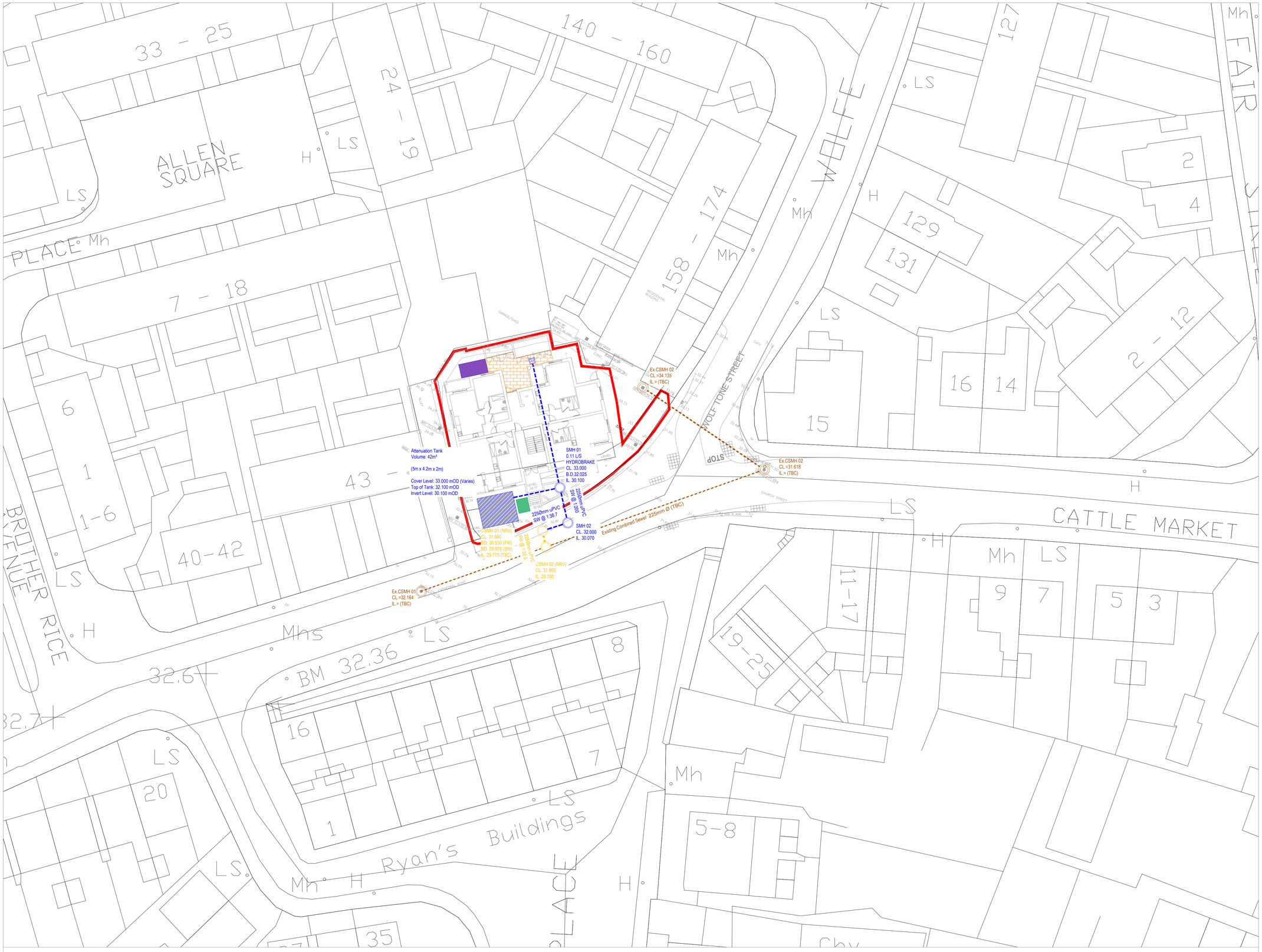
DOCUMENT REFERENCE

21021-MMS-ZZ-ST-DR-C-10001

STATUS: S2

REV: P02

PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER



PROPOSED SURFACE WATER DRAINAGE LAYOUT PLAN

Scale 1:250 (A1) / 1:500 (A3)

LEGEND:

DENOTES PLANNING BOUNDARY

CIVIL LEGEND

- Ex. WATERMAIN
- IW APPROVED WATERMAIN 110MMØ HDPE
- PROPOSED COMBINED
- Ex. COMBINED SEWER
- PROPOSED WASTEWATER
- PROPSOED STORMWATER
- ATTENUATION TANK
- PERMEABLE PAVING
- TREE PIT
- RAIN GARDEN
- SLUICE VALVE (SV)
- FIRE HYDRANT (FH)
- METER BOX / MANIFOLD
- INSPECTION CHAMBER (IC)
- ACCESS JUNCTION (AJ)

Rev	Sts.	Description	Date
P01	S2	Issue for Planning	25.09.25
P02	S2	Issue for Planning	22.10.25

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
The Chapel, Blackrock House, Blackrock Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

CLIENT
HRP Construction

TITLE
Proposed Surface Water Drainage Layout Plan

DRAWN BY	CHECKED BY	APPROVED
KC	PM	PM

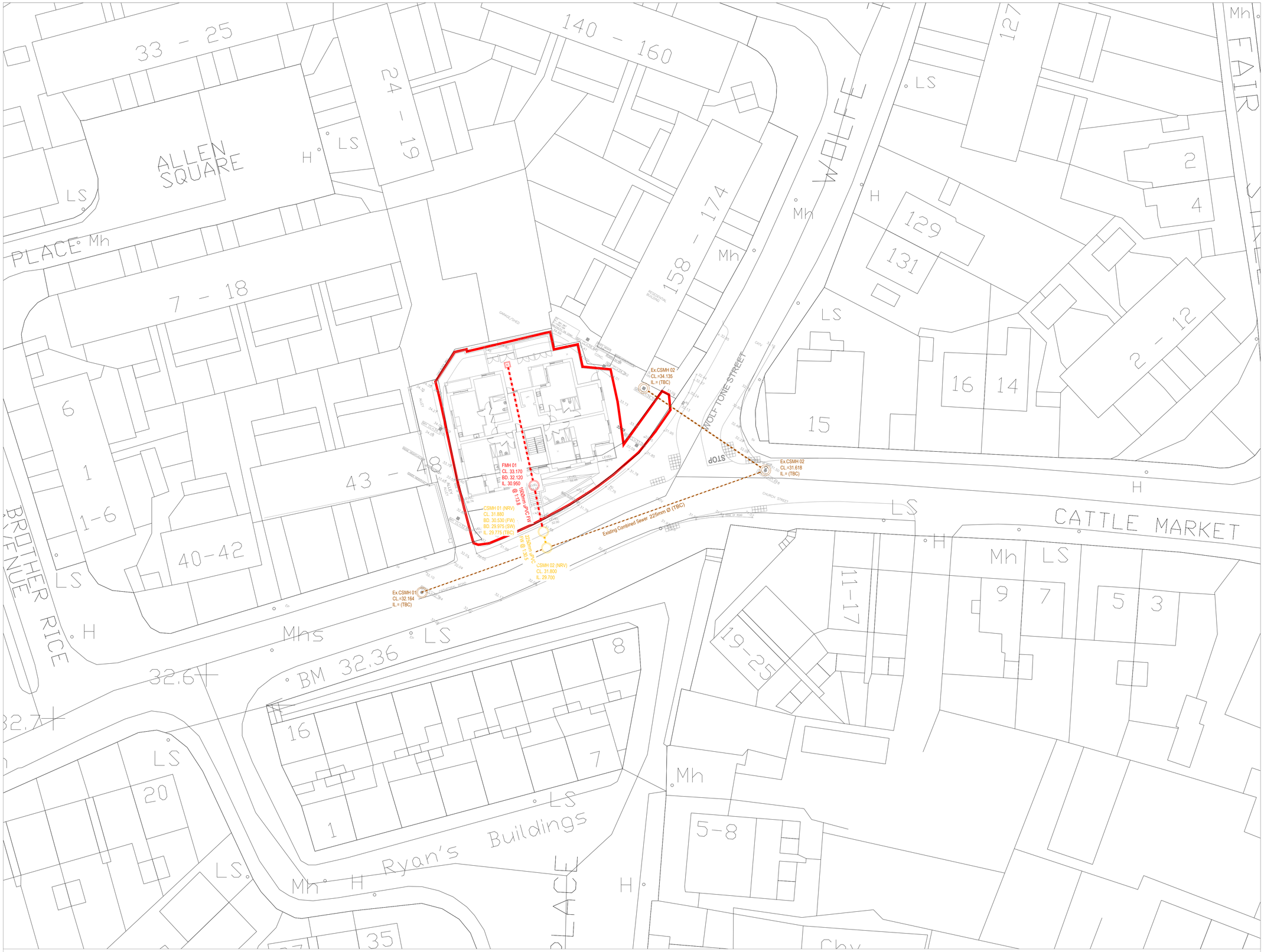
SCALE	PROJECT NUMBER
As Shown	21021

DOCUMENT REFERENCE
21021-MMS-ZZ-ST-DR-C-10002

STATUS: S2

REV: P02

PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER



PROPOSED WASTEWATER DRAINAGE LAYOUT

Scale 1:250 (A1) / 1:500 (A3)

LEGEND:

DENOTES PLANNING BOUNDARY

CIVIL LEGEND

- Ex. WATERMAIN
- IW APPROVED WATERMAIN 110MMØ HDPE
- PROPOSED COMBINED
- Ex. COMBINED SEWER
- PROPOSED WASTEWATER
- PROPSOED STORMWATER
- ATTENUATION TANK
- PERMEABLE PAVING
- TREE PIT
- RAIN GARDEN
- SLUICE VALVE (SV)
- FIRE HYDRANT (FH)
- METER BOX / MANIFOLD
- INSPECTION CHAMBER (IC)
- ACCESS JUNCTION (AJ)

Rev	Sts.	Description	Date
P01	S2	Issue for Planning	25.09.25

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
The Chapel, Blackrock House, Blackrock Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

CLIENT
HRP Construction

TITLE
Proposed Wastewater Drainage Layout Plan

DRAWN BY	CHECKED BY	APPROVED
KC	PM	PM

SCALE	PROJECT NUMBER
As Shown	21021

DOCUMENT REFERENCE
21021-MMS-ZZ-ST-DR-C-10003

STATUS: S2

REV: P01

PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER

PROPOSED WATERMAIN LAYOUT

Scale 1:250 (A1) / 1:500 (A3)

LEGEND:

DENOTES PLANNING BOUNDARY

CIVIL LEGEND

- Ex. WATERMAIN
- IW APPROVED WATERMAIN 110MMØ HDPE
- PROPOSED COMBINED
- Ex. COMBINED SEWER
- PROPOSED WASTEWATER
- PROPSOED STORMWATER
- ATTENUATION TANK
- PERMEABLE PAVING
- TREE PIT
- RAIN GARDEN
- SLUICE VALVE (SV)
- FIRE HYDRANT (FH)
- METER BOX / MANIFOLD
- INSPECTION CHAMBER (IC)
- ACCESS JUNCTION (AJ)

Rev	Sts.	Description	Date
P01	S2	Issue for Planning	25.09.25

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
The Chapel, Blackrock House, Blackrock Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

CLIENT
HRP Construction

TITLE
Proposed Watermain Layout Plan

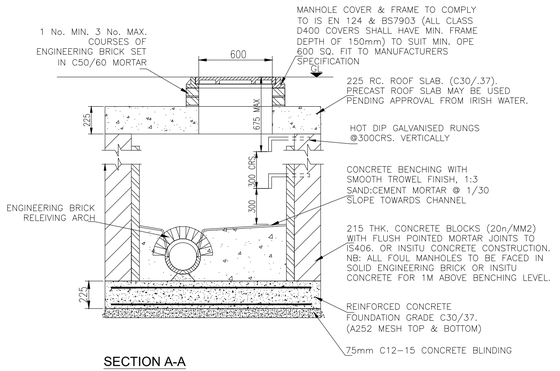
DRAWN BY	CHECKED BY	APPROVED
KC	PM	PM

SCALE	PROJECT NUMBER
As Shown	21021

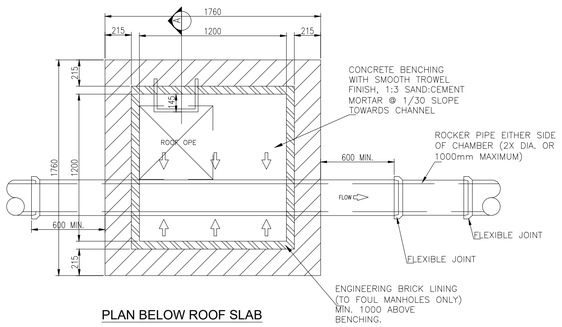
DOCUMENT REFERENCE
21021-MMS-ZZ-ST-DR-C-10004
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER

STATUS: S2

REV: P01



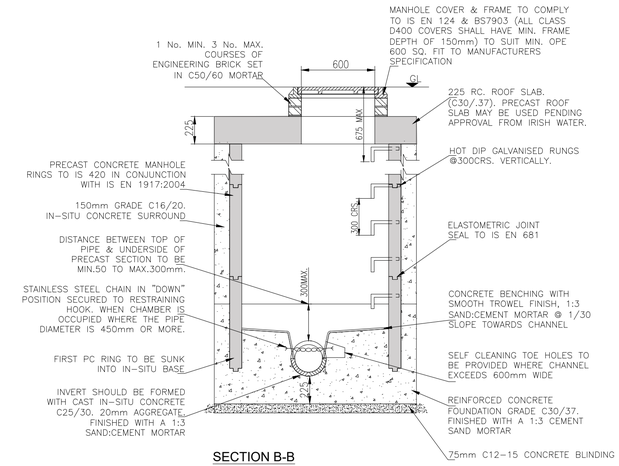
SECTION A-A



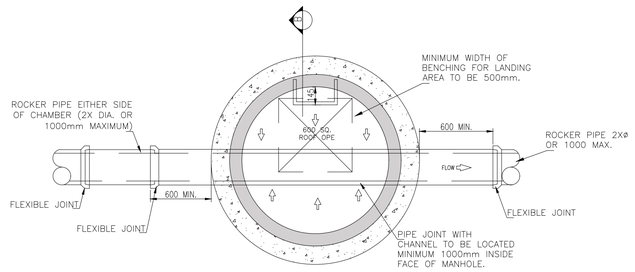
PLAN BELOW ROOF SLAB

BLOCKWORK MANHOLE FOR PIPE DIAMETERS < 450mm

MAX. DEPTH TO INVERT 1.2M (UNLESS OTHERWISE AGREED WITH MMOS & IRISH WATER)



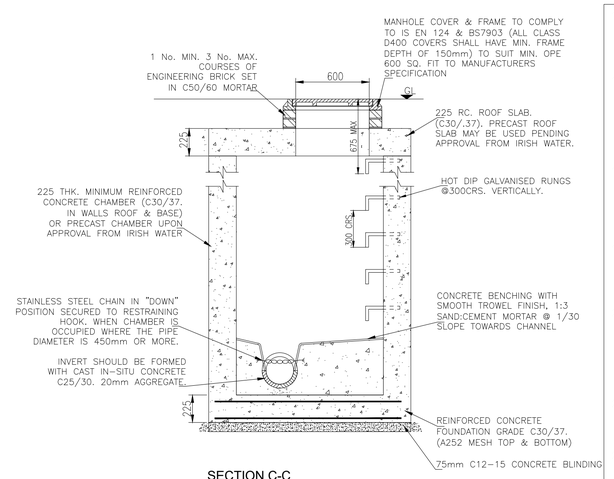
SECTION B-B



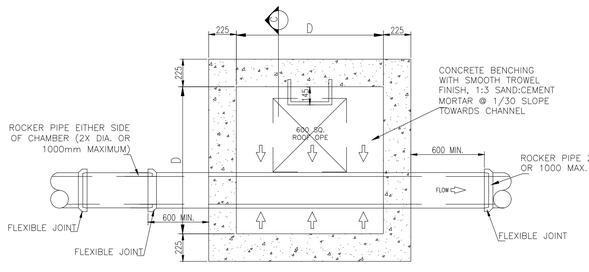
PLAN BELOW ROOF SLAB

PRE-CAST CONCRETE MANHOLE

MINIMUM MANHOLE DIAMETERS	
DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIMENSION OF MANHOLE (mm)
LESS THAN 375mm	1200
375 TO 450	1350
500 TO 750	1500



SECTION C-C



PLAN BELOW ROOF SLAB

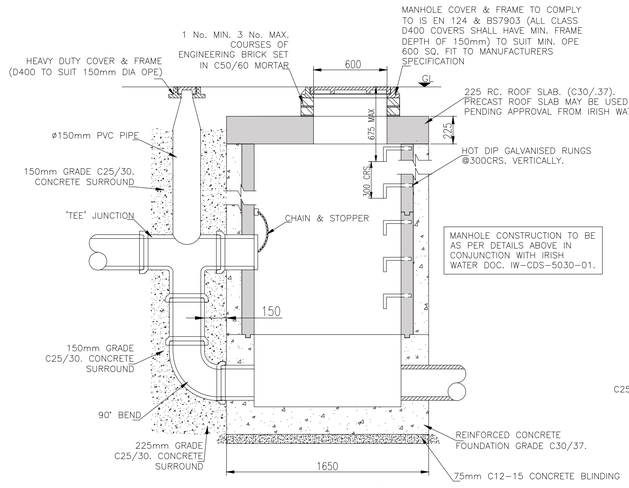
IN-SITU CONCRETE MANHOLE

MINIMUM MANHOLE DIMENSION "D"	
DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIMENSION OF MANHOLE (mm)
LESS THAN 375mm	1200
375 TO 450	1350
500 TO 750	1500

16. STEPS ARE REQUIRED IN MANHOLES UP TO A DEPTH OF 2.5M. MANHOLE LADDERS ARE REQUIRED FOR MANHOLES WITH A DEPTH IN EXCESS OF 2.5M & ARE TO COMPLY WITH IS EN 14396 & WITH BS4211
17. RODDING EYE CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
18. AN INSPECTION CHAMBER SHOULD BE LOCATED AT OR WITHIN 1m OF THE PROPERTY BOUNDARY AT THE UPSTREAM END OF EACH SERVICE CONNECTION ON THE PRIVATE SIDE OF THE CURTILAGE, IF PRACTICABLE.
19. ANY PIPE AND ASSOCIATED ACCESS UPSTREAM OF THE POINT OF CONNECTION TO A PUBLIC SEWER IS A PRIVATE DRAIN AND SHOULD BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS.
20. ACCESS POINTS SHOULD BE LOCATED SO THAT THEY ARE ACCESSIBLE AND APPARENT TO THE MAINTAINER AT ALL TIMES FOR USE. THEY SHOULD AVOID REAR GARDENS OR ENCLOSED LOCATIONS AND THEY SHOULD NEVER BE OVERLAIN WITH SURFACE DRESSING, TOPSOIL, ETC.
21. PROPRIETARY PREFABRICATED INSPECTION CHAMBER UNITS MAY BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
22. CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 OR CLAUSE 808 MATERIAL.
23. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 : 2013.
24. FOR ACCESS POINTS IN NON TRAFFICKED AREAS AROUND BUILDINGS AT PIPE HEADS, BENDS, JUNCTIONS OR CHANGES IN PIPE SIZES. PROPRIETARY AJ'S MAY BE USED FOR COVER TO INVERT LEVELS LESS THAN 600mm. SUBJECT TO ENGINEERS APPROVAL. INTERNAL AJ. SIZE MAY BE NO LESS THAN 300mm DIAMETER. COVER TO AJ TO BE THE SAME DIMENSION AS THE INTERNAL CHAMBER SIZE. WORKING SPACE MUST BE AVAILABLE AT GROUND LEVEL TO ACCESS CHAMBER.

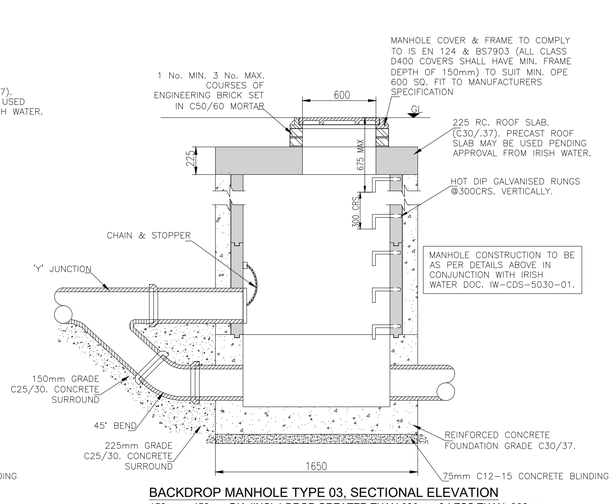
MANHOLE NOTES:

01. ALL WASTEWATER DRAINAGE DESIGNED & CONSTRUCTED TO COMPLY WITH IRISH WATER CONNECTION & DEVELOPER SERVICES CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE DOCUMENT, IW-CDS-5030-03.
02. ALL WASTEWATER DETAILS TO COMPLY WITH IRISH WATER CONNECTION & DEVELOPER SERVICES, WASTE WATER INFRASTRUCTURE STANDARD DETAILS, IRISH WATER DOCUMENT, IW-CDS-5030-01.
03. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
04. IN-SITU MANHOLES TO HAVE A MINIMUM WALL AND FLOOR THICKNESS OF 225mm FOR MANHOLE DEPTHS UP TO 3.0m AND 300mm OR MORE WHEN THE MANHOLE DEPTH EXCEEDS 3.0m.
05. STRUCTURAL DESIGN & REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
06. MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER APPROVAL.
07. MAXIMUM DEPTH OF BLOCKWORK MANHOLE IS 1.20m (THE USE OF BLOCKWORK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH USE WILL REQUIRE DETAILED STRUCTURAL DESIGN AND WRITTEN APPROVAL FROM IRISH WATER).
08. THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.
09. WALLS IN BLOCKWORK MANHOLES FOR FOUL SEWERS TO BE FLUSH POINTED AND NOT PLASTERED INTERNALLY, INTERNAL LINING OF ENGINEERING BRICK TO IS EN 771-1 TO A HEIGHT OF 1m ABOVE BENCHING. ENGINEERING BRICK TO BE BONDED TO BLOCKWORK USING ENGLISH GARDEN WALL BOND.
10. PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND BS 5911-PART 3.
11. APPROVED PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER APPROVAL AND COMPLYING WITH BS 5911-PART 4 2002.
12. COVERS AND FRAMES SHALL COMPLY WITH IS EN 124 & BS7903 & BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
13. MANHOLE ROOF SLABS SHOULD CONSIST OF RE-INFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30 / 37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS, ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO IRISH WATER APPROVAL AND COMPLIANCE WITH BS 5911 PART 4: 2002.
14. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
15. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.



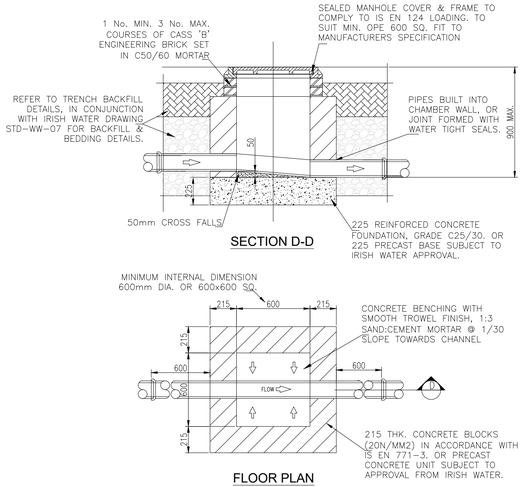
BACKDROP MANHOLE TYPE 02, SECTIONAL ELEVATION

150mm - 450mm DIA.(INCL.) DROP GREATER THAN 900mm & LESS THAN 1700mm
500mm - 900mm DIA.(INCL.) DROP GREATER THAN 1300mm & LESS THAN 2300mm



BACKDROP MANHOLE TYPE 03, SECTIONAL ELEVATION

150mm - 450mm DIA.(INCL.) DROP GREATER THAN 600mm & LESS THAN 900mm
500mm - 900mm DIA.(INCL.) DROP GREATER THAN 600mm & LESS THAN 1300mm



SECTION D-D

FLOOR PLAN

PRIVATE SIDE INSPECTION CHAMBER

DEPTH TO INVERT <900mm
FOR ACCESS POINTS / AJ'S WITH DEPTH TO INVERT LESS THAN 600mm, SEE NOTE 24.

Rev	Sts	Description	Date
P01	S2	Issued for Planning	09.09.24

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Lane Business Park, Monahan Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

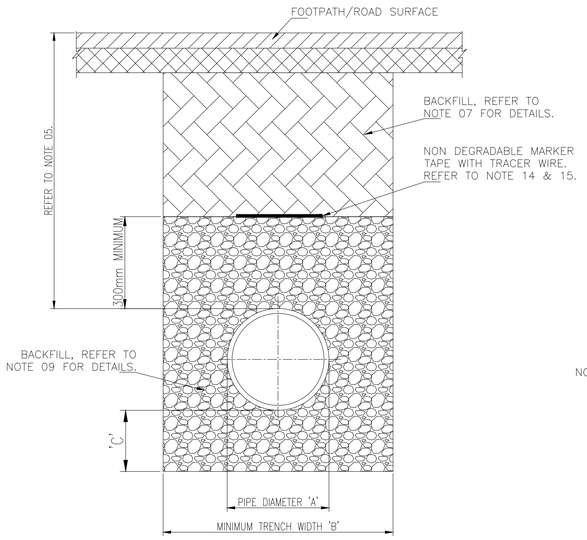
CLIENT
HRP Construction

TITLE
Typical Manhole Details

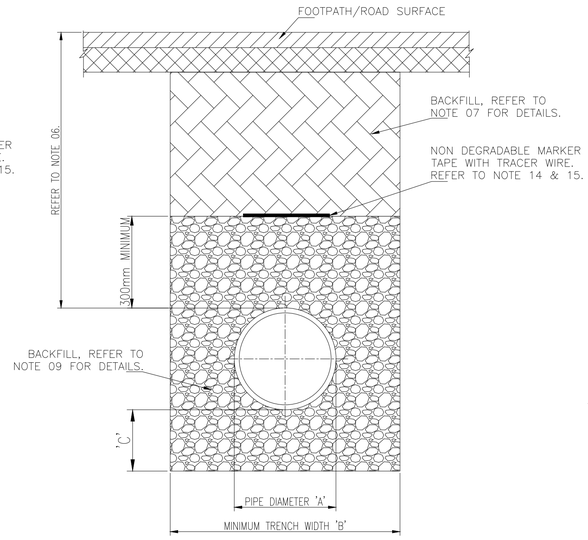
DRAWN BY	CHECKED BY	APPROVED BY
KC	PM	PM

SCALE	PROJECT NUMBER
As Shown	21021

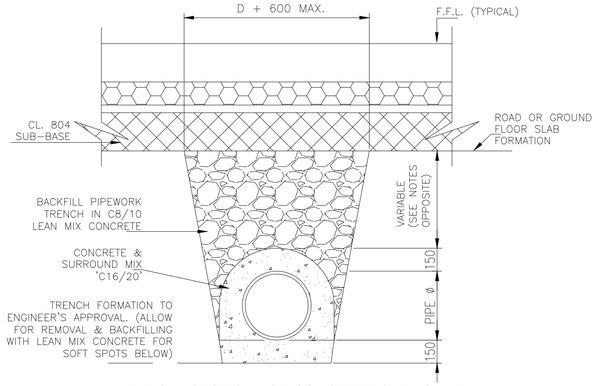
DOCUMENT REFERENCE
21021-MMS-ZZ-ST-DR-C-10005
STATUS: S2
REV: P01
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER



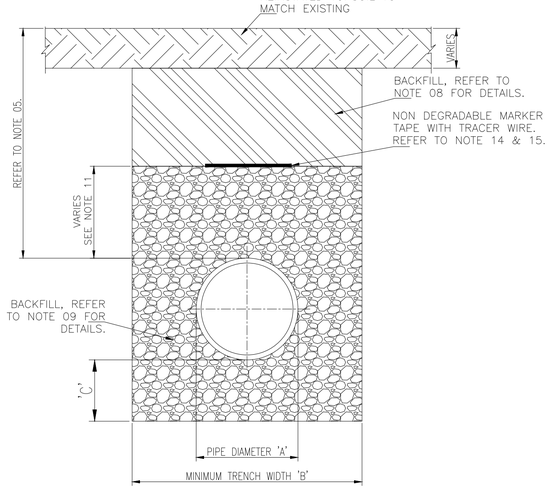
FOUL OR SURFACEWATER PIPES
CROSS SECTION IN ROADWAYS.



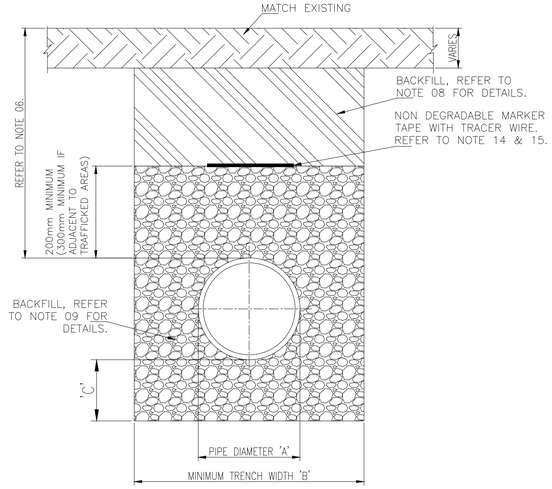
WATERMAIN CROSS SECTION IN ROADWAYS.



TYPICAL SECTION FOR CONCRETE SURROUND
TO PIPEWORK UNDER BUILDINGS OR FOR
PIPEWORK WITH LESS THAN MINIMUM COVER



FOUL OF SURFACE WATER PIPES
CROSS SECTION IN GRASSED AREAS.



WATERMAIN CROSS SECTION IN GRASSED AREAS.

FOUL & SURFACE	
PIPE DIAMETER 'A' (mm)	TRENCH WIDTH 'B' (mm)
≤80 RISING MAIN	SEE NOTE 16.
100	500
150	600
200	600
250	750
300	750
350	750
400	900
450	900

WATERMAIN	
PIPE DIAMETER 'A' (mm)	TRENCH WIDTH 'B' (mm)
≤80	SEE NOTE 16.
100	500
150	600
200	600
250	750
300	750
350	750
400	900
450	900

PIPE DIAMETER 'A' (mm)	DEPTH OF BEDDING 'C' (mm)
≤100	100
150 - 450	200

PIPE DIAMETER 'A' (mm)	DEPTH OF BEDDING 'C' (mm)
<200	150
250	200

09. PIPE BEDDING SHALL COMPLY WITH WIS 4-08-02 AND IGN 4-08-01. GRANULAR MATERIAL SHALL BE 14mm TO 5mm GRADED AGGREGATE OR 10mm SINGLE SIZED AGGREGATE IS EN 13242. BEDDING & SURROUND SHALL BE IN LAYERS NOT EXCEEDING 100mm & BE COMPACTED BY HAND TAMPING. CONCRETE BED, HAUNCH & SURROUND, WHERE REQUIRED, SHALL BE MIN 150mm.

10. IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS SHALL REPLACE THE EXCAVATED MATERIAL, WRAPPED IN GEO-TEXTILE WRAPPING. ALTERNATIVELY, SPECIAL PIPE SUPPORT ARRANGEMENTS, INCLUDING PILING ETC. MAY BE REQUIRED WHERE THE DEPTH OF SOFT MATERIAL IS EXCESSIVE. SUCH ARRANGEMENTS SHALL BE SUBJECT TO ASSESSMENT BY IRISH WATER BEFORE ADVANCING WITH THE WORK.

11. IN GREEN FIELD AREAS, TYPE B BACKFILL (SELECTED EXCAVATED MATERIAL) WILL BE ALLOWED ABOVE THE SIDE HAUNCH GRANULAR MATERIAL IN THE CASE OF RIGID PIPES. A GRANULAR SURROUND OF A MINIMUM DEPTH OF 150mm ABOVE THE CROWN OF THE PIPE IS REQUIRED FOR FLEXIBLE PIPES , AND TYPE B MATERIAL MAY BE USED AS BACKFILL ABOVE THIS. ALL RISING MAINS IN GREENFIELD AREAS SHALL HAVE A MINIMUM COVER OF 300mm OF GRANULAR MATERIAL ABOVE THE EXTERNAL CROWN OF THE PIPE.

12. FOR FOUL & SURFACE LINES, PIPES SHALL NOT BE SUPPORTED ON STONES, ROCKS OR ANY HARD OBJECTS AT ANY POINT ALONG THE TRENCH. ROCK SHALL BE EXCAVATED TO A DEPTH OF 150mm BELOW THE ACTUAL DEPTH OF THE TRENCH WITH THE VOID FILLED WITH
A) CLAUSE 808 MATERIAL - FOR FOUL & SURFACE LINES
B) CLAUSE 804 MATERIAL - FOR WATERMAIN LINES.
IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL.

13. SHOULD MINIMUM PIPE COVER NOT BE ACHIEVABLE, CONCRETE GRADE C8/10 SHALL BE USED AS BACKFILL MATERIAL. PIPES SHALL HAVE MINIMUM 150mm C16 / 20 CONCRETE SURROUND. EXPANSION JOINTS IN THE CONCRETE SHALL BE PROVIDED AT ALL PIPE JOINTS TO ALLOW FOR PIPE FLEXIBILITY (USE 18mm COMPRESSIBLE FIBRE BOARD IN JOINTS). POLYETHYLENE PIPES SHALL BE WRAPPED IN PLASTIC SHEETING BEFORE BEING CAST INTO CONCRETE.

14. FOR FOUL & SURFACE LINES, NON DEGRADABLE MARKER TAPE SHOULD BE INSTALLED AT TOP OF PIPE BEDDING LAYER. IN THE CASE OF NON METAL PIPE MATERIAL, THE MARKER TAPE SHOULD INCORPORATE A TRACE WIRE WHICH IS LINKED TO FITTINGS AND TERMINATED AT THE WASTE WATER PUMPING STATION AND THE DISCHARGE MANHOLE.

15. FOR WATERMAIN LINES. MARKER TAPE TO BE 400mm WIDE BLUE POLYETHYLENE MATERIAL IN ACCORDANCE WITH EN 12163, PLASTIC PIPES SHALL HAVE WARNING TAPE INCORPORATED A REINFORCED BAND TRACING WIRE. SERVICE PIPES SHALL HAVE 200mm WIDE MESH TAPE. MARKER TAPE TO BE LAID AT TOP OF PIPE BEDDING LAYER.

16. TRENCH WIDTHS FOR PIPE SIZES <80 MAY BE 500mm, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS.

17. WATERMAINS SUITABLE FOR WORK SHALL BE EITHER DUCTILE IRON (DI) POLYETHYLENE (PE), WITH PE80 OR PE100 RATING. (MDPE. HDPE. OR HPPE.)

18. ALL NEW WATERMAIN PIPE NETWORKS SHALL UNDERGO TESTING & COMMISSIONING, IN ACCORDANCE WITH THE REQUIREMENTS OF IRISH WATER DOC. IW-CDS-5020-03. INCLUDING CLEANSING & PRESSURE TESTING, PRIOR TO CONNECTING TO THE IRISH WATER NETWORK.

19. GRAVITY SEWER PIPE MATERIAL SHALL BE

A) CONCRETE SEWER PIPES WITH SPIGOT & SOCKET JOINTS & RUBBER RING FITTINGS, COMPLYING WITH IS EN 1916 (2002), BS5911 & IS 6 (2004) OR EQUIVALENT STANDARD.

B) THERMOPLASTIC STRUCTURED WALL PIPES, COMPLYING WITH THE PROVISIONS OF IS EN 13476 (2007 / 2009) & WITH WIS 4-35-01 (2000)

C) UNPLASTICISED PVC PIPES, JOINTS & FITTINGS ***FOR SERVICE CONNECTIONS*** SHALL COMPLY WITH THE PROVISIONS OF BS 4660 & BS EN 1401-PART 01.

TRENCH BACKFILL & BEDDING NOTES:

01. REFER TO IRISH WATER CONNECTION & DEVELOPER SERVICES CODE OF PRACTICE FOR WATER INFRASTRUCTURE DOCUMENT IW-CDS-5020-03 FOR DESIGN & CONSTRUCTION GUIDANCE ON LAYING OF WATERMAIN.

REFER TO IRISH WATER CONNECTION & DEVELOPER SERVICES CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE DOCUMENT IW-CDS-5030-03 FOR DESIGN & CONSTRUCTION GUIDANCE ON LAYING OF WASTEWATER SERVICES.

02. REFER TO IRISH WATER CONNECTION & DEVELOPER SERVICES, WATER INFRASTRUCTURE STANDARD DETAILS DOCUMENT IW-CDS-5020-01 FOR FURTHER INFORMATION ON WATERMAIN SERVICES.

03. REFER TO IRISH WATER CONNECTION & DEVELOPER SERVICES, WASTEWATER INFRASTRUCTURE STANDARD DETAILS DOCUMENT IW-CDS-5030-01 FOR FURTHER INFORMATION ON WASTE WATER SERVICES

04. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

05. FOR FOUL & SURFACE LINES, THE MINIMUM DEPTH OF COVER FROM THE FINISHED SURFACE TO THE CROWN OF GRAVITY PIPES ***WITHOUT PROTECTION*** (CONCRETE SURROUND) SHOULD BE AS FOLLOWS:
A) GARDENS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS - DEPTH NOT LESS THAN 0.5 M. (THIS WOULD NORMALLY RELATE TO DRAINS IN PRIVATE PROPERTY, SHALLOW PIPES OF THIS NATURE ARE UNDESIRABLE AND SHOULD BE INSTALLED IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS).
B) DRIVEWAYS, PARKING AREAS AND YARDS WITH HEIGHT RESTRICTIONS TO PREVENT ENTRY BY VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.75 M.
C) DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. MEWS DEVELOPMENTS) WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.9 M.
D) DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE.
E) AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.9 M.
F) OTHER HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS TO VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 1.2m.

06. FOR WATERMAIN LINES, THE MINIMUM DEPTH OF COVER FROM THE FINISHED GROUND LEVEL TO THE EXTERNAL CROWN OF THE PIPE SHALL BE 750mm FOR SERVICE CONNECTIONS, 900mm FOR WATER MAINS. GREATER DEPTHS OF COVER AND/OR PIPE STRENGTH AND/OR A HIGHER CLASS OF BEDDING MATERIAL MAY BE REQUIRED WHERE HIGH TRAFFIC LOADING IS ANTICIPATED. THE MAXIMUM COVER SHOULD NOT EXCEED 1,200mm WHERE PRACTICABLE.

07. CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS IS TO BE USED AS BACKFILL MATERIAL WHERE THE WATER MAIN OR SEWER MAIN IS LOCATED IN ROADS, FOOTPATHS OR WHEN THE NEAREST PART OF THE TRENCH IS WITHIN 1m OF THE PAVED EDGE OF THE ROADWAY. CLAUSE 808 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS.

08. SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF IRISH WATER.

Rev	Sts	Description	Date
P01	S2	Issued for Planning	09.09.24

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Lane Business Park, Monahan Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

CLIENT
HRP Construction

TITLE
Typical Trench Details

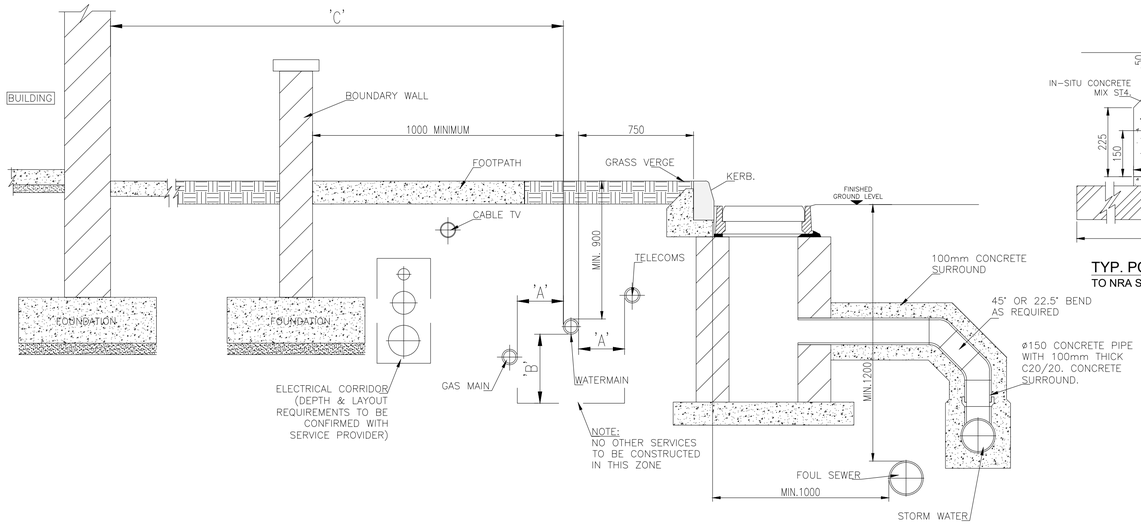
DRAWN BY	CHECKED BY	APPROVED BY
KC	PM	PM

SCALE	PROJECT NUMBER
As Shown	21021

DOCUMENT REFERENCE
21021-MMS-ZZ-ST-DR-C-10006

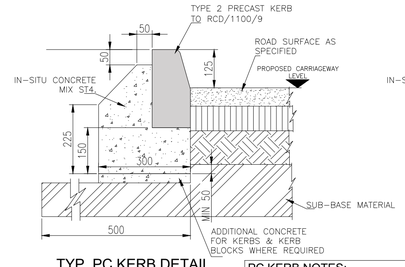
STATUS: S2
REV: P01

PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER



WATERMAIN PIPE		
DIAMETER (mm)	'A' (mm)	'B' (mm)
<300	300	300
300 - 450	500	500
>450	3000	800

WATER PIPE	
DIAMETER (mm)	'C' (mm)
≤150	3000
200 - 600	5000
>600	8000



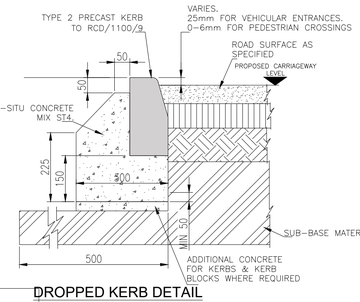
TYP. PC KERB DETAIL
TO NRA SPECIFICATION

PC KERB NOTES:

01. PRECAST KERBS SHALL BE LAID & LEVELLED IN ACCORDANCE WITH BS 7533:PART 4.

02. AT VEHICULAR ACCESS POINTS, CONCRETE TO BE REINFORCED WITH A393 MESH-TOP & BOTTOM.

03. ALL CONCRETE EDGES & JOINTS SHALL BE BULLNOZED WITH A TROWEL



DROPPED KERB DETAIL
TO NRA SPECIFICATION

06. DETAILED PROPOSALS, INCLUDING WORK METHOD STATEMENTS, INSURANCE CONFIRMATION AND DETAILS OF WORK COMPLETED OF A SIMILAR NATURE MUST BE SUBMITTED TO IRISH WATER FOR ITS CONSIDERATION BEFORE APPROVAL WILL ISSUE. ALL SUCH WORKS IN THE VICINITY OF ARTERIAL WATER MAINS AND SEWER (MAINS GREATER THAN 400mm) SHALL BE SUBJECT TO WRITTEN AGREEMENT WITH IRISH WATER BEFORE CONSTRUCTION COMMENCES ON SITE. THIS AGREEMENT SHALL ALSO INCLUDE ANY NECESSARY PROTECTION FOR WATER MAINS.

07. WATERMAINS OF ANY SIZE SHALL NOT BE WITHIN 1m OF THE BOUNDARY TO A PREMISES.

08. WHERE THE DESIGN DEVIATES FROM THIS STANDARD DETAIL, THE DESIGN SHALL BE SUBJECT TO THE APPROVAL OF IRISH WATER.

09. THE MINIMUM CLEAR DISTANCE WILL BE INCREASED IF THE SEWER IS GREATER THAN 3m DEEP OR IF THE DIAMETER IS GREATER THAN 375mm. THE MINIMUM CLEAR DISTANCE IN THESE SITUATIONS SHALL BE > DEPTH TO INVERT OR 10 TIMES THE SEWER DIAMETER, WHICH EVER IS GREATER.

10. THE EXTERNAL FACES OF MANHOLE SHALL BE AT LEAST 0.5m FROM KERB LINE.

CHANNEL DRAIN NOTES:

01. SPECIFIC SITE CONDITIONS MAY REQUIRE AN INCREASE IN THE DIMENSIONS OR REINFORCEMENT SHOWN. IT IS THE CLIENTS RESPONSIBILITY TO ENSURE THE CONCRETE ENCASEMENT IS DESIGNED FOR THE APPLICATION.

02. A MINIMUM CONCRETE STRENGTH OF 25 MPa IS RECOMMENDED. THE CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.

03. THE FINISHED LEVEL OF THE CONCRETE, ASHPHALT OR BRICK PAVERS MUST BE APPROX. 3mm ABOVE THE TOP OF THE CHANNEL EDGE.

04. EXPANSION & CRACK CONTROL JOINTS ARE RECOMMENDED TO PROTECT THE CHANNEL & CONCRETE SURROUND.

05. FOR BRICK PAVERS, THE PAVER COURSE ADJACENT TO THE CHANNEL EDGE MUST BE FULLY BONDED TO THE CONCRETE SURROUND.

FOR BRICKSLOT DRAINS, THE PAVER COURSE ADJACENT TO THE CHANNEL EDGE MUST BE FULLY BONDED TO BRICKSLOT & CONCRETE SURROUND USING AN EPOXY OR POLYMER MODIFIED MORTAR.

06. FOR ASPHALT SURFACES, THE HAUNCH MUST SLOPE AWAY AT A RATIO OF 1:4 OR 15° APPROX.

07. REREF TO ACO OR SIMILAR APPROVED SUPPLIERS LATEST INSTALLATION INSTRUCTIONS FOR COMPLETE DETAILS.

NOTES:

01. THE SEPARATION DISTANCES OUTLINED ARE MINIMUM REQUIREMENTS.

02. WATERMAIN (PROPOSED) SEPARATION DISTANCES

HORIZONTAL
300mm TO DISTRIBUTION MAINS OF LESS THAN 300mm DIAMETER.
500mm TO TRUNK MAINS BETWEEN 300mm AND 450mm DIAMETER.
3m TO ARTERIAL WATER MAINS OF GREATER THAN 450mm DIAMETER.

VERTICAL
300mm TO DISTRIBUTION MAINS OF LESS THAN 300mm DIAMETER.
500mm TO TRUNK/ARTERIAL MAINS OF DIAMETER GREATER THAN 300mm.

ANY PROPOSED PIPE CROSSING SHOULD BE LOCATED MID-WAY BETWEEN THE WATER JOINTS WITH MINIMUM CLEAR DISTANCE OF 300mm AND UP TO 500mm. ALL CROSSINGS SHOULD BE AT LEAST 500mm AWAY FROM FITTINGS OR JOINTS.

03. WATERMAIN (EXISTING) SEPARATION DISTANCES

HORIZONTAL
500mm AT EITHER SIDE OF MAINS UP TO AND INCLUDING 200mm IN DIAMETER.
1m AT EITHER SIDE OF MAINS OF 225mm TO 250mm DIAMETER.
2m AT EITHER SIDE OF MAINS OF 300mm TO 375mm IN DIAMETER.
5m AT EITHER SIDE OF MAINS OF 400mm AND 450mm IN DIAMETER.
SPECIFIC IRISH WATER ADVISED DISTANCES FOR MAINS IN EXCESS OF 475mm DIAMETER.

04. SPECIFIC SEPARATION CLEARANCE DISTANCES IN EXCESS OF THESE MINIMA SHALL BE PROVIDED FOR SERVICES SUCH AS GAS, ELECTRICITY, FIBRE-OPTIC OR OIL FILLED CABLES AS THE CASE MAY BE. THE PARTICULAR UTILITY PROVIDERS SHALL BE CONSULTED TO DETERMINE THESE MINIMUM SEPARATION DISTANCES AND EVIDENCE OF THIS CONSULTATION, WITH THE SPECIFIED SEPARATION DISTANCES, SHALL BE PROVIDED TO IRISH WATER AT DESIGN STAGE.

05. NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN THE FOLLOWING DISTANCES FROM AN EXISTING WATER MAIN OR WASTEWATER RISING MAIN:

HORIZONTAL
1000mm AT EITHER SIDE OF EXISTING MAINS LESS THAN OR EQUAL TO 200mm DIAMETER
2000mm AT EITHER SIDE OF EXISTING MAINS OF 250mm TO 350mm DIAMETER
5000mm AT EITHER SIDE OF EXISTING MAINS OF DIAMETER GREATER THAN 350mm DIAMETER

WHERE DUCTS OR PIPES ARE TO BE LAID CLOSE TO AN EXISTING WATERMAIN OR SEWER IN THE OWNERSHIP OF IRISH WATER, NOTIFICATION IN WRITING SHALL BE PROVIDED A MINIMUM OF 10 DAYS AHEAD OF ADVANCEMENT OF THE WORK.

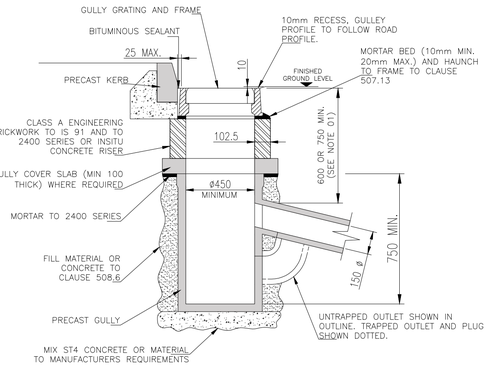
NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN 1.5m DISTANCE OF A WASTEWATER SEWER.

REQUIREMENTS SHALL ALSO APPLY TO TRIAL HOLES OR SLIT TRENCHES TO LOCATE THE MAIN OR GAIN GROUND INFO DATA.

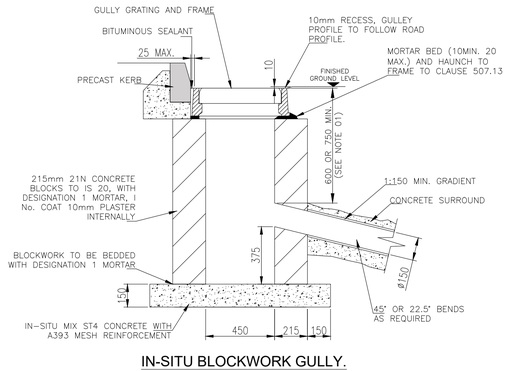
LARGER DIAMETERS >300mm DISTRIBUTION AND TRUNK MAINS, IRISH WATER MUST BE NOTIFIED AT LEAST 1 MONTH IN ADVANCE.

DEVELOPERS SHALL ALSO COMPLY WITH ANY NOTIFICATION REQUIREMENTS OF OTHER UTILITY PROVIDERS (ESB, GAS MAIN, TELECOMMUNICATION ETC).

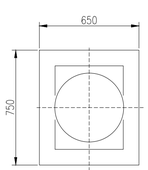
TYP. FOOTPATH DETAIL
(TO NRA SPECIFICATION)



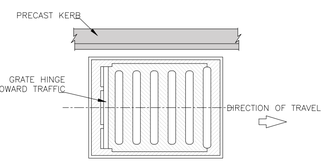
PRECAST GULLY.
(TO NRA. SPECIFICATION)



IN-SITU BLOCKWORK GULLY.
SECTION



GULLY COVER SLAB
PRECAST CONCRETE
PLAN VIEW



GULLY COVER GRATE
DUCTILE IRON
PLAN VIEW

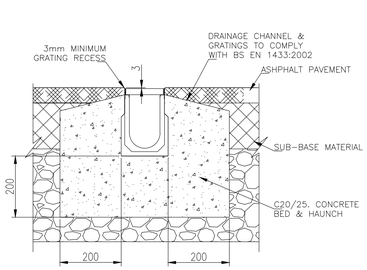
GULLY NOTES:

01. MINIMUM DEPTH FROM THE TOP OF THE GRATING TO THE TOP OF THE GULLY OUTLET IS TO BE 750mm WHEN THE CONNECTING PIPE IS UNDER A CARRIAGEWAY OR HARD SHOULDER, AND 600mm ELSEWHERE

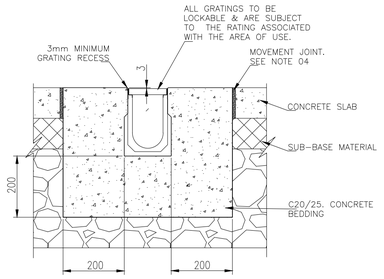
02. GULLY GRATING TO COMPLY WITH IS EN 124.

03. GULLY GRATING TO BE PROVIDED WITH A LOCKING DEVICE IN ACCORDANCE WITH CLAUSE 508.4

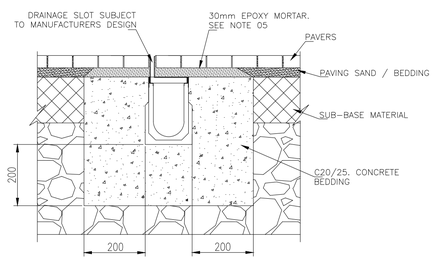
04. PRECAST CONCRETE GULLYS & GULLY SLABS SHALL COMPLY WITH BS 5911-4 & IS EN 1917



CHANNEL DRAIN
ASPHALT PAVEMENT



CHANNEL DRAIN
CONCRETE PAVEMENT



CHANNEL DRAIN
BRICK PAVEMENT

Rev	Sts	Description	Date
P01	S2	Issued for Planning	09.09.24

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Lane Business Park, Monahan Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

CLIENT
HRP Construction

TITLE
Typical Gully & Footpath Details

DRAWN BY	CHECKED BY	APPROVED BY
KC	PM	PM

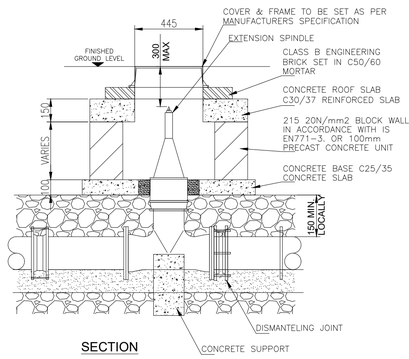
SCALE	PROJECT NUMBER
As Shown	21021

DOCUMENT REFERENCE
21021-MMS-ZZ-ST-DR-C-10007

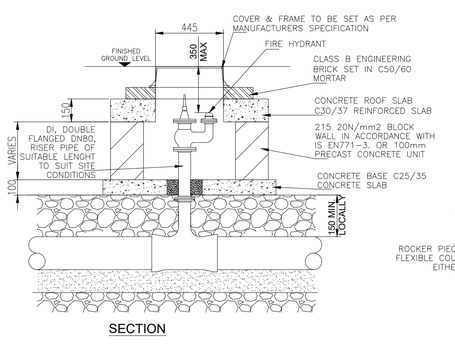
STATUS: S2

REV: P01

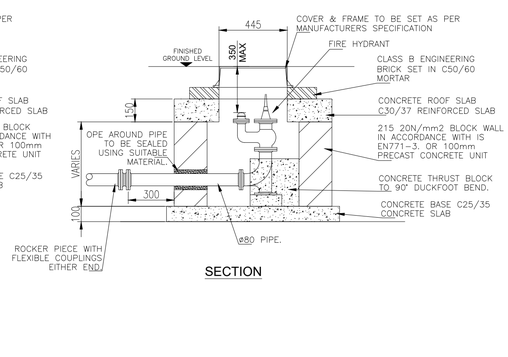
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER



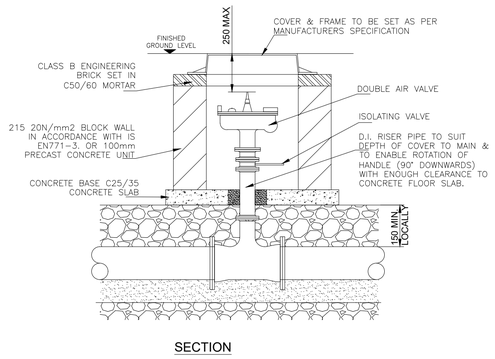
SECTION



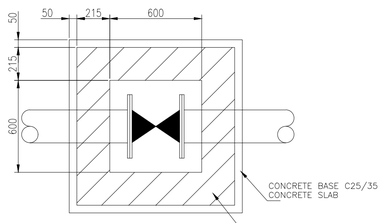
SECTION



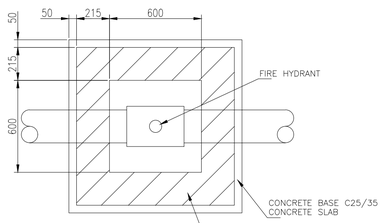
SECTION



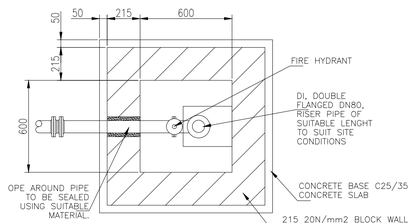
SECTION



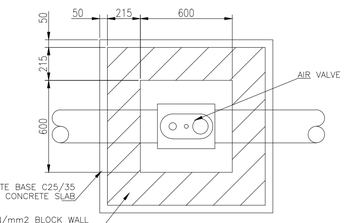
FLOOR PLAN



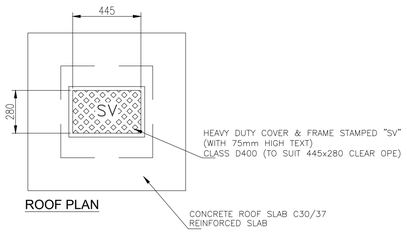
FLOOR PLAN



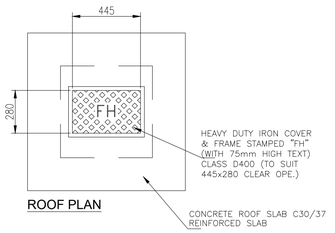
FLOOR PLAN



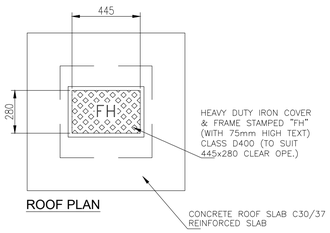
FLOOR PLAN



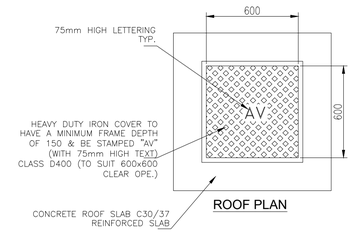
ROOF PLAN



ROOF PLAN



ROOF PLAN



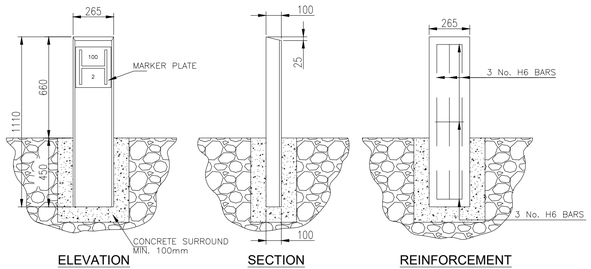
ROOF PLAN

SLUICE VALVE CHAMBER
BLOCKWORK OR PRECAST CONSTRUCTION.

FIRE HYDRANT CHAMBER-ON LINE
BLOCKWORK OR PRECAST CONSTRUCTION.

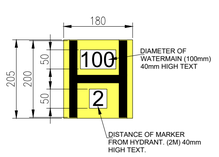
FIRE HYDRANT CHAMBER-OFF LINE
BLOCKWORK OR PRECAST CONSTRUCTION.

ON-LINE AIR VALVE CHAMBER
BLOCKWORK OR PRECAST CONSTRUCTION.



ELEVATION SECTION REINFORCEMENT

MARKER POST DETAILS



TYP. MARKER PLATE

MARKER PLATE	
HYDRANT	H
SLUICE VALVE	ScV
SCOUR VALVE	SV
AIR VALVE	AV
WASHOUT HYDRANT	WO
METER	Me
PRESSURE REDUCING / SUSTAINING VALVE	PRV / PSV

MARKER POST NOTES:

01. WHERE PRACTICAL MARKER PLATES SHALL BE FIXED TO ADJACENT WALLS OR ALTERNATIVELY ATTACHED TO MARKER POSTS.

02. PLATES TO BE FIXED IN POSITION USING WALL PLUGS AND STAINLESS STEEL SCREWS.

03. MARKER PLATES TO BE MANUFACTURED IN ACCORDANCE WITH BS 3251.

04. FOR HYDRANT PLATE ALL CHARACTERS SHOULD BE BLACK AND THE REMAINDER OF THE FRONT FACE SHOULD CONFORM TO COLOUR REFERENCE No. 309 (CANARY YELLOW) OF BS381C.

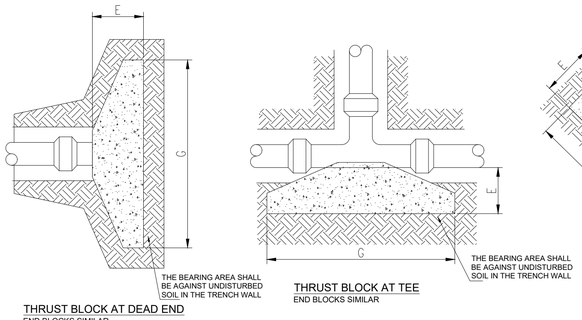
05. PIPE DIAMETER ON HYDRANT PLATE TO REFER TO WATERMAIN NOT BRANCH.

06. SLUICE VALVE, AIR VALVE, SCOUR VALVE, WASHOUT HYDRANT AND METER PLATES SHOULD BE CAST IRON. ALL CHARACTERS SHOULD BE BLACK ON WHITE PAINT BACKGROUND.

07. CONCRETE SURROUND TO MARKER POST TO BE GRADE C25 / 30 AND IN ACCORDANCE WITH IS EN 206/2013.

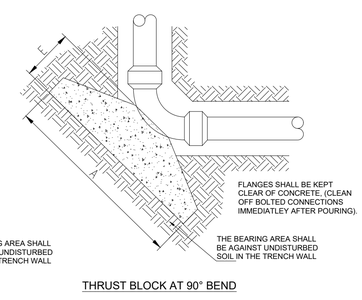
08. PLASTIC MARKER POSTS ARE NOT ACCEPTABLE.

09. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.



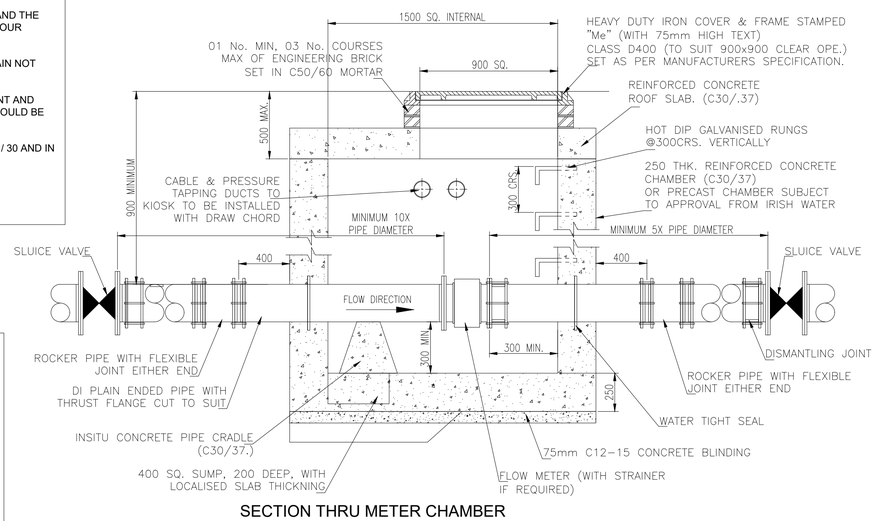
THRUST BLOCK AT DEAD END
END BLOCKS SIMILAR

THRUST BLOCK AT TEE
END BLOCKS SIMILAR



THRUST BLOCK AT 90° BEND

THRUST BLOCK NOTE:
SYMETRICALLY POSITIONED CONCRETE THRUST BLOCKS OF GRADE C20/25 CONCRETE SHALL BE CONSTRUCTED AT ALL DEAD ENDS, TEES, TAPERS, PIPE CHANGE OVER & HORIZONTAL / VERTICAL BENDS OF GREATER THAN 11.25°. THRUST BLOCK SIZES (BASED ON ASSUMED BEARING CAPACITY OF 100Kn/m2) VARY WITH PIPE DIAMETER, PIPE TEST PRESSURE & WITH ANGLE/TYPE OF PIPE JUNCTION. FOR DETAILS & SIZE OF THRUST BLOCK FOUNDATIONS REFER TO DETAILS & TABLES ON DWG. No. STD-W-28 ON IRISH WATER DOC. REF. IW-CDS-5020-01



SECTION THRU METER CHAMBER

NOTES:

01. - ALL WATER SUPPLY DESIGN & CONSTRUCTION TO COMPLY WITH IRISH WATER CONNECTIONS & DEVELOPMENT SERVICES CODE OF PRACTICE FOR WATER INFRASTRUCTURE (DOC.REF. IW-CDS-5020-03)

02. - ALL WATER SUPPLY CONSTRUCTION DETAILS TO COMPLY WITH IRISH WATER CONNECTION & DEVELOPMENT SERVICES, WATER INFRASTRUCTURE DEVELOPMENT DETAILS (DOC. REF. IW-CDS-5020-01)

03. - ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

04. - SLUICE VALVE & HYDRANT CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 OR BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND ARE SUBJECT TO THE APPROVAL OF IRISH WATER.

05. - SLUICE VALVES SHALL BE RESILIENT SEATED AND SHALL COMPLY WITH BS 5163-1, BS 5163-2, IS EN 1074-1, IS EN 1074-2, OR EQUIVALENT E.U. SPECIFICATIONS.

06. - ALL SLUICE VALVES SHALL BE ANTI-CLOCKWISE CLOSING.

07. - ALL HYDRANTS SHALL BE CLOCKWISE CLOSING.

08. - VALVE OR HYDRANT CHAMBERS TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.

09. - CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL.

10. - ALL HYDRANTS, SURFACE BOX FRAMES & COVERS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF IS EN 14339, IS EN 1074-6 & BS 750. FIRE HYDRANTS SHALL BE TYPE 2. THE HYDRANT INLET SHALL BE 80mm DIAMETER WITH PN16.

11. - DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545. PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011.

12. - PROVIDE 200mm ALL AROUND x100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND PLINTH IN GREEN AREAS.

13. - AIR VALVES SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074-4. AIR VALVES SHALL BE DOUBLE ORIFICE TYPE AND SHALL INCLUDE AN ISOLATING VALVE. THE ISOLATING VALVE SHALL BE A GATE VALVE CONFORMING TO IS EN 1074-2 & SHALL BE OF A BOLTLESS BONNET DESIGN.

14. - THE AIR VALVES SHALL HAVE BODIES AND COVERS OF CAST IRON TO BS EN 1563 WITH FLANGES DRILLED TO PN 16 IN ACCORDANCE WITH BS EN 1092. EACH VALVE SHALL HAVE A LARGE AND A SMALL AIR ESCAPE ORIFICE WITH AN ISOLATING VALVE.

15. - AIR VALVE CHAMBERS SHALL BE COVERED WITH APPROVED VENTILATED HEAVY DUTY METAL COVERS TO IS EN 124 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.

16. - SERVICE CONNECTIONS SHALL NOT BE PROVIDED WITHIN 2m OF THE AIR VALVE LOCATION.

17. - AIRVALVE CHAMBERS TO BE OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVE PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.

18. - THE LOCATION OF AIR VALVES SHALL BE THE SUBJECT OF PARTICULAR AGREEMENT WITH IRISH WATER TO ENSURE THAT THE RISK OF CONTAMINATION THROUGH THE VALVE IS ELIMINATED.

19. - THRUST BLOCKS, TO BE PROVIDED AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.

20. - ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.

21. - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

22. - PIPEWORK TO BE DOWNSIZED TO ACCOMMODATE THE REQUIRED RANGE OF THE FLOW METER. STRAIGHT PIPE LENGTHS UPSTREAM AND DOWNSTREAM OF THE METER TO BE PROVIDED. IF THE METER IS NOT CAPABLE OF ACCURATE NIGHT FLOW MEASUREMENTS, A BY-PASS FLOW METER SHALL BE PROVIDED WITH APPROPRIATE VALVES, FITTINGS AND PIPEWORK.

23. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.

24. - WATERMAINS SUITABLE FOR WORK SHALL BE EITHER DUCTILE IRON (DI) OR POLYETHYLENE (PE), WITH PE80 OR PE100 RATING (MDPE. HDPE. OR HPPE.).

25. - ALL NEW WATERMAIN PIPE NETWORKS SHALL UNDERGO TESTING & COMMISSIONING, IN ACCORDANCE WITH THE REQUIREMENTS OF IRISH WATER DOC. IW-CDS-5020-03. INCLUDING CLENSING & PRESSURE TESTING, PRIOR TO CONNECTING TO THE IRISH WATER NETWORK.

Rev	Sts	Description	Date
P01	S2	Issued for Planning	09.09.24

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Lane Business Park, Monahan Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

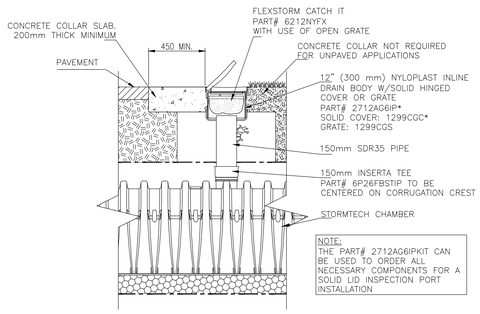
CLIENT
HRP Construction

TITLE
Typical Watermain Details

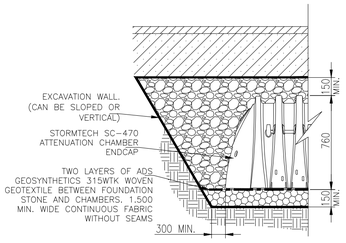
DRAWN BY	CHECKED BY	APPROVED BY
KC	PM	PM

SCALE	PROJECT NUMBER
As Shown	21021

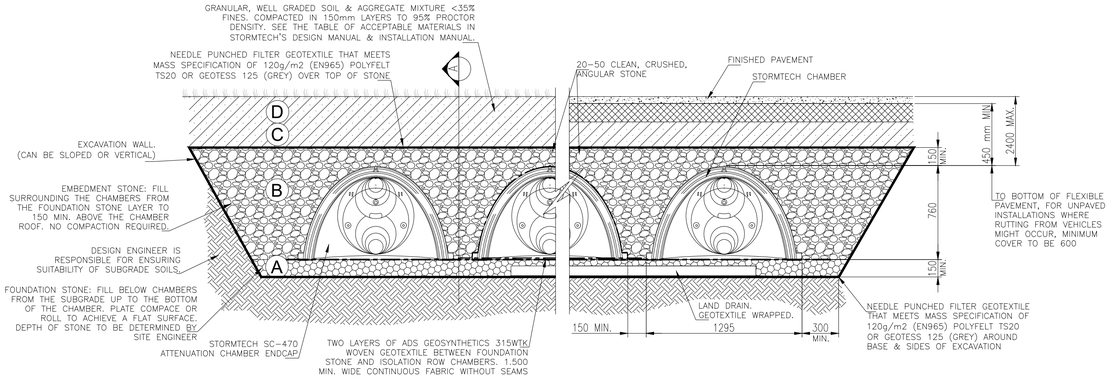
DOCUMENT REFERENCE: 21021-MMS-ZZ-ST-DR-C-10008
STATUS: S2
REV: P01
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER



150mm INSPECTION PORT. TYP. DETAIL



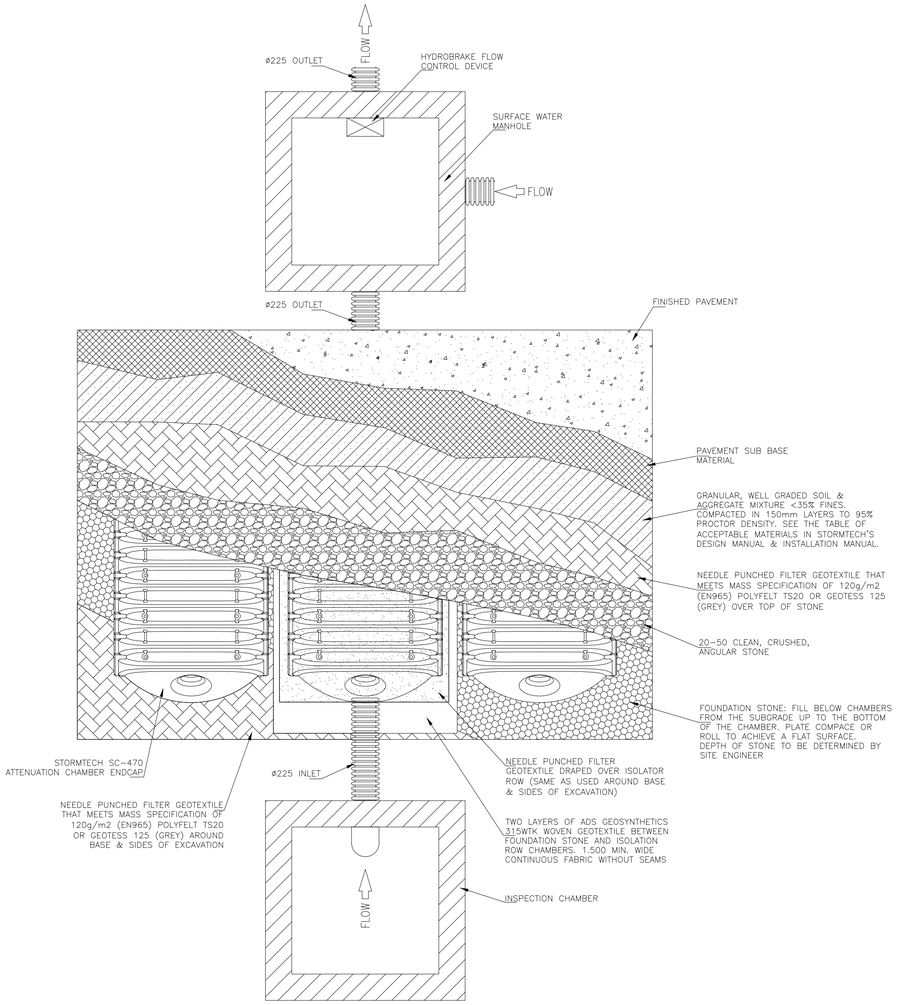
SECTION A-A



STORMTECH CHAMBER. TYPICAL CROSS SECTION

NOTES:

1. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
2. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
3. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.

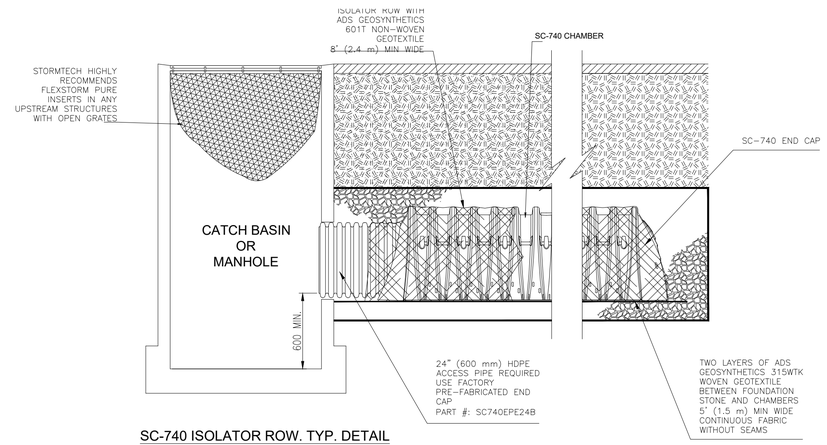


STORMTECH CHAMBER SYSTEM. TYPICAL PLAN VIEW

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2 3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



SC-740 ISOLATOR ROW. TYP. DETAIL

Rev	Sts	Description	Date
P01	S2	Issued for Planning	09.09.24

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Lane Business Park, Monahan Road, Cork.
Tel : 353 21 4317608

PROJECT
Proposed Residential Development at 49/50 Old Market Place, Cork

CLIENT
HRP Construction

TITLE
Typical Stormtech Attenuation Tank Details

DRAWN BY	CHECKED BY	APPROVED BY
KC	PM	PM

SCALE	PROJECT NUMBER
As Shown	21021

DOCUMENT REFERENCE: 21021-MMS-ZZ-ST-DR-C-10009
STATUS: S2
REV: P01
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER

APPENDIX B

(i) Greenfield Runoff Rate Calculation

(ii) Contributing Area Calculation

(iii) Attenuation Tank Calculation

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS

The Chapel, Blackrock House
Blackrock Road
Cork
+353 (21) 4317608

21021 - Old Market Place

18/12/2025

Total Net Area	421.250	m^2
Controlled Discharge	0.11	l/s
Climate Change Factor	20%	
Min. Storage Volume	41.20	m^3

Note: Existing Combined Sewer - Discharge set to 2l/s

Duration	***Rainfall 100 year return***	***Climate Change***	***Inflow***	***Outflow***	***Storage***
5	15.1	18.12	7.633	0.03	7.60
10	21.1	25.32	10.666	0.07	10.60
15	24.8	29.76	12.536	0.10	12.44
30	30.6	36.72	15.468	0.20	15.27
60	37.9	45.48	19.158	0.40	18.76
120	46.8	56.16	23.657	0.79	22.87
240	57.9	69.48	29.268	1.58	27.68
360	65.5	78.6	33.110	2.38	30.73
720	81	97.2	40.946	4.75	36.19
1440	100.2	120.24	50.651	9.50	**41.15**
2880	117.5	141	59.396	19.01	40.39
min	*mm*	*mm*	*m^3*	*m^3*	*m^3*

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS

The Chapel, Blackrock House
Blackrock Road
Cork
+353 (21) 4317608

21021 - Old Market Place

18/12/2025

Description	Area		Impermeability Factor	PIMP Area
Concrete Path	131.000	m²	85%	111.350
Roof	302.00	m²	90%	271.800
Landscaping	127.000	m²	30%	38.100

Total Site Area	560.000	m²
Total Net Area	421.250	m²

MMOS
MURPHY · MATSON · O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS

The Chapel, Blackrock House
Blackrock Road
Cork
+353 (21) 4317608

21021 - Old Market Place 18/12/2025

Total Site Area 560 m²

			Notes:	
SAAR (Met Eireann)	1228	mm		**Soil Type**
Soil Type	3		(Assumed)	1
SPR	0.37			2
Q rural	277.25	l/s		3
Qbar	0.31	l/s		4
				5
2L/s/ha	0.11	l/s		
Site Outflow Control	0.31	l/s		

If Qbar < 2L/s/ha, then use 2L/s/ha

APPENDIX C

(i) Confirmation of Feasibility

CONFIRMATION OF FEASIBILITY

Stephen Leonard

The Chapel
Blackrock House
Blackrock Road
Cork
T12KRK7

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

27 November 2025

Our Ref: CDS25007987 Pre-Connection Enquiry
Old Market Place, Wolfe Tone Street, Cork, City

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 14 unit(s) at Old Market Place, Wolfe Tone Street, Cork, City, (the **Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection** - Feasible without infrastructure upgrade by Uisce Éireann
  The connection agreement to connect to the Uisce Éireann infrastructure does not extend to your fire flow requirements. Uisce Éireann cannot guarantee that the flow rates and residual pressures will meet the requirements of the Fire Authority.

- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann
  The Development must incorporate Sustainable Drainage Systems/ Attenuation in the management of storm water and to reduce surface water inflow into the receiving combined sewer. The flow is to be set @ 2l/s/Ha (reduced accordingly to size of site). At Connection Application a full Storm Water submission along with any design/calculations, is to be submitted following Hierarchy of Discharge set out in the Implementation of Urban Nature-Based Solutions Guidance Document. The full details of these must be agreed with the Local Authority Stormwater Division. The developments proposed stormwater must demonstrate net reduction of total flows to the UE network.

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.
Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

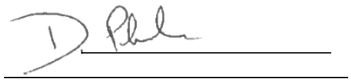
Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit **www.water.ie/connections**, **email newconnections@water.ie** or contact 1800 278 278**.**

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

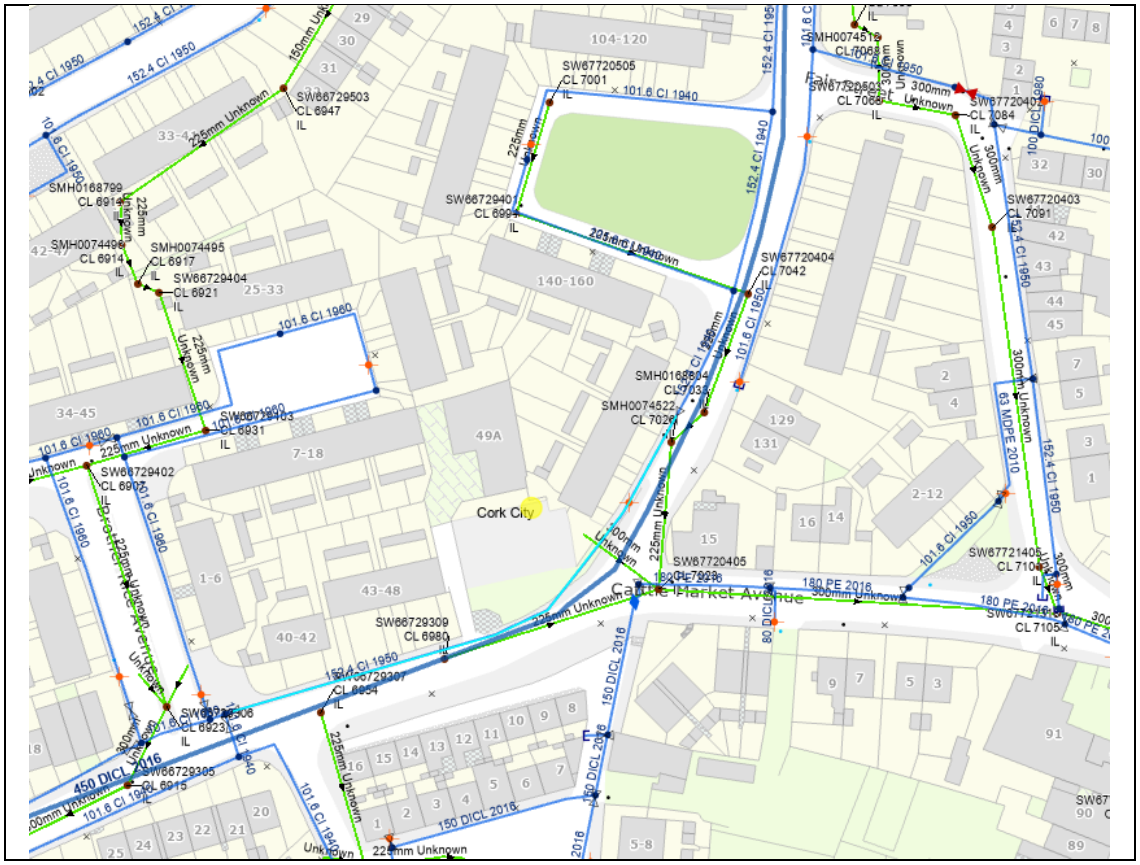
Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Uisce Éireann's Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Note: The information provided on the included maps as to the position of Uisce Éireann's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann's network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann's underground network(s) 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.