



Sightlines Layout Plan

Scale 1:500 @ A3

Rev	Sts	Description	Date
P01	S2	Issued for Information	05.03.26
P02	S2	Issued for Information	30.03.26
P03	S2	Issued for Information	15.05.26
P04	S2	Issued for Information	26.06.26

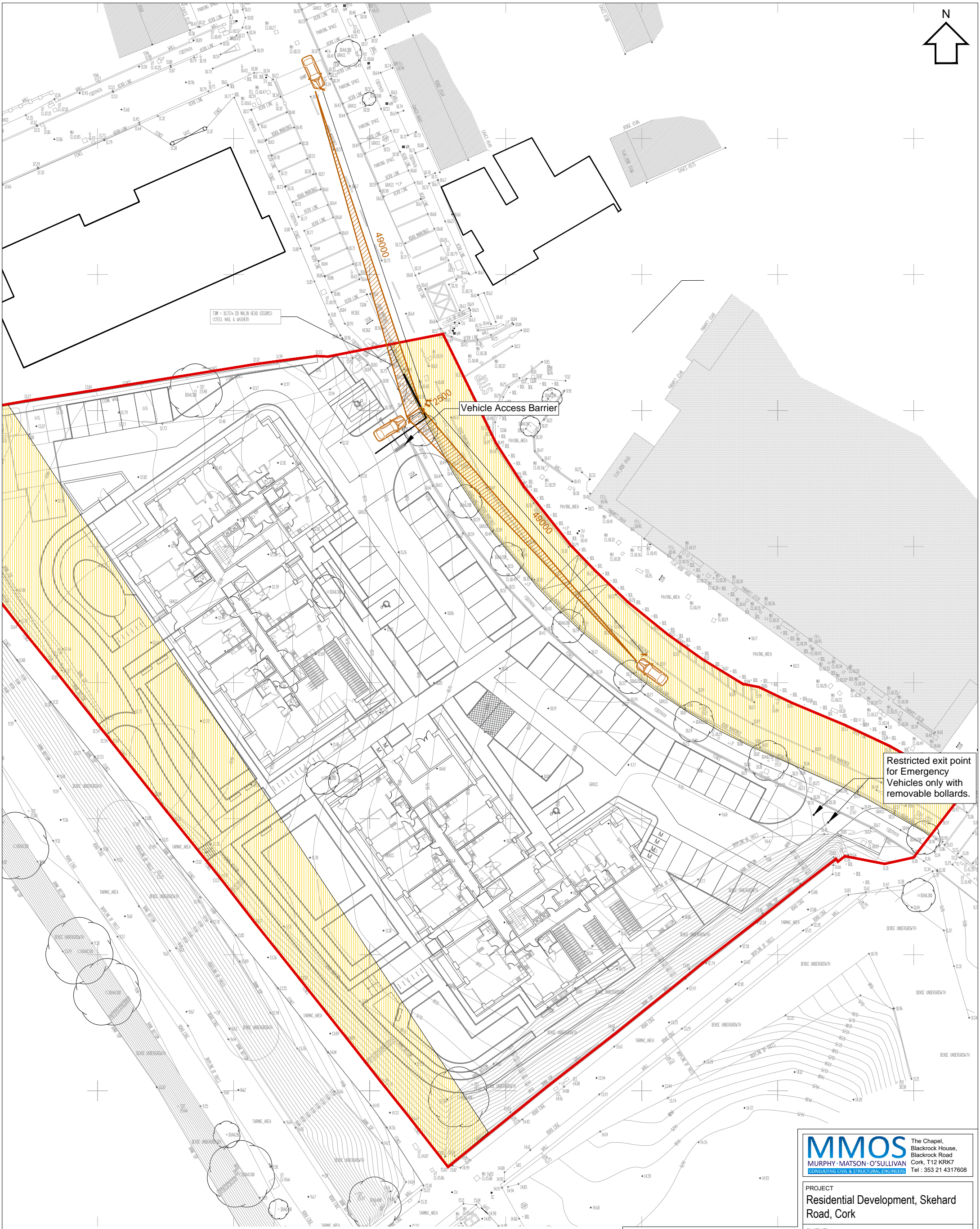
MMOS The Chapel, Blackrock House, Blackrock Road, Cork, T12 KRK7
 MURPHY - MATSON - O'SULLIVAN CONSULTING CIVIL & STRUCTURAL ENGINEERS Tel : 353 21 4317608

PROJECT
 Residential Development, Skehard Road, Cork

CLIENT
 Sisk

TITLE
 Proposed Sightlines Layout Plan

DRAWN BY D.Behan	CHECKED BY WO'Sullivan	APPROVED BY WO'Sullivan
SCALE As Shown		PROJECT NUMBER 25303
DOCUMENT REFERENCE 25303-MMS-ZZ-ST-DR-C-10100		STATUS S2 REV P04
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICLINE-NUMBER		



Sightlines Layout Plan

Scale 1:500 @ A3

MMOS The Chapel, Blackrock House, Blackrock Road, Cork, T12 KRK7
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PROJECT
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D.Behan

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SCALE
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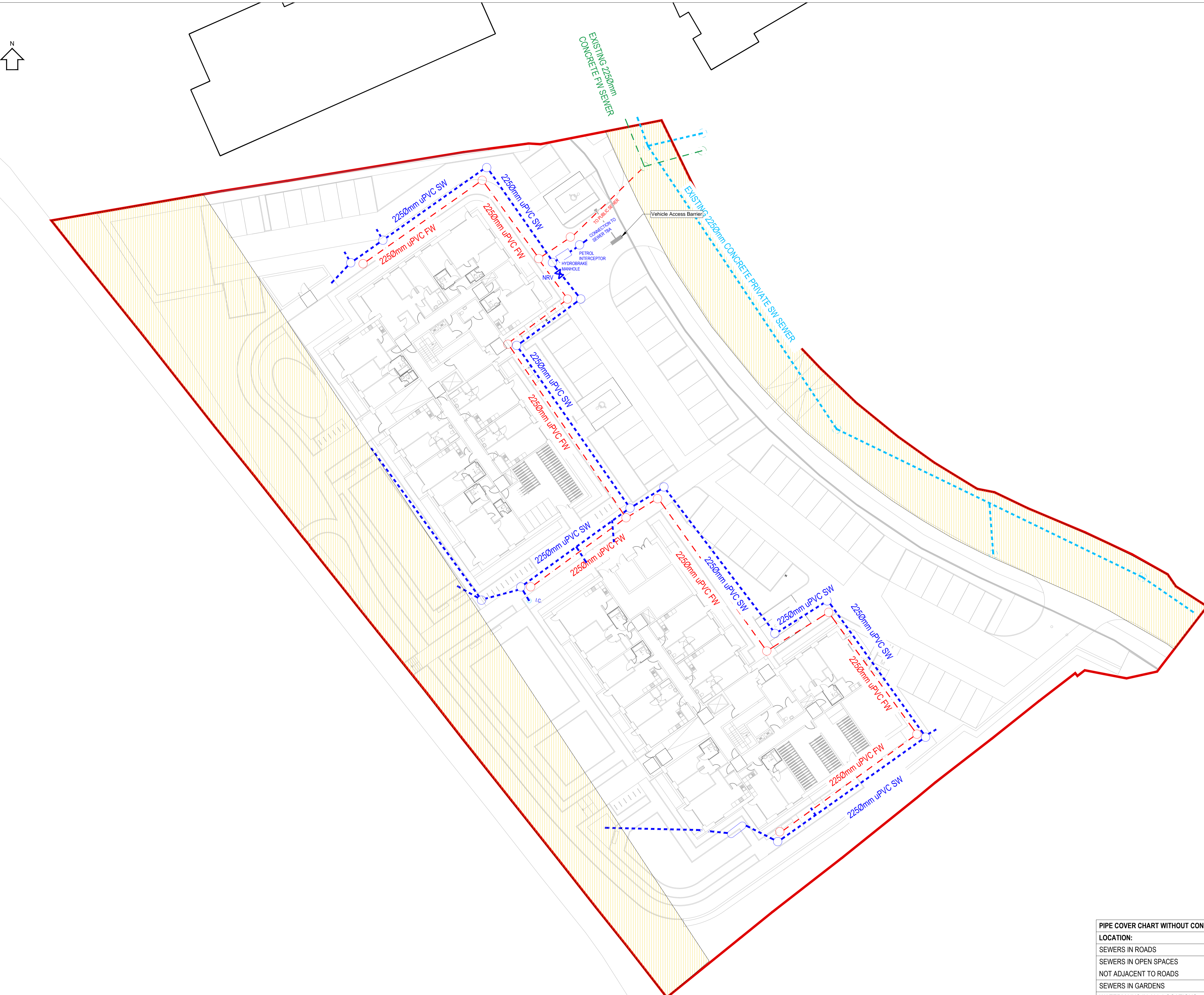
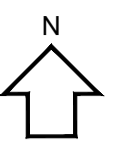
PROJECT NUMBER
25303

DOCUMENT REFERENCE
25303-MMS-ZZ-ST-DR-C-10101

PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICLINE-NUMBER

Rev	Sts	Description	Date
P01	S2	Issued for Information	04.03.26
P02	S2	Issued for Information	30.03.26
P03	S2	Issued for Information	15.05.26
P04	S2	Issued for Information	26.06.26

STATUS
S2
REV
P04



- NOTES:**
- Do not set out from this drawing. Setting out to be done from Architect's drawings.
 - Where cover to pipes is less than 1.2m in roads and 0.9m in public areas, surround the pipe up to 150mm with 100mm concrete and larger pipes with 150mm concrete.
 - Adjust foundation depths, as necessary, adjacent to sewers to avoid undermining of the foundations.
 - Manhole covers and frames shall comply with the LA standard pattern with min opening of 600mm & with closed keyways, all Manholes covers to comply with IS EN 124:1994 Group 4 (min. class D400) manholes in all trafficked areas, Minimum Group 2 (min. class B125) to be used in footways, pedestrian areas and comparable areas, Class D400 should be used in footpaths where heavy vehicles have the potential to access or mount footpaths and these covers should be free of trip hazards, removable parts and be lockable. Group 1 (min. class A15) may be used in enclosed private gardens only.
 - This drawing and associated notes are of an outline nature only and all works are the sole responsibility of the Contractor. The Contractor must inform the Engineer of any variation to the details shown on this drawing.
 - The Contractor is to be fully insured and have insurance certificates submitted and approved by the Local Authority prior to work commencing on site.
 - All drainage to be laid using laser technology to ensure accurate slopes and gradients of concrete base and channels.
 - All landscaping requirements to be agreed with the Architects.
 - All drainage works to be in compliance with Local Authority "taken in charge" standards and Irish Water Standards.
 - Workmanship to be in accordance with BS 8000 'Workmanship on Building Sites'.
 - All materials and proprietary items shall comply with the Building Regulations and be proper materials as defined therein. They shall be fit for the use they are intended and for the conditions in which they are to be used. Essentially they shall bear the CE Mark, comply with an appropriate Irish standard or Agrément Certificate or alternative EU national standard which provides an equivalent level of safety and suitability.
 - A 150mm thickness of 50mm consolidated broken stone / hardcore materials shall be placed under footpaths. Hardcore grading shall comply with the requirements of NRA Specification for Road Works, Class 6F2 and be certified for the end use for additional properties as per the requirements of SR21 Annex E.
 - Granular filling material, to Class 6F2 and certified for end use to the requirements of SR21 as above. The fill material is to be free of all organic material. No top soil, roots, vegetation, frozen soil etc. can be present. It shall be used to make up levels below the hardcore. Each layer shall be compacted with approved mechanical equipment in accordance with clause 612 of the NRA Specification. Generally the layers shall not exceed 150mm thick. The total depth of the backfill required is to be determined by the contractor based on the survey and proposed levels drawings.
 - Hardcore and granular fill shall be obtained from an independently tested and approved quarry in accordance with the detailed specification.
 - All connections to existing public services must be determined by the main Contractor prior to any construction on site. All existing invert levels to be confirmed to the engineers and all discrepancies notified to MMOS before any construction commences.
 - Record drawings of the as constructed work shall be made available to MMOS at the end of the project.
 - A CCTV camera survey is to be carried out by the contractor and the resulting report and DVD is to be issued to the engineers before project completion.

- Note:**
- Rodding Access required to all pop ups.
 - Venting of system to Architects / M and E Specifications.
 - Tripod Access Required above pumps.
 - uPVC pipes to be provided for drainage.

Rev	Description	Date
P01	ISSUED FOR INFORMATION	26.08.25
P02	ISSUED FOR INFORMATION	29.10.25
P03	ISSUED FOR INFORMATION	08.12.25
P04	ISSUED FOR INFORMATION	13.02.26
P05	ISSUED FOR INFORMATION	05.03.26
P06	ISSUED FOR INFORMATION	30.03.26
P07	ISSUED FOR INFORMATION	13.05.26
P08	ISSUED FOR INFORMATION	26.06.26

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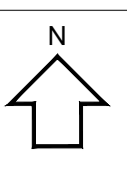
PROJECT
 Residential Development, Skehard Road, Cork

CLIENT
 Sisk

TITLE
 Drainage Layout

PIPE COVER CHART WITHOUT CONCRETE ENCASEMENT	
LOCATION:	MIN. COVER
SEWERS IN ROADS	1200mm
SEWERS IN OPEN SPACES NOT ADJACENT TO ROADS	900mm
SEWERS IN GARDENS	600mm
WATERMANS IN ALL LOCATIONS	900mm
WATER SERVICES IN ALL LOCATIONS	600mm

DRAWN BY WOS	CHECKED BY WOS	APPROVED WOS
SCALE (@ A1) 1/250		PROJECT NUMBER 25303
DOCUMENT REFERENCE 25303-MMS-ZZ-ZZ-DR-C-10001		STATUS D2 REV. P08
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICPLINE-NUMBER		



- TREE PITS
- ATTENUATION TANK
- BLUE/GREEN ROOF
- RAINGARDEN

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 2. Where cover to pipes is less than 1.2m in roads and 0.9m in public areas, surround the pipe up to 150mm with 100mm concrete and larger pipes with 150mm concrete.
 3. Adjust foundation depths, as necessary, adjacent to sewers to avoid undermining of the foundations.
 4. Manhole covers and frames shall comply with the LA standard pattern with min opening of 600mm & with closed keyways; all Manholes covers to comply with IS EN 124:1994, Group 4 (min. class D400) manholes in all trafficked areas, Minimum Group 2 (min. class B125) to be used in footways, pedestrian areas and comparable areas, Class D400 should be used in footpaths where heavy vehicles have the potential to access or mount footpaths and these covers should be free of trip hazards, removable parts and be lockable. Group 1 (min. class A15) may be used in enclosed private gardens only.
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 7. All drainage to be laid using laser technology to ensure accurate slopes and gradients of concrete base and channels.
 8. All landscaping requirements to be agreed with the Architects.
 9. All drainage works to be in compliance with Local Authority "taken in charge" standards and Irish Water Standards.
 10. Workmanship to be in accordance with BS 8000 'Workmanship on Building Sites'.
 11. All materials and proprietary items shall comply with the Building Regulations and be proper materials as defined therein. They shall be fit for the use they are intended and for the conditions in which they are to be used. Essentially they shall bear the CE Mark, comply with an appropriate Irish standard or Agrément Certificate or alternative EU national standard which provides an equivalent level of safety and suitability.
 12. A 150mm thickness of 50mm consolidated broken stone / hardcore materials shall be placed under footpaths. Hardcore grading shall comply with the requirements of NRA Specification for Road Works, Class 6F2 and be certified for the end use for additional properties as per the requirements of SR21 Annex E.
 13. Granular filling material, to Class 6F2 and certified for end use to the requirements of SR21 as above. The fill material is to be free of all organic material. No top soil, roots, vegetation, frozen soil etc. can be present. It shall be used to make up levels below the hardcore. Each layer shall be compacted with approved mechanical equipment in accordance with clause 612 of the NRA Specification. Generally the layers shall not exceed 150mm thick. The total depth of the backfill required is to be determined by the contractor based on the survey and proposed levels drawings.
 14. Hardcore and granular fill shall be obtained from an independently tested and approved quarry in accordance with the detailed specification.
 15. All connections to existing public services must be determined by the main Contractor prior to any construction on site. All existing invert levels to be confirmed to the engineers and all discrepancies notified to MMOS before any construction commences.
 16. Record drawings of the as constructed work shall be made available to MMOS at the end of the project.
 17. A CCTV camera survey is to be carried out by the contractor and the resulting report and DVD is to be issued to the engineers before project completion.

- Note:**
- Rodding Access required to all pop ups.
 - Venting of system to Architects / M and E Specifications.
 - Tripod Access Required above pumps.
 - uPVC pipes to be provided for drainage.

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P01	ISSUED FOR INFORMATION	26.08.25
P02	ISSUED FOR INFORMATION	08.12.25
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P04	ISSUED FOR INFORMATION	05.03.26
P05	ISSUED FOR INFORMATION	30.03.26
P06	ISSUED FOR INFORMATION	13.05.26
P07	ISSUED FOR INFORMATION	26.06.26

MMOS

MURPHY - MATSON - O'SULLIVAN
CONSULTING CIVIL & STRUCTURAL ENGINEERS

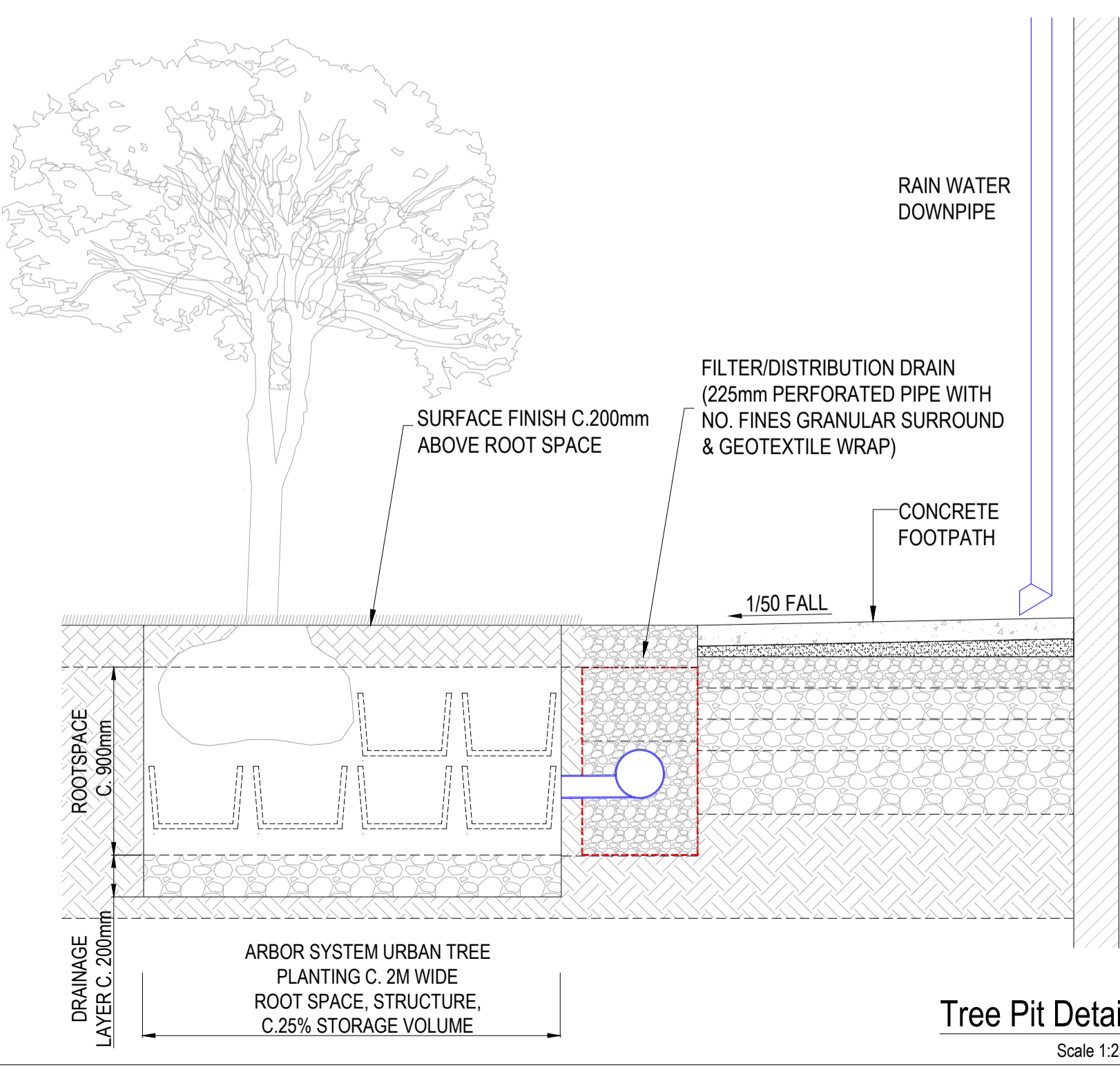
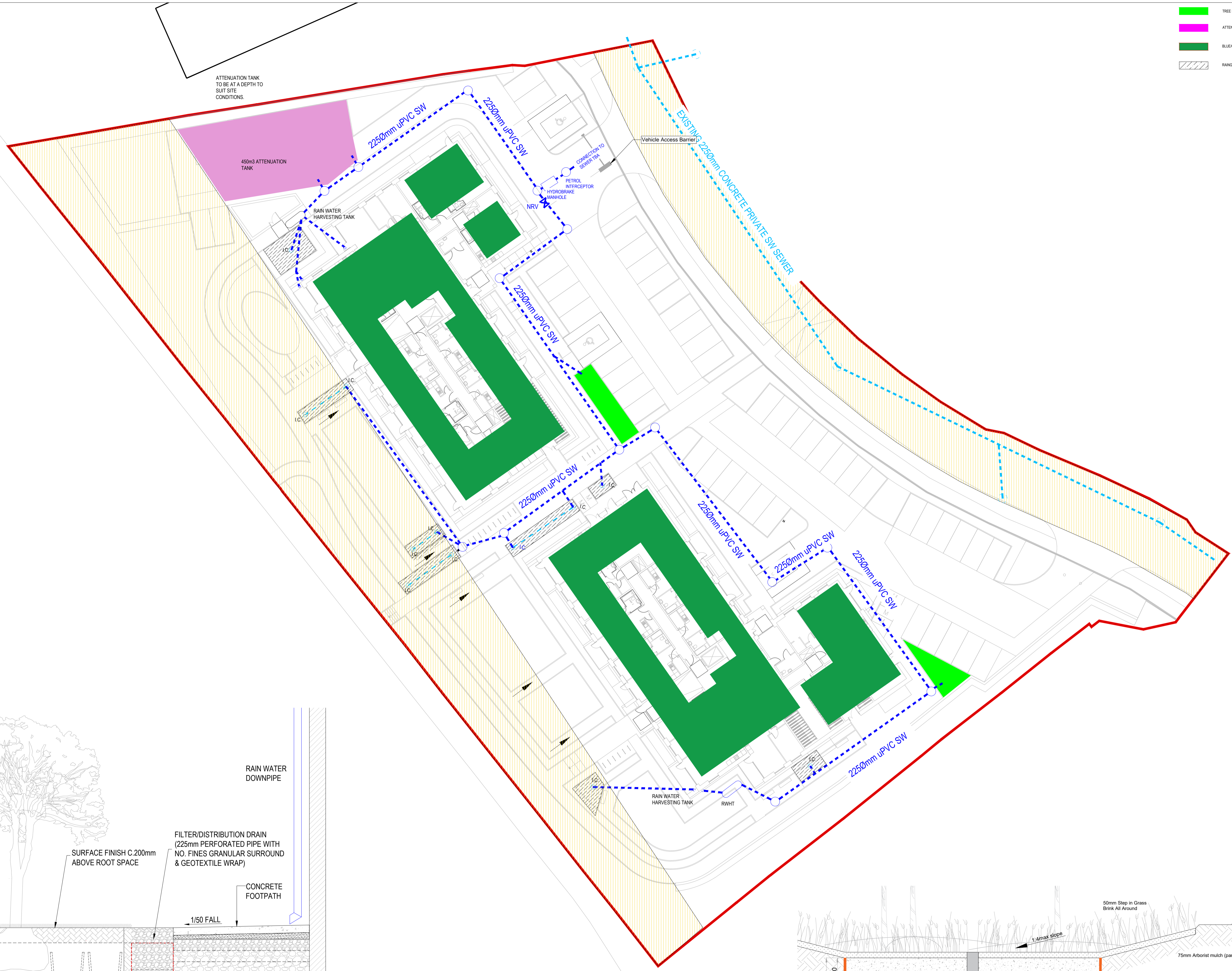
The Chapel, Blackrock House, Blackrock Rd, Cork
Tel : 353 21 4317608

PROJECT
Residential Development, Skehard Road, Cork

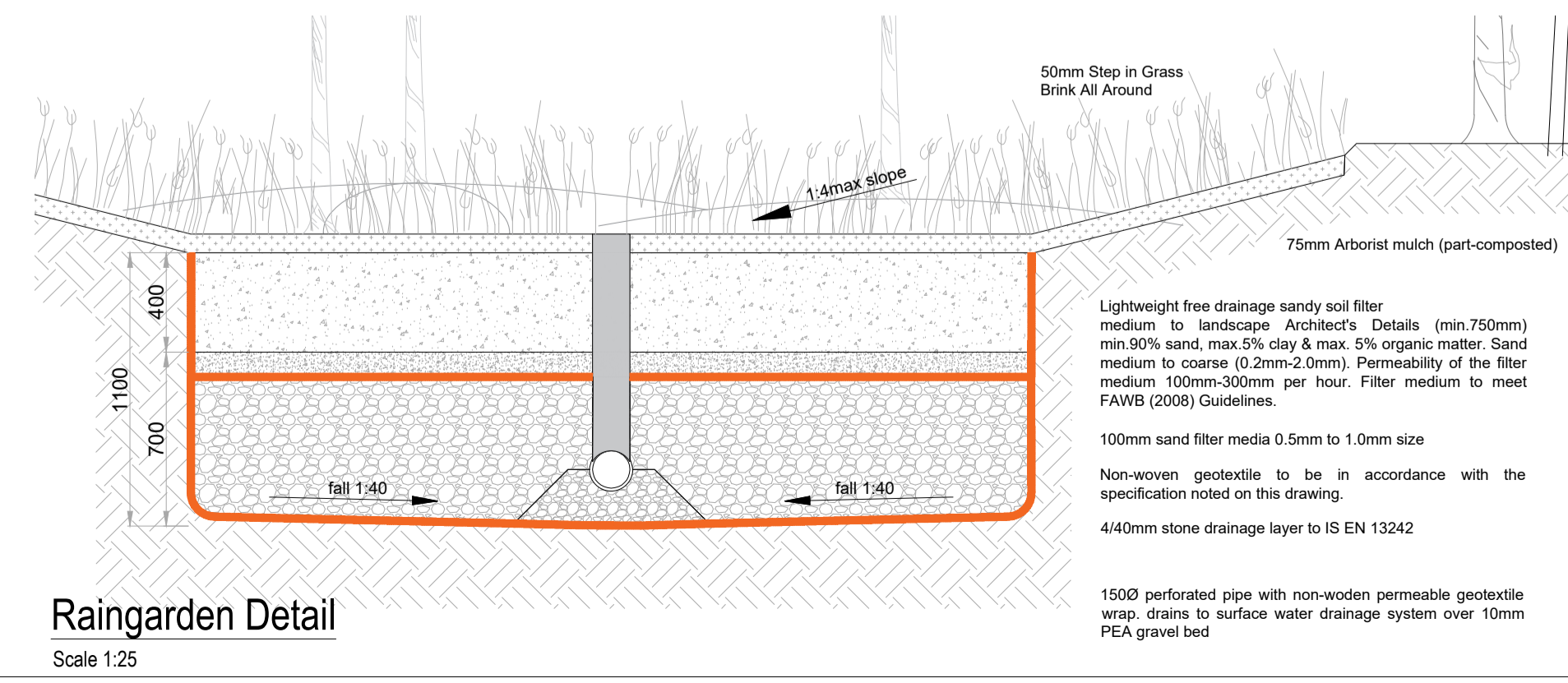
CLIENT
Sisk

TITLE
SUDS Measures

DRAWN BY WOS	CHECKED BY WOS	APPROVED WOS
SCALE (@ A1) 1/250		PROJECT NUMBER 25303
DOCUMENT REFERENCE 25303-MMS-ZZ-ZZ-DR-C-10002		STATUS D2 REV P07
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICLINE-NUMBER		



SUDS Layout
Scale 1:250 @ A1





- WATERMAIN NOTES:
- ALL TYPICAL DETAILS AND SPECIFICATIONS OF PIPELINE, MANHOLES, GULLIES AND GENERAL DRAINAGE INFRASTRUCTURE TO COMPLY WITH IRISH WATER STANDARD DETAIL REQUIREMENTS
 - ALL LEVELS IN METRES ABOVE ORDNANCE DATUM
 - CONTRACTOR TO TRACE ALL SERVICES WITHIN SITE BOUNDARY TO ASCERTAIN OUTFALL LOCATIONS OF ALL DRAIN RUNS & LOCATION OF ALL LIVE SERVICES PRIOR TO COMMENCEMENT OF SITE CLEARANCE WORKS CONTRACTORS TO AGREE ANY DIVERSIONS WHERE NECESSARY WITH CONSULTANTS / LOCAL COUNTY COUNCIL
 - WATER MAINS SHALL BE HDPE PIPE, EXCEPT UNDER ROADWAYS WHERE EQUIVALENT DUCTILE IRON PIPE OUTSIDE SITE AREAS OR HDPE PIPE TYPE PE100 INSIDE SITE AREAS SHALL BE USED. ALL WATER MAINS SHALL BE LOOPED IN ORDER TO AVOID DEAD ENDS
 - WATER SUPPLY TO BE METERED, AS PER IRISH WATER AGREEMENT.
 - UPON COMPLETION OF THE DEVELOPMENT THE CONTRACTOR/DEVELOPER SHALL COMMISSION A WATER AUDIT AND LEAKAGE SURVEY OF THE WATER DISTRIBUTION SYSTEM WHICH SHALL BE SUBMITTED TO THE PLANNING AUTHORITY FOR CONSIDERATION WITHIN THREE MONTHS OF THE COMPLETION OF THE DEVELOPMENT.
 - THE HYDRANT LOCATIONS CURRENTLY SHOWN ARE FOR INDICATIVE PURPOSES ONLY AND SHOULD BE AGREED WITH THE FIRE ENGINEERS.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
 - DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
 - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
 - FOR WATERMAIN DETAILS REFER TO DRAWING MMS-ZZ-ST-DR-C-10005
 - ALL EXISTING DRAINAGE ON SITE, WHICH SERVES THE EXISTING DEVELOPMENT ONLY, IS TO BE ABANDONED OR REMOVED.
 - IF DRAINAGE FROM NEIGHBORING LAND OR DEVELOPMENTS IS IDENTIFIED ON SITE THIS IS TO BE REPORTED TO MMOS IMMEDIATELY.
 - SURVEY OF GRATTAN ROAD TO PROVIDE THE LOCATION, DEPTH AND DIMENSIONS OF ALL EXISTING DRAINAGE AND UTILITIES.
 - DESIGN BASED ON CURRENT INFORMATION AVAILABLE AND IS SUBJECT TO CHANGE FOLLOWING RECEIPT OF FURTHER INFORMATION.
 - ALL LEVELS IN METERS AND RELATE TO ORDNANCE DATUM - MALIN HEAD.
 - ALL WATERMAIN SUPPLY PIPES TO BE BLUE AND OF POLYTHENE MATERIAL.
 - NO BUILDING TO BE MORE THAN 46m FROM A FIRE HYDRANT.
 - ALL CONSTRUCTION DETAILS AND DOMESTIC CONNECTIONS WILL BE CONSTRUCTED TO THE SPECIFICATIONS PROVIDED IN THE IRISH WATER DOCUMENT: WATER INFRASTRUCTURE STANDARD DETAILS - CONNECTION AND DEVELOPER SERVICES. DOCUMENT NUMBER IW-CDS-5020-01 (JULY 2020, REVISION 4) AND THE IRISH WATER PUBLICATION 'CODE OF PRACTICE FOR WATER INFRASTRUCTURE: IW-CDS-5020-03 (JULY 2020, REVISION 2)
 - ALL WATER MAINS SHALL BE MDPE OR HDPE AND OF A TYPE PE80 (POLYTHENE) AND HAVE AN SDR-11 OR SDR-17 RATINGS. THEY SHALL CONFORM TO IS EN 12201 - PART 1 AND PART 2 (PLASTIC SYSTEMS FOR WATER SUPPLY, DRAINAGE AND SEWERAGE UNDER PRESSURE - PART 1: GENERAL AND PART 2: PIPES, AND IS EN 12201-3 (PLASTIC SYSTEMS FOR WATER SUPPLY, DRAINAGE AND SEWERAGE UNDER PRESSURE - PART 3: FITTINGS).
 - POLYTHENE PIPES SHALL ALSO CONFORM TO THE FOLLOWING UK WATER INDUSTRY SPECIFICATIONS (WIS): 4-32-08, 4-32-16, 4-32-19 & IGN 4-01-03.
 - ALL WATER MAINS SHALL COMPLY WITH SECTION 3.9 OF IW-CDS-5020-03.
 - AIR VALVE AND HYDRANT COVERS, IN GRASSED AREAS, SHALL BE SURROUNDED BY A CONCRETE PLINTH, 200mm ALL ROUND AND 100mm DEEP FORMED WITH C20/25 CONCRETE, 20mm AGGREGATE, BEDDED IN CLAUSE 804 MATERIAL. THE PLINTH SHALL INCORPORATE MILD STEEL REINFORCEMENT LINKS AND HAVE A BULL-NOSE FINISH ROUND ITS EXTERNAL PERIMETER. SEE SECTION 3.18 OF THE WATER CODE OF PRACTICE.
 - NO HYDRANT HAS BEEN LOCATED WITHIN 6m OF A PROPERTY AS PER SECTION 3.5.25 OF THE WATER CODE OF PRACTICE.
 - AIR VALVES SHALL BE POSITIONED AT LOCALISED HIGH POINTS AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE WATER CODE OF PRACTICE.
 - ALL 'T' JUNCTIONS WILL BE MADE AT 90 DEGREES - SEE STD-W-07.
 - SCOUR VALVES SHALL BE POSITIONED AT LOW POINTS AS SHOWN ON THE DRAWING AND IN ACCORDANCE WITH THE SECTIONS 3.16.4 AND 3.21 OF THE WATER CODE OF PRACTICE. SCOUR CHAMBERS WILL BE OFFLINE AND LINKED TO SURFACE WATER MANHOLES (TO BE AGREED WITH THE LOCAL AUTHORITY).
 - THE MINIMUM SEPARATION DISTANCES FOR GAS NETWORKS IRELAND INFRASTRUCTURE SHALL BE IN ACCORDANCE WITH ISS29 'GAS DISTRIBUTION MAINS AND ISS28 'CODE OF PRACTICE FOR GAS TRANSMISSION MAINS' AS AMENDED/UPDATED - SEE SECTION 3.6 OF THE WATER CODE OF PRACTICE.
 - REDUNDANT MAINS SHALL BE TRACED BACK TO THE IRISH WATER NETWORK BY THE DEVELOPER AND BE BLANKED OFF BY IRISH WATER AT THE DEVELOPER'S EXPENSE.
 - REDUNDANT MAINS SHALL BE GRUBBED OUT/DIVIDED OUT BY THE DEVELOPER AFTER BLANKING OFF. NO NEW WATERMAIN UP TO AND INCLUDING 150mm IN DIAMETER SHALL BE LAID WITHIN 5m OF AN EXISTING OR PROPOSED STRUCTURE, AS PER SECTION 3.5.9 OF WATER CODE OF PRACTICE, EXCEPT WHERE NOTED OTHERWISE.

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 - Where cover to pipes is less than 1.2m in roads and 0.9m in public areas, surround the pipe up to 150mm with 100mm concrete and larger pipes with 150mm concrete.
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 - Manhole covers and frames shall comply with the LA standard pattern with min opening of 600mm & with closed keyways, all Manholes covers to comply with IS EN 124-1994, Group 4 (min. class D400) manholes in all trafficked areas, Minimum Group 2 (min. class B125) to be used in footways, pedestrian areas and comparable areas, Class D400 should be used in footpaths where heavy vehicles have the potential to access or mount footpaths and these covers should be free of trip hazards, removable parts and be lockable. Group 1 (min. class A15) may be used in enclosed private gardens only.
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- Note:
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 - Tripod Access Required above pumps.
 - uPVC pipes to be provided for drainage.

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 MURPHY MATSON O'SULLIVAN
 CONSULTING CIVIL & STRUCTURAL ENGINEERS Tel : 353 21 4317608

PROJECT
 Residential Development, Skehard Road, Cork

CLIENT
 Sisk

TITLE
 Watermain Layout

DRAWN BY WOS	CHECKED BY WOS	APPROVED WOS
SCALE (@ A1) 1/250		PROJECT NUMBER 25303
DOCUMENT REFERENCE 25303-MMS-ZZ-ZZ-DR-C-10003		STATUS D2 REV P07
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER		

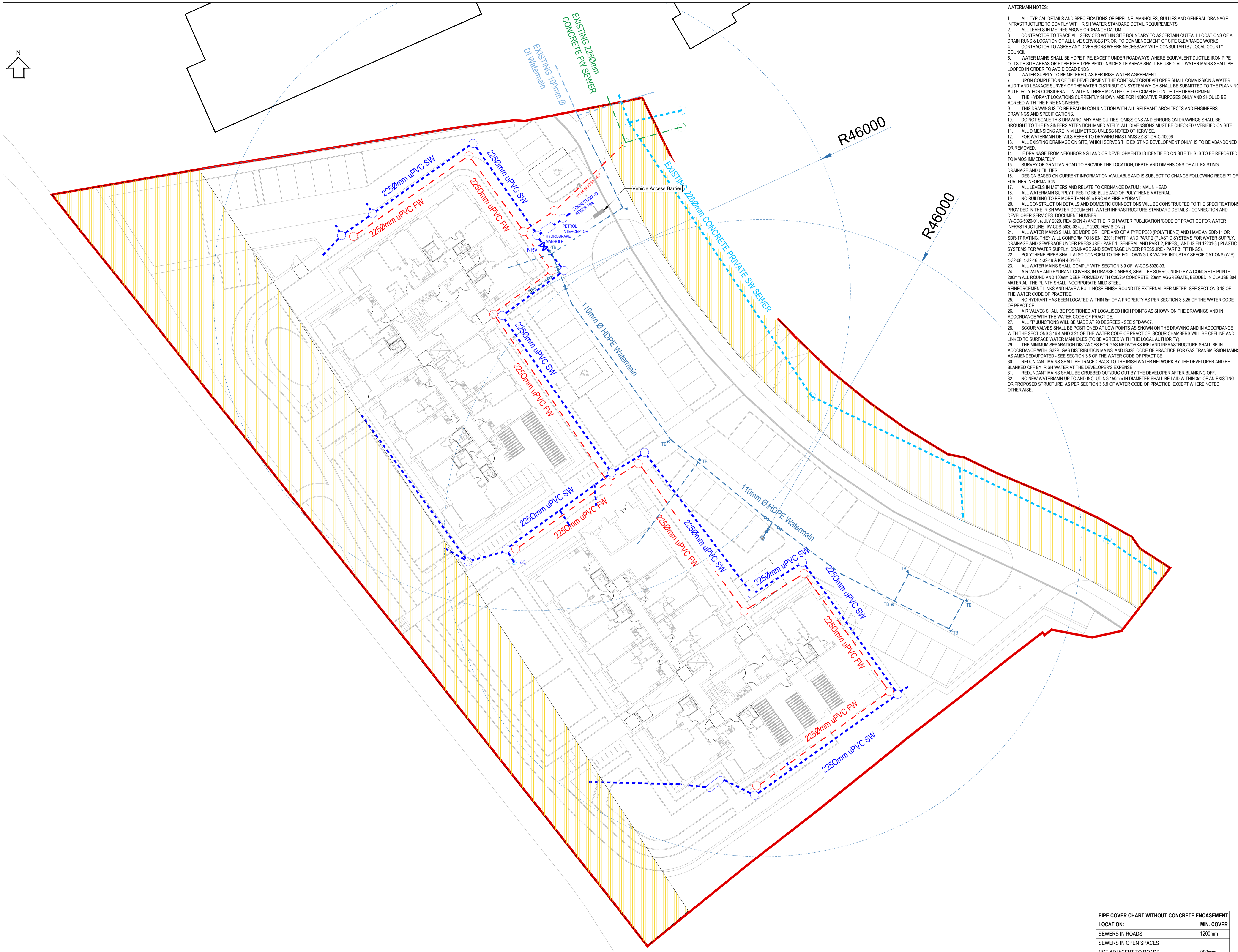
WATERMAIN LEGEND

- 110mm --- DENOTES NEW 110mm WATER MAIN
- H --- DENOTES NEW FIRE HYDRANT
- M --- DENOTES NEW WATER METER
- X --- DENOTES NEW SLUICE VALVE
- A --- DENOTES NEW AIR VALVE
- TB * DENOTES NEW THRUST BLOCK

ALL DWELLINGS TO HAVE A PROVISION FOR A FUTURE WATER METER

PIPE COVER CHART WITHOUT CONCRETE ENCASEMENT

LOCATION:	MIN. COVER
SEWERS IN ROADS	1200mm
SEWERS IN OPEN SPACES	900mm
SEWERS IN GARDENS	600mm
WATERMANS IN ALL LOCATIONS	900mm
WATER SERVICES IN ALL LOCATIONS	600mm



- WATERMAIN NOTES:**
- ALL TYPICAL DETAILS AND SPECIFICATIONS OF PIPELINE, MANHOLES, GULLIES AND GENERAL DRAINAGE INFRASTRUCTURE TO COMPLY WITH IRISH WATER STANDARD DETAIL REQUIREMENTS
 - ALL LEVELS IN METRES ABOVE ORDNANCE DATUM
 - CONTRACTOR TO TRACE ALL SERVICES WITHIN SITE BOUNDARY TO ASCERTAIN OUTFALL LOCATIONS OF ALL DRAIN RUNS & LOCATION OF ALL LIVE SERVICES PRIOR TO COMMENCEMENT OF SITE CLEARANCE WORKS
 - CONTRACTOR TO AGREE ANY DIVERSIONS WHERE NECESSARY WITH CONSULTANTS / LOCAL COUNTY COUNCIL
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 - WATER SUPPLY TO BE METERED, AS PER IRISH WATER AGREEMENT.
 - UPON COMPLETION OF THE DEVELOPMENT THE CONTRACTOR/DEVELOPER SHALL COMMISSION A WATER AUDIT AND LEAKAGE SURVEY OF THE WATER DISTRIBUTION SYSTEM WHICH SHALL BE SUBMITTED TO THE PLANNING AUTHORITY FOR CONSIDERATION WITHIN THREE MONTHS OF THE COMPLETION OF THE DEVELOPMENT.
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 - ALL LEVELS IN METERS AND RELATE TO ORDNANCE DATUM - MALIN HEAD.
 - ALL WATERMAIN SUPPLY PIPES TO BE BLUE AND OF POLYTHENE MATERIAL.
 - NO BUILDING TO BE MORE THAN 46m FROM A FIRE HYDRANT.
 - ALL CONSTRUCTION DETAILS AND DOMESTIC CONNECTIONS WILL BE CONSTRUCTED TO THE SPECIFICATIONS PROVIDED IN THE IRISH WATER DOCUMENT: WATER INFRASTRUCTURE STANDARD DETAILS - CONNECTION AND DEVELOPER SERVICES, DOCUMENT NUMBER (W-CDS-5020-01 (JULY 2020 REVISION 4) AND THE IRISH WATER PUBLICATION 'CODE OF PRACTICE FOR WATER INFRASTRUCTURE' (W-CDS-5020-03 (JULY 2020, REVISION 2))
 - ALL WATER MAINS SHALL COMPLY WITH SECTION 3.9 OF W-CDS-5020-03
 - ALL POLYTHENE PIPES SHALL ALSO CONFORM TO THE FOLLOWING UK WATER INDUSTRY SPECIFICATIONS (WIS): 4-32-08, 4-32-16, 4-32-19 & IGN 4-01-03.
 - AIR VALVE AND HYDRANT COVERS, IN GRASSED AREAS, SHALL BE SURROUNDED BY A CONCRETE PLINTH, 200mm ALL ROUND AND 100mm DEEP FORMED WITH C20/25 CONCRETE, 20mm AGGREGATE, BEDDED IN CLAUSE 804 MATERIAL. THE PLINTH SHALL INCORPORATE MILD STEEL REINFORCEMENT LINKS AND HAVE A BULL-NOSE FINISH ROUND ITS EXTERNAL PERIMETER. SEE SECTION 3.18 OF THE WATER CODE OF PRACTICE.
 - NO HYDRANT HAS BEEN LOCATED WITHIN 6m OF A PROPERTY AS PER SECTION 3.5.25 OF THE WATER CODE OF PRACTICE.
 - AIR VALVES SHALL BE POSITIONED AT LOCALISED HIGH POINTS AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE WATER CODE OF PRACTICE.
 - ALL 'T' JUNCTIONS WILL BE MADE AT 90 DEGREES - SEE STD-W-07.
 - SCOUR VALVES SHALL BE POSITIONED AT LOW POINTS AS SHOWN ON THE DRAWING AND IN ACCORDANCE WITH THE SECTIONS 3.16.4 AND 3.21 OF THE WATER CODE OF PRACTICE. SCOUR CHAMBERS WILL BE OFFLINE AND LINKED TO SURFACE WATER MANHOLES (TO BE AGREED WITH THE LOCAL AUTHORITY).
 - THE MINIMUM SEPARATION DISTANCES FOR GAS NETWORKS RE-AND INFRASTRUCTURE SHALL BE IN ACCORDANCE WITH 8320 'GAS DISTRIBUTION MAINS' AND 8328 'CODE OF PRACTICE FOR GAS TRANSMISSION MAINS' AS AMENDED/UPDATED - SEE SECTION 3.6 OF THE WATER CODE OF PRACTICE.
 - REDUNDANT MAINS SHALL BE TRACED BACK TO THE IRISH WATER NETWORK BY THE DEVELOPER AND BE BLANKED OFF BY IRISH WATER AT THE DEVELOPER'S EXPENSE.
 - REDUNDANT MAINS SHALL BE GRUBBED OUT/DUG OUT BY THE DEVELOPER AFTER BLANKING OFF.
 - NO NEW WATERMAIN UP TO AND INCLUDING 150mm IN DIAMETER SHALL BE LAID WITHIN 3m OF AN EXISTING OR PROPOSED STRUCTURE, AS PER SECTION 3.5.9 OF WATER CODE OF PRACTICE, EXCEPT WHERE NOTED OTHERWISE.

- NOTES:**
- Do not set out from this drawing. Setting out, to be done from Architects drawings.
 - Where cover to pipes is less than 1.2m in roads and 0.9m in public areas, surround the pipe up to 150mm with 100mm concrete and larger pipes with 150mm concrete.
 - Adjust foundation depths, as necessary, adjacent to sewers to avoid undermining of the foundations.
 - Manhole covers and frames shall comply with the LA standard pattern with min opening of 600mm & with closed keyways. All Manholes covers to comply with IS EN 124:1994, Group 4 (min. class D400) manholes in all trafficked areas. Minimum Group 2 (min. class B125) to be used in footpaths, pedestrian areas and comparable areas. Class D400 should be used in footpaths where heavy vehicles have the potential to access or mount footpaths and these covers should be free of trip hazards, removable parts and be lockable. Group 1 (min. class A15) may be used in enclosed private gardens only.
 - This drawing and associated notes are of an outline nature only and all works are the sole responsibility of the Contractor. The Contractor must inform the Engineer of any variation to the details shown on this drawing.
 - The Contractor is to be fully insured and have insurance certificates submitted and approved by the Local Authority prior to work commencing on site.
 - All drainage to be laid using laser technology to ensure accurate slopes and gradients of concrete base and channels.
 - All landscaping requirements to be agreed with the Architects.
 - All drainage works to be in compliance with Local Authority 'taken in charge' standards and Irish Water Standards.
 - Workmanship to be in accordance with BS 8000 Workmanship on Building Sites.
 - All materials and proprietary items shall comply with the Building Regulations and be proper materials as defined therein. They shall be fit for the use they are intended and for the conditions in which they are to be used. Essentially they shall bear the CE Mark, comply with an appropriate Irish standard or Agreement Certificate or alternative EU national standard which provides an equivalent level of safety and suitability.
 - A 150mm thickness of 50mm consolidated broken stone / hardcore materials shall be placed under footpaths. Hardcore grading shall comply with the requirements of NRA Specification for Road Works, Class 6F2 and be certified for the end use for additional properties as per the requirements of SR21 Annex E.
 - Granular filling material, to Class 6F2 and certified for end use to the requirements of SR21 as above. The fill material is to be free of all organic material. No top soil, roots, vegetation, frozen soil etc. can be present. It shall be used to make up levels below the hardcore. Each layer shall be compacted with approved mechanical equipment in accordance with clause 612 of the NRA Specification. Generally the layers shall not exceed 150mm thick. The total depth of the backfill required is to be determined by the contractor based on the survey and proposed levels drawings.
 - Hardcore and granular fill shall be obtained from a independently tested and approved quarry in accordance with the detailed specification.
 - All connections to existing public services must be determined by the main Contractor prior to any construction on site. All existing invert levels to be confirmed to the engineers and all discrepancies notified to MMOS before any construction commences.
 - Record drawings of the as constructed work shall be made available to MMOS at the end of the project.
 - A CCTV camera survey is to be carried out by the contractor and the resulting report and DVD is to be issued to the engineers before project completion.

- Note:**
- Rodding Access required to all pop ups.
 - Venting of system to Architects / M and E Specifications.
 - Tripod Access Required above pumps.
 - uPVC pipes to be provided for drainage.

Rev	Description	Date
P01	ISSUED FOR INFORMATION	26.08.25
P02	ISSUED FOR INFORMATION	08.12.25
P03	ISSUED FOR INFORMATION	13.02.26
P04	ISSUED FOR INFORMATION	05.03.26
P05	ISSUED FOR INFORMATION	30.03.26
P06	ISSUED FOR INFORMATION	13.05.26
P07	ISSUED FOR INFORMATION	26.06.26

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

PROJECT
 Residential Development, Skehard Road, Cork

CLIENT
 Sisk

TITLE
 Combined Services Layout

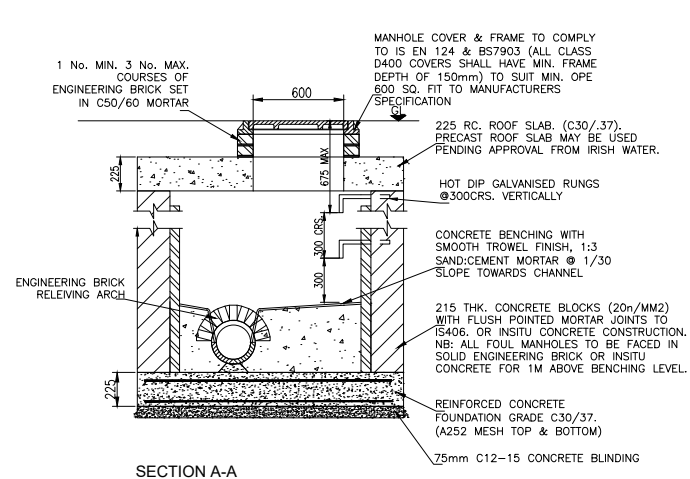
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SCALE (@ A1) 1/250		PROJECT NUMBER 25303
DOCUMENT REFERENCE 25303-MMS-ZZ-ZZ-DR-C-10004		STATUS D2 REV: P07
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER		

PIPE COVER CHART WITHOUT CONCRETE ENCASEMENT

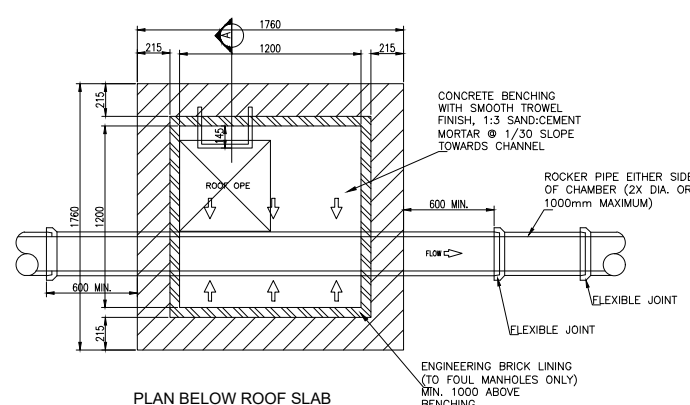
LOCATION:	MIN. COVER
SEWERS IN ROADS	1200mm
SEWERS IN OPEN SPACES	900mm
NOT ADJACENT TO ROADS	900mm
SEWERS IN GARDENS	600mm
WATERMANS IN ALL LOCATIONS	900mm
WATER SERVICES IN ALL LOCATIONS	600mm

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-FLOTATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.
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 CURTLAGH, 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 AJS 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.

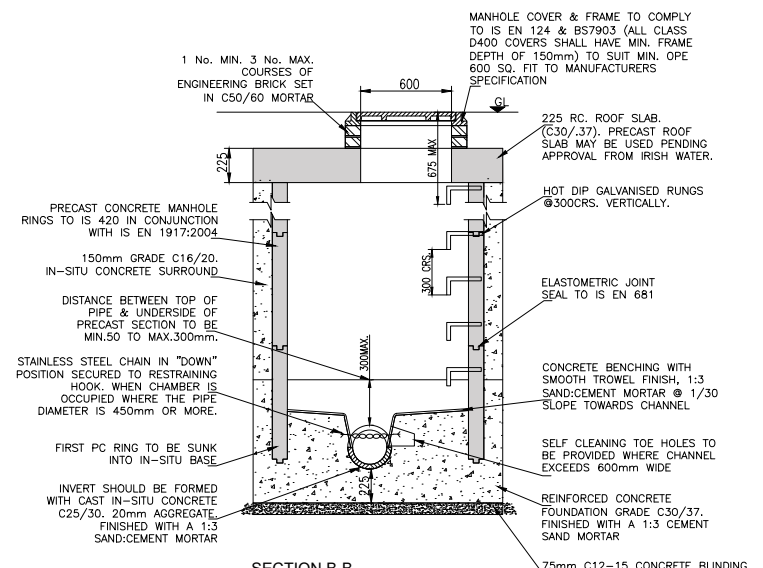


SECTION A-A

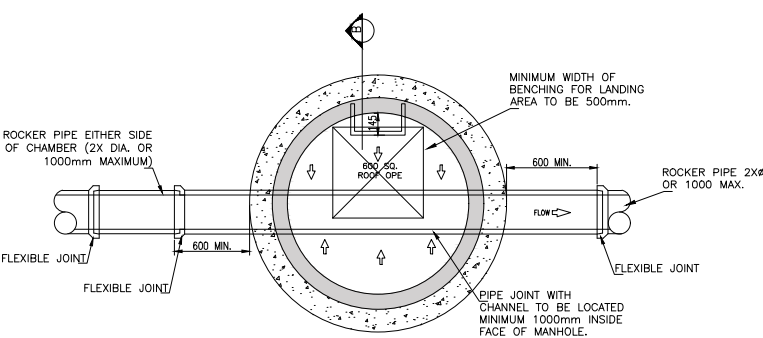


PLAN BELOW ROOF SLAB

BLOCKWORK MANHOLE FOR PIPE DIAMETERS < 450mm
 MAX. DEPTH TO INVERT 1.2M (UNLESS OTHERWISE AGREED WITH MMOS & IRISH WATER)



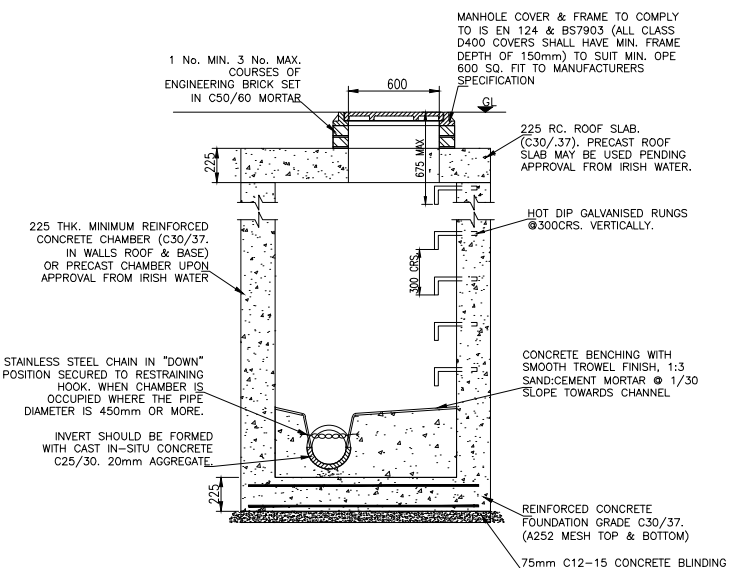
SECTION B-B



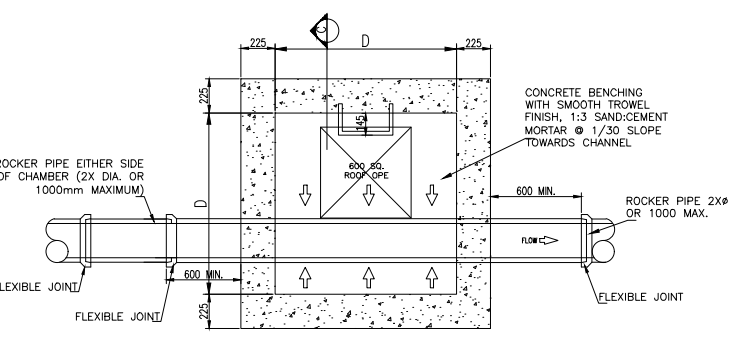
PLAN BELOW ROOF SLAB

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



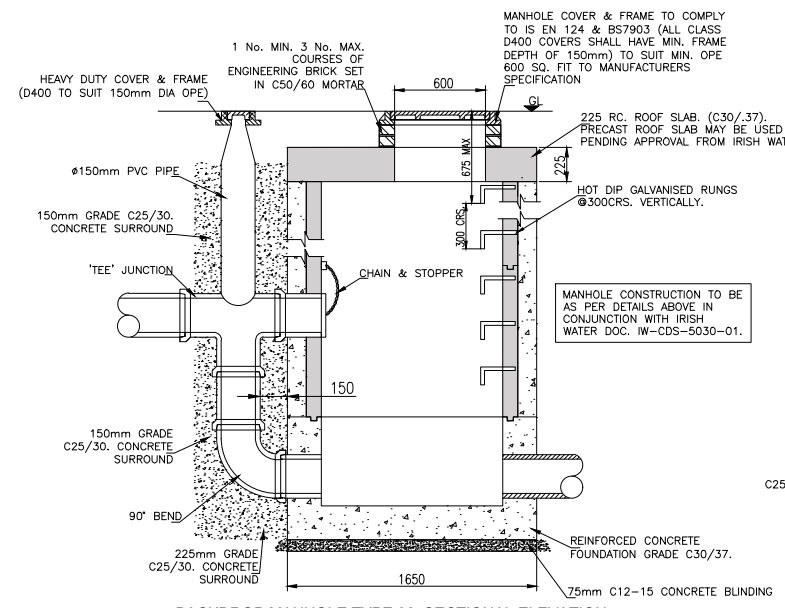
SECTION C-C



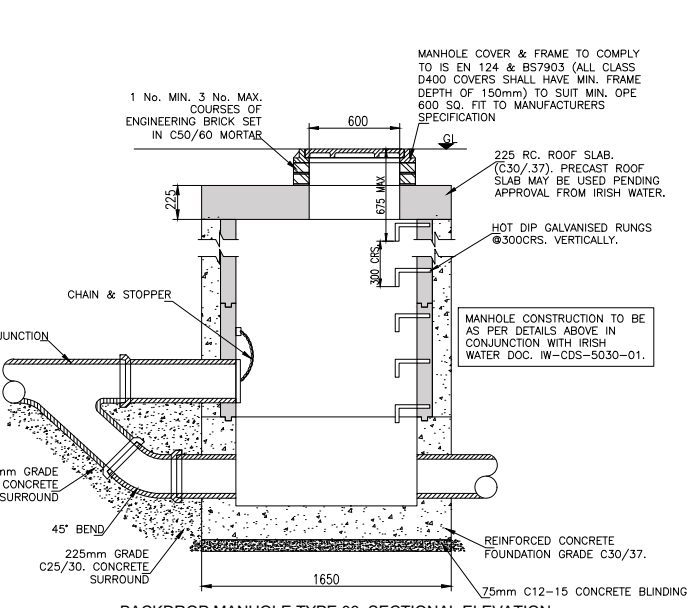
PLAN BELOW ROOF SLAB

IN-SITU CONCRETE MANHOLE

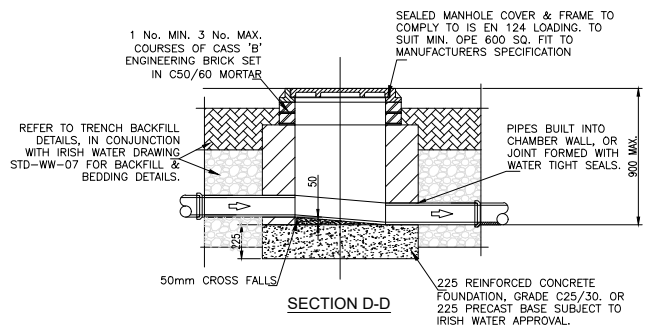
MINIMUM MANHOLE DIMENSION "D"	
DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIMENSION OF MANHOLE (mm)
LESS THAN 375mm	1200
375 TO 450	1350
500 TO 750	1500



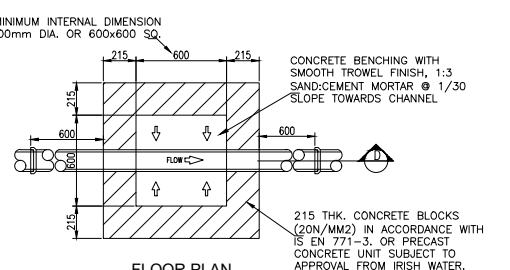
BACKDROP MANHOLE TYPE 02, SECTIONAL ELEVATION
 150mm - 450mm DIA.(INCL.) DROP GREATER THAN 900mm & LESS THAN 1700mm
 500mm - 900mm DIA.(INCL.) DROP GREATER THAN 1300mm & LESS THAN 2300mm



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 / AJS WITH DEPTH TO INVERT LESS THAN 600mm, SEE NOTE 24.

Rev	Sts	Description	Date
P01	D2	Issue for Tender	04.03.26

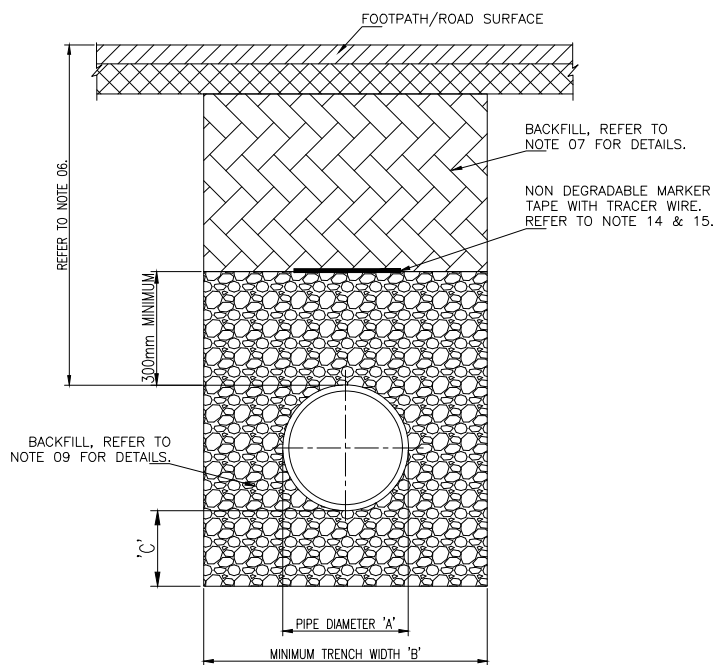
MMOS The Chapel, Blackrock House, Blackrock Road, Cork, T12 KRK7
 MURPHY-MATSON-O'SULLIVAN CONSULTING CIVIL & STRUCTURAL ENGINEERS Tel: 353 21 4317608

PROJECT
 Residential Development, Skehard Road, Cork

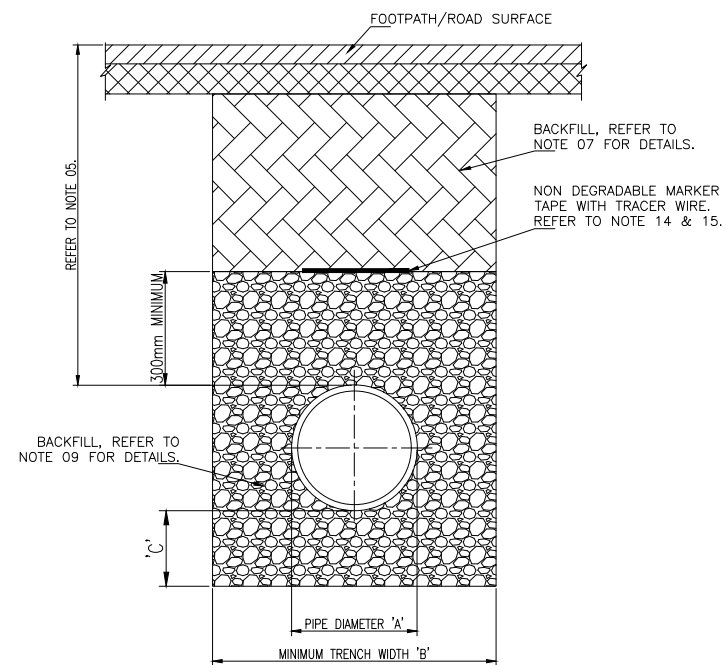
CLIENT
 Sisk

TITLE
 Typical Manhole Details

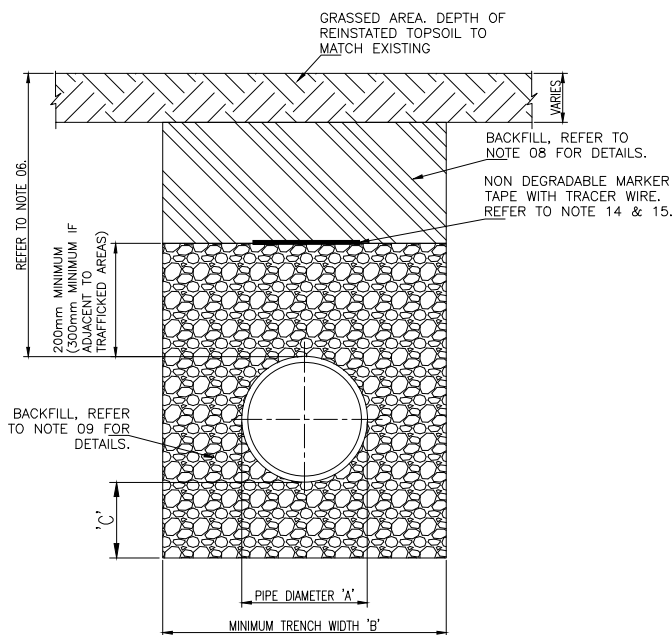
DRAWN BY	CHECKED BY	APPROVED BY
WOS	WOS	WOS
SCALE As Shown		PROJECT NUMBER 25303
DOCUMENT REFERENCE 25303-MMS-ZZ-ST-DR-C-10007		STATUS D2 REV P01
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER		



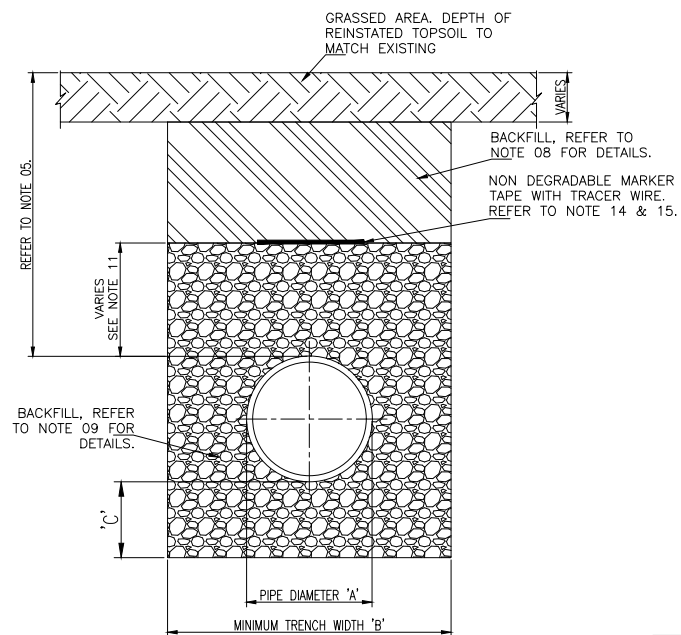
WATERMAIN CROSS SECTION IN ROADWAYS.



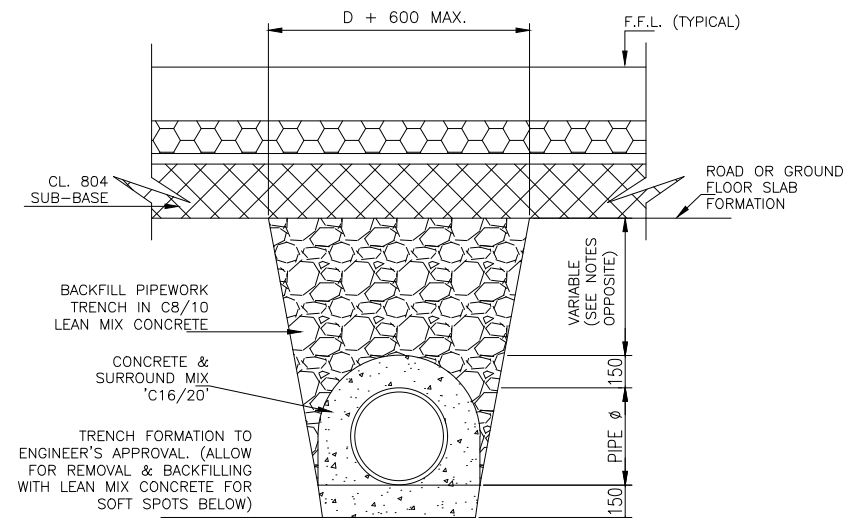
FOUL OR SURFACEWATER PIPES CROSS SECTION IN ROADWAYS.



WATERMAIN CROSS SECTION IN GRASSED AREAS.



FOUL OF SURFACE WATER PIPES CROSS SECTION IN GRASSED AREAS.



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

TRENCH BACKFILL & BEDDING NOTES:

- 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.
- REFER TO IRISH WATER CONNECTION & DEVELOPER SERVICES, WATER INFRASTRUCTURE STANDARD DETAILS DOCUMENT IW-CDS-5020-01 FOR FURTHER INFORMATION ON WATERMAIN SERVICES.
- REFER TO IRISH WATER CONNECTION & DEVELOPER SERVICES, WASTEWATER INFRASTRUCTURE STANDARD DETAILS DOCUMENT IW-CDS-5030-01 FOR FURTHER INFORMATION ON WASTE WATER SERVICES.
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- 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:
 - 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).
 - 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.
 - 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.
 - DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE.
 - AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.9 M.
 - 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.
- 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.
- 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.
- SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF IRISH WATER.
- PIPE BEDDING SHALL COMPLY WITH WIS 4-08-02 AND ISM 4-08-01. GRANULAR MATERIAL SHALL BE 14mm TO 5mm GRADED AND REGGATE OR 10mm SINGLE SIZED AGGREGATE BS EN 12545. BEDDING & SURROUND SHALL BE IN LAYERS NOT EXCEEDING 100mm & BE COMPACTED BY HAND TAMPING. CONCRETE BED, HAUNCH & SURROUND, WHERE REQUIRED, SHALL BE MIN 150mm.
- 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.
- 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.
- 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:
 - CLAUSE 808 MATERIAL - FOR FOUL & SURFACE LINES
 - 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.
- 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.
- 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.
- 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.
- TRENCH WIDTHS FOR PIPE SIZES <80 MAY BE 500mm, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS.
- WATERMANS SUITABLE FOR WORK SHALL BE EITHER DUCTILE IRON (DI) POLYETHYLENE (PE), WITH PE80 OR PE100 RATING. (MDPE, HDPE, OR HPPE.)
- ALL NEW WATERMAIN PIPE NETWORKS SHALL UNDERGO TESTING & COMMISSIONING, IN ACCORDANCE WITH THE REQUIREMENTS OF IRISH WATER DOC. IW-CDS-5020-03, INCLUDING CLEANING & PRESSURE TESTING, PRIOR TO CONNECTING TO THE IRISH WATER NETWORK.
- GRAVITY SEWER PIPE MATERIAL SHALL BE:
 - CONCRETE SEWER PIPES WITH SPIGOT & SOCKET JOINTS & RUBBER RING FITTINGS, COMPLYING WITH IS EN 1916 (2002), BS5911 & IS 6 (2004) OR EQUIVALENT STANDARD.
 - THERMOPLASTIC STRUCTURED WALL PIPES, COMPLYING WITH THE PROVISIONS OF IS EN 13476 (2007 / 2009) & WITH WIS 4-35-01 (2000)
 - UNPLASTICISED PVC PIPES, JOINTS & FITTINGS **FOR SERVICE CONNECTIONS** SHALL COMPLY WITH THE PROVISIONS OF BS 4660 & BS EN 1401-PART 01.

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

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

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)
<200	150
250	200

Rev	Sts	Description	Date
P01	D2	Issue for Tender	04.03.26

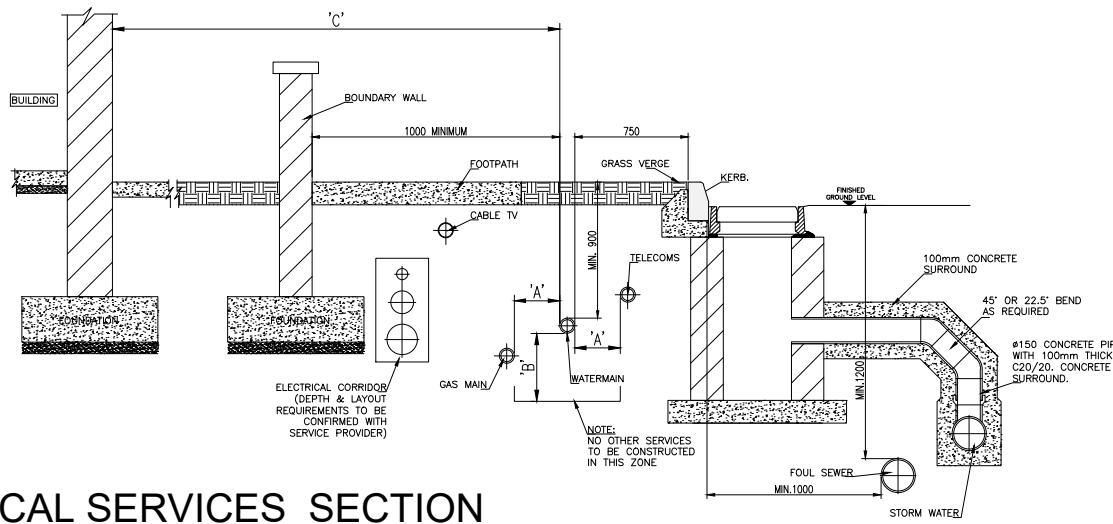
MMOS The Chapel, Blackrock House, Blackrock Road, Cork, T12 KRK7
MURPHY-MATSON-O'SULLIVAN CONSULTING CIVIL & STRUCTURAL ENGINEERS Tel : 353 21 4317608

PROJECT
Residential Development, Skehard Road, Cork

CLIENT
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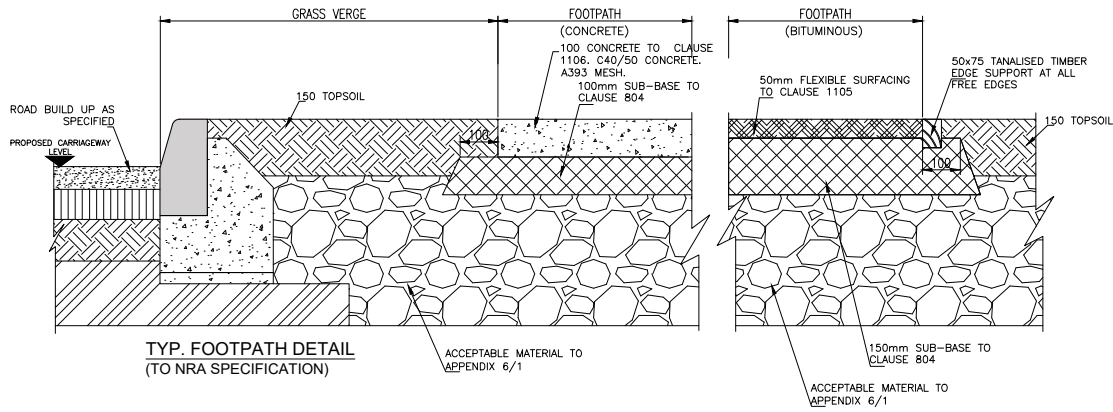
TITLE
Typical Trench Details

DRAWN BY WOS	CHECKED BY WOS	APPROVED BY WOS
SCALE As Shown	PROJECT NUMBER 25303	
DOCUMENT REFERENCE 25303-MMS-ZZ-ST-DR-C-10008		STATUS D2 REV P01
PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER		



TYPICAL SERVICES SECTION

Scale 1:50 @ A3

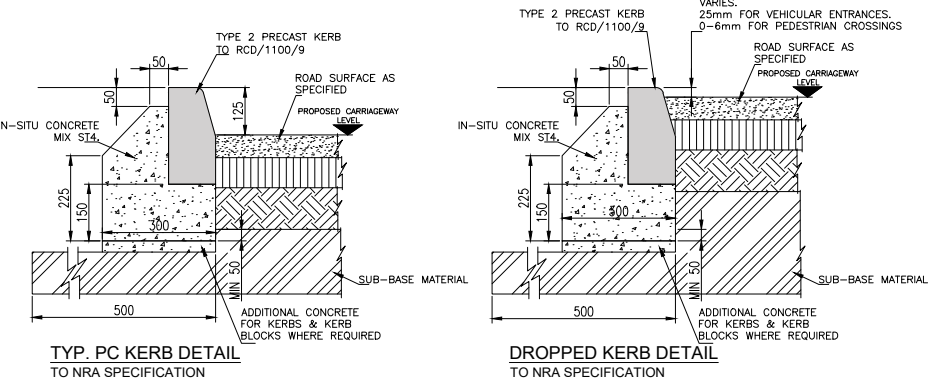


FOOTPATH DETAIL

Scale 1:25 M@ A3

PC KERB NOTES:

- AT VEHICULAR ACCESS POINTS, CONCRETE TO BE REINFORCED WITH A393 MESH-TOP & BOTTOM.
- ALL CONCRETE EDGES & JOINTS SHALL BE BULLNOZED WITH A TROWEL



KERB DETAILS

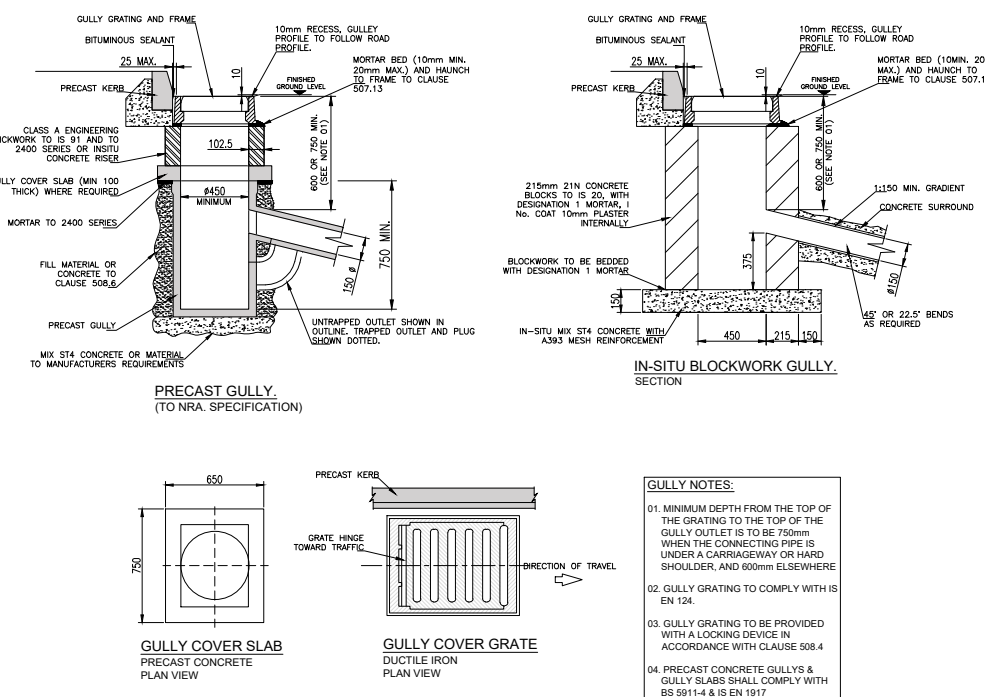
Scale 1:20 @ A3

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

- NOTES:**
- THE SEPARATION DISTANCES OUTLINED ARE MINIMUM REQUIREMENTS.
 - WATERMAIN (PROPOSED) SEPARATION DISTANCES:**
 - HORIZONTAL: 300mm TO DISTRIBUTION MAINS OF LESS THAN 300mm DIAMETER, 500mm TO TRUNK MAINS BETWEEN 300mm AND 400mm DIAMETER, 3m TO ARTERIAL WATER MAINS OF GREATER THAN 400mm DIAMETER.
 - VERTICAL: 300mm TO DISTRIBUTION MAINS OF LESS THAN 300mm DIAMETER, 500mm TO TRUNK MAINS OF GREATER THAN 300mm DIAMETER.
 - WATERMAIN (EXISTING) SEPARATION DISTANCES:**
 - HORIZONTAL: 300mm AT EITHER SIDE OF MAINS UP TO AND INCLUDING 200mm IN DIAMETER, 5m AT EITHER SIDE OF MAINS OF 200mm TO 300mm DIAMETER, 3m AT EITHER SIDE OF MAINS OF 300mm TO 375mm IN DIAMETER, 5m AT EITHER SIDE OF MAINS OF 375mm TO 450mm IN DIAMETER, 5m AT EITHER SIDE OF MAINS OF GREATER THAN 450mm IN DIAMETER.
 - SPECIFIC IRISH WATER ADVISED DISTANCES FOR MAINS IN EXCESS OF 475mm DIAMETER.
 - 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 MINIMA SEPARATION DISTANCES AND EVIDENCE OF THIS CONSULTATION WITH THE SPECIFIED SEPARATION DISTANCES, SHALL BE PROVIDED TO IRISH WATER AT DESIGN STAGE.
 - 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 200mm TO 300mm DIAMETER, 3000mm AT EITHER SIDE OF EXISTING MAINS OF GREATER THAN 300mm 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 1m DISTANCE OF A WASTEWATER SEWER.
 - REQUIREMENTS SHALL ALSO APPLY TO 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 (E.G. GAS MAIN, TELECOMMUNICATION ETC).
 - 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.
 - WATERMANS OF ANY SIZE SHALL NOT BE WITHIN 1m OF THE BOUNDARY TO A PREMISES.
 - WHERE THE DESIGN DEVIATES FROM THIS STANDARD DETAIL, THE DESIGN SHALL BE SUBJECT TO THE APPROVAL OF IRISH WATER.
 - 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 4 TIMES THE SEWER DIAMETER, WHICH EVER IS GREATER.
 - THE EXTERNAL FALLS OF MANHOLE SHALL BE AT LEAST 0.5m FROM KERB LINE.

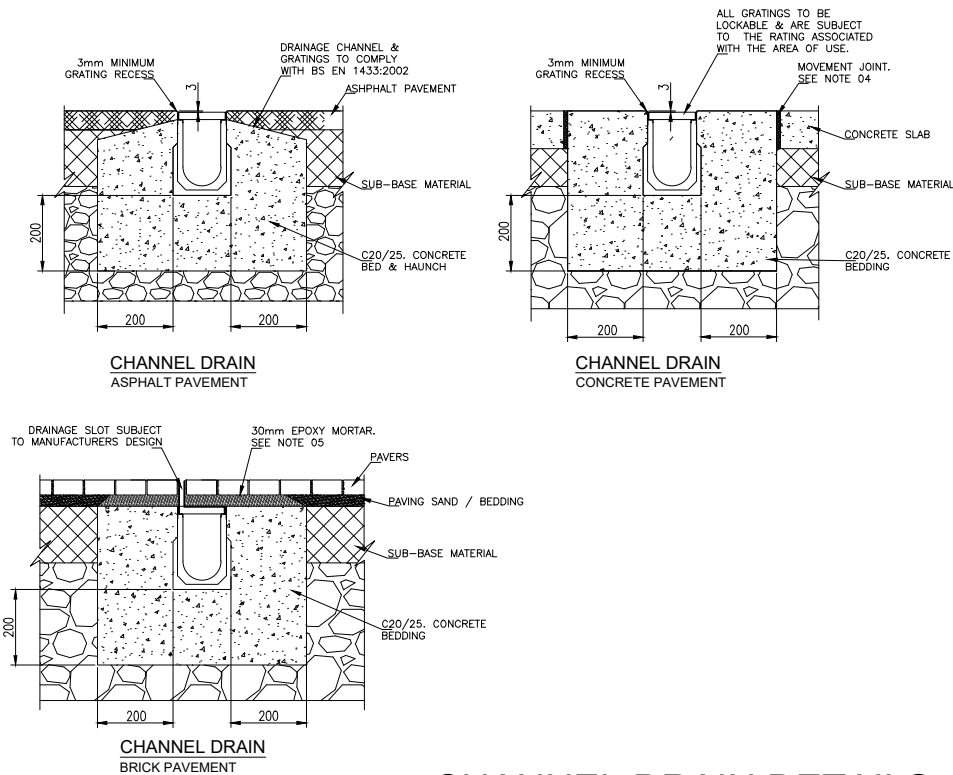
- CHANNEL DRAIN NOTES:**
- SPECIFIC SITE CONDITIONS MAY REQUIRE AN INCREASE IN THE DIMENSIONS OR REINFORCEMENT SHOWN, IT IS THE CLIENT'S RESPONSIBILITY TO ENSURE THE CONCRETE ENCASMENT IS DESIGNED FOR THE APPLICATION.
 - A MINIMUM CONCRETE STRENGTH OF 25 MPa IS RECOMMENDED. THE CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
 - THE FINISHED LEVEL OF THE CONCRETE, ASPHALT OR BRICK PAVERS MUST BE APPROX. 3mm ABOVE THE TOP OF THE CHANNEL EDGE.
 - EXPANSION & CONTRACTION JOINTS ARE RECOMMENDED TO PROTECT THE CHANNEL & CONCRETE SURROUND.
 - FOR BRICK PAVERS, THE PAVEMENT ADJACENT TO THE CHANNEL EDGE MUST BE FULLY BONDED TO THE CONCRETE SURROUND.
 - FOR BRICKS/OT DRAINS, THE PAVEMENT ADJACENT TO THE CHANNEL EDGE MUST BE FULLY BONDED TO BRICKS/OT & CONCRETE SURROUND USING AN EPXY OR POLYMER MODIFIED MORTAR.
 - FOR ASPHALT SURFACES, THE HAUNCH MUST SLOPE AWAY AT A RATIO OF 1:4 OR 1:5 APPROX.
 - REFER TO ACC OR SIMILAR APPROVED SUPPLIERS LATEST INSTALLATION INSTRUCTIONS FOR COMPLETE DETAILS.



- GULLY NOTES:**
- 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.
 - GULLY GRATING TO COMPLY WITH IS EN 124.
 - GULLY GRATING TO BE PROVIDED WITH A LOCKING DEVICE IN ACCORDANCE WITH CLAUSE 508.4.
 - PRECAST CONCRETE GULLYS & GULLY SLABS SHALL COMPLY WITH BS 5911-4 & IS EN 1917.

GULLY DETAILS

Scale 1:50 @ A3



CHANNEL DRAIN DETAILS

Scale 1:20 @ A3

Rev	Sts	Description	Date
P01	D2	Issue for Tender	04.03.26

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PROJECT Residential Development, Skehard Road, Cork

CLIENT Sisk

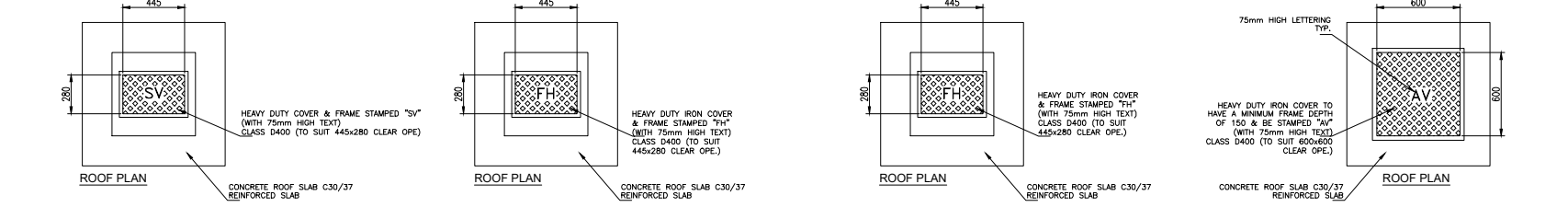
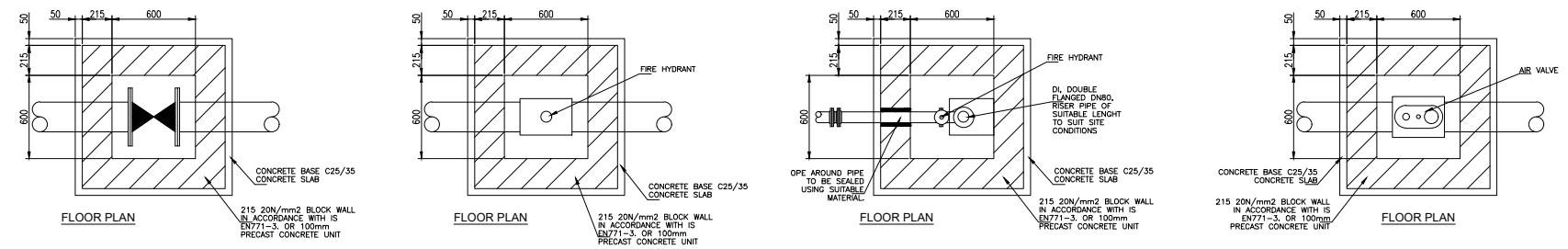
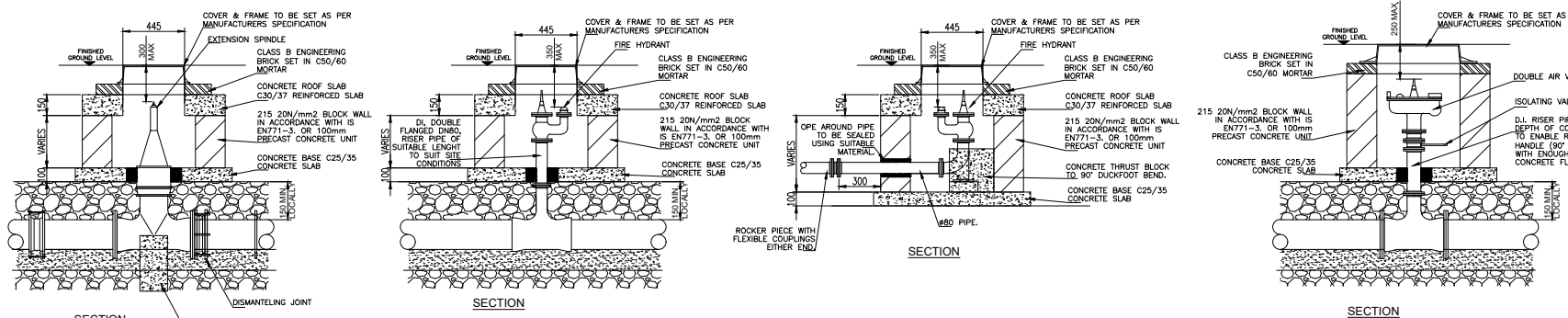
TITLE Typical Gully & Footpath Details

DRAWN BY	CHECKED BY	APPROVED BY
WOS	WOS	WOS

SCALE	PROJECT NUMBER
As Shown	25303

DOCUMENT REFERENCE	STATUS
25303-MMS-ZZ-ST-DR-C-10009	D2

PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICIPLINE-NUMBER	REV
	P01

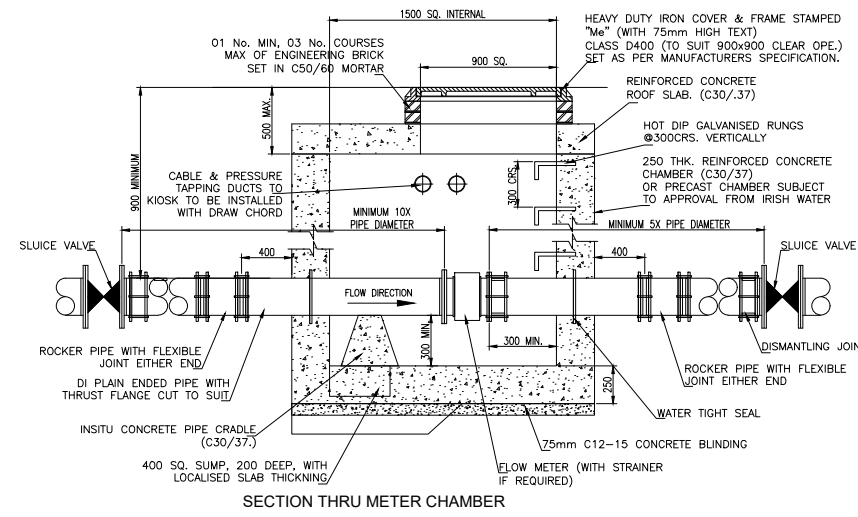


SLUICE VALVE CHAMBER
BLOCKWORK OR PRECAST CONSTRUCTION.

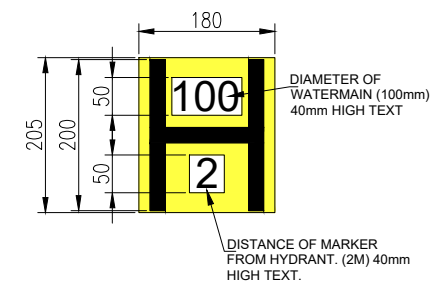
FIRE HYDRANT CHAMBER-ON LINE
BLOCKWORK OR PRECAST CONSTRUCTION.

FIRE HYDRANT CHAMBER-OFF LINE
BLOCKWORK OR PRECAST CONSTRUCTION.

ON-LINE AIR VALVE CHAMBER
BLOCKWORK OR PRECAST CONSTRUCTION.

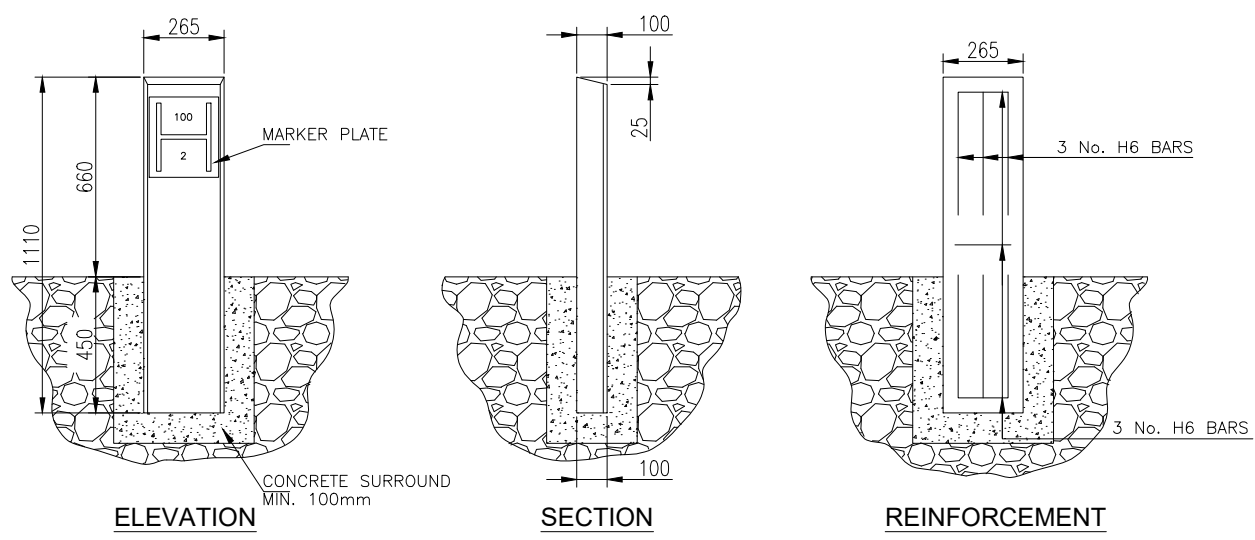


SECTION THRU METER CHAMBER

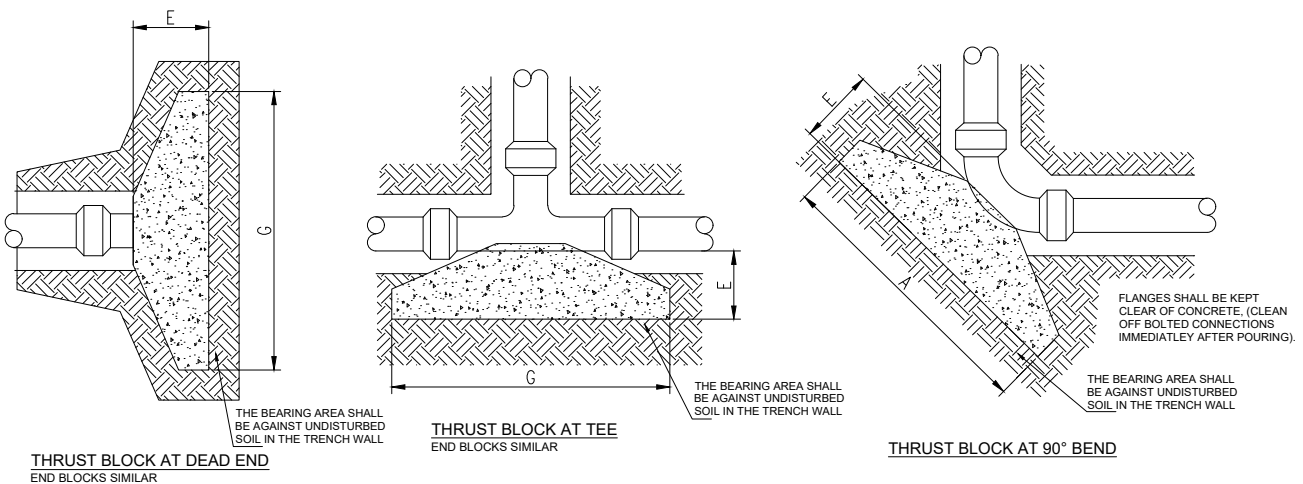


TYP. MARKER PLATE

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 DETAILS



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

- MARKER POST NOTES:**
- WHERE PRACTICAL MARKER PLATES SHALL BE FIXED TO ADJACENT WALLS OR ALTERNATIVELY ATTACHED TO MARKER POSTS.
 - PLATES TO BE FIXED IN POSITION USING WALL PLUGS AND STAINLESS STEEL SCREWS.
 - MARKER PLATES TO BE MANUFACTURED IN ACCORDANCE WITH BS 3251.
 - 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.
 - PIPE DIAMETER ON HYDRANT PLATE TO REFER TO WATERMAIN NOT BRANCH.
 - SLUICE VALVE, AIR VALVE, SCOUR VALVE, WASHOUT HYDRANT AND METER PLATES SHOULD BE CAST IRON. ALL CHARACTERS SHOULD BE BLACK ON WHITE PAINT BACKGROUND.
 - CONCRETE SURROUND TO MARKER POST TO BE GRADE C25 / 30 AND IN ACCORDANCE WITH IS EN 206/2013.
 - PLASTIC MARKER POSTS ARE NOT ACCEPTABLE.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

- NOTES:**
- 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)
 - ALL WATER SUPPLY CONSTRUCTION DETAILS TO COMPLY WITH IRISH WATER CONNECTION & DEVELOPMENT SERVICES, WATER INFRASTRUCTURE DEVELOPMENT DETAILS (DOC. REF. IW-CDS-5020-01)
 - ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - 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.
 - SLUICE VALVES SHALL BE RESILIENT SEATED AND SHALL COMPLY WITH BS 5141, BS 5163-2, IS EN 1074-1, IS EN 1074-2, OR EQUIVALENT I.U. SPECIFICATIONS.
 - ALL SLUICE VALVES SHALL BE ANTI-CLOCKWISE CLOSING.
 - ALL HYDRANTS SHALL BE CLOCKWISE CLOSING.
 - 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.
 - CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL.
 - ALL HYDRANTS, SURFACE BOX FRAMES & COVERS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF IS EN 14339, IS EN 1074-4 & BS 750. FIRE HYDRANTS SHALL BE TYPE 2. THE HYDRANT INLET SHALL BE 80mm DIAMETER WITH PN16.
 - 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.
 - PROVIDE 200mm ALL AROUND x100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND PLINTH IN GREEN AREAS.
 - 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 BOLTLSS BONNET DESIGN.
 - 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.
 - 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.
 - SERVICE CONNECTIONS SHALL NOT BE PROVIDED WITHIN 2m OF THE AIR VALVE LOCATION.
 - AIR VALVE CHAMBERS TO BE OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
 - 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.
 - THRUST BLOCKS, TO BE PROVIDED AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
 - ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
 - 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.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.
 - WATERMANS SUITABLE FOR WORK SHALL BE EITHER DUCTILE IRON (DI) OR POLYETHYLENE (PE), WITH PE80 OR PE100 RATING (MDPE, HDPE, OR HPPE).
 - 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.

Rev	Sts	Description	Date
P01	D2	Issue for Tender	04.03.26

MMOS The Chapel, Blackrock House, Blackrock Road, Cork, T12 KRK7
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PROJECT
Residential Development, Skehard Road, Cork

CLIENT
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TITLE
Typical Watermain Details

DRAWN BY WOS	CHECKED BY WOS	APPROVED BY WOS
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SCALE
As Shown

PROJECT NUMBER
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DOCUMENT REFERENCE
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STATUS D2
REV P01

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