



Residential Development at Scholarstown, Co. Dublin

- Engineering Report



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Document Control Sheet

Project Number: CL12
Project Name: Scholarstown Residential Development
Client: South Dublin County Council
Document Title: Engineering Report
Document Reference: CL12-RP-HLCE-SE-0002 - ENGINEERING REPORT FOR SCHOLARSTOWN RESIDENTIAL DEVELOPMENT
Current Revision: 0

Issue History

Rev.	Date	By	Chk	Description
0	20.10.2022	NF	PB	Issued for Information

Review

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Date: 20TH October 2022
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Checked by: Pat Brady



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1.0 Introduction

Emmaville Ltd. have undertaken to construct a residential development on the site of the existing Scholarstown House in Scholarstown Co. Dublin.

The site is a predominantly green field site located east of the M50, immediately west of St. Colmcille's Community School, at the junction of Scholarstown Road and Orlagh Grove - see figure 1 below.

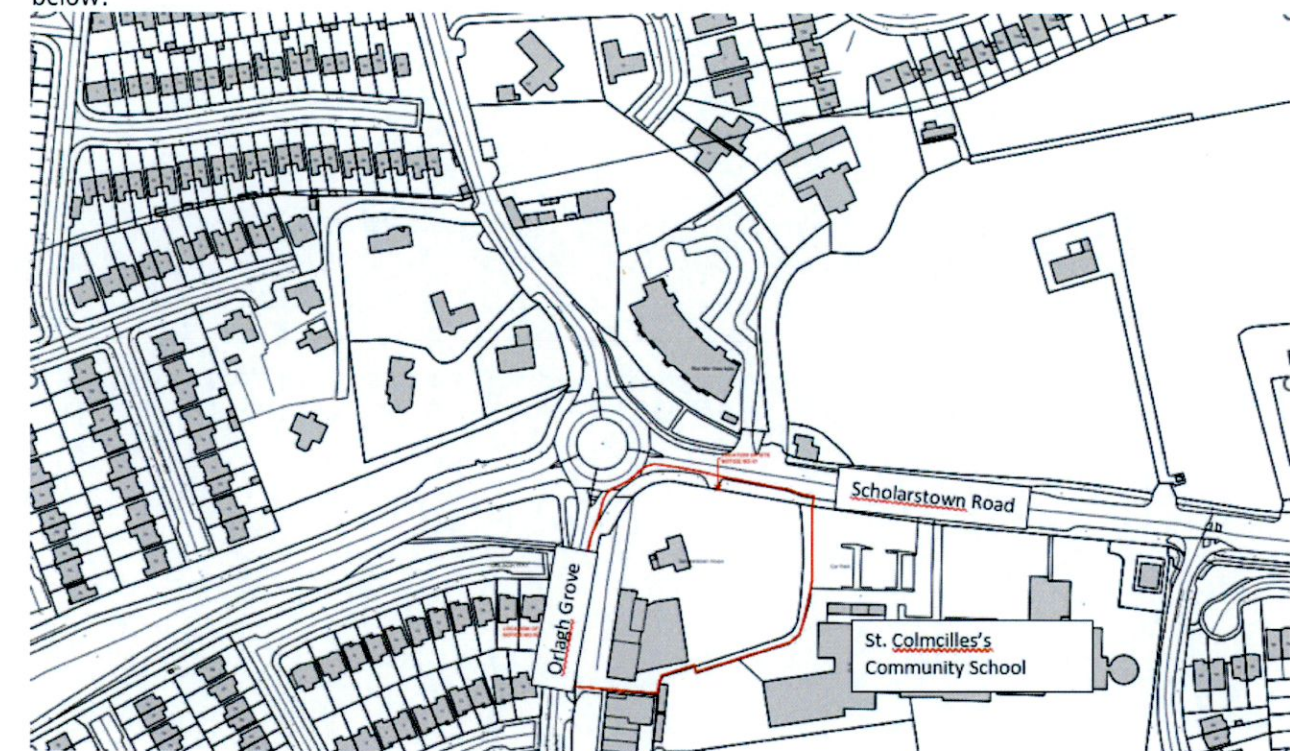


Figure 1 – Site Location

The scope of the development is to comprise of the following:

- Retention of the existing Scholarstown House
- Demolition of a number of outbuildings on the site
- Construction of a 5 storey residential development comprising of 75 apartments
- Development of Public Realm inclusive of courtyards, Landscaping, DMURS compliant access road etc.

See Figure 2 – Proposed Scholarstown Residential Development.



2.0 Report

a. Site Services –

i. Water Supply –

Record drawings as issued by Irish Water in response to a pre connection enquiry identify water networks along Orlagh Grove and Scholarstown Road. These services being as follows:

- 6" Upvc main on Orlagh Grove
- 6" cast iron main on Scholarstown Road

See Figure 3 – Existing Public Services



Figure 3 – Existing Public Services (as forwarded by Irish Water)

It is proposed to make a connection to the existing 6" upvc watermain on Orlagh Grove and to serve the development from this connection with a 100 dia. HDPE main.

For details of the proposed water supply to the development, see Appendix A: Proposed Watermain Layout

A pre-connection enquiry was made to Irish Water in mid-2021, which sought confirmation that the networks had the capacity to cater for the proposed development. This enquiry included details of the water demand for the proposed development from the Irish Water Network.

A response to this enquiry was received from Irish Water on 20th September 2021 and this response advised that the proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

In terms of site specific comments, the confirmation of feasibility responded N/A.

For details of the Pre-connection Enquiry Response from Irish Water, See Appendix B: Ref: CDS21005773 Pre-connection Enquiry – Subject to contract/contract denied

ii. Foul Drainage –

Record drawings as issued by Irish Water in response to a pre connection enquiry identify foul drainage networks south west of the site at Orlagh Green and west of the site in Orlagh Crescent. These networks being as follows:

- 225mm dia. foul along at junction of Orlagh Grove and Orlagh Green
- 225mm dia. foul along Orlagh Way

See Figure 3 – Existing Public Services

A topographical survey was carried out at the site and this was extended to include the invert levels of the nearest foul drainage manholes. Resulting from this survey it was found that the invert levels were such that the development could not be served solely by a gravity foul sewerage system and the pumping of foul is required. It is proposed that the foul from the development be collected in a gravity foul sewer which will discharge to a pumping station at the south west corner of the site, The foul will be pumped a height of circa 1m a short distance to a manhole at the entrance to the site and from this manhole will discharge via a gravity foul sewer to the Irish Water network at the junction of Orlagh Grove and Orlagh Green.

For details of the proposed Foul Drainage Layout, see Appendix A: Proposed Foul Drainage Layout

A pre-connection enquiry was made to Irish Water in November 2021, in which the final outfall loadings from the development were related to the Irish Water.



Figure 2 – Proposed Scholarstown Residential Development

The following is an Engineering report in support of a Planning Application for the above development.

This report addresses the following engineering issues:

- a. Site Services -
 - Water supply
 - Foul drainage
 - Storm drainage

- b. Site Specific Flood Risk Assessment
- c. Traffic & Transport



A response to this enquiry was received from Irish Water on 20th December 2021 and this response advised that the proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

The confirmation of feasibility as received from Irish Water commented as follows:

'In order to accommodate the proposed connection to Irish Water wastewater network at the premises, upgrade works are required to extend the length of the network by approximately 70m. Irish Water currently does not have plans to extend its networks in the area'

For details of the Pre-connection Enquiry Response from Irish Water, See Appendix B: Ref: CDS21005773 Pre-connection Enquiry – Subject to contract/contract denied

iii. Surface Water Drainage –

Record drawings as issued by Irish Water identify storm drainage pipework along Orlagh Grove and Scholarstown Road. These services being as follows:

- 1200mm concrete pipe and 225mm unknown pipe on Orlagh Grove
- 1200mm concrete pipe and 225mm unknown pipe on Scholarstown Road

A pre-planning meeting was held between the design team for the development and South Dublin City Council, the agenda of which included a discussion on the strategy for the disposal of surface water from the site. Arising from this meeting, it is the desired wish of SDCC that all surface water, where possible, be addressed within the site by means of site infiltration etc. and that little to no surface water from the site be discharged to the local authority storm drainage system.

A geotechnical site investigation was carried out at the site and in the case of soil infiltration, this investigation found as follows:

5.5. Soakaway Design

At the locations of SA02 the water level dropped too slowly to allow calculation of 'f' the soil infiltration rate.

These locations are therefore not recommended as suitable for soakaway design and construction.

In view of the findings from the Geotechnical site investigation it is evident that 100% on-site infiltration cannot be achieved. That said, by implementing suds features throughout the development, a sustainable strategy for surface water drainage design can be achieved and the run-off from the site should reflect the present green field run off.

The strategy for surface water drainage design is to include the following suds features:

- Green roof technology throughout the development
- Introduction of swales to the west of the development
- Introduction of retention basins/winter gardens to the north of the development
- Permeable paving for the length of the access road



Green Roof



Swales



Permeable Paving



Retention Pond

The public realm will include a significant area of soft landscaping and it is proposed to incorporate Suds features such as tree planters & hardstand areas complete with underlying free draining aggregate and drainage board throughout the development.



Suds features in the Public Realm



At the south west corner of the site, surface water will be discharged to the existing surface water drainage system on Orlagh Grove. This discharge will be controlled by means of a flow restrictor to reflect the present green field run off from the site.

For details of the above, refer to the following:

- Appendix A: Proposed Storm Drainage Layout
- Appendix C: Landscape Plan by Cunnane Stratton Reynolds Land Planning & Design
- Appendix D: Storm Water Drainage Attenuation Calculations

b. Site Specific Flood Risk Assessment –

A site-specific flood risk assessment was carried out by Horganlynch Consulting Engineers on the site and the findings of same found as follows:

'It is the considered view that the proposed development can be delivered on the subject site in the context of flood risk to same and that the mitigating measures can be accommodated by the site's detail design and surface water drainage design. The OPW's document 'The Planning System and Flood Risk Assessment Management – Guidelines For Planning Authorities' require that the proposed development is compatible with the flood risk for the site. In accordance with these guidelines, the subject site is located within Flood Zone 'C'. Lands in Flood Zone 'C' are suitable for all types of land use, including Residential type developments such as this, which is classified as 'less vulnerable development' in the Guidelines. In light of

this, the proposed development is suitable for this type of flooding zoning and the Planning Guidelines Sequential Approach is passed.

In summary, it is concluded that the proposed development meets the requirements of the Flood Risk Assessment Guidelines and that the proposed development is appropriate to this zone and a justification test is not required'

c. Traffic & Transport

i. Traffic Report -

Traffic & Transport is being addressed by Martin Hanley, Traffic & Transportation Consulting Engineers and their findings are included in a separate Traffic Report.

ii. Vehicle Simulation –

A number of vehicle simulation exercises were carried out within the development, most notably with the following vehicle types:

- Refuse vehicle
- Dublin City Council High Reach Fire Tender

The findings of these simulations was that the development is designed such that the movement of such vehicles within the complex can be accommodated.

See Appendix E: Proposed Vehicle Turning Simulations



Appendix A - Site Services

- Drg. No. CL12-V1-XXX-DR-HLCE-CE-0001 Proposed Storm Drainage Layout
- Drg. No. CL12-V1-XXX-DR-HLCE-CE-0002 Proposed Foul Drainage Layout
- Drg. No. CL12-V1-XXX-DR-HLCE-CE-0003 Proposed Watermain Layout



PIPE COVER CHART - WITHOUT CONCRETE ENCASMENT	LOCATION	MIN COVER
SEWERS IN ROADS	SEWERS IN OPEN SPACES	1200
NOT ADJACENT TO ROADS	SEWERS IN ROADS	900
SEWERS IN ROADS	WATER SERVICES ALL LOCATIONS	900
WATER SERVICES ALL LOCATIONS	ELECTRIC CABLE DUCTS IN ROADWAYS	600
ELECTRIC CABLE DUCTS IN ROADWAYS	NATURAL GAS MAINS IN ROADWAYS	500
NATURAL GAS MAINS IN ROADWAYS	NATURAL GAS MAINS IN FOOTPATHS	800
TELECOM DUCTS IN ROADWAYS	TELECOM DUCTS IN FOOTPATHS	750
TELECOM DUCTS IN FOOTPATHS	CABLE TV DUCTS IN ROADS & FOOTPATHS	450

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DRAINAGE NOTES:
 AT TIME OF COMPLETION THE DEVELOPER SHOULD ENSURE THAT ALL DRAINS WITHIN THE SITE ARE CLEAN AND FREE OF OBSTRUCTIONS. A CONDITION SURVEY SHOULD ALSO BE CARRIED OUT VIA CCTV FOOTAGE AND PRESENTED TO THE LOCAL AUTHORITY PRIOR TO SITE HANDOVER.

PIPEWORK PROTECTION - CONCRETE SURROUND PROTECTION OF FOUL NETWORK TO BE C16/20 CONCRETE (REFER TO SECTION 4.7 OF IN-205-5000 FOR FURTHER DETAILS AND SPECIFICATIONS).

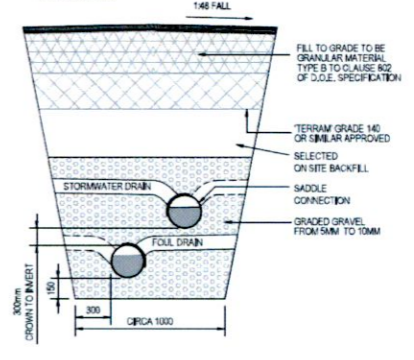
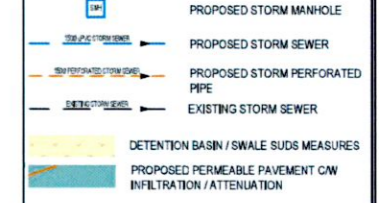
WATER TEST:
 FOUL & STORM SEWERS SHOULD BE TESTED FOR A MIN OF 30 MINUTES, UNDER A HEAD OF NOT LESS THAN 1M OR GREATER THAN 2.5M OVER THE HIGHEST POINT ON THE LINE UNDER TEST. THE PIPELINE SHOULD STAND FOR A PERIOD 2 HOURS AFTER FILLING AND TOPPED UP AS NECESSARY BEFORE COMMENCING THE TEST. THE MAXIMUM AMOUNT OF WATER LOSS SHOULD BE IN ACCORDANCE WITH LOCAL AUTHORITY GUIDELINES.

AN AIR TEST MAY BE CARRIED OUT IN LIEU OF THE ABOVE AND IN ACCORDANCE WITH LOCAL AUTHORITY GUIDELINES.

AT TIME OF COMPLETION THE DEVELOPER SHOULD ENSURE THAT ALL DRAINS WITHIN THE SITE ARE CLEAN AND FREE OF OBSTRUCTIONS.

LOCATION OF ALL STORM DRAINAGE ON THIS PLAN IS INDICATIVE / REPRESENTATIVE ONLY.

A CONDITION SURVEY SHOULD ALSO BE CARRIED OUT VIA CCTV FOOTAGE AND PRESENTED TO THE LOCAL AUTHORITY PRIOR TO SITE HANDOVER.



DETAIL OF FOUL + STORM DRAINS IN COMMON TRENCH
 SCALE: 1:25

- LEGEND:**
- PROPOSED STORM AJ
 - PROPOSED STORM MANHOLE
 - PROPOSED STORM SEWER
 - PROPOSED STORM PERFORMED PIPE
 - EXISTING STORM SEWER
 - DETENTION BASIN / SWALE SUDS MEASURES
 - PROPOSED PERMEABLE PAVEMENT CW INFILTRATION / ATTENUATION

REV	BY	QTD	DATE	DESCRIPTION
0	KL	NF	19.10.22	ISSUED FOR PLANNING

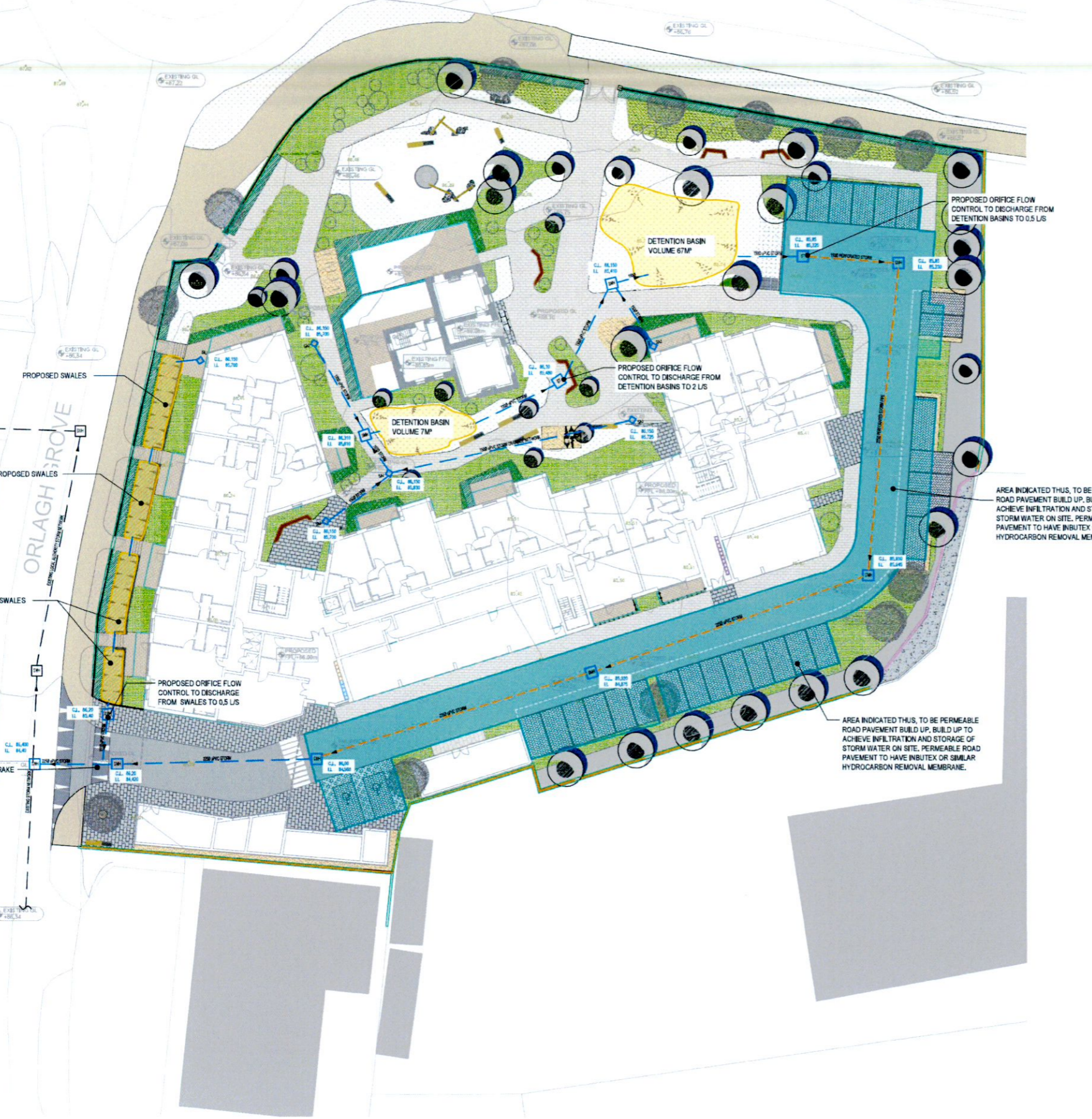
PROJECT
RESIDENTIAL DEVELOPMENT AT SCHOLARSTOWN DUBLIN

DRG. TITLE
PROPOSED STORM DRAINAGE LAYOUT

SCALE	DRAWN BY	CHECKED BY	APPROVED BY
AS SHOWN (@ A1)	KL	KC	KC

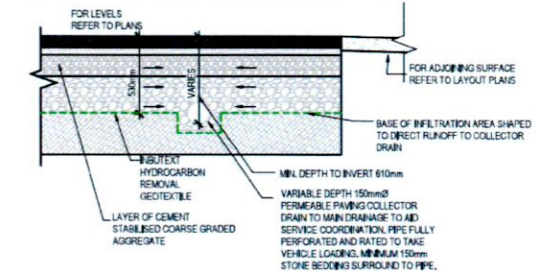
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DWG	HL PROJECT REF.	STATUS	REVISION
CL12-V1-XXX-DR-HLCE-CE-0001	CL12	P3	0



PROPOSED STORM DRAINAGE LAYOUT PLAN
 SCALE: 1:250

80mm PERMEABLE PAVING BLOCK BY ARCHITECTS SPECIFICATION & APPROVAL & LAYING PATTERN ON
 150mm LAYING COURSE MATERIAL AS PER TABLE A.2 BS 7533-13 ON
 250mm ROADBASE CEMENT STABILISED COARSE GRADED AGGREGATE AS CBOM B TO TB CL 822 ON
 250mm GRANULAR 425mm COARSE GRADED PERMEABLE CRUSHED ROCK AS PER TABLE A.1 BS 7533-13 ON
 INBUTEX HYDROCARBON MEMBRANE (OR SIMILAR APPROVED) PERMEABLE GEOTEXTILE ON
 TERRAM 1500 GT (OR SIMILAR APPROVED) PERMEABLE GEOTEXTILE ON
 300mm CLASS #1/02 CAPPING (BASED ON SUB GRADE CBR VALUE OF 7%)
 (IF SUB GRADE CBR < 7% USE GEORIB) FOR STABILISATION (OR SIMILAR APPROVED SYSTEM)



TYPICAL INFILTRATION PERMEABLE PAVING SECTION
 SCALE: NTS



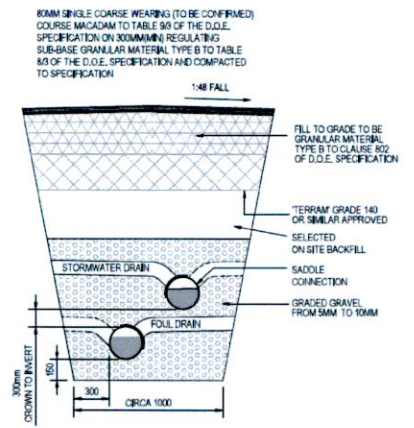
PIPE COVER DATA: WITHOUT CONCRETE ENGAGEMENT		
LOCATION	MIN COVER	MAX COVER
SEWERS IN ROADS	-	1250
SEWERS IN OPEN SPACES	-	900
NOT ADJACENT TO ROADS	-	900
SEWERS IN GARDENS	-	900
WATERMANS ALL LOCATIONS	-	900
WATER SERVICES ALL LOCATIONS	-	900
ELECTRIC CABLE DUCTS IN ROADWAY	-	900
ELECTRIC CABLE DUCTS IN FOOTPATHS	-	500
NATURAL GAS MAINS IN ROADWAYS	-	800
NATURAL GAS MAINS IN FOOTPATHS	-	600
TELECOM DUCTS IN ROADWAYS	-	750
TELECOM DUCTS IN FOOTPATHS	-	450
CABLE TV DUCTS IN ROADS & FOOTPATHS	-	450

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ALL WASTEWATER DETAILS ARE TO COMPLY WITH AND BE ADOPTED FROM THE IRISH WATER - CONNECTION AND DEVELOPER SERVICES DOCUMENT FOR WASTEWATER INFRASTRUCTURE STANDARD DETAILS. REF TO IRISH WATER DOCUMENT NO. IW-CDS-5030-01. CONTRACTOR IS ALSO TO REFER TO THE CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE DOCUMENT, CONNECTIONS AND DEVELOPER SERVICES, DESIGN AND CONSTRUCTION REQUIREMENTS FOR SELF LAY DEVELOPMENTS DOCUMENT IW-CDS-5030-03.

DRAINAGE NOTES:
 ALL FOUL SEWER PIPES TO BE 450C AND COMPLY WITH THE PROVISIONS IN EN 1401 2006/2012. PIPES TO BE APPLICATION AREA CODE 107 STIFFNESS CLASS B4000 (S105) WITH A JELLY RIGIDITY OF 2000 pN (100 Nm). ALL PIPES TO BE A MINIMUM DISTANCE OF 3m (TO FACE) FROM ROAD KERB. ALL MANHOLES TO BE A MINIMUM DISTANCE OF 0.5m FROM THE KERB. LOCATION OF ALL FOUL DRAINAGE IS INDICATIVE / REPRESENTATIVE ONLY. EXACT SET OUT OF FOUL DRAINAGE TO BE LOCATED ON SITE IN ACCORDANCE WITH IRISH WATER DETAILS.
 AT TIME OF COMPLETION THE DEVELOPER SHOULD ENSURE THAT ALL DRAINS WITHIN THE SITE ARE CLEAN AND FREE OF OBSTRUCTIONS. A CONDITION SURVEY SHOULD ALSO BE CARRIED OUT. VCA CCTV FOOTAGE AND PRESENTED TO THE LOCAL AUTHORITY PRIOR TO SITE HANDOVER.
 PIPEWORK PROTECTION - CONCRETE SURROUND PROTECTION OF FOUL NETWORK TO BE C18/20 CONCRETE (REFER TO SECTION 4.7 OF IW-CDS-5030 FOR FURTHER DETAILS AND SPECIFICATIONS).

- LEGEND:**
- PROPOSED FOUL AJ
 - PROPOSED FOUL INSPECTION CHAMBER
 - PROPOSED FOUL MANHOLE
 - PROPOSED FOUL SEWER
 - EXISTING FOUL SEWER



DETAIL OF FOUL + STORM DRAINS IN COMMON TRENCH
SCALE: 1:25

ORLAGH GROVE

NEW FOUL PUMPING CHAMBER TO BE INSTALLED

NEW GRAVITY MANHOLE TO BE INSTALLED IN EXISTING ROAD

CONNECT TO EXISTING FOUL MANHOLE - EXACT INVERT LEVELS TO BE CONFIRMED.



PROPOSED FOUL DRAINAGE LAYOUT PLAN
SCALE: 1:250

REV	BY	CHKD.	DATE	DESCRIPTION
0	KL	NF	07/10/22	ISSUED FOR INFORMATION
1	KL	NF	18.10.22	ISSUED FOR PLANNING

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PROJECT
RESIDENTIAL DEVELOPMENT AT SCHOLARSTOWN DUBLIN

DRG. TITLE
PROPOSED FOUL DRAINAGE LAYOUT

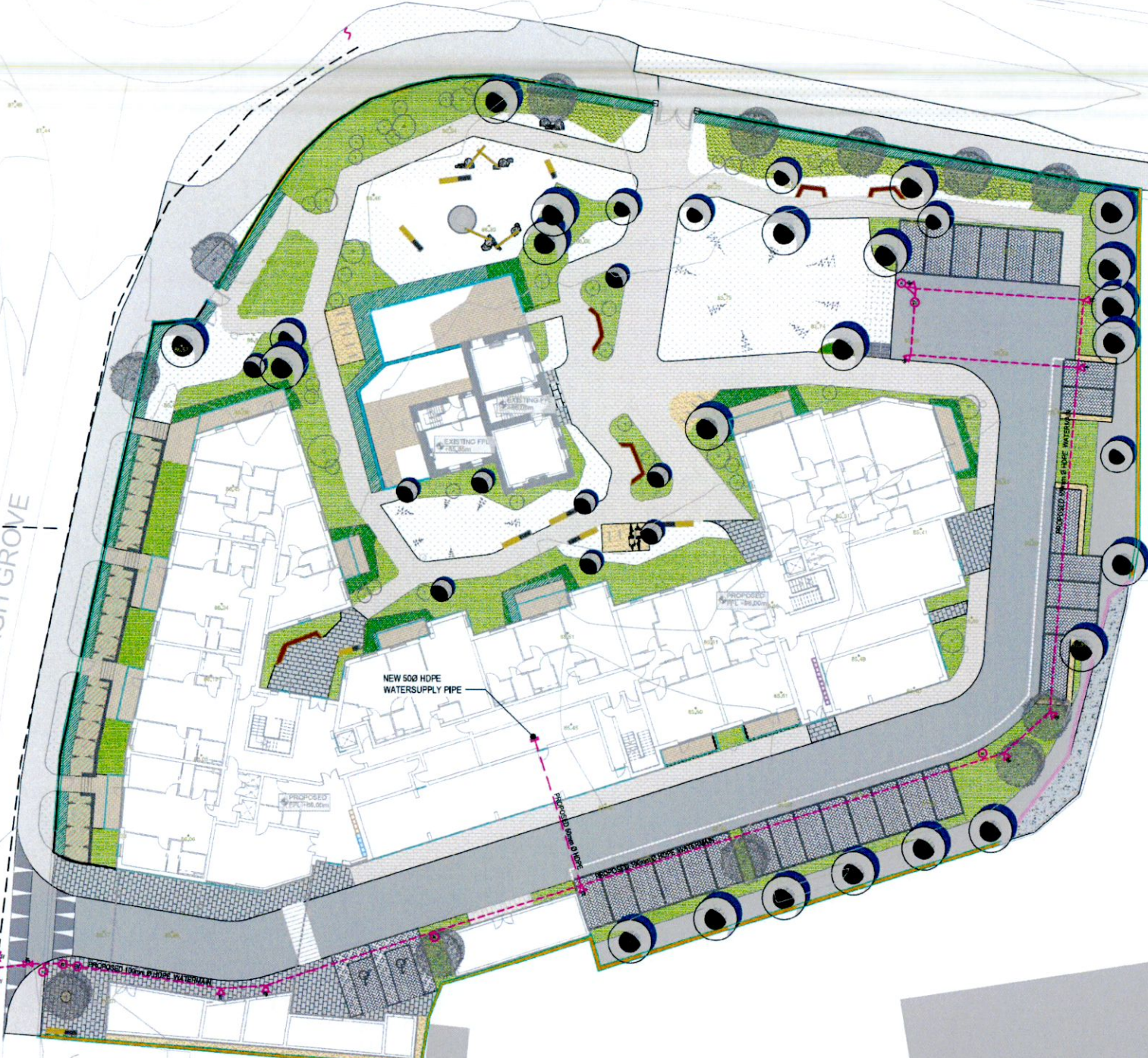
SCALE AS SHOWN (@ A1)	DRAWN BY KL	CHECKED BY KC	APPROVED BY KC
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DWG CL12-V1-XXX-DR-HLCE-CE-0002	HL PROJECT REF. CL12	STATUS P3	REVISION 1
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ORLAGH GROVE



CONNECT NEW 1000 HDPE WATERSUPPLY PIPE TO EXISTING 1500 IRISH WATER NETWORK

PROPOSED WATERMAIN LAYOUT PLAN
SCALE 1:250

PIPE COVER CHART - WITHOUT CONCRETE ENCASMENT	
LOCATION	MIN. COVER
SEWERS IN ROAD	1200
NOT ADJACENT TO ROADS	900
SEWERS IN GARDENS	600
WATERMANS ALL LOCATIONS	900
WATER SERVICES ALL LOCATIONS	600
ELECTRIC CABLE DUCTS IN FOOTPATHS	900
ELECTRIC CABLE DUCTS IN ROADWAYS	500
NATURAL GAS MAINS IN ROADWAYS	600
NATURAL GAS MAINS IN FOOTPATHS	750
TELECOM DUCTS IN ROADWAYS	350
TELECOM DUCTS IN FOOTPATHS	450

ALL WATERSUPPLY DETAILS ARE TO COMPLY WITH AND BE ADOPTED FROM THE IRISH WATER - CONNECTION AND DEVELOPER SERVICES STANDARD DETAILS FOR WATER INFRASTRUCTURE SERVICES DOCUMENT FOR WATER INFRASTRUCTURE STANDARD DETAILS, REF TO IRISH WATER DOCUMENT No IW-CDS-5020-01. CONTRACTOR IS ALSO TO REFER TO THE CODE OF PRACTICE FOR WATER INFRASTRUCTURE DESIGN, CONNECTIONS AND DEVELOPER SERVICES, DESIGN AND CONSTRUCTION REQUIREMENTS FOR SELF LAY DEVELOPMENTS DOCUMENT IW-CDS-5020-03

EXISTING WATER SUPPLY TO EXISTING STRUCTURE TO BE RETAINED AND PROTECTED DURING CONSTRUCTION.

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- 3) THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL HL DRAWINGS AND SPECIFICATIONS

- 1) WATERMAIN TO BE 1000 FOR MAIN CIRCULATION ROUTE, BRANCH MAINS TO PHASED DEVELOPMENTS TO BE 1000 ALL BRANCH CONNECTIONS TO APARTMENT BLOCKS TO BE 600mm UNLESS NOTED OTHERWISE. ALL WATERMAIN LINES TO BE CLASS C 10 BAR PRESSURE. WATERMAIN TO BE LAD A MINIMUM OF 3m FROM PROPOSED STRUCTURE.
- 2) EACH PREMISE SHALL HAVE:
 - AN INDIVIDUAL WATER SUPPLY TAKEN FROM A MANHOLE BOX. THE MANHOLE BOX SHALL BE LOCATED ON THE FOOTPATH OUTSIDE THE BUILDING AS CLOSE TO PROPERTY BOUNDARY AS POSSIBLE. INDIVIDUAL WATER METERS ARE REQUIRED FOR EACH INDIVIDUAL PREMISE.
- 3) THE DEVELOPER SHALL MAKE PROVISION FOR ANY REDUNDANT EXISTING WATER SERVICES CONNECTIONS. ALL REDUNDANT EXISTING WATER SERVICES CONNECTIONS SHALL BE TRACED BACK TO THE PUBLIC MAIN BY THE DEVELOPER OR IRISH WATER THROUGH THE CONNECTION AGREEMENT AND SHALL BE BLANKED OFF AT THE DEVELOPERS EXPENSE.
- 4) ALL FIRE HYDRANTS WILL BE ACCESSIBLE IN AN EMERGENCY REFER TO SECTION 3.5 OF WATER CODE OF PRACTICE.
- 5) ALL PLANTING OF NEW TREES SHALL BE ADJACENT TO THE WATERMAIN SHALL COMPLY WITH IRISH WATER STANDARD DETAIL STD-W-12A.
- 6) THRUST BLOCKS TO BE PROVIDED ON WATERMANS AT DEAD ENDS, TEES, BENDS & AT BOTH SIDES OF A SLUIZE VALVE CHAMBER. ALL DETAILS TO CONFORM WITH IRISH WATER STANDARD DETAILS DOCUMENT No IW-CDS-5003. ALL INCLUDED WITH THE SPECIFICATIONS DOCUMENTS.

- EXISTING 100mm Ø DUCTILE IRON WATERMAIN
- - - PROPOSED 100mm Ø HDPE WATERMAIN
- ⊕ PROPOSED SLUIZE VALVE
- ⊕ PROPOSED FIRE HYDRANT
- ⊕ PROPOSED THRUST BLOCK
- ⊕ PROPOSED WATER METER
- ⊕ PROPOSED AIR VALVE
- ⊕ PROPOSED SCOUR VALVE
- ⊕ PROPOSED BULK METER

REV	BY	CHKD.	DATE	DESCRIPTION
0	KL	NF	07/10/22	ISSUED FOR INFORMATION
1	KL	NF	19.10.22	ISSUED FOR PLANNING

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PROJECT
RESIDENTIAL DEVELOPMENT AT SCHOLARSTOWN DUBLIN

DRG. TITLE
PROPOSED WATERSUPPLY LAYOUT

SCALE AS SHOWN (@ A1)	DRAWN BY KL	CHECKED BY KC	APPROVED BY KC
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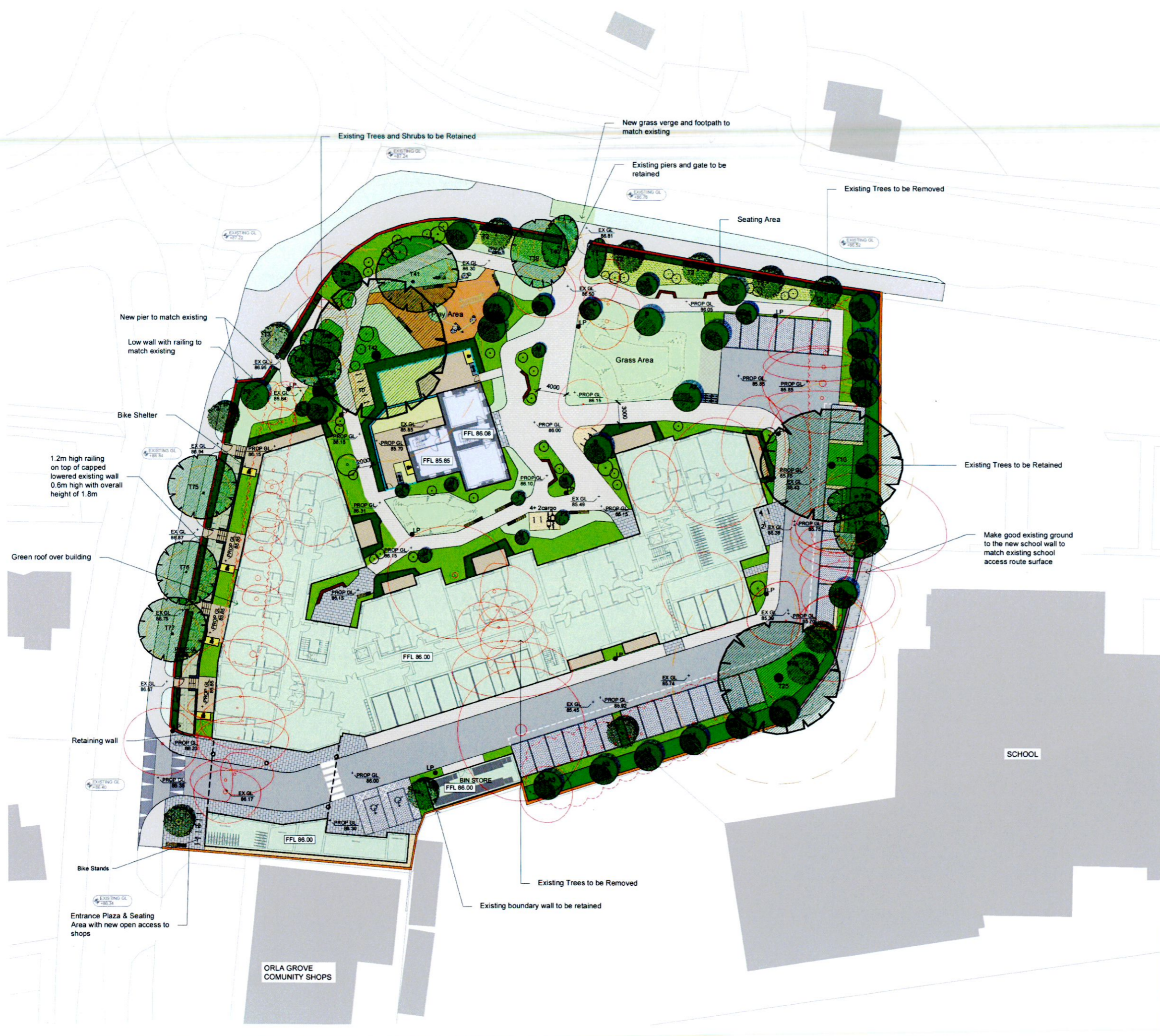
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DWG CL12-V1-XXX-DR-HLCE-CE-0003	HL PROJECT REF. CL12	STATUS P3	REVISION 1
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Appendix B - Pre-connection Enquiry

- Confirmation of Feasibility from Irish Water



- LEGEND**
- SOFT LANDSCAPE**
- Existing Trees to be retained
 - Existing Trees to be removed
 - Proposed Standard Street Tree, RB, 18-20cm g th., 4.25-6 m ht.
Species:
T1a - Acer campestre 'Elstijk'
T2 - Quercus robur
T3 - Tilia cordata 'Greenspire'
 - Proposed Open Space Tree, br., 14-15cm gth., 4.25-6 m ht.
Species:
A1 - Acer platanoides
A2 - Acer rubrum 'Scanlon'
A3 - Alnus cordata
B - Betula pendula
C - Crataegus monogyna
F - Fagus sylvatica
I - Ilex aquifolium (RB, 60-80cm ht., 1m)
M - Magnolia x solangeana (RB, 1-1.25m. ht.)
P1 - Pinus Sylvestris (RB, 1.5-1.75m ht.)
P2 - Pinus avium 'Flora'
S - Sorbus aucuparia
 - Proposed Formal Hedging
Species:
H1 - Ilex crenata, 5 ft pot, at 3/m
H2 - Crataegus monogyna, br., 1+1, 60-90cm ht., at 6/m
 - Shrub-Boundary Screen, 1+1, 90-120cm ht., 2/m2
Species: Corylus avellana, Cornus sanguinea, Euonymus europaeus, Ligustrum vulgare, Sambucus nigra, Viburnum opulus.
 - Shrub-Low Screen and Specimen Shrub
Low shrub and perennials (2t pots, at 4m2): Buxus sempervirens, Calluna vulgaris 'White Lawn', Carex morrowii, Dryopteris affinis 'Cristata', Erica x darleyensis 'Alba', Genista lydia, Hebe abicans, Lavandula angustifolia, Lavandula stoechas, Litore muscari, Libertia grandifolia, Pinus mugo 'Mops', Santolina chamaecyparissus, Stipa gigantea, Vinca major, Viburnum davidii, Hyacinthoides & Galanthus.
Specimen shrub species (7.5ft pot): Acer japonicum, Amelanchier lamarckii, Syringa vulgaris 'Charles Joly'
 - Wildflower and Bulb Planting
Wild flower seed mixes (Annual/Perennial bee & insect mix - typical species see report) with Bulb planting species: Anemone nemorosa, Galanthus nivalis, Hyacinthoides non-scripta, Narcissus 'Thalia', Nerine 'afterglow'.
 - Amenity Grass mix
 - Reinforced Grass
 - Swale planting
Planted in composed drifts of 5-15no.
Species: Caltha palustris, Carex pendula, Deschampsia cespitosa, Eupatorium cannabinum, Filipendula vulgaris, Iris pseudacorus, Lythrum salicaria, Matricaria discidea, Succisa pratensis, Premna vertis, Hyacinthoides non-scripta.

- HARD LANDSCAPE**
- Proposed Concrete Permeable Paver to Paths, beige colour
 - Play Area, engineered wood chips
 - Pavement to Entrances, reconstituted stone finish to concrete slabs, silver grey colour
 - Private Garden Paving, permeable paver, rustic colour
 - Self Binding Gravel to Bike Parking
 - Tarmac to school parking
 - Existing Granite Steps retained
 - 1.2m high estate style railing, light grey
 - Existing wall lowered to 600mm high Concrete Wall capped with 1200mm high Railing added on top
 - Existing Boundary Wall Retained (existing height)
 - New Boundary Wall to match existing
 - Retaining wall (300mm wide, height varies)
 - Benches & Seating, timber and steel

D	18/10/22	Carparking, green roof
C	11/10/22	Additional Carparking Spaces
B	10/10/22	existing trees revised
A	4/10/22	dwgs coordinated
REV	DATE	AMENDMENT

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

DUBLIN OFFICE
3 MOLESWORTH PLACE DUBLIN 2
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PROJECT: SCHOLARSTOWN HOUSE, D16	DATE: SEP 2022
DRAWING: LANDSCAPE MASTERPLAN	SCALE: 1:250@A1 / 1:500@A3
	DRAWN: CHECKED: FDL LC
	DRAWING NO: 22159-2-100



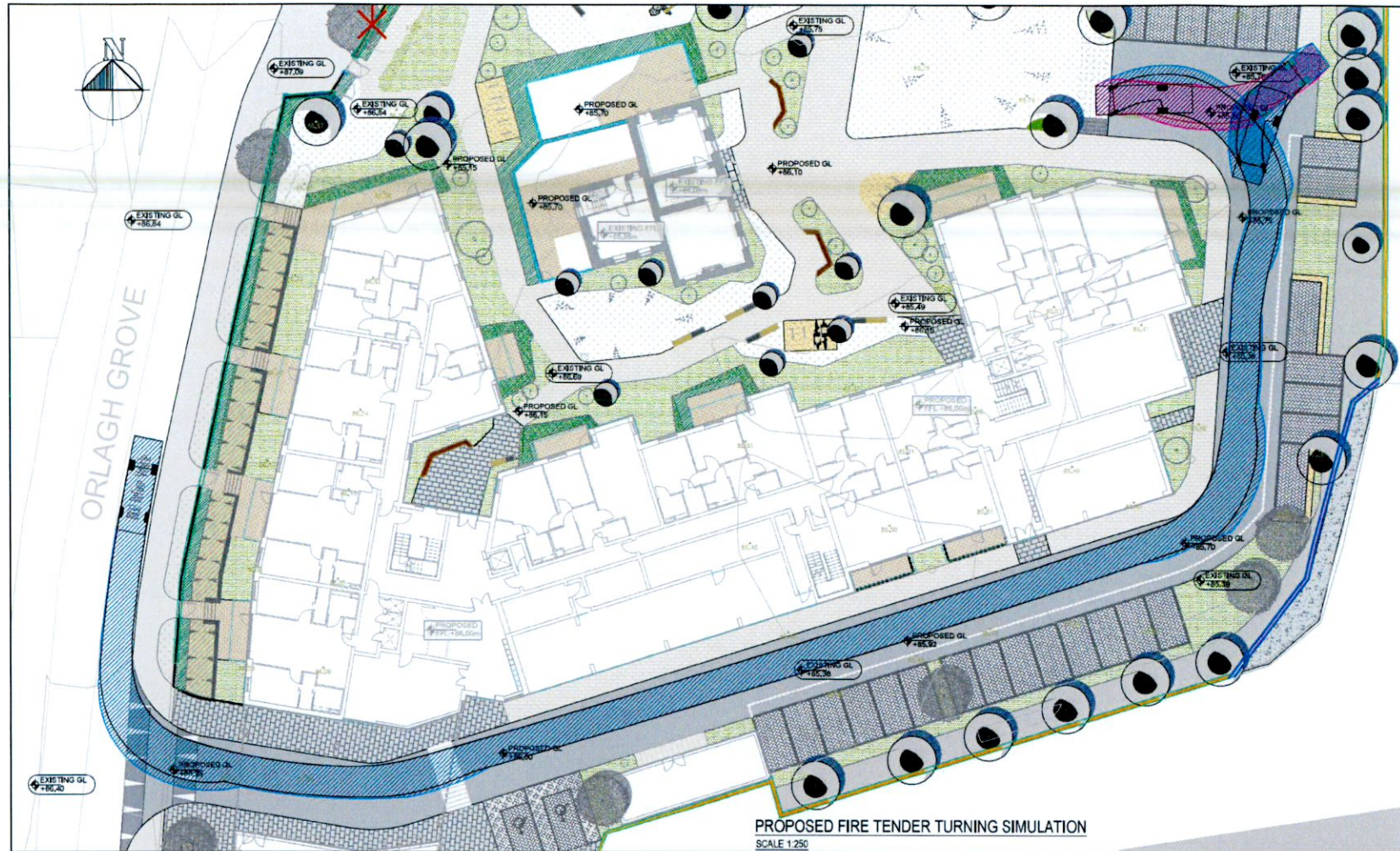
Appendix C - Landscaping Plan by Cunnane Stratton Reynolds Land Planning & Design



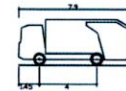
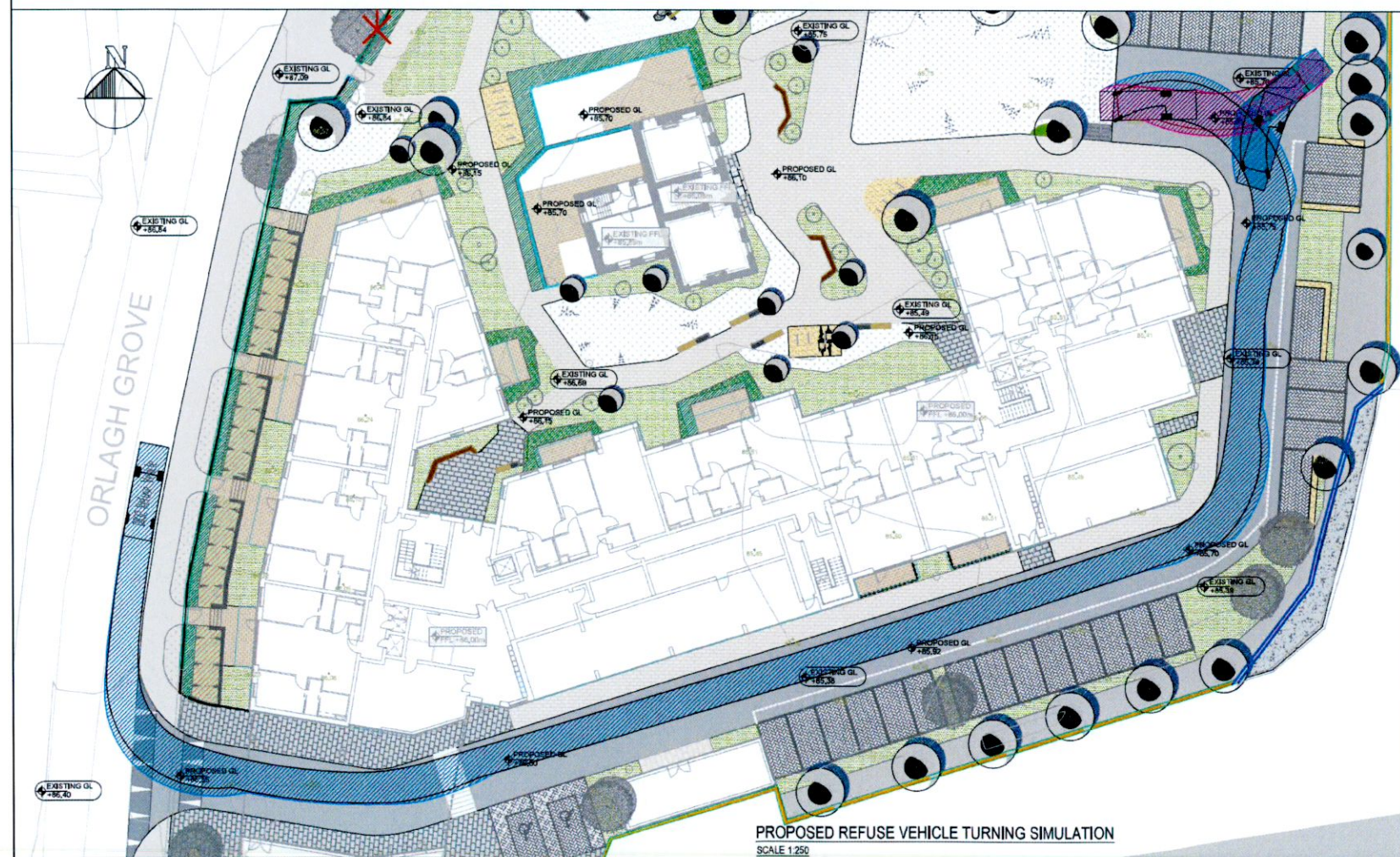
Appendix D - Storm Water Drainage Attenuation Calculations



Appendix E - Proposed Vehicle Turning Simulations



Pumping Appliance
 Overall Length 7.900m
 Overall Width 2.400m
 Overall Body Height 2.650m
 Min Body Ground Clearance 0.380m
 Track Width 2.400m
 Lock-to-lock time 4.500m
 Curb to curb Turning Radius 7.750m



8822 Refuse Vehicle
 Overall Length 7.900m
 Overall Width 2.400m
 Overall Body Height 2.650m
 Min Body Ground Clearance 0.380m
 Max Track Width 2.400m
 Lock-to-lock time 6.050m
 Curb to curb Turning Radius 9.025m

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- 2) THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICES ENGINEERS AND HORGANLYNCH DRAWINGS, DETAILS AND SPECIFICATIONS. ALL DIMENSIONS TO BE CHECKED ON SITE AND ANY DISCREPANCY TO BE REPORTED TO THE ARCHITECT / ENGINEER. FIGURED DIMENSIONS ONLY TO BE USED. DRAWINGS NOT TO BE SCALED. ALL LEVELS ARE STRUCTURAL UNLESS OTHERWISE NOTED.
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REV	BY	CHKD.	DATE	DESCRIPTION
0	KL	NF	19.10.22	ISSUED FOR PLANNING

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PROJECT
RESIDENTIAL DEVELOPMENT AT SCHOLARSTOWN DUBLIN
 DRG. TITLE
PROPOSED VEHICLE TURNING SIMULATION

SCALE AS SHOWN (@ A1) DRAWN BY KL CHECKED BY KC APPROVED BY KC

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DWG: **CL12-V1-XXX-DR-HLCE-CE-0004**

HL PROJECT REF.	STATUS	REVISION
CL12	P3	0