

**Carnegie Library Kilkenny
Part 8 Application**

**Infrastructure Design Report
244175-PUNCH-XX-XX-RP-C-0005**

December 2024

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1 Introduction

1.1 Site Description

This report was prepared to accompany a Part 8 planning application for the proposed restructuring and renovation of the Carnegie Library on John's Quay, Kilkenny City, County Kilkenny.

The site is approximately 0.2543ha and contains the existing library and car park. It is located along John's Quay on the east side of the River Nore which runs through Kilkenny City. To the rear of the library car park is Butler Gallery, which underwent refurbishment in 2020. Refer to Figure 1-1 below.

Carnegie Library is listed in the Record of Protected Structures for Kilkenny, Reference Number B113. It is a detached single-story library constructed between 1908-1910, and opening in 1910.



Figure 1-1: Site Location

1.2 Existing Roads and Access

There are 2 no. vehicular access points to the site: a dual entry and exit access point from John's Quay at the south end of the site, and an exit only access point to Back Lane, located at the north end of the site. The car park is a one-way flow system. Refer to Figure 1-2 below.

Pedestrian access to the Library is via John's Quay north and south, as well as from Back Lane. There is also a pedestrian crossing via Lady Desart Bridge over the Nore located directly opposite the entrance to the library.

There are approximately 64 no. car parking spaces in the Carnegie Library car park - 4 no. of which are accessible parking and 1 no. of which is a motorcycle parking space. There is a bike rack on site with approximately 10 no. bike spaces.

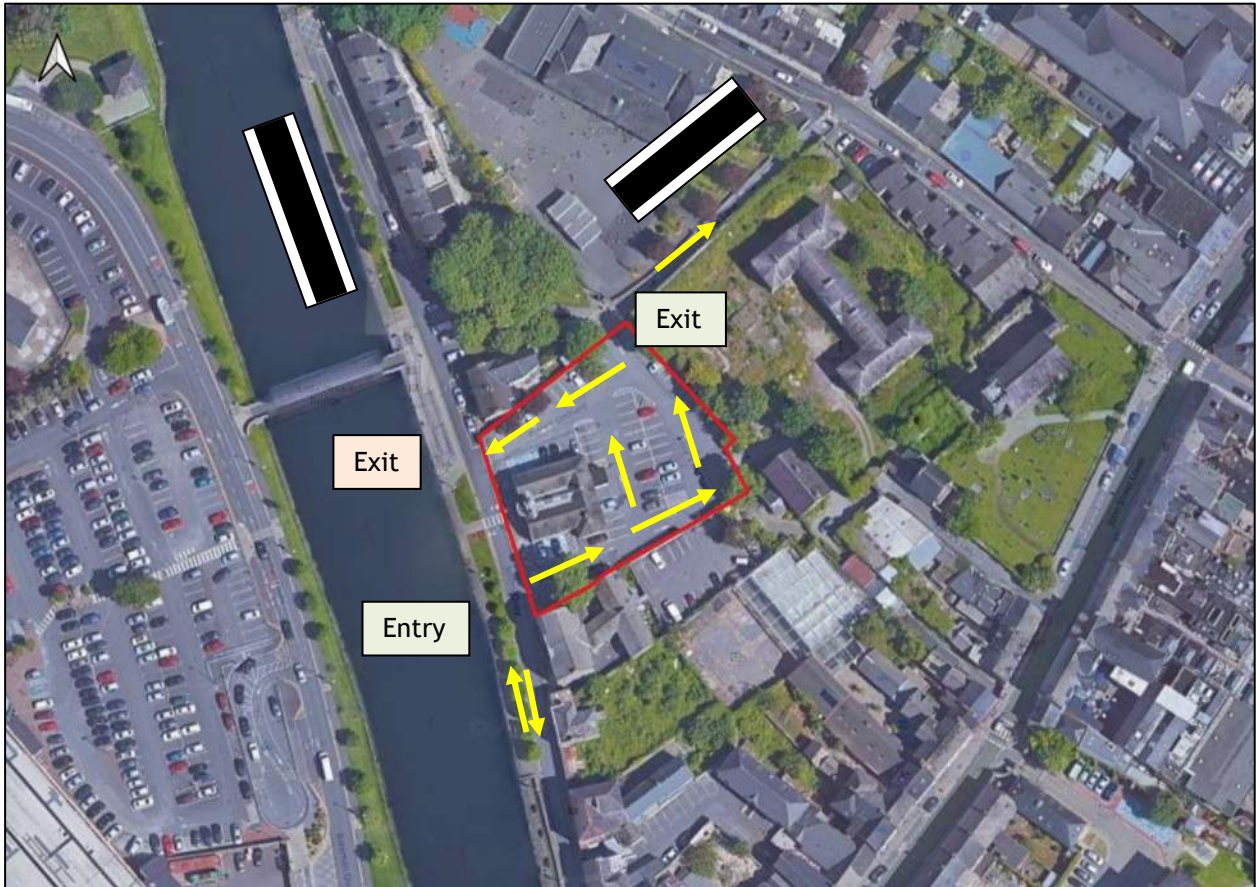


Figure 1-2: Traffic Flow around the Carnegie Library

1.3 Proposed Development

The development will consist of:

- (1) Repurposing the former Carnegie Library into a Kilkenny Local Studies Hub, preserving its original architectural character while enhancing its role as a cultural and heritage resource.
- (2) Reconfiguring the building layout to create a continuous finished floor level aligned with the original double-bay configuration (Staff Only c.90sq.m. GFA + Public Space c.144.2sq.m. GFA + Ancillary / Circulation Space c.24.1sq.m. GFA = Total c. 258.3sq.m.):
 - (i) Northern bay comprising of: 8 no. staff workspaces; a staff canteen; storage facilities with roller shelves; a restroom; and a heat pump room.
 - (ii) Southern bay comprising of: a county librarian / meeting room; open-plan local studies facilities and reading areas; utility and storage rooms; a flexible exhibition space adaptable to the hub's needs; and a zinc-clad and glazed rear extension in the south-east corner (c.10sq.m. GFA extension) to expand the exhibition space and enhance public visibility.
 - (iii) Central circulation space comprising of: a maintained central circulation space; an extended rear elevation (c.10.2sq.m. GFA extension; finishes matching the proposed south-east projection), including 2 no. restrooms (including 1 no. wheelchair accessible), designed for potential segregation when the main building is closed.
- (3) Access Improvements comprising of: enhanced front access with stone paving and metal railings matching the original features; and secondary accessible entrance at the rear with a ramp (1:20 slope) extending south and metal railings.
- (4) Public Realm Enhancements comprising of: soft and hard landscaping; biodiversity planting; public lighting; and Sustainable Urban Drainage Systems (SUDS).
- (5) A designated loading area for the Kilkenny Local Studies Hub.
- (6) The provision of 27 no. car parking spaces, including 2 no. designated accessible space.
- (7) The provision of 10 no. bicycle parking spaces (5 no. Sheffield bike stands) to the north-east of the building.
- (8) All associated site development works, including above- and below-ground services.

2 Stormwater Drainage Design

2.1 Existing Stormwater Drainage

Kilkenny County Council have confirmed the following with regards to the existing stormwater drainage system at the site:

- i. all surface water from the building and the carpark currently discharge to the combined foul and surface water sewer
- ii. the combined sewer is serviced by the Kilkenny City Wastewater Treatment Plant
- iii. a storm overflow from the combined sewer which overflows into the River Nore in the event of a storm

There is no existing attenuation or SUDS measures within the site.

2.1.1 Uisce Éireann record drawings

A review of the foul drainage infrastructure obtained from Uisce Éireann record drawings confirms the presence of a combined sewer and gravity overflow as described in the foul water section 3 below.

2.1.2 GPR Survey - Surface Water Findings

A GPR survey carried out by David Whelan Enterprises (DWE) on 20th November 2024 of the library grounds indicates that surface water from the library building and car park is collected and discharged by gravity into a:

- a. 225mm PVC surface water sewer to the north of the building, with an outfall to the River Nore
- b. 150mm clay combined sewer to the west and south of the building, with an outfall to the River Nore
- c. 500mm concrete surface water sewer located to east of the site, that flows out of the site (from manhole “MH26”) in an easterly direction

Based on information provided by Kilkenny County Council, Uisce Éireann record drawings and the GPR survey it is recommended that a CCTV survey with sewer tracing is carried out to confirm the existing surface water drainage at the site.

Refer to Appendix D for the GPR Survey. A topographical survey was also undertaken by DWE on the same day and is included in Appendix E.

2.2 Proposed Stormwater Drainage

It is proposed to:

- i. to discharge surface water within the public realm, directly to the combined sewer at “MH26”
- ii. reduce the overall impact on the existing combined system through the incorporation of Sustainable urban Drainage Systems (SuDS) as described further below.

2.2.1 General

The existing library building drainage is to be maintained via the existing connections to the combined sewer. Additional minor surface water works will be required to facilitate the proposed extension to the rear of the library, to connect to the existing gravity sewer via rainwater downpipes.

The proposed surface water drainage design for the public realm will be altered to improve the drainage for external areas. Surface water currently being collected through road gullies and/or drains, will instead be redirected where possible towards rain gardens and permeable car parking bays which will maximise the opportunities and benefits secured from surface water management. The proposed surface water network will discharge to the combined sewer at “MH26”.

2.3 SuDS Proposals

The proposed development has been assessed in relation to Sustainable Urban Drainage Systems (SuDS). A variety of SuDS measures may be adopted to comply with Council recommendations and objectives in Chapter 10 of the Kilkenny County Council Development Plan Volume 1 (2021-2027) section 10.2.8 and Chapter 2 section 2.4.3. In particular the proposed development is in line with the following Development Management Requirement: “In line with the above Kilkenny County Council will consider all drainage proposals consistent with SuDS (Sustainable Drainage Systems)”.

As stated in Chapter 4 of the Kilkenny County Council Development Plan, “The Council will continue to apply the Sustainable Urban Design Drainage Systems when assessing development proposals. Examples of SUDS include green roofs, soakaways, swales, infiltration trenches ponds and wetlands”. All SuDS measures are to be implemented with reference to the UK SuDS Manual and KCC drainage requirements.

Relatively small volumes of rainwater collected on the respective SuDS devices will discharge into the gravity overflow sewer during typical low intensity storms.

The SuDS processes decrease the impact of the development on the receiving environment by providing amenity and biodiversity in many cases. Regular maintenance of the SuDS proposals is required to ensure they are operating to their optimal level throughout their design life.

The specific measures adopted for the proposed development comprise the following:

2.3.1 Permeable Pavements (e.g. Grasscrete)

The car parking bays on site (excluding accessible bays) are proposed as permeable pavements (e.g. Grasscrete).

The treatment processes that occurs within permeable pavements include:

- I. Filtration of silt and the attached pollutants - the majority of silt is trapped within the top 30mm of the jointing material between the blocks
- II. Biodegradation of organic pollutants, such as petrol and diesel within the pavement construction
- III. Adsorption of pollutants (pollutants attach or bind to surfaces within the construction) which depends on factors such as texture, aggregate structure and moisture content
- IV. Settlement and retention of solids.

The use of permeable pavers for car parks is proposed as an alternative to an oil separator as outlined in the CIRIA C753 (The SuDS Manual). The SuDS Manual notes that regarding interception design of pervious pavements, studies have shown that runoff typically does not occur from pervious pavements for rainfall events up to 5 mm.

Any water that drains through the permeable pavement will subsequently discharge to the main stormwater drainage system.

The extent and detail of permeable paving is to be as per the landscape architects’ drawings.

2.3.2 Rain Gardens

Overland runoff from hardstanding areas including the road will be redirected to rain gardens.

The proposed rain gardens will serve to provide treatment to pavement runoff for low intensity storms. Rainwater will be treated through evapotranspiration within the filter media of the rain garden structure.

These rain gardens are to comprise a landscape area with high permeability soil in the top 900mm depth. A perforated surface water drain is to be provided at a low level to drain any excess surface water.

Any water that drains through the rain gardens will subsequently discharge to the main stormwater drainage system.

The extent and detail of rain gardens is to be as per the landscape architects’ drawings. Refer to PUNCH drawings for typical SuDS details proposals.

3 Foul Water Drainage Design

3.1 Existing Foul Water Design

The below extract in Figure 3-1 shows the location of existing foul drainage in the area, obtained from Uisce Éireann record drawings.

The following foul drainage exists within and adjacent to the development site:

- 1) An unknown gravity overflow surrounding the Carnegie Library with an outfall at the River Nore.
- 2) An unknown gravity overflow surrounding to the south of the Carnegie Library with an outfall at the River Nore.
- 3) Combined sewer traversing the site in a south-east direction towards John Street.
- 4) Foul sewer traversing the site in a south-west direction from the aforementioned combined sewer.

Refer to Appendix A for the Uisce Éireann foul drainage infrastructure record drawing.

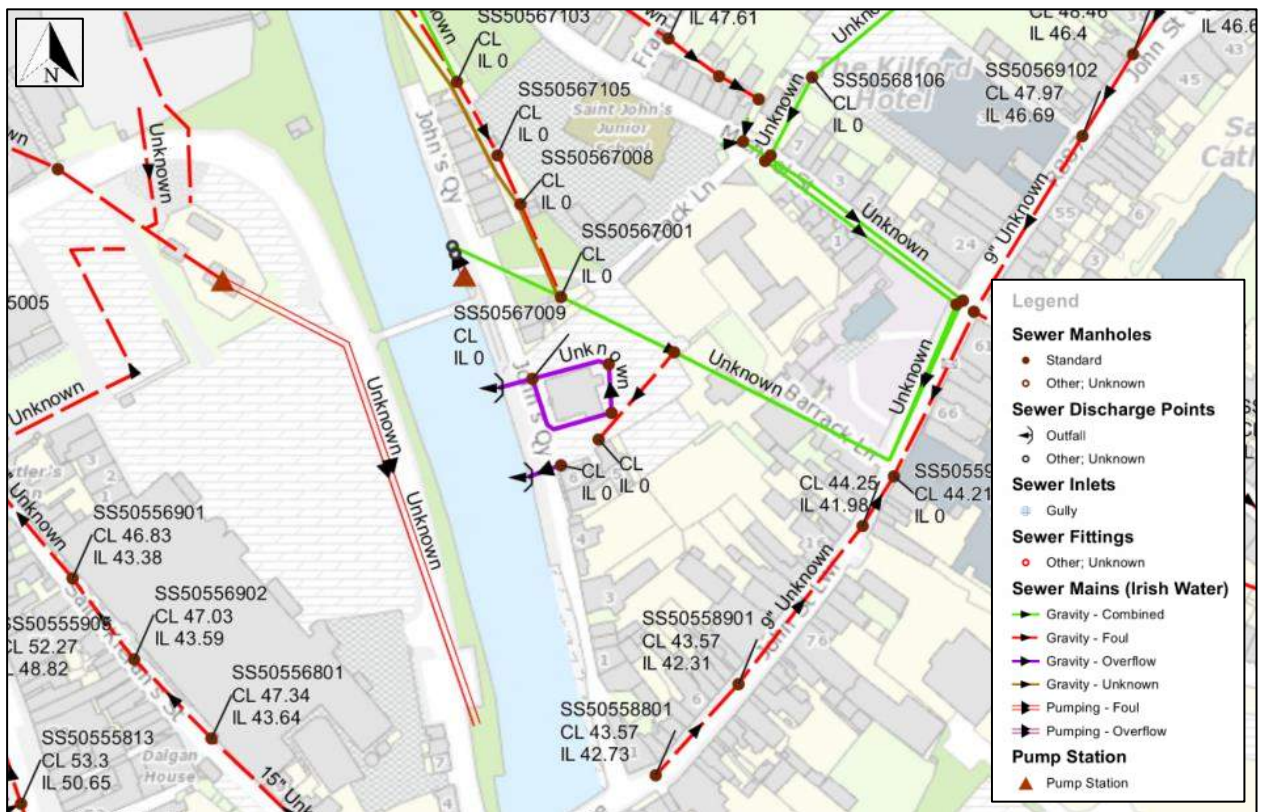


Figure 3-1: Foul and combined drainage infrastructure (Ref: Uisce Éireann)

As discussed in section 2.1 above, Kilkenny County Council have indicated that foul water from the library is discharged into a combined sewer, that is serviced by the Kilkenny City Wastewater Treatment Plant, and which overflows into the River Nore in the event of a storm.

There is 1 no. existing toilet within the library building.

3.1.1 GPR Survey - Foul Water Findings

A GPR survey carried out by David Whelan Enterprises (DWE) on 20th November 2024 of the library grounds indicates that the foul water from the building discharges to the:

- a. 150mm clay combined sewer to the west and south of the building, with an outfall to the River Nore

Based on information provided by Kilkenny County Council, Uisce Éireann record drawings and the GPR survey it is recommended that a CCTV survey with sewer tracing is carried out to confirm the existing foul drainage at the site.

Refer to Appendix D for the GPR Survey. A topographical survey was also undertaken by DWE on the same day and is included in Appendix E.

3.2 Proposed Foul Water Drainage

It is proposed to maintain the existing foul connection to the combined sewer as described above.

The proposed connection will cater for 3 no. toilets. Refer to PUNCH drawings for the location(s) of the existing connection(s) to the combined sewer.

3.3 Connection to Uisce Éireann

A Pre-Connection Enquiry Form was submitted to Uisce Éireann under reference CDS24008433.

Uisce Éireann will subsequently issue a Confirmation of Feasibility Letter if the development can be accounted for by Uisce Éireann's network, or they note if upgrade works are required to accommodate the development, or if the development cannot be accommodated.

Refer to Appendix C for PUNCH correspondence with Uisce Éireann.

4 Watermain Design

4.1 Existing Watermain

A review of the watermain infrastructure obtained from Uisce Éireann record drawings as shown in Figure 4-1 highlights that a 100mm Cast Iron watermain serves the Carnegie Library building.

The location of the connection from the library to the watermain was confirmed by the GPR survey carried out by David Whelan Enterprises on 20th November 2024. Refer to Appendix D for the GPR Survey.

Refer to Appendix B for the full Uisce Éireann watermain infrastructure record drawing.

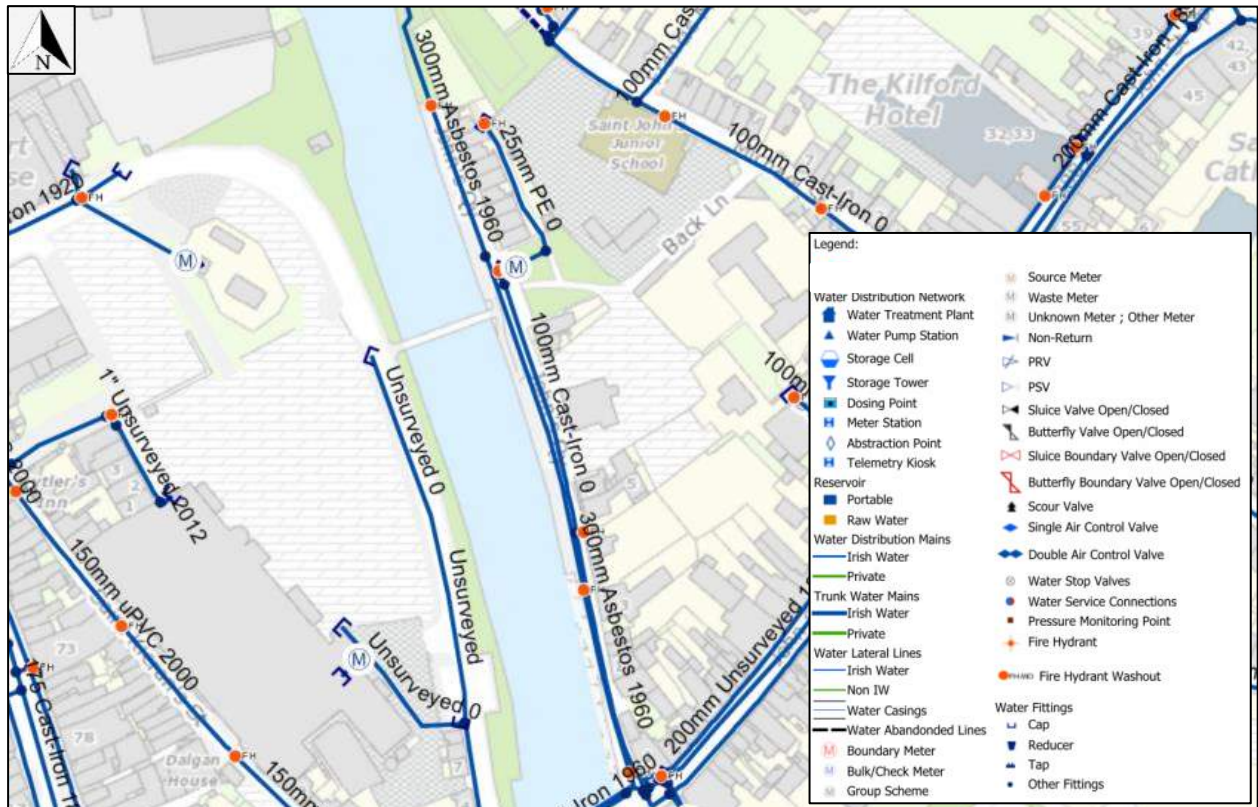


Figure 4-1: Watermain infrastructure (Ref: Uisce Éireann)

4.2 Proposed Watermain

It is proposed to maintain the current Uisce Éireann watermain connection to the building. An additional fire hydrant is proposed providing coverage for the library in line with the Uisce Éireann Water Code of Practice. Refer to PUNCH drawings for the location of the existing watermain connection to be maintained as well as the proposed new fire hydrant.

4.3 Connection to Uisce Éireann

A Pre-Connection Enquiry Form was submitted to Uisce Éireann under reference CDS24008433.

Uisce Éireann will subsequently issue a Confirmation of Feasibility Letter if the development can be accounted for by Uisce Éireann's network, or they note if upgrade works are required to accommodate the development, or if the development cannot be accommodated.

Refer to Appendix C for PUNCH correspondence with Uisce Éireann.

5 Flooding

A Flood Risk Assessment has been undertaken by PUNCH Consulting Engineers for the development which accompanies this planning submission. Please refer to Site-Specific Flood Risk Assessment report by PUNCH for further details.

6 Roads and Access

6.1 Proposed Roads & Access

Vehicle access from John's Quay is to be reduced from one existing entry point and two existing exit points to a single entry/exit point located along the Quay.

Car parking is to be reduced from the existing 64 no. spaces to 27 no. spaces (including 2 no. accessible parking spaces). Refer to the architect's layout for further details on parking.

An additional pedestrian access point to the library building is proposed as discussed in section 6.4.4 below.

6.2 Traffic Impact Statement

The proposed development size is below thresholds set by Transport Infrastructure Ireland (TII) for the requirements of a Traffic and Transport Assessment (TTA) as per Section 2 of the Traffic and Transport Assessment Guidelines May 2014 (parking provided is less than 100 on-site spaces and the area is less than 1,000sq.m). No traffic survey has been completed as part of this analysis.

6.3 Road Safety Audit

It is recommended that a Road Safety Audit is undertaken at detailed design stage.

6.4 Mobility Management

The applicant, Kilkenny County Council, recognises the need for all significant transport generators to play a role in meeting the objectives set out in the Department of Transport Document titled "Smarter Travel: A Sustainable Future - A new Transport Policy for Ireland 2009-2020" which sets out ambitious targets with respect to delivery of sustainable transport modes.

There are plans in progress to reduce private car traffic and increase pedestrian and cycling infrastructure within Kilkenny City. The National Sustainable Mobility Policy 2022 sets out a strategic framework to 2030 for active travel (walking and cycling) and public transport journeys to help Ireland meet its climate obligations. It is accompanied by an action plan to 2025 which contains actions to improve and expand sustainable mobility options across the country by providing safe, green, accessible and efficient alternatives to car journeys. It also includes demand management and behavioural change measures to manage daily travel demand more efficiently and to reduce the journeys taken by private car.

The current (2020) and target (2040) modal split for Kilkenny City are shown in Figure 6-1. The objectives of the Kilkenny City and County Development Plan are to increase walking, cycling and public transport and reduce the share of private cars.

Mode Share	Walk	Cycle	Public Transport	Car
2020 Internal Trips	26.57%	3.98%	6.81%	62.64%
2040 Target	35%	10%	15%	40%

Figure 6-1: "Table 4.1: Modal Share targets for Kilkenny City" (Ref: KCC)

A reduction in car parking is proposed for the site, and improved access for pedestrians and cyclists within the site and local area will play a key part in helping the applicant to meet its climate objectives while also improving the environment for non-vehicular modes.

6.4.1 Kilkenny Local Transport Plan (KLTP)

As part of the preparation of the City & County Development Plan, Kilkenny County Council has commissioned a Local Transport Plan (KLTP). The KLTP is envisaged to be a short to medium term plan to cover the period 2020-2026 and beyond to support the development of a comprehensive, sustainable transport network for the City.

The KLTP is based on the following over-arching objectives:

- i. Support the future growth of Kilkenny City through the provision of an integrated, safe, reliable and sustainable transport network;
- ii. The integration of land use and transport planning,
- iii. Support the realisation of the 10-minute city,
- iv. Improved safety, accessibility and permeability throughout the Study Area for pedestrians, cyclists and public transport users,
- v. Actively discourage vehicular through-traffic,
- vi. Reduce dependency on the private car,
- vii. Increase public transport capacity and provision to maximise catchment,
- viii. Enhance the public realm through traffic management and transport interventions; and
- ix. Limit the impact of Kilkenny's transport network on the environment.

The plan has not yet been published. The latest information is available here:

<https://kilkennycoco.ie/eng/services/planning/development-plans/kilkenny-local-transport-plan/>

6.4.2 Sustainable Urban Mobility Plan (SUMP)

The Sustainable Urban Mobility Plan (SUMP) is a strategic plan designed to satisfy the mobility needs of people and businesses in the city and its surroundings for a better quality of life. The core goal of the plan is to improve accessibility and quality of life by achieving a shift towards sustainable mobility. The plan is due to be completed by Quarter 4 2024.

Kilkenny City started the process of developing its SUMP using a participatory approach. Connect the Dots are working on behalf of Kilkenny County Council to carry out a programme of engaging participatory events, collaborating with key stakeholders and citizens to develop the Kilkenny Sustainable Urban Mobility Plan.

It is noted that the SUMP has not yet been published. Through discussions with KCC, it is understood that the SUMP will have three strands of interest including: John Street, Carnegie Library and a Pedestrian and Cycling Connectivity Scheme. Any strategy for the area will therefore be required to incorporate the requirements of the SUMP. Initial considerations to be confirmed include:

- i. **Carnegie Library**
Reconfigure pedestrian and cycling routes at Carnegie Library in line with changes to the access and directional flow of vehicular traffic
- ii. **Pedestrian and Cycling Connectivity Scheme**
Provide a pedestrian and cyclist connection from Michael Street through to the Handball Alleys/John's Quay.

6.4.3 NTA Proposed CycleConnects Urban Cycle Network

The National Transport Authority (NTA) has proposed a CycleConnects urban cycle network plan to upgrade Kilkenny’s urban cycle network. In the vicinity of the site an urban secondary route is proposed from John’s Quay to Michael Street. Refer to Figure 6-2 below.



Figure 6-2: Proposed Kilkenny urban cycle network (Ref: NTA)

6.4.4 Pedestrians

Existing pedestrian access to the library building is via the main entrance on John’s Quay. There is an existing raised ramp and controlled crossing at this location.

Pedestrian access to the car park is via John’s Quay as well as from Back Lane to the rear of the site. Lady Desart Bridge provides pedestrian and cyclist connectivity from Bateman Quay to John’s Quay and is located opposite Carnegie Library.

There are existing footpaths to the front of the library on John’s Quay on both sides of the carriageway. From John’s Bridge walking north along John’s Quay there is no footpath as far as John’s Quay Car Park. There is an existing pedestrian zebra crossing located in front of the Carnegie Library.

It is proposed to retain the existing pedestrian access to the library building via the front entrance, and to provide an additional new pedestrian entrance to the building at the new southern extension.

Two raised ramps are proposed along John’s Quay at the front of the library for pedestrian access from the riverside footpath, while a third raised ramp is proposed in the car park.

Refer to the architect’s site layout plan for further details.

6.4.5 Accessible Access

An accessible entrance is proposed to the rear of the library building. Refer to the architect's layout for further details.

6.4.6 Cycling

There are no existing cycle lanes on John's Quay. There is a single cycle lane running along the length of Back Lane. Lady Desart Bridge provides pedestrian and cyclist connectivity from Bateman Quay to John's Quay and is located opposite Carnegie Library. There are 5 no. existing cycle stands providing 10 no. cycle parking spaces on site.

10 no. cycle parking stands are proposed via 5 no. Sheffield bike stands. It is recommended that cycle stands be protected from the weather (for example using "bicycle hangar" type stands). This is particularly relevant for long term (more than 3 hours) users such as library staff.

Refer to the architect's site layout plan for further details.

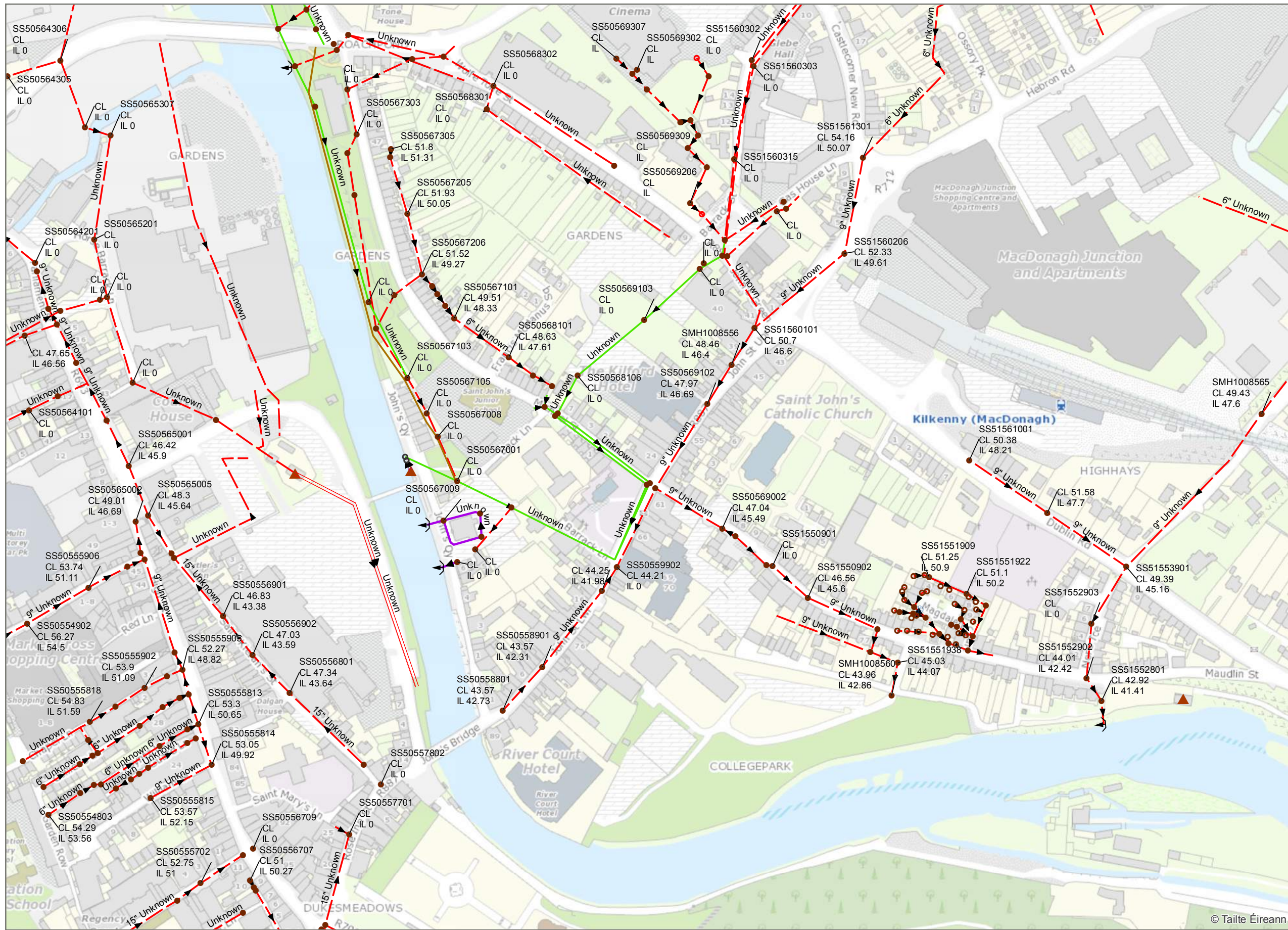
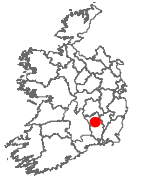
6.4.7 Public Transport

There are existing public transport services within Kilkenny City, including bus and rail. There are a number of bus stops located a short walk from the site on John Street.

Kilkenny City is connected to the Dublin to Waterford main passenger rail line via a spur from Kilkenny City to Lavistown just east of the city. MacDonagh Railway station provides a hub for rail and bus services. The Dublin-Waterford route offers connections to Cork, Limerick and Galway.

While there are no known current plans to upgrade the current transport network within the city, proposals may be addressed as part of the ongoing SUMP and KLTP as discussed above.

Appendix A Uisce Éireann Foul Drainage Infrastructure Record



Legend

Sewer Manholes

- Standard
- Other; Unknown

Sewer Discharge Points

- ➔ Outfall
- Other; Unknown

Sewer Inlets

- ⊕ Gully

Sewer Fittings

- Other; Unknown

Sewer Mains (Irish Water)

- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Foul
- Pumping - Overflow

Pump Station

- ▲ Pump Station



Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator

Scale @ A3: 1:3,000

Drawing No.: IW-AGG-2023-000

Drawn By: RG

Checked By: <Add Name>

Approved By: <Add Name>

Drawn Date: 10/09/2024

Checked Date: <dd/mm/yyyy>

Approved Date: <dd/mm/yyyy>



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

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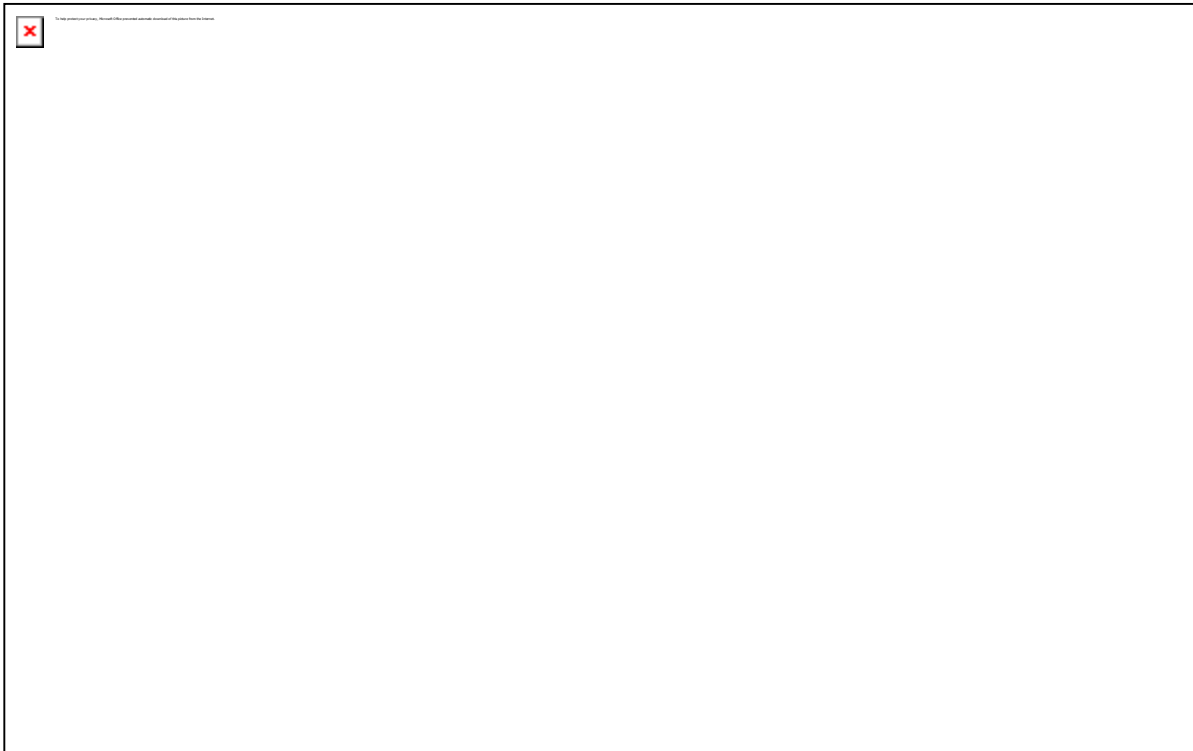
Sewer Network Kilkenny, Co. Kilkenny

Appendix B Uisce Éireann Watermain Infrastructure Record

Appendix C Uisce Éireann Correspondence

Karen Duddy | PUNCH

From: newconnections <newconnections@water.ie>
Sent: Friday 27 September 2024 17:06
To: Karen Duddy | PUNCH
Subject: [Pending]CDS24008433 Uisce Éireann Pre-Connection Enquiry EMAIL:0624434



Uisce Éireann Pre Connection Enquiry Ref Number: CDS24008433

Dear Customer,

Thank you for submitting your Pre-connection Enquiry Form for Carnegie Library, Johns Quay, Kilkenny, Kilkenny . Your Uisce Éireann reference number for your application is CDS24008433, which you can keep for your records.

Next steps in your enquiry:

Assessment of Enquiry: Your enquiry is currently being assessed to confirm it is technically feasible; we will be in touch once this assessment has been completed. A significant level of analysis is required before we can provide a response. Two of a number of considerations are:

- A review of the available capacity in Uisce Éireann infrastructure versus your requirements.
- The location for connection versus the distance to/from our network.

Where your requirements are of a significant nature for example, multiple properties or commercial/industrial developments, this work may take a period of time to complete.

Getting a Confirmation of Feasibility: If your application is technically feasible, we will issue you with a letter of "Confirmation of Feasibility". This will outline what capital works if any, may be required to upgrade the public infrastructure to cater for your development.

From receipt of your Pre-connection Enquiry, it takes on average 16 weeks to issue a Confirmation of Feasibility.

Design Layout Approval: Where you are proposing to apply for a housing development (two or more properties), a **Statement of Design Acceptance** to your proposal will be required from Uisce Éireann before applying for Planning Permission. Please therefore submit your designs for assessment to Uisce Éireann to ensure they comply with our requirements, in advance of applying for Planning Permission.

Connection Application: Your Confirmation of Feasibility; which is a specific requirement to apply for Planning Permission through the Strategic Housing Development process, will assist you in obtaining your Planning Permission following which you may apply for your connection immediately.

If you have any further queries please contact us on **1800 278 278** or **+353 1 707 2828**; alternatively, you can visit www.water.ie/connections for more information.

Please note that the rates charged for 1850 numbers may vary across different service providers. Calls from mobiles may be more expensive.

Please do not amend this subject line as it will help us deal with your response.

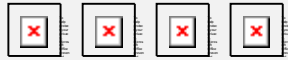
Yours sincerely,

Customer Service Advisor



Callsave 1800 278 278 | +353 1 707 2828

www.water.ie/connections



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Colvill House, 24-26 Talbot Street, Dublin 1

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Is don duine amháin nó don eintiteas amháin ainmnithe ar an seoladh an fhaisnéis agus d'fhéadfadh ábhar faoi rún, faoi phribhléid nó ábhar atá íogair ó thaobh na tráchtála de a bheith mar chuid den fhaisnéis. Tá toirmeasc ar aon daoine nó aon eititis; nach dóibh siúd an fhaisnéis- aon athbhreithniú a dhéanamh, aon atarchur a dhéanamh nó aon athdháileadh a dhéanamh, nó aon úsáid eile a bhaint as an bhfaisnéis, nó aon ghníomh a bhraithfeadh ar an bhfaisnéis seo a dhéanamh agus d'fhéadfaí an dlí a shárú dá ndéanfaí sin. Séanann Uisce Éireann dliteanas as aon ghníomh agus as aon iarmhairt bunaithe ar úsáid neamhúdaraíthe na faisnéise seo. Séanann Uisce Éireann dliteanas maidir le seachadadh iomlán agus ceart na faisnéise sa chumarsáid seo agus séanann Uisce Éireann dliteanas maidir le haon mhoill a bhaineann leis an bhfaisnéis a fháil. Má tá an ríomh-phost seo faighte agat trí dhearmad, déan teagmháil leis an seoltóir más é do thoil é agus scrios an t-ábhar ó gach aon ríomhaire. D'fhéadfadh ríomhphost a bheith so-ghabhálach i leith truaillithe, idircheaptha agus i leith leasuithe neamhúdaraíthe. Séanann Uisce Éireann aon fhreagracht as athruithe nó as idircheapadh a rinneadh ar an ríomhphost seo nó as aon dochar do chórais na bhfaighteoírí déanta ag an teachtaireacht seo nó ag a ceangaltáin tar éis a sheolta. Tabhair faoi deara go bhféadfadh monatóireacht a bheith á dhéanamh ar theachtaireachtaí chuig Uisce Éireann agus ó Uisce Éireann d'fhonn ár ngnó a chosaint agus chun a chinntiú go bhfuiltear ag teacht le beartais agus le caighdeáin Uisce Éireann. Is cuideachta gníomhaíochta ainmnithe é Uisce Éireann atá faoi theorainn scaireanna, a bunaíodh de bhun fhorálacha na n-Achtanna um Sheirbhísí Uisce 2007-2022, a bhfuil a bpríomh-ionad gnó ag Teach Colvill, 24-26 Sráid na Talbóide, BÁC 1.

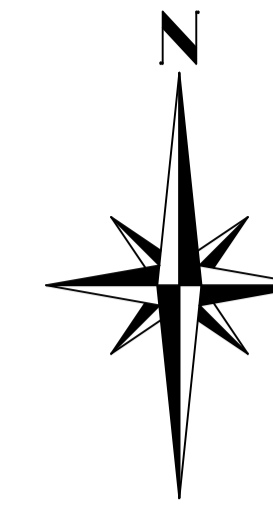
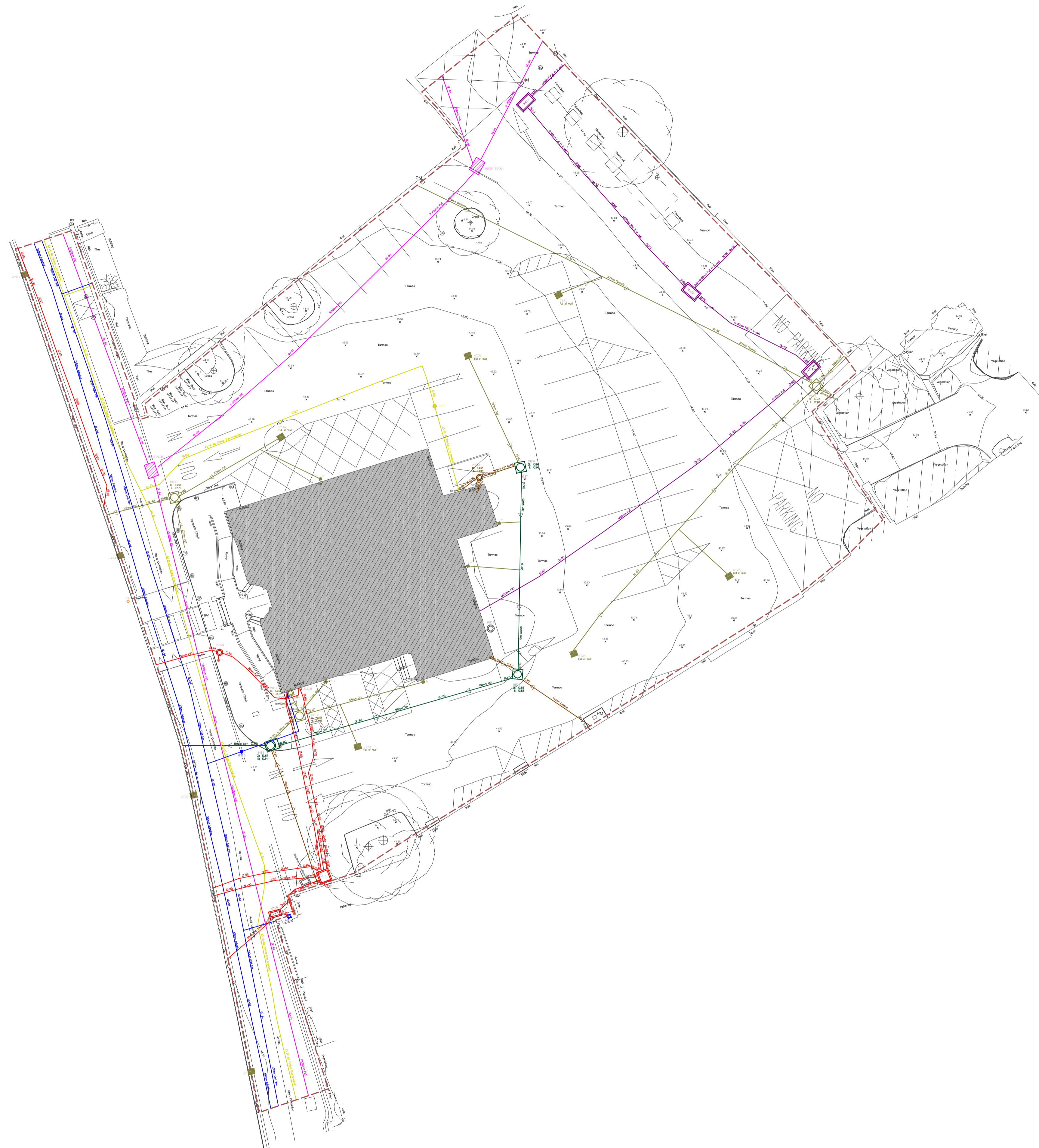
Go raibh maith agat as d'aird a thabhairt.

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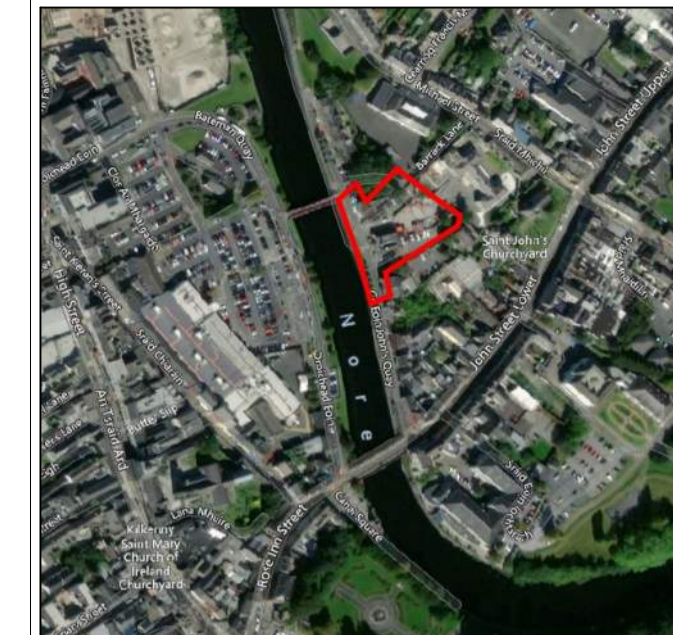
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Thank you for your attention.

Appendix D GPR Survey



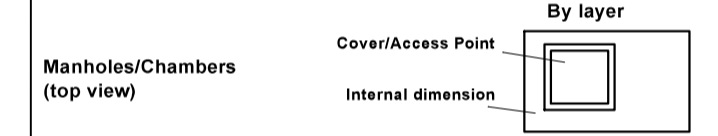
KEYMAP



LEGEND

Description	Color / type
Cartographical background	Black
Survey area	Dark pink
Drainage Surface	Sienna
Drainage Foul	Burnt Sienna
Drainage Combined	Dark Green
Eircom	Magenta
Traffic	Red orange
Water	Blue
Electricity	Red
Gas	Dark yellow
Telecommunications	Light green
Public Lighting	Dark red
Virgin Media	Purple
Unknown	Grey
Subsurface Anomaly Area	Yellow
Area not Suitable for GPR Survey	Grey
Reinforced concrete layer	Grey
No. of ducts of the same service	By layer n x
Depth to the top of the pipe	By layer (0.00)
Flow direction	By layer
Unknown connection/direction	By layer (?)
Unable to lift - Cover or lid	By layer U.T.L.
Quality Level - A (Verification)	±2.5 cm (H) and 2.5 cm (V)
Quality Level - B1P (Detection)	±15 cm (H) and 15% (V)
Quality Level - B2P (Detection)	±25 cm (H) and 40% (V)
Quality Level - B3P (Detection)	±50 cm (H) and Undefined (V)
Quality Level - B2 (Detection)	±25 cm (H) and 40% (V)
Quality Level - B3 (Detection)	±50 cm (H) and Undefined (V)
Quality Level - B4 (Detection)	Undefined (H), Undefined (V)
Quality Level - C (Site Evidence)	Undefined (H), Undefined (V)
Quality Level - D (Record drawings)	Undefined (H), Undefined (V)

Hatched areas on a utility specific layer represent:
 1) Several cables not better identified
 2) Reinforced layer on top of buried utilities.



TST Engineering Ltd Disclaimer

TST Engineering surveyed the required area in order to provide information about the existing utility services located within the area and its immediate parts. While the best precision and accuracy were performed during site activities, TST extremely recommends attention prior to excavation, as there is still uncertainty related with no dig surveys. There is no guarantee that all buried services were identified with the survey and shown in the layout. The quality of the acquired data depends by the soil water percentage and the ground conditions: TST Engineering bore any possible effort in order to provide the most reliable results.

Technical Specification:
 GPR scans starting from physical elements (e.g. walls, kerbs) can bear an offset of approx 0.45m due to the GPR trolley's configuration; this is a small section of the area that remains not covered by the GPR scans and consequently does not show GPR information. The greatest survey depth achievable with GPR is about 3 - 2.5 meters from the ground surface and it can vary according to the penetrating parameters of the soil. Deeper pipes were located, where possible, with electronic detection devices and through the inspection of chambers and manholes. Accuracy margins, depending upon problems encountered while surveying or systematic device errors, will be within 10% of actual depths. Infrastructures position on layouts can vary from actual surface by 0.10 meters, axial distance. Buried utilities are shown through polylines and tags identifying, where possible, the typology, characteristics, state of use and any other useful information. A single polyline may represent a pipeline, a duct, a cable, a group of cables or ducts; the relative tags describe the elements represented: Manholes, chambers, boxes, valves and any other surface element related with the buried utilities were surveyed and represented in the layout with their real dimensions (2D or 3D). Information such as operating pressure and reliefs (for gas pipes), voltage (for electric cables) is obtained from records of the assets owners and is not verified by TST Engineering Ltd.

This drawing represents a 3D drawing of the result of the surveys.
 The drawing is represented in absolute coordinate.
 Reference system: Irish Transverse Mercator



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Client: PUNCH

Project: Kilkenny City Urban Design Strategy

Description: Utilities Mapping Survey

Drawing No.: DWE-2024-191 Sheet 1/1

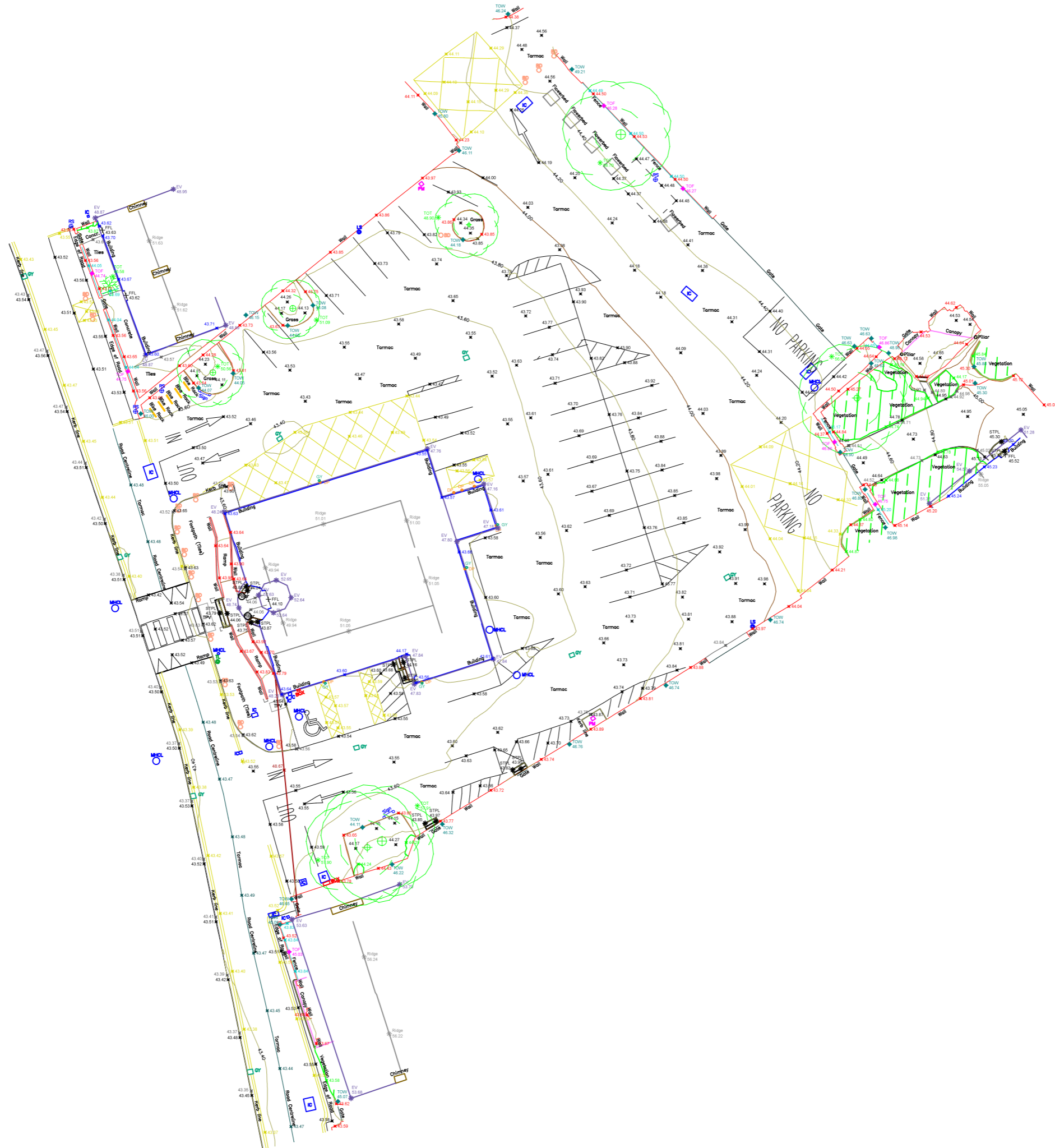
Scale: NTS

Enclosed with:

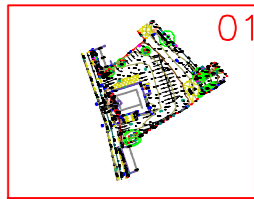
Surveyed by: SD, DL, RL
 Drawn by: RL
 GPR elaboration by: SD
 Approved by: SD Date: 11-12-2024

REVISIONS		
No.	Date	Description
0		First version

Appendix E Topographical Survey



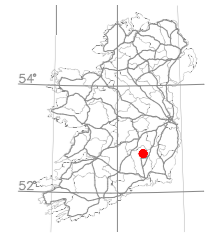
KEYMAP



LEGEND

- Street furniture & Services**
- Over Head Wire (LWS)
 - Flowerbed
 - LIT
 - Barrier
 - Pump
 - Tram Pit
 - Bus/Tram Shelter
 - Postbox
 - Water Valve
 - Unknown Valve
 - Manhole
 - Air Conditioning Vents
 - Services Inspection Cover
 - Traffic Inspection Cover
 - ESAT Inspection Cover
 - MTL Inspection Cover
 - Elroom Inspection Cover
- Natural Features**
- Contours Lines
 - Surface Change
 - Land Drain
 - Bottom of Slope
 - Top of Slope
 - Ditch
 - Water Edge / Lake / Pond
 - Hedge / Trees Drp Line / Vegetation
 - Tree Coniferous
- Built Features**
- Building
 - Edge of Road
 - Kerb Bottom
 - Kerb Top
 - Bridge Abutment
 - Bridge Deck
 - Bridge Parapet
 - Building Facade
 - Footpath / Platform Train
 - Roads roof
 - Bridge Pier / Wall & Gate
 - LWS Tracked
 - Cycleway / Private Landing
- Roads & Road Markings**
- Fence
 - Gate
 - Road Centreline
 - Hoarding
 - Property Line
 - Road Scar
 - Ramp
 - Wall / Retaining
 - Roofing
 - Top of Wall
 - Top of Fence
- Other**
- Floor Level
 - Apex Height
 - Eaves Height
 - Parapet Height
 - Roof / Overlap
 - Truck
 - Concrete Pad

OVERVIEW



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DRAWING IS IN (Metric Transverse Mercator) COORDINATE WITH QUOTE REFERRING TO Geoid model OS2015

DWE
davidwhelanenterprises.ie

TST Engineering LTD
www.tstengineering.com

Client: PUNCH

Project: Kilkenny City Urban Design Strategy

Description: Topographical Survey

Drawing No.: 2024-190 1 of 1

Scale: NTS

Enclosed with:
Surveyed by: AC
Drawn by: LM
Approved by: RP Date: 06/12/2025

No.	Date	Description
0	06/12/2025	First version