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# Technical Note 200037-TN-001

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| **Project:** | Keating Lands, Clonee | **Prepared by:** | AO'S / DMW / DPM |
| **Title:** | Engineering Review for rezoning Submission | **Date:** | 04.03.2020 |
| **Client:** | Keating Family | **Job No:** | 200037 |

## 1. INTRODUCTION

This technical note has been compiled to support a rezoning submission for a site located in Clonee, Co. Meath (refer to Figure 1). It is intended to provide information to relevant planning authorities to allow an informed decision in the context of civil engineering aspects affecting development. The technical note is based on a review of available information and a general inspection of the site environs. DBFL have not liaised with the Local Authority or Irish Water at this time.


Figure 1 Site Location Map (Google Earth Pro)

## 2. FOUL WATER DRAINAGE

There is an existing 525mm diameter combined sewer (Tolka Valley Trunk Sewer 9C) traversing the northern section of the site. It runs in an easterly direction towards Clonee Bridge and runs along Clonee Main Street before upsizing to a 600mm diameter and crossing the M3. The sewer generally follows the route of the Tolka River, and ultimately outfalls to Ringsend Wastewater Treatment Plant. Refer to Figure 2 below and to **Appendix A** for a copy of the Irish Water record drawing.

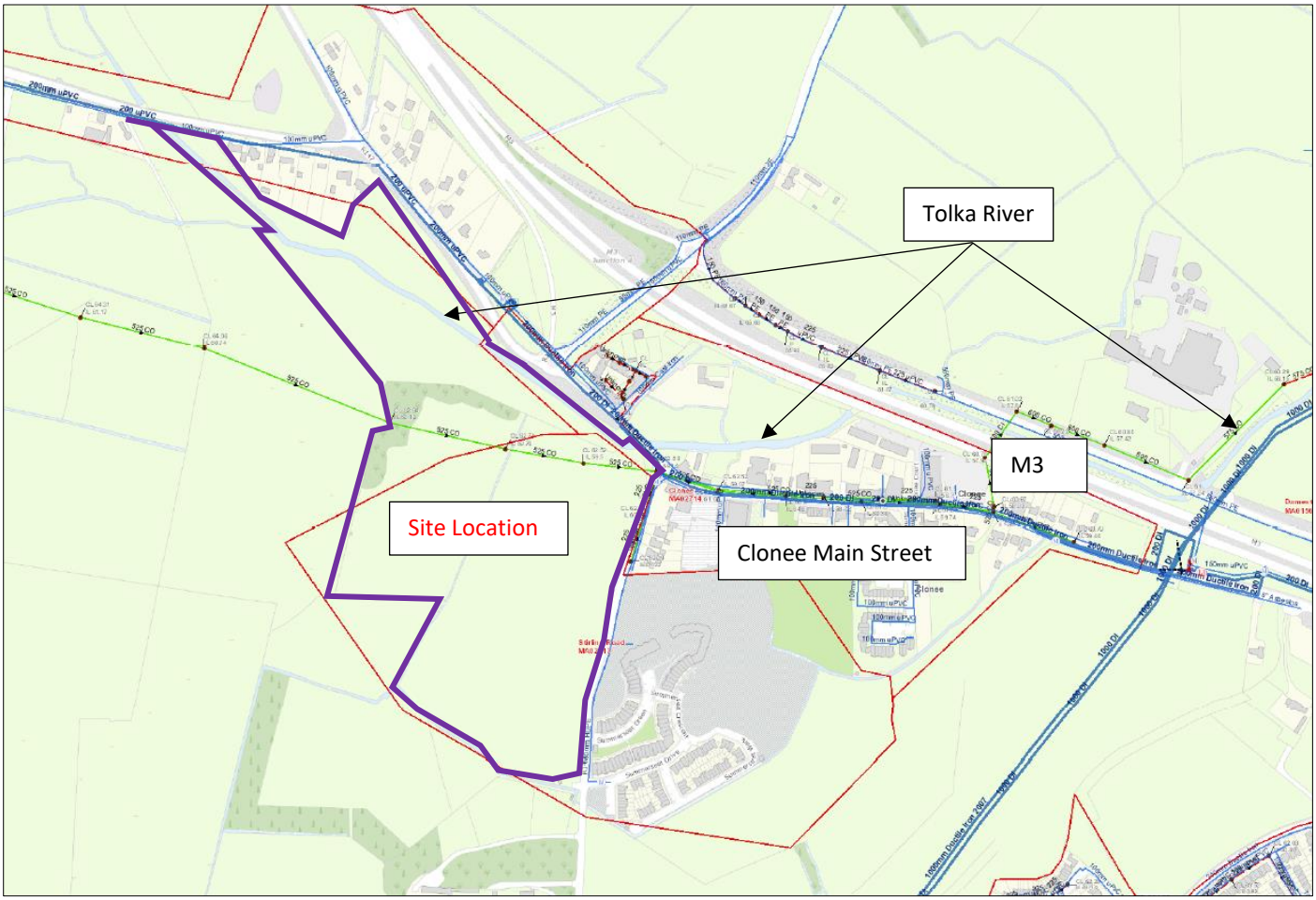



Figure 2 Extract from Irish Water Record Drawing

In accordance with Irish Waters "Code of Practice for Wastewater Infrastructure", no development would be permitted within 5m either side of the 525mm diameter pipe.

Irish Water are progressing the Blanchardstown Regional Drainage Scheme (duplication of the 9C sewer), which includes upgrading of the existing sewer network currently serving Blanchardstown, Mulhuddart and Castleknock as well as a number of towns in Meath including Dunboyne, Clonee, Ashbourne and Ratoath. Development of the subject sites would therefore involve the construction of spine sewers discharging to the 9C or its duplicate. The site could be served by a new trunk sewer laid along the R149, flowing towards the existing sewer at Clonee Bridge.

## 3. SURFACE WATER DRAINAGE / SUDS

There are three streams traversing the site. The Tolka River runs through the northern section of the site towards Clonee Bridge, as does the Dunboyne Stream, which joins the Tolka River to the west of the bridge. The Clonee Stream forms the southern boundary of the site and runs under the M3 to join with the Tolka River to the north of the M3. Refer to Figure 3 below.

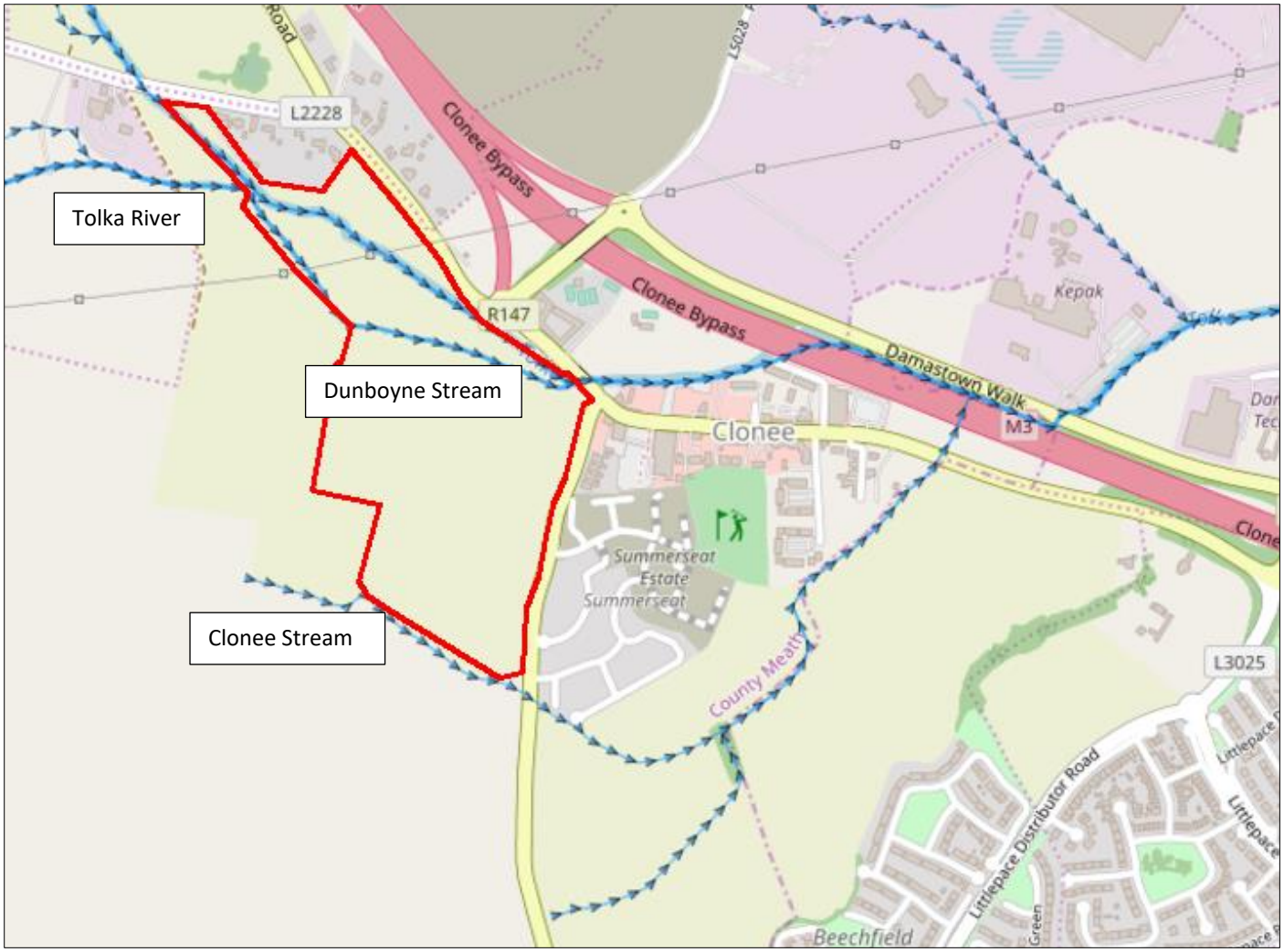



Figure 3 Existing Water Features (EPA Maps)

Any future development of the site would require the existing streams to be maintained in an open channel with a riparian strip / corridor provided in accordance with the recommendations of the GDSDS (Greater Dublin Strategic Drainage Study). The riparian corridor would be minimum 10-15m measured from the top of bank.

Surface water runoff from the site would be managed in accordance with the recommendations of the GDSDS, with surface water runoff attenuated to greenfield runoff rate ($Q_{bar}$) and surface water storage provided for runoff exceeding the allowable outflow rate, for up to a 1% AEP (Annual Exceedance Probability) event. SuDS features would also be

incorporated into the surface water drainage system to facilitate management of surface water runoff. It is anticipated that the green areas which would be utilized for substantial Sustainable Urban Drainage Systems (SUDS) which are now mandatory under the Greater Dublin Regional Code of Practice. SUDS could include green roofs, ponds / detention basins, swales, permeable paving, rainwater harvesting etc.

## 4. FLOOD RISK

The Tolka flood study was commissioned by Dublin City Council in association with Fingal County Council, Meath County Council and the Office of Public Works (OPW) in 2002. The recommendations for the flood relief scheme have now been constructed and protect a significant area in and around the Dunboyne, Clonee, and Pace settlements. The standard of protection offered by the scheme is stated by OPW as the 1% AEP (1 in 100 year) based on design flows calculated in 2002.

CFRAM mapping in the area of the site is currently under review by the OPW. The Strategic Flood Risk Assessment (SFRA) in support of the Meath County Development Plan 2013-2019 indicated that the majority of the subject site was in Flood Zone 'B', defended, with the floodplain associated with the River Tolka and the Dunboyne Stream as Flood Zone 'A'. The south east corner of the site was indicated as Flood Zone B. Refer to Figure 4 below.

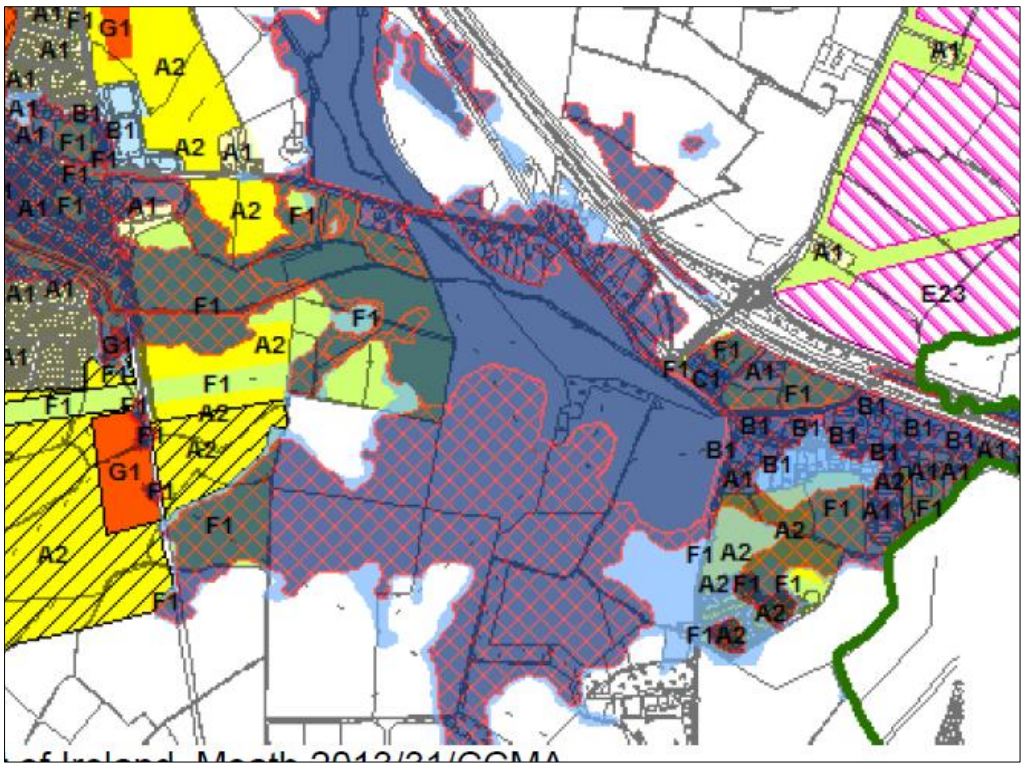



Figure 4: Extract of Flood Risk Assessment and Management Plan for Proposed Variation No. 2 to Meath CDP 2013-2019

The above mapping did not reflect flood amelioration works carried out on the lands. As part of the emergency works implemented after the November 2003 "River Tolka Flood Study", embankments were constructed within the site to prevent flooding of the village and area downstream by retaining flood water within the site. A flood plain optimisation plan was proposed for these lands which provided a more robust flood protection while also increasing the development potential of the land. Following discussions with Meath County Council and the OPW, a proposal was agreed which

involved extending the existing embankment along the R149 (constructed as part of the emergency works) to form a plateau above the future 100 year flood level within the field fronting the R149. To preserve the overall flood storage potential within this site the field adjacent to the plateau was lowered such that it could still drain by gravity to the Tolka River but also retain the predicted future 1% AEP flood. Figure 5 below shows the previous flood plain (left frame) and the optimised / current flood plain (right frame). The flood works within the site are now complete and are reflected in the "Flood Risk Assessment and Management Plan for Meath CDP 2020-2026", as indicated in Figure 6 below, which shows that the area of the site under consideration for re-zoning is in Flood Zone "C" as defined in the Guidelines.

Figure 5: Flood Plain Optimisation

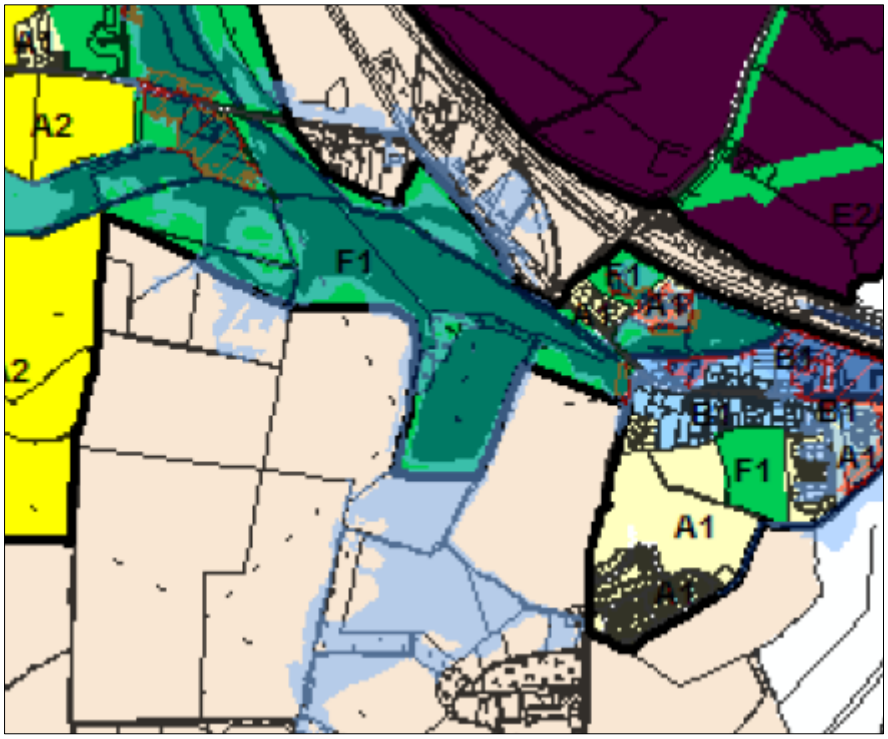



Figure 6: Extract of Flood Risk Assessment and Management Plan for Meath CDP 2020-2026

Any future development should be subject to an appropriately detailed FRA (Flood Risk Assessment) at development management stage. This will ensure that FFLs and ground levels are set appropriately and that the risk of surface water flooding is correctly managed.

## 5. WATER SUPPLY

There is an existing 160mm HDPE watermain on R149 to the east of the site. There is also a 200mm Ductile Iron watermain along the Old Navan Road to the north of the site.

Refer to **Appendix A** for a copy of the Irish Water Record Drawing.

## 6. TRANSPORTATION

### 6.1 Access

The subject site will benefit from three potential vehicle access point which can be provided on the L2228 Station Road, the R147 Old Navan Road and R149 Clonee Road as shown in Figure 7. The subject site is directly adjacent to Junction 4 of the M5 Motorway.

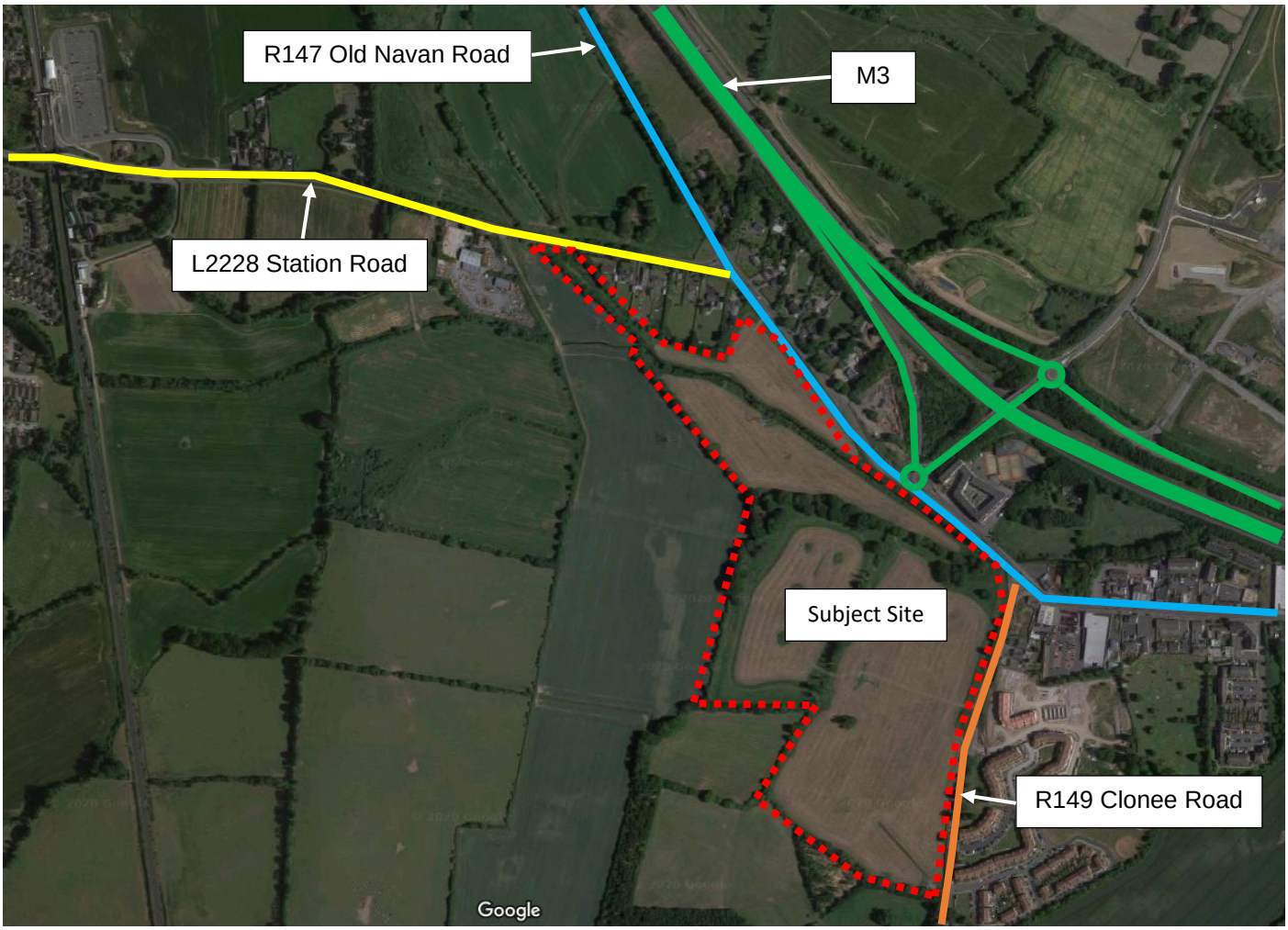



Figure 7 Road Corridors accessed by the Subject Site

### 6.2 Public Transport – Bus

Dublin Bus operates service numbers 70, 70D, and 270, along the L2228 Station Road and the R147 Old Navan Road corridors adjacent to the subject site. These services travel in both directions along corridors providing links to Dublin City Centre, DCU, and Blanchardstown. These services are highly accessible with the closest interchange opportunities for the subject site (Figure 8).


Figure 8 Road Corridors accessed by the Subject Site

## 6.3 Public Transport – Rail

Dunboyne Rail Station is located approximately 700m walking distance to the northwest of the subject site, accessed via Station Road. There are currently 45 services operating through Dunboyne Station (24 northbound, 21 southbound) between Dublin and Dunboyne in response to commuter demands. There are 200 vehicle parking spaces available at the station, in addition to the provision of sheltered cycle parking and cycle lockers.

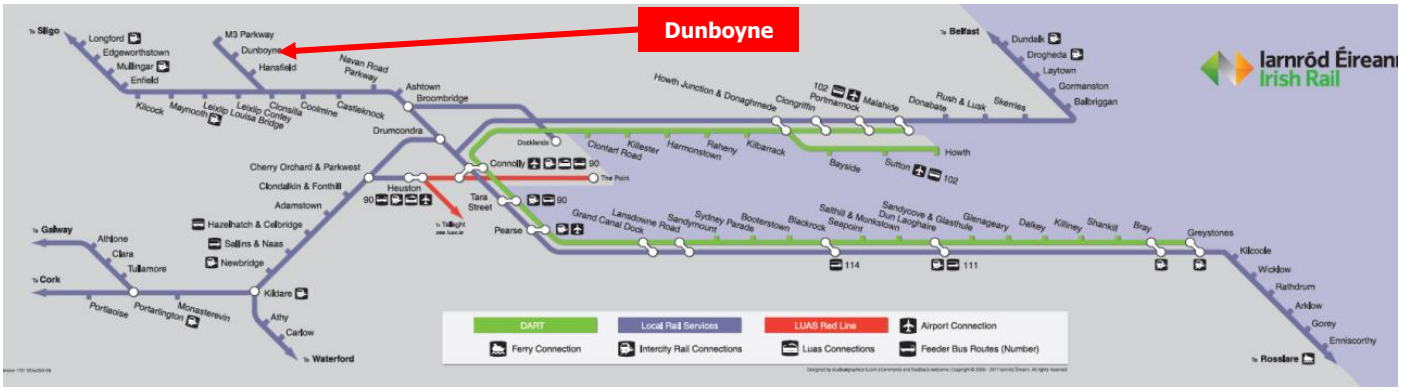



Figure 9: Rail Service Map (source www.irishrail.ie)

6.4 Future Transportation Infrastructure Proposals

## Cycle Network Proposals

Clonee and Dunboyne are located within the 'South Meath Sector' and is classified as a Satellite Town to the 'Dublin North West Sector' within the Greater Dublin Area Cycle Network Plan (2013). The 'South Meath Sector' includes Dunshaughlin, Ratoath, Ashbourne, Dunboyne/Clonee and Enfield.

In the vicinity of the subject site the following route additions are proposed (Figure 10):-

- Db1 – *'R156 Station Road/Summerhill Road, Dunboyne linking to Clonee'*
- Db2 – *'R157 Navan Road to Maynooth Road, Dunboyne'*
- C1 – *'R156, Clonee Main Street, linking to Blanchardstown and Dublin Route 5A at Littlepace'*
- *'M14 Navan - Tara - Dunsany - Dunshaughlin on quiet local roads. South of Dunshaughlin to Clonee and Dublin via Dunboyne along the R147 (old N3) on hard shoulders and with a cycle track between Dunboyne and Clonee.'*
- *Greenway along the Dunboyne Stream*

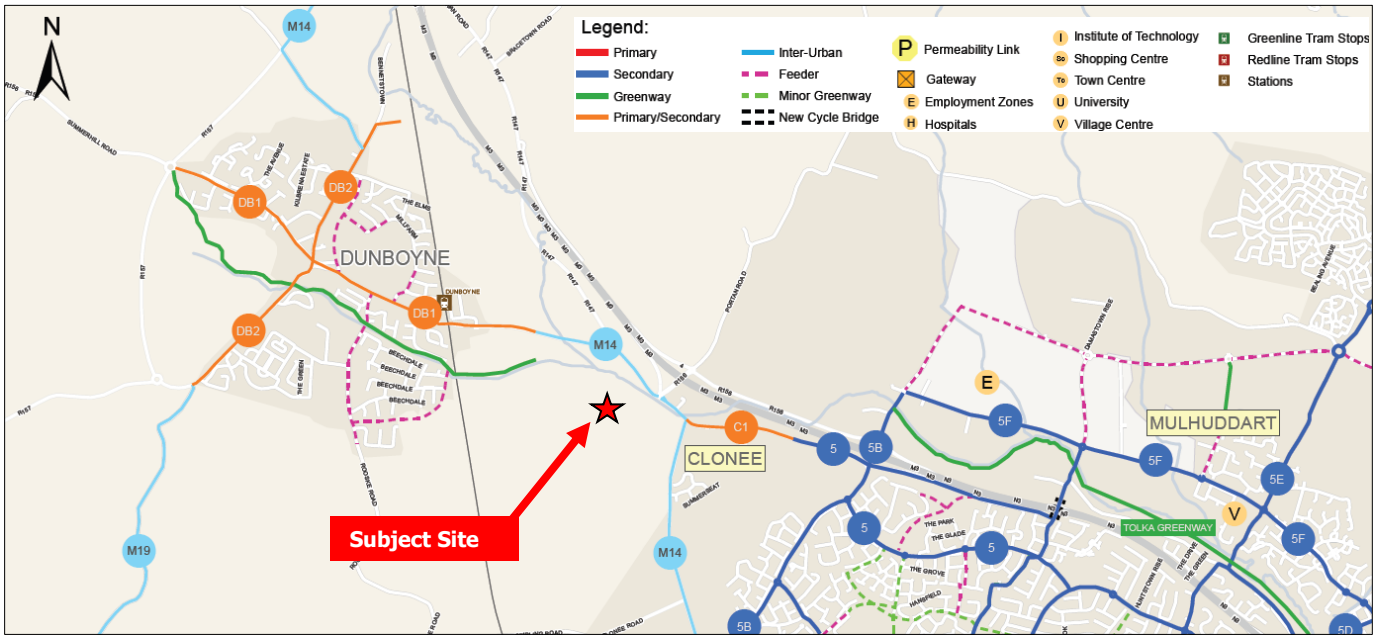



Figure 10: Proposed Cycle Routes (extract Sheet N4 GDA CNP)

## Road Infrastructure Proposals

Map number 2 of the T3 of the Dunboyne, Clonee & Pace Local Area Plan 2009-2015 introduces road objectives within the Dunboyne area. An extract of Map no. 2 is presented in Figure 12 above which reveals the local area plan road proposals in the vicinity of the subject site.

In the vicinity of the subject development site, the LAP road proposals comprise the development of the Dunboyne Eastern Distributor Road:-

*MOV POL 8 "To facilitate the development of the Dunboyne Eastern Distributor Road in conjunction with the development of the A2 (New Residential) zoned lands to the east and south of the railway line in Dunboyne, to include arrangements for the delivery of a rail over pass at the south and north these lands."*

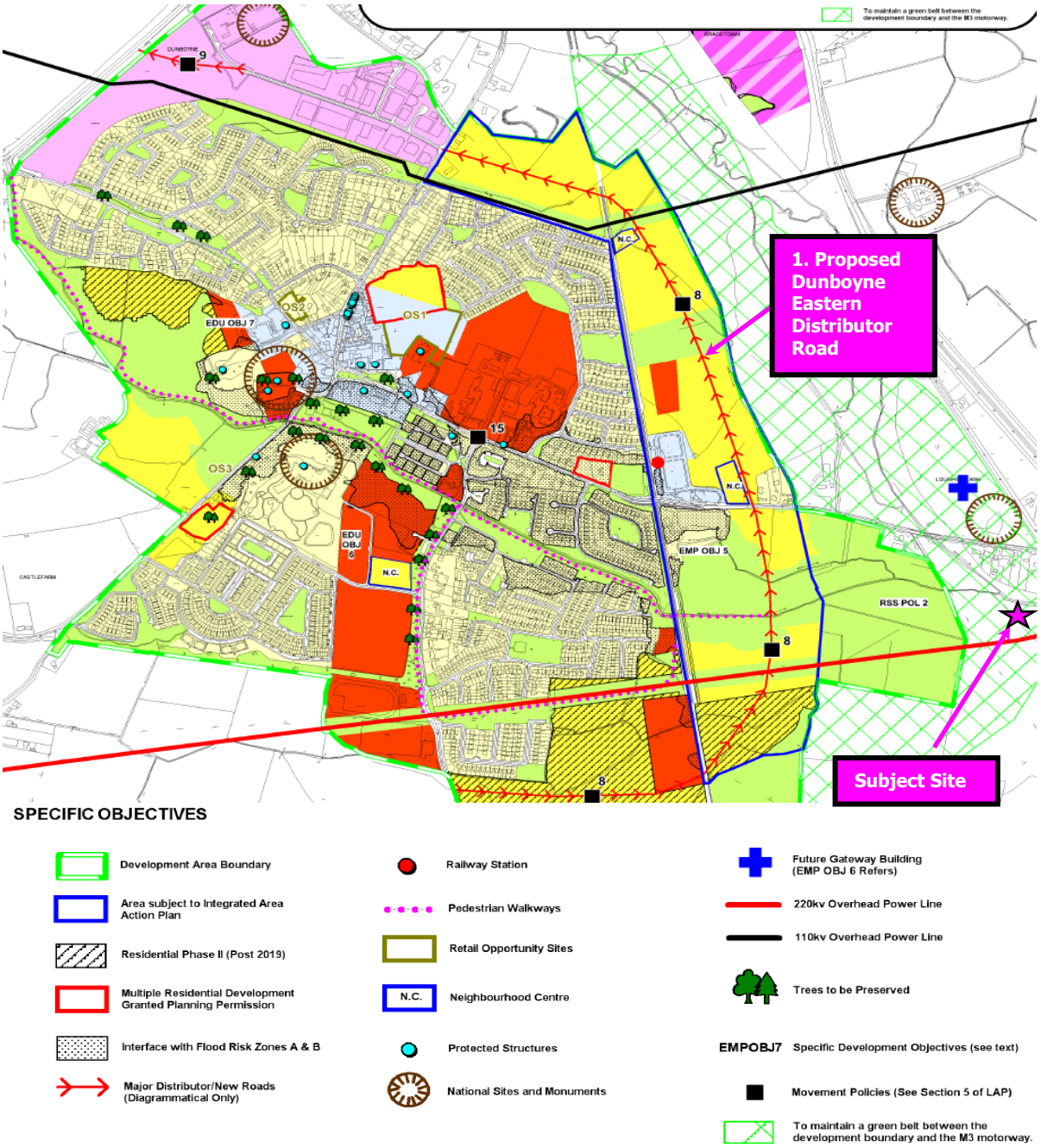



Figure 11: Infrastructure Proposals (extract Map 2 Dunboyne Clonee Pace LAP 2009-2015)

## Public Transport Infrastructure Proposals

BusConnects is an initiative launched by the National Transport Authority with the aim of overhauling the bus system in the Dublin Region. This initiative includes review of bus services, the definition core bus network which comprises radial, orbital and regional core bus corridors. It also includes enhancements to ticketing and fare systems as well as transition to a new low emission vehicle fleet.

This initiative proposes to implement a redesign of the existing bus network. The fundamental changes to the network expected would be as follows:

- Increasing the overall amount of bus services.
  Providing new and frequent orbital services connecting more outer parts of the city together;

- Simplifying the bus services on the key radial into “spines” where all buses will operate under a common letter system and buses will run very frequently and be more evenly spaced;
- Increasing the number of routes where buses will come every 15 minutes or less all day;
- The frequent network would become a web-shaped grid, with many interchange opportunities to reach more destination. Everywhere that two frequent routes cross, a fast interchange is possible; and
- Additional service would be provided at peak hours to limit overcrowding.

The proposed Network Redesign in the vicinity of the subject site is shown below in Figure 12:

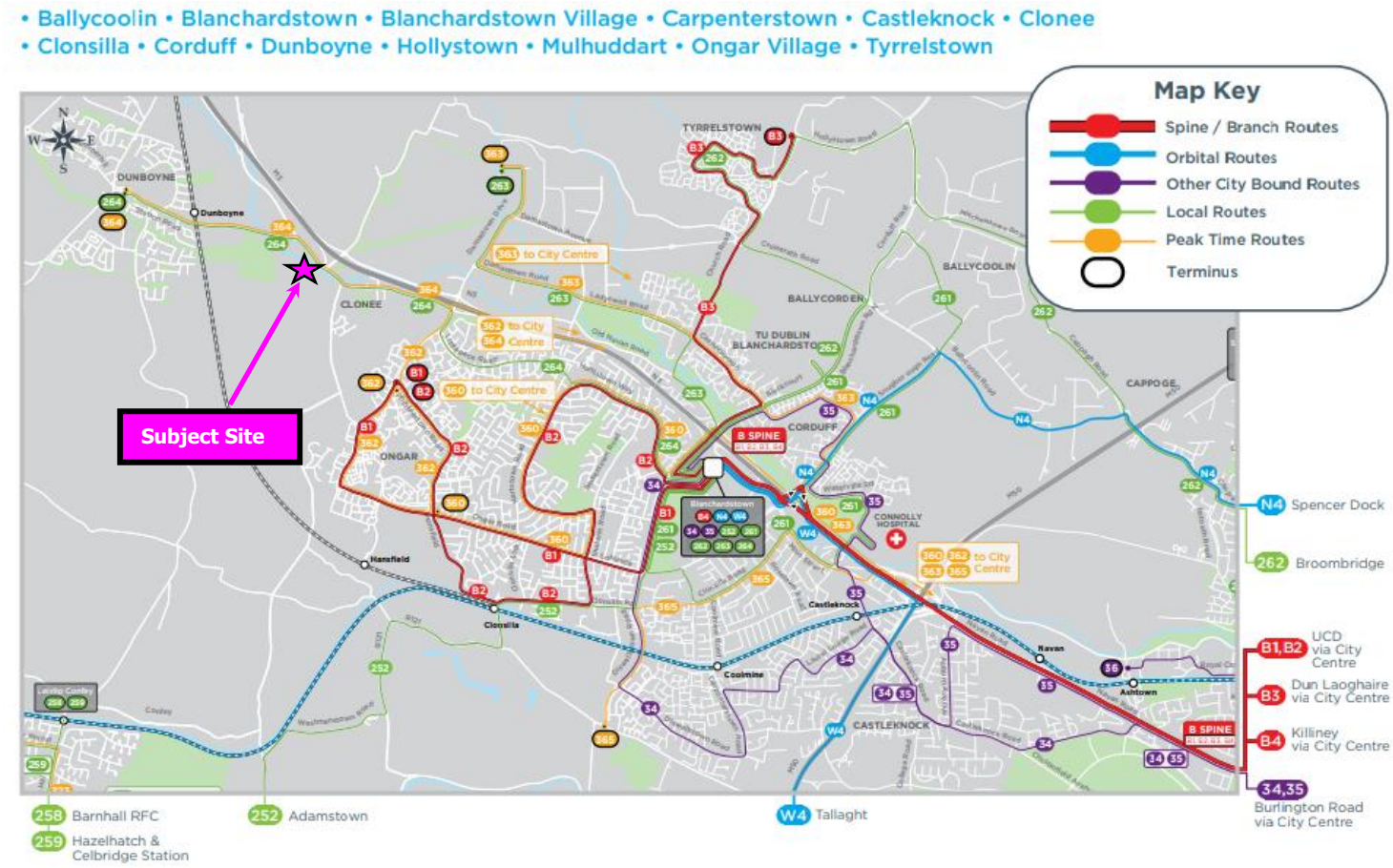



Figure 12: Proposed Bus Network (Source: www.busconnect.ie)

The subject site will be adjacent to routes 264 and 364 which link Dunboyne and Clonee to the Blanchardstown bus interchange which gives access to the high frequency Spine B from Blanchardstown to City Centre/UCD/Dun Laoghaire/Killiney and the orbital routes N4 to Spenser Dock and W4 to Tallaght.

The number 264 route will be a local route which will provide important connections within local areas, linking to local retail centres and to onward transport connections and have a frequency of 10-15 minutes. While the number 364 is a peak-time route which will provide services operate during the peak travel periods, generally weekday mornings and evenings. The 364 will connect Dunboyne and Clonee to Merrion Square are peak times only.

Similarly, the subject site will benefit from the future DART expansion where the DART network will be expanded to Drogheda, Maynooth – Dunboyne/M3 Parkway and Hazelhatch – Celbridge. This will increase the train frequency and capacity at Dunboyne Train Station (700m from the subject site) with increased train frequencies to ten minute frequency in the medium term to a five minute all day frequency long-term.

Included in **Appendix B** is existing and proposed public transport linkage maps.

## 6.5 Possible Routes that can be Provided

The subject site has the potential to provide improved connectivity and permeability for cyclists and pedestrians through the site. As seen in Figure 13 the site could possibly connect a number of cycle objectives and routes such as the proposed DB1 Cycle Route and Dunboyne Stream Greenway and between key destinations in the immediate area i.e. Dunboyne Train Station, Clonee Village, Facebook, Kepak, etc. The Dunboyne Stream Greenway which is under the GDA Cycle Network Plan is proposed to abruptly stop in the middle of agricultural land west of the subject site. With the potential of a town park amenity within the subject site, any opportunity is given to tie in the greenway with the site and the wider cycle network.

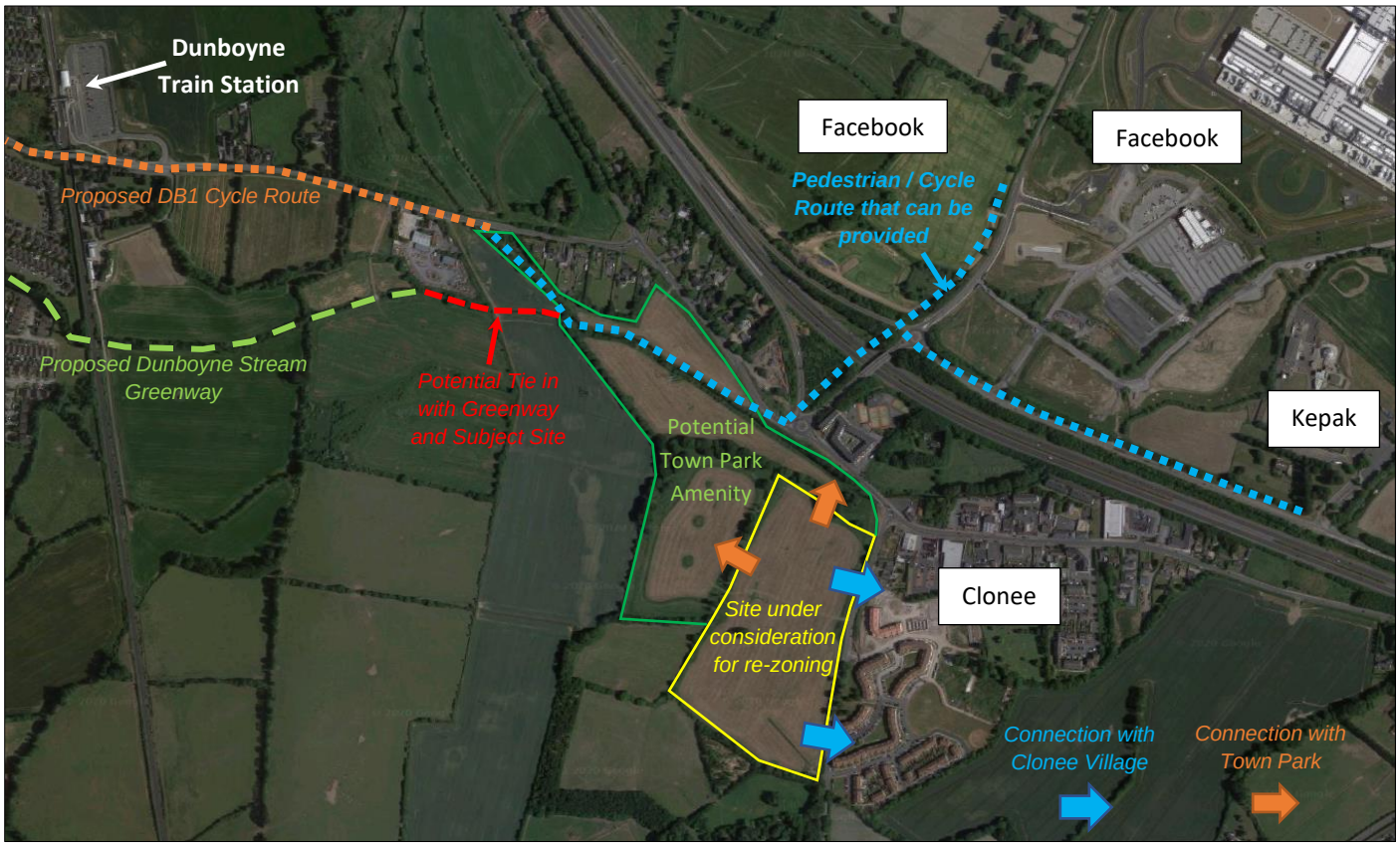
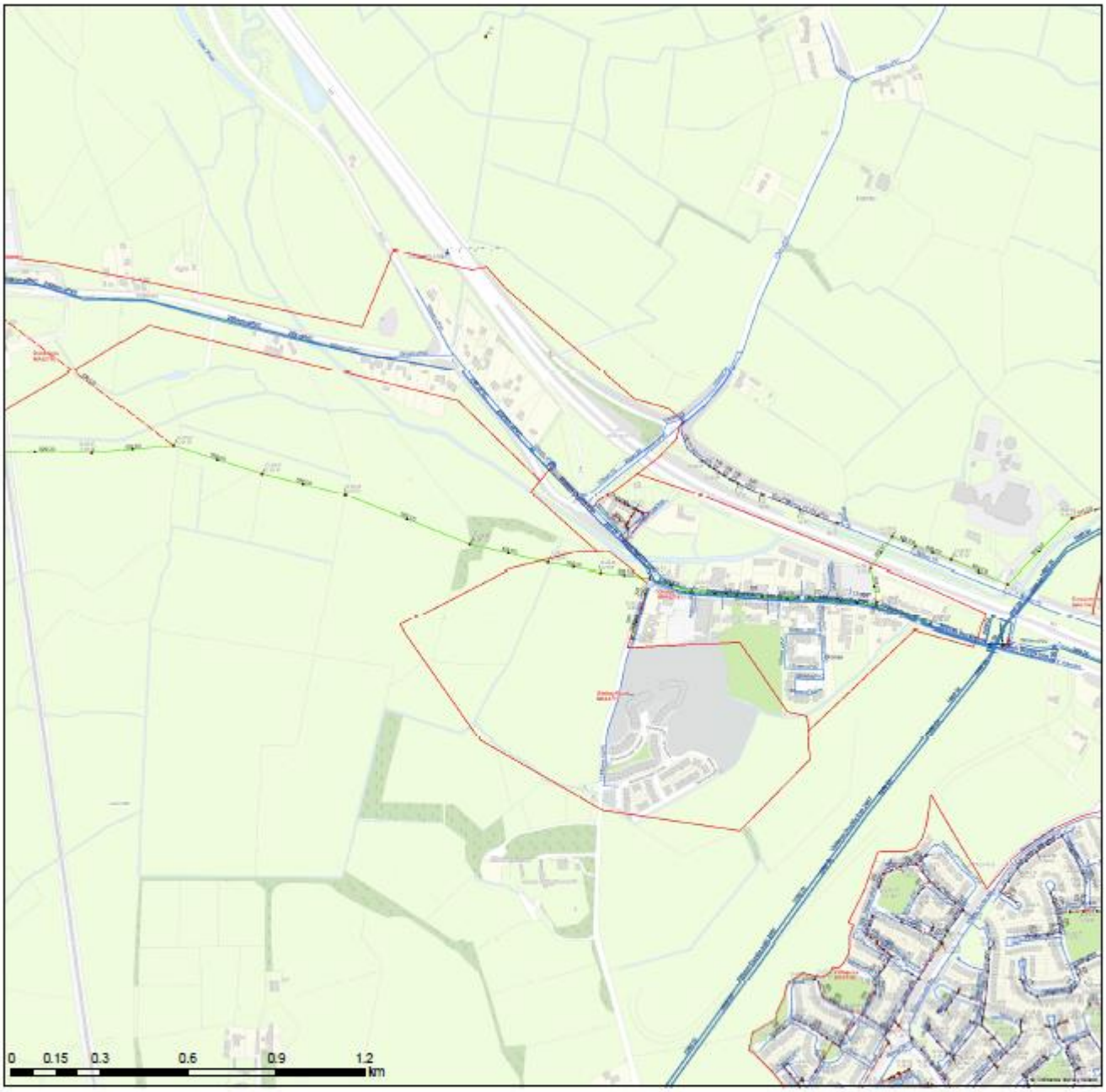



Figure 13: Possible Pedestrian and Cycles Routes that can be provided

# APPENDIX A

## Water Services Records

# Irish Water Web Map




Print Date: 25/02/2020

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# APPENDIX B

## Existing and Proposed Public Transport Linkages