preventing any future damage. Protection measures are likely those already required under existing nature conservation regulations and policies. It should be noted that all options provide for protection of including Ballyman Glen SAC/pNHA and Loughlinstown Woods pNHA with an extended buffer around those sites and therefore they are not discussed in any further detail under the options.

Orange highlights areas for enhancement of existing known existing ecological features such as between Carrickgollogan, wooded areas adjacent to Puck's Castle Lane and locally important biodiversity site adjacent to the Annex 1 habitat in that general location. This would encompass woodland, heath and grassland habitats which are of high nature conservation value but are not formally designated as a nature conservation site. focuses on improving the existing condition of habitats with knock on effects for a variety of species with the goal to enhancing the ecological value and resilience these ecological features beyond their current state. Key actions are likely to include change in management techniques such as reducing negative impacts from human activities through maintaining buffers for dog walking etc., and management to improve habitat quality including changes in mowing/grazing regime for grassland.. These areas could be given some level of formal protection in the future through council policy.

Green highlights areas for restoration of ecological features which aims to reverse any degradation of damaged habitats to good condition through active management. These management actions could include woodland planting, removing invasive species and removing sources of diffuse or point water pollution, and other active management regimes which may include mowing and grazing, or extending the coverage of certain habitats through planting. Change in management could also include change in how, where and when the public access certain areas specifically identified as important for nature conservation.

Option 1

Option 1 is shown in Figure 3-67 below. As well as the basic level of protection for Ballyman Glen SAC/pNHA Loughlinstown Woods pNHA this option focuses on extending wooded vegetation connectivity between the Loughlinstown Woods pNHA and the Ticknick LIA along the Shanganagh River incorporating Bride’s Glen east and Heron Bridge LIAs. By focusing on wooded habitats this option would also help to provide connectivity between two parcels of Annex I habitat (Alluvial Woodland) and result in greater connectivity for two lengths of County Important hedgerow.

This option would benefit a variety of habitats and species including the woodland habitat itself and any watercourses associated with Loughlinstown Woods pNHA. A variety of species would benefit from enhancing the woodland and Shanganagh River corridor including all bat species, badger and otter. If areas of rough grassland and open scrubby areas could be incorporated this would amplify positive effects on.the small sallow mining bee *Enicocerous exsculptus*, , common furrow bee and tawny mining bee.

The areas for enhancement (in orange) including areas within and between Carrickgollogan, wooded areas adjacent to Puck's Castle Lane and locally important biodiversity site adjacent to the Annex 1 habitat.

These orange enhancement areas in Option 1 are provided in order to form better connections to Loughlinstown Woods pNHA which is also promoted for further restoration through implementation of Option 1.

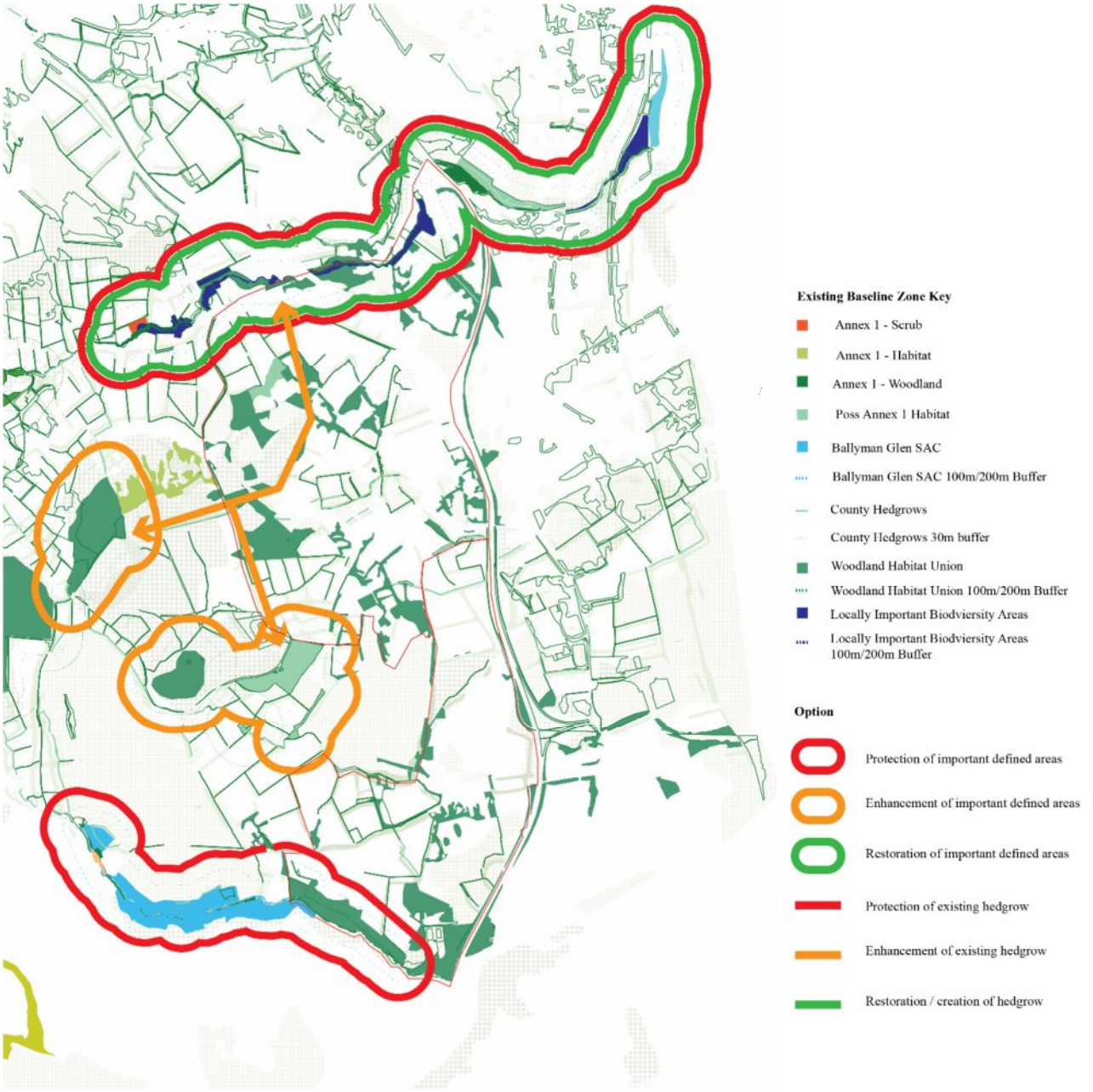


Figure 3-67 Ecology Option 1

Option 2

Option 2 is shown in Figure 3-68 below. This option differs from Option 1 in that attention and resources are directed at improving overall connectivity throughout the area as instead of focusing on restoring habitat for the entirety of Loughlinstown Woods pNHA resources would be directed at restoring dry heath and grassland habitats, enhancing connectivity between Rathmichael Wood, Carrickgollogan and Brides Glen. This option would also help to create a matrix of habitat types encompassing Annex I dry heath and potential Annex I semi-natural dry grassland and scrubland facies on Calcareous substrates whilst also accommodating c. 1km of County Importance hedgerow and enhancing connectivity between large areas dedicated to nature conservation.

This option would benefit a wide variety of habitats and species. The dry heath and grassland habitats will be valuable for wider biodiversity interest and efforts should be made to enhance the habitat to accentuate this value. As well as benefitting mammals such as bats and badger and birds and such as skylark through creating areas easier for these species to move through and that are more attractive to feed or nest in, invertebrates such as dark green fritillary, common furrow bee, grey banded mining beewould have significantly more area to support their populations. Particular value from the option will come from the heterogeneity of the matrix that can be included and potentially enhanced.

These orange enhancement areas are the same as Option 1, forming a connection from Ballycorus and Carrickgollogan up through Rathmichael to Loughlinstown Woods which will work with the restoration of the grassland and heath habitats being restored between to provide greater levels of ecological connectivity..

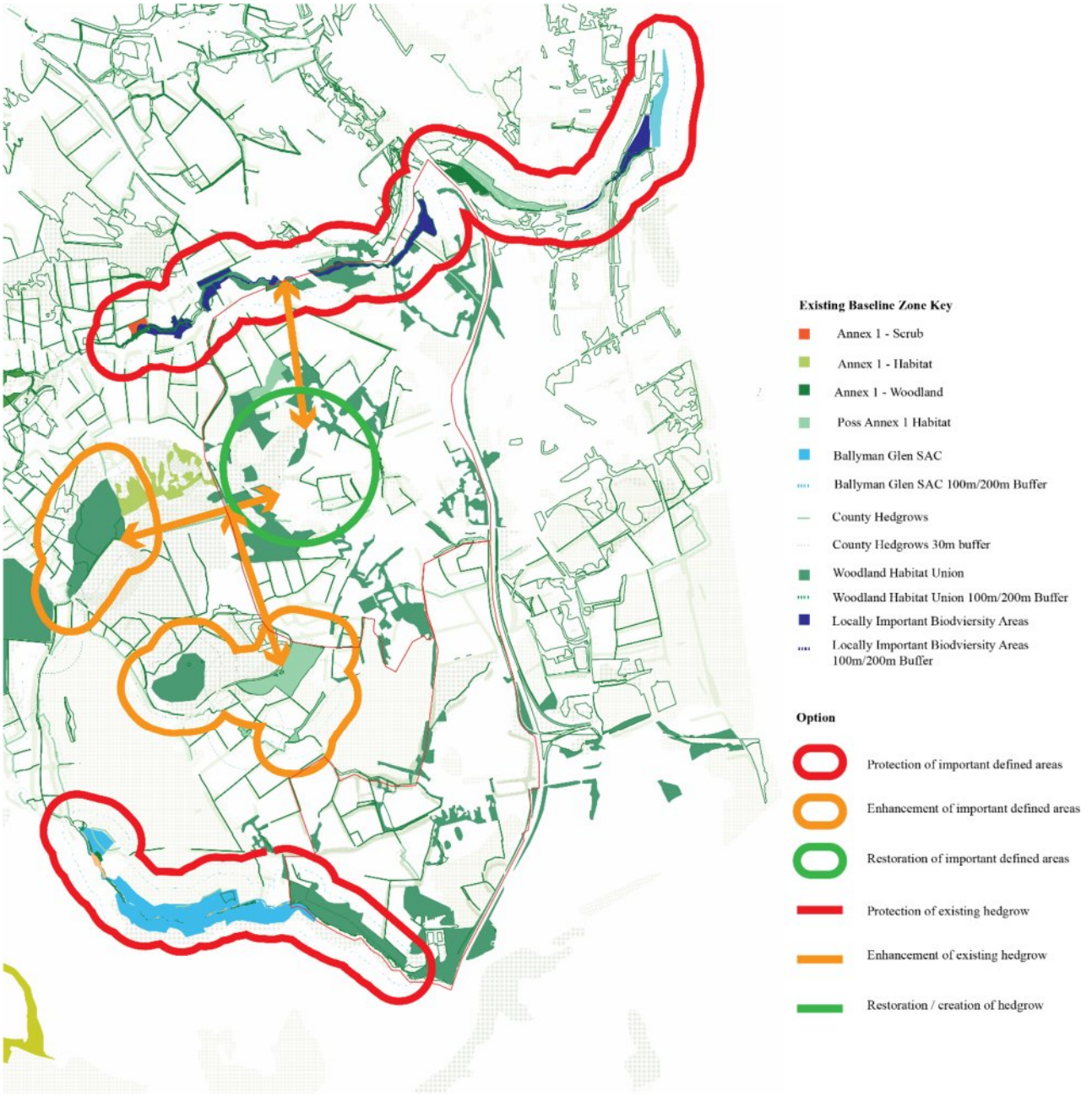


Figure 3-68 Ecology Option 2

Option 3

Option 3 is shown in Figure 3-69 below. This option would focus on enhancing connectivity along the M11, providing more linear strips of connectivity between Ballyman Glen SAC /pNHA and Loughlinstown Woods pNHA. Under this option resources would be not be focused on restoring a central area of Annex I habitat but would be used to enhance existing important hedgerows to east of the area and restoring a relatively long network of continuous length of hedgerow all the way from Ballyman Glen to Loughlinstown Woods east of the M11.

This option would provide benefits for many habitats and species but would differ in the level of resource being focused on linear hedgerow/woodland restoration rather than towards restoration of Loughlinstown Woods or of other larger areas of habitat between Ballycorus and Carrickgollogan up through Rathmichael to Loughlinstown Woods, as per Option 2. This Option would provide connectivity which benefits mammals and birds but also would see benefits for invertebrate species such as common furrow bee and grey banded

mining bee. The overriding benefit of this option would be enhancement of areas to the east and restoration of those linear corridors on a north-south axis.

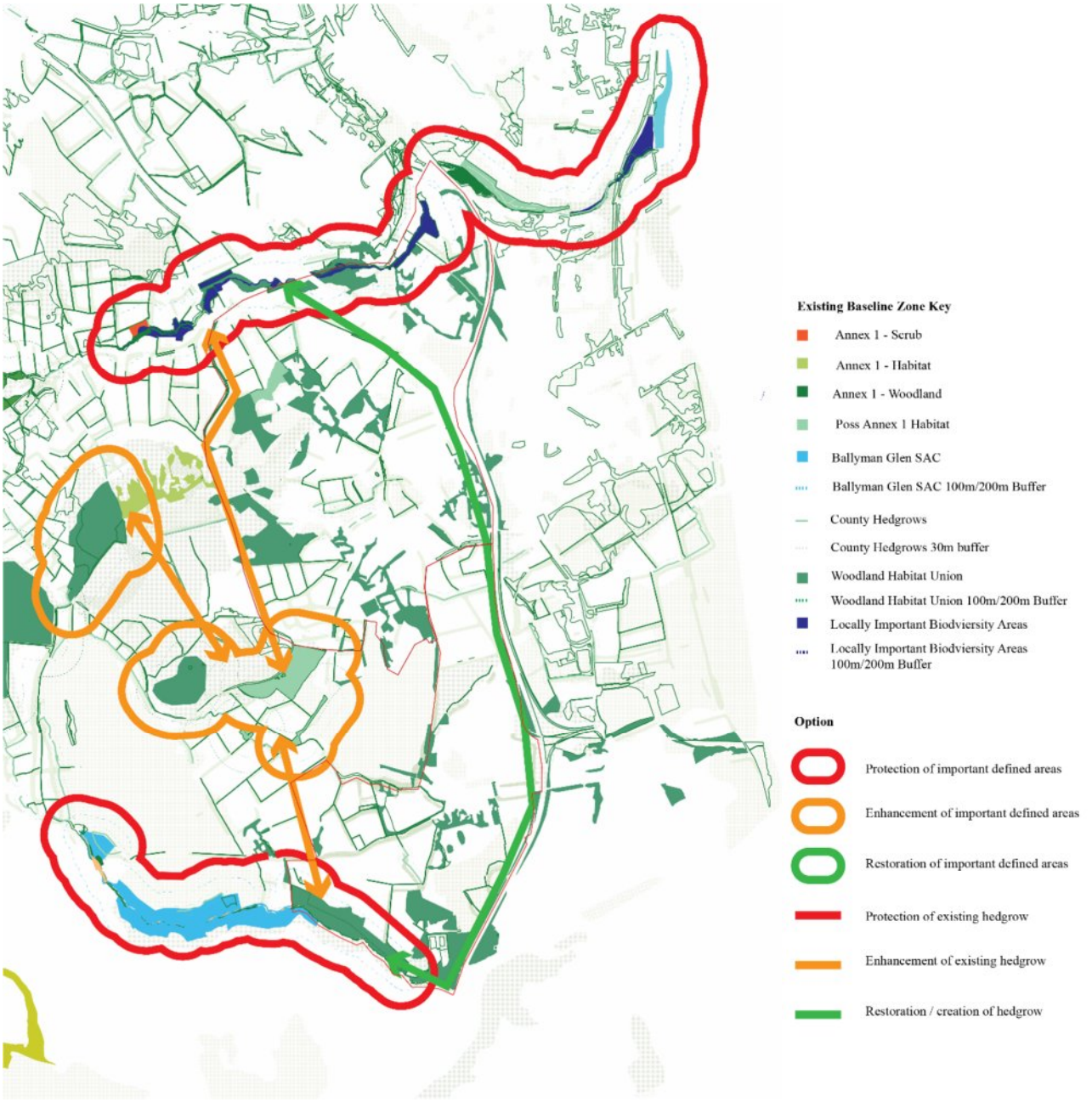


Figure 3-69 Ecology Option 3

Option 4

Option 4 is shown in Figure 3-70 below. This option differs from all other options in directing resources focusing nature conservation efforts on restoring connectivity along the east of the M11 corridor as included as part of Option 3 and restoring those areas in green, Carrickgollogan, the wooded areas adjacent to Puck's Castle Lane, and locally important biodiversity site adjacent to the Annex 1 habitat . As per Option 3, this option would help provide connectivity from north to south along the eastern spine of the site as well as provide connectivity perpendicular to 750m of county importance hedgerow and 750m of moderate importance hedgerow. Heterogeneity of good quality habitat is limited in this option but would enhance connectivity between the Ballyman Glen SAC and pNHA to the south and Loughlinstown Woods pNHA and Ticknick, Bride's Glen east and Heron Bridge LIAs to the north.

As per Option 3, this option would benefit all species including mammal and bird species and would most likely benefit grey banded mining bee and small sallow mining bee.

Resources are therefore focused on restoration of the key areas to the west and a linear strip of woodland/hedgerow habitat to the east. This may mean more benefits being realised in core areas to the east with however less connectivity to and from those areas.

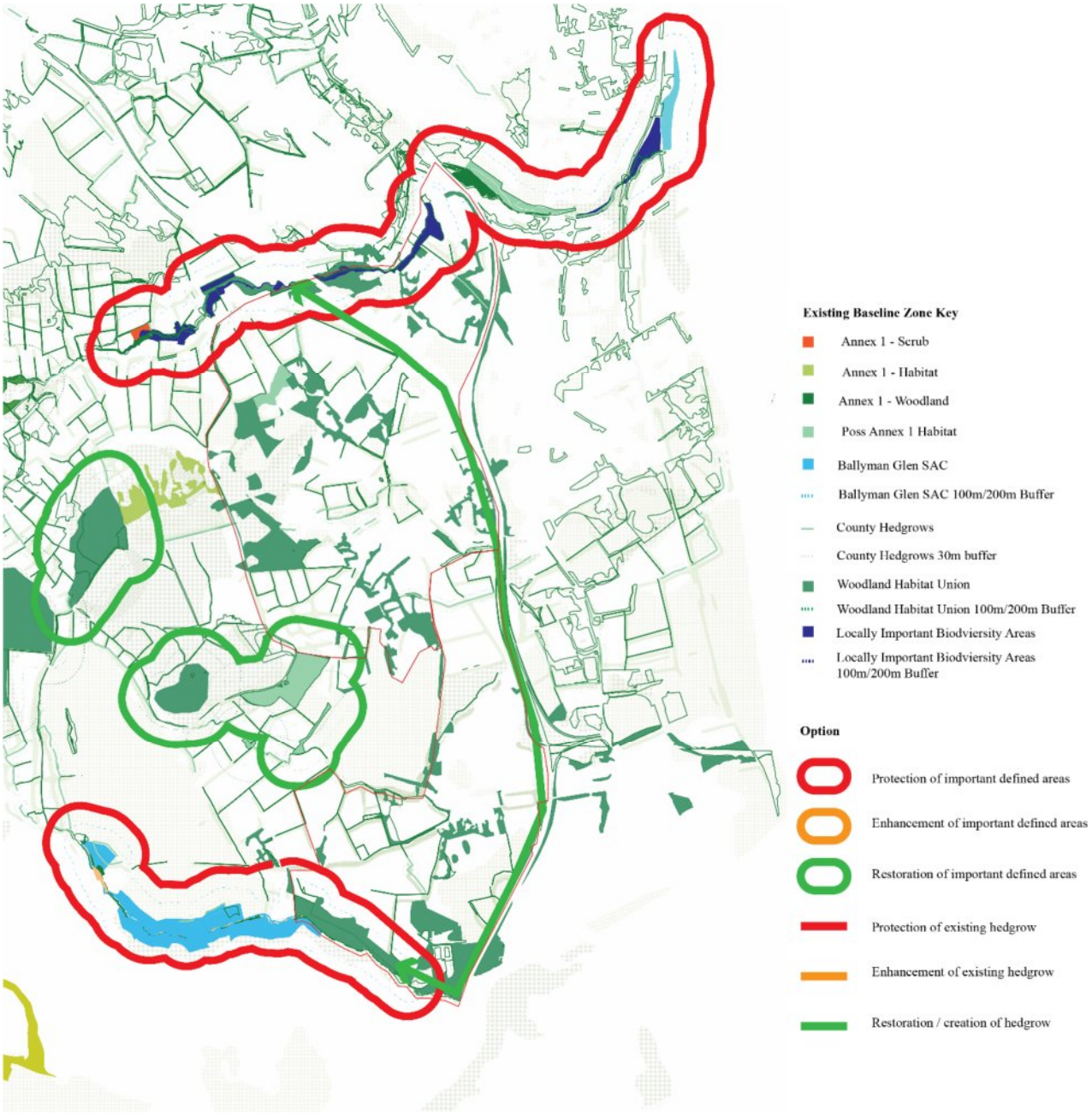


Figure 3-70 Ecology Option 4

A SWOT analysis in Table 3.50-52 below was carried out for each to determine a preferred option. Options are discussed in chronological order from 1-4 and illustrated above in Figure 3-67 to Figure 3-70. The nature of the options mean that they can be presented as relatively linear east to west or north to south corridors which has been utilised to outline available options.

Table 3.50 Option 1 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Improves connectivity between Loughlinstown Woods pNHA and the Ticknick LIA along the Shanganagh River incorporating Bride's Glen east and Heron Bridge LIAs. Provides connectivity between two parcels of Annex I habitat (Residual Alluvial Woodland). Greater connectivity for two lengths of County Important hedgerow. Synergy with efforts to improve water quality at Shanganagh, though limited as main risk is Urban WwTW. This option would benefit Enicocerous exsculptus, small sallow mining bee, common furrow bee and slylark. Complements ambitions in Cherrywood scheme to create woodland along SE corridor.	Doesn't offer same options to secure habitat heterogeneity as other options. Beyond Shanganagh corridor limited scope to create new corridors and linkages, focus on protecting and maintaining rather than enhancing or creating. Limited impact aiding connectivity east and west of scheme red line boundary. Will potentially contribute to the spread of IAS e.g. Giant Hogweed.	Incorporating areas of rough grassland and open scrubby areas would amplify the effect on these species that will be benefitted. Opportunity to link up with Cherrywood corridor. Large area of scrubland to west of the ICAS area offering potential to connect with. Area largely consists of woodland which will also benefit mammals recorded closed to the area such as bats, otters, badgers and pine marten.	Close to Cherrywood scheme, potential issues with disturbance In combination effects from ICAS development and Cherrywood. In particular risk of operational disturbance from light pollution and human disturbance. M11 dissects the corridor – encouraging population sink.

Table 3.51 Option 2 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Has the potential to contribute towards aims to connect Rathmichael Wood to Carrickgollogan and Brides Glen. Enshrines a matrix of habitat types encompassing Annex I dry heath and potential Annex I semi-natural dry grassland and scrubland facies on Calcareous substrates. Accommodates c. 1km of County Importance hedgerow. Option benefits dark green fritillary, common furrow bee, grey banded mining bee and skylark. Particular value from the option will come from the heterogeneity of the matrix that can be included and potentially enhanced. Securing dry heath and grassland particularly valuable for invertebrates.	May provide obstacle to aims of ICAS. Corridor is in the middle of the zone, potentially exposing it to operational issues such as disturbance and degradation. M11 provides a barrier for dispersal, likely a significant deterrent for certain species.	Biodiversity value enhanced by matrix of habitats, potential to secure through ICAS. Creates strong opportunities for connections west of the red line boundary Opportunity to connect not just east to west but also north to south. Likely option will be in close vicinity to settlement options, potential for Annex I habitat maintenance by tying in with provision of green space and recreational areas. Opportunity to secure, or enhance Annex I grade, or near grade habitat, should be considered. Opportunities to provide recreational areas for current residents. Option largely consists of woodland and scrub habitat which will also benefit mammals recorded closed to the area such as bats, badgers and pine marten.	M11 dissects the corridor – encouraging sink. Likely increased human disturbance due to location, potential for reduced ecological value as a result, in particular for species like skylark.

Table 3.52 Option 3 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Enhances connectivity across the M11. Enhances connectivity with the Ballyman Glen SAC and pNHA and Annex I habitat to the southeast of these sites. Includes a small (c. 1ha) parcel of Annex I semi-natural dry grassland and scrubland facies on Calcareous substrates. Accommodates c. 1km of County Importance hedgerow. This option predominantly benefit common furrow bee, grey banded mining bee and tawny mining bee. To southern extremity of the site so could be protected from worst operational pressures.	Option could be quite homogenous considering ecological baseline.	Could allow for the zoning of woodland connectivity along the M11 which could provide enhanced continuity with various park pollinator sites to the east of the red line boundary. The option could help protect an SAC by buffering site. Option could provide platform for connectivity along the Dargle_030. Option largely consists of woodland and scrub habitat which will also benefit mammals recorded closed to the area such as bats, badgers, otters and pine marten. This option could allow for greater ambition in terms of the extent of green infrastructure that could be catered for due to less anticipated pressure.	Potentially facilitate the spread of Giant Hogweed. M11 dissects the corridor – encouraging sink.

Table 3.53 Option 4 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Enhances connectivity along and towards the M11 corridor which predominantly consists of wooded vegetation. Enhances connectivity between the Ballyman Glen SAC and pNHA to the south and Loughlinstown Woods pNHA and Ticknick, Bride's Glen east and Heron Bridge LIAs to the north. Provide connectivity perpendicular to 750m of county importance hedgerow and 750m of moderate importance hedgerow. This option benefits grey banded mining bee and tawny mining bee. Adoption would provide corridor for more general species vagility between two riparian corridors. Improves ability of species to cross M11.	Heterogeneity of good quality habitat is limited in this option. Context beside the motorway likely restricts some of the benefit of this option. Doesn't cater for protected sites.	This opportunity could provide screening of proposals from the Motorway. Option has potential of feeding into greenway design assuming appropriate biodiversity enhancement and mitigation measures taken. Option largely consists of woodland and scrub habitat which will also benefit mammals recorded closed to the area such as bats, badgers, otters and pine marten.	Likely result in operational pressure from development. Motorway likely to result in higher mortality.

3.2.2 Green Infrastructure and Biodiversity - Option scoring system

The options have been evaluated based on the following scoring system presented in Table 3.54 which ranges from 1 (less suitable) to 5 (more suitable). This scoring system aims to provide a holistic evaluation of habitats, considering multiple factors crucial for biodiversity conservation.

It can aid in prioritising conservation efforts, identifying areas for habitat restoration and guide land-use planning to support and enhance biodiversity:

Table 3.54 Green Infrastructure and Biodiversity Scoring System

Criteria	Option 1	Option 2	Option 3	Option 4
Scale and habitat heterogeneity: Habitat heterogeneity is critical for a range of the species identified in the desktop survey. This includes embedded heterogeneity as well as connectivity to habitats of conservation value.	3	5	2	2
Spatial targeting: Habitat creation and enhancement near areas of high biodiversity value is most effective.	4	3	4	2
Connectivity to other habitats and wildlife corridors: Assess the degree to which the habitat allows for movement and interaction between different ecosystems. Higher scores for habitats that act as corridors, enabling wildlife movement	3	4	3	3
Appropriateness for species identified in desktop survey: Assess the degree to which the option caters for species of higher conservation value identified in Table 2-7 and where relevant other protected species or red-listed species identified.	4	5	3	2
Freedom from operational pressures : Evaluate the likely availability and quality of GI provision post project, or the ability of the project to help manage habitats.	3	2	5	3
Faithfulness to policy: Policy ambitions for the area include connecting Rathmichael Wood to Shanganagh Park.	2	4	2	1
Total	**17**	**19**	**17**	**12**

3.2.3 Green Infrastructure and Biodiversity - Preferred Option

When assessing options for strategies on biodiversity, green infrastructure, ecology and habitats, a holistic approach to analysis and option generation needs to be taken to ensure the proposed design is balanced and maximising the benefit that can be provided to each flora & fauna type. The consideration of each option has valuable aspects that can be integrated into the final scheme and therefore the preferred option is a combined approach of the aspects defined in the options above.

In terms of biodiversity Option 2 is preferred and opportunities to include semi-natural habitats as part of proposed parks in a sympathetic way is encouraged. Habitats will be enhanced and restored with consequential benefits for all species including bats. birds and badgers with invertebrates also benefitting. While no direct connection is achieved regarding policy ambition to connect Shanganagh Park to Rathmichael Wood, this option may assist in improving east west connections.

However operational pressures will be considerable in this option, and this would need to be managed to protect the wider ecological interest the option could cater for, in particular taking measures to manage light pollution and dog walking. Core nature conservation areas should be clearly demarcated and realised in any proposals with restrictions placed as necessary on any activities which might have adverse effects on those nature conservation areas. For example dog walking is a highly disturbing activity for any species such as birds and mammals. In particular if skylark is seen as a target species for nesting in an area then human recreational activities including dog walking would need to be excluded.

Pursuit of Option 2 in itself should not preclude the development from also pursuing Options 1, 3 and 4, and indeed thoughtful consideration could de-risk proposals as well as provide for a more pleasant living environment. Pressures around options 1, 3 and 4 are much less substantial and embedding the options, even partially, could be synergetic to the wider project and policy ambitions. For instance, incorporation of

measures for Option 1 would facilitate the extension of the Cherrywood Green Infrastructure into the plan area as well as provide a buffer between the project proposal and locally important biodiversity areas and a watercourse to the north.

3.2.4 Parks and Open Spaces - Policy and Requirements

DLR guiding principles require that open spaces will be accessible to all, useable and that they will promote activity, health, wellbeing and promote community interaction. The availability of accessible and high quality public open spaces within all settlements that are part of a wider GBI network is important in creating sustainable settlements. It will include a hierarchy of multifunctional public open spaces and corridors that are accessible and provide for the recreational needs of the planned population, while also creating space for nature and ecosystem services. The level of provision takes into account the needs of the planned population, protected zones, landscape character and statutory obligations to protect certain habitats and biodiversity. Ideally, all residents within a settlement will have access to a multi-functional public open space within walking distance of their home.

The provision of open spaces, parks and recreation are based on a functional hierarchy and typology of spaces, which will be consistent with the typology of open spaces identified in the DLRCC CDP 2022-2028 Table 9.1. Options for the network of open spaces are presented in section 3.2.6.

The appropriate provision of open space will be achieved by meeting the needs of the existing and predicted population growth of both Rathmichael and Old Connaught. While there is no set standard of open space provision per settlement in Ireland, it is recommended that opportunities to enhance the overall quantum of public open space and to restore and enhance nature and biodiversity within settlements is harnessed where opportunities arise.

Multipurpose open space functions will be realised through the provision of a series of integrated and interlinked open space types (PO OSR8). Integration will be achieved through active travel connections, a thoughtfully considered palette of ‘hard’ landscape materiality and ‘soft’ landscape, protection, retention and specification.

3.2.5 Parks and Open Spaces Network – Options Assessment

The following options are for the network of parks and open spaces for the two LAP areas which are illustrated in Figure 3-71, Figure 3-72 and Figure 3-73. These have been selected for their strategically considered ability to provide for the aforementioned DLR policy objectives, to integrate and enhance the existing green / blue infrastructure, heritage features and to adequately provide universal accessibility to multifunctional public open spaces. The options assessed consider the overarching strategic open space network for the LAP areas and do not factor in additional local level provision of public open space which, as appropriate, would be assessed though the plan-making process and subsequently through the development management process and serve to supplement the overarching strategic network.

3.2.6 Methodology for creation of Parks & Open Space Options

The following options have been formed with a holistic approach that integrates all identified constraints with particular consideration to ecological principles with urban planning considerations. Site analysis has been conducted to identify areas with high ecological value, habitats for rare species, biodiversity hotspots, cultural heritage and recreational potential. Incorporating principles of landscape connectivity and blue/green infrastructure, the options aim to prioritise the preservation and restoration of natural habitats, while also considering recreational needs and access for diverse communities. Consideration has been given to specific areas designated for the protection and enhancement for ecology, refer to section 3.2.1.

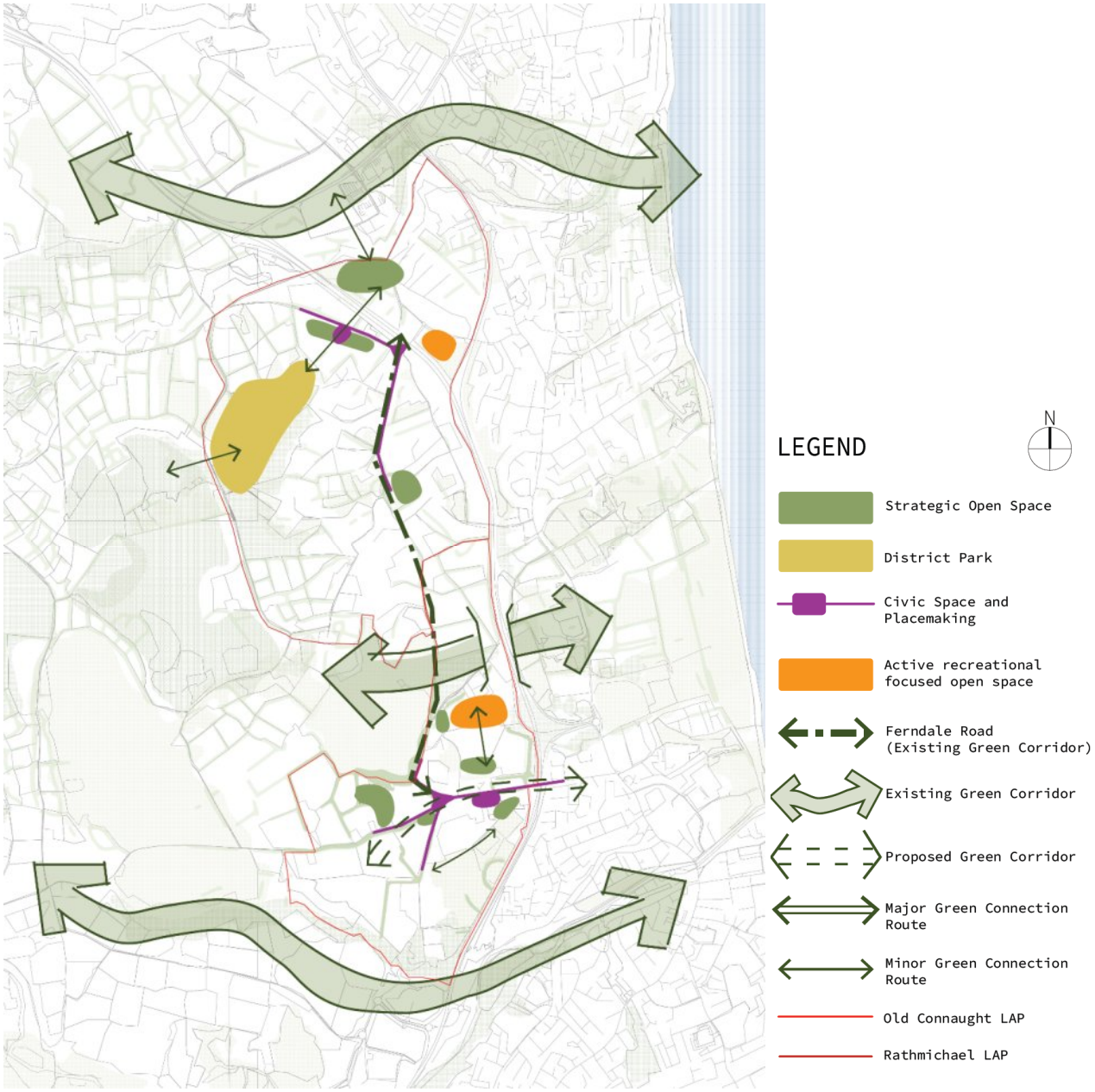


Figure 3-71 Option 1 - Parks and Open Spaces Network

Option 1 focuses on district park level enhancements to the existing open space asset of Rathmichael Wood, including connections to Strategic Open Spaces and within its proximity. It focuses on the connections between Cherrywood to the north, Brides Glen and west beyond the ICAS Study Area. Within old Connaught, cultural heritage assets aim to leverage their sense of place while the Ballyman Glen is avoided and respected. Civic and place making opportunities are identified in the centres of both Rathmichael and Old Connaught with the location of an 'active' recreational focused area just north and within walking distance of Old Connaught.

Figure 3-72 Option 2 - Parks and Open Spaces Network

Option 2 focuses on district park level enhancements to the existing open space asset of Rathmichael Wood and the creation of a new district park south of Old Connaught. Within Old Connaught Strategic Open Spaces are located to encompass, connect and visually soften development while leveraging cultural heritage assets. In Rathmichael Strategic Open Spaces assist in connection to Cherrywood and Ticknick Park. Civic and place making opportunities are identified in the centres of both Rathmichael and Old Connaught with the location of an 'active' recreational focused area in Rathmichael Wood.

Figure 3-73 Option 3 - Parks and Open Spaces Network

Option 3 focuses on district park level enhancements to the existing Rathmichael Wood and includes connections to an evenly distributed network of Strategic Open Spaces providing connections between Cherrywood, Ticknick Park, through Rathmichael and towards Old Connaught. Within Old Connaught Strategic Open Spaces are located to encompass, connect and visually soften development while leveraging cultural heritage assets. Civic and place making opportunities are identified in the centres of both Rathmichael and Old Connaught with the location of an 'active' recreational focused south of Old Connaught.

A SWOT analysis in Table 3.55 below was carried out for each option to determine a preferred open space network. Options are discussed in chronological order from option 1-3.

Table 3.55 Option 1 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
The inclusion of high quality 'Village Greens' at central locations at both Old Connaught and Rathmichael to enhance sense of place. Strategically located Open Spaces which maximise views of the surrounding landscape. Provision for the enhancement of existing district park at Rathmichael. Even distribution and accessibility to public open spaces for both LAP areas taking cognisance of existing open spaces/ playing pitches. Provides potential landscape visual mitigation of development impact of Rathmichael Provides for civic and placing making improvements for both LAPs Integration of SuDS features in flood risk areas Provides for connections to Ticknick Park' Provides for potential connections to Shanganagh Park', Provision of an active focused recreational facility at Old Connaught	Smaller spaces within network of sites will be under pressure for space with transport and utilities requirements.	Placement of greenspaces enables inter-connectivity to create a strong green infrastructure. Opportunities for parks to interconnect with surrounding context of green spaces. Potential integration of heritage assets in both LAP's. Potential enhancement of Jubilee Hall and its curtilage Potential for the sensitive and planned enhancement of the Brides Glen Valley. Potential for enhanced connections to walking routes including Dublin/Wicklow mountains. Potential for the provision of a range of accessible play opportunities – both structure and unstructured (nature play) Potential for the provision of accessible MUGAs and playing pitches. Potential for the provision of accessible community allotment/gardens.	Enhancement of the existing district park at Rathmichael may contain challenges regarding the provision of universal accessibility. Potential impact on existing hedgerows and trees.

Table 3.56 Option 2 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Strong wildlife corridors from north to south. Enhancement of the existing district park at Rathmichael. Old Connaught mostly encompassed with well-connected green infrastructure. Provides potential landscape and visual mitigation of development impacts at Rathmichael at Pucks Castle Lane.	Smaller spaces within network of sites will be under pressure for space with transport and utilities requirements. Topography required for full size playing pitches may require significant earthworks.	Opportunities for parks to interconnect with surrounding context of green spaces. Potential for the sensitive and planned enhancement of the Ballyman SAC. Potential for enhanced connections to walking routes including Dublin/Wicklow mountains. Potential for the provision of a range of accessible play opportunities – both structure and unstructured (nature play)	District Park placed on part of site with significant level changes creates challenge to provide universally accessible parks. Potential impact on the Ballyman Glen SAC. Potential impact on existing hedgerows and trees.

Strengths	Weaknesses	Opportunities	Threats
Provides for civic and place making improvements for both LAPs Integration of SuDS features in flood risk areas. Good integration of heritage assets in both LAP areas Respects the curtilage of Jubilee Hall heritage feature.		Potential for the provision of accessible MUGAs and playing pitches. Potential for the provision of accessible community allotments/gardens.	

Table 3.57 Option 3 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Provision for the enhancement of existing district park at Rathmichael and potential provision of an active focussed recreation facility, village green and Strategic Open Spaces at Old Connaught. Provides good landscape and visual mitigation of development impact from M11 towards Old Connaught Old Connaught mostly encompassed with well-connected green infrastructure. Provides for civic and placing making improvements for both LAPs Integration of SuDS features in flood risk areas Provides potential for connection with Shanganagh Park	Large recreational spaces located near major roadways creates less desirable location. Potential high landscape and visual impact at the Ballyman Rd. and to the north of Puck's Castle Lane.	Opportunities for parks to interconnect with surrounding context of green spaces. Potential for enhanced connections to walking routes including Dublin/Wicklow mountains. Potential for the provision of a range of accessible play opportunities – both structure and unstructured (nature play) Potential for the provision of accessible MUGAs and playing pitches. Potential for the provision of accessible community allotment/gardens.	Smaller spaces within network of sites will be under pressure for space with transport and utilities requirements. Potential negative impacts to locally important biodiversity sites. Potential impact on the curtilage of Jubilee Hall. Potential impact on existing hedgerows and trees.

3.2.7 Parks and Open Spaces Network - Preferred Option

Following the above SWOT analysis, the emerging preferred option for the interconnected network of Parks and Open Spaces is Option 1.

The layout has been formed by respecting the areas of existing green and blue infrastructure indicating the protection, retention, enhancement and successful integration of these, during development of the area is envisaged. Civic and placemaking spaces are proposed at both Old Connaught Avenue and the Ferndale Road. Generally, they will feature a mixture of high-quality hard landscape finishes with planting and seating opportunities to allow for community and social interaction.

'Strategic Open Spaces' encompass and connect through proposed development plots. This aims to provide for a well-connected, evenly distributed and easily accessible network of open spaces. In addition, this provides opportunity for the appropriate specification of Nature Based Solutions (NBS). These may include native woodland/hedgerow planting to assist in the landscape and visual mitigation of development blocks. The layout also takes cognisance of the integration of SuDS systems to alleviate flood risk (refer to section 3.4 Drainage). If appropriately specified at detailed design stage, NBS can add biodiversity net gain and adequately provide for passive and active public open amenity spaces while positively adding to the landscape character. The provision of Strategic Open Spaces supports this approach and will provide immediate universal access to open space.

The layout looks to effectively respect, integrate and enhance heritage elements such as the Walled Garden at Festina Lente, the Old Connaught cemetery and church remnants, Jubilee Hall and Old Conna house.

Option 1 supports the enhancement of the existing DLR Gateway Park Rathmichael Wood and its associated heritage features including the Old Rathmichael Church, its historical burial grounds and Pucks Castle. Provision of informative/wayfinding signage and play opportunities has the potential to boost footfall and appreciation of its heritage assets while utilising its scenic panoramic views. Connections to Brides Glen, Loughlinstown Woods and Ticknick Park have been considered and 'Strategic Open Spaces' indicated, connecting and adjacent to respect and enhance these locally important biodiversity and amenity areas.

3.2.8 Heritage and Conservation - Policy and Requirements

Cultural heritage and conservation have the potential to contribute to individual well-being, shared community identities, social cohesion and the liveability of our towns and villages. Heritage is a social, cultural, and economic asset for the development of places.

The overarching objective for heritage and conservation is to protect, encourage and facilitate the development, design and management of cultural heritage assets.

A Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale, (including Rathmichael) areas, prepared in 2008, offered an overall perspective of the existing landscape, its relationship with the extent and status of its historic fabric and buildings and how the promotion of sustainable development in that environment could be managed. Balanced and considered policy guidance and objectives should be incorporated in the Draft LAPs to ensure (i) an appropriate degree of protection is afforded to the area's historic built environment, and (ii) how best new development can be integrated in the LAP areas. New development will require to respect and be cognisant of the local character and visual context of the historic core of Old Connaught and Rathmichael.

Statutory obligations and policy relating to archaeological monuments and protected views necessitate robust protection measures to preserve both the monuments themselves and their surrounding settings, ensuring the integrity of cultural heritage for present and future generations (as per DLR CDP Policy Objective PO HER1)

This can be achieved by incorporating heritage features into the design and planning of the development, respecting their setting and significance (PO HER1, HER8). Ensuring that new construction complements and respects the scale, materiality and architectural styles of existing heritage structures (PO HER20). Consideration should be given to adaptive reuse for heritage buildings, allowing them to be repurposed while retaining their historical integrity. Additionally, existing material elements that hold no protected status but add to the local character and setting including, topography, granite stone walls, established tree and hedgerows boundaries should be protected and enhanced.

The appropriate design and access of public open spaces containing heritage monuments or structures, historical burial grounds (PO HER5) or landscapes, could include interpretation and appropriate access, fostering community engagement, appreciation and education.

Taking the policies of the County Development Plan as a framework, Table 3.58 to Table 3.61 sets out a high-level approach to be taken within the study area regarding features under statutory protection, surveyed and non- surveyed heritage features and places. It sets out an approach to:

- Landscape/townscape/seascape character and historic landscape characterisation;
- Vernacular buildings, features, patterns of settlement and landscape;
- Industrial heritage (surveyed and un-surveyed); and
- Restoration and reuse.

The ICAS study has identified the key contributors to landscape character and sets out recommendations for preservation, enhancement and management of these. The current completeness of these stages is outlined in column 3. It is recommended that work continues to preserve, enhance, and manage key features, prior to, and as a fundamental part of the LAP stages.

Table 3.58 Approach to Landscape/ Townscape/ Seascape Character and Historic Landscape Characterisation

Stage	Description	Completeness and References
Define Scope	Clearly define the boundaries and scope of the landscape, townscape or seascape character study. Consider geographical, historical, and cultural parameters.	Old Connaught and Rathmichael LAP areas defined. Refer to section 2.1
Desktop Research	Conduct a comprehensive literature review, gathering historical maps, documents and studies related to the area. Collect relevant data on the natural environment, historical development and cultural influences.	Captured as part of the ICAS baseline information and policy analysis. Refer also to the Regional Seascape Character Assessment for Ireland 2020 (SCA14 - Irish Sea, Sandbanks and broad bays and SCA15 - Dublin Bay), Industrial DLR 2006 Industrial Survey, Key industrial heritage sites identified in the DLR County Development Plan mapping, Landscape Character Assessments for Rathmichael and Ballyman (which includes Old Connaught) included in Appendix 8 of the County Development Plan, Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale (which includes Rathmichael) 2008, Puck's Castle Archaeological Investigations 2022, Sites and Monuments Register (SMR), Record of Monuments and Places (RMP), Record of Protected Structures (RPS), National Inventory of Architectural Heritage (NIAH).
Site/Field Survey	Conduct on-site surveys to document the existing landscape features, townscape elements or seascape characteristics. Utilise digital tools such as GIS to map and analyse spatial relationships.	High level site walkovers and GIS mapping captured as part of ICAS study, refer to section 2.1.5 and Figures 2.7 and 2.8. Further analysis required prior to, and as part of the future LAP's stages.
Social and Cultural Analysis	Investigate the social and cultural significance of the landscape or seascape. Analyse the impact of human activities on the character of the area over time.	Read in conjunction with Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale (which includes Rathmichael) 2008, Regional Seascape Character Assessment for Ireland 2020, DLR 2006 Industrial Survey. Further analysis of the impact of human activities on the character of the area over time required prior to, and as part of the future LAP's stages.
Heritage Significance Assessment	Assess the heritage significance of landscape features and character elements. Considering criteria such as, but not limited to historical, architectural, cultural and aesthetic values.	Refer to ICAS report sections 2.1.5. Further analysis required to fully consider the significance of historical, architectural, cultural and aesthetic values prior to, and as part of the future LAP's stages.
Documentation and Reporting	Prepare a detailed report with mapping, photographs and analysis of landscape/townscape/seascape character. This document should comprehensively make recommendations for the preservation, enhancement, and management of such characterisations.	Refer to ICAS report section, 2.1.5 for analysis and policy, and 3.2.9 and 3.2.10 for recommendations for the preservation, enhancement, and management of such characterisations with further analysis and recommendations required as part of the future LAP's. Refer to Puck's Castle Archaeological Investigations 2022 as a relevant and local precedent of the detail to be captured.

Table 3.59 Approach to Vernacular Buildings, Features, Patterns of Settlement, and Landscape

Stage	Description	Completeness and References
Vernacular Buildings Analysis	Identify and document vernacular buildings within the study area. Analyse architectural styles, scales, construction materials and building techniques.	Refer to ICAS report section, 2.1.5 to be read in conjunction with the Sites and Monuments Register (SMR); Record of Monuments and Places (RMP); Record of Protected Structures (RPS); National Inventory of Architectural Heritage (NIAH); The Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale (including Rathmichael) 2008 and Puck's Castle Archaeological Investigations 2022. Further analysis required to fully capture the significance of architectural styles, scales, construction materials and building techniques prior to, and as part of the future LAP's stages.

Stage	Description	Completeness and References
Settlement Patterns	Study patterns of settlement, including settlement/village layouts, street patterns and individual structures. Analyse the relationship between buildings, open spaces and infrastructure	Refer to ICAS report section 2.1 and the Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale (including Rathmichael) 2008
Landscape Features	Identify and assess landscape features such as field boundaries, topographical form, established vegetation areas, water features and other elements that contribute to the character. Examine historical land use patterns and changes over time.	Refer to sections 2.1 and the Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale (including Rathmichael) 2008
Cultural and Social Context	Explore the social and cultural significance of vernacular buildings and settlement patterns. Consider the roles of communities, traditions and cultural practices.	Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale (including Rathmichael) 2008. Further analysis required to fully capture the significance vernacular buildings, settlement patterns, the roles of communities, traditions and cultural practices prior to, and as part of the future LAP's stages.

Table 3.60 Approach to Industrial Heritage

Stage	Description	Completeness and References
Historical Context	Research the historical development of industrial activities in the area. Identify key industries and their significance in the local and regional context.	Refer to ICAS report section 2.1.5. Refer to DLR 2006 Industrial Survey and the key industrial heritage sites identified in the DLR County Development Plan mapping. Refer to the Historical Landscape Character Assessment (HCLA) of the Old Connaught and Carrickgollogan / Ferndale (including Rathmichael) 2008. Further analysis required to fully capture all existing industrial heritage elements and their significance prior to, and as part of the future LAP's stages.
Survey and Documentation	Conduct surveys of existing industrial heritage sites, including buildings, machinery and infrastructure. Document the condition, architectural features and historical context of each site.	
Heritage Significance Assessment	Assess the heritage significance of surveyed and un-surveyed industrial heritage sites. Consider their contribution to the industrial history of the region.	

Table 3.61 Approach to Restoration and Reuse

Stage	Description	Completeness and References
Condition Assessment	Evaluate the current condition of the heritage structures or sites. Identify any structural issues, deterioration or damage.	Recommendations for the protection, enhancement and management of culture heritage elements have been outlined in section 3.2.12. Further analysis required as part of the plan-making process for the future LAPs.
Preservation Plan	Develop a preservation plan outlining restoration objectives and methods. Prioritise actions based on urgency and significance	
Community Engagement	Involve local communities, stakeholders and experts in the restoration planning process. Consider public input in decision-making.	

Stage	Description	Completeness and References
Adaptive Reuse	Explore adaptive reuse options for heritage structures, ensuring compatibility with their historical character. Consider economic, social, and cultural factors	
Sustainable Practices	Integrate sustainable practices in restoration efforts, such as energy efficiency and environmental conservation. Ensure long-term viability and minimal impact on the surrounding environment	
Documentation and Monitoring	Document the restoration process thoroughly, including before-and-after documentation. Establish a monitoring system to track the ongoing condition of restored elements	

3.2.9 Heritage and Conservation - Implications of the emerging masterplan option

An assessment of the potential impact and/or enhancement of existing heritage features has been identified by capturing the existing baseline information and by measuring the impact and the perceived change in landscape character against a preliminary settlement strategy for the LAP areas (see Section 4). These are illustrated in Figure 3-74.

The potential impacts considered and mapped at a high-level include:

- Heritage features that need to be protected
- Heritage features that can be potentially opened for visitor access
- Heritage elements that contribute to landscape character.

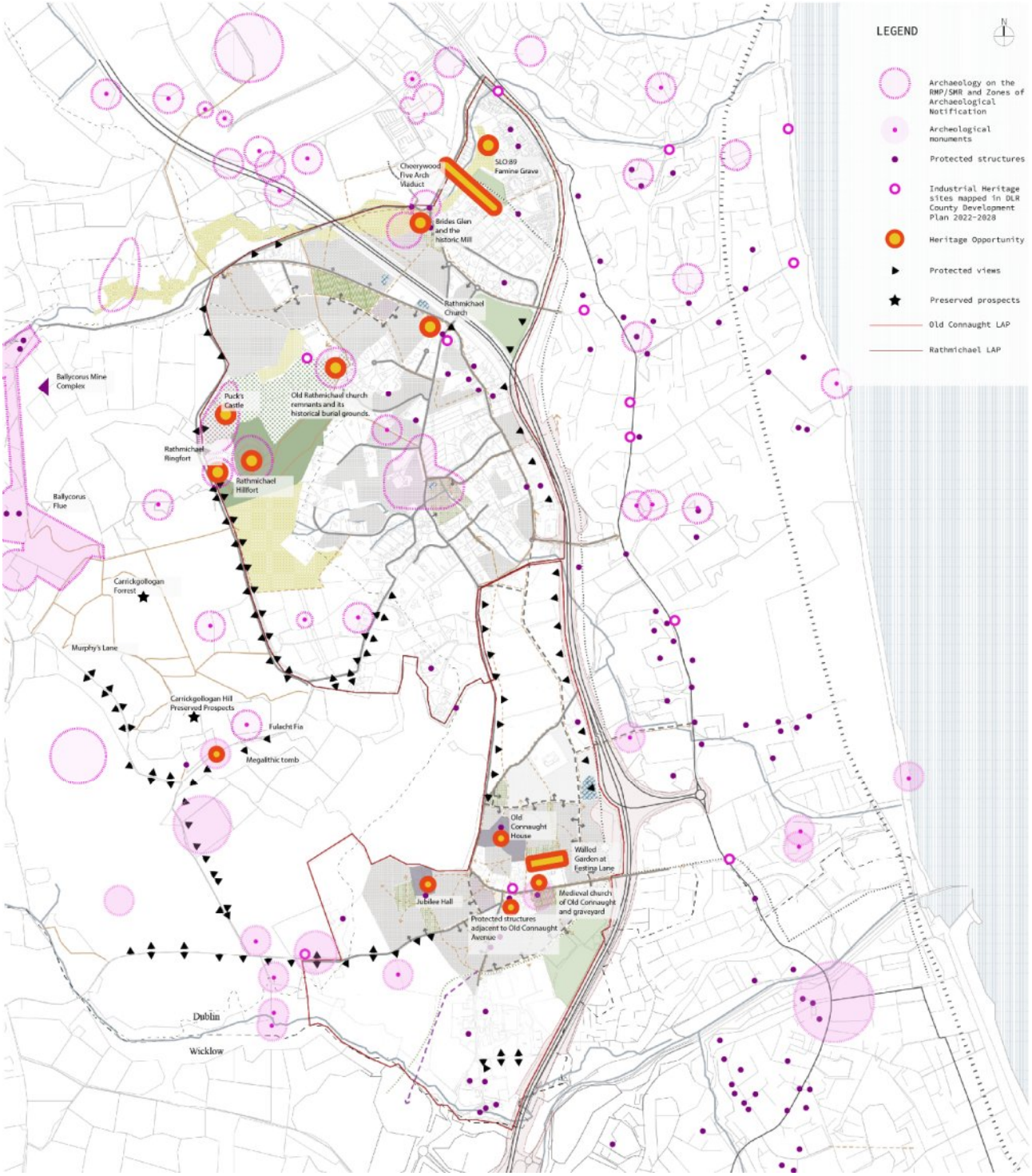


Figure 3-74 Heritage – Existing Features and Opportunities

3.2.10 Heritage and Conservation – Analysis of Implications

Landscape character change at Old Connaught will occur in and around the existing settlement patterns adjoining Old Connaught Avenue. Old Connaught will potentially be the initial area of development and is considered to have the most capacity for change without negatively impacting the character. Introduction of buildings, infrastructure, and landscaping will change the visual, ecological and cultural aspects of the area. The preliminary settlement strategy for the LAP areas (see Section 4) seeks to enhance the landscape by integrating cultural heritage, green spaces, sustainable design features and amenities that harmonise with the surroundings while minimising fragmentation of natural habitats and loss of scenic views.

Within Old Connaught, heritage elements within proximity to Old Connaught Avenue possess opportunity to create a rejuvenated urban civic space that can enhance the existing setting and character. The walled garden at Festina Lente, the medieval church of Old Connaught and associated graveyard, the protected residential structures of Graigueconna and Old Bawn all can enhance placemaking, create a 'village core' identity and to contribute to the sense of place.

Historic demesnes and gardens have been identified and protected to reflect and acknowledge their significance as part of the area's natural heritage. Old Connaught House and its associated landscape provides a good precedent for the adaptive reuse of a heritage building, allowing it to be repurposed for modern residential use while retaining its historical integrity (as Policy Objective HER26).

The unique and currently vacant Jubilee Hall has the potential for redevelopment/repurposing, acting as a meeting and focal point within the landscape.

Cultural heritage elements also exist to the west of Old Connaught that have the capability to attract and enhance access to the surrounding countryside. These include wedge /megalithic tomb, ringforts and fulacht fias.

These can act as informational landing and resting points that form part of larger heritage inspired walking trails incorporating Carrickgollogan Hills preserved prospects, and routes connecting Carrickgollogan Forest, Murphy's Lane, the Lead Mine complex, Ballycorus Flue and potentially tying back into Rathmichael woods and ringfort. Additionally, the appropriate protection, development, design and management of the forementioned cultural heritage assets, including their associated and established vegetation, topography and scenic views has the potential to contribute and support the vision and objectives of the Dublin Mountains Partnership Strategic Plan (2020- 2025) (PO GIB13). Opportunity exists to provide pedestrian connectivity, from the mountains to the sea, through routes annotated with key landscape character contributors.

A summary of the analysis is illustrated in Figure 3-75.

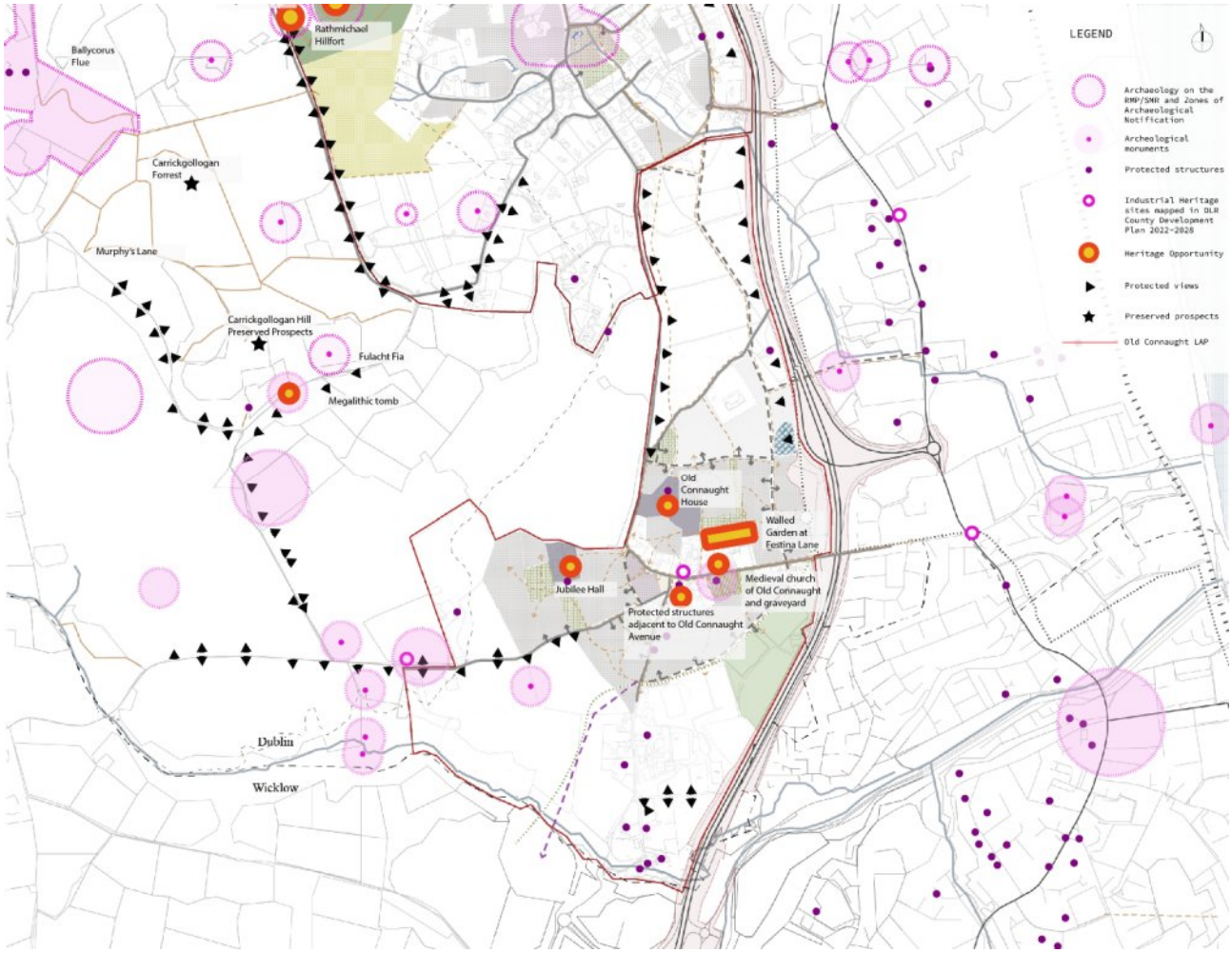


Figure 3-75 Analysis of Heritage Implications - Old Connaught

Landscape character change in Rathmichael will form primarily south of the existing M50 with retained and protected ecological and public opens space areas overlapping with key identified heritage elements. Cultural heritage elements are dispersed throughout while many fall within privately owned lands. Enhancement of Rathmichael Woods can be achieved through the provision of accessibility to the Old Rathmichael Church remnants and its historical burial grounds. Informative signage can provide wayfinding and interpretation of these heritage features, fostering community engagement, appreciation and education.

Rathmichael Church (containing Harry Clarke-stained glass windows) and its accompanying mature trees can form an entrance threshold feature while enriching connectivity to the Old Rathmichael church remnants.

Further north, specific local objectives (SLO 90) states to conserve the Brides Glen as a public amenity which contains an historic mill and the impressive Cherrywood five-arch viaduct currently used for electricity overheads. SLO 89 also states for the retention of the famine grave on the site adjacent to St. Columcille's Hospital. The appropriate protection, development, design and management of the forementioned cultural heritage assets, as well as their associated and established vegetation, topography and scenic views has the potential to positively contribute, enhance and manage landscape character.

A summary of the heritage implications for Rathmichael are illustrated in Figure 3-76.

Figure 3-76 Analysis of Heritage Implications – Rathmichael

3.3 Water and Wastewater

3.3.1 Water and Wastewater Strategy

To support the Infrastructure Capacity Assessment Study (ICAS) for Dún Laoghaire-Rathdown County Council (DLRCC) a Water and Wastewater Strategy for the Old Connaught and Rathmichael LAP Areas was developed. This document includes a review of the existing Uisce Éireann (UÉ) networks and identifies preliminary high level strategies for both LAP areas, and workable options for the provision of water and wastewater networks to support development in Old Connaught and Rathmichael.

3.3.1.1 Policy and Requirements

The DLR CDP has identified Policy Objective EI1: Sustainable Management of Water, setting out the intention to work with UÉ to ensure the efficient and sustainable use and development of water resources and water services infrastructure, anticipate water requires throughout the county, and ensure facilities comply with the Water Framework Directive and the River Basin Management Plan.

The local water distribution network should comply with all UÉ standards and meet the potential residential yields of 2,005 units for the Old Connaught LAP area and 2,431 units for the Rathmichael LAP area. Additionally, the strategy will include provision for the potential future development of c. 1,050 units at the Strategic Land Reserve located within the Old Connaught LAP area.

3.3.1.2 Water Supply Network for Old Connaught

The preferred strategy for the Old Connaught LAP area is to create looped networks through connections to the existing watermains that are in the area. This will improve resiliency and reliability of the water supply, thus facilitating new development to occur within the LAP area.

Based on the preliminary Settlement Strategy for Old Connaught, as described in section 4.3, and building on the high-level strategies outlined in the ICAS Part 2: Water and Wastewater Strategy, a local water supply distribution network has been identified for Old Connaught.

The following illustration (Figure 3-77) shows the local water supply distribution network for Old Connaught, showing how the existing network can be expanded to serve the future development of the area. High level drawings can be found in Appendix D.

3.3.1.3 Water Supply Network for Rathmichael

The preferred strategy for the Rathmichael LAP is to create looped networks through connections to the existing watermains that are in the area. This will improve resiliency and reliability of the water supply, thus facilitating new development to occur within the LAP area.

Based on the preliminary Settlement Strategy for Rathmichael, as described in section 4.4, and building on the high-level strategies outlined in the ICAS Part 2: Water and Wastewater Strategy, a local water supply distribution network has been identified for Rathmichael.

The following illustration (Figure 3-78) shows the local water supply distribution network for Rathmichael, showing how the existing network can be expanded to serve the future development of the area. High level drawings can be found in Appendix D.

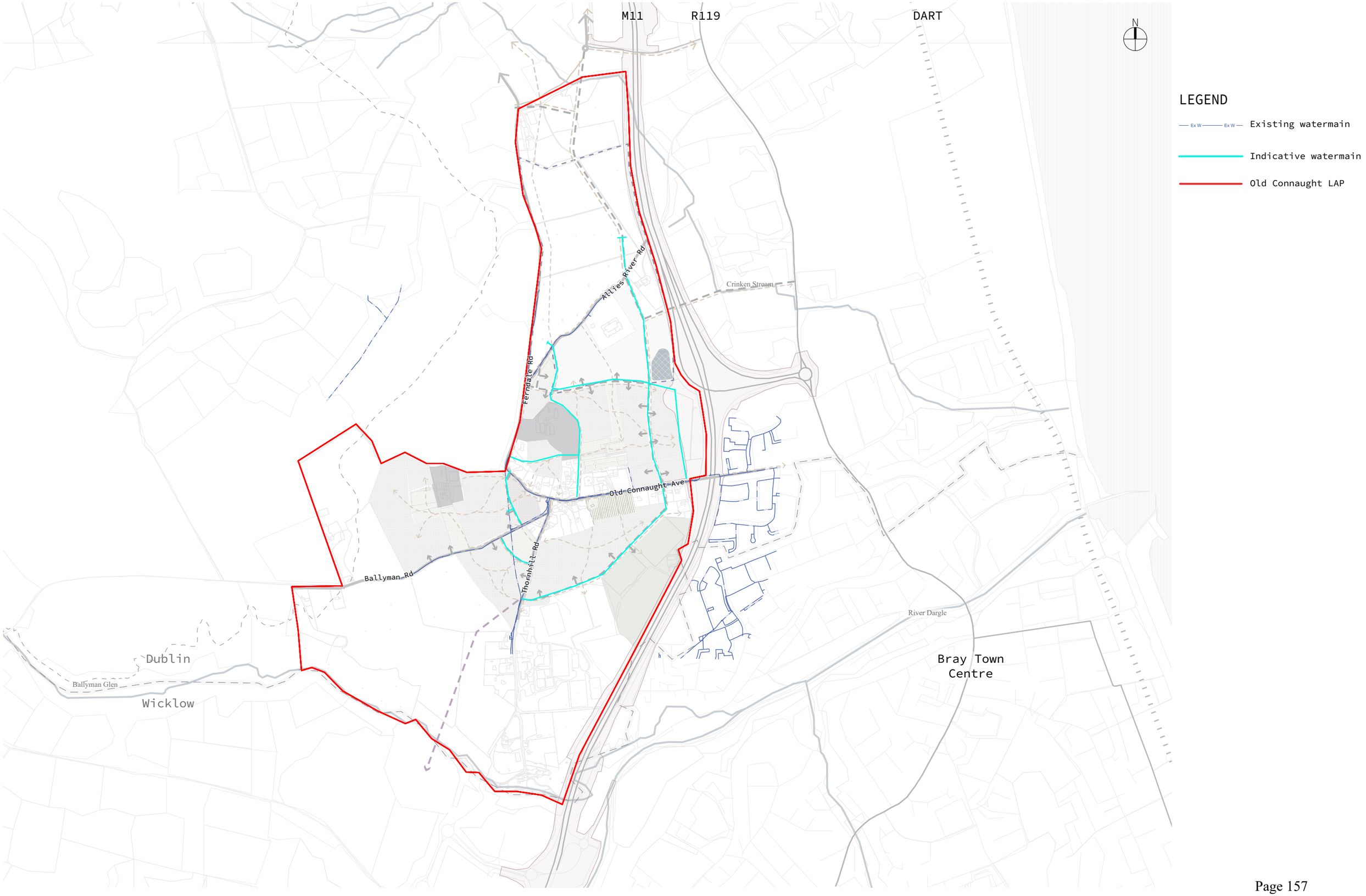


Figure 3-77 Preferred Watermain Strategy – Old Connaught

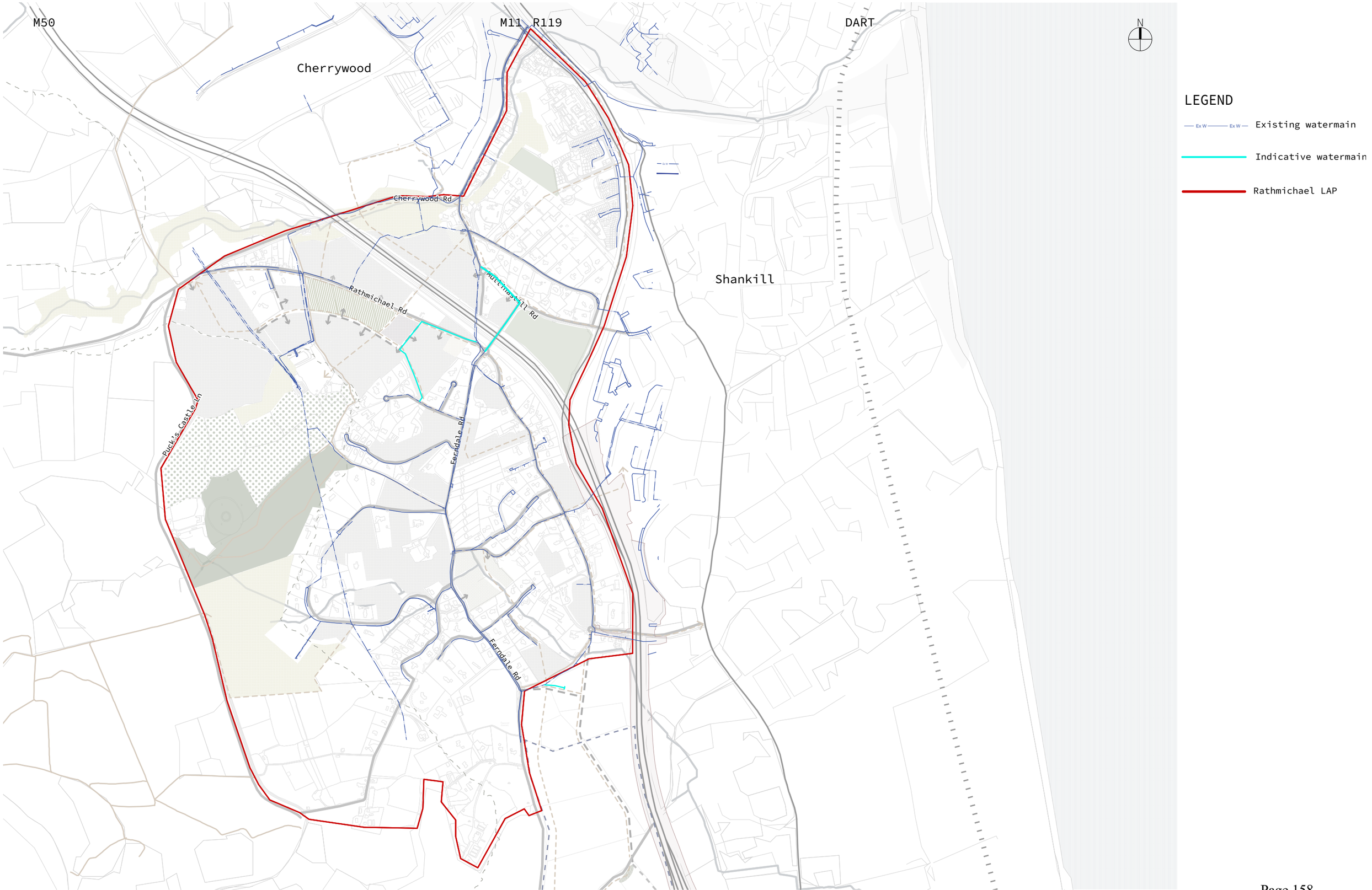


Figure 3-78 Preferred Watermain Strategy – Rathmichael

3.3.2 Wastewater Strategy

3.3.2.1 Policy and Requirements

The DLR CDP has identified Policy Objective EI3: Wastewater Treatment Systems, stating that all new developments in areas served by a public foul sewerage network connect to the public sewerage system, directly or indirectly, and that wastewater strategies should promote the changeover of existing septic tanks to collection networks where possible.

The local wastewater distribution network should comply with all UÉ standards and meet the potential residential yields of 2,005 units for the Old Connaught LAP area and 2,431 units for the Rathmichael LAP area. Capacity for the potential future development of c. 1,050 units at the Strategic Land Reserve in Old Connaught is also provided for.

3.3.2.2 Wastewater Strategy and Network Design for Old Connaught

The ICAS Part 2: Water and Wastewater Strategy for Old Connaught and Rathmichael LAP Areas document concludes that there are no existing wastewater networks within the Old Connaught area. The preferred strategy for the Old Connaught LAP area is to develop a new gravity wastewater network to facilitate new development and the future connection of existing dwellings. A pumping station and rising main crossing of the M11, in the vicinity of Old Connaught Avenue, are required to connect the Old Connaught LAP area to the existing wastewater network.

Gravity Sewer Network:

Based on the preliminary Settlement Strategy for Old Connaught, as described in section 4.3, and building on the high-level strategies outlined in the ICAS Part 2: Water and Wastewater Strategy, a local gravity wastewater network has been identified to serve the future development of the area, as shown in Figure 3-79. The network consists of 225mm diameter gravity wastewater sewers, which increase up to 450mm diameter at the location of the pumping station on Old Connaught Avenue. High level drawings can be found in Appendix D.

Pumping Station and M11 Wastewater Crossing:

The ICAS Part 2: Water and Wastewater Strategy concluded that a pumping station, with a new rising main crossing the M11 in the vicinity of Old Connaught Avenue is required to connect wastewater from the Old Connaught LAP area to the existing wastewater network to the east of the M11.

Preliminary discussions between UÉ, TII, DLRCC and Arup have determined that a wastewater crossing of the M11 is feasible, subject to detailed design and technical agreement between the relevant parties. The preferred option is for a trenchless crossing under the motorway, with a rising main diameter of 400mm required to convey flows from 2,005 new residential units in Old Connaught, the existing properties and the potential future development of the Strategic Land Reserve. Construction of a new sewer crossing under the M11 requires consent under Section 53 of the Roads Act from TII.

The emerging option from the UÉ Shanganagh & Bray DAP Stage 4, proposes a new pumping station with storage volume of approximately 1,650m^3. The indicative location identified by UE for the pump station under the Shanganagh and Bray DAP Stage 4 is identified in Figure 3-79. It is noted that the preliminary location identified by UE is within the reservation corridor for the N11/M11 Junction 4 to Junction 14 Improvement Scheme and as such may not be feasible.

In this regard, alternative potential locations for the delivery of the pump station are identified on Figure 3-79. These potential locations are indicative and relate to general areas. The ultimate final location of the pump station will be subject to further assessment.

In this regard, it is noted that lands both to the north and south of Old Connaught Avenue are subject to flooding (see Figure 2-1). It will be important to ensure that the potential location of a pump station - considered essential infrastructure - is located outside of areas identified as Flood Zones A and B. The ultimate location of the pump station will need to be assessed in accordance with inter alia the SFRA of the Old Connaught LAP and the Flood Risk Management Guidelines (2009).

During meetings with UÉ an interim connection solution was discussed which proposes using an existing spare duct in the Old Connaught Avenue bridge to install a rising main of up to 100mm diameter. This would act as an interim measure to facilitate development of up to 850 residential dwellings in Old Connaught in advance of the permanent solution to provide for full development of the Old Connaught LAP area. The interim rising main and associated pumping station is subject to agreement between UÉ, TII and DLRCC.

3.3.2.3 Wastewater Network for Rathmichael

The ICAS Part 2: Water and Wastewater Strategy for Old Connaught and Rathmichael LAP Areas document concludes that there are limited existing wastewater networks within the Rathmichael area.

The preferred strategy for the Rathmichael LAP area is to develop a new gravity wastewater network to facilitate new development and future connection of existing dwellings. A pumping station and rising main crossing of the M11, in the vicinity of Crinken Lane, are required to connect the Rathmichael LAP area to the existing wastewater network.

Gravity Sewer Network:

Based on the preliminary Settlement Strategy for Rathmichael, as described in Section 4.4, and building on the high-level strategies outlined in the ICAS Part 2: Water and Wastewater Strategy, a local gravity wastewater network has been identified to serve the future development of the area, as shown in Figure 3-80. The network consists mainly of 225mm diameter gravity wastewater sewers, which increase up to 375mm diameter at the location of the pumping station. High level drawings can be found in Appendix D.

Pumping Station and M11 Wastewater Crossing:

Uisce Éireann has advised that a pumping station and rising main crossing of the M11 to the south of Crinken Lane are being progressed as a strategic asset project, which will provide capacity to service 3,000 residential units. It is expected that a 300mm diameter rising main will connect from the new pumping station to the existing wastewater network to the east of the M11, from where wastewater will flow to the Shanganagh Wastewater Treatment Works.

The rising main crossing of the M11 is expected to be installed by means of a trenchless construction technique, with full technical details to be developed by UÉ and agreed with TII as part of the detailed design phase of the project. Construction of a new sewer crossing under the M11 requires consent under Section 53 of the Roads Act from TII.

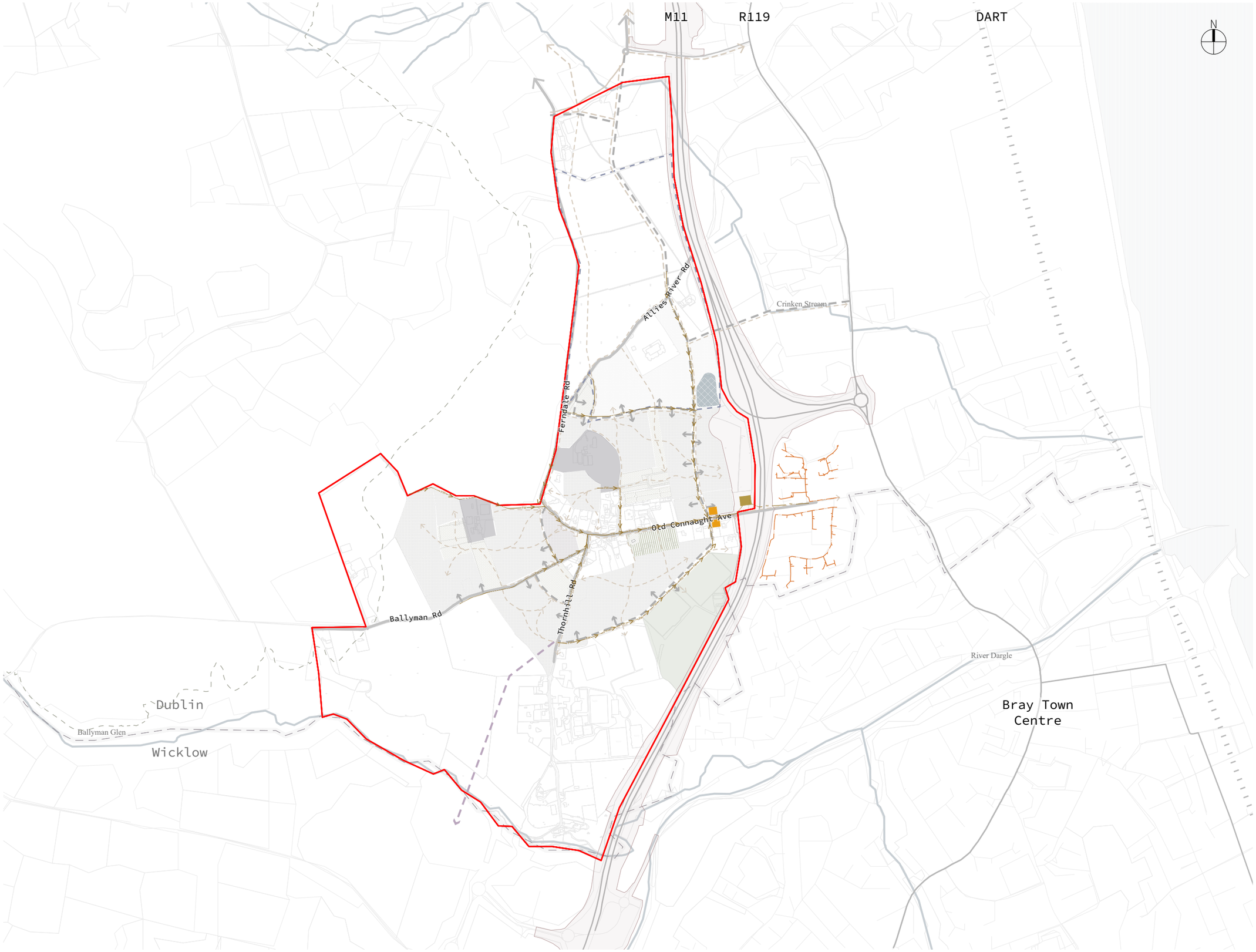


Figure 3-79 Preferred Wastewater Strategy – Old Connaught

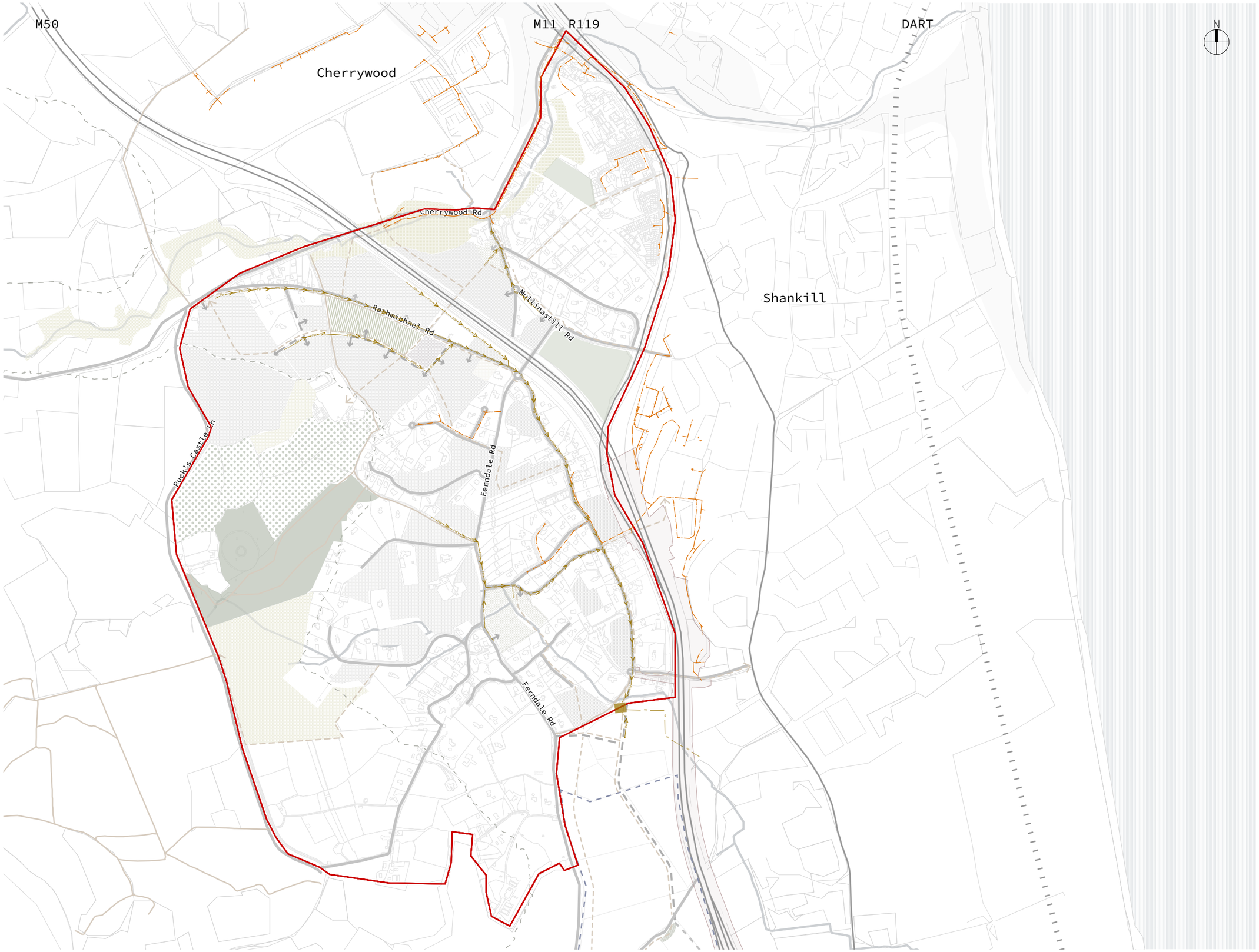


Figure 3-80 Preferred Wastewater Strategy – Rathmichael

3.4 Drainage

3.4.1 Policy and Requirements

The ICAS Part 2: SuDS Strategy for Old Connaught and Rathmichael LAP Areas details the surface water drainage and Sustainable Drainage Systems (SuDS) strategies for the Rathmichael and Old Connaught LAP areas.

It outlines requirements for development of stormwater systems in compliance with policy objectives of the DLR County Development Plan (CDP) 2022-2028, the requirements of the Greater Dublin Strategic Drainage Study (GDSDS) and the DLR Stormwater Management Policy.

3.4.2 SuDS Features

The ICAS Part 2: SuDS Strategy for Old Connaught and Rathmichael LAP Areas outlines the SuDS treatment train approach to stormwater management including Source Control, Site Control and Regional Control.

- Source control features intercept rainwater as it falls and provide attenuation, infiltration, or uptake at the location of interception. A source control feature is designed to minimise the amount of runoff being conveyed to another SuDS feature in the treatment train
- Site control measures receive flows from source control SuDS features as well as runoff flows around the feature. Site controls also help manage peak flows to regional control features
- Regional controls are often large excavations which are permanently filled with water to facilitate natural treatment processes and attenuate heavy rainfall events. Some runoff may infiltrate during attenuation, but most runoff will require connection to a watercourse or surface water network.

New developments within the LAP areas should maximise the provision of SuDS features and must be self-attenuated. Any additional surface runoff generated due to development, such as conversion of permeable surfaces to impermeable surfaces, or brownfield development, must be attenuated.

The new public realm, parks, and public roads to be provided to support the development of the LAP areas are to incorporate elements of source control, site control and regional control SuDS features. The ICAS Part 2: SuDS Strategy details a range of SuDS features under each category, with the following considered to be suitable for use in the public realm and roads:

- Source Control
  - Tree Pits
  - Rain Gardens
  - Permeable Pavement
- Site Control
  - Filter Strips
  - Swales
- Regional Control
  - Retention Ponds
  - Constructed Wetlands

These features will enhance amenity, the environment and biodiversity of the LAP areas, while also providing for flood mitigation. The SuDS features will collectively allow for the removal of sediment from the surface water, allow ground water recharge and provide for biodiversity.

3.4.3 Stormwater Network Requirements

The following criteria were considered for the establishment of high-level local stormwater drainage networks for the LAP areas, as shown in Table 3.62.

Table 3.62 High-level Local Stormwater Criteria

Consideration	Design Requirement
Allowable Discharge Rate	2l/s/ha or Qbar, whichever is greater
Climate Change	20% for river flows and 20% for rainfall depth Sea level rise of 450mm
Urban Creep	10% increase in impervious surfaces
Treatment Volume	Per Greater Dublin Strategic Drainage Study guidelines

New developments within the LAP areas must be self-attenuated and areas identified for new development in the preliminary Settlement Strategy are discharged to the local surface water pipe network at 2l/s/ha or Q bar, whichever is greater.

Strategic local surface water drainage networks are to be developed in accordance with the requirements of the GDSDS. Regional ponds and/or large-scale SuDS features are to be identified and located appropriately within the LAP areas.

These features are to be sized to attenuate stormwater runoff from the road networks, public realm, parks, and attenuated flows from new development sites. The allowable discharge rate from the regional ponds is 2l/s/ha or Qbar.

3.4.4 Drainage Strategy for Old Connaught

The ICAS Part 2: SuDS Strategy for Old Connaught and Rathmichael LAP Areas outlines the approach for the provision of new sustainable drainage systems and stormwater drainage networks for the Old Connaught LAP Area.

The preferred strategy for the Old Connaught LAP area is to develop a new gravity stormwater network to facilitate new development within the LAP area. Regional SuDS features are to be provided to attenuate runoff from the catchment and to provide treatment to stormwater runoff.

Local Surface Water Network:

Based on the preliminary Settlement Strategy for Old Connaught, as described in section 4.3, and building on the high-level strategies outlined in the ICAS Part 2: Suds Strategy, a new gravity stormwater pipe network has been identified to serve the future development of the area, as shown in Figure 3-81.

The existing topography, stormwater networks and watercourses were assessed against the preliminary Settlement Strategy, to determine an indicative layout for the local stormwater network. The overall catchment area of the Old Connaught LAP area falls from west to east, with the lowest point to the north of Old Connaught Avenue and west of the M11. This corresponds to the location of the existing 1,350mm diameter stormwater crossing under the M11, and is the preferred location to discharge the stormwater network from the Old Connaught LAP area.

Regional SuDS / Attenuation Ponds:

A high-level model of the proposed local surface water drainage network was prepared using Innovyse Micro Drainage software. The preferred layout identifies a location for a regional pond to provide stormwater attenuation and treatment for the Old Connaught area, and these were included in the high-level hydraulic model.

Preliminary sizing of the regional pond includes for attenuation of the roads, parks and public realm within the LAP area. New development areas identified in the preliminary Settlement Strategy are assumed to be self-attenuated at a rate of 2l/s/ha.

The regional ponds include treatment volume for all flows to them. Preliminary sizing assumed a total equivalent runoff volume from a rainfall depth of 15mm, with 5mm of treatment provided within new development areas and that the remaining 10mm of treatment required will be accounted for by the ponds.

The location of the regional pond is shown on Figure 3-81 and in Appendix D, and have been determined to require the approximate volumes as shown on Table 3.63 below. As part of a more detailed future

Masterplanning exercise, there is scope to develop an alternative and detailed stormwater attenuation strategy for Old Connaught to include for multiple ponds in the area. These could potentially be incorporated with the landscaping of open spaces and located south of Old Connaught Avenue and west of Thornhill Road.

Table 3.63 Regional Pond Requirements - Old Connaught

Pond No.	Location	Volume
1	North of Old Connaught Avenue & west of M11	16,830m^3

Note: The potential development of this attenuation pond would be subject to the requirement of SPNR, in view of its proximity to the N/M11.

3.4.5 Drainage Strategy for Rathmichael

The ICAS Part 2: SuDS Strategy for Old Connaught and Rathmichael LAP Areas outlines the approach for the provision of new sustainable drainage systems and stormwater drainage networks for the Rathmichael LAP Area.

The preferred strategy for the Rathmichael LAP area is to develop a new gravity stormwater network to facilitate new development within the LAP area. Regional SuDS features are to be provided to attenuate runoff from the catchment and to provide treatment to stormwater runoff.

Local Surface Water Network:

Based on the preliminary Settlement Strategy for Rathmichael, as described in section 4.4, and building on the high-level strategies outlined in the ICAS Part 2: SuDS Strategy, a new gravity stormwater pipe network has been identified to serve the future development of the area, as shown in Figure 3-82 .

The existing topography, stormwater networks and watercourses were assessed against the preliminary Settlement Strategy, to determine the layout of the local stormwater network. The overall catchment of the Rathmichael LAP area falls from west to east towards the M11, with several watercourses and some existing drainage networks present as identified in the ICAS Part 2: SuDS Strategy. As shown on the preliminary Settlement Strategy, most new development in the Rathmichael LAP will be in the lands surrounding Rathmichael Road, with these lands falling towards the M11 and the existing 1,050mm diameter stormwater crossing under the M11 and ultimately discharging to the Brides Glen River.

Regional SuDS / Attenuation Ponds:

A high-level model of the proposed local surface water drainage network was prepared using Innovyse Micro Drainage software. The preferred layout identifies locations for regional ponds to provide stormwater attenuation and treatment for the Rathmichael area, and these were included in the high-level hydraulic model.

Preliminary sizing of the regional ponds includes for attenuation of the roads, parks, and public realm within the LAP area. New development areas identified in the preliminary Settlement Strategy are assumed to be self-attenuated at a rate of 2l/s/ha.

The regional ponds include treatment volume for all flows to them. Preliminary sizing assumed a total equivalent runoff volume from a rainfall depth of 15mm, with 5mm of treatment provided within new development areas and that the remaining 10mm of treatment required will be accounted for by the ponds.

The locations of the regional ponds are shown on Figure 3-82 and in Appendix D, and have been determined to require the approximate volumes as shown on Table 3.64 below.

Table 3.64 Regional Pond Requirements - Rathmichael

Pond No.	Location	Volume
1	North of Rathmichael Road	2,350m^3
2	Adjacent to the Traveller Accommodation on Rathmichael Road	3,380m^3
3	East of Ferndale Road & South of Lordello Road	1,545m^3

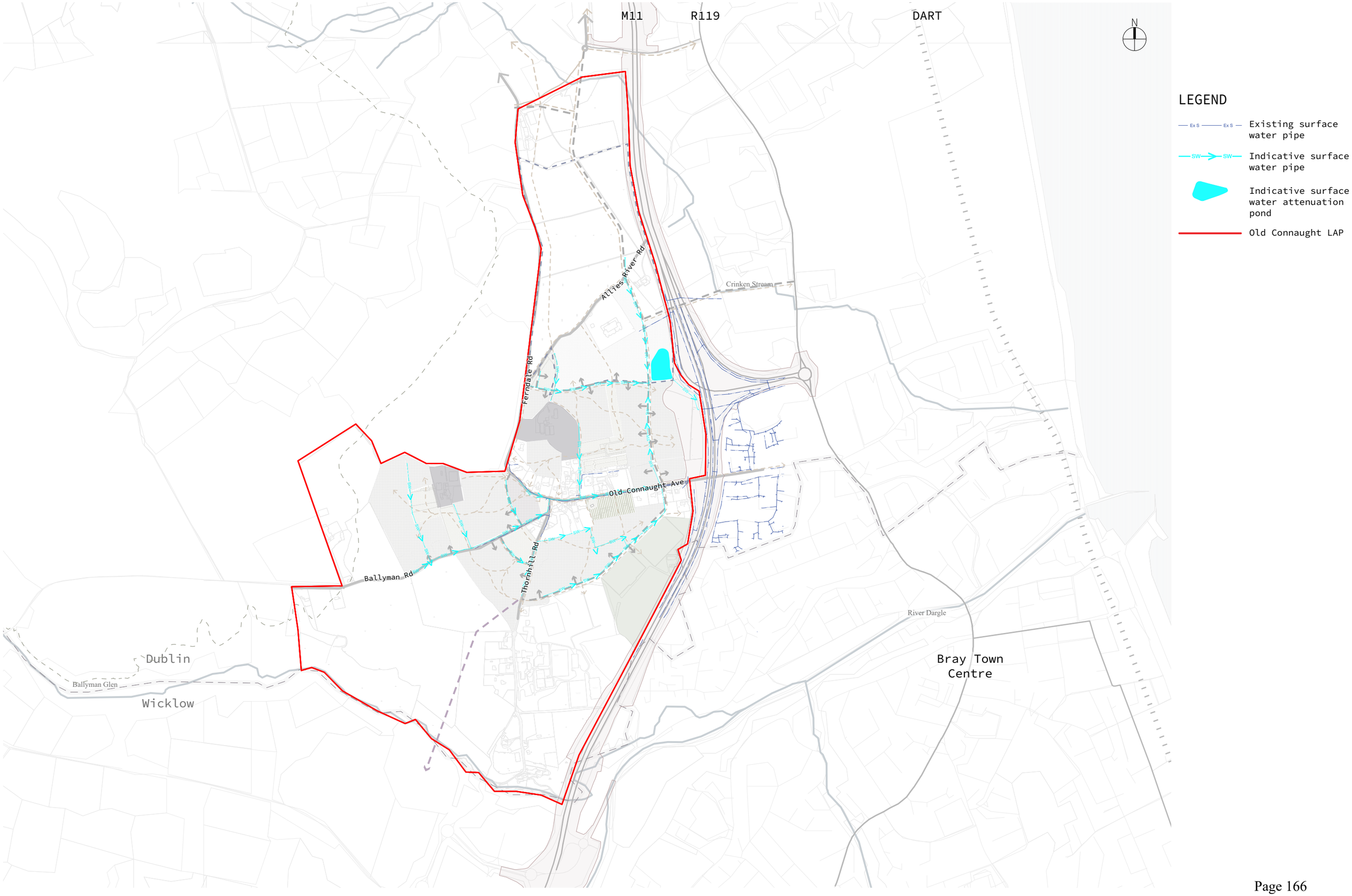


Figure 3-81 Preferred Stormwater Drainage Strategy – Old Connaught

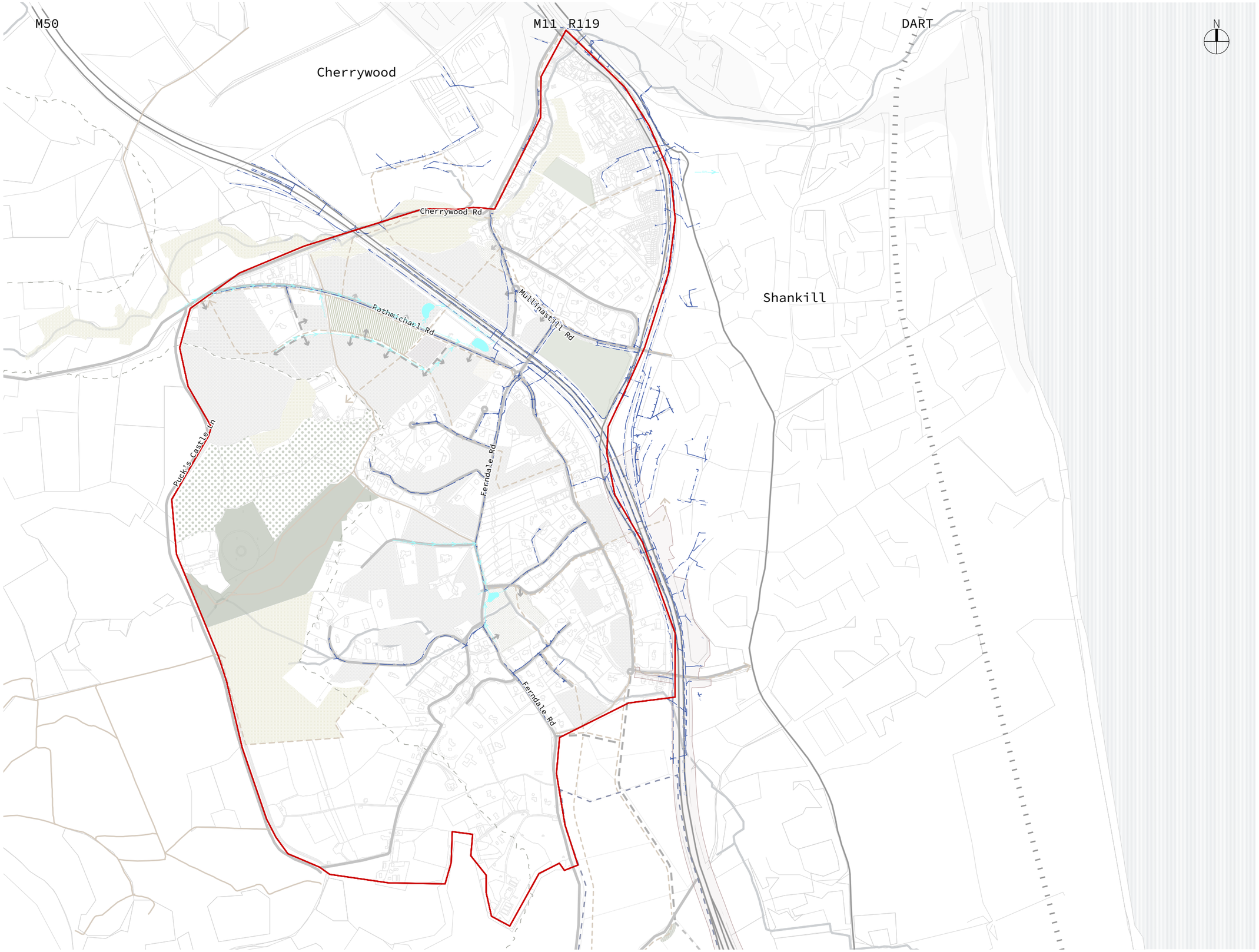


Figure 3-82 Preferred Stormwater Drainage Strategy – Rathmichael

3.5 Provision of Housing

3.5.1 Policy

The DLR CDP identifies Old Connaught and Rathmichael LAP areas as new residential communities, while the RSES identified Old Connaught for the westward future expansion of Bray, which is also supported by MASP. Neither of the two LAP areas are currently serviced and have been designated as Tier 2 lands meaning that the land is considered serviceable within the lifetime of the DLR CDP.

The Core Strategy of the DLR County Development Plan 2022-2028 identifies a residential yield of 2,005 new homes at Old Connaught and a residential yield of 2,431 new homes at Rathmichael. A Strategic Land Reserve with a potential residential yield of c. 1,050 new homes is located in the northern part of the Old Connaught LAP area. However, it is noted that the Strategic Land Reserve lands are not currently zoned for residential development and are located in zoned greenbelt.

3.5.2 Requirements

It is a Policy Objective (PHP26: Implementation of the Housing Strategy) to facilitate the implementation and delivery of the Housing Strategy and Housing Need Demand Assessment (HNDA) of the DLR CDP 2022 - 2028.

3.5.2.1 Part V Requirement

The Housing Strategy and HNDA supports the provision of the Part V requirement to be applied on all sites in accordance with the provisions of the Affordable Housing Act 2021. This provides for a 20% Part V requirement, at least half of which must be applied to social housing provision and half of which may be applied to affordable and cost rental housing.

A reduced requirement for the provision of social housing may be considered acceptable by DLRCC in the following limited cases:

- Purpose-built and professionally managed student accommodation of the type that has/or would have otherwise qualified for tax relief under Section 50 of the Finance Act 1999
- Where it is proposed that a site or a portion of a site is to be developed for supported housing for older persons (Refer also to Policy PHP29)
- Semi-independent or supported living accommodation for people with intellectual and/ or physical disabilities; and
- Purpose Built and Professionally Managed Student Accommodation, Housing for Older People and Semi-Independent or Supported Living Accommodation for People with Intellectual and/or Physical Disabilities.

3.5.2.2 DLRCC Housing Sites – Social and Affordable Housing

There are a number of sites within the two LAP areas in the ownership of DLRCC and have been identified as potential sites for development of social and affordable housing including Old Connaught Avenue, Ballyman and three sites in Rathmichael. These sites are shown in Figure 3-83. The Old Connaught site is 2.04 hectares in size and is located on Old Connaught Avenue adjacent to Bray and located in an excellent location to integrate into the existing urban structure. The Ballyman Road site is located further to the west and is 8.72 hectare in area. It is important that this site is integrated into any future community structure within Old Connaught.

The three sites in the Rathmichael LAP area are straddled across the M50 motorway with 11.65 hectare to the north and 7.99 hectares to the south. These are large land parcels with the potential of creating a substantial new urban community.

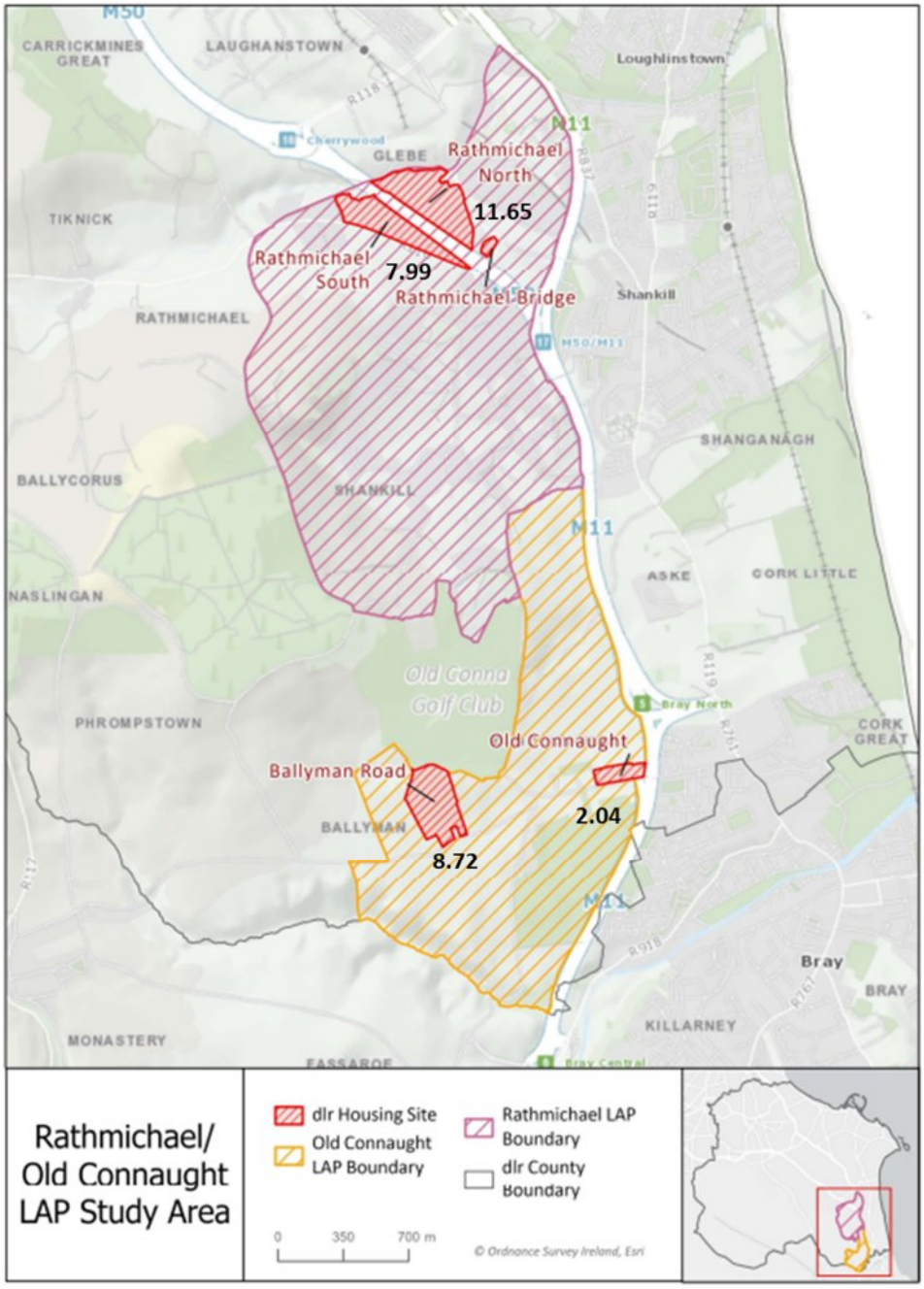


Figure 3-83 DLRCC Housing Sites

3.5.2.3 Housing Type and Mix

While the Council continues to require that developments provide for a housing mix, it is also essential that a range of house-types are provided within residential schemes. The inclusion of combinations of detached, semi-detached, terraced, single storey, and apartment units is essential as per Table 2.9.1 Mix Requirements for Residential Schemes as part of Appendix 2: Housing Strategy and HNDA of the CDP.

In schemes of 50+ units, where a mixture of housing and apartments or a scheme comprising solely of houses is being provided on a site, the housing offering must ensure a mixture that includes a proportion of housing units that are 3 beds or less. In new residential community areas, it is appropriate that schemes include houses in addition to apartment/duplexes.

In deciding on the mix of house and apartments in these areas regard shall be had to the development management standards set out in Section 12.3.3.1 - 'Residential Size and Mix' - of the DLR CDP 2022-2028. The apartment element if in excess of 50 units shall comply with Table 12.1 - 'Apartment Mix Requirements' - of the DLR CDP 2022-2028. Council Part 8 or Part 10 residential schemes may propose a different mix having regard to the specific needs of DLRCC's Housing Department.

3.6 Sustainable Communities

3.6.1 Introduction

The National Planning Framework (NPF) and the Regional Spatial Economic Strategy (RSES) both focus on healthy placemaking and the creation of attractive, accessible neighbourhoods that have good access to appropriate 'enabling' social infrastructure. Place making is about people and a critical part of this is providing the environment to assist in the creation of sustainable communities and neighbourhoods. An inclusive planning system that promotes and facilitates a balance between the provision of additional housing units and provision of amenities will ensure that sustainability is central to both existing and developing communities.

Creating a sustainable community involves a comprehensive approach that addresses environmental, social, and economic aspects. At its core is the principle of community engagement, ensuring active involvement of residents in decision-making processes, fostering a sense of ownership, and nurturing pride among community members. This participatory approach lays the foundation for a collective commitment to sustainability.

The preparation of a Local Area Plan (LAP) is an instrumental process in town planning that typically involves a structured and comprehensive approach to land use and development within a specific locality. The development of an LAP inherently ensures a meaningful level of community engagement, offering a structured framework and opportunities for involving the community in the planning process.

Sustainable town planning plays a crucial role, emphasising walkable neighbourhoods, mixed-use zoning, and efficient public transportation to reduce the environmental footprint. Energy efficiency is paramount, with an emphasis on green building standards, the integration of renewable energy sources, and conservation measures. The statutory planning process also prioritises environmental stewardship by preserving green spaces, managing water sustainably, and promoting waste reduction and recycling.

Social inclusivity is another key principle, entailing the promotion of diversity, housing options, and support for local businesses. Education and awareness initiatives play a vital role in encouraging sustainable practices and fostering a culture of environmental responsibility. Technological integration, cultural preservation, and collaboration with various stakeholders further enhance the community's sustainability.

Additionally, resilience and adaptability are crucial, necessitating a focus on climate resilience, emergency preparedness, and strategies to mitigate natural disaster impacts. The monitoring and evaluation of sustainability efforts, along with transparent communication about progress, contribute to ongoing improvement and success. By integrating these principles into an LAP, a sustainable community not only minimises its environmental impact but also cultivates a thriving, resilient, and inclusive living environment for its residents.

3.6.2 Community Facilities

3.6.2.1 Policy

In the 2022-2028 DLR CDP, it is an objective (*Policy Objective PHP5: Community Facilities*) to support the development, improvement and provision of a wide range of community facilities throughout the County where required; and to facilitate and support the preparation of a countywide Community Strategy.

3.6.2.2 Requirements

A component of sustainable neighbourhood infrastructure is the provision of an appropriate range of community cultural and civic facilities. Such facilities are provided across the County, and additional and/or improved facilities will continue to be provided as appropriate over the lifetime of the Development Plan. Community, cultural and civic facilities should maximise resource efficiencies, including the capacity for integrated services and facility planning and development between the various facility providers, to ensure that the vitality and sustainability of residential neighbourhoods in DLR is fostered.

According to the DLRCC Community Facilities Planning toolkit (Nov 2020), a key element in the planning for community facilities is travel accessibility. Multi-modal travel accessibility can be used to determine whether people can access services within a reasonable journey time.

To set out a hierarchy of facilities, a number of factors need to be considered, in particular the population catchment, the development plan settlement and retailing hierarchies, locational attributes such as the distance to housing, access to transport, and role played in the locality or region.

The current County Development Plan currently sets out the zonings for town centres, district centres and neighbourhood centres. These concepts are utilised in the establishment of a hierarchy for the purposes of community facilities provision.

The various levels in the hierarchy serve different population catchments. In the formulation of a spatial strategy and hierarchy for community facilities, new development areas with no existing facilities can be differentiated from existing urban areas already served by facilities.

It should be noted that some community facilities for example, a community hall may serve a local catchment of population up to 4,000 people. Certain categories of facilities (e.g., civic and cultural) are likely to serve a wider catchment of population, depending on the nature of the facility.

Higher level centres in the hierarchy may also incorporate smaller facilities to cater to more localised needs. Population thresholds also play a central role and need to be flexibly applied as facility usage can also be dependent on travel patterns and the relationship with adjoining or overlapping catchments. A hierarchy based on the above factors, which will be used hereafter, is presented in Table 3.65 (Source: Hugh Barton et al (1995) Sustainable Settlements).

Table 3.65 Community Facilities Hierarchy

Hierarchy Level	Population Served	Accessibility	Typical Facility
Town Centre	80,000-120,000	4,000m	Civic Centre, cultural centre, art gallery, theatre
District	25,000 - 40,000	1,600m	Library, multi-purpose community, primary healthcare centre, council offices, major recreational centre, older persons daycare
Neighbourhood	4,000 - 8,000	800m	Parish centre, community hall, youth centre / Scouts' den, local health centre, family resource centre, post office
Local	4,000	400m	Community hall, small neighbourhood centre, men's shed

According to the target growth, both LAP areas (Old Connaught and Rathmichael) will qualify as Neighbourhoods in terms of provision of Community Facilities. The location of these facilities will be determined through the local area plan-making process. However, the intention is for these facilities to be situated in the inner core of each settlement or adjacent to land uses where synergies can be harnessed, as illustrated in Figure 3-84 and Figure 3-85.

Figure 3-84 Potential Locations for Community Facilities - Old Connaught

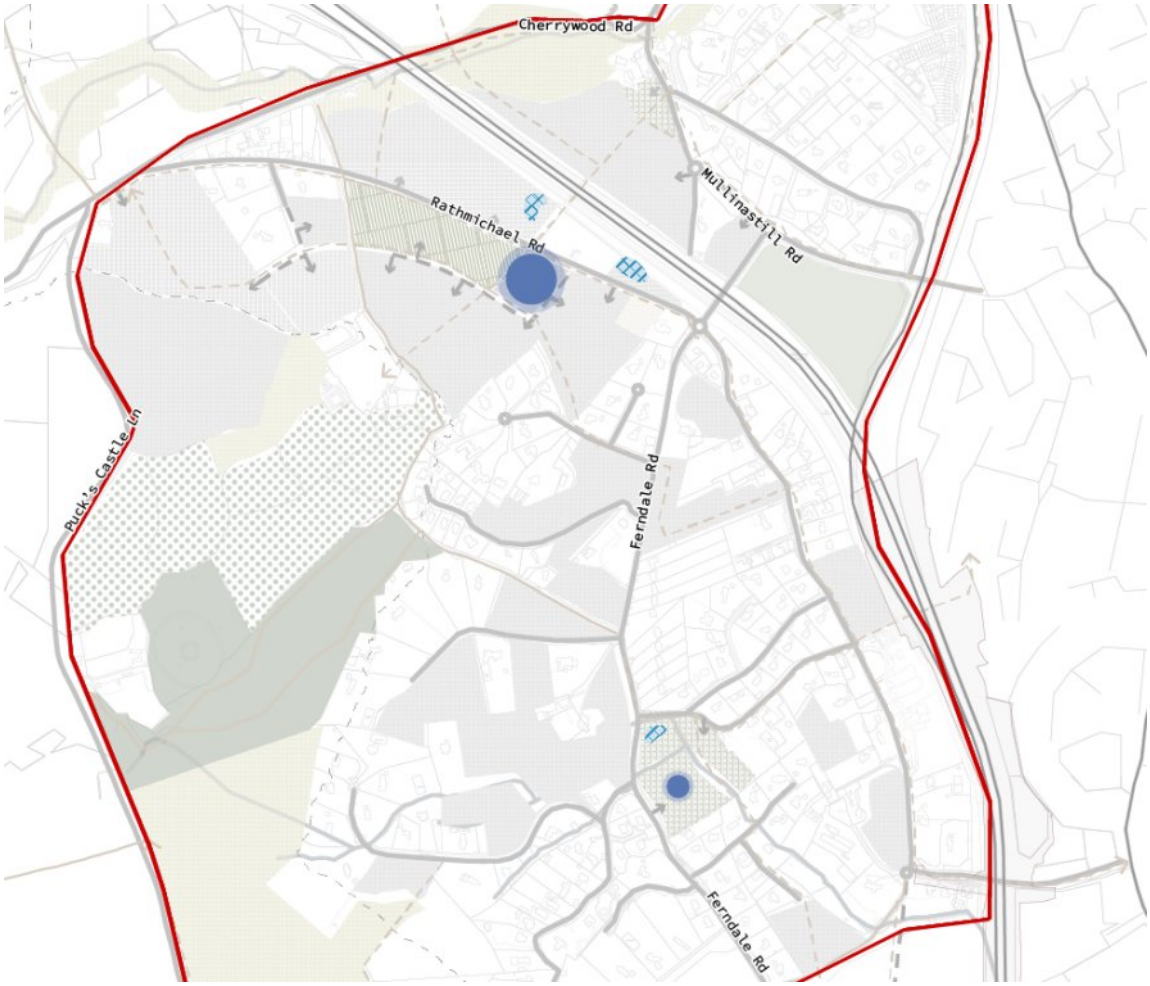


Figure 3-85 Potential Locations for Community Facilities - Rathmichael

It is noted that there are no national standards for the provision of community, cultural and civic space. To inform this Study, consideration was given to historical guidance applied in Ireland as well as standards utilised in other jurisdictions, particularly drawing on insights from the UK and Australia, and consulting academic research on the subject.

The former Section 28 Guidelines 'Sustainable Residential Development in Urban Areas' included standards recommending 150 sqm of community facilities for every 1,000 homes (c. 60sq.m per 1,000 population based on an average household size of 2.5 persons). It is noted, however, that these Guidelines were superseded by the Section 28 Guidelines 'Sustainable Development and Compact Settlement Guidelines' which do not include the same standards for community facilities.

In the UK, studies such as that by the South Cambridgeshire District Council in 2009, suggest a floor space ratio of 111 sqm per 1,000 population. Similarly, research from Australia, conducted by Elton Consulting in 2017, offers further insights into applicable standards:

- 60-80sqm / 1,000 population for neighbourhood and/or local level facilities
- 20-40sqm / 1,000 population for district level facilities.

It is imperative to underscore the importance of such international perspectives and academic research in shaping guidelines that are both robust and reflective of diverse urban contexts.

The DLRCC Community Facilities Planning toolkit (2020), adopted a combined standard for community facilities provision of 130sqm per 1,000 of population. This includes Council and non-Council owned facilities. It is recommended that the same floor space Service Level indicator of 130sq.m. per 1,000 population is adopted for the purpose of this Study.

Table 3.66 calculates an indicative community facility requirement calculated based on anticipated growth in each LAP area. It is noted that specific requirements for community facilities will be further assessed as part of the LAP plan making process taking into account additional considerations including inter alia existing population and the scale, and changes in residential density guidance.

Table 3.66 Required provision of community facilities

Area	DLR CDP 2022-2028 Core Strategy Residential Yield	Approx. Population Increase (2.5 Average Household Size)	Approx. provision of community facilities based on 130sqm per 1,000 population
Old Connaught	2,005	5,013	652
Rathmichael	2,431	6,078	790
Total	**4,436**	**11,091**	**1,442**

3.6.3 Educational Facilities

3.6.3.1 Policy

It is a Policy Objective (*Policy Objective PHP7: Schools*) to protect existing schools and their amenities and ensure the reservation of primary and post-primary school sites in line with the requirements of the relevant education authorities and to support the provision of school facilities and the development / redevelopment of existing schools for educational and other sustainable community infrastructure uses throughout the County.

The 'Code of Practice on the Provision of Schools and the Planning System' (2008), prepared jointly by the DoEHLG and the Department of Education and Science, provides guidelines for the forecasting of future planning for schools nationally. The Code of Practice is built around three core objectives:

- School provision should be an integral part of the evolution of compact sustainable urban development where the opportunities to walk or cycle to school are maximised

- The provision of new schools should be driven and emerge from an integrated approach between the planning functions of the Planning Authority and the Department of Education
- Planning Authorities will co-operate and coordinate with the Department of Education in ensuring the timely delivery of schools.

The County Development Plan has made provisions for educational facilities by identifying and reserving potential school sites. The designated location for a new facility has been identified north of Old Connaught Village, situated in the south of the Strategic Land Reserve (SLR).

3.6.3.2 Requirements

DLRCC is engaging with the Department of Education (DoE) on an ongoing basis, discussing the school requirements for the two LAP areas. Through this engagement the DoE has identified a future requirement for one or more primary schools in both Old Connaught and Rathmichael and potentially a requirement for a post primary school in the ICAS and wider area.

3.6.4 Spatial Requirements for Educational Facilities

Figure 3-86 identifies the potential location of a primary school in Old Connaught. This location is consistent with that identified on Land Use Zoning Map No. 14 of the DLR CDP 2022-2028. An indicative area of approx. 1.6 hectares has been identified for the school site at Old Connaught. As per the DoE Technical Guidance Document TGD-025 'Identification and Suitability Assessment of Sites for Primary Schools', a school site area of approx. 1.6 hectares would provide for a 16-24 classroom primary school and associated components including play areas / ball courts etc. It is noted, that the exact size and location of a primary school or schools at Old Connaught will be subject to further assessment as part of the local area plan-making process for the area.

The location of a primary school or schools' site at Rathmichael are not indicated in the Land Use Zoning Maps of the DLR CDP 2022-2028. The size and location of a primary school or schools at Rathmichael will be considered and identified as part of the local area plan-making process for the area, which will be subject to further engagement with the Department of Education.

DLRCC will continue to engage with the DoE with respect to specific school requirements, primary and post primary, as part of the local area plan-making process for both LAP areas.

Figure 3-86 Potential location of a Primary School in Old Connaught

3.7 Power Supply and Telecommunications

Both electrical and telecoms infrastructure are available within the LAP areas. There are three zone substations supplies including Carrickmines, Cherrywood and Fassaroe zone substations. To accommodate new large-scale development ESB has indicated that network upgrades will be required for both LAP areas and a new 38kV substation would need to be established in Old Connaught to provide the residential capacity.

The ESB Network' Code of Practice for Avoiding Danger from Overhead Electricity Lines establishes the minimum distances for exclusion zones which needs to be taken into consideration at the future phases of the development. For low voltage, 10kV, 20kV and 38kV overhead lines, the minimum horizontal distance is 6m, whereas 110kV and above is 10m.

In terms of telecommunications fibre connections are available within the surrounding areas to the LAP areas and new development can connect to these networks but will require new fibre cabinet capacity and applications for new connections would need to be submitted to the telecom's providers.

4. Preliminary Settlement Strategy

4.1 Introduction

The Old Connaught and Rathmichael LAP areas exhibit distinct characteristics, each presenting unique challenges that require tailored spatial approaches to effectively provide a future development framework.

Taking planning policy and objectives, natural constraints, existing and planned infrastructure as well as infrastructure requirements into account, this chapter sets out a preliminary Settlement Strategy for the development of Old Connaught and Rathmichael. This preliminary Settlement Strategy has been prepared for the purpose of the ICAS Study and to provide a more detailed framework and evidence basis to establish and inform the strategic enabling infrastructure requirements to facilitate plan-led development in the two LAP areas.

The preliminary Settlement Strategy is principle based and not definitive. All information contained herewith including mapping will be further considered and assessed as part of the Local Area Plan making process.

The starting point in the development of a preliminary Settlement Strategy is to outline the context in terms of planning policy and objectives. The following section provides some high level policy objectives pertaining to the LAP areas. A more comprehensive assessment of relevant policy is contained in the ICAS Baseline Report.

4.1.1 Preliminary Settlement Strategy - Process

The ICAS addresses a variety of infrastructural elements including green infrastructure, biodiversity, open spaces and parks, water and wastewater, drainage, social and affordable housing, sustainable community facilities, ESB connections and telecommunications. The consideration of these infrastructural elements was progressed in parallel with the ABTA process to understand the transport needs for the Old Connaught and Rathmichael LAP areas. Based on the analysis undertaken, existing assets and constraints and both existing and proposed infrastructural elements, were considered and integrated in order to develop a multi-disciplinary infrastructure framework to support the proper planning and sustainable development of the Old Connaught and Rathmichael LAP areas. Following this integrated analysis approach a high-level preliminary Spatial Strategy and preliminary Development Framework was developed for both areas. An overview of the process undertaken is provided in Appendix F.

Figure 4-1 Multidisciplinary Framework Approach

4.2 Planning Policy and Objectives

4.2.1 National Policy

The provision of infrastructure to support development is guided by policy documents on national, regional and local level. Project Ireland 2040: National Planning Framework (NPF) highlights the need to develop local planning, connectivity and wellbeing policies and advocates for integrated land use and transport planning and self-sustaining economic and employment-based development to support accelerated housing delivery.

The National Development Plan 2021 to 2030 (NDP) promotes future development to be provided within existing urban area footprints and ensure that land use and transportation are spatially and impactfully integrated, which is also encouraged by the National Sustainable Mobility Policy.

The Climate Action Plan 2023 (CAP) sets ambitious targets for public transport and active travel journeys and has major focus on improving building standards with the aim to reduce national transport emissions and zero energy in buildings by 2030.

The National Investment Framework for Transport in Ireland (NIFTI) supports CAP by supporting goals to prioritise walking and cycling followed by public transport and private vehicles and puts emphasis on the utilisation and optimisation of existing infrastructure over new infrastructure.

4.2.2 Regional Policy

The Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031 (RSES) supports the NPF and NDP by providing a strategic planning and economic framework for the development in the Eastern and Midlands region. Rathmichael falls within the geographic area known as 'Dublin City and Suburbs', which comprises the first tier in the RSES settlement hierarchy. The RSES classifies Bray as a Key Metropolitan Town (tier 3 in the RSES settlement hierarchy), which includes the Old Connaught LAP and Fassaroe areas which are targeted for new housing, employment and community facilities. The RSES also includes a Metropolitan Area Strategic Plan (MASP), identifying Bray – Fassaroe (which includes Old Connaught) in a North-South Strategic Development Corridor.

The Greater Dublin Area (GDA) Transport Strategy 2022-2042 encourages transit-oriented development and dense, mixed-use neighbourhoods in the GDA and advocates the "Decide and Provide" method of transport investment. It furthermore promotes the 10-minute neighbourhood concept and the road user hierarchy that places walking and cycling as the highest priority followed by public transport and private car travel.

Measure LRT5 of the GDA Transport Strategy states that it is intended to extend the Luas Green Line southwards in order to serve the Bray and Environs area. While the route optioneering for the extended Luas is still to be undertaken, it is likely the route would run in proximity / through both LAP areas.

4.2.3 Local Policy

The Dún Laoghaire-Rathdown County Development Plan 2022-2028 (DLR CDP) zones much of the two LAP area lands as A1 – "to provide for new residential communities and Sustainable Neighbourhood Infrastructure in accordance with approved local area plans". The DLR CDP is guided by five objectives aligning with national and regional policy including the creation of a County that is climate resilient, compact, and connected, comprise of liveable towns and villages, is inclusive and healthy and is economically vibrant.

Both Old Connaught and Rathmichael are identified as 'New Residential Communities' under the Core Strategy of the DLR CDP 2022-2028 with a combined residential yield of c. 4,500 new homes. In addition, a Strategic Land Reserve is identified in the north of the Old Connaught LAP area which – subject to future rezoning – could provide for a further c. 1,000 new homes. Both Old Connaught and Rathmichael are identified in the CDP as tier 2 zoned lands, which means they are not currently serviced for development but have the potential to become fully serviced within the lifetime of the CDP.

The DLR CDP has a set specific objective for the two LAP areas which includes the delivery of enabling infrastructure which was unpacked in the 2019 and 2021 Bray and Environs Transport Studies. The DLR CDP also includes a Green Infrastructure Strategy with a network of integrated green infrastructure that identifies a chain of gateway hubs (parks and gardens) to provide access between the DLRCC urban areas and the Dublin Mountains. Rathmichael Wood is one of these gateway hubs.

The DLR CDP identifies specific policy objectives applicable to Rathmichael and Old Connaught areas centred around having to prepare Local Area Plans, providing new pedestrian and cycle bridges, actively support sustainable transport modes, delivering enabling transport infrastructure and facilitating the extension of Luas and Metrolink. There are also specific road objectives identified within the vicinity of the LAP areas and the challenge is how infrastructure between Dun Laoghaire-Rathdown and surrounding areas are coordinated and linked.

4.3 Old Connaught Preliminary Settlement Strategy

The existing lands within the LAP area currently consist largely of greenfield, undeveloped lands being utilised primarily for agricultural, educational, and recreational purposes. Relative to the size of the plan area, the number of existing residential properties is small. The vast majority of individual residential properties front directly onto the four road corridors that emanate in four different directions from the historic core of the village at the western end of Old Connaught Avenue.

Old Connaught currently functions very much as a rural village, notwithstanding its close proximity both to Shankill (c.2.5kms to the north) and to the major town of Bray (c.2.0kms to the south-east).

4.3.1 Settlement Hierarchy

The vast majority of the built-up footprint of DLR is located within the area defined as Dublin City and Suburbs, which comprises the first tier in the regional settlement hierarchy. Old Connaught, in the south of the County, is considered a component part of the 'Key Town' of Bray (tier 3). A tier 3 Town is a "large economically active service and/or county towns that provide employment for their surrounding areas and with high-quality transport links and the capacity to act as growth drivers to complement the Regional Growth Centres".

The Key Town of Bray is recognised in the RSES as having significant growth potential. Owing to geographical constraints, the growth of Bray is primarily limited to westward expansion with identified growth potential at Fassaroe (Wicklow County Council) along with the development of lands at Old Connaught (DLR).

The RSES states that, in order for Bray to fulfil its growth potential, lands at Fassaroe to the west of the N11/ M11 are targeted for new housing, employment and major community and sports facilities, along with development of lands at Old Connaught, which are primarily within Dún Laoghaire-Rathdown.

4.3.2 Envisaged Levels of Growth

The Core Strategy of the DLR CDP 2022-2028 identifies c. 50 hectares of undeveloped land at Old Connaught zoned 'A1' – "To provide for new residential communities and Sustainable Neighbourhood Infrastructure in accordance with approved local area plans". The current DLR County Development Plan Core Strategy explicitly identifies Old Connaught as an area primed to deliver c. 2,005 residential units, and this number may increase when taking into consideration the Section 28 Compact Settlement Guidelines. Introducing this quantum of development into a hitherto greenfield environment will prove challenging and undoubtedly transformational. The former rural character will inevitably transition towards a more urban setting.

In order to grow sustainably, the spatial strategy for the expansion of Old Connaught will largely depend on the envisioned role that this area will play and its relationship with neighbouring settlements.

The composition of the settlement and its gradual growth over time will vary accordingly, influencing the specific infrastructural requirements needed to support and accommodate this anticipated development. In essence, the future planning and growth of Old Connaught hinge on a thoughtful consideration of its intended function and its relationship within the broader regional context.

4.3.3 Old Connaught Preliminary Settlement Strategy

The preliminary Settlement Strategy for expanding Old Connaught involves a synthesis of various elements to create a harmonious and balanced approach. In the immediate short-term, the primary focus is on integrating Old Connaught into Bray's hinterland. This integration seeks to establish physical connections with the surrounding area, emphasising a seamless integration to foster a cohesive relationship with the Bray hinterland.

Simultaneously, the short-term objective is to lay the groundwork for this integration, emphasising adaptability, minimal environmental impact, and alignment with sustainable growth principles. Evaluating the potential advantages and disadvantages of this short-term approach requires careful consideration of its impact on community dynamics and resource sharing.

Looking to the long-term, the overarching goal shifts towards the realisation of a 10-minute settlement concept. This involves a phased development strategy, gradually transforming Old Connaught into a more self-sufficient community with convenient access to essential services within a short travel time. The long-term vision underscores the importance of integrating public transport, walkability, and cycling as part of a sustainable transportation framework.

The preliminary Settlement Strategy recommends safeguarding lands and a corridor for the future Green Line Luas extension, recognising the potential for future high-capacity public transport to meet the needs of the new settlement. This proactive measure aims to support future transportation infrastructure developments and enhance connectivity within the region. Assessing the strengths and weaknesses of this long-term objective involves a thoughtful examination of its adaptability, environmental impact, and alignment with sustainable growth principles over an extended timeframe.

The strengths inherent in this strategy can be outlined as follows:

- **Resilience Through Phased Evolution:** The phased evolution towards a 10-minute settlement introduces a crucial element of resilience. By starting with a reliance on public transport and gradually transitioning to walkability and cycling infrastructure, the community gains adaptability, and the capacity to navigate changing transportation trends over time.
- **Strong Provision of Active Travel Routes and Public Transport Corridors**: The preliminary Settlement Strategy emphasises the creation of a comprehensive network of active travel routes and public transport corridors connecting Old Connaught with the Bray hinterland and surrounding settlements. This robust infrastructure promotes sustainable modes of transportation, reducing dependency on private vehicles and fostering a well-connected and accessible urban environment.
- **Broader Integration into the surrounding area in the South East of Dún Laoghaire-Rathdown and Bray's Hinterland**: The preliminary Settlement Strategy also emphasises the integration of Old Connaught into the larger Bray hinterland. This approach extends the accessibility radius, providing residents with a broader range of amenities and services while maintaining a suburban character.
- **Safeguarding for Future Transportation Needs**: Safeguarding Lands and Corridor for the future Green Line Luas extension, and any future upgrade of the M11/N11: Recognising the potential for future high-capacity public transport needs, the preliminary Settlement Strategy recommends safeguarding lands and a corridor for the future Luas line. This proactive measure aims to support future transportation infrastructure developments and enhance connectivity within the region.

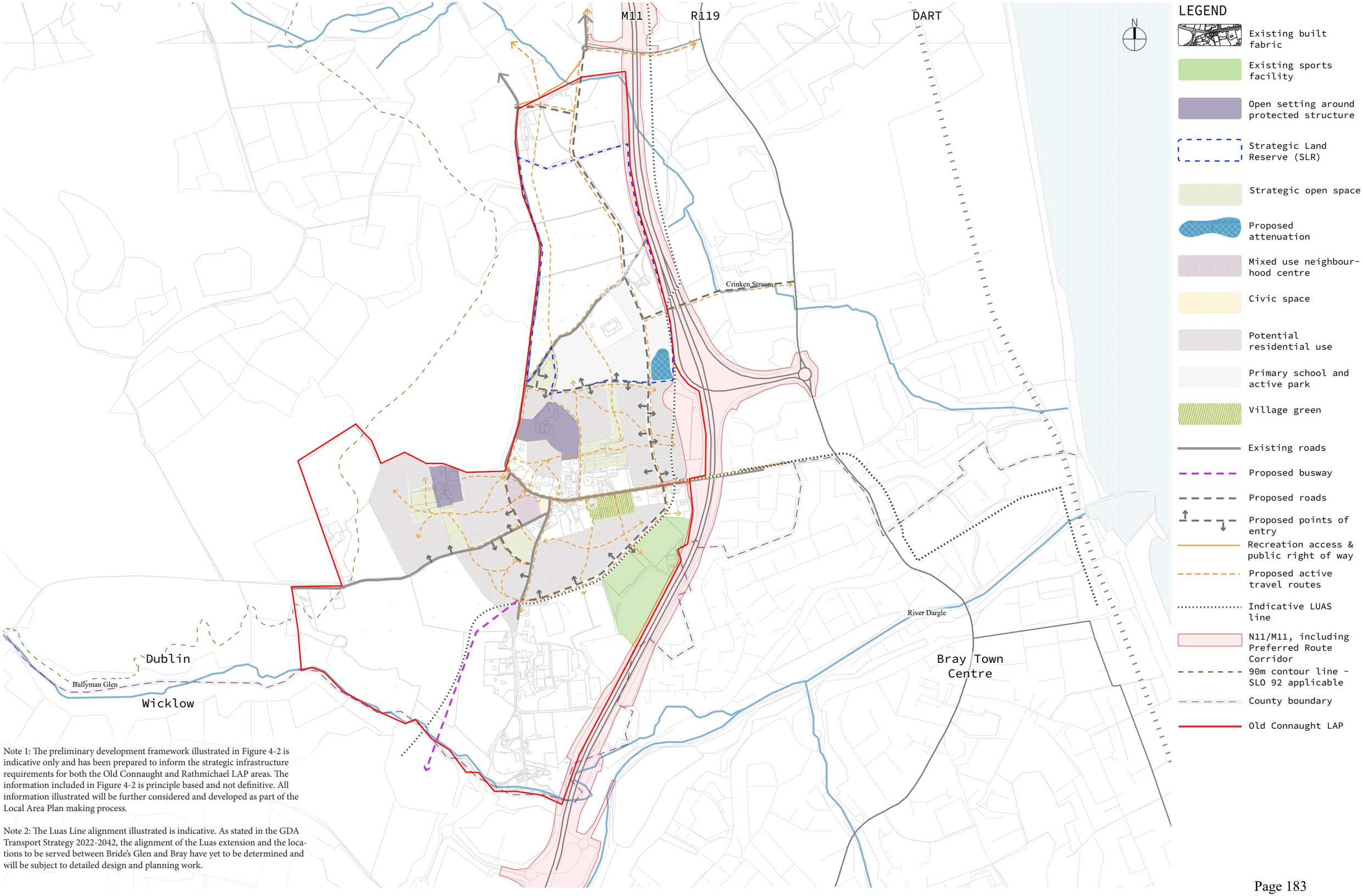
The preliminary Settlement Strategy outlines an achievable blueprint for the sustainable development of Old Connaught, based upon robust and compatible land use and transportation scenarios. The rationale behind the preliminary Settlement Strategy lies in its ability to address both short-term development needs and long-term sustainability goals. By gradually evolving into a 10-minute settlement, actively participating in the Bray hinterland, and strategically planning for future transportation needs, this strategy aims to create a resilient, well-connected, and vibrant community in Old Connaught.

4.3.4 Old Connaught – Preliminary Development Framework

Based on the above preliminary Settlement Strategy, the preliminary Development Framework for Old Connaught's expansion represents a blueprint for smart and sustainable growth. It carefully considers aspects like nature, accessibility, and creating a lively community. This section breaks down important features of how a future Local Area Plan may be prepared by DLRCC, from how it uses the land to why it's designed for people to easily walk around. It's not just about what is happening now; it sets the stage for a sustainable community growth for years to come.

The following illustration (Figure 4-2) presents a preliminary Development Framework for Old Connaught, illustrating a forward-thinking blueprint that envisions the village's growth and development. The following section provides a discussion on various aspects of the preliminary Development Framework.

Please note that the preliminary Development Framework illustrated in Figure 4-2 is indicative only and has been prepared to inform the strategic infrastructure requirements for the Old Connaught LAP area. The information included in Figure 4-2 is principle based and not definitive. All information illustrated, including the location and extent of specific land uses, will be further considered and assessed as part of the Local Area Plan making process.



Note 1: The preliminary development framework illustrated in Figure 4-2 is indicative only and has been prepared to inform the strategic infrastructure requirements for both the Old Connaught and Rathmichael LAP areas. The information included in Figure 4-2 is principle based and not definitive. All information illustrated will be further considered and developed as part of the Local Area Plan making process.

Note 2: The Luas Line alignment illustrated is indicative. As stated in the GDA Transport Strategy 2022-2042, the alignment of the Luas extension and the locations to be served between Bride's Glen and Bray have yet to be determined and will be subject to detailed design and planning work.

Figure 4-2 Old Connaught Preliminary Development Framework

4.3.4.1 Landscape Integration

The Old Connaught preliminary Development Framework has been conceived with a careful consideration of existing landscape features, notably mature hedgerows and water courses. This approach ensures that not only retains the ecological integrity of the setting but also elevates the overall aesthetics, seamlessly integrating these natural elements into the design.

The preliminary layout adopts a forward-thinking approach to climate resilience, particularly in flood risk zones. This caution not only ensures the safety and sustainability of the community but also reflects a commitment to addressing potential environmental challenges.

Key Principles:

- **Environmental Considerations**: Contribute to the creation of a high-quality environment and a strong sense of place by considering the existing site topography, climate, soil, vegetation, heritage, and surrounding environment to inform design decisions.
- **Practical and Accessible Spaces**: Develop spaces that are practical, accessible, and effectively serve their intended purpose.
- **Visual Appeal**: Create visually appealing landscapes through thoughtful design, balanced compositions, and the use of elements such as colour, texture, and form while enhancing existing views.
- **Connectivity for Pedestrians and Cyclists**: Achieve linkages and connectivity between areas and uses for pedestrians and cyclists.
- **Sustainable Practices**: Implement sustainable practices, including Nature-Based Solutions, Sustainable Urban Drainage Systems (SuDS), native plant selection, and energy-efficient design. Introduce habitat creation and protection for wildlife, biodiversity, and ecological systems within designed and safeguarded landscapes.
- **Cultural Heritage**: Incorporate elements that have statutory protection and well as elements that do not but still add to landscape character. Protect, enhance and manage cultural heritage elements that respect and reflect the identity of the landscape and its users.

In embracing the principles of ecological harmony, cultural and social connectivity, resilient infrastructure, and human well-being, the Old Connaught preliminary Development Framework exemplifies a commitment to creating a sustainable and enriching living environment. The thoughtful integration of landscape elements ensures that our development not only meets the needs of today but stands resilient and enduring for future generations.

The allocation of open spaces, parks, and recreation is based on a functional hierarchy and typology, aligning with the DLRCC CDP 2022-2028. The network of parks and open space, shall cater to the needs of multiple neighbourhoods, offering both active and passive recreation options. A strategic objective involves creating a new Gateway Park and Green Infrastructure (GI) corridor in the northeast area, integrating with existing corridors, such as Corridor 6 and potentially Coastal Corridor 1, as outlined in the DLR Green Infrastructure Strategy.

Located at Rathmichael Wood and Hillfort the enhancement of this existing District Park can effectively provide for both Rathmichael and Old Connaught, while separate ecological areas have been safeguarded for their protection and enhancement. To achieve multipurpose functionality, a variety of integrated and interlinked open space types will be implemented, in accordance with PO OSR8 of the DLR CDP 2022-2028. Integration will be facilitated through active travel connections and a carefully selected palette of 'hard' and 'soft' landscape elements, emphasizing protection, retention, and specification.

4.3.4.2 Mixed Densities:

Density plays an important role in ensuring that the best use is made of land intended for residential development. The preliminary Development Framework seeks to maximise the use of zoned and serviced residential land.

Consolidation through sustainable densities allows for a more compact urban growth that, in turn, more readily supports an integrated public transport system. This, together with the '10-minute neighbourhood' concept, has the potential to reduce the urban and carbon footprint of the County.

The Section 28, Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024), set national planning policy and guidance in relation to the planning and development of urban and rural settlements, with a focus on sustainable residential development and the creation of compact settlements.

The Guidelines expand on higher-level policies of the National Planning Framework, setting policy and guidance in relation to the growth priorities for settlements, residential density, urban design and placemaking and introduce development standards for housing. The density ranges contained in the Guidelines, support the application of densities that respond to settlement size and to different place contexts, recognising in particular the differences between cities, large and medium sized towns and smaller towns and villages.

Chapter 3 of the Guidelines sets out policy and guidance in relation to growth priorities for settlements at each tier in the national settlement hierarchy and in relation to residential density. The indicative residential densities for Old Connaught set out in Figure 4-3 are informed by the Section 28 Guidelines, and considerations including inter alia proximity to centre, level of public transport service, topography and landscape and relationship with surrounding built form. The densities indicated are preliminary and prepared in order to inform the ICAS Study and the strategic infrastructure requirements for the Old Connaught LAP area. Both the potential location of residential development and the indicative residential density figures will be subject to further assessment as part of the Local Area Plan making process.

In accordance with the above, residential densities in indicative residential zones are carefully calibrated to promote sustainable development and enhance accessibility. In zones proximate to key transit nodes such as Luas stops and public transport corridors, a thoughtfully designed density gradient has been proposed.

Beginning at a minimum of 50 units per hectare, these residential areas offer a harmonious transition to the countryside. As one approaches the focal points of transit connectivity, such as future potential Luas stops and major public transport corridors, the density seamlessly increases to 80-100 units per hectare. This intentional progression is aimed at maximising the efficiency of urban infrastructure, while fostering vibrant and connected communities.

The density ranges applied not only support the local demand for housing but also aligns with the commitment to sustainable urban living. By encouraging higher densities near public transport hubs, the aim is to minimize carbon footprints, reduce dependence on private vehicles, and create lively, pedestrian-friendly neighbourhoods.

This approach contributes to the overall liveability of the new urban areas and reflects dedication to creating resilient and forward-thinking communities. The careful consideration of residential densities ensures that the settlement evolves in a manner that is both sustainable and responsive to the evolving needs of its residents.

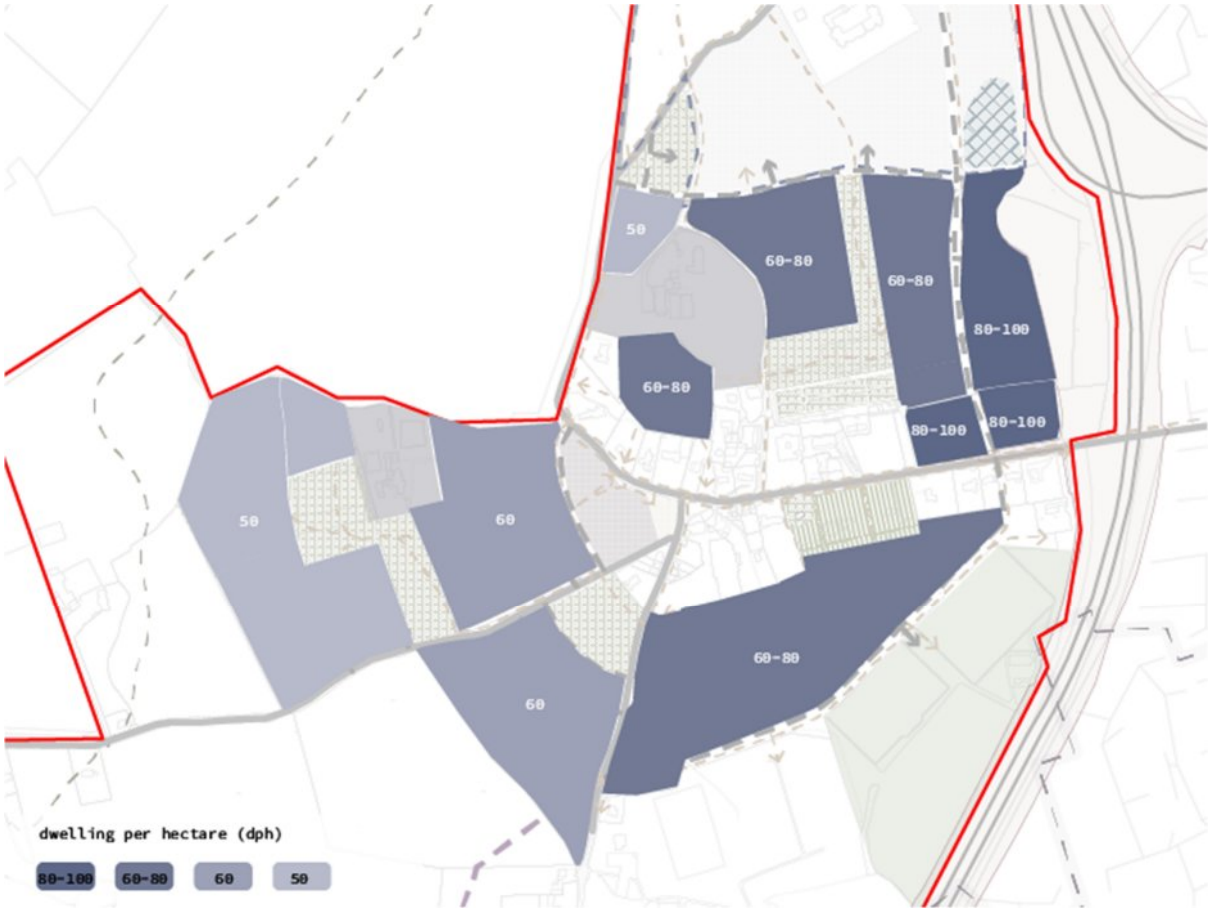


Figure 4-3 Indicative Residential Density at Old Connaught (subject to further assessment)

4.3.4.3 Proximity to Transport Corridors:

The preliminary Development Framework places a deliberate focus on optimising travel corridors, aligning with modern urban design principles that prioritize territorial integration and seamless connectivity. The strategic decision to propose increased residential densities on the eastern side, in proximity to established and future travel corridors and neighbouring settlements, represents a calculated move aimed at enhancing overall connectivity within the community.

The close proximity to existing, upcoming and future high-quality transport corridors serves as a crucial enabler for the preliminary Development Framework, playing a pivotal role in ensuring the viability and success of the proposed growth.

4.3.4.4 Village Core:

Preserving and enhancing the village core stands as a fundamental pillar within the 10-minute settlement concept, recognising its pivotal role in fostering sustainable and vibrant communities. The village core, often characterised by historic charm and a sense of community identity, serves as the heart of the locality. By safeguarding its unique character, historical significance, and local flavour, we not only maintain a sense of continuity but also ensure a resilient foundation for the 10-minute settlement concept. This central hub becomes a focal point for daily activities, offering residents easy access to essential services, amenities, and cultural spaces within a 10-minute walk or bike ride.

The preservation of the village core thus becomes synonymous with promoting walkability, reducing dependence on automobiles, and encouraging social interactions. By nurturing and enhancing this core, the community's heritage is celebrated while laying the groundwork for a sustainable and interconnected urban environment where residents can live, work, and play within a short, convenient radius.

4.3.4.5 10-Minute Settlement Concept:

In the context of the Old Connaught preliminary Development Framework, the 10-minute settlement concept embodies a visionary urban design approach centred around creating a self-sufficient and accessible

community within a compact radius. The preliminary Development Framework envisions a carefully planned layout where a range of facilities and services are accessible in a short walking and cycling timeframe from homes or are accessible by high quality public transport located within a short walk from home. The core principle involves strategically placing mixed-use developments, green spaces, and public facilities in close proximity, fostering a pedestrian-friendly environment and reducing reliance on vehicular transportation.

By emphasising the 10-minute settlement concept, the Old Connaught preliminary Development Framework aims to cultivate a sense of community, enhance quality of life, and promote sustainable living. This forward-thinking approach not only prioritises convenience but also aligns with contemporary urban design principles, creating a harmonious and well-connected neighbourhood that reflects the evolving needs of its residents.

4.3.4.6 Sports Facilities and Schools:

The preliminary Development Framework for Old Connaught places a significant emphasis on the integration of community-based sports and educational facilities, aiming to create a comprehensive and interconnected community experience. The modern sports complexes not only cater to a wide range of recreational activities but also actively promote a healthy and dynamic lifestyle among residents.

Complementing this initiative, the preliminary Development Framework adopts a comprehensive educational strategy by locating a primary school on a site north of Old Connaught Avenue adjacent to a proposed active park. This innovative concept facilitates shared resources and fosters a conducive environment for holistic educational experiences across different age groups, accommodating specialised classrooms, sports infrastructure, and recreational spaces in accordance with contemporary standards.

Strategically positioned in Old Connaught, these facilities are purposefully designed to encourage social interaction, thereby contributing to the overall well-being of the community. The preliminary Development Framework underscores the paramount importance of state-of-the-art educational infrastructure tailored to meet the evolving needs of a growing population. Well-equipped schools ensure accessibility to quality education and serve as community hubs for learning and social development. The seamless integration of sports and school facilities reflects a commitment to creating a dynamic and inclusive environment where residents of all ages can thrive, learn, and connect.

4.3.4.7 Infrastructural safeguarding and reservations

In the formulation of this preliminary Development Framework, careful consideration was given to the integration of existing and proposed infrastructure elements. This comprehensive approach encompasses crucial elements such as transport infrastructure options, potential motorway reservations, the proposed LUAS alignment, pumping stations, and attenuation ponds.

The inclusion of these key components ensures not only the synchronization of the development with the surrounding environment but also addresses the essential aspects of transportation, utilities, and environmental sustainability. By accounting for these infrastructure elements, the preliminary Development Framework aims to create a well-integrated and resilient blueprint that aligns seamlessly with the existing and planned enabling infrastructure.

4.3.4.8 Summary

In summary, this preliminary Development Framework exemplifies a well-balanced, context-sensitive, and forward-looking approach to urban development. From management of landscape character conservation and change outlined in sections 3.2.9 and 0 to mixed densities, from strategic positioning to a focus on community amenities, each aspect of the plan contributes to the creation of a sustainable, liveable, and vibrant community in Old Connaught.

This approach adeptly balances the management of landscape character conservation and change, seamlessly integrating natural elements like mature hedgerows. It optimises land use by embracing a diverse mix of densities, effectively catering to a broad spectrum of housing needs. The placement of higher densities near travel corridors and neighbouring settlements ensures seamless accessibility and connectivity. In the village centre, the plan promotes a vibrant community atmosphere, fostering social interactions and a lively environment.

The effective implementation of the 10-Minute settlement concept enhances walkability and overall quality of life. This mixed-density community strikes an ideal balance between environmental preservation, community needs, and long-term sustainability, making it the most favourable choice in the urban planning context.

4.4 Rathmichael Preliminary Settlement Strategy

Rathmichael is characterized as a suburban-rural residential area, featuring a blend of both traditional and modern homes. Situated amidst natural beauty, the village is endowed with scenic views, overlooking the Dublin and Wicklow Mountains. Rathmichael is conveniently located near several neighbouring areas including Cherrywood, Shankill, and Bray.

Within the Local Area Plan (LAP) boundary, the current landscape predominantly comprises scattered one-off residences, surrounded by greenfield areas mainly utilized for agricultural and recreational purposes. This mix of residential and open spaces contributes to the area's suburban-rural character.

4.4.1 Settlement Hierarchy

The vast majority of the built-up footprint of DLR is located within the area defined as Dublin City and Suburbs, which comprises the first tier in the regional settlement hierarchy. The significant adjacency to Cherrywood offers an opportunity for the area to accommodate growth.

4.4.2 Envisaged levels of growth

Rathmichael LAP lands contains approximately 83.05 hectares of undeveloped land zoned 'A1' – "To provide for new residential communities and Sustainable Neighbourhood Infrastructure in accordance with approved local area plans", The current DLR County Development Plan Core Strategy identifies Rathmichael as an area primed to deliver c. 2,431 residential units, and this number may increase when taking into consideration the Section 28 Compact Settlement Guidelines. Introducing this quantum of development will prove challenging and undoubtedly transformational. The existing character will inevitably transition into one that is more urban.

In order to grow sustainably, the spatial strategy for the expansion of Rathmichael will depend not only on the planned role that this area will play but, more importantly, on its strategic location relative to the proposed Luas line and other high-capacity transport networks.

The composition of the settlement and its gradual growth over time will vary accordingly, influencing the specific infrastructural requirements needed to support and accommodate this anticipated development. The structure of the settlement and its gradual growth will vary, impacting the specific infrastructure demands necessary to support and cater to this projected development.

4.4.3 Rathmichael Preliminary Settlement Strategy

The proposed strategy for expanding Rathmichael involves a synthesis of various elements to create a harmonious and balanced approach.

In the immediate short term, the primary focus is on integrating Rathmichael into the surrounding settlements. This integration seeks to establish a connection with the surrounding area, emphasising a seamless integration to foster a cohesive relationship with the hinterlands of Cherrywood and Shankill.

Simultaneously, the short-term objective is to lay the groundwork for this integration, emphasising adaptability, minimal environmental impact, and alignment with sustainable growth principles. Evaluating the potential advantages and disadvantages of this short-term approach requires careful consideration of its impact on community dynamics and resource sharing.

Looking at the long-term, the overarching goal shifts towards the realisation of a 10-minute settlement. This involves a phased development strategy, gradually transforming Rathmichael into a more self-sufficient community with convenient access to essential services within a short travel time. The long-term vision underscores the importance of integrating public transport, walkability, and cycling as part of a sustainable transportation framework.

The preliminary Settlement Strategy recommends safeguarding lands and a corridor for a proposed potential Luas line, recognising the potential for future high-capacity public transport needs. This proactive measure aims to support future transportation infrastructure developments and enhance connectivity within the region. Assessing the strengths and weaknesses of this long-term objective involves a thoughtful examination of its adaptability, environmental impact, and alignment with sustainable growth principles over an extended timeframe.

Similar to Old Connaught the strengths inherent in this strategy can be outlined as follows:

- Resilience Through Phased Evolution: The phased evolution towards a 10-minute settlement introduces a crucial element of resilience. By starting with a reliance on public transport and gradually transitioning to walkability and cycling infrastructure, the community gains adaptability and the capacity to navigate changing transportation trends over time.
- Strong Provision of Active Travel Routes and Public Transport Corridors: The emerging preferred option emphasises the creation of a comprehensive network of active travel routes and public transport corridors connecting Rathmichael with its Northern hinterland and surrounding settlements. This robust infrastructure promotes sustainable modes of transportation, reducing dependency on private vehicles and fostering a well-connected and accessible urban environment.
- Broader Integration into Cherrywood and Shankill Hinterland: the preliminary Settlement Strategy emphasises the integration of Rathmichael into its hinterland. This approach extends the accessibility radius, providing residents with a broader range of amenities and services while maintaining a suburban character.
- Safeguarding for Future Transportation Needs: Safeguarding Lands and Corridor for proposed potential Luas Line: Recognising the potential for future high-capacity public transport needs, the preliminary Settlement Strategy recommends safeguarding lands and a corridor for a proposed potential Luas line. This proactive measure aims to support future transportation infrastructure developments and enhance connectivity within the region.

The preliminary Settlement Strategy is not just an amalgamation of compatible land use and transportation scenarios; it is an achievable blueprint for the sustainable development of Rathmichael. The rationale behind the Strategy lies in its ability to address both short-term development needs and long-term sustainability goals. By gradually evolving into a 10-minute settlement, actively participating in the Cherrywood and Shankill hinterland, and strategically planning for future transportation needs, this Strategy aims to create a resilient, well-connected, and vibrant community in Rathmichael.

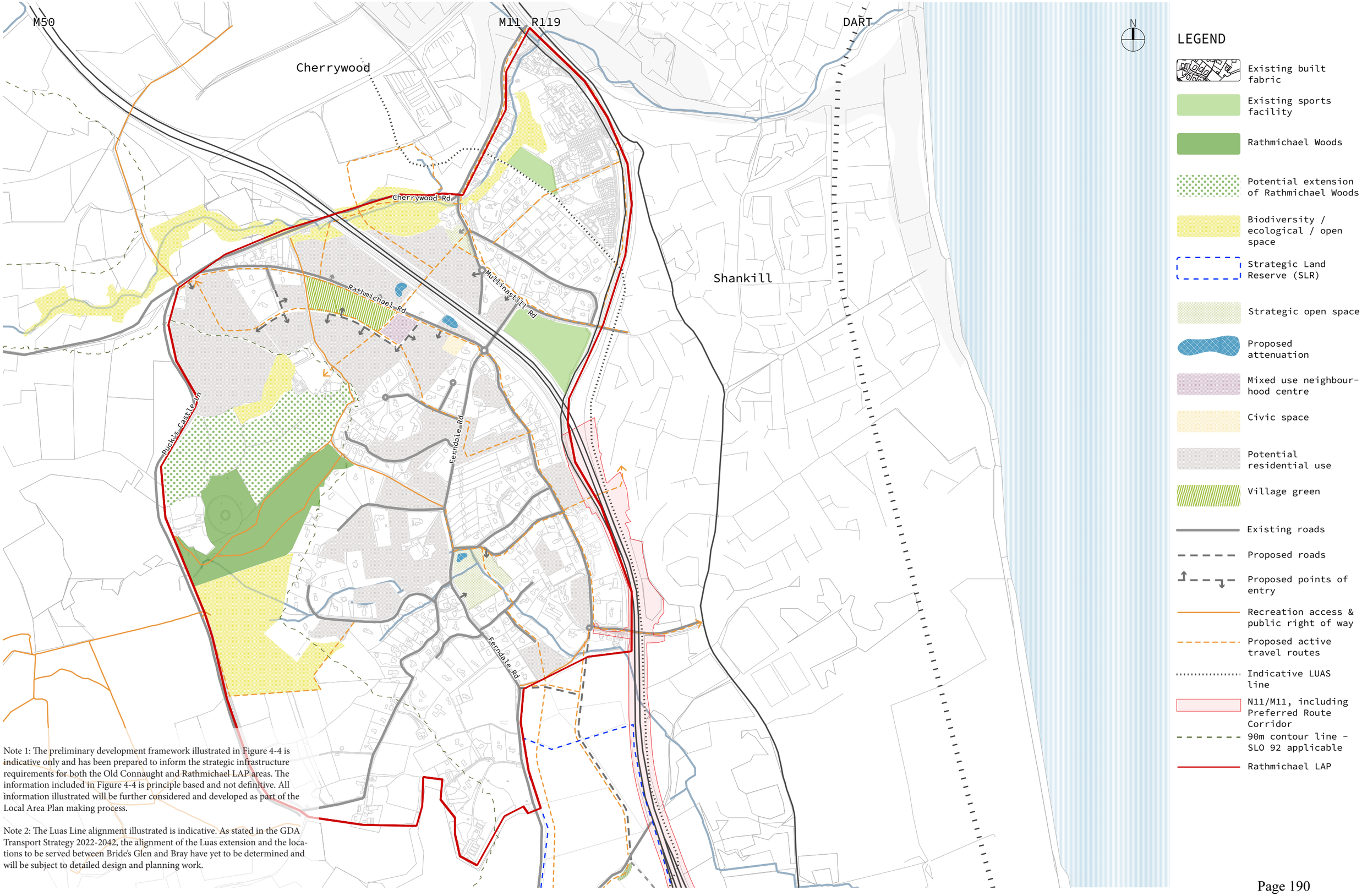
4.4.4 Rathmichael – Preliminary Development Framework

Based on the preliminary Settlement Strategy, the preliminary Development Framework for Rathmichael's expansion represents a blueprint for smart and sustainable growth. It carefully considers aspects like nature, accessibility, and creating a lively community.

This section breaks down important features of how a future local area plan may be prepared by DLRCC, from how it uses the land to why it's designed for people to easily walk around. It's not just about what's happening now; it sets the stage for a sustainable community growth for years to come.

The following illustration (Figure 4-4) presents a preliminary Development Framework for Rathmichael, illustrating a forward-thinking blueprint that envisions the area's growth and development. The following section provides a discussion on various aspects of the preliminary Development Framework.

Please note that the preliminary Development Framework illustrated in Figure 4-4 is indicative only and has been prepared to inform the strategic infrastructure requirements for the Rathmichael LAP area. The information included in Figure 4-4 is principle based and not definitive. All information illustrated, including the location and extent of specific land uses, will be further considered, assessed and developed as part of the Local Area Plan making process. It is noted, in particular, that land uses including inter alia education and community are not identified in Figure 4-4 as part of the ICAS preliminary Development Framework. The optimal location of these uses will be integrated, following further analysis, through the masterplanning process to be undertaken for the Local Area Plan.



Note 1: The preliminary development framework illustrated in Figure 4-4 is indicative only and has been prepared to inform the strategic infrastructure requirements for both the Old Connaught and Rathmichael LAP areas. The information included in Figure 4-4 is principle based and not definitive. All information illustrated will be further considered and developed as part of the Local Area Plan making process.

Note 2: The Luas Line alignment illustrated is indicative. As stated in the GDA Transport Strategy 2022-2042, the alignment of the Luas extension and the locations to be served between Bride's Glen and Bray have yet to be determined and will be subject to detailed design and planning work.

0igure 4-4 Rathmichael Preliminary Development Framework

4.4.4.1 Landscape Integration

The preliminary Development Framework for Rathmichael has been conceived with a careful consideration of the existing landscape features, including mature hedgerows and water courses. This strategic approach not only upholds the ecological integrity of the Rathmichael setting but also enhances the overall visual appeal by seamlessly incorporating these natural elements into the design.

The preliminary Development Framework embraces forward-thinking strategies for climate resilience, particularly in flood risk zones. This proactive stance ensures the safety and sustainability of the Rathmichael community while demonstrating a firm commitment to addressing potential environmental challenges.

Key Principles:

- **Environmental Considerations**: Uphold the creation of a high-quality environment and foster a strong sense of place by carefully considering Rathmichael's site topography, climate, soil, vegetation, heritage, and surrounding environment to guide design decisions.
- **Practical and Accessible Spaces**: Develop spaces within Rathmichael that are practical, accessible, and effectively serve their intended purpose.
- **Visual Appeal**: Craft visually appealing landscapes through thoughtful design, balanced compositions, and the use of elements such as colour, texture, and form, all while enhancing existing views.
- **Connectivity for Pedestrians and Cyclists**: Establish linkages and connectivity between areas and uses for pedestrians and cyclists within Rathmichael.
- **Sustainable Practices**: Implement sustainable practices, including Nature-Based Solutions, Sustainable Urban Drainage Systems (SuDS), native plant selection, and energy-efficient design. Introduce habitat creation for wildlife, biodiversity, and ecological systems within Rathmichael's designed landscape.
- **Cultural Heritage**: Infuse elements that respect and reflect the cultural heritage and identity of Rathmichael's site or its users.

By embracing the principles of ecological harmony, cultural and social connectivity, resilient infrastructure, and human well-being, the preliminary Development Framework for Rathmichael exemplifies a commitment to creating a sustainable and enriching living environment. The thoughtful integration of landscape elements ensures that development not only meets the needs of today but stands resilient and enduring for future generations in Rathmichael.

The allocation of open spaces, parks, and recreation is based on a functional hierarchy and typology, aligning with the DLRCC CDP 2022-2028. The network of parks and open space, shall cater to the needs of multiple neighbourhoods, offering both active and passive recreation options. A strategic objective involves creating a new Gateway Park and Green Infrastructure (GI) corridor in the northeast area, integrating with existing corridors, such as Corridor 6 and potentially Coastal Corridor 1, as outlined in the DLR Green Infrastructure Strategy.

The site for a potentially enlarged and expanded District Park has been identified, located at Rathmichael Wood, while separate ecological areas have been identified for their protection and enhancement. To achieve multipurpose functionality, a variety of integrated and interlinked open space types will be implemented, in accordance with PO OSR8 of the DLR CDP 2022-2028. Integration will be facilitated through active travel connections and a carefully selected palette of 'hard' and 'soft' landscape elements, emphasizing protection, retention, and specification.

4.4.4.2 Mixed Densities

Density is a crucial factor in optimising the use of residential land, ensuring efficient and sustainable urban development. The preliminary Development Framework for Rathmichael aligns with the Development Plan's goal of maximizing the use of zoned and serviced residential land, promoting consolidation through sustainable densities to facilitate compact urban growth. This approach not only supports an integrated public transport system but also aligns with the '10-minute' neighbourhood concept, aiming to minimize Rathmichael's urban and carbon footprint.

The Section 28, Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024), set national planning policy and guidance in relation to the planning and development of urban and rural settlements, with a focus on sustainable residential development and the creation of compact settlements.

The Guidelines expand on higher-level policies of the National Planning Framework, setting policy and guidance in relation to the growth priorities for settlements, residential density, urban design and placemaking and introduce development standards for housing. The density ranges contained in the Guidelines, support the application of densities that respond to settlement size and to different place contexts, recognising in particular the differences between cities, large and medium sized towns and smaller towns and villages.

Chapter 3 of the Guidelines sets out policy and guidance in relation to growth priorities for settlements at each tier in the national settlement hierarchy and in relation to residential density. The indicative residential densities for Rathmichael set out in Figure 4-5 are informed by the Section 28 Guidelines, and considerations including inter alia proximity to centre, level of public transport service, topography and landscape and relationship with surrounding built form. The densities indicated are preliminary and prepared in order to inform the ICAS Study and the strategic infrastructure requirements for the Rathmichael LAP area. Both the potential location of residential development and the indicative residential density figures will be subject to further assessment as part of the Local Area Plan making process.

To encourage sustainable development and enhance accessibility, higher densities of 80-100 units per hectare (net density) are encouraged for sites within a 1km pedestrian catchment or a 10-minute walking time of key transit nodes like rail stations, Luas lines, Core/Quality Bus Corridors, Bus Priority Routes, or Town/District Centres.

Adhering to this policy, residential densities in Rathmichael's indicative residential zones are meticulously calibrated. Proximity to key transit nodes, such as potential proposed future Luas stops and public transport corridors, sees a carefully designed density gradient. Beginning at a minimum of 50 units per hectare, these residential areas transition harmoniously towards the countryside. As Rathmichael approaches transit connectivity focal points, such as potential proposed future Luas stops and major public transport corridors, the density seamlessly increases to 80-100 units per hectare. This intentional progression maximizes the efficiency of urban infrastructure while nurturing vibrant and connected communities.

The higher density in strategic zones not only addresses local housing demands but also underscores our commitment to sustainable urban living. By encouraging higher densities near transit hubs, Rathmichael aims to minimize carbon footprints, reduce reliance on private vehicles, and foster lively, pedestrian-friendly neighbourhoods.

This approach contributes not only to the overall liveability of Rathmichael but also reflects our dedication to creating resilient and forward-thinking communities. The careful consideration of residential densities ensures that Rathmichael evolves sustainably, responding effectively to the evolving needs of its residents.

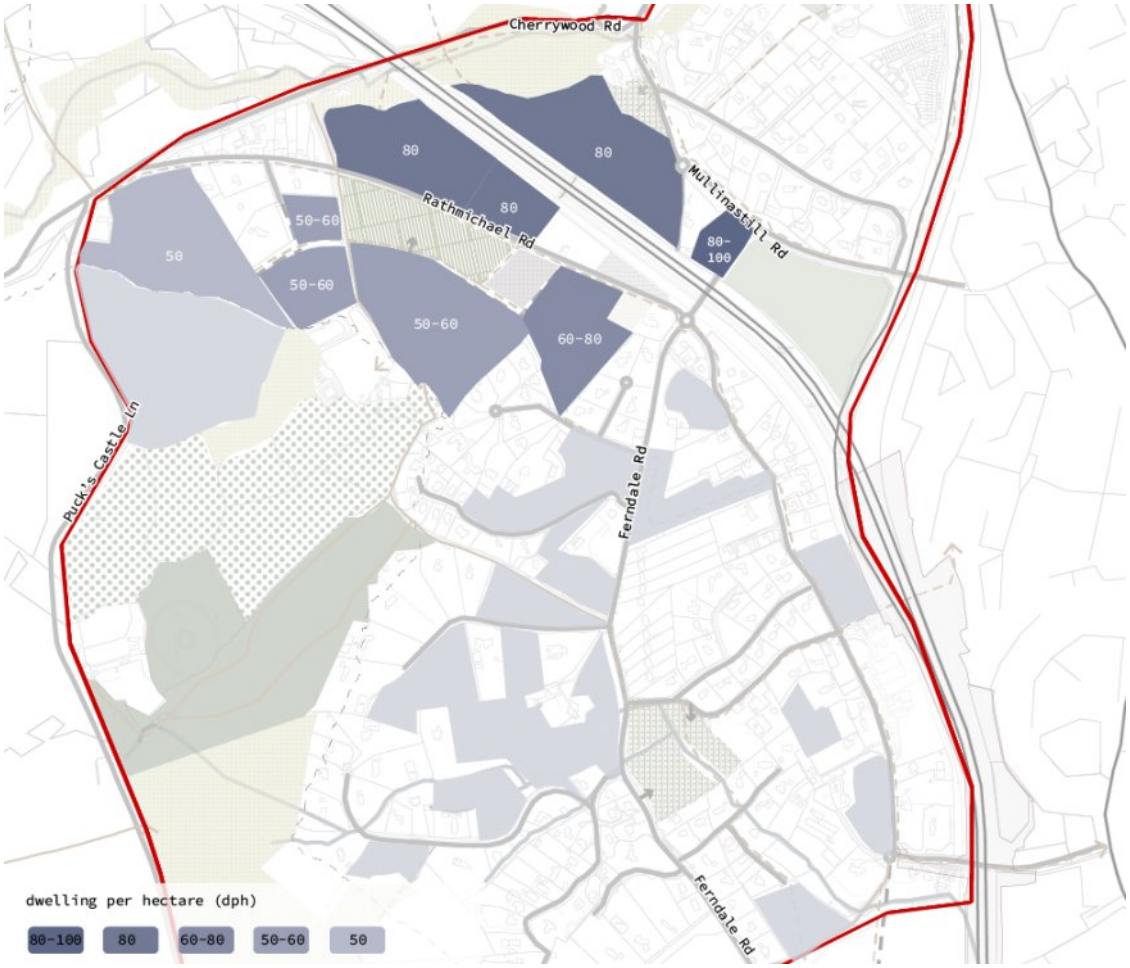


Figure 4-5 Indicative Residential Density at Rathmichael (subject to further assessment)

4.4.4.3 Proximity to Transport Corridors

The preliminary Development Framework places a deliberate focus on optimising travel corridors, aligning with contemporary urban design principles that prioritize territorial integration and seamless connectivity. The strategic choice to propose higher residential densities on the northwestern side, bordering established travel corridors and neighbouring settlements, is a calculated step aimed at improving overall connectivity within the community. The close adjacency to these high-quality transport corridors serves an important role in ensuring the viability and success of the envisioned growth.

4.4.4.4 Village Core

The preliminary Development Framework proposes a central village core along the M50-adjacent northern area. This strategic placement optimises the potential for mixed-use development, creating a dynamic hub that caters to diverse needs.

The village core along the M50-adjacent northern area becomes a bustling centre of activity, fostering a vibrant atmosphere through mixed-use developments. This central hub becomes a focal point for social interactions, commerce, and cultural activities, contributing to the dynamic character of Rathmichael.

4.4.4.5 10-Minute Settlement Concept:

In the context of the preliminary Development Framework for Rathmichael, the 10-minute settlement concept embodies a visionary urban design approach centred around creating a self-sufficient and accessible community within a compact radius. The preliminary Development Framework envisions a carefully planned layout where a range of facilities and services are accessible in a short walking and cycling timeframe from homes or are accessible by high quality public transport located within a short walk from home.

The core principle involves strategically placing mixed-use developments, green spaces, and public facilities in close proximity, fostering a pedestrian-friendly environment and reducing reliance on vehicular transportation. By emphasising the 10-minute settlement concept, the preliminary Development Framework for Rathmichael aims to cultivate a sense of community, enhance quality of life, and promote sustainable living. This forward-thinking approach not only prioritises convenience but also aligns with contemporary urban design principles, creating a harmonious and well-connected neighbourhood that reflects the evolving needs of its residents.

4.4.4.6 Sports Facilities and Schools

The preliminary Development Framework carefully considers the placement of sports facilities, incorporating existing pitches and proposed amenities within the 10-minute core. The size and location of a primary school or schools at Rathmichael will be considered and identified as part of the local area plan-making process for the area, which will be subject to further engagement with the Department of Education.

4.4.4.7 Infrastructural safeguarding and reservations

In the formulation of this preliminary Development Framework, careful consideration was given to the integration of existing and proposed infrastructure elements. This comprehensive approach encompassed crucial elements such as motorway reservations, the indicative LUAS alignment, pumping stations, and attenuation ponds. The inclusion of these key components in the masterplanning process ensures not only the synchronization of the development with the surrounding environment but also addresses the essential aspects of transportation, utilities, and environmental sustainability. By accounting for these infrastructure elements, the preliminary Development Framework aims to create a well-integrated and resilient blueprint that aligns seamlessly with the existing and planned enabling infrastructure.

4.4.4.8 Summary

In summary, this preliminary Development Framework strikes a balance between landscape preservation and urban development, blending mixed densities, optimising travel corridors, envisioning a vibrant village core, and embracing the 10-minute settlement concept while strategically placing recreation facilities and education facilities for a comprehensive and well-integrated community plan.

The preliminary Development Framework envisages a balanced approach to urban planning. By strategically blending elements from other disciplines, the framework harmonises landscape preservation with measured development.

The thoughtful consideration of landscape integration, mixed densities, and a central village core aligns seamlessly with the 10-minute settlement concept, ensuring essential amenities are centralised within easy reach.

Additionally, this option strikes a balance between landscape preservation and urban development, fostering a cohesive and accessible community. In summary, the preliminary Development Framework provides a comprehensive and well-integrated approach to sustainable and vibrant urban living.

5. Plan Performance Assessment

5.1 Overview

This ICAS strategy evaluates its adherence to a set of crucial benchmarks designed to assess the success and effectiveness of its implementation. Key Performance Indicators serve as metrics, offering a comprehensive means of evaluating the plan's progress and impact in various facets of urban development.

This section delves into the plan's alignment with the predefined KPIs, highlighting its accomplishments, challenges, and areas of improvement. By systematically evaluating its performance against these key benchmarks, the plan aims to provide a transparent account of its success in meeting the established goals and contributing to the overarching vision for sustainable and resilient urban development.

5.2 Assessment

An assessment of the KPIs against the following have been summarised in Table 5.1:

- General Policy and Spatial Planning
- Environmental
- Transport
- Water, Wastewater and Flood
- Utilities; and
- Parks, Open Spaces, Green Infrastructure & Landscape

Table 5.1 Key Performance Indicators

Considerations	Key Performance Indicator	Assessment
General Policy and Spatial Planning	Contributes to the ability to develop at sufficient scale to deliver attractive communities (e.g. local social, community and economic facilities)	Due to its scale and ambition, and by addressing key enabling infrastructure needs essential for sustainable growth, the preliminary Settlement Strategy ensures a foundation for the development of vibrant and appealing communities.
	Improves urban environment health and liveability	Factors such as comprehensive public transport, walking and cycling infrastructure, active and passive open spaces, a public realm emphasis, and sustainable development are indicative of efforts aimed at enhancing the overall quality of the urban environment. However, the success of these improvements hinges on the detailed implementation and execution of the plan, taking into account elements such as the creation of green open spaces, improved accessibility, and active community engagement. The integration and careful execution of these components are crucial to achieving positive outcomes in terms of urban health and liveability.
	Improves accessibility to existing social infrastructure (e.g. schools, recreation, healthcare)	The strategy's emphasis on comprehensive public transport, walking and cycling infrastructure, and sustainable development suggests an intention to improve accessibility to existing and future social infrastructure
	Facilitates the delivery of social and affordable housing	The identification of the strategic infrastructure required to support the delivery of housing on sites identified for social and affordable housing within the LAP area..
	Facilitates sustainable development patterns and to deliver compact growth	The strategy's emphasis on comprehensive public transport, walking and cycling infrastructure, sustainable development, and the creation of attractive communities is intended to facilitate sustainable development patterns and deliver compact growth.

Considerations	Key Performance Indicator	Assessment
Environmental	Protection and enhancement of biodiversity	Sustainable development principles, provided for in the ICAS Study include considerations for preserving and enhancing biodiversity. This includes implementing landscaping practices that support local flora and fauna, and considering ecological corridors.
	Protection of environmentally sensitive areas (e.g. aquifers, groundwater, streams and rivers)	The protection of environmentally sensitive areas such as aquifers, groundwater, streams, and rivers is a critical component of sustainable development and environmental conservation in the ICAS Study. The LAP's for Old Connaught and Rathmichael will consider provisions to safeguard water resources, prevent contamination of aquifers and groundwater, and preserve the ecological health of streams and rivers
	Improvement of air quality and reduction in noise pollution	Sustainable development principles include considerations for mitigating environmental impacts, including air quality and noise pollution. Initiatives such as promoting green spaces, adopting sustainable transportation practices, and implementing landscaping strategies contribute to improved air quality and reduced noise levels.
	Protection and enhancement of archaeology and cultural heritage	Safeguarding cultural heritage is an important aspect of comprehensive urban planning. The ICAS recognises and fosters the protection and enhancement of archaeology and cultural heritage and includes provisions for the preservation of historical sites, landmarks, and structures, as well as measures to integrate these elements into the overall urban development
Transport	Availability of an attractive and safe pedestrian network linked to internal and external opportunities	The strategy's emphasis on comprehensive public transport, walking, and cycling infrastructure includes a careful consideration for the availability of an attractive and safe pedestrian network. A well-designed pedestrian network that is both attractive and safe will be crucial for promoting walkability, enhancing urban connectivity, and ensuring accessibility to internal and external opportunities. Safe pedestrian pathways, well-lit areas, and thoughtful urban design contribute to the overall quality of the pedestrian experience.
	Availability of a safe cycle route network linked to internal and external opportunities	
	High level of permeability and reduction of walking and cycling distance and time	
	LAP areas linked to adjacent centres and key transport interchanges through Public Transport	The emphasis on comprehensive public transport suggests the connection of the LAP areas to the adjacent settlements and key transport interchanges through public transport as the basis of the strategy. Establishing strong public transportation connections between LAP areas, adjacent centres, and key transport interchanges is essential for promoting efficient mobility, reducing dependency on private vehicles, and enhancing overall accessibility.
	Public transport stops within 10 minute walking distance	The strategy's emphasis on public transport and walkability suggests an intention to ensure public transport stops are within a 10-minute walking distance. This design principle aligns with the concept of a "10-minute neighbourhood where a range of facilities and services are accessible in a short walking and cycling timeframe from homes or are accessible by high quality public transport located within a short walk from home. Such a design promotes convenience, encourages the use of public transportation, and contributes to the overall walkability of the community
	Mode split which favours sustainable modes over car usage when compared to the existing situation	The strategy emphasises the provision of comprehensive public transport, walking, and cycling infrastructure and supports a shift in the mode split toward more sustainable transportation options. Aiming to reduce reliance on private cars aligns with principles of sustainable urban development, promoting environmental sustainability and addressing issues such as traffic congestion and air pollution.
	Proposed road network accommodates expected demand	The recognition of the balance between expanding road infrastructure to accommodate anticipated growth and promoting a shift in transportation modes is a crucial aspect of this strategy.

Considerations	Key Performance Indicator	Assessment
		Prioritising active travel and public transport initiatives over car-based road projects aligns with sustainable development goals, aiming to reduce environmental impact, ease traffic congestion, and enhance overall urban liveability. This strategic approach acknowledges the need for a diversified and efficient transportation system that includes alternatives to private car usage. Balancing the development of road infrastructure with a focus on sustainable modes of transport contributes to a more resilient, accessible, and environmentally friendly urban environment.
Water, Wastewater and Flood	New development has access to water infrastructure	Ensuring enabling infrastructure to guarantee access to essential utilities like water, wastewater, and stormwater infrastructure has been a fundamental consideration in this ICAS. Accessibility to these services is critical for the sustainability and functionality of new developments.
	New development has access to wastewater infrastructure	
	New development has access to stormwater infrastructure	
	High flood risk areas are avoided and mitigated	This ICAS prioritises resilience against natural disasters, including flooding, and incorporates strategies such as land-use planning, green infrastructure, and stormwater management to avoid high-risk areas and mitigate potential impacts.
Utilities	New development has access to electricity network	Upgrading the electricity network has been taken into account in the drafting of this ICAS. Ensuring reliable access to electricity is a crucial aspect of urban development, supporting the functionality and sustainability of new communities
	New development does not encroach on Dublin Array corridor	The Dublin Array preferred cable route indicates the proposed route for the array cables to the Carrickmines Zone Substation would likely run to the north of the proposed ICAS boundaries. As such, it should not impact directly on the Rathmichael LAP area; however its corridor should be taken into consideration.
	New development has access to telecoms network	Access to telecommunication infrastructure, including internet and phone services, is crucial for the functionality and connectivity of modern developments. To evaluate the plan's effectiveness in this regard, it would be important to review specific details within the plan related to telecommunications infrastructure, technology provisions, and measures to ensure that new developments have appropriate access to the telecoms network. This is particularly important in the context of supporting digital connectivity and communication needs within the community.
Parks, Open Spaces, Green Infrastructure & Landscape	10-minute walk (800m) to public open space and/or parks with facilities (play areas, outdoor gyms, MUGA's, etc.)	The concept of a 10-minute walk (approximately 800 meters) to public open spaces and parks with facilities such as play areas, outdoor gyms, and MUGAs (Multi-Use Games Areas) is a positive planning principle. This approach aims to promote accessibility to recreational and green spaces, fostering community well-being and a higher quality of life. By emphasising the proximity of public open spaces and parks within a reasonable walking distance, the ICAS encourages physical activity, social interaction, and the enjoyment of outdoor amenities. The ICAS aligns with the idea of creating walkable neighbourhoods, where residents have easy access to green areas and recreational facilities, contributing to a healthier and more connected community.
	Pedestrian, cycle connections to Parks and Open Space	The inclusion of pedestrian and cycle connections to parks and open spaces in this ICAS strategy is a positive and forward-thinking planning strategy. Such connections contribute to creating a more walkable and bike-friendly community, fostering accessibility to recreational areas and green spaces. This design approach aligns with principles of sustainable and active transportation, promoting healthier lifestyles and reducing dependence on motorised vehicles. Pedestrian and cycle connections enhance the overall connectivity of the community, providing residents with safe and convenient routes to parks and open spaces.

Considerations	Key Performance Indicator	Assessment
		These connections can contribute to a more cohesive and integrated urban environment, encouraging outdoor activities, social interaction, and a sense of community well-being.
	Protection and integration of green assets such as trees, hedges, parks and natural habitats such as rivers, streams and woodlands	The strategy prioritizes the protection and integration of green assets, encompassing trees, hedges, parks, and natural habitats like rivers, streams, and woodlands. This strategy aligns with sustainable urban planning, offering numerous environmental benefits such as biodiversity preservation, ecosystem services, and climate resilience. Beyond ecological advantages, the plan recognises the aesthetic and recreational value of green spaces, enhancing the overall quality of life for residents. By fostering a connection to nature, reducing stress, and promoting physical and mental well-being, the integration of green assets contributes to the creation of a more resilient, vibrant, and liveable urban environment

5.3 Summary

In the preceding section, a comprehensive evaluation of the ICAS performance against crucial benchmarks has been conducted, employing Key Performance Indicators (KPIs) as metrics to measure the efficacy of its urban development initiatives.

The conclusion drawn from the assessment underscores the ICAS' commitment to advancing urban development goals through adherence to Key Performance Indicators (KPIs) and strategic benchmarks. The strategy has demonstrated notably effective in contributing to vibrant communities, improving urban health and liveability, enhancing accessibility to social infrastructure, and promoting sustainable development patterns. It has strategically addressed challenges, fostering inclusivity through the identification of social and affordable housing sites and prioritising environmentally sensitive areas.

The ICAS demonstrates a forward-thinking approach by emphasising pedestrian and cycle networks, efficient public transportation, and utility access. The integration of green assets, preservation of cultural heritage, and a focus on creating appealing, well-connected communities further highlight the strategy's holistic urban development vision.

As the assessment identifies areas for improvement, it provides a roadmap for refining the strategy, ensuring its continued effectiveness in building a resilient, sustainable, and thriving urban environment.

6. Strategic Enabling Infrastructure Requirements

Based on the analysis undertaken, the following section sets out the high-level strategic enabling infrastructure required to facilitate plan-led development of the two proposed LAP areas. The infrastructure requirements detailed align with the preliminary Development Frameworks set out in Section 4.

The preliminary Development Frameworks and their corresponding infrastructure requirements will be taken forward to the next part of the ICAS, which considers inter alia phasing and implementation. The next stage of the ICAS methodology will involve further refining of the preliminary Development Frameworks for both Old Connaught and Rathmichael LAP areas and the infrastructure requirements listed in Table 6.1.

Table 6.1 Infrastructure Requirements - Summary

Infrastructure / Spatial Element	Sub-Element	Infrastructure Requirements
Transport	Active Travel	• Upgrade of Herenford Lane / Lehaunstown Lane • Provision of SLO 150 - Active Travel Link from Rathmichael Road to Cherrywood • Potential active travel link connecting Rathmichael and Cherrywood via the viaduct • Active travel link from Rathmichael Road via Brides Glen Road to Cherrywood • Provision of active travel link between Falls Road and Parc Na Silla Rise • Active Travel upgrades along Stonebridge Road from the roundabout junction of Ferndale Road to the junction with Dublin Road, part of which is proposed as part of the BusConnects Bray to City Centre CBC. • Bus Gates on Old Connaught Avenue • Love Lane and Love Lane Bridge • Active Travel Connection between Love Lane bridge and Fassaroe Lane • Internal Active Travel Network including north-south route parallel to Ferndale Road and an internal connection across M50, approximately 500m west of Stonebridge Road bridge • Designation of a Greenway route connecting Cherrywood to Bray which utilises a potential bridge between Cherrywood and Rathmichael Road, Rathmichael Road, Ballybride Road, a new link between Crinken Lane and Allies River Road, Old Connaught Avenue and Dublin Road. • Crinken Bridge - Active travel upgrades
	Public Transport	• Provision of a bus route running along Cherrywood Road, Brides Glen Road, Rathmichael Road, Ferndale Road, linking onto the proposed new North-South Link road and on to Old Connaught Avenue, with an additional route serving Fassaroe. • Accommodate for future Luas provision. • Accommodate for future provision of bus way bridge linking Fassaroe and Old Connaught across the Ballyman Glen.
	Vehicular Circulation	• Provision of a new road running North-South, connecting Ballybride Road/Crinken Lane with Old Connaught Avenue. • Provision of new road connecting Ferndale Road and the new North-South link Road • New development roads in the periphery of Old Connaught Village which allow for the removal of through traffic along Old Connaught Avenue • Conversion of Ballybride Road and Lordello Road to one-way circulation to allow for the provision of cycle facilities along these roads without the necessity for road widening. • Provision of a new road and bridge linking Old Connaught to the Old Dublin Road (N11 Overbridge to Dublin Road or N11/M11 Junction 4 to Junction 14 Improvement Scheme in this vicinity.) • Road upgrades

Infrastructure / Spatial Element	Sub-Element	Infrastructure Requirements
Green Infrastructure & Biodiversity, Open Space, Parks and Recreation, Heritage & Conservation	Green Infrastructure & Biodiversity	• Protect existing green infrastructure and encourage and facilitate, the development, design and management of high quality natural and semi-natural areas • Expansion of the Rathmichael Woods Gateway Park and the Brides Glen to incorporate areas of biodiversity • The potential integration of attenuation ponds as part of the green infrastructure network
	Open Space, Parks and Recreation	• Enhancement and extension of Rathmichael Woods as a Gateway/District Park. • New Active Park at Old Connaught • A range of other Strategic Open Spaces • New Village Green's at both Old Connaught and Rathmichael • Civic spaces/village centres. • Provision of greenways network and linear green connecting spaces
	Heritage & Conservation	Protect, encourage and facilitate the development, design and management of cultural heritage assets
Water	Potable Water	Old Connaught: Develop new looped watermain networks connecting to existing watermains to serve new developments. Rathmichael: Develop new looped watermain networks connecting to existing watermains to serve new developments.
	Wastewater	Old Connaught: • Develop new gravity wastewater sewer network to serve new developments and existing dwellings within the LAP area. • 1 no. wastewater pumping station and associated rising main with trenchless crossing of the M11 motorway to connect the Old Connaught LAP area to the existing Uisce Éireann network to the east of the motorway. • Interim temporary proposal for a wastewater rising main in the Old Connaught Avenue bridge and a potential temporary wastewater pumping station Rathmichael: • Develop new gravity wastewater sewer network to serve new developments and existing dwellings within the LAP area. • 1 no. wastewater pumping station and associated rising main with trenchless crossing of the M11 motorway to connect the Rathmichael LAP area to the existing Uisce Éireann network to the east of the motorway.
	Storm Water	Old Connaught: • Develop new gravity stormwater drainage networks to serve new roads, public realm and development sites within the LAP area. • 1 no. regional pond for stormwater attenuation and treatment. Rathmichael: • Develop new gravity stormwater drainage networks to serve new roads, public realm and development sites within the LAP area. • 3 no. regional ponds for stormwater attenuation and treatment.
Sustainable Communities	Community Facilities	Neighbourhood level community facilities at Old Connaught. Neighbourhood level community facilities at Rathmichael.
	Education Facilities	Old Connaught: • 1 or more primary schools. Rathmichael: • 1 or more primary schools.

Infrastructure / Spatial Element	Sub-Element	Infrastructure Requirements
		ICAS area: • Potential provision of a post primary school
ESB and Telecommunication	ESB	1 no. 38kV substation
	Telecommunication	New fibre cabinet capacity
Energy and Waste	Energy	Explore potential for district heating, renewable energy sources and distribution, geothermal options, heat transfer and climate change heat resilience.
	Waste (Circular Economy)	Reuse and consideration of waste management facilities to serve sustainable development.

Appendix A

SEA and AA Screening Reports

ARUP

Dún Laoghaire-Rathdown County Council

Infrastructure Capacity Assessment Study

Strategic Environmental Assessment – Applicability Screening Report

Reference: 4

Issue | 20 September 2024

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This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 295742-00

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Contents

1. Introduction

Dún Laoghaire-Rathdown County Council (hereafter referred to as DLRCC) is currently preparing an Infrastructure Capacity Assessment Study (ICAS) to inform the development of the Rathmichael and Old Connaught Local Area Plans (LAPs).

Arup has been commissioned by DLRCC to carry out Strategic Environmental Assessment (SEA) Screening of the ICAS.

SEA Screening is defined in the relevant guidance documents[1] as "*the process for deciding whether a particular plan, other than those for which SEA is mandatory, would be likely to have significant environmental effects, and would thus warrant SEA*."

The first stage of SEA Screening is 'Applicability Screening', whereby an assessment is carried out to determine whether a particular plan or programme is within the remit of the SEA Directive / SEA Regulations.

This SEA Applicability Screening Report provides the findings of the SEA Applicability Screening process for the ICAS.

2. The Infrastructure Assessment Study

Arup was commissioned by DLRCC to complete a high-level strategic Infrastructural Capacity Assessment Study (ICAS) for the proposed Old Connaught and Rathmichael LAPs in the southeast area of the County.

The aim of the ICAS is to establish the existing context and capacities in the proposed LAP areas and to identify their constraints, challenges and opportunities. Following on from this, the ICAS will identify the proposed recommendations for high-level strategic enabling infrastructure required to facilitate plan-led development of the proposed LAP areas of Old Connaught and Rathmichael and to be considered in the formulation of policy by DLRCC to this effect. The strategic enabling infrastructure to be reviewed in this study includes:

- Transport;
- Drainage, Water Services and Utilities; and
- Parks & Open Spaces, Green Infrastructure, Biodiversity and Heritage.

3. Strategic Environmental Assessment

SEA is a process for evaluating, at the earliest appropriate stage, the environmental consequences of implementing Plan/Programme (P/P) initiatives prepared by authorities at a national, regional, or local level. The purpose is to ensure that the environmental consequences of P/P are assessed both during their preparation and prior to adoption.

The SEA process also gives interested parties an opportunity to comment on the environmental impacts of the proposed P/P and to be kept informed during the decision-making process.' (EPA, 2021)[1]

The European Directive (2001/42/EC) on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive), was transposed into national legislation in Ireland by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435/2004, as amended by S.I. 200/2011) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436/2004, as amended by S.I. 201/2011).

The SEA Directive applies to P/P which are (i) prepared or adopted by a national, regional or local level and (ii) required by legislative, regulatory or administrative provisions. Mandatory SEA is required for P/P that (i) are prepared for certain sectors and (ii) set the framework for future development consent of projects listed in Annexes I and II to the EIA Directive OR which require assessment under the EU Habitats Directive (92/43/EEC) (and which are not small area/local or minor modifications etc). SEA may also be required for other P/P where they are likely to have significant effects on the environment and this is determined on a case-by-case basis.

SEA Screening is the process of determining whether a P/P requires SEA.

4. SEA Screening Process and Methodology

Having regard to the provisions of the SEA Directive summarised in Section 3.1, the SEA Screening process can be broken down into a number of key steps:

Step 1: Applicability Screening- Is the P/P of a type which the SEA Directive Applies

Article 2(a) of the SEA Directive establishes two cumulative conditions which P/P must satisfy in order for the further elements of the SEA Directive to be applicable to them:

a. They must have been prepared and/or adopted by an authority at national, regional or local level or prepared by an authority for adoption, through a legislative procedure, by a parliament or government; and

b. They must be required by legislative, regulatory or administrative provisions.

If these conditions are not satisfied, the P/P is not regarded as a P/P which comes within the scope of the SEA Directive.

The first step in the Screening process is therefore to determine if the SEA Directive applies to the P/P under consideration. If the P/P is not of a type which falls within the remit of the SEA Directive, there is no requirement to consider further. According to the EPA Good Practice Guidance on Strategic Environmental Assessment Screening (EPA, 2021)[2], it is recommended as good practice to keep a note of the deliberations. There is no requirement to notify the environmental authorities.

If it is determined that the P/P is of a type to which the SEA Directive applies, the P/P is checked to determine if mandatory SEA is required under the provisions of the SEA Directive.

[1] Strategic Environmental Assessment Screening | Good Practice Guidance (EPA, 2021) https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/SEA_Screening_GoodPractice_2021.pdf

[2] https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/SEA_Screening_GoodPractice_2021.pdf

Step 2: Mandatory SEA Requirement – Does the P/P require mandatory SEA

Recital 10 of the SEA Directive states that:

"All plans and programmes which are prepared for a number of sectors and which set a framework for future development consent of projects listed in Annexes I and II to Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment, or plans and programmes which have been determined to require assessment pursuant to Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna, are likely to have significant effects on the environment, and should as a rule be made subject to formal environmental assessment. When they determine the use of small areas at local level or are minor modifications to the above plans or programmes, they should be assessed only where Member States determine that they are likely to have significant effects on the environment."

An SEA is therefore considered mandatory for P/P which are:

- Prepared for agriculture, forestry, fisheries, energy, industry, transport, waste/ water management, telecommunications, tourism, town & country planning or land use and which set the framework for future development consent of projects listed in the EIA Directive (85/337/EEC, as amended); or
- Have been determined to require an assessment under the Habitats Directive (92/43/EEC as amended).

If the P/P is considered to be of a type which falls within the remit of the SEA Directive and requires mandatory SEA, there is no need to continue through the Screening steps, and SEA Scoping can commence. The Screening outcome should be confirmed within the SEA Scoping Report.

SEA may also be required for other P/P where significant effects on the environment are likely and this is determined on a case-by-case basis. This is determined following an SEA Screening Assessment.

Step 3: Screening for Likely Significant Effects- Is the P/P likely to give rise to significant effects on the environment

The stages in SEA Screening are set out in Figure 3-1 below, which is reproduced from the EPA Good Practice Guidance on Strategic Environmental Assessment Screening[2].

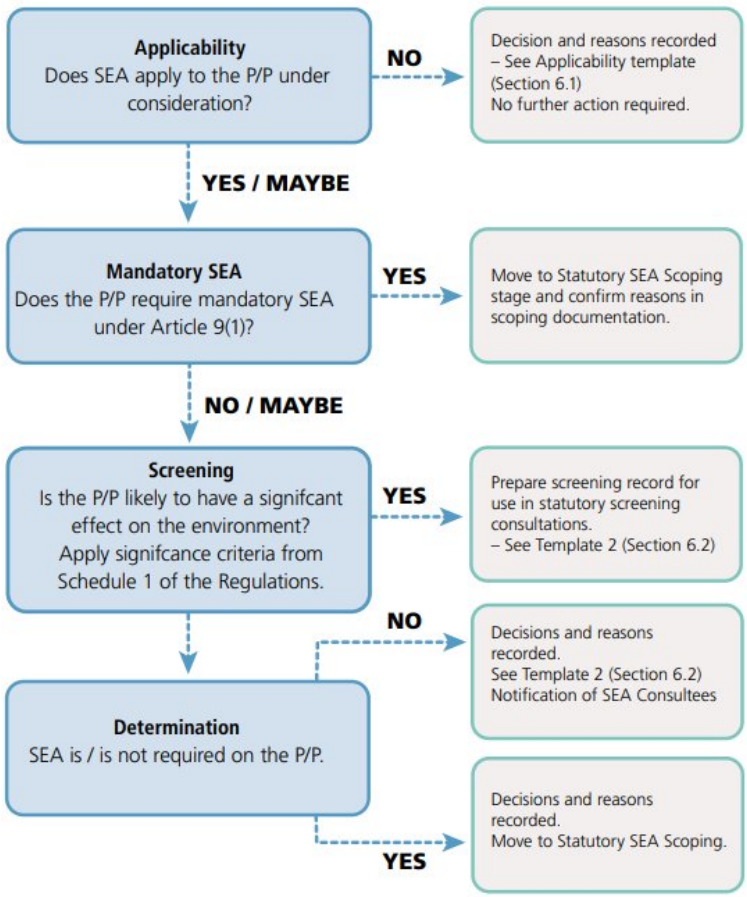

Figure 4-1 SEA Screening process (EPA, 2021)

5. SEA Applicability Screening

The Section relates to Step 1 of the SEA Screening Process: Applicability Screening.

As outlined in Section 4, the first step of the SEA Screening Process, 'Applicability Screening', requires a determination as to whether the SEA Directive applies to the P/P under consideration.

"Under the SEA Directive and Regulations, "plans and programmes" means plans and programmes, as well as any modifications to them

> *(a) which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and*
>
> *(b) which are required by legislative, regulatory or administrative provisions;"*

The ICAS is subject to the preparation and adoption by Dún Laoghaire-Rathdown County Council, an authority at a local level.

According to the EPA Guidance on SEA Screening (EPA, 2021)[2], "*required by legislative, regulatory or administrative provisions*" means that there is something by way of formal provision which could be said to govern or regulate the production of the P/P.

There is no formal legislative, regulatory or administrative provisions which could be said to govern or regulate the ICAS in and of itself. It is noted that the ICAS will inform the development of the Rathmichael and Old Connaught LAPs, which themselves are required by legislative provisions. The LAPs however will be subject to Strategic Environmental Assessment, subject to SEA Screening, prior to approval and adoption.

The Guidance goes on to state that the requirement for SEA covers Plans/Programmes that are subject to formal approval procedures, not only those where there is a specific legal requirement for these to be developed and adopted.

The ICAS will not be subject to any formal approval procedure in and of itself. The ICAS will, it is noted, inform the development of the Rathmichael and Old Connaught LAPs which will be subject to formal approval procedures. The LAPs however will be subject to Strategic Environmental Assessment, subject to SEA Screening, prior to approval and adoption.

It can therefore be concluded that the ICAS is not of a type of P/P to which the SEA Directive applies. Thus, there is no requirement to proceed to SEA Screening. The ICAS is not required to be subject to SEA.

6. Conclusion

As outlined in Section 5, it has been determined that the SEA Directive does not apply to the ICAS and that proceeding to Stage 2 Screening is not necessary in this case. The ICAS is not of a type of P/P which falls within the remit of the SEA Directive.

While the Study is prepared by a local authority, it is not required by legislative, regulatory, or administrative provisions. The ICAS Study is not subject to a formal approval procedure.

ARUP

Dun Laoghaire-Rathdown County Council

Infrastructure Capacity Assessment Study

Report to Inform Screening for Appropriate Assessment

Reference: DLRCC_ICAS_AA

Issue 02 | 24 September 2024

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 295742-00

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Contents

Figures

1. Introduction

1.1 Overview

This report contains information regarding the need for a Screening for Appropriate Assessment on an Infrastructure Capacity Assessment Study (ICAS) currently being developed by DLRCC.

1.2 Purpose of the ICAS

DLRCC is currently preparing an Infrastructure Capacity Assessment Study (ICAS) to inform the development of the Rathmichael and Old Connaught LAPs. Following on from this, the ICAS will identify the proposed recommendations for high-level strategic enabling infrastructure required to facilitate plan-led development of the proposed LAP areas of Old Connaught and Rathmichael and to be considered in the formulation of policy by DLRCC to this effect.

The aim of the ICAS is to establish the existing context and capacities in the proposed LAP areas and to identify their constraints, challenges and opportunities. Following on from this, the ICAS Study will identify the proposed recommendations for high-level strategic enabling infrastructure required to facilitate plan-led development of the proposed LAP areas of Old Connaught and Rathmichael and to be considered in the formulation of policy by DLRCC to this effect.. The strategic enabling infrastructure to be reviewed in this study includes:

- Transport;
- Drainage, Water Services and Utilities; and
- Parks & Open Spaces, Green Infrastructure, Biodiversity and Heritage.

The ICAS is not required by legislative, regulatory or administrative provisions nor is the ICAS subject to a formal approval procedure.

1.3 Appropriate Assessment

Appropriate Assessment is a process required under Article 6(3) of the EU Habitats Directive which transposed into Irish legislation through the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477 of 2011) as amended (hereafter referred to as the Habitats Regulations) and by Part XAB of the Planning and Development Act 2000 (as amended).

An Appropriate Assessment of a plan or project is required if it is likely to have a significant effect on a European site, either alone or in combination with other plans and projects, pursuant to the Habitats Regulations (as amended) and the Planning and Development Act (as amended).

2. Screening for Appropriate Assessment

2.1 Legislative Requirement for Appropriate Assessment

Pursuant to the Habitats Regulations (as amended) and the Planning and Development Act (as amended), a Screening for AA is required for a 'plan or project'.

As defined in the Habitats Regulations (as amended):

"A screening for Appropriate Assessment ***of a plan or project for which an application for consent*** *is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site."*

As defined in the Planning and Development Act (as amended):

"A screening for appropriate assessment of a ***draft Land use plan or application for consent*** *for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site"*[1].

2.2 Screening for Appropriate Assessment Process

The Office for the Planning Regulator[2] provides guidance on the Screening for AA process and is defined below in Figure 1:

Describe the plan and or project and the characteristics of the area of which the plan or project shall be implemented.

⇩

Identify the relevant European sites and compile information on Qualifying Interests (QIs) and Conservation Objectives (COs)

- Identify all European sites using the Source-Pathway-Receptor model
- Identify the Qualifying Interests of the site concerned and the conservation objectives
- Determine which of those QIs/COs could be affected by the plan/project

⇩

Assess the likely significant direct and indirect effects on the COs of the site(s) in relation to the:
Project/Plan alone, *and*
In-combination with other plans and projects

⇩

Screening determination – in the absence of mitigation measures, determine if the project or plan, alone or in-combination with other plans and projects could undermine the COs of the site(s) and give rise to likely significant effects.

Figure 1 Screening for Appropriate Assessment Process

[1] A Screening for Appropriate Assessment as defined by the Planning and Development Act (as amended)

There are "*Cases where no Appropriate Assessment issues arise"* and as outlined within the guidance from the OPR. This is where the plan or project '*could not have any conceivable effect on a European site. For example, where the nature, scale, timing, duration and location of a development is entirely unconnected to a European site'.* The guidance further states that *"The project should only be considered to have no appropriate assessment issues if it is obvious that the entire project, through all of its stages, could not possibly have any effect on any European site, and that no measures intended to avoid or reduce potentially harmful effects on a European site are included"*

The aforementioned process and guidance have been considered as part of this report.

2.3 Definitions

The definitions of a 'plan' and a 'project', as defined within the Habitats Regulations (as amended) are provided for below.

2.3.1 A plan

""plan", subject to the exclusion, except where the contrary intention appears, of any plan that is a land use plan within the meaning of the Planning Acts 2000 to 2011, includes—

> *(a) any plan, programme or scheme, statutory or non-statutory, that establishes public policy in relation to land use and infrastructural development in one or more specified locations or regions, including any development of land or on land, the extraction or exploitation of mineral resources or of renewable energy resources and the carrying out of land use activities, that is to be considered for adoption or authorisation or approval or for the grant of a licence, consent, permission, permit, derogation or other authorisation by a public authority, or*
>
> *(b) a proposal to amend or extend a plan or scheme referred to in subparagraph (a);"*

2.3.2 A project

""project", subject to the exclusion, except where the contrary intention appears, of any project that is a development requiring development consent within the meaning of the Planning and Development Acts 2000 to 2011, includes—

> *(a) land use or infrastructural developments, including any development of land or on land,*
>
> *(b) the extraction or exploitation of mineral resources, prospecting for mineral resources, turf cutting, or the exploitation of renewable energy resources, and*
>
> *(c) any other land use activities,"*

3. Requirement of AA Screening to the ICAS

3.1 Review of the ICAS

The ICAS is a study document outlining the existing context and capacity within the Old Connaught and Rathmichael areas and is designed to inform the forthcoming LAPs for the respective areas.

The information within the ICAS was reviewed for any material which could be defined as a pathway for effect on European sites. These could take the form as actions, targets, measures or material that could be considered to require development consent. The objectives contained within the ICAS are considered to be guidance and ideas for the direction of which the future LAPs will take and are at this stage too vague to make a meaningful AA Screening upon.

3.2 Review Outcome

Following review, it was determined that there was no material within the ICAS that could be defined as a pathway for effect on European site(s). Similarly, there was no material within the ICAS that could define the ICAS as a 'project' or a 'plan' as per the definitions provided in Sections 2.3.1 and 2.3.2.

Therefore, in accordance with the relevant guidance set forward by the Office of the Planning Regulator[2], there is no instance (s) for effect(s) on European site(s) contained within the ICAS.

This review has determined that the ICAS cannot be defined as a 'project' or a 'plan' and as such, in line with the relevant guidance and legislation, is not subject to a Screening to AA.

It is anticipated that the forthcoming LAPs for Old Connaught and Rathmichael shall outline the future policies, and actions for each LAP and pursuant to Part XAB of the Planning and Development Act (as amended), shall be subject to a Screening for AA (at minimum). Any pathways for effect on European sites within a zone of influence of the draft LAPs shall be considered at this stage.

[2] OPR (2021) Office of the Planning Regulator. Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. March 2021. Accessed at https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf

4. Conclusion & Recommendations

4.1 Summary

A project or a plan must undergo a Screening for AA to assess, in view of best scientific knowledge and in view of the conservation objectives of a European site, whether the plan or project, individually or in combination with other plans or projects is likely to have a significant effect on European site(s). The requirement for Screening for AA is set forward in the Habitats Regulations (as amended) and the Planning and Development Act (as amended).

The ICAS is a study commissioned to inform the development of the forthcoming LAPs for Old Connaught and Rathmichael. The ICAS does not contain any actions, targets or measures nor does it include material that could be defined as requiring development consent.

4.2 Conclusion

No pathways for effect were determined following review of the ICAS. Therefore, in accordance with guidance from the OPR, the ICAS cannot have a conceivable effect on a European site.

Additionally, it has been determined that the ICAS does not meet the definitions of a ‘project’ or a ‘plan’ and therefore is not eligible for a Screening for AA. The ICAS Study will identify the proposed recommendations for high-level strategic enabling infrastructure required to facilitate plan-led development of the proposed LAP areas of Old Connaught and Rathmichael and to be considered in the formulation of policy by DLRCC to this effect. The ICAS Study is not required by legislative, regulatory or administrative provisions. The ICAS is not subject to a formal approval procedure.

4.3 Future Requirements

Pursuant to Part XAB of the Planning & Development Act (as amended) the forthcoming LAPs for Old Connaught and Rathmichael will require a Screening for AA, and if necessary, full Appropriate Assessment. Each LAP shall be subject to its respective Screening for AA.

Appendix B

Species of Higher Conservation Value

Table B- 1 - Species of Higher Conservation Value Identified within 2km of the LAP Areas

Species of Higher Conservation Value Identified Within 2km of the Site					
Birds					
Species group	Species Name	Record Count	Designation	Habitat Type	Species Type
bird	Barn Owl (Tyto alba)	4	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List	Woodland edge Arable	Small rodents
bird	Black-headed Gull (Larus ridibundus)	37	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List	Freshwater Wetlands Marshes	Omnivore
bird	Eurasian Curlew (Numenius arquata)	14	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List	Wet grassland, Blanket bog Estuaries	Insectivorious
bird	Herring Gull (Larus argentatus)	40	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List	Coastal Urban	Carnivore
bird	Northern Lapwing (Vanellus vanellus)	11	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List	Wet grassland Estuaries	Insectivore
bird	Peregrine Falcon (Falco peregrinus)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List	Cliff	Avivore
bird	Yellowhammer (Emberiza citrinella)	5	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List	Arable Hedgerow	Granivores Insectivores
Flowering Plants					
flowering plant	Irish Whitebeam (Sorbus hibernica)	1	Threatened Species: Vulnerable	Glens Rocky scarps	N/A

Insects					
insect - beetle (Coleoptera)	Enicocerus exsculptus	1	Threatened Species: Endangered	Margins fast-flowing streams	
insect - butterfly	Dark Green Fritillary (Argynnis aglaja)	1	Threatened Species: Vulnerable	Wet grasslands, Moorland, Flower rich habitats	*Viola* sp
insect - butterfly	Wall (Lasiommata megera)	5	Threatened Species: Endangered	Coastal Unimproved Grassland Hedgerows	Bents, Cock's-foot, False Brome, Wavy Hair-grass
insect - hymenopteran	Andrena (Andrena) praecox	2	Threatened Species: Vulnerable	Heathland Open Woodland	*Salix* sp.
insect - hymenopteran	Andrena (Cnemidandrena) denticulata	1	Threatened Species: Vulnerable	Flower rich habitats, Open Scrub	Yellow *Asteraceae* particularly Ragwort, Hawkweeds, Cats-ear.
insect - hymenopteran	Andrena (Melandrena) nigroaenea	3	Threatened Species: Vulnerable	Flower rich habitats	Range of species
insect - hymenopteran	Andrena (Oreomelissa) coitana	1	Threatened Species: Vulnerable	Flower rich habitats	Range of species
insect - hymenopteran	Field Cuckoo Bee (Bombus (Psithyrus) campestris)	1	Threatened Species: Vulnerable	Requires common carder bee – meadows, parks, woodland edges	ivy, dandelion, clovers, hawthorn, thistles, knapweeds, brambles and scabious
insect - hymenopteran	Gooden's Nomad Bee (Nomada goodeniana)	1	Threatened Species: Endangered	Woodland, Coastal	Dandelion, Willow
insect - hymenopteran	Great Yellow Bumble Bee (Bombus (Subterraneobombus) distinguendus)	1	Threatened Species: Endangered	Machair, Flower rich sand dunes	Range of flowers
insect - hymenopteran	Lasioglossum (Lasioglossum) lativentre	1	Threatened Species: Critically Endangered	Woodland edge	Primarily Asteraceae e.g. Dandelions but also Ericaceae and Rosaceae
insect - hymenopteran	Nomada striata	1	Threatened Species: Endangered	Requires *A. wilkella* which uses unimproved grassland and heathland.	Bell heather, bramble, bird's foot trefoil, germander speedwell and Asteraceae

insect - hymenopteran	Tawny Mining Bee (Andrena (Andrena) fulva)	3	Threatened Species: Regionally Extinct	Open grassland, Open scrub and woodland	Buttercups, dandelions, hawthorn, blackthorn, willows.
Bryophytes					
liverwort	Lesser Copperwort (Cephaloziella massalongi)	3	Protected Species: Flora Protection Order Threatened Species: Vulnerable	Damp acid rocks, Copper tolerant	
moss	Beck Pocket-moss (Fissidens rufulus)	1	Protected Species: Flora Protection Order Threatened Species: Endangered	Permanent or intermittently submerged calcareous rocks	
moss	Lead-moss (Ditrichum plumbicola)	1	Protected Species: Flora Protection Order Threatened Species: Endangered	Lead and zinc mines	

Species of Conservation Value Identified to be considered as part of this scheme			
Species group	**Species name**	**Record count**	**Designation**
Amphibians			
amphibian	Common Frog (Rana temporaria)	32	Protected Species: Wildlife Acts
amphibian	Smooth Newt (Lissotriton vulgaris)	2	Protected Species: Wildlife Acts
Birds			
bird	Barn Owl (Tyto alba)	4	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
bird	Barn Swallow (Hirundo rustica)	46	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Black-headed Gull (Larus ridibundus)	37	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
bird	Brent Goose (Branta bernicla)	6	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Common Kestrel (Falco tinnunculus)	9	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Common Kingfisher (Alcedo atthis)	4	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Common Linnet (Carduelis cannabina)	38	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Common Sandpiper (Actitis hypoleucos)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List

bird	Common Snipe (Gallinago gallinago)	5	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Common Starling (Sturnus vulgaris)	77	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Common Swift (Apus apus)	50	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Common Tern (Sterna hirundo)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Eurasian Curlew (Numenius arquata)	14	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
bird	Eurasian Oystercatcher (Haematopus ostralegus)	6	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Eurasian Reed Warbler (Acrocephalus scirpaceus)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Eurasian Tree Sparrow (Passer montanus)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Eurasian Woodcock (Scolopax rusticola)	2	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Great Black-backed Gull (Larus marinus)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Great Cormorant (Phalacrocorax carbo)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List

bird	Herring Gull (Larus argentatus)	40	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
bird	House Martin (Delichon urbicum)	48	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	House Sparrow (Passer domesticus)	21	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Lesser Black-backed Gull (Larus fuscus)	6	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Mallard (Anas platyrhynchos)	28	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Mediterranean Gull (Larus melanocephalus)	2	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Mew Gull (Larus canus)	2	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Mute Swan (Cygnus olor)	2	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Northern Gannet (Morus bassanus)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Northern Lapwing (Vanellus vanellus)	11	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
bird	Northern Wheatear (Oenanthe oenanthe)	3	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Peregrine Falcon (Falco peregrinus)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List

bird	Red Kite (Milvus milvus)	2	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Sand Martin (Riparia riparia)	37	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Sandwich Tern (Sterna sandvicensis)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Sky Lark (Alauda arvensis)	5	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Stock Pigeon (Columba oenas)	2	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Water Rail (Rallus aquaticus)	1	Protected Species: Wildlife Acts Birds of Conservation Concern - Amber List
bird	Yellowhammer (Emberiza citrinella)	5	Protected Species: Wildlife Acts Birds of Conservation Concern - Red List
flowering plant	Dwarf Mallow (Malva neglecta)	1	Threatened Species: Near threatened
flowering plant	Irish Whitebeam (Sorbus hibernica)	1	Threatened Species: Vulnerable
flowering plant	Pale Flax (Linum bienne)	6	Threatened Species: Near threatened
flowering plant	Sea-kale (Crambe maritima)	3	Threatened Species: Near threatened
flowering plant	Upright Brome (Bromopsis erecta)	1	Threatened Species: Near threatened

insect - beetle (Coleoptera)	Enicocerus exsculptus	1	Threatened Species: Endangered
insect - beetle (Coleoptera)	Oreodytes davisii	1	Threatened Species: Near threatened
insect - butterfly	Dark Green Fritillary (Argynnis aglaja)	1	Threatened Species: Vulnerable
insect - butterfly	Grayling (Hipparchia semele)	2	Threatened Species: Near threatened
insect - butterfly	Small Heath (Coenonympha pamphilus)	2	Threatened Species: Near threatened
insect - butterfly	Wall (Lasiommata megera)	5	Threatened Species: Endangered
insect - hymenopteran	Andrena (Andrena) fucata	3	Threatened Species: Near threatened
insect - hymenopteran	Andrena (Andrena) praecox	2	Threatened Species: Vulnerable
insect - hymenopteran	Andrena (Cnemidandrena) denticulata	1	Threatened Species: Vulnerable
insect - hymenopteran	Andrena (Leucandrena) barbilabris	3	Threatened Species: Near threatened
insect - hymenopteran	Andrena (Melandrena) nigroaenea	3	Threatened Species: Vulnerable
insect - hymenopteran	Andrena (Oreomelissa) coitana	1	Threatened Species: Vulnerable

insect - hymenopteran	Field Cuckoo Bee (Bombus (Psithyrus) campestris)	1	Threatened Species: Vulnerable
insect - hymenopteran	Gooden's Nomad Bee (Nomada goodeniana)	1	Threatened Species: Endangered
insect - hymenopteran	Great Yellow Bumble Bee (Bombus (Subterraneobombus) distinguendus)	1	Threatened Species: Endangered
insect - hymenopteran	Large Red Tailed Bumble Bee (Bombus (Melanobombus) lapidarius)	44	Threatened Species: Near threatened
insect - hymenopteran	Lasioglossum (Lasioglossum) lativentre	1	Threatened Species: Critically Endangered
insect - hymenopteran	Moss Carder-bee (Bombus (Thoracombus) muscorum)	4	Threatened Species: Near threatened
insect - hymenopteran	Nomada panzeri	1	Threatened Species: Near threatened
insect - hymenopteran	Nomada striata	1	Threatened Species: Endangered
insect - hymenopteran	Tawny Mining Bee (Andrena (Andrena) fulva)	3	Threatened Species: Regionally Extinct
liverwort	Blunt-leaved Earwort (Diplophyllum obtusifolium)	1	Threatened Species: Near threatened

liverwort	Lesser Copperwort (Cephaloziella massalongi)	3	Protected Species: Flora Protection Order Threatened Species: Vulnerable
liverwort	Petalwort (Petalophyllum ralfsii)	1	Protected Species: EU Habitats Directive Flora Protection Order 2015 Schedule C (Liverworts
moss	Beck Pocket-moss (Fissidens rufulus)	1	Protected Species: Flora Protection Order Threatened Species: Endangered
moss	Lead-moss (Ditrichum plumbicola)	1	Protected Species: Flora Protection Order Threatened Species: Endangered
moss	Potato Bryum (Bryum bornholmense)	3	Threatened Species: Near threatened
Reptiles			
reptile	Common Lizard (Zootoca vivipara)	2	Protected Species: Wildlife Acts
Mammals			
terrestrial mammal	Brown Long-eared Bat (Plecotus auritus)	6	Protected Species: EU Habitats Directive Protected Species: Wildlife Acts
terrestrial mammal	Daubenton's Bat (Myotis daubentonii)	51	Protected Species: EU Habitats Directive Protected Species: Wildlife Acts
terrestrial mammal	Eurasian Badger (Meles meles)	29	Protected Species: Wildlife Acts
terrestrial mammal	Eurasian Pygmy Shrew (Sorex minutus)	4	Protected Species: Wildlife Acts
terrestrial mammal	Eurasian Red Squirrel (Sciurus vulgaris)	13	Protected Species: Wildlife Acts
terrestrial mammal	European Otter (Lutra lutra)	3	Protected Species: EU Habitats Directive Protected Species: Wildlife Acts

terrestrial mammal	Lesser Noctule (Nyctalus leisleri)	3	Protected Species: EU Habitats Directive Protected Species: Wildlife Acts
terrestrial mammal	Pine Marten (Martes martes)	1	Protected Species: EU Habitats Directive Protected Species: Wildlife Acts
terrestrial mammal	Pipistrelle (Pipistrellus pipistrellus sensu lato)	5	Protected Species: EU Habitats Directive Protected Species: Wildlife Acts
terrestrial mammal	Soprano Pipistrelle (Pipistrellus pygmaeus)	10	Protected Species: EU Habitats Directive Protected Species: Wildlife Acts
terrestrial mammal	West European Hedgehog (Erinaceus europaeus)	63	Protected Species: Wildlife Acts
Invasive Species			
Flatworm (Turbellaria)	Arthurdendyus triangulatus	13	High Impact Invasive Species
mollusc	Jenkins' Spire Snail (Potamopyrgus antipodarum)	5	Medium Impact Invasive Species
terrestrial mammal	Brown Rat (Rattus norvegicus)	9	High Impact Invasive Species Regulation S.I. 477 (Ireland)
terrestrial mammal	Eastern Grey Squirrel (Sciurus carolinensis)	43	High Impact Invasive Species Regulation S.I. 477 (Ireland)
terrestrial mammal	European Rabbit (Oryctolagus cuniculus)	7	Medium Impact Invasive Species
terrestrial mammal	House Mouse (Mus musculus)	4	High Impact Invasive Species

terrestrial mammal	Sika Deer (Cervus nippon)	3	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) || Protected Species: Wildlife Acts
flowering plant	American Skunk-cabbage (Lysichiton americanus)	3	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Butterfly-bush (Buddleja davidii)	11	Medium Impact Invasive Species
flowering plant	Canadian Waterweed (Elodea canadensis)	1	High Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Giant Hogweed (Heracleum mantegazzianum)	3	High Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Himalayan Honeysuckle (Leycesteria formosa)	2	Medium Impact Invasive Species
flowering plant	Himalayan Knotweed (Persicaria wallichii)	1	High Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Japanese Knotweed (Fallopia japonica)	11	High Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Nuttall's Waterweed (Elodea nuttallii)	3	High Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Rhododendron ponticum	1	High Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Sea-buckthorn (Hippophae rhamnoides)	1	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Spanish Bluebell (Hyacinthoides hispanica)	2	Regulation S.I. 477 (Ireland

flowering plant	Sycamore (Acer pseudoplatanus)	18	Medium Impact Invasive Species
flowering plant	Three-cornered Garlic (Allium triquetrum)	10	Medium Impact Invasive Species Regulation S.I. 477 (Ireland)
flowering plant	Traveller's-joy (Clematis vitalba)	5	Medium Impact Invasive Species

Appendix C

Junction Modelling Note

ARUP

Technical Note

Project title	Infrastructure Capacity Assessment Study for Old Connaught and Rathmichael
Job number	
File reference	
cc	
Prepared by	Halil Senturk
Date	19 April 2024
Subject	Junction Analysis

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1. Introduction

This study was conducted with the intention of identifying option to operation, design and improve the junction performance and operation during AM peak hours in Old Connaught and Rathmichael areas. The location of the junctions in Old Connaught and the study area is shown in Figure 1. Linking the development area to M11 via existing structure through the roundabout at R119 & R761 will create a new T-junction at R119.

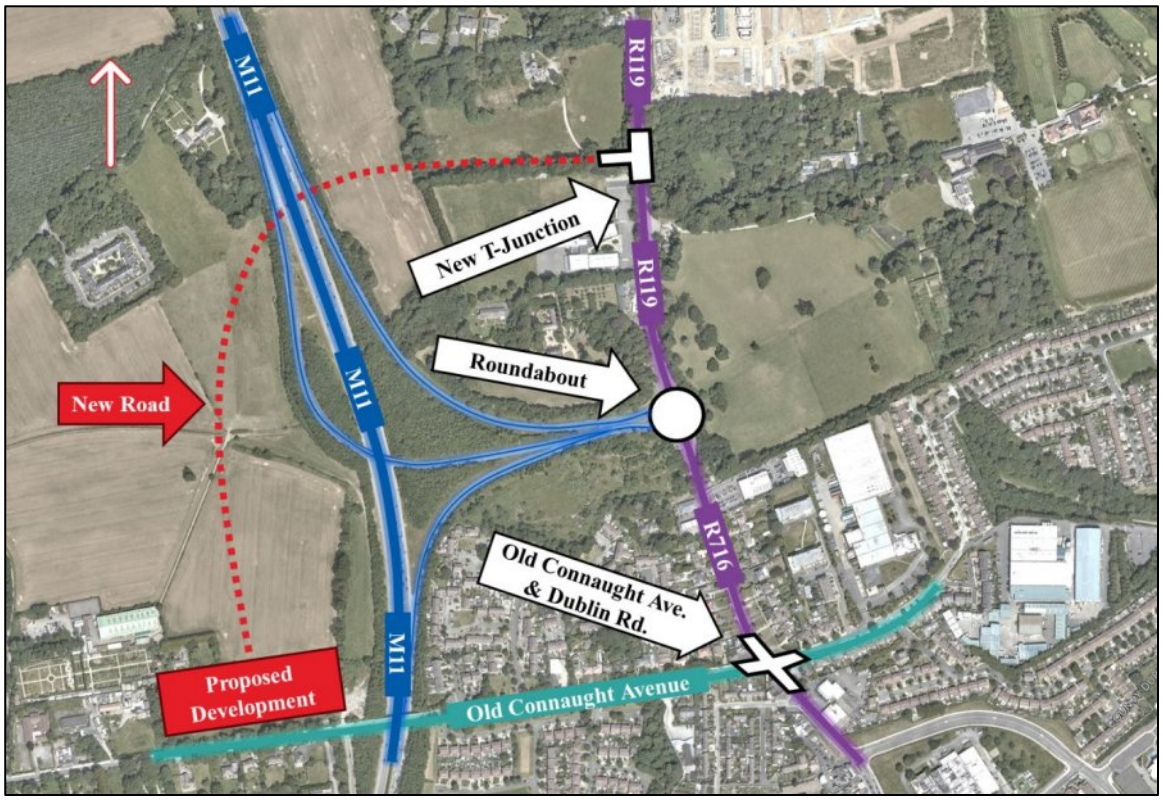


Figure 1 Junction location context for Old Connaught Area

The study area in Rathmichael includes two signalised junctions that are shown in Figure 2.

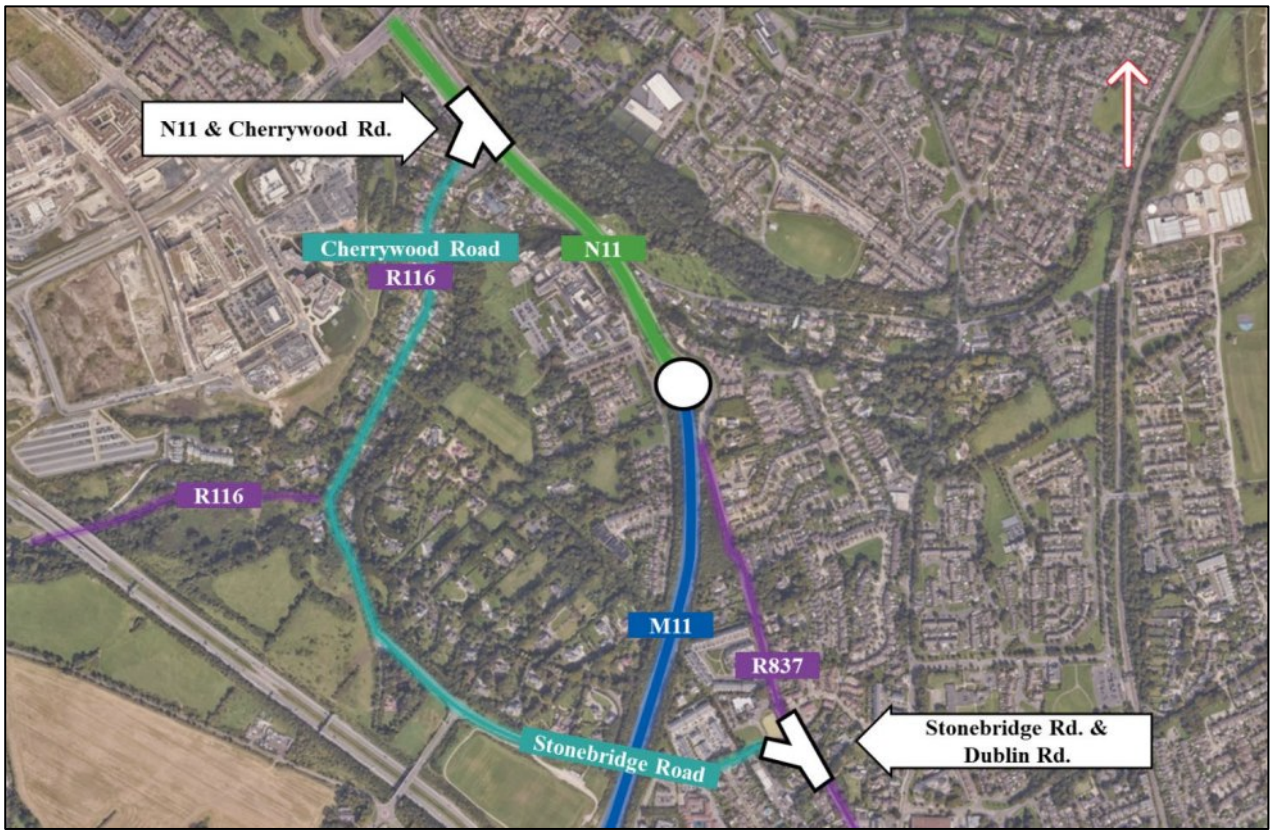


Figure 2 Junction location context for Rathmichael Area

2. Existing Content

2.1 Old Connaught Area

2.1.1 Junction 1: Old Connaught Avenue - Dublin Road

The Old Connaught Avenue – Dublin Road junction is a four-arm signalised junction. The all arms are two-way, with one lane in each direction, providing connection to Old Connaught. The northern, southern, and western arms have right turn lanes, the northern and eastern arms have slip lanes for left turns (Figure 3).

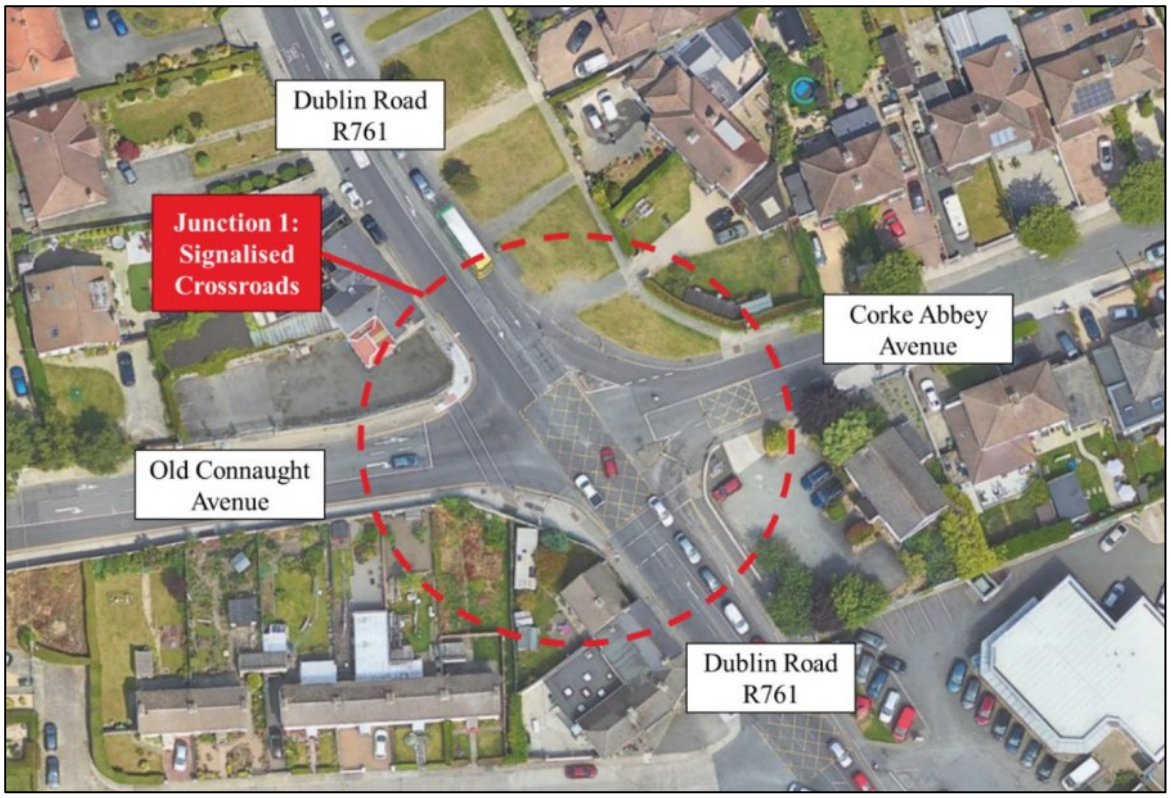


Figure 3 Old Connaught Avenue – Dublin Road signalised junction layout (Google Earth)

2.1.2 Junction 2: M11/R119/R761 Roundabout

The M11/R119/R761 junction is a three-arm roundabout junction. The northern and southern arms are two-way, with one lane in each direction and flares in the roundabout entry, providing connection to Old Connaught and Shankill. The western arm is a connection to M11 Motorway, and there are two dedicated lanes for left turn and right turn at the roundabout entry (Figure 4).

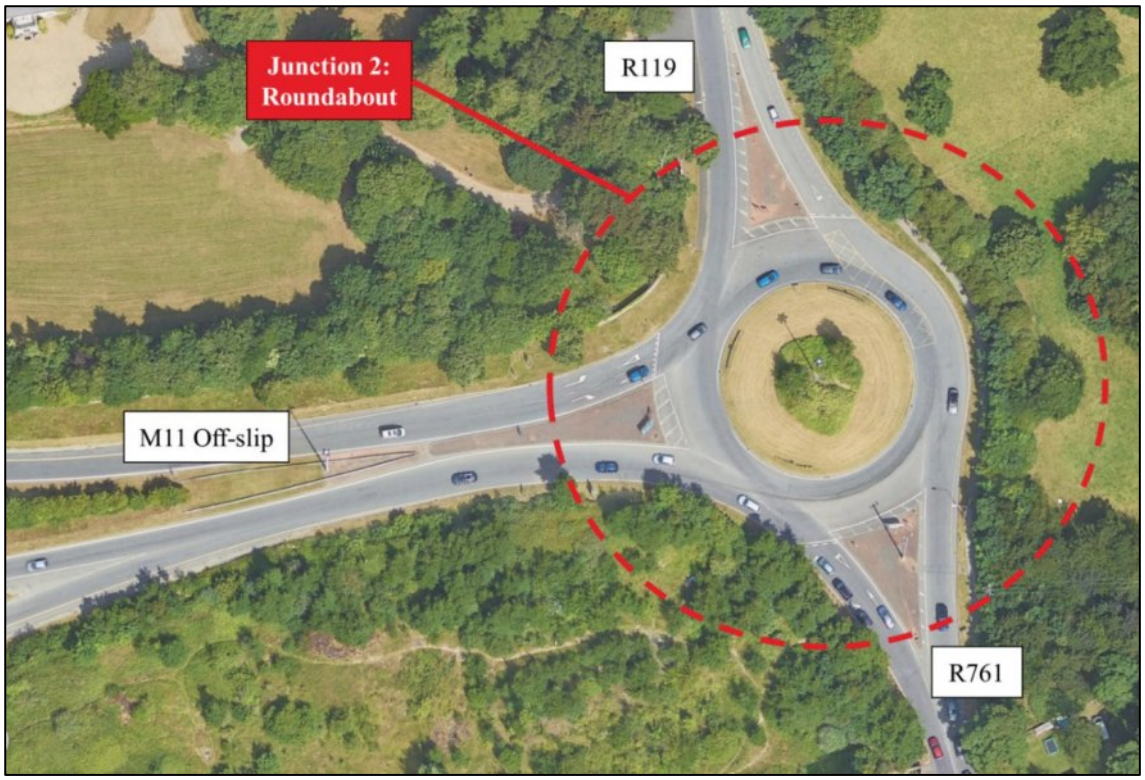


Figure 4 M11/R119/R761 Roundabout junction layout (Google Earth)

2.1.3 Junction 3: New T-Junction

The new proposed junction will be located at the northern section of the M11/R119/R761 Roundabout. It will connect the new proposed development area and R119 Road and will create a T-junction. It is important to note that the precise geographical coordinates and the final design for the proposed new junction remain undetermined. For the purpose of this study, we assume that the junction will take the form of T-junction. We have conducted an analysis of hypothetical (what if) scenarios.

The R119 Road cross section shows it has one lane in each direction. In addition to traffic lanes, there are advisory bike lanes and footpath in each direction (Figure 5).

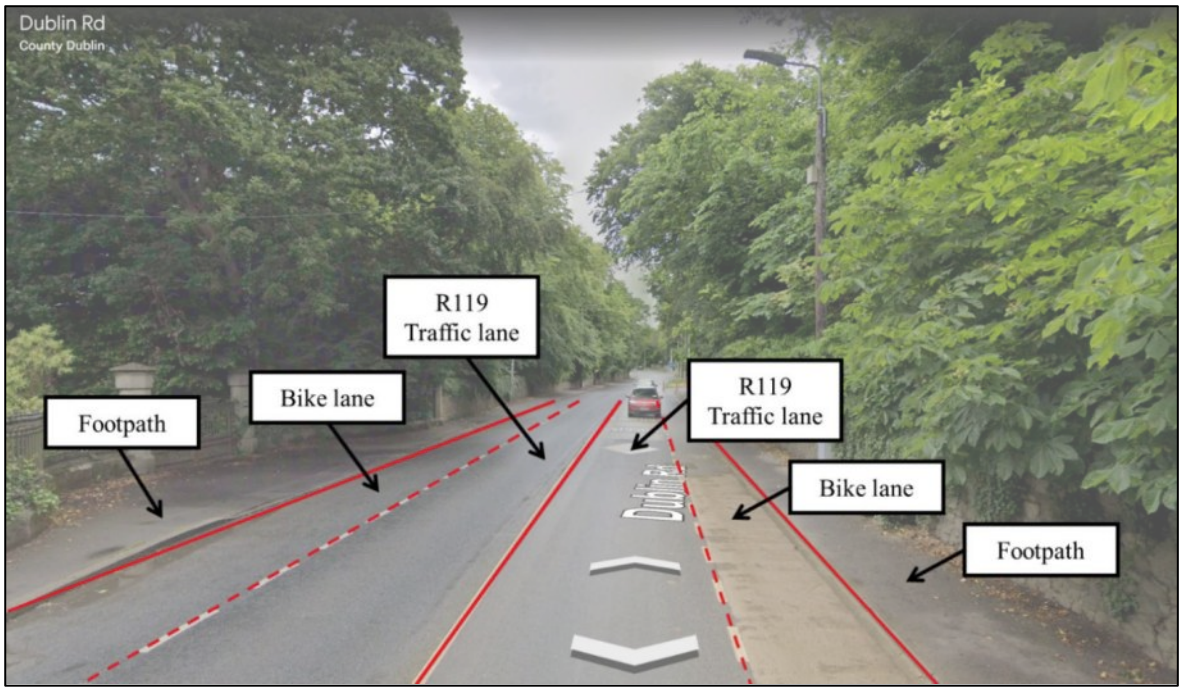


Figure 5 Cross section of R119 (Google Earth)

2.2 Rathmichael Area

2.2.1 Junction 4: Stonebridge Road – Dublin Road

The Stonebridge Road – Dublin Road junction is a three-arm signalised junction. The all arms are two-way, with one lane in each direction, providing connection to Shankill. There are advisory bike lanes at northern and southern arms (Figure 6).

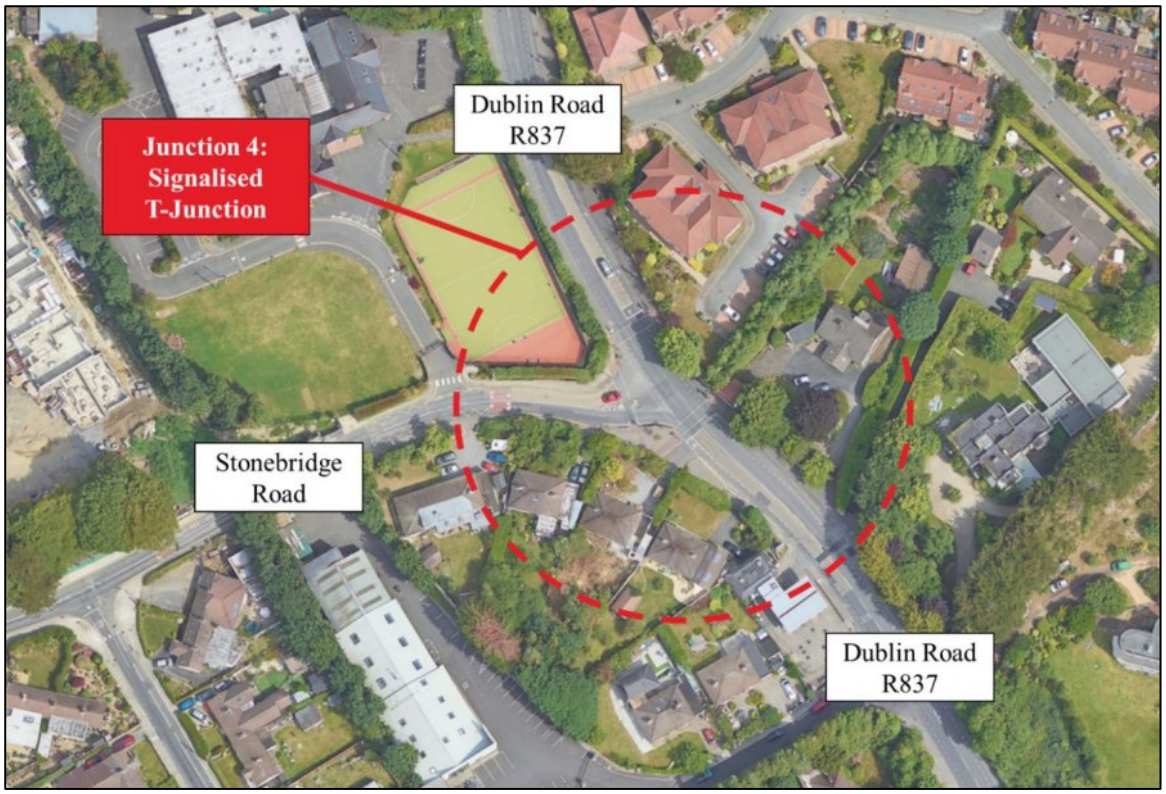


Figure 6 Stonebridge Road – Dublin Road signalised junction layout (Google Earth)

2.2.2 Junction 5: N11 – Cherrywood Road

The N11 – Cherrywood Road junction is a three-arm signalised junction. The northern arm is controlled by signals for vehicle-pedestrian conflict. There's a parallel service road to the main road (N11) providing access to the houses nearby. The parallel road-minor road (Cherrywood Road) conflicts are managed as priority junction, the major road-minor road conflicts are controlled by traffic signals at the south-eastern and south-western arms (Figure 7).

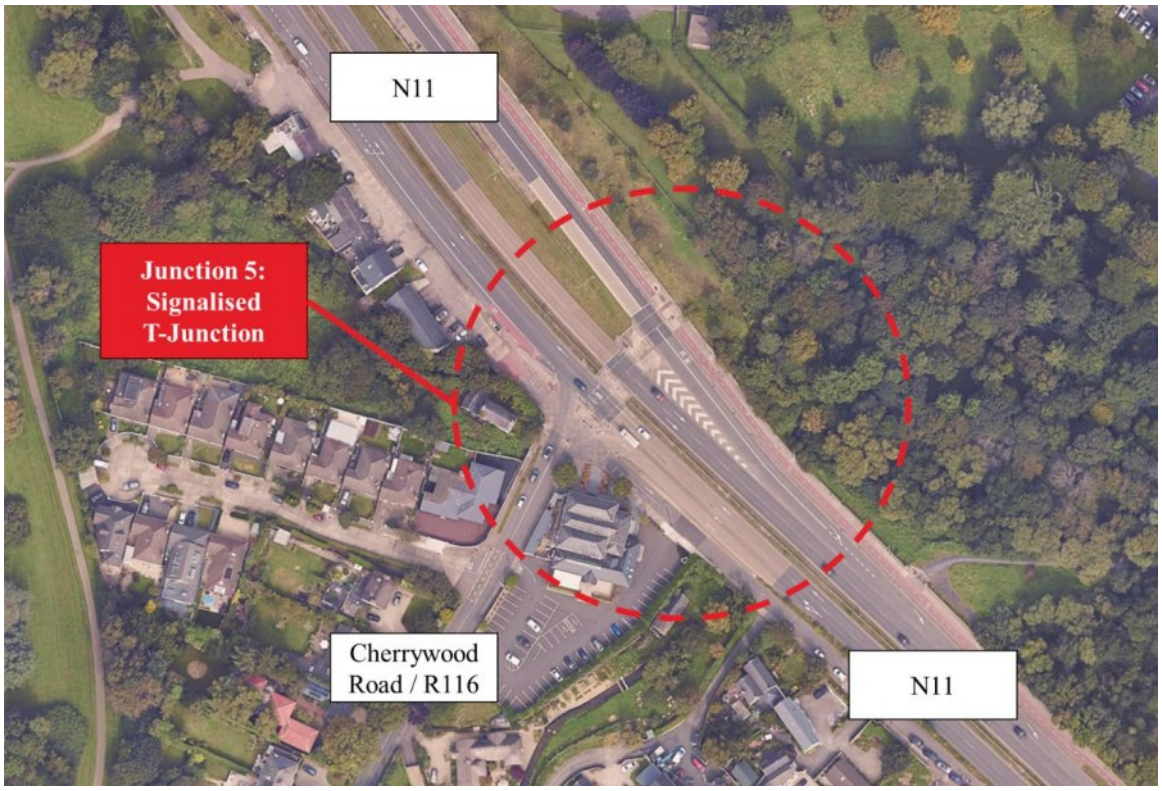
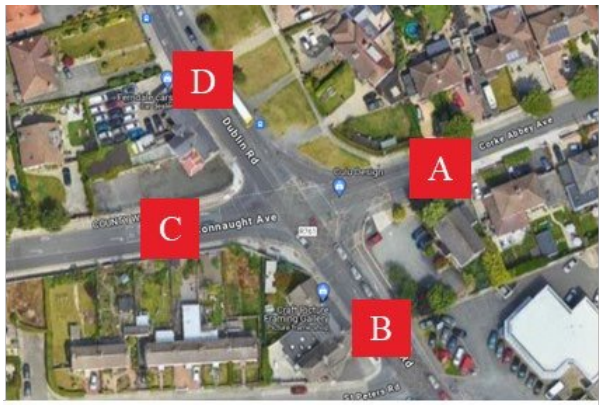


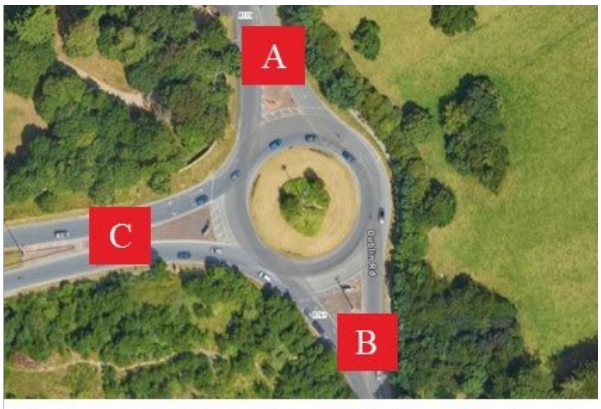
Figure 7 N11 – Cherrywood Road signalised junction layout (Google Earth)

3. Baseline Data

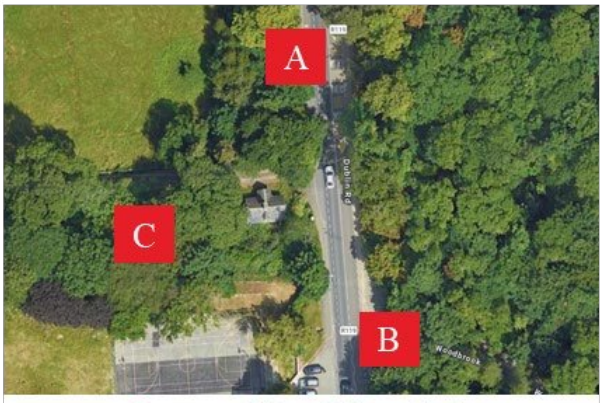
In this study, roundabout, priority T-junction and signalised T-junction options are modelled and analysed by using TRL Junctions 9 and LinSig software. M11/R119/R761 Roundabout and Priority New Junction were modelled in TRL Junctions 9 and Old Connaught Avenue-Dublin Road Junction and Signalised New Junction were modelled in LinSig. Due to new expected traffic pattern, traffic flows and OD data are adjusted and shown in from Table 1 to Table 5 insert cross reference here.



Old Connaught Ave. – Dublin Road

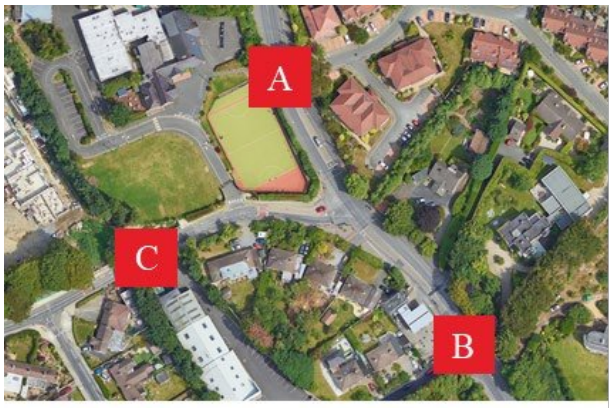


M11/R119/R761 Roundabout

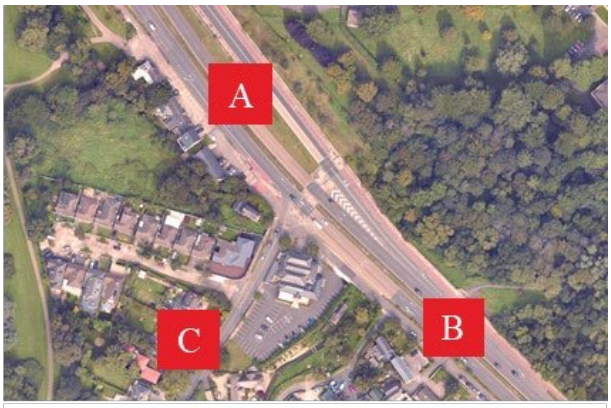


Proposed New T-Junction*

Figure 8 Zone labels for OD data of Old Connaught area junctions (*hypothetical location)



Stonebridge Road – Dublin Road



N11 – Cherrywood Road

Figure 9 Zone labels for OD data of Rathmichael area junctions

Table 1 OD data of Old Connaught – Dublin Road Junction for each scenario

Old Connaught Avenue – Dublin Road New Development with Current Road					
	A	B	C	D	Total
A	0	127	16	164	**307**
B	66	0	90	599	**755**
C	38	223	0	358	**620**
D	80	464	169	0	**713**
Total	**184**	**814**	**276**	**1120**	**2394**

Old Connaught Avenue – Dublin Road New Development with New Road					
	A	B	C	D	Total
A	0	127	1	179	**307**
B	66	0	7	682	**755**
C	7	40	0	64	**111**
D	111	647	13	0	**772**
Total	**184**	**814**	**22**	**924**	**1944**

Table 2 OD data of M11/R119/R761 Roundabout for each scenario

M11/R119/R761 Roundabout New Development with Current Road				
	A	B	C	Total
A	5	298	281	**584**
B	490	3	637	**1129**
C	134	432	4	**570**
Total	**628**	**734**	**922**	**2284**

M11/R119/R761 Roundabout New Development with New Road				
	A	B	C	Total
A	5	410	469	**883**
B	517	3	435	**954**
C	236	330	4	**570**
Total	**758**	**742**	**907**	**2407**

Table 3 OD data of New Junction for each scenario

New Junction New Development with Current Road				
	A	B	C	Total
A	0	551	-	**551**
B	556	0	-	**556**
C	-	-	-	**-**
Total	**556**	**551**	**-**	**1107**

New Junction New Development with New Road				
	A	B	C	Total
A	0	389	71	**460**
B	595	0	116	**711**
C	144	368	0	**512**
Total	**739**	**757**	**186**	**1683**

Table 4 OD data of Stonebridge Road – Dublin Road for each scenario

Stonebridge Road – Dublin Road Current Traffic				
	A	B	C	Total
A	0	307	119	**426**
B	360	0	112	**472**
C	75	150	0	**225**
Total	**435**	**457**	**231**	**1123**

Stonebridge Road – Dublin Road New Development Traffic				
	A	B	C	Total
A	0	307	137	**444**
B	360	0	124	**484**
C	161	207	0	**368**
Total	**521**	**514**	**261**	**1296**

Table 5 OD data of N11 – Cherrywood Road for each scenario

N11 – Cherrywood Road Current Traffic				
	A	B	C	Total
A	0	0	0	**0**
B	1760	0	93	**1853**
C	253	0	0	**253**
Total	**2013**	**0**	**93**	**2106**

N11 – Cherrywood Road New Development Traffic				
	A	B	C	Total
A	0	0	0	**0**
B	1779	0	155	**1934**
C	533	0	0	**533**
Total	**2312**	**0**	**155**	**2467**

4. Scenarios

Current road infrastructure and the new junction scenarios were tested for the roundabout and the proposed new T-junction in Old Connaught area. The impact of the new traffic pattern to M11/R119/R761 Roundabout during the morning peak was modelled and analysed. Specifically, we examined the effects of a proposed new T-junction. Initially, we modelled and analysed it as a functioning priority junction. Finally, the proposed new T-junction was modelled and analysed as a signalised junction.

Table 6 Analysis scenarios for Old Connaught area junctions

	New Development with Current Road	New Development with New Road
Old Connaught Ave. – Dublin Road – AM Peak	✓	✓
M11/R119/R761 Roundabout – AM Peak	✓	✓
New T-Junction (Priority Junction) – AM Peak	-	✓
New T-Junction (Signalised Junction) – AM Peak	-	✓

The impact of the new development traffic during the morning peak was modelled and analysed for the junctions in Rathmichael area.

Table 7 Analysis scenarios for Rathmichael area junction

	Current Traffic	New Development Traffic
Stonebridge Road – Dublin Road – AM Peak	✓	✓
N11 – Cherrywood Road – AM Peak	✓	✓

5. Assessment and Road Impact

5.1 Modelling Inputs

A cycle time of 120 seconds was selected for the signalised junction. For eastbound arm, we modelled a dedicated right turn lane by considering the volume of right-turn traffic.

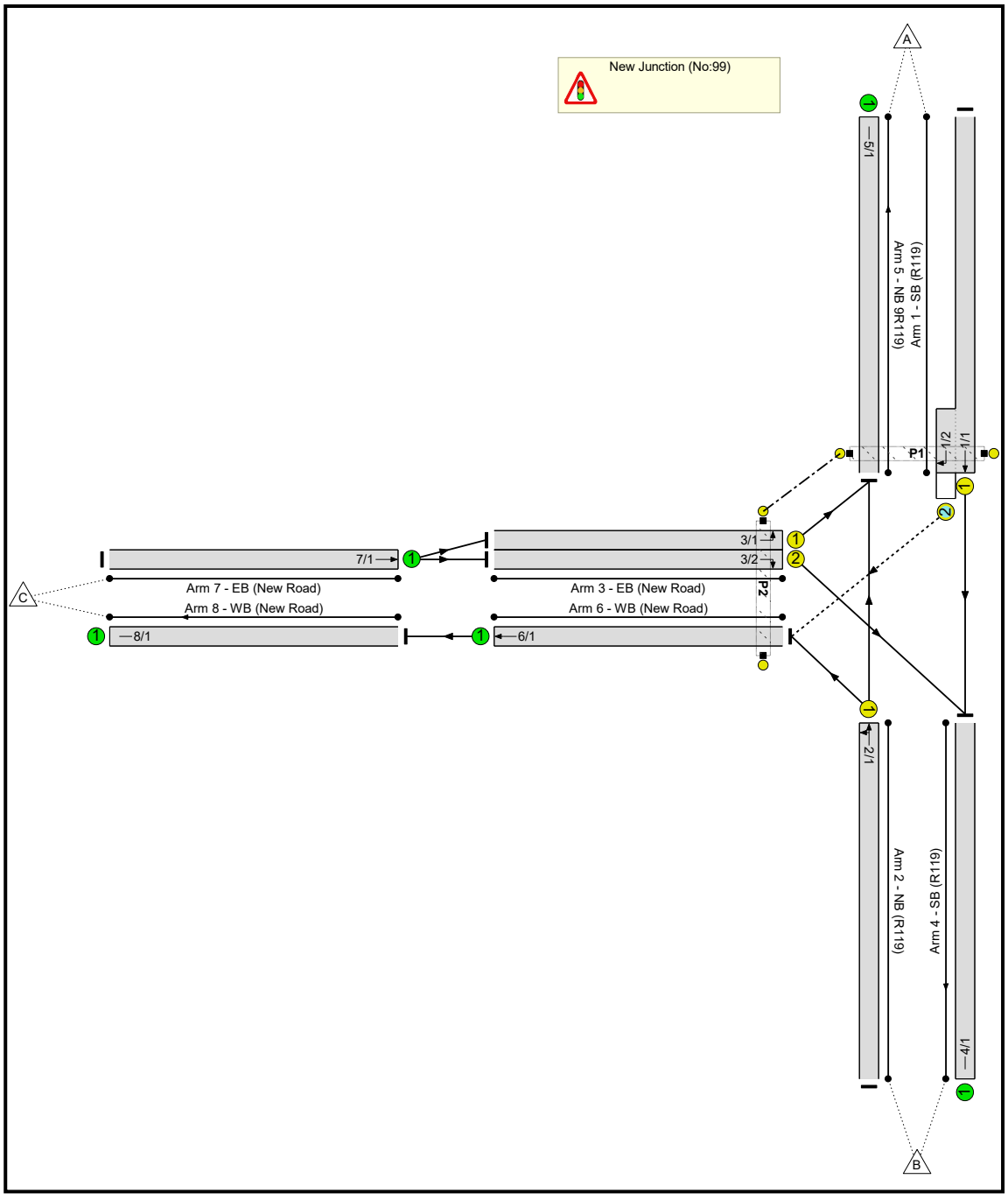


Figure 10 Network layout model for the new proposed T-junction

5.2 Junction Analysis Results

The results in Table 8 show that Old Connaught Avenue – Dublin Road junction will be operating overcapacity at current road infrastructure: RFC/PRC: -60.3% and with capacity with the new road infrastructure and changing traffic patterns: RFC/PRC: 17.4%.

The model analysis results in Table 8 show that M11/R119/R761 Roundabout will be operating with capacity at current road infrastructure: RFC/PRC: 18% and slightly more capacity with the new road infrastructure: RFC/PRC: 22%.

The new proposed T-junction will be operating overcapacity as a priority junction: RFC/PRC: -35% and model performance shows it will be operating with capacity as signalised junction: RFC/PRC: 17.6%.

Table 8 Junction analysis results of Old Connaught area junctions for each scenario

	New Development with Current Road			New Development with New Road		
	RFC / PRC	**Total Delay (pcuHr)**	**LOS**	**RFC / PRC**	**Total Delay (pcuHr)**	**LOS**
Old Connaught Avenue - Dublin Road	-60.3%	112	F	17.4%	19.57	B
M11/R119/R761 Roundabout	18%	5.49	A	22%	5.91	A
New T-Junction (Priority Junction)	-	-	-	-35%	318.28	F
New T-Junction (Signalised Junction)	-	-	-	17.6%	17.63	B

The results in Table 9 show that Stonebridge Road – Dublin Road junction will be operating with capacity with the new development traffic: RFC/PRC: 5.9%. The junction signal cycle time has been optimised to 120 seconds to maintain the same level of service.

The model analysis result in Table 9 show that N11 – Cherrywood Road will be operating with capacity with the new development traffic: RFC/PRC: 4.4%. The junction signal cycle time has been optimised to 120 seconds to maintain the same level of service.

Table 9 Junction analysis results of Rathmichael area junctions for each scenario

	Current Traffic				New Development Traffic			
	Cycle Time	**RFC / PRC**	**Total Delay (pcuHr)**	**LOS**	**Cycle Time**	**RFC / PRC**	**Total Delay (pcuHr)**	**LOS**
Stonebridge Road - Dublin Road	90	13.5%	11.21	B	120	5.9%	17.01	B
N11 - Cherrywood Road	90	22.8%	12.41	B	120	4.4%	25.98	C

6. Summary

To assess the vehicular flow performance of junctions, Junctions 9 and LinSig models were prepared. Trip generation, trip distribution and trip assignment studies were done with associated facility use purpose. The performance of existing junctions with existing infrastructure, and also the hypothetical junction with different junction control types were analysed.

6.1 Junction 1: Old Connaught Avenue - Dublin Road

The modelling show that the Old Connaught Avenue – Dublin Road junction will be operating overcapacity during AM peak with the existing infrastructure. The new road and the junction facility help diverting the traffic and it is in favour of Old Connaught Avenue – Dublin Road junction.

6.2 Junction 2: M11/R119/R761 Roundabout

The modelling results show that M11/R111/R761 Roundabout will not be affected marginally by changing traffic patterns and will keep operating with capacity.

6.3 Junction 3: New T-Junction

The modelling show that if the proposed new junction designed as a priority junction, it would perform overcapacity and may cause delays from the beginning of its operation life. The model analysis results show that signalised version of the new junction it will be working with capacity during AM peak and have better performance results than the priority junction option.

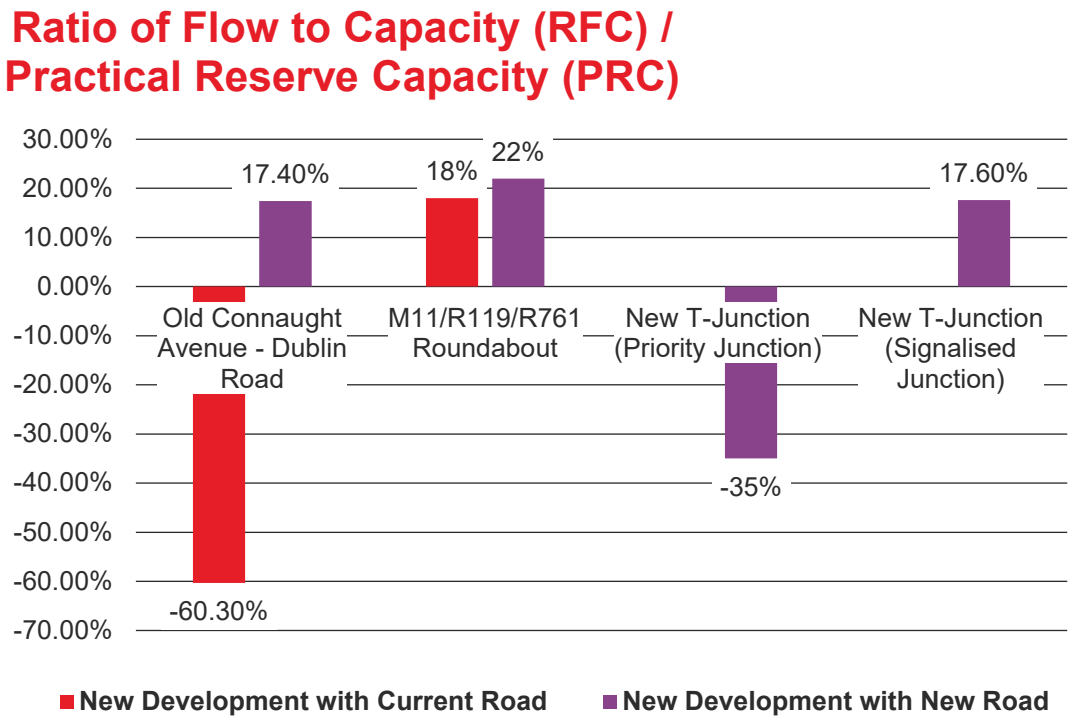


Figure 11 Comparison of Ratio of Flow Capacity (RFC) or Practical Reserve Capacity (PRC) levels of Old Connaught junctions during AM Peak in different scenarios

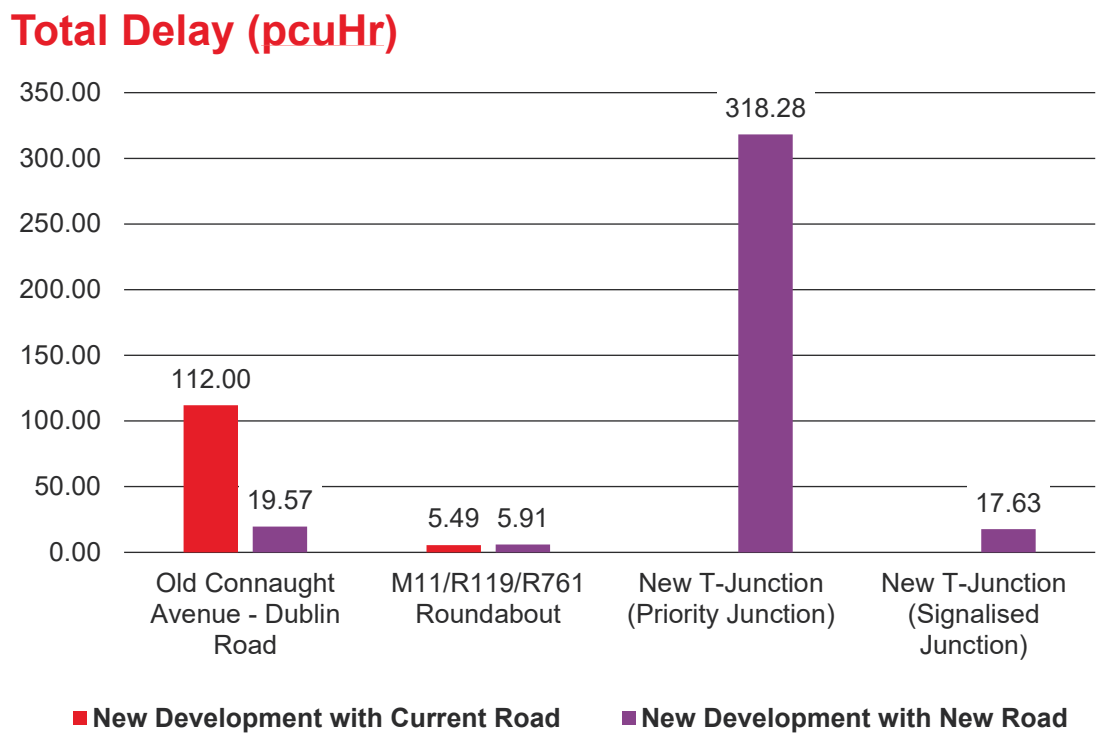


Figure 12 Comparison of Total Delay (pcuHr) values of Old Connaught junctions during AM Peak in different scenarios

6.4 Junction 4: Stonebridge Road – Dublin Road

The analysis indicates that the Stonebridge Road – Dublin Road junction will experience slightly reduced capacity and longer delays, while maintaining the same level of service as the existing traffic patterns.

6.5 Junction 5: N11 – Cherrywood Road

The modelling show that N11 – Cherrywood Road junction will experience slightly reduced capacity longer delays, while still maintaining acceptable capacity and level of service.

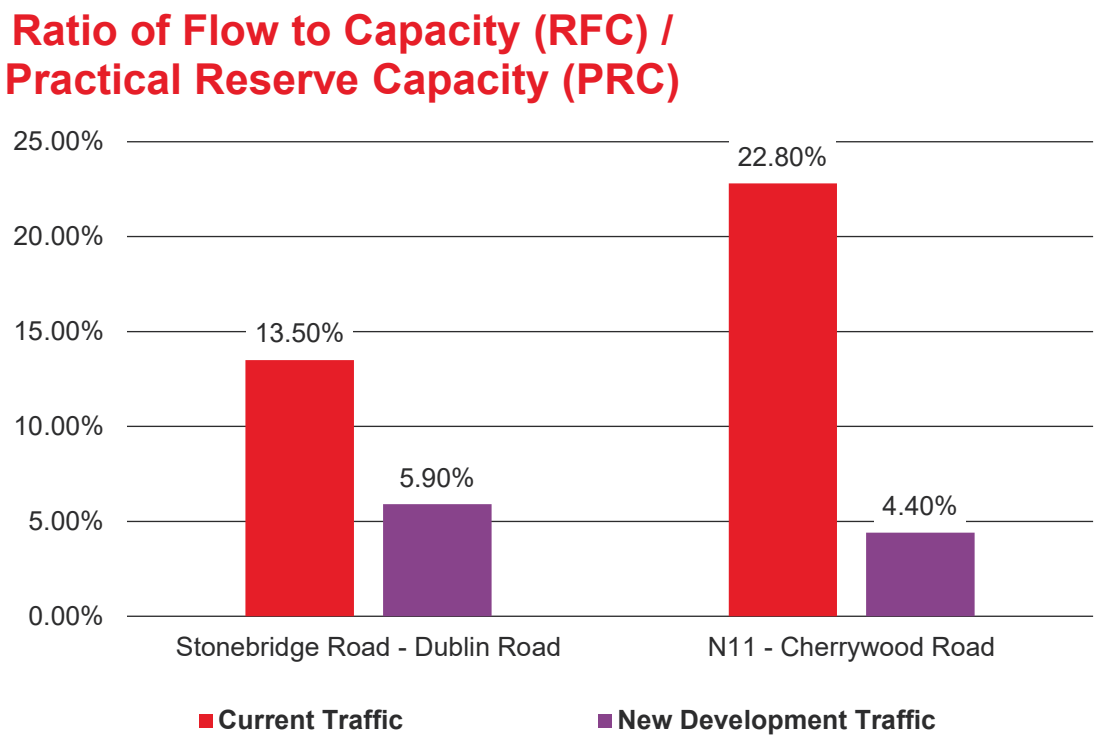


Figure 13 Comparison of Ratio of Flow Capacity (RFC) or Practical Reserve Capacity (PRC) levels of Rathmichael junctions during AM Peak in different scenarios

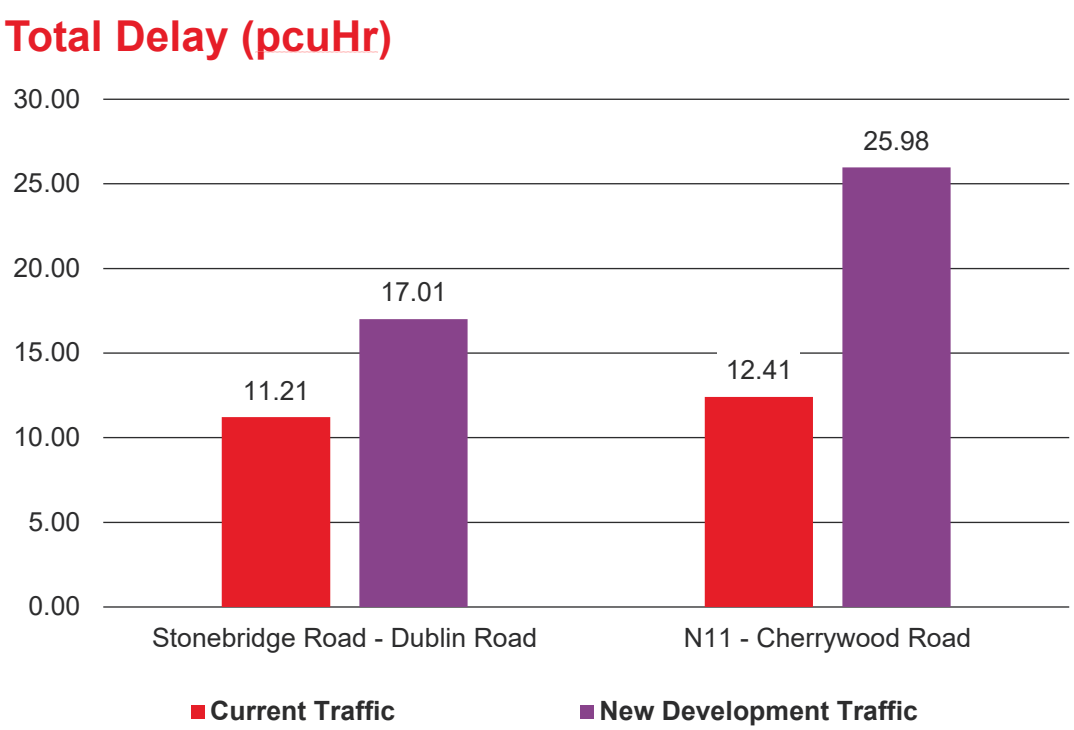


Figure 14 Comparison of Total Delay (pcuHr) values of Rathmichael junctions during AM Peak in different scenarios

Appendix D

Water, Wastewater & Drainage Layouts

A1

Possible future Surface Water drainage connection to Strategic Land Reserve

Pond-1 Attenuation Volume required: 16830m³

Pond 1 Catchment

Connection to existing drainage network

N

0 2.5 5 7.5 10 12.5 m
SCALE 1:250

Do not scale

Notes

1.

Legend

- Existing Surface Water pipe
- Indicative Surface Water pipe
- Indicative Surface Water Attenuation Pond
- Catchment for Pond 1

Rev	Date	By	Chkd	Appd
P05	11 /10/24	AR	AG	SW
P04	27 /09/24	AR	AG	SW
P03	05 /06/24	AR	AG	SW
P02	17 /04/24	AR	AG	SW
P01	19 /01/24	AG	SW	SW

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Dun Laoghaire-Rathdown County Council

Project Title
Infrastructure Capacity Assessment Study (ICAS) for Old Connaught and Rathmichael

Drawing Title
Preferred Stormwater Drainage Strategy for Old Connaught LAP Area

Scale at A1 1:2500

Role Infrastructure

Suitability S0 - Work in Progress

Arup Job No **295742-00**

Rev **P05**

Name **295742-ARUP-ZZ-DR-C-0001**

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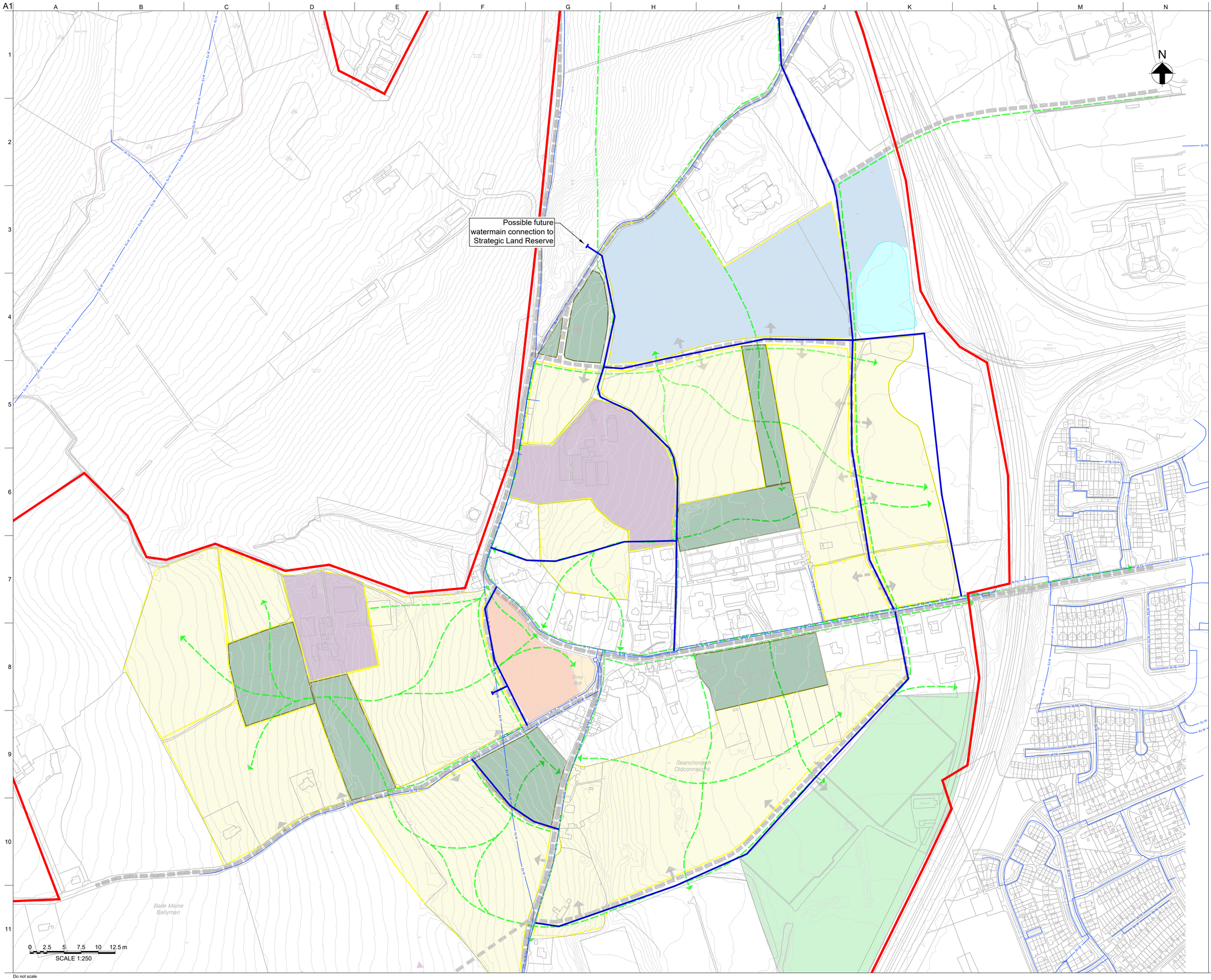
A1



Notes

1.

Legend

Ex W — Existing Watermain

Indicative Watermain

Rev	Date	By	Chkd	Appd
P04	11 /10/24	AR	AG	SW
P03	29 /08/24	AR	AG	SW
P02	17 /04/24	AR	AG	SW
P01	19 /01/24	AG	SW	SW

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Do not scale

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A1

Possible future wastewater connection to Strategic Land Reserve

Indicative location of future Uisce Éireann pumping station

Potential Alternative locations of pumping station

Rising main to connect existing wastewater network via trenchless crossing under M11

Ø225mm FW

Ø450mm FW

Ø375mm FW

Ø450 RM

0 2.5 5 7.5 10 12.5 m

SCALE 1:250

Do not scale

Notes

1.

Legend

- Ex F — Existing Wastewater pipe
- Ø225mm FW — Indicative Wastewater pipe
- RM — Indicative Rising Main
- UÉ Shanganagh & Bray DAP Stage 4- Indicative Pumping Station LocationIndicative Pumping Station
- Potential Alternative Pumping Station Location (General area indicated - subject to further assessment)

Rev	Date	By	Chkd	Appd
P04	11 /10/24	AR	AG	SW
P03	29 /08/24	AR	AG	SW
P02	17 /04/24	AR	AG	SW
P01	19 /01/24	AG	SW	SW

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A1

Pond 1 Catchment

Pond 2 Catchment

Pond-1 Attenuation & Treatment Volume required: 2350 m³

Connection to existing drainage network.

Pond-2 Attenuation & Treatment Volume required: 3380m³

Connection to existing drainage network.

Ø375mm Ø450mm Ø300mm Ø225mm Ø630mm Ø650mm

Coill na Silíní Cherrywood

An Ghléib Glebe

Seanchill Shankill

Baile Ui Lachnáin Loughlinstown

Coimin Bhaile Ui Lachnáin Loughlinstown Commons

Shankill Seanchill

0 2.5 5 7.5 10 12.5 m

SCALE 1:250

Do not scale

Notes

1.

Legend

- Ex S — Existing Surface Water pipe
- Ø225mm SW — Indicative Surface Water pipe
- Indicative Surface Water Attenuation Pond
- Catchment for Pond 1
- Catchment for Pond 2
- Catchment for Pond 3

Rev	Date	By	Chkd	Appd
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Infrastructure Capacity Assessment Study (ICAS) for Old Connaught and Rathmichael

Drawing Title

Preferred Stormwater Drainage Strategy for Rathmichael LAP Area Sheet 1 of 2

Scale at A1 1:2500

Role Infrastructure

Suitability S0 - Work in Progress

Arup Job No **295742-00**

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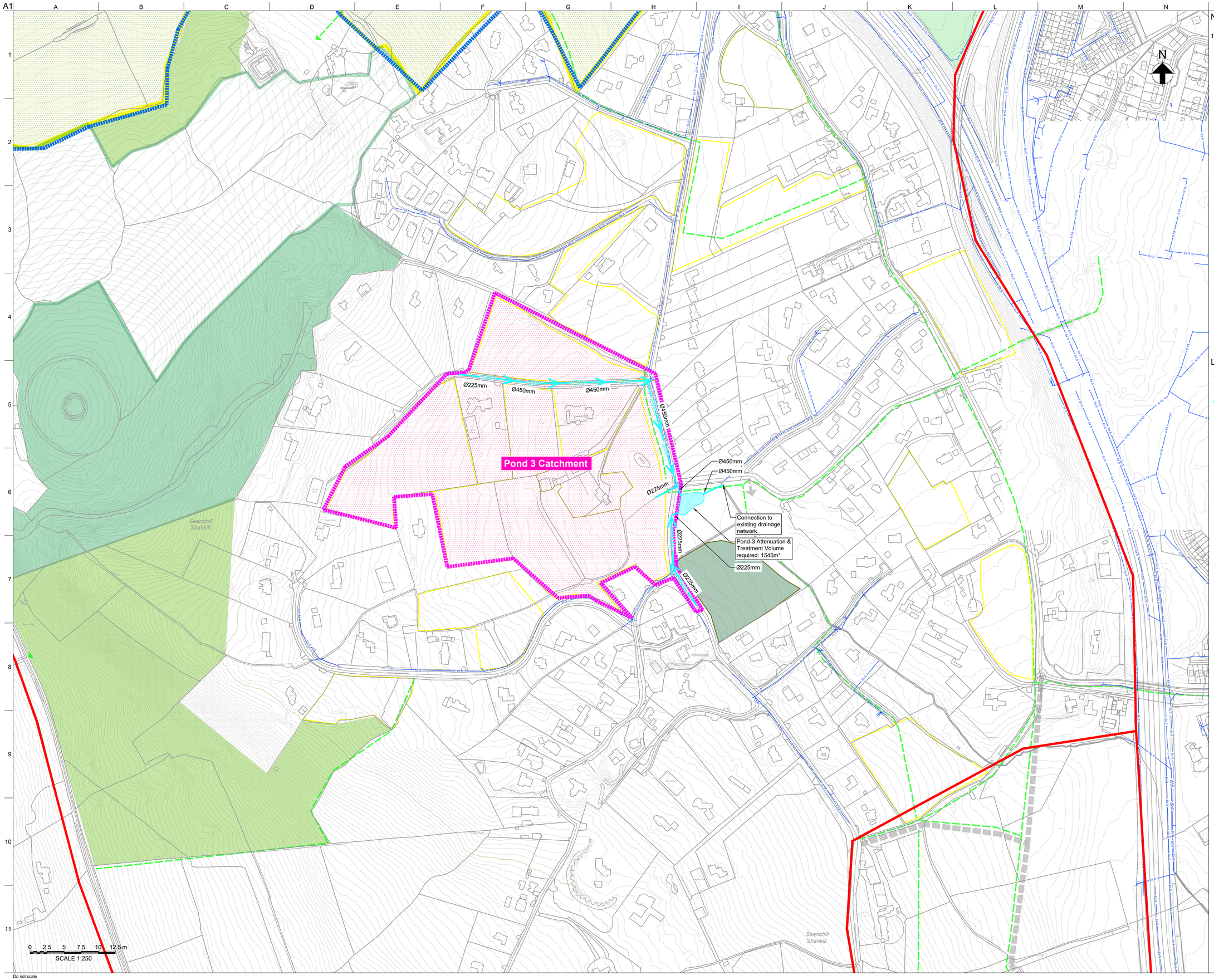
A1



Notes

1.

N

Legend

- Ex S — Existing Surface Water pipe
- Ø225mm SW — Indicative Surface Water pipe
- Indicative Surface Water Attenuation Pond
- Catchment for Pond 1
- Catchment for Pond 2
- Catchment for Pond 3

Rev	Date	By	Chkd	Appd
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Drawing Title

Preferred Stormwater Drainage Strategy for Rathmichael LAP Area Sheet 1 of 2

Scale at A1: 1:2500

Role: Infrastructure

Suitability: S0 - Work in Progress

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