

2. Method of Study

The following resources and methods of establishing the archaeological and architectural status of the study area were used. This follows the NRA and EPA guidelines on both archaeological and architectural consultation to gather baseline information (NRA n.d. 16; NRA n.d.a 13). Information on the proposed development was provided by the lead consultant, MMP:

- The proposed pipeline routes (green field and existing), waste water treatment (WWTP) site, major pump station sites and archaeological and cultural heritage sites in the vicinity of the proposed development were examined and inspected by two qualified archaeologists;
- A comprehensive review of published archaeological and cultural heritage work undertaken in the vicinity of the study area was undertaken by the writers (including Excavations Bulletins, searched on the online research database www.excavations.ie compiled to 2003 at the time of writing);
- The National Museum topographical files were consulted;
- The Record of Monuments and Places (RMP) constraint maps and list were consulted;
- The published archaeological inventory for the study area was consulted (*Archaeological Inventory of County Cork- Volume II: East and South Cork Power* 1994). This is an important resource for the archaeological heritage of Co. Cork;
- Cork County Development Plan 2003 (Cork County Council), Cobh Town Development Plan (Cobh Town Council 2005) and applicable local area plans were consulted for the locations of possible Protected Structures in the vicinity of the proposed development;
- The National Inventory for Architectural Heritage (NIAH) was consulted. The NIAH has not yet undertaken the inventory for this area of Cork, but are beginning fieldwork presently;
- A wide range of local historical and archaeological records relevant to the study area were consulted, including the OS First Edition six-inch map (c.1840);
- Suitable aerial photos, analysed for archaeological purposes were used in the study. These were supplied by MMP;
- Access was permitted for the proposed WWTP site and this was inspected by the writers;
- Where the proposed pipeline corresponded with roadway or public areas these were visited and/or a windscreen survey was undertaken by the writers;
- The assessment of the intertidal and underwater locations of the proposed development site (marked in blue on the accompanying mapping) was undertaken by ADCO Limited.

2.1 Limitations to the Study

A number of difficulties in relation to the study were encountered during the assessment process. It is important that these limitations are acknowledged. The mitigation section of this report suggests suitable mitigation to alleviate some of these limitations. They are as follows:

- Due to the scale of proposed development and the fact that much of it is linear pipeline along both existing roadways and green field sites, only those known (recorded) archaeological sites whose zone of archaeological potential (ZAP) is predicted to be directly impacted by the route of the pipe have been included in the assessment.
- It was not known at the time of assessment what side of the roadway the pipelines may take and if the pipes are going to be placed in existing culverts or new service trenches.
- Aerial photography for the proposed development study area is in the form of orthophotos. While these are adequate for a number of purposes, sometimes they are not clear enough to identify the smaller possible archaeological sites. Suitable mitigation has been suggested to accommodate this limitation.
- Access was not permitted to portion of the proposed pipelines, in the green field areas, which are through private lands. Aerial photos were used as a substitute and the areas were viewed from the roadsides or gateways.
- The intertidal and underwater assessment required an archaeological licence, which was not received from the relevant bodies until September 2007 (This licence was applied for in May 2007). This delayed this part of the cultural heritage assessment significantly. This work was undertaken in September 2007.
- The minor pumping station locations are marked as triangles on the accompanying mapping and the general locations of these features were assessed. Aerial photos were used at these locations.
- As the fieldwork for the assessment was carried out in the summer season, vegetation growth may have obscured some features of archaeological or cultural heritage interest.

2.2 Assessment Dates

All desk based research, file consultation and aerial photo analysis was undertaken prior to fieldwork. The assessment fieldwork was carried out on the following dates:

- Aegis field inspection was undertaken on 27th June, 10th July and the 16th September 2007.
- ADCO underwater assessment was undertaken on 25th and 26th September 2007.

3. Existing Environment

The study area is located in the Cork lower harbour area in and around Passage West, Monkstown, Raffeen/Strawhall, Carrigaline, Ringaskiddy and Cobh, Co. Cork (figs 1 & 2). The study area incorporates thirty townlands (see table 1). The collection system and WWTP impacts the Zones of Archaeological Potential (ZAPs) for twenty recorded monuments (RMP) in the study area. The archaeological walkover was undertaken by two qualified and experienced archaeologists (figs 1- 3).

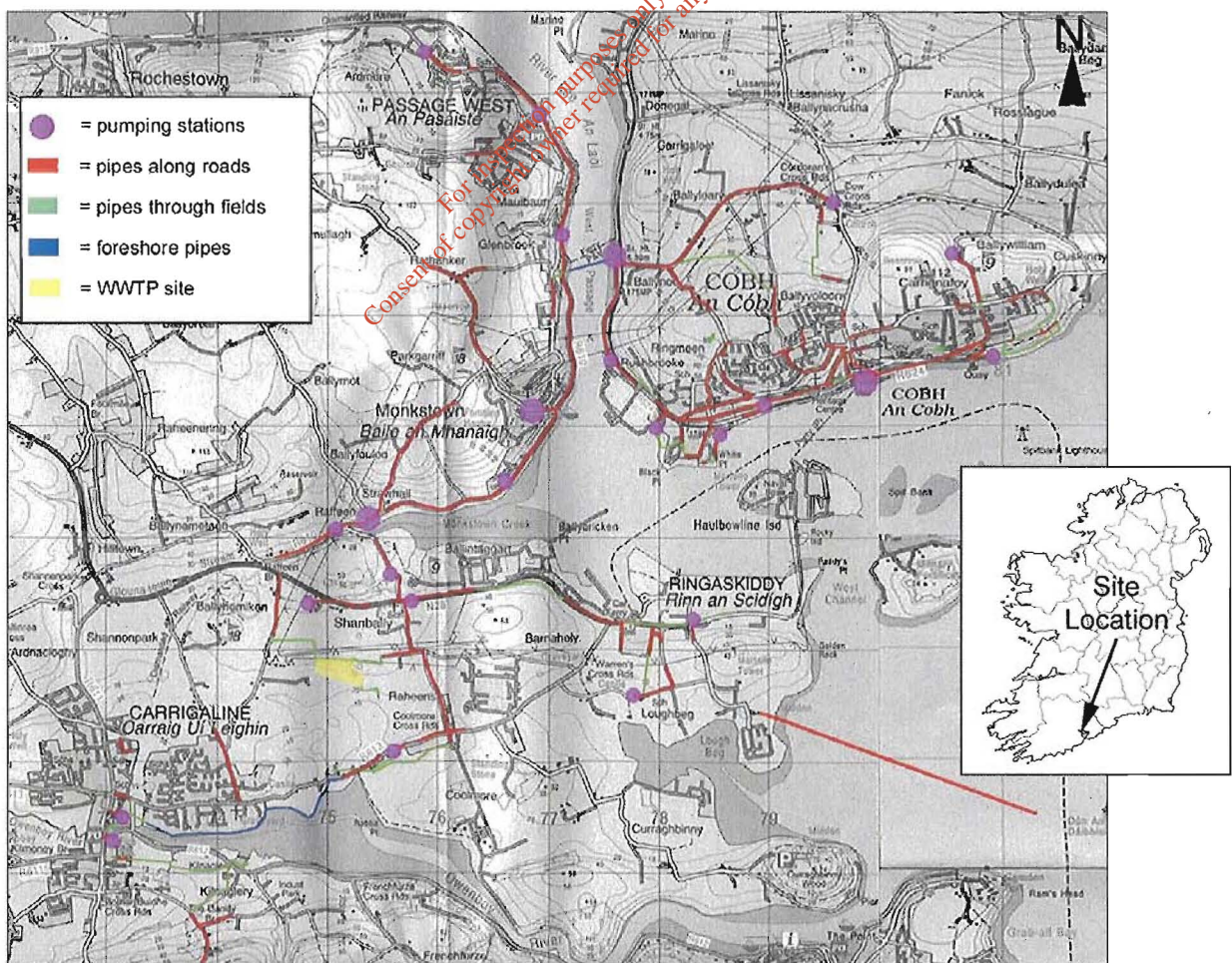


Figure 1. Discovery Series map Nos 81, 87 showing collection system & WWTP locations (OSI 1997)

3.1 The Proposed Development (fig. 2)

The Cork Lower Harbour Main Drainage Scheme involves upgrading the existing sewerage system of Cork Lower harbour and environs together with the provision of a wastewater treatment plant and sludge treatment centre (see section 1.1 of this report for detail).

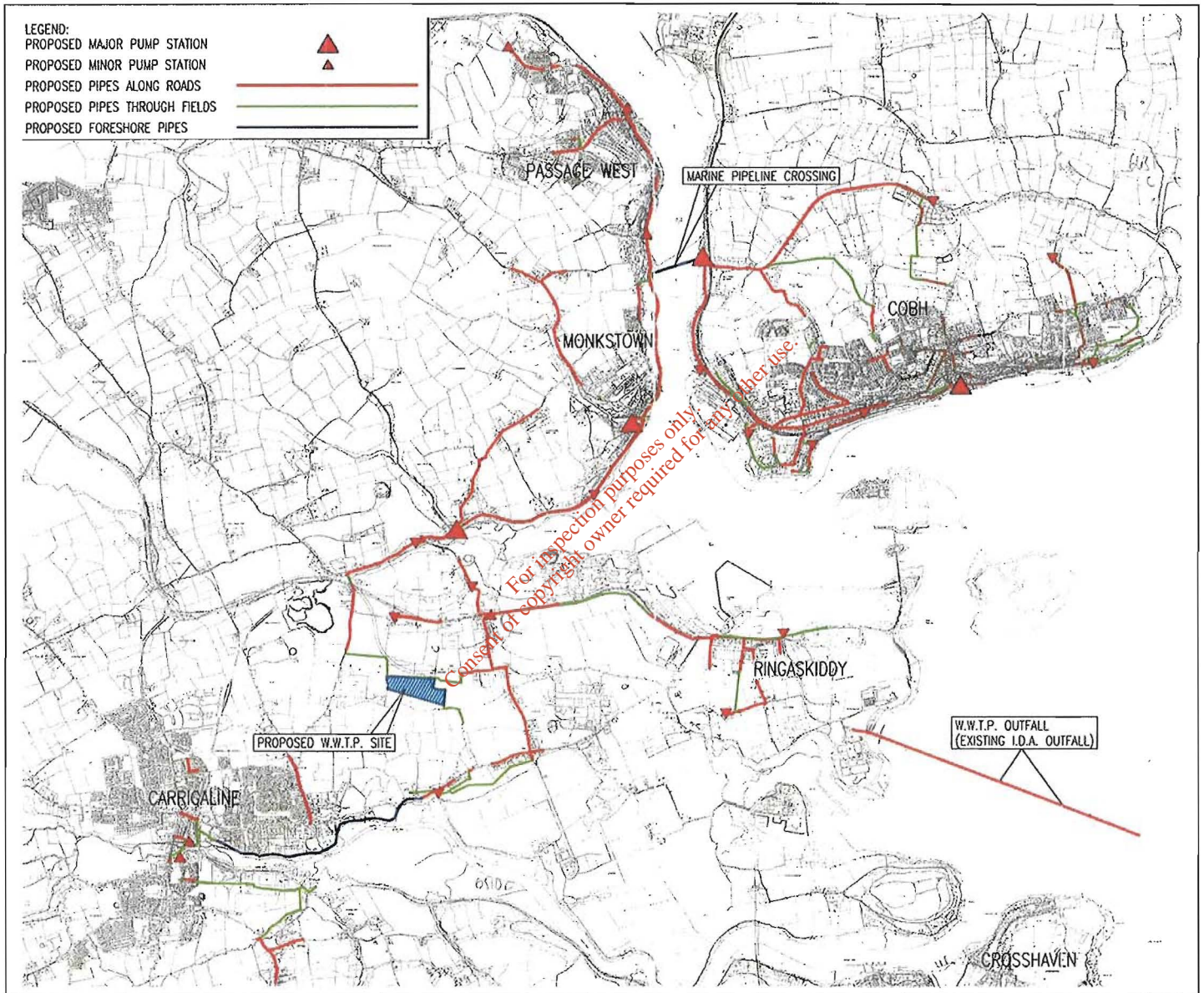


Figure 2. Collection system, pumping station locations and WWTP location (supplied by client)

3.2 The Archaeological Inspection (fig.3)

The proposed collection system pipeline routes comprise a mixture of green-field, roadways intertidal and underwater areas. It is proposed that some of the pipeline will follow existing trenches and pipes, while others will be completely new. (These are not yet specified at time of writing. This information will be available at detailed design stage.) As the area of the study is extensive, for ease of description the area has been divided into sections around the principal centres that the scheme will ultimately serve. They are as follows:

- Passage West, Monkstown, Raffeen/Strawhill (map detail no. 1)
- Carrigaline (map detail no. 2)
- Shanbally (WWTP) (map detail no. 3)
- Ringaskiddy (map detail no. 4)
- Cobh and environs (map detail no. 5)

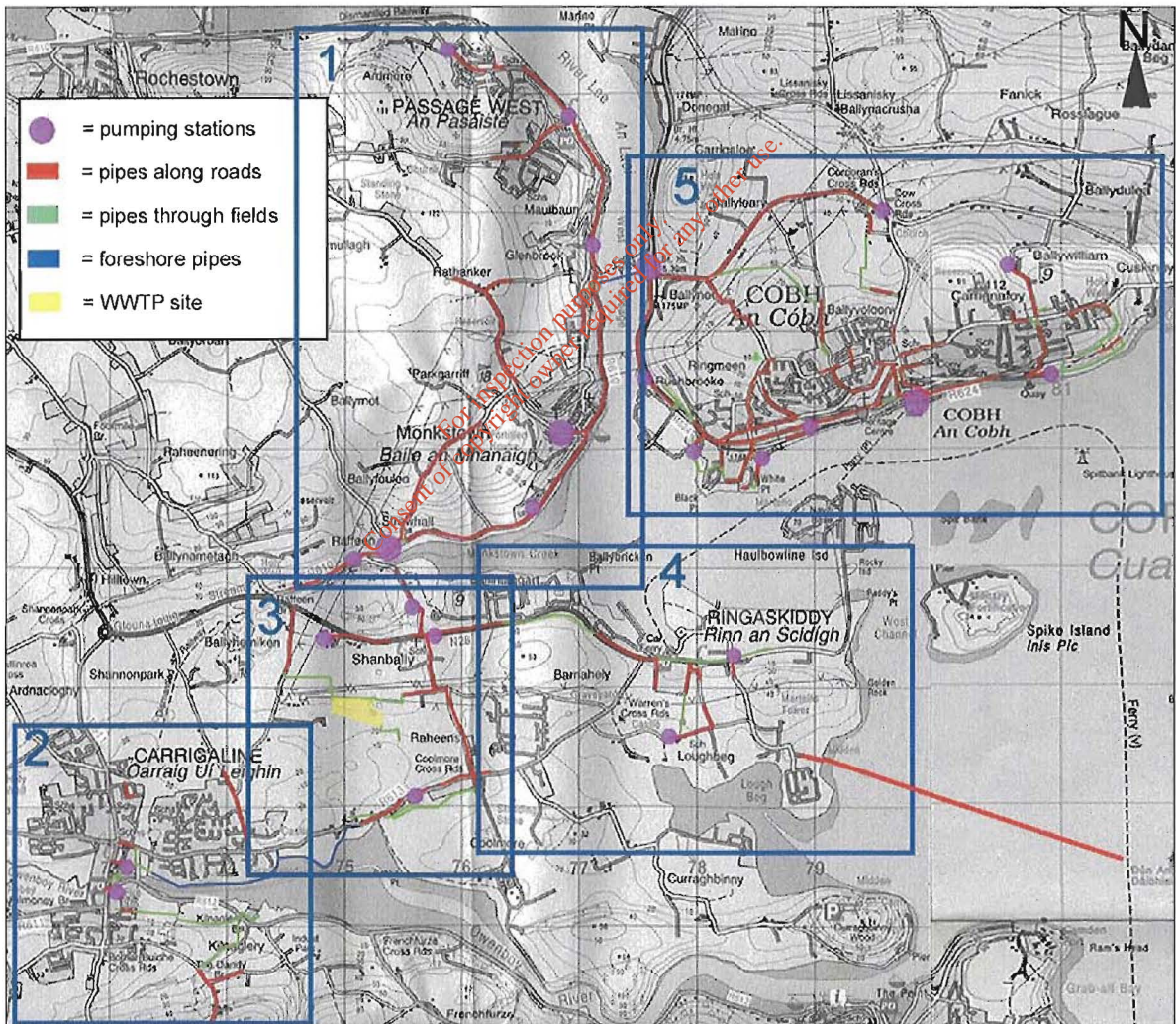


Figure 3. Master map showing section description areas (Discovery Series map with additions)

The topography of the study area as shown above is varied. This area is also known as Cork Lower Harbour Area. The location is the estuary of the River Lee. Cork Harbour is one of the most extensive natural harbours in Ireland. Cork Harbour is a Special Protection Area (CCC 2005, Carrigaline Electoral Area Local Area Plan, section 7.2.8., 21). A description of this landscape and topography can be summarised as follows (synopsis by CCC):

The topography and landscape components in this area, primarily the River Lee as well as the vast open and natural harbour, have provided the opportunity for human settlement and the development of a city. The River Lee and many smaller rivers make their way to the harbour by cutting through carboniferous limestone or mudstone between east-west ridges of sandstone. The Lee forms a broad alluvial flood plain, which has provided an ideal location for settlement and growth into a large urban centre. Most of the smaller rivers form shallow mudflat estuaries where they meet the sea. In terms of landform, the harbour is dominated by Great Island. A narrow harbour mouth is established by two steeply rising rocky knolls of green sandstone and mudstone which are, in turn, articulated by the old military fortifications which crown their summits.

Shelter has been afforded by the steep but shallow valley sides and the broad and safe natural harbour. The city was originally structured by the River Lee, which still etches its way through the core urban mass. Along the northeastern side of the harbour, flanking the Lee prior to her entry into the harbour, the valley steps up along the steep surrounding banks to form a terraced streetscape and villa landscape. The city gradually breaks open to form an urban and periurban sprawl. It spreads out across the flat alluvial flood plain through suburbs and, further, to identifiable satellite communities [such as those in the study area] to eventually merge with the rural hinterland. While the harbour limits expansion eastwards, the river valley provides the line of expansion westwards channelled by the valley sides to the north and south. The harbour at the broad topographic scale includes large islands, which, along with much of the harbour shore, comprise landscape of rural farmland character falling gently to the sea. It comprises a mosaic of fertile fields of mixed use on brown podzols. These fields are defined by broadleaf hedgerows as well as swaths of broadleaf woodland.

The city profile is dominated by church spires and tall offices, most notably the County Hall west of the centre, while silos, high factory blocks and chimney stacks are scattered beyond the city core and extend into the rural environs. Attractive historical terraced houses rise up against the steep slopes of the Lee valley immediately north of the harbour (flanking the N25), interspersed among individual houses set in a landscape well endowed with vegetation. South of this road modern industrial and business parks spread out in an orderly fashion across a plane, extending towards the harbour. Two noteworthy features of development are the passenger ferry port located where the city meets the harbour and the airport inland to the south. Other significant areas are Ringaskiddy and Little Island to the south of the city on the western side of the harbour, supporting industrial development. On higher ground along the valley and city

periphery an occasional telecommunication mast or water storage tower punctuates the skyline. Extending from the city the docks in particular contribute to the cultural and commercial character and give testimony to the city's relationship to the sea and mercantile history. In profile they are identified by tall skeletal cranes hovering across the skyline and large ships. Further eastwards and to the south marinas catering for smaller boats and boating activity as well as occasional industrial sites link the docks to the broader harbour.

On Great Island the town of Cobh opens southwards towards the harbour. It rises from the shore up the steep incline on which it has grown, almost forming a terraced structure. Its historical development cultural complexity are visible in the resulting tightly packed layering of architectural form, comprising religious, commercial and residential buildings. At the southern extremity of the harbour, the steep and narrow mouth is articulated by Carlisle Fort on the east (built c.1798) and Camden Fort on the west side (an example of a bastion fort begun in the late 16th century), otherwise known by their pre-colonial names as Meaghar and Davis respectively.

Notwithstanding the rural character around much of the greater harbour area, the tell-tale signs of urban intensity are evident everywhere through the prevalence of infrastructure such as roads, bridges and electricity power lines and the frequency of urban clusters. Overall, the city and harbour comprise a balance of intensely urban form, rural character and seascape. The course of the River Lee creates a linear structure along which the older city core is strung and a spatial release west-wards between the northern and southern containing valley sides. The broader harbour also provides some spatial release while creating a sense of containment or focus to which the surrounding landscape falls and refers. In the less built up but heavily wooded areas a sense of spatial confinement and forward visual focus is experienced as one travels many of the roads due to the densely spaced tall broadleaves in roadside hedgerows. This creates a temporary tunnelled darkness, relatively speaking, which eventually gives way to openness and light. A steep and wooded precipice on the southern side of the N22 heading towards Ballincollig combines with tall mature trees on the northern side to create such an effect. In contrast, certain roads along the sea shore, such as an estuary like Poolnabibe or a channel like Passage West, involve spatial containment on one side and openness on the other. A visual connection is created between these and the land masses on opposite sides of the water through a natural sense of curiosity that is the experience of a desire to explore and understand distant landscapes.

3.2.1 Passage West, Monkstown, Raffeen/Strawhill (fig. 4; plates 3.1-3.7; 3.42-3.44)

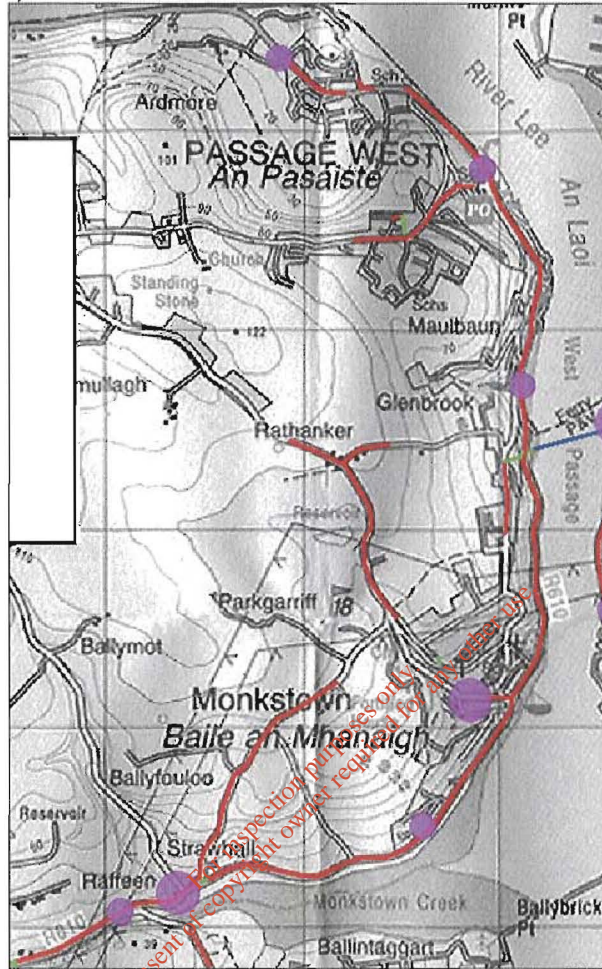


Figure 4. Location of pipeline routes within the Passage West, Monkstown, Raffeen/Strawhill (detail map no. 1)

Pipeline Routes along Existing Roads

The pipeline in the Passage West, Monkstown, Raffeen/Strawhill area follows along the R610 directly from the north of Passage West, through the itself village and onto Monkstown, along Monkstown Creek to the Raffeen bridge/Strawhill area at south. From this main pipeline along the R610, are a further four lines of pipe proposed, which diverge from the main proposed line along the R610. These four lines are proposed to travel along existing roadways generally to the west of the R610 line. The most northerly travels eastwards and uphill from the R610 in Passage West. This is along an existing roadway through a primarily residential area. The second line is a very short stretch, which runs parallel to the R610 near the Ferry Terminal in the townland of Monkstown. This proposed line is to be connected, to the main R610 pipeline via a short green field pipeline route (see below). The third line is to the northeast of Monkstown village itself and travels uphill to the northwest towards the

townland of Rathanker, along Glen Road. This line is separate from the remainder of the proposed lines in this area (new pipe will link up with existing pipes in this area). The line to Rathanker commences along the road to the north northwest of three recorded monuments (RMPs), CO-087-027--- (td Monkstown Castlefarm; classified as an abbey); CO-087-028--- (td Monkstown Castlefarm; classified as a fortified house) and CO-087-029--- (td Monkstown Castlefarm; classified as a church and graveyard). The proposed pipeline is not intended to impact on their ZAPs, so they are not designated CHs in this report. They are included here for information only. They are not visible from the road where the pipeline commences. At a "Y-shaped" junction in Rathanker, the proposed pipeline diverges for a distance of approximately 250m respectively.

The fourth extension from the main line along the R610 travels from Raffeen/Strawhill in the south in a northeasterly direction. This line is proposed to follow an existing roadway in Ballyfouloo townland. This road continues to run along the townland boundary between Ballyfouloo and Monkstown Castlefarm townlands.

Pipeline Routes through "Green Field" Areas

There are five very short stretches of proposed pipeline in this area which are "proposed pipes through fields", or green field locations. The first is in Passage West, on the divergent route off the R610. The second is to the west of the Ferry Terminal which is at present a steep slope, so that it might connect the second proposed line which runs along a road (see above). The third green field area is a very short stretch required in the middle of Monkstown, which appeared at the time of inspection to be situated in a residential area. Nothing of an archaeological nature was noted during the field inspection. The fourth green field location is a very short stretch immediately to the east of the major pumping station location (see below). The fifth is a very short stretch at the Raffeen/Strawhill pumping station (see below). These are extremely short stretches and they will serve to aid in the connection of pipes along the roadways. These locations (and all others) were viewed from the closest roadways and if not visible were examined from the orthophotography. Nothing of an archaeological nature was noted in these locations.

Pumping Stations (figs 5 & 6)

There are two types of pumping stations proposed for this project: minor pumping stations and major pumping stations. The minor pumping stations were considered part of the overall piping route, when this was visited. There are five minor pumping stations required for this area of the project. They are situated in the townlands (from north) of Pembroke (2); Lackroe;

Monkstown (Castle Farm); Raffeen. Two major pumping stations are proposed for this area, one at Monkstown and the other at Strawhill (Ballyfouloo td). Both are proposed to be located adjacent to existing roadways.

Monkstown Pumping Station

The proposed major pumping station at Monkstown is to be located in the southeast corner of the public Park on Glen Road and is to be connected to the pipeline route running along Glen Road, via a sewer pipeline. The proposed location is at present a surface carpark, which services the public park, which lies to the north. There is a residential house that overlooks this area. It is a good example of a fine residential structure in Monkstown, from which the pumping station would be visible. The pumping station might be screened from view with suitable screening to alleviate this predicted visual impact (see section 5). Nothing of an archaeological nature was noted during the inspection of this location.

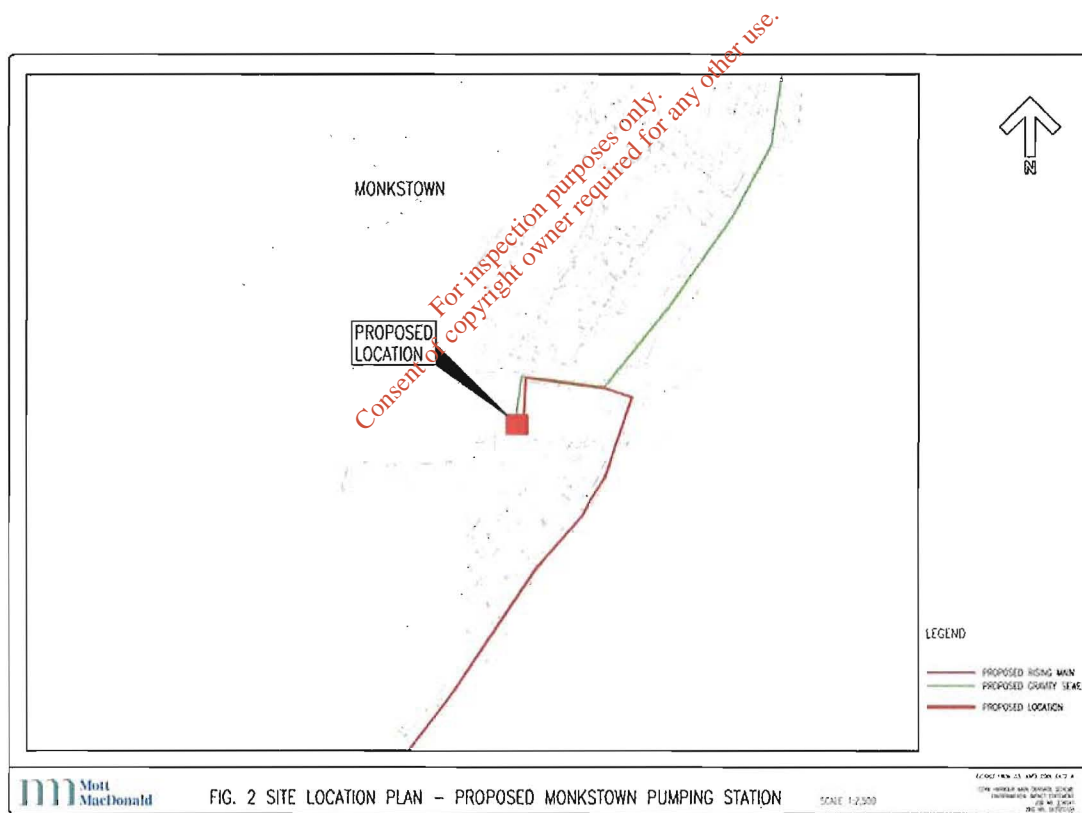


Figure 5. Location of Monkstown Pumping Station

Raffeen/Strawhall Pumping Station

The proposed major pumping station at Raffeen/Strawhill is to be located in the townland of Ballyfouloo, on the southern side of the R610 road in an area of ground reclaimed from the tidal area of Monkstown Creek. Nothing of an archaeological nature was noted during the inspection. CH23 a railway embankment and concrete and steel bridge, associated with the Great southern railway and lies approximately 30m to the southeast of the proposed location of the pumping station (see section 5).

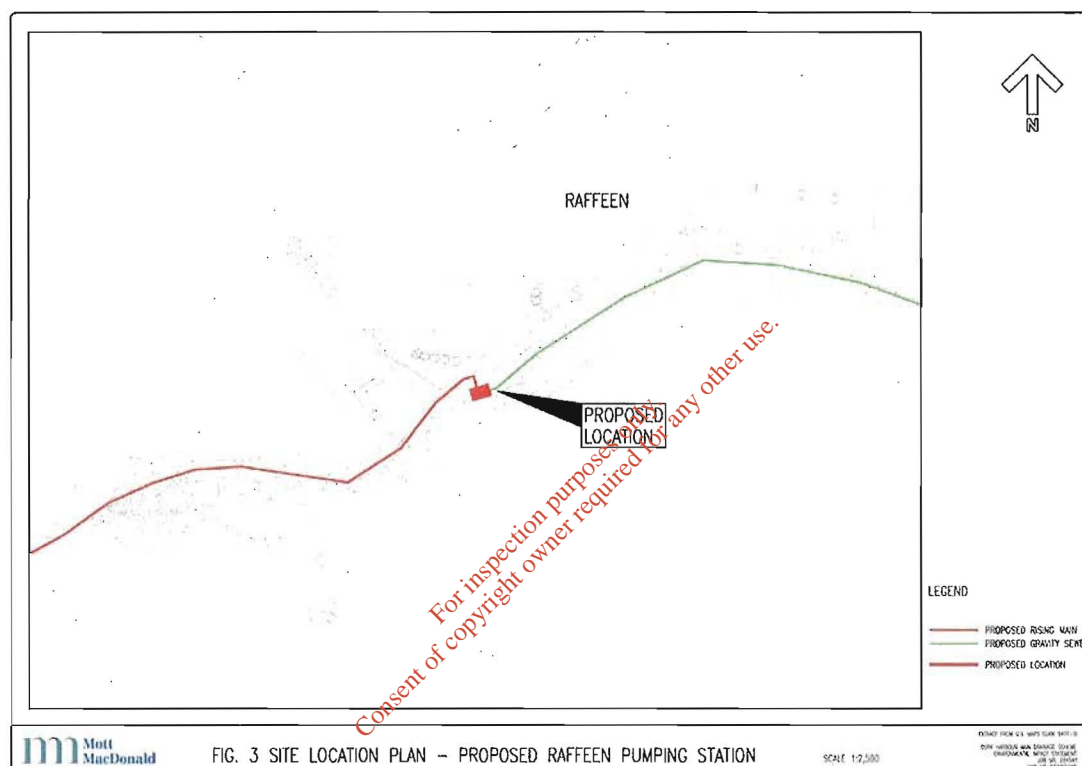


Figure 6. Location of Raffeen/Strawhill pumping station

Intertidal/Underwater Zone

The portion of pipeline marked in blue which traverses from Passage West on the right bank to the ferry terminal at Carrigaloe on the left bank of the estuary is being assessed by ADCO (see appendix section 10).

Cultural Heritage Features (Fig. 19)

No new unrecorded archaeological or cultural heritage features were noted during the inspection. From the desk based study and field inspection, there are five Cultural Heritage (CH) features located within this area. They are:

Cultural Heritage No. CH	Designation	Townland	Classification
1	RMP CO087-006---	Rathanker	Ringfort
16	RMP CO087-097---	Rathanker	Souterrain (possible)
3	RMP CO087-024---	Parkgarriff	Ringfort
4	RMP CO087-025---	Ballyfouloo	Holy Well
5	RMP CO087-026---	Monkstown (Castlefarm)	Lime Kiln
23	none	Ballyfouloo	Great Southern Railway Embankment

None of these sites is predicted to be directly impacted by the proposed project. Their ZAPs are predicted to be impacted. CH1 is a ringfort in the townland of Rathanker. This monument extant as a ringfort (inventory no. 4614). CH16 is a possible associated souterrain (inventory 5140). This could not be located during field inspection but it can be suggested that it is partially within the ringfort enclosure. The proposed route of the pipeline terminates on the road to the east of the ZAP for this monument. CH3, also a ringfort (inventory no. 4973) is no longer extant and is obscured by modern buildings. The proposed pipeline route runs along the road to the southeast of the ZAP for this monument. CH4, a Holy Well (inventory 5186) could not be located on the ground at the time of inspection (it had been quite dry prior to the inspection and the well may have temporarily dried up). The proposed pipeline route runs through the ZAP for this monument. CH23 is a railway embankment for the Great Southern railway located to the SE of the proposed pumping station at Raffeen/Strawhill.