

## 5. Constraints Inventory, Predicted Impacts & Suggested Mitigation

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The constraints inventory below is tabularised as per the NRA published guidelines on constraints studies for both archaeological and architectural heritage (NRA n.d.; NRA n.d.a). All constraints are also shown on relevant mapping provided in this report.

In addition to the published information of the archaeological and architectural heritage of the study area, the constraints inventory below also includes potential archaeological and cultural heritage sites that were identified during the archaeological walkover. *Unrecorded* or 'new' monuments and structures have also been provided here as recorded during the walkover and the analysis of the aerial photo. High resolution digital aerial photos (orthophotos) were examined for the purpose of this archaeological assessment. Nothing of an archaeological nature was noted on the photo. Much of the green field areas for pipelines were inaccessible at the time of writing and only aerial photos were used. The WWTP site was inspected. The red pipelines (along roads) were wind-screen surveyed and portions walked.

For the purposes of the Constraints assessment and this report, the constraints have been allocated a unique code "CH" in order to clearly identify them in the report and the accompanying mapping. All other pertinent codes are provided in the table (for instance RMP numbers, inventory numbers and Protected Structure numbers) in order to aid any cross-referencing that may be required.

## 5.1 Archaeological Monuments Constraints Inventory (figs 19-23; Table 5)

The following are the archaeological monuments in the vicinity of the study area, which are likely to be impacted by the proposed development. There is a description of each monument as they appear in the *Archaeological Inventory of County Cork- Volume II: East and South Cork* (Power 1994). Where possible these sites were visited in the field. Due to the scale of the development, only those recorded monuments whose ZAP are predicted to be impacted by the development have been included as CH sites. Other pertinent information has been included in the description where available.

Many of the pipes proposed to be positioned through green field locations and in private property. Aerial photos were consulted and where possible were viewed from roads or gateways. Nothing of an archaeological nature was noted on these. However, there remains the potential for archaeological features to be present at a very low above ground register, which may not manifest on aerial photos. There remains the possibility that subsurface unrecorded archaeological remains may be impacted during the positioning of these pipes. To mitigate against this, it is suggested that **ARCHAEOLOGICAL MONITORING** takes place at all of the green field pipe locations.

The WWTP proposed site was inspected and field walked (see above). Nothing new of an archaeological nature was noted as being extant during the inspection. The proposed site is adjacent to two recorded archaeological monuments (CH9 & CH10). It is suggested that this site, due to its scale of the proposed development that the WWTP site be **ARCHAEOLOGICAL TEST TRENCHED** in advance of any development there. It is also proposed (see below) that a suitable buffer zone around CH9 & CH10 be instated, within which no development should be undertaken (this should include pipe routes)..

The recorded archaeological monuments predicted to be impacted by the proposed development are:

Constraint Study Code	Reference Nos	Legal Status	Townland	Monument Type	National Grid Reference	Information Source	Information Detail	Type of Impact Predicted	Suggested Mitigation Measure
CH1 (see CH16 also)	CO087-006-- Inventory 4614	Recorded monument	Rathanker	Ringfort	17590/06740	RMP Inventory	Indicated. In pasture, on south-facing slope. Roughly circular area (35.3m n-s; 32.5m E-W) defined by heavily overgrown earthen bank (H1.85m) SE to SW; low rise elsewhere, with slight depression externally to NW. Break in low rise to NW and E. Possible souterrain (5140) in interior.	Indirect: pipe impacting ZAP of monument	Monitoring of pipeline in vicinity of ZAP for monument
CH2	CO087-013-- Inventory 5193	Recorded monument	Ballywilliam	Holy Well	18127/06719	RMP Inventory	Indicated 'Tubberlaonann' Roadside. Enclosed by rectangular stonewall; roofed with slab. Surrounding area wet; overgrown; no longer in holy use.	Possible inadvertent damage when pipe trench is dug, due to proximity of monument to roadside	Securely fence off during pipe works (remove fencing when project complete). Monitoring of pipeline in vicinity of ZAP for monument
CH3	CO087-024-- Inventory 4973	Recorded monument	Parkgarriff	Ringfort	17599/06616--	RMP Inventory	Indicated. In pasture, on south-facing slope. Shown on 1842 OS map as circular enclosure (diam. c. 40m); as slight curve in NNW-SSE field fence on 1902 and 1934 OS maps. Modern bungalow now occupies site. Field fence (h 1.2m) SW to	None. Monument is no longer extant and obscured by modern construction	Monitoring of pipeline in vicinity of ZAP for monument

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							NW, possibly retains original bank. Fosse (d 0.95m) outside bank.		
CH4	CO087-025--- Inventory 5186	Recorded monument	Ballyfouloo	Holy Well	17567/06574	RMP Inventory	Indicated 'Tobernadihy' In wooded area, beside road. Site not located. According to Hurse (1926, 90) well closed but 'rounds were made and votive gifts offered' and 'the old thorn bush or tree remains'.	Indirect: pipe impacting ZAP of monument	Monitoring of pipeline in vicinity of ZAP for monument
CH5	CO087-026--- Inventory 6155	Recorded monument	Monkstown (Castlefarm)	Lime Kiln	17626/06533	RMP Inventory	Indicated. Built against natural slope. Front south-facing; heavily overgrown with arched recess (wth 2.6m; D 2.7m), front of recess partially infilled with rubble, stoking hole evident. Funnel infilled; rear of kiln collapsed.	Indirect: Possible inadvertent damage when pipe trench is dug, due to proximity of monument to roadside	Securely fence off during pipe works (remove fencing when project complete). Monitoring of pipeline in vicinity of ZAP for monument
CH6	CO087-033--- Inventory 6293	Recorded monument and Protected Structure 00579	Carrigaline Middle	Mill	17307/06249	RMP Inventory	Indicated. Late 18 <sup>th</sup> /early 19 <sup>th</sup> century flour mill, in Carrigaline town. Shown as L-shaped structure on 1842 OS map. Rectangular 4-storey mill (long axis N-S), now used as a store. Roof double-half-hipped. Wooden floor intact; also remains of hoist system and winnow. Courtyard to North enclosed on three sides by additional buildings.	Indirect: pipe impacting ZAP of monument. Monument already renovated for modern use.	Monitoring of pipeline in vicinity of ZAP for monument
CH7	CO087-036-01  CO087-036-02	Recorded monument and Protected Structure	Carrigaline Middle	Graveyard Church Church of Ireland Church	17414/06259 17415/06259 17419/06259	RMP Inventory	On north shore Owenboy estuary, on south side of road; rectangular area (c. 50m E-W; c. 80m N-S) enclosed by stone wall; still in use, recent extension on	Indirect: pipe impacting ZAP of monument. Monument	Monitoring of pipeline in vicinity of ZAP for monument

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	CO087-036-03 Inventory 5698	00576					west side. Inscribed headstones date from 1690, also a number of chest tombs; large gabled burial vault SE of church. Facing entrance to graveyard, SW of church, altar tomb of Lady Susanna Newenham, date 1754, set in vaulted shelter; burial place of Newenham family of Coolmore house. At centre, St. Mary's C of I church; nave and chancel with spired tower at west end; built in new-Gothic style in 1823 to design of Pain brothers, brass tablet above door. On site of ancient parish church of Carrigaline, described in 1700 as 'above 70foot long... well slated and weel furnished with seats' (Lunham 1909, 169-70); O'Early notes 'detached stone' bearing inscription 'this church was rebuilt in the year of our savior Chrust, 1723'; Smithe (1750, vo. 1 208) described it as 'in decent order'; no visible surface trace. Font dated 1637 inside church.	still in use as graveyard.	
CH8	CO087-038-- Inventory 6163	Recorded monument	Shanbally	Lime Kiln	17555/06461	RMP Inventory	Indicated. In quarry, built against natural slope. Arched recess (H2.4m; Wth 1.98m; D 3m), sloping slabs to rear, stoking hole evident; keystone inscribed 'G.P.B. 1837. Stone-lined funnel almost completely infilled. Not located during this survey (no access and	Indirect: pipe impacting ZAP of monument.	Monitoring of pipeline in vicinity of ZAP for monument

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							very overgrown with vegetation).		
CH9	CO087-040--- Inventory 5312	Recorded monument	Shanbally	Enclosure	17528/06387	RMP Inventory Aerial Photograph	Indicated. In pasture, on south-facing slope of E-W ridge overlooking Owenboy river. Depicted on 1842 OS map as hachured D-shaped enclosure; south part of site now levelled. Arc (NW to NE) formed by earthen bank (H 0.85m) with external fosse. Possible second earthen bank (H 0.75m) immediately outside fosse; heavily overgrown and incorporated into field fence system. Interior surface irregular, interfered with; open to south.	Indirect and direct Impact. ZAP impacted by WWTP site and pipeline at this location. Some of pipe route adjacent to extant bank now extant as field boundary	Creation of c.20m buffer zone around monument in order to protect it from inadvertent damage and to maintain integrity of monument in landscape. Berms, trees and fencing should respect buffer zone and be placed outside it.  Pipeline to respect buffer zone and should not impinge it.
CH10	CO087-041--- Inventory 6364	Recorded monument	Shanbally	Circular Enclosure	17547/06365	RMP Inventory	Not shown. In pasture, on south-facing slope. Aerial photograph (Bord Gais) shows levelled circular enclosure. No visible surface trace. Due to the photographic evidence and the fact that this is in close proximity to another enclosure it is quite likely that its archaeological remains are	Indirect: pipe impacting ZAP of monument. Adjacent to WWTP site.	Creation of c.20m buffer zone around monument in order to protect it from inadvertent damage and to maintain integrity of

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							subsurface.		monument in landscape  Pipeline to respect buffer zone and should not impinge it. Berms, trees and fencing should respect buffer zone and be placed outside it.
CH11	CO087-049--- Inventory Not included	Recorded monument	Ballybricken	Possible church	17705/06449	RMP	Not included in inventory. Site not located during inspection.	Indirect: pipe impacting ZAP of monument.	Monitoring of pipeline in vicinity of ZAP for monument
CH12	CO087-054--- Inventory 4271	Recorded monument	Ringaskiddy	Shell midden	17908/00345	RMP Inventory	Not shown. On beach at Curlane Bank. Narrow layer of midden material extends for 30m n-s along shoreline just above high tide mark and measures 0.1m in thickness. Deposit contains cockles, limpets and winkles with some oyster and razor shells. Large scatter of shells (c. 100m E-W) on beach at low tide level.	No Impact of archaeological feature (shell midden) and its ZAP, as it is not intended to undertake intrusive works at this location at present.	. Existing pipe wayleave. No works required at this time. Should work be required in future, suitable mitigation should be put in place.
CH13	CO087-077--- Inventory Not included	Recorded monument	Kilgarvan	Church	17975//06647	RMP Urban Archaeology Survey County Cork	Not included in inventory. No surface trace found during walkover. Located close to harbour in centre of Cobh. No visible trace. Unlocated during	Indirect: pipe impacting ZAP of monument.	Monitoring of pipeline in vicinity of ZAP for monument

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							walkover inspection.		
CH14	CO087-078--- Not included	Recorded monument	Kilgarvan	Graveyard	17967/06684	RMP Urban Archaeology Survey County Cork	Not included in inventory. No surface trace found during walkover. Urban Survey records that it was uncovered in 19 <sup>th</sup> century and its site is now occupied by Cove Male National School.	Indirect: pipe impacting ZAP of monument.	Monitoring of pipeline in vicinity of ZAP for monument
CH15	CO087-079--- Not included	Recorded monument	Kilgarvan	Graveyard	17975/06647	RMP Urban Archaeology Survey County Cork	Not included in inventory. No surface trace found during walkover. Urban Survey records site now occupied by Pearse Square and originally uncovered in 19 <sup>th</sup> century and recorded by Coleman in 1894.	Indirect: pipe impacting ZAP of monument.	Monitoring of pipeline in vicinity of ZAP for monument
CH16	CO087-097--- Inventory 5140	Recorded monument	Rathanker	Possible Souterrain	17590/06740	RMP Inventory	Not shown. In ringfort (4614). According to Hurse ('subterranean passage or cave was to be seen between forty and fifty years ago. It is now covered with a large flat stone and the soil has grown over it'. No visible surface trace.	Indirect: pipe impacting ZAP of monument	Monitoring of pipeline in vicinity of ZAP for monument
CH17	CO087-107--- Inventory 6361	Recorded monument	Carrigaline East	Possible Souterrain	17506/06287	RMP Inventory	Not shown. Uncovered during building of house c.1977. According to local information consisted of 'stone-lined passage'. Destroyed by foundation trenches. (pers. comm. S. Lane). No trace found during inspection.	Indirect: pipe impacting ZAP of monument. Impact already occurred due to construction of house.	Monitoring of pipeline in vicinity of ZAP for monument



CH18	CO087-109-- Inventory 5871	Recorded monument	Carrignafoy	Battery	18097/06667	RMP Inventory	Indicated. On steep s-facing shore of Great Island with commanding view of entrance to Cork harbour; remains of roughly star-shaped fort later enclosed within rectangular ordnance grounds; known as Cove Fort. Fort built 1743-9 (Brunnicardi 1982,4)	Direct and Indirect: pipe impacting ZAP of monument and some stretches very close to extant portions of the monument.	Monitoring of pipeline in vicinity of ZAP for monument
CH19	CO099-072-- Inventory 3941	Recorded monument	Commeen	<i>Fulacht Fiadh</i> (burnt mound)	17423/06108	RMP Inventory	Not shown. According to local information, <i>fulacht fiadh</i> discovered during reconstruction of rural water scheme. No visible surface trace. Well nearby	Indirect: pipe impacting ZAP of monument	Monitoring of pipeline in vicinity of ZAP for monument
CH27	CO087-010-- inventory 5693 & 5894	Recorded Monument Protected Structure	Ballyvoloon	Church and Graveyard	17960/06785	RMP Inventory	Indicated. "Cobh Cemetery". Square graveyard, large collection of inscribed headstones, contains ruins of 17 <sup>th</sup> church. Many headstones have maritime connection. Lusitania mass grave here in SW corner. Site of ancient parish church called Clonmel.	Indirect: pipe impacting ZAP of monument	Monitoring of pipeline in vicinity of ZAP for monument

Table 5. Archaeological constraints inventory of recorded monuments

## 5.2 Architectural Constraints Inventory (figs 19-23; Table 6)

The following is the list of all known recorded protected structures (RPS) within the study area. (Excepting Cobh Town.) Its elements have been grouped under CH26 see below due to its complexity.) This study's code is provided as well as the RPS county code for the structure. The importance/legal status of the structure is provided along with the name of the address in which the structure is situated. The site type is the classification designated to the structure in the list of Protected Structure in the Cork County Development Plan 2003, (CCC, as varied). The source of the information provided in the table is given, along with the pertinent points of that source in the final column. The National Inventory of Architectural Heritage (NIAH) was contacted. They informed the writer that they have yet to survey the study area and its vicinity and as such have no records for the study area at present (W. Cumming, NIAH pers comm.). It is important to point out that the NIAH's future work may have a bearing on this study. Full details of all sources used are provided in section 7 of this report.

Constraint study code	Reference (RPS County Code)	Address	Location/ Coordinates	Site Type	Source	Importance/ Legal Status	Information Detail	Type of Impact Predicted	Suggested Mitigation Measure
CH6	00579	Carrigaline Middle	17307/06249	Mill	Cork County Development Plan (as varied)	Protected Structure (and recorded monument)	List of Protected Structures. Also a recorded archaeological monument.	No impact on fabric of structure, pipeline in vicinity of structure.	none
CH7	00576	Carrigaline Middle	17415/06259	St Mary's Church	Cork County Development Plan (as varied)	Protected structure (and recorded monument)	List of Protected Structures. Also a recorded archaeological monument.	No impact on fabric of structure, pipeline in vicinity of structure.	none
CH27	00861	Ballyvoloon	17960/06785	Clonmel Church	County	Protected	List of Protected	No impact on	none

				and graveyard	Development Plan	Structure and recorded monument	Structures. recorded archaeological monument.	Also a	fabric structure, pipeline vicinity structure.	of in of
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Table 6. Architectural constraints inventory of recorded structures within study area

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### 5.3 Further Potential Archaeological & Architectural Constraints (figs 19-23, Table 7)

Some wayside monuments were noted during the inspection of the study area. These are not formally protected. They might be regarded as being of local interest and so it is suggested that they be protected from inadvertent damage during the construction of the development. The potential architectural constraints detailed in the table below have been included here (although they are not recorded structures at present). Potential architectural features were identified from the walkover inspection only. One “new” unrecorded extant archaeological monument was noted during the walkover CH22. While the WWTP site was walked by the writers, the remainder of the green field pipe locations were not accessible at the time of writing (these were accessed on the aerial photos only). No green field pipe location is near an RMP or a PS. However, it is suggested that all these locations, where new pipelines are been constructed in green field areas are **ARCHAEOLOGICALLY MONITORED**.

Constraint study code	Ref. Nos	Address	Location/ Coordinates	Site Type	Source	Importance/ Legal Status	Information Detail	Type of Impact Predicted	Suggested Mitigation Measure
CH20	none	Ringaskiddy	Within study area, 177180/0643 60	Roadside memorial	Fieldwork	none	Memorial for a death near this location.	Direct Impact: May be inadvertently disturbed during construction.	Suitably protected and fenced off (temporarily) during construction works
CH21	none	Ringaskiddy	Within study area, 176970/0646 59	plaque	Fieldwork	none	Cork Harbour Commissioners commemorative plaque erected in 1980 and bearing the inscription 'This plaque acknowledges the assistance of the European Regional Development Fund in the development of the port of Cork. June 1980'. It is a 2.40m high brick structure.	Direct Impact: May be inadvertently disturbed during construction.	Suitably protected and fenced off (temporarily) during construction works
CH22	none	Ringmeen,	Within study	Limekiln	Fieldwork	None	Unusual occurrence of	Indirect impact:	Suitably protected

		(Whitepoint)	area, 178520/0657 20		OS map analysis		an unrecorded kiln in Co. Cork. Rynne in his publications does not note it. Associated with a local quarry to west of monument. Marked on the first edition 6" map with a limekiln symbol (circle/ring with dot). In very good condition.	adjacent to location of pipes	and fenced off (temporarily) during construction works  Archaeological monitoring in vicinity of monument.
CH23	None	Ballyfoulool "Strawhill"	075400/ 065100	Railway Embankmen t	Fieldwork OS map analysis	None	Railway embankment extant relating to the Great southern railway which ran from Carrigaline to Crosshaven. Closed in the 1930s. Low possibility that some remains of Raffeen Mills may be present subsurface at this location also.	Indirect: impact adjacent to pumping station	Archaeological monitoring of construction works (due to presence of modern fill at location of station).
CH24	None	Kilnaglery/ Commeen	073525/ 061515	The Dandy Bridge	Fieldwork OS map analysis	None	Indicated as Ford and crossing point and bridge. Origin of name unknown. Bridge single span semi-circular headed arch in mortared stone. Parapets at either side of roadway, mortared stone. Very overgrown. Stone paving noted in water to north side of bridge, possible original fording	Direct and Indirect impact: adjacent to pipe location. Route of pipe may traverse bridge	Archaeological monitoring of construction works. Protection of bridge in case of inadvertent damage should it be required (sandbagging, scaffolding or suchlike).

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							paving. Modern pipes on northern side of bridge.		
CH25	None	Kilnaglery	074255/ 062100	Bridge/ Railway Embankment	Fieldwork OS map analysis	None	Railway embankment extant relating to the Great southern railway which ran from Carrigaline to Crosshaven. Closed in the 1930s. Kilnaglery bridge to south. Marked on earlier editions of maps. Modern road now traverse bridge which appears modern (though may be older and repaired).	Indirect impact: adjacent to outfall of pipe	Archaeological monitoring in vicinity of monument
CH26	None	Historic Town	179750/0664 70	Historic Town	Fieldwork OS map and documentary analysis	None (as a historic entity)	Cobh town is a complex and very important cultural heritage location. It is not designated as an entity in its own right but for the purposes of this study has been allocated a CH number. This CH number incorporates the contents of the Cobh Development Plan (CTC 2005) including its PS list and so they have not been described individually. At the end of the 18 <sup>th</sup> century Cobh was	Direct and indirect impact: Pumping stations and pipe locations in historic town	Archaeological monitoring of all pipe routes within Urban district of Cobh.  Sympathetic design of major pumping station at West Beach.  Suitable Screening of all works during construction phase so as not to detract from the historic integrity of the town until they are made good.

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						<p>described as a small fishing village consisting of a few scattered houses. Its subsequent rise arose from its convenient island location for shipping in Cork Harbour. It also benefited from the erection of Camden and Carlisle forts and by the construction of an artillery barracks on Spike Island to the south. It was a British naval base until 1937 and was the principal American naval base in Europe during WW1. In 1838 the Sirius sailed from here- the first steamer to cross the Atlantic. In the 19<sup>th</sup> century Cobh was a "winter resort" and in 1894 Queen Victoria visited when it was temporarily called "Queenstown". The ill-fated Titanic stopped at Cobh before it continued its maiden voyage to America (Zajac <i>et al</i>, Urban Survey 1995)</p>	<p>Archaeological testing in advance of construction of pumping stations at Carrigaloe and West Beach.</p>
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Table 7. Further potential architectural constraints within study area



Figure 19. Aerial photo showing CH locations along pipeline routes in the Monkstown area (north to top not to scale, for indication only)





Figure 20. Aerial photo with CH locations in Cobh and environs (north to top not to scale, for indication only)

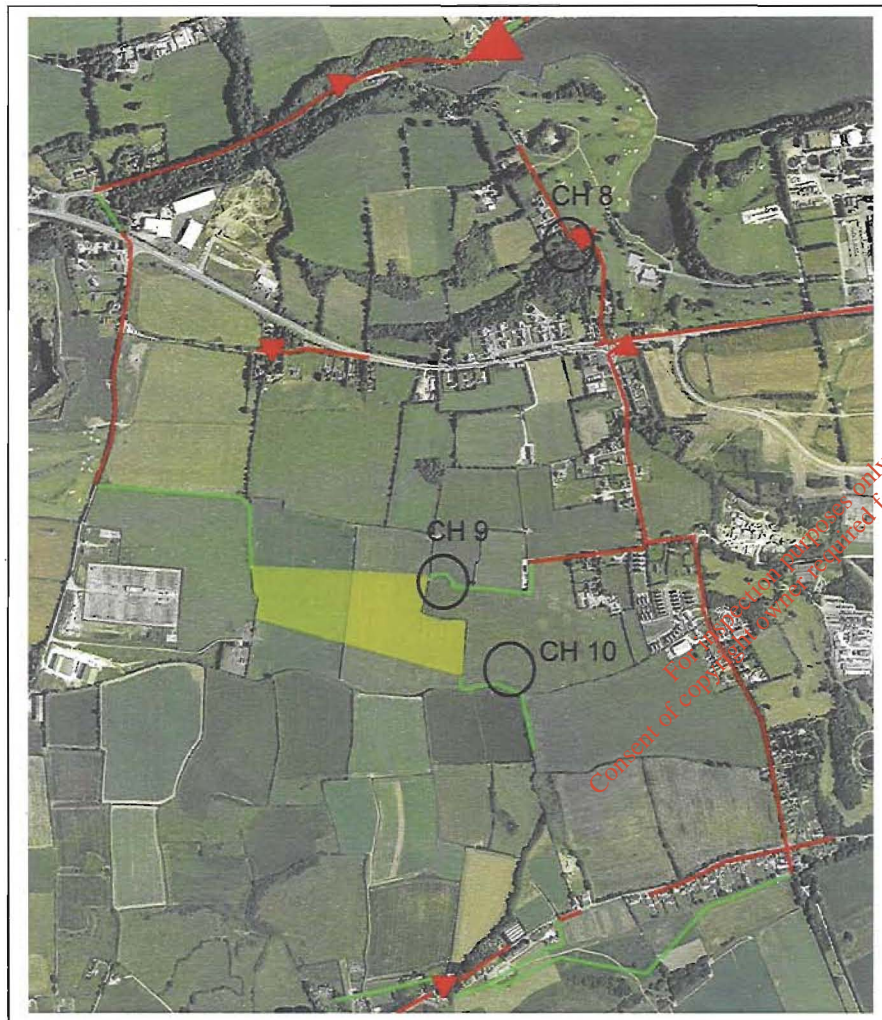


Figure 21. Aerial photo showing CH locations along pipeline routes in the WWTP site area (in yellow) (north to top not to scale, for indication only)

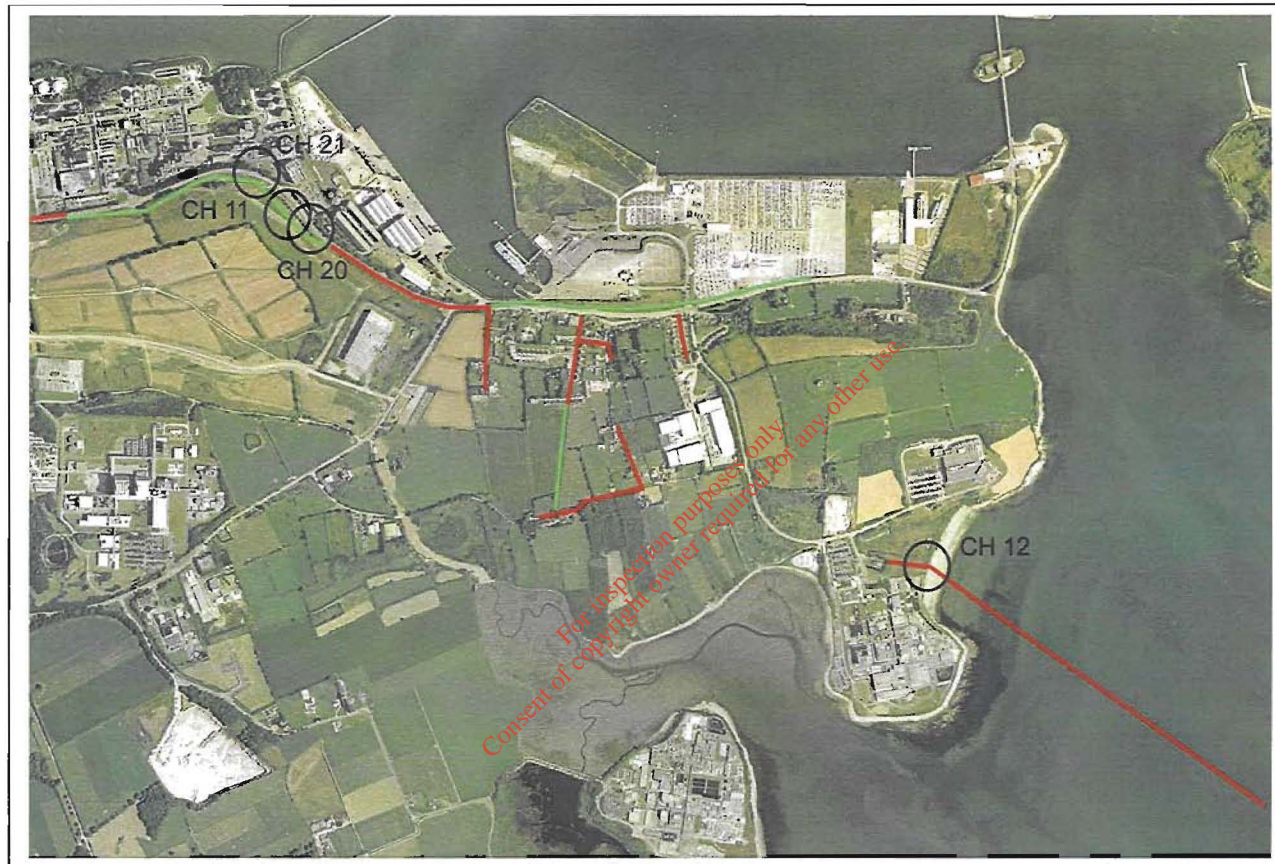


Figure 22. Aerial photo showing CH locations along pipeline routes in the Ringaskiddy area (north to top not to scale, for indication only)

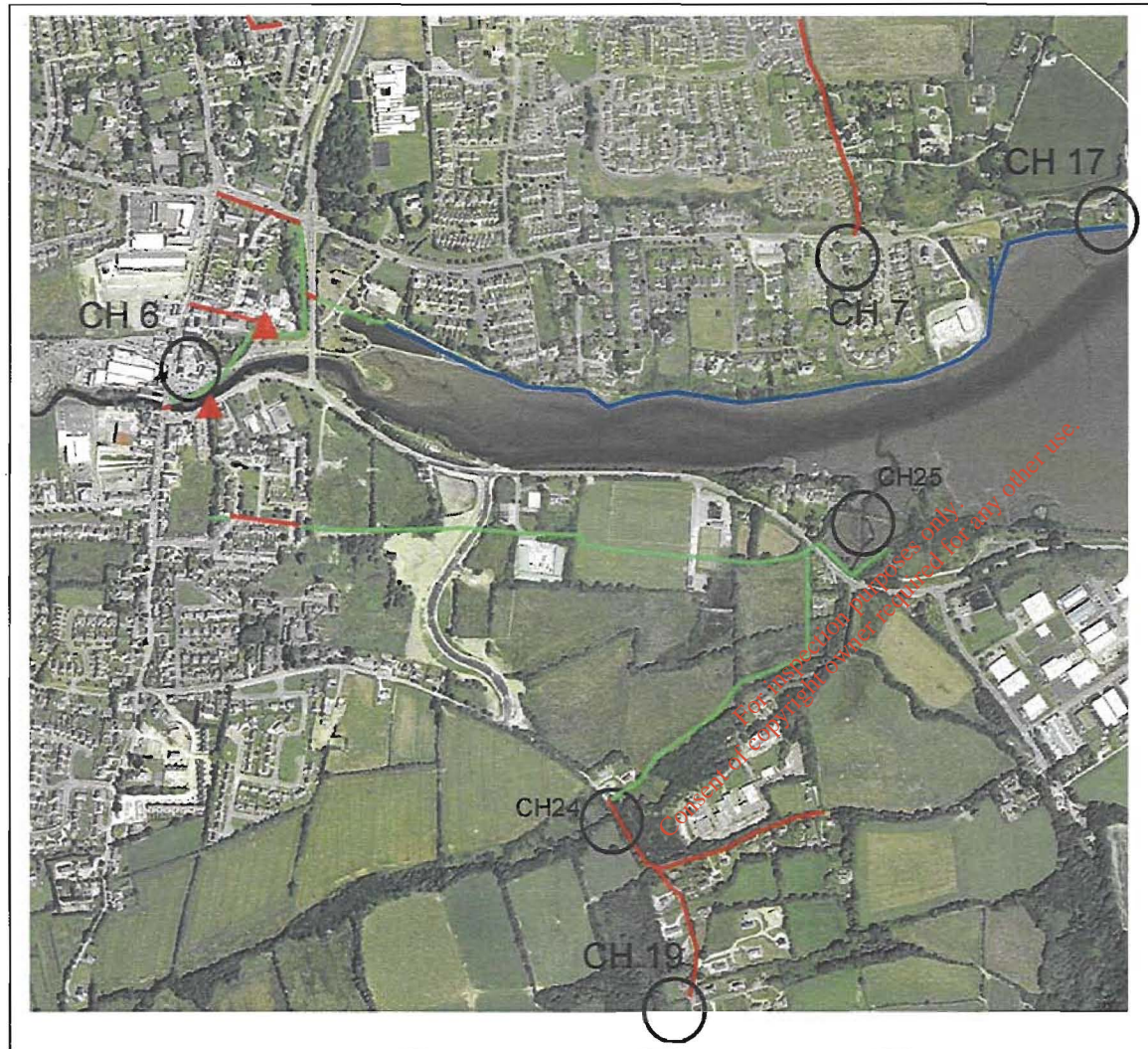


Figure 23. Aerial photo showing CH locations along pipeline routes in the Carrigaline area (north to top not to scale, for indication only)