
Appendix 8A

Landscape and Visual Assessment Report

3.9. LANDSCAPE AND VISUAL ASSESSMENT

3.9.1 Non Technical summary

The proposed Cork Lower Harbour WWTP site is located at Shanbally, Co. Cork, approximately 1.5km east of Carrigaline, 3km west of Ringaskiddy, and directly east of Barnahely. The site covers an area of approximately 7.36 hectares and is situated on a south facing hillside. The site is currently pasture land and is located within two large fields bound by tall hawthorn hedgerows.

The surrounding agricultural landscape is heavily influenced by the pharmaceutical complexes in the Ringaskiddy and Lough Beg area, and by the infrastructure and residential developments in close proximity to the site. This mixture of industrial development, agricultural land and housing, including eastern fringes of Carrigaline comprise the overall character of the area. The site remains fundamentally rural in character but heavily influenced by the urban and industrial developments and can be described as a Rural Fringe Landscape.

During construction the overall disruption will contribute to short term and temporary moderate negative impacts on both views and character of the site. The greatest impacts will be associated with the appearance of bare soil over a large area until the construction is finished.

On completion there will be long term and permanent impacts resulting from noticeable changes in the views and character of the landscape. There are several scenic routes and designated scenic landscapes in the vicinity. Of these only the following will be impacted:

- 1) Views from the 'Scenic Landscape' surrounding the Owenboy River Valley; and
- 2) Views from the Scenic Route A-56 (Road between Carrigaline and Crosshaven).

In general, the proposed site is set low enough in the landscape that it will be only partially visible through existing vegetation in adjoining fields and hedgerows giving rise to slight to moderate negative visual impacts.

In addition to the wastewater treatment plant at Shanbally there will be major pumping stations located at Monkstown, Carrigaloe, Rafeen and Cobh and the continued use of the existing pump station at Church Road. There will also be minor pump stations at various locations within the serviced area. Minor pump stations are expected to be submersible type stations with only a kiosk located above ground.

The design of the major pump-stations will reflect the local urban landscape in Monkstown and Carrigaloe resulting in neutral to slight visual impacts. The pumping station at Rafeen will intrude upon but not obscure previously open views across Monkstown Creek resulting in Moderate Negative Visual Impacts. The pump station in West Beach, Cobh would have a significant negative visual impact on views from West Beach to the harbour, however the impact will be mitigated by careful design of the building and public open space to reflect and respect the scale, massing, proportions, design and materials of existing neighbouring structures and reflect the character of the area and streetscape.

Landscape mitigation measures for the WWTP will require the planting of substantial belts of native woodland to the site boundaries. After 7 – 10 years the mitigation screen planting will have reached heights of 10-12m providing screening of the site from virtually all angles. The selection of native woodland species will be in keeping with woodlands at Monkstown Creek and Currabinny and cause neutral impact to the rural fringe landscape character.

3.9.2 Introduction

The purpose of this study is to evaluate the landscape and visual impacts associated with the proposed Cork Lower Harbour Waste Water Treatment Plant (Cork Harbour Main Drainage Scheme) at Shanbally, Co. Cork. In doing so, assessments are made regarding the likely impacts to the landscape and visual character of the development, the appropriate mitigation measure required to complement these impacts and mitigation requirements associated with the future for large scale industrial development.

3.9.3 Methodology

The visual assessment of the site was carried out in July 2007.

The methodology used to assess the impacts of the development on the landscape is based on the terminology given in the guidelines of the Environmental Protection Agency¹. The methodology used for the landscape assessment entailed:

- A desktop study of the site in relation to its overall context both locally and regionally.
- Visiting the site and its environs to assess the following;
 - Quality and type of views in the area
 - The extent of the visual envelope, i.e. the potential area of visibility of the site in the surrounding landscape.

The Visual Envelope Map is determined by assessment of the proposed height of the development relative to existing contour levels in the surrounding landscape. A desk top assessment is further refined on site to clarify local visual obstructions from landcover and settlement.

The character and quality of the surrounding landscape was assessed in relation to the proportion of residential and agricultural development, special landscape features, cultural and historical elements and landforms associated with the site.

3.9.3.1 Character and Visibility

Effects on character and views are considered separately in the impact assessment. Impacts on character relate to changes in the particular identity of coherent landscape areas. Impacts on views are considered where there are particular or noticeable views, which would be affected by the development.

Impacts on the character of the landscape include responses, which are felt towards the combined effects of the new development. The significance of impacts on the perceived landscape character will depend mainly on the visual experience of the landscape and on the number of people affected, but also on judgements about how much the change will matter. Other factors will also affect the experience, including sounds, smells, feelings, etc., experienced by those concerned.

[1] Information To Be Contained In Environmental Impact Statements, 2000.

3.9.3.2 Impact Assessment Criteria

The terminology used to define impacts is outlined in Table 5.1:

Table 3.9.1 Impact Significance Terminology

Impact Level	Definition
Imperceptible	An impact capable of measurement but without noticeable consequences;
Slight	An impact which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate	An impact that alters the character of the environment in a manner that is consistent with the existing and emerging trends
Significant	An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Profound	An impact, which obliterates sensitive characteristics

(Guidance on the information to be contained in Environmental Impact Statements, EPA. 2002)

These ratings may be viewed as neutral, positive or negative, where:

- Neutral represents a change that does not affect the quality of the environment.
- Positive represents a change that improves the quality of the environment.
- Negative represents a change that reduces the quality of the environment.

The expected duration of potential impacts are also considered below;

Table 3.9.2 Impact Duration Terminology

Duration	Definition (EPA Guidelines)
Short term impact	Impact lasting 1 to 7 years
Medium term impact	Impact lasting 7 to 15 years
Long term impact	Impact lasting 15 to 60 years
Permanent impact	Impact lasting over 60 years
Temporary impact	Impact lasting for 1 year or less

3.9.3.3 Study Limitations

The impact assessment was undertaken in the summer when foliage is in full leaf and therefore provides greater screening than in the winter. However given the density of the local hedgerows there is not likely to be any notable reduction in screening over the winter.

3.9.4 DESCRIPTION OF RECEIVING ENVIRONMENT

3.9.4.1 Existing Environment

The proposed Cork Lower Harbour WWTP site is located at Shanbally, Co. Cork, approximately 1.5km east of Carrigaline, 3km west of Ringaskiddy, and directly east of Barnahely. The village of Shanbally is located 1km to the northeast. The N28 Ringaskiddy Road currently runs east to west approximately 1 km to the north, however the proposed route for the N28 Road Improvement Scheme will re-direct the road to run along the northern boundary of the site.

The site covers an area of approximately 7.36 hectares and is situated on a south facing hillside at approximately 30m high (Malin Head Datum). The site is currently pasture land and is located within two large fields bound by tall hawthorn hedgerows. The north and south boundaries of the site are not contained by the field hedgerows but are defined by the high voltage lines that run overhead north and south of the site that connect to an ESB sub-station immediately to the west of the site.

The topography in the local area is defined by ridgelines that typically run east west to form a rolling landscape. To the north primary visual ridgeline runs through Raheenaring and Monkstown on to Passage West. To the south another ridgeline runs from Crosshaven eastwards through Frenchfurze. Two lower ridgelines further define the visible extents of the local area, one immediately north of the site extending from Carrigaline through Shanbally to the "Golden Rocks" headland at Ringaskiddy, and a second ridge to the southeast along the Currabinny headland with the Owenboy River to the south and Lough Beg to the north. These ridgelines define the extents of the visual envelope and are illustrated on figure 3.9.1.

The local landscape is heavily influenced by the existing pharmaceutical complexes in the Ringaskiddy and Lough Beg area. Of these the newly developed Centacor site and the Novartis site are visible immediately to the east at Barnahely. Immediately west of the site there is a substantial ESB Substation and Bord Gais pumping station which introduce an industrial element to the very edges of the site. The site is accessed by a gravel lane-way that leads to the Bord Gais facilities. The lane passes between the ESB sub station to the north and a small industrial complex with two warehouses of approximately 10.0m height to the south. Beyond the warehouses the fringes of Carrigaline are clearly visible.

3.9.4.2 Historic / Cultural Landscapes

The proposed site is situated in an agricultural landscape, and is not directly associated with any historic landscapes or areas of recreation and amenity. However the surrounding area contains historical references.

Historic Landscapes as designated by the National Inventory of Architectural Heritage are situated at Coolmore in the grounds of Coolmore House, and at Raffeen.

The landscape at Coolmore is largely intact though much of the peripheral landscape is indistinguishable from the surrounding farmland and some modern agricultural buildings have been constructed within the site of the walled garden. The proposed WWTP will not have any direct or indirect impact on the character of Coolmore House and grounds. The historic landscape at Raffeen is associated with Raffeen House and Raffeen House Lower, a large extent of quarrying has been undertaken on the site and all that remains of the historic landscape is Raffeen House and the woodland along the Monkstown Road. The WWTP will have no direct or indirect impact on the landscape at Raffeen. However the mitigation planting will reflect the character of woodland at Raffeen and Monkstown Creek.

3.9.4.3 Recreation and Amenity Landscapes

The proposed site has potential impact on two areas of amenity or recreation. There are playing pitches at Shanbally within a short distance of the site, but they will not have views of the site. There are also public walks along the Owenboy River and at Currabinny. Currabinny is screened from all views to the site, but there are direct views to the site from the public amenity walk between Carrigaline and Crosshaven for a short distance at Frenchfurze.

3.9.4.4 Site Significance

The site is contained within a large area Zoned as I-03 on zoning map no. 26 in the Cork County Development Plan 2003 (CCDP) and reads as follows in the Zoning Objectives section for Ringaskiddy:

"Suitable for large stand alone industry with suitable provisions for a buffer tree planting, minimum 20 metres wide along the northern boundary to residential areas and provision for Public Open Space and to include three playing pitches."

There are also a number of scenic routes and scenic landscape designations in close proximity to the site in the (CCDP, 2003) which are discussed below.

3.9.4.5 Designated Scenic Landscape

There are large areas surrounding the site, particularly to the North, East and South, which are designated as 'Scenic Landscape' (refer to map 16 in the CCDP and Figure 3.9.1 of this EIS). Much of the scenic landscape in close proximity to the site is in agricultural usage with no public access. From the local road network in the local area views of the site are largely screened by high hedgerows. There are partial views to the site from within designated scenic landscape along a section of the road out to Coolmore Cross from Carrigaline. The Owenaboy valley is designated as scenic landscape but views to the site are restricted by local topography and vegetation. Distant views partial views are possible from the Myrtleville Road and the back road from the Carrigaline Industrial Estate, at Frenchfurze on the opposite side of the Owenaboy River, but distance and intervening vegetation restrict the extent of views. The policies relating to these areas (Volume 1, Chapter 7, CCDP) read:

'ENV 3-4 Scenic Landscape

It is a particular objective to preserve the visual and scenic amenities of those areas of natural beauty identified as 'scenic landscape' and shown in the scenic amenity maps of Volume 4 of this plan.

'ENV 3-5 General Views and Prospects

It is a general objective to preserve the character of all important views and prospects, particularly sea views, river or lake views, views of unspoilt mountain, upland or coastal landscapes, views of historical or cultural significance (including buildings and townscapes) and views of natural beauty.'

Zoned lands that also have designations such as 'scenic' or 'heritage' are considered as follows:

'9.1.5 As a point of clarification, where particular zoned lands have a scenic landscape designation or adjoin a scenic landscape designation, there is still a presumption in favour of development for the specified land use, but special attention may need to be paid to design, siting and landscaping depending on the individual area and the type of development proposed.'

3.9.4.6 Designated Scenic Routes

The policy reads: *(found on maps 15 and 16 in the CCDP)*

‘ENV 3-5 Scenic Routes

‘It is a particular objective to preserve the character of those views and prospects obtainable from scenic routes identified in this plan. Those routes are shown on the scenic amenity maps in Volume 4 and listed in Volume 4 of this plan.’

Scenic Route A-54 (Road between Passage West and Ringaskiddy)

Views from the Ringaskiddy road will not include the proposed site which is on the south side of an intervening ridgeline.

Scenic Route A-56 (Road from Carrigaline and Crosshaven)

This route runs from between 2 – 4km to the south of the site. There are long range views along sections the R612. The views across the Owenboy estuary include; Coolmore Estate, Novartis and the proposed site to the west, distinguished by the overhead powerlines. (See Figure 3.9.1).

3.9.4.7 Visual Envelope

The Visual Envelope is the extent of potential visibility of the site to or from a specific area or feature in the landscape and is defined by topography and vegetation. The visual envelope of this site is indicated on Figure 3.9.1.

From the north, the site is visible from elevated lands at Raheenering and also from lands above Strawhall southwest of Monkstown. From the east, views are limited to the local landscape in the area of Barnahely, though there are no views from Novartis car park and grounds due to screening by local topography and vegetation. To the south the site is visible from the road above Loughbeg past the Coolmore Crossroads, and further south from the Crosshaven and Myrtleville Roads at Frenchfurze. To the west, the site is visible from the eastern fringes of Carrigaline, however there are no clear views from the local roads due to screening from high roadside hedges and housing east of the roads. Views will be achieved from the rear of properties, particularly from upper floor windows on the eastern extents of Carrigaline.

3.9.4.8 Views from the North

3.9.4.8.1 Shanbally

Shanbally is located on the N28 north of the site. The proposed site however is on the opposite side of the low ridge line and is not visible from Shanbally.

3.9.4.8.2 Monkstown

There are no views from Monkstown to the site.

3.9.4.8.3 Strawhall

Strawhall is a small cluster of housing at a junction on the R610 Monkstown to Rafeen road, from an elevated position on the back road to Monkstown there are views to the site, which is distinguished by the overhead powerlines. (Refer to Photograph View 1, Figure 3.9.2)

3.9.4.8.4 Loughbeg

Loughbeg is located approximately 1.5km southeast from the site. This area has been designated as Scenic Landscape in the CCDP. The area sits lower than the site, at approximately 10m high, and there are views looking across the landscape and up towards the site, but it is not possible to look into the site due to existing vegetation. It is possible that the higher elements of the proposed development up to 12m above ground-level would be visible from this location. There are views of Novartis and Buckeye buildings at this point as well.

3.9.4.8.5 Currabinny

Currabinny is located approximately 2.5km to the southeast of the site. There are views towards the site from the small road that runs along the ridgeline of the area. The overhead powerlines are visible over the site, although the site itself is screened by existing vegetation it is possible that the higher elements of the proposals up to 120.0m would be visible over existing vegetation. The existing pharmaceutical complexes of Glaxo SmithCline, MOOG, Novartis and Pfiizers are all visible in the foreground. There are also Scenic Landscape designations for this area in the CCDP.

3.9.4.8.6 Coolmore

Coolmore is located approximately 2.3km to the southeast of the site and lies below the level of the site at an elevation of approximately 12 to 15m (Malin Head Datum). There is a Scenic Landscape designation to this area also, as laid out by the CCDP. The intervening topography, vegetation and buildings at Novartis generally limit views to small glimpses of the overhead powerlines in the location of the site.

3.9.4.8.7 Barnahely

The power lines over the site are visible from Barnahely but views into the site are screened by the topography and vegetation. The site will also be visible from the upper floors of the Novartis building, but there are no views from the local roads in this area. (Refer to Photograph View 2, Figure 3.9.2)

3.9.4.8.8 Frenchfurze

Frenchfurze is located approximately 3km to the south of the site, along the R612. It sits at an elevation of approximately 60m OD and overlooks the Owenaboy River. There are Scenic Landscape designations placed on this area. The site is partially visible from the Myrtleville Road, and clearly visible from the back road between the Carrigaline Industrial estate and Frenchfurze. The site is also visible from the Carrigaline – Crosshaven Road due south of the site and from the public walk way along the estuary edge between Carrigaline and Frenchfurze. (Refer to Photograph View 3, Figure 3.9.3)

3.9.4.8.9 Carrigaline

Carrigaline is located approximately 1.5km from the site and is typically at an elevation of 20m OD. There are views of the site and Novartis from the residential area at Bridgemount to the eastern fringes of Carrigaline. A number of roads also go through Carrigaline including, the R611, R612 and R613, but views in the direction of the site from these roads are generally screened by existing vegetation and buildings. (Refer to Photograph View 4, Figure 3.9.4)

3.9.4.9 Landscape Character

As the site is located near Ringaskiddy in Cork Harbour any description of the landscape character should be cognisant of the strong identity of the harbour. A pilot study of the Landscape Character of Cork Harbour has been undertaken by *Mosart* on behalf of Cork County Council. The study assesses the landscape thus:

"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 mixture of industrial development, agricultural land and low density housing areas comprise the overall character of the area. Carrigaline town is a substantial urban settlement, and the eastern fringes of Carrigaline also influence the character of the site. The site therefore remains fundamentally rural in character but heavily influenced by the urban and industrial developments in the surrounding area and the character can therefore be described as a Rural Fringe landscape.

3.9.5 Character of Development

The proposed development consists principally of the construction of a large sized urban wastewater treatment plant to serve the population centres of Cork Lower Harbour and its' environs. The proposed wastewater treatment plant is an essential element of the Cork Lower Harbour Main Drainage Scheme. Associated works, which will be carried out as part of the proposed development, include:

- The widening of sections of the minor road to the west of the site
- The widening and upgrading of the site access road
- Marine crossing
- New wastewater pumping stations
- The laying of rising mains, surface water sewers and gravity wastewater sewers to direct the wastewater to the new treatment works
- New wastewater treatment works

3.9.5.1 Treatment Processes

There will be primary, secondary and sludge treatment facilities which will include a series of process and storage tanks, the tanks will have a maximum height of 12.0m above ground, the tanks will be coloured in a neutral dark green colour.

3.9.5.2 Buildings

The number of buildings and the facilities will depend upon the final process design selection. However a typical arrangement of buildings would include a preliminary treatment building, a main administration building, a secondary treatment building and sludge treatment building. The buildings will have a maximum height above ground of 10.0m.

3.9.5.3 Pumping Stations

Other elements of the scheme essential to the proposed wastewater treatment plant include rising mains, pumping stations and gravity sewers.

The proposed locations of the major pumping stations are:

- Carrigaloe, Great Island, adjacent to the ferry terminal.
- Monkstown, at the car park off the Glen Road.
- Raffeen on the foreshore at Strawhall next to the junctions with the Rochestown Road and the back road to Monkstown.
- West Beach Pumping Station, Cobh
- Church Road Pumping Station, (existing)

There will also be minor pump stations at various locations within the serviced area. Minor pump stations are expected to be submersible type stations with typically only a kiosk located above ground.

The proposed works are discussed in detail in the project description section of the EIS.

3.9.6 Construction Impacts

As construction proceeds there will be a requirement to provide for:

- Builder's compound and car-park;
- Stockpile mounds of subsoil and topsoil;
- Small scale re-grading works;
- Upgrading the access road
- Collection Pipelines across the catchment area
- Pump Stations located in Rafeen, Monkstown, Carrigaloe, Cobh and Church Road.

The construction of the WWTP will give rise to an appearance of disruption over the proposed site. The upgrading of the access road will require widening and surfacing. There are wide grass ditches to the access lane so there should be minimal impact on the hedgerow south of the lane and the ESB substation fencing north of the lane. At the eastern end of the lane there are some ornamental trees and shrubs associated with the Bord Gais sub station, these can be retained. Widening of the local road to provide access may require the loss of some sections of hedgerow, where this is necessary new hedgerows should be planted. The construction of the collection pipelines will result in short term impact on the landscape as a result of preparing the trenches and leaving a visible scar on the land. Through fields and on roadways these will be temporary only visible for a few weeks until the pipes are laid and the ground re-instated. Impacts will be longer term to hedgerows where replacement planting in any gaps may take 3 to 4 years to replace the lost sections. Construction impact of the pipelines will be short term and slight negative.

3.9.6.1 Duration of Impact

By their nature construction impacts are short term / temporary and relate only to the building period, on completion of the works there will be long term, permanent operational impacts which are dealt with in section 3.9.8 below.

Table 3.9.3 Summary of Construction Impacts on the Landscape

Landscape Change	Impact Description	Type of impact	Magnitude	Duration
LANDFORM	The site will need to be levelled	Negative	Slight	Permanent

	requiring local earth movement.			
LANDUSE	Introduction of new buildings and structures into the agricultural landscape.	Negative	Moderate	Permanent
LANDCOVER	Loss of some hedgerow and pastureland	Negative	Slight	Permanent
LANDSCAPE CHARACTER	The construction activities will cause disturbance to the pastureland.	Negative	Slight	Temporary
LANDSCAPE QUALITY	Temporary change to the landscape quality of the local area, resulting from construction activities.	Negative	Slight	Temporary
LANDSCAPE FEATURES				
▪ Loss of hedgerow	A central hedgerow will be removed within the site. Small gaps will be lost along the route of the collection pipes.	Negative	Slight	Permanent
▪ Trees	No trees are to be felled	Neutral		
▪ Walls and Features	No walls or man made features of notable quality are to be lost	Neutral		
▪ Historic Landscape	The site is located near to (2-3km) historic landscapes but will not impact on them.	Neutral		
CONSTRUCTION ACTIVITIES				
▪ Excavated material	Temporary mounds of excavated and demolished material stored on site.	Negative	Slight	Temporary
▪ Plant and machinery activity	Views of mobile cranes and plant machinery involved in the building works.	Negative	Slight	Temporary
▪ Working area	The working area will be within the existing site boundary.	Negative	Slight	Temporary
▪ Site compound	The site compound and site parking will be within the existing site area.	Negative	Slight	Temporary
▪ Pipelines	Temporary excavations to lay pipes	Negative	Slight	Temporary
▪ Pump stations	Construction works on the various pump stations as listed in detail below	Negative	Moderate to Significant	Temporary

3.9.7 Do Nothing Scenario

In the event of no development occurring, the site will continue as agricultural lands. The lands will none the less be impacted in the future by the proposed re-alignment of the N28. The overall character of the area will remain as rural fringe landscape heavily influenced by the adjacent pharmaceutical plants, infrastructure and residential development.

3.9.8 Operational Impacts

3.9.8.1 Impact on Landscape Character

Upon the completion of the proposed works, there will be a change in the appearance of the site, from the existing pasture land to the industrial elements of the treatment plant. In order to avoid impact on the surrounding landscape and degrading of the local rural landscape, woodland planting is included in this application to the perimeter of the site to provide increased screening and minimise visual impact. Initial impacts will be moderate negative impact on the local rural landscape reducing to slight negative impacts as planting matures. Impacts on the character of the greater Cork Harbour Area will be slight and negative due to the existing mix of industrial

elements and agricultural landscape within the area of the proposed development. Overall the greater surrounding area is deemed capable of absorbing the development without changing the character of the Urban Fringe Landscape.

3.9.8.2 Designated Scenic Landscape

The impact on areas designated as 'Scenic Landscape' will vary depending on their locations in relation to the site, but will generally be affected as follows:

3.9.8.2.1 Views from the 'Scenic Landscape' surrounding the Owenboy River valley

The Owenboy River runs approximately 2 – 3km from the site. Due to this proximity, views will be affected differently throughout this area. In general, the proposed site is set low enough in the landscape that it will not interfere with views of the skyline and will be only partially visible through existing vegetation in adjoining fields and hedgerows. The woodland planting proposed at the boundaries of the site will provide adequate screening. Initial slight negative impacts will be reduced to imperceptible impacts as the planting matures.

3.9.8.3 Designated Scenic Routes

3.9.8.3.1 Scenic Route A-54 (Road between Passage West and Ringaskiddy)

Views from the Ringaskiddy road will not include the proposed site which is on the opposite side of a hill defined by the ridgeline immediately north of the site.

3.9.8.3.2 Scenic Route A-56 (Road from Carrigaline and Crosshaven)

Views of the site from the A-56 scenic route are restricted to a short section of the road at Frenchfurze. The site is over 2.0km distance and partially screened by undulating topography and existing vegetation. The development proposals will result in slight to moderate negative impacts depending on the exact viewing point on the road and the adjacent public footpath. Impacts will reduce to imperceptible on maturity of the mitigation planting in 7 -10 years.

Table 3.9.4 Summary of Operational Impacts on the Landscape

Landscape Change	Impact Description	Type of impact	Magnitude	Duration
LANDFORM	The land will be levelled to accommodate the WWTP, the scale of level changes will not be readily apparent within the greater landscape	Negative	Slight	Permanent
LANDUSE	Introduction of new buildings and structures into the agricultural landscape.	Negative	Moderate	Permanent
LANDCOVER	Replace pasture land with buildings and structures, in keeping with mixture of industrial development in the Cork Harbour area.	Negative	Slight	Permanent
LANDSCAPE CHARACTER	The surrounding landscape will remain as urban fringe in character	Neutral		
LANDSCAPE QUALITY	The overall quality of the Cork Harbour area will remain intact	Neutral		
SCENIC LANDSCAPE	There are limited views to the site Scenic Landscape and Scenic Routes will experience only partial glimpses of the site, until mitigation planting matures.	Negative	Slight	Short Term
HISTORIC LANDSCAPE	The WWTP site is located near to (2-3km) historic landscapes but will not impact on them.	Neutral		

3.9.9 Visual Impacts of the Treatment Plant

3.9.9.1 Shanbally

Shanbally is located on the N28 north of the site. The proposed site however is on the opposite side of the low ridge line and is not visible from Shanbally and will not cause any visual impact.

Playing pitches at Shanbally are adjacent to the site, these are also on the opposite side of the ridgeline to the site but due to their proximity to the site there is potential visual impact from the higher elements of the proposed development. As the proposed screen planting on the northern boundary of the site matures visual impacts will reduce from slight negative to imperceptible.

3.9.9.2 Monkstown / Strawhall

The views from elevated lands above Monkstown and Strawhall, towards the site will have an initial slight negative impact. The R610 which runs through Monkstown will not have views into the site. The proposed site will be seen in the context of the pharmaceutical plants in the Ringaskiddy area and in conjunction with the ESB sub station adjacent to the site. The cumulative impacts of the treatment plant with the existing industrial elements and the proposed re-alignment of the N28 are to be offset by the mitigation measures of planting dense woodland screening along the northern boundary of the site. Providing a greater cover of woodland in keeping with the wooded lands over Monkstown Creek, resulting in a long term slight positive impact on the views from the Monkstown and Strawhall area. (Refer to view 5.1)

3.9.9.3 Loughbeg

Loughbeg is located approximately 2-3km east from the site. This area has been designated as Scenic Landscape in the CCDP. Views of the site are partially obscured by existing hedgerows and the topography of the land. There are views of Novartis, Centacor and Buckeye buildings at this point as well. The proposed mitigation measures will provide screening of the treatment plant that will overtime cause initial slight negative impacts to become imperceptible visual impact.

3.9.9.4 Currabinny

Currabinny is located approximately 4km to the southeast of the site. There are views of the site from the small road that runs along the ridgeline of the area. The existing pharmaceutical complexes of Glaxo Smith Cline, MOOG, Novartis, Centacor and Pfizers are all visible. There are also Scenic Landscape designations for this area in the CCDP. The site is partially visible in the distance beyond Coolmore Estate for only a short distance from the road leading out to Currabinny. The initial slight negative impacts will be reduced to imperceptible visual impact when the proposed planting matures to provide screening of the site.

3.9.9.5 Coolmore

Coolmore is located approximately 2.3km to the south of the site and lies at an elevation of approximately 12 to 15m high. There is a Scenic Landscape designation to this area also. The intervening topography, vegetation and buildings at Novartis generally limit views.

3.9.9.6 Barnahely

Views from the Barnahely area are limited by existing vegetation and existing development. Views from the Novartis grounds will be screened by intervening hedgerows, views would be more likely from the building itself or from elevated lands

around the building, the road ways and car parking are too low to experience views of the Treatment Plant. Views from the Centacor site are distant and screened by intervening hedgerows, again views are likely from the upper floors of the buildings but will be distant. The proposed planting on the treatment plant site will, as it matures, provide further screening. Slight Negative Visual Impact will reduce over time to Imperceptible Visual Impact. (Refer to View 5.2)

3.9.9.7 Frenchfurze

Frenchfurze is located approximately 3km to the south of the site, along the R612. It sits at an elevation of approximately 60m and overlooks the Owenboy River. There are Scenic Landscape designations placed on this area. In general when viewing the area surrounding the site there is a greater sense of the rural landscape as viewed from the south, as opposed to views from the north and east which encompass Ringaskiddy and the various pharmaceutical industries. Therefore views from the south are more sensitive and the impact of the proposed site will be moderate negative impact as it will be visible in the middle ground with the Novartis building also visible. Impacts will reduce to imperceptible on maturity of the mitigation planting in 7 -10 years. (Refer to View 5.3)

3.9.9.8 Carrigaline

Carrigaline is located approximately 1.5km from the site and is typically at an elevation of 20m. There are views of the site from the residential area at Bridgemount on the eastern fringes of Carrigaline. The site situated on the south facing hill side will be a dominant feature if the views from the rear of the closest properties causing moderate negative visual impacts. The mitigation planting will provide a high level of screening to lessen the impact to a slight negative visual impact. (Refer to View 5.4)

3.9.9.9 Potential Impacts from the Proposed N28 re-alignment

The proposed re-alignment of the N28 will run along the northern boundary of the field in which the site is located. Any views of the site will depend on the elevation of the road at this location. The road will however be on the opposite side of a low ridgeline on the northern boundary of the site. Proposed woodland planting along the northern boundary of the site in conjunction with any planting undertaken as part of the road development will provide adequate screening of the treatment plant and visual impact from the road can be expected to be slight negative to imperceptible.

3.9.9.10 Potential Impacts from the Proposed Housing east of the site

Note is made of the planning application (PA 06/6928) for new housing directly east of the site. The site of the proposed housing is slightly lower than the proposed wastewater treatment plant site and is well screened by existing vegetation. It is likely that the higher elements of the proposed WWTP up to 12.0m in height would be visible prior to the woodland planting maturing. Impacts could be expected to be slight negative initially reducing to imperceptible.

3.9.10 Cumulative Impacts

Consideration has been given to impact of the proposed WWTP in conjunction with the proposed re-alignment of the N28, the proposed development of housing and with the existing pharmaceutical complexes. The landscape of the Greater Cork Harbour Area has many designated scenic landscapes and it is necessary to preserve these and maintain a balance between the natural and the man made environment. It is important that the massing and scale of development does not conflict with the rolling

topography, views of skylines, coasts and rivers. The setting of the proposed WWTP is well located to avoid impact on the landscape due to the natural screening of the local topography and hedgerows. Taller elements of the WWTP (up to 12.0m) can be screened by planting of woodland belts. Cumulative impacts will be avoided as the WWTP will not converge with existing or proposed developments, but will remain a small singular element within the urban fringe landscape.

3.9.11 Visual Impacts of the Pumping Stations

3.9.11.1 Carrigaloe Pumping Station

Carrigaloe pumping station will be required to pump waste water across the River Lee Estuary to Monkstown. The pumping station will be situated on the fore shore in the shipyard area next to the ferry terminals and boat slips. The pumping station will be largely housed below ground level with a small building at ground level. The building is likely to be finished in the style of a boat house in keeping with the ship yard activities in this location.

Construction Impacts

During construction there will be impacts from the works, as the pumping station is largely below ground level there will be significant ground disturbance and removal of materials, this is likely to entail large machinery and the extent of construction works will appear disproportionate to the size of the completed building. The site will be enclosed by hoarding which should limit the extents of visual impact to temporary slight negative visual impact.

Operational Impacts

The building will be visible from the Cobh Road (R624) (scenic route A53), however the single storey building will be in keeping with the marine related industry buildings in the immediate vicinity and will not cause the loss of any views across the estuary. From the estuary and from the Monkstown side of the estuary the building will not protrude above the ridgelines of neighbouring buildings and will be seen as an element of the existing marine related buildings along the shore front. Mitigation measures will include an appropriate architectural treatment to ensure the building is in keeping with the local buildings. On completion visual impact will be neutral, as the building will neither cause a deterioration nor improvement to the local view.

3.9.11.2 Monkstown Pumping Station

Monkstown pumping station will be located in the centre of Monkstown off the Glen Road. The pumping station will again be largely underground with a small single storey building at ground level. The building will be located in the south eastern corner of the car park at Glen Road. The building will be placed next to rear garden walls backing onto the car park. The pumping house will be overlooked from houses on Glen Road and from the small public park, play area and the car park, there will also be views of the proposed building (particularly the roof) from houses on Castle Terrace. The proposed pumping station will be visible but will not cause the loss of any views, it will be lower than surrounding residential properties and will not break the skyline. Mitigation measures will include a style of architecture in keeping with adjacent buildings and stone walls. The boat house style of the other pump station buildings would be less appropriate in this location and stone facing of the walls should match existing rear garden walls.

Construction Impacts

During construction there will be impacts from the works, as the pumping station is largely below ground level there will be significant ground disturbance and removal of materials, this is likely to entail large machinery and the extent of construction works will appear disproportionate to the size of the completed building. The site will be enclosed by hoarding which should limit the extents of visual impact to temporary moderate negative visual impact.

Operational Impacts

Visual impacts of the operational building will be neutral impact from Castle Terrace where only the roof of the building will be visible and will not obscure any views, Slight Negative Visual Impact will be experienced from houses on Glen Road and from the public park and play area as a result of the introduction of a new building to the previously open space, however the building will not result in the loss of any views and will overtime become an accepted element of the townscape. (Refer to Photograph View 5, Figure 3.9.4)

3.9.11.3 Raffeen Pumping Station

Raffeen pumping station will be located on the foreshore of Monkstown Creek on reclaimed land at Strawhall south of the junction with the R610 Monkstown Road and the back road to Monkstown. The reclaimed land will be in a small channel between the road and an outer embankment, so the works will not change the existing shore line. The pumping station will be of a similar design to the other pumping stations and will be largely housed underground with a small single storey building at ground level. There are several residential properties located at Strawhall facing onto the R610 with scenic views across Monkstown Creek. To the north of the proposed pump house there is a boat yard and slip. The design of the pumping station is likely to resemble a boat house in keeping with the boat yard 200m to the north.

Construction Impacts

During construction there will be impacts from the works, as the pumping station is largely below ground level there will be significant ground disturbance, this is likely to entail large machinery and the extent of construction works will appear disproportionate to the size of the completed building. The site will be enclosed by temporary hoarding which will screen the unsightly construction works but increase the extent of visual disturbance resulting in temporary substantial negative visual impact from Strawhall.

Operational Impacts

Visual impact will be experienced from the R610 (scenic route A54), and from properties at Strawhall. The building will not result in the loss of views but will intrude upon previously un-interrupted views across the Creek. There are two properties directly overlooking the pumping station, and several properties will have angled views. Mitigation measures will include an appropriate architectural treatment to ensure the building is in keeping with the local buildings.

On completion visual impact will be moderate negative, as the building will continue to disrupt views across Monkstown Creek, but will be in keeping with the adjacent boatyard. (Refer to Photograph View 6, Figure 3.9.4)

3.9.11.4 West Beach, Cobh, Pumping Station

The West Beach pumping station will be located in reclaimed land between the piers along the shorefront at West Beach in Cobh town centre. The location of the proposed pumping station is in close proximity to the Post Office Building (Listed

building, Cobh Town Council Draft Development Plan 2005). The pumping station will consist of underground holding tanks and a single storey building at ground level. The surface over the holding tanks will form a paved area with railings to the edge. The single storey building will provide access to the tanks and house generators and administration. The site is located in the town centre, and an Architectural Heritage Area as designated in the Cobh Town Council Draft Development Plan 2005.

Construction Impacts

During construction there will be impacts from the works, as the pumping station is largely in reclaimed land and below the proposed ground level there will be significant ground disturbance, this is likely to entail large machinery and the extent of construction works will appear disproportionate to the size of the completed building. The site will be enclosed by temporary hoarding which will screen the unsightly construction works but increase the extent of visual disturbance resulting in temporary significant negative visual impact from West Beach. (Refer to View 5.7).

Operational Impacts

On completion the proposed pumping station building would be a prominent feature in views from West Beach and from Pearse Square. It would partially obscure views of the harbour and would be dominant in views from West Beach promenade resulting in permanent significant negative visual impact.

Mitigation

The impacts are to be mitigated by the appropriate design of the building and the paved open space over the holding tanks which present an opportunity to extend the public amenity along the shore front. The detailed design of the pump house and associated paved area will be in accordance with the Cobh Town Council Draft Development Plan 2005, to reflect and respect the scale, massing, proportions, design and materials of existing neighbouring structures in particular the old Post Office and reflect the character of the shorefront area and historic streetscape. It is proposed that the architectural style of the building should be contemporary and a key feature of the improved streetscape and quay side. The paved area would be public open space inspired by the adjacent promenade but also of a contemporary nature, using local paving materials and metal handrails to tie in with the existing quay side footpaths. There is an opportunity to incorporate existing features of the quayside to improve and upgrade existing facilities. The loss of views from West Beach are to be mitigated by provision of improved views from the new public amenity area. The overall aim of the detail design will be to enhance the West Beach Promenade area and maintain public access to the waterfront.

Submitted details of the pump stations are at a specimen design stage only and finalised proposals will be subject to planning approval. (Refer to Photograph Views 7 & 8, Figure 3.9.5).

3.9.12 Mitigation Measures

3.9.12.1 Project Layout

The primary objectives of the proposed mitigation measures include to:

- Reduce visual impact through minimising negative impacts on the character and views from adjoining residential properties, roads and other public areas.
- Assist a visual integration of future development on the site into the surrounds with an appropriate scale of planting.

3.9.12.2 Proposals for this application

The mitigation measures associated with the current proposals of the Treatment Plant site are to plant a belt of native woodland around the perimeter of the site. (See Figures 3.9.6 and 3.9.7). In particular planting will be required to the north as specified in the Cork County Development Plan and to the west to provide screening from the fringes of Carrigaline. This planting will occur during the first planting season (November – March) after all of the construction works have occurred, and will quickly screen the development on site. Within 7-10 years, this planting will form a 10-12m high dense cover, thus screening the majority of the buildings and structures which are to be no greater than 12.0m height. Existing hedgerows/ trees are also to be retained to the outer perimeter of the existing fields, however the internal hedgerow currently dividing the site into two fields will be partially removed where it is within the site boundaries.

The mitigation measures include choosing an appropriate low key building colour and additional landscape works associated with the facility administration buildings, roads and car parks. It is recommended that low level lighting is chosen for external lighting around the treatment plant.

3.9.13 Worst Case Scenario

The worst case scenario would be in the event of the mitigation measures failing. In order to guard against this scenario it should be noted stringent specifications would be employed with regard to all the planting works. (Refer to Appendix A). The landscape contract would include a 12 months maintenance period during which all plants which fail would be replaced.

In the unlikely event the mitigation measures do fail the impacts would remain as slight to moderate and would not be reduced over time as described in the impact assessment above.

3.9.14 Residual Impacts

Residual impacts should be assessed when the proposed planting has reached a level of maturity at 7 – 10 years. At this stage the woodland planting to the boundaries will have reached heights over 10.0 -12.0m, as the planting will be planted to an earth ditch 2-3m height this will afford a screening of 12.0 – 15.0m height around the site. Therefore there will only be potential views of the tallest elements of the treatment plant at the highest elevation of the site as viewed from the south. As there are no short range views (within 2.0km) from the south then distant views will result in barely noticeable glimpses of the treatment plant. The boundary planting will represent a noticeable change in the landscape, but the selection of native woodland species will be in keeping with woodlands at Monkstown Creek and Currabinny and cause neutral impact to the surrounding rural fringe landscape.

3.9.15 References

The following publications have been referenced in the Landscape and Visual Impact Assessment:

- *Cork County Development Plan 2003, Cork County Council.*
- *Carrigaline Electoral Area Local Area Plan (Public Consultation Draft), January 2005.*
- *Cobh Town Council Draft Development Plan 2005*

- *Guidelines on the Information to be contained in Environmental Impact Statements, EPA. (March 2002)*
- *Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities Department of Environment and Local Government, (June 2000).*
- *Guidelines for Landscape and Visual Impact Assessment (2nd Edition), The Landscape Institute / Institute of Environmental Management and Assessment, Spon Press, 2002.*
- *National Inventory of Architectural Heritage(Website- www.buildingsofireland.ie)*

APPENDIX A – LANDSCAPE SPECIFICATIONS

A1.1 Planting Proposals Generally

A1.1.1 Tree Planting

Trees chosen will reflect species that already exist on site. Trees with a good shape crown and be capable of withstanding rigid pruning will all be considered.

A1.1.2 Woodland Whip Planting

Woodland whip planting will also be chosen, using established landscape techniques, which will adapt readily to disturbed ground. Selected shrub species will form the first few metres of planting next to the edge of the road / footpath and provide a gradual gradation of planting heights back to the site boundary.

A1.1.3 Outline Of Operations / Programme

Planting on the site will commence with the completion of each stage of the works and as a result the programme is closely tied to construction operations. Ground preparation will precede planting and will include weed clearance and amelioration where necessary. Planting of species will be carried out in the dormant period from November – March, with grass seeding carried out from April – September, this will ensure ample opportunity for planting to establish properly and reduce casualties during the maintenance period.

Intensive landscape aftercare for each area will run for 12 months from the practical completion date using contact herbicides and hand weeding. There will be a period of 12 months defects liability on all planting with plant failures being replaced in the following planting season.

A1.2 Suggested Species Lists

A1.2.1 TREE PLANTING

Trees will be selected from the list of species outlined below. The planting size for trees will vary from whips and feathers (2-3yr old transplants / 1.2-1.5m height) to standard trees (8-10cm / 3.0 – 4.0m height) depending on location through the scheme.

TREE PLANTING

Alnus glutinosa
Betula pendula
Betula pubescens

Fraxinus excelsior
Prunus avium
Quercus petraea
Quercus robur
Sorbus aucuparia
Salix caprea
Tilia vulgaris
Pinus sylvestris

SEMI-NATIVE SHRUBS / WHIP PLANTING

Plant name

Corylus avellera
Ilex aquifolium.
Cornus spp
Rosa rugosa
Prunus spinosa
Viburnum opulus
Rosa canina
Crateagus monogyna
Symphoricarpos x 'Chenantii Hancock'
Ulex europeaus

A1.3 Outline Specification

A1.3.1 Materials

All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection. Aphis, Red Spider or other insect pest, and physical damage. It shall comply with the requirements of the following sections of B.S. 3936, Specification for Nursery Stock, where applicable:

- Part 1: 1965: Trees and Shrubs.
- Part 2: 1966: Roses.
- Part 4: 1984: Forest Trees.
- Part 5: Poplars and Willows.
- Part 9: 1968: Bulbs, corms and tubers.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species.

Except for any cultivated varieties or exotic species which do not set viable seed in Ireland, all plants shall have been grown from seed.

The Contractor will be deemed to have advised his suppliers of the relevant sections of this specification, including all protection required, at the time of enquiry and shall in all cases be liable to replace materials brought on site which are not in accordance with this specification.

A1.3.2 Species

All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated or otherwise coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced by the Contractor at his own expense.

Bundles of plants shall be marked in conformity with the relevant part of B.S. 3936. The contractor shall replace any plants which are found not to conform to the labels. An inspection of plants shall be undertaken prior to planting to ensure quality control.

A1.3.3 Selected Standard and Standard Trees

Selected standard trees shall have a total height of 3.0 to 3.5 metres and a girth of 10-12 cm at 1m above ground level. Standard trees shall have a clear stem 1.70 m to 1.85 m in height from ground level to the lowest branch, a minimum girth of 8 cm measured at 1m above ground level and a total height of 2.5 to 3.0 metres.

Trees shall have a sturdy, reasonably straight stem, a well defined and upright central leader, with branches growing out of the stem with reasonable symmetry, or a well balanced branching head according to the Schedule. The crown and root systems shall be well formed and in keeping with the nature of the species. Roots shall be in reasonable balance with the crown and shall be conducive to successful transplantation.

Trees shall be supplied bare rooted unless otherwise specified. They shall have been regularly undercut or transplanted. They shall have been lifted carefully to avoid tearing of major roots and to preserve a substantial proportion of smaller and fibrous roots. Trees shall have been grown on their own roots. Budded or grafted trees will be rejected.

A1.3.4 Transplants

Transplants shall not be less than three years old, and shall have been transplanted at least once. Trees of species not listed in B.S. 3936: Part 4: 1984 shall be sturdy, with a balanced root and shoot development. Sizes shall range from 600-900 and 900-1200 mm.

Trees shall be well furnished with lateral and fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species.

Salix shall have been stumped and transplanted at the end of the first year in the nursery.

A1.3.5 Shrubs

Shrubs shall be of the minimum size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, well grown, and with a good root system. Pots or containers shall be as scheduled. Plants shall not be pot bound, nor with roots deformed or restricted. Bare root material will only be accepted where specified.

A1.3.6 Herbicides

Glyphosate - 'Roundup' by Monsanto Chemicals Ltd. Do not apply when rain is forecast within six hours. Do not apply when wind is likely to cause spray drift (over 24 kph/15 mph). Allow leaf symptoms to develop before carrying out any cultivations.

Paraquat - 'Gramoxone 100' by ICI Plant Protection Ltd. Do not spray when wind is likely to cause drift (over 24 kph/15 mph). Protect all foliage of transplants or shrubs.

Propyzamide - 'Kerb 50W', obtainable from T. P. Whelehan, Son and Co. Ltd., Finglas, Dublin 11. Tel. (01) 342233. Apply between 1st October and 20th December only, when ground is damp. Ensure complete cover of the ground.

The contractor may use alternative formulations of the above herbicides, by other manufacturers, with the prior approval of the landscape architect. Such alternative formulations shall be applied to give the same degree of control as the application noted above.

A1.3.7 Weedkiller Application

All weedkiller shall be applied with properly designed equipment, maintained in good working order and calibrated to deliver the specified volume, evenly and without local over-dosing. Measure all quantities of weedkiller with a graduated measuring vessel.

A1.3.8 Bulky Organic Manure/ Mushroom Compost

Bulky organic manure shall consist either of spent peat compost, mushroom compost, as described above, spent hops, or of well rotted farm manure. Farm manure shall consist of predominantly of faecal matter and shall be free of loose, dry straw and of undigested hay.

Manure shall be free of surplus liquid effluent. This shall be used on mounds only. Well spent mushroom compost shall be used in all ornamental planting areas.

A1.3.9 Fertilisers

Controlled release fertiliser N:P:K 15:9:11 plus trace elements - Osmocote plus or similar approved applied at specified rates.

Fertiliser shall be supplied in sealed bags or containers bearing the manufacturer's name, the net weight and analysis.

A1.3.10 Stakes for Standard Trees

Stakes shall be of peeled larch, pine or douglas fir, preserved with water-borne copper-chrome-arsenic to I.S. 131, to a net dry salt retention of 5.3 kg. per cubic metre of timber. Stakes shall be turned, and painted one end. Sizes shall be as follows:-

For selected standard trees: 2700 x 75 mm dia.

For standard trees: 2700 x 75 mm dia.

Set stakes vertically in the pit, to the western side of the tree station, and drive before planting. Drive stake with a drive-all, wooden maul or cast-iron headed mell, not with a sledge hammer.

A1.3.11 Tree Ties

Tree ties shall be of rubber, P.V.C. or proprietary fabric laminate composition, and shall be strong and durable enough to hold the tree securely in all weather conditions for a period of three years. They shall be flexible enough to allow proper tightening of the tie.

Ties shall be min. 40 mm wide for standard trees. Provide a simple collar, free of rough or serrated edges, to prevent chafing. Provide for subsequent adjustment of the tie either by means of a buckle (nail tie to stake immediately behind it) or by leaving heads of securing nails slightly proud, to permit easy extraction and repositioning. All nails shall be galvanised.

A1.3.12 Protection

The interval between the lifting of stock at the nursery and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting planting on site shall be stored in a sheltered place protected from wind and frost, from drying out and from pilfering. Bare rooted plants not immediately required shall be heeled-in in a prepared trench, the bundles of plants first having being opened, the plants separated and

each group separately heeled-in and clearly labelled. The roots shall be covered with moist peat or soil and shall be kept moist until planted. Pots shall not be removed until plants have been carried to their planting station. Plants packed in polythene must be stored in shade.

All forest transplants and bare root shrubs shall be wrapped in polythene from the time of lifting to conserve moisture. Except when heeled-in, they shall be protected in polythene at all times until planted into their final position on site.

Plants shall be handled with care at all times, including lifting in and despatch from the nursery. Plants or bundles of plants shall not be tossed, dropped or subjected to any stress likely to break fine roots.

A1.3.13 Damage

Any roots damaged during lifting or transport shall be pruned to sound growth before planting. On completion of planting any broken branches shall be pruned.

A1.3.14 Setting Out

Setting out shall be from figured dimensions where indicated, and otherwise by scaling. Transplants shall be planted at the spacings indicated, in staggered rows. Transplants in mixtures shall be planted at the spacings indicated, in staggered rows or at random according to instructions on the contract drawings. Species shall be planted in groups in each area. Set out groups avoiding obvious repetition, regularity, and single lines of one species.

Shrubs and ground covers planted in mass shall be at the spacing indicated on the drawings. Shrubs shall not generally be planted closer to a kerb or to the edge of a planting area than a distance equal to half the spacing indicated for that species.

A1.3.15 Ripping

Rip all disturbed ground a minimum of 600 mm deep with a subsoiler approved by the Landscape Architect in two transverse directions.

A1.3.16 Topsoiling

Excavate for shrub beds and hedge trenches to 400 mm below finished levels. Dispose of material to tip off site or to areas of filling on site as directed by the Landscape Architect. Break up base of beds and trenches min. 150 mm deep. Decompact base of planting bed to allow drainage. Load and carry topsoil from stockpiles on site, and backfill beds/trenches in layers each not more than 150 mm deep, lightly consolidating each as the work proceeds. Leave area slightly mounded, to allow for settlement. Incorporate ameliorant and fertiliser, as specified.

A1.3.17 Site Preparation

Preliminary Weedkilling: 'Roundup' @ 5.0 litres per hectare, in water @ 200 litres per hectare, and application pressure not exceeding 2 bars.

Transplants: Weedkill full ground area. Apply a first treatment before 15th July, and a second not later than 15th September to kill regrowth.

Hedge Trench: Weedkill. Excavate trench 600 x 400 mm. Add ameliorants as follows, incorporate evenly into excavated material, and backfill:-

Organic Manure: 75 mm deep
Osmocote plus : 70 gm/m

Shrub Planting: Weedkill. Spread over all planting areas:-

Organic Manure: 50 mm deep
Osmocote plus : 75 gm/msq

Cultivate beds 225 mm deep, incorporating ameliorants evenly. Remove stones, rubbish over 50 mm dia.

A1.3.18 Standard and Selected Standard Tree Planting

Excavate tree pits to 0.5 cubic metres volume (1.0 m diameter x 60 cm deep). The base of the pit shall be broken up to a depth of 15 cm and glazed sides roughened. Remove subsoil, stones and rubbish to tip on site as directed by the Architect/Engineer. Supply and drive the stake.

For planting in areas of made up ground, load and carry topsoil from stockpile on site. In undisturbed ground, backfill with excavated material. Mix the following ameliorants evenly throughout the topsoil while it is stacked beside the pit. (Quantities are calculated for a pit of the specified dimensions):-

Organic Manure: 0.047 cubic m (equivalent to manure 6 cm deep
over 1 m diam of tree pit).

Osmocote plus : 250 gm

Trees shall be planted at the same depth as in nursery, as indicated by the soil mark on the stem of the trees. They shall be centred in the planting pit and planting upright. The roots shall be spread to take up their normal disposition. Fit tie. Clean a neat circle 1000 mm dia. of all grass.

A1.3.19 Planting of Shrubs and C.G. Transplants

Remove all plastic and non-degradable wrappings and containers before planting. Make four vertical cuts with a sharp knife on the quadrants through the edge of C.G. rootballs to sever girdling roots. Excavate hole to min. 10 cm greater diameter than the root spread, and to a depth to allow planting to same depth as in the nursery. Spread out roots of bare root species. Backfill in layers of not more than 10 cm, firming each layer and on completion.

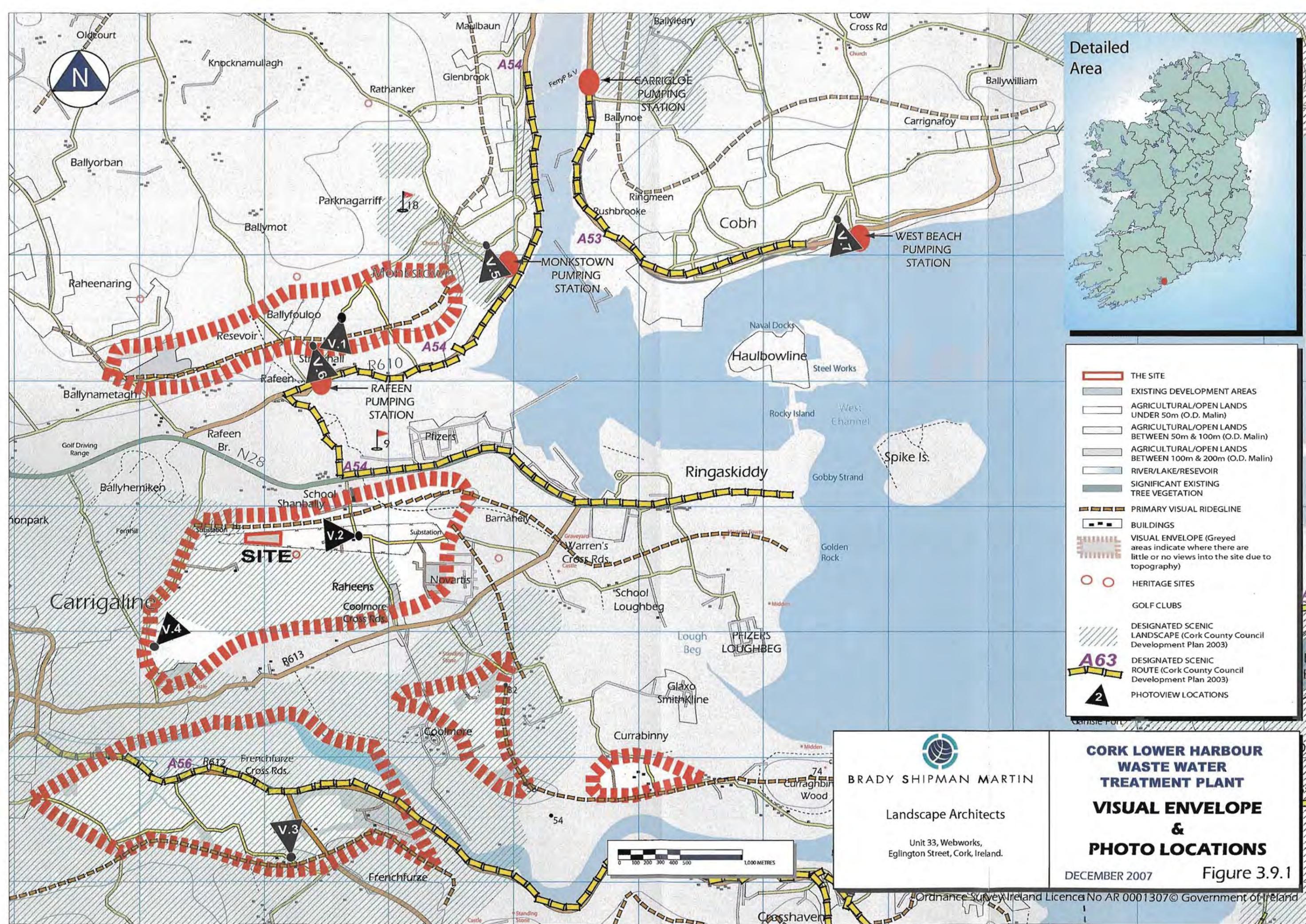
A1.3.20 Replacements

The planting will be inspected in September following planting. Any tree or shrub found to have died from any cause except as provided below or the work of other contractors shall be replaced by the contractor at his own expense. Replacement planting shall conform in all respects with this Specification, including all specified excavation, provision and incorporation of all fertilizers and ameliorants, and weedkiller treatments.

Failures will not be charged to the Contractor in the following cases:-

- Damage by hares or rabbits, where not protected by fencing or shelters.
- Failure solely due to prolonged dry weather, except in where the contractor will be responsible for watering.
- Losses due to theft, vandalism or disturbance by other contractors.

Persistence of weed in planted areas will be regarded as a contributory cause of failure due to drought. Prolonged dry weather will not exonerate the Contractor if the scheduled aftercare operations have not been carried out as programmed.

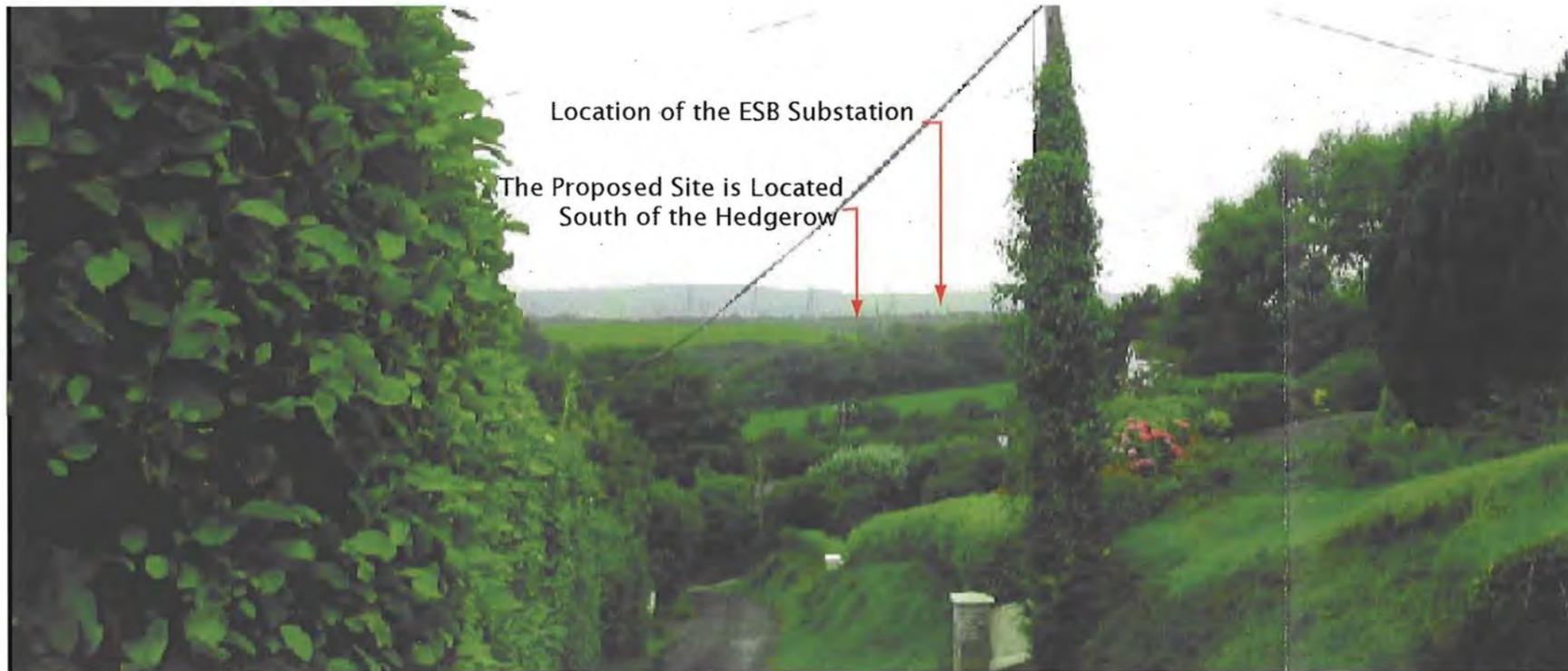


- THE SITE
- EXISTING DEVELOPMENT AREAS
- AGRICULTURAL/OPEN LANDS UNDER 50m (O.D. Malin)
- AGRICULTURAL/OPEN LANDS BETWEEN 50m & 100m (O.D. Malin)
- AGRICULTURAL/OPEN LANDS BETWEEN 100m & 200m (O.D. Malin)
- RIVER/LAKE/RESEVOIR
- SIGNIFICANT EXISTING TREE VEGETATION
- PRIMARY VISUAL RIDEGLINE
- BUILDINGS
- VISUAL ENVELOPE (Greyed areas indicate where there are little or no views into the site due to topography)
- HERITAGE SITES
- GOLF CLUBS
- DESIGNATED SCENIC LANDSCAPE (Cork County Council Development Plan 2003)
- DESIGNATED SCENIC ROUTE (Cork County Council Development Plan 2003)
- PHOTOVIEW LOCATIONS

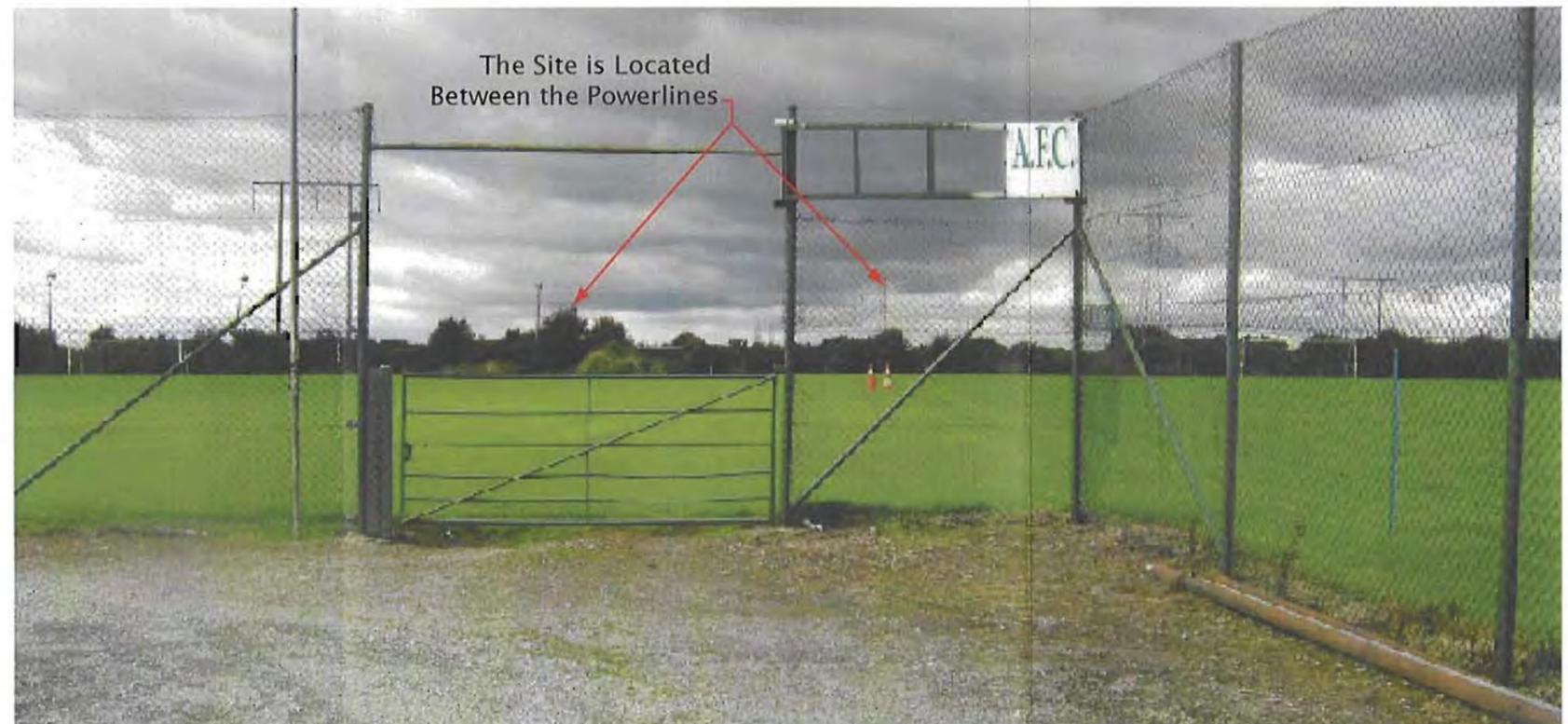

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**CORK LOWER HARBOUR
 WASTE WATER
 TREATMENT PLANT**
**VISUAL ENVELOPE
 &
 PHOTO LOCATIONS**
 DECEMBER 2007 Figure 3.9.1

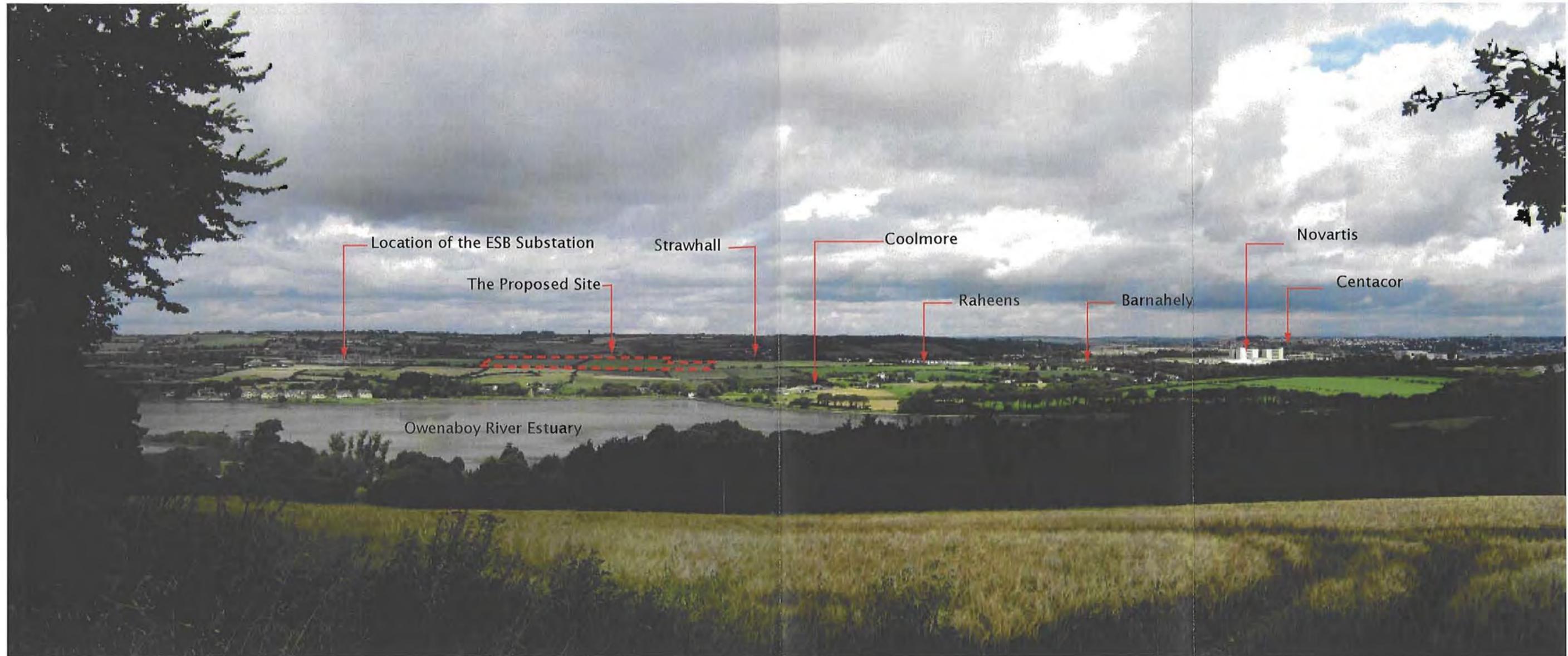




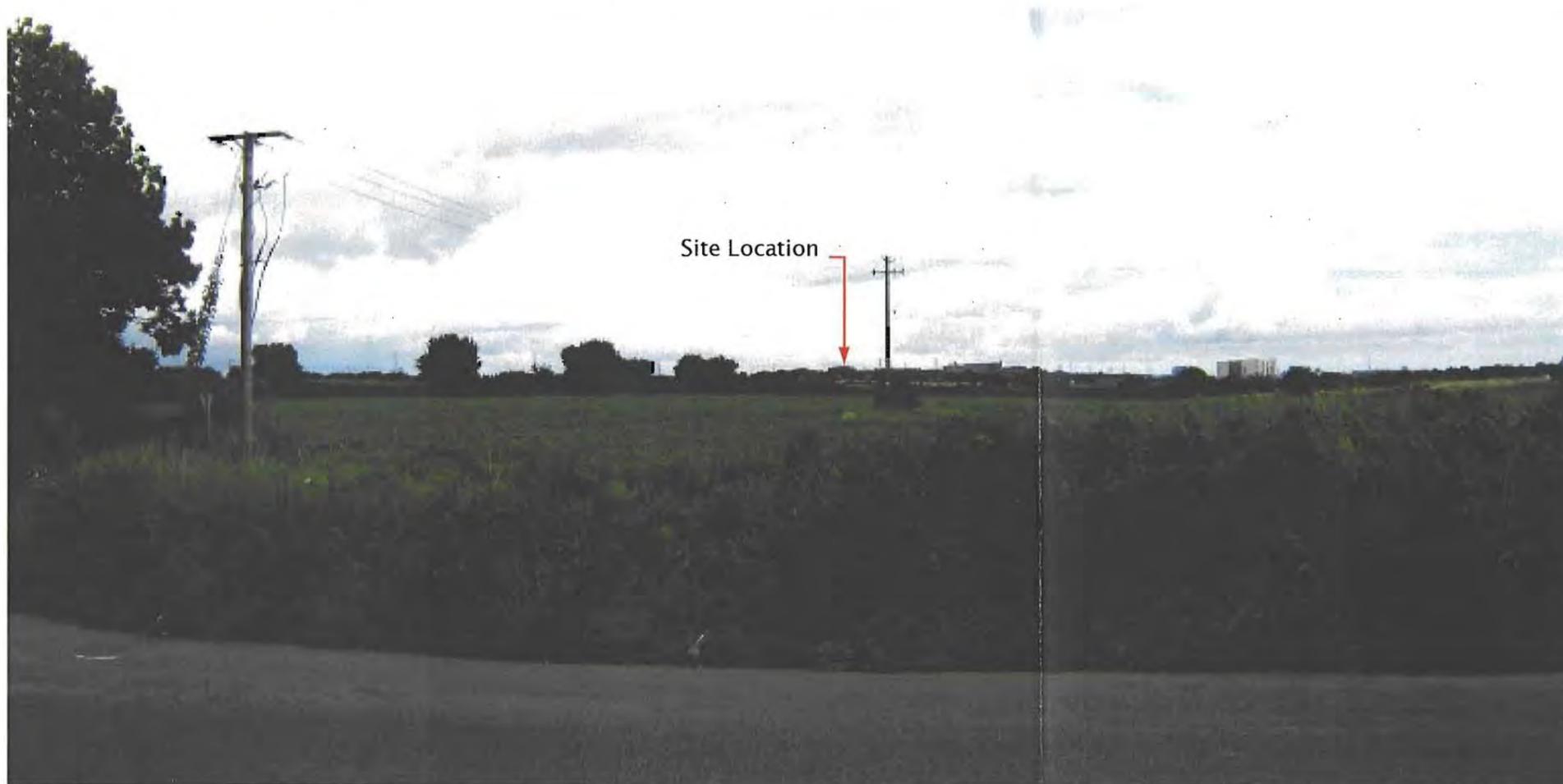
Photograph View 1 - View From the North Towards the Site Which is Barely Visible on the Ridgeline.



Photograph View 2 - View From the East at Raheens/Barnaheely, Local Hedges Screen the Site.



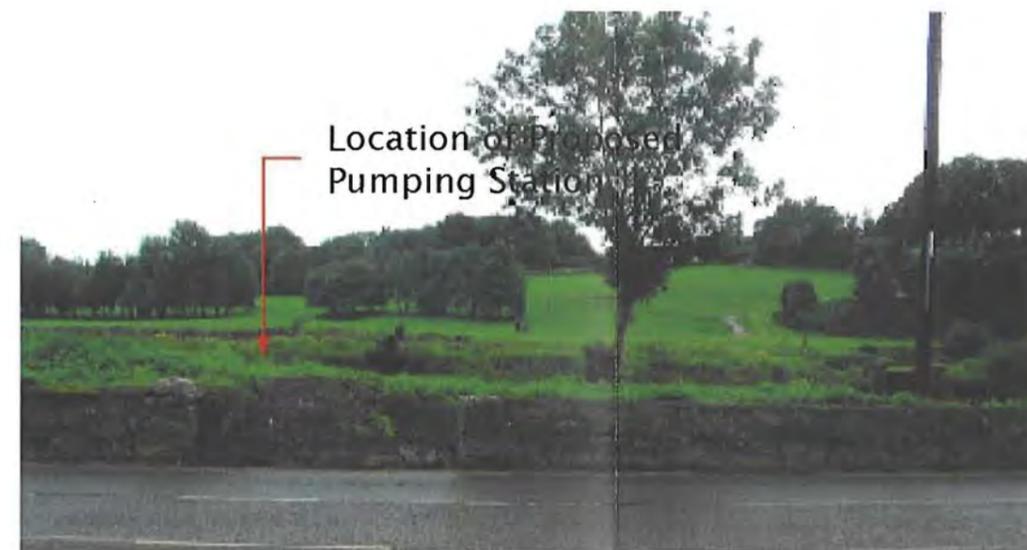
Photograph View 3 - View from the South at Frenchfurze Across the Owenaboy River to the Site
Relevant Local Locations are Highlighted.



Photograph View 4 View from the West at the Eastern Extents of Carrigaline. The Site is Barely Visible Beyond Existing Vegetation



Photograph View 5 - Proposed Location of the Monkstown Pumping Station



Photograph View 6 - Proposed Location of the Rafeen Pumping Station

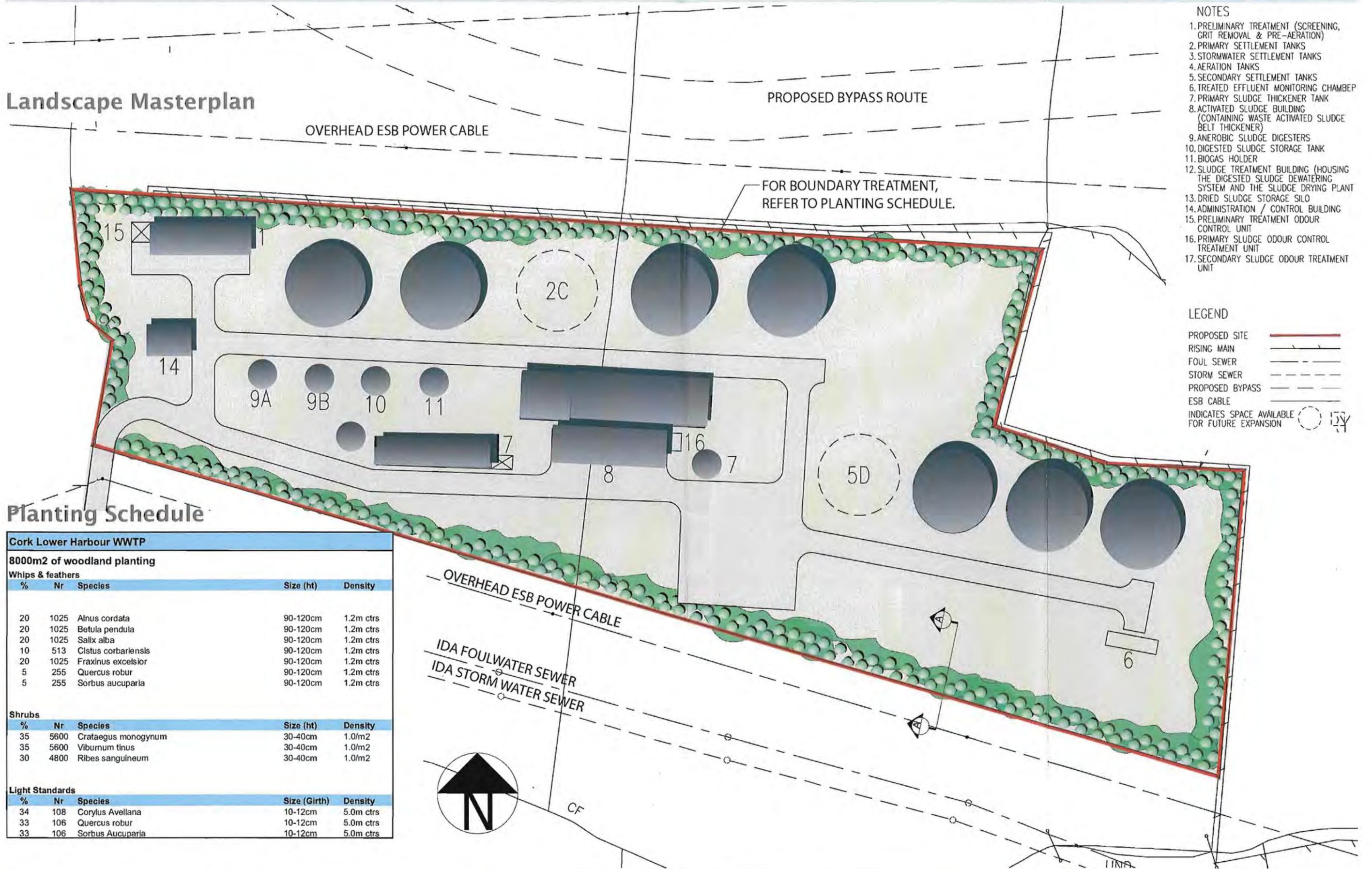


Photograph View 7 View from the harbour wall at West Beach, Cobh towards the old Post Office Building



Photograph View 8 - View from Pearse Square to the harbour at West Beach, Cobh

Landscape Masterplan

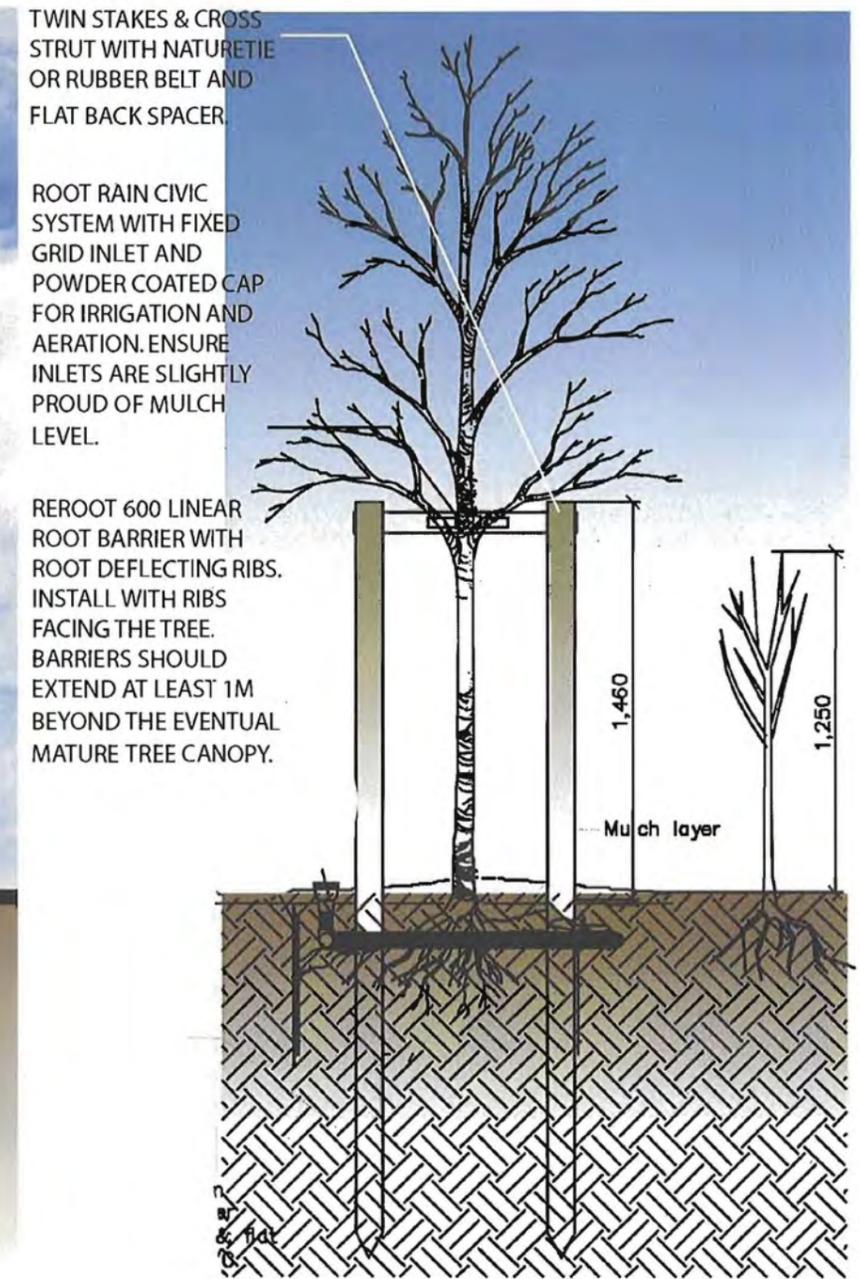
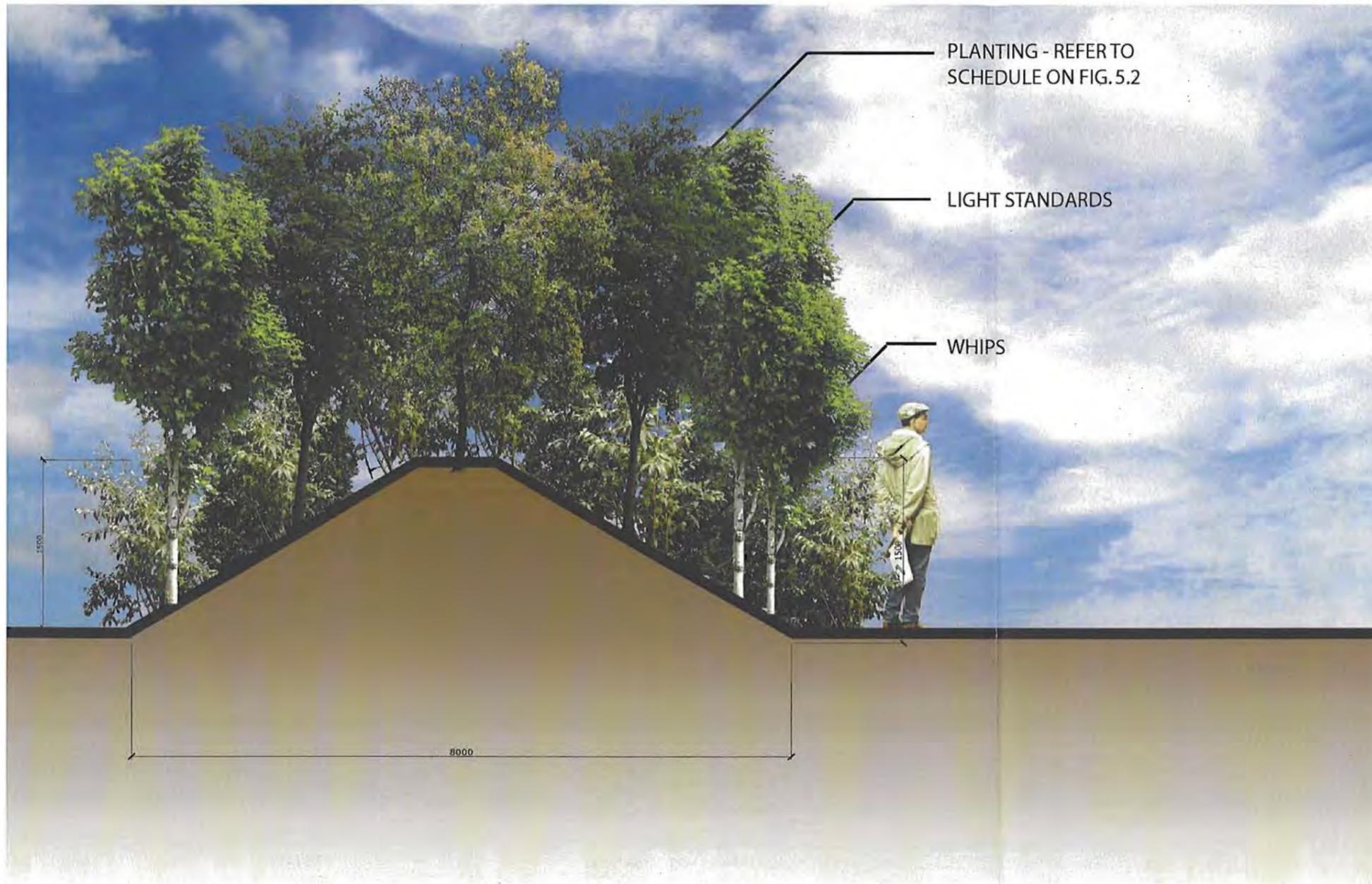


- NOTES
1. PRELIMINARY TREATMENT (SCREENING, GRIT REMOVAL & PRE-AERATION)
 2. PRIMARY SETTLEMENT TANKS
 3. STORMWATER SETTLEMENT TANKS
 4. AERATION TANKS
 5. SECONDARY SETTLEMENT TANKS
 6. TREATED EFFLUENT MONITORING CHAMBER
 7. PRIMARY SLUDGE THICKENER TANK
 8. ACTIVATED SLUDGE BUILDING (CONTAINING WASTE ACTIVATED SLUDGE BELT THICKENER)
 9. ANEROBIC SLUDGE DIGESTERS
 10. DIGESTED SLUDGE STORAGE TANK
 11. BIOGAS HOLDER
 12. SLUDGE TREATMENT BUILDING (HOUSING THE DIGESTED SLUDGE DEWATERING SYSTEM AND THE SLUDGE DRYING PLANT)
 13. DRIED SLUDGE STORAGE SILO
 14. ADMINISTRATION / CONTROL BUILDING
 15. PRELIMINARY TREATMENT ODOUR CONTROL UNIT
 16. PRIMARY SLUDGE ODOUR CONTROL TREATMENT UNIT
 17. SECONDARY SLUDGE ODOUR TREATMENT UNIT

- LEGEND
- PROPOSED SITE (Red line)
 - RISING MAIN (Dashed line with triangles)
 - FOUL SEWER (Dashed line with circles)
 - STORM SEWER (Dashed line with squares)
 - PROPOSED BYPASS (Dashed line with crosses)
 - ESB CABLE (Dashed line with dots)
 - INDICATES SPACE AVAILABLE FOR FUTURE EXPANSION (Dashed circle)

Planting Schedule

Cork Lower Harbour WWTP				
8000m ² of woodland planting				
Whips & feathers				
%	Nr	Species	Size (ht)	Density
20	1025	<i>Alnus cordata</i>	90-120cm	1.2m ctrs
20	1025	<i>Betula pendula</i>	90-120cm	1.2m ctrs
20	1025	<i>Salix alba</i>	90-120cm	1.2m ctrs
10	513	<i>Cistus corbariensis</i>	90-120cm	1.2m ctrs
20	1025	<i>Fraxinus excelsior</i>	90-120cm	1.2m ctrs
5	255	<i>Quercus robur</i>	90-120cm	1.2m ctrs
5	255	<i>Sorbus aucuparia</i>	90-120cm	1.2m ctrs
Shrubs				
%	Nr	Species	Size (ht)	Density
35	5600	<i>Crataegus monogynum</i>	30-40cm	1.0/m ²
35	5600	<i>Viburnum tinus</i>	30-40cm	1.0/m ²
30	4800	<i>Ribes sanguineum</i>	30-40cm	1.0/m ²
Light Standards				
%	Nr	Species	Size (Girth)	Density
34	108	<i>Corylus Avellana</i>	10-12cm	5.0m ctrs
33	106	<i>Quercus robur</i>	10-12cm	5.0m ctrs
33	106	<i>Sorbus Aucuparia</i>	10-12cm	5.0m ctrs



Section A-A'
Proposed Boundary (5-10 years)

Detail 1
Tree & whip planting