

Strategies



3.1 Introduction

Having taken soundings from a wide range of stakeholders, we analysed the site and its context. An iterative process of exploring possible design strategies was then undertaken.

The size of the site, the nature of the existing settlement pattern and its location relative to London and the River Thames naturally implies that there will be significant physical, political, historical, cultural and economic factors. The design response to each of these factors has informed the way in which the proposals have evolved and developed.

This chapter therefore explores the strategies and design decisions that have shaped the overall framework for the masterplan. These studies have been directly informed by the primary design conditions for the project as previously set out.

3.2 Urban Design & Place Making Principles

3.2.1 Urban Design Principles

It is recognised that neighbourhoods which are configured to the principles of sustainable mixed use urbanism can not only produce improved investment performance of areas over time, but also deliver a range of health, wellbeing and environmental benefits.

The masterplanning design process has been informed by the following set of overarching urban design and place-making principles which are derived from widely acknowledged best practice.

Principles of Sustainable Urbanism for Purfleet

- Integrate a mix of uses to create a vibrant community, an attractive place and to support different life styles and live/work choices.
- Include a mix of residential tenures & types to provide for different life stages and circumstances, support household movement within the neighbourhood and to reinforce social cohesion through strong family and friendship networks.
- Deliver sustainable transport choices & support modal shift through building convenience and frequency into public transport, designing-in cycling, and other sustainable modes (eg. bike storage, electric charging points, space for car clubs etc) and smart footprinting development with a mix of uses to support walkability.
- Support employment generation and local economic capture through the delivery of employment and entrepreneurial space to meet the needs of businesses at different stages of growth.
- The masterplan should look for an efficient use of land and infrastructure.
- The development should be designed to be resource efficient (water, waste, energy) in use through the adoption of appropriate infrastructure and building technologies.
- The scheme should have regard to the long term sustainable management of the project such that it remains well maintained and occupied over time. In particular this means that adequate and convenient parking, waste provision, digital servicing are provided for, and that green space and planting should be designed carefully so as to be economically sustainable in its long term management.
- The masterplan should consider how resilience can be built in such that the area can continue to function effectively and safely in the event of a major incident or accident, and through economic cycles.

3.2.2 Modal shift & Walkability Principles

A key aspect of the innovative and challenging nature of the scheme is the ambition to reduce necessary daily trips by vehicle, enable modal shift and achieve a reduction in congestion. By encouraging walkability and the servicing of daily needs locally, through the delivery of Purfleet Town Centre and achieve a series of interlocking and well served walkable neighbourhoods, residents and business located at Purfleet will have the opportunity of more sustainable and healthier lifestyles. The reduction in the need to travel to service daily life can translate to more time and reduced expenditure for households to deploy elsewhere.

This ambition for modal shift and walkability is reflected in the planning and design of the street and movement hierarchy which aims to be permeable, offer a variety of routes, accommodate a variety of movement modes (vehicle, scooter, cycle, walking) comfortably and safely and have regard to the specific movement and access requirements of the wide range of the population and businesses. It is also reflected in the land use pattern and disposition of mixed uses to encourage actively enjoyable walks, pedestrian security, convenience and useful co-location to support viability of services.

3.2 Urban Design & Place Making Principles

3.2.3 Intensification Principles

Transect analysis is helpful in analysing and determining the appropriate scale and density to which a site should be designed.

According to the Centre for Transect Analysis, “a transect is a cut or path through part of the environment showing a range of different habitats. Biologists and ecologists use transects to study the many symbiotic elements that contribute to habitats where certain plants and animals thrive.

To systemize the analysis and coding of traditional patterns, a prototypical rural-to-urban transect has been divided into six Transect Zones, or T-zones. This zoning system replaces conventional separated-use zoning systems that have encouraged a car-dependent culture and land-consuming sprawl.

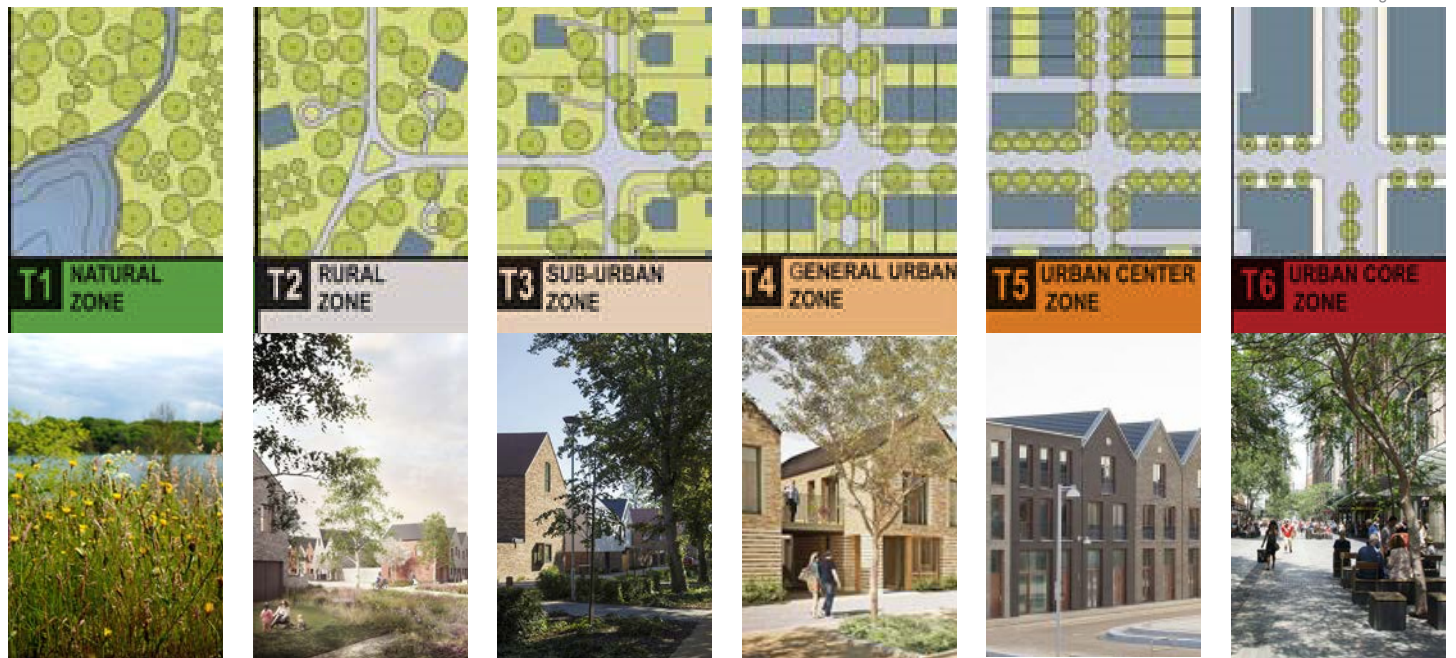
The six Zones instead provide the basis for real neighbourhood structure, which requires walkable streets, mixed use, transportation options, and housing diversity. The T-zones vary by the ratio and level of intensity of their natural, built, and social components. They may be coordinated to all scales of planning, from the region through the community scale down to the individual lot and building, but the new zoning itself is applied at the community (municipal) scale.”

Transect Applied to Purfleet

Purfleet at present has no centre and could be analysed as sitting both on the edge of London and on the edge of Thurrock.

The delivery of Purfleet Town centre sets up a new relationship with the station / town square at its centre. In terms of the diagrammatic transect, the design team will be looking for the plan to move Purfleet from T2/3 planning to T4/5/6 context, as shown in the diagrams below.

Generic Transect Applied to Thurrock



Source: DPZ
Figure 3.1

Figure 3.2

Figure 3.3

Figure 3.4

Figure 3.5

Figure 3.6

Figure 3.7

Existing Built Form Density Concept

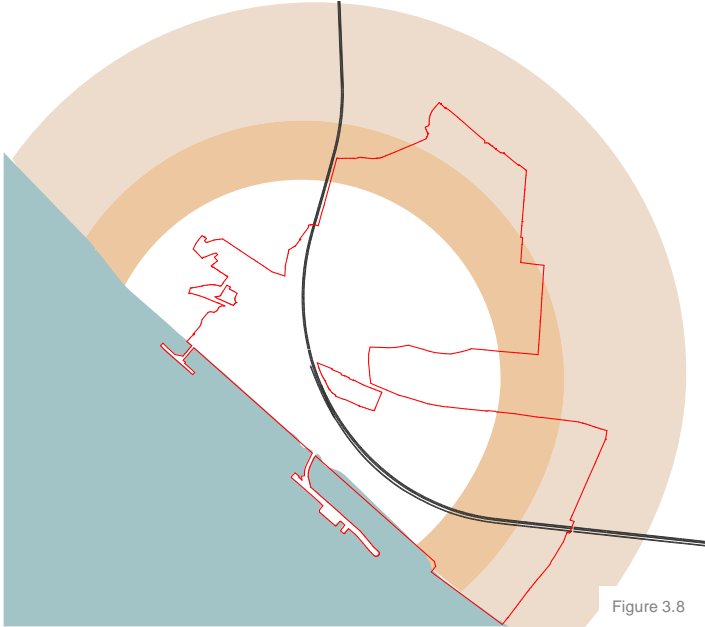


Figure 3.8

Existing Built Form Density

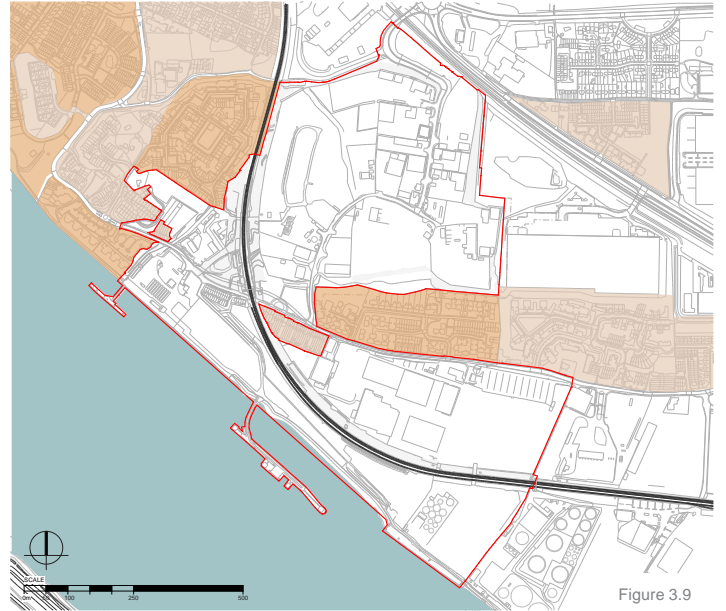


Figure 3.9

Proposed Built Form Density Concept

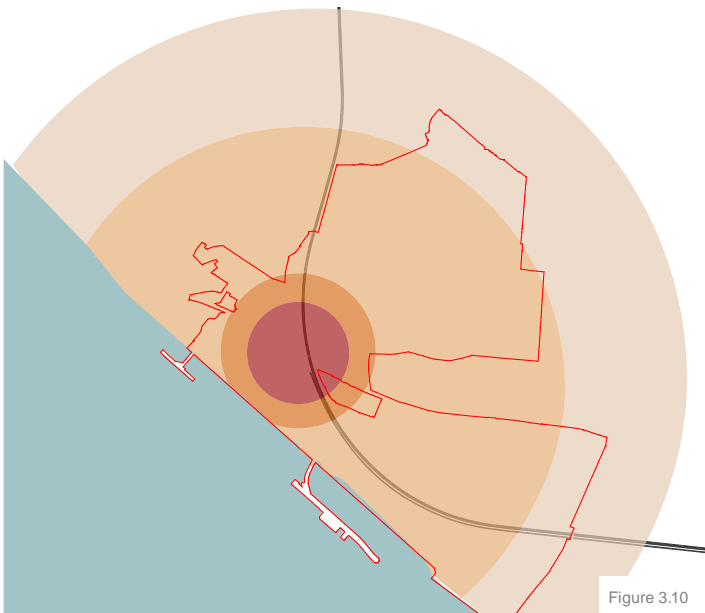


Figure 3.10

Proposed Built Form Density



Figure 3.11

The diagrams above describe the existing density condition of Purfleet and the proposed one for the masterplan.

The existing Purfleet site can be perceived as an empty core surrounded by low scale sub-urban zones. The aim of the masterplan is to generate an intensification of this core in its built form to provide a central density, a focal connectivity and a mixed use hub.

3.2 Urban Design & Place Making Principles

3.2.4 Walkability Analysis

While the overall strategic aim is to bring a range of new high level community services to Purfleet to make the area more self contained for existing and new residents, the masterplan further aims to create a series of neighbourhoods within the new development which have a degree of local servicing so as to support walkability and trip reduction. It is widely accepted that people will walk 10-15 minutes to reach strategic services (public transport, medical surgery, school) and 5-10 minutes for local everyday needs (papers, milk, etc).

3.2.4.1 Existing Walkability Pattern

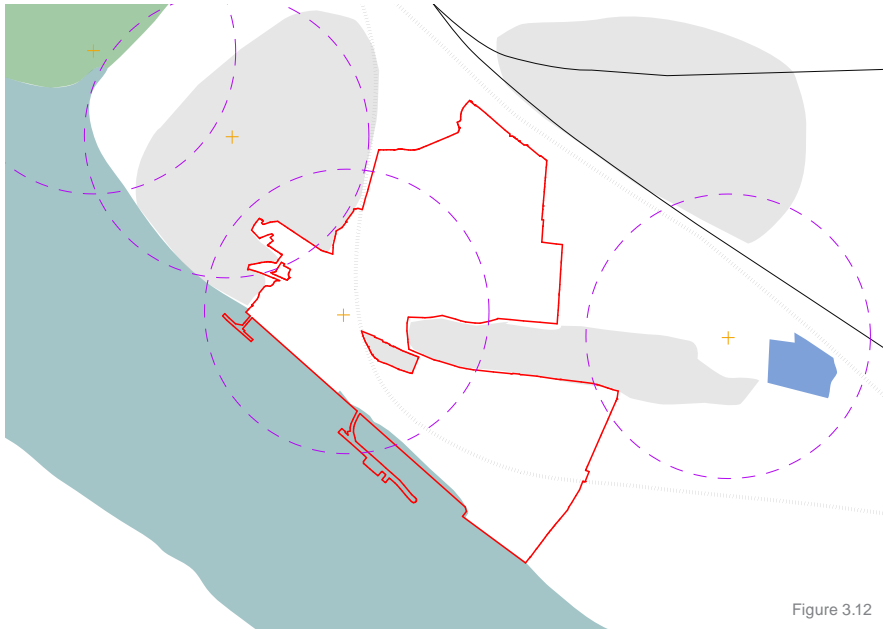


Figure 3.12

Currently, the local Purfleet residents and visitors are travelling by foot from four main centres:

- Purfleet Train Station.
- High House Production Park.
- Western Purfleet residential neighbourhood.
- Rainham Marshes RSPB pavilion.

KEY

- 5 minutes Walking Distance
- + Amenities/ Buildings of Interest
- Rainham Marsh
- Residential Areas
- High House

3.2.4.2 Proposed Walkability Pattern

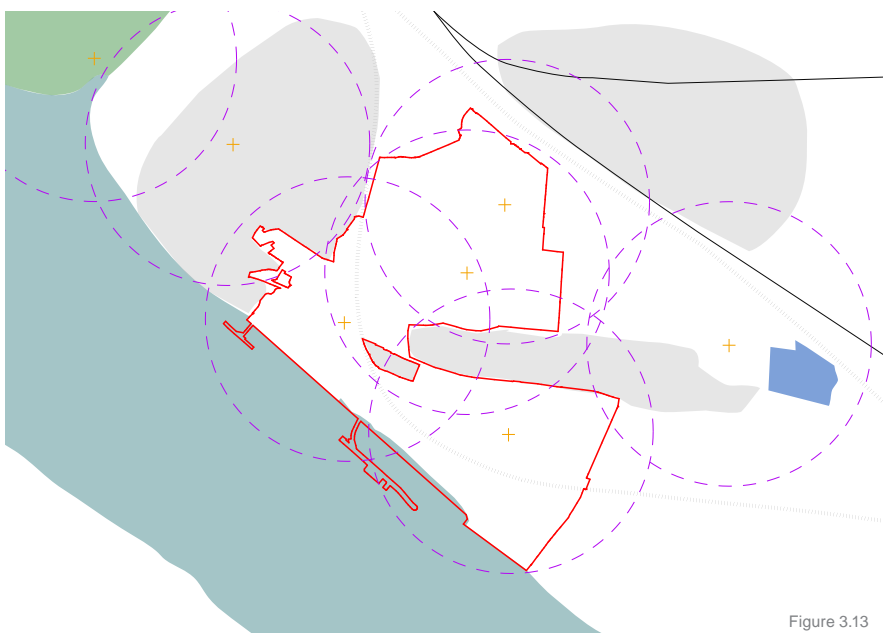


Figure 3.13

In the proposed masterplan, Purfleet residents and visitors are encouraged to travel by foot to/from several epicentres providing the required amenities:

- Purfleet Train Station/New Town Centre.
- High House Production Park.
- Western Purfleet residential neighbourhood.
- Rainham Marshes RSPB pavilion.
- TV & Film Studios.
- Botany Quarry residential neighbourhood.
- London road residential neighbourhood.

3.2.5 Streets & Movement Strategy

Critical to the success of Purfleet Town Centre will be the design of the streets and urban spaces such that they are attractive, robust and functional.

We are aware that Thurrock Council generally are responding to new schemes that are sub- or ex-urban in their nature. Our streets & movement approach is underpinned by the aim of creating a street based urbanism to reflect the urbanising nature of Purfleet Town Centre and support:

- Modal shift.
- Walkability.
- Urban vitality.
- Mixed use occupation.

Once implemented, this will considerably impact on local health and well-being, levels of congestion and the general urban place quality. It can also enhance place-value and consequently, development values.

Following from wider team and stakeholder discussions and specialist workshops on street design to support modal shift and walkability, the following design principles for the streets & movement element of the masterplan emerged.

Key aims for Movement & Streets Design

- Streets should be legible and permeable.
- All modes should be facilitated effectively and safely.
- Speeds should be reduced as key strategic move (including cycling) and this should be enforceable (speed cameras and controlled junctions) as an effective deterrent.
- Streets should not be over-engineered.
- Streets should be robust and adaptable.
- Materials should generally be simple and robust.
- Investment in streetscape and landscape elements should be focused.
- Ease/cost of management should be a consideration.
- Street parking should be accommodated and control regime imposed from the outset.
- Junctions should be designed on an urban, not suburban format.
- In general, a traditional street topography with clearly defined pavements, kerbs and carriageway is preferred.
- A 20 mph speed limit and weight limitation enforcement will be appreciated by residents.

3.2.6 Functionality & Street User Groups

Due to the complex mixed use nature of the scheme, consideration has further been given to:

- Estate management implications / parking / servicing.
- Accessibility (different population groups).
- Personal safety (different population groups).
- Robustness / adaptability of streets over time.
- Use of streets at different times of day/week.

3.2.7 Street Form

The wider Purfleet area is currently sub-urban or ex-industrial both in location and form. It is often heavily congested and is blighted by HGV use and rat-running when the strategic networks are at capacity.

The scheme will embed an urban centre within this suburban form, and on this basis, will require different treatment in terms of street design, approach to traffic control and traffic modelling.

3.2 Urban Design & Place Making Principles

3.2.8 Accessibility Principles

The design for the Purfleet masterplan will be fully compliant with the requirements of the Equality Act 2010. The Act provides a basic framework of protection against direct and indirect discrimination. Furthermore the ambition is that Purfleet will exceed the basic requirements of the Act by providing external and internal environments where accessibility is integrated into the fabric and common use of spaces rather than expressed as an alternative or 'bolt-on'. A holistic design process where access is considered as part of all the strategies discussed in this chapter will ensure the design does not unfairly restrict anyone from accessing and enjoying all parts of the scheme.

A number of basic principles underpin the core elements of accessibility within the masterplan:

- Making the new development accessible to the existing communities in Purfleet by establishing physical links tying into existing developments.
- Avoiding where possible the need for alternative routes by ensuring main routes and entrances are fully accessible, in particular ensuring the new riverfront will be available for everyone to use and enjoy.
- Locating transport services, commercial offerings and civic places appropriately to ensure they can be easily accessed.
- Ensuring the landscape and public realm is easily navigable.
- Providing the appropriate level of wheelchair accessible housing to the same high standard that it required by the scheme.

Fully accessible units for wheelchair users will be provided in line with local planning policy. The design and exact location of these units is to be finalised through future detail design. The requisite parking required by these units will be provided accordingly.

3.2.9 Design Quality & Standards

PCRL's established aim is to build high quality new homes to support an increasing local population. Aspirationally, the redevelopment of Purfleet will set the qualitative benchmark for future residential developments in Thurrock and the wider area. A partner in PCRL, Swan/NU living have a proven reputation for delivering high quality housing as part of mixed use regeneration schemes. As part of this ambition the residential portion of the masterplan will meet, and exceed, the standards prescribed in the Technical housing standards – nationally described space standards, published by the Department for Communities and Local Government. At a base level this ensures every dwelling meets a minimum quality criteria in terms of space. Above and beyond this PCRL expect that all housing will better the minimum energy performance standards set out in the Building Regulations by 15%. All commercial, education and retail units are targeted to achieve very good on the BREEAM energy performance criteria. The minimum design life of all building types is 60 years.

Other documents promoting good design will be considered in the design of the masterplan including some which are now deprecated but have value in the design guidance provided. These include but are not limited to:

- Secured by Design: Homes 2016 for its recommendations in creating safe neighbourhoods with supporting documents Secured by Design: Schools 2014 & Secured by Design: Commercial 2015.
- Lifetime Homes documents which promote sustainable housing for whole life use, many points of which are now found within the building regulations.
- Elements of the London Plan which, although does not apply within Thurrock, suggests ways to achieve sustainable, high quality design of both dwellings and neighbourhoods.

PCRL are determined to use the Purfleet regeneration to improve upon the housing stock currently available in the local area. Beyond the dwelling-specific criteria the design will provide an appropriate level of community infrastructure to encourage community involvement and cohesion. Residential blocks will be designed to be of an appropriate size with access to open space and play facilities, within walking distance of the major transport hubs as well as the primary and secondary schools.



Figure 3.14

3.2.10 Parking Principles

From the outset of the masterplanning process, it is recognised that achieving the correct level of parking will be critical to the success of the scheme.

Residents within the area are presently highly car dependent and households are known to own up to four cars. Within the Purfleet Centre Regeneration project, it is intended that the level of car ownership and use will be less necessary going forward, as amenities and public transport should be sited in the vicinity.

A key aim of the regeneration strategy is to deliver Purfleet Town Centre and a range of community services such that people's daily needs may be met locally, and therefore on foot, public transport or bike with improved longer distance public transport connections.

The design team is further conscious of schemes that have been designed with an unrealistic expectation of modal shift and where insufficient car parking is provided to service daily life on one hand (deliveries, visitors etc), and which instead succeed in generating unattractive and unmanageable fly-parking on the other.

A final challenge for the parking strategy is the mixed use nature of the scheme which will deliver both an employment and visitor facility in the shape of the studios; and an attractive local shopping, community and cultural provision as 'Purfleet-on-Thames' emerges as a destination. There is a clear tension between providing sufficient parking for residents and providing parking on a shared basis for the whole area plus visitors as these requirements emerge over time.

The parking strategy has taken into consideration the presence of the commuter rail stop to Fenchurch Street, and the potential that if this were to be included within TFL Zone 6 at some stage in the future, it could place a further burden on the local area through commuter parking.

The design response to parking requirements is to cater for residents, visitors and delivery services.

- Due to its density of amenities and residences, the Town Centre is to contain various basement car parks under building blocks (for visitors and residents) and under a central square (shared facility for visitors, retail shoppers and train commuters).
- The Town Centre will provide privately dedicated delivery areas for large-sized amenities (supermarket, integrated medical centre) and on-street delivery parking bays for small retails.
- All streets will allow flexible on-street parking for visitors, residents and delivery services.

The diagrams herewith illustrate the main parking strategies envisaged for the Purfleet masterplan.

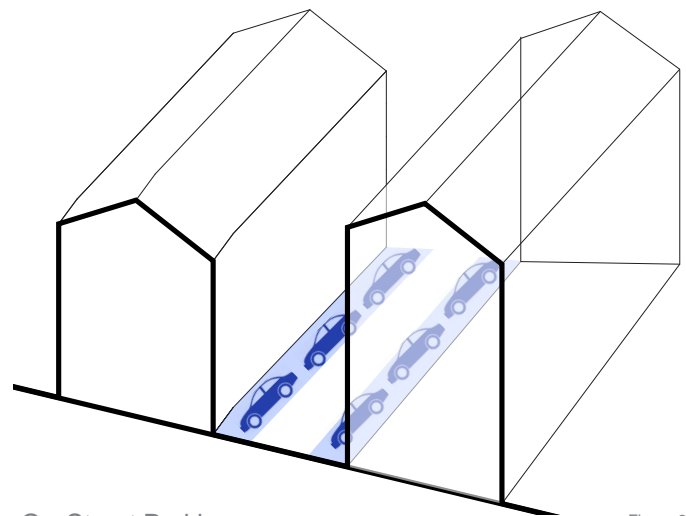
For visitors & residents:

- On-street Parking.
- Basement Parking.

For residents only:

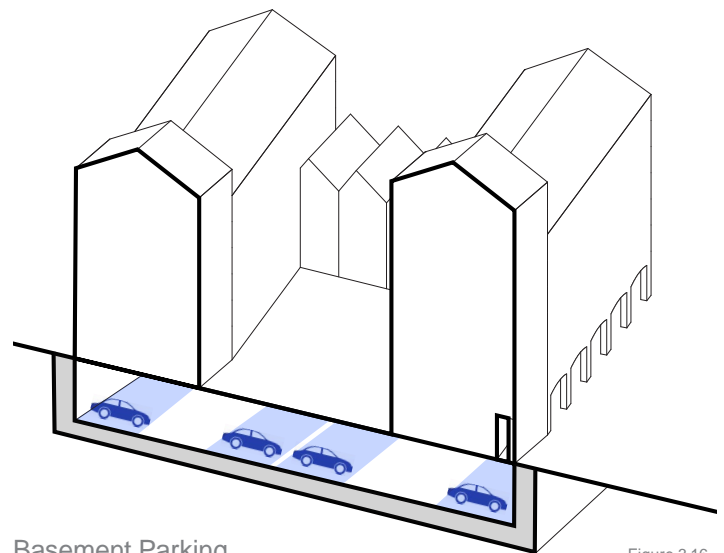
- On-Plot Parking: off-street or private garage.

Residential parking will be provided on a 1:1 basis, with a 0.25 visitor space ratio.



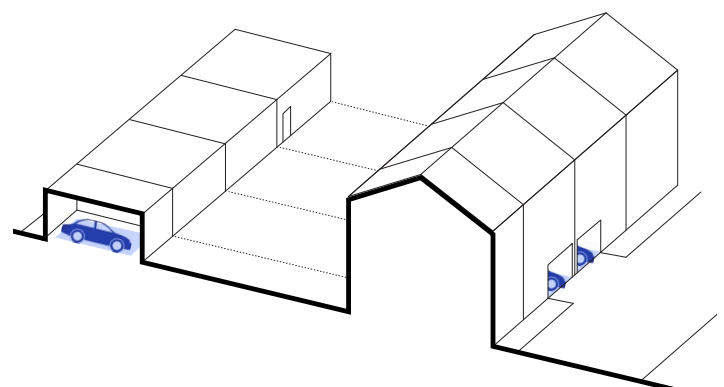
On-Street Parking

Figure 3.15



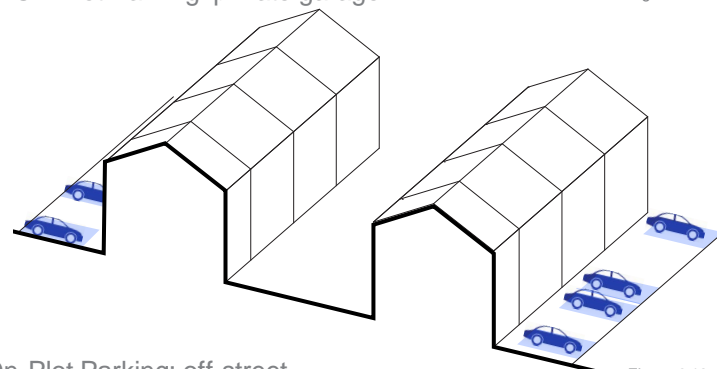
Basement Parking

Figure 3.16



On-Plot Parking: private garage

Figure 3.17



On-Plot Parking: off-street

Figure 3.18

3.3 River Wall

Chapter 2.3.7 discussed 5 distinct conditions that make up the river edge condition at Purfleet.

Flood Defence Wall

Consistent to whole length of riverside is the flood defence wall. The existing flood defence wall is +6.9m AOD and, as described in the adjacent image, acts as a barrier to views of, and access to, the riverfront.

The existing flood defences are unsuitable to meet future flood protection. The flood zone requirements for the site, as mentioned in the previous chapter, require a continuous level of flood defence to a height of +7.2m AOD. In preparation for a 1 in 200 year flood event, all sleeping accommodation must be above +7.5m AOD.

These upgrades to the flood defences will only compound the barrier-like role the flood defence wall currently plays in Purfleet.

River Wall

At the western end of the site the river wall is in a state of disrepair. In order to create a viable development at Purfleet, the river wall must be repaired.

The southeastern portion of the river wall, east of the large jetty, is constructed using sheet piling and is in good condition.

The complex and varied construction of the various parts of the river wall present a number of challenges to repairing the river wall itself, as well as the challenges presented by working in/next to a tidal body of water. In order to unify the approach to the river wall construction it was decided that the improvements to the western section of river wall could be made by constructing a new river wall, in the same sheet pile construction as the southeastern end, in front of the existing wall. The later construction of the flood defence wall means that removing the existing river wall and its associated ground anchors would be almost impossible, therefore the carcass of the existing river wall would remain buried by the back fill to the new river wall.

Existing Land Levels

Across the majority of the southern portion of the site the land level is approximately +5m AOD.

A key ambition for the masterplan is to provide, and improve upon, public access to the river front at Purfleet. In order to overcome the barrier created by the flood defence wall a key strategy is to raise the land behind the flood defence wall to meet the top level of the wall removing the wall as a barrier to access and views.



Figure 3.19

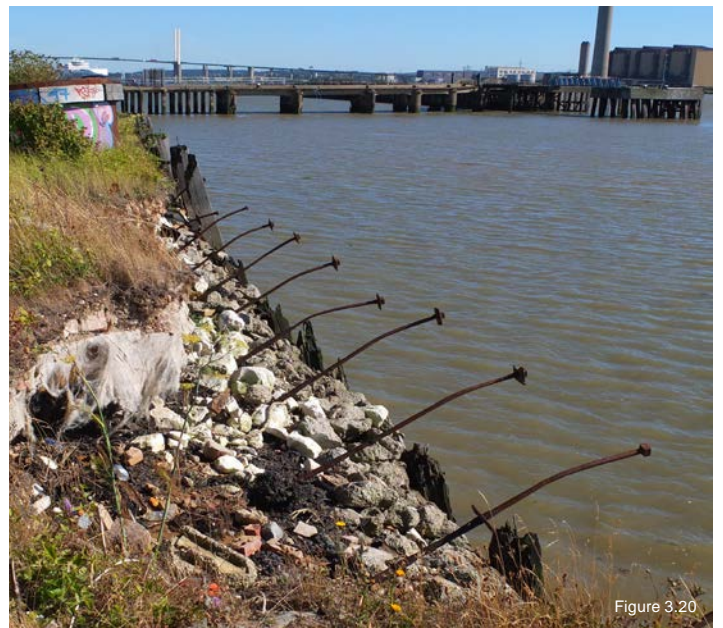


Figure 3.20

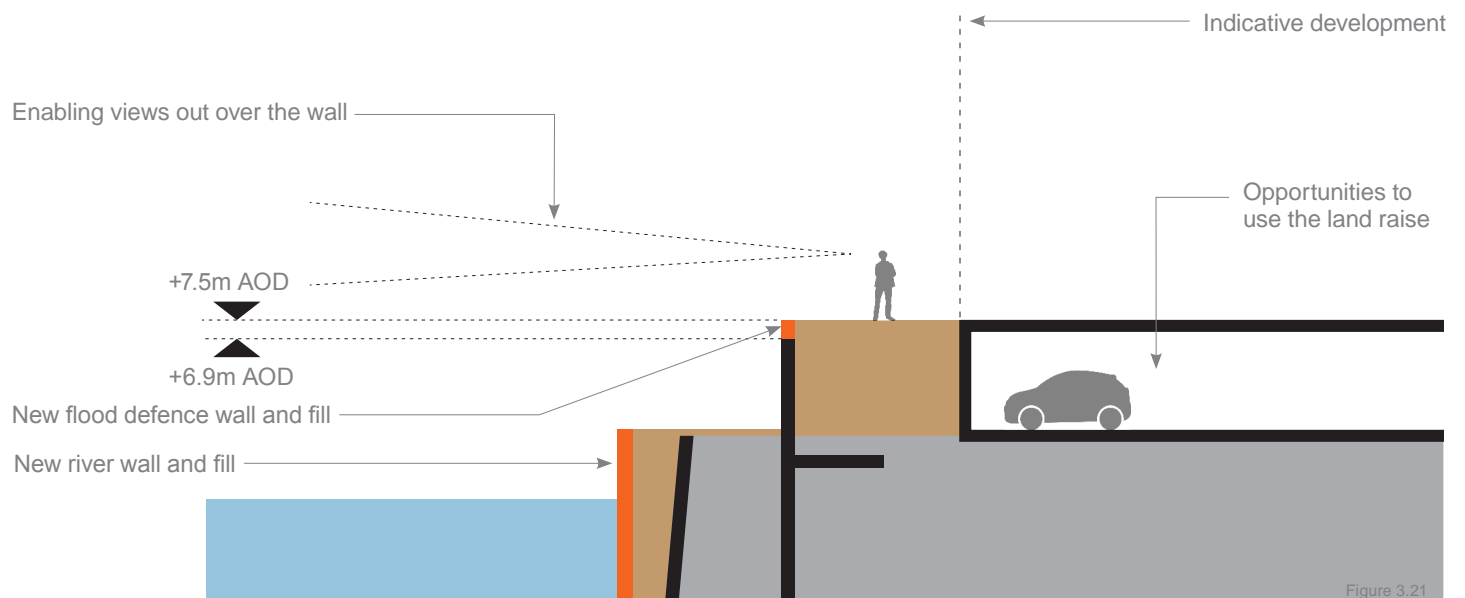


Figure 3.21

Impact of Strategic Response

The impact of this strategic response to the need to improve the condition of the river frontage has a number of elements:

- Changes to, and impacts on, the ecology that exists around the existing river wall
- Impact on the future design response to the southern portion of the masterplan site
- The relationship with other key infrastructure proposals within this outline application.

Ecology

The effect of building a new wall in front of the existing wall, and then burying the existing wall, is a loss of habitat for the ecology currently found on / in the river wall. The direct impacts are discussed in the accompanying Environmental Statement.

Future Design Opportunities

The AOD level of development in response to the flood risk sets out a number of specific design parameters for future development. Namely the required level of all sleeping accommodation. At approximately 2.5m above the existing ground level, this is potentially quite prescriptive in terms of dwelling typologies and ground floor uses.

Overcoming the visual barrier of the flood defence wall is key to future development, raising the land level behind the river wall is a solution to this but one that has additional impacts which are discussed later in this Design and Access Statement.

Infrastructure

Rebuilding, repairing, replacing and upgrading the river wall and flood defence wall is a major investment into the infrastructure at Purfleet and fundamental to future development. Later sections of this chapter discuss other key infrastructure strategies that all tie together in order to prepare Purfleet for major regeneration.

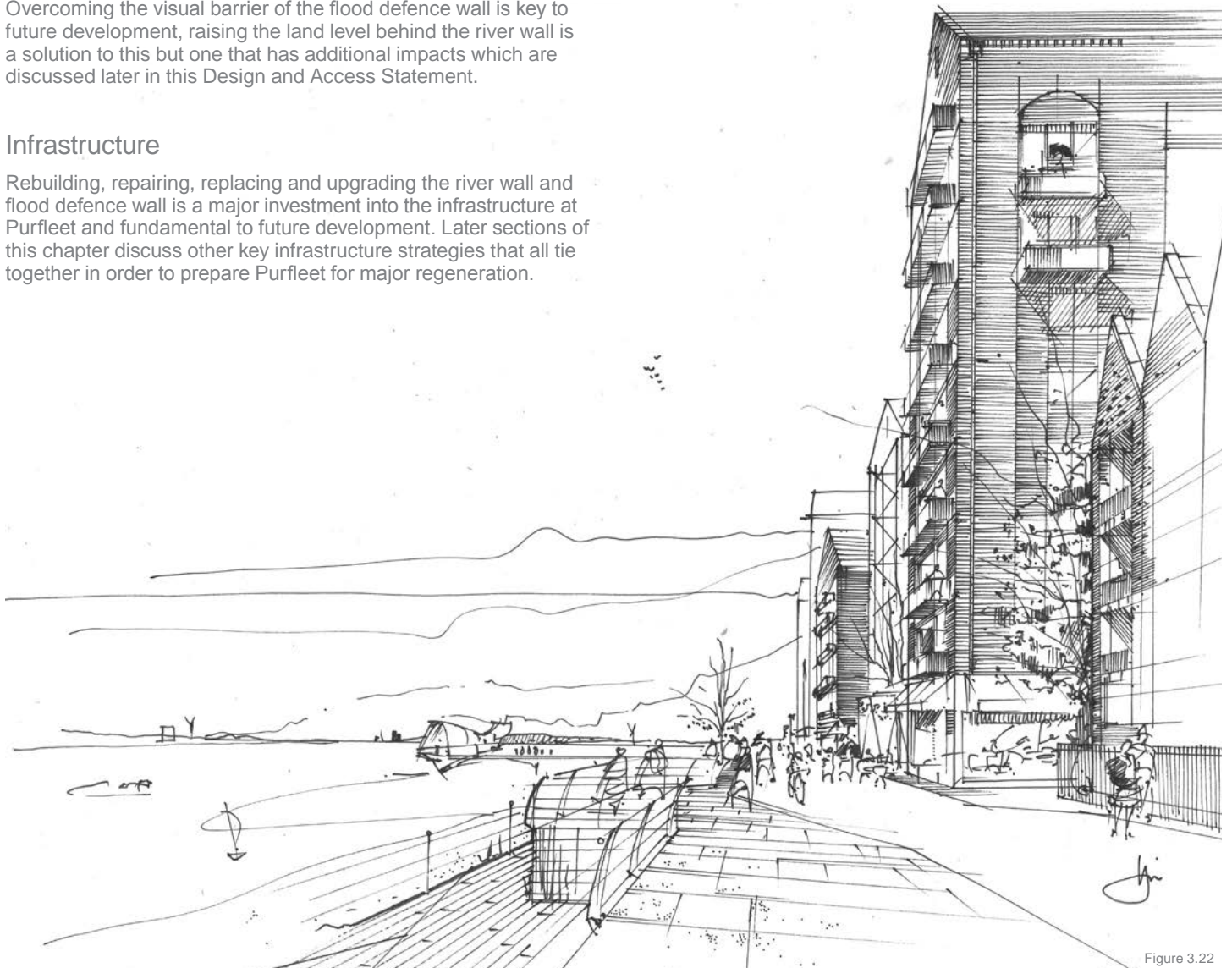


Figure 3.22

3.4 Linking Through The Site

3.4.1 Permeability

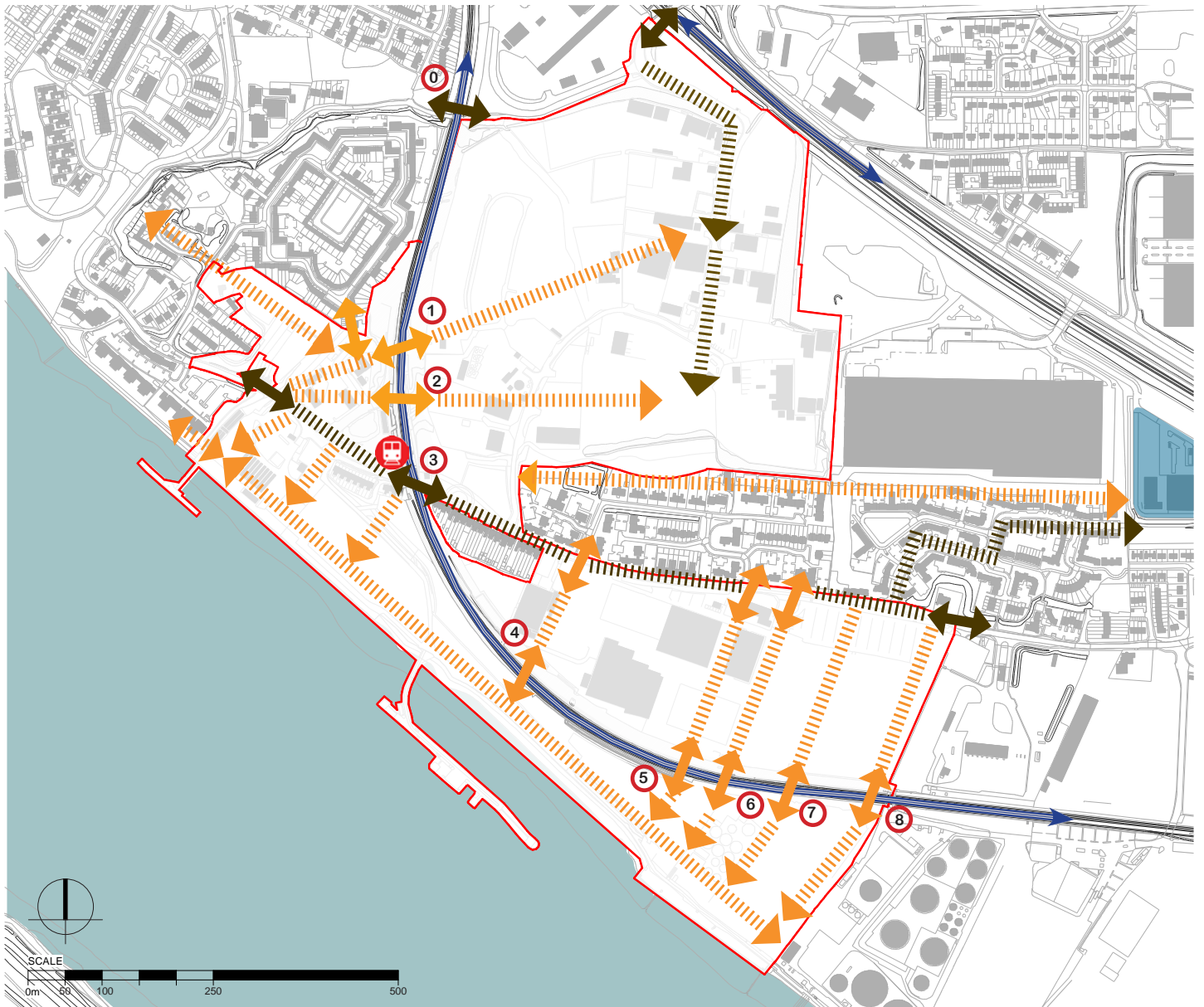





Figure 3.23

KEY

-  Existing Site Permeability
-  Potential New Site Permeability
-  High House Production Park

The general connectivity, site permeability, and contact with the River Thames are to be addressed by the masterplan.

The existing site is not a permeable one. Access through it and across it is either difficult on few spots or not possible, which makes orientation difficult. There are many historic and valid reasons for this which include ownership of individual parcels, the path and road network being best suited to the industrial uses. These, combined with the topography, prevent visual and physical connections with the site's most important asset, the River Thames. Potential site permeabilities (numbered above) are explored and described across the following pages.

3.4.2 Transport Strategy

Rail Network

The existing rail connection provides transport links between Shoeburyness and Fenchurch Street.

This service runs regularly with approximately two trains per hour during off peak hours, with four or five trains per hour during the peak periods.

The regeneration of Purfleet will provide the new town centre with a new modern railway station with dedicated car and bicycle parking. It will have excellent access to the new town centre, to the creative quarter and to the adjacent commercial areas. It is intended that it will act as a gateway into Purfleet and to the new commercial enterprises. It will also increase public awareness of the other new and existing local visitor attractions.

The Rainham Marshes RSPB Nature Reserve is one example of a high quality existing local attraction which will benefit from: the improvements to its nearest station (Purfleet), the new centre, the improved pedestrian routes and the better cycling connections to the railway network.

The routes and directions from the railway station to these attractions will be clarified with a new accessible and intuitive wayfinding strategy.



Figure 3.24

Bus Network

The existing bus network comprises of two routes, 11 and 44. Route 11 between Basildon and Purfleet currently terminates at Purfleet Rail Station and has a frequency of approximately 1.5 hours. Route 44 between Grays and Lakeside is approximately every half hour. Through the development of the new adopted road network it is anticipated that the bus network will be extended to provide services through the town centre and providing greater connectivity to the new residencies and beyond through two new or altered routes.

With improved public transport connections from the bus and rail services the new development intends to make best use of the opportunity to increase the local community by providing living and working options within walking distance from the enhanced public transport. The creation of a new civic square will provide gateway interchanges between bus and rail networks.

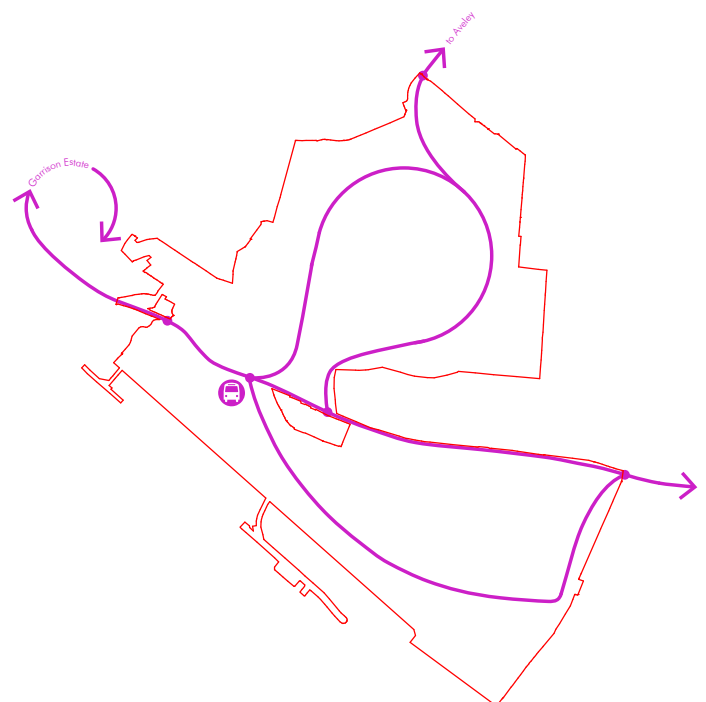


Figure 3.25

3.4 Linking Through The Site

Road Network

The provision of new roads within the regeneration of Purfleet aims to both enhance the existing London Road and provide a new suitable road network to support the residential and commercial uses. The street hierarchy is discussed separately in this design and access statement, but the principles of the masterplan are to improve the road network and safety for vehicle, bicycle and pedestrian users, and limit the use of the centre of Purfleet as a by-pass for any traffic congestion on the nearby M25. The promotion of a community friendly road network is being implemented through several interventions, namely;

- The implementation of 20 mph speed limit throughout the masterplan.
- Weight restrictions on two key areas, the new rail bridge over London Road and Botany Way, through the civic square.
- Road traffic calming measures through the provision of islands and perceived narrowing of the carriageways
- Provision of pedestrian crossings.
- Closing the existing level crossing.

Enforcement for traffic management is understood to be a primary concern for Thurrock Council. It is proposed that the traffic management measures will be installed to be autonomously enforced, reducing the ongoing management costs for the Council whilst providing the required level of enforcement to support the community.

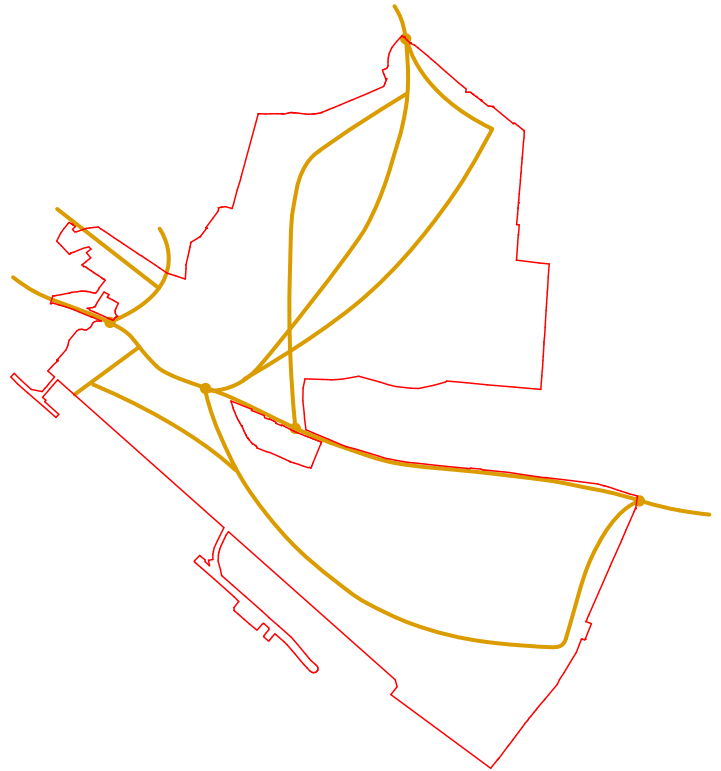


Figure 3.26

London Road will remain the main thoroughfare through Purfleet. With the removal of the industrial works within Botany Quarry the number of HGVs will be reduced and alongside the development the environment of London Road will be much improved.

Cycle Routes:

The following connections offer new opportunities to make the following areas in Purfleet more amenable to cyclists:

- Rainham Marshes.
- The green land alongside the railway.
- The River Thames.
- Hollow Woods.
- Caspian Way estate.
- Tank Lane.
- Alongside London road.

By controlling vehicle access, Purfleet Centre will become a safer environment for cyclists.

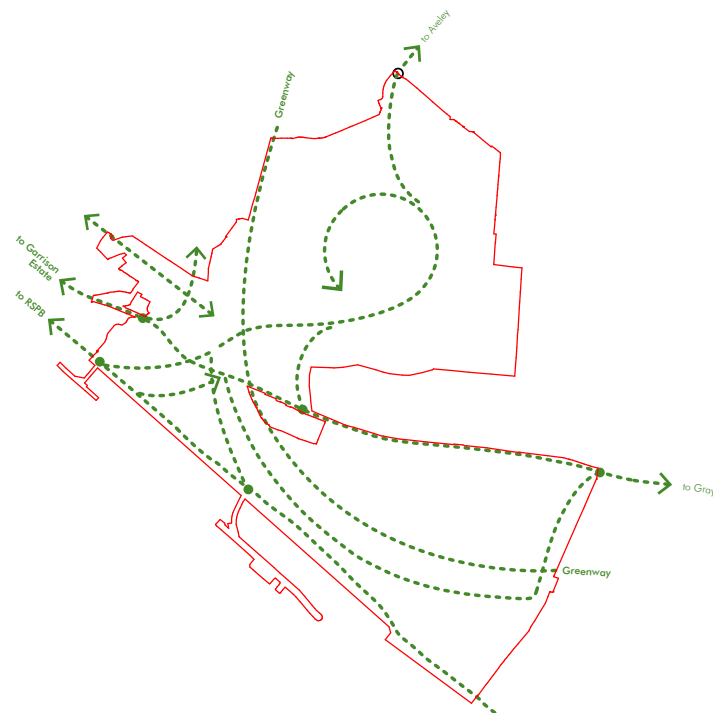


Figure 3.27

Pedestrian Permeability

The existing Purfleet communities are the product of an environment where walking is often the less attractive option. For example there are few community retail hubs, which in turn promotes the use of the car to reach the nearby shopping centres.

The new strategy promotes a modal shift from vehicular transportation to pedestrian, the regeneration of Purfleet seeks to address the issue of walkability within the development and its neighbouring communities.

The new road network hierarchy has been developed to promote neighbourhood connectivity by: encouraging walking, designing the streetscapes to reduce the speed of traffic and the careful integration of the cycle ways.

The strategy for the masterplan is to provide new town centre retail and also new local retail 'hubs', to ensure that both the new communities and the existing communities (located on the periphery of the masterplan) are able to access community and retail facilities within walking distance.

The improvement of the 'walkability' of the regeneration area including the new town centre, is intended to encourage the local community to become more active, whether this is a short walk to the shops, a longer walk to the marshes or a esplanade along the riverfront.

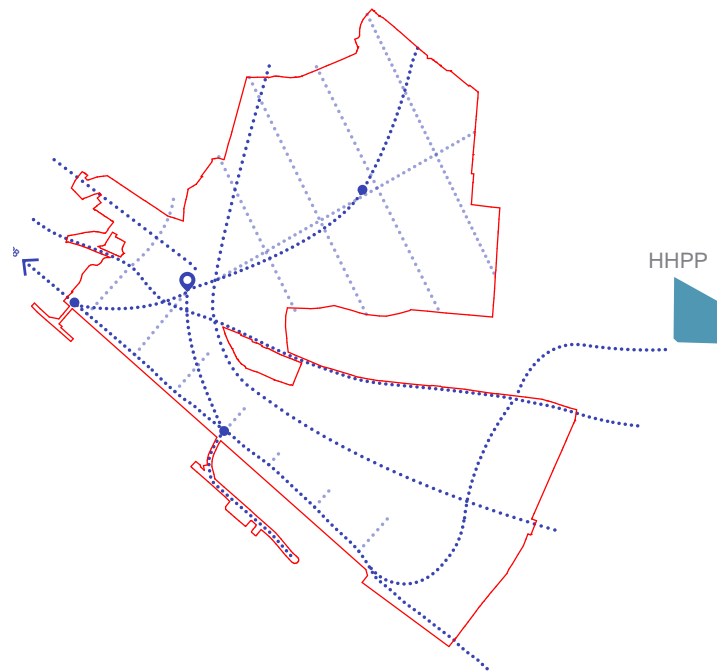


Figure 3.28

Within Purfleet pedestrians will have priority making a safe walking environment to encourage local journeys to be made on foot or by bike.

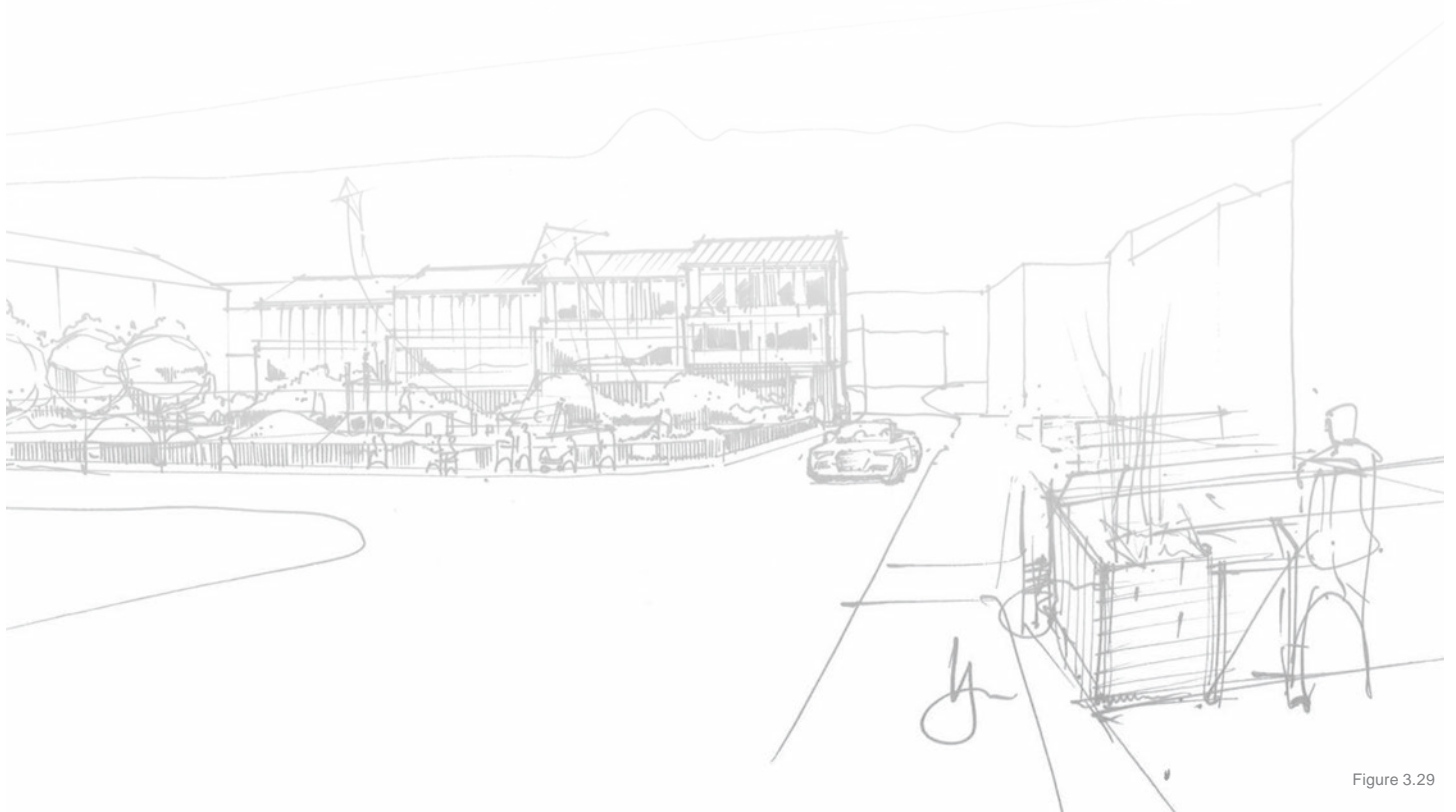
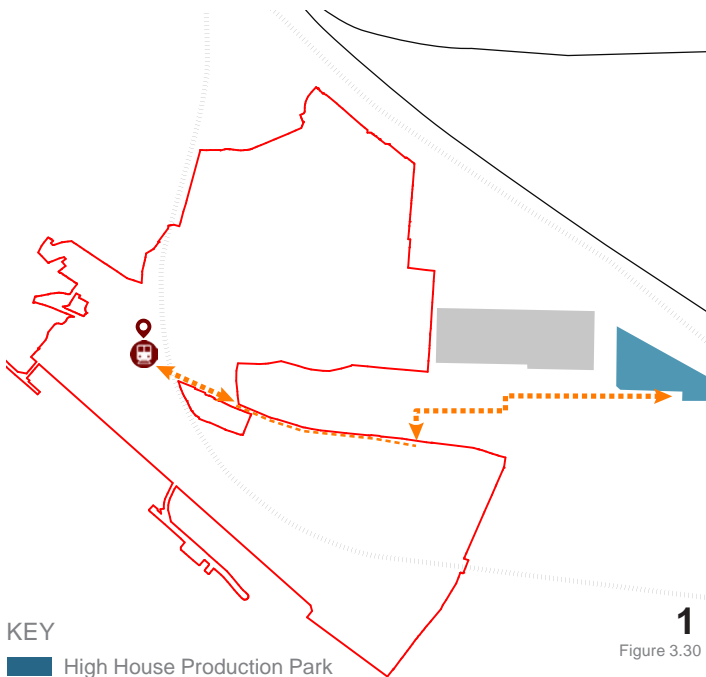


Figure 3.29

3.4 Linking Through The Site

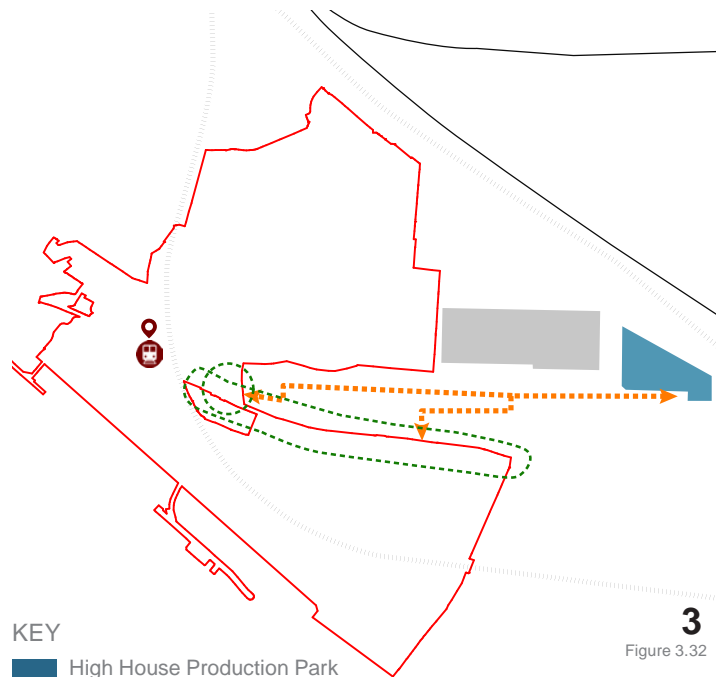
Pedestrian Permeability Between the Site & High House Production Park (HHPP)



KEY
 ■ High House Production Park
 ■ Carpetright Store
 ●●●● Walkability Links

1
 Figure 3.30

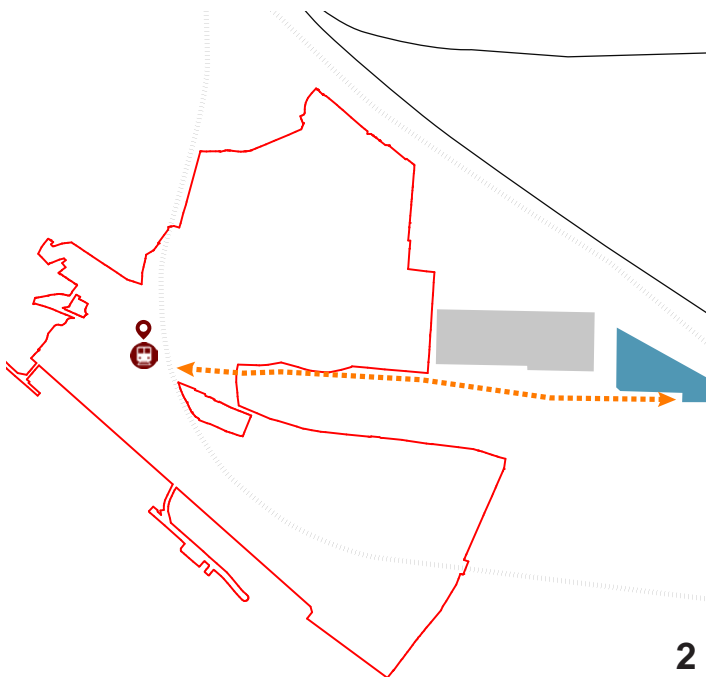
Existing walkability between HHPP & Purfleet Station



KEY
 ■ High House Production Park
 ■ Carpetright Store
 ●●●● Walkability Links
 ●●●● Enhanced Road/ Junction

3
 Figure 3.32

Proposed walkability Option 2 between HHPP & Purfleet Station



KEY
 ■ High House Production Park
 ■ Carpetright Store
 ●●●● Walkability Links

2
 Figure 3.31

Proposed walkability Option 1 between HHPP & Purfleet Station (Top of Botany Cliffs)

A key pedestrian link that the masterplan proposes to improve is between Purfleet train station and HHPP, even though HHPP lies some way beyond the site boundary. The improvement of this link will allow greater adhoc interaction between users of the new studio facilities and existing HHPP.

1. The current pedestrian link between HHPP and Purfleet Station, runs along the pedestrian unfriendly London Road and through some back streets inside residential blocks.

2. This diagram illustrates a proposal to create a dedicated and direct pedestrian route alongside the Carpetright Store and the top of Botany Quarry Chalk Cliffs. This option was not retained because of the following reasons:

- The path would overlook sensitive parts of the envisaged studio site.
- The path would have been entirely unobserved for a 300 m length through a partially wooded area.
- Some significant works to protected groupings of trees at the quarry edge would be required.

3. This diagram illustrates a proposal to improve the link by:

- Enhancement of London Road with a dedicated cycle lane, widened pavements and improved landscaping.
- Improvement of the road junction between London Road and Coniston Avenue to help define a meaningful extension of the existing cycle route into Purfleet.

This second option was preferred as it most closely ties with the wider masterplan ambitions.

Transport Map

The existing transport network has many interrelated issues:

The existing railway station is a great asset as it provides fast public travel into London or east into Grays and the coast. Unfortunately the associated level crossing at London Road requires review and resolution, as does commuter parking in order to avoid informal on-street parking in the nearby streets.

The existing bus service is perceived as infrequent and may discourage residents from joining the public transport network, possibly adding further cars to the road system. The existing high level of car use is a primary concern, as is the significant number of heavy goods vehicles which use the roads in and around this site, they dominate the streets and make the alternative choices less attractive. The poor quality/size of the pavements in some areas also discourages pedestrians. A high level of car usage is often connected to greater air pollution, and a less active lifestyle linked to poorer health.

The ambition for the transport strategy is to create a shift from private vehicular transport to public, to promote walking and cycling, and to encourage healthier lifestyles and give residents more opportunities to meet one another.

The proposal positively resolves these issues by; the new street layout, the new road hierarchy, the new pedestrian links, the extended cycle routes, the better public transport connections and the new railway station.

In addition it also aims to improve the connectivity of Purfleet to the wider surrounding area and improve accessibility to the riverfront.

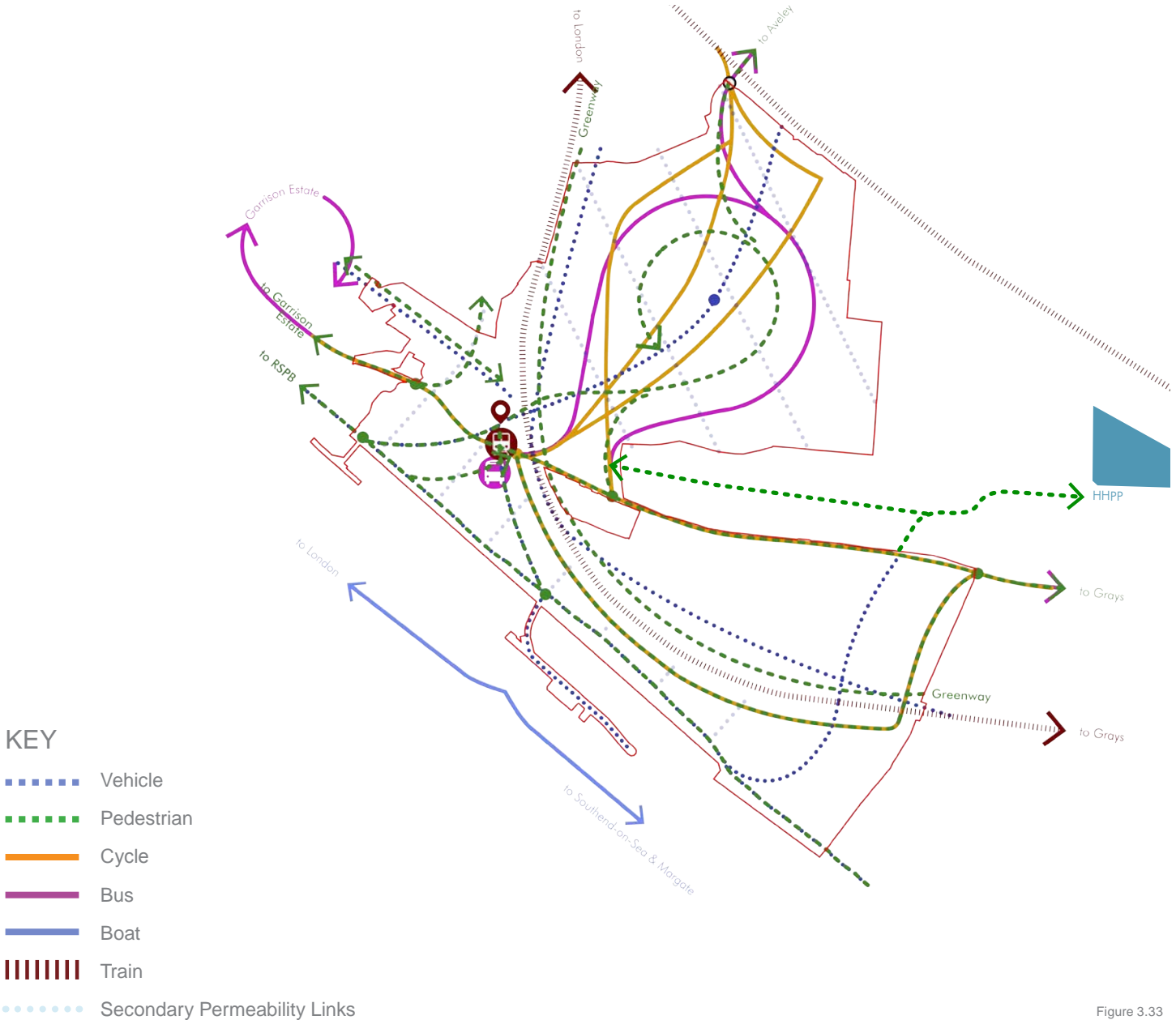


Figure 3.33

Pros & Cons for Bridge Location Options

Option - **A**

- Allows for a link between Botany Quarry & Zone 1 town centre for HGV.
- Constrained by the Tenants Site*.
- Allows continuity of the train traffic and the station operating while in construction.
- Allows continuity of the level crossing during Zone 1.
- A steep level differential between the bridge ramp (+11m) and the residential neighbourhood north of it (+2m): Wall Condition.

Option - **B**

- Allows for a link between Botany Quarry & Zone 1 town centre for HGV.
- Constrained by the Tenants Site*.
- Allows continuity of the train traffic and the station operating while in construction.
- Allows continuity of the level crossing during Zone 1.
- A more gentle differential between the bridge ramp (+11m) and the residential neighbourhood north of it (+2m): no Wall Condition.

Option - **C**

- Allows a linkage between Botany Quarry & Zone 1 town centre for HGV.
- Avoids the Tenants Site*.
- Allows the continuity of the train traffic and the station operating while in construction.
- Allows the continuity of the level crossing during Zone 1.
- Creates a higher car traffic on the riverside area, part of the Zone 1 development.

Option - **D**

- Does not allow a linkage between Botany Quarry & Zone 1 town centre for HGV.
- Avoids the Tenants Site*.
- Allows the continuity of the train traffic and the station operating while in construction.
- Allows the continuity of the level crossing during Zone 1.
- Creates a steep level differential between the bridge ramp (+11m) and the residential neighbourhoods along London road(+5m): Wall Condition.

Option - **E**

- Does not allow a linkage between Botany Quarry & Zone 1 town centre for HGV.
- Avoids the Tenants Site*.
- Allows the continuity of the train traffic and the station operating while in construction.
- Allows the continuity of the level crossing during Zone 1.
- Provides connectivity at the eastern edge of the site.

Further engineering studies, set out in the following pages, were undertaken to develop the preferred solution.

*The Tenants Site is known to sit over part of a below ground contaminant plume, the extent of which is yet to be determined. The unknown nature of the extent and cost/time to remediate is a concern when establishing a programme for infrastructure delivery.

Two vehicular bridges are to be provided, one in the Town Centre and one located at the eastern end of the site. The latter one, option E, offers a suitable solution to the 'dead end' situation that would otherwise exist within this area. The town centre bridge position was chosen to ensure the existing level crossing could remain in place while the new bridge is constructed.

These bridges provide the masterplan with a robust and appropriate crossing solution, which will ensure a safe, integrated and inclusive means of crossing the railway.

Using the Level Change

A new bridge is intended to improve connections through Purfleet and overcome the barrier-like effect of the railway. However, raising a bridge over the railway, whilst removing one barrier to movement, has the potential to create a barrier itself. It is key that a solution to any additional barriers is found.

As previously mentioned in this chapter; another key design driver is improving access to the riverfront. The act of raising the flood defence wall coupled with raising London Road to create a new bridge over the railway has potential to leave the southern portion of the site as a hollow.

It is a strategic decision within the preparation of this outline application to propose raising the ground level across the southern portion of the site for the following reasons:

- Level access between the raised level of London Road and the raised level of the flood defence wall
- An opportunity to use this level change for parking and services, in keeping with the place-making strategies for the masterplan
- Mitigating the barrier-like effect of the new road bridge by raising land in line with the new road levels
- Creating a raised town centre, with associated covered parking, that is adjacent to but not dominated by the train station

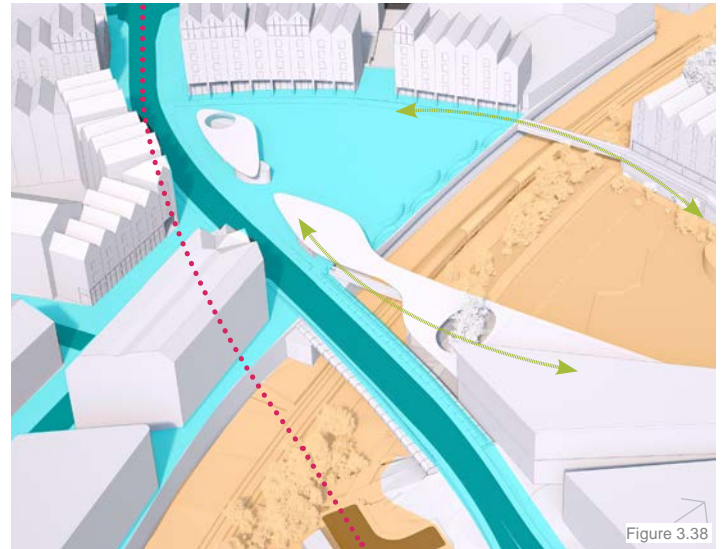


Figure 3.38

An indicative 3D study of the interaction between a new raised London Road and bridge within the context of a new development:

- Land raised to meet the level of a new road bridge crossing the railway. Illustrated here as a market square at the road level, overlooking the railway track. Level access through to the proposed residential development west of the railway.
- Development at the existing land level where the level change to the bridge is mitigated through building mass.
- Existing route of London Road at lower level
- Proposed pedestrian links

Diagram showing the existing condition with the flood defence wall and the level crossing:

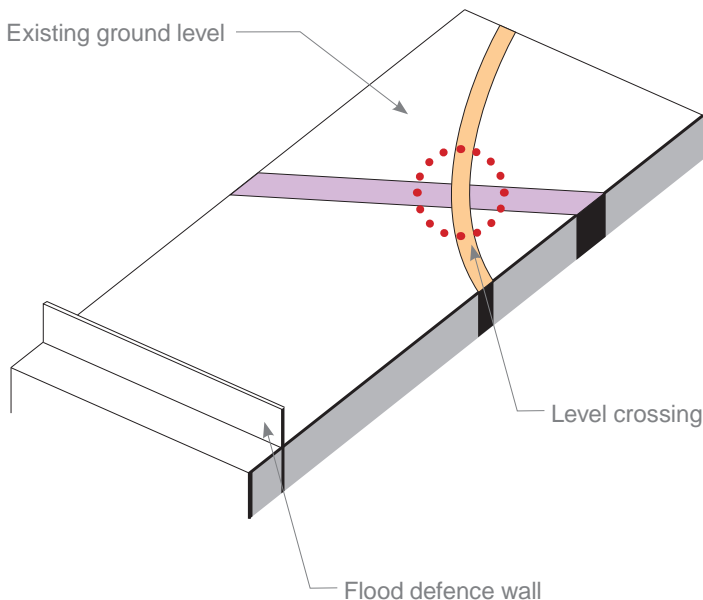


Diagram showing how raising the ground level between the flood defence wall and a new road bridge can mitigate against the barrier-like effects of both the wall and the bridge:

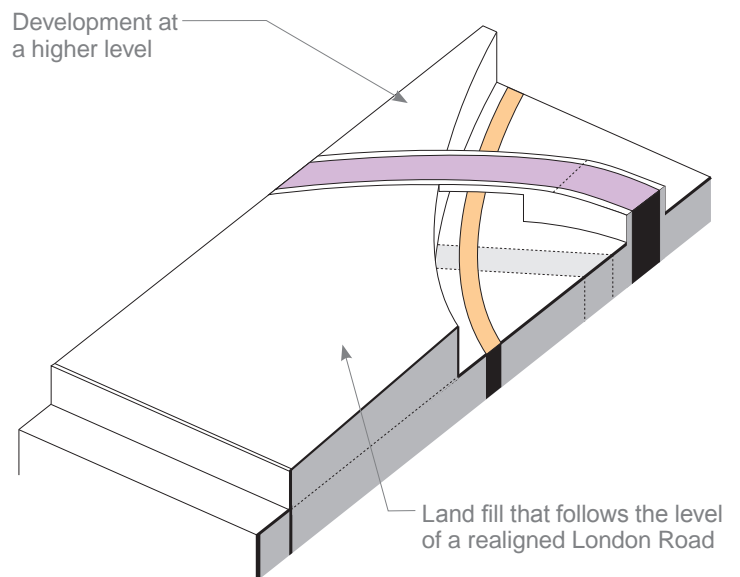


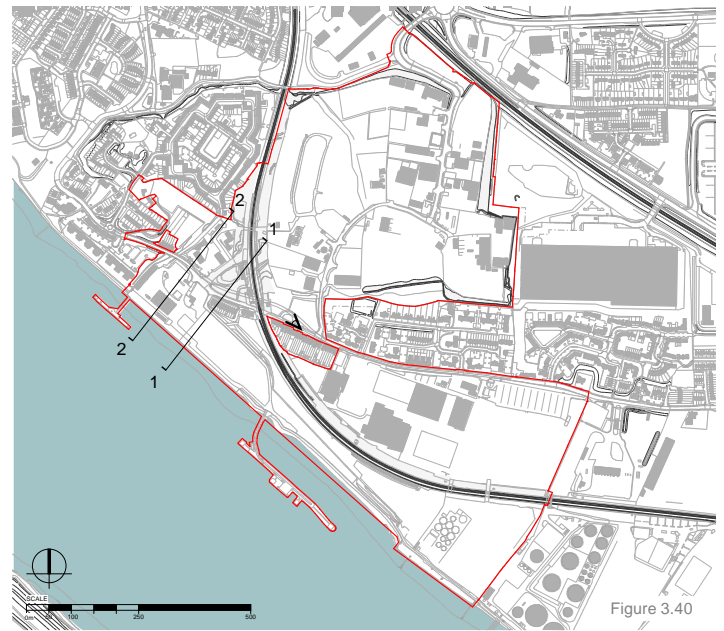
Figure 3.39

3.3 Linking Through The Site

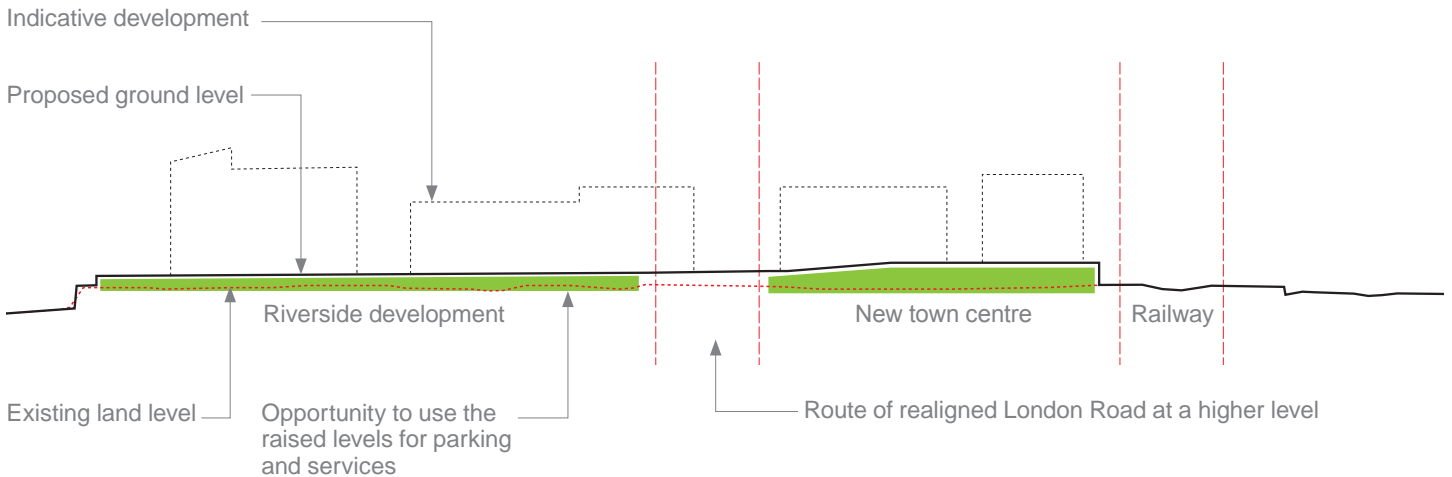
The raised ground level presents opportunities to use the change in levels to locate parking and services at a lower level keeping the public realm clear, in line with the place-making principles of the masterplan. This strategy allows the proposed ground levels to follow the slope of a new bridge, removing any barrier to access that might have been created.

The land-raising strategy is reserved for areas west of the railway where the flood defence wall is also a barrier to access to the river. Raising the level between these two elements mitigates against both of their respective nature to form barriers to access.

A new road bridge in Purfleet presents great opportunities to improve connections between the existing communities. As well as enabling a transformation of the southern portion of the site with a new ground level offering new views of, and access to, the River Thames.



Section 1



Section 2

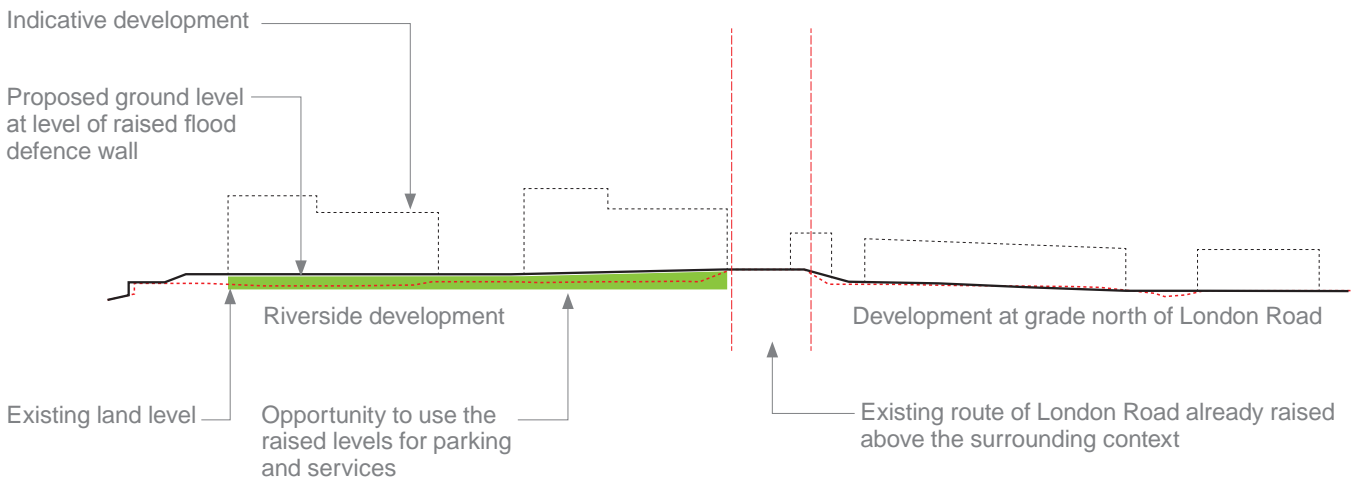
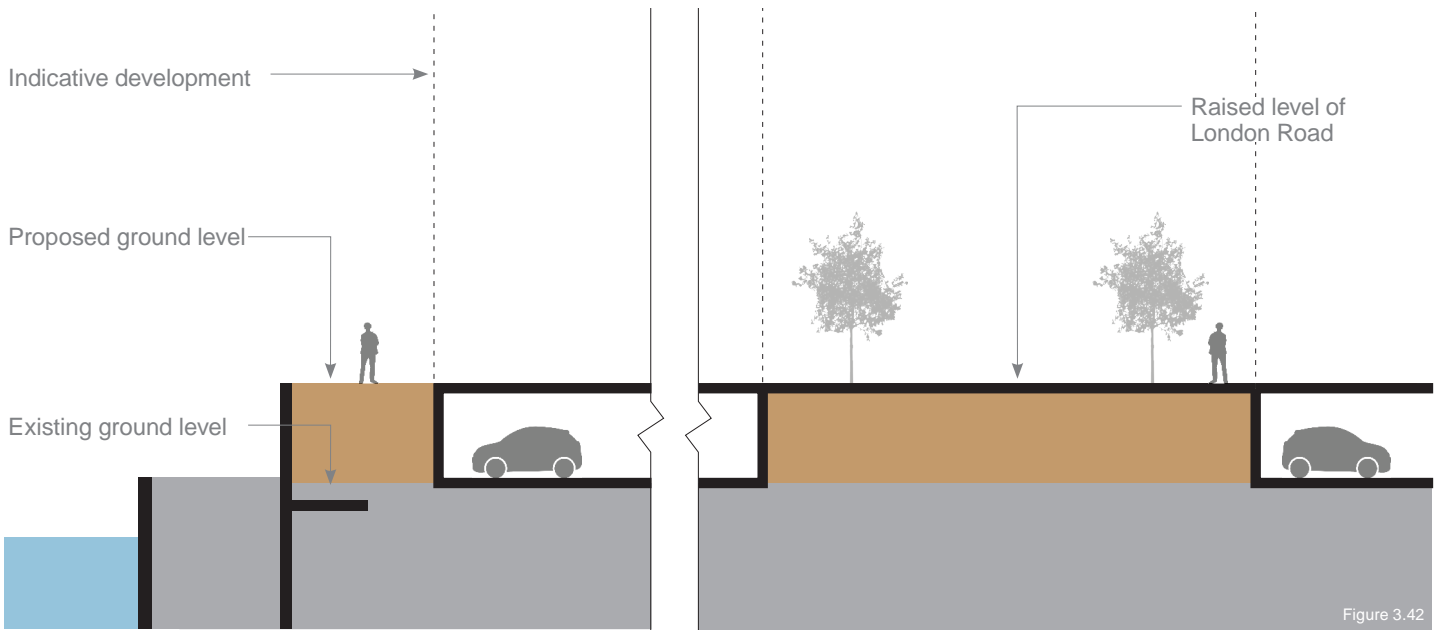


Figure 3.41



Indicative section above shows the relationship between the existing ground levels and proposed ground levels.

A sketch view of a new road bridge from the level of existing London Road in front of Station Terrace, showing the higher level proposed west of the railway in the background.

The realignment of London Road places distance between Station Terrace and the busy London Road, enabling their existing access/ the existing London Road to remain in place here as a cul-de-sac with safer access and residents parking.

The sketch shows the edge of the bridge as a landscaped slope planted with trees and vegetation to the further mitigate the impacts of the bridge on Station Terrace.



Figure 3.43

3.4.5 Street Hierarchy

Following the initial permeability ambitions and the analysis of existing transports, the design team came up with a network diagram including a clear street hierarchy. Beside London road, this hierarchy includes primary, secondary and tertiary roads highlighted in the diagram below. They follow the chosen movement corridors with their envisaged means of transport (bus, car, cycle, pedestrian), with a special focus on modal shifts from vehicles to pedestrian.

Once the hierarchy is established, the following aspects define each street typology:

- Street width.
- Carriageway size for appropriate means of transport.
- Provision of footpaths, cycle ways, parking areas.
- Tree planting and soft landscaping.
- Materiality.

Street trees are used at Purfleet to define character, reinforce street hierarchy and create clear intuitive orientation and way finding.

The network diagram below sets out an indicative street hierarchy.

In creating the different road typologies, traffic speeds, access, materiality, aesthetics, and traffic routes can be clearly defined. This gives the development a unified character whilst promoting legibility and safe sustainable travel.

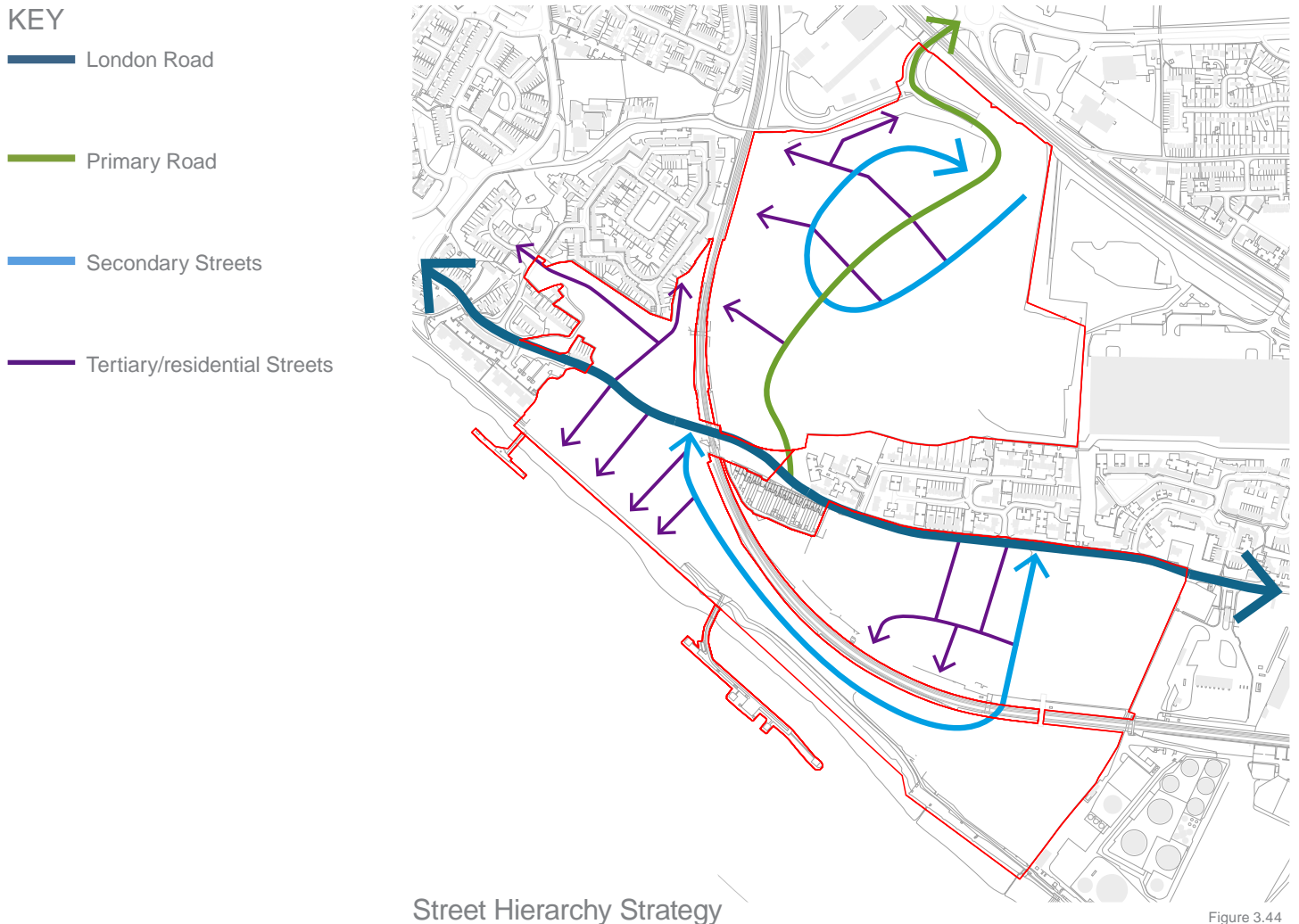


Figure 3.44

3.5 Key Views

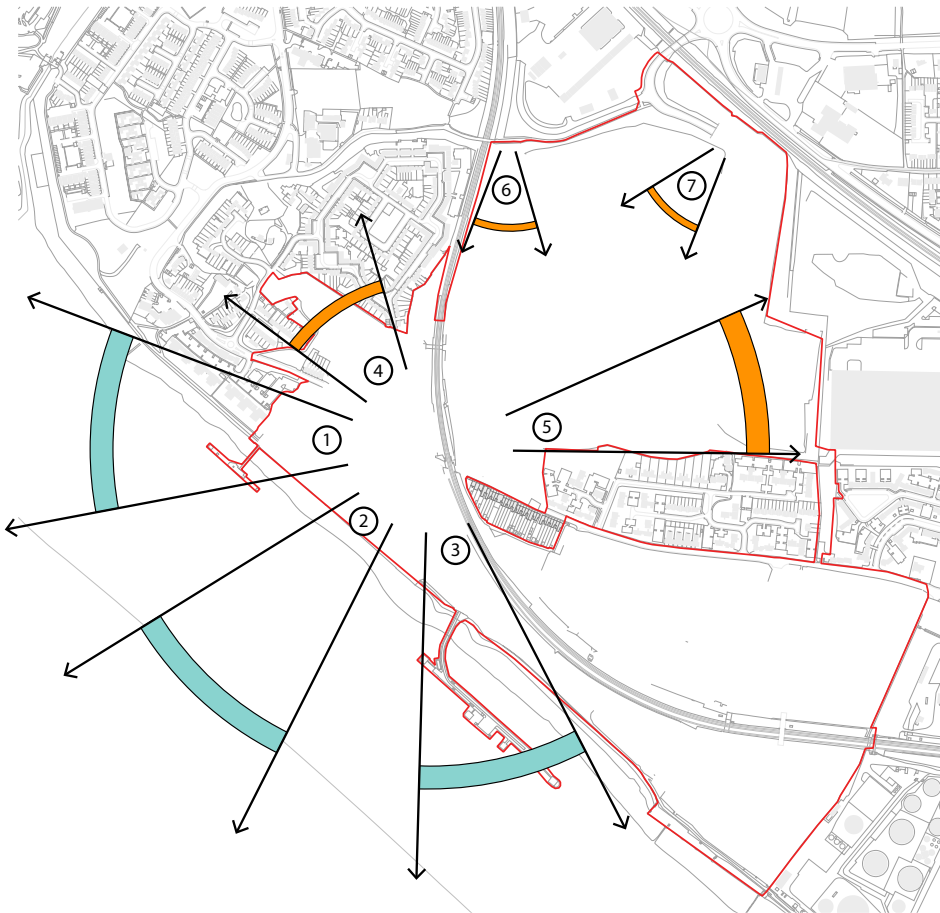


Figure 3.45

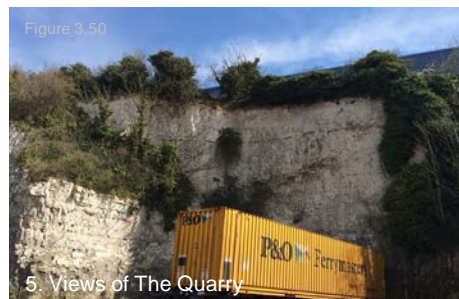
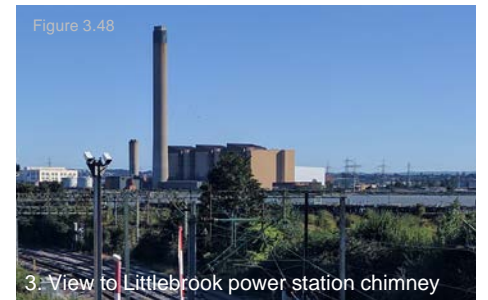
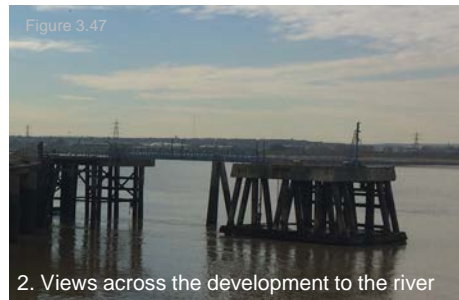
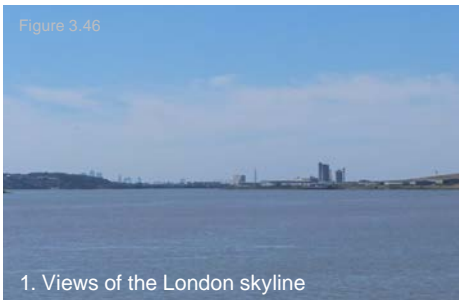
Within the site, key views and routes will aid orientation and permeability supporting the shorter journeys with the new town centre. With long range views to Canary Wharf and the proximity to the Queen Elizabeth II bridge, Purfleet is visually anchored in its location.

Using these significant views, key links through the site have been identified whilst keeping in mind the desire to increase site permeability and links to the river.

These views will begin to influence the plan layout, establishing a relationship between the significant long-range views and new mid-range ones.

KEY

- Significant external views
- Significant internal views



3.6 Demolition Plan

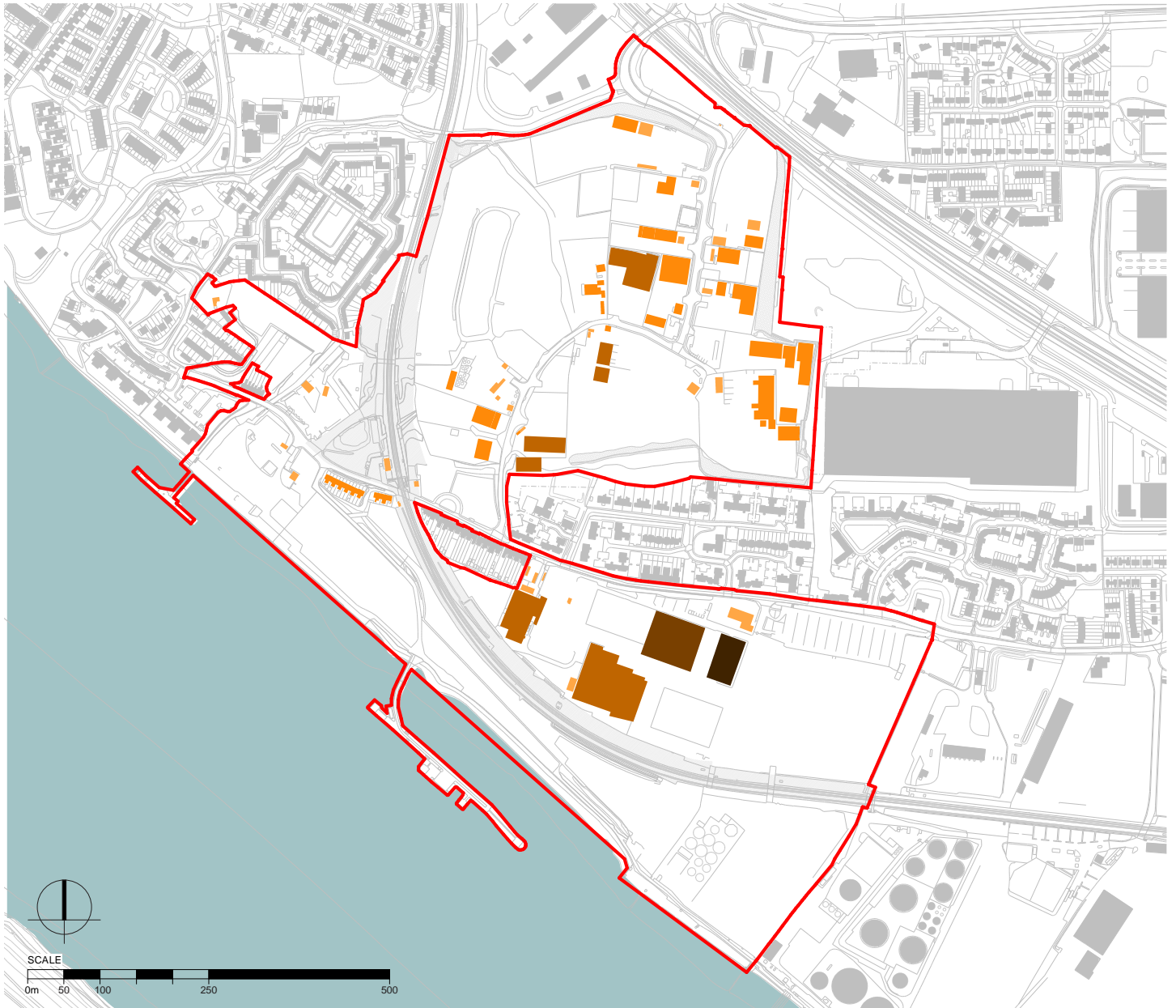


Figure 3.53








In order to create a unifying masterplan throughout the site that ties in closely with the surroundings, significant removal of existing structures will need to take place including:

- All industrial warehouses, plant and associated buildings highlighted in the map above.
- The Railway and Botany Cottages terraces along the south side of London Road adjacent to the current train station.

It is assumed that the following items shall remain:

- The existing rail network, platforms and assets (except station and pedestrian bridge).
- The existing two piers as operational jetties.

KEY

	<5m AEL, Up to 1 Storey to remove
	<10m AEL Up to 2 Storeys to remove
	<15m AEL Up to 3 Storeys to remove
	<20m AEL Up to 4 Storeys to remove
	<25m AEL Up to 5 Storeys to remove
	Site Boundary
	Existing Building Outside of Site Boundary

3.7 Commercial Strategy

3.7.1 Overview

The aim of the Purfleet regeneration is to create a vibrant Town Centre including various uses alongside the residential development.

The mixed-use development approach will see the provision of new:

- TV & Film Studios (The Studios).
- Education centres (primary & secondary schools).
- Community & integrated medical centre.
- Entertainment facilities (gym, cinema, band stand).
- Hotel.
- Transport hubs.
- Office spaces.
- Commercial areas (retail, Food & Beverages).

Among this overall strategy, a specific commercial strategy emerged from the research developed by the PCRL team. Such research will help to deliver a strategy for enabling a functioning commercial environment.

3.6.2 Research

The proceeding section reviews the retail hierarchy located in close proximity to Purfleet. This is an initial high level review of centres that could form part of the Purfleet retail catchment area.

Metropolitan Centres

Such centres serve wide catchments which can extend over several boroughs and into parts of the wider South East region. Typically they contain at least 100,000 m² of retail, leisure and service floorspace with a significant proportion of high-order comparison goods relative to convenience goods.

These centres generally have very good accessibility and significant employment, service and leisure functions. There is one metropolitan centre in close proximity to Purfleet though it sits to the west just outside of the Thurrock administrative boundary: Romford (London Borough of Havering).

Regional Centres

Thurrock Council has supported the transformation of the northern part of the Lakeside basin into a new regional centre. The expansion includes:

- At least 4,000 m² of net convenience floorspace.
- Employment floorspace and other services floorspace.
- Commercial leisure floorspace, including food and drink uses, consistent with the function of a regional centre.

For the purpose of this report we will refer to the regional centre that includes Intu Lakeside Shopping Centre and Lakeside Retail Park as: Lakeside

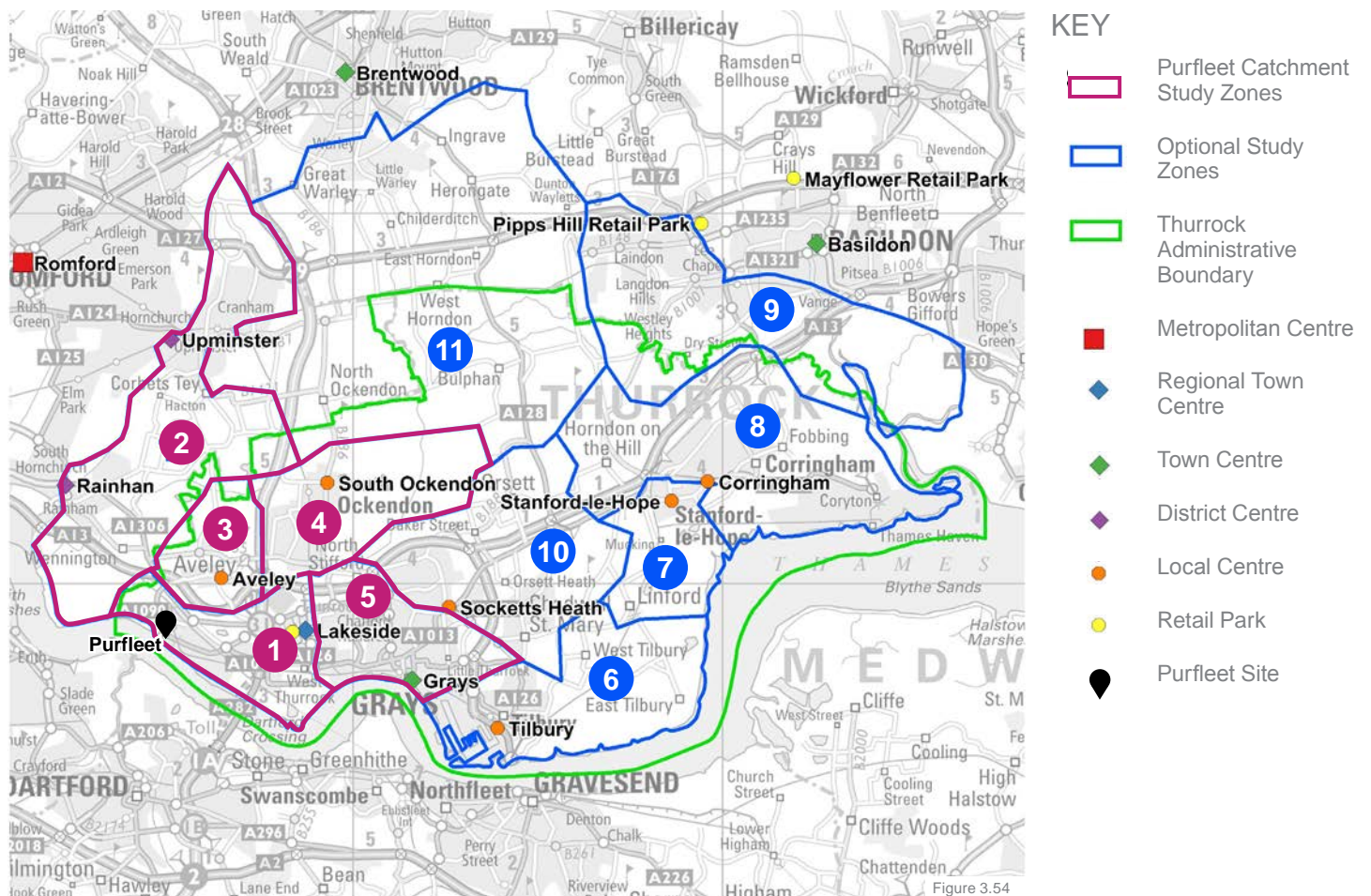


Figure 3.54

3.7 Commercial Strategy

Town Centres

Thurrock Council also supports the regeneration of Grays Town Centre. The intention is for Grays to be the focus for cultural, administrative and educational functions, whilst providing retail development that is complementary to the Lakeside Basin.

Grays is the only designated Town Centre located within the Thurrock Council administrative boundary. By considering the location of Purfleet it's possible that a very small number of residents may be attracted to Town Centre's outside the council boundary. The full list is provided below:

- Grays.
- Basildon (Basildon Council).
- Brentwood (Brentwood Council).

District Centres

There are no designated district centres located within the Thurrock Council administrative boundary. However, there are other district centres located in close proximity. These are listed below:

- Upminster (London Borough of Havering).
- Rainham (London Borough of Havering).
- Hornchurch (London Borough of Havering).
- Erith (London Borough of Bexley).
- Dartford (Kent).

Neighbourhood and local centres typically serve a localised catchment often most accessible by walking and cycling and include local parades and small clusters of shops, mostly for convenience goods and other services.

They may include a small supermarket (typically up to approximately 500 m²), sub-post office, pharmacy, laundrette and other useful local services. Together with District centres they can play a key role in addressing areas deficient in local retail and other services. A list of the centres within the Thurrock Council administrative boundary are listed below:

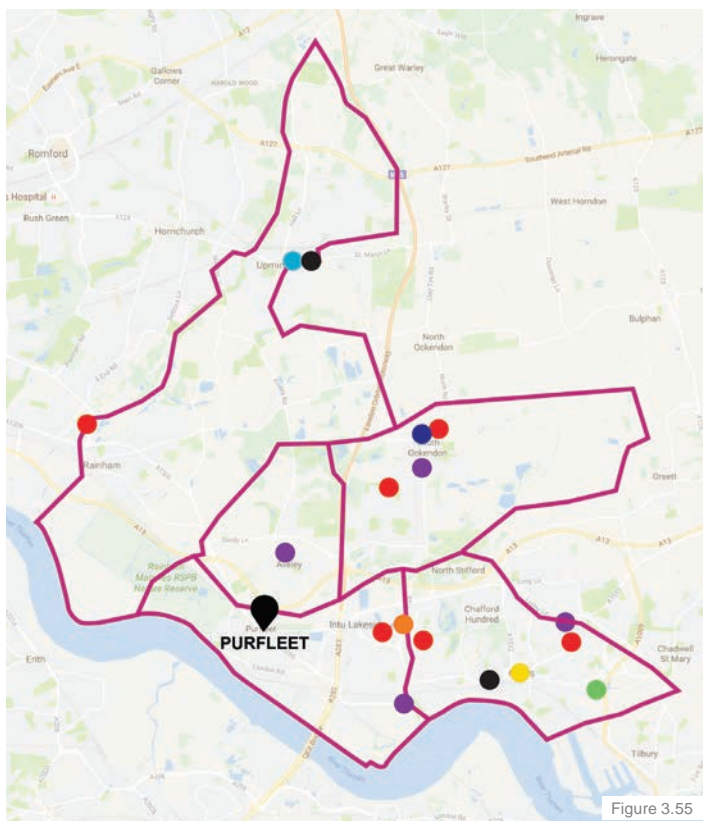
- Purfleet.
- Corringham.
- Stanford-I e-Hope.
- South Ockendon.
- Tilbury.
- Aveley.
- Socketts Heath.
- West Thurrock.
- South Stifford.

Retail Floorspace Analysis

The retail and commercial leisure offer located within the Thurrock administrative boundary is comprehensive and includes a wide range of retail and commercial leisure operators across different retail centres. As a result, there are relatively low levels of retail leakage outside of the Thurrock administrative boundary to competing destinations. However, there exists other substantial retail and commercial leisure facilities located in close proximity at Westfield Stratford City and Bluewater and therefore some leakage outside can be expected.

Furthermore, there was evidence of overtrading in the convenience sector, with pronounced overtrading in Morrison's in Grays, Asda in Tilbury and the Morrison's in Corringham, all of which helped to strengthen the case for additional convenience floorspace allocated across the designated retail centres in Thurrock and reflected in the Local Development Plan.

Existing convenience store offer in catchment area



Retail Spend Patterns

The PCRL team has considered the convenience and comparison retail offer across the Thurrock Council administrative boundary and has arrived at some high-level assumptions on likely retail spend patterns (see Table 1). The range of retail centres in close proximity to Purfleet has also been considered, although these are located outside of the administrative boundary.

Purfleet Catchment Analysis

The population of Purfleet is approximately 12,000 (at 2016) according to the GeoNames geographical database.

At ward level the town of Purfleet is spread across the Aveley and Uplands ward and West Thurrock and South Stifford ward making it difficult to define the exact resident population from census data.

West Thurrock and South Stifford is a ward that includes areas of West Thurrock, Tank Hill, Stifford, Lakeside, Botany and Waterglade Industrial Park. In the 2011 census the population of West Thurrock and South Stifford was 10,478. Aveley and Uplands ward includes areas of Aveley.

In the 2011 census the population of Aveley and Uplands was 8,912. Purfleet’s approximate resident population of 12,000 (when considered against the combined wards population of approximately 20,000) is therefore a reasonable estimation.

Existing evidence includes:

- Thurrock Retail Study 2007 (TRS).
- GVA Retail Evidence for the East of England Plan (EEP) 2008.
- Thurrock Retail Study 2012.

The TRS provides initial guidance on the scale of retail floorspace that could be accommodated within the Lakeside Basin, whilst the GVA evidence provides more strategic direction for growth in respect of the scope for comparison floorspace in the Basin, taking into account both capacity and impact on the network of centres.

The emerging policies in the Thurrock Core Strategy use a combination of these forecasts. It relies on the TRS for forecasts on growth in Grays and elsewhere in the area, and convenience needs in Lakeside and elsewhere in the area.

There is a significant body of evidence on retail need already, although some of this is out of date and the catchment area is not entirely relevant to new floorspace being proposed at Purfleet.

The following sections consider the planning context to local retail centres in Thurrock, the requirement to undertake a Retail Impact Assessment and details of our initial consideration of Purfleet’s local catchment.

Centre	Est Retail Spend Patterns
Lakeside	25%
Grays	15%
Tilbury	15%
Corringham	10%
Other Centres	10%
Outside Thurrock	25%

Table 1: Estimated spend patterns



Figure 3.56

3.7 Commercial Strategy

3.7.3 Planning Policy Context Core Strategy

Thurrock Core Strategy (2011)

Part of the research is to study the Thurrock Core Strategy (CS), adopted by the Council on 21 December 2011. Among this strategy, we have focused on two policies (Network of Centres in Thurrock, Vitality and viability of existing centres) that are consistent with regional policy.

The first one states that the Council supports the transformation of the northern part of the Lakeside basin, the regeneration of Grays Town Centre and the development of local centres for namely Corringham, Stanford Le-Hope, South Ockendon, Tilbury, Aveley and Socketts Heath.

The same policy also states that a new local centre has been designated at Purfleet along with two new neighbourhood centres at West Thurrock and South Stifford. These centres will be developed in conjunction with major residential development. The Council will encourage the following development in these new centres:

- In Purfleet, a new food store of between 1,500-2,000 m² (net) convenience retail floorspace and complementary floorspace.
- In all new local centres, an appropriate mix of day to day services will be provided to accommodate the needs of the residential development.

The second policy (Vitality and viability of existing centres) states that measures to improve the vitality and viability of the network of existing centres will be encouraged. In terms of the retail aspect, the Council plan to do this in the following ways:

- Permitting applications for Town Centre uses on suitable sites of an appropriate scale to the role and function of the centres.
- Encouraging diversification and improvement of the range and quality of facilities including retail, employment, leisure and entertainment, culture and education.

Thurrock will permit main Town Centre uses on sites which are suitable and of an appropriate scale to the role and function of the centres, with Town Centres being the preferred locations, followed by edge of Town Centre locations.

The policy also advocates the diversification and improvement of the range and quality of retail facilities.

The National Planning Policy Framework (2012)

The National Planning Policy Framework (NPPF) published on 27 March 2012 sets out the Government's planning policies for England and how these are expected to be applied; it is a material consideration in planning decisions that we have taken into consideration for the purpose of this research.

At the heart of the NPPF is a presumption in favour of sustainable development.

The NPPF outlines that Town Centres or centres apply to city centres, Town Centres, district centres and local centres but exclude small parades of purely neighbourhood significance. It applies then to the new Purfleet Town Centre.

The NPPF explains that a retail impact assessment should include a study of:

- The impact of the proposal on existing, committed and planned public and private investment in a centre or centres in the catchment area of the proposal.

and

- The impact of the proposal on Town Centre vitality and viability, including local consumer choice and trade in the Town Centre and wider area, up to five years from the time of the application is made.

Purfleet's Retail Catchment

In light of the above, the assumption is that any new floorspace delivered at Purfleet will serve a local catchment. Exactly how 'local' remains open to debate and will depend on the nature of the retail offer.



Figure 3.57

3.7.4 Objectives & Challenges

Objectives

Large scale mixed-use development is promoted for its benefits on social, economic and environmental grounds whilst enhancing the physical landscape and public realm.

The mixed-use development at Purfleet offers an opportunity to extend the regeneration benefits beyond Purfleet, into adjoining areas that do not benefit from river frontage.

Schemes of this nature have a proven track record of delivering exceptional degrees of change. This can be quantified both in the quantum and range of commercial offer as well as physical regeneration and the creation of employment opportunities that will be delivered by the Purfleet Regeneration project.

The quantum of commercial floorspace delivered at Purfleet provides for opportunities to create a new, distinct urban destination that will serve the underprovided local catchment and is distinctly separate to the commercial offer found at Intu Lakeside and Bluewater.

The overarching connection with the proposed Studios provides Purfleet with a unique proposition that offers potential cross-pollination of businesses for symbiotic growth. This new destination at Purfleet can subsequently be enjoyed by both residents (existing and newcomers alike) and visitors to the area.

Challenges

Many large scale, mixed-use developments accentuate socio-economic polarisation through the working of real-estate markets (price rises and displacement of social or low-income housing), and the restructuring of the labour market as new employment opportunities are generated but are often not suitable for existing residents.

A significant public consultation and engagement has been undertaken to ensure that people's perceptions and fears of 'change' and 'mixed-use' are alleviated. Through the community workshops, it appeared that the proposed extent of development has been very welcomed by local residents.

Whilst every attempt has been made to identify compatible uses and create a planned local community there will inevitably be a degree of friction created by competing land uses. A second factor is that costs of services will inevitably rise as new commercial uses are introduced as overall density increases.

3.7.5 Commercial Strategy

The commercial elements of the Purfleet Regeneration will deliver on the stakeholders' requirements to provide a new Town Centre, Market Square, food and beverage quarter and possible creative industry quarter sitting alongside the Studios.

The stakeholder relationship which enables single ownership of a Town Centre is unique and allows the Purfleet Regeneration company to enable a strategy of considered and cohesive tenant mix so as to deliver a balanced Town Centre. This one will meet the demands of the existing and future Purfleet community, and will provide employment, schools, community facilities and visitors opportunities (brought by studios and the riverfront).

Civic Squares

The heart of the scheme, which links the Market Square to the Waterside will see the delivery of a new Town Centre for Purfleet. Careful consideration has been given to the typology and form of commercial space to provide a character High Street that will foster a methodology of entrepreneurial and independent space coupled with branded operators.

The first delivery of retail space will be located in sub-zone 1B, which has been designed to provide space suitable for a small format convenience store of c. 400 m² as well as complimentary retail use of c. 600 m². This initial stage will deliver on the aspirations to provide a much needed local hub to serve the immediate catchment which is starved of convenience facilities.

The early stages will provide much needed local retail services to the existing Purfleet community. The later sub-zones will provide a larger format convenience store/supermarket, located on the Market Square, that will allow the scheme to cater for the impact of increased convenience shopping demand and to retain expenditure, as well as reducing car borne trip to locations outside of Purfleet. The store layout and configuration has been designed in consultation with known operators so as to provide a sales area and servicing options that will minimise potential risks of estate management issues on context of mixed tenure buildings.



Figure 3.58

3.7 Commercial Strategy

High Street

It is likely that the High Street will have a balance of 75%/25% A1 to non-A1 uses and will see occupiers such as hairdressers, beauty salons, A1 food uses, coffee shops, cafés, bakers, butchers, pharmacy, cycle shops, delicatessens, health food shops. The location will no doubt see some smaller format A3 restaurant premises although the main focus of the food and dining offer will be situated on the Riverside.

Riverside

Purfleet Riverside offers a unique opportunity for residents and visitors to engage with the waterfront and the intention, should market conditions support, is to deliver a waterfront daytime and night-time food and beverage offer, with latter stage uses to possibly include a hotel and a multi-functional entertainment venue.

The Food & Beverage units on the Riverside have been designed so as to meet with current demand for smaller floor plates albeit with the ability to combine into larger floorplates, should market conditions dictate. External seating and courtyard areas will be provided along the waterfront to allow for al fresco dining. It is intended that other non-retail uses such as gyms, night clubs and cinemas be incorporated within the Purfleet Centre Regeneration Plan.

Purfleet Riverside may see a range of diverse uses, from pop-up kiosks to outdoor entertainment activities. The intention is to create a distinct offer from that would be found at Intu Lakeside and to engage with the stunning south facing River frontage.

Other areas

Additional locations for neighbourhood retail parades, to serve communities located to the north and east of the Market Square, have been identified. These locations will serve communities within a five-minute walk time and will provide drop-in and incidental uses to meet with local demand and will ideally be located in close proximity to the proposed schools. Indicative uses will be small format convenience, pharmacy, café, bakers and nurseries, due to the proximity to the schools.

Shop fronts

The creation of a new Town Centre at Purfleet will see new-build commercial space at the heart of the scheme. In order to create an environment that is attractive to both tenants and shoppers, the design of shop fronts and streets is an essential part of the retail strategy; shop front designs that will bring character to Purfleet High Street.

It is therefore essential to imprint character through well designed shop fronts as well as pavements, street and urban fabric that promotes walking as well as other forms of transport.

3.7.6 Creative Quarter

The Studios offer a unique opportunity to provide a creative quarter for industries associated with TV, film, gaming and beyond. The current trend towards flexible working space has seen the emergence of co-working incubator and short term flexible accommodation suitable for a myriad of uses, traditionally aimed towards the tech and media industries.

Plots have been identified as suitable for flexible commercial and residential use which will allow the growth and the overspill of additional space that would be sourced by industries looking to locate their businesses in close proximity to the Studios

Long Term Stewardship

As this project is anticipated to be delivered over a substantial time period, it is impossible to comment on the future market conditions nor seek to determine the response to such market forces at this time. Therefore, it has been accepted that detailed sub-framework briefs (SFB's) will be drawn up for each stage and will be subject to the appropriate assessment and testing.

The ability for Purfleet Town Centre to attract tenants will be borne out of several key principles as follows:

1. A single ownership stakeholder engagement strategy fostering an entrepreneurial retail environment with a clear estate management strategy in respect of tenant mix.
2. A desirable retail environment with traditional shop fronts and street design leading to an attractive retail offer and positive urban permeability and wayfinding to create a clearly defined network of streets.
3. A positive connection with the Studios and a sharing of patronage to provide Purfleet with a unique offer and drive cross-pollination of business.
4. Prevailing market conditions and the ultimate scale and timeline for delivery of the Studios.

3.7.7 Summary

The Purfleet Centre Regeneration offers an opportunity to re-invent the juxtaposition of commercial and retail environment through the delivery of a unique retailing environment and a first of its kind TV & Film Studios.

The success of the scheme will hinge on the ability to intertwine the elements without one dominating the other. If this fine balance is reached, Purfleet will become the scheme of the future that all other regenerations will reference as an exemplary example of how to succeed in mixed-use.

3.7.8 Commercial Routes

In response to the planning policies and to the commercial strategy, the design team developed a commercial route layout including four points of interest:

- TV studios accessible to external public audiences.
- Central focal point for transport, retail and community facilities accessibility.
- Riverside West for F&B uses.
- Riverside East for F&B and leisure uses.

An essential element of this masterplan is the creation of a new focal point for Purfleet. This is something that has been missing to date, and is a very much needed addition. It will ensure that the future of Purfleet is both vibrant and active.

This focal point is the new central public space which is located adjacent to the existing railway station. It will contain and be enclosed by a wide and rich mix of uses which include: a cinema, a railway station, a community centre, a hotel, a gym, commercial and retail spaces. It will be the linking hub between the TV Studios, Riverside West and Riverside East amenities.

In between all these hubs, streets with commercial features (retail or F&B) will be provided for car and pedestrian access.

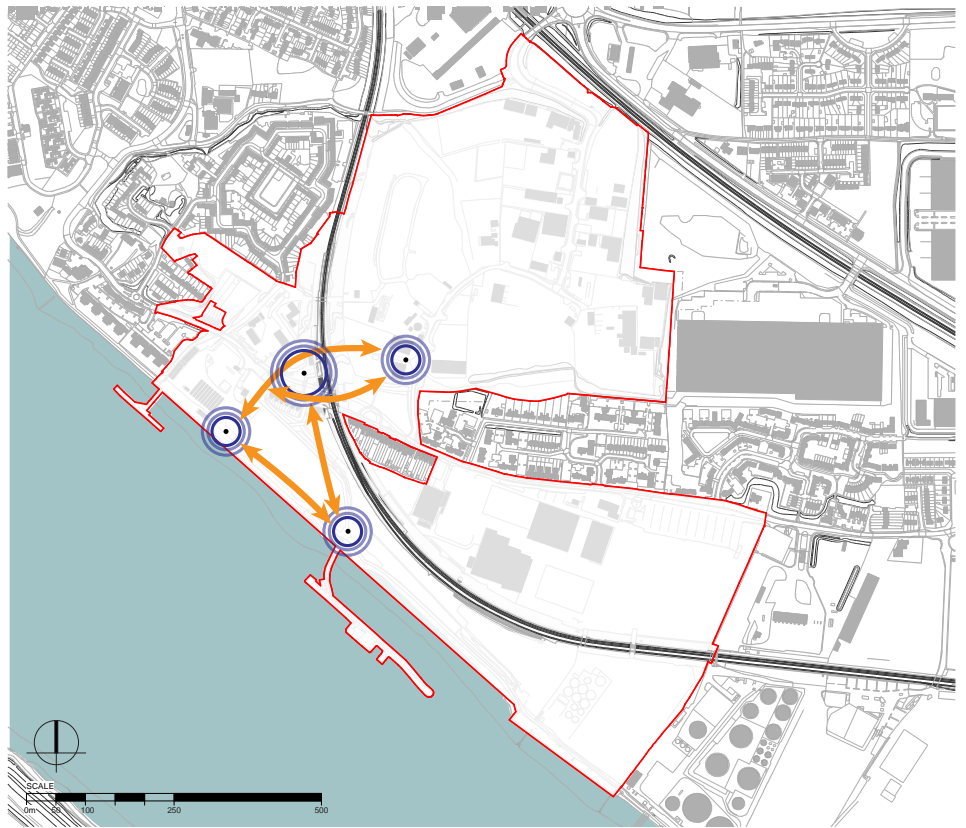


Figure 3.59

KEY

- ← Commercial Routes
- ⊙ Points of Interest

KEY

- Cinema Inc. A3 at Ground Level
- Community Uses, Pharmacy & Integrated Medical Centre
- Flexible Workshop, B1
- Gym D2 with Hotel Above
- Food and Beverage A3
- Hotel C1 Inc. A3, D2 at Ground Level
- Local Commercial A1
- Retail A1
- Station
- Studio
- Band Stand/ Meditation Place

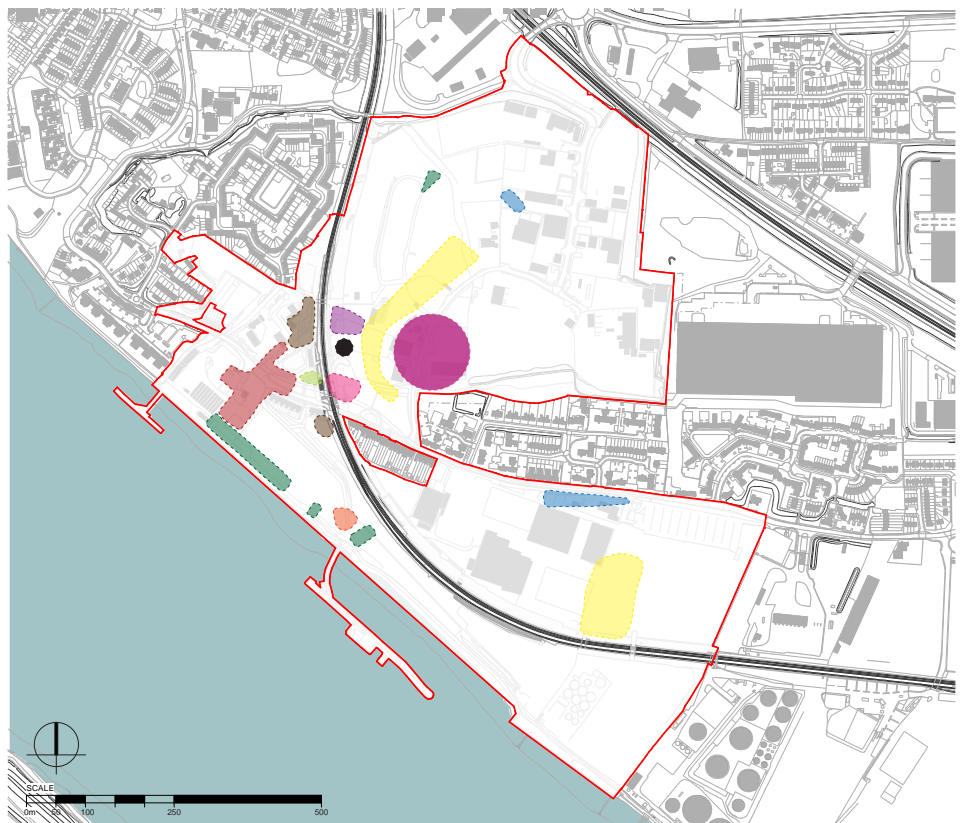


Figure 3.60

3.8 New Town Centre

3.8.1 Square Analysis

Purfleet town centre is located around the station. The commercial strategy previously examined, leads to a commercial route from the station to the river on one hand, and to the studios on the other hand.

All these factors lend themselves to making a town centre close to the station. The natural barrier created by the railway can be mitigated by placing civic and commercial uses either side of the railway and creating two squares, each with their own character, that connect across the railway creating the new Purfleet town centre.

The following pages look at existing examples of market and garden squares in the UK, in order to establish a suitable scale and character for the Purfleet Centre Regeneration.

The studies focus on five squares, on their dimensions and scales, their associated populations and figure ground arrangements. The five squares are:

- Two Market squares (Ludlow, Market Harborough).
- Two Green squares (Rye, Randolph Crescent in Edinburgh).
- One combined square - Market and Green (Market Harborough).

When these studies are transposed onto the developing masterplan, they begin to inform the character and layout of Purfleet Town Centre.

They start to give volumetric requirements to the brief elements generated through discussions with Thurrock Council and local residents, such as:

- A temporary market.
- Local conveniences.
- Creating a focal point.
- Community amenities.

Placing civic and commercial uses either side of the railway and creating two squares (the Market one and the Green), will be the new identity of Purfleet Town Centre. A testing exercise with past British Town references has been undertaken to find the appropriate scale.

3.8.2 Market Square Scale Comparison

Purfleet Civic Squares

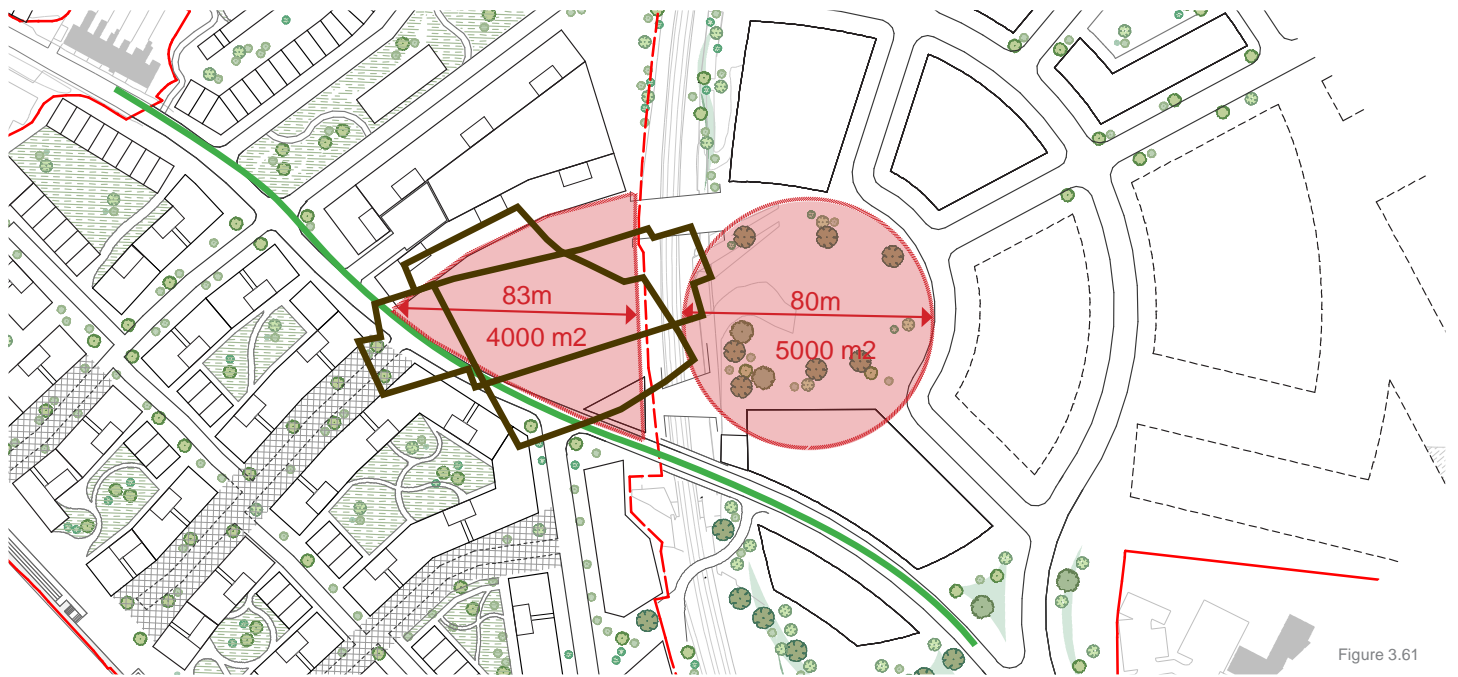
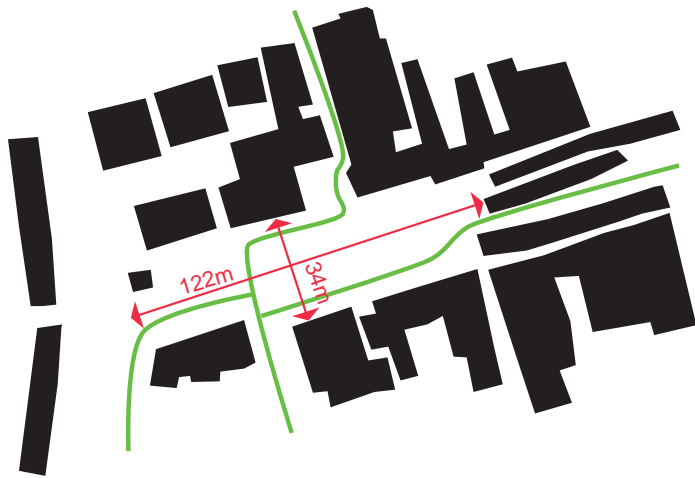


Figure 3.61



Ludlow (10300 inhabitants)
Market Square = around 4150m² (including roads)

Figure 3.62

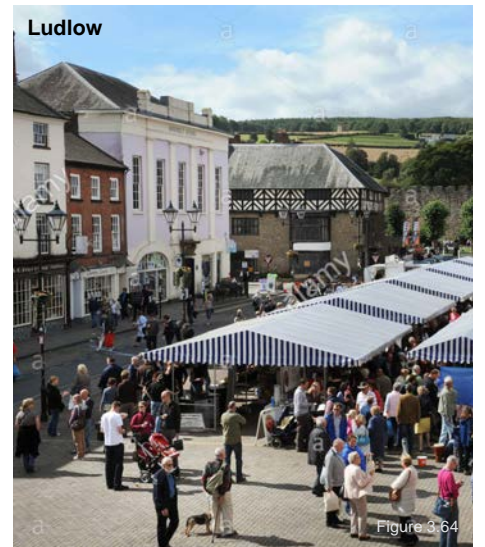
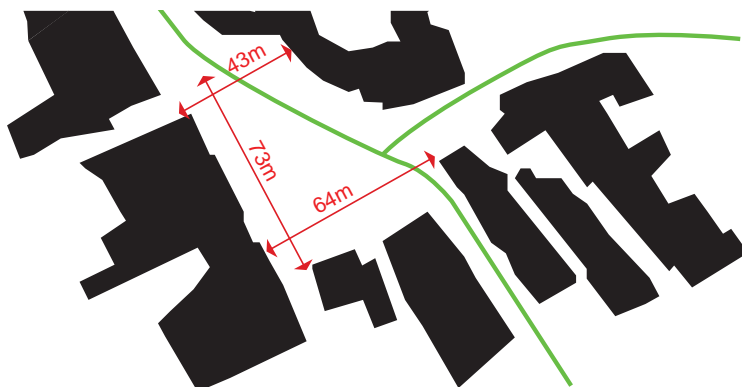


Figure 3.64



Market Harbough (23000 inhabitants)
Market Square = around 4600m² (including roads)

Figure 3.63

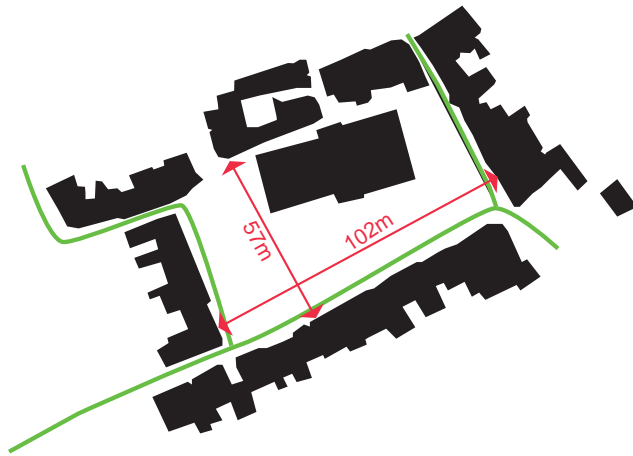
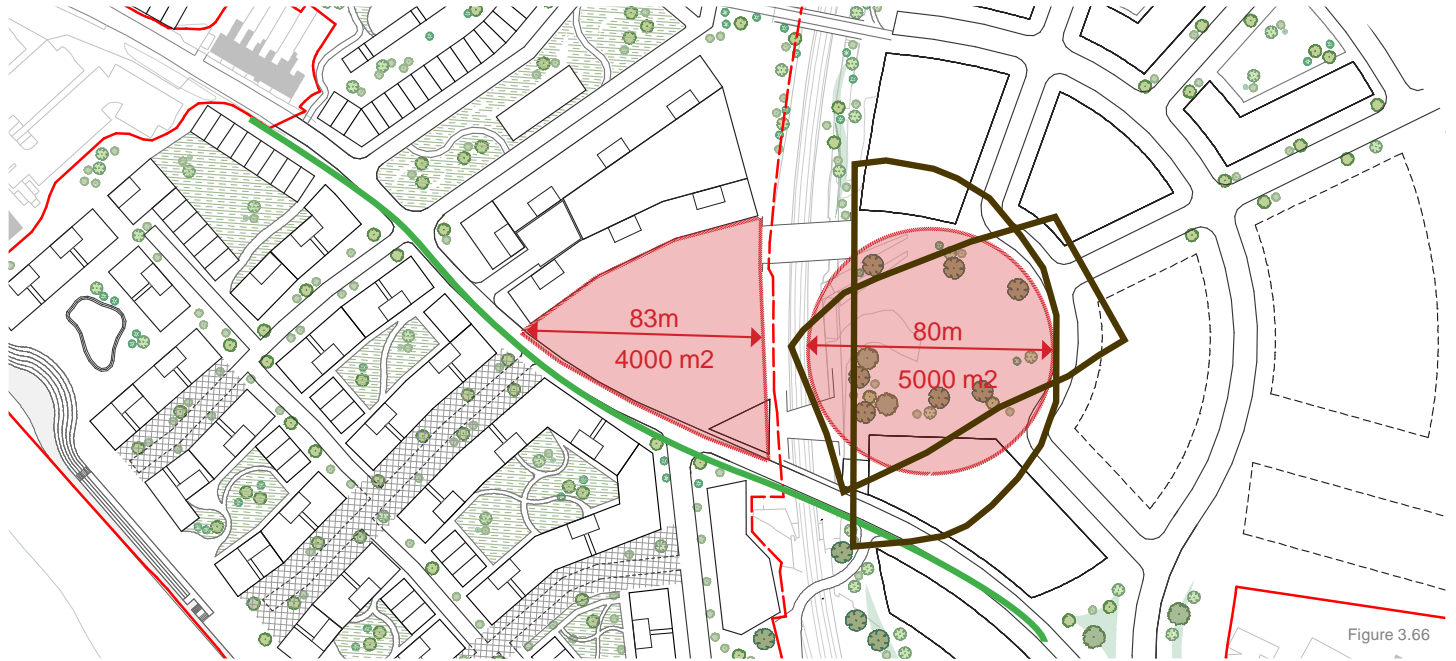


Figure 3.65

3.8 New Town Centre

3.8.3 Green Square Scale Comparison

Purfleet Civic Squares



Rye (9000 inhabitants)
Green Square = 5800m² (including Church)

Figure 3.67

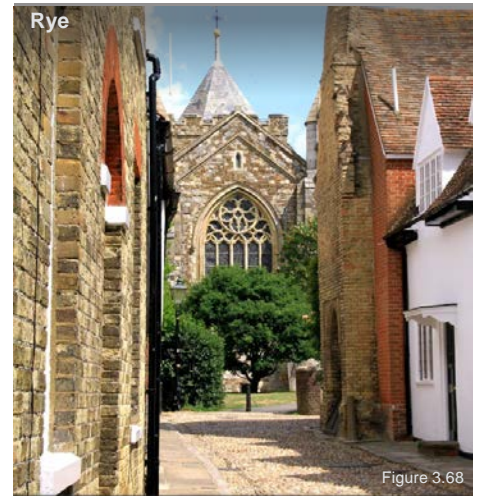
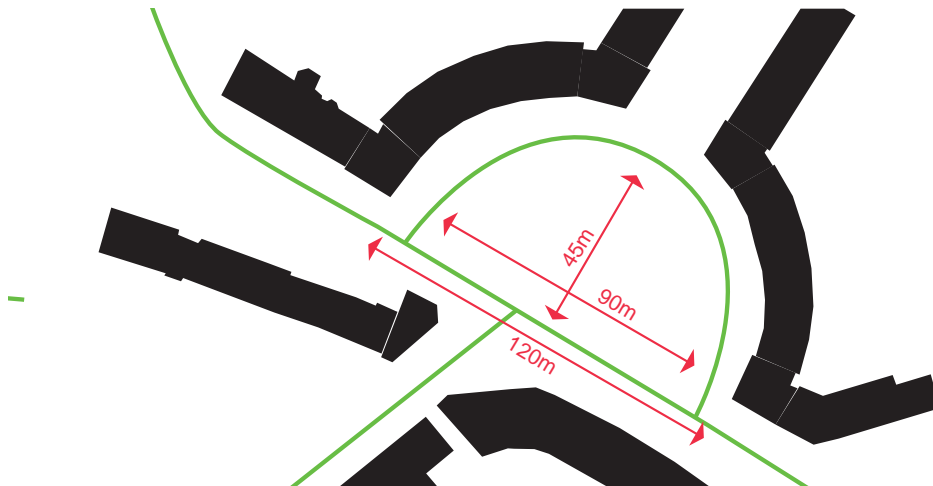


Figure 3.68



Randolph Crescent (Edinburgh)
Square = 5650m²

Figure 3.69

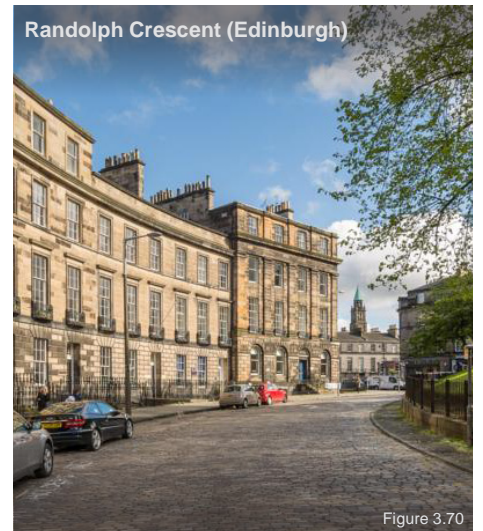


Figure 3.70

3.8.4 Combined Square Scale Comparison

Purfleet Civic Squares



Figure 3.71

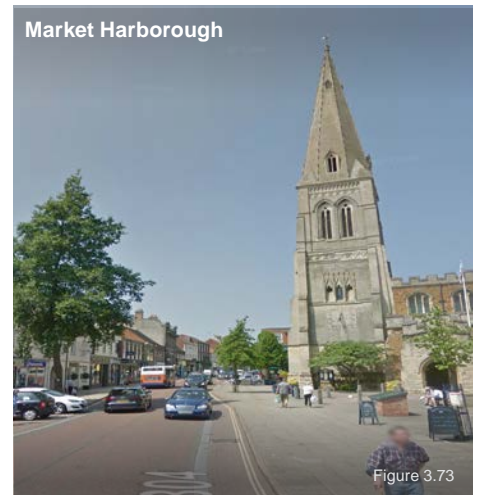
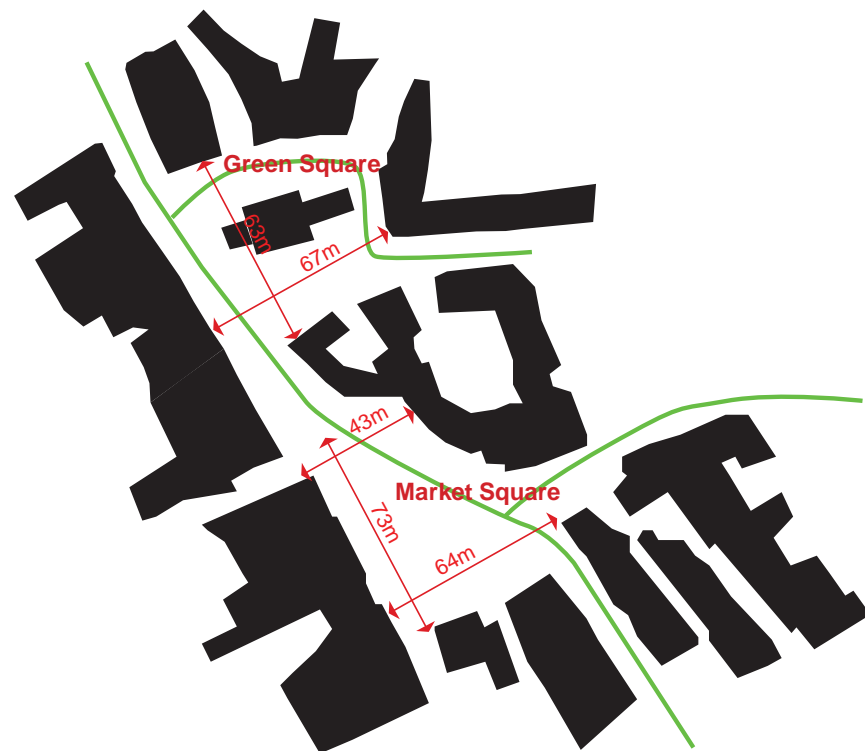


Figure 3.73



Figure 3.74

Market Harbour (23000 inhabitants)
 Market Square = around 4600m² (including roads)

Figure 3.72

3.9 Residential Density

Following the intensification principles presented earlier, a residential density exercise has been tested throughout the whole site.

The density exercise has been influenced by several factors or constraints such as the restriction caused by the HSE buffer zones radiating from the Esso Site, the need to provide one single large site for the film and TV studios and the ambitions described within the urban design principles.

The correct density of homes at each location within the plan is an important factor in creating the appropriate building blocks, building heights, streetscape and vitality. The massing and form of the buildings will vary in size and configuration to suit the brief requirements, the immediate constraints and topography.

To help define the appropriate residential density, a mapping exercise onto the site has been produced using a scale from 40 units/ha to 135 units/ha.

The diagrams nearby illustrate this mapping testing in a matrix which identifies:

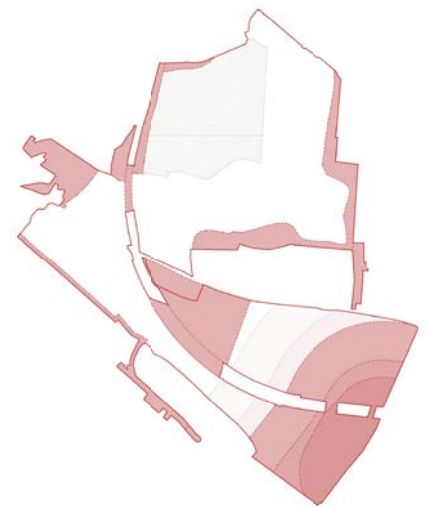
- The primary conceptual density options.
- The impact of “unbuildable” areas (school and studios lands, natural reserve areas, unaccessible cliff lands, HSE buffer zones) on them.
- The impact of studios location on them.

The matrix highlights at the bottom right corner, the preferred density solution (The riverfront multi-nodal density) that accommodates the following:

- Location of the film and TV studios in the south eastern corner of Botany Quarry, the secondary school along London road.
- Provision of a multi-nodal high density development on either side of the railway station, and along the riverside.
- Location of a low density development on the fringes, north of the Botany Quarry and along the edges of the blast zone.
- Provision of a radial density gradient between the various high density centres.

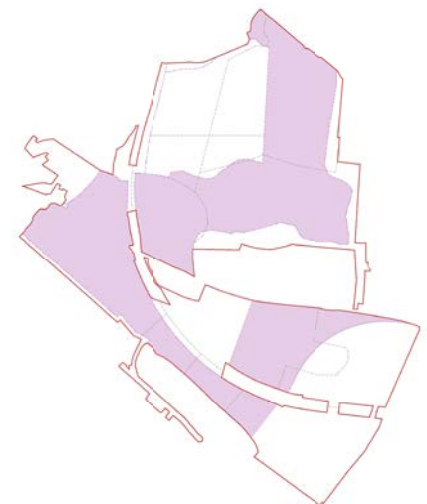
This preferred residential density option has then been used as a foundation for masterplanning the horizontal and vertical stratification of homes.

Concept Diagrams



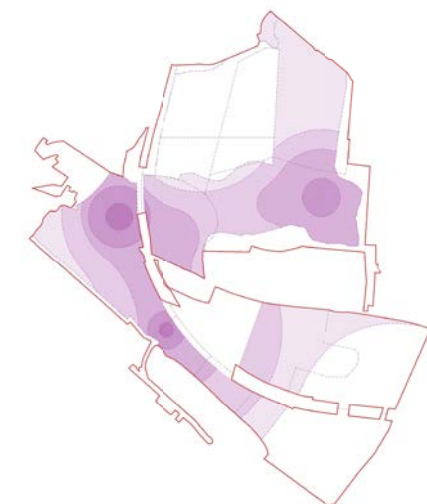
Unbuildable Areas

Impact of Unbuildable Areas

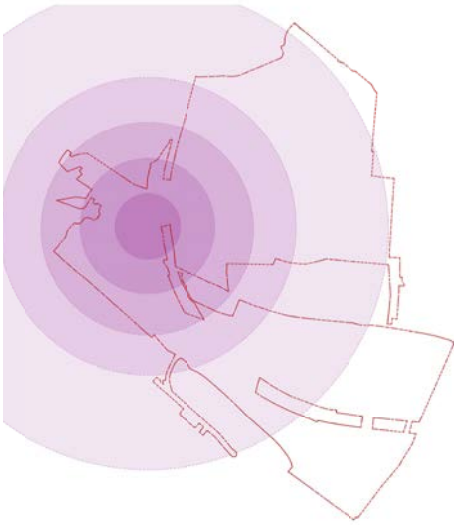


Even Density

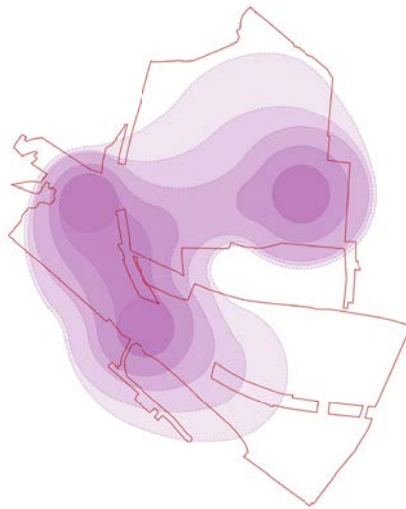
Impact of Studios Location



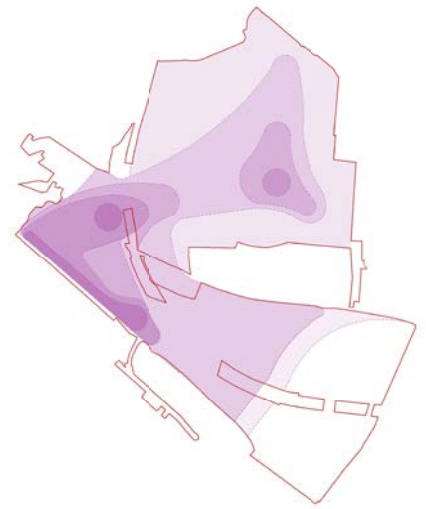
North Quarry Location



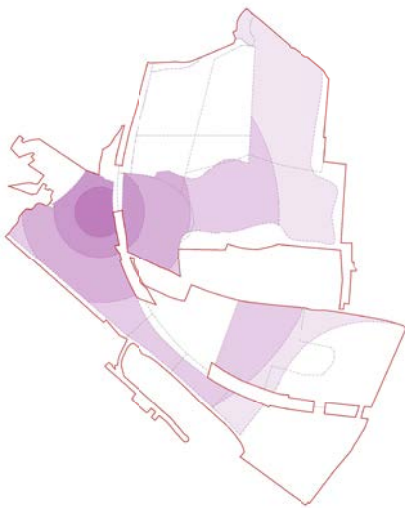
Concentric Density



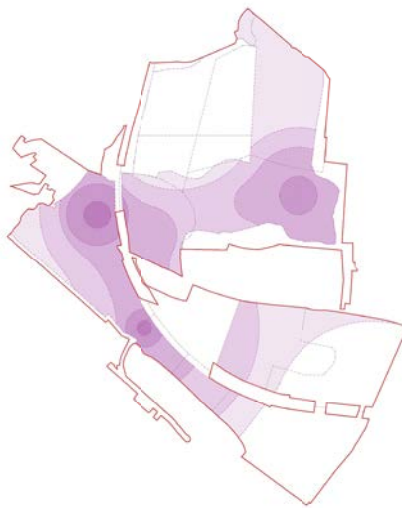
Multi-Nodal Density



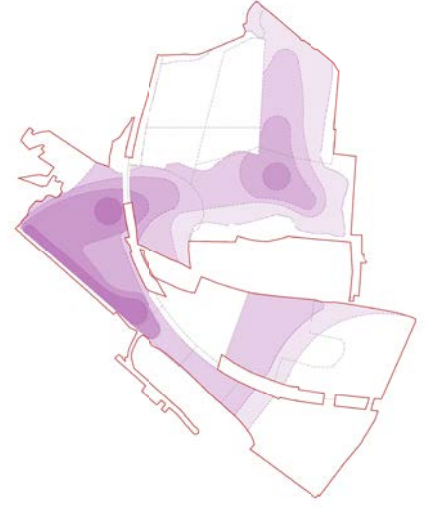
Riverfront Multi-Nodal Density



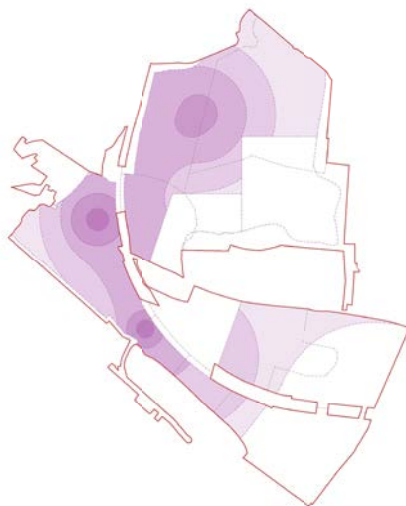
Constrained Concentric Density



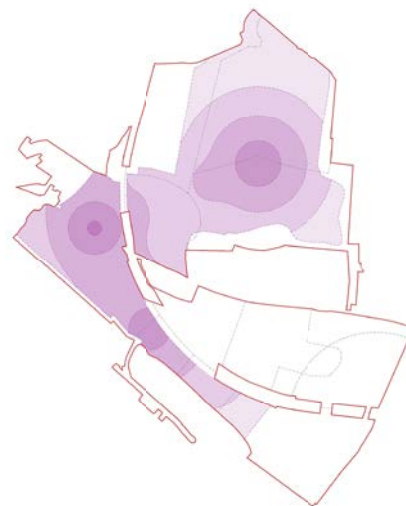
Constrained Multi-Nodal Density



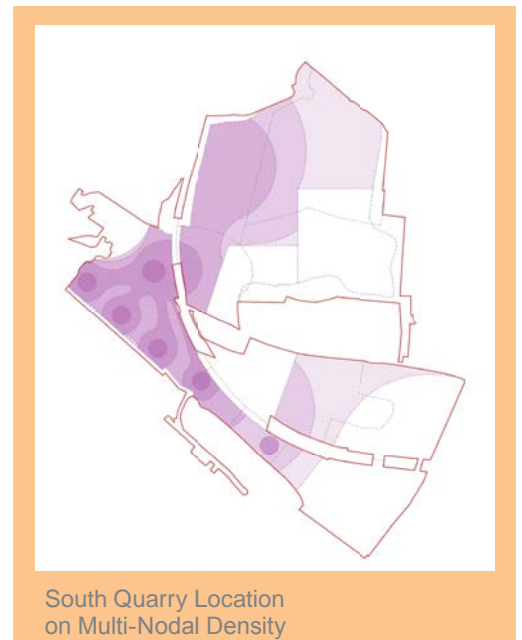
Constrained Riverfront Multi-Nodal Density



South Quarry Location



London road Location



South Quarry Location on Multi-Nodal Density

3.10 Studio Location

3.10.1 Studio Location Options

The film studios are a unique addition to the overall masterplan brief, and the masterplan has evolved and developed to accommodate them in the best way possible from all perspectives.

This creative use has the potential to be a large employer within Purfleet, it also has the potential to generate associated and support businesses, these would both be welcome additions to the area.

The size and content of the film studio brief raised many challenges and opportunities with its integration into the masterplan.

It is a large building type with a relatively introverted use pattern which effects the way it could interact with the public spaces in a residential setting.

Servicing buildings such as this without negatively affecting a pedestrian priority street environment or dominating road infrastructure with large vehicles would also need to be carefully considered.

Studio use, whether day to day production or special events would generate activity which could be leveraged to enliven and add vitality to the new town centre.

The brief, options and proposals have been discussed by the masterplan and studio client & design teams. The options described below capture the design discussions and resultant thought process.

The studios will undoubtedly raise the profile of the area and offer benefits such as jobs and vitality. The chosen location is one that will benefit the studio, the surrounding creative industries, the development as a whole and significantly the local community.

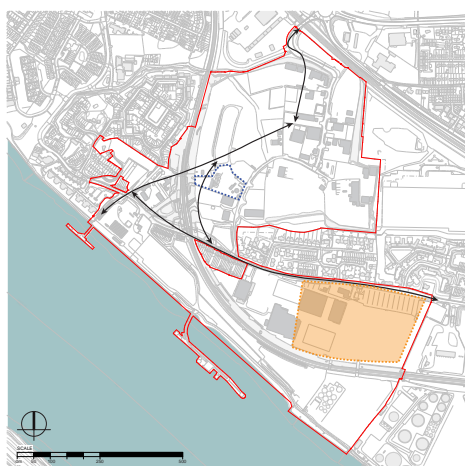


Figure 3.76

Option A - Southern site, adjacent to the railway

- Vehicular access; this location would require all vehicles to travel either through the new centre or from the East, neither route is desirable. It would overload London road.
- Transport access; the closest point to the new railway station is a minimum 5 mins walk, which is not ideal for public & staff access, or for activating the new centre.
- Physical constraints; the HSE consultation zones surrounding the Esso site may restrict use and affect insurances.
- Building mass; the large volumes and scale of the site would reduce permeability between London Road and the riverside, and influences the desired road crossing position at the end of the site.
- Public face; a public facing building would be welcome along this stretch of road.

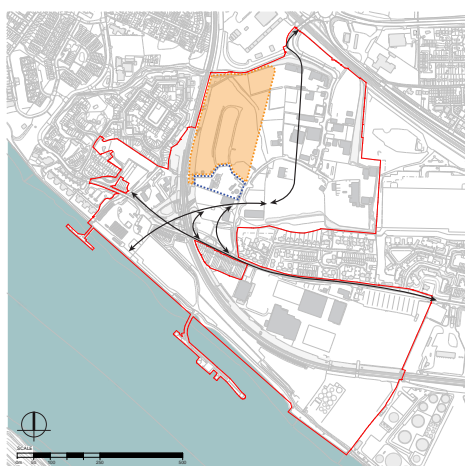


Figure 3.77

Option B - Quarry site

- Vehicular access; this location would enable vehicles to access the site from the north arterial road, which would keep the majority of vehicles away from the heart of the new centre.
- Transport access; it is a short walk to the new railway station, which is positive for public & staff access, and for activating the new centre.
- Physical constraints; the adjacency of the railway may give technical issues such as noise and vibration.
- Tenants site; a site constraint that restricts the placement of major access routes. In this location makes studio access difficult.
- Building mass; the large volume would reduce visual permeability between the quarry and the existing Caspian way residential area, although any physical links are already blocked by the railway line.
- Residential; the studio buildings may dominate any residential buildings in the quarry, however the studios in this location would provide acoustic from the railway protection for that residential area.
- Public face; the public frontage would be positively located near the new centre.

KEY

- Proposed Studio Location
- Access Routes
- Tenants Site

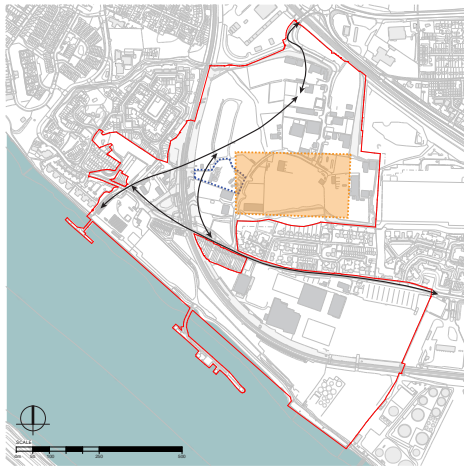


Figure 3.78

Option C - Quarry site

- Vehicular access; this location would enable vehicles to access the site from the north arterial road, which would keep the majority of vehicles away from the heart of the new centre.
- Transport access; it is a short walk to the new railway station, which is positive for public & staff access, and for activating the new centre.
- Physical constraints; the quarry cliffs will overshadow and giving low light levels at certain times, which would less suit many building types such as schools or housing, however the large introverted studio buildings are less likely to be affected by this, making them suitable from this perspective.
- Building mass; the large volume would be largely disguised by the topography and cliffs.
- Residential; the studio buildings are less likely to dominate any residential buildings in the quarry.
- Public face; the public frontage would be positively located near the new centre.

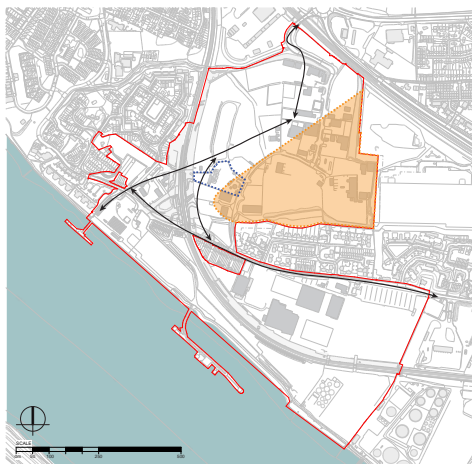


Figure 3.79

Option D - Quarry Site

The pros and cons are similar to those described above, however there are a couple of important differences, which include:

- Public face; the public frontage of the television studio would be part of the new centre, and potentially forming the edge to a central square.
- Vehicular access; this location would enable vehicles to access the site very close to the northern boundary, which would keep a large proportion of studio traffic completely away from the residential areas.
- Transport access; it is adjacent to the new railway station, which is positive for public & staff access, and particularly positive on occasions when large numbers of the public visit the studios.
- Many elements of the film studios including the back lot are by necessity more private in nature. The existing quarry walls provide a good degree of seclusion for these activities.

Studio location summary

Option D was best felt to resolve the brief requirements for the studio site, and simultaneously best resolve constraints within the masterplan site whilst offering benefits to both.

This site provides the preferred means of keeping studio traffic away from the centre and residential area, which is beneficial for the vitality of shops and businesses, and for the safety and well being of the residents.

The proximity of the public transport to the public face of the site is the best of the options reviewed.

One important design driver for the masterplan is to reduce the use and dependence of cars in favour of walking, cycling and public transport. This option best provides for the promotion of modal shift.

The immediate connection between the new public square and the studio site means that the new centre and the studios can share and benefit from the activity they both generate. The public areas and associated shops, restaurants and cafes will be better frequented enlivening the public realm.

Visually the large studio buildings can be located discretely, and their mass is less likely to dominate the residential areas.

3.10 Studio Location

3.10.2 Studio Relationship to Town Centre

A major economic aspect to the regeneration of Purfleet is the creation of commercial opportunities in conjunction with the residential community. With creative industries already present, located in the High House Production Park, enhancing this presence within Purfleet is a natural extension to the existing successful industries. The provision of increasing creative industries presence within Purfleet is strategically driven through provision of a dedicated development zone for the creation of a new film and TV studios, and the provision of commercial units for supporting creative industries for example post production. With the introduction of the TV and film studios it is likely to increase local supporting industry, not only in post-production but in building trades and similar as the supply of materials and provision of labour to service workshops.

Location of existing creative industry: High House Production Park



Figure 3.80

Location of TV and film studios within the south east area of the quarry

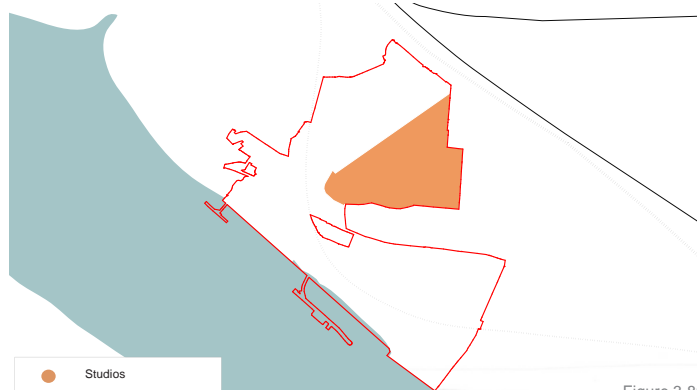


Figure 3.81

The positioning of the studios enables ease of access from the Arterial Road A1090, without the intrusion of servicing traffic being pulled in through the residential development.

The natural topography provides seclusion and privacy to enable the commercial activities of the studios to be undertaken in a highly secure environment.

The TV studio aspect is public facing. It is where the studios interact with the public in the forms of daily audience attendances to the multiple sound stages. Depending on the production these audiences will vary from circa 150 to 1,000 attendees, with filming sessions occurring potentially twice daily. It is considered that the larger audience attendances will be less frequent, possibly biannually.

The TV studios are considered an important part of the overall place making with the town centre. It is part of the key commercial drivers for the regeneration and it is one of the higher visitor trip generators.

It is anticipated that the TV studios as part of their promotions and events will utilise the civic squares for activities, adding to the activation of the town centre. It is also anticipated that the TV studio will require an area to manage queuing to the foreground of the building.

In combination with the trip generators and the civic square activation it is important that the TV studios is sited with a principle façade connecting to the town centre. There is a requirement for a panoramic TV studio with a suitable back drop creating the opportunity for a symbiotic relationship between this key economic driver and the new town centre.

The transportation plan will promote the use of the railway for audience attendances as this will promote longer dwell times for the audiences and secondary spending within the town centre and support the food and beverage offers locally. With the promotion of this mode of transport, the studios need to be clearly orientated from the railways station, further reinforcing the provision of the TV studios building within the town centre and located visibly within the civic squares.

The relationship of the studios to the town centre and riverfront has been considered for both studio employees as well as visitors and studio audiences. It is estimated that there will be circa 1000-2000 new jobs created by the TV and film studios. Locating facilities where the employees will be able to gain access to lunchtime activities with the enhanced riverfront was also significant. Their use of these facilities into the evening and weekends will drive the transformation of Purfleet from local centre to riverside destination.

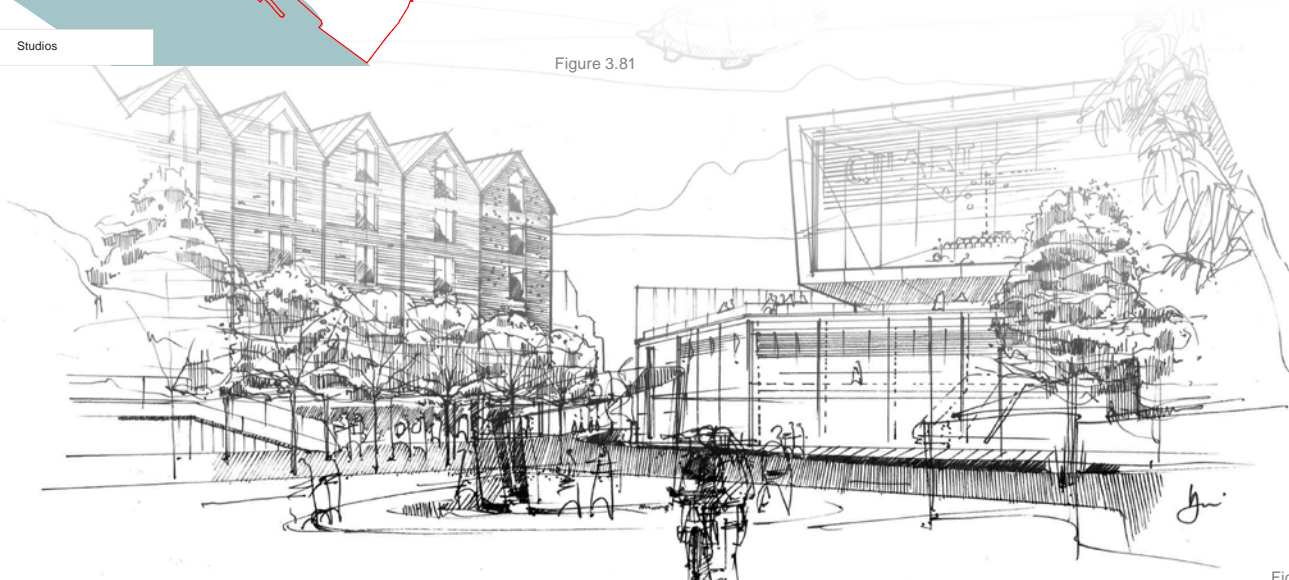
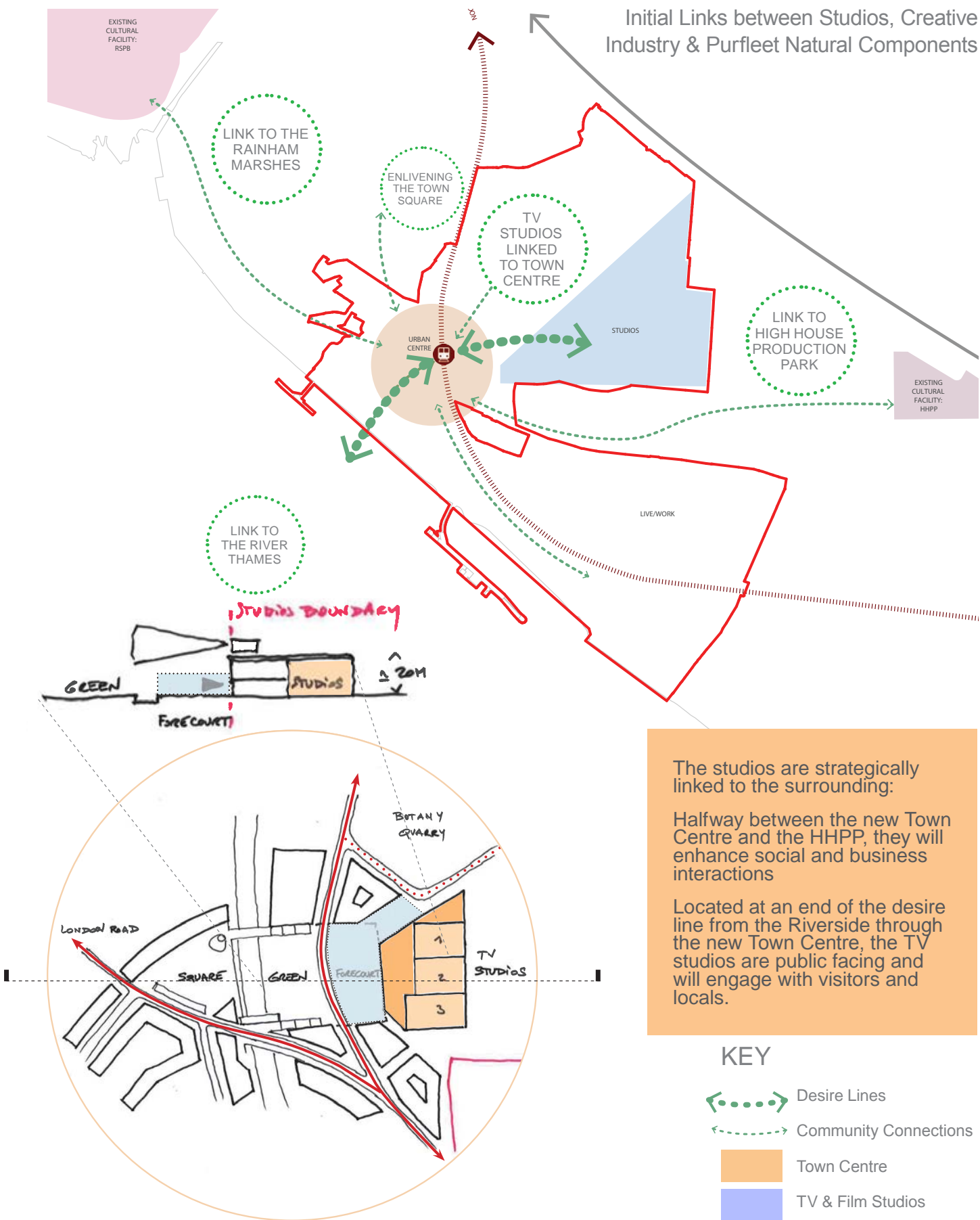


Figure 3.82

Studio Relationship to Town Centre



Initial Link between TV studios & Town Centre

Figure 3.83

3.11 Secondary School Location

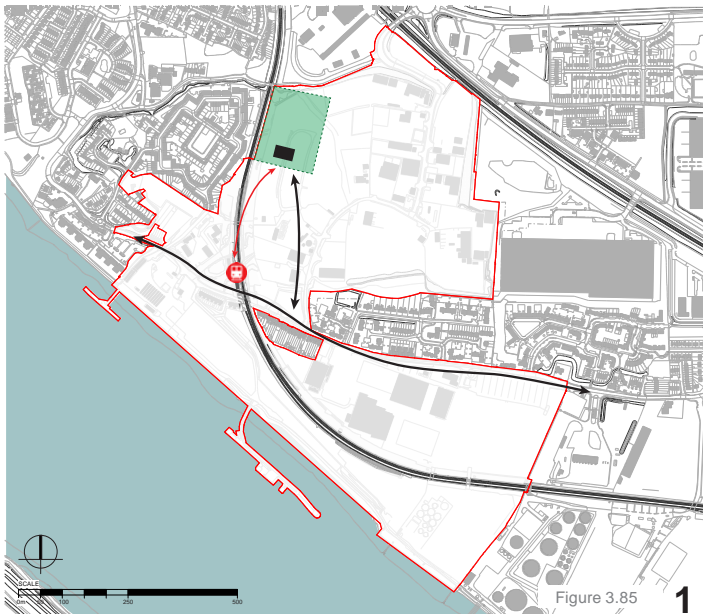


Figure 3.85

1

The Purfleet masterplan is to be inclusive, and the school is one of many different and overlapping elements which are to be used to bind together the existing, new and surrounding communities. The choice of location for the secondary school needed to accommodate many different aspects: travel, the availability of convenient public transport. Safe, appropriate footpaths and cycle paths would be a benefit, as would a good road network for staff vehicles. The existing level crossing is a short term concern, however the new bridge proposal will resolve this matter in the short to mid-term. The programme for the school could be very rapid, so the place chosen needed to be free from complex legal boundary or ownership issues. It also needed to be free from complex new infrastructure or buildings such as the bridge, station and town centre. If the school site was independent in this respect it would enable the school to be constructed early within the masterplan timeline. The school can then begin to function as an important part of the Purfleet community; indicate and symbolise early success for the masterplan.

The comments associated with the options that were reviewed, are as follows:

- 1 The Northern site. If the school were located in the quarry its site combined with the TV studios site would form a significant part of the quarry area. There were reasonable concerns that the remaining land and its configuration would be a difficult place to create a successful and integrated residential community.
- 2 The Centrally located quarry site. The location is very convenient for public transport, and providing a school at the heart of the community is positive. There are possible overlooking issues from the residential properties at the top of the quarry cliffs which also have the potential to overshadow. The site is likely to be contaminated, and as discussed earlier, is better suited to the studio location.
As this location for the secondary school was explored, the opportunity to locate the primary school on an adjacent site further into the quarry to create an all-through school was reviewed. This solution was not developed further as the preferred school operator did not want a all-through school. In addition the funding for both schools was via different bodies, i.e. EFA and Thurrock Council, which would have complicated the delivery of both schools within the required programme.
- 3 The Eastern site on London Road. This site is likely to best suit the programme and phasing of the development. Due to its proximity to existing residential areas, this location could provide the early symbol of change that the regeneration of Purfleet would benefit from. In addition the site is reasonably flat which would suit the external requirements of the secondary school.

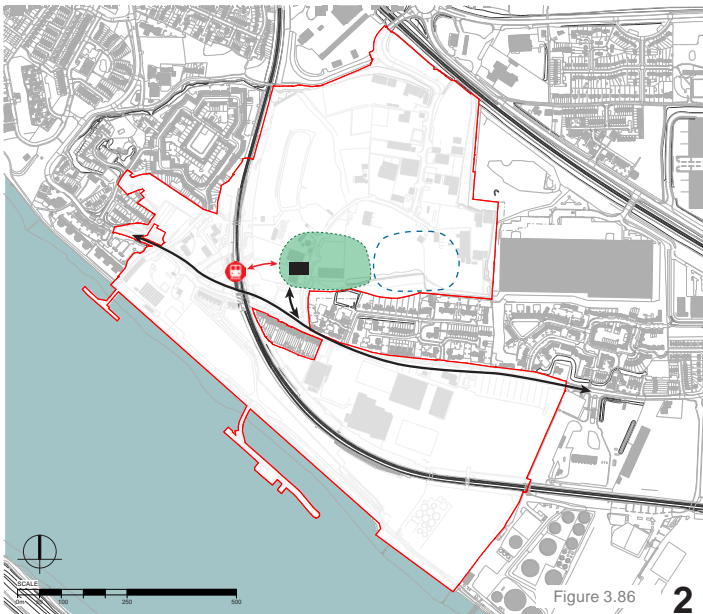


Figure 3.86

2

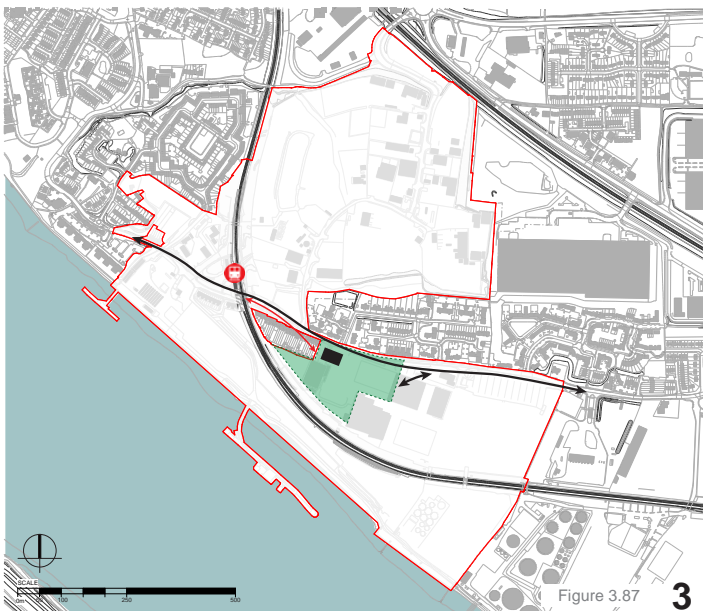


Figure 3.87

3

Whilst developing the masterplan proposals set out in this Design and Access Statement, once land-use and development zones had been decided in principle, an application for a Secondary School within the site boundary was brought forward. This proposal has successfully gained planning permission, subject to conditions. This application is in line with the principles of development for the Purfleet Centre Regeneration Scheme set out in this wider masterplan.

3.12 Primary School Location

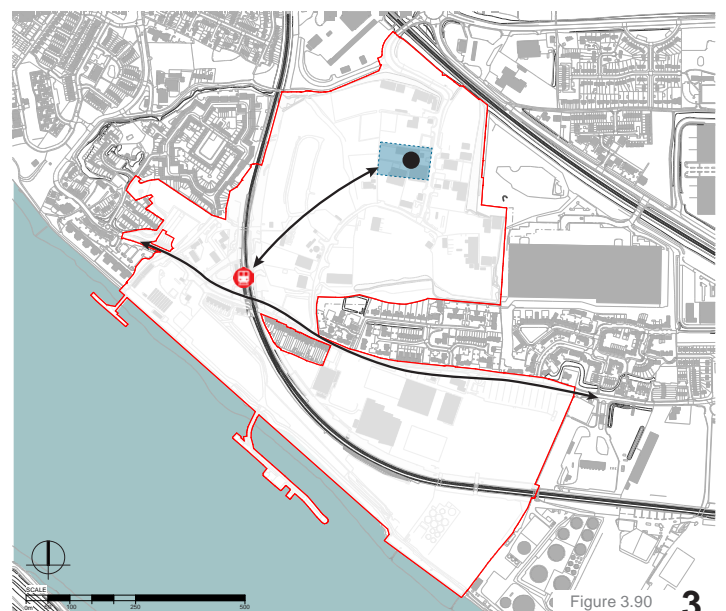
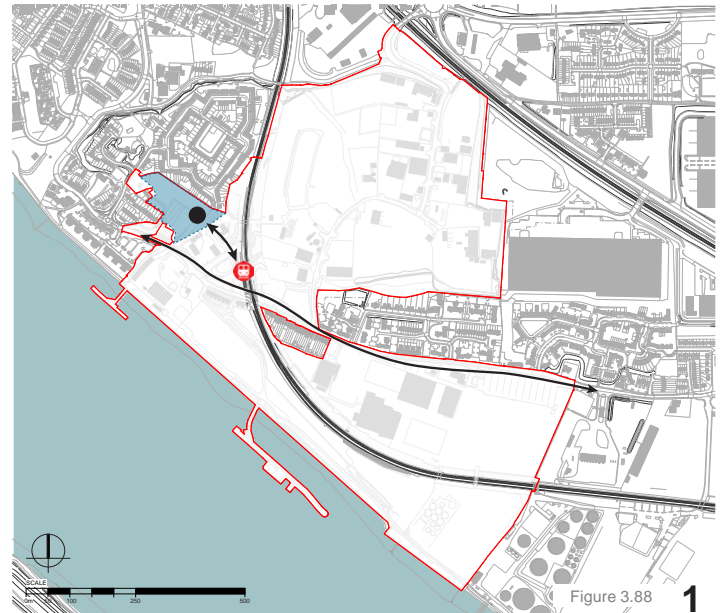
As with the secondary school, the primary school is an integral part of the scheme, with new school provision required both to serve the new residents of Purfleet and to help to bind together the existing and new communities.

In the location of the primary school, the aspect of travel and providing safe footpaths becomes even more vital due to the much smaller catchment areas.

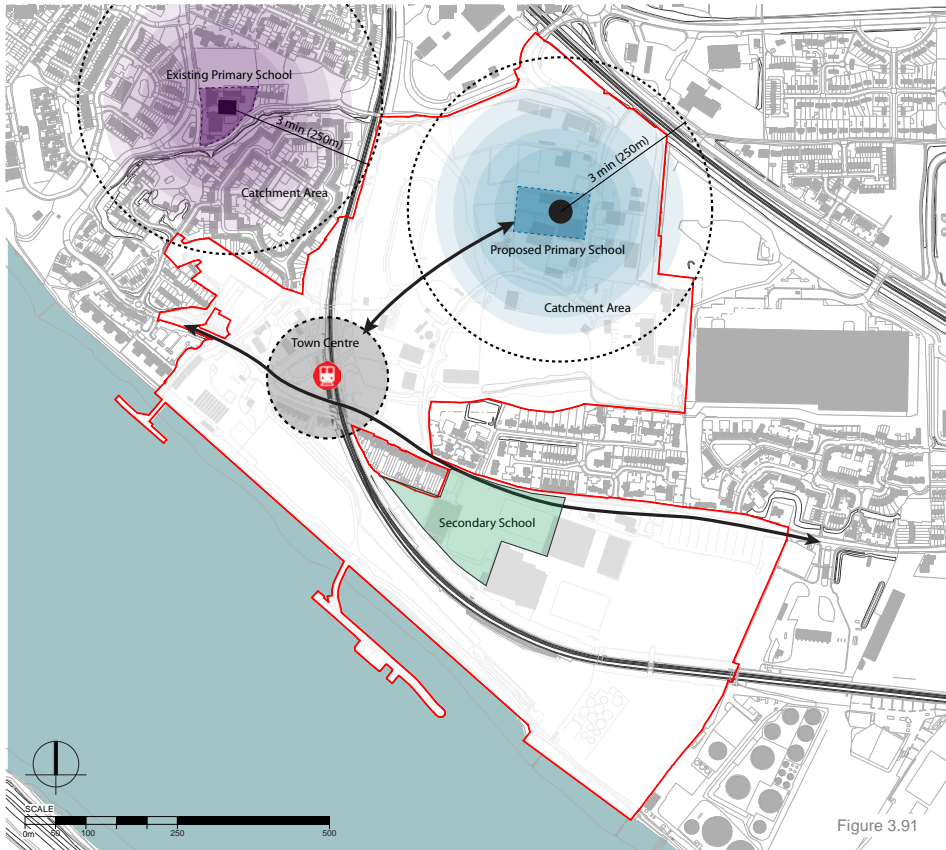
It is recognised that the need to provide education services within Purfleet will develop alongside the delivery programme of the masterplan, all needs will be met throughout the delivery and development of the Purfleet masterplan.

The comments associated with the options reviewed, are as followed:

- 1 The Western site. The concept behind the location of the site within Hollow Woods is to have the school set within the picturesque setting of the woodlands. These would also be able to accommodate the additional external school features and incorporate this efficiently within the existing topography of the area. The proposed location would also benefit from the close links to the railway station as well as being able to cater for the existing community on the edge of the site.
- 2 The Centrally located site. This site allows for convenient access to the main railway station in Purfleet. The location also allows the school to be able to sit at the centre of the new masterplan and therefore the new community. This said however, as mentioned before with the secondary school option, due to the fact that it is located within the quarry there are potential overlooking issues from residential properties located on the cliff.
- 3 The Northern site. Out of the three locations, this particular option has the drawback of being the furthest away from the railway station. That said however, the site is situated within close proximity to where a large residential area is proposed in the masterplan and hence could potentially serve the new communities being formed.



3.13 Schools Relationship to Context



The location of the primary school in this area, allows for convenient access to the Town Centre and therefore to the railway station, by various means of transport (bus, car, cycle and foot).

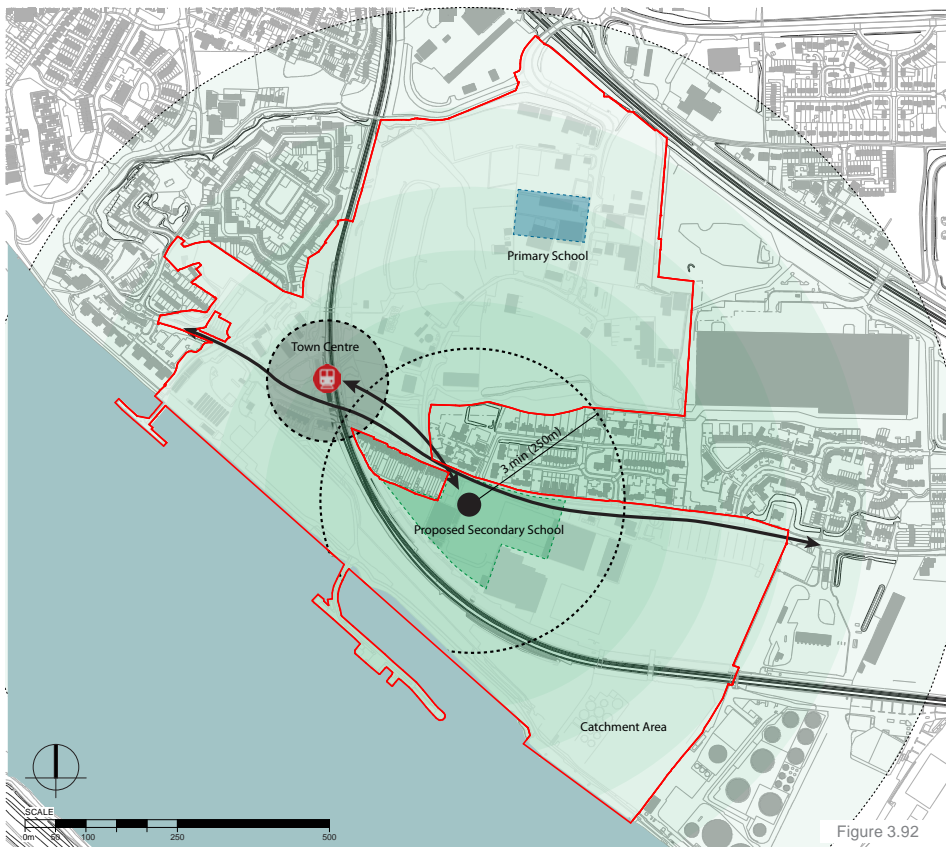
The other implication of situating the school here is that the catchment area of the existing and proposed primary schools do not overlap. The 3 min. walk catchment areas are solely indicative, but they show the integration of the primary schools within their community.

There is also the potential link to be formed between these two primary schools with the proposed secondary school in the vicinity.

KEY

- Existing Primary School Catchment
- Proposed Primary School Catchment
- Proposed Secondary School
- Town Centre

Primary School Relationship to Context



Being placed along London Road allows the secondary school to activate and enliven this particular route, between the new Town Centre and the existing residential areas on the eastern side.

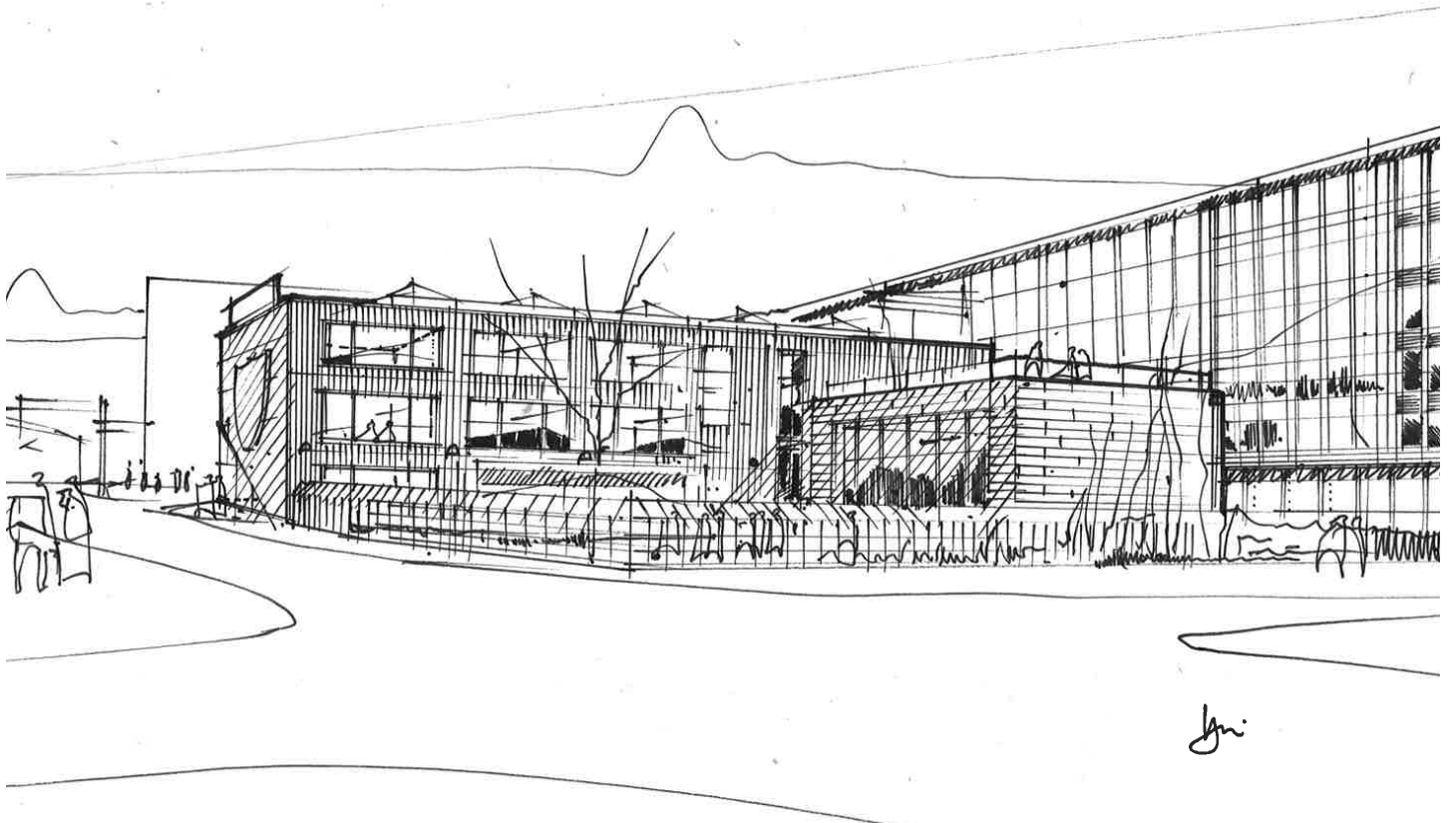
This location also results in being in close transport links with the railway station, the bus routes and with areas outside of the masterplan. It allows easy car movement for parents and staff willing to park their vehicle on the school ground.

The catchment area of the secondary school aims to envelop the entire masterplan and therefore to be able to serve the new community created.

KEY

- Secondary School Catchment
- Proposed Primary School
- Town Centre

Secondary School Relationship to Context



Sketch illustration of a potential education facility

Figure 3.93

3.14 Active Design

Sport England

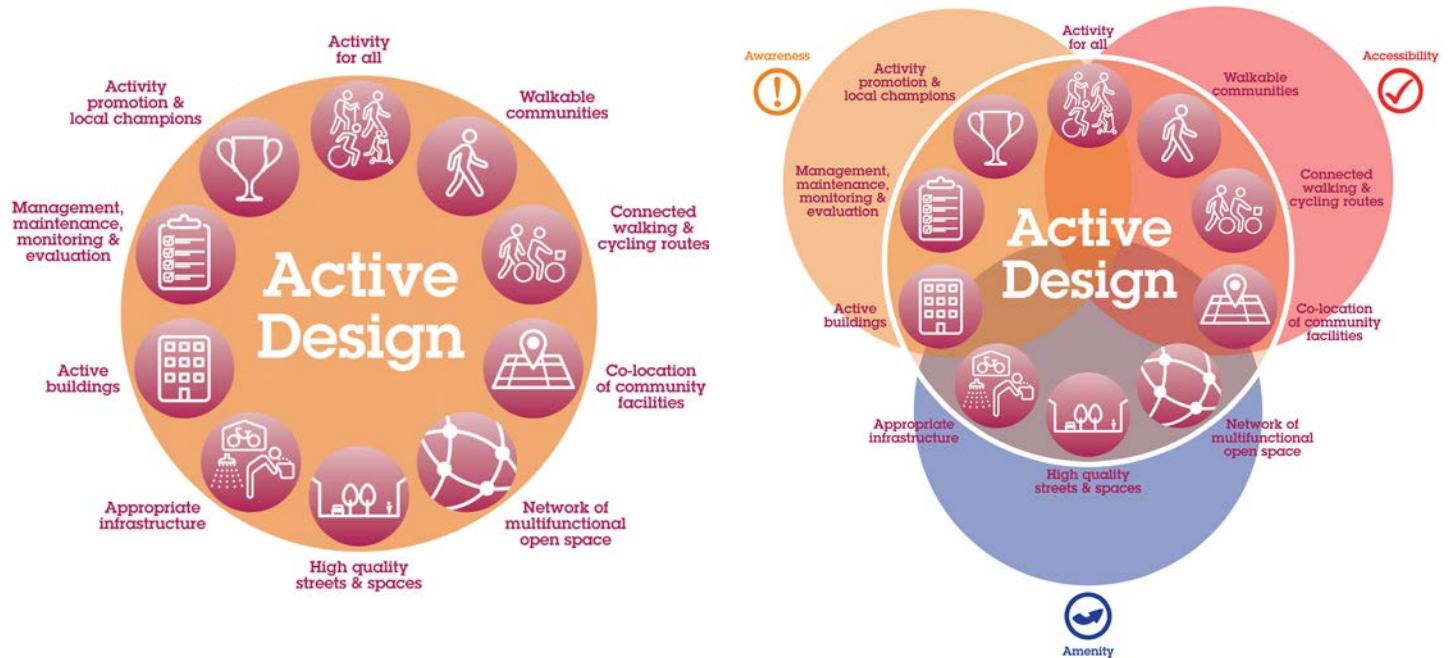
Sport England's current guidance – “Active Design’ takes a fresh look at the opportunities to encourage and promote sport and physical activity through the design and layout of our built environment to support a step change towards healthier and more active lifestyles.”

The primary objective of these guidelines is to promote sustainable communities and is set out in the 10 principals of Active Design.

These are:

1. Active for all.
2. Walkable communities.
3. Connected walking & cycling routes.
4. Co-location of community facilities.
5. Network of multifunctional open space.
6. High quality streets and spaces.
7. Appropriate Infrastructure.
8. Active buildings.
9. Management, maintenance, monitoring & evaluation.
10. Activity promotion & local champions.

The Ten Principles of Active Design:



Achieving as many of the Ten Principles of Active Design as possible where relevant, will optimise opportunities for active and healthy lifestyles

The masterplan has been designed to ensure that the residents and community are encouraged to be active and aims to promote a step change in philosophy for the area by enabling general facilities (shops, schools etc.) to be accessible by foot.

This will in turn promote the use of the greatly enhanced movement infrastructure that will be created with the introduction of better footways and cycle routes that create circular links. This will include the 'Riverwalk' as a general amenity for the development with the potential to link to the adjacent areas in particular the RSPB Nature Reserve at Rainham Marshes, and will provide a much needed destination and informal activity space.

The creation of healthy places, which promote and enable participation in sport and physical activity, requires the collaborative input of many different partners through many disciplines including planning, design, transport and health, along with developers working with local communities which has been actively encouraged and engaged with as part of the consultation process for the Purfleet Regeneration.

The principals of 'Active Design' and the promotion of a healthy community support the guidance set out in the National Planning Policy Framework and the advice in the supporting Planning Practice Guidance. (ref p.8 of Active Design).

The regeneration of Purfleet seeks to embody the principals of Active Design and looks at the redevelopment of the area holistically to facilitate the creation of an environment that make the active choice the easy and attractive choice for people and communities.

Key facts:

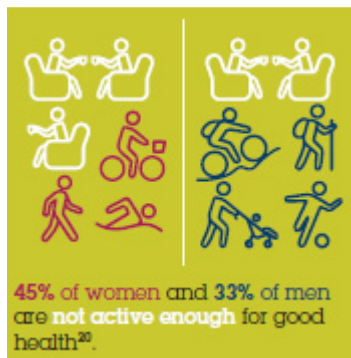


Figure 3.95

Co-location of facilities encourages activity and community interactive.

Provide multifunctional external spaces encourages activity.

Cycling and walking infrastructure.



Figure 3.96

3.15 Wider Network of Green Infrastructure

The creation of a substantial and connected green infrastructure (GI) that links into the wider context will create a rich ecological and robust backdrop to new development.

The proposed GI strategy relinks a robust north-south green connection along the vegetated edges of the railway, and also creates a strong east-west connection along London Road.

New GI corridors are to be used both for the establishment of a variety of ecological and conservation initiatives including bird breeding, establishment of rare species, planting of a diverse range of plants, and the creation of ecological communities.

Green avenues along selected streets create vital links between larger GI offerings. The potential to increase biodiversity, create habitat, and develop a range of ecologies on site is extensive. The development will seek to create refuges for nesting birds, feeding and shelter for a range of both native and migrant birds, as well as providing a diverse range of habitats for invertebrates and mammals to establish a range of plant and animal communities.

The masterplan seeks to establish a range of local habitats which relate to both the low-lying intertidal location and the riparian influence of the River Thames. This includes potential meantime uses such as wild flower meadows whilst the site is developed though its various phases, which promotes the 'step-change' in perceptions of the site over time. Wildflower meadows could also assist in bioremediation of the site.

Pedestrian and cycle routes link from within the site boundary to the open space network beyond. These include;

- Linking into National Cycle Route 13, creating a continuous accessible cycle path along the edge of the Thames, which in its entirety will connect all the way to London Bridge.
- Providing a new north-south cycle link alongside the railway.
- Establishing a traffic free cycle connection from Purfleet Railway Station north to connect into new and existing residential areas and make a connection with the traffic free cycle route along Tank Lane.
- Integrating a new-shared cycle/pedestrian route from Purfleet Railway Station, along the northern edge of London Road towards the East to connect to High House and residential areas and to the south to link to The Thames.

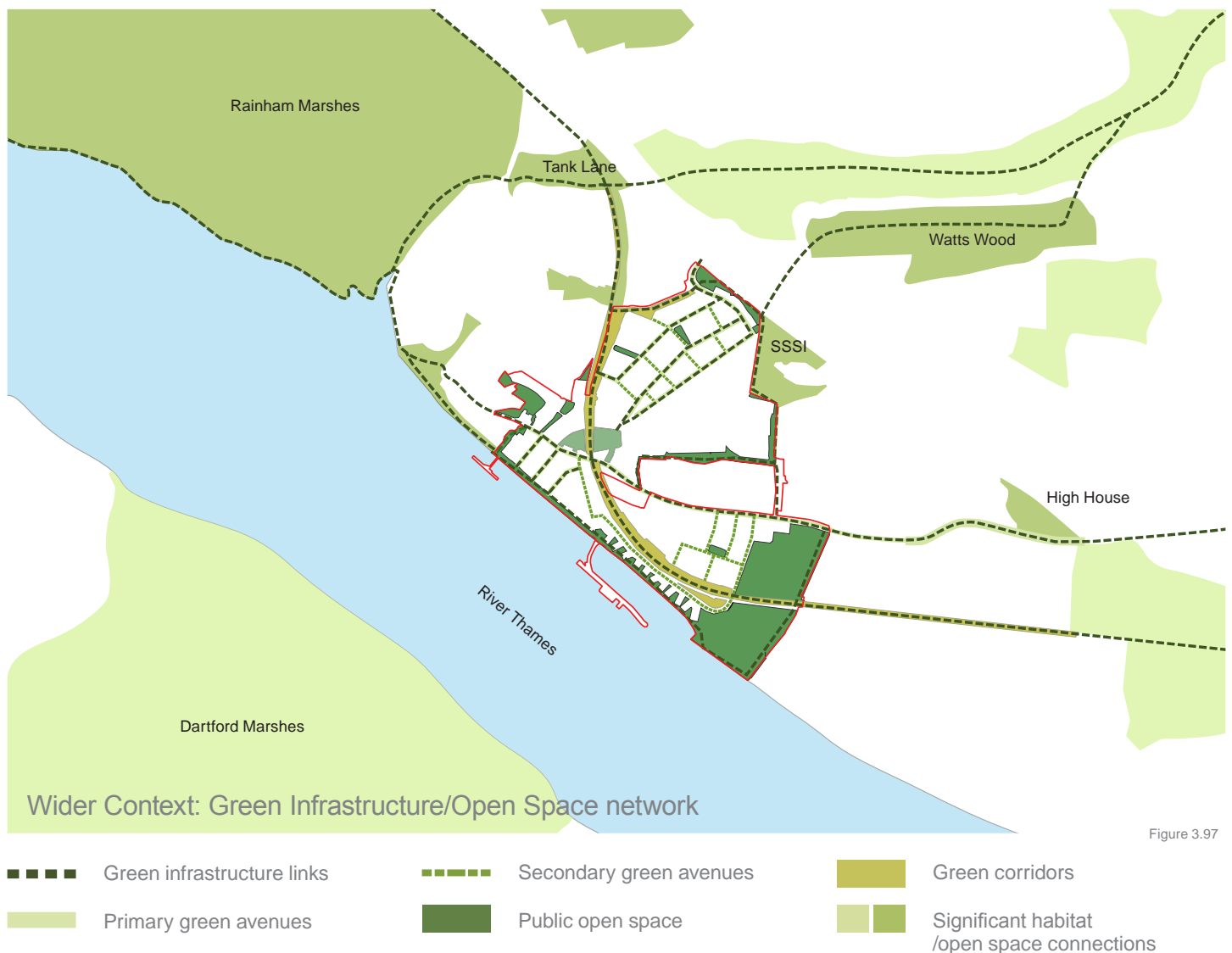


Figure 3.97

3.16 Ecological Mitigation

3.16.1 Background studies

There is an opportunity for a strong ecological focus at Purfleet. The site is advantageously positioned within regional ecological networks, including Buglife B-lines and the Greater Thames Marshes, and is able to provide a key connective stepping stone between neighbouring habitat areas including the Rainham Marshes Reserve, Tank Lane LoWS, Watt's Wood LoWS, and Mar Dyke LoWS.

In order to create a valuable link into wider ecological context around the town, Purfleet Centre Regeneration aims to deliver a net-gain in biodiversity within the site.

The proposed ecological framework looks to both exceed mitigation requirements associated with impacts on in situ habitat, while creating a diverse array of high quality, dedicated, managed habitats on site. This framework builds a strong ecological story for the site and brings a unique, unprecedented opportunity to integrate a combination of varied habitat features on a large scale.

Ecological surveys of the site have identified three existing valuable habitat types; open mosaic habitat on previously developed land; lowland mixed deciduous woodland; and lowland meadows/calcareous grassland.

The ecological strategy for Purfleet considers where to retain and enhance existing, as well as create new valuable areas of dedicated habitat, in order to establish an integrated network of ecological habitat that works in support of the vision of the overall Masterplan. The proposal looks to allocate areas for dedicated habitat provision, while integrating habitat and features into public open space and streetscapes throughout the development. Different approaches and locations for habitat provision have been considered in consultation with Buglife and RSPB, looking at factors such as location of existing habitat, creation of internal and beyond-site connections, land value and best use.

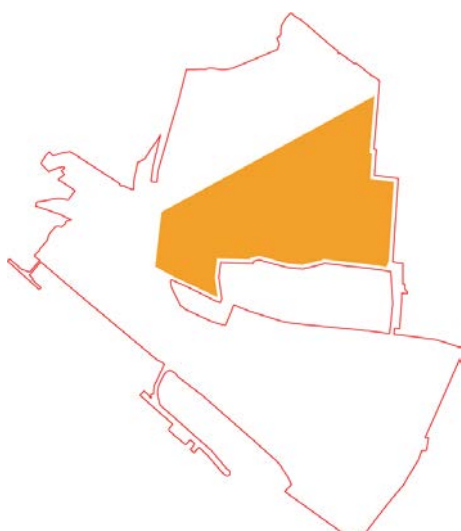


Figure 3.99

Approach 2: Site centre/Quarry site habitat provision

- Importance of cliffs: Opportunity to protect and strengthen the quarry cliff face with vegetation.
- Connective potential: Link to Purfleet Pit LoWS.
- Integration with film studios: The only possible area of (retained) habitat provision is around the cliff faces and top of cliffs, due to the site use associated with the film studios.
- This approach is not preferred due to disturbance and land uses associated with film studios, and a subsequent insufficient area for habitat provision.

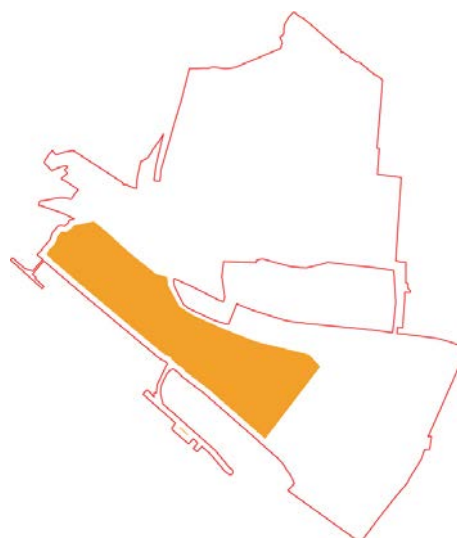


Figure 3.98

Approach 1: Riverfront habitat provision

- Connective potential: This location would provide a key linear habitat on the north edge of the Thames.
- Existing habitat retained: The existing area of open mosaic habitat identified as being of the highest quality on site is on the riverside plot, south of the rail corridor.
- Integration with riverfront residential use: The potential for the site to offer high-end residential blocks along the riverfront is acknowledged.
- This approach conflicts with the key project vision of Purfleet Centre Regeneration as a riverside development, with an active, liveable river frontage.

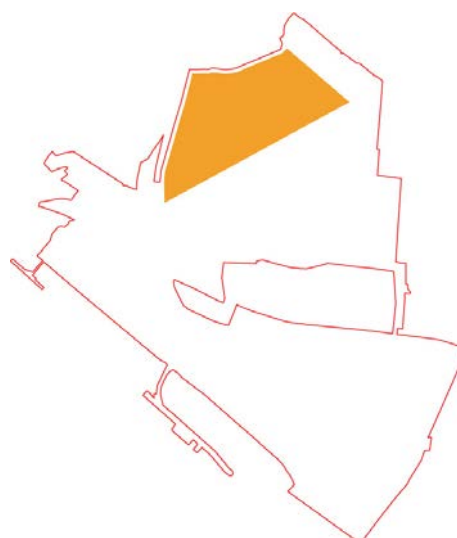


Figure 3.100

Approach 3: Botany Way habitat provision

- Connective potential: Link to Tank Lane LoWS, Purfleet Pit LoWS and rail corridor vegetation.
- Existing habitat retained: This option looks to retain and enhance existing mixed deciduous woodland along the rail corridor, and large existing areas of bare earth would be well suited to creation of open mosaic habitat.
- This area is an appropriate option for habitat, however in masterplan terms it is also highly suitable to a residential use (well-connected, proximity to studios/centre).

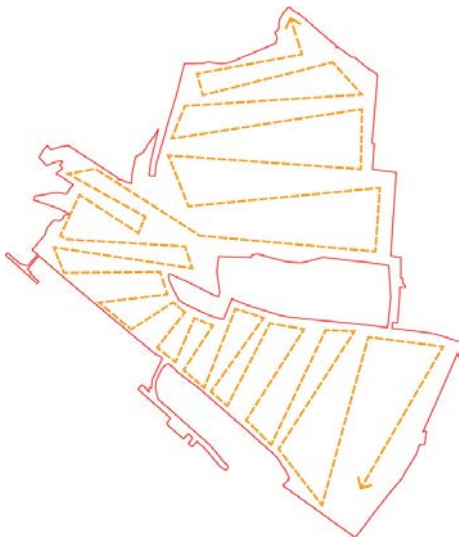


Figure 3.101

Approach 4: Brown roofs focus

- **Connective potential:** provision of brown roofs wherever feasible across the site would provide strong aerial connectivity.
- **More land available at ground level:** Mitigating the loss of existing habitat through brown roof provisions would free-up land for alternative uses across the site.
- **Establishment and maintenance:** Brown roofs have a higher initial cost than installing a regular roof, and can have some associated ongoing maintenance cost.
- **Inaccessibility:** There is some concern that a brown roof oriented system would not be easily accessible by some habitat seeking species.
- **Building ownership:** needs to be considered.
- **Building profile and use:** Brown roof provision will restrict the options for building typologies, and require a degree of engineering (e.g. Film Studio buildings).
- **Relying completely on the use of brown roofs to mitigate adverse effects on existing habitat is not a suitable approach,** given the cost, architecture and inaccessibility by some species. Brown roofs will however bring additional value to an integrated, ground-level green infrastructure network, and are proposed as part of the overall strategy.

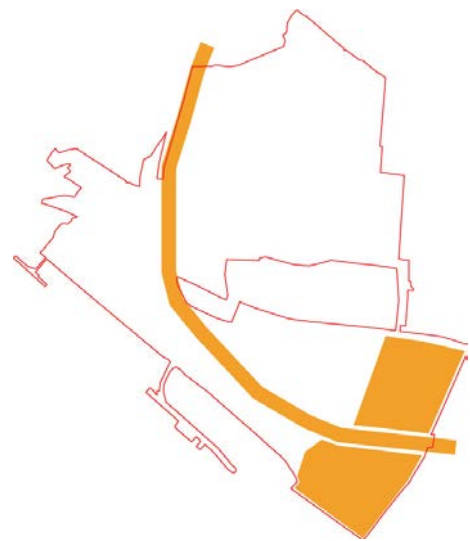


Figure 3.102

Approach 5: Zone 7 and Greenway habitat provision

- **Connective potential:** Provides a key link along rail corridor, and a significant, dedicated habitat patch at east end of site (c. 8Ha). Links into other habitat areas through the development and beyond the site boundary (quarry cliffs, riverside, Tank Lane LoWS and Purfleet Pit LoWS).
- **HSE Development Proximity Zone:** The former paper mill site in zone 7 has limited development potential due to its proximity to neighbouring ESSO site, with 2/3 of the area lying within the 'Development Proximity Zone'. This lends it perfectly to housing a dedicated ecological area with only a low, transient associated population.
- **Open mosaic habitat retained:** This option looks to retain and enhance the remaining open mosaic habitat in development Zone 7, as well as retaining and enhancing habitat along the rail corridor.
- **Significant opportunity:** Creation and enhancement of a dedicated open mosaic habitat area of this size is a significant opportunity. This approach has been developed with, and is supported by, Buglife and RSPB, not least because of the potential for a valuable learning opportunity and show-piece through incorporation of a range of valuable OMH features.
- This is an equally as appropriate habitat proposal as Approach 3 but better suits the aspiration of the wider masterplan. It provides strong connectivity, and a significant piece of dedicated habitat at Purfleet. Development restrictions on the former paper mill site lend it well to an ecological focus, with limited/restricted recreational or human disturbance. This option will be supported by integrated habitat areas and features throughout the development, in parks, residential areas and streetscapes.

3.16 Ecological Mitigation



Figure 3.103

Existing Habitat

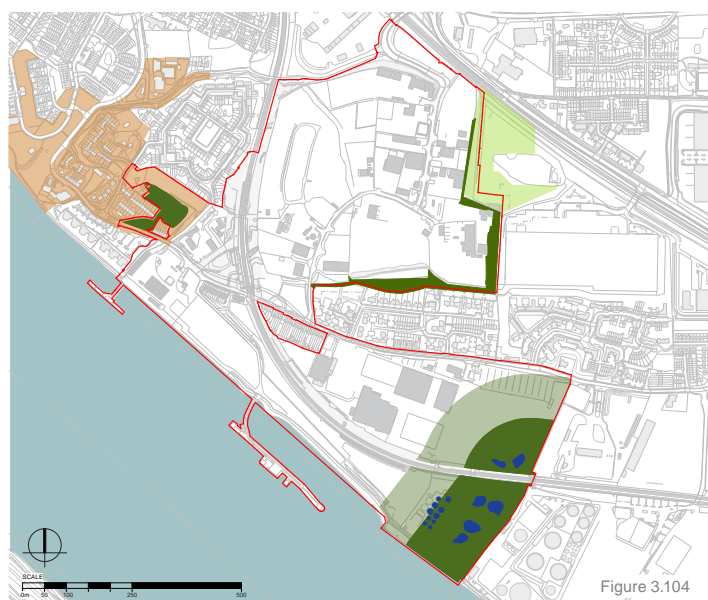


Figure 3.104

Mitigation Areas Within Constraint

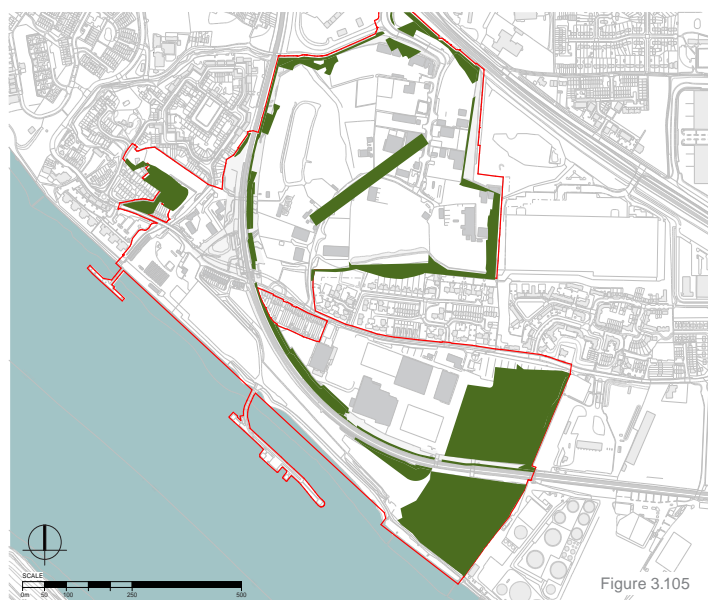


Figure 3.105

Proposed Habitat

Ecological Context

The ecology and biodiversity strategy for Purfleet Centre Regeneration has been developed in consultation with Buglife and RSPB, who have provided valuable input throughout its development, both in terms of mitigating against the loss of existing habitats and the introduction and configuration of valuable habitat types across the Masterplan.

The resulting strategy draws on the wider ecological context of the site context to create a tool kit of habitat types, which together generate a rich and structurally diverse infrastructure of habitat for locally important species including invertebrates, birds and bats throughout Purfleet. These dedicated habitat typologies are configured in a linked patchwork across the site through large open spaces, corridors, streetscapes and amenity parks.

Purfleet Centre Regeneration works to enhance the long term environmental sustainability of the area by supporting valued local ecologies. The potential to increase biodiversity, create new habitats and develop a rich ecological structure on site is extensive, with large dedicated open spaces and a wide Greenway facilitating widespread connectivity across the development.

The site is advantageously positioned to provide a key stepping stone within regional ecological networks, including both the Buglife 'B-lines' network as well as the Greater Thames Marshes network. Neighbouring patches of high ecological value include Rainham Marshes Nature Reserve, Dartford Marshes and West Thurrock Marshes, as well as a number of smaller high-value brown field sites with strong invertebrate populations.

Ecological Mitigation

A strategy has been devised to mitigate against significant development-associated impacts on existing valued habitat. In order to meet planning objectives, as well as to create a high quality open space network that draws on its local and regional ecological context.

Purfleet Centre Regeneration aims to deliver a net gain in biodiversity from the established baseline currently present on the site. The ecological strategy proposes the retention, enhancement, recreation and establishment of key habitat types throughout the development, along with provision of specific ecological features catered to key local wildlife species.

Artificial nest / Roost Box Strategy.

Included within the overall ecology mitigation strategy, there is a site wide commitment to providing interventions within the buildings to accompany the landscaping and habitat strategy. These interventions consist of artificial nests included within the facades of the proposed development. The species of bird these nests are provided to cater for include;

- Swift (*Apus apus*).
- House Martin (*Delichon urbicum*).
- Black Redstart (*Phoenicurus ochruros*).
- House Sparrow (*Passer domesticus*).
- Bats.

The proposals seek to enhance provision for all the fore mentioned species within the delivery of the masterplan. The enhancements include an increase in the number of artificial nests for each species, with the exception of the Black Redstart, where the enhanced provision is delivered with the improved quality of brownfield foraging habitat that is proposed within the eastern park area.

3.16.2 Surface Water Management Strategy

In addition to considering options for drainage and subterranean water movement, the master planning process looked at a range of approaches for surface water management through the provision of SuDS where possible.

The following options consider alternative focuses and locations for surface water management across the site, bearing in mind the final solution will not focus on one approach but rather will present an integrated suite of SuDS features.

These approaches would be supported by further integrated 'blue' elements within public open space areas and neighbourhood-scale provisions such as swales, rain gardens and filter trenches.

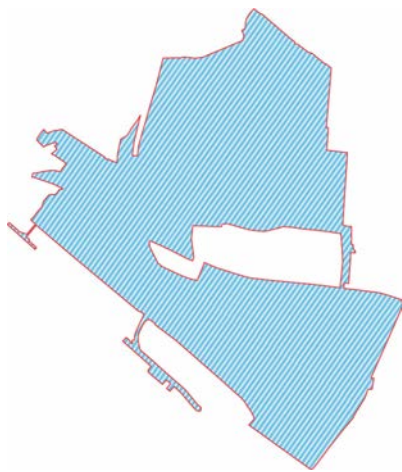


Figure 3.106

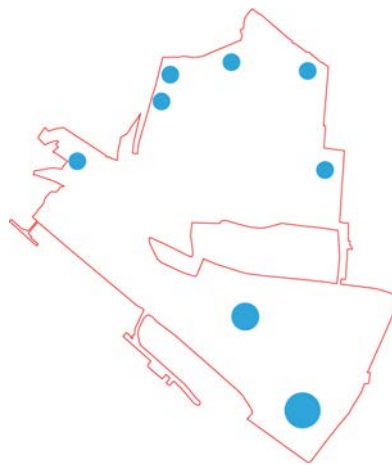


Figure 3.107

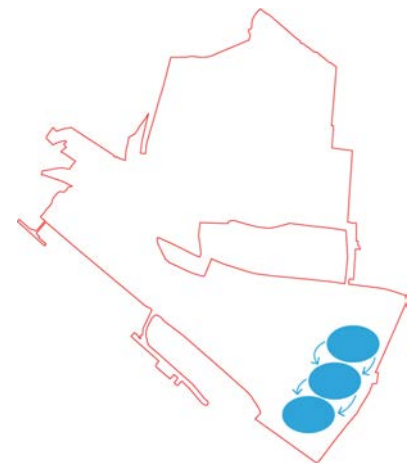


Figure 3.108

Approach 1: Focus on infiltration components (soakaways, basins, rain gardens, permeable paving etc)

- Infiltration components would be well integrated into public environments.
- Water management localised, less movement across site required.
- Concern over the effectiveness of an infiltration-focused approach given soil type and geology.
- Ongoing maintenance and management required, potential for localised flood risk.
- This is a viable option and will be implemented in support of an integrated blue infrastructure strategy.

Approach 2: Localised detention/retention ponds

- Accommodate the total run-off for the whole site at concentrated locations.
- Can incorporate habitat provisions.
- Requires movement of surface water from across site to storage zones.
- Appropriateness of provision on school site is questionable given the area required, safety concerns and neighbouring uses.
- This is a viable option as part of a wider blue infrastructure network, rather than in isolation.

Approach 3: Wetland network creation in the eastern park area

- Site is highly appropriate given limited development restrictions imposed by HSE Development Proximity Zone.
- Site is well positioned to lead on to existing outfalls at River Thames.
- Greenway provides link between eastern attenuation and other areas of the site.
- Development restrictions and potential to create ecologically focused, undisturbed wetland environment, drawing on surrounding Greater Thames Marshes network.
- Concentrated flood risk, removed from residential development areas.
- This is the most viable and beneficial approach, coupling attenuation with provision of a locally valued wetland/marsh habitat type not currently provided on site. Development restrictions on the former paper mill site lend it well to a focussed attenuation network, which is removed from residential areas, yet well connected via the Greenway and to 2 existing outfalls at River Thames. Other approaches considered (infiltration and localised detention/retention areas) are proposed throughout the development in support of the paper mill wetlands.





Figure 3.109

