

RACKHEATH EXEMPLAR PROJECT DRAFT BRIEF



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Rackheath Exemplar Project Brief

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1 Introduction

1.1 Background to the Exemplar Project

Broadland District Council wishes to promote an Exemplar Project that will demonstrate best practise in planning, design, construction and operation for low-carbon, sustainable living. The Council has received some £10.2m of funding from the Government for the Rackheath Programme of Development, which includes the Exemplar Project and other measures to promote sustainable living. The Exemplar Project will be delivered in partnership between the Council and the developer (Barratt Homes) to provide much needed affordable housing and demonstrate how high environmental standards can deliver a low carbon development. The aim is to contribute to a high quality of life for the community where future energy supplies are sustainable, bills lower and the environment protected.

The Exemplar Project was originally conceived as one of the first projects related to the wider Rackheath eco-community. The eco-community was part of the growth strategy for Broadland. However, in the light of the Government's decision to abolish regional spatial strategies and to cut back on public spending, the Council has taken the decision to defer further work on the growth initiative until there is greater clarity about Government planning policy and funding for growth.

Whilst the Exemplar Project was originally seen as part of the eco-community, it is not tied to it and is now being promoted as a scheme to demonstrate how to achieve low-carbon living, whether or not the eco-community proceeds. As such it will help to provide a model for new development across the whole of Broadland and, indeed, the country as a whole.

1.2 Purpose of the brief

This brief is being drawn up to set out the Council's aspirations for the Exemplar Project and to seek community support for the proposals included in it.

1.3 Objectives for the exemplar project

Agreement has been reached between the developer and landowner to release 7.69 ha (19 acres) to form the exemplar project. Of this total, 4.86 ha (12 acres) will be the net area available for residential development.

The development is intended to deliver 200 houses. These will be designed to meet the highest standards for energy and water, Code for Sustainable Homes (CSH) Level 6. In other respects the houses will meet at least CSH Level 4. A proportion of these homes (notionally 10%) will be designed to fully comply with Code 6. It is intended to produce a "Rackheath Code." This will be a tool to explain the references to the Code for Sustainable Homes and Zero carbon, particularly as there is current uncertainty as to what they will become over the next few months. 40% of the

housing will be affordable (i.e. housing provided to meet the needs of those who cannot afford or are otherwise excluded from occupying dwellings on the open market). Affordable housing will include shared ownership housing, socially rented housing and other “intermediate tenures” as described in more detail in section 5.3 of this brief.

The site will also incorporate open space, allotments, landscape structure, infrastructure and non-residential uses. Non-residential uses under consideration include: a community building/ visitor centre; incubator business units; and a shop. Infrastructure may include an energy centre in order to deliver a low carbon source of energy for the development and water storage and treatment of various types in order to strive to achieve water neutrality on the site.

1.4 The site

The defined site for the exemplar project is shown in the plan below, Figure 1.1.

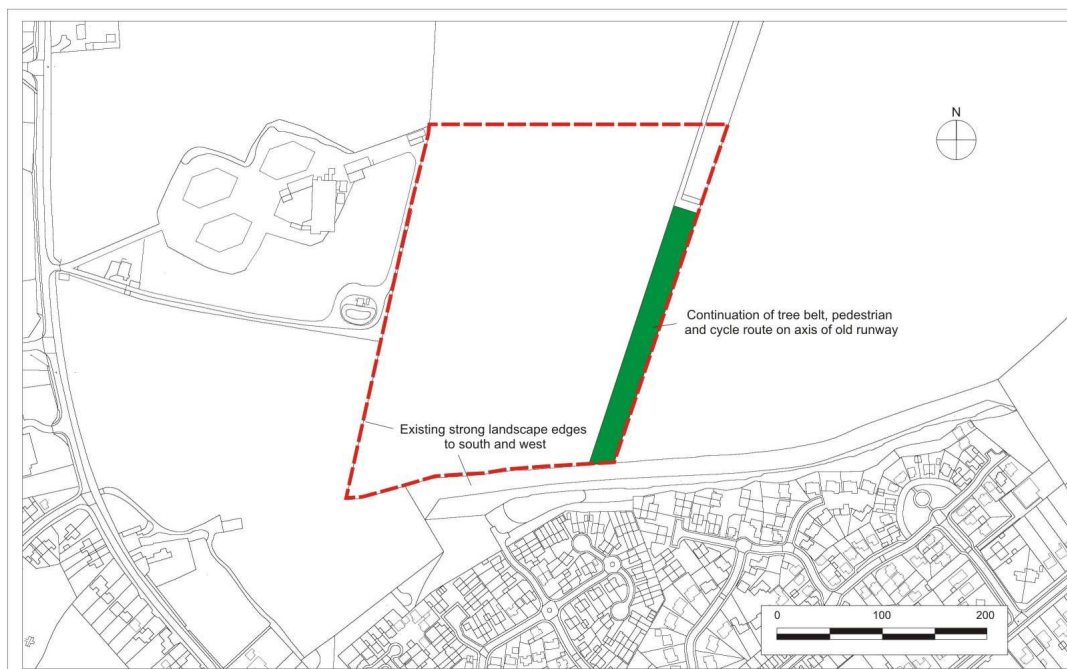


Figure 1.1: the proposed exemplar site

Alternative sites for the Exemplar have been considered, including two sites adjoining Green Lane West and one near Salhouse Station. However, the land nearest to Green Lane West is important to reserve for a potential secondary school that might be required in the future. The site near Salhouse Station is considered too remote, despite its advantageous proximity to public transport. It was also felt that it was important to promote a site that relates well to the existing community of Rackheath. Hence the site shown above is the chosen site.

The southern and western boundaries of the site follow field boundaries and also mark the transition from one ownership to another. The proposed eastern boundary is formed by an extension of the woodland belt on the axis of the old runway. By planting up this boundary as shown, it will help to provide shelter to the new community and also can provide footpath and cycle links to the north. It is only the northern boundary that does not follow any existing natural boundary. The way in which this boundary should be treated will be an important consideration in the design process for the Exemplar site.

The area enclosed by these boundaries amounts to exactly 7.69 ha (19 acres), which is the area that the landowner has agreed to release for the exemplar development.

1.5 Parameters for site planning

This brief puts forward suggested standards for the planning and delivery of the Exemplar Project which are derived from a number of sources. These include:

- Standards embodied in the Code for Sustainable Homes (CSH)
- Standards set out in the Planning Policy Statement on Ecotowns (PPS1 Supplement, CLG, July 2009)
- Standards and guidance embodied in numerous other local and national publications and plans.

The start of each chapter of this brief summarises the standards that are proposed to be adopted for the Exemplar and notes their origin. The extent to which the Exemplar should meet these and other standards is put forward in this document as a basis for discussion and debate.

In planning for the exemplar site, the following site specific issues and parameters also need to be considered:

- Safe and attractive pedestrian and cycle links must be incorporated to connect the exemplar site to New Rackheath and to Rackheath Industrial Estate in order to help the scheme to function as an extension of the existing community;
- Attractive pedestrian linkages must also be incorporated to enable the existing Rackheath community as well as exemplar residents to access the countryside beyond the exemplar site;
- The site must incorporate (or retain) appropriate landscape boundary treatment, including tree planting. This is particularly important for the western and eastern boundaries to improve the micro-climate for new residents and protect the new housing which would otherwise be exposed to prevailing winds from the south west and the cold easterly winds in Winter/Spring.
- Vehicular access must be obtained from Green Lane West to the west of the site, passing through land that may be under the control of a different landowner.
- The edges of the proposed development in the Exemplar should be designed to look outward rather than inward. By this means, residents and visitors entering the Exemplar site will be greeted by the fronts of buildings, rather

than backs. This outward focus will also help to announce the fact that the scheme is intended to set an exemplar for Broadland and beyond.

- In addition to looking outward, the scheme should also have an internal focus around a local village green.

Detailed design work for the Exemplar Project is scheduled to start in the Autumn of 2010, with the aim of submitting a planning application in the Summer of 2011. The detailed design work should take on board the guidance in this brief. Any departure from this brief should be justified and agreed with the Council.

1.6 Planning context

The adopted Development Plan currently in place for Broadland is the retained elements of the Broadland Local Plan.

In due course the Local Plan will be replaced by the new Local Development Framework (LDF). This includes the Joint Core Strategy that has recently been submitted for Examination in Public.

The amended Proposals Map included in the Joint Core Strategy shows the Exemplar site as falling into the Old Catton, Sprowston, Rackheath, Thorpe St Andrew Growth Triangle.

The site also falls into a defined area for an Ecotown, as set out in the Government's Supplement to PPS1 on Ecotowns.

As the Ecotown is a new allocation proposed in the Joint Core Strategy, it is not reflected in the Broadland District Local Plan (Replacement) 2006. The scheme therefore aligns with the emerging local policy and should be accorded due weight. Judged solely against the currently adopted Local Plan, the scheme represents a departure from the Plan.

1.7 Summary of remainder of brief

Section 2 of the brief summarises existing site conditions at the Exemplar site, looking at land use, adjoining land, topography and drainage, existing landscape and vegetation, ecology and heritage and archaeology.

Section 3 deals with streets and routes. It sets out proposed standards and guidance and the objective of encouraging people to travel by means other than the car. It proposes a network of pedestrian and cycle links that will enable people to walk or cycle easily between New Rackheath, the Exemplar site and the Rackheath Industrial Estate, as well as connecting to other recreational routes and to Salhouse Station. It suggests three different types of bus services: the existing services; a long term future connection to a bus rapid transit link to Norwich; and a short to medium term "demand responsive service" that would probably take the form of a minibus and could use a route through the existing Rackheath housing area to the Exemplar and the industrial estate. Alternative routes for a connecting road to Green Lane West are

put forward for discussion, as well as a possible emergency link road into the Exemplar site from Rackheath.

Section 4 deals with open spaces and biodiversity. The proposed open space standards for the Exemplar are set out. Priority open spaces that should form part of the public realm for the Exemplar are discussed, including an extension of the runway tree belt; a southern parkland interface with Rackheath; a village green; and a “beating the bounds” circuit. Other aspects of new open space provision are discussed, including allotments, catering for demand from both existing residents of Rackheath as well as future residents of the Exemplar and other landscape and green spaces, including provision for children’s play and active sport. Provision is also included for public art. The role of private open space and the potential to increase biodiversity are also discussed.

Section 5 deals with housing. The housing standards that are proposed to be adopted are set out. It is intended to develop a Rackheath Code that will set out clearly what the standards mean for Rackheath and to help explain references to the Code for Sustainable Homes and Zero Carbon. The potential housing mix is set out, including the requirement for 40% of the housing to be affordable (i.e. housing provided to meet the needs of those who cannot afford or are otherwise excluded from occupying dwellings on the open market). Affordable housing will include shared ownership housing, socially rented housing and other “intermediate tenures” as described in more detail in section 5.3 of this brief. Housing layout, scale and grain, building materials and the reduction of urban clutter are also discussed.

Section 6 deals with parking. It notes the importance for sensitive design of the treatment of the parked car because of its massive influence on the appearance of the street scene. The changing requirements for parking space to be provided that enable the recharging of electric cars is also noted.

Section 7 deals with employment and community services. The aim is to provide easy access by walking, cycling or public transport to at least one job per household. The possible provision of incubator business units on the site is also discussed, as a contribution towards meeting the employment targets and also creating a mixed use community. Other community facilities are discussed, including schools, health care facilities, a community and visitor centre, a shop, an energy centre, a travel centre and an eco-education centre.

Section 8 deals with water. It notes that Rackheath falls into an area of serious water stress and that the Exemplar should aspire to water neutrality, i.e. achieving development without increasing overall water use. It deals with proposals for different types of water use, recycling and treatment, including sustainable urban drainage (SUDS), potable water supply and consumption, grey water recycling, foul sewerage and the water environment and potential for water storage.

Section 9 deals with energy. The meaning of zero carbon in the context of the Exemplar scheme is discussed. How this standard is to be achieved on the Exemplar site requires much more work, but could include a renewable supply of electricity based on combined heat and power (CHP) fired by biogas.

Section 10 deals with waste. This discusses the targets for reducing waste and increasing recycling.

Finally, section 11 deals with community governance. It notes the intention to establish a community trust. This would provide a vehicle for the management of assets and public space, safeguard the integrity of the exemplar as an eco-community and provide a forum for continuing community involvement.

2 Existing characteristics and condition of the Exemplar site

2.1 Location and land use of the Exemplar Site and adjoining land

The Exemplar site is located immediately to the north of the existing New Rackheath community, as shown in the aerial view below.

It is approximately 250 metres south of the Rackheath industrial estate and about 300 metres to the east of Green Lane West.



Figure 2.1: Aerial view of the Exemplar Site

The Exemplar site is in agricultural use, with the exception of the tree belt at its north east corner. The land is in arable cultivation, as can be seen in the photograph, Figure 2.2 below.



Figure 2.2: Arable farming of the Exemplar site

The agricultural land comprises partly Grade 2 and partly Grade 3b land, according to the agricultural land classification held by Natural England.

That part of the site that comprises Grade 2 agricultural land falls into the Government's definition of best and most versatile agricultural land. PPS7 states that "it is for local planning authorities to decide whether best and most versatile agricultural land can be developed, having carefully weighed the options in the light of competent advice."

The planning application that is submitted for the exemplar should be accompanied by a detailed survey of the soils and their value as agricultural land. The proposals should include justification for the loss of any best and most versatile land.

2.2 Topography and drainage

The Exemplar site sits on a plateau of relatively flat land approximately 30m above Ordnance Datum. To the west of the site, the land falls gently to the west towards The Springs and Dobbs Beck. The site itself is a predominantly flat site with only minor changes in levels. It will be important for the developer to commission a topographic survey of the site to enable detailed design work to proceed, including the design of surface water drainage infrastructure.

Inspection on site suggests that the low point of the site is in the south west corner, as shown in the panoramic view, Figure 2.3, below. The poor growth of crops in this corner suggests that there may be impeded drainage or ponding of surface water in this area at times of heavy rainfall. Pending more detailed survey, it does not appear at present that there is any off-site drainage connection or watercourse along the edges of the site. This suggests that surface water currently soaks away into the soil.



Figure 2.3: Panoramic view of the site looking west/ north west from the belt of woodland between the site and Rackheath.

2.3 Existing landscape and vegetation

The Broadland District Landscape Character Assessment dated May 2008 by Chris Blandford Associates identifies six local landscape character types, each of which is further sub-divided into sub-units. The Exemplar site falls into Landscape Character Area E4 (Rackheath and Salhouse). The following extracts from the Landscape Character Assessment are relevant to an appreciation of the landscape setting of the Exemplar site:

“Historically, much of this area formed part of a large area of heathland. The heathland extended from the northern settlement edge of Norwich almost to Salhouse. Today, only areas of heath retained within the urban area of Norwich remain (Mousehold Heath), which contain high ecological value and provide an important landscape resource.

“The area has only a recent history of agricultural development. The Enclosure Acts that eventually led to the parcelling of this land have created a strong geometric layout, with medium-sized regular fields and a strong grid road pattern. These mostly arable fields are interspersed with plantations, copses of mature trees and woodland belts, along with remnant patches of heath.

“Linear coniferous tree belts and the development of an industrial estate, has resulted in hedgerow loss in central parts of the area, diluting the rural landscape character in this part.”

This latter comment is a direct reference to Rackheath industrial estate and the airfield site. The study sets out the following landscape planning guidelines as appropriate to the Rackheath and Salhouse Landscape Character Area:

- *“Seek to conserve and enhance the landscape structure within the area, including blocks and belts of woodland, copses of mature trees, mature parkland trees and intact hedgerows.*
- *“Seek to conserve the diverse and interesting landscape character, particularly in northern and western parts.*
- *“Seek to conserve distinctive, historic architectural and landscape features including historic parkland landscapes and their setting, which contribute to the area’s rich historic character and strong sense of place, particularly in northern and western parts.*
- *“Seek to ensure the sensitive location of development involving further tall structures (such as steel pylons and telecommunication masts) in relation to prominent skyline locations both within the character area and within adjacent character areas.*
- *“Seek to ensure that potential new small-scale development within villages is consistent with the existing settlement pattern, density and traditional built form.*
- *“Seek to conserve the landscape setting of villages, such as Woodbastwick, Rackheath and Salhouse and seek to screen (where possible) harsh settlement edges and existing visual detractors.*
- *“Seek to promote use of local vernacular building materials, including red brick, flint and pantiles.*
- *“Seek to conserve the landscape setting of historic houses, halls (including Beeston, Salhouse and Rackheath) and churches.*
- *“Seek to conserve the interesting landscape pattern of parkland, arable fields and woodland.”*

Some of the above guidelines have greater relevance to the planning of the Exemplar site than others. Of most importance are the need to conserve and enhance the

landscape structure, including the woodland belts and hedgerows, and the need to conserve the landscape setting of villages, in this case, Rackheath.

There are three belts of woodland or hedgerows on the southern, western and eastern boundaries of the Exemplar site:

- Woodland to the south;
- Hedgerow to the west; and
- Partial woodland to the east.

The block of woodland to the south of the Exemplar site provides a strong boundary to the northern edge of Rackheath and also provides well used amenity and recreational space for the residents of Rackheath. This land is owned by the Council and provides a permanent recreational resource for residents. It will also be important to create safe and attractive new footpath links into the Exemplar Scheme through this woodland, views of which are shown in Figure 2.4, below.



Figure 2.4: Woodland walks in the belt of woodland to the north of Rackheath.

Along the western edge and the south western tip of the Exemplar site beyond the woodland described above, the boundary is partly a mature hedgerow with occasional trees as far as the boundary with May Farm, where the hedgerow becomes much thinner, as can be seen in the photographs, Figure 2.5, below.



Figure 2.5: Views of the hedgerow along the western edge of the Exemplar site

The boundaries along most of the northern and eastern edges of the Exemplar site are currently open and have no natural features, as these boundaries currently fall within a larger field under arable cultivation. However, there is a strong block of woodland to

the north (partly within the defined Exemplar site) on the axis of the old runway. It is recommended that this woodland belt should be retained as it provides such a strong feature of the site as well as shelter. Preserving it will also help to retain the historical association with the axis of the runway of the wartime airfield. It is suggested that the woodland belt should be extended on the same axis to provide continuity of shelter and visual screening of the Exemplar site from the east.

The character of this woodland belt is shown in the photographs, Figure 2.6. It comprises mainly coniferous woodland, with some regenerating deciduous woodland. If this is to become an attractive woodland walk, there will be a need for management of the woodland, as it is currently neglected. This could include thinning and gradual replacement of coniferous woodland by native deciduous species.



Figure 2.6: The woodland belt on the axis of the old runway should be extended to the south to provide shelter and a recreational pedestrian route for residents and visitors.

2.4 Ecology

Although the development site itself is of limited ecological value, it does lie close to the internationally important habitats and species of The Broads. The Broadland Ramsar and Special Protection Area, and the Broads Special Area of Conservation are approximately 4km to the north east of the exemplar site. This area is also made up of numerous SSSIs, the closest being the Bure Broads and Marshes SSSI.

The most significant habitats of local importance nearer the site are the cluster of County wildlife site woodlands which lie off to the north west.

A Phase 1 Habitat Survey was carried out in 2009 for the Exemplar site as part of the work to support the designation of the eco-town. This showed that the site had limited potential to support biodiversity due to its dominance by intensive arable farmland.

The Greater Norwich Green Infrastructure Delivery Plan (2009) was produced as part of the Joint Core Strategy by the Greater Norwich Development Partnership. The Exemplar site falls within a Green Infrastructure Priority Area (GIPA) known as

"Norwich to the Broads". This plan identifies a number of key issues for the area, principally:

- A. extensive under provision of natural/semi natural green space
- B. extra recreational pressure placed upon internationally important habitats and features of the Broads through increased recreational use
- C. a lack of connectivity of hedgerows, woodland etc
- D. a sparse and poorly connecting public footpath network

The design for the Exemplar site will need to address each of these issues and produce a significant net increase in local biodiversity.

2.5 Heritage and archaeology

The Norfolk Heritage Explorer website identifies two ancient monuments in close proximity to the Exemplar site. These are identified as Norfolk Historic Environment Record (NHER) Nos. 50729 and 50730 to the east and west respectively of the Exemplar site. These are identified as the sites of probable settlements of unknown dates, and have been identified through cropmarks visible from aerial photography. The NHER records suggest that they may have been part of a much larger settlement, ranged along a trackway or road, possibly Ravensgate Way. The settlement probably dates to the late medieval to early post medieval period, when it would have occupied a common-edge position in relation to Mousehold Heath. However, its similarity to sites mapped in Lincolnshire and elsewhere suggests that a late prehistoric, Iron Age or Roman date is also possible.

During the Second World War the Exemplar site formed part of the United States Air Force base. The airfield was home to 467th Bomb Group, known as the Rackheath Aggies. Between April 1944 and April 1945 the 467th flew 212 missions for 5,538 sorties, losing only 29 aircraft in combat. An aerial view of the Rackheath Airfield during the Second World War is shown in Figure 2.7 below.

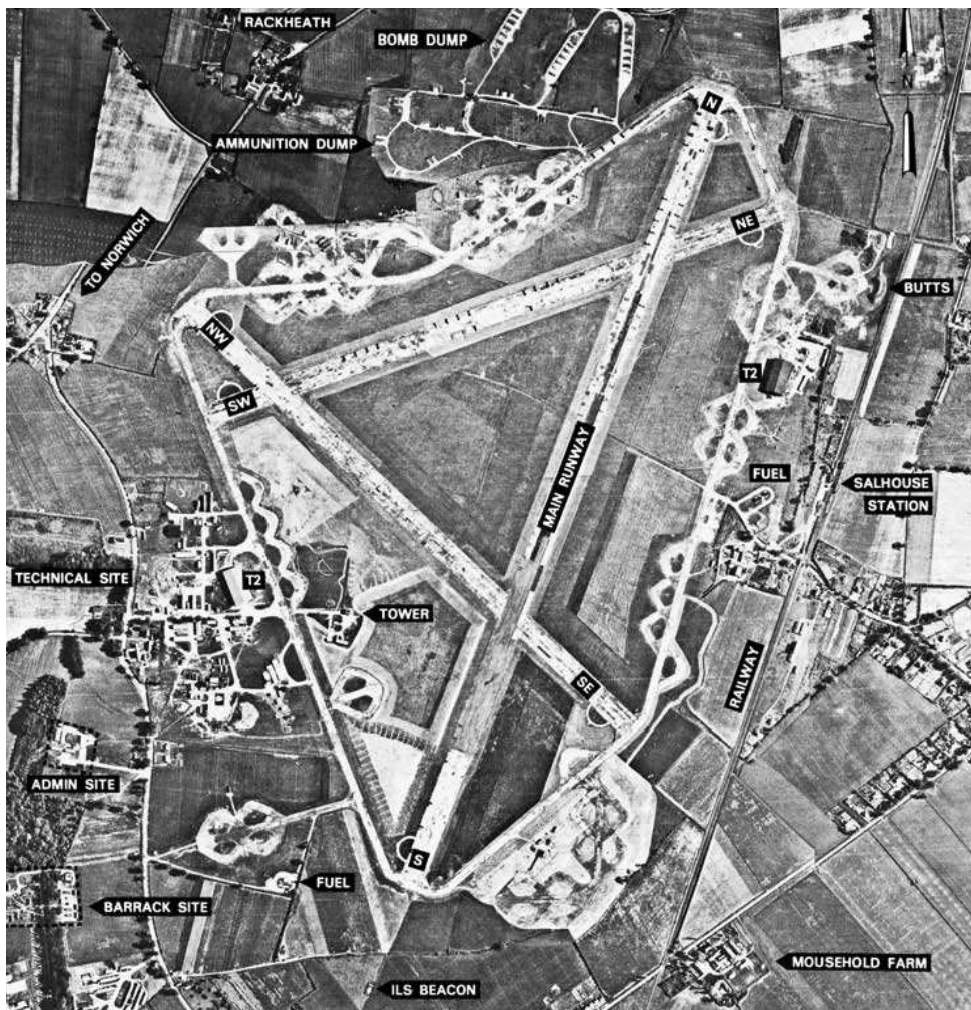


Figure 2.7: Rackheath Airfield in WW2

It can be seen that the Exemplar site contains the southern end of the main runway and a taxiway. It also adjoins the Fuel site at the south east corner of what is currently May Farm.

It will be necessary for the developer to undertake an evaluation of the archaeological potential of the Exemplar site prior to the submission of a planning application for development. The scope of this assessment should be agreed in advance with Norfolk County Archaeologist. This is in line with adopted Broadland District Local Plan, Policies ENV18 and ENV20, which provide for the “evaluation, recording, and where desirable, the excavation of the site.”

3 Streets and routes

3.1 Norwich/ Norfolk Transport Planning and other guidance/ standards

Transport for Norwich (Norfolk County Council, 2009) sets out a comprehensive range of measures to improve transport in Norwich by providing high quality alternatives to the car, including public transport, cycling and walking to reduce carbon emissions and the impact of transport on the environment.

Key proposals in Transport for Norwich include:

- Salhouse Road/ Gurney Road is identified as a longer term cycle route into the city;
- Bus rapid transit (BRT) is proposed along the Salhouse Road/ Gurney Road corridor into the city. The corridor route within Rackheath and Salhouse is not fixed yet;
- A tram-train running along the Bittern Line into the city from Rackheath with a new stop at Rackheath and at Broadland Business Park;
- The Northern Distributor Road, as the key piece of major infrastructure required to enable the implementation of many of the other transport initiatives identified in the Norwich Area Transportation Strategy (NATS).

Other guidance that is relevant to the planning of the Exemplar scheme includes:

- The Manual for Streets, 2007
- The PPS on Ecotowns
- TCPA Ecotowns Worksheet on Transport, 2008

The following standards, which are derived from the PPS on Ecotowns, are proposed as targets which the Exemplar scheme should strive to achieve, although it is recognised that it will be difficult to achieve these standards in full as a stand-alone scheme:

- 50% of trips to be by non-car mode, rising to 60% over time;
- Adopt good design practice, such as those set out in the Manual for Streets and Building for Life guidance;
- The development should promote transport choice from day one;
- The development should incorporate monitoring of carbon impact of travel;
- Scheme design should ensure that all housing is in close proximity to schools and local facilities, which should be a maximum of 10 minutes walk away.

3.2 Modal shift

The TCPA worksheet on Transport notes that transport provision should be designed to equal or better the modal share for sustainable modes achieved in the most sustainable European communities. The modal split for different journey types may vary, but in exemplar towns no more than a maximum of 25 per cent of all journeys should be by private car (e.g. as at Basle), with good practice being 40 per cent. This

accords with the PPS standard that 50% of trips should be by non-car mode, rising to 60% over time.

The Exemplar scheme must tackle the need for reduced car travel from the outset. This should include individual travel plans for new residents, encouragement of car sharing, car clubs, electric cars and other innovative ideas for carbon reduction from travel.

3.3 Pedestrian and cycle links

It will be important to ensure that the Exemplar scheme is connected by high quality pedestrian and cycle links to the surrounding area.

Pedestrian and cycle links should be provided as part of the Exemplar scheme, as shown in Figure 3.1 below.

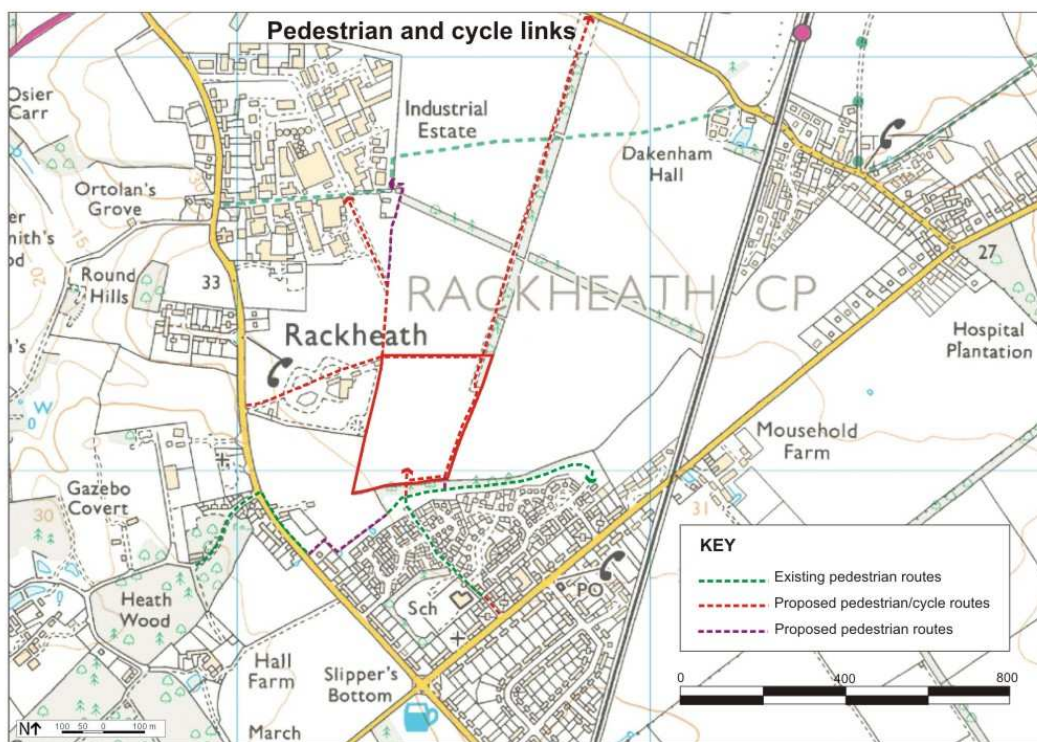


Figure 3.1: Pedestrian and cycle links

These links include:

- A link to New Rackheath through the existing woodland (see photo Figure 3.2 below);
- Link to Green Lane West (along line of proposed access road – see section 6.7 below);
- Link to Green Lane West/ Newman Road;
- Link to countryside to the north and Salhouse Station (along line of old runway – see photo Figure 3.2 below);
- Link to Rackheath industrial estate (along tree belts);
- Link to Norwich city centre (along Salhouse Road/ Gurney Road corridor);
- Possible link to Wroxham (if funded by POD).



Figure 3.2: Photos of potential pedestrian/ cycle links: link to Rackheath (left) and link to the countryside to the north and Salhouse Station (right)

3.4 Bus routes

Existing bus routes serving Rackheath are the Anglian 123 service between Norwich and Wroxham and First 12A/B from the Norfolk and Norwich Hospital to Stalham via Rackheath and Wroxham.

The Anglian service is half hourly during the day, increasing to 4 per hour during the peaks. The First service is essentially hourly, increasing to 2 per hour during peaks.

The location of bus stops in Rackheath for these services is shown in Figure 3.3 below.

The Norwich Area Transportation Strategy (NATS) includes proposed Bus Rapid Transit services on a number of radial routes into Norwich, including the Salhouse Road/ Gurney Road corridor.

The Programme of Development (POD) for Rackheath includes a project for bus infrastructure for the Salhouse Road corridor. This is intended to provide a high quality bus service from first occupation of development. The first phase of the project will introduce a high quality bus service on the Salhouse Road corridor, providing a step change in speed and quality relative to an ordinary bus service. The service is planned to include high quality and environmentally friendly vehicles capable of using biomethane fuel. Bus stops and shelters will be nicer places to wait with real time information. Buses will operate at 30 minute intervals and provide a direct and limited stop service between Rackheath and Norwich, with bus stops within the existing residential and industrial areas in the village.

A future phase of the project could include bus priority measures on the corridor to facilitate the introduction of Bus Rapid Transit.

An early decision will be needed on whether the new bus service penetrates into the Exemplar site. If it does, this will help to promote maximum use of public transport by residents from day one. The route adopted will clearly have implications for the internal road layout. The main link road connecting the site to Green Lane West should provide a route capable of accommodating public transport.

In the short to medium term before a fast bus service is operational, a demand responsive bus service could be introduced, which would be likely to operate a minibus. It would be possible to incorporate a minibus route connection across the open space between the Exemplar and New Rackheath, with lowering bollards activated by the approach of a bus. This service might also connect to the industrial estate. Possible routes for these new bus services, including stops within the Exemplar scheme, are shown in Figure 3.3 below.

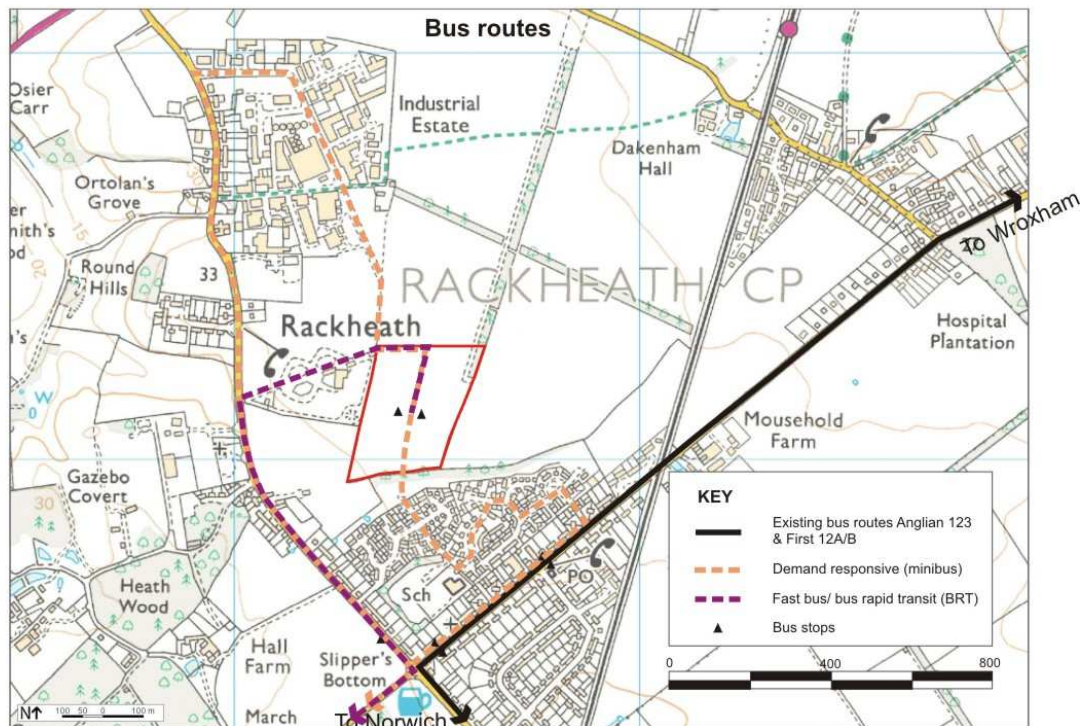


Figure 3.3: Existing and proposed bus routes

3.5 Home Zones

Away from the main distributor or link roads, all roads in the Exemplar scheme should be designed as Home Zones, with cars sharing space with pedestrians and cyclists and speeds restricted to 10 mph wherever possible.

3.6 Link road access onto Green Lane West

The main access into the Exemplar site will be taken off Green Lane West. If this road is intended to serve future development areas beyond the Exemplar site, it will need to be designed as a Link Road (6.5m width), as set out in the Norfolk Design Guide. The road should also be capable of serving as a bus route. The road should include footways of 2m width on both sides and verges planted with trees on both sides to create a boulevard feel to the access. Direct frontage access onto this road will be allowed, but access onto the road should be in forward gear only. The design speed is 30 mph. The Manual for Streets suggests that a road of this character should be capable of accommodating 10,000 vehicles per day (and possibly more).

If the access into the Exemplar site is not intended to serve any additional future development, then it would be possible to design to a lower standard. In this case, an access road could be provided, which has a standard width of 4.8m, two footways each 1.5m wide and a design speed of 20mph.

Green Lane West is a local road with a speed limit of 30mph within New Rackheath, and 40mph beyond Newman Road.

A new access road into the Exemplar from Green Lane West should be designed to provide safe visibility at the junction. At present, these standards are as laid down in the Design Manual for Roads and Bridges, but these may be changed when the Manual for Streets Volume 2 is published in the Autumn of 2010. Current standards require a visibility splay for a new junction of 4.5m x 90m if the access falls within a 30mph zone and 4.5m x 120m if the access falls within a 40 mph zone. These standards are likely to be reduced when Manual for Streets 2 is published.

Consideration needs to be given to amending the speed limits along Green Lane, in particular by extending the 30mph speed limit to the north to take in the proposed junction into the Exemplar site.

Apart from the need to provide appropriate visibility, the position of the access road should avoid creating a crossroads junction. Possible positions for an access road junction and alignment for the distributor road into the Exemplar site are shown in Figure 3.4 below.



Figure 3.4: Access options

The four options shown raise a number of issues, as discussed below.

Option A

This follows the alignment of the proposed access defined in the Rackheath Concept Statement. The Concept Plan defined this as a primary access road. Following this alignment will provide the best fit with the concept plan and most easily provide access to future phases of development. As long as the land to the south remains in separate ownership, the road will only provide access to development on one side, a generally uneconomic form of provision. The new access would also affect a number of mature trees, as shown in Figure 3.5 below.



Figure 3.5: Creating an access at Point A would require the removal of mature trees (shown in photo on left) to create the required visibility splay. Also, the slight curve in the road exacerbates the land take required

Option B

This alignment is immediately to the south of May Farm. By hugging the boundary with the May Farm ownership, the new road will minimise the impact on the block of land to the south. This is also potentially a road with single sided development, although, as with Option A, if the May Farm land is brought forward for development, it would provide access to this land. This option has a lesser impact on mature vegetation than Option A, as can be seen in Figure 3.6 below.



Figure 3.6: Access Point B would require removal of hedgerow, but not mature trees, (as shown in photo on the left). Visibility is also better than at Point A.

Option C

This alignment is offset from the boundary with May Farm by one plot depth, notionally 50 metres. This would retain maximum flexibility for the future

development of the land to the south, but at the same time enable access to future development on both sides of the road. Visibility is good at this point, but would require the removal of a section of hedgerow, as shown in Figure 3.7 (photo on left) below.

Option D

Alone of the four options considered, this access point falls within the existing 30mph speed limit, thus reducing the required visibility splay. Because it falls opposite the Newman Road junction, it would be necessary to consider a small roundabout here, as a crossroads is not generally favoured by the Highway Authority.



Figure 3.7: Photo on left shows approximate position of Access C (at right of picture). Photo on right shows position of Access D opposite the junction with Newman Road.

3.7 Emergency Link Road

The Exemplar scheme, at c. 200 houses, will be too large to be served solely off one road. An additional access, for emergency use, will also be required. A possible alignment for an emergency link road is shown in Figure 3.8 below.

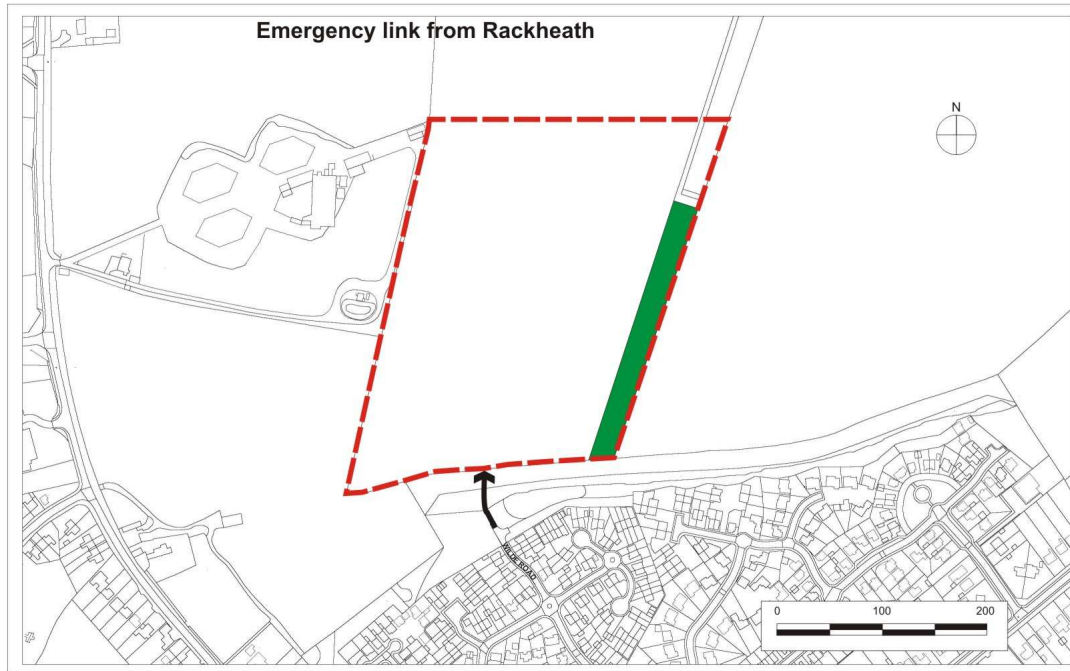


Figure 3.8: Emergency link to Rackheath

This should be 3.7m wide and would be closed to general vehicular traffic by bollards.

Consideration should be given to the possible use of this route for public transport access, with lowering bollards/ bus gates activated by transponder in the bus.

At other times, the route should be designed as a high quality pedestrian and cycle route linking the Exemplar site to New Rackheath. As such, the route should be safe and attractive, and overlooked by frontage development from within the Exemplar site.

4 Open spaces and biodiversity

4.1 Open space standards

The design of open space and landscape treatment should take into account relevant local and national guidance. This includes:

- PPS on Ecotowns
- Eco-towns green infrastructure worksheet, TCPA, Sept. 2008
- Start with the park, CABE, 2005;
- Greater Norwich Green Infrastructure Strategy, Nov. 2007;
- Broadland District Landscape Character Assessment, Mar 2008;
- Rackheath Eco-community Biodiversity Design Guidance, May 2010

The following standards, derived from the PPS are proposed for the Exemplar site:

- 40% of the Exemplar total area should be allocated to green space, of which at least half should be public and consist of a network of well managed, high quality green/open spaces which are linked to the wider countryside.
- Particular attention should be given to land to allow the local production of food from community, allotment and/or commercial gardens.
- Development should complement and enhance existing landscape character and heritage assets.
- The Exemplar site should demonstrate a net gain in local biodiversity and should not have a significant adverse effect on internationally designated nature conservation sites or Sites of Special Scientific Interest.

4.2 Proposed public open spaces in the Exemplar

In accordance with the above standards, at least 20% of the Exemplar site should be allocated to public open space. The Exemplar site measures 7.69 ha (19 acres). Therefore at least 1.54 ha (3.81 acres) should be set aside for public open space, which could take a number of forms, such as community forests, wetland areas and public parks. The following priority open spaces should form part of the public realm for the Exemplar:

- An extension of the runway tree belt
- A southern parkland interface with Rackheath
- A village green
- A 'beating the bounds' circuit

The extended runway tree belt

There is a strong block of woodland to the north on the axis of the old runway. This marks one of the most important historic features of the site and it is proposed to retain this as an important cultural spine. The report to CLG on green infrastructure and biodiversity by Chris Baines has recommended that in the short to medium term this woodland belt "should be left relatively undisturbed as the relatively mature

backbone of the emerging green infrastructure network.” Retaining the existing tree belt and extending it to the south will help achieve a number of objectives:

- It will preserve the historic link with the wartime use of the site as an airfield;
- It will extend a linear corridor providing attractive walking and cycling routes into the countryside beyond the site for both the new residents of the Exemplar and the existing community of Rackheath;
- It will help to improve the microclimate for the new community of the Exemplar site by providing a shelter belt;
- It can form one of the important connections between the Exemplar site and the existing community of Rackheath.

Over time, the nature of the woodland mix can be varied to gradually replace the coniferous woodland by native species. However, we would expect this to be done in a way that maintains continuity of shelter and screening.

A southern parkland interface with Rackheath

At present the interface between the Exemplar and Rackheath is a broad woodland belt that provides informal recreation space for residents and a “dog-walking” circuit. With new housing being developed to the north, this area of informal open space becomes much more important. It should still largely retain its informal character, but will potentially become much more heavily used and also will provide an important pedestrian route linking the existing community to the new. There is merit in improving this space in key locations by providing focal spaces, particularly where routes intersect. These could be clearings in the woodland, marked by benches, public art, picnic tables, or similar appropriate treatment.

Within the Exemplar site itself, it is proposed that new housing on the southern edge should be designed to face south towards Rackheath, creating a positive approach to the new development and announcing the Exemplar to visitors. This outward focus also helps to announce the fact that the scheme is an exemplar for Broadland. In order to create this welcoming feel, a parkland buffer should be provided along the southern edge to ensure that new housing is set back far enough from the woodland belt not to be overshadowed by the trees.

A village green

In addition to looking outward, the scheme is large enough to warrant an internal focus around a village green. This should be a feature that is within walking distance not only of all Exemplar residents, but also the existing community of Rackheath. This should be a well designed area providing a focus for the Exemplar development. It should also provide the space for:

- A children’s play area;
- If topography allows, water bodies required as part of the water cycle study for the Exemplar site. These may be surface water balancing, storage for rainwater harvesting, or reed beds and wetland for improving water quality of other stored water.

The Green should be overlooked by development on all sides. This will provide natural surveillance and also enhance the value of the properties facing the Green and create a positive focal area that can become an important multifunctional green space for the new community.

A “beating the bounds” circuit

A pedestrian route and dog-walking circuit should be provided around the perimeter of the site. This can link in with existing pedestrian routes around the site and enable people to access off-site recreational areas, such as the Newman Road Woods.

4.3 Allotments

There is an existing unsatisfied demand for allotments in Rackheath. The Exemplar site, by virtue of its close proximity to Rackheath, could provide allotment space for both existing and future residents. Rackheath Parish Council is considering undertaking a survey of existing residents to gauge the demand for allotments. Demand from future residents will also depend on the size of their rear gardens. This will emerge through the design process. The location and amount of allotments space to be provided should take into account potential demand from existing as well as future residents.

4.4 Other landscape/green spaces

The design of housing areas may include communal gardens/ courtyard spaces. Any such incidental spaces should be designed to act as an integral part of an interconnected green infrastructure for the Exemplar community. The scheme should also include provision for children’s play areas, properly sited and designed. How residents other recreational needs, e.g. for active sport, can be met should also be addressed in the landscape strategy for the site.

The landscape strategy for the site should also include provision for public art.

4.5 Private green space

As stated in 4.1 above, 40% of the Exemplar’s total area should be allocated to green space. This includes private gardens and other private/ communal spaces.

The TCPA Worksheet notes that private gardens collectively account for a sizeable percentage of the total urban area and are an important contributor to local environmental quality. In the Exemplar, these spaces will be an important component of the green infrastructure, and residents should be encouraged and helped to manage them in ways that are sympathetic to wildlife as well as contributing to sustainable urban drainage and food production.

4.6 Biodiversity

The Exemplar should show a net gain in biodiversity, as set out in the Rackheath biodiversity guide.

At present, the Exemplar site forms part of a relatively sterile agricultural landscape. The development should facilitate the extension and protection of green routes that connect the Exemplar to the countryside to the north and parkland, such as Rackheath Park, to the south. The protection and extension of existing tree belts, notably the belt along the axis of the runway, will also help link up important habitats beyond the site. The tree belt should be managed in the long term to promote a native mix of woodland planting.

Specific biodiversity measures are outlined in the Rackheath Biodiversity guidance. The following measures should be incorporated into the design of the Exemplar:

- Bat and bird nesting boxes;
- Gardens designed for ecological connectivity;
- Main green spaces should be designed for ecological connectivity;
- Ponds, reedbeds and other water bodies required as part of the water cycle strategy for the Exemplar site;
- Trees should be planted not only as part of the boundary treatment, but also along roads, especially the main spine roads within the Exemplar and as an integral part of the design of the village green;
- Existing hedgerows along the western boundary of the site should be strengthened by tree and other planting.
- Species chosen for planting should take into account their adaptability for future climate change.

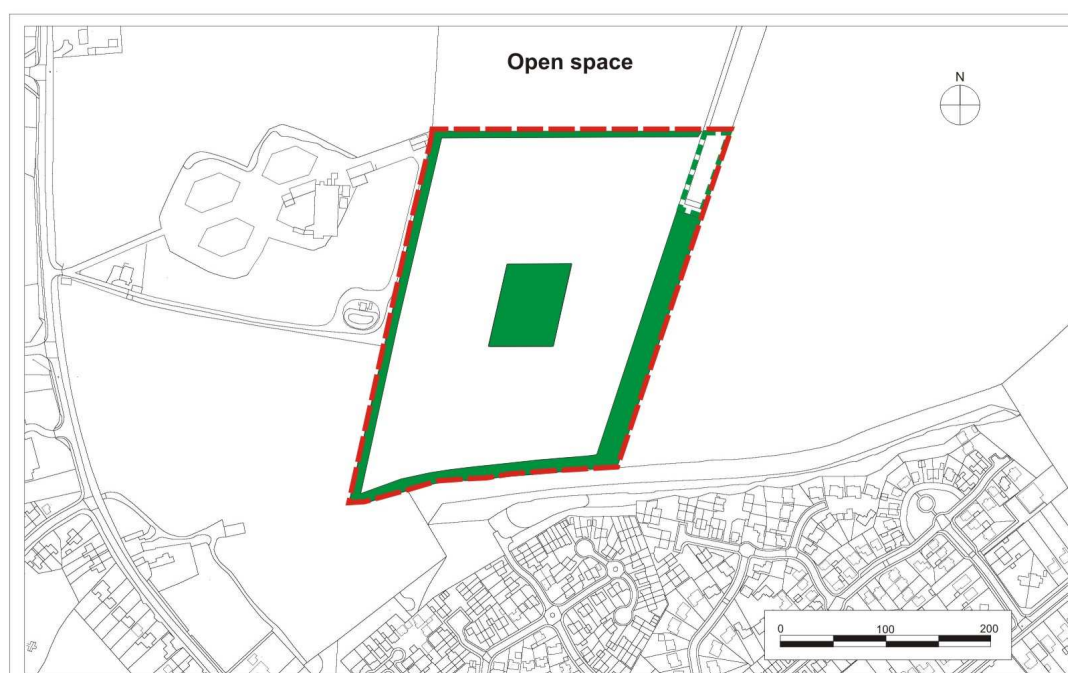


Figure 4.1: Indicative public open space for the Exemplar

5 Housing

5.1 Housing standards

The Exemplar site is intended to demonstrate environmental awareness and low carbon living. It is intended to produce a “Rackheath Code.” This will be a tool to explain the references to the Code for Sustainable Homes and Zero carbon, particularly as there is current uncertainty as to what they will become over the next few months. Until such a Rackheath Code has been produced, it is necessary to continue references to the standards that already exist. The following housing standards, derived from the Ecotowns PPS and local guidance are proposed for the Exemplar:

- (a) Achieve Building for Life Gold Standard and Level 4 of the Code for Sustainable Homes as a minimum;
- (b) Meet Lifetime Homes standards and space standards;
- (c) Have real time energy monitoring systems; real time public transport information and high speed broadband access, including next generation broadband where possible. Consideration should also be given to the potential use of digital access to support assisted living and smart energy management systems;
- (d) Provide for 40 per cent affordable housing (which includes social rented and intermediate housing), (see Broadland standard in more detail below);
- (e) Demonstrate high levels of energy efficiency in the fabric of the building, having regard to proposals for standards to be incorporated into changes to the Building Regulations between now and 2016; and
- (f) Achieve, through a combination of energy efficiency and low and zero carbon energy generation on the site of the housing development and any heat supplied from low and zero carbon heat systems directly connected to the development, carbon reductions (from space heating, ventilation, hot water and fixed lighting) of at least 70 per cent relative to current Building Regulations (Part L 2006).

Issues surrounding energy efficiency and low and zero carbon energy generation are dealt with in section 9 of this brief.

5.2 Broadland affordable housing policy

Broadland Council’s objective is to achieve 40% affordable housing in the Exemplar scheme (i.e. housing provided to meet the needs of those who cannot afford or are otherwise excluded from occupying dwellings on the open market). Affordable housing will include shared ownership housing, socially rented housing and other “intermediate tenures” as described in more detail below (in section 5.3 of this brief).

This is confirmed in the Joint Core Strategy Submission Document, November 2009, which states that:

“A proportion of affordable housing, including an appropriate tenure-mix, will be required on site in accordance with the most up-to date needs assessment for the plan

area, for sites of five or more dwellings (or 0.2 hectares or more). At the adoption of this strategy the target is 40% based on the most recent assessment.”

Broadland Council adopted a supplementary planning document on affordable housing in December 2008. This sets out how the 40% target should be met in terms of types of housing and means of delivery.

5.3 Housing mix

The Exemplar scheme is intended to comprise mainly family housing. This will range from 2 bed to 5 bed houses. However, the scheme could also include 1 and 2 bed apartments. There will thus be a full range of house types and sizes, in addition to a range of tenure types within this Exemplar scheme, facilitating the creation of a mixed and balanced community. The intention to provide all homes to Lifetime Homes standards will also enable the houses to be occupied by people who are wheelchair users and disabled visitors, as well as the elderly more generally.

In relation to the 40% affordable housing component, it is provisionally proposed that 60% should be for social rent and 40% intermediate tenure options, subject to further discussions with the housing association, when selected.

The intermediate tenure options for the affordable housing units could include:

- New Build HomeBuy
- Rent to Homebuy
- Intermediate rent options
- Discounted market housing (80% of open market value)

Most of the intermediate tenure housing should be shared ownership (new build home buy).

The Council normally requires the affordable housing component of the scheme to be delivered with the active involvement of a registered social landlord (RSL), e.g. a housing association. The registered provider should have an active involvement in the planning and assessment of the mix of intermediate tenure options.

It is important that the layout of the housing is “tenure blind”, so that full integration is achieved between affordable and market housing and that housing of all tenures is indistinguishable in terms of its appearance and quality. Sometimes registered providers are reluctant to “pepper pot” in very small numbers because of housing management difficulties that can arise. This should not deter the developer from aiming for the “tenure blind” approach outlined above, even if affordable housing is grouped together in small numbers. The registered provider should adopt a lettings policy to prevent large numbers of vulnerable households being housed together.

5.4 Housing layout, scale and grain

There are many guides to good urban design that should be referred to in considering the form of development to be adopted in the Exemplar scheme. CABE's Building for Life criteria set out 20 measures of good design and the Exemplar should meet at least 16 of these. Other publications include the Urban Design Compendium, CABE's web-based guidance on sustainable cities, the Manual for Streets, and the TCPA Housing Worksheet for Ecotowns. The aim in the Exemplar is to achieve the highest standards and quality in design.

The TCPA Worksheet notes that "thinking on the layout of housing will need to cover not only urban design factors, but also layout in relationship to energy use, space for storage, recycling, and a sense of community."

The housing in the Exemplar scheme should take the form of "perimeter blocks" with housing arranged around the perimeter of each block, facing onto streets or open space. The arrangement of parking areas is discussed in section 6 below.

Where housing is adjacent to open spaces or at the edge of the site, the orientation of the housing should be such that they front onto these spaces. This will help to ensure that views of the development from outside are positive and show the public face of the buildings. Also, it helps to provide passive surveillance of open spaces within and at the edges of the development.

The Exemplar scheme should be developed with a predominantly low rise form of development, generally 2 to 3 storeys in height.

5.5 Building style

High standards of sustainable construction can be achieved while the buildings continue to have a traditional appearance. Features such as high levels of insulation and the use of energy efficient appliances have no effect on the outward appearance of the building. Some features such as solar collector panels (for heating water) and small wind turbines could have a significant impact on the appearance of the street scene and should be designed to take this into account. Equally, the requirements for storage (including bicycle storage) and the provision of space for waste recycling can have a significant impact on the elevation of the building.

Wherever a traditional approach is being followed it is important that design cues are taken from local buildings within Broadland, so that the development reflects the local distinctiveness of the area.

A traditional style need not predominate and there will also be opportunities for more contemporary design to be incorporated in the development.

It is important that all buildings, whether of traditional or more contemporary architecture, are designed to a high standard to respect their individual setting and location. It is important that landmark or focal point buildings make a positive contribution to the street scene. The scale and design of these buildings should fully

exploit the location and present an interesting facade onto the public space. The positioning of windows and doors is important and large areas of blank wall facing onto the street should be avoided.

Windows onto side and front elevations not only add interest to a façade by breaking up areas of walling, but also ensure that the streets and side passages are overlooked. This overlooking or "passive surveillance" provided by "active frontages" helps alleviate the fear of crime and discourage anti-social behaviour. For this same reason, the creation of long narrow alleyways between high walls or fences should be avoided.

A high intensity of development, with buildings positioned relatively close to one another, does not automatically mean that adequate privacy and the 'quiet enjoyment' of residential properties for the occupiers cannot be provided. The design of individual buildings and the position of doors and windows, together with the position of buildings in relation to one another, can be used to ensure that unacceptable levels of overlooking (of what should be private areas) and overshadowing can be avoided.

A variety of designs and styles in the development will add character and interest and avoid its becoming monotonous. It is however important that the development is coherent and does not appear jumbled.

Design quality across the development should also be achieved through controlling the positioning of, for example, meter boxes and external boiler flues.

Secondary details such as boundary treatments and gateposts are also important in maintaining a quality environment. Close boarded fencing should not be used anywhere on the site. Where boundaries need to be marked, they should be demarcated using hedging to provide a sense of privacy. Wherever possible, communal or open gardens should be used to provide maximum ecological connectivity.

The creation of a truly sustainable place for people to live and work in, should however, allow for the practical day-to-day needs of the occupants to be met. The collection and separation of waste for recycling, for example, requires somewhere for the storage of a range of waste containers. General domestic storage such as for garden tools, bicycles and hobby equipment also needs to be provided for. These features need to be considered and built into the development so that it remains practical and sustainable, as well as attractive, to live in. The issue of rubbish collection also needs to be addressed to avoid unsightly mounds of black refuse sacks or rows of wheelie bins directly outside houses dominating the street scene. Consideration should be given to the inclusion of suitable areas for this purpose as part of the block design.

5.6 Materials

Building materials should be of high quality. A variety of materials may be used, preventing a repetitive appearance but with controls providing sufficient consistency.

Materials should also be locally sourced wherever possible, for reasons both of local distinctiveness and sustainability.

The choice of materials for individual buildings will also need to have regard to the prevailing weather conditions. The selection of facing materials and construction details, such as roof tile fixings, must ensure that the finishes are durable and remain secure over time.

Render as an external finish may be used successfully to add interest and variety to the street scene. However, the use of render on properties on the outward facing edge of development will increase the visual impact of the development in the wider landscape. The use of render should therefore be limited on the edges of the development,

The principles of good design and use of quality materials apply equally to development associated with walking, cycling, recreation routes and spaces. There is the opportunity for the development to be an exemplar in terms of providing high quality and appropriate signposting of urban and countryside paths/links. This also applies to the choice of surface materials, gates and other street furniture.

5.7 Reduction of urban clutter

The reduction of urban clutter surrounding the buildings and streets must be a distinctive feature of the Exemplar, developed as a result of the comprehensive approach to the management of traffic and the public realm.

The approach to traffic management, building in natural traffic calming through the width of streets and positioning of buildings, should minimise the use of traffic signs, which in so many places results in a cluttered and unattractive appearance.

High standards of attention to detail in the design of the public realm are required. For example, freestanding lighting columns and signs are not always necessary - street names and street lighting can, where possible, be fixed directly on to the buildings.

6 Parking

6.1 Parking standards

The TCPA Worksheet on Transport notes innovative examples in Germany and elsewhere for dealing with car parking. For example, in Vauban, Freiburg, residents are allowed to own cars, and around 54 per cent of households do so; but the principle is that they must contribute to the total cost of the infrastructure that use of a car requires. In Vauban, a parking space in one of the car parks at the edge of the development must be rented or purchased, and this cost is entirely separate from the cost of buying or renting a home. Residents who choose not to own a car are therefore not burdened with the cost of the infrastructure required for car access and parking.

The Exemplar's position immediately adjoining the existing community of Rackheath means that such measures to restrict car ownership might be open to abuse, with residents parking off-site in the existing community. As a compromise it is therefore proposed that a maximum parking standard of one space per household plus visitor parking should be adopted for the Exemplar.

The design approach to parking in the Exemplar should consider management issues, such as the possibility of incentives for residents not to own a car. Disincentives for car ownership in the form of annual charges for residents who own cars could also be considered, although these are likely to be unpopular with residents and may not be feasible in the current climate where the housing market is depressed.

6.2 Parking treatments

The treatment of the parked car is a major issue affecting the character and appearance of any development. Because of its impact on the street scene, building elevations and density, it was originally proposed that very few houses in the Exemplar should have on-plot parking or garaging, with most parking space provided in courtyard or parking squares and limited on-street parking.

However, it is accepted that with the advent of more widespread use of electric cars, it is advantageous to be able to plug the car in to the house electrical supply for recharging. It is even conceivable that in the future, car batteries will be used to supply part of the peak household electrical demands, thus lessening the generating capacity required. Under these circumstances, there is a need for as many houses as possible to be provided with a garage. The problem with integral garages in the past has been that the space is used as extra storage and the car remains parked on street, where there may have been insufficient spaces provided for this purpose. If garaging is to be provided in the Exemplar to facilitate recharging of electric car batteries, consideration needs to be given to appropriate management regimes to ensure that the space is used for garaging. Partly this could be achieved by ensuring that the houses are designed with adequate storage space. But additional management measures may

also need to be considered to ensure that parking does not proliferate in unsuitable areas

Very careful consideration should be given to how the parked car can be accommodated in a manner that does not detract from the front elevations of houses nor the street scene. The planning application that is submitted for the Exemplar should include detailed consideration of this issue, including the possible use of basement or semi-basement parking.

Whichever parking treatment, or mix of treatments, is adopted, car parking should be designed to ensure that the fronts of properties are not dominated by cars. Where parking courts are provided close to housing, they should be designed to avoid large expanses of car parking. Instead a series of small parking courts, broken up by tree planting and green space should help to reduce the impact of the parked car on the street scene. Parking courts within residential blocks can be considered, but should not be provided at the expense of private gardens for residents and would need to be properly overlooked to provide informal surveillance.

7 Employment and community services

7.1 Standards

The Exemplar scheme must strive to be a genuine mixed-use community and to minimise unsustainable commuter trips.

A strategy should be produced to demonstrate how access to work will be achieved. This should include job creation associated with the Exemplar scheme (for example new employment uses on site or nearby, including support services). The aim should be access to one employment opportunity per new dwelling that is easily reached by walking, cycling and/or public transport.

As a sustainable community, the Exemplar should also provide facilities which contribute to the well-being, enjoyment and health of people. A good level of provision of services is required that is proportionate to the size of the development. This should include leisure, health and social care, education, retail, arts and culture, library services, sport and play facilities and community and voluntary sector facilities.

The development of the Exemplar must also sit within the context provided by the Joint Core Strategy and the economic strategy for the Greater Norwich area.

7.2 Employment

Rackheath is close to three strategic employment locations defined in the Greater Norwich Economic Strategy: the city centre, Norwich airport and Broadland Business Park. These locations will play an important part in the development of the sub-region's economy. However, it is important that new housing development at Rackheath does not simply lead to more car-borne commuting, adding pressure to the roads infrastructure. Part of the strategy is therefore to develop effective cycle routes and public transport to ensure that the demanding targets on modal shift are met, as summarised in section 3.2 above.

The Exemplar scheme is sited very close to the Rackheath industrial estate. This may generate new business activity which would be easily accessible to residents of Rackheath by walking, cycling or public transport.

Whilst the Exemplar scheme is only a relatively small development, it is important that the obligation to provide easy access to new employment opportunities for its residents is seriously addressed. Application of the one new job per new home standard would require the provision of at least 200 new jobs that are accessible to the residents. Most of this requirement would be provided outside the Exemplar site. However, a small number of jobs would also be provided on-site through the community facilities and small scale business opportunities proposed. These opportunities currently under consideration include:

- A community centre
- A visitor centre
- Incubator business units
- A shop
- Energy centre
- A health building
- A travel centre

Incubator business units are discussed below. Other possible community facilities are discussed in more detail in section 7.4 below. Not all these facilities will necessarily go ahead as they are subject to further feasibility testing and some of them may be combined in one building.

Incubator business units

In order to promote green business, it is proposed that a small area of land in the Exemplar scheme should be reserved for incubator business units related to environmental technology or green building technology. Further work is needed to define the area of land and the type of businesses that would be sought and the means of procurement. Rather than constructing speculative units, it is considered at this stage that a freehold or long leasehold interest might be offered to appropriate occupiers for them to build bespoke facilities to meet their needs, subject to controls over the form and type of building and means of operation, to ensure compatibility with the high standards expected in the Exemplar scheme and with the mainly residential nature of the development.

7.3 Schools

The development of 200 houses on the Exemplar site will generate demand for additional school places for the children who will live on the site.

As regards primary education, it is estimated that 60 additional places will be required for children of primary school age. The nearest primary school, Rackheath Primary School, is already oversubscribed and needs to expand. The intention is therefore to plan the future expansion of this school to accommodate children from the Exemplar scheme and to raise the size of the school to a 240 place school.

A site may need to be provided for a secondary school. This is dependent on whether growth plans for the Old Catton, Sprowston, Rackheath, Thorpe St. Andrew Growth Triangle, as set out in the Joint Core Strategy, are confirmed. The timing for development of this school would be dependent on these growth plans. A secondary school will not be required given the number of pupils generated by the Exemplar scheme. However, siting of the Exemplar scheme and its infrastructure should not jeopardise the potential to provide a site in the future, ideally facing Green Lane West that is easily accessible to children of secondary school age.

7.4 Other community facilities

A community centre/ visitor centre

The provision of a multi-purpose visitor centre/community building in the Exemplar scheme is essential for:

- creating a focal point in the Exemplar development
- developing community involvement
- maximising community benefit
- creating an additional facility readily accessible to existing and new residents

The visitor centre/community building must be a public demonstration of:

- water efficiency
- energy efficiency
- sustainable materials/building techniques
- good design enabling flexible use

The visitor centre/community building will:

- provide a common meeting place for existing and new residents
- be an initial base for the community management trust
- offer potential for social enterprise – e.g. community cafe
- offer an opportunity for existing residents to become involved in a project which delivers clear and tangible benefits for all
- help to build social capital and promote inclusion
- build community capacity
- provide a focal point for local voluntary groups
- foster community involvement
- offer an outreach facility for service providers
- be designed to allow for changing uses over time.

The community will be involved in the specification and commissioning of the building and will ultimately manage the facility for the benefit of the community.

The visitor centre/community building will contribute to the Exemplar project by:

- showcasing energy and water efficiency measures in an accessible public building
- offering mixed uses for community groups including social enterprise
- supporting community cohesion and capacity building
- providing a venue for further projects

A shop

It is recognised that 200 housing units would not normally generate enough trade to support a shop. However, there may be scope for a specialist service or retail outlet, or even a café/restaurant, especially when the existing population of Rackheath is taken into account. If this cannot provide sufficient revenue for normal commercial operation, there may be opportunities for community enterprise of some form. The

development of the Exemplar should facilitate the possibility of this form of development, which may only emerge after the residential development is complete.

Energy centre

Energy is discussed in section 9 below. If the current ideas for a CHP plant for the Exemplar are taken forward, a site will need to be set aside for the energy centre to support the scheme. Siting considerations will include: easy accessibility to the source of feedstock; vehicular access for maintenance purposes; and appropriate separation from the nearest residential property taking into account health and safety considerations.

A health building

A Norfolk Rapid Action Team is currently considering the need for a health building in Rackheath that might be sited within the Exemplar scheme. Joint use of a community facility has been suggested as a possibility, subject to the room being compatible with the “deep clean” requirements of health buildings. Discussions are ongoing with local GP surgeries with a view to them increasing their representation at Rackheath.

A travel centre

A travel centre might form part of a larger community building, where residents can obtain advice and organise the sharing of journeys, access demand responsive bus services etc.

Eco-Education Centre

An Eco-Education Centre is proposed as one of the early projects, funded by the Programme of Development money awarded to Broadland. The Centre will provide workshop and project learning sessions customised to individual school needs from a primary school requiring a session on healthy lifestyles and living in an eco-house to a secondary school running projects on the ecology of the Broads and renewable energy solutions. The centre will incorporate an eco-laboratory and a food technology suite and will work closely with “green” businesses and be used as a resource for adult learning and disseminating information about eco-living and the eco-community. Alternative sites for this facility are under consideration. At present, it is unlikely to be sited within the Exemplar scheme. If it is located within Rackheath Industrial Estate, this will increase the importance of providing good pedestrian and cycle links to the Exemplar site.

8 Water

8.1 Standards

The following standards are proposed for the Exemplar site:

- As Rackheath falls into an area of serious water stress, the Exemplar should aspire to water neutrality, i.e. achieving development without increasing overall water use.
- A water cycle strategy should be prepared to provide a plan for the necessary water services infrastructure improvements.
- The water cycle strategy should incorporate measures for improving water quality and managing surface water, groundwater and local watercourses to prevent surface water flooding from those sources;
- It should incorporate sustainable drainage systems (SUDS) including proposals for long term management;
- The Exemplar should reduce and avoid flood risk wherever practicable.
- New homes will be equipped to meet the water consumption requirement of Level 5/6 of the Code for Sustainable Homes (i.e. maximum 80 litres of potable water per person per day).

8.2 Surface water management/ SUDS/ rainwater harvesting

The Exemplar site sits on a plateau at about 30m AOD within a flat landscape that slopes very gently to the north and west. In order to manage surface water on-site, it will be important that a topographic survey is carried out to help define appropriate surface water management strategies. Surface water should be managed on site to achieve three objectives:

- To provide appropriate drainage and storage of surface water runoff to avoid downstream flood risk;
- To provide a potential water resource that could contribute towards the reduction of potable water use;
- To provide wetland habitat to enhance biodiversity.

The scheme should include rainwater harvesting at both an individual property level and from communal areas.

8.3 Potable water supply and consumption

The requirement to be water neutral will require the adoption of non-standard solutions. Experience at BEDZED and elsewhere has shown that the use of low flow showers/ taps and water efficient white goods can reduce water consumption to 80 litres of potable water per capita per day. The incorporation of such measures, coupled with household rainwater harvesting, will be an essential component of the approach to water reduction in the Exemplar.

However, the Exemplar is required to go beyond this and strive for water neutrality. This is being examined in the water cycle study being commissioned by Broadland District Council. This is funded by the POD and includes consideration of a number of potential ways in which alternative sources of water can be used to minimise further extraction. The following measures will be considered in the water cycle study:

1. A development wide rainwater harvesting system to be conveyed to off-line water storage via SUDs systems and then treated to a potable standard.
2. A development wide grey water recycling system to be piped from buildings to treatment works within the Exemplar to achieve potable standard.
3. Off-line surface water storage probably in the form of a reservoir to provide a level of drought/climate change resilience and flood mitigation.
4. Adoption of existing ground water licences to provide a source of on site water supply.
5. A standard connection to mains treated water so as to ensure the development can be served in times of extreme weather conditions.

Work is continuing on the water cycle study. Early findings from this study will help to inform the planning and design of the Exemplar.

8.4 Grey water recycling

The Exemplar site is to incorporate grey water recycling as part of its response to reducing potable water demand.

The Environment Agency defines greywater as wastewater from showers, baths, washbasins, washing machines and kitchen sinks. It can be collected from some or all of these sources and, after treatment, used for purposes around the home such as toilet flushing or garden watering that do not require drinking water quality. 'Greywater reuse' is the use of untreated greywater and 'greywater recycling' is the use of treated greywater (Environment Agency: Greywater information guide, April 2008).

Most greywater recycling systems exclude the more contaminated water from washing machines and kitchen sinks.

If used for toilet flushing, a well-designed and fully functional greywater system could potentially save a third of the water used in the home. Recycled greywater could also cater for other uses for which potable water quality is not essential such as garden watering or vehicle washing. The greater the proportion of recycled water used, the less mains water will be needed thereby easing the pressure on water resources. Recycling greywater not only reduces the consumption of mains water, it also reduces the volume of water discharged into the sewerage system. Consumers with water meters could therefore save money on both their water supply and wastewater bills.

The design of the Exemplar scheme must consider alternative approaches to greywater re-use and recycling at both individual property level and at communal level. If undertaken on a communal level, the potential savings on the use of potable

water are greater, but this may be offset by greater costs associated with longer collection and redistribution systems and appropriate treatment.

8.5 Foul sewerage

By using rainwater harvesting, SUDS and greywater recycling, the amount of foul sewage to be discharged from the Exemplar will be reduced.

There are constraints on sewerage and sewage treatment that will need to be addressed for the Exemplar scheme. The nearest sewage works is Rackheath Sewage Works, located on the Dobb's Beck to the north west of the site. However, we understand that this sewage works has no capacity to take any further wastewater flows. This will need to be verified with Anglian Water and an assessment made of the options for expansion of the works if necessary.

The alternative for wastewater treatment, which may be required in any event for the more extensive wastewater generated by later phases of the eco-community (if this proceeds), and other parts of the Growth Triangle, will be treatment at Whitlingham Works to the south. However, it is possible that the foul sewer may need to be increased in size to accommodate the additional flows. Again, this will need discussion with Anglian Water.

8.6 The water environment and potential for water storage

Options for water storage on the Exemplar site will need to be addressed early in the design process to ensure a co-ordinated approach is taken to its design. There may be storage of surface water runoff, rainwater harvesting and greywater. These different types of water may need different levels of treatment before being re-used. Any water storage on the Exemplar site should be considered not only for its potential to reduce potable water use, but also for its potential amenity value if located in the village green, and also its potential to enhance biodiversity. Ponds, reedbeds, wetland and larger water bodies could help to give the Exemplar site a unique sense of place and replicate in part the environment of the Norfolk Broads. This could make the site very attractive as a place to live.

9 Energy

9.1 Standards

The definition of zero carbon that was set out in the Ecotowns PPS is that “over a year the net carbon dioxide emissions from all energy use within the buildings on the ecotown development as a whole are zero or below”. The planning application for the Exemplar should demonstrate how this will be achieved for the buildings in the Exemplar.

The definition of zero carbon excludes embodied carbon and emissions from transport but includes all buildings.

In relation to climate change, the Exemplar should be a sustainable community that is resilient to and appropriate for the climate change now accepted as inevitable. It should be planned to minimise future vulnerability in a changing climate, and with both mitigation and adaptation in mind.

The standards for homes are summarised in section 5 of this brief, but it is worth repeating the elements relating specifically to energy use and carbon reduction here. These are that homes should:

- Have real time energy monitoring systems; real time public transport information and high speed broadband access, including next generation broadband where possible;
- Demonstrate high levels of energy efficiency in the fabric of the building, having regard to proposals for standards to be incorporated into changes to the Building Regulations between now and 2016; and
- Achieve, through a combination of energy efficiency and low and zero carbon energy generation on the site of the housing development and any heat supplied from low and zero carbon heat systems directly connected to the development, carbon reductions (from space heating, ventilation, hot water and fixed lighting) of at least 70 per cent relative to current Building Regulations (Part L 2006).

The intent of the energy efficiency and on-site carbon reduction standards is to ensure that, without being too prescriptive as to the means employed to achieve the overall zero carbon standard, reasonable opportunities for energy efficiency and on-site carbon mitigation (including directly connected heat systems) are utilised.

9.2 Code for Sustainable Homes energy requirements

The Government undertook consultation in December 2009 on an update of the Code for Sustainable Homes. The intention was to make changes to align the Code with the latest developments in zero carbon homes policy and to address other issues based on experience to date. The final version has not been published yet. In relation to the energy standard, the consultation draft proposed that Code 6 should be changed to

match the zero carbon standard. A three step approach has been adopted for reaching the zero carbon standard:

1. A high level of energy efficiency in the fabric and design of the dwelling;
2. “Carbon compliance” – a minimum level of carbon reduction to be achieved from on-site technologies (including directly connected heat networks);
3. “Allowable solutions” – a range of measures for achieving zero carbon beyond the minimum carbon compliance requirements.

The consultation draft proposed Code 6 energy standard would be for 70% onsite (carbon compliance), with the balance of 30% to be achieved through allowable solutions.

9.3 Energy scheme for the Exemplar

The intention is to implement a neighbourhood solution for the Exemplar that delivers the standards set out above, including Code 6 for energy. This has not yet been fully defined with feasibility studies ongoing.

Based on experience at Hanham Hall and elsewhere, Barratt’s is considering options to supply the new housing (and other buildings in the Exemplar) with electricity from a mini CHP plant on site, fired by biogas. The biogas would be supplied by an anaerobic digester (AD) that may be either on-site or, perhaps, in the nearby industrial estate. Anaerobic digestion provides an important opportunity to generate 100 per cent renewable energy from biodegradable waste. This could be partly fed by the food waste that Broadland Council has started to collect, together with other biodegradable material.

10 Waste

10.1 Standards

The Ecotowns PPS requires planning applications to include a sustainable waste and resources plan, covering both domestic and non-domestic waste. This should:

- (a) “Set targets for residual waste levels, recycling levels and landfill diversion, all of which should be substantially more ambitious than the 2007 national Waste Strategy targets for 2020”. It should also show how these targets will be achieved, monitored and maintained.
- (b) “Establish how all development will be designed so as to facilitate the achievement of these targets, including the provision of waste storage arrangements which allow for the separate collection of each of the seven priority waste materials as identified in the Waste Strategy for England 2007”.
- (c) “Provide evidence that consideration has been given to the use of locally generated waste as a fuel source for combined heat and power (CHP) generation” for the Exemplar; and
- (d) “Set out how the developer will ensure that no construction, demolition and excavation waste is sent to landfill, except for those types of waste where landfill is the least environmentally damaging option.”

10.2 The Exemplar community as a “zero waste place”

a) The 2007 national waste strategy set targets for waste aiming to reduce waste generated per person from 450kg p.a. to 225kg p.a. by 2020. At Rackheath, targets should be focused on waste prevention and minimisation in line with European ‘best practice’. The plan will have the concept of ‘zero waste’ at its heart but will include a benchmark of household waste arisings per person of at most 200 kg household waste per annum (excluding green garden waste). The link between waste and carbon usage will be a key feature in order to minimise the carbon ‘footprint’ of the development.

The 2007 national waste strategy also set targets for recycling and composting of household waste of 50% by 2020. At Rackheath, a target of 75% recycling and composting on site is proposed.

These targets are ambitious, especially the proposal to reduce waste arisings to no more than 200kg per person per year (excluding composting of green waste which should be dealt with on site). With 75% recycled, this would mean a maximum of 50kg of residual waste per person per year (approximately 1kg per week per person). Achievement of these targets will require special consideration of ways in which behavioural change can be encouraged in the Exemplar scheme. This could require community mentors to encourage best practice and also the possible use of incentives. The community will also be encouraged to maximise re-use both within the development and in the wider area. A high level waste resource plan will be developed which will include a community waste prevention plan. Materials will be targeted to seek reductions in their need for disposal e.g. disposable nappies but also to ensure all materials which can be recycled or re-used using available systems are.

A waste prevention plan drawing upon best practice will be established before the development is occupied. This plan will require community involvement and support to realise its expectations. The Council will undertake a baseline assessment of waste volumes and composition from available data in order to inform the waste resource and prevention plans. Where practicable, the study will include data from the business and commercial sector in the locality.

The infrastructure to support the waste strategy must also be sustainable. A monitoring plan for assessing the achievement of targets and the waste resource plan will be established drawing on experience gained from nearby development.

In summary, features of the waste resource plan that should be considered for the Exemplar scheme over and above the norm for Broadland are:

- Community composting, both in private gardens and at the allotments site;
- A waste resource centre as part of the community building, where other waste streams such as glass, textiles, shoes and electrical items are collected, sorted and reused or recycled;
- Consideration of how to promote waste “mentors” or champions as part of the community and social development plan. Also consider whether incentives can be offered to residents who reduce waste and adopt good practice for reuse and recycling.

b) The development will be designed to make waste management ‘user friendly’ and convenient such that recycling and re-use is maximised after waste prevention. However, a bespoke solution for the Exemplar scheme cannot be adopted that imposes unrealistic additional costs on the waste authority. Therefore the collection system will be the same as that available elsewhere in Broadland. In essence, this comprises alternate weekly refuse and recycling collection, collecting rubbish one week and recyclable material the next, with people having a household refuse bin (green), and a recycling bin (grey). The recycling collection includes paper, cardboard, tins/ cans and plastic bottles. Properties will be designed which fully incorporate facilities to collect, sort and store waste and recyclables in a convenient and discrete manner. Access will be required for collection vehicles to allow ease of collection. Individual household receptacle storage will be preferred over communal as individual responsibility for waste management is encouraged and this will simplify monitoring to a household level.

As regards specific materials which will benefit from community collection these include glass. For example glass will probably be collected through glass banks, typically located at convenient strategic locations which are accessible and pleasant to visit. It is suggested that one or two glass banks should be provided on the Exemplar scheme, perhaps adjacent to community buildings.

There is also scope to collect textiles/ shoes/ electrical items at the community building. This could become a waste resource centre where such materials are sorted and separated and the potential material for re-use and recycling processed. This could provide local employment.

The Council also offers a service to collect garden waste (a brown bin), although a charge applies for this service. There is scope to replace Council collection of garden waste by on-site composting within the Exemplar. This could include a combination of household composting within garden areas and community composting (perhaps as part of the allotment scheme).

The Council has also launched a trial collection of food waste, which has been an overwhelming success. This service is available to Rackheath and the Exemplar scheme. The food waste scheme consists of two bins, a small container called a 'caddy' to collect food waste in the kitchen and a larger external container which is emptied on a weekly basis. Residents have been provided with compostable liners, which are designed to fit inside the kitchen caddy. Residents will be supported to compost uncooked food waste such as peelings and trimmings from fruit and vegetables. In this way nutrients will be returned to the soil locally to minimise carbon usage.

Easily accessible 'Recycle on the go' receptacles will be provided across the development to capture material generated in public areas for maximising recycling.

c) Consideration will be given to the development of anaerobic digestion facilities locally to provide energy to the development and the use of CHP. Food waste currently managed by the Council could be a feedstock for any plant. Consideration will be given to combining the anaerobic digestion of food using the sewerage system as a transport medium. Digestate would be made available for local land usage. Other waste generated in the locality could be considered for the generation of energy and CHP.

d) as part of the planning and design of the development attention will be paid to the need to minimise waste and maximise recycling and re-use during demolition, site preparation and construction. Best practice should be adopted including monitoring during development.

11 Community governance

11.1 Standards

A long term approach should be adopted to community governance to ensure that the Exemplar retains its integrity, and is able to manage change in a planned way. Planning applications should be accompanied by long term governance structures for the development to ensure that:

- (a) Appropriate governance structures are in place to ensure that standards are met, maintained and evolved to meet future needs;
- (b) There is continued community involvement and engagement, to develop social capital;
- (c) Sustainability metrics, including those on zero carbon, transport, water and waste are agreed and monitored;
- (d) Future development continues to meet the standards set out in this brief; and
- (e) Community assets are maintained.

Governance proposals should be appropriate to the scale and complexity of the development, and should complement existing democratic arrangements for parish and local governance. They should set out the proposed financial, management and legal structures (including arrangements for the transfer of land, buildings or endowment funds to resident-led community organisations for community use and development, including cultural, worship and income generating purposes).

11.2 Exemplar arrangements

A community trust is to be established to provide a vehicle for the management of assets and public space, safeguard the integrity of the exemplar as an eco-community and provide a forum for continuing community involvement.