# *Sustainability, Energy & Climate Change Strategy (Turley)*

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# Sustainability, Energy & Climate Change Strategy

Silfield Garden Village

March 2020

Turley
Sustainability

# Contents




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*Orbit Homes is committed to delivering a new settlement at Silfield Garden Village which demonstrates exemplar sustainability, energy and climate change performance including net zero carbon to create a long-term legacy for both the existing and new local community.*

# Silfield Garden Village

## Net Zero Carbon Vision

Orbit Homes proposes the delivery of a new community at Silfield Garden Village with exemplar sustainability, energy and climate change performance - including net zero carbon. This will support the Greater Norwich Development Plan (GNDP) vision and objectives for integrated economic and housing growth which minimises environmental impacts and promotes net sustainability benefits.

### Renewable Energy

The new homes and other buildings at Silfield Garden Village will feature high levels of energy efficiency together with integrated low carbon and renewable energy technologies such as heat pumps and solar panels. A solar farm is also proposed to further enhance energy and carbon performance and provide potential opportunity for community investment and ownership .

### Low Carbon Transport

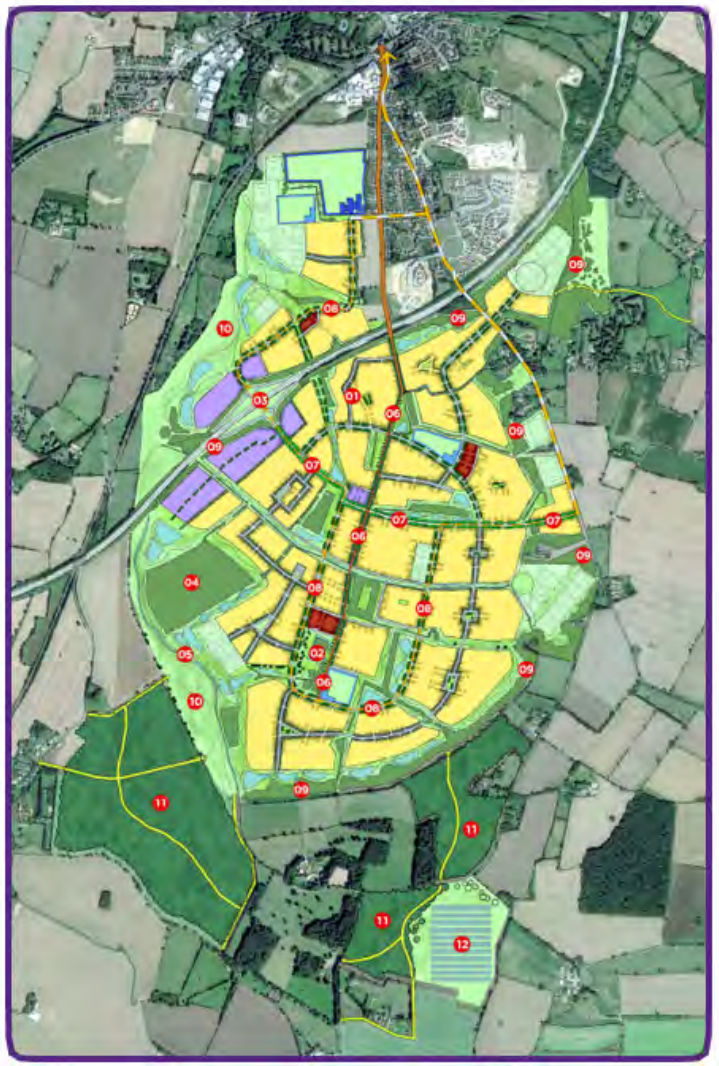
Silfield Garden Village has the opportunity to facilitate a genuine and significant modal shift towards sustainable and low carbon transport modes such as walking, cycling, bus, rail and Electric Vehicles. Digital infrastructure will help minimise the need to travel through enabling remote and home working.

### Embodied Carbon

Carbon emissions during construction will be assessed and reduced through appropriate materials selection and specification including potential opportunities to utilise modern methods of construction (MCC) and/or off-site fabrication.

### Low Energy Infrastructure

To reduce energy and carbon emissions in use, the development will include low energy infrastructure such as LED street lighting and energy efficient appliances. Control and good management practice will be employed to further reduce unregulated energy consumption on site.



### Woodland Creation

The masterplan provides extensive areas of green infrastructure including approximately 15 hectares of new woodland. The opportunity exists to utilise some of this woodland planting for local carbon offsetting for example via the Woodland Carbon Code.

### Sustainable Homes

All new homes at Silfield Garden Village will be designed to meet and exceed new national standards including the Future Homes Standard. As well as being energy efficient and water efficient, the dwellings will be designed to provide high quality, healthy and comfortable indoor environments with due consideration of daylight, air quality and natural ventilation.

# Silfield Garden Village

## A Sustainable Community

Silfield Garden Village will be a highly sustainable new community which responds to environmental imperatives beyond climate change. Biodiversity, sustainable transport, sustainable water management and health & wellbeing will all be promoted through high-quality design.

### Biodiversity Protection & Enhancement

Existing watercourses, hedgerows, trees and other features will be retained and incorporated into the development wherever feasible. Biodiversity net gain will be targeted through the retention of existing features wherever possible and the use of native and Biodiversity Action Plan species as part of the extensive landscaping proposed across the masterplan.

### An Accessible Location

The Silfield Garden Village site has excellent strategic transport connections, located adjacent to the A11 providing direct links to Norwich and Cambridge and close to Wymondham town centre, Bus Interchange and Railway Station by sustainable travel modes including bicycle and on foot.

### Sustainable Transport

The Garden Village will enjoy strong connections to the wider area with excellent pedestrian, cycle and public transport links including a Green way to Wymondham town centre supporting the town's role as a sustainable transport hub. The proposed scale of development will support local facilities and sustainable infrastructure, thereby promoting self-containment in accordance with Garden Village principles

### Reducing the Risk of Overheating

Extensive green and blue infrastructure and careful building design and orientation will be used to mitigate the urban heat island effect and reduce potential summertime overheating risk.

### Flood Risk and Surface Water Drainage

A network of minor drains and watercourses traverse the site which will be incorporated into the sustainable drainage system (SuDS). As well as managing surface water run-off and providing flood protection, these features will integrated with the landscape to provide additional benefits to wildlife and the community including enhanced amenity and biodiversity.

### Water Efficiency

Water efficiency measures such as water meters, dual flush WCs, aerated taps, flow controlled showers and water butts will contribute to achieving low water consumption rates below the national standards set by Building Regulations Part G

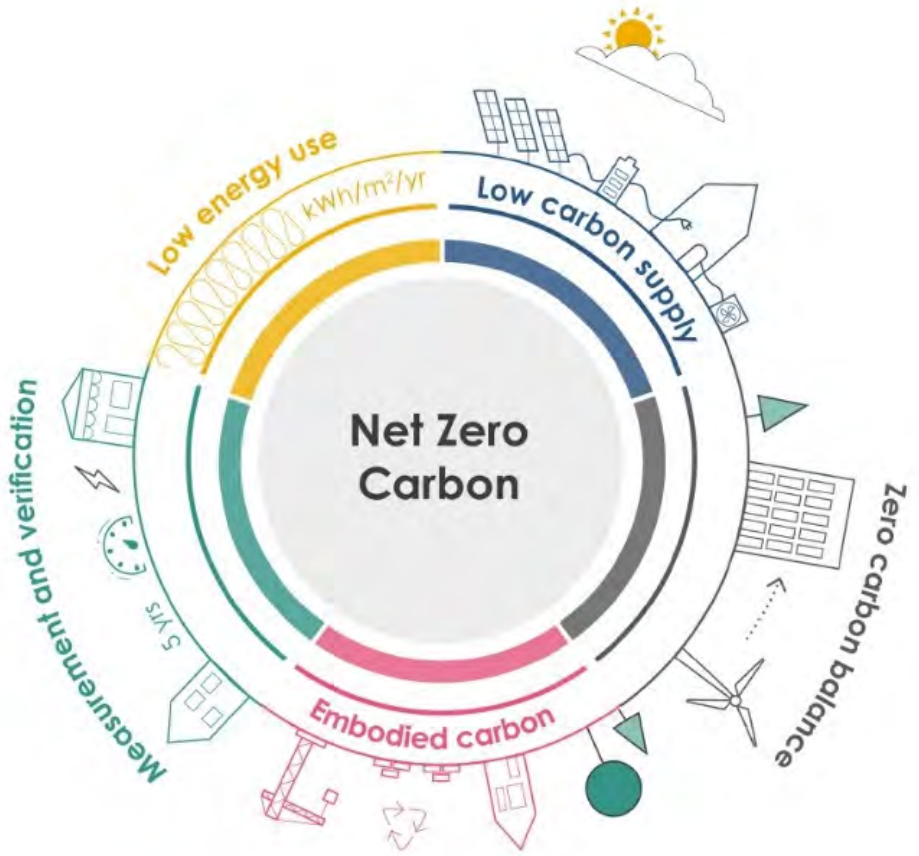
# 1. Introduction

This Sustainability, Energy & Climate Change Strategy sets out the range of measures that will be incorporated into the Silfield Garden Village proposals to ensure exemplar sustainability, energy and climate change performance including net zero carbon.

## 1.1 Introduction

This Sustainability, Energy & Climate Change Strategy has been prepared by Turley Sustainability on behalf of Orbit Homes and Bowbridge Strategic Land. It supports representations to the Regulation 18 Greater Norwich Local Plan consultation and sets out the range of measures proposed as part of Silfield Garden Village to ensure exemplar levels of sustainability, energy and climate change performance. This includes targeting net zero carbon in accordance with the UK Green Building Council Net Zero Carbon Buildings Framework (see **Figure 1**).

Figure 1: Net Zero Carbon Buildings [UKGBC/LETI]



The UK has committed to become net zero carbon by 2050, the world's first major economy to do so. This target is legally-binding under the Climate Change Act, resulting in substantial new national policy and regulations that seek to drive down emissions in pursuit of this goal.

The Future Homes Standard 2025, for example, proposes a 75-80% reduction in $CO_2$ emissions relative to homes built today. These future homes will feature low carbon heating and benefit from the significant ongoing decarbonisation of the UK electricity grid.

At the local level, public and political climate change concern has increased significantly, with Norwich City Council declaring a climate emergency in January 2019. The Greater Norwich Development Plan (GNDP) Joint Core Strategy spatial vision rightly recognises that zero carbon will be the standard to be achieved for new development through advances and innovation in the design, construction and management of sustainable communities.

The vision for Silfield Garden Village is to combine the proposed scale of development with the master developer approach and patient capital delivery model to exceed these national standards and target net zero carbon.

This performance can be achieved through enhanced building fabric performance, optimised building-integrated low and zero carbon energy technology, together with the significant opportunities presented by the masterplan such as significant zero carbon power generation (and potentially also storage) via a solar farm, and potential carbon offset opportunities via substantial woodland creation.

Construction carbon will be reduced through the use of natural and lower carbon materials where feasible, potentially also use of modern methods of construction (MMC) and/or off-site fabrication.

The sustainability, energy and climate change strategy set out in the Statement seeks not only to deliver net zero, but also to holistically meet other key outcomes including: high quality and healthy internal and external environments; resilience to climate change impacts such as flood, heat and drought; sustainable transport and modal shift, and; biodiversity protection, enhancement and net gain.

## 1.2 Application Site

The proposed Site of Silfield Garden Village occupies approximately 451 hectares of predominantly agricultural land to the south of the town of Wymondham, South Norfolk. It is located around 13 km south-east of central Norwich straddling the A11 and within easy reach of two railway stations at Wymondham and Spooner Row.

The Site comprises arable field enclosures extending from the urban edge of Wymondham to Bays River in the west. It is well located for a range of sustainable transport modes, being 1km from Wymondham town centre and bus interchange, and within walking and cycling distance of the railway station.

## 1.3 Development Proposals

A new community of around 6,500 homes is envisaged; a level of growth that will support the provision of new on-site primary and secondary schools, local employment and local centres. These uses will be supported with extensive integrated green and blue infrastructure including substantial new woodland, pedestrian and cycle infrastructure including a greenway, and a solar farm.

The Illustrative Masterplan for Silfield Garden Village is presented in **Figure 2**.

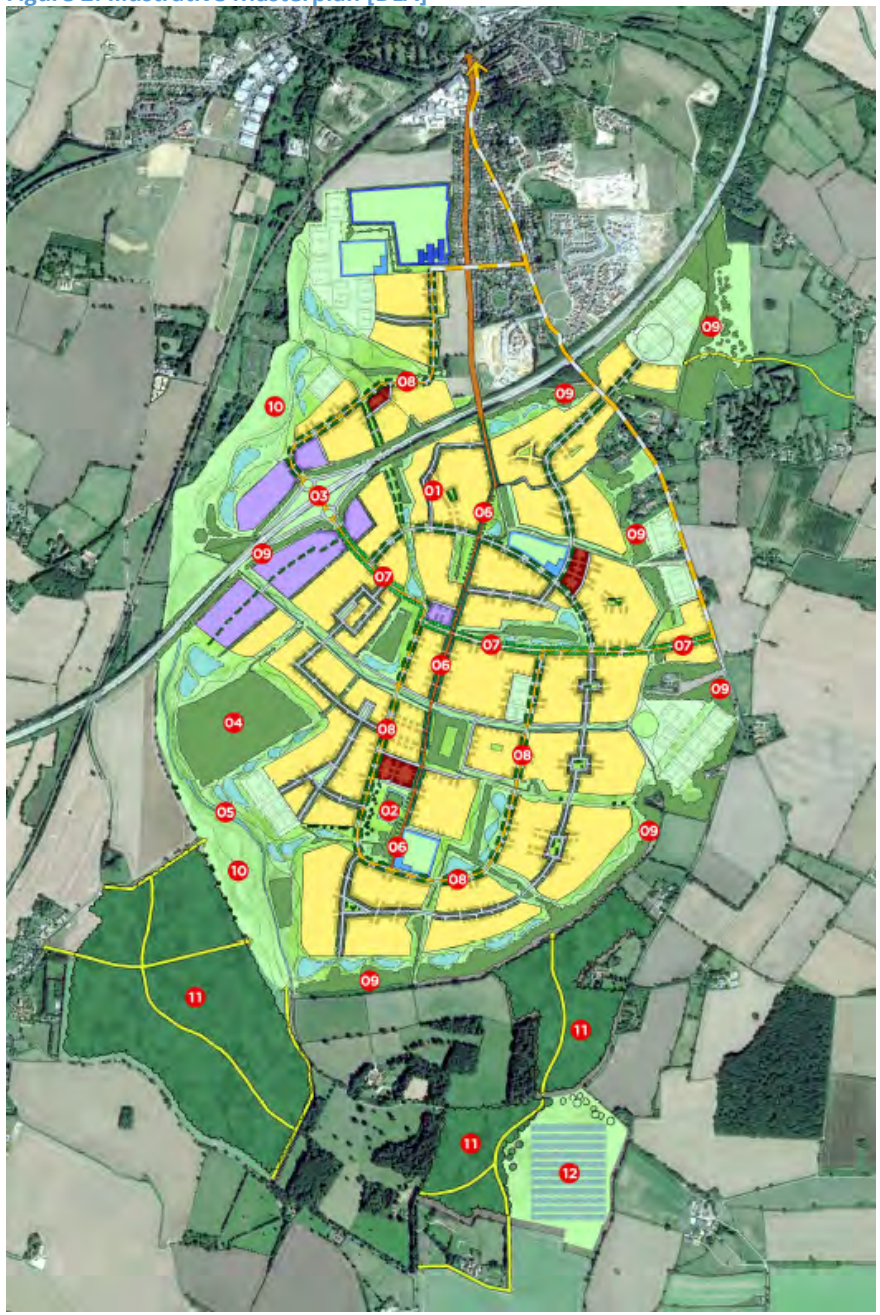
## 1.4 Document Structure

**Chapter 2** of this document sets out the existing and emerging planning policy context for the Silfield Garden Village proposals in relation to sustainable development at the national, Greater Norwich and South Norfolk levels.

**Chapter 3** reports the proposed sustainability, energy and climate change strategy for Silfield Garden Village.

**Chapter 4** summarises key aspects of the measures detailed in Chapter 3 and the related benefits of allocating the land for a Garden Village as a spatial development solution to meeting the needs of the GNDP Area.

Figure 2: Illustrative Masterplan [DLA]



# 2. Planning Policy Context

## 2.1 Introduction

This Chapter summarises the planning policy context and related guidance for Silfield Garden Village in relation to sustainability, energy and climate change at the national, Greater Norwich and South Norfolk levels.

## 2.2 National Policy

Planning policy is set at the national level by the National Planning Policy Framework (NPPF) and associated Planning Practice Guidance (PPG) as summarised below.

### 2.2.1 National Planning Policy Framework

Most recently updated in February 2019, the **National Planning Policy Framework (NPPF)**[1] sets out the Government's planning policies for England.

NPPF paragraph 7 states *"the purpose of the planning system is to contribute to the achievement of sustainable development"*.

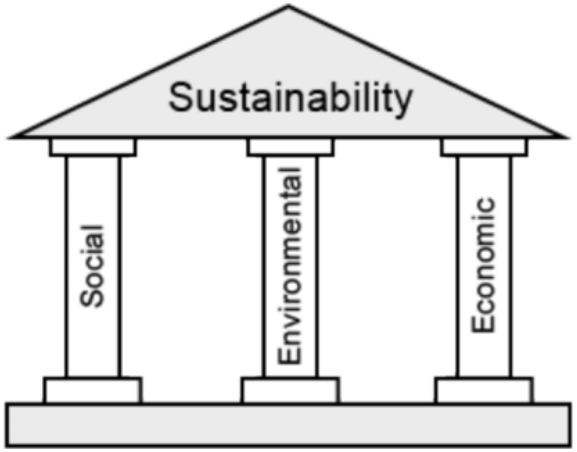
The planning system is required to jointly perform three objectives aligned to the 'three pillars' of sustainability (see **Figure 3**) as follows:

An **economic** objective to build a strong and competitive economy by ensuring sufficient land of the right type is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

A **social** objective supporting strong, vibrant and healthy communities by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment with accessible local services that reflect the community's needs and support its health, social and cultural well-being;

An **environmental** objective to protect and enhance our natural, built and historic environment; help to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change as we transition to a low carbon economy.

**Figure 3: The 'Three Pillars' of Sustainability**




The focus of this document is the environmental aspects of sustainable development.

[1] https://www.gov.uk/government/collections/revised-national-planning-policy-framework

### 2.2.2 Planning Practice Guidance

Most recently updated in October 2019, **Planning Practice Guidance (PPG)**[2] underpins policies within the NPPF and provides guidance on their implementation. As such PPG is a material consideration in planning decisions and should generally be followed unless there are clear reasons not to do so.

#### 2.2.2.1 National Design Guide

The **National Design Guide**[3] published in October 2019 forms part of the PPG. It sets out the characteristics of well-designed places and explains what good design means in practice.


The guide explains how well-designed places and buildings conserve natural resources including land, water, energy and materials. Their design also responds to the impacts of climate change such as rising temperatures and increased flood risk, whilst contributing to climate change mitigation through greenhouse gas (GHG) emissions reduction during both construction and operation.

## 2.3 Climate Change Act

The **Climate Change Act 2008**[4] is the basis for the UK's approach to tackling and responding to climate change. It requires that emissions of carbon dioxide and other greenhouse gases are reduced and that climate change risks are prepared for.

In June 2019 the Government amended the Act to set a new legally binding target of net zero carbon emissions by 2050, the world's first major economy to do so.

## 2.4 Future Homes Standard

Whilst not planning policy, the proposed **Future Homes Standard**[5] will have significant implications to the design, construction and operation of new dwellings from 2025 when the standard is scheduled to come into effect and construction of Silfield Garden Village is anticipated to commence.

The 2019 Spring Statement included a commitment that, by 2025, Government will introduce a Future Homes Standard for new build homes to be future-proofed with low carbon heating and world-leading levels of energy efficiency. The Future Homes Standard builds on the Grand Challenge Buildings Mission to at least halve the energy use of new buildings by 2030[6].

The Future Homes Standard will have very high fabric standards and will mean that every new home will typically have triple glazing and standards for walls, floors and roofs that significantly limit heat losses.

In order to meet the UK's net zero emissions target by 2050, low carbon heating systems will also be required – for example heat pumps or district heating rather than gas boilers.

A new typical semi-detached home built to meet the Standard is anticipate to reduce operational carbon emissions by 75-80% compared to current (2013) Building Regulations Part L standards.

To achieve this performance, new homes built to the Future Homes Standard will typically have a heat pump, a waste water heat recovery system,

[2] https://www.gov.uk/government/collections/planning-practice-guidance
[3] https://www.gov.uk/government/publications/national-design-guide
[4] http://www.legislation.gov.uk/ukpga/2008/27/contents
[5] https://www.south-norfolk.gov.uk/sites/default/files/Development_Management_Policies_Document_0.pdf
[6] https://www.gov.uk/government/publications/industrial-strategy-the-grand-challenges/industrial-strategy-the-grand-challenges

solar PV, triple glazing and minimum standards for walls, floors and roofs.

The Future Homes Standard will be set in performance terms (for example minimum levels of primary energy and carbon emissions, limiting fabric standards and building services standards) without prescribing the technologies to be used in order to allow housebuilders the flexibility to innovate and select the most practical and cost-effective solutions in particular circumstances.

As the national electricity grid continues to decarbonise, homes built to the Future Homes Standard will become net zero carbon over time with no need for further adaptations or changes, as they will not be reliant on fossil fuels for their heating.

## 2.5 The Environment Bill 2020

The Environment Bill was originally introduced into parliament on 15 October 2019 and sets out how Government plans to protect and improve the UK's natural environment. The **January 2020 Environment Bill Policy Statement**[7]

Acting as one of the key vehicles for delivering the bold vision set out in the 25 Year Environment Plan, the Environment Bill brings about urgent and meaningful action to combat the environmental and climate crisis.

It sets an ambitious domestic framework for environmental governance as we leave the European Union and is a first step in the delivery of the Government's commitment to be the first generation to leave our environment in a better state.

The Environment Bill introduces among other things a mandatory requirement for biodiversity net gain in the planning system. This seeks to ensure that new developments enhance biodiversity and create new green spaces for local communities to enjoy.

Integrating biodiversity net gain into the planning system will provide a step change in how planning and development is delivered. The Bill will provide new opportunities for innovation as well as stimulating new economic markets. This is expected to result in the creation and the avoidance of loss of several thousands of hectares of habitat for wildlife each year.

This will also increase the public benefits of ecosystems such as improvements in air quality, water flow control, outdoor recreation and physical activity.

The Environment Bill will enable landowners to make long term commitments to conservation through 'conservation covenants' - voluntary but legally-binding agreements between a landowner and a 'responsible body', such as a conservation charity, to fulfil conservation objectives for the public good.

## 2.6 Greater Norwich Development Partnership (GNDP)

### 2.6.1 Joint Core Strategy for Broadland, Norwich and South Norfolk, GNDP (2014)

The **Joint Core Strategy (JCS)**[8] for Broadland, Norwich and South Norfolk has been prepared by these Council's working together with Norfolk County Council as the Greater Norwich Development Partnership (GNDP).


[7] https://www.gov.uk/government/publications/environment-bill-2020/30-january-2020-environment-bill-2020-policy-statement
[8] https://www.south-norfolk.gov.uk/sites/default/files/JCS_Adopted_Version_Jan_2014.pdf

The JCS sets out the long-term vision and objectives for the area, including strategic policies for steering and shaping development. It identifies broad locations for new housing and employment growth and changes to transport infrastructure and other supporting community facilities.

The JCS recognises that growth in new homes and jobs will be centred in and around Norwich and, whilst brownfield sites will be used wherever possible, developing green fields in Broadland and South Norfolk is unavoidable.

The **spatial vision** of the JCS is for the extended communities of Broadland, Norwich and South Norfolk to be strong, cohesive, creative and forward looking and with at least 36,820 new homes built by 2026. Regarding climate change and sustainability, the JCS spatial vision states:

- regeneration, development and growth will create sustainable places and revitalise areas of deprivation, while minimising the use of global resources, supporting the development of good waste management practices, maximising the use of brownfield land and mitigating and adapting to the effects of climate change;
- people will use less water, the quality of water resources and the aquatic environment will be maintained or improved, and the risk of flooding will be avoided or mitigated;
- zero carbon development will be the standard to be achieved through advances and innovation in the design, construction and management of sustainable communities and new buildings which improve energy efficiency and use renewable energy; and
- a network of green links will connect existing open space and wildlife habitats across urban areas and the countryside, and link to neighbouring areas outside the JCS including the Broads.

Several JCS spatial objectives are of direct relevance to this Sustainability Strategy. **Spatial Objective 1** is to minimise the contributors to climate change and address its impact. High standards of design and sustainable access will be promoted to reduce greenhouse gases and adapt to the impact of climate change. Zero and low -carbon developments will be encouraged.

Water efficiency will be a priority in both new and existing development. New development will be guided away from areas with a high probability of flooding.

**Objective 9** meanwhile is to protect, manage and enhance the natural, built and historic environment, including key landscapes, natural resources and areas of natural habitat or nature conservation value.

The area is a special place and it is a priority to maintain and improve these special qualities so that everyone can enjoy them.

The scale of development that needs to be accommodated will require the development of some significant greenfield areas, which will affect the existing landscape. Where this is necessary, development must provide environmental gains through green infrastructure, including allotments and community gardens.

Biodiversity, geodiversity and locally distinctive landscapes will be protected and enhanced. Linkages between habitats will be promoted, helping to enable adaptation to climate change. Sustainable access to the countryside will be promoted. Efficient use will be made of minerals, energy and water resources, and the production of waste will be minimised.

### Policy 1: Addressing climate change and protecting environmental assets

To address climate change and promote sustainability, all development will be located and designed to use resources efficiently, minimise greenhouse gas emissions and be adapted to a changing climate and more extreme weather. Development will therefore:

- be energy efficient;
- provide for recycling of materials;
- use locally sourced materials wherever possible;

- be located to minimise flood risk, mitigating any such risk through design and implementing sustainable drainage;
- minimise water use and protect groundwater sources;
- make the most efficient appropriate use of land, with the density of development varying according to the characteristics of the area, with the highest densities in centres and on public transport routes;
- minimise the need to travel and give priority to low impact modes of travel;
- be designed to mitigate and be adapted to the urban heat island effect in Norwich; and
- improve the resilience of ecosystems to environmental change.

The environmental assets of the area will be protected, maintained, restored and enhanced and the benefits for residents and visitors improved.

Development and investment will seek to expand and link valuable open space and areas of biodiversity importance to create green networks. Where there is no conflict with biodiversity objectives, the quiet enjoyment and use of the natural environment will be encouraged and all proposals should seek to increase public access to the countryside.

All new developments will ensure that there will be no adverse impacts on European and Ramsar designated sites and no adverse impacts on European protected species in the area and beyond including by storm water run-off, water abstraction, or sewage discharge.

They will provide for sufficient and appropriate local green infrastructure to minimise visitor pressures. Development likely to have any adverse effect on nationally designated sites and species will be assessed in accordance with national policy and legislation.

In areas not protected through international or national designations, development will:

- minimise fragmentation of habitats and seek to conserve and enhance existing environmental assets of acknowledged regional or local importance. Where harm is unavoidable, it will provide for appropriate mitigation or replacement with the objective of achieving a long term maintenance or enhancement of the local biodiversity baseline;
- contribute to providing a multifunctional green infrastructure network, including provision of areas of open space, wildlife resources and links between them, both off site and as an integral part of the development;
- help to make provision for the long term maintenance of the green infrastructure network; and
- protect mineral and other natural resources identified through the Norfolk Minerals and Waste Development Framework.

### Policy 2: Promoting good design

All development will be designed to the highest possible standards, creating a strong sense of place. In particular development proposals will respect local distinctiveness including as appropriate:

- the historic hierarchy of the city, towns and villages, maintaining important strategic gaps;
- the landscape setting of settlements including the urban/rural transition and the treatment of ‘gateways’;
- the landscape character and historic environment, taking account of conservation area appraisals and including the wider countryside and the Broads area;
- townscape, including the city and the varied character of our market towns and villages;
- provision of landscaping and public art;
- the need to ensure cycling and walking friendly neighbourhoods by applying highway design principles that do not prioritise the movement function of streets at the expense of quality of place;
- the need to increase the use of public transport, including through ‘public transport oriented design’ for larger development;

- designing out crime;
- the use of sustainable and traditional materials; and
- the need to design development to avoid harmful impacts on key environmental assets and, in particular SACs, SPAs and Ramsar sites

This will be achieved by ensuring that:

- major development areas providing over 500 dwellings or 50,000 sqm of non-residential floorspace, and areas of particular complexity will be masterplanned using an inclusive, recognised process demonstrating how the whole scheme will be provided and ensuring that it is well related to adjacent development and infrastructure;
- all residential development of 10 units or more will be evaluated against the Building for Life criteria published by CABE (or any successor to this standard), achieving at least 14 points (silver standard);
- Design and Access Statements for non-residential development will show how the development will meet similar high standards.

## Policy 3: Energy and water

### *Energy*

Development in the area will, where possible, aim to minimise reliance on non-renewable high-carbon energy sources and maximise the use of decentralised and renewable or low-carbon energy sources and sustainable construction technologies. To help achieve this:

- all development proposals of a minimum of 10 dwellings or 1,000sqm non-residential floorspace will be required (a) to include sources of decentralised and renewable or low-carbon energy providing at least 10% of the scheme's expected energy requirements and (b) to demonstrate through the Design and Access Statement for the scheme whether or not there is viable and practicable scope for exceeding that minimum percentage provision;
- detailed proposals for major developments (minimum of 500 dwellings or 50,000 sqm non-residential floorspace) will be required to demonstrate through the Design and Access Statement that the scheme has seized opportunities to make the most of any available local economies of scale to maximise provision of energy from sources of 'decentralised and renewable or low carbon energy sources';
- all development proposals of a minimum of10 dwellings or 1,000 sqm non-residential floorspace will be required to demonstrate, through the Design and Access Statement, that all viable and practicable steps have been taken to maximise opportunities for sustainable construction

Provision will be made for strategic enhancement of the electricity and gas supply networks to support housing and employment growth. This will include major investment in existing electricity substations.

### *Water*

The release of land for development will be dependent on there being sufficient water infrastructure to meet the additional requirements arising from the new development and to ensure that water quality is protected or improved, with no significant detriment to areas of environmental importance. This will be achieved by greater efficiency and by providing infrastructure, including strategic interceptor sewers, to address environmental and capacity constraints at strategic wastewater treatment works and at local works. This water infrastructure will be upgraded as required and be operational in time to meet the demands of any development.

To ensure all housing is water efficient, new housing development must reach Code for Sustainable Homes Level 4 for water on adoption of this document and developments of over 500 dwellings must reach Code Level 6 by 2015. All other development should also seek to maximise water efficiency.

### Policy 10: Locations for major new or expanded communities in the Norwich Policy Area

Major growth in various locations including Wymondham will be masterplanned as attractive, well serviced, integrated, mixed use development using a recognised design process giving local people an opportunity to shape development.

Development will achieve the highest possible standards of design and aim to address current service and infrastructure deficiencies to benefit existing communities. In addition each major development location will:

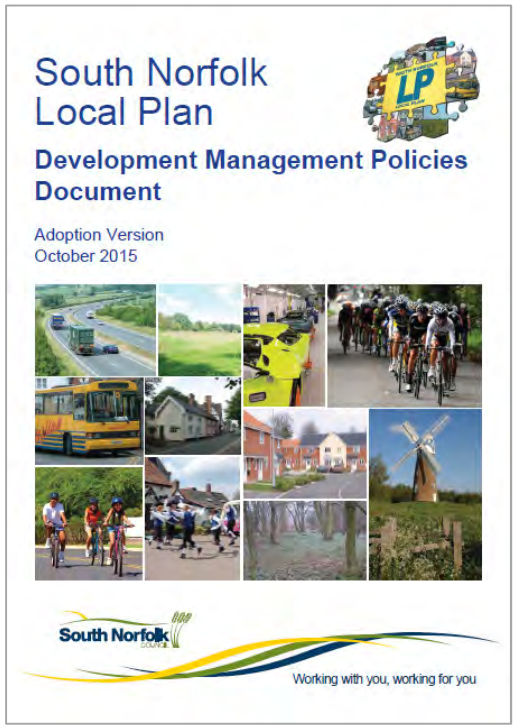
- deliver healthy, sustainable communities with locally distinctive design and high quality green infrastructure within the development and contributing to the surrounding network;
- provide for a wide range of housing need including giving serious consideration to the provision of sites for Gypsies and Travellers;
- seek to achieve a high level of self-containment through the provision of services to support the new development while integrating well with neighbouring communities;
- achieve a major shift away from car dependency and be designed around walking and cycling for local journeys and public transport for longer journeys;
- include Sustainable Drainage Systems (SuDS), on site or nearby renewable energy generation, for example largescale wind turbines/farms and biomass fuelled Combined Heat Power and Cooling (CHPC), and water saving technologies;
- include new or expanded education provision addressing the needs of the 0-19 age range, local retail and other services, community, police and recreational facilities, small-scale employment opportunities and primary healthcare facilities; and
- ensure high quality telecommunications and adequate energy supply and sewerage infrastructure.

The developers of major Strategic Growth Locations will be required to ensure there is an ongoing commitment to support community development throughout the period until the development is completed.

## 2.7 South Norfolk Council

### 2.7.1 South Norfolk Local Plan Development Management Policies Document (October 2015)

**South Norfolk Council's Local Plan Development Management Policies Document (October 2015)**[9] policies are a material consideration in how the Council will promote sustainable development and determine planning applications.




[9] https://www.south-norfolk.gov.uk/sites/default/files/Development_Management_Policies_Document_0.pdf

### Policy DM 1.1 Ensuring development management contributes to achieving sustainable development in South Norfolk

a) The Council will take a positive approach that reflects the presumption in favour of sustainable development.

b) The Council will work proactively with applicants to find solutions so that development proposals can be approved wherever possible, and to secure development that jointly and simultaneously improves the economic, social and environmental conditions in the area.

c) Planning applications that accord with the policies in this Local Plan (and, where relevant, with polices in adopted neighbourhood plans) will be approved without unnecessary delay, unless material considerations indicate otherwise.

d) Where there are no directly relevant Policies to the application or the relevant policies are out of date at the time of making the decision, then the Council will consider the impact of the proposal in each of the economic, social and environmental dimensions jointly and simultaneously, for now and in the future. The Council will grant permission unless material considerations indicate otherwise – taking account of whether any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits when assessed against:

i. The policies in the National Planning Policy Framework taken as a whole or

ii. Other national planning policy guidance or iii. The Council's overall Spatial Vision and Objectives for the area as set out in the Joint Core Strategy.

e) The Council will give significant weight to supplementary guidance and community led plans where these are relevant.

### Policy DM 1.4 Environmental quality and local distinctiveness

a) The Council will work with developers to achieve high quality and positive environmental improvement. All development proposals must demonstrate an understanding and evaluation of the important environmental assets including locally distinctive characteristics, and justify the design approach.

b) Designated assets will be protected in accordance with their natural and historic significance, as detailed in the Development Management Policies.

c) A net environmental improvement will be sought and all proposals should avoid environmental harm or where this is not possible, adequately mitigate and compensate for the adverse environmental effects of development.

d) All development should take all reasonable opportunities to:

i. Make a positive contribution to local character and distinctiveness;

ii. Enhance biodiversity to achieve a net gain for nature;

iii. Improve the resilience of ecosystems to environmental change including through the provision of improvements to enhance identified environmental sites; stepping stones and corridors;

iv. Protect environmental and water resources and enhance their efficient use;

v. Deliver the provision of essential infrastructure including water and wastewater network upgrades, waste facilities', flood defences and green infrastructure;

vi. Enhance, re-use and better reveal the significance of heritage assets;

vii. Re-use buildings rather than demolish, recycle building materials and select materials to maximise environmental sustainability and minimise impact on scarce resources and environment;

viii. Generate and utilise renewable energy in appropriate ways; and

ix. Work with the characteristics of the location to ensure that the necessary mitigation measures are not

disproportionate to the benefits of the scale of development proposed.

### Policy DM 3.8 Design Principles applying to all development

(1) The Council will work with applicants to achieve high quality design and positive improvement, protect and enhance the environment and existing locally distinctive character and encourage innovation;

(2) Major development should be masterplanned using an inclusive recognised process demonstrating how the whole scheme will be delivered and related to adjacent areas, including the programming of infrastructure requirements. A masterplan will also be required for sites of less than 500 dwellings in the case of large developments incorporated into a smaller settlement or on sites of particular complexity.

(3) Dwellings should be designed so that internal spaces are suitable, adaptable and will be able to accommodate a range of residents over time.

(4) Planning permission will be granted for development that has been designed to, where relevant to the proposed development: respect adjoining structures, spaces, routes and local landscape; provide an attractive, accessible and safe environment; and conform to the following criteria:

a) The scale, height, massing, form and appearance of development is designed with a satisfactory relationship of structures, spaces and routes within the site and a successful integration into the surroundings;

b) The development is created with high standards of design, building materials, finishes and landscaping reflecting the use of distinctive local building traditions, materials and heritage assets where relevant; or innovative contemporary design solutions reflecting local context and reinforcing or creating local distinctiveness;

c) Access is provided by routes and public spaces that meet different requirements of accessibility (including pedestrians, cyclists and people with mobility or sensory difficulties) without an unsatisfactory domination of traffic;

d) A clear distinction is made between public and private spaces within the site; all public and private spaces to be suitable for their purpose, attractive, landscaped, safe; and with adequate lighting where provided that is carefully controlled to minimise overspill;

e) Visually attractive frontages and hard & soft boundary treatments are created to adjoining streets and public areas, public spaces and the open countryside; all appropriate frontages to contain windows and doors that assist informal surveillance of the public realm by occupants of the site;

f) Buildings and spaces are orientated to: gain benefit from sunlight and passive solar energy and wherever possible designed around a Sustainable Drainage system;

g) The entire development is designed to reduce any actual or perceived opportunities for anti-social activity on the site and in the surrounding area;

h) Landscaping of the development is designed to retain important existing natural features, reflect the surrounding landscape characteristics of the area and contribute to relevant objectives of the local Biodiversity Action Plan; and

i) Convenient, safe and visually attractive areas are created for servicing buildings and parking of vehicles and cycles without dominating the development or surroundings.

### Policy DM 3.10 Promotion of sustainable transport

(1) All development should support sustainable transport and development objectives, utilise all opportunities to integrate with local sustainable transport networks, be designed to reduce the need to travel and to maximise the use of sustainable forms of transport appropriate to the location.

(2) Inside the Norwich Policy Area development should support the proposals of the Norwich Area Transportation Strategy.

(3) Land required for the improvement of the transport network will be protected from prejudicial development.

### Policy DM 3.14 Pollution, health and safety

a) All development should minimise and where possible reduce the adverse impact of all forms of emissions and other forms of pollution, and ensure that there is no deterioration in water quality or water courses.

b) When assessed individually or cumulatively, development proposals should ensure that there will be no unacceptable impacts on:

i. Air quality

ii. Surface and ground water quality

iii. Land quality and condition

iv. Health and safety of the public

c) Permission will only be granted on or near contaminated land if it is subject to remediation which will make it safe for the proposed use. On a contaminated site or one suspected to be contaminated or within 250 metres (or on more if considered appropriate on a risk based approach) of an existing or disused landfill site, applications will need to be accompanied with an assessment of the extent of contamination on the site and any possible risks.

d) Developments which may impact on air quality will not be permitted where they have an unacceptable impact on human health, sensitive designated species or habitats, and general amenity, unless adequate mitigation can be ensured.

Development will not be granted in locations where it is likely to result in an Air Quality Management Area being designated or the worsening of air quality in an existing Air Quality Management Area.

e) Permission will not be granted for development on or in the vicinity of hazardous installations including high pressure gas and oil pipelines unless the development would not give rise to additional public risk.

### Policy DM 4.1 Renewable Energy

Proposals for renewable energy generating development requiring planning permission other than for proposals for wind energy development will be supported and considered (taking account of the impact of relevant ancillary equipment) in the context of sustainable development and climate change on the wider environmental, social and economic benefits of maximising use of renewable energy.

The Council will encourage the use on-site communal-scale energy generation measures.

(1) The effect of the proposal will be considered on:

a) The effect on the character and appearance of the landscape;

b) Designated and undesignated heritage assets; and

c) The amenities and living conditions of nearby residents by way of noise, outlook, and overbearing effect or unacceptable risk to health or amenity by way of other pollutants such as dust and odour.

### Policy DM 4.2 Sustainable drainage and water management

(1) Sustainable drainage measures must be fully integrated within design to manage any surface water arising from development proposals, and to minimise the risk of flooding on the development site and in the surrounding area, unless it can be demonstrated that ground conditions are unsuitable for such measures or there are other exceptional circumstances.

(2) Drainage features should make a positive contribution to amenity and biodiversity.

(3) All developments (including that on previously developed land):

a) Should include a sewerage capacity assessment and must have a neutral or positive impact on reducing surface water flooding and should include drainage features that will slow the movement of water through the drainage system;

b) Must not cause any deterioration in water quality and measures to treat surface

water runoff must be included within the design of the drainage system;

c) Must be served by separate surface water and foul wastewater drainage. No new development (including redevelopment) will be permitted to discharge surface water runoff to foul drainage connections or combined sewers, unless it can be demonstrated that separate surface water drainage is not available and cannot be practicably provided; and

d) Should maximise use of soft landscaping and permeable surfaces unless the developer can provide justification to demonstrate that this is not feasible.

### Policy DM 4.3 Facilities for the collection of recycling and waste

(1) All new developments should ensure that sufficient facilities are available for each property to simply store and dispose of their recycling and waste and is well integrated into the design of the development. Provision must be made for the permanent, on-site storage of the designated receptacles and then their removal and return for collection.

(2) Waste management facilities provided for any residential development should be accessible for all residents and designed to maximise the diversion of waste from landfill and promote recycling, including the provision of accessible community collection points for the collection of additional materials.

(3) Residential development should include space for waste collection from points accessible by a collection vehicle (32 tonnes).

### Policy DM 4.4 Natural environmental assets - designated and locally important open space

Developers will need to work with partners to evolve strategies to enable individual new development sites to contribute most effectively to the opportunities for the establishment and positive improvement of coherent ecological networks, Biodiversity Enhancement Areas and multi-functional Green Infrastructure Networks.

## 2.8 Summary

The key current and emerging national and local policy elements to which this Statement relates can be summarised as follows:

1. Zero carbon development through innovation in design, construction operation and management including energy efficiency and extensive on-site low carbon and renewable energy technology (NPPF, Future Homes Standard, JCS Policies 1 and 3, and South Norfolk Local Plan Policy DM 4.1);
2. Resilience to potential climate change impacts including flood risk, surface water management and summertime overheating (NPPF, JCS Policy 1, and South Norfolk Local Plan Policy DM 4.2);
3. Promote sustainable transport by integrating with existing sustainable transport networks, reducing the need to travel and maximising the use of sustainable forms of transport including Electric Vehicles (NPPF, JCS Policies 2 & 10, and South Norfolk Local Plan Policy DM 3.10);
4. Biodiversity protection, enhancement and net gain (NPPF, Environment Bill, JCS Policy 1, and South Norfolk Local Plan Policies DM 1.4 and DM 3.8);
5. Integrated green and blue infrastructure to support wider benefits including amenity, sustainable drainage systems (SuDS), biodiversity enhancement, landscape / townscape character and to minimise the urban heat island effect (NPPF, South Norfolk Local Plan Policies DM 4.2 and DM 4.4);
6. Health and sustainable indoor and outdoor environments (NPPF, JCS Policy 10, and South Norfolk Local Plan Policies DM 3.14 and DM 4.1); and
7. The use of sustainably procured materials with reduced environmental impact (JCS Policies 1 and 2, and South Norfolk Local Plan Policies DM 1.4 and DM 3.8).

# 3. Sustainability, Energy & Climate Change Strategy

## 3.1 Introduction

High standards of environmental, social and economic sustainability will be embedded into Silfield Garden Village through the application of appropriate targets and approaches to the design, construction and operation for the various development elements. These standards will reflect current, emerging and future policy at the national and local levels including the JCS.

The sustainability strategy will focus on delivering sustainable outcomes that are future proofed and take account of the climate and ecological crisis. The can be achieved by ensuring emerging frameworks such as the **Royal Institute of British Architects (RIBA) Sustainable Outcomes Guide (2019)**[10] (and any subsequent updates) forms a key component of the sustainability strategy.

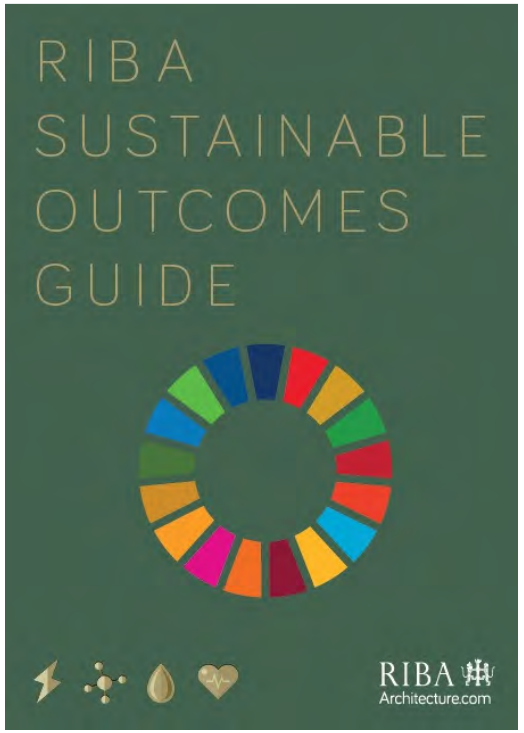
## 3.2 RIBA Sustainable Outcomes Guide

### 3.2.1 An Outcomes-Based Approach

The RIBA Sustainable Outcomes Guide sets out an outcomes-based design approach which seeks to resolve the common gaps between design intent and in-use performance across a range of metrics to deliver real and lasting reductions in carbon emissions and other impacts.

Sustainable buildings delivered in 2030 may differ significantly to those built today as a result various factors such as the availability of new or matured technologies (e.g. battery storage), capital cost reductions for sustainable products, the implementation of new standards such as the Future Homes Standard, and the evolution of industry approaches to issues such as embodied carbon and climate resilience.

This imperative to systematically improve upon current 'baseline' performance is recognised by the RIBA Guide which sets stepped targets to be achieved in new buildings by 2020, 2025 and 2030 and which support the net zero ambitions of the UK and JCS.




[10] https://www.architecture.com/-/media/GatherContent/Test-resources-page/Additional-Documents/RIBASustainableOutcomesGuide2019pdf.pdf

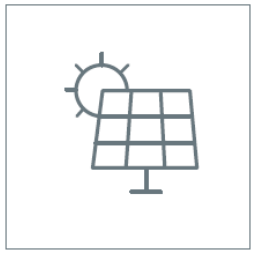
For each outcome, RIBA outlines the key performance metric and a set of design principles the project team will follow. This approach allows creative flexibility in applying sustainable assessment methods and modelling tools to deliver the outcomes and targets.

These sustainable outcomes are closely interrelated and will be pursued together. For example, net zero operational carbon and net zero embodied carbon are twin targets under the concept of whole life net carbon as defined by the **UK Green Building Council Net Zero Carbon Buildings Framework (2019)**[11] which forms a fundamental component of the sustainability strategy for Silfield Garden Village.

The following sections describe the key sustainability principles and outcomes set by RIBA which will be targeted. These standards and principles will be regularly reviewed and updated to align with any updated versions of the RIBA guidance or local or national standards that may be introduced, for example future updates to Building Regulations Part L and the Future Homes Standard 2025.

Significant work has been undertaken already for certain sustainability outcomes commensurate to this masterplanning design. Responses to other outcomes relating to more detailed aspects of design will be progressed in due course.

### 3.2.2 Outcome 1: Net Zero Operational Carbon



*"The carbon dioxide produced as a result of the production and use of the energy from fossil fuels consumed for the day-to-day operation of the building, including low/zero carbon renewable energy technologies both on and off-site, plus recognised offset schemes where essential."*

Forty percent of global carbon emissions come from powering our buildings and cities. The urgency of reducing these makes a Net Zero Operational Carbon Outcome a critical construction industry target, and net zero operational carbon is achievable now with offsetting.

**Net zero operational carbon** is a fundamental target of the sustainability, energy and climate change strategy for Silfield Garden Village. This will ensure that the various economic and social benefits that will accrue from the proposals are decoupled from climate change impact.

Orbit Homes has evaluated the requirements of the UKGBC Net Zero Carbon Buildings Framework and are carrying out further detailed feasibility studies to further develop the strategy. The following principles will be applied to deliver this key outcome.

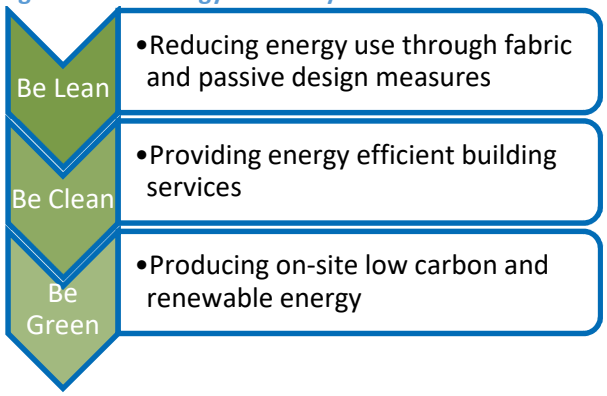
#### 1. Prioritise deep retrofit of existing buildings

Silfield Garden Village will be a new build development however the opportunity may exist however to repurpose existing buildings on site, for example the moated Lower Back Farm could potentially be renovated for community use.

#### 2. Prioritise "Fabric First" principles for building form and envelope

All buildings will be designed in accordance with the Energy Hierarchy or "fabric first" approach (see **Figure 4**), the most cost-effective means to minimise energy demand and $CO_2$ emissions from a building.

**Figure 4: The Energy Hierarchy**




[11] https://www.ukgbc.org/wp-content/uploads/2019/04/Net-Zero-Carbon-Buildings-A-framework-definition.pdf

The first **"Be Lean"** stage of the energy hierarchy seeks to minimise the demand for heat and power from the outset through a highly-insulated building envelope and passive design measures.

This approach has several benefits including carbon savings being 'locked-in' for the lifetime of the building (60 years or more) rather than the shorter lifespan of renewable energy technologies. There are also virtually no maintenance and/or replacement requirements or costs and no reliance on occupant behaviour.

As part of the detailed design of the new homes, consideration will be given to a range of fabric and passive design measures including:

- Design and layout to promote passive solar gain, natural daylight, sunlight and ventilation with the majority orientated towards the south;
- Optimise natural daylight in habitable spaces via suitable window sizes relative to living spaces and bedrooms whilst limiting overheating risk through appropriate glazing specification;
- Material selection which aims to balance the aesthetics, robustness and durability with optimal thermal benefits for each home; and
- Performance of building U-values and air tightness etc beyond the Building Regulations requirements in force at that time.

### 3. Fine tune internal environment with efficient mechanical systems

The second **"Be Clean"** stage of the Energy Hierarchy is for remaining energy demand following "Be Lean" measures to be met as efficiently as possible. Measures likely to be incorporate include:

- 100% low energy lighting (e.g. LED);
- Prioritise natural ventilation e.g. no single aspect apartments;
- Explore heat recovery opportunities such as waste water heat recovery (WWHR) and mechanical ventilation with heat recover (MVHR); and
- Prioritise passive cooling options such as external shading.

### 4. Provide responsive local controls

Responsive local controls for heat and light will be provided for building occupants, for example:

- Zoned temperature controls for simple control of different spaces to condition the environment and minimise heating of unoccupied spaces;
- Zoned lighting controls for suitable non-residential buildings including proximity detection to minimise lighting of unoccupied spaces; and
- Building Management Systems (BMS) for suitable non-residential buildings to promote occupants understanding of energy usage and promote sustainable management.

### 5. Specify ultra-low energy sufficient appliances

Any appliances that are provided as part of Silfield Garden Village will be highly energy and also water efficient.

### 6. Specify ultra-low energy sufficient IT

Any IT equipment that is provided as part of Silfield Garden Village will be highly energy efficient.

### 7. Prioritise maximum use of on-site renewables appropriate to context

The third **"Be Green"** energy hierarchy stage is to specify on-site low / zero carbon energy technology. By following the two preceding stages, the amount of a given technology that is needed to meet a particular renewables target is reduced with associated costs.

All buildings will benefit from **low carbon heating**, with no gas boilers anticipated. This will ensure the development is not locked in high carbon emissions associated with natural gas.

Low carbon heating systems such as **air source heat pumps (ASHP)** or **ground source heat pumps (GSHP)** are envisaged, whilst the development of a **district heat network** may be viable for sufficiently high density parts of the masterplan with a mixture of uses (e.g. apartments and employment).

In addition to low carbon heating, the masterplan and the design of individual buildings will be optimised for solar energy i.e. provide suitable roof spaces on which solar panels can be orientated broadly south-east to south-west.

The provision of **solar water heating** systems may impair the feasibility of low carbon heating systems described above. **Solar photovoltaic (PV)** systems would not, however, and would help reduce electrical demand within buildings as well as supporting emerging requirements such as battery storage to charge electric vehicles (EVs).

In addition to building-integrated low and zero carbon energy technologies, the provision of a **solar farm** is also proposed in which the existing and new community and businesses can invest.

Overall, on-site low and zero carbon energy technology is anticipated to meet a proportion of operational energy demand significantly beyond the minimum 10% target sought by the JCS.

By delivering the solar farm during an early phase, net power exports can be used to offset construction carbon (see **3.2.3 Outcome 2: Net Zero Embodied Carbon**).

Orbit Homes are currently exploring various approaches for the delivery and operation of sustainable energy technologies at Silfield Garden Village, including establishing an **Energy Services Company (ESCo)**. An ESCo is a commercial structure created to produce, supply and manage the local delivery of decentralised energy to a 'whole site' development.

High initial capital costs can be seen as an obstacle to the provision of decentralised energy. ESCos enable a long-term view towards attractive energy prices, security of supply and high levels of carbon performance. ESCos typically invest capital and assume responsibility for design and build, operation, maintenance, billing and customer care. This approach can ensure a community based, secure and environmentally-friendly energy solution with reduced overall costs for residents.

### 8. Demonstrate additionality of off-site renewables

It is unlikely that zero carbon operational standards will be achieved for all buildings even following the various building-integrated and masterplan-level technologies described above.

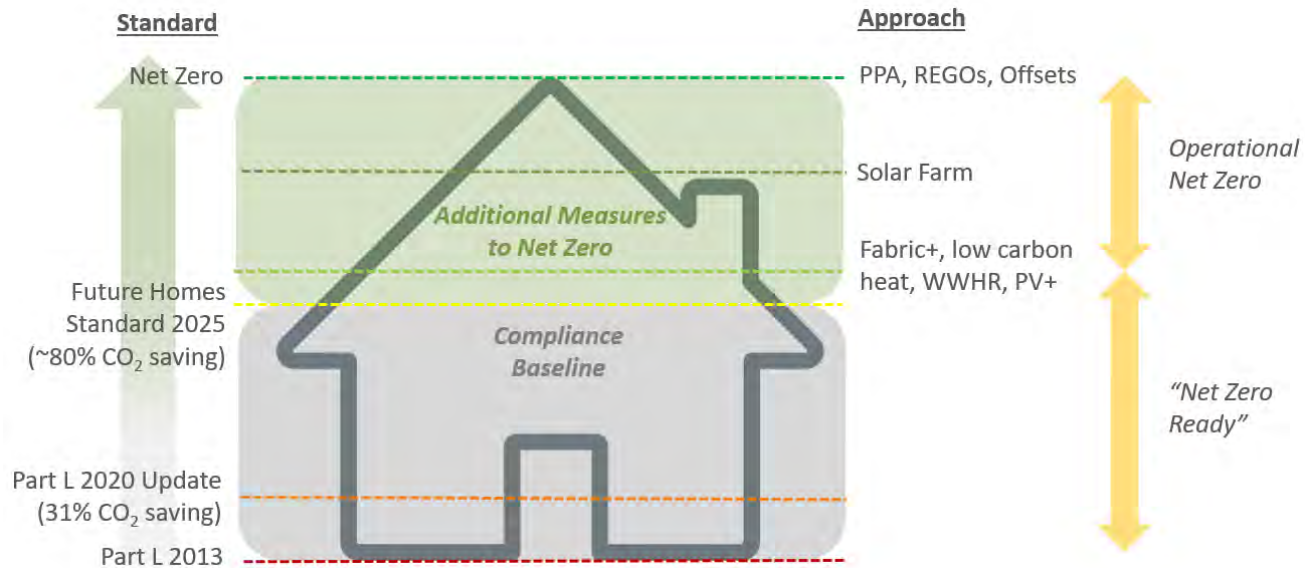
The procurement of renewable electricity from off-site projects may therefore be required, such as direct procurement from specific generators (e.g. Power Purchase Agreements), or retail purchases from suppliers and utilities, and the purchase of stand-alone ("unbundled") energy attribute certificates such as Renewable Energy Guarantee of Origin (REGO) certificates.

### 9. Offset remaining carbon through recognised scheme

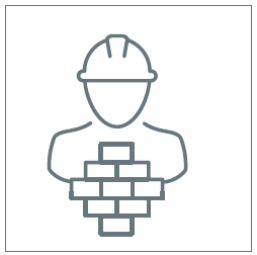
By applying the above principals, the need to procure carbon offsets to achieve Outcome 1: Net Zero Operational Carbon is not anticipated.

**Figure 5** summarises the net zero operation concept and demonstrates how the Future Homes Standard 2025 will significantly reduce the current performance gap.

Figure 5: Net Zero Operation Concept [Turley]




### 3.2.3 Outcome 2: Net Zero Embodied Carbon



*"The carbon dioxide produced from the energy used in the extraction, fabrication and transportation of the materials used in the construction are minimised and offset through recognised schemes."*

Carbon emissions from the construction of new buildings can represent more than half of their lifetime emissions. Silfield Garden Village will adopt the following principles to drive down construction carbon to net zero.

#### 1. Prioritise buildings re-use

As discussed in **section 3.2.2** above, Silfield Garden Village will predominantly be a new build development. The opportunity may exist however to repurpose existing buildings on site, for example the moated Lower Back Farm could potentially be renovated for community use.

#### 2. Carry out whole life carbon analysis of building elements

**Embodied carbon assessments** will be undertaken to inform the sourcing and specification of materials.

This will help evaluate the carbon impact of procurement choices, construction methods (e.g. off-site vs on-site), waste mitigation and disposal, and circular economy considerations.

#### 3. Prioritise ethical and responsible sourcing

A **Sustainable Procurement Policy** is envisaged for Silfield Garden Village in accordance with **ISO**

**20400 (2017)**[12] or similar. This standard provides guidelines for integrating sustainability into an organisation's procurement processes.

It covers political and strategic aspects of the purchasing process, namely how to align procurement with an organisation's goals and objectives and create a culture of sustainability.

The standard defines the principles of sustainable procurement, including accountability, transparency, respect for human rights and ethical behaviour, and highlights key con-siderations such as risk management and priority setting.

### 4. Prioritise low embodied carbon and healthy materials

A range of options to help reduce construction carbon will be explored including:

- Using natural construction materials such as timber frame; and
- Specify healthy materials such as low Volatile Organic Compound (VOC) products to promote good indoor air quality.

### 5. Minimise materials with high embodied energy impacts

Low carbon versions of high carbon construction materials and products will be specified where possible, for example steel and concrete that include recycled content.

### 6. Target zero construction waste to landfill

A target of zero construction waste sent to landfill will be pursued, and this target would be supported by approaches to construction that are under consideration including MMC and off-site fabrication as discussed above.

### 7. Promote use of local natural materials

The use of local natural materials and services will be promoted during construction as far as is practicable.

### 8. Consider modular off-site construction

The feasibility of using modern methods of constructions (MMC) and/or off-site fabrication will be evaluated, including potential links to the economic strategy for Silfield Garden Village.

### 9. Detailing to be long life and robust

All buildings will be designed to be durable and robust. This will help avoid unnecessary cost and material use resulting from the need to repair and replace damaged elements as a result of operational wear and tear. It will also help minimise costs and disruption resulting from environmental degradation to building elements as a result of avoidable weathering and changes to climatic conditions over time.

### 10. Design for disassembly and the circular economy

Consideration will be given to measures and design options related to adaptability and disassembly to accommodate future changes to the use of buildings over their lifespan.

### 11. Offset remaining carbon emissions through a recognised scheme

The UKGBC Net Zero Carbon Buildings Framework allows net exports of renewable energy to offset construction carbon. It is envisaged that the solar farm is delivered in an early phase so that net exports of renewable power contribute to offsetting construction carbon.

Significant tree planting across the masterplan is proposed as part of the green infrastructure strategy for Silfield Garden Village. It is envisaged that a significant proportion of this planting will be undertaken in accordance with the **Woodland Carbon Code**[13].

[12] https://www.iso.org/publication/PUB100410.html
[13] https://www.woodlandcarboncode.org.uk/about/the-basics

The Woodland Carbon Code ensures that woodland carbon projects:

- are responsibly and sustainably managed to national standards;
- provide reliable estimates of the amount of carbon that will be sequestered (locked up) as a result of the tree planting;
- are publicly registered and independently verified; and
- meet transparent criteria and standards to ensure that real carbon benefits are delivered.

The landowner has extensive areas of local land beyond the masterplan area, some of which may also be suitable for woodland creation. The opportunity exists to align the biodiversity net gain strategy for Silfield with the local carbon offsetting strategy. The funding of existing UK Woodland Carbon Code projects may also be undertaken.

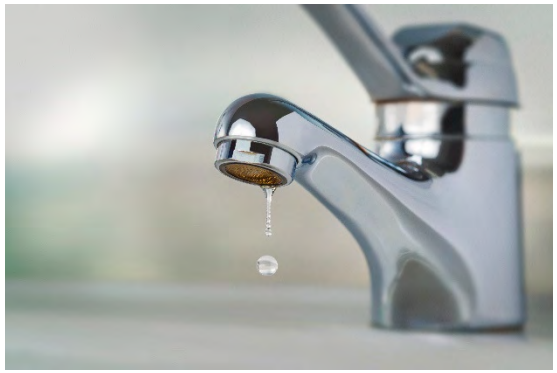
### 3.2.4 Outcome 3: Sustainable Water Cycle

*"The amount of mains water used in the operation of the building including the offset by use of greywater or recycled water to reduce mains water consumption."*

A sustainable water cycle will be promoted through application of the following development principles.

#### 1. Provide low flow fittings and appliances

Operational water demand will be minimised from the outset in all buildings through the specification of water efficient fitting, fixtures and appliances (where provided) such as dual flush WCs, aerated taps and flow controlled showers.



JCS Policy 3: 'Energy and water' requires major new residential development to target a water consumption standard equivalent to Level 6 of the Code for Sustainable Homes from 2015, being ≤ 80 litres / person / day.

It is proposed that the tighter water efficiency standard proposed by RIBA for 2030 of <75 litres / person / day is targeted for the dwellings and <10 litres / person / day for non-residential buildings.

#### 2. Provide waterless appliances where possible

The feasibility of providing waterless appliances will be evaluated at the appropriate design stage.

#### 3. Provide leak detection

All buildings will be provided with water meters to support sustainable water use. The provision of sub-meters and leak detection systems for relevant non-residential buildings is also anticipated.

#### 4. Provide rainwater and greywater recycling and attenuation but consider operational implications of complex systems

Rainwater harvesting for all houses is envisaged in the form of water butts for garden irrigation. Rainwater attenuation for non-residential buildings will also be required including the potential use of green / blue roofs.

The feasibility of providing greywater recycling will be evaluated at the appropriate design stage including potential operational implications including cost and maintenance requirements.

#### 5. Provide on-site black water cleansing and recycling if viable

The requirement and feasibility of providing an on-site waste water treatment facility will be evaluated.

#### 6. Create Sustainable Urban Drainage that supports natural aquatic habitats and human amenity

A network of minor drains and watercourses traverse the site which are associated with hedgerows and will be incorporated into the

design of the Garden Village as part of the surface water drainage proposals.

Green and blue infrastructure will be integrated at all scales throughout the masterplan to perform a drainage and flood protection function whilst also promoting amenity, character and biodiversity benefits.

### 3.2.5 Outcome 4: Sustainable Connectivity & Transport

*"Measure the carbon impact of the travel of occupants and visitors to and from a local transport hub or local retail and community facilities."*

#### 1. Create comprehensive green transport plan

The scale of the new community will unlock meaningful improvements to local transport infrastructure – such as a new junction on the A11; improved public transport links with the town centre, key local destinations and into Norwich; and accessibility improvements at Wymondham Railway Station.

The package of measures are envisaged as part of sustainable movement strategy for Silfield including:

- A public transport corridor with a route through the Site from the access on Park Lane to the main access on Silfield Road including 10 bus stops within the Site. A dedicated pedestrian and cycle route is also proposed along this corridor;
- A public transport link to Wymondham using the existing Silfield Road;
- A north-south 'Green way' through the centre of the development for pedestrians and cyclists, along the alignment of Park Lane and using the existing bridge over the A11;
- A pedestrian and cycle path network throughout the site;
- A potential pedestrian and cycle link to Spooner Row station from the south of the site; and
- Keeping existing Public Rights of Way and Norwich County Council maintained roads, including the route to the town centre via level crossing and Stayground Way.

A Comprehensive Travel Plan will be developed and implemented for all aspects of the proposed development to encourage sustainable travel within the Site and the surrounding area.

#### 2. Prioritise high quality digital connectivity to avoid need for unnecessary travel

High quality digital connectivity will form a key component of the Garden Village to promote the economic strategy and reduce the need for travel by, for example, facilitating home working.

#### 3. Prioritise site selection with good proximity to public transport;

Silfield Garden Village has the opportunity to facilitate genuine and significant modal shift towards public transport creating strong walking, cycling and bus links towards Wymondham Railway Station and further afield.

Wymondham town centre and Bus Interchange is highly accessible by those travelling by bicycle and by foot, with journey times of approximately 6 minutes and 20 respectively. Wymondham Railway Station is even closer to the site with journey times of approximately 4 minutes by bike and 11 minutes on foot.

The Garden Village will support the area's currently planned Bus Rapid Transit (BRT) network which could be extended into the site from Wymondham, providing high quality bus travel that will bring faster, more frequent and reliable services.

Priority will be given to buses travelling through the site, utilising Silfield Road to provide efficient access to Wymondham Railway Station. Improvements to Wymondham Station could be provided as a package of sustainable travel measures including platform enhancements.

An integrated public transport system will ensure bus connections will align with the new increased frequency of Greater Anglia rail services.

### 4. Provide high quality pedestrian links to local amenities

Silfield Garden Village will be designed as a walkable neighbourhood with a comprehensive network of pedestrian and cycling routes connecting all destinations and amenities within the development.

Park Lane will provide a direct pedestrian and cycle route connecting the Garden Village to Wymondham Railway Station where potential enhancements can be made to improve accessibility.

Employment and retail facilities will be located in prominent, accessible points throughout the site, connected by direct and dedicated pedestrian and cycle routes.

### 5. Provide end of journey provision for active travel runners and cyclists (showers, dry lockers etc)

All dwellings and relevant non-residential uses (employment, community etc) will feature secure cycle parking provision, together with appropriate facilities such as showers and lockers etc.

### 6. Provide infrastructure for Electric Vehicles as a priority

Electric vehicle infrastructure will be prioritised throughout the development to support the transition away from the internal combustion engine and hybrid vehicles as proposed by Government from 2035[14].

### 7. Provide car sharing spaces

Provision will be made for car sharing across the masterplan.

### 8. Provide suitable on-site personal storage

All dwellings and relevant non-residential uses (employment, community etc) will feature secure cycle parking provision, together with appropriate facilities such as showers and lockers etc.

## 3.2.6 Outcome 5: Sustainable Land Use & Ecology

*"A measure of actions taken to maintain, protect and improving the flora and fauna on site".*

This outcome aims to avoid development on sensitive and ecologically rich landscapes. Sustainable development requires a significant increase and enhancement of biodiversity and creating a productive landscape that is capable of food production as well as creating habitats for wildlife. Increasing biodiversity and green infrastructure can also promote climate resilience by minimising the urban heat island effect.

[14] https://www.gov.uk/government/consultations/consulting-on-ending-the-sale-of-new-petrol-diesel-and-hybrid-cars-and-vans

### 1. Leave the site in better 'regenerative' ecological condition than before development

The Site is predominantly arable land which is of low ecological value and there are no designated sites of wildlife value within its boundary. There are some localised habitat features of value including a large number of ponds, semi-natural deciduous woodland and species rich hedgerows.

The green infrastructure strategy for Silfield Garden Village will seek to protect and enhance the valued features on the Site and create additional features of value both to wildlife and the community. Opportunities to deliver this protection and enhancement include:

- Incorporating existing ponds, woodlands and species rich hedgerows within the green infrastructure strategy for the development;
- Avoiding impacts to species-rich hedgerows when designing the layout of the permanent road infrastructure and temporary construction roads; and
- Provide a buffer zone around the area of scheduled ancient woodland.

The network of hedges, woods and small copses provides a strong base from which initially a strategy and then a detailed plan for the green infrastructure of the Garden Village can be developed. This will create a settlement with an attractive environment, benefiting wildlife and the well-being of the new residents.

### 2. Prioritise building and site re-use

Silfield Garden Village will be a new build development however the opportunity may exist however to repurpose existing buildings on site, for example the moated Lower Back Farm could potentially be renovated for community use.

### 3. Prioritise brownfield site selection

The proposed development site is greenfield in nature however localised brownfield land may be present from former agricultural uses.

### 4. Carry out sustainable remediation of site pollution

Any ground remediation that is required to deliver the Garden Village is likely to be limited in scale and will be undertaken in accordance with sustainable remediation principles[15].

### 5. Retain existing natural features

Existing ponds, woodlands and species rich hedgerows will be incorporated within the green infrastructure strategy wherever feasible.

### 6. Create mixed-use development with density appropriate to local context

The masterplan proposes a mixed-use development that is appropriate to its local context. The combination of relatively gentle topography, the elevation and location of the Site, and numerous substantial woodland belts means that the site is well screened from many potential viewpoints. There are direct relationships with the existing urban fringe in parts of the wider site area, including with

Wymondham Industrial Estate and Park Lane from within the northern parcel of land. The southern parcel of land has visual links to existing residential development along Silfield Road.

As a greenfield site there will be an inevitable degree of landscape and visual impact. However there is extensive scope to mitigate such impacts through a landscape-led approach to shaping the masterplan, avoiding impacts by guiding development away from the most sensitive receptors; and, use of the existing green infrastructure network to guide development and to create a framework for strategic scale landscape proposals.

### 7. Create a range of green spaces (green roofs, vertical greening, pocket parks, green corridors)

Analysis of the existing green infrastructure network has identified a series of strategic green infrastructure links. In response to this analysis the development parcels have been shaped by the existing field pattern, including their enclosure by hedgerows, tree belts and woodlands. This ensures that the existing

[15] https://www.claire.co.uk/projects-and-initiatives/surf-uk/77-sustainable-remediation

vegetation, and the scale and pattern of the landscape, is integrated into the layout and that existing green infrastructure across the site is largely retained.

The masterplan will work with the existing scale and pattern of the local landscape character by creating a series of smaller development parcels which together form the overall development envelope. These create a layout which retains as much existing green infrastructure as possible, works within the capacity of the landscape and adds a natural permeability to the overall massing the wider development envelope.

Retained green infrastructure will be reinforced and enhanced through additional landscaping and improved management; the aims of which will consider location, function and also biodiversity objectives.

### 8. Create habitats that enhance biodiversity

Biodiversity net gain will be a central aim for the green infrastructure strategy with native and local Biodiversity Action Plan (BAP) species prioritised.

### 9. Create 'productive' landscapes for urban food production

A key principle of the green infrastructure strategy is to create elements of productive landscape which will support the new community and incorporate innovative approaches to food production, environmental management and stewardship.

### 10. Zero local pollution from the development

The all-electric energy strategy that is envisaged combined with the prioritisation for Electric Vehicles will help ensure that local pollution from the development (e.g. gas and fuel consumption) is minimised or avoided.

## 3.2.7 Outcome 6: Health & Wellbeing

*"The promotion of key variables of internal occupant health and well-being, including indoor air quality, daylight, overheating, acoustic comfort, responsive controls, and physical contact to outside."*

An unintended consequence of focusing narrowly on building energy and carbon performance can be increased overheating risk and inadequate natural ventilation. This illustrates the importance of considering sustainability holistically.

This outcome relates primarily to indoor health, visual, aural and thermal comfort, and occupant wellbeing. The vision for Silfield Garden Village is to create places and spaces in which residents, workers and visitors want to spend time. The following principles will be applied at the appropriate stage of building design:

### 1. Provide spaces with strong visual connection to outside

### 2. Provide responsive local controls e.g. opening windows, or local control

### 3. Design spaces with appropriate occupant density for activity

### 4. Design spaces with good indoor air quality

### 5. Design spaces with good indoor daylighting, lighting and glare control

### 6. Design spaces to adaptive thermal comfort standards

### 7. Design spaces with good acoustic comfort

### 8. Design spaces that are inclusive and universally accessible

### 9. Prioritise active circulation routes e.g. stairs, cycling provision, walking routes etc

### 10. Provide indoor and outdoor planted spaces

### 3.2.8 Outcome 7: Sustainable Communities & Social Value

*"Measure the positive impacts of good placemaking on a local community."*

This outcome relates to the social impact of a development on the end users and wider community. The vision for Silfield Garden Village is to create a new community that supports basic needs of security, shelter, health and employment but also enhances individual and social wellbeing and community identity. The following principles will be applied:

1. Prioritise placemaking that expresses identity and territory
2. Create secure places for privacy
3. Create places for social interaction
4. Create vibrant mixed-use places
5. Provide high quality permeable links to social amenities
6. Provide high quality public realm
7. Inclusive places for community interaction
8. Secure places with overlooking views

### 3.2.9 Outcome 8: Sustainable Life Cycle Cost

*"To ensure a holistic outcome with regards to economic sustainability, the intention is to use Government Soft Landings requirement for measuring operational costs of buildings."*

Considering life cycle costs (not just capital costs) will be an important factor to ensure the Garden Village takes full opportunity of longer-term benefits which can determine building and development performance in such areas as longevity, climate resilience and sustainability.

A long term approach to both the financing and design quality of development is central to our delivery model, which sets Silfield Garden Village apart from other strategic development proposals. The following principles are envisaged:

1. Carry out whole life cycle analysis (LCA)
2. Carry out building handover and aftercare
3. Measure energy costs
4. Management & maintenance costs
5. Measure overall running costs
6. Value occupant health and wellbeing
7. Added value of sustainable building

### 3.2.10 RIBA 2030 Climate Challenge Targets

The 2030 climate change targets set by RIBA focus on three environmental sustainability outcomes: energy use, embodied carbon and water use with an overall aim to target net zero whole life carbon emissions (or better) by 2030 at the latest. These targets (see **Figure 6**) will be sought for Silfield Garden Village.

### 3.2.11 UN Sustainable Development Goals

The RIBA sustainable outcomes principles and directly support the following 9 of the United Nations Sustainable Development Goals (UN SDGs).

The UN SDGs are a collection of 17 global goals that were launched in 2015 by all 193 countries of the UN General Assembly. They provide a blueprint for peace and prosperity for people and the planet, both now and in the future, with a date of 2030 targeted for their achievement.

Unlike the Millennium Development Goals which they replace and which only covered developing countries, the UNSDGs are equally applicable to advanced economies such as the UK. As such they are used increasingly when reporting the sustainability performance of UK organisations and development proposals.

Each of the 17 goals sits above a list of targets which are themselves measured by up to 3 indicators. There are 169 targets across the 17 goals and 232 indicators in total.

Many of the SDGs, their targets and indicators, will therefore be directly supported by Silfield Garden Village.

**Goal 11 Sustainable Cities and Communities**, for example, includes such targets as “ensure access to adequate safe and affordable housing” and “provide access to sustainable transport systems”.

Targets for **Goal 8 Decent Work and Economic Growth** meanwhile include “sustain per capita income growth”, “increase economic productivity through diversification, technological development and innovation” and “promote development that supports productive activities, decent job creation, entrepreneurship and creativity”.

Figure 6: RIBA Climate Challenge Targets

**RIBA 2030 Climate Challenge target metrics for domestic buildings**

| RIBA Sustainable Outcome Metrics | Current Benchmarks | 2020 Targets | 2025 Targets | 2030 Targets | Notes |
|---|---|---|---|---|---|
| **Operational Energy** kWh/m²/y | 146 kWh/m²/y (Ofgem benchmark) | <105 kWh/m²/y | <70 kWh/m²/y | <0 to 35 kWh/m²/y | UKGBC Net Zero Framework<br>1. Fabric First<br>2. Efficient services, and low-carbon heat<br>3. Maximise onsite renewables<br>4. Minimum offsetting using UK schemes (CCC) |
| **Embodied Carbon** $kgCO_2e/m^2$ | 1000 $kgCO_2e/m^2$ (M4i benchmark) | <600 $kgCO_2e/m^2$ | <450 $kgCO_2e/m^2$ | <300 $kgCO_2e/m^2$ | RICS Whole Life Carbon (A-C)<br>1. Whole Life Carbon Analysis<br>2. Using circular economy Strategies<br>3. Minimum offsetting using UK schemes (CCC) |
| **Potable Water Use** Litres/person/day | 125 l/p/day (Building Regulations England and Wales) | <110 l/p/day | <95 l/p/day | <75 l/p/day | CIBSE Guide G |

**RIBA 2030 Climate Challenge target metrics for non-domestic buildings**

| RIBA Sustainable Outcome Metrics | Current Benchmarks | 2020 Targets | 2025 Targets | 2030 Targets | Notes |
|---|---|---|---|---|---|
| **Operational Energy** kWh/m²/y | 225 kWh/m²/y DEC D rated (CIBSE TM46 benchmark) | <170 kWh/m²/y DEC C rating | <110 kWh/m²/y DEC B rating | <0 to 55 kWh/m²/y DEC A rating | UKGBC Net Zero Framework<br>1. Fabric First<br>2. Efficient services, and low-carbon heat<br>3. Maximise onsite renewables<br>4. Minimum offsetting using UK schemes (CCC) |
| **Embodied Carbon** $kgCO_2e/m^2$ | 1100 $kgCO_2e/m^2$ (M4i benchmark) | <800 $kgCO_2e/m^2$ | <650 $kgCO_2e/m^2$ | <300 $kgCO_2e/m^2$ | RICS Whole Life Carbon (A-C)<br>1. Whole Life Carbon Analysis<br>2. Using circular economy Strategies<br>3. Minimum offsetting using UK schemes (CCC) |
| **Potable Water Use** Litres/person/day | >16 l/p/day (CIRA W11 benchmark) | <16 l/p/day | <13 l/p/day | <10 l/p/day | CIBSE Guide G |

# 4. Summary & Conclusions

The Silfield Garden Village proposals respond positively to emerging national and local policy regarding sustainable development, energy and climate change. They provide a significant opportunity to plan at-scale for the GNDP objectives of integrated economic and housing growth whilst minimising environmental impact and promoting net benefits.

The UK is committed to achieving net zero carbon emissions by 2050, and the concept of net zero carbon development will be a core component of this ambition as recognised by the JCS.

The Future Homes Standard is scheduled for implementation in 2025 when construction at Silfield is anticipated to commence. This standard will deliver a significant (~80%) improvement on current energy / carbon standards for new dwellings.

As we transition towards a decarbonised electricity grid, homes built to the Future Homes Standard will become net zero carbon over time with no need for further adaptations or changes.

The opportunity exists to expedite this trajectory at Silfield Garden Village by targeting the approaches and standards for net zero buildings published recently by the UK Green Building Council and RIBA.

Silfield provides the scale of opportunity necessary to adopt these approaches, for example maximising on-site renewable energy both at the building and masterplan levels (solar farm). This will optimise the energy and carbon performance of the proposed new homes, businesses and associated uses, provide potential investment opportunity for the existing and new community and promote energy resilience.

The anticipated all-electric (or primarily electric) energy strategy, prioritisation of Electric Vehicles and wider sustainable transport measures will help ensure that local air pollution from the development is minimised or avoided.

The emerging masterplan seeks to conserve and enhance the landscape character, retain as far as possible and enhance existing landscape elements and features, optimise screening for visual receptors, avoid loss or damage to retained landscape features and consequently conserve and enhance ecological fabric.

The significant green infrastructure proposed across the masterplan, and the potential for significant further woodland creation in areas beyond the site that are under the same ownership, opens up the opportunity for local high quality carbon offset projects.

The integration of green and blue infrastructure will support a range of beneficial functions including promoting climate change resilience through surface water and flood risk management and mitigation of the urban heat island effect. At the same time local character, the amenity of residents and worker and site biodiversity will be enhanced.

The proposals will unlock meaningful improvements to local transport infrastructure such as a new junction on the A11; improved public transport links and significant new pedestrian and cycle infrastructure including a Green way.

By embedding the principles and targets of RIBA's Sustainable Outcomes within the design,

construction and handover of each phase, key UN Sustainable Development Goals will be directly supported.

Silfield Garden Village therefore meets the GNDP objectives for integrated housing and employment provision in tandem with exemplar sustainability, energy and climate change performance to create a long-term legacy for the existing and new local community.

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Turley
Sustainability

# *Utilities Assessment – Planning (Stantec)*

DAVID LOCK ASSOCIATES

# Silfield Garden Village, Wymondham

## Utilities Assessment – Planning

On behalf of **David Lock Associates**

Project Ref: 47753/2502 | Rev: A | Date: March 2020

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# Document Control Sheet

**Project Name:** **Silfield Garden Village, Wymondham**
**Project Ref:** **47753/2502**
**Report Title:** **Utilities Assessment**
**Doc Ref:** **R8135**
**Date:** **March 2020**

| | Name | Position | Signature | Date |
|---|---|---|---|---|
| **Prepared by:** | Michelle Hawkett | Senior Technician | | |
| **Reviewed by:** | Larry Aiyedogbon | Utilities Associate | | |
| **Approved by:** | Larry Aiyedogbon | Utilities Associates | | |
| **For and on behalf of Stantec UK Limited** | | | | |

| Revision | Date | Description | Prepared | Reviewed | Approved |
|---|---|---|---|---|---|
| - | 04/03/2020 | First draft issue with information obtained to date | MH | LA | |
| A | 13/03/2020 | Updated to include further responses from UKPN and Openreach | MH | LA | |

# Contents



# Tables



# Appendices

# 1 Introduction

## 1.1 Foreword

Stantec has been commissioned to undertake a Utilities Assessment for the proposed Silfield Garden Village development on land to the north and south of the A11 to the south of Wymondham (The site). The Site covers an area of circa 418 ha of undeveloped greenfield land, with additional land within the ownership of J Alston and Sons available for off-site green infrastructure, biodiversity net gain and a renewable energy facility, and is located at approximate OS Grid Reference 610984, 299606, as shown on the Site Location Plan included within Appendix A of this report.

Existing utility infrastructure within and adjacent to the proposed development is presented on Stantec's Existing Services and Constraints Drawing number 47753/2502/001 within Appendix B. This information has been taken from existing asset records provided to us by the statutory undertakers operating in this area.

Current development proposals comprise circa 6,500 residential dwellings, 15ha of B1 / B2 business use, a secondary school, three primary schools and 4ha of mixed-use (retail / community/ employment). The Initial Masterplan for the scheme is included within Appendix C.

## 1.2 Scope of Works

This assessment aims to achieve the following: -

- Liaise with all utility suppliers providing services within the proposed development area.
- Establish the nature, extent and location of any existing utility company distribution infrastructure relating to electricity, gas, water supply and telecommunication.
- Confirm with the utility suppliers the capacity of the existing infrastructure and the requirements for such infrastructure to be diverted, extended, adapted or renewed to cater for the proposed development.

## 1.3 Basis of Report

This report has been compiled from correspondence received from the incumbent utility providers (electricity, gas, potable water & telecommunications) regarding existing and new utility supplies.

A high-level desk top study and review of existing utility services information has been completed to identify constraints to the proposed development and to establish the need for any diversions and protections to the utility services, to accommodate redevelopment.

## 1.4 Requested Loads

Capacity checks were requested from the distribution network operators in February 2020 based on the following current development proposals: -

- Circa 6,500 dwellings (no mix currently defined)
- Circa 15ha of B1 / B2 uses (20,000m$^2$ B1 – approx. 5ha / 40,000m$^2$ of B2 – approx. 10ha)
- Education – 1 secondary and up to 3 primary schools (approx. 20ha)
- Mixed use – circa 4ha for retail / community / employment (approx. 10,000m$^2$ split between A1-A5 / D1 + D2 and B1a) – to be accommodated in a number of local centres.

Anticipated loads for this high-level assessment have been calculated as tabled below based upon a building footprint of 40% of the allocated area for business and education uses and 25% for the mixed use.

Table 1: Calculated Utility Loads

| Utility | Estimated Demand | | | | |
|---|---|---|---|---|---|
| | **Residential** | **Business** | **Education** | **Mixed Use** | **Total** |
| **Electricity** | 10,833.33 kVA | 3,532.22 kVA | 1,190 kVA | 375 kVA | **15,931 kVA** |
| **Gas** | 4,3178.8 kWh peak (68,868 MWh AQ) | 4,600 kWh peak (5,635 MWh AQ) | 2,258 kWh peak (2,360 MWh AQ) | 253 kWh peak (451 MWh AQ) | **50,290 kWh peak (77,313 MWh AQ)** |
| **Potable Water** | 107.19 l/s peak (2,242.50$m^3$/day) | 9.72 l/s peak (140$m^3$/day) | 22 l/s peak (316.8$m^3$/day) | 1.53 l/s peak (21.96$m^3$/day) | **140.44 l/s peak (2,721.26$m^3$/day)** |

It should be noted that these demands are likely to fluctuate as the development schedule progresses.

# 2 Contacts Directory

Table 2: Statutory Undertakers Contacts Directory

| Title | Address | Contact Details |
|---|---|---|
| Electricity | UK Power Networks<br>Metropolitan House<br>Potters Bar<br>HERTS<br>EN6 1AG | Tel: 0845 234 0040 |
| Gas | Cadent Gas<br>Block 1; Floor 1<br>Brick Kiln Street<br>Hinckley<br>LE10 0NA | Tel: 0800 074 5788 |
| Potable Water | Anglian Water<br>PO Box 4994<br>LANCING<br>BN11 9AL | Tel: 0345 6066 087 |
| Telecommunications | Openreach<br>Repayments (Alterations)<br>PP RH017<br>Russell House<br>St Andrews Street<br>Norwich<br>NR2 4AE | Tel: 0207 809 5662 |
| Multi-utility | GTC<br>Energy House<br>Woolpit Business Park<br>Woolpit<br>Bury St Edmunds<br>Suffolk<br>IP30 9UP | Tel: 01359 240154 |

# 3 Utility Infrastructure

## 3.1 Electricity

The incumbent electricity provider is UK Power Networks (UKPN).

A summary of the infrastructure likely to be affected by the proposed development is outlined below.

### 3.1.1 Existing Infrastructure

UK Power Networks (UKPN) records show existing 11kV overhead high voltage (HV) lines within the eastern site boundary running from the north of the site adjacent to Park Lane to Park Farm Cottages within the site to the south of the A11. This connects to a further 11kV overhead HV line that crosses the extent of the site from east to west, exiting the site on Silfield Road to the south of Verdon's Lane.

There is a 33kV overhead HV line crossing the north of the site, entering at the north-west corner, heading south before veering east to cross Park Lane just north of the A11. This continues to run adjacent to the site boundary, crossing over to continue past Silfield Road.

Further south there is an 11kV overhead HV line running within the eastern site boundary off Silfield Road and Wattlefield Road.

There are no undergrounds services shown within the site boundary.

### 3.1.2 Network Modifications

UKPN has provided budget costs to divert and underground the existing HV apparatus crossing the site.

It is possible that there are no existing easements covering the overhead lines, and if this is the case, then the developer can request UKPN to carry out the diversion at their own cost. However, it should be noted that this approach will incur lengthy time delays and can take anything up to 4-5 years to process.

Further enquiries have been submitted to UKPN to determine the legals covering the existing assets and we will advise upon receipt of their response.

### 3.1.3 Network Capacity

It is estimated that the whole site electricity demand for the proposed development would be approximately 15,930kVA, comprising 10,833kVA for residential and 5,097kVA for the non-residential use buildings.

UKPN has confirmed that there is insufficient capacity available within the existing network to provide the whole development without the construction of a new primary substation. However, subsequent discussions with UKPN have suggested that a feasibility study for a site to the north of the development area, proposed to comprise 650 residential dwellings and commercial use, has identified spare capacity of circa 5.3MVA within the existing network that could be utilised to serve early phases and therefore delay the need for costly off-site reinforcement.

### 3.1.4 New Infrastructure

UKPN has provided budget costs to provide new connections to serve the development. This includes the installation of a new primary substation to reinforce the network as noted in 3.1.3 above, the installation of 32 No. 500kVA substations and all on-site mains and residential and commercial services.

### 3.1.5 Legal Tenure (Wayleaves / Easements)

Where electricity lines are to be installed in private land UKPN will require an easement in perpetuity for its electric lines, and in the case of electrical plant the freehold interest in the substation site, on UK Power Network terms, without charge and before any work commences.

Where a GRP substation is required a footprint area of 4m x 4m (5m x 5m for a brick-built enclosure), will be required which will need provision for 24-hour access directly from the public highway.

### 3.1.6 Financial Considerations

*Procurement Options*

The estimated electricity demand proposed for this development is likely to be of sufficient scale to encourage an “out of area” licensed Independent Distribution Network Operator (IDNO) to offer an alternative proposal to establish an embedded system within the incumbent’s licensed area.

*Contestable / Non-Contestable Work*

All new electricity infrastructure from the point of connection to the existing network to the point of metered supply will generally fall under the “contestable” heading allowing “self-lay” as an optional procurement route.

All modifications and diversions of existing apparatus generally fall under a “non-contestable” banner, which must remain under the direct control of the incumbent provider.

Generally, building and civils work in association is considered to be a contestable element in terms of both new and diversionary work.

A detailed review of the electricity scope of work offered by UK Power Networks should be undertaken once a formal connection offer and quotation has been received.

## 3.2 Gas Infrastructure

The incumbent gas provider is Cadent Gas.

A summary of the infrastructure likely to be affected by the proposed development is outlined below.

### 3.2.1 Existing Infrastructure

Cadent Gas records show high pressure (HP) mains crossing the site from the railway line to the west of the site, to Slovenwood Lane at the east. The main connects to a further HP main shown coming into the site from the east of Silfield Road to run within the south-eastern site boundary.

There is a low pressure (LP) network shown within the footways of Park Lane and Silfield Road to the north-east of the site that serves the existing developments.

The HP mains that cross the site are within HSE Consultation Zones, as detailed within our Existing Services and Constraints plan in Appendix B. The HSE have a Decision Matrix based on the proximity and level of sensitivity of the development type, and this matrix can be found on page 10 of the 'Land Use Planning Methodology' document attached within Appendix E. The level of sensitivity is broken down into 4 development types: -

- Level 1 – Based on normal working population
- Level 2 – Based on the general public – at home and involved in normal activities
- Level 3 – Based on vulnerable members of the public (children, those with mobility difficulties or those unable to recognise physical danger) and
- Level 4 – Large examples of Level 3 and very large outdoor developments

These 4 development types are then expanded further into the following 4 categories, and useful Development Type tables can be found within the attached document on Pages 12-23.

- 1 – People at work, Parking
- 2 – Developments for use by the general public
- 3 – Developments for use by vulnerable people
- 4 – Very large and sensitive developments

In summary, the guidelines for development are as follows: -

| Sensitivity Level | Acceptable in Consultation Zone |
|---|---|
| 1 | Outer, Middle and Inner |
| 2 | Outer and Middle |
| 3 | Outer |
| 4 | None |

### 3.2.2 Network Modifications

Cadent has confirmed a building proximity of 14.3m either side of the HP gas pipeline for residential units, increasing for commercial/public buildings. No piling is allowed within 15m of the pipeline, and all buildings and footings must be outside the building proximity zone.

If permanent crossings are required, i.e. for on-site highways, then a design and surface load calculations will need to be produced, and if calculations fail a protection slab will be required.

If the HP pipeline needs to be diverted this is likely to take 1-2 years. However, the Initial Masterplan has been designed to avoid building units in close proximity to the mains and therefore it is envisaged that diversions will not be required.

### 3.2.3 Network Capacity

It is estimated that the whole site peak hourly gas demand for the proposed development would be approximately 50,290kW, comprising 43,179kW for residential and 7,111kW for the non-residential use buildings.

Cadent has confirmed that the nearest main with sufficient capacity to serve the development is the HP main located in Silfield Road along the eastern site boundary just south of Bixley

Farm. They advise that the proposed load can be accepted onto the system with a feasibility study being carried out to determine requirements.

### 3.2.4 New Infrastructure

Cadent will not issue an estimate or quotation without a detailed site layout, and we have therefore approached GTC who are an Independent Gas Transporter (IGT) to provide us with a multi-utility budget estimate (Section 3.6 below).

### 3.2.5 Financial Considerations

*Procurement Options*

The estimated gas demand proposed for this development is likely to be of sufficient scale to encourage an “out of area” licensed Independent Gas Transporter (IGT) to offer an alternative proposal to establish an embedded system within the incumbent’s licensed area.

*Contestable / Non-Contestable Work*

All new gas infrastructure from the pressure reducing station (PRS) (if applicable) or connection point to the metered supply will generally fall under the “contestable” heading allowing self-lay as an optional procurement route.

All modifications and diversions of existing apparatus generally fall under a “non-contestable” banner, which must remain under the direct control of the incumbent provider.

Generally, builder’s work associated with the installation is considered to be a contestable element of both new and diversionary work.

## 3.3 Potable Water

The incumbent water provider is Anglian Water (AW).

A summary of the infrastructure likely to be affected by the proposed development is outlined below.

### 3.3.1 Existing Infrastructure

AW records show existing potable water mains running along the western side of Silfield Road and Wattlefield Road to the east of the site. The main is shown running within the eastern site boundary adjacent to Brentwood Farm and Bixley Farm.

There is a 280mm pipe shown crossing the site from east to west, following the existing track from Silfield Road (just south of ‘The Mariners’). It follows the route of the track, heading north to cross Verdons Lane, continuing through the site to Park Lane to the north of the site.

From Park Lane at the junction with Green Lane, a further 10” main crosses the site diagonally in a north-westerly direction to pick up the line of the existing track, exiting the site under the railway, to the north of ‘Railway Cottages’ on the north-west boundary.

### 3.3.2 Network Modifications

AW’s Pre-Planning Assessment report has identified several assets within or overlapping the site boundary, however, in order to obtain an assessment of diversionary costs and works required a S185 application for a formal quotation will need to be submitted once a detailed site layout becomes available.

### 3.3.3 Network Capacity

It is estimated that the whole site peak water demand for the proposed development would be approximately 140.44l/s, comprising 107.19l/s for residential and 33.25l/s for the non-residential use buildings.

AW has identified that there is insufficient capacity within the existing network to serve the proposed development, and therefore off-site reinforcement will be required, comprising approximately 4,200m of 400mm HPPE main from High Oak WTW (water treatment works) to the site and a new 120lps pumping station at High Oak WTW.

As a result of changes to charging rules published by OFWAT in 2018 network reinforcement charges are no longer chargeable as a separate item. They are now covered by infrastructure charges applied to each new connection. AW apply a 'zonal charge' per connection which is made up of two elements; a fixed element (the same in nature as the old infrastructure charge) and a variable element which may vary each financial year.

### 3.3.4 New Infrastructure

AW has provided budget costs within their Pre-Planning Assessment Report for on-site mains and zonal charges to cover the off-site reinforcement works.

A detailed scope of works will be provided on submission of a formal application.

### 3.3.5 Financial Considerations

*Procurement Options*

The client (developer) will be required to submit a formal requisition to Anglian Water for potable water supplies, under the terms of Section 41 of the Water Industry Act.

*Contestable / Non-Contestable Work*

All modifications and diversion of existing apparatus generally fall under a "non-contestable" banner, which must remain under the direct control of the incumbent provider.

Generally, builder's work in association is considered to be a contestable element of both new and diversionary work.

Provision of the offsite works is contestable as a self-lay option.

## 3.4 Telecommunications Infrastructure

A summary of the Openreach infrastructure likely to be affected by the proposed development is outlined below.

### 3.4.1 Existing Infrastructure

Openreach records show overhead lines running along Park Lane to the east of the site which cross the A11. Further overhead lines run to the west from Park Lane to run adjacent to the A11 as far as the laybys in the road. At this point there is underground plant present that crosses the carriageway of the A11 and runs within both laybys.

Underground infrastructure is shown within the western verge of Wattlefield Road leading to the junction of Slovenwood Lane. From there overhead lines serve Sallowfield Cottage in Slovenwood Lane and properties south of the junction on Wattlefield Road.

Further underground and overhead infrastructure is located outside of the site boundary to the west and this crosses the railway line at the two level crossings.

### 3.4.2 Network Modifications

Openreach has provided budget costs to divert their existing underground infrastructure to the north of the A11 at the location of the proposed site access to the northern part of the development.

Service disconnections will be required to any existing properties to be demolished within the site at nil cost to the developer.

### 3.4.3 Network Capacity

There are no issues with capacity; Openreach has an obligation to serve new developments with both standard telecoms and broadband services. For developments comprising over 30 units they can also provide free of charge fibre to the premise (FTTP).

### 3.4.4 New Infrastructure

Openreach do not provide design proposals prior to planning; an application can be registered following outline planning consent and once the detailed technical drawings are prepared.

## 3.5 Comms

### 3.5.1 Existing Infrastructure

Stantec has consulted with the following telecommunication, data and other services companies who have confirmed in writing that they have no existing infrastructure within the area likely to be affected by the proposed development:

- Colt
- euNetworks
- Instalcom
- KPN International
- Linesearch BeforeUdig
- Sky
- Telenttelia
- Trafficmaster
- Verizon (MCI Worldcom)
- Virgin Media
- Vodafone

## 3.6 Multi-utility

### 3.6.1 New Infrastructure

An enquiry has been submitted to GTC for a multi-utility budget estimate and we await their response.

# 4 Conclusion

This report shows that there is existing electricity, gas, water and telecom infrastructure within the vicinity of the site, as summarised below: -

Electricity

There are 33kV and 11kV overhead HV lines crossing the site that will require diverting. Enquiries have been submitted to UKPN to establish the legals covering the apparatus in order to determine responsibility for costs.

There is currently circa 5.3MVA available capacity within the existing network that could serve initial phases of the development. To supply the overall site demand UKPN has advised of the requirement to reinforcement the network with the installation of a new Primary substation.

Gas

There are existing HP gas pipelines crossing the site that would be costly and could take up to 1-2 years to divert if required. The pipelines have a circa 15m building proximity zone to restrict building within that zone.

There is currently sufficient capacity within the HP network to serve the whole development, with a proposed point of connection to the main in Silfield Road to the east of the Site.

Water

There are existing water mains present within and around the perimeter of the Site that may be affected by the proposed development. This will be determined at detailed design stage, but the current development Masterplan appears to avoid the existing mains.

There is currently insufficient capacity within the existing water network and AW has advised that reinforcement works will be required comprising 4.2km on new off-site 400mm main and a new 120lps pumping station at High Oak WTW. Costs for this work are covered by the zonal/infrastructure charges applied to each new connection.

Comms

Openreach infrastructure to the north of the A11 may require diverting to accommodate the proposed site access to the northern part of the development.

Openreach will serve new developments with both standard telecoms and broadband services and can provide fibre to the premise (FTTP) free of charge to developments comprising over 30 units.

General

The site is also large enough to be of interest to independent network operators who can offer competitive prices for new connections to those quoted by the incumbent statutory undertakers, as provided by GTC.

The enquiries to the utility providers to date have been based on direct connection to each unit and will be subject to formal application following planning consent.

New supplies within the site will generally be routed along proposed road corridors. The requirements for easement agreements for supplies located outside of the proposed highway will need to be agreed with the relevant statutory undertaker as part of the design process.

It is recommended that trial holes or a ground radar penetration survey is undertaken to determine the exact location and depth of existing services within the site boundaries and along Silfield Road and the A11 at the proposed site access point, in order to establish any requirements for diversions or easements.

# Appendix A Site Location Plan

Site Boundary

Rev Description Date



Notes:
This drawing is for information purposes only. It should not be relied upon for legal nor title purposes. Do NOT scale from this drawing or use in construction. Proper advice should be sought from relevant qualified entities regarding legal and construction issues. Any discrepancies should be immediately reported to the originator of the drawing.

Client:

orbit building communities

BOWBRIDGE

# Silfield Garden Village

## OS Mastermap Base

| Scale @ A3: | Drawn: | Designed: | Approved: |
|---|---|---|---|
| 1:12,500 | NMW/CE | - | HPF |

0 500 m

| Drawing Number: | Revision: | Date: |
|---|---|---|
| SIL001-009 | B | 20/01/2020 |

50 North Thirteenth Street, Central Milton Keynes, MK9 3BP
01908 666276 mail@davidlock.com **davidlock.com**

DAVID LOCK ASSOCIATES

# Appendix B Existing Services and Constraints

KEY

- SITE BOUNDARY
- EX HV — EX HV — EXISTING ELECTRICITY (HV)
- EX LV — EX LV — EXISTING ELECTRICITY (LV)
- EX HV — EXISTING OVERHEAD ELECTRICITY (HV)
- EX HP — EX HP — EXISTING GAS (HP)
- EX LP — EX LP — EXISTING GAS (LP)
- EX W — EX W — EXISTING WATER
- EX BT — EX BT — EXISTING BT OPENREACH
- EX BT — EXISTING OVERHEAD BT OPENREACH
- EXISTING FOUL SEWER
- ABANDONED SERVICE
- HSE CONSULTATION INNER ZONE
- HSE CONSULTATION MIDDLE ZONE
- HSE CONSULTATION OUTER ZONE

NOTES:

1. For further details on HSE consultation zones please refer to the HSE's 'Land Use Planning Methodology' document available at www.hse.gov.uk/landuseplanning.

11KV
33KV
10" PVCu
90mm MDPE/PE80 ; 2 No. HV Cables
280mm HPPE/PE100
A11
SILFIELD ROAD
3" AC
YEOMANS LANE
WATTLEFIELD ROAD
6" PVCu
Silfield
Wattlefield

Consultation zones from HP Gas Main
Inner Zone (IZ) = 15m
Middle Zone (MZ) = 15m
Outer Zone (OZ)= 15m

Consultation zones from HP Gas Main
Inner Zone (IZ) = 15m
Middle Zone (MZ) = 15m
Outer Zone (OZ)= 24m

Consultation zones from HP Gas Main
Inner Zone (IZ) = 15m
Middle Zone (MZ) = 25m
Outer Zone (OZ) = 27m

Consultation zones from HP Gas Main
Inner Zone (IZ) = 15m
Middle Zone (MZ) = 33m
Outer Zone (OZ)= 47m



| Mark | Revision | Date | Drawn | Chkd | Appd |
|---|---|---|---|---|---|
| A | MASTERPLAN INSERTED | 12.03.20 | MH | LA | |

SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status
FOR INFORMATION

# SILFIELD GARDEN VILLAGE
# WYMONDHAM

## EXISTING SERVICES AND CONSTRAINTS

Client
ORBIT HOMES

| Date of 1st Issue | Designed | Drawn |
|---|---|---|
| 30.01.2020 | - | MH |
| A0 Scale | Checked | Approved |
| 1:5000 | LA | - |

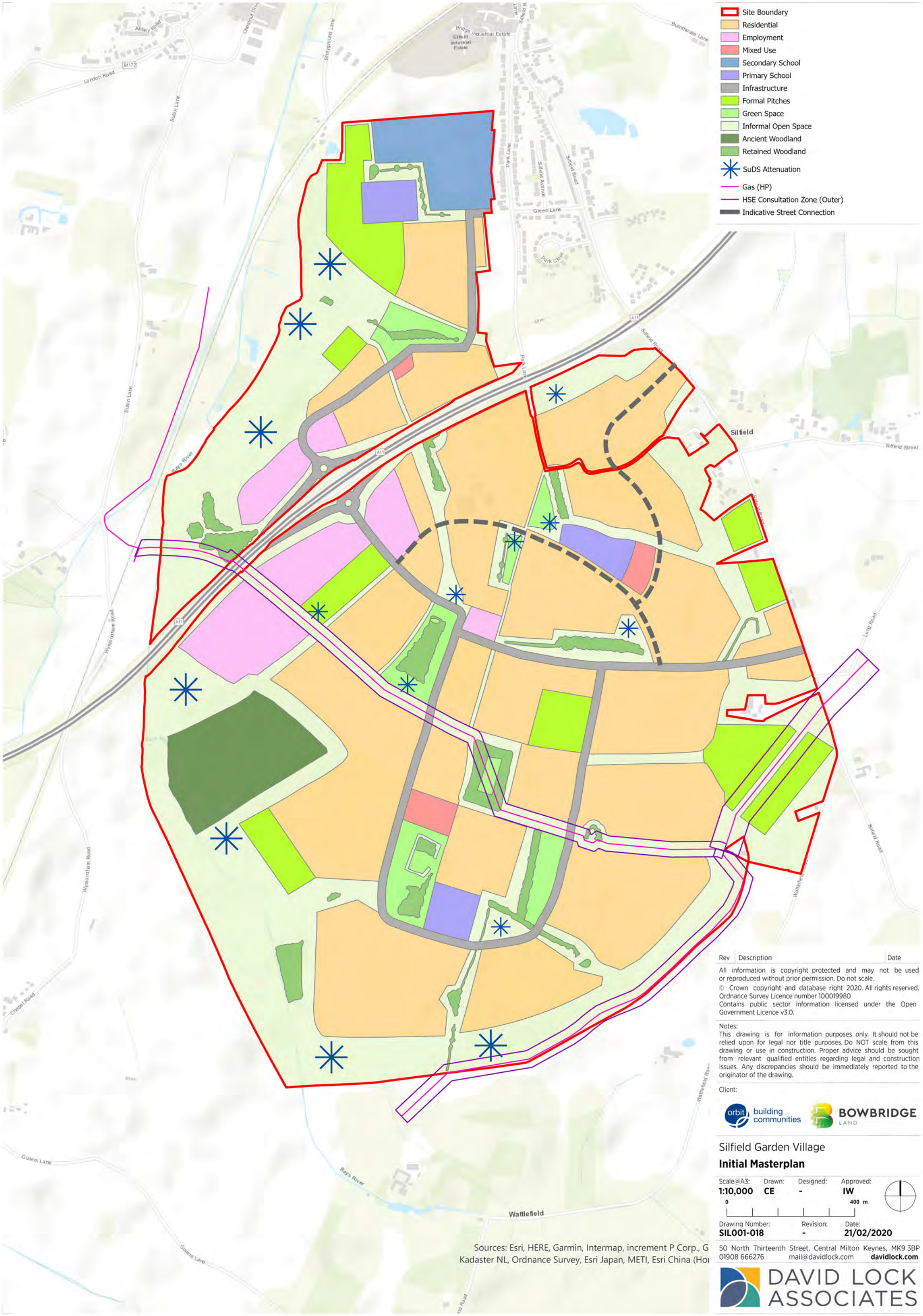
Drawing Number: 47753/2502/001
Revision: A

Stantec
stantec.com/uk



ASHFORD
Tel: 01233 527250

# Appendix C Initial Masterplan




| Rev | Description | Date |
|---|---|---|



Notes:
This drawing is for information purposes only. It should not be relied upon for legal nor title purposes. Do NOT scale from this drawing or use in construction. Proper advice should be sought from relevant qualified entities regarding legal and construction issues. Any discrepancies should be immediately reported to the originator of the drawing.

Client:

orbit building communities

BOWBRIDGE LAND

Silfield Garden Village

**Initial Masterplan**

| Scale@A3: | Drawn: | Designed: | Approved: |
|---|---|---|---|
| **1:10,000** | **CE** | **-** | **IW** |

0 — 400 m

| Drawing Number: | Revision: | Date: |
|---|---|---|
| **SIL001-018** | **-** | **21/02/2020** |

50 North Thirteenth Street, Central Milton Keynes, MK9 3BP
01908 666276 mail@davidlock.com **davidlock.com**

DAVID LOCK ASSOCIATES

# Appendix D Correspondence

Registered Office
Newington House
237 Southwark Bridge Road
London SE1 6NP

Company:
UK Power Networks
(Operations) Limited

Registered in England and Wales No: 3870728

Mrs M Hawkett
Stantec
Connect 38
10, Dover Place
ASHFORD
Kent
TN23 1FB

Date: 24 February 2020

Our Ref: 8600018088 / QID 3000025232

Dear Mrs Hawkett,

## Site Address: Silfield Garden Village, Wymondham, Norfolk NR18

Thank you for your recent enquiry regarding the above premises. I am writing to you on behalf of Eastern Power Networks plc the licensed distributor of electricity for the above address trading as UK Power Networks.

I am pleased to be able to provide you with a budget estimate for the work.

It is important to note that this budget estimate is intended as a guide only. It may have been prepared without carrying out a site visit or system studies. No enquiry has been made as to the availability of consents or the existence of any ground conditions that may affect the ground works. It is not an offer to provide the connection and nor does it reserve any capacity on UK Power Networks electricity distribution system.

**This budget estimate does not include the final connections to circa 4 ha of mixed use retail / community / employment over a number of local centres**

## Budget estimate: £11,660,000.00

The budget estimation for this work is:

### Description

| CONTESTABLE WORK | |
|---|---|
| **Work involved** | **Net price (£)** |
| **Domestic Services** | |
| • 6500 x Standard 1ph service connection on site | £3,665,000.00 |
| **Commercial Services** | |
| • 4 x Install standard 400amp termination and 185mm2 cable jointed off existing waveform cable up to 5m cable in customer's duct on site and up to 2m in public footpath .Includes installation of CT cabinet. | £15,000.00 |
| **LV Underground Mains** | |
| • 3000m on site | £540,000.00 |
| **HV Plant and Switchgear** | |

| | |
|---|---|
| • 32 x Establish a 500kVA unit substation within a GRP Housing. Includes 500kVA transformer, Ring Main Unit, 5-way LV cabinet, RTU, internal small power/lighting and substation ancillaries. Excludes GRP, earthing,civil works and HV/LV jointing.<br>• 64 x 300mm HV indoor end box termination<br>• 32 x Supply and fit of a brown GRP substation housing.<br>• 32 x Delivery of plant to site in normal weekday working hours<br>• 32 x Commissioning of a Remote Terminal Unit (RTU)<br>• 32 x 11kV outage associated with the provision of an 11kV substation<br>• Inspection of substation civil works<br>• Legal fees for a Freehold/Leasehold for the establishment of a substation in a new physical location. | £1,236,000.00 |
| **HV Underground Mains** | |
| • 3000m | £780,000.00 |
| **TOTAL** | £6,236,000.00 |

| NON-CONTESTABLE WORK | |
|---|---|
| **Work involved** | **Net price (£)** |
| **EHV Plant and Switchgear** | |
| • New Primary substation | £3,722,000.00 |
| **EHV Underground Main** | |
| • Diversions | £1,700,000.00 |
| **Transactional Charges** | |
| **Other charges** | |
| **TOTAL** | £5,422,000.00 |

## Assumptions

This budget estimate is based on the following assumptions:

- The most appropriate Point of Connection (POC) is as described above.
- A viable cable or overhead line route exists along the route we have assumed between the Point of Connection (POC) and your site.
- In cases where the Point of Connection (POC) is to be at High Voltage, that a substation can be located on your premises at or close to the position we have assumed.
- Where electric lines are to be installed in private land UK Power Networks will require an easement in perpetuity for its electric lines and in the case of electrical plant the freehold interest in the substation site, on UK Power Networks terms, without charge and before any work commences.
- You will carry out, at no charge to UK Power Networks, all the civil works within the site boundary, including substation bases, substation buildings where applicable and the excavation/reinstatement of cable trenches.
- Unless stated in your application, all loads are assumed to be of a resistive nature. Should you intend to install equipment that may cause disturbances on UK Power Networks' electricity distribution system (e.g. motors; welders; etc.) this may affect the estimate considerably.
- All UK Power Networks' work is to be carried out as a continuous programme of work that can be completed substantially within 12 months from the acceptance of the formal offer.

Please note that if any of the assumptions prove to be incorrect, this may have a significant impact on the price in any subsequent quotation. You should note also that UK Power Networks' formal connection offer may vary

considerably from the budget estimate. If you place reliance upon the budget estimate for budgeting or other planning purposes, you do so at your own risk.

## If you would like to proceed

If you would like to proceed to a formal offer of connection then you should apply for a quotation. Please refer to our website click here for `The connection process' which details our application process.

To help us progress any future enquiry as quickly as possible please quote the UK Power Networks Reference Number from this letter on all correspondence.

If you have any questions about your budget estimate or need more information, please do not hesitate to contact me. The best time to call is between the hours of 9am and 4pm, Monday to Friday. If the person you need to speak to is unavailable or engaged on another call when you ring, you may like to leave a message or call back later.

Yours sincerely

John Hamling
Project Manger
UKPN
EN6 1AG

john.hamling@ukpowernetworks.co.uk

## Hawkett, Michelle

**From:** Harty, Robert <Robert.Harty@cadentgas.com>
**Sent:** 09 March 2020 13:35
**To:** Hawkett, Michelle
**Subject:** RE: C3 Enquiry - Silfield Garden Village, Wymondham, Norfolk NR18 9NQ Cadent references: EA_640235 & EA_052267
**Attachments:** EA_GE4A_3WWX_1091170-2.pdf

Hi Michelle,

The building proximity for i.e houses is 14.3m either side of the gas pipeline, for commercial/public buildings this will increase.
For your design please bear in mind the following:

Cadent Gas must trace and mark up the high pressure gas pipeline
Cadent gas need to be on site for all excavation works within the easement zone,
Trial holes will be required to confirm exact location and depth of the pipeline,
The easement should be fenced off,
No storage in the easement,
No piling allowed within 15m of the gas pipeline,
No plant to cross the gas pipeline in an unprotected area (see section 6 figure 2 of the attached guidance document SSW22)
If permanent crossing(s) are required, then a design is required and surface load calculations, if the calcs fail a protection slab is required. These calc cost £3,500-£5,000, this is further explained below.
No trees in the easement that do not conform with Cadent tree guidelines.
All buildings must be outside the building proximity zone, this includes footings and overhangs.

**All works to be in accordance with SSW22, HSG47, and 5028 (where applicable).**

If you require permanent crossings you will require a design and surface load calcs. First you will need trial holes on the gas pipeline with a Cadent Plant Protection technician on site to observe the works, you can book the dates and technician via me. These works will be carried out in accordance with SSW22 (attsched) and HSG47.

The surface load calcs are to be carried out by persons with the appropriate knowledge of gas pipelines and the gas pipeline documentation such as GM1.
If the surface load calcs fail then a protection slab will be required. If a protection slab is require this has to be designed in accordance with CE12 and goes through the G17 process which requires appraisers and approvers from a list which I can provide.

In regards to the surface load calcs, the calcs will have to be carried out by a company that is aware of gas pipeline documentation such GM1, GIS/L2 etc etc and how to incorporate the pipeline wall thickness, material grade, stress on the pipeline etc (Plaxis 2D is not sufficient)
They need to look at ring behaviour of the pipe, longitudinal effects – GM/1 takes both into account and I would expect them to produce a report that follows the methodology in it, with the appropriate traffic impact factors, load models and all the acceptance criteria verified: von Mises, membrane stress, longitudinal stress, diametric deflection, fatigue etc.

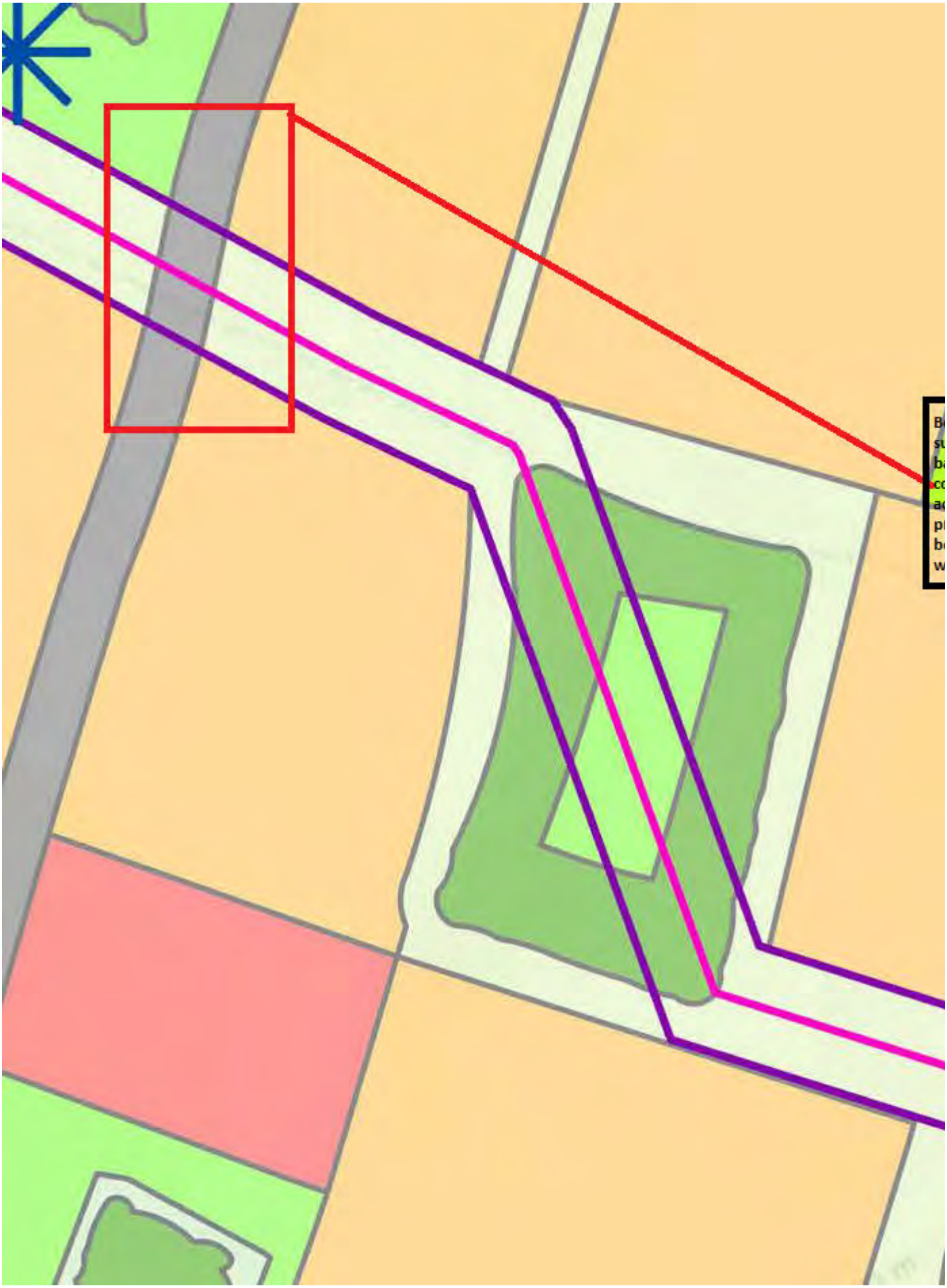
There are various companies that do the load assessments on gas pipelines, their costs range from £3,000 to £5,000 and timescales from 2weeks up to 2 months.

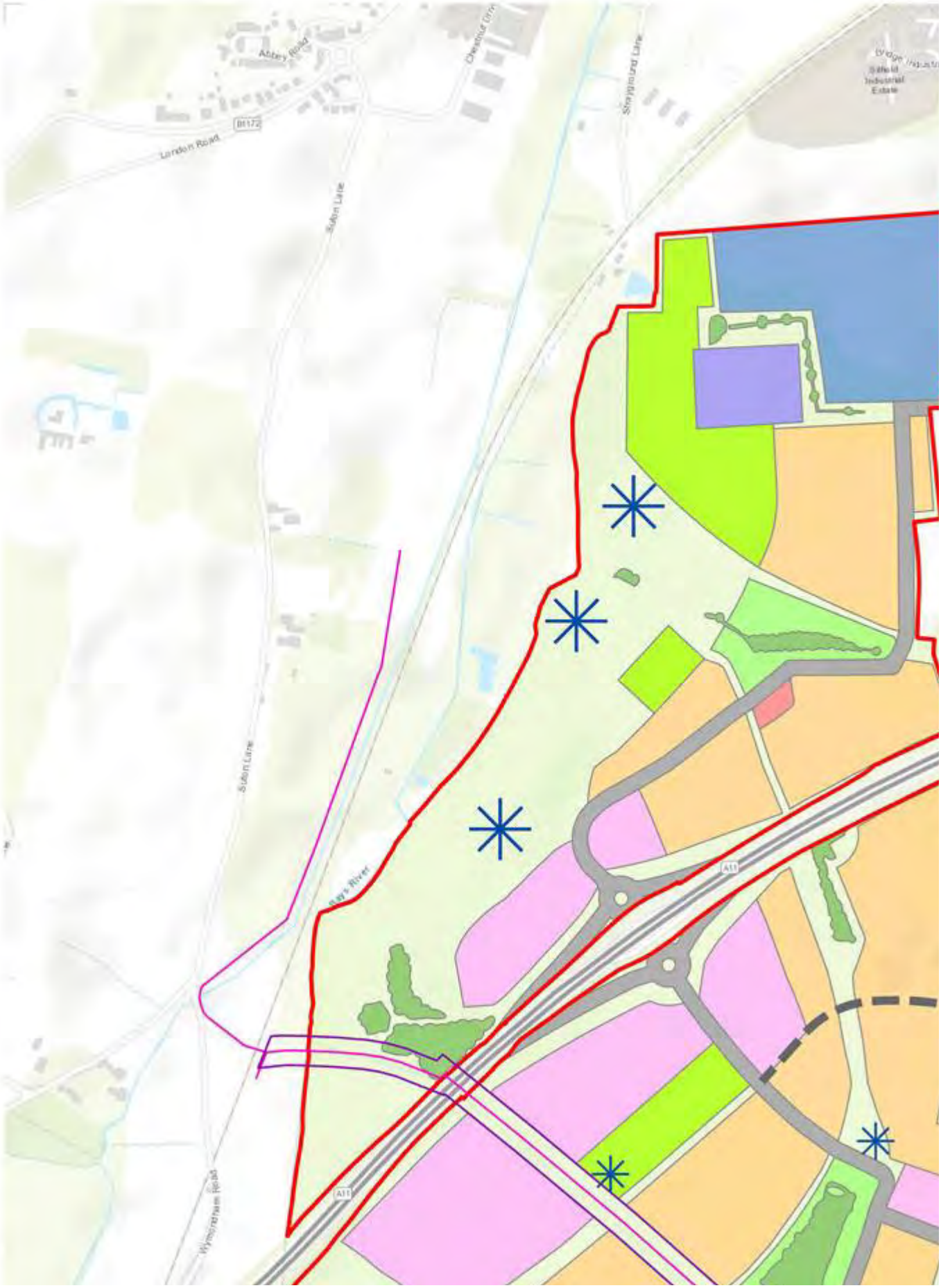
You can do one of the following:

- I can request our integrity team to get one of our specialists to do the surface load calculations (DNVGL) which can take 4-8 weeks at £4,000 to £5,000. I will then have to charge a 10% uplift on top of this.
- You may have your own team that do surface load calcs? They will need understanding of GM1, GIS/L2 etc as highlighted above.
- You can search companies that do the calcs, civils@designandconstructltd.com is the e-mail address of one such company who have a quick to return the calculations (2-3 weeks)cost £3,500.

AFEA is another company who have a quick turnaround, I'm currently waiting on their contact details from our integrity team.

Please read the comments on the drawing below:




Abbey Road
London Road
B172
Sidon Lane
Chestnut Drive
Stanmund Lane
Bridge Industrial Estate
Sidon Lane
Stort River
A11
A11
Wymondley Road

Regards,

**Robert Harty**
East Anglia Pipelines (I.P & H.P gas)

**Cadent Gas Limited**
9 Wharfedale Road Ipswich, IP1 4JP
robert.harty@cadentgas.com
**Cadentgas.com**

---

**From:** Hawkett, Michelle <michelle.hawkett@stantec.com>
**Sent:** 09 March 2020 12:22
**To:** Harty, Robert <robert.harty@cadentgas.com>
**Subject:** RE: C3 Enquiry - Silfield Garden Village, Wymondham, Norfolk NR18 9NQ Cadent references: EA_640235 & EA_052267

Hi Robert,

Thank you for your email. I attach a copy of our email dated 26th February that includes the latest proposed layout for the development. You will see the layout has been revised to avoid conflict with the existing HP mains where possible and it looks as though diversions can be avoided?

Kind regards,

**Michelle Hawkett**
*EngTech MICE*
Senior Technician

Connect 38, 1 Dover Place, Ashford, Kent, TN23 1FB, United Kingdom
Direct: +44 1233 527252
michelle.hawkett@stantec.com



*Please be aware that my working hours are Mon-Thurs 08:30-16:30*

---

**From:** Harty, Robert <Robert.Harty@cadentgas.com>
**Sent:** 04 March 2020 15:45
**To:** Hawkett, Michelle <michelle.hawkett@stantec.com>
**Subject:** C3 Enquiry - Silfield Garden Village, Wymondham, Norfolk NR18 9NQ Cadent references: EA_640235 & EA_052267

Hi Michelle,

A diversion of the high pressure gas pipeline is likely to take 1-2yrs to divert and cost in the region of 1.2million.

The above is very unlikely to be required, protection measures on the gas pipeline should suffice however I will need a copy of the proposed development plan in order to assess in detail.

Regards,

**Robert Harty**
East Anglia Pipelines (I.P & H.P gas)

**Cadent Gas Limited**
9 Wharfedale Road Ipswich, IP1 4JP
robert.harty@cadentgas.com
**Cadentgas.com**

---

**From:** Hawkett, Michelle <michelle.hawkett@stantec.com>
**Sent:** 05 February 2020 16:05
**To:** .box.plantprotection <plantprotection@cadentgas.com>
**Subject:** EAGLES ENG ADV AND SENT TO DIVS BK C3 Enquiry - Silfield Garden Village, Wymondham, Norfolk NR18 9NQ

Good afternoon,

Please find attached a C3 diversion enquiry for a budget estimate in relation to existing HP gas mains that cross through the site of the proposed Silfield Garden Village development in Wymondham.

We look forward to receiving your response at your earliest opportunity; however, should you require any further information please do not hesitate to contact me.

Kind regards,

**Michelle Hawkett**
*EngTech MICE*
Senior Technician

Connect 38, 1 Dover Place, Ashford, Kent, TN23 1FB, United Kingdom
Direct: +44 1233 527252
michelle.hawkett@stantec.com



*Please be aware that my working hours are Mon-Thurs 08:30-16:30*

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Please ensure you have adequate virus protection before you open or detach any documents from this transmission. Cadent Gas Limited does not accept any liability for viruses. An e-mail reply to this address may be subject to monitoring for operational reasons or lawful business practices.

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---

**Network Enquiry No** : 180012222
**Your Reference** : NR18 9NQ (REV)

**Cadent Gas Limited**

**National Gas Emergency Service - 0800 111 999* (24hrs)**
***calls will be recorded and may be monitored**

MICHELLE HAWKETT
STANTEC
UNIT 10, CONNECT 38
1 DOVER PLACE
ASHFORD,KENT
TN23 1FB

**Date** : 12th February 2020
**Contact** : Performance and Support
**Direct Tel** : 0845 3666758
**Email** : networkdesign@cadentgas.com

www.cadentgas.com

**Dear MICHELLE,**

**Re: Land Enquiry for Proposed Development Site at NEW SUPPLY, LAND OFF, SILFIELD ROAD, WYMONDHAM, NR18 9NQ.**

Thank you for your enquiry which we received on 4th February 2020. I enclose details of Cadent Gas plant in the vicinity of your proposed supply.

The nearest main with sufficient capacity is 825 metres from the site boundary and it is a High Pressure main.

This Developer Enquiry response is a reflection of the network at the time delivered and is not a guarantee of gas flow or capacity due to the changing dynamics of the gas distribution network.
If you wish to secure capacity and connect to the network please submit quotation Connections Request via the official connections route allowing for further analysis to verify the capability of the network again.

This load can be accepted onto the system with a feasibility study being carried out to determine requirements. The estimated cost of this will be in the region of £20-£50k as it is a complex connection type.

Plans attached: Yes

A copy of the Cadent Connections Charging Statement referenced in this letter can be found on Cadent's website:

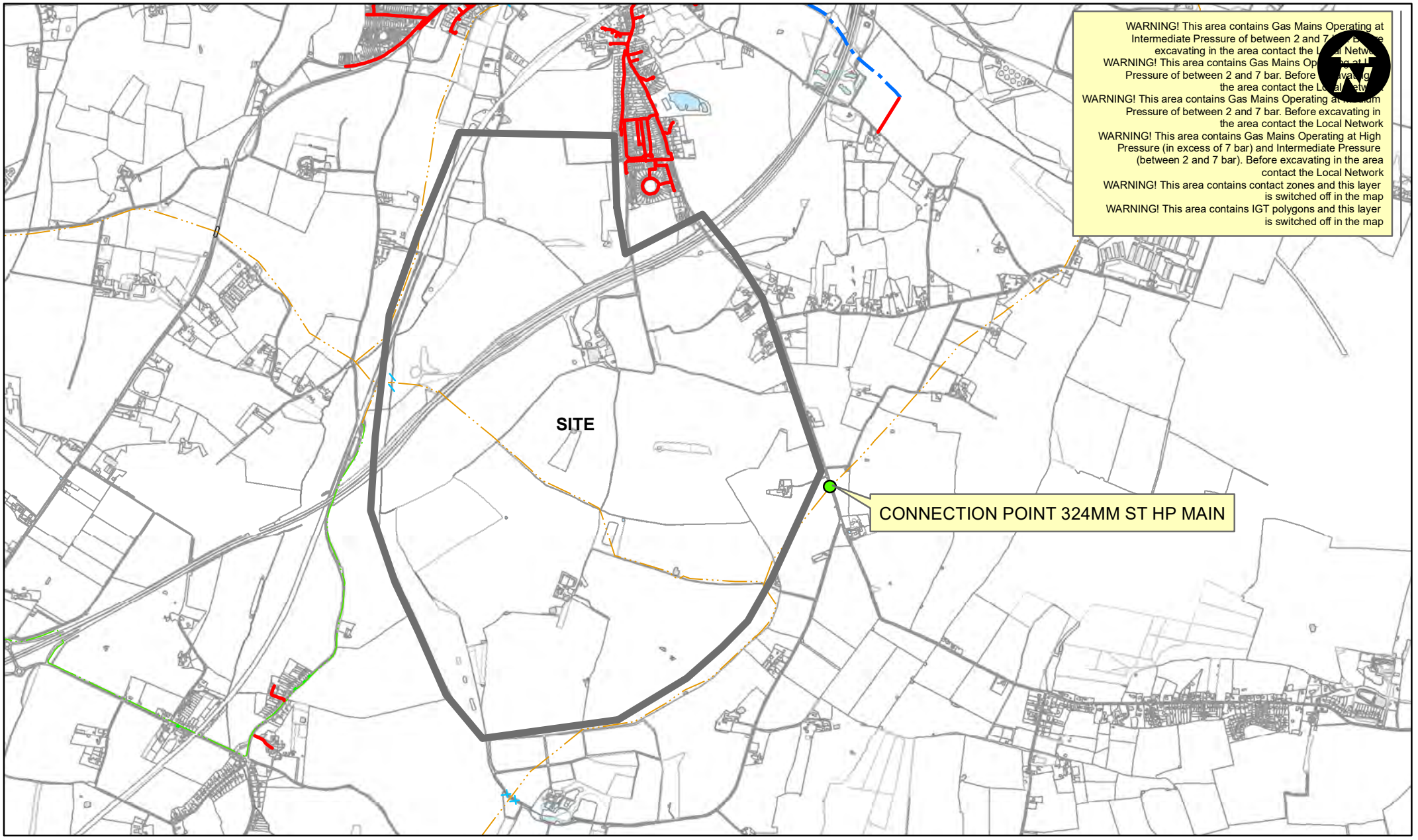
http://cadentgas.com/Get-connected

If you require a printed version please contact us on the details provided above.

I trust this meets with your requirements at this stage. If you have any queries please do not hesitate to contact Performance and Support on the above number.

Yours sincerely,

Laura Cheshire




SCALE: 1:500 @A4

USER ID: james.mason

DATE: 12-Feb-2020 09:33:32

INTERNAL USE ONLY

OS Ref: 611824, 298970

CENTRE: <Centre>

L/P GAS MAIN
M/P GAS MAIN
I/P GAS MAIN
H/P GAS MAIN
N/H/P GAS MAIN
PROPOSED PIPE - LP
PROPOSED PIPE - MP
PROPOSED PIPE - IP
ABANDON - LP
ABANDON - MP
Out Of Standard Service

**Some examples of Plant Items:**

Valve | Syphon | Depth of Cover | Change of Dia | Change of Material

SCHEME: <NG GDFO Scheme Name>

DESIGN: <NG GDFO Design Number>

REVISION: <NG GDFO Revision>

This plan shows those pipes owned by Cadent in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area.Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plans given without warranty, the accuracy thereof cannot be iguranteed. Service pipes, valves, syphons, stub connections,etc., are not shown but their presence should be anticipated.No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error oromission. Safe digging practices, inaccordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and any other apparatus on site before any mechanical plant is used. It is your responsability to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

180012222

Cadent

**Pre-Planning**
**Assessment Report**
# SILFIELD GARDEN VILLAGE 155849/904297835/1/0077506

Report published 18/02/2020

## Section 1: Proposed development

Thank you for submitting a pre-planning enquiry. This has been produced for Stantec UK. Your reference number is **155849/904297835/1/0077506**. If you have any questions upon receipt of this report, please contact the Pre-Development team on 03456 066087 or email planningliaison@anglianwater.co.uk.

The response within this report has been based on the following information which was submitted as part of your application:

| List of planned developments | |
|---|---|
| **Type of development** | **No. Of units** |
| Shops | 3 |
| Restaurants and cafes | 2 |
| Hot food takeaways | 2 |
| Business | 10 |
| Dwellings | 6500 |
| Non-residential | 6 |
| Assembly and leisure | 1 |

The anticipated residential build rate is:

| Year | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Build rate | 50 | 100 | 250 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 3724 |

Site grid reference no.

TM1135399045

Development type

Greenfield

Planning application status

Unknown

The comments contained within this report relate to the public water mains and sewers indicated on our records. Your attention is drawn to the disclaimer in the useful information section of this report.

## Section 2: Assets affected

Our records indicate that we have the following types of assets within or overlapping the boundary of your development site as listed in the table below.

Additionally, it is highly recommended that you carry out a thorough investigation of your proposed working area to establish whether any unmapped public or private sewers and lateral drains are in existence. We are unable to permit development either over or within the easement strip without our prior consent. The extent of the easement is provided in the table below. Please be aware that the existing water mains/public sewers should be located in highway or open space and not in private gardens. This is to ensure available access for any future maintenance and repair and this should be taken into consideration when planning your site layout.

| Water and Used water easement information | | |
|---|---|---|
| Asset type | Pipe size (mm) | Total easement required (m) |
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 72 | 4.50 m either side of the centre line |
| Water mains | 77 | 4.50 m either side of the centre line |
| Water mains | 73 | 4.50 m either side of the centre line |
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 77 | 4.50 m either side of the centre line |
| Water mains | Unknown | 3.00 m either side of the centre line |
| Water mains | 109 | 4.50 m either side of the centre line |
| Water mains | Unknown | 3.00 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Water mains | 251 | 6.00 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Water mains | 77 | 4.50 m either side of the centre line |
| Water mains | 77 | 4.50 m either side of the centre line |
| Water mains | 109 | 4.50 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 77 | 4.50 m either side of the centre line |
| Water mains | 77 | 4.50 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 109 | 4.50 m either side of the centre line |
| Water mains | 77 | 4.50 m either side of the centre line |

| Water and Used water easement information | | |
|---|---|---|
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Water mains | Unknown | 3.00 m either side of the centre line |
| Water mains | 73 | 4.50 m either side of the centre line |
| Water mains | 73 | 4.50 m either side of the centre line |
| Water mains | 81 | 4.50 m either side of the centre line |
| Water mains | Unknown | 3.00 m either side of the centre line |
| Water mains | 251 | 6.00 m either side of the centre line |
| Water mains | 247 | 6.00 m either side of the centre line |
| Water mains | 258 | 6.00 m either side of the centre line |
| Sewer mains | 150 | 3.00 m either side of the centre line |
| Sewer mains | 150 | 3.00 m either side of the centre line |

If it is not possible to avoid our assets then these may need to be diverted in accordance with Section 185 of the Water Industry Act (1991). You will need to make a formal application if you would like a diversion to be considered.

Due to the private sewer transfer in October 2011 many newly adopted public used water assets and their history are not indicated on our records. You also need to be aware that your development site may contain private water mains, drains or other assets not shown on our records. These are private assets and not the responsibility of Anglian Water but that of the landowner.

## Section 3: Water supply

In examining the available capacity for your development site we assess the capacity and costs for two categories of water main. These are:

### Water resource/treatment capacity:

Will require the Little Melton to High Oak transfer scheme.

### Strategic:

These are the offsite potable water mains which deliver water within an area to a large number of development sites often across a number of towns. The strategic provision of these water mains enables us to provide of the cheapest solution across a large geographical area.

### Local reinforcement:

These are localised reinforcement mains to enable us to provide water to your development site.

On most sites we also have two categories of water mains the Spine Mains and Housing Estate Mains (HEMS). To support your budgeting arrangements we have also examined the estimated cost for delivering the onsite water mains needed for a site of your size.

### Water supply network

There is insufficient capacity in the current network to supply this development site and therefore offsite reinforcements are needed. Details of the necessary upgrades can be found in the water infrastructure section of this report and the cost of these works are included in the Zonal charge. If you wish to proceed with the development then you will need to complete an application for a new supply. This is recommended to be done at the earliest opportunity as it could take a minimum of 18 months to install any offsite reinforcement works. The connection point for the site will be from the new water main in the farm track at the site boundary.

## Connection point(s)

Connection Point
CP-2273

Address
Farm track

National Grid Reference (NGR)
TM1076999926

## Water Infrastructure & Costs

In order to supply your site, the following upgrades are required:

| Estimated Local reinforcement Mains | Based on |
|---|---|
| Silfield new town | Approximately 4200m of 400mm HPPE main from High oak WTW to the site and a new 120 lps (37kW) pumping station at High Oak WTW. |

As a result of the recent charging rules published by Ofwat, our charging regime has changed. Your development site will be required to pay a Zonal charge for each new property connecting to our water supply network that benefits from Full planning permission.

Payment of the Zonal charge must be made before premises are connected to our water supply network. More information on the Zonal charge can be found at http://www.anglianwater.co.uk/developers/charges

The Zonal charge consists of two elements. The first is called the 'Fixed Element' which is the same in nature to the Infrastructure charge applied prior to April 2018. The second is called the 'Variable Element' which may vary each financial year.

The elements are combined together to create the 2018/19 Zonal charge for Water:

| | |
|---|---|
| Fixed Element | £ 370 |
| Variable Element | £ 88.50 |

In most circumstances zonal charges are raised on a standard basis of one charge per new connection (one for water and one for sewerage). However, if the new connection is to non-household premises, the fixed element is calculated according to the number and type of water fittings in the premises.This is called the "relevant multiplier" method of calculating the charge. Details of the relevant multiplier for each fitting can be found at our web-page: http://www.anglianwater.co.uk/developers/charges/

The total Zonal charge payable for your site for Water is:

| Zonal charge per new connection - Water | No. Of Units | Total amount payable |
|---|---|---|
| £ 458.50 | 6500 | £ 2,980,250.00 |

The estimated* Onsite Water Mains cost for your site is:

| Estimated Onsite Water Mains | |
|---|---|
| Onsite water mains costs | £ 468,000.00 |

*A detailed cost breakdown will be provided on receipt of a formal application for a new water main.

In addition, you also have the ability to construct the onsite water mains under a self-lay agreement. In such cases, an Asset Payment is made by Anglian Water following commissioning and adoption of the assets. The Asset Payment is calculated as required in the Water Act 2003. For more information on the self-lay of water mains please see http://www.anglianwater.co.uk/developers/self-lay.

You will also need to budget for connection costs.Please note that we offer alternative types of connections depending on your needs and these costs are available in our annual charges booklet, which can be downloaded from http://www.anglianwater.co.uk/developers/charges

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## Section 4: Water recycling services

In examining the used water system we assess the ability for your site to connect to the public sewerage network without causing a detriment to the operation of the system. We also assess the receiving water recycling centre and determine whether the water recycling centre can cope with the increased flow and influent quality arising from your development.

### Water recycling centre

The foul drainage from this development is in the catchment of Wymondham Water Recycling Centre, which currently does not have capacity to treat the flows from your development site. Anglian Water are obligated to accept the foul flows from your development with the benefit of planning consent and would therefore take the necessary steps to ensure that there is sufficient treatment capacity should the planning authority grant planning permission.

### Used water network

There is insufficient capacity within the existing foul water sewerage network serving Wymondham for a development of this size. It is recommended that a foul water drainage strategy for this development considers the option to convey all flows to the Wymondham WRC, which is located on the northwest edge of the town at approx 2.6km from the northern boundary of the development site. As an interim strategy it may be possible to connect initial phases locally. Further analysis will be required in order to evaluate the potential for an interim foul water drainage strategy and enable Anglian Water to provide you with an indicative desktop solution for draining the foul flows from the proposed development. There is no additional charge for this work. Richard Lyon, our Pre-Development Senior Engineer for this area, will be responsible for undertaking this additional work. Richard will contact you shortly to ensure we have sufficient information to evaluate option. For your reference, Richard can be contacted at rlyon@anglianwater.co.uk Please note that Anglian Water will request a suitably worded condition at planning application stage to ensure this strategy is implemented to mitigate the risk of flooding.

It is assumed that the developer will provide the necessary infrastructure to convey flows from the site to the network. Consequently, this report does not include any costs for the conveyance of flows.

### Surface water disposal

As you have not requested a connection for surface water flows from the development we assume that your proposed method of surface water management does not relate to Anglian Water operated assets, therefore, we have not assessed the impact of surface water flow. Should the proposed method of surface water management change to include interaction with Anglian Water operated assets, we would wish to be re-consulted to ensure that an effective surface water drainage strategy is prepared and implemented.

As you may be aware, Anglian Water will consider the adoption of SuDs provided that they meet the criteria outline in our SuDs adoption manual. This can be found on our website at http://www.anglianwater.co.uk/developers/suds.aspx. We will adopt features located in public open space that are designed and constructed, in conjunction with the Local Authority and Lead Local Flood Authority (LLFA), to the criteria within our SuDs adoption manual. Specifically, developers must be able to demonstrate:

1. Effective upstream source control,
2. Effective exceedance design, and
3. Effective maintenance schedule demonstrating than the assets can be maintained both now and in the future with adequate access.

If you wish to look at the adoption of any SuDs then an expression of interest form can be found on our website at: http://www.anglianwater.co.uk/developers/suds.aspx

The proposed method of surface water disposal is not relevant to Anglian Water; we suggest that you contact the relevant Local Authority, Lead Local Flood Authority, the Environment Agency or the Internal Drainage Board, as appropriate.

## Trade Effluent

We note that you do not have any trade effluent requirements. Should this be required in the future you will need our written formal consent. This is in accordance with Section 118 of the Water Industry Act (1991).

## Used Water Budget Costs

As a result of the recent charging rules published by Ofwat, our charging regime has changed. Your development site will be required to pay a Zonal charge for each new property connecting to the public sewer that benefits from Full planning permission.

Payment of the Zonal charge must be made before premises are connected to the public sewer. More information on the Zonal charge can be found at http://www.anglianwater.co.uk/developers/charges

The Zonal charge consists of two elements. The first is called the 'Fixed Element' which is the same in nature to the Infrastructure charge applied prior to April 2018. The second is called the 'Variable Element' which may vary each financial year.

The elements are combined together to create the 2018/19 Zonal charge for Sewerage:

| | |
|---|---|
| Fixed Element | £ 370 |
| Variable Element | £ 101 |

In most circumstances zonal charges are raised on a standard basis of one charge per new connection (one for water and one for sewerage). However, if the new connection is to non-household premises, the fixed element is calculated according to the number and type of water fittings in the premises.This is called the "relevant multiplier" method of calculating the charge. Details of the relevant multiplier for each fitting can be found at our web-page: http://www.anglianwater.co.uk/developers/charges/

The total Zonal charge payable for your site for Sewerage is:

| Zonal charge per new connection - Sewerage | No. Of Units | Total amount payable |
|---|---|---|
| £ 471 | 6500 | £ 3,061,500.00 |

It has been assumed that the onsite used water network will be provided under a section 104 Water Industry Act application.

It is recommended that you also budget for connection costs. Please note that we offer alternative types of connections depending on your needs and these costs are available at our website.

---

## Section 5: Map of Proposed Connection Points

**Figure 1:Showing your water point of connection**

## Section 6: Useful Information

### Water

**Water Industry Act – Key Water Sections:**

**Section 41:**

This provides you with the right to requisition a new water main for domestic purposes to connect your site to the public water network.

**Section 45:**

This provides you with the right to have a connection for domestic purposes from a building or part of a building to the public water main.

**Section 51A - E**

This provides you with the right to provide the water main or service connection yourself and for us to vest them into our company.

**Section 55:**

This applies where you request a supply of water for non domestic purposes.

**Section 185:**

This provides you with the right to make a reasonable request to have a public water main, sewer or public lateral drain removed or altered, at your expense. Details on how to make an application and the s185 form is available on our website at http://www.anglianwater.co.uk/developers or via our Development Services team on 03456 066087.

Details on how you can make a formal application for a new water main, new connection or diversion are available on from our Development Services team on 03456 066087 or via our website at http://www.anglianwater.co.uk/developers

If you have any other queries on the rights to requisition or connect your housing to the public water and sewerage infrastructure then please contact our Development Services team at: Developer Services, Anglian Water, PO Box 495, Huntingdon, PE29 6YY or Telephone: 0345 60 66 087 or Email: developerservices@anglianwater.co.uk

Water pressure and flow rate: The water pressure and consistency that we must meet for your site is laid out in the Water Industry Act(1991). This states that we must supply a flow rate of 9 litres per minute at a pressure of 10 metres of head to the external stop tap. If yourwater pressure requirements exceed this then you will need to provide and maintain any booster requirements to the development site.

Self Lay of Water Mains: A list of accredited Self Lay Organisations can be found at https://www.lr.org/en/utilities/water-industry-registration-scheme-wirs-wirsae/search/

## Used water

**Water Industry Act – Key Used Water Sections:**

**Section 98:**

This provides you with the right to requisition a new public sewer. The new public sewer can be constructed by Anglian Water on your behalf. Alternatively, you can construct the sewer yourself under section 30 of the Anglian Water Authority Act 1977.

**Section 102:**

This provides you with the right to have an existing sewerage asset vested by us. It is your responsibility to bring the infrastructure to an adoptable condition ahead of the asset being vested.

**Section 104:**

This provides you with the right to have a design technically vetted and an agreement reached that will see us adopt your assets following their satisfactory construction and connection to the public sewer.

**Section 106:**

This provides you with the right to have your constructed sewer connected to the public sewer.

**Section 185:**

This provides you with the right to have a public sewerage asset diverted.

Details on how to make a formal application for a new sewer, new connection or diversion are available on our website at http://www.anglianwater.co.uk/developers or via our Development Services team on 03456 066087.

**Sustainable drainage systems:**

Many existing urban drainage systems can cause problems of flooding, pollution or damage to the environment and are not resilient to climate change in the long term. Therefore our preferred method of surface water disposal is through the use of Sustainable Drainage Systems (SuDS). SuDS are a range of techniques that aim to mimic the way surface water drains in natural systems within urban areas. For more information on SuDS, please visit our website at http://www.anglianwater.co.uk/developers/suds.aspx . We also recommend that you contact the Local Authority and Lead Local Flood Authority (LLFA) for the area to discuss your application.

**Private sewer transfers:**

Sewers and lateral drains connected to the public sewer on the 1 July 2011 transferred into Water Company ownership on the 1 October 2011. This follows the implementation of the Floods and Water Management Act (FWMA). This included sewers and lateral drains that were subject to an existing Section 104 Adoption Agreement and those that were not. There were exemptions and the main non-transferable assets were as follows:

- Surface water sewers and lateral drains that did not discharge to the public sewer, e.g. those that discharged to a watercourse.
- Foul sewers and lateral drains that discharged to a privately owned sewage treatment/collection facility.
- Pumping stations and rising mains will transfer between 1 October 2011 and 1 October 2016.

The implementation of Section 42 of the FWMA will ensure that future private sewers will not be created. It is anticipated that all new sewer applications will need to have an approved section 104 application ahead of a section 106 connection.

**Encroachment:**

Anglian Water operates a risk based approach to development encroaching close to our used water infrastructure. We assess the issue of encroachment if you are planning to build within 400 metres of a water recycling centre or, within 15 metres to 100 metres of a pumping station. We have more information available on our website at http://anglianwater.co.uk/developers/encroachment.aspx

**Locating our assets:**

Maps detailing the location of our water and used water infrastructure including both underground assets and above ground assets such as pumping stations and recycling centres are available from . All requests from members of the public or non-statutory bodies for maps showing the location of our assets will be subject to an appropriate administrative charge. We have more information on our website at: http://www.anglianwater.co.uk/developers/our-assets/

**Summary of charges:**

A summary of this year's water and used water connection and infrastructure charges can be found at http://www.anglianwater.co.uk/developers/charges

**Disclaimer:**

The information provided in this report is based on data currently held by Anglian Water Services Limited ('Anglian Water') or provided by a third party. Accordingly, the information in this report is provided with no guarantee of accuracy, timeliness, completeness and is without indemnity or warranty of any kind (express or implied).

This report should not be considered in isolation and does not nullify the need for the enquirer to make additional appropriate searches, inspections and enquiries. Anglian Water supports the plan led approach to sustainable development that is set out in the National Planning Policy Framework ('NPPF') and any infrastructure needs identified in this report must be considered in the context of current, adopted and/or emerging local plans. Where local plans are absent, silent or have expired these needs should be considered against the definition of sustainability holistically as set out in the NPPF.

Whilst the information in this report is based on the presumption that proposed development obtains planning permission, nothing in this report confirms that planning permission will be granted or that Anglian Water will be bound to carry out the works/proposals contained within this report.

No liability whatsoever, including liability for negligence is accepted by Anglian Water, or its partners, employees or agents, for any error or omission, or for the results obtained from the use of this report and/or its content. Furthermore in no event will any of those parties be liable to the applicant or any third party for any decision made or action taken as a result of reliance on this report.

This report is valid for the date printed and the enquirer is advised to resubmit their request for an up to date report should there be a delay in submitting any subsequent application for water supply/sewer connection(s).

openreach

**Stantec**
Connect 38
1 Dover Place
Ashford
Kent
TN23 1FB
**FAO: Michelle Hawkett**

**Our Ref:** BQRA41/833297/JS
12th March 2020 **Your Ref:**

Dear Madam

**Openreach Alterations Silfield Garden Village**
**Silfield Road Wymondham**
**Electronic Communication Code**

Thank you for your Draft Scheme dated 9th March 2020 and copy of your drawing numbered SIL001-018. I enclose plans showing approximate positions of Openreach apparatus.

It would appear, from your proposals, that alterations to existing Openreach apparatus may be necessary.

A budget estimate of the possible cost of diverting Openreach apparatus is £26,371.80 including VAT.

Prior to any works involving Openreach apparatus, we must agree a Specification and provide a Detailed Estimate of costs to the Principal or Promoter of this project. The costs incurred in producing the Specification and Detailed Estimate are chargeable and for this scheme are estimated to be £2,192.83 including VAT. The charge applies whether or not your works proceed to execution. Your payment in advance, for the estimated cost of the design work, will be required before any works proceed on this scheme.

It is stressed that these figures are estimates, intended as a guide, and the actual amount could be significantly different. The actual costs incurred will be charged whether they are more or less than the estimate.

None of the materials required has a lead time of greater than 3 months and therefore advance ordering should not be required.

**Repayments (Alterations)**
Russell House
St Andrews Steet
Norwich
Norfolk
NR2 4AE

**tel** 0207 809 5662
**fax**
**mob**
**Web** http://www.openreach.co.uk
**email** jamie.4.smith@openreach.co.uk

**Openreach Limited**
Registered office:
Kelvin House, 123 Judd Street, London WC1H 9NP
Registered in England no. 10690039

**www.openreach.co.uk**
rebuild

In order to avoid potential damage to our apparatus, we offer a free site visit service to locate and mark the position of Openreach apparatus within your work area. To arrange a site visit from a Network Protection Team call  Fax:  Email· cbyd@openreach.co.uk

Please be aware that any duct and poles owned and controlled by Openreach can be used by third party Communications Providers (CP) for the installation of their cables and apparatus if they have a contract with us for our Physical Infrastructure Access (PIA) product. The CP must, however, place an order with us for PIA before they install their cables or apparatus  If such CP cables or apparatus are identified in our network within your area of interest, I will identify a contact for the affected CP and advise them of your proposals  I will pass these contact details on to you and liaise with the CP so that they are aware of any diversionary requirements relating to your proposals. You will be contacted directly by the affected third party CP - they will advise you of any associated chargeable costs relating to their cable and apparatus diversions. If you have any queries or concerns relating to this aspect of the Openreach operated network, please don't hesitate in contacting me. Please note Openreach Limited will not be held liable for any delays, costs, losses or damage caused by the third party CP

Yours faithfully

Jamie Smith
Repayments Project Engineer

**Repayments (Alterations)**
Russell House
St Andrews Steet
Norwich
Norfolk
NR2 4AE

**tel** 0207 809 5662
**fax**
**mob**
**Web** http //www openreach co uk
**email** jamie 4 smith@openreach co uk

openreach

## Network Alterations Diversionary Works Payment Details

Please forward your order (free from contractual conditions) and the estimated sum of £2,192.83 (including VAT).

There are two ways to pay:

1. By Cheque
   - This is our preferred method of payment
   - Please make cheques payable to **British Telecommunications Plc**
   - Send your cheque with your order / letter of authorisation to proceed with the works to the Project Engineer shown below
   (order not to contain contractual conditions)
   - Write your cheque number here: _____
   - Write the cheque amount here: £_____

2. Using Bank Automated Clearing Services (BACS)
When your order / letter of authorisation to proceed with the works has been received an invoice for payment will be returned with the necessary BACS payment details.

**Please quote the Openreach reference number / invoice number otherwise payment may not be allocated to your job.**

---

**N.B. For either method of payment please complete this form and return with your order / letter of authorisation to the Project Engineer, address below. Please remember, however you pay, the works will not commence until this form and your payment have been received.**

| | |
|---|---|
| **Title/Location of Work** | Openreach Alterations Silfield Garden Village, Silfield Road Wymondham |
| **Project Engineer Name** | Jamie Smith |
| **Postal Address** | Russell House, St Andrews Steet, Norwich, Norfolk, NR2 4AE |
| **Openreach Reference** | BQRA41/833297/JS |
| **Company Name** | Stantec |
| **Client Contact** | Michelle Hawkett |
| **Client Tel** | |

For advice or assistance in completing this form please call Jane Goodison No: 0131 345 0016 for all other queries contact Jamie Smith 01603 281394
Our VAT number is **245719348**

**Repayments (Alterations)**
Russell House
St Andrews Steet
Norwich
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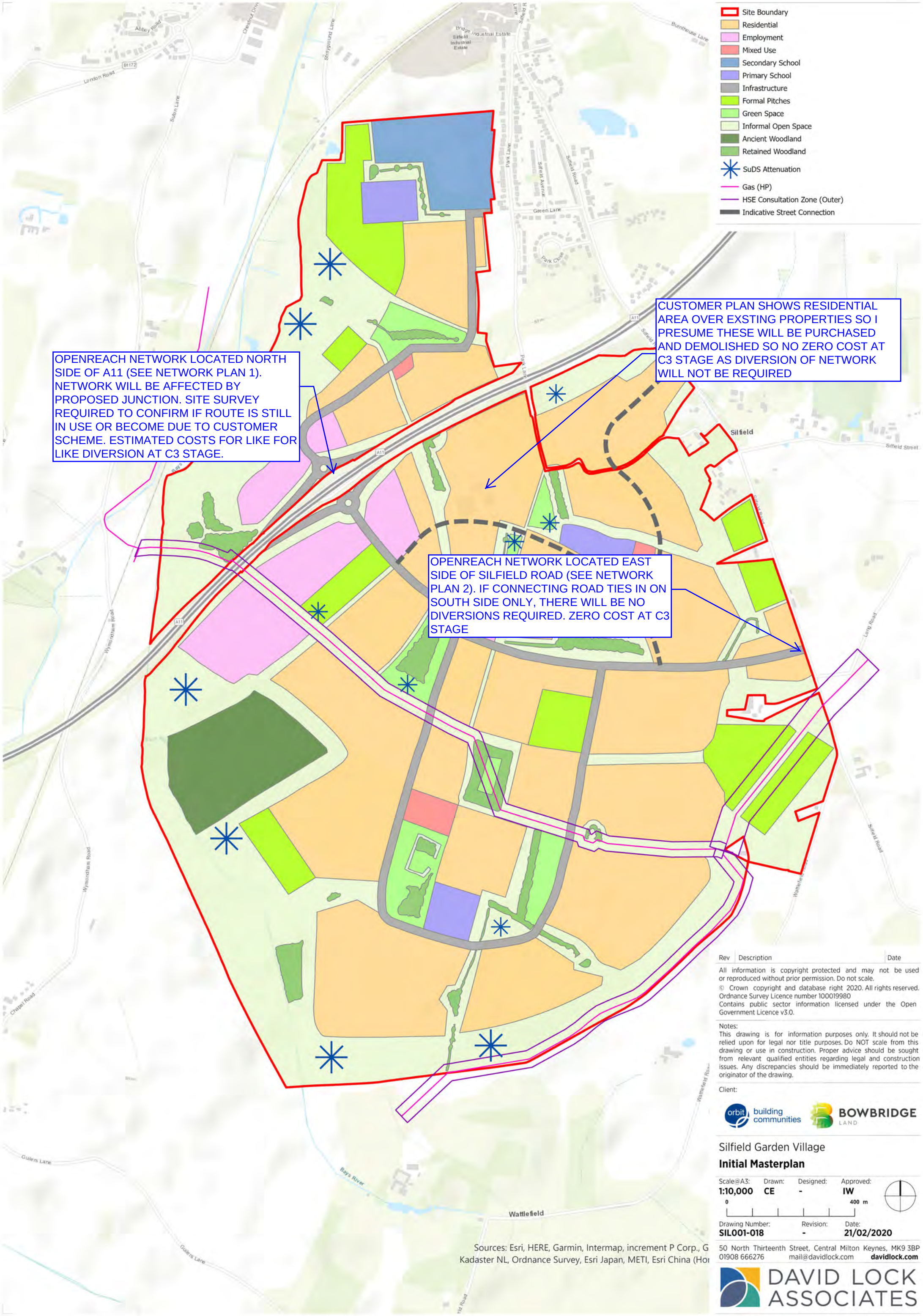
NR2 4AE

**tel** 0207 809 5662
**fax**
**mob**
**Web** http://www.openreach.co.uk
**email** jamie.4.smith@openreach.co.uk




| Rev | Description | Date |
|---|---|---|



Notes:
This drawing is for information purposes only. It should not be relied upon for legal nor title purposes. Do NOT scale from this drawing or use in construction. Proper advice should be sought from relevant qualified entities regarding legal and construction issues. Any discrepancies should be immediately reported to the originator of the drawing.

Client:

orbit building communities

BOWBRIDGE LAND

Silfield Garden Village

**Initial Masterplan**

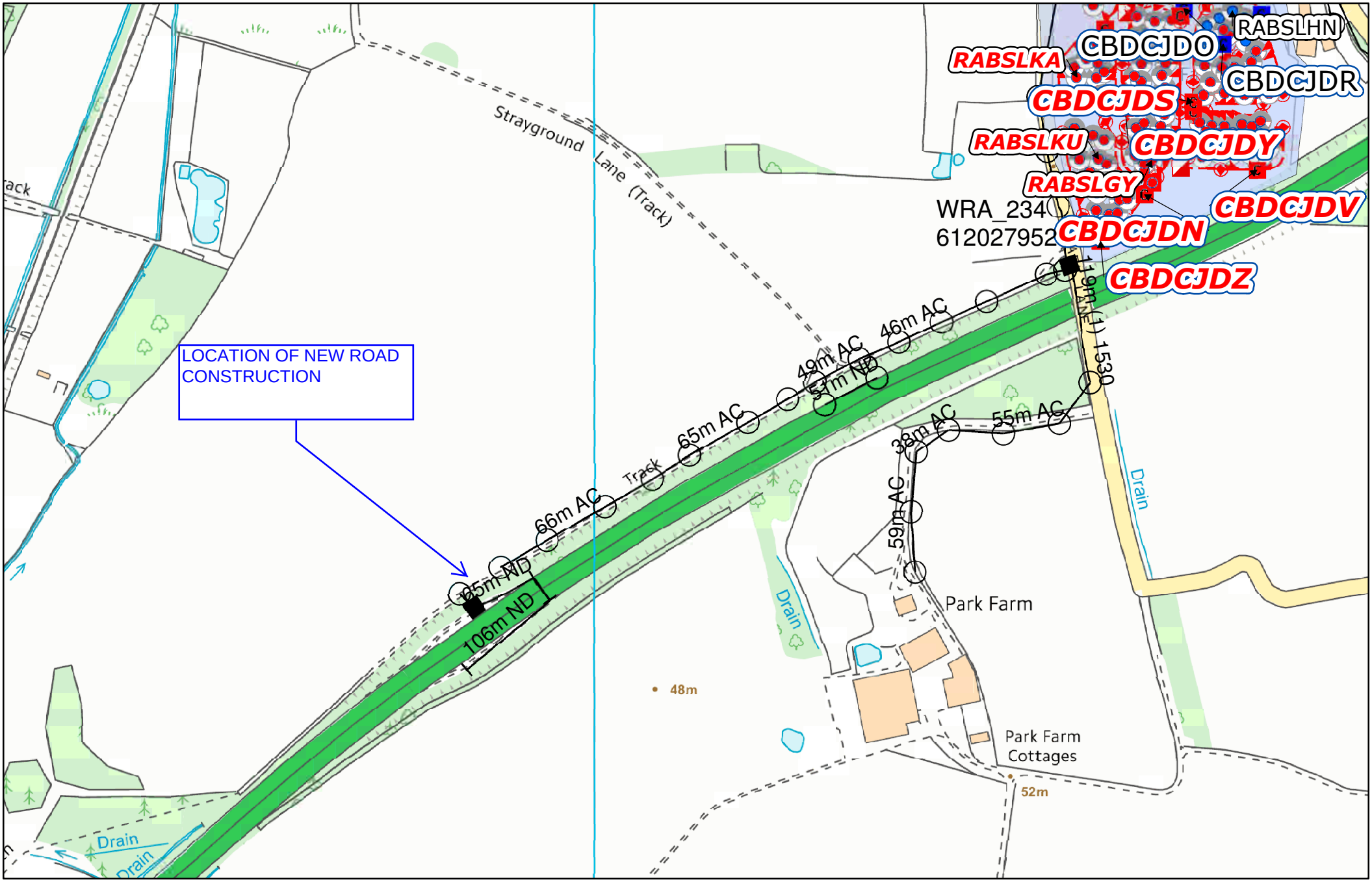
| Scale@A3: | Drawn: | Designed: | Approved: |
|---|---|---|---|
| **1:10,000** | **CE** | **-** | **IW** |

0 400 m

| Drawing Number: | Revision: | Date: |
|---|---|---|
| **SIL001-018** | **-** | **21/02/2020** |

50 North Thirteenth Street, Central Milton Keynes, MK9 3BP
01908 666276 mail@davidlock.com **davidlock.com**

DAVID LOCK ASSOCIATES



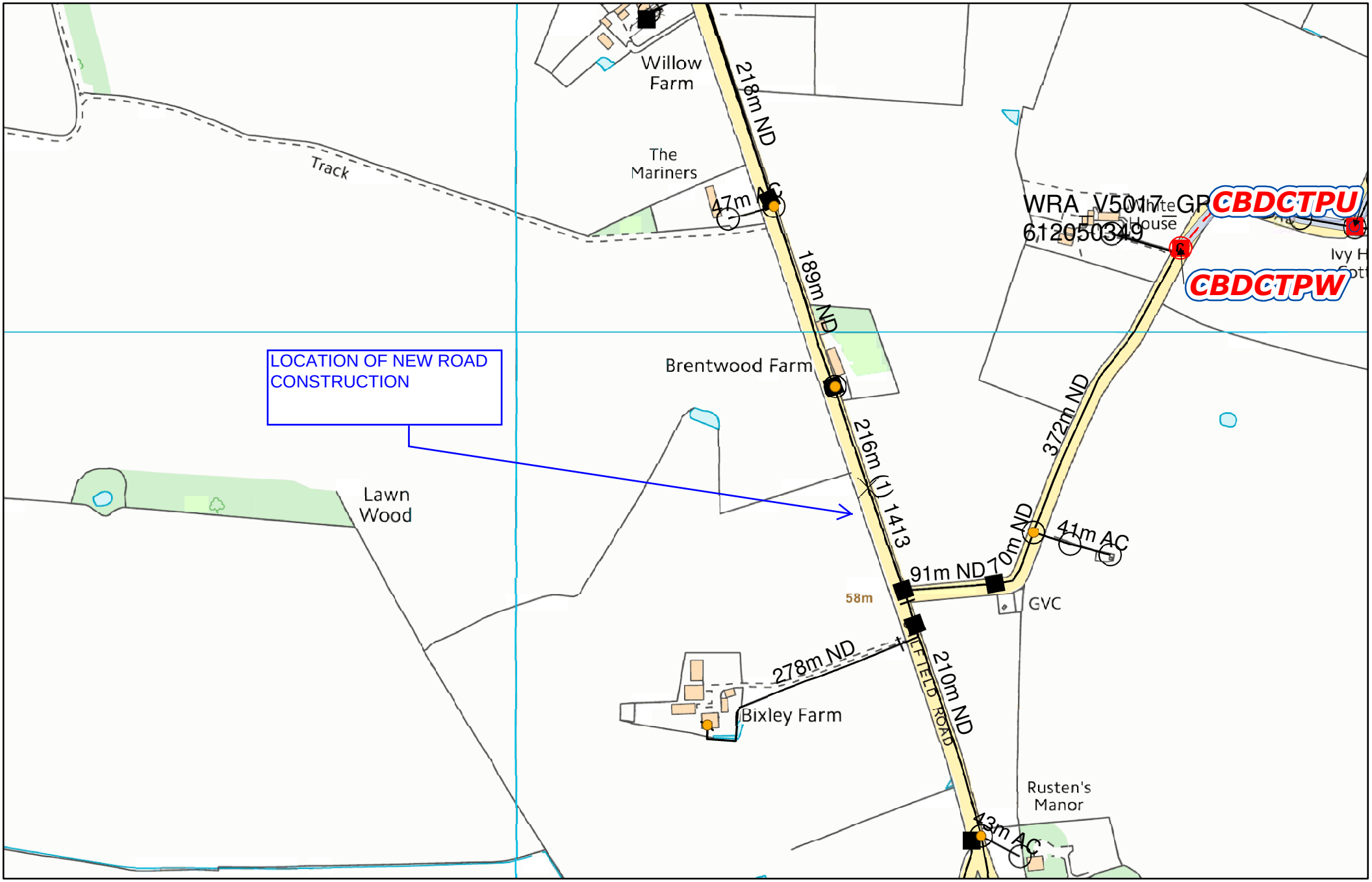





IMPORTANT WARNING:
Information regarding the location of BT apparatus is given for your assistance and is intend for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus, which may exist at various depths and may deviate from the marked route.

NETWORK PLAN 1

openreach








IMPORTANT WARNING:
Information regarding the location of BT apparatus is given for your assistance and is intend for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus, which may exist at various depths and may deviate from the marked route.

NETWORK PLAN 2

openreach

# Appendix E HSE Land Use Planning Methodology

**HSE'S LAND USE PLANNING METHODOLOGY**

**Contents**

**Introduction**

1. The Health and Safety Executive (HSE) is a statutory consultee on certain developments in the vicinity of major hazard sites and major accident hazard pipelines. HSE's land use planning (LUP) advice is based on the methodology set out in this document, and in the majority of cases HSE's advice is provided through HSE's Planning Advice Web App.

**Background to HSE's involvement in land use planning**

2. Major accidents at sites storing hazardous substances are rare, but when they do happen the effects on people living nearby can be devastating. This became apparent following the Flixborough incident in the UK in 1974, more recently at Buncefield in 2005 and across Europe for example at Enschede in The Netherlands in 2000. HSE first offered advice to Planning Authorities (PA) in 1972 and this was introduced across the EU by the 1996 Seveso II Directive, which was replaced in 2012 by the Seveso III Directive (See Annex 1). The simple aim is to manage population growth close to such sites to mitigate the consequences of a major accident.

3. HSE sets a consultation distance (CD) around major hazard sites and major accident hazard pipelines after assessing the risks and likely effects of major accidents at the major hazard. Major hazards comprise a wide range of chemical process sites, fuel and chemical storage sites, and pipelines. The CDs are based on available scientific knowledge using hazard /risk assessment models updated as new knowledge comes to light. Major accidents are also closely studied. The PA is notified of this CD and has a statutory duty to consult HSE on certain proposed developments within it (see Annex 2), and this should be done through HSE's Planning Advice Web App. HSE's response will be that HSE either 'advises against' or 'does not advise against' the granting of planning permission on safety grounds that arise from the possible consequences of a major accident at the major hazard. The PA must take this advice into account when they make a decision on the planning application.

4. PAs have consulted HSE for many years on planning applications and proposed developments within the CD of major hazards. In 2006/2007, HSE provided PAs with direct on-line access to a software decision support tool known as PADHI+ (Planning Advice for Developments near Hazardous Installations), based on HSE's methodology, for them to use to consult HSE for advice on the majority of planning applications rather than having to contact HSE directly.

5. In 2015, PADHI+ was replaced by the HSE Planning Advice Web App, which PAs should now use to consult HSE for advice. The Web App is also available to developers to use to identify if a proposed development site lies within the CD of a major hazard; if it does, they can also use the Web App to obtain HSE's pre-application advice on their proposal, although there is a charge for that particular service.

6. For more background information see Annex 1 – HSE's land use planning advice provision.

**The principles behind HSE's land use planning methodology**

7. HSE's land use planning methodology is based on the following principles:

- The risk considered is the residual risk which remains after all reasonably practicable preventative measures have been taken to ensure compliance with the requirements of the Health and Safety at Work etc. Act 1974 and its relevant statutory provisions.

- Where it is beneficial to do so, advice takes account of risk as well as hazard, that is the likelihood of an accident as well as its consequences.

- Account is taken of the size and nature of the proposed development, the inherent vulnerability of the exposed population and the ease of evacuation or other emergency procedures for the type of development proposed. Some categories of development (e.g. schools and hospitals) are regarded as more sensitive than others (e.g. light industrial) and advice is weighted accordingly.

- Consideration of the risk of serious injury, including that of fatality, attaching weight to the risk where a proposed development might result in a large number of casualties in the event of an accident.

**HSE's Planning Advice Web App**

8. The HSE Planning Advice Web App is the name given to the software used to provide HSE's LUP advice to PAs on proposed developments near major hazard sites and major accident hazard pipelines. It replaced PADHI+ in 2015, and uses the methodology which HSE has used since 2002, which codified the principles used by HSE in providing LUP advice since the1970s.

9. HSE's Planning Advice Web App can also be used by PAs and developers to obtain HSE's advice on a pre-planning enquiry (PPE) provided sufficient information is available. Developers will be charged for that service. Any decision on a PPE will be conditional on the assessment of the formal planning application which will be made using the information that is appropriate and relevant when HSE is consulted by the PA.

10. Very exceptionally there may be cases of development where the use of HSE's Planning Advice Web App alone is inappropriate and HSE will take account of wider factors so that the usual criteria can be usefully complemented.

11. There are some types of development on which HSE's Planning Advice Web App is currently unable to provide advice. When such cases are identified during a consultation, the PA or developer will be advised to contact HSE directly for advice. These include:

- developments which involve more than 5 separate development types

- mixed-use developments where two or more development types share the same footprint at different levels

- developments which involve a small extension to an existing facility

- developments on a major hazard site which are under the control of the operator of the major hazard site.

**What HSE's methodology does not deal with**

12. There are a number of aspects of HSE's land use planning and major hazards work that HSE's methodology and HSE's Planning Advice Web App does not deal with.

**Incremental development around major hazard sites and major accident hazard pipelines**

13. Where HSE has previously advised against a development (particularly where there is a history of incremental development), or where there has already been a Planning Inquiry into a development, the HSE Planning Advice Web App cannot take account of such matters and it is expected that PAs will take this additional information into account when deciding whether or not to grant planning permission.

14. Para 069 of Planning Practice Guidance 'Hazardous Substances – handling development proposals around hazardous installations' advises planning authorities to be alert to encroachment of development in consultation zones, including where larger developments are divided between smaller applications to fall below consultation thresholds. Planning authorities are advised to consult HSE in such cases.

**Developments within the Development Proximity Zone (DPZ) of large-scale petrol storage sites**

15. Following the Buncefield incident in 2005, HSE reviewed the CDs of all sites which met the criteria for large-scale petrol storage sites, and an additional zone – a Development Proximity Zone (DPZ) was introduced 150 metres from the boundary of the relevant storage tank bunds. HSE's approach to providing land use planning advice on developments in the vicinity of such sites can be found in SPC/Tech/Gen/49 – 'Land use planning advice around large-scale petrol storage sites'. HSE's Planning Advice Web App cannot be used to determine HSE's advice on developments within the DPZ, and PAs must refer any planning applications or pre-planning enquiries which involve such a development to HSE.

**Applications for Hazardous Substances Consent**

16. These require the specialist skills and knowledge of HSE risk assessors to determine the potential risks and consequences from the hazardous substances in the Consent application. HSE will advise the Hazardous Substances Authority if they should grant consent and will also set a CD, usually comprising three consultation zones (inner, middle and outer – see Annex 3 for LUP purposes for these sites).

**Notification of Major Accident Hazard Pipelines by pipeline operators**

17. These require the specialist skills and knowledge of HSE Pipelines Inspectors to determine if the potential consequences of the pipelines being approved are acceptable. HSE will then determine the sizes of the 3 zones to be used for LUP purposes basing their assessment on the pipeline details notified to HSE by the pipeline operator.

**Applications for Licensed Explosive Sites**

18. These require the specialist skills and knowledge of HSE's Explosives Inspectors to determine if the potential consequences of the explosives site being approved are acceptable. They will also determine the safeguarding zones and then advise on any planning consultations within those zones.

**Consultations on applications for developments in the vicinity of Licensed Explosives sites or Licensed Nuclear Installations**

19. PAs should forward such consultations to HSE's Explosives Inspectorate or the Office for Nuclear Regulation (ONR) as appropriate.

**Developments near Major Accident Hazard Pipelines where the pipelines have sections with additional protection measures**

20. HSE's Planning Advice Web App uses the 3 consultation zones set by HSE which are based on the details given in the pipeline notification. This covers the whole length of the pipeline and the Web App is unable to accommodate any isolated local variations. If HSE advises against the granting of planning permission due to the proximity of a proposed development to a pipeline, then the option is given to check with the pipeline operator to see if the pipeline has additional protection (e.g. thicker walled pipe) near the proposed development. If so, then HSE's risk assessors are willing to reconsider the case using the details of the pipeline specification relevant to the pipeline near the development. HSE will charge for this service if it is provided as part of the pre-application advice process.

**Retrospective advice on developments when a decision has been made by the planning authority**

21. HSE does not give retrospective advice on planning applications where a decision has already been made by the planning authority. However, this does not remove the responsibility on the planning authority to take account of public safety in their planning decisions, which in some cases is required by European Directive. Where a decision should have been made with the benefit of HSE's advice, but was not, then it is for the planning authority to consider whether to take any remedial action, which could include revocation of any permission granted.

**When to consult HSE**

22. HSE should be consulted on any developments which lie within the CD of a major hazard site or a major accident hazard pipeline and which meet the criteria (see Annex 2 for details) set out in:

- the Town and Country Planning (Development Management Procedure) (England) Order 2015,
- the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 and
- the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013.

**How HSE's advice is determined**

23. HSE's advice is usually determined by a combination of:

- the consultation zone in which the development is located, of the 3 zones that make up the CD set by HSE around the major hazard (see paragraph 26 and Figures 1 and 2); and

- the 'Sensitivity Level' of the proposed development which is derived from HSE's categorisation system of "Development Types" (see paragraphs 34-38).

24. Additionally there are situations where 'rules' may be applied when dealing with the more complex cases in which any of the following apply:

- the development is located in more than one zone

- more than one major hazard is involved

- the proposal involves more than one Development Type (using HSE's categorisation method)

- the development involves a small extension to an existing facility.

25. A decision matrix (see paragraph 39), using the combination of the consultation zone and sensitivity level will determine HSE's response, which will be that HSE either 'Advises Against' or 'Does Not Advise Against' the granting of planning permission for the proposed development.

26. In some cases, a development may involve several different Development Types. In these situations, the combination of consultation zone and Sensitivity Level is considered for each individual Development Type. If any individual Development Type receives an 'Advise Against' response, **then HSE's response for the whole proposal will be 'Advise Against'**.

**HSE Consultation distances and consultation zones**

27 The consultation zones are normally determined by a detailed assessment of the risks and/or hazards of the installation or pipeline which takes into account the following factors; the quantity of hazardous substances for which the site has hazardous substances consent and details of the storage and/or processing; the hazard ranges and consequences of major accidents involving the toxic and/or flammable and/or other hazardous substances that could be present. The risks and hazards from the major hazard are greatest in the Inner Zone and hence the restrictions on development are strictest within that zone. The CD comprises the land enclosed by all the zones and the installation itself (See Annex 3 for further information).

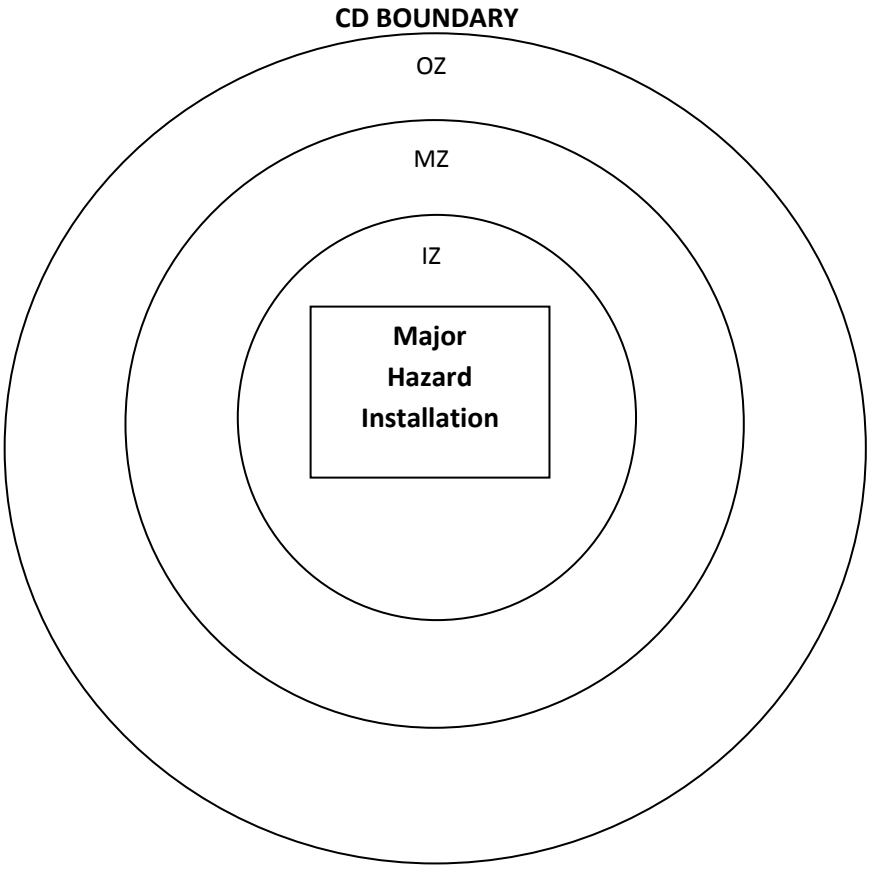



**Figure 1** Three zone map

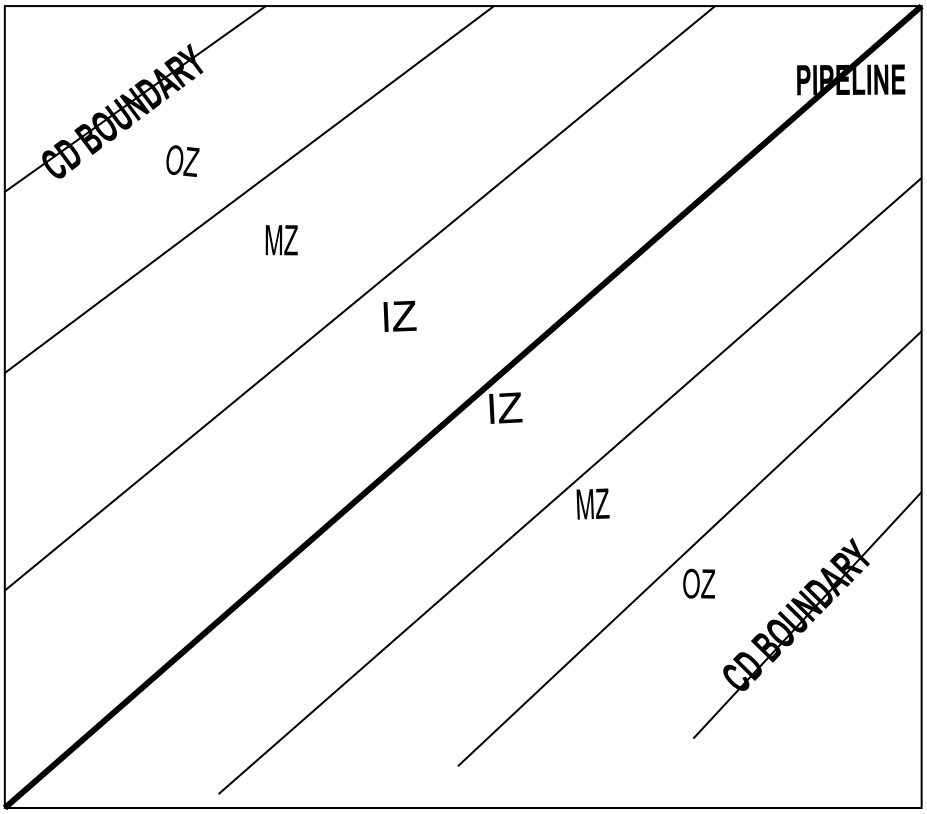



**Figure 2** Pipeline zones

**Development details**

28. The Sensitivity Level of a proposed development will be determined by the Development Type(s) involved and the size and scale of each Development Type (see Tables 1-4).

29. A development proposal may consist of a number of different Development Types and may lie within more than one consultation zone of one or more hazardous installations or pipelines. If a Development Type lies within two or more consultation zones of the CD of a major hazard, including the outer zone and outside the CD, Rule 1 – straddling developments – will be applied to decide the zone in which the whole Development Type is considered to lie when using the decision matrix (see paragraphs 43-45). For a development involving several different Development Types, each combination of consultation zone and Sensitivity Level is considered. If any individual Development Type receives an Advise Against decision **then the overall advice for the whole proposal will be Advise Against**.

30. In certain circumstances where a development is considered to be a small extension to an existing facility, an 'Advise Against' response may be changed to 'Does Not Advise Against'; see Rule 4b (see paragraph 50).

**Identifying developments**

31. Where a development proposal includes more than one Development Type, all individual Development Types are identified and considered separately. All facilities that involve the same Development Type, but which are physically separated from each other, are aggregated together to determine the Sensitivity Level for that Development Type and subsequently to determine the advice. For example, a development may involve several individual buildings, each of which falls into the category of 'indoor use by the public' such as shops, a cinema and a library; these are all aggregated when determining the sensitivity level of that Development Type. However, any facilities that lie entirely outside the CD are discounted when determining the Sensitivity Level.

32. Developments with a sensitivity level of SL4 (i.e. Institutional accommodation and education and large outdoor use by public developments) are not aggregated with facilities of the same Development Type with a lower sensitivity level.

**Assessing developments**

33. HSE's advice is assessed for each individual Development Type, taking account of:

- the sensitivity level of the Development Type
- the zone in which the Development Type lies – after applying Rule 1 – 'Straddling developments' and/or Rule 2 - 'Multiple major hazards' if appropriate.

34. This process is repeated for each different Development Type identified. An 'Advise Against' response for any single Development Type will dominate the HSE's advice for the overall consultation and lead to the whole consultation being advised against.

**Decision matrix**

35. Having determined which consultation zone a Development Type falls into, after applying the straddling rule if necessary, and the Sensitivity Level of the development, the following matrix is used to decide HSE's advice.

| **Level of Sensitivity** | **Development in Inner Zone** | **Development in Middle Zone** | **Development in Outer Zone** |
|---|---|---|---|
| 1 | DAA | DAA | DAA |
| 2 | AA | DAA | DAA |
| 3 | AA | AA | DAA |
| 4 | AA | AA | AA |

**DAA** = **D**on't **A**dvise **A**gainst development

**AA** = **A**dvise **A**gainst development

36. If all Development Types in a consultation result in a DAA response, then DAA is the final HSE advice.

37. If any individual Development Type gives an AA response, then the result for the consultation is AA. If a development which HSE has advised against involves an extension to an existing facility, HSE will reconsider this advice and may revise the advice if it involves a small extension – see paragraph 50

**Introduction to Sensitivity Levels**

38. The Sensitivity Levels are based on a clear rationale in order to allow progressively more severe restrictions to be imposed as the sensitivity of the proposed development increases. There are 4 sensitivity levels:

- Level 1 – Based on normal working population
- Level 2 – Based on the general public – at home and involved in normal activities
- Level 3 – Based on vulnerable members of the public (children, those with mobility difficulties or those unable to recognise physical danger) and
- Level 4 – Large examples of Level 3 and very large outdoor developments.

39. Development Types are used as a direct indicator of the Sensitivity Level of the population at the proposed development. Exceptions are made for some very large or very small developments by assigning them a higher or lower Sensitivity Level than normal for that Development Type.

40. The tables below expand on the four basic Development Types:

- 1 – People at work, Parking
- 2 – Developments for use by the general public
- 3 – Developments for use by vulnerable people
- 4 – Very large and sensitive developments

41. The tables show the Development Types (first column) with examples of each type of development given in column 2 (these are only a guide – they are not exhaustive). Fuller details that are needed to determine the Sensitivity Level of any particular development proposal are given in column 3. As a general principle, the Sensitivity Level is decreased by one for small examples of a particular Development Type and increased for large and very large examples, or where particular features of the development increase the risk to the population. These exceptions are identified in the tables under the EXCLUSIONS for each type of development (and identified as x1, x 2 etc.). The Justification column shows the rationale for the allocation of the Sensitivity Level to each Development Type.

42. All facilities of the same Development Type which are completely and/or partly inside the CD are aggregated in determining the Sensitivity Level. Any facilities that are entirely outside the CD are discounted when determining the Sensitivity Level. For example all housing areas within the CD are aggregated to determine the overall Sensitivity Level of a housing development, but any housing area which lies completely outside the CD is not included. The only exception to the aggregation is Sensitivity Level 4 developments involving outdoor use by the public or institutional accommodation and education – see paragraph 47.

**Development Type Tables**

**Table 1 Development type: People at work, Parking**

**DT1.1** – Workplaces

**DT1.2** – Parking Areas

| **DEVELOPMENT TYPE** | **EXAMPLES** | **DEVELOPMENT DETAIL AND SIZE** | **JUSTIFICATION** |
|---|---|---|---|
| **DT1.1 – WORKPLACES** | Offices, factories, warehouses, haulage depots, farm buildings, non-retail markets, builder's yards | Workplaces (predominantly non-retail), providing for less than 100 occupants in each building **and** less than 3 occupied storeys – **Level 1** | Places where the occupants will be fit and healthy, and could be organised easily for emergency action. Members of the public will not be present or will be present in very small numbers and for a short time |
| | **EXCLUSIONS** | | |
| | | **DT1.1 x1** Workplaces (predominantly non-retail) providing for 100 or more occupants in any building **or** 3 or more occupied storeys in height – **Level 2** (except where the development is at the major hazard site itself, where it remains Level 1) | Substantial increase in numbers at risk with no direct benefit from exposure to the risk |

| | | | |
|---|---|---|---|
| | Sheltered workshops, Remploy | **DT1.1 x2** Workplaces (predominantly non-retail) specifically for people with disabilities – **Level 3** | Those at risk may be especially vulnerable to injury from hazardous events and / or they may not be able to be organised easily for emergency action |
| **DT1.2 – PARKING AREAS** | Car parks, truck parks, lock-up garages | Parking areas with no other associated facilities (other than toilets) – **Level 1** | |
| | **EXCLUSIONS** | | |
| | Car parks with picnic areas, or at a retail or leisure development, or serving a park and ride interchange | **DT1.2 x1** Where parking areas are associated with other facilities and developments the sensitivity level and the decision will be based on the facility or development | |

**Table 2 Development type: Developments for use by the general public**

**DT2.1** – Housing

**DT2.2** – Hotel / Hostel / Holiday Accommodation

**DT2.3** – Transport Links

**DT2.4** – Indoor Use by Public

**DT2.5** – Outdoor Use by Public

| DEVELOPMENT TYPE | EXAMPLES | DEVELOPMENT DETAIL AND SIZE | JUSTIFICATION |
|---|---|---|---|
| **DT2.1 – HOUSING** | Houses, flats, retirement flats / bungalows, residential caravans, mobile homes | Developments up to and including 30 dwelling units **and** at a density of no more than 40 per hectare – **Level 2** | Development where people live or are temporarily resident. It may be difficult to organise people in the event of an emergency |
| | **Exclusions** | | |
| | Very small developments including infill and backland developments | **DT2.1 x1** Developments of 1 or 2 dwelling units – **Level 1** | Minimal increase in numbers at risk |
| | Larger housing developments | **DT2.1 x2** Larger developments for more than 30 dwelling units – **Level 3** | Substantial increase in numbers at risk |
| | | **DT2.1 x3** Any developments (for more than 2 dwelling units) at a density of more than 40 dwelling units per hectare – **Level 3** | High-density developments |
| **DT2.2 – HOTEL / HOSTEL / HOLIDAY ACCOMMODATION** | Hotels, motels, guest houses, hostels, youth hostels, holiday camps, holiday homes, halls of residence, dormitories, accommodation centres, holiday caravan sites, camping sites | Accommodation up to 100 beds or 33 caravan / tent pitches – **Level 2** | Development where people are temporarily resident. It may be difficult to organise people in the event of an emergency |
| | **Exclusions** | | |
| | Smaller – guest houses, hostels, youth | **DT2.2 x1** Accommodation of less | Minimal increase in numbers at risk |

| | | | |
|---|---|---|---|
| | hostels, holiday homes, halls of residence, dormitories, holiday caravan sites, camping sites | than 10 beds or 3 caravan / tent pitches – **Level 1** | |
| | Larger – hotels, motels, hostels youth hostels, holiday camps, holiday homes, halls of residence, dormitories, holiday caravan sites, camping sites | **DT2.2 x2** Accommodation of more than 100 beds or 33 caravan / tent pitches – **Level 3** | Substantial increase in numbers at risk |
| **DT2.3 – TRANSPORT LINKS** | Motorway, dual carriageway | Major transport links in their own right i.e. not as an integral part of other developments – **Level 2** | Prime purpose is as a transport link. Potentially large numbers exposed to risk, but exposure of an individual is only for a short period |
| | **Exclusions** | | |
| | Estate roads, access roads | **DT2.3 x1** Single carriageway roads – **Level 1** | Minimal numbers present and mostly a small period of time exposed to risk. Associated with other development |
| | Any railway or tram track | **DT2.3 x2** Railways – **Level 1** | Transient population, small period of time exposed to risk. Periods of time with no population present |
| **DT2.4 – INDOOR USE BY PUBLIC** | **Food & drink:**<br><br>Restaurants, cafes, drive-through fast food, pubs<br><br>**Retail:**<br><br>Shops, petrol filling station (total floor space based on shop area not forecourt), vehicle dealers (total floor space based on showroom/sales building not outside | Developments for use by the general public where total floor space (of all floors) is from 250 $m^2$ up to 5000 $m^2$ – **Level 2** | Developments where members of the public will be present (but not resident). Emergency action may be difficult to co-ordinate |

| | | | |
|---|---|---|---|
| | display areas), retail warehouses, super-stores, small shopping centres, markets, financial and professional services to the public<br><br>**Community & adult education:**<br><br>Libraries, art galleries, museums, exhibition halls, day surgeries, health centres, religious buildings, community centres. Adult education, 6th-form college, college of FE<br><br>**Assembly & leisure:**<br><br>Coach/bus/railway stations, ferry terminals, airports. Cinemas, concert/ bingo/dance halls. Conference centres Sports/leisure centres, sports halls. Facilities associated with golf courses, flying clubs (eg changing rooms, club house), indoor go-kart tracks | | |
| | **Exclusions** | | |
| | | **DT2.4 x1** Development with less than 250 $m^2$ total floor space (of all floors) – **Level 1** | Minimal increase in numbers at risk |

| | | | |
|---|---|---|---|
| | | **DT2.4 x2** Development with more than 5000 $m^2$ total floor space (of all floors)– **Level 3** | Substantial increase in numbers at risk |
| **DT2.5 – OUTDOOR USE BY PUBLIC** | **Food & Drink:**<br>Food festivals, picnic areas<br>**Retail:**<br>Outdoor markets, car boot sales, funfairs<br>**Community & adult education:**<br>Open-air theatres and exhibitions<br>**Assembly & leisure:**<br>Coach/bus/railway stations, park & ride interchange, ferry terminals. Sports stadia, sports fields/pitches, funfairs, theme parks, viewing stands. Marinas, playing fields, children's play areas, BMX/go-kart tracks. Country parks, nature reserves, picnic sites, marquees | Principally an outdoor development for use by the general public i.e. developments where people will predominantly be outdoors and not more than 100 people will gather at the facility at any one time – **Level 2** | Developments where members of the public will be present (but not resident) either indoors or outdoors. Emergency action may be difficult to co-ordinate |
| | **Exclusions** | | |
| | Outdoor markets, car boot sales, funfairs. Picnic area, park & ride interchange, viewing stands, marquees | **DT2.5 x1**<br>Predominantly open-air developments likely to attract the general public in numbers greater than 100 people but up to 1000 at any one time – **Level 3** | Substantial increase in numbers at risk and more vulnerable due to being outside |
| | Theme parks, funfairs, large sports stadia and events, open-air markets, outdoor concerts, pop festivals | **DT2.5 x2**<br>Predominantly open-air developments likely to attract the general public in numbers greater than 1000 people at any one time – **Level 4** | Very substantial increase in numbers at risk, more vulnerable due to being outside and emergency action may be difficult to co-ordinate |

**Table 3 Development type: Developments for use by vulnerable people**

**DT3.1** – Institutional Accommodation and Education

**DT3.2** - Prisons

| DEVELOPMENT TYPE | EXAMPLES | DEVELOPMENT DETAIL AND SIZE | JUSTIFICATION |
|---|---|---|---|
| **DT3.1 – INSTITUTIONAL ACCOMMODATION AND EDUCATION** | Hospitals, convalescent homes, nursing homes. Old people's homes with warden on site or 'on call', sheltered housing. Nurseries, crèches. Schools and academies for children up to school leaving age | Institutional, educational and special accommodation for vulnerable people, or that provides a protective environment – **Level 3** | Places providing an element of care or protection. Because of age, infirmity or state of health the occupants may be especially vulnerable to injury from hazardous events. Emergency action and evacuation may be very difficult |
| | **EXCLUSIONS** | | |
| | Hospitals, convalescent homes, nursing homes, old people's homes, sheltered housing | **DT3.1 x1** 24-hour care where the total site area on the planning application being developed is larger than 0.25 hectare – **Level 4** | Substantial increase in numbers of vulnerable people at risk |
| | Schools, nurseries, crèches | **DT3.1 x2** Day care where the total site area on the planning application being developed is larger than 1.4 hectare – **Level 4** | Substantial increase in numbers of vulnerable people at risk |
| **DT3.2 – PRISONS** | Prisons, remand centres | Secure accommodation for those sentenced by court, or awaiting trial etc. – **Level 3** | Places providing detention. Emergency action and evacuation may be very difficult |

**Table 4 Development type: Very large and sensitive developments**

**DT4.1** – Institutional Accommodation

**DT4.2** – Very large Outdoor Use by Public

| DEVELOPMENT TYPE | EXAMPLES | DEVELOPMENT DETAIL AND SIZE | JUSTIFICATION |
|---|---|---|---|
| [Note: All Level 4 developments are by exception from Level 2 or 3. They are reproduced in this table for convenient reference] | | | |
| **DT4.1 – INSTITUTIONAL ACCOMMODATION** | Hospitals, convalescent homes, nursing homes, old people's homes, sheltered housing, boarding schools | Large developments of institutional and special accommodation for vulnerable people (or that provide a protective environment) where 24-hour care is provided and where the total site area on the planning application being developed is larger than 0.25 hectare – **Level 4** | Places providing an element of care or protection. Because of age or state of health the occupants may be especially vulnerable to injury from hazardous events. Emergency action and evacuation may be very difficult. The risk to an individual may be small but there is a larger societal concern |
| | Nurseries, crèches. Schools for children up to school leaving age | Large developments of institutional and special accommodation for vulnerable people (or that provide a protective environment) where day care (not 24-hour care) is provided and where the total site area on the planning application being developed is larger than 1.4 hectare – **Level 4** | Places providing an element of care or protection. Because of age the occupants may be especially vulnerable to injury from hazardous events. Emergency action and evacuation may be very difficult. The risk to an individual may be small but there is a larger |

| | | | |
|---|---|---|---|
| | | | societal concern |
| **DT4.2 – VERY LARGE OUTDOOR USE BY PUBLIC** | Theme parks, large sports stadia and events, open air markets, outdoor concerts, and pop festivals | Predominantly open air developments where there could be more than 1000 people present at any one time– **Level 4** | People in the open air may be more exposed to toxic fumes and thermal radiation than if they were in buildings. Large numbers make emergency action and evacuation difficult. The risk to an individual may be small but there is a larger societal concern |

**Additional rules and how they are applied**

43. The following rules have been developed to allow consideration of the more complex planning consultations.

**Rule 1 – Straddling developments**

44. This rule is applied (Rule 1a, then Rule 1b if applicable) when the site area of a proposed Development Type lies across a zone boundary (e.g. when a development site lies within the inner and middle zones), to decide the zone which will be used in the decision matrix. The CD is considered a zone boundary in this context.

45. **Rule 1a:** Development Types that 'straddle' zone boundaries will normally be considered as being in the innermost zone to the major hazard unless either of the two following conditions applies. The Development Type will be considered to be in the OUTERMOST of the zones if:

- less than 10% of the area marked on the application for that particular development type is inside that boundary, OR
- it is only car parking, landscaping (including gardens of housing), parks and open spaces, golf greens and fairways or access roads etc. associated with the development; that are in the inner of the zones.

46. **Rule 1b**: For the special case where a Development Type straddles the CD boundary (i.e. part of the site lies within the CD and part lies outside) Rule 1a is followed, then:

- If, after using the Rule 1a, the Development Type is considered to be outside the CD, then there is no need to categorise further; a 'DAA' response is appropriate.

- If, after using Rule 1a, the Development Type is considered to be within the CD then all of the facilities that make up the proposed Development Type are considered. Any that are **entirely outside** the CD are discounted when determining the Sensitivity Level. All the facilities that are **completely and/or partly inside** the CD are then considered together for the purpose of determining the Sensitivity Level. (If appropriate, the 'Multiple-use developments' rule – Rule 3 should be applied).

**(Note: Rules 1a and 1b do not apply where the development type is a Sensitivity Level 2 Transport Link. Even though this type of development is likely to 'straddle' zone boundaries, it will always be considered as being in the innermost of the zones).**

**Rule 2 – Multiple major hazards**

47. Where a proposed development lies within the CD of more than one major hazard site and/or major accident hazard pipeline, the zone within which the development lies is determined for each major hazard (after applying the straddling rule (Rule 1) if necessary). The overall advice is decided on the basis of the most onerous of any of the zones the development is in (i.e. the Inner Zone is more onerous than Middle Zone, the Middle Zone is more onerous than Outer Zone).

**Rule 3 – Multiple-use developments**

48. This rule is applied when a proposed development involves more than one Development Type (e.g. a mix of housing, indoor use by the public and a workplace).

- All individual Development Types are identified, as in column 1 of Tables 1-4. All facilities involving the same Development Type are aggregated to determine the Sensitivity Level of that Development Type (being aware that any facilities which are completely outside the CD boundary are not considered). **The only exception to this is an SL4 development (outdoor use by public and Institutional accommodation and education) which is not aggregated with facilities of the same development type with a lower sensitivity level.**

- The zone within which each Development Type lies is identified, using the straddling rule (Rule 1) if appropriate.

- The appropriate 'Advise Against' or 'Does Not Advise Against' response is determined for each Development Type using the decision matrix. If each individual Development Type receives a 'Does Not Advise Against' response, then that will be HSE's overall advice. If any individual Development Type receives an 'Advise Against' decision **then HSE's overall advice will be 'Advise Against'**.

- If any individual Development Type receives an 'Advise Against' response, then if appropriate, Rule 4b– 'Developments which involve a small extension to an existing facility' is applied, to decide if HSE's 'Advise Against' response should be revised.

**Rule 4 – Developments which involve a small extension to an existing facility**.

49. This rule is concerned with an 'Advise Against' response where the proposed development involves a small extension to an existing facility. If the proposed development is a **small** extension to the existing development, then in certain circumstances the 'Advise Against' response may be revised to 'Does Not Advise Against'. This Rule applies only to small extensions to existing facilities, and not to new developments, or to change of use on sites which may have an existing use.

50. **Rule 4a**: First **the proposed development is considered on its own merit** according to the normal procedure and rules. There are two outcome options:

- a 'Does Not Advise Against' response, in which case there is no need to apply Rule 4b. (For 'Multiple-use developments', if the application of Rule 3 results in **all** outcomes from the matrix being 'Does Not Advise Against', then that is the final advice, in which case there is no need to apply Rule 4b) or;

- an 'Advise Against' response, in which case Rule 4b is applied if appropriate. (For 'Multiple-use developments', if the application of Rule 3 results in one or more 'Advise Against' responses from the matrix, then Rule 4b is applied individually to each Development Type which received an 'Advise Against' response.)

NB: only the details supplied with the planning application or pre-planning enquiry are used to determine if, and how, Rule 4b applies.

51. **Rule 4b: Extensions (including minor modifications, alterations, or additions)**

| **If…** | **Then…** |
|---|---|
| the proposal is for an extension to an existing development, and the proposed extension is of the same Development Type as the existing development that is going to be extended.<br><br>**And** the population at the development will not increase by more than 10% (or, if the population data is not readily available, the total floor area will not increase by more than 10%), | the consultation should be treated as though the proposed extension had a Sensitivity Level one less than the Sensitivity Level of the existing (i.e. not that of the proposed) development.<br><br>If this results in a reduced Sensitivity Level, which combined with the zone that the extension is in, produces a DAA response, then this will replace the initial AA response. |
| For 'Multiple-use developments', if the application of Rule 4b changes **ALL** of the AA | then this will replace the initial AA response. |

| | |
|---|---|
| outcomes to DAA | If at least one outcome remains AA, then an AA response is the final advice. Any remaining AA responses after applying Rule 4b dominates for 'Multiple-use developments' and an AA response is the final advice for the overall development. |

**Rule 5 – Temporary / time limited planning permissions**

52. HSE treats proposals for these the same way as any other planning permission consultations; no allowance is given for the time restriction. Existing temporary / time limited permissions are not taken into account when applying Rule 4.

**Glossary**

**Beds** – the number of residents/visitors for which sleeping accommodation is provided.

**Consultation** – an enquiry from a PA or a developer, usually made through the HSE Planning Advice Web App, seeking HSE's comments on a proposed development within a CD, either on a formal planning application or a pre-planning enquiry. A consultation will involve at least one 'Development type'.

**Development** – the proposed use of an area of land (e.g. housing, a school, etc.) for which planning permission is sought, or to which a pre-planning enquiry relates. A proportion of planning proposals will consist of more than one Development Type.

**Development type** – term used to describe proposed uses (and/or facilities) that are considered to involve a similar type of population (see the first column in the Development Type Tables 1-4).

**Dwelling units** – the smallest individual unit of accommodation e.g. house, apartment, caravan.

**Extension** – a development which involves an addition to, or the expansion of, an existing facility. This must be

- of the same Development Type as the existing facility.
- an integral part of the existing facility that is being extended. This will commonly be through physical attachment to an existing structure but, in certain cases, it might qualify by being within the control boundaries of the existing facility of which it will be an extension (e.g. a proposed physically isolated classroom within an existing school confines can be considered an 'extension').
- usually under the control of the same owner and have the same operator/tenant as the existing facility that is being extended (the owner and the operator/tenant of the existing facility might be different people/companies).
- unable to function independently of the existing facility that is being extended.

Most developments are expected to be developments in their own right – not extensions to existing facilities. For example, a proposed housing development would not be treated as though it is an extension to an existing area of housing. Similarly, an application for additional residential caravan plots would not be considered an application for an extension to an existing area for such use, because the residential caravan plots are able to function independently.

Major redevelopment which involves demolishing a large existing structure(s)/facility and then replacing it by building a slightly bigger version is not considered to be an extension, because the demolition is seen as providing an opportunity to review the situation. For example, if the existing facility is an 'incompatible' one then the proposed replacement could be rebuilt further away from

the hazardous installation. A building/facility such as a school for several hundreds of pupils would be considered a 'large' structure/facility.

**Facilities** – buildings and other provisions (e.g. picnic area, children's play area, park and ride bus stop) where people may congregate.

**Hectare** – unit of area equal to 10,000 square metres ($m^2$) in any shape (e.g. rectangles 10m x 1,000m or 25m x 400m; square 100m x 100m; or other regular and irregular shapes)

**LUP** – land use planning

**Multiple use development** – see 'development'.

**PA** – planning authority

**Pre-Planning Enquiry (PPE)** – an informal, non-statutory LUP consultation made by a developer or a PA to determine what HSE's advice is likely to be before submitting a formal planning permission application to the PA.

**Protective environment** – there is provision of some element of supervision or care e.g. by a warden being available on-site or on call.

**School leaving age** – the minimum age at which a young person can leave school – currently 16.

**Sensitivity Level** – the scale used to define the vulnerability of a development population to major accident hazards. It is based on pragmatic criteria; the type of development, likely numbers present and whether any vulnerable people will be present. The scale ascends from Level 1 to Level 4: the more vulnerable the population, the higher the sensitivity level.

**Total floor space** – the area of buildings enclosed by the exterior walls multiplied by the number of floors (units are $m^2$).

**Vulnerable people** – people who by virtue of age (children and elderly) and/or ill health may be particularly susceptible to the effects of a major accident.

**Annex 1**

**HSE's land use planning advice provision**

1. HSE's land use planning (LUP) advice is based on the recommendations of the Advisory Committee on Major Hazards (ACMH). The principles behind the recommendations are followed in guidance; see for example 'Planning Practice Guidance: Hazardous Substances – handling development proposals around hazardous installations', which is available through the Planning Portal. The principles and objectives HSE uses in giving its advice received strong support in a public consultation in 2007 (CD211 – Proposals for revised policies for HSE advice on development control around large-scale petrol storage sites). Failure to follow the principles will lead to non-compliance with Article 13 of the Seveso III Directive.

2. HSE's advice is currently delivered through HSE's Planning Advice Web App. This is a codification of the methodology used by HSE over the last 30 years or more and replaced PADHI+ which PAs used between 2006 and 2015.

3. Under Article 18 of the Town and Country Planning (Development Management Procedure) (England) Order 2015, Article 14 of the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 and Regulation 25 of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013, decision-makers are required to consult HSE on certain planning proposals around major hazard establishments and to take into account the Executive's representations when determining associated applications. This is to ensure that the UK complies with Article 13 of the Seveso III Directive which has the specific objective of controlling specified new development to maintain adequate separation; including residential areas, buildings and areas of public use; around major hazard establishments when the development is such as to increase the risk or consequences of a major accident. In essence decision-makers should ensure that new development does not significantly worsen the situation should a major accident occur.

4. In some instances there may already be existing development which is closer to a potentially hazardous installation. In these cases HSE has recognised the views of the Advisory Committee on Major Hazards as expressed in paragraphs 108 and 109 of their Second Report which reads as follows:

'108.....The HSE is also frequently asked to comment on proposals to develop or to redevelop land in the neighbourhood of an existing hazardous undertaking where there may already be other land users which are closer and possibly incompatible. In these cases, HSE tells us that it takes the view, which we fully endorse, that the existence of intervening developments should not in any way affect the advice that it gives about the possible effects of that activity on proposed developments which may appear to be less at risk than the existing ones'.

'109.....The overall objective should always be to reduce the number of people at risk, and in the case of people who unavoidably remain at risk, to reduce the likelihood and the extent of harm if loss of containment occurs…..

5. HSE's approach balances the principle of stabilising and not increasing the numbers at risk with a pragmatic awareness of the limited land available for development in the UK. An HSE discussion document in 1989 ("Risk criteria for land-use planning in the vicinity of major industrial hazards") sets out the basis of HSE's approach at that time.

6. The Government committee of experts, the Advisory Committee on Major Hazards (ACMH), which originally proposed HSE's role in the LUP system did recognise "*the remote possibility that in some instances a local planning authority may not feel inclined, for a variety of reasons, to follow the advice of the Executive on particular applications for potentially hazardous developments or other developments in their vicinity.*" As a consequence, arrangements were set up so that in this rare circumstance, a planning authority is required by 'Planning Practice Guidance: Hazardous Substances – handling development proposals around hazardous installations', Circular 20/01 (Wales), or Circular 4/1997 (Scotland) to formally notify HSE of its intention to grant against the Executive's advice. This is so that, in England and Wales, HSE can decide whether or not to request the Secretary of State to call-in the application for their own determination. In Scotland, if the planning authority is minded to grant permission they have to notify the Scottish Ministers who can decide to call-in the application.

7. HSE's consideration of call-in should not be confused with its LUP advice delivered through HSE's Planning Advice Web App; it is the latter which is provided to enable LUP decision-makers to comply with the objectives of Seveso III, Article 13. In line with Government policy, HSE normally requests call-in only in cases of exceptional concern. However if HSE decides not to make such a request this does not mean that it has withdrawn its advice against permission, which remains on file and in the future is likely to be published on our website. A decision not to request call-in does not negate HSE's LUP advice.

8. HSE's role in the LUP process is to provide independent advice on the residual risks from major accidents to people at specified proposed new developments. This is delivered through HSE's Planning Advice Web App and hence that is what planning authorities must 'seriously consider' in accordance with 'Planning Practice Guidance: Hazardous Substances – handling development proposals around hazardous installations', which advises decision-makers that:

*"In view of its acknowledged expertise in assessing the off-site risks presented by the use of hazardous substances, any advice from Health and Safety Executive that planning permission should be refused for development for, at or near a hazardous installation or pipeline* ***should not be overridden without the most careful consideration.****"*

9. Furthermore the Courts (Regina v Tandridge District Council, Ex parte Al Fayed, Times Law Report 28 January 1999) have decided that on technical issues, local authorities, while not bound to follow the advice of statutory bodies such as the HSE, "*should nevertheless give great weight to their advice*" when determining planning applications.

10 A published external review "Analysis of Planning Appeal Decision Reports "(HSE contract research number 262/2000) concluded "*It is clear the HSE's risk policies are largely upheld on appeal.*

*It is viewed as a competent and expert body, and its advice provides considerable support to PA decisions.*"

**Annex 2**

**Types of development to consult on under the Town and Country Planning (Development Management Procedure) (England) Order 2015, the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 and the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013**

The following guidance and circulars provide further guidance on when HSE is a statutory consultee:

- 'Planning Practice Guidance: Hazardous Substances – handling development proposals around hazardous installations',
- SOEnD Circular 5/1993 (This document is not available on the internet)
- National Assembly for Wales Circular 20/01

They identify the following developments:

1. Within the Consultation Distance (CD) of major hazard installations / complexes and pipelines, HSE should only be consulted for developments involving:

- residential accommodation
- more than 250 square metres of retail floor space
- more than 500 square metres of office floor space
- more than 750 square metres of floor space to be used for an industrial process
- transport links (railways, major roads, etc.)
- a material increase in the number of persons working within, or visiting, a CD

and then only if the development is within the CD.

2. HSE should also be consulted on

- proposed development involving the siting of new establishments where hazardous substances may be present; or
- modifications to existing establishments which could have significant repercussions on major accident hazards; or
- proposed development that is in the vicinity of existing hazardous installations and pipelines where the siting is such as to increase the risk or consequences of a major accident

3. For licensed explosive sites the criteria are the same as above, but only if within the explosive site's Safeguarding Zone.

4. HSE will also advise Hazardous Substances Authorities prior to them determining a consent application. The HSE Planning Advice Web App cannot be used to provide HSE's advice on applications for hazardous substances consent – HSE must be consulted directly on such applications...

5. HSE does not give retrospective advice on planning applications where the decision has already been made by the planning authority.

**Annex 3**

**HSE'S approach to land use planning**

**Policy & Practice**

1. The aim of health and safety advice relating to land use planning is to mitigate the effects of a major accident on the population in the vicinity of hazardous installations, by following a consistent and systematic approach to provide advice on applications for planning permission around such sites.

2. Since the early 1970s, arrangements have existed for local planning authorities (PAs) to obtain advice from HSE about risks from major hazard sites and the potential effect on populations nearby. The Advisory Committee on Major Hazards (ACMH), set up in the aftermath of the Flixborough disaster in 1974, laid down a framework of controls which included a strategy of mitigating the consequences of major accidents by controlling land use developments around major hazard installations

3. Historically, HSE has based its land-use planning advice on the presumption that site operators are in full compliance with the Health & Safety at Work etc. Act 1974 (HSW Act). Section 2 of the Act places a duty on an employer to ensure, so far as is reasonably practicable, the health and safety of his employees. There is a corresponding duty in section 3 to ensure, so far as is reasonably practicable, that others (which includes the public) are not exposed to risks to their health & safety. It was presumed that the safety precautions taken by the employer to comply with Section 2 (risks to his workers) would also ensure compliance with Section 3 of the HSW Act.

4. The main legal driver now is the EU Seveso III Directive, the principal land use planning aspects of which are given effect in the UK by the Planning (Hazardous Substances) Regulations (the PHS Regulations) and associated legislation.

**HSE's role**

5. HSE's specific role in LUP is **twofold:**

i. Under the PHS Regulations, the presence of hazardous chemicals above specified threshold quantities requires consent from the Hazardous Substances Authority (HSA), which is usually also the local planning authority (PA). HSE is a statutory consultee on all hazardous substances consent applications**. Its role is to consider the hazards and risks which would be presented by the hazardous substance(s) to people in the vicinity, and on the basis of this to advise the HSA whether or not consent should be granted.** In advising on consent, HSE may specify conditions that should be imposed by the HSA, over and above compliance with statutory health and safety requirements, to limit risks to the public (e.g. limiting which substances can be stored on site, or requiring tanker delivery rather than on-site storage). HSAs should notify HSE of the outcome of all applications for consent and where consent has been granted should supply copies of the site plans and conditions.

ii. HSE uses the information contained in consent applications to establish a consultation distance (CD) around the installation. This usually comprises three zones or risk contour areas – see paragraph 8. The CD is based on the maximum quantity of hazardous substance(s) that the site is entitled to have under its consent. HSE notifies the PAs of all CDs in their areas. The Development Management Procedure Orders require the PA to consult HSE about certain proposed developments (essentially those that would result in an increase in population) within any CD. HSE **advises the PA on the nature and severity of the risks presented by the installation to people in the surrounding area so that those risks are given due weight by the PA when making its decision. Taking account of the risks, HSE will advise against the proposed development or simply note that it does not advise against it.** This advice balances the ACMH principle of stabilising and not increasing the numbers at risk, with a pragmatic awareness of the limited land available for development in the UK.

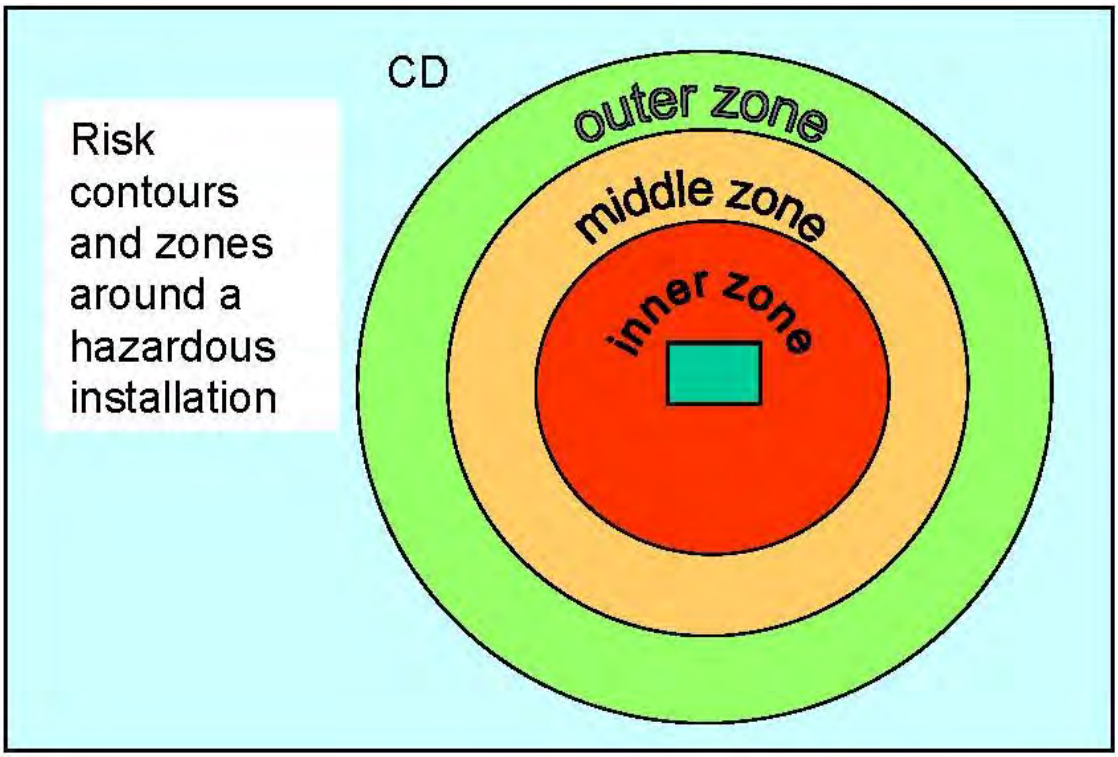
6. Like other statutory consultees, HSE's role in the land use planning system is advisory. It has no power to refuse consent or a planning application. It is the responsibility of the HSA or PA to make the decision, weighing local needs and benefits and other planning considerations alongside HSE advice, in which case they should give HSE advance notice of that intention. PAs may be minded to grant permission against HSE's advice. In such cases HSE will not pursue the matter further as long as the PA understands and has considered the reasons for our advice. However HSE has the option, if it believes for example that the risks are sufficiently high, to request the decision is 'called in' for consideration by the Secretary of State, in England and Wales (a very rare situation). In Scotland, if the planning authority is minded to grant permission they have to notify the Scottish Ministers who can decide to call-in the application.

**Consultation distances and risk contours**

7. Using hazardous substances consent information, HSE undertakes a detailed assessment of the hazards and risks from the installation and produces a map with three risk contours representing defined levels of risk or harm which any individual at that contour would be subject to. The risk of harm to an individual is greater the closer to the installation. In each case the risk relates to an individual sustaining the so-called 'dangerous dose' or specified level of harm. A 'dangerous dose' is one which would lead to:

- severe distress to all;
- a substantial number requiring medical attention;
- some requiring hospital treatment; and,
- some (about 1%) fatalities.

8. The three contours represent levels of individual risk of 10 chances per million (cpm), 1 cpm and 0.3cpm per year respectively of receiving a dangerous dose or defined level of harm. The contours form three zones (see below), with the outer contour defining the CD around major hazard sites.




The PA consults HSE on relevant proposed developments within this CD though the HSE Planning Advice Web App.

**How HSE gives advice**

9. When consulted, HSE firstly identifies which of the three defined zones the proposed development is in. Secondly, the proposed development is classified into one of four "Sensitivity Levels". The main factors that determine these levels are the numbers of persons at the development, their sensitivity (vulnerable populations such as children, old people) and the intensity of the development. With these two factors known, a simple decision matrix is used to give a clear 'Advise Against' (AA) or 'Don't Advise Against' (DAA) response to the PA, as shown below:

| **Level of Sensitivity** | **Development in Inner Zone** | **Development in Middle Zone** | **Development in Outer Zone** |
|---|---|---|---|
| 1 | DAA | DAA | DAA |
| 2 | AA | DAA | DAA |
| 3 | AA | AA | DAA |
| 4 | AA | AA | AA |

Sensitivity Level 1 - Example: Factories
Sensitivity Level 2 - Example: Houses
Sensitivity Level 3 - Example: Vulnerable members of society e.g. primary schools, old people's homes
Sensitivity Level 4 - Example: Football ground/Large hospital
DAA means Do not Advise Against the Development
AA means Advise Against the Development

**Technical assumptions underpinning HSE methodology for land use planning**

10. **The installation:** The quantities and properties of hazardous substances, and the descriptions of storage and process vessels, are assumed to be in accordance with the 'hazardous substances consent' entitlement for the site since this represents an operator's declaration of their entitlement to store such substances which could be introduced at any time. For each type of development HSE's advice to PAs will take account of the maximum quantity of a hazardous substance permitted by a hazardous substances consent and any conditions attached to it. Best cautious, but not pessimistic, assumptions concerning substances, locations, operating conditions and surroundings are used. For operations not described in the consent (e.g. numbers and sizes of road tanker operations, pipework diameters, pumps and other fittings) site-specific values are obtained as necessary.

11. **Hazardous events:** All foreseeable major accidents are considered and a representative set of events which describe a set of circumstances which, for that installation, could lead to an accidental release of hazardous substances.

12. **Consequences:** The previously described 'dangerous dose' concept is generally used to describe the extent of the impact of any hazardous event on the surrounding population. Protection provided to persons by being sheltered within buildings is generally taken into account by the approach, as is the likelihood of persons being outdoors at the time of the incident.

13. **Ambient conditions:** Local weather data is used to provide wind and stability information around the installation. Further, the surroundings are generally assumed to be flat although ground roughness can be taken into account where circumstances require it.

14. **Risk assessment:** The calculations produce contours of the frequency that a typical house resident would be exposed to a dangerous dose or worse. This is generally expressed in terms of 'chances per million per annum' or cpm for short, i.e. 10cpm, 3CPM cpm, 0.3cpm.

**Annex 4**

**Contact**

Any queries regarding HSE's land use planning methodology, or on how to use or access HSE's Planning Advice Web App to consult HSE in order to obtain advice on planning applications or pre-application enquiries, should be referred to lupenquiries@hsl.gsi.gov.uk or tel: 0203 028 3708.

Any queries relating to hazardous substances consent should be sent to hazsubcon.CEMHD5@hse.gsi.gov.uk