Application for Planning Permission in Principle
October 2013

Grandhome

Environmental Impact Assessment: Non-Technical Summary

Contents

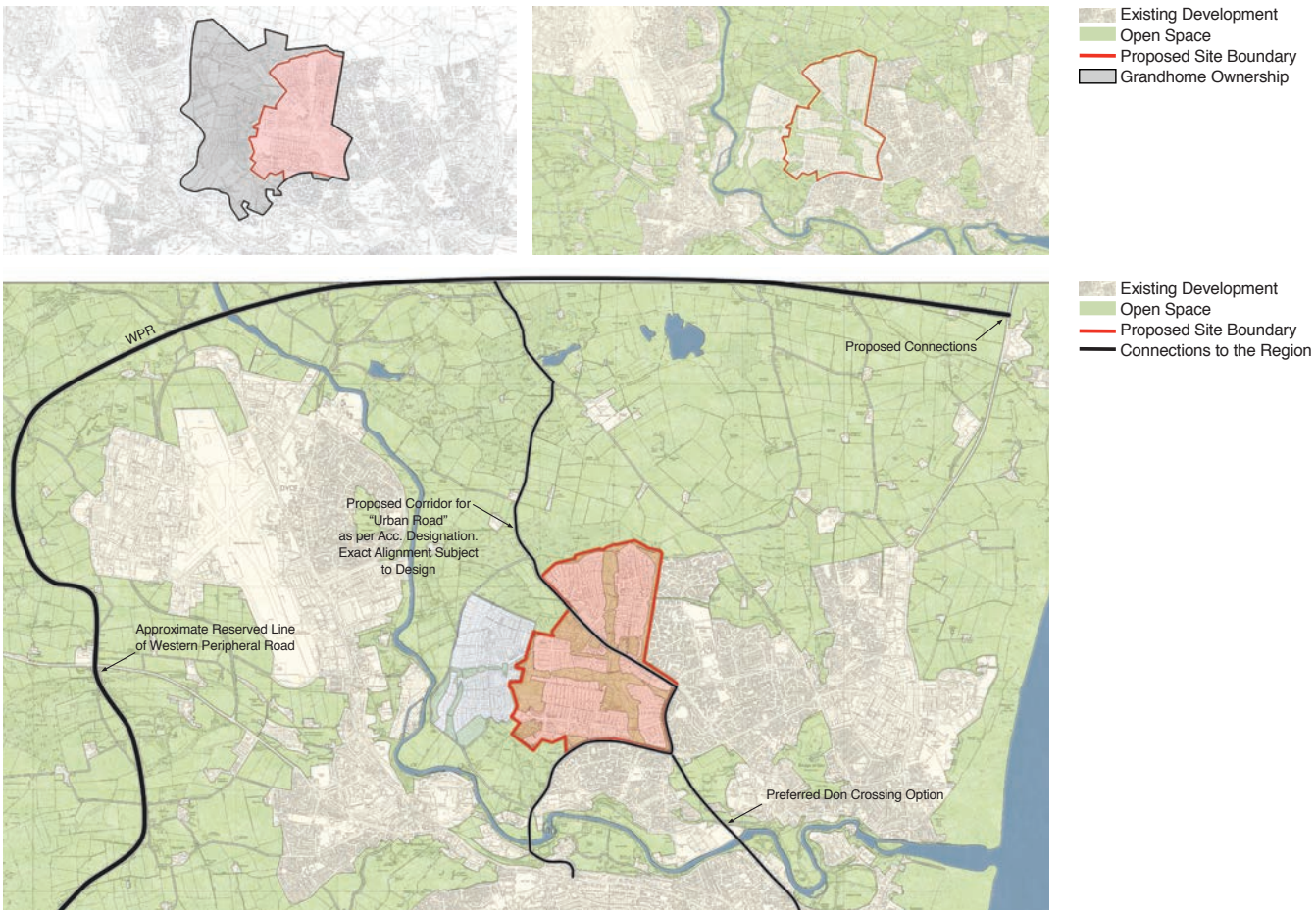
1. Introduction

1.1 Part of the Grandhome estate, on the north-western edge of Aberdeen, has been allocated for development as a mixed-use urban extension in the Aberdeen Local Plan. A Development Framework has been adopted as Interim Planning Guidance by the City Council, and a masterplan has been prepared.

1.2 Proposals for the greater part of the masterplan, comprising five of the seven development phases, are the subject of an application by the Grandhome Trust for planning permission in principle (PPiP). A detailed application for Phase 1 is expected to be brought forward in the near future.

1.3 In view of the nature and scale of the proposals, the Trust committed at an early stage to carry out an environmental impact assessment (EIA) under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations, 2011. The scope of the EIA has been informed by a Scoping Opinion from the City Council, together with advice from statutory consultees. The range of topics assessed, together with the scope of work undertaken for each, has been as follows:

Fig 1: Location plan



Topic	Scope
Air Quality	An assessment of the impact of construction dust and development traffic on local air quality and receptors.
Climate Change	A carbon footprinting exercise and comparison of the predicted emissions with those from a minimally-compliant scheme.
Cultural Heritage	A desk-based study and walkover to confirm the archaeological potential of the site and surrounding area, with an assessment of the likely impacts and recommendation of mitigation as necessary.
Ecology	Phase 1 habitat and protected species surveys, and an assessment of potential impacts with recommendations for mitigation and habitat enhancement as necessary.
Flood Risk and Drainage	Flood risk and drainage assessments which aim to identify any areas of potential flood risk and demonstrate how sustainable drainage principles would be applied.
Geo-Environment	A desk-based study, targeted site investigations and conceptual risk model to assess potential risks to groundwater, site workers and future residents from residual contamination.
Landscape and Views	A landscape and visual impact assessment (LVIA) which classifies the landscape of the site and surrounding area, identifies the potential visibility of the development and assesses its impact on landscape character and views.
Noise and Vibration	A noise monitoring exercise to categorise the existing noise climate of the site, an appraisal of its suitability for residential use and an assessment of the potential impact on nearby receptors from construction and operational sources (mainly traffic).
Socio-Economics	A baseline study to identify the key socio-economic indicators for the local area and region, and an assessment of the potential impacts on population, employment, labour market, housing supply and demand for social infrastructure.
Transport	An appraisal of existing accessibility and an assessment of potential impacts on highway capacity and non-car modes, using agreed modelling and taking account of future changes to the network.
Waste	A prediction of waste arisings during construction and from the completed development, and assessment of the likely effects on the waste management regime, taking account of mitigation such as recycling targets.

1.4 The assessment has identified the likely significant effects, as required by the EIA Regs. Where significant adverse effects are predicted, mitigation is proposed and the residual (i.e. post-mitigation) effects are reported. Consideration has been given to the potential for cumulative effects to result from interaction with other developments.

1.5 Whilst the ES focusses on the reporting of effects relating to the PPiP application, the opportunity has also been taken to identify the likely effects associated with Phase 1 and to comment on the environmental implications of developing out the remainder of the masterplan.

1.6 The findings of the EIA are reported in the form of an Environmental Statement (ES), which comprises three tiers of documents: a Non-Technical Summary (NTS), a Main Report and a series of Technical Annexes. This document comprises the NTS.

1.7 The Technical Annexes present a range of supporting information related to the assessment topics, together with standalone reports required by the planning process. They are as follows:

1. Scoping Response
2. Air Quality
3. Energy Strategy
4. Cultural Heritage
5. Ecology
6. Flood Risk and Drainage
7. Geo-Environment
8. Landscape and Views
9. Noise and Vibration
10. Socio-Economics
11. Transport
12. Waste
13. Agricultural Land

2. The Application Site

Overview

2.1 The site comprises mixed farmland and woodlands, together with a number of farmsteads and dwellings. Whitestripes Road passes through the middle of the site, whilst a high-voltage power line runs broadly north/south across the eastern part.

2.2 The PPiP application occupies the greater part of the site, amounting to about 227 hectares. Phase 1 occupies the eastern part of the site to the south of Whitestripes Road, amounting to about 28 hectares. The remainder of the masterplan would occupy land to the west of the PPiP, amounting to about 93 hectares. The following paragraphs summarise the main baseline conditions relating to each assessment topic.

Fig 2: Site Plan

Air Quality

2.3 The site is not located within an Air Quality Management Area (AQMA). However, three AQMAs have been declared within Aberdeen, all for nitrogen dioxide (NO2) and fine particulates (PM10): parts of the City Centre; Anderson Drive and the area around the Haudagain Roundabout; and Wellington Road, from the Queen Elizabeth II Bridge to Balnagask Road. Air quality around the site is typical of an urban fringe/rural location. Sources of emissions in the surrounding area include employment uses to the south and west, the airport and traffic on the A90. The small number of properties within and close to the site represent the nearest receptors sensitive to changes in air quality.

Climate Change

2.4 The site currently gives rise to minimal net CO2 emissions from farming and residential activities. Climate change is expected to modify baseline conditions such as surfacewater runoff rates and the demand for heating and cooling.

Cultural Heritage

2.5 38 cultural heritage assets have been identified within the masterplan site. These include evidence of Neolithic/Bronze Age occupation, features associated with the Grandhome estate, several farmsteads and cottages, clearance cairns, former quarries and a burial ground. Only one of these assets is designated: Grandhome Lodges and Gate, which is Grade B listed. Two features – the burial ground at Whitestripes and a possible henge - are considered to be of regional importance. The remaining features are considered to be of local importance. Since most of the site has not previously been developed, it has a high potential for the discovery of buried remains.

2.6 There are nine scheduled monuments within 2km of the site, most of which are associated with the remains of the Aberdeenshire Canal. The nearest scheduled site - Foucausie stone circle - is located in Clerkhill Wood, just beyond the northern boundary. There are numerous listed buildings in the surrounding area, mainly within urban settings to the south and south-east. Other listed buildings, to the west of the site, and including Grandhome House, are located within a wooded or parkland setting.

Ecology

2.7 The nearest statutorily designated site is the Corby, Lily and Bishop's Lochs SSSI, which lies 1.9km to the north. Four non-statutorily designated sites (Local Nature Conservation Sites) are located in the immediate area: Grandhome Moss, Stoneyhill Wood, the River Don Corridor and the Aberdeen–Inverness and Kittybrewster Railway.

2.8 Most of the site comprises arable and improved/semi-improved grassland of low habitat value, apart from the presence of two protected species: corn spurrey and wild pansy. Monument Wood, together with Persley Quarries and Clerkhill Wood (which adjoin the site boundary), comprise long-established broadleaved woodland, but lack the species-rich ground flora indicative of ancient woodland. The only aquatic habitat of interest is the Manganese Pond; no evidence for the presence of otter or water vole has been found.

2.9 The site supports a mix of breeding and overwintering birds typical of its farmland/urban fringe character, including small numbers of Red List birds. Farm buildings at Cothill are used by roosting barn owl. The site falls within the territories of several badger groups. Small numbers of red and grey squirrel use the woodlands. The site supports a low level of use by bats, which roost within several farm buildings (although there is no evidence of breeding).

Flood Risk and Drainage

2.10 The greater part of the site drains to the south or west towards the River Don via several minor burns and field ditches. The northern part of the site drains towards Grandhome Moss. A flooded quarry, known as the Manganese Pond, is believed to be fed by groundwater. The River Don is prone to flooding, with a functional floodplain that lies beyond the western and south-western boundaries of the site. There is no foul drainage network within the site; the various dwellings are assumed to possess their own septic systems.

Geo-Environment

2.11 The geology of the site mainly comprises glacial till overlying metamorphic rock or granite, together with areas of lacustrine and alluvial deposits, and an area of peat on its northern edge. SEPA mapping indicates that the site is underlain by the "Lower Don bedrock and localised sand and gravel aquifers", which are of high vulnerability and fall within a Drinking Water Protection Zone.

2.12 Most of the site has always been in agricultural or forestry use, apart from scattered dwellings and localised areas of quarrying. Two areas of made ground have been identified: an 11 hectare site at Upper Bonnyside and a one hectare site at Hall's Quarry. Site investigations indicate the presence of some soil and/or groundwater contamination at these sites, together with elevated levels of ground gas at the former, although both are considered to represent a low level of environmental or health risk.

Landscape and Views

2.13 The site is typical of the undulating and relatively open agricultural landscape which surrounds Aberdeen to the north. According to the Aberdeen Landscape Character Assessment (1996), the northern third of the site lies within the Wooded Farmland landscape character type (LCT) and Braes of Don landscape character area (LCA), whilst the remainder lies within the Major River Valley LCT and Lower Don Valley LCA. No part of the site is designated for its landscape value, and it is not subject to any Tree Preservation Orders.

2.14 The more elevated and open parts of the site enjoy wide-ranging views, particularly to the south and west across the Don valley. Riverside industry and the built-up areas to the east and south are prominent in some views. Inward views are variously influenced by topography, woodlands and tree belts, and are mostly gained from the built-up areas to the south and east. Some longer-distance views are obtained from the city to the south-east and from the elevated countryside to the north and west.

Noise and Vibration

2.15 Noise levels are generally typical of an urban fringe location. The dominant noise source in the area is traffic, especially from the A90. Aircraft noise associated with Aberdeen Airport, including helicopters over-flying the site, is also noticeable, although the site dies not lie under the main flight-path. The small number of properties located within or close to the site represent the nearest noise-sensitive receptors.

Socio-Economics

2.16 Aberdeen has a buoyant economy based in particular on the oil and gas sector and on the city's role as a regional service centre. Whilst the population of the city and shire rose by an average of 7% over the least decade, that of the Danestone/Bridge of Don area fell. House prices in Aberdeen are around 50% higher than the Scottish average, which causes problems of affordability. Whilst the local area lacks higher-order retail facilities, it has adequate healthcare provision and unfilled schools capacity.

Transport

2.17 Access to the site is currently gained from Whitestripes Road, which runs through the site; from Grandhome Road which forms the western and south-western boundary; and from Whitestripes Avenue, which forms the south-eastern boundary. The A90/Parkway, which forms part of the southern boundary, is a trunk road with restricted access, providing the main arterial route northwards to Peterhead and Fraserburgh, and southwards (via the ring road around the City Centre) to Dundee and the Central Belt. From the Haudagain Roundabout, the A96 forms the main arterial route north-westwards to Elgin and Inverness. The B997/ Scotstown Road provides a secondary radial route to the north-east of the site, connecting with the A90 at Bridge of Don.

2.18 Planned improvements to the strategic road network include a Third Don Crossing, which would run southwards from the Parkway/ Whitestripes Avenue junction; and the Aberdeen Western Peripheral Route (AWPR), which would skirt the built-up area to the north and west, providing an outer by-pass for A90 traffic. The AWPR would include a junction with the A947 north of Dyce, to which an upgraded B977 would provide a link from the Grandhome/ Bridge of Don area.

2.19 The A90, A96 and A947 are relatively well-served by bus services, which also access the nearby suburban centres. The nearest railway station is at Dyce, on the Aberdeen to Inverness line. Aberdeen Airport is a major hub, serving both UK and international destinations. The core path network reaches into surrounding built-up areas and along the River Don. Planning permission for redevelopment of the Davidson's Mill site includes contributions to a new pedestrian/cycle bridge across the river.

Waste

2.20 The waste management regime for Aberdeen relies on a materials recycling facility at Sclattie Quarry, an associated composting facility and four household waste recycling centres, with residual waste sent to the Stoneyhill landfill site near Peterhead. Whilst there are currently no known capacity problems, the Stoneyhill site is due to close in 2024, and recycling rates are low (35% in 2011/12). The masterplan site is currently assumed to generate minimal volumes of household and farm waste.

3. The Proposed Development

Vision

3.1 The vision for Grandhome is to create a new mixed-use community for Aberdeen that achieves a high degree of socio-economic and environmental sustainability, whilst meeting the strategic objectives of the Local Plan and protecting the amenity of surrounding communities. The Development Framework identifies the key components of the new community and sets out the parameters to be met by future development, including matters relating to design and style. The Framework is based on the following core principles:

- a strong sense of place;
- sustainable and walkable neighbourhoods;
- a well-balanced mixed community;
- green spaces to breathe;
- well-connected streets; and
- a new centre for the Bridge of Don.

Key Parameters

3.2 The key parameters for the PPiP application may be summarised as follows:

- up to 4,700 homes, of which 25% would be affordable, arranged in five neighbourhoods, with supporting shops and services;
- a high street/town centre intended to provide district-level services to the Bridge of Don area;
- five hectares of employment land, including a technology park;
- two primary schools, sports pitches and community uses;
- a community campus, including and academy, library and sports centre-use;
- a health centre;
- a network of green infrastructure incorporating a hierarchy of open space provision, including sports, neighbourhood parks and habitat creation, as part of an overall Landscape Framework;
- highways and other access infrastructure; and
- drainage and utilities infrastructure, including sustainable urban drainage features.

Phase 1

3.3 The first phase of the PPIP scheme will comprise:

- around 500 homes, of which 25% would be affordable;
- a neighbourhood centre;
- associated open space, play areas and landscaping; and
- supporting infrastructure.

Remainder of Masterplan

3.4 The remainder of the masterplan would comprise around 2,300 homes, with supporting community facilities, services and infrastructure, as an extension of the PPiP scheme. Masterplan

Layout, Access and Infrastructure

3.5 The PPiP scheme comprises a mosaic of neighbourhoods and public spaces, linked by a hierarchy of streets and pedestrian routes. Each neighbourhood would offer a mix of uses, with shops, parks, schools and other community facilities located within walking distance of the residential streets. The “town centre” would be located on the south-eastern part of the site, in order to meet the needs of new residents and to provide higher-order facilities for the wider Bridge of Don community.

3.6 The modular pattern of the masterplan provides a high degree of pedestrian access within each neighbourhood. This would be reinforced by a hierarchy of streets intended to optimise connections between neighbourhoods, the town

Fig 1: Indicative Masterplan

Mixed-Use Buildings
Office Buildings
Single-Use Commercial Bldgs.
Indicative Footprints
Plots
Schools
Civic Buildings
Existing Buildings
Open Space
SUDS
Site Boundary

centre and the surrounding area. The principal streets would be designed to accommodate bus services, whilst pedestrian and cycle links would ensure a high degree of permeability, providing connections to the existing and aspirational core path network. Vehicular access to serve the PPiP scheme would be provided via new junctions on Whitestripes Road, Whitestripes Avenue and the A90/ Parkway.

3.7 The masterplan allows for the incorporation of a sustainable drainage system based on the "management train" approach. This uses a hierarchy of measures to attenuate peak flows and protect water quality, whilst ensuring that runoff rates are no greater than those from a greenfield site. Existing watercourses and features such as the Manganese Pond would be retained and enhanced. A new trunk sewer would be constructed to connect the development to the Persley wastewater treatment works.

3.8 A Landscape Framework has been prepared, which seeks to retain key elements such as woodlands, tree belts and stone walls, whilst facilitating habitat creation, serving the recreational needs of the new community and mitigating any adverse impacts on existing residents and views. Mitigation during construction would be provided through an agreed construction environmental management plan (CEMP).

4. Predicted Effects and Proposed Mitigation

Introduction

4.1 This section summarises the predicted effects of the development for each assessment topic. Effects are reported initially for the PPiP scheme, followed by those relating to Phase 1 and the remainder of the masterplan, unless there is no difference between them. Where a potential for significant adverse effects is identified, and such effects can be mitigated, the mitigation is described and the residual effects reported. Where relevant, comment is also made on the likelihood of cumulative effects arising in relation to committed developments at Davidson's Mill, Dubford (both residential) and Berryhill (mixed use); effects relating to operational traffic (including related noise and air quality) are already cumulative, since allocated developments have been included in the modelling.

Air Quality

4.2 Construction is an inherently dusty activity, and there is a risk that fugitive dust emissions could affect nearby receptors, including existing residents and occupants of the early phases of the development. In the absence of mitigation, the degree of risk is considered to be high from on-site construction and medium to high from track-out of dust by HGVs, in relation to the PPiP and Phase 1; and medium and medium to high respectively in relation to the remainder of the masterplan. With the adoption of dust control measures as part of the CEMP, the residual risks are predicted to be no greater than medium for the PPiP and Phase 1, and generally low for the remainder of the masterplan.

4.3 As a result of improvements to engine/fuel technology, and to the surrounding road network (which will reduce congestion and thereby emissions), future NO2 concentrations will be lower than at present, even with development traffic, amounting to negligible effects for all three assessment scenarios. Concentrations of fine particulates (PM10) will remain within the annual mean AQ Objective, with no change to the number of exceedances of the 24-hour mean.

4.4 At one or two locations (e.g. Anderson Drive, Haudagain Roundabout and the Great Northern Road), PM10 concentrations would exceed the annual mean AQ Objective, amounting to a slight adverse effect, although this is primarily due to background traffic. There would be no detrimental air quality effects on the nearest sensitive habitats. Effects relating to traffic emissions would be mitigated by encouraging sustainable travel choice by those living, working or shopping within the development.

4.5 The air quality effects take account of committed developments included within the traffic modelling. The only identified potential for cumulative effects relates to a prospective biomass CHP plant at Stoneywood Mill, which would need to be considered when that application is brought forward.

Climate Change

4.6 Assuming a "minimally compliant" development (i.e. in accordance with the 2007 Building Regulations), the PPiP scheme would give rise to annual regulated CO2 emissions of just over 10million kg, of which Phase 1 would account for just under 945,00kg, whilst the overall masterplan would give rise to a total of just under 14.5million kg. On the basis of the criteria set out by the Institute of Environmental Management and Assessment (IEMA), these emissions constitute a significant negative impact in each case, which is not surprising in view of the largely undeveloped condition of the site.

4.7 An energy strategy is being developed around a combination of high-performance building fabric and on-site generation of heat and power, supplemented as necessary by renewable micro-generation technology such as photovoltaics. This strategy will deliver a zero carbon

development from 2016 onwards, in accordance with incoming building regulations, achieving significant reductions in regulated emissions from the 2007 theoretical baseline.

4.8 These reductions would amount to 30% for Phase 1, 93% for the PPiP and 95% for the overall masterplan. On the basis of the IEMA guidance, any such reduction would be regarded as a moderate positive effect in each case. However, unregulated emissions (mainly traffic) would remain, and are likely to represent the primary source of carbon emissions in the longer term. All three development scenarios would give rise to slight negative effects during construction, reflecting the temporary and relatively modest nature of construction emissions.

Cultural Heritage

4.9 Potential impacts on archaeological resources would be confined to the construction period, due to the risk of damage during ground disturbance. The PPiP scheme would give rise to one significant (moderate) effect, on the site of a former farmstead at Bonnyside Cottage, and one uncertain (possibly major and thereby significant) effect on a possible henge. Six other assets would experience non-significant effects, one asset would experience an uncertain (probably not significant) effect and 14 assets would be unaffected.

4.10 The Phase 1 development would potentially affect three assets, but none of them significantly: the former farmstead at Laverockbraes, part of the former manganese quarry and a hollow-way or trackway. The remainder of the masterplan would potentially have a significant (moderate) effect on one asset: the site of a farmstead at Craighaar Cottage; an uncertain (possibly major and thereby significant) effect on another possible henge; non-significant effects on seven assets; and no effects on a further seven assets.

4.11 Archaeological trial trenching and a watching brief would be implemented prior to and during the construction of each phase, on the basis of a written scheme of investigation agreed with the City Council. On the assumption that the significance of each asset would be protected, the residual effects would no longer be significant.

4.12 The completed development has the potential to give rise to minor effects on the settings of six assets in the surrounding area. These assets are as follows (all are Category B listed unless stated otherwise): Foucausie hut circle (scheduled), Grandholme Works (Category A listed), Skene burial enclosure, Grandhome Lodge and Gates, Stoneywood House and Woodside House. These effects would be expected to decrease over time as the proposed landscaping matures.

Ecology

4.13 The PPIP scheme would have no effect on the nearest SSSI and is unlikely to affect the Local Nature Conservation Sites. The masterplan and sustainable drainage strategy aim to facilitate continued recharge of the groundwater that sustains Grandhome Moss. Around 95% of the habitats to be developed comprise farmland of low biodiversity value, although the loss of corn spurrey and wild pansy would amount to a minor negative effect.

4.14 Red List bird species that rely on farmland habitat would be displaced, resulting in a moderate negative effect. The reduction in hunting territory for barn owl around Cothill would also amount to a moderate negative effect. Whilst key habitat for bats would be retained within the Landscape Framework, some foraging habitat would be lost, representing a minor negative effect. Any loss of roosting sites within buildings (e.g. due to conversion or demolition) would amount to a moderate effect, whilst the widespread introduction of lighting across the site would amount to a major effect.

4.15 All main badger setts within the site would be retained, as would all but one subsidiary sett, which would need to be closed under license, representing a moderate effect. The general loss of foraging habitat would represent a moderate effect, whilst the potential disturbance of setts would amount to a minor effect. The loss of woodland habitat would have a minor effect on red squirrel, although the consequential risk of colonisation by grey squirrel following disturbance would represent a moderate effect.

4.16 A range of mitigation measures would be implemented, including best practice during construction (e.g. avoiding site clearance during the nesting season, prior inspection of any buildings to be demolished or converted). A badger protection plan has been developed to minimise adverse effects on the social groups using the site and to help them to adjust to the changing conditions as each phase of development is brought forward. A Biodiversity Action Plan would be developed for the site, targeting measures to support vulnerable species (e.g. sensitive location and design of lighting). The Landscape Framework includes the creation of significant new habitats, such as 21 hectares of meadow/copse, 11 hectares of parkland and nine hectares of woodland.

4.17 With the adoption of this mitigation, backed up by appropriate monitoring and management, any residual adverse effects would generally become negligible in the long-term, whilst the effects relating to barn owl, bats and red squirrel could become beneficial.

4.18 Most of the effects of the Phase 1 development would be significantly less severe than those of the PPiP scheme, due to the smaller area involved and the absence of sensitive features; for example, there are no badger setts within the Phase 1 site. However, the effects relating to bats and red squirrel would potentially be of a similar order of magnitude. Detailed mitigation proposals would be developed for Phase 1 in line with the principles outlined above, such that the residual effects would be either negligible or moderately beneficial.

4.19 The effects of the post-PPiP masterplan would generally be similar, but with the potential for more significant effects on roosting bats and barn owl.

Flood Risk and Drainage

4.20 In the absence of mitigation, all three development scenarios could give rise to significant adverse effects on surfacewater drainage, water quality, flood risk and hydro-morphology, both during construction and on completion. This reflects the extent of the works and the fundamental change to the runoff characteristics of the local catchments that would occur.

4.21 However, best practice would be adopted during construction to protect existing watercourses and to minimise risks such as pollution and soil erosion. The sustainable drainage strategy aims to retain the natural hydrology of the site and to replicate greenfield conditions. As a result, the residual effects on surfacewater drainage, water quality and flood risk are likely to be neutral. The long-term effect on hydro-morphology may even be beneficial if watercourses are allowed to develop a more natural character.

4.22 The development would have no effect on the existing foul drainage network, since it would be connected directly with the Persley WWTW. Any environmental effects associated with future upgrading of the WWTW would be a matter for Scottish Water.

Geo-Environment

4.23 Ground disturbance during construction would give rise to negligible to minor effects relating to soil compaction and loss of soil arisings, minor effects relating to exposure of ground- and surface-waters to contaminated soils, and moderate effects relating to the pollution of soils and superficial deposits, for all three assessment scenarios. Effects relating to human exposure to contaminated soils would be minor to moderate for Phase 1, most of the PPiP and the remainder of the masterplan, but moderate to major for the Upper Bonnyside area (within the PPiP).

4.24 On completion, effects relating to radon gas would be moderate, and the effects relating to contamination risk to structures and services would be moderate to major, for all three scenarios. The effects of ground gas on properties and services would be negligible to minor for Phase 1, most of the PPiP and the remainder of the masterplan, and major for the Upper Bonnyside area.

4.25 A range of mitigation would be incorporated into construction management and scheme design, including:

- further site investigations at Upper Bonnyside and elsewhere;
- gas protection measures for new properties at Upper Bonnyside;
- stage 1 radon protection measures across the whole site;
- resilient specification of construction materials; and
- best practice during construction in relation to soil handling, management of chemicals and fuels, pollution prevention, and personal protection for site workers.

4.26 The residual effects in all cases, and for all scenarios, would be negligible, except for the pollution risk to controlled waters and soils during construction, which would remain negligible to minor.

Landscape and Views

4.27 The greatest impact would occur during construction, as the existing land cover is removed and features such as mobile plant are prominent. The resulting effects on landscape features are predicted to be moderate, and the effects on landscape character and visual amenity major, for all three assessment scenarios. The visual effects would be experienced in particular by the nearest receptors and those with open views, as from the urban fringe to the east and south of the river, from scattered properties to the north and from local roads.

4.28 As the planting and green space provided by the Landscape Framework become established, they would not only mitigate these adverse effects, but would also deliver long-term benefits. As a result, the residual effect on landscape features is considered to become moderately beneficial, whilst the adverse effects on landscape character and visual amenity would be reduced to moderate. Committed developments in the area are located to the south of the River Don, and because of this degree of separation any cumulative effects are unlikely to be more significant than those of the Grandhome development alone.

Noise and Vibration

4.29 Most of the site falls below the 55dB and 45dB daytime and night-time criteria respectively, and is therefore considered to be suitable for the proposed (mainly residential) uses. However, areas close to the A90/Parkway, Whitestripes Avenue and Laurel Drive exceed these thresholds, and in the absence of mitigation new residents in these locations would be adversely affected. An appropriate level of mitigation can be achieved by providing double-glazing on the relevant building facades, so as to meet internal noise criteria. This is a matter of detailed design, which will be addressed as reserved matters applications are brought forward for each phase, such that any residual effects would be insignificant.

4.30 Construction is inherently noisy, and whilst average noise levels would remain within the assessment criteria at the nearest receptors, the worst-case noise levels would not. As a result, major effects would occur at 12 of the 32 receptor locations, including Laverockbraes (Phase 1) and Whitestripes Cottage/Whitestripes Farm (remainder of the PPiP). Such effects would be intermittent and temporary, and options for mitigating them (e.g. through specific timing or working methods) would be explored as part of the CEMP in accordance with BS5228:2009. Minor effects due to vibration are also predicted on a small number of the very closest properties (within 20m); such effects would be intermittent and temporary, and would be insufficient to cause any damage.

4.31 The noise effects of development traffic were predicted in relation to 19 receptor locations in the surrounding area. With completion of the PPiP, three locations are predicted to experience no change in noise levels. Four locations would experience decreases of 0.2-0.5dB, due to changes to the highway network. The remaining 12 locations would experience increases of 0.1-1.8dB. The highest increases (>1dB) would occur on Whitestripes Avenue and Whitestripes Road, amounting to an effect of negligible long-term significance.

4.32 With Phase 1 traffic only, six locations are predicted to experience no change in noise levels. The remaining 13 locations would all experience increases of less than 1dB. The highest increases (>0.5dB) would occur on Whitestripes Avenue (north of Buckie Farm) and Whitestripes Road, amounting to an effect of negligible long-term significance.

4.33 With completion of the overall masterplan, three receptor locations would experience no change, whilst four would experience decreases of 0.1-0.4dB, due to changes to the surrounding highway network. The 12 remaining locations would experience increases in noise levels of 0.1-2.4dB. The highest increases (>1dB) would occur on Laurel Drive (west of Persley Bridge), Whitestripes Avenue (north of Buckie Farm), Whitestripes Road (north) and Scotstown Road (north of Parkway), amounting to effects of negligible long-term significance. Whilst none of the predicted increases in traffic noise are sufficient to require specific mitigation, car use would be restrained by the sustainable travel choice inherent in the masterplan.

4.34 Sources of industrial noise within all phases of the development, such as building plant and employment uses, will be controlled in accordance with BS4142:1997 under the Council's regulatory powers, to ensure that any residual effects would be of no more than slight significance.

Socio-Economics

4.35 Construction of the PPiP is predicted to support over 13,000 person-years of employment, amounting to an average of around 590 jobs per annum. The equivalent figures for Phase 1 would be nearly 1,300 person-years and 420 jobs, and for the overall masterplan nearly 19,000 person-years and 550 jobs. These employment levels would represent a beneficial effect of moderate significance at the city-wide level.

4.36 The completed PPiP would accommodate 11,600 people, representing respectively 53% and 5.3% of the local (Danestone/Bridge of Don) and Aberdeen population, and amounting to a major and moderate effect. Phase 1 would accommodate 1,250 people, representing respectively 6% and 0.6% of the local and city population, amounting to a moderate and minor effect. The overall masterplan would accommodate 17,300 people, representing respectively 81.2% and 9% of the local and city population, and amounting to a major effect in both cases.

4.37 In terms of working-age population, the completed PPiP would account for 54.1% and 6% respectively of the local and city-wide labour markets, amounting to major and moderate effects. Phase 1 would account for 5.9% and 0.65% respectively of the local and city-wide labour markets, amounting to moderate and minor effects. The overall masterplan would account for 81.2% and 9% respectively of the local and city-wide labour market, amounting to a major effect in both cases. In terms of annual contribution to the growth in working-age population, all three scenarios would account for 20-30%, representing a moderate effect for Phase 1 and major effects for the PPiP and overall masterplan.

4.38 Direct (on-site) employment would amount to 47 jobs in Phase 1, 2,210 jobs in the PPiP and 2,271 jobs for the overall masterplan. Indirect employment generated by household spending would support a further 70 jobs for Phase 1 (of which 25 would be local), 625 jobs for the PPiP and 930 jobs for the overall masterplan (of which 230 and 340 respectively would be local). The total employment effects for the PPiP and overall masterplan would be major at a local level and moderate city-wide, whilst the effects of Phase 1 would be minor in both cases.

4.39 In terms of contribution to Aberdeen's average annual housing requirements, the PPiP and overall masterplan would amount to 16% or more, which amounts to a major effect locally and a moderate effect city-wide. Phase 1 would contribute around 13%, which amounts to a moderate effect locally and minor effect city-wide. These quantitative benefits would be reinforced by the social benefits of enhanced housing supply and affordability.

4.40 The PPiP and overall masterplan would be self-sufficient in terms of providing for the education and healthcare needs of the new residents. As a result, there would be no detrimental effect on such provision in the surrounding area, and even a moderately beneficial residual effect in terms of contribution to capacity and choice. Phase 1 is not anticipated to have any detrimental effect on existing levels of provision, since there is unfilled capacity in local schools and no identified constraints on healthcare.

4.41 In terms of cumulative effects, the three identified schemes would reinforce the benefits of Grandhome to population, labour markets, employment and housing. Potential cumulative demands on social infrastructure from the Dubford and Davidson's Mill schemes are unlikely to be significant, on the basis that developer contributions will address any capacity shortfalls if necessary.

Transport

4.42 A construction traffic management plan will be agreed as part of the CEMP, including designated HGV routes that avoid local roads and take traffic to/from the arterial network via the A90 and future Third Don Crossing. Roadworks will be phased and managed by agreement with the highway authority so as to minimise disruption. Overall, with mitigation in place, the effects on junction capacity, driver delay and safety are anticipated to be of negligible significance for all three scenarios.

4.43 The PPiP masterplan provides a coherent hierarchy of streets designed to appropriate standards so as to facilitate bus access and prioritise pedestrian/cycle routes. The development layout will provide a high degree of internal accessibility, supporting sustainable transport choices by the new residents, such that no significant adverse effects are anticipated.

4.44 The development will benefit pedestrian/cycle access by allowing for extension of the Core Path Network and by providing a new signalised crossing at Danestone on the A90, which currently acts a barrier to movement. Public transport will also benefit as bus services are extended and intensified, via Persley Bridge and Bridge of Don, to accommodate the estimated 600 passengers

per hour that would be generated during peak periods. This increased demand will enhance viability, with improved services also benefitting the surrounding area.

4.45 The PPiP will be accessed via a new signalised junction on Parkway and new junctions on Whitestripes Road/Avenue. Improvements to the surrounding road network will include upgrading of Whitestripes Road, signalisation of the Whitestripes Road/Avenue junction and replacement of the Buckie Farm roundabout with a signalised crossroads. Traffic modelling predicts that development traffic would give rise to modest increases in congestion and driver delay, mainly at locations where future upgrading is likely to be required anyway (e.g. Haudagain Roundabout). Such upgrading, to which it is assumed Grandhome would make an appropriate contribution, would mitigate any adverse effects.

4.46 Phase 1 would generate the same benefits to pedestrian/cycle access and public transport as the PPiP, but on a smaller scale. Vehicular access to Phase 1 would be provided from Whitestripes Avenue, following completion of the Third Don Crossing, but before opening of the AWPR. Phase 1 traffic is not anticipated to give rise to any capacity problems along the A90 corridor.

4.47 Completion of the overall masterplan would occur so far in the future that its transport effects cannot be predicted with accuracy. However, on the assumption that the remaining phases would comply with the Development Framework, and that any necessary upgrading of highway infrastructure would take place under reserved matters, any residual effects are unlikely to be significant.

4.48 The transport model used for the assessment incorporates committed and proposed developments, and the predicted effects are therefore cumulative.

Waste

4.49 Construction of the PPiP is calculated to generate around 9,000 tonnes of waste per annum over 11 years, amounting to minor effects on recycling facilities and landfill capacity, and negligible effects during waste handling and transport. Once completed, the PPiP is calculated to generate around 9,300 tonnes of waste per annum, amounting to a minor effect on recycling facilities, a slight effect on landfill capacity and negligible effects during waste handling and transport.

4.50 Construction of Phase 1 is calculated to generate around 4,600 tonnes of waste, amounting to negligible effects in relation to recycling facilities, landfill capacity and waste handling/transport. Once completed, Phase 1 is estimated to generate around 740 tonnes of waste per annum, the effects of which would also be negligible.

4.51 Construction of the overall masterplan is calculated to generate around 4,000 tonnes of waste per annum over 36 years, which on the basis of foreseeable capacity would amount to minor effects on recycling facilities and landfill capacity, and negligible effects due to handling/transport. The completed masterplan could generate around 12,000 tonnes of waste per annum, which is not anticipated to have a significant effect if regulatory targets for recycling are met. None of the three assessment scenarios is predicted to exceed the capacity of the waste management regime, and the cumulative effects are not anticipated to be significant.

5. Further Information

If you would like any further information about the Grandhome development, or wish to purchase a copy of the ES, please contact the following:

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