

FALKIRK

Local Development Plan²

Proposed Plan

Strategic Environmental Assessment Revised Environmental Report

Appendix 2: Detailed Environmental Assessment Matrices

September 2018



Falkirk Council

Scope of Assessment

The detailed assessment matrices contain the results of the environmental assessment which has been generated by assessing performance of the preferred options and their reasonable alternatives against the SEA objectives for each environmental topic area by asking specific assessment questions. These are detailed comprehensively within the Environmental Baseline Report (Appendix 1) and are repeated below for ease of reference:

Table 1: SEA Objectives and Assessment Questions

Sub-Topic	Objectives	Questions
Biodiversity, Flora & Fauna		
Habitats	<ul style="list-style-type: none"> Increase/enhance biodiversity in the wider environment. Safeguard and enhance priority habitats (as defined in the FABAP) Safeguard ancient and long established woodland as a habitat resource of irreplaceable value Increase the rate of new woodland planting to help achieve the aims of the Falkirk Forestry and Woodland Strategy Protect Urban Open Space which has intrinsic biodiversity and nature conservation value or value as part of a network. 	<ul style="list-style-type: none"> To what extent will the option conserve/ enhance or degrade biodiversity? (consider the number/area and status of species or habitats in question) Does the option safeguard and enhance FABAP priority habitats Will the option safeguard ancient and long established woodland Will the option lead to the creation of new woodland Does the option protect urban open space with biodiversity and nature conservation value?
Habitat Networks	<ul style="list-style-type: none"> Prevent the further fragmentation of key habitat networks and contribute to improved habitat connectivity, guided by the Falkirk integrated habitat network study. 	<ul style="list-style-type: none"> Does the option enhance the wider Falkirk Integrated Habitat Network?
Species	<ul style="list-style-type: none"> Maintain and enhance the populations of European Protected Species and other legally protected species, including protection of their resting places. Safeguard and enhance priority species (as defined in the FABAP) Contain the spread and reduce the impact of invasive species 	<ul style="list-style-type: none"> Does the option maintain and enhance populations and resting places of European Protected Species? Does the option safeguard and enhance FABAP priority species Does the option reduce the impact of invasive species?
Protected Sites	<ul style="list-style-type: none"> Avoid adverse effects on the integrity of Natura 2000 sites. Protect and enhance sites which have been designated due to their biodiversity and nature conservation value Designate any unprotected sites which have particular biodiversity and nature conservation value. 	<ul style="list-style-type: none"> Will the option have a likely significant effect on any Natura 2000 site? Does the option protect and enhance sites designated for their biodiversity and nature conservation value?

Sub-Topic	Objectives	Questions
Population & Human Health		
Population	<ul style="list-style-type: none"> Ensure that new housing to accommodate projected population growth is located sustainably 	<ul style="list-style-type: none"> Is the new housing proposal in a sustainable location?
Degraded Environment	<ul style="list-style-type: none"> Increase the amount of land on the vacant and derelict land register which is brought back into beneficial use. Increase the amount of potentially contaminated sites which are decontaminated through new development. 	<ul style="list-style-type: none"> Does the option bring land on the vacant and derelict land register back into beneficial use? Does the option enable the decontamination of polluted land?
Waste Management and Disposal	<ul style="list-style-type: none"> Ensure that there is a network of modern waste handling facilities available across the Council area to support the staged targets within the Zero Waste Plan. Reduce waste through maximising the reuse, recycling and recovery of resources 	<ul style="list-style-type: none"> Does the option safeguard and/ or improve the network of modern recycling facilities available across the Council area? Does the option maximise the reuse, recycling and recovery of resources?
Access to Open Space, Recreation and Countryside	<ul style="list-style-type: none"> Increase access to Open Space, Recreation and the Countryside Encourage the promotion and connectivity of the Central Scotland Green Network within and linking beyond Falkirk. 	<ul style="list-style-type: none"> Does the option increase access to open space, recreation or the countryside? Does the option encourage the promotion and connectivity of the CSGN?
Open Space Quantity, Quality & Accessibility	<ul style="list-style-type: none"> Ensure that all settlements 5ha/1000 people of open space. Improve the quality of open space Ensure that households are within an acceptable walking distance to different types of open space with reference to the standards set out in the Open Space Strategy. 	<ul style="list-style-type: none"> Does the option result in a loss of open space in a settlement which doesn't have 5ha/1000 people of open space? Does the option result in a loss of open space which would mean that the settlement no longer has an acceptable amount of open space? Does the option improve accessibly to open space?
Noise	<ul style="list-style-type: none"> Reduce the proportion of the population affected by nuisance noise issues. 	<ul style="list-style-type: none"> Does the option reduce the proportion of the population affected by nuisance noise?
Odour	<ul style="list-style-type: none"> Reduce the proportion of the population affected by nuisance odour issues. 	<ul style="list-style-type: none"> Does the option reduce the proportion of the population affected by nuisance odour?
Exposure to Risk of Accidents from Major Hazards	<ul style="list-style-type: none"> Reduce the amount of new development sites which are impacted by HSE consultation zones 	<ul style="list-style-type: none"> Is the option impacted by HSE consultation zones? Is the option likely to increase the proportion of the population impacted by HSE consultation zones?

Sub-Topic	Objectives	Questions
Soil		
Contaminated Land	<ul style="list-style-type: none"> Reduce contamination and safeguard soil quality 	<ul style="list-style-type: none"> Does the option reduce contamination? Does the option safeguard soil quality?
Abandoned Mineral Workings	<ul style="list-style-type: none"> Increase the amount of abandoned mineral workings rehabilitated through the development process 	<ul style="list-style-type: none"> Does the option rehabilitate abandoned mineral workings?
Unstable Land	<ul style="list-style-type: none"> Increase the amount of unstable land remediated through the development process 	<ul style="list-style-type: none"> Does the option remediate unstable land through the development process?
Agricultural Land	<ul style="list-style-type: none"> Reduce the amount of prime quality agricultural land which is allocated for development. Protect prime quality agricultural land 	<ul style="list-style-type: none"> Does the option protect prime agricultural land (class 1, 2 & 3.1)?
Carbon Rich and Rare Soils	<ul style="list-style-type: none"> Protect carbon rich and rare soils 	<ul style="list-style-type: none"> Does the option protect carbon rich soils and other rare soils (basin peat, blanket bog, peat alluvium complex, peaty podzols, peaty gleys, podzols, humus iron podzols and saltings)?
Geodiversity	<ul style="list-style-type: none"> Ensure that Local Geodiversity Sites are afforded a protected status Improve the opportunities for education and interpretation at Local Geodiversity Sites 	<ul style="list-style-type: none"> Does the option impact upon Local Geodiversity Sites? Does the option improve access to and/or improve opportunities for education and interpretation at Local Geodiversity Sites?
Water		
Ecological Status of Waterbodies	<ul style="list-style-type: none"> Protect the water environment Prevent deterioration and enhance the ecological status of waterbodies Prevent deterioration and enhance the status of groundwater bodies Achieve good ecological status Promote sustainable water use 	<ul style="list-style-type: none"> Does the option protect the water environment? Does the option prevent the deterioration of the ecological status of waterbodies? Does the option enhance the status of waterbodies? Does the option prevent the deterioration of the status of groundwater bodies? Does the option enhance the status of groundwater bodies? Does the option promote sustainable water use?

Sub-Topic	Objectives	Questions
Flooding	<ul style="list-style-type: none"> Reduce overall flood risk Ensure that new development avoids areas of flood risk and safeguards the functional flood plain 	<ul style="list-style-type: none"> Does the option reduce overall flood risk? Does the option avoid areas of flood risk?
Air		
Air Quality	<ul style="list-style-type: none"> Keep air pollution below Local Air Quality Management thresholds 	<ul style="list-style-type: none"> Will the option lead to Local Air Quality Management thresholds to be breached?
Exposure to Reduced Air Quality	<ul style="list-style-type: none"> Reduce the proportion of the population affected by reduced air quality. Avoid the designation of new AQMA Avoid breaches of National Air Quality standards 	<ul style="list-style-type: none"> Does the option reduce the proportion of the population affected by reduced air quality? Does the option avoid the designation of new AQMA? Does the option significantly contribute towards a breach in National Air Quality Standards?
Emissions from Motorised Transport	<ul style="list-style-type: none"> Minimise the need to travel by private car and promote sustainable transport modes 	<ul style="list-style-type: none"> Does the option minimise the need to travel by private car? Does the option promote the use of sustainable transport modes?
Climatic Factors		
Greenhouse Gas Emissions	<ul style="list-style-type: none"> Reduce greenhouse gas emissions Promote renewable energy generation; 	<ul style="list-style-type: none"> Does the option promote the sustainable location of development? Does the option increase overall energy efficiency in the built environment? Does the option minimise the carbon footprint of new development? Does the option promote the generation of energy from renewable sources? Does the option safeguard against the increased use of fossil fuels?
Climate Change Adaptation	<ul style="list-style-type: none"> Improve Falkirk's resilience to climate change Reduce overall flood risk in a sustainable way 	<ul style="list-style-type: none"> Does the option increase Falkirk's resilience to climate change Does the option reduce overall flood risk in a sustainable way?

Sub-Topic	Objectives	Questions
Material Assets		
Quality of the Built Environment	<ul style="list-style-type: none"> Improve design quality within the built environment. 	<ul style="list-style-type: none"> Will the option improve design quality within the built environment?
Transport Network	<ul style="list-style-type: none"> Reduce levels of traffic congestion within the Council area Slow down the rate of traffic growth on the road network. 	<ul style="list-style-type: none"> Will the option reduce levels of traffic congestion within the Council area? Will the option slow down the rate of traffic growth on the road network?
Active Travel Network	<ul style="list-style-type: none"> Protect against the destruction/obstruction of the core path network Improve the quality of the core path network 	<ul style="list-style-type: none"> Will the option protect against the destruction/ obstruction of the Core Path network? Will the option improve the quality of the Core Path network?
Recreation Facilities	<ul style="list-style-type: none"> Improve the provision and distribution of recreation facilities throughout the Council Area 	<ul style="list-style-type: none"> Will the option improve the provision and distribution of recreation facilities across the Council area?
Low and Zero Carbon Energy Generation Capacity	<ul style="list-style-type: none"> Enable the development of low carbon and renewable energy technologies within the Council area. Enable the development of low carbon heat networks within the Council area 	<ul style="list-style-type: none"> Will the option enable the development of low carbon and renewable energy technologies within the Council Area? Will the option enable the development of low carbon heat networks within the Council area?
Primary Resources	<ul style="list-style-type: none"> Safeguard valuable mineral deposits from sterilisation through inappropriate development. Reduce the use of primary resources within the construction process 	<ul style="list-style-type: none"> Will the option safeguard against the sterilisation of valuable mineral resources? Will the option reduce the use of primary resources within the construction process?
Water and Drainage Infrastructure	<ul style="list-style-type: none"> Avoid the need to increase capacity at existing waste water treatment plants Alleviate sewer network capacity constraints 	<ul style="list-style-type: none"> Will the option avoid the need to increase capacity at existing waste water treatment plants? Will the option contribute towards alleviate sewer network capacity constraints?
Cultural Heritage		
Conservation Areas	<ul style="list-style-type: none"> Promote the enhancement of Conservation Areas in line with the associated Conservation Area Management Plan Protect the historic character of Conservation Areas 	<ul style="list-style-type: none"> Will a Conservation Area be adversely impacted?

Sub-Topic	Objectives	Questions
Listed Buildings	<ul style="list-style-type: none"> Protect the special interest and setting of listed buildings 	<ul style="list-style-type: none"> Will the special interest or setting of any listed building be adversely impacted?
Historic Gardens and Designed Landscapes	<ul style="list-style-type: none"> Protect the character and setting of sites identified in the Inventory of Gardens and Designed Landscapes in Scotland Protect the historical significance, integrity and condition of other historic gardens and designed landscapes 	<ul style="list-style-type: none"> Will an Inventory Garden and Designed Landscape or its setting be adversely impacted? Will a non-Inventory Garden and Designed Landscape or its setting be adversely impacted?
World Heritage Sites	<ul style="list-style-type: none"> Retain, protect, preserve and enhance the Antonine Wall and its associated archaeology, character and setting. 	<ul style="list-style-type: none"> Does the option retain protect, preserve and enhance the Antonine Wall and its associated archaeology, character and setting?
Scheduled Ancient Monuments	<ul style="list-style-type: none"> Preserve scheduled ancient monuments and other identified nationally important archaeological resources in situ and protect the integrity of their setting 	<ul style="list-style-type: none"> Does the option preserve scheduled ancient monuments and other identified nationally important archaeological resources in situ and protect the integrity of their setting?
Historic Battlefields	<ul style="list-style-type: none"> Promote the sensitive management and interpretation of battlefield sites Preserve the integrity of sites listed on the Inventory of Historic Battlefields 	<ul style="list-style-type: none"> Does the option promote the sensitive management and interpretation of battlefield sites? Does the option preserve the integrity of sites listed on the Inventory of Historic Battlefields?
Landscape		
Green Belt	<ul style="list-style-type: none"> Ensure Green Belts continue to: maintain the separate identity and visual separation of settlements; protect the landscape setting of settlements; and protect and give access to greenspace for recreation. 	<ul style="list-style-type: none"> Does the option maintain the separate identity and visual separation of settlements? Does the option protect the landscape setting of settlements? Does the option protect the greenbelts recreational value and maintain access to it?
Greenfield Land	<ul style="list-style-type: none"> Reduce the proportion of new development which takes place on greenfield land 	<ul style="list-style-type: none"> Does the option involve the development of greenfield land?
Landscape Character and Quality	<ul style="list-style-type: none"> Protect and enhance the distinctive character of the landscape and ensure new development does not exceed the capacity of the landscape to accommodate it. Protect and enhance Special Landscape Areas 	<ul style="list-style-type: none"> Does the option protect and enhance the distinctive character of the landscape? Does the option ensure that new development does not exceed the capacity of the landscape to accommodate it? Does the option protect and enhance Special Landscape Areas?

Scoring

The following scoring system has been applied

Table 2: SEA scoring system

Effect	Annotation
Significant Negative Effect	--
Negative Effect	-
Neutral or negligible effect	N
Unknown effect	?
Positive effect	+
Significant Positive effect	++

Where both positive and negative environmental effects have been recoded for an environmental topic area both are presented within the appropriate column.

For each alternative, a commentary has been added to detail how the conclusions of the environmental assessment have been reached. The following table shows how the significance of environmental effects which have been identified under each topic area has been determined:

Table 3: Examples of environmental effects of different significance

Environmental Effect	--	-	+	++
Environmental Topic				
Biodiversity	<ul style="list-style-type: none"> Adverse impact on an internationally or nationally important nature conservation site (SPA, SAC, RAMSAR, SSSI) Significant degradation in quality of a habitat network Severing of an important habitat network Significant loss of habitat adverse impact on protected species Loss of ancient or semi natural woodland 	<ul style="list-style-type: none"> Loss of habitat Degradation in quality of a habitat network Adverse impact on a locally important nature conservation site (SINC or Wildlife Site) 	<ul style="list-style-type: none"> Creation of new habitat which reinforces existing networks Opportunity to connect up habitat networks Opportunity to enhance and restore existing habitat 	<ul style="list-style-type: none"> Opportunity to connect up significant habitat networks prevent a large scale pollution leak from the Grangemouth petrochemical complex in an extreme flooding event
Population and Human Health	<ul style="list-style-type: none"> a significant increase in population significant cumulative loss of open space significant cumulative increase road traffic noise decrease in the proportion of households with 	<ul style="list-style-type: none"> Loss of open space Increase in road traffic noise Noise/odorous/dust impact from adjacent land uses. potential to compromise waste handling operations reducing recreational opportunity; 	<ul style="list-style-type: none"> Enhancement of recreational opportunity Improvement to the quality and connectivity of the green network; creation of new open spaces which address existing deficiencies in access to open space 	<ul style="list-style-type: none"> A significant increase in population; significant enhancement of recreational opportunity; significant improvement to the quality and connectivity of the green network; creation of new open spaces which significantly address existing deficiencies in access to open space; significant improvement in the quality and fitness for purpose of

Environmental Effect	--	-	+	++
Environmental Topic				
	<ul style="list-style-type: none"> access to an open space containing a playspace within 400m; decrease in the proportion of households with access to an open space containing a sports area within 800m; reduction of the likely scale of compensation received for the loss of open space; reduction of the extent to which remaining open spaces can have their biodiversity and nature conservation value improved in compensation for the loss of open space; reduction of the extent to which remaining open spaces can have their design and aesthetic quality improved in compensation for the loss of open space; an increase in the population exposed to risk of injury from major hazards and major hazard pipelines. 		<ul style="list-style-type: none"> improvement in the quality and fitness for purpose of existing open space; regeneration of vacant/ derelict land. 	<ul style="list-style-type: none"> existing open space; regeneration of significant amounts of vacant/ derelict land; increase in the proportion of households with access to public park or garden or amenity space of over 0.2ha within 400m; removal of a current hazardous substances consent and its associated consultation zones; and safeguarding against a large scale pollution leak from the Grangemouth petrochemical complex in an extreme flooding event.
Soil	<ul style="list-style-type: none"> Loss of prime quality agricultural land Loss of rare or nationally important carbon rich soils 	<ul style="list-style-type: none"> Loss of agricultural land Loss of carbon rich soil Adverse impact on a local geodiversity site 	<ul style="list-style-type: none"> Removal of contamination Removal of historic contamination Positive impact on a local geodiversity site 	<ul style="list-style-type: none"> Removal of significant contamination Making safe significant amounts of unstable ground
Water	<ul style="list-style-type: none"> Increase in the population at risk of fluvial or coastal flooding Alteration of coastal processes 	<ul style="list-style-type: none"> Increase in the population at risk of pluvial or canal related flooding Morphological alterations to the water environment Adverse impact on the water environment Culverting of watercourses Adverse impact on a wetland 	<ul style="list-style-type: none"> River restoration Removal of existing culvert Mitigation of historic water contamination Connecting a private sewage treatment facility to the public sewerage network. Improving the water quality of 	<ul style="list-style-type: none"> Reduction of the population at risk of flooding Enhancement of natural flood storage capacity Restoration of natural coastal processes Significant restoration of watercourses

Environmental Effect	--	-	+	++
Environmental Topic				
		<ul style="list-style-type: none"> • Adverse impact on groundwater quality 	<ul style="list-style-type: none"> runoff from the road network • improving the quality of effluent being discharged from existing WWTW 	
Air	<ul style="list-style-type: none"> • Significant increase in emissions from transport; • increase in the population exposed to reduced air quality; • increase in traffic and industrial related air pollution within an Air Quality Management Area. 	<ul style="list-style-type: none"> • Increase in emissions from transport 	<ul style="list-style-type: none"> • Decrease in emissions from transport 	
Climatic Factors	<ul style="list-style-type: none"> • Significant Increase in greenhouse gas emissions 	<ul style="list-style-type: none"> • Increase in greenhouse gas emissions 	<ul style="list-style-type: none"> • Decrease in greenhouse gas emissions • Creation of carbon sinks 	<ul style="list-style-type: none"> • Significant decrease in greenhouse gas emissions. • Creation of significant carbon sinks
Material Assets	<ul style="list-style-type: none"> • significantly increase in the use of primary resources in the construction process; • significant increase in traffic on the local and strategic road networks; • reduction of the extent to which active travel networks can be improved in compensation for the loss of open space; • adverse impacts on the local sewerage network; • adverse impacts on the local water supply network; • breaching of the capacity of the local road network; • breaching the capacity of waste water treatment works; • impact on a major hazard pipeline; 	<ul style="list-style-type: none"> • Degradation/ severing of the active travel network; • Increasing the use of primary resources in the construction process; • Adverse impact on townscape quality; • Increase in traffic on the local road network • Sterilisation of mineral deposits 	<ul style="list-style-type: none"> • Enabling the installation of low and zero carbon generating technology; • Increased capacity to generate energy from captured landfill gas; • Improving townscape quality • Improvement of the active travel network • Improving the capacity of the local sewerage network • Improving the capacity of the local road network • Decreasing traffic on the local road network • Reducing the use of primary resources • Preventing deterioration of townscape character; • minimising the demands on primary resources 	<ul style="list-style-type: none"> • significant improvement in the quality of the active travel network; • significant increase in the capacity to generate energy from renewable or low carbon sources; • significant increase in the capacity of the road network; • significant improvement of townscape quality

Environmental Effect	--	-	+	++
Environmental Topic				
			<ul style="list-style-type: none"> needed to establish new waste management facilities 	
Cultural Heritage	<ul style="list-style-type: none"> • significant adverse impact on townscape quality. • Significant adverse impact on village character 		<ul style="list-style-type: none"> • adverse impact on a non-inventory battlefield or its setting; • adverse impact on a non-inventory designed landscape or its setting; • adverse impact on a category B or C(S) listed building. • Adverse impact on a Conservation area or its setting • Adverse impact on an undesignated feature of historical interest or its setting. 	<ul style="list-style-type: none"> • Improving the range of opportunities to interpret the historic environment; • Improving the setting of a listed building. • Potential to restore a category B or C(S) listed building • Preventing deterioration of historic character
Landscape	<ul style="list-style-type: none"> • Significant impact on the landscape setting of a settlement; • Adverse landscape and visual impacts in an area of high sensitivity • Loss of ancient or semi natural woodland 	<ul style="list-style-type: none"> • Adverse landscape and visual impacts in an area of medium or low sensitivity. • Development of greenfield land • Loss of trees/ hedging/ woodland • Loss of landscape features 	<ul style="list-style-type: none"> • Positive change in the landscape 	<ul style="list-style-type: none"> • Significant positive change in the landscape

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation																																					
VISION																																																
Vision	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	<p>The preferred vision is "The place to be: a dynamic and distinctive area at the heart of Central Scotland characterised by a network of thriving communities and greenspaces and a vibrant and growing economy which is of strategic importance in the national context, providing an attractive and sustainable place in which to live, work, visit and invest."</p> <p>Significant environmental effects are predicted in most environmental areas. As with any growth strategy it will lead to increased traffic growth, use of agricultural land and natural resources, increased pressure on environmental infrastructure and pressure on the landscape and biodiversity. However it will also stimulate investment in the green network, lead to the creation of new open space, and result in the re-use of derelict land.</p>	<p>The significant positive effects of many aspects of the spatial strategy, e.g. green network improvements, sustainable transport proposals, promotion of low carbon energy, will assist in mitigating significant negative effects.</p> <p>The mix of sites for housing and economic growth and for infrastructure provision have been selected having regard to the aim of minimising significant negative effects and maximising significant positive effects. All policies have been drafted with environmental considerations embedded within them, and have themselves been subject to environmental assessment.</p>
OBJECTIVES - THRIVING COMMUNITIES																																																
Enable continued population and household growth , and the delivery of housing to meet the full range of housing needs	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	<p>Any population and household growth objective is likely to have a range of significant negative and significant positive effects in most environmental areas. Details of the significant positive and negative environmental effects arising from specific proposals for new housing are outlined in the Spatial Strategy sections below.</p>	<p>Sites for housing growth have been selected having regard to the need to avoid or minimise significant negative effects and enhancing significant positive effects. Measures to ensure positive environmental effects and mitigate negative environmental effects are included within the policies and individual site comments in the plan.</p>
Build sustainable attractive communities which are distinctive, safe and pleasant, welcoming, adaptable, resource efficient, and easy to move around	N	++	N	N	N	++	++	N	N	<p>This objective is likely to have a significant positive effects on population and human health (through improving the quality and connectivity of the green network) material assets (through improving townscape quality and improving the quality and connectivity of the active travel network) and climatic factors (through creating more resource efficient environments which will reduce carbon emissions)</p>	<p>Positive environmental effects are secured specifically through the place and environment policies of the plan; green network opportunities; and highlighting the green network, active travel network and townscape improvement opportunities to be delivered by specific development sites.</p>																																					
Provide infrastructure to meet the needs of an increasing population and to further	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	<p>The environmental effects of providing infrastructure to meet the needs of an increasing population and the further improve the area's connectivity will have a range of positive and negative environmental effects dependent on the appropriate suite of infrastructure needed. These are set out in more detail under the relevant Spatial Strategy section below.</p>	<p>Mitigation of significant negative effects from infrastructure projects are secured through the policies of the plan and through site comments associated with individual proposals.</p>

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
improve the area's connectivity												
OBJECTIVES - GROWING ECONOMY												
Foster economic growth, investment and inclusion , reinforcing the area as a strategic component of the Scottish economy	+	-	+	-	+	-	+	-	+	-	+	-
Make our town centres vibrant and viable focal points within our communities	N	+	+	N	+	-	++	++	-	N		
Capitalise on the area's tourism potential and build a strong visitor economy	+	-	++	N	N	N	N	++	+	-	+	-
OBJECTIVES - SUSTAINABLE PLACE												
Support a low carbon, circular economy and build resilience to climate change	++	++	++	++	N	++	++	N	N			

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation		
Extend and improve the green network and protect the area's natural environment and resources	++	++	++	++	N	++	++	N	++	This should have a positive effect on biodiversity (through extending and improving the quality of the habitat network) population and human health (through improving the quality and connectivity of the green network) soil (through restoring peatland) water (through improving the ecological status of waterbodies) material assets (through improving the quality connectivity and length of the active travel network) climatic factors (through improving overall resilience to climate change) and landscape (through improving landscape quality)	These positive environmental effects will be secured through the policies of the plan, site comments associated with individual proposals and certain specific green network proposals.		
Protect, enhance and promote our historic environment	N	-	N	N	-	-	+	+	++	Significant positive effect on cultural heritage (through enhancing the historic environment) and material assets (through enhancing townscape quality). Promoting our historic environment will probably encourage visitors causing negative effects on population and human health, air, climatic factors and material assets (through increasing the number of trips on the road network and the resultant emissions of greenhouse gasses and airborne pollutants)	These positive environmental effects will be secured through the policies of the plan, site comments associated with individual proposals and certain specific green network proposals.		
SPATIAL STRATEGY: PLACE													
Place	N	N	N	N	N	N	++	++	++	The spatial strategy for place highlights 'place priorities' - generic locations where investment will be particularly focused on creating good places. These are as follows: <ul style="list-style-type: none"> Town and Local Centres Areas of Major Change Green and Blue Network Historic Environment Areas of Disadvantage Transport Corridors Further detailed policies, proposals and opportunities on these generic locations are assessed elsewhere. However, in general terms this approach to placemaking will have significant positive effects on material assets (through significant improvement of townscape quality); cultural heritage (through improving quality of conservation areas) and landscape (through improving development's fit with its landscape setting). It will also guard against negative effects on cultural heritage (through protecting the setting of listed buildings, scheduled ancient monuments, historic gardens and designated landscapes and world heritage sites)	Enhancement of the positive effects of the strategy is provided by the specific opportunities for improvement included in the plan, the opportunities for placemaking that are highlighted in relation to development sites, and specific policies particularly PE01 (Placemaking), and associated environmental policies referred to within PE01.		
SPATIAL STRATEGY: GREEN AND BLUE NETWORK													
Green and Blue Network Opportunities GN01 – GN25	Potential Environmental Effects Before Mitigation/Enhancement									The effects of the green network opportunities are as follows: <ul style="list-style-type: none"> Habitat enhancement opportunities (GN01, 03-06, 09-15, 19, 21, 23) are all likely to lead to a significant positive effect on biodiversity (through enhancement, restoration and creation of habitat and enlargement and improvement of existing habitat networks) Landscape enhancement opportunities (GN01-03, 05, 07-13, 19, 20, 22, 23) could lead to a significant positive effect on biodiversity (through improving, extending and connecting up existing habitat networks through introduction of new woodland planting) and landscape (through positive landscape change) and a positive effect on biodiversity (through new habitat creation) population and human health and material assets (through creation of new path networks) and climatic factors (through creation of new carbon sinks) 	Proposed enhancement measures are as follows: <ul style="list-style-type: none"> Where possible opportunities to enlarge, improve and connect up existing habitat networks should be explored to ensure significant positive effects on biodiversity. Proposed mitigation measures are as follows: <ul style="list-style-type: none"> Appropriate assessment should be carried out at opportunities GN01, 03, 04, 06, 15, 16, 19) to ensure that they do not have an adverse effect on the integrity of the Firth of Forth and Slamannan Plateau SPA or the River Teith and Black Loch Moss SAC to mitigate significant negative effects on biodiversity. 		
	+	-	++	++	+	-	-	+	-			+	-

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
										<p>effect on material assets. However it may also lead to more people travelling to these recreational nodes from outwith the local area leading to a consequential increase in emissions from transportation leading to a negative effect on air, climatic factors and material assets. An improvement of facilities at these sites should encourage people to get involved in outdoor recreation leading to a positive effect on population and human health</p> <ul style="list-style-type: none"> The Carse Peatland Restoration and Braes Wetland and Peatland Restoration (GN05 &15) opportunities are likely to have a significant positive effect on soil and climatic factors (through creation of carbon rich soil and sequestration of carbon dioxide) and water (through enhancement of natural flood storage capacity) The River Carron Corridor (GN06) has the potential to have a negative effect on water (through morphological alterations to the River Carron caused by a new footbridge) The opportunities at the John Muir Way and Bantaskine Park (GN01 & 23) could have a significant negative effect on cultural heritage (through causing an adverse impact on the Battle of Falkirk Battlefield Site), but could also have a positive effect on cultural heritage (through opportunities to improve interpretation of the battlefield site). The opportunities at the John Muir Way; the Antonine Wall Trail; Callendar Park and Wood; and Kinneil Estate (GN01, 02, 11, 12) could have a significant negative effect on cultural heritage (through causing an adverse impact on the setting of a Antonine Wall WHS) and but could also have a positive effect on cultural heritage (through improving the range of interpretation opportunities along the Antonine Wall) The opportunities at the John Muir Way; the Antonine Wall Trail; and Callendar Park and Wood (GN01, 02, 11) could have a significant negative effect on cultural heritage (through causing an adverse impact on the Inventory designed landscape and the listed buildings within it) The opportunities at the John Muir Way; Antonine Wall Trail; Kinneil Estate; and Bantaskine (GN01, 02, 12, 23) could have a negative effect on cultural heritage (through causing an adverse impact on the non-inventory designed landscape and the listed buildings within it) The River Avon Corridor (GN19) opportunity could have significant negative effects on cultural heritage (through causing an adverse impact on the Antonine Wall WHS and its setting) 		
SPATIAL STRATEGY: HOUSING												
Housing Supply Target and Housing Land Requirement	+	-	+	-	+	-	+	-	+	-	+	-
	+	-	+	-	+	-	+	-	+	-	+	-
										<p>The spatial strategy sets a target for delivery of 4,500 homes over the period 2020-30 with a flexibility allowance of 14% to give an overall housing land requirement of 5,130 homes.</p> <p>As detailed in the preferred vision above, any growth strategy is likely to have a range of positive and negative effects in all environmental areas.</p> <p>The environmental effects of the overall scale and distribution of housing allocations in</p>	<p>Sites for housing growth should be selected with the aim of avoiding or minimising significant negative effects and enhancing significant positive effects.</p>	

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation			
										each community and of the specific housing allocations are discussed in more detail in relation to each settlement below.				
Bo'ness Proposals H01-H06 MU01-MU03	Potential Environmental Effects before Mitigation/Enhancement									<ul style="list-style-type: none"> Development of the Drum Farm North, Kinglass Farm 1 and Drum Farm South (H01, H02, MU02,) sites could have a significant positive effect on biodiversity (due to potential to connect up fragmented habitat networks) Development of the Drum Farm South site (MU02) could have a positive effect on biodiversity (due to creation of new habitat) Development of the Drum Farm North site (H01) sites could have a significant negative effect on biodiversity (due to potential impact on legally protected species) Development of the Drum Farm North and Kinglass Farm 1, (H01, H02) sites could have a significant negative effect on biodiversity (due to potential loss of mature woodland and hedgerow habitat)) Development of the Kinglass Farm 2, South Street/Main Street, Union Street, Links Road and Crawfield Lane (H03, H04, H05, H06, MU01, MU03) sites could have a positive effect on population and human health (due to improving the quality of existing open space) Development of the Drum Farm North, Kinglass Farm 1, , Drum Farm South and (H01, H02 and, MU02) sites could have cumulatively significant positive effects on population and human health (due to creation of new open space and improving the connectivity of the green network) Development of the Union Street, Links Road and Crawfield Lane (H06, MU01, MU02) sites will have a positive effect on population and human health, soil and material assets (due to regeneration of vacant/derelict land, removal of historic contamination and improvement of townscape vale) Development of the South Street/ Main Street and Union Street (H04, H05, H06) sites could have a significant negative effect on population and human health (through increasing the population at risk of injury from major hazards) Development of the Drum Farm North site (H01) could have positive effects on soil (through making safe unstable ground) Development of the Drum Farm North, Kinglass Farm 1, Kinglass Farm 2 and Drum Farm South (H01, H02, H03, MU02,) sites could have would have significant negative effects on soil (through loss of prime quality agricultural land) Development of the Kinglass Farm 1, South Street/Main Street, Union Street, and Drum Farm South (H02, H04, H05, H06, MU02,)) sites could have significant negative effects on water (due to potential for on-site flood risk) Development of the Kinglass Farm 1 (H02) site could have a negative effect on water (due to potential adverse impact on the water environment caused by 	<ul style="list-style-type: none"> . Protected species checks should be carried out at the Drum Farm North (H01) site to mitigate significant negative effects on biodiversity. Development of the Drum Farm North and Kinglass Farm 1,(H01, H02,) sites should explore opportunities to link up fragmented habitat networks through on site habitat creation to ensure significant positive effects on biodiversity. . Development of the Kinglass Farm 2, South Street/Main Street, Union Street, Links Road and Crawfield Lane (H03, H04, H05, MU01, MU03) sites should provide financial contributions towards the improvement of existing open space to ensure positive effects on population and human health. Development of the South Street/ Main Street and Union Street and (H04, H05, H06) sites should avoid unacceptably increasing the population at risk of injury from major hazards to mitigate significant negative effects on population and human health. Development of the Union Street, Links Road and Crawfield Lane (H06, MU01, MU03) sites should investigate and remediate potential sources of historic contamination to ensure positive effects on soil. Development of the Drum Farm North (H01) site should investigate potentially unstable ground and make it safe to ensure positive effects on soil. Flood Risk assessments should be carried out at the Kinglass Farm 1 and Drum Farm South (H02 and MU02,) sites and areas subject to flooding should not be built on to mitigate significant negative effects on water. . Development of the Drum Farm North and Drum Farm South (H01, MU02,) sites should ensure that heat demand is met through district heating networks (subject to the outcomes of a feasibility statement) to mitigate negative effects on climatic factors. All sites should incorporate on site LZCGT to ensure positive effects on material assets. 			
Residual Environmental Effects After Mitigation/Enhancement														
+	-	+	-	+	-	+	-	-	-			+	-	+

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>culverting of small on site watercourses)</p> <ul style="list-style-type: none"> Development of the South Street/ Main Street, Union Street and Links Road (H04, H05, H06, MU01) sites could have a significant positive effect on cultural heritage (due to significant improvement to the townscape within conservation area) Development of the Links Road (M01) site could have a negative effect on cultural heritage (due to adversely impacting on the setting of the category B listed Ballantine Bo'ness Iron Company Warehouse and Pattern Shop and the Bo'ness Town Centre Conservation Area) Development of all housing sites (H01-H06, MU01-MU03) could have a positive effect on material assets (by increasing the amount of LZCGT) negative effect on population and human health (due to marginally increased traffic noise impact) air (due to increase in emissions from transport) climatic factors (due to increased release of greenhouse gasses) material assets (due to increased use of primary resources in the construction process and increased traffic on the local road network) Development of the Drum Farm North, Kinglass Farm 1, South Street/Main Street, , Links Road, Drum Farm South & Crawfield Lane (H01, H02,, MU01, MU02, MU03) sites could have cumulatively significant positive effects on material assets (due to improvement of the active travel network) Development of the Drum Farm North , Kinglass Farm 1, Kinglass Farm 2 and Drum Farm South (H01, H02, H03, MU02) sites could have a negative effect on landscape (due to the development of greenfield land) Development of the South Street/ Main Street (H04, H05) sites could have a negative effect on landscape (due to loss of street trees and a hedge) 	<ul style="list-style-type: none"> Development of the Drum Farm North, Kinglass Farm 1, South Street/Main Street,, Links Road, Drum Farm South & Crawfield Lane (H01, H02, MU01, MU02, MU03) sites should improve the quality of the active travel network to ensure positive effects on material assets. Development of the South Street/ Main Street, Union Street and Links Road (H04, H05, H06, MU01) sites should be undertaken sensitively to avoid adversely impacting on the setting of the Bo'ness Town Centre Conservation area to mitigate negative effects on cultural heritage. Development of the Links Road site should be undertaken sensitively to avoid adversely impacting on the setting of the category B listed Ballantine Bo'ness Iron Company Warehouse and Pattern Shop to mitigate negative effects on cultural heritage. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; subsequent development frameworks and masterplans for sites; and plan policies PE18 (Landscape), PE19 (Biodiversity and Geodiversity), PE20 (Trees, Woodland and Hedgerows), PE24 (Flood Management), JE06 (Major Hazards). In addition, Kinglass Farm 1 has detailed planning permission with mitigation provided by associated masterplan and conditions.
Bonnybridge & Banknock Proposals H08-H12,H53, MU04-MU05, MU20	Potential Environmental Effects before Mitigation/Enhancement									<ul style="list-style-type: none"> Development of the Dennyloanhead, and Garngrew Road (H09, H12) sites could have a significant positive effect on biodiversity (due to potential to link significant fragmented habitat networks) and a positive effect on climatic factors (due to potential to link fragmented habitat networks to aid species migration caused by climate change) Development of the Banknock North (MU04) site could have a positive effect on biodiversity (due to the creation of great crested newt friendly habitat) and a negative effect on population and human health (due to the loss of public open space) material assets (due to the potential to sever the core path network) and landscape (due to the potential to lose important landscape features) Development of the Banknock South (H08) could have a significant negative effect on biodiversity (due to potential for an adverse impact on a legally protected species) and a negative effect on biodiversity (due to potential loss of broadleaved woodland habitat and adverse impact on riparian habitat) population and human health (due to potential for noise impact during construction caused by foundation piling) soil (due to loss of agricultural land) material assets (due to potential to sever the core path network) Development of the Dennyloanhead , Banknock North and Bonnybridge Town 	<ul style="list-style-type: none"> Approved masterplans are in place for the Dennyloanhead and Banknock North (H09, MU04) sites, these will act to ensure the significant positive effects and mitigate the significant negative effects caused by the development of these sites. The Banknock and Haggs Development Framework was approved in 2008 and updated in 2015. This will act to: ensure the significant positive effects on population and human health; ensure the positive effects on soil and material assets; mitigate significant negative effects on water and cultural heritage and mitigate the negative effects on biodiversity, material assets and landscape caused by the Banknock South site; and mitigate significant negative effects on material assets caused by the Banknock South, Dennyloanhead, Garngrew Road and Banknock North (H08, H09, H12, MU04) sites. Development at the Seabegs Road and Garngrew Road (H11, H12) sites should incorporate new broadleaved woodland planting to connect up fragmented parts of the habitat network

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>Centre (H08, MU04, MU05) sites could have a negative effect on biodiversity (due to potential loss of standing water, broadleaved woodland and brownfield mosaic habitat respectively)</p> <ul style="list-style-type: none"> Development of the Banknock South , Dennyloanhead, Garngrew Road, and Banknock North (H08, H09, H12, MU04) sites could have a significant positive effect on population and human health (due to potential to significantly enhance the quality and connectivity of the green network) and a negative effect on population and human health (from marginally increased traffic noise impact) Development of the Broomhill Road 1, Banknock North and Bonnybridge Town Centre (H10, MU04, MU05)) sites could have a positive effect on population and human health (through improving the quality of existing open space) Development of the Banknock South, Dennyloanhead, Seabegs Road, Garngrew Road and Banknock North (H08, H09, H11, MU04)) sites could have a positive effect on population and human health (through creation of new open space which helps to address existing deficiencies in access to open space) Development of the Dennyloanhead, Broomhill Road 1, Seabegs Road and Garngrew Road (H09, H10, H12) sites could have a negative effect on population and human health (due to potential for noise impact from adjacent land uses) Development of the Dennyloanhead and Banknock North (H09, MU04) sites could have a significant positive effect on soil (due to potential to remove existing contamination and make safe unstable land) Development of the Banknock South, Broomhill Road 1 and Seabegs Road (H08, H10, H11) site could have positive effects on soil (due to potential to remove existing contamination) Development of the Garngrew Road (H12) site could have a significant negative effect on soil (due to loss of prime quality agricultural land) and a negative effect on biodiversity (due to potential loss of trees and impact on riparian ecology) and landscape (through loss of greenfield land) Development of the Broomhill Road 1, Garngrew Road, Banknock North and Bonnybridge Town Centre (H10, MU04, MU05) sites could have a positive effect on water (due to potential for de-culverting and watercourse restoration) Development of the Banknock South, Broomhill Road 1, Garngrew Road, Banknock North and Bonnybridge Town Centre (H08, H10, H12, MU04, MU05) sites could have a significant negative effect on water (due to potential flood risk) Development of the Garngrew Road and Banknock North (H12, MU04) sites could have a negative effect on water (due to discharge to a sensitive watercourse) Development of the Dennyloanhead (H09) site could have a negative effect on water (due to adverse impact on nearby wetland) Development of the Banknock South, Garngrew Road and Banknock North (H08, H12, MU04) sites could have a significant negative effect on air (due to potential for an increase in the population exposed to reduced air quality) and material assets (due to potential for adverse impacts on the local sewerage and water supply network) Development of the Banknock South, Seabegs Road, Garngrew Road, Banknock 	<p>and ensure positive effects on biodiversity and climatic factors.</p> <ul style="list-style-type: none"> Development at the Garngrew Road (H12) site should incorporate an undeveloped riparian buffer to ensure no negative impacts on ecology of the burn or functioning of the riparian corridor and mitigate negative effects on biodiversity. Development at the Broomhill Road 1 and Garngrew Road (H10, H12) sites should investigate potential for deculverting and watercourse restoration to ensure positive effects on water Development proposals at Broomhill Road 1, Garngrew Road and Bonnybridge Town Centre (H10, H12, MU05) sites should be accompanied by a flood risk assessment and areas at risk of flooding should not be developed to mitigate significant negative effects on water. Development at the Garngrew Road (H12) site should incorporate 2 level surface water treatment with high quality SUDS to mitigate negative effects on water Development at Garngrew Road (H12) may have to incorporate the retrofitting of existing surface water drainage and attenuation in on site SUDS to mitigate significant negative effects on material assets. Development at Bonnybridge Town Centre (MU05) should be undertaken sensitively to avoid adverse impact on the Forth and Clyde Canal to mitigate negative effects on material assets and significant negative effects on cultural heritage. Development at Seabegs Road (H11) should be designed to sensitively interpret the Antonine Wall WHS to ensure positive effects on cultural heritage. Development at Seabegs Road and Garngrew Road (H11, H12) should be undertaken sensitively to avoid adverse impact on the setting of the Antonine Wall WHS to mitigate significant negative effects on cultural heritage. Development at East Bonnybridge should be undertaken sensitively to avoid adverse impact on the setting of the Antonine Wall WHS and Forth and Clyde Canal Scheduled Monument to mitigate significant negative effects on cultural heritage and landscape. • It may not be possible to fully mitigate the significant adverse effects of East Bonnybridge's development on the Antonine Wall WHS and Forth and Clyde Canal Schedule Monument , to point where they are not significant. The only way to ensure such effects are avoided is by not developing the site. A buffer zone around the Bonny Water and Rowan Tree Burn should be maintained on East Bonnybridge (MU20) site to avoid
	Residual Environmental Effects After Mitigation/Enhancement										
	+	-	+	-	+	-	+	-	+		

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>North (H08, H11, H12, MU04) sites could have a positive effect on material assets (due to potential to improve townscape quality along Kilsyth Road, Wyndford Road, the Forth and Clyde Canal, Garngrew Road, Braeface Road and Bridge Street) or a negative effect on material assets (due to potential to degrade townscape quality along Kilsyth Road, Wyndford Road, the Forth and Clyde Canal, Garngrew Road, Braeface Road and Bridge Street)</p> <ul style="list-style-type: none"> • All housing sites (H08-H12, MU04, MU05) sites could have a positive effect on material assets (due to an increase in the amount of LZCGT) a negative effect on air (due to due to increased emissions from motorised transport) climatic factors (due to increased release of greenhouse gases) and material assets (due to the increased use of primary resources in the construction process) • Development of the Banknock South, Dennyloanhead, Garngrew Road and Banknock North (H08, H09, H12, MU04) sites could have a significant negative effect on material assets (due to the potential to breach capacity of the local road network) • Development of the Broomhill Road 1, Seabegs Road and Bonnybridge Town Centre (H10, H11, MU05)) sites could have a negative effect on material assets (through increasing traffic on the local road network) • Development of the Bonnybridge Town Centre (MU05) site could have a negative effect on material assets (due to potential impact on the integrity of the Forth and Clyde Canal embankment) and a significant negative effect on cultural heritage (due to the potential to impact on the Forth and Clyde Canal SM) • Development of the Seabegs Road and Banknock North (H11 and MU04) sites could have a positive effect on cultural heritage (due to potential to sensitively interpret the Antonine Wall WHS and the potential to incorporate local interpretation of past uses of the site) • Development of the Banknock South, Seabegs Road and Garngrew Road (H08, H11, H12) could have a significant negative effect on cultural heritage (due to potential for adverse effect on the setting of the WHS) • Development of the Banknock South, Dennyloanhead, Broomhill Road 1, Seabegs Road and Banknock North (H08-H11, MU04) sites could have a significant positive effect on population and human health and material assets (through improving townscape quality by regenerating significant amounts of vacant/ derelict land) • Development of the Banknock South (H08) site could have negative effect on landscape (due to loss of greenfield land and mature woodland) • Development of the Dennyloanhead (H09) sites could have a significant negative effect on landscape (due to landscape and visual impacts). • Development of the East Bonnybridge (MU20) site will have significant negative effects on: population and human health (through increase in the population at risk of major hazards), soil (through loss of prime quality agricultural land); water (through development within an area of flood risk); cultural heritage (through development within the Antonine Wall WHS buffer zone and impact on the setting of scheduled monuments including Forth and Clyde Canal) and landscape (through development within the greenbelt and resulting visual impact and landscape 	<p>cumulative significant negative effects on biodiversity</p> <ul style="list-style-type: none"> • An open space/habitat corridor should be created along the Rowan Tree Burn between the Bonny Water and Forth and Clyde Canal on East Bonnybridge (MU20) to ensure positive effects on biodiversity and water. • Careful design will be required on East Bonnybridge (MU20) to avoid increasing the number of people at risk from major hazards and thereby avoid significant negative effects on population and human health, this may involve limiting the amount of new housing within the pipeline consultation zones • The way to avoid the loss of prime agricultural land and significant negative effects on soil at the East Bonnybridge (MU20) is to delete the site. • A flood risk assessment should be undertaken at the East Bonnybridge (MU20) site and development should be avoided on area of significant flood risk to avoid significant negative effects on water. • Special attention should also be paid to the relationship between East Bonnybridge (MU20) and existing pattern of development along the A803 to avoid an adversely affecting townscape quality, thereby mitigating negative effects on material assets. Development at the Cumbernauld Road site (H53) should be accompanied by protected species surveys and suitable mitigation measures undertaken to avoid significant negative effects on biodiversity. Development proposals at the Cumbernauld Road (H53) should be accompanied by a cultural heritage statement which includes a thorough assessment of impacts on the Antonine Wall WHS to mitigate significant negative effects on surface water flood risk), air (due to increased emissions from motorised transport), climatic factors (due to increased release of greenhouse gases), material assets (due to increased use of primary resources in the construction process and the degrading of townscape quality along Cumbernauld Road and landscape (due to causing an adverse landscape and visual impact in area of low landscape sensitivity) • Development at the Cumbernauld Road site (H53) should contribute towards the improvement of existing open space to ensure positive effects on population and human health • Development at the Cumbernauld Road site (H53) should be: <ol style="list-style-type: none"> 1. set back from Cumbernauld Road and ensure high quality front treatment to the road 2. sympathetic to the rural nature of the site and the clustered form and character of the existing dwellings at Longcroft Holdings 3. Limited to no more than 1.5 storeys in height

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
										<p>change); could have negative effects on biodiversity (through loss of riparian habitat along the Bonny Water and Rowan Tree Burn) and material assets (through inappropriate frontage treatment along the A803); and could have significant positive effects on population and human health and landscape (through creation of significant new open space and increased recreational opportunity) and positive effects on biodiversity and population and human health (through creating an open space linkage between the Bonny Water and the Forth and Clyde Canal along the Rowan Tree Burn).</p> <ul style="list-style-type: none"> Development of the Cumbernauld Road (H53) site could have a positive effect on population and human health (due to potential to contribute toward the improvement in quality of nearby open space) and a significant negative effect on material assets (due to the potential to breach capacity of the local road network) and cultural heritage (due to the potential to have an adverse impact on the setting of the Antonine Wall WHS) and a negative effect on soil (due to loss of agricultural land) Development of the Cumbernauld (H53) site could have a positive effect on material assets (due to potential to increase the amount of LZCT); a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) and a negative effect on water (due to potential surface flood risk, air (due to increased emissions from motorised transport), climatic factors (due to increased release of greenhouse gases), material assets (due to increased use of primary sources in the construction process and degrading of townscape quality along Cumbernauld Road) and landscape (due to causing an adverse landscape and visual impact in area of low landscape sensitivity). 	<p>4. Screened by substantial planting around the western southern and eastern boundaries.</p> <p>Measures (1-4 above) are intended to mitigate negative effects on material assets and landscape and also to ensure positive effects on material assets.</p> <ul style="list-style-type: none"> Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; development frameworks and masterplans for sites; and plan policies PE01 (Placemaking), PE05 (Antonine Wall), PE06 (Archaeological Sites), PE17 (Open Space and New Development), PE18 (Landscape), PE19 (Biodiversity and Geodiversity), PE24 (Flood Management), PE25 (Air Quality), JE06 (Major Hazards), IR05 (Transport Assessment). 	
<p>Braes & Rural South – Maddiston & Rumford</p> <p>Proposals H13-H18 H54</p>	<p>Potential Environmental Effects before Mitigation/Enhancement</p>										<ul style="list-style-type: none"> Development of the Parkhall Farm 1-5 and the Haining (H13-H16, H18, H54) sites could have a positive effect on biodiversity (due to potential to reinforce the broadleaved woodland habitat network) Development of the Parkhall Farm 3 (H15) site could have a positive effect on soil (due to regeneration of vacant/derelict land and removal of historic contamination) material assets (through improving townscape value through regenerating brownfield land) and a negative effect on population and human health (through potential adverse impact on the green network) Development of the Haininig Toravon Farm and Parkhall Farm 5 (H17, H18, H54) sites could have a significant negative effect on biodiversity (due to potential adverse impact on ancient or semi natural woodland) and landscape (due to adverse landscape impact caused by the loss of ancient or semi natural woodland) Development of the Parkhall Farm 5 (H18) site could have a significant negative effect on biodiversity (due to potential to sever significant broadleaved woodland habitat networks) cultural heritage (through potential adverse impact on the setting of the Union Canal SM) and landscape (due to adverse landscape and visual impacts in an area of high sensitivity) and a negative effect on population and human health (through exposure from nuisance odour from nearby landfill site and through the potential to compromise waste handling operations) and water (due to potential surface water flood risk) 	<ul style="list-style-type: none"> Development of Parkhall Farm 1-5, Toravon Farm and the Haining (H13- H18,H54) sites should incorporate new broadleaved woodland planting to reinforce the broadleaved woodland network and ensure positive effects on biodiversity Development proposals at the Toravon Farm, and Parkhall Farm 5, the Haining (H17, H18,H54) sites should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity Development at the Parkhall Farm 5 and the Haining (H18 and H54) sites should avoid severing the broadleaved woodland habitat network to mitigate significant negative effects on biodiversity. Development of the Toravon Farm and Parkhall Farm 5 (H17, H18,) sites should be accompanied by ecological assessments which identify habitats of ecological value and be designed to retain these area to mitigate negative effects on biodiversity; Development of the Parkhall Farm 1-4 (H13-H16) sites should be undertaken sensitively to avoid adversely impacting on the
<p>Residual Environmental Effects After Mitigation/Enhancement</p>												

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<ul style="list-style-type: none"> • Development of the Haining, Toravon Farm and Parkhall Farm 5 (H17, H18, H54) sites could have a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) • Development of the Parkhall Farm 1, 2 & 4 (H13, H14, H16) sites could have a negative effect on biodiversity (due to loss of field boundary trees and a potential adverse impact on the Maddiston SINC) • Development of Parkhall Farm 1-5, Toravon Farm and the Haining (H13- H18, H54) could have a positive effect on population and human health (due to potential to improve the quality and connectivity of the green network) and material assets (due to potential to increase the amount of LZCGT and to improve the quality of the active travel network) and a negative effect on population and human health (due to an increase in noise from road traffic) air (due to increased emissions from motorised transport) climatic factors (due to increased emissions of greenhouse gases) and material assets (due to increased traffic on the local road network, increased use of primary resources in the construction process and adverse impact on the water supply network) • Development of the Parkhall Farm 1- 5, the Haining and Toravon Farm (H13-H18, H54) sites could have significant negative effect on soil (due to loss of prime quality agricultural land) and a significant negative effect on landscape (due to loss of greenfield land with a potential adverse landscape and visual impact) • Development at the Parkhall Farm 1-5 and Toravon Farm (H13-H18,) sites could have a positive effect on population and human health (due to potential to improve the quality of existing open space, or creation of new open space) • Development of the Parkhall 2, 3 & 5, and Toravon Farm (H14, H15, H17, H18) sites could have a negative effect on population and human health (through nuisance noise from the nearby A801) • Development of the Parkhall 1, 2, 3 & 4 and Toravon Farm (H13-17) sites could have a significant negative effect on water (due to potential fluvial flood risk) • Development of the Parkhall Farm 1, 2, 3, 4 & 5 Toravon Farm and the Haining (H13-H18, H54) sites could have a negative effect on material assets (due to potential to sever the core path network) • Development of the Parkhall Farm 5 and the Haining (H18, H54) sites could have a negative effect on cultural heritage (due to potential adverse impact on the Category B listed Haining and its settling which is also a non-inventory designed landscape). • Development of the Haining (H54) could have a positive effect on cultural heritage (due to potential to improve the setting of the Category B listed Haining) and a negative effect on biodiversity (due to potential to sever the broadleaved woodland habitat network). • 	<p>Maddiston SINC to mitigate negative effects on biodiversity</p> <ul style="list-style-type: none"> • Development of the Toravon Farm, Parkhall 5 and the Haining (H17, H18, H54) sites should incorporate appropriately sized undeveloped buffer zones around areas of ancient and semi natural woodland to mitigate significant negative effects on biodiversity and landscape • Development at the Parkhall Farm 1, 2 & 4 (H13, H14, H16,) sites should contribute towards the implementation of the Manuel Burn corridor green network opportunity to ensure positive effects on population and human health; • Development at the Parkhall Farm 1-5 , Toravon Farm and the Haining (H13-H18H54) sites should create open space or provide financial contributions towards the improvement of existing open space to ensure positive effects on population and human health; • Development of the Toravon Farm, Parkhall Farm 5 and the Haining (H17, H18 and H54) sites should contribute towards the establishment of an accessible woodland buffer between the eastern extents of the site and the A801 to ensure positive effects on population and human health; • Development of the , Toravon Farm and Parkhall Farm (H15, H17, H18) sites should incorporate suitable noise mitigation measures to mitigate negative effects on population and human health; • Development of the Parkhall Farm 3 (H15) sites should investigate and remediate potential sources of historic contamination to ensure positive effects on soil; • Development proposals at Parkhall 1, 2, 3 4 and 5 and Toravon Farm, (H13-18) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; • Development proposals at the Parkhall Farm 5 (H18) site should be accompanied by a drainage strategy to mitigate negative effects on water; • Development of all sites should ensure that heat demand is met through district heating networks (subject to the outcomes of a feasibility statement) to mitigate negative effects on climatic factors; • Development of all sites should contribute towards the improvement of the active travel network to ensure positive effects on material assets • A Water Supply Impact Assessment will be required to determine capacity at Polmont's service reservoir which may

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
											<p>need upgraded dependant on the cumulative scale of housing growth within its catchment to mitigate negative effects on material assets</p> <ul style="list-style-type: none"> • Development at the Parkhall Farm 1, 2, 3, 4 & 5, Toravon Farm and the Haining (H13-H18,H54) sites should avoid severing the active travel network to mitigate negative effects on material assets • Development at the Parkhall Farm 5 (H18) site should be undertaken sensitively to avoid adversely impacting on the category B listed Haining and its setting and to mitigate negative effects on cultural heritage • Development at the Parkhall Farm 5 (H18) site should be undertaken sensitively to avoid adversely impacting on the setting of the Union Canal SAM to mitigate significant negative effects on cultural heritage; • Development proposals at the Parkhall Farm 1-3 (H13-H15) sites should incorporate boundary treatment, buffer planting, internal planting/open space and integrate the site into the surrounding landscape to mitigate negative effects on landscape. • Development proposals at the Parkhall Farm 4 (H16) site should include a buffer to the SINC using native species, appropriate boundary treatments and retain the hedge and stone wall to mitigate negative effects on landscape. • Development proposals at the Toravon Farm (H17) site should give detailed consideration to the massing of development on the southern elevated part of the site and be integrated sensitively into the landscape to mitigate negative effects on landscape. • Development at the Parkhall Farm 5 (H18) site should: ensure no tree removal other than any essential for the access point; provide only high quality, low density housing that would be in keeping with landscape character of the designed landscape; retain woodland / parkland character with substantial open space, parkland tree planting and additional woodland incorporated into any design in order to respect the local character of the area and the designed landscape; accommodate and provide linkages to the core path on western and northern boundary to mitigate significant negative effects on landscape <p>Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; development frameworks and masterplans for sites; and relevant plan policies</p>

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
Braes & Rural South Polmont, Laurieston and Westquarter Proposal H19	Potential Environmental Effects before Mitigation/Enhancement										<ul style="list-style-type: none"> Development at the Whyteside Hotel (H19) site could have a positive effect on population and human health (through improving the quality of existing open space) population and human health, material assets, landscape and soils (by improving townscape quality through regeneration of vacant/derelict land) and a negative effect on biodiversity (due to potential adverse impacts on the Polmont South SINC) material assets and water (due to potential adverse impact on the water supply network) Development at the Whyteside Hotel (H19) sites could have a positive effect on biodiversity (through connecting up fragmented parts of the habitat network) material assets (through improving the quality of the active travel network and increasing the amount of LZCGT) and a negative effect on population and human health (through increased noise from road traffic) air (due to increased emissions from motorised transport) climatic factors (due to increased emissions of greenhouse gases); material assets (due to increased use of primary resources in the construction process and increased traffic on the local road network). 	<ul style="list-style-type: none"> Development at the Whyteside Hotel (H19) should incorporate new broadleaved woodland planting to connect up fragmented parts of the habitat network to ensure positive effects on biodiversity; and should incorporate habitat buffers to the Polmont South SINC to mitigate negative effects on biodiversity; Development at the Whyteside Hotel (H19) site should provide financial contributions towards the improvement of existing open space to ensure positive effects on population and human health; A Water Supply Impact Assessment will be required to determine capacity at Polmont's service reservoir which may need upgraded dependant on the cumulative scale of housing growth within its catchment to mitigate negative effects on material assets. Development at the Whyteside Hotel (H19) should be designed to encourage sustainable modes of transport (e.g. direct path links to and within development) and employ use to LCGTs where appropriate to mitigate negative impacts on population and human, air, climatic factors and material assets. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and relevant plan policies.
Residual Environmental Effects After Mitigation/Enhancement												
+	-	+	-	+	-	-	-	+	-	N		
Braes & Rural South Wallacestone, Redding & Reddingmuirhead Proposals H20-H21	Potential Environmental Effects before Mitigation/Enhancement										<ul style="list-style-type: none"> Development of the Redding Park (H20) site could have positive effect on population and human health and material assets (through regeneration of a vacant site and improvement of townscape value) and cultural heritage (through improving the setting of the Union Canal SAM) development could also have a significant negative effect on cultural heritage (through adverse impact on the Union Canal SAM) Development of the Hillcrest (H21) site could have a positive effect on population and human health (through creation of new open space in an area of deficiency and potential to improve the quality and connectivity of the green network) material assets (due to improving the townscape value of the Hillcrest Square development) a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) water (due to potential fluvial flood risk) and landscape (due to adverse landscape and visual impacts in a prominent ridgeline location) and a negative effect on soil (due to loss of agricultural land) Development of both sites (H20, H21) could have a positive effect on material assets (due to increasing the amount of LZCGT) a negative effect on biodiversity (due to potential adverse impact on the Union Canal SINC and the potential SINC at Belmont Avenue respectively) population and human health (due to increased noise from road traffic) air (due to increased emissions from motorised transport) climatic factors (due to increased emissions of greenhouse gases) material 	<ul style="list-style-type: none"> Development proposals at the Hillcrest (H20) site should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity; Development of the Redding Park and Hillcrest (H20/H21) sites should be developed sensitively to avoid adversely impacting on the Union Canal SINC and the potential SINC at Belmont Avenue respectively to mitigate negative effects on biodiversity; Development at the Hillcrest (H21) site should incorporate new open space to meet local deficiencies in access to open space to ensure positive effects on population and human health; Development of the Hillcrest (H21) site should contribute towards the creation of an accessible woodland edge to the urban area to ensure positive effects on population and human health; Development proposals at the Hillcrest (H21) site should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water;
Residual Environmental Effects After Mitigation/Enhancement												
-	+	-	-	-	-	-	+	+	-	-		

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>assets (due to increased use of primary resources in the construction process, improving the quality of the active travel network and increased traffic on the local road network)</p>	<ul style="list-style-type: none"> • Development at the Redding Park and Hillcrest (H20, H21) sites should incorporate on site LZCGT to ensure positive effects on material assets; • Development at the Redding Park and Hillcrest (H20, H21) sites should improve the quality of the active travel network to ensure positive effects on material assets; • Development of the Redding Park (H20) site should be undertaken sensitively to avoid adversely impacting on the Union Canal SAM or its setting to mitigate significant negative effects on cultural heritage; • Development of the Hillcrest (H20) site should employ careful siting, design and landscaping to mitigate significant negative effects on landscape; • Mitigation/enhancement will be provided by wording in the Proposals and Opportunities and plan policies PE06 (Archaeological Sites), PE12 (Canals), PE18 (Landscape), PE19 (Biodiversity and Geodiversity), PE24 (Flood Management). In addition, Hillcrest has detailed planning permission with mitigation provided by associated masterplan and conditions
<p>Braes & Rural South</p> <p>Rural Villages</p> <p>Proposals H22 – H29 MU08</p>	<p>Potential Environmental Effects before Mitigation/Enhancement</p>									<ul style="list-style-type: none"> • Development of the Avonbridge Road and Main Street (H26, H27) sites could have a positive effect on biodiversity (through connecting up fragmented parts of the broadleaved woodland habitat network) • Development of the Bridgend Road, Stein’s Brickworks and Whitecross (H22, MU08, H29) sites could have a positive effect on biodiversity (through reinforcing the broadleaved woodland habitat network) • Development of the Bridgend Road, Church Road, Standburn West and Whitecross (H22, H24, H29) sites could have a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) • Development of the Slamannan Road (H25) site could have a negative effect on biodiversity (due to potential adverse impact on riparian habitat) • Development of the Church Road and Main Street (H24, H27) sites could have and a negative effect on biodiversity (due to loss of mature trees) • Development of the Standburn West (H28) site could have a negative effect on biodiversity (due to a potential adverse impact on the Drumbowie Park Wildlife Site and potentially severing the broadleaved woodland habitat network) • Development of the Slamannan Road, Standburn West, and Stein’s Brickworks (H25, H28, MU08) sites could have a cumulatively significant positive effect on population and human health and material assets (by improving townscape value through regeneration of a vacant/derelict brownfield site) and soil (due to 	<ul style="list-style-type: none"> • Development of the Avonbridge Road (H26) site should incorporate new broadleaved woodland planting to connect up fragmented parts of the broadleaved woodland habitat network and ensure positive effects on biodiversity; • Development of the Bridgend Road, Stein’s Brickworks and Whitecross (H22, MU08, H29) sites should incorporate new broadleaved woodland planting to reinforce existing habitat networks and ensure positive effects on biodiversity; • Development proposals at the Bridgend Road, Church Road, Standburn West and Whitecross (H22, H24, MU08, H29) sites should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity; • Development proposals at the Slamannan Road, Church Road and Main Street (H25, H24, H27) sites should be accompanied by an ecological assessment which identifies habitats of ecological value and be designed to retain these area to mitigate negative effects on biodiversity; • Development at the Whitecross (H29) site should provide appropriately sized habitat buffers to mitigate significant
<p>Residual Environmental Effects After Mitigation/Enhancement</p>											

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
	+ -	+ -	+ -	-	-	-	+ -	-	-	<p>potential remediation of historic contamination)</p> <ul style="list-style-type: none"> Development of the Bridgend Road, Cockmalane, Standburn West, Stein's Brickworks and Whitecross (H22, H23, H28, MU08, H29) sites could have a positive effect on population and human health (through creation of new open space in an area of deficiency) Development of the Church Road, Slamannan Road, Avonbridge Road and Main Street (H24, H25, H26, H27) sites could have a positive effect on population and human health (due to improving the quality of existing open space) Development of the Bridgend Road and Church Road (H22, H24) sites could have a positive effect on population and human health (due to potential to improve the quality and connectivity of the green network) Development of the Main Street (H27) site could have a negative effect on population and human health (due to loss of open space) Development of the Whitecross (H29) site could have a positive effect on soil (through making safe unstable ground) a significant negative effect population and human health (due to exposure to risk from major hazard pipelines) and landscape (due to potentially significant adverse landscape impacts) and a negative effect on population and human health (due to increased exposure to nuisance odour from a nearby landfill site and the potential to compromise waste handling operations) Development of the Standburn West (H28) site could have a positive effect on soil (to the potential to make safe unstable ground) Development of the Bridgend Road and Whitecross (H22, H29) sites could have a significant negative effect on soil (due to loss of prime quality agricultural land) Development of the Cockmalane, Avonbridge Road and Main Street (H23, H26, H27) sites could have a negative effect on soil (due to loss of agricultural land) Development of the Standburn West and Main Street (H28, H27) sites could have a negative effect on soil (due to the loss of carbon rich soil) Development of the Bridgend Road, Slamannan Road, Avonbridge Road, Stein's Brickworks, Whitecross and Main Street (H22, H25, H26, H27, H29, MU08) sites could have a significant negative effect on water (due to potential fluvial flood risk) All sites could have a positive effect on material assets (due to increasing the amount of LZCGT) and a negative effect on population and human health (due to increased noise from road traffic) air (due to increased emissions from motorised transport) climatic factors (due to increased emissions of greenhouse gases) material assets (due to increased use of primary resources in the construction process and increased traffic on the local road network) Development of the Bridgend Road, Church Road, Standburn West, Stein's Brickworks and Whitecross (H22, H24, H28, MU08, H29) sites could have a positive effect on material assets (due to improving the quality of the active travel network) Development of the Bridgend Road, Church Road and Standburn West (H22, H24, H28) sites could have and a negative effect on material assets (due to potential to sever the active travel network) Development of the Church Road, Standburn West and Whitecross (H24, H28, H29) sites could have and a negative effect on material assets (due to potential to 	<p>negative effects on biodiversity and landscape;</p> <ul style="list-style-type: none"> Development at the Standburn West (H28) site should incorporate appropriately sized undeveloped habitat buffers the Drumbowie Wildlife Site and avoid severing the broadleaved woodland habitat network to mitigate negative effects on biodiversity; Development at the Bridgend Road, Cockmalane, Standburn West, Stein's Brickworks and Whitecross (H22, H23, H28, MU08, H29) sites should incorporate new open space to meet local deficiencies in access to open space to ensure positive effects on population and human health; Development at the Church Road, Slamannan Road, Avonbridge Road and Main Street (H24, H25, H26, H27) sites should provide financial contributions towards the improvement of off-site open space to ensure positive effects on population and human health Development of the Bridgend Road (H22) site should secure public access to the Linn Mill Burn to ensure positive effects on population and human health Development of the Church Road 2 (H24) site should contribute towards the creation of an accessible woodland edge to the urban area to ensure positive effects on population and human health; Sensitive land uses should be excluded from major hazard pipeline zones on the Whitecross (H29) site to mitigate significant negative effects on population and human health Development proposals at the Standburn West and Main Street (H28, H27) site should be accompanied by a peat management plan to mitigate negative effects on soil; Development at the Standburn West and Whitecross (H28, H29) sites should make safe unstable ground to ensure positive effects on soil; Development at the Slamannan Road, Standburn West, and Stein's Brickworks (H25, H28, MU08) sites should investigate and remediate historic contamination to ensure cumulatively significant positive effects on soil; Development proposals at the Bridgend Road, Slamannan Road, Avonbridge Road, Stein's Brickworks, Whitecross and Main Street (H22, H25, MU08, H29, H27) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; Developments at the Slamannan Road, Stein's Brickworks, Whitecross and Main Street sites (H25, MU08, H29, H27)

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>sterilize shallow coal workings)</p> <ul style="list-style-type: none"> • Development of the Slamannan Road and Whitecross (H25, H29) sites could have a negative effect on material assets (through adversely affecting village character) • Development of the Avonbridge Road (H26) site could have a negative effect on material assets (due to potential to degrade townscape quality at the eastern entrance to Slamannan). • Development of the Stein's Brickworks (MU08) site could have a significant negative effect on cultural heritage (due to a potential adverse impact on the setting of the Antonine Wall WHS) and a negative effect on biodiversity (due to potential adverse impact on regenerating brownfield and woodland habitat) and population and human health (through exposure to nuisance noise from adjacent railway and stone mason's yard) • Development of the Church Road (H24) site could have a significant negative effect on landscape (due to adverse landscape and visual impacts in a prominent ridgeline location) • Development of the Bridgend Road, Cockmalane, Slamannan Road 2, Avonbridge Road, Standburn West, Stein's Brickworks and Main Street (H22, H23, H25, H28, MU08, H27) sites could have a negative effect on landscape (due to potential adverse landscape impact) 	<p>should ensure that heat demand is met through district heating networks (subject to the outcomes of a feasibility statement) to mitigate negative effects on climatic factors;</p> <ul style="list-style-type: none"> • All sites should incorporate on site LZCGT to ensure positive effects on material assets; • Development at the Bridgend Road, Church Road, Standburn West, Stein's Brickworks and Whitecross (H22, H24, H28, H29) sites should improve the quality of the active travel network to ensure positive effects on material assets; • Development of the Bridgend Road, Church Road and Standburn West (H22, H24, H28) should avoid severing the active travel network to mitigate negative effects on material assets; • Development of the Church Road, Standburn West and Whitecross (H24, H28, H29) sites should investigate and if feasible extract reserves of shallow coal before commencing development to mitigate negative effects on material assets; • Development of the Avonbridge Road (H26) site should ensure high quality frontage development to Avonbridge Road to ensure positive effects and mitigate negative effects on material assets; • Development at the Stein's Brickworks (MU08) site should be undertaken sensitively to avoid adversely impacting on the setting of the Antonine Wall WHS to mitigate significant negative effects on cultural heritage; • Development at the Whitecross (H29) site should provide a comprehensive landscape framework to integrate the new development into its surroundings to mitigate significant negative effects on landscape; • Development at the Bridgend Road (H22) site should incorporate structure planting along the countryside boundary to delineate settlement and screen from more distant viewpoints to the East to mitigate negative effects on landscape; • Development at the Cockmalane (H23) site should retain and reinforce the woodland belt along the northern boundary to mitigate negative effects on landscape; • Development at the Slamannan Road (H25) site should incorporate screen planting along its northern boundary to mitigate negative effects on landscape; • Development at the Stein's Brickworks (MU08) site should retain and enhance all boundary tree cover and provide long term management for screening to mitigate negative effects on landscape; • Development of the Church Road (H24) site should incorporate

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
											<p>screen planting along the northern boundary of the site to mitigate significant negative effects on landscape;</p> <ul style="list-style-type: none"> Development at the Standburn West (H28) site should: focus on the lower parts of the site; establish structure planting on the upper southern boundary; be set back from the core path alongside Bowhouse Burn to the north east, with structure planting established along this boundary to act as a buffer to the burn and valley as well as for screening to mitigate negative effects on landscape. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; existing briefs for the Standburn West and Church Road sites; other subsequent development frameworks and masterplan for sites; and plan policies PE05 (Antonine Wall), PE18 (Landscape), PE19 (Biodiversity and Geodiversity), PE24 (Flood Management), JE06 (Major Hazards). 	
<p>Denny & Dunipace Proposals H30-H35 MU09</p>	Potential Environmental Effects before Mitigation/Enhancement										<ul style="list-style-type: none"> Development of the Mydub 1 & 2 and Rosebank (H31, H32, H35) sites will have a significant positive effect on biodiversity and a positive effect on climatic factors (through connecting significant isolated broadleaved woodland habitat networks and creating a carbon sink) and a negative effect on biodiversity (through loss of farmland habitat) Development at the Former Denny High School (H30) site could have a positive effect on biodiversity and climatic factors (through reinforcing the broadleaved woodland habitat network and creating a carbon sink) population and human health (through improving the quality of existing open space) and a negative effect on biodiversity (due to loss of scrubland habitat) Development at the Former Denny High School and Carrongrove Mill (H30, H33) sites could have a significant negative effect on biodiversity (due to potentially severing a significant broadleaved woodland habitat corridor) Development of the Mydub 2, Carrongrove Mill, Stirling Street, Rosebank and Broad Street 1 (H32, H33, H34, H35, MU09) sites could have a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) Development of the Former Denny High School, Mydub 2, Carrongrove Mill, Stirling Street and Broad Street (H30, H32, H33, H34, MU09) sites could have a negative impact on biodiversity (through adverse impact on riparian habitat) Development of the Mydub 1 & 2, Carrongrove Mill, Rosebank and Broad Street (H31, H32, H33, H35, MU09) sites will have a positive effect on population and human health (through creation of new open space) Development of the Carrongrove Mill (H33) site will have a positive effect on population and human health (through addressing an existing deficiency in access to reasonably sized park or amenity space), a significant positive effect on soil (through remediation of historic contamination) and cultural heritage (due to potential to restore the B-listed Carron Glen House) a significant negative effect on 	<ul style="list-style-type: none"> Development at the Mydub 1& 2 and Rosebank (H31, H32, H35) sites should incorporate new broadleaved woodland planting connecting fragmented habitat networks to ensure significant positive effects on biodiversity and positive effects on climatic factors Development at the Former Denny High School (H30) site should incorporate new broadleaved woodland planting to reinforce existing habitat networks and ensure positive effects on biodiversity and climatic factors Development at the Former Denny High School and Carrongrove Mill (H30, H33) sites should retain and protect existing broadleaved woodland habitat to avoid significant negative effects on biodiversity Development proposals at the Mydub 2, Carrongrove Mill, Stirling Street, Rosebank and Broad Street (H32, H33, H34, H35, MU06) sites should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity Development at the Carrongrove Mill (H33) site should be undertaken sensitively to avoid adversely impacting on the Carron Glen SSSI and mitigate significant negative effects on biodiversity Development of the Former Denny High School, Mydub 2, Carrongrove Mill, Stirling Street and Broad Street (H30, H32, H34, MU09) sites should incorporate undeveloped riparian buffers to ensure no negative impacts on ecology of the burn or functioning of the riparian corridor and mitigate negative effects
Residual Environmental Effects After Mitigation/Enhancement												

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>biodiversity (through potential for adverse impact on Carron Glen SSSI) and a negative effect on biodiversity (due to potential loss of rough grassland and woodland habitat) cultural heritage (due to the potential to adversely impact on the category B-listed Carron Glen House and its setting) and landscape (due to moderate to low landscape impact)</p> <ul style="list-style-type: none"> • Development of the Stirling Street (H34) site could have a positive effect on population and human health (through improving the quality of existing open space) and a negative effect on cultural heritage (due to the potential to adversely affect the setting of a locally significant historic building) • Development of the Broad Street (MU09) site will have a negative effect on population and human health (due to increasing the population exposed to nuisance odour) • Development of the Mydub 1 & 2, Rosebank and Broad Street (H31, H32, H35, MU09) sites will have a significant negative effect on soil (through loss of prime quality agricultural land) • Development of the Mydub 2, Carrongrove Mill and Broad Street (H32, H33, MU09) sites could have a positive effect on water (due to potential for water body restoration) • Development of the Broad Street (MU09) site could have a positive effect on water (due to the potential to enable connection of the adjacent caravan site to the Denny WWTW which should improve water quality within the River Carron) • Development of the Denny High School, Mydub 2, Carrongrove Mill, Rosebank and Broad Street (H30, H32, H33, H35, MU09) sites could have a significant negative effect on water (due to risk of flooding) • Development of the Denny High School, Mydub 2, Carrongrove Mill and Broad Street (H30, H32, H33, MU09) sites could have negative effect on water (due to potential morphological impact on a watercourse) • Development of the Former Denny High School, Carrongrove Mill and Stirling Street (H30, H33, H34) sites will have a cumulatively significant positive effect on material assets and landscape (through improving townscape quality as a result of regenerating a vacant/derelect brownfield site) • Development of the Mydub 1 and Mydub 2 (H31, H32) sites could have a significant positive effect on material assets (through enabling the delivery of the DEAR and significantly improving the capacity of the local road network) • All sites will have a positive effect on material assets (due to the potential to increase the amount of LZCGT) a significant negative effect on material assets (due to increased traffic on the local road network impacting on Denny Cross which is currently operating over capacity and breaching the capacity of the local waste water treatment works) negative effect on population and human health (due to marginally increased traffic noise impact) air (due to due to increased emissions from motorised transport) climatic factors (due to increased release of greenhouse gases) and material assets (due to the increased use of primary resources in the construction process) • Development of the Mydub 2 and Rosebank (H32, H35) sites could have a positive 	<p>on biodiversity</p> <ul style="list-style-type: none"> • Development of the Mydub 1 & 2, Rosebank and Broad Street (H31, H32, H35, MU09) sites should incorporate new open space to ensure positive effects on population and human health • Development of the Carrongrove Mill (H33) site should incorporate a new reasonably sized park or amenity space to address an existing deficiency in access in the local area and ensure positive effects on population and human health • Development at the Carrongrove Mill (H33) site should investigate and remediate potential sources of contamination to ensure positive effects on population and human health • Development of the Mydub 2, Carrongrove Mill and Broad Street (H32, H33, MU09) should investigate opportunities for watercourse restoration to ensure positive effects on water • Development at the Broad Street (MU09) site should investigate opportunities to allow for sewage from the caravan site adjacent to the east to connect to Denny WWTW to ensure positive effects on water. • Development proposals at the Denny High School, Mydub 2, Carrongrove Mill, Rosebank and Broad Street (H30, H32, H35, MU09) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water • Development at the Denny High School, Mydub 2, Carrongrove Mill and Broad Street (H30, H32, H33, MU09) sites should avoid unnecessary engineering operations in the water environment to avoid negative effects on water • Development at the Former Denny High School, Mydub 1 & 2, Carrongrove Mill, Stirling Street, Rosebank and Broad Street (H30-H35, MU09) sites should provide proportionate financial contributions towards the construction of the Denny Eastern Access Road to mitigate significant negative effects on material assets • Denny waste water treatment works should be expanded to accommodate increased foul water flows from the cumulative scale of development proposed in this option and mitigate significant negative effects on material assets • All sites should incorporate on site LZCGT to ensure positive effects on material assets • Development of the Mydub 2 and Rosebank (H32 and H35) sites should avoid severing and improve the quality of the core path network to mitigate negative effects and ensure positive effects on material assets

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>effect on material assets (through improving the quality and connectivity of the core path network) and a negative effect on material assets (through severing the core path network)</p> <ul style="list-style-type: none"> • Development at the Rosebank and Broad Street (H35, MU09) sites could have a positive effect on material assets (due to potential to improve townscape quality at gateway to Dunipace and Denny) and a negative effect on material assets (due to potential to degrade townscape quality at the gateway to Dunipace and Denny) • Development of the Rosebank (H35) site could have a negative effect on landscape (due to adverse landscape/visual impact in an area of medium landscape sensitivity) and a negative effect on biodiversity (through potential adverse impact on mature woodland) • Development of the Mydub 1 & 2 and Broad Street (H31, H32, MU09) sites could have a negative effect on landscape (through loss of greenfield land) 	<ul style="list-style-type: none"> • Development at the Rosebank and Broad Street (H35 and MU09) sites should incorporate an appropriately high quality design treatment at these important settlement gateways to ensure positive effects and mitigate negative effects on material assets • Development at the Carrongrove Mill (H33) site should incorporate the restoration of the B listed Carron Glen house and have a sensitive development layout to ensure positive effects and mitigate negative effects on cultural heritage • Development at the Stirling Street (H34) site should be undertaken sensitively to avoid adversely impacting on the setting of the Royal Oak Hotel to mitigate negative effects on cultural heritage • Development at the Mydub 1 (H31) site should retain boundary tree cover, and provide additional structure planting to the south to act as buffer to open countryside and to complement existing tree cover to mitigate negative effects on landscape • Development at the Mydub 2 (H32) site should retain tree cover, tree groups and provide additional structure planting to N, E & S to act as buffer to open countryside and to complement existing tree cover to mitigate negative effects on landscape • Development at the Carrongrove Mill (H33) site should retain boundary tree cover and ensure an appropriate buffer to the River Carron valley to mitigate negative effects on landscape • Development at the Rosebank (H35) site should avoid development on the eastern part of the site, incorporate significant structure planting along the northern, eastern and southern boundaries and have an appropriate road frontage treatment to mitigate negative effects on landscape • Development at the Broad Street (MU09) site should incorporate structure planting along the North, East & West side, and tree and shrub retention particularly along the road frontage to retain rural character and mitigate negative effects on landscape. • Mitigation/enhancement will be provided by the planning permissions and associated conditions for Carrongrove and Mydub 1, both of which are under construction. Otherwise it will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; subsequent masterplans for sites; and plan policies PE05 (Antonine Wall), PE18 (Landscape), PE19 (Biodiversity and Geodiversity), PE24 (Flood Management), IN02 (Developer Contributions).
Falkirk	Potential Environmental Effects before Mitigation/Enhancement									<ul style="list-style-type: none"> • Development of the Gowan Avenue and Etna Road 1 and 2, Portdownie and Falkirk 	<ul style="list-style-type: none"> • Development at the Gowan Avenue, Etna Road 1 & 2,

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<ul style="list-style-type: none"> Development of the Grangemouth Road, Westburn Avenue, Grahamston, Callendar Riggs, Bank Street, Williamson Street, Falkirk Gateway, Carron Road, Firs Park (H41, H43, MU12-MU17, H44) sites could have a negative effect on population and human health (due to noise impact from adjacent busy local roads) Development of the Grangemouth Road, Westburn Avenue, and Firs Park (H41, H43, H44) sites could have a negative effect on population and human health (due to loss of open space) Development of the Cauldhame Farm (H39) site could have a negative effect on population and human health (due to exposure to nuisance odour from the nearby West Carron landfill site and the potential to compromise waste handling operations there) and a negative effect on landscape (due to loss of open land with adverse landscape and visual impact) Development of the Gowan Avenue and Etna Road 1 & 2, Portdownie, Westburn Avenue, Grahamston, Callendar Riggs, and Firs Park (H36-H38, MU11, H43, MU12, MU13, H44) sites could have a significant positive effect on soil (through removal of significant amounts of historic contamination) Development of the Cauldhame Farm and Woodend Farm (H39, H42) sites will have a significant negative effect on soil (through loss of prime quality agricultural land) Development of the Falkirk Gateway (MU16) site could have a negative effect on soil (due to loss of agricultural land) Development of the Etna Road 2 and Cauldhame Farm (H38, H39) sites could have a positive effect on water (due to potential for watercourse restoration at the Ladysmill Burn and Mungal Burn respectively) Development of the Etna Road 2, Cauldhame Farm, Portdownie and Falkirk Gateway (H38, H39, MU11, MU16) sites could have a significant negative effect on water (due to potential fluvial flood risk) Development of the Blinkbonny Road, Grangemouth Road, Westburn Avenue, Grahamston, Falkirk Gateway, Carron Road, Woodend Farm, and Firs Park (H40, H41, H43, MU12, MU16, MU17, H42, H44) sites could have a negative effect on water (due to potential surface water flood risk) Development of the Grahamston, Callendar Riggs, Bank Street and Williamson Street (MU12-MU15) sites could have a significant negative effect on air (due to increasing the population exposed to reduced air quality associated with the Falkirk Town Centre AQMA) Development of the Gowan Avenue and Etna Road 1 & 2, Blinkbonny Road, Grangemouth Road, Portdownie, Westburn Avenue, Grahamston, Callendar Riggs, Bank Street, Williamson Street, Falkirk Gateway, Firs Park (H36-H38, H40, H41, MU11, H43, MU12-MU16, H44) sites could have a cumulatively significant positive effect on material assets (due to improving townscape quality through regeneration of brownfield land, prominent surface car parks, redevelopment of the bus station, creation of a western gateway to Falkirk, regeneration of a derelict sports ground) 	<p>open space to ensure positive effects on population and human health;</p> <ul style="list-style-type: none"> Development of the Grangemouth Road, Westburn Avenue, and Firs Park (H41, H43, H44) sites should provide financial compensation for the loss of open space which should be invested in improving the quality of the local open space resource to mitigate negative effects on population and human health; Development of the Gowan Avenue, Etna Road 2, Carrick Place, Grangemouth Road, Westburn Avenue, Grahamston, Callendar Riggs, Bank Street, Williamson Street, Falkirk Gateway, Carron Road, and Firs Park (H41, H43, MU12-MU17, H44) sites should incorporate suitable noise mitigation measures to mitigate negative effects on population and human health; Development of the Etna Road 2 and Cauldhame Farm (H38, H39) sites should investigate opportunities for watercourse restoration of the Ladysmill Burn and Mungal Burn to ensure positive effects on water; Development proposals at the Etna Road 2, Cauldhame Farm, Portdownie and Falkirk Gateway (H38, H39, MU11, MU16) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; Development proposals at the Blinkbonny Road, Grangemouth Road, Westburn Avenue, Grahamston, Falkirk Gateway, Carron Road and Woodend Farm, and Firs Park (H40, H41, H43, MU12, MU16, MU17, H42, H44) sites should be accompanied by drainage strategies which adequately manage existing surface water flood risk to mitigate negative effects on water; Scottish Canals should be consulted with on development proposals at Gowan Avenue, Etna Road 1 & 2, Portdownie and Falkirk Gateway (H36-H38, MU11, MU16) to determine potential flood risk from infrastructure failure and consideration should be given to mitigation measures within the design of the sites to avoid negative effects on water; Development of all sites should incorporate on site LZCGT to ensure positive effects on material assets; Development of the Gowan Avenue, Etna Road 1 & 2, Cauldhame Farm 1 & 2, Grangemouth Road, Portdownie and Falkirk Gateway (H36-H41, MU11, MU16) sites should enhance the active travel network to ensure positive effects on material assets; Development proposals the Callendar Riggs (MU13) site

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<ul style="list-style-type: none"> All sites could have a positive effect on material assets (due to increasing the amount of LZCGT) negative effect on population and human health (through marginally increased traffic related noise impacts); cumulatively a significant negative effect on air (due to an increase in traffic related air pollution potentially exacerbating the Falkirk Town Centre AQMA); a negative effect on climatic factors (due to increased release of greenhouse gases) and material assets (increased use of primary resources in the construction process and increased vehicular traffic on the local road network) Development of the Gowan Avenue, Etna Road 1 & 2, Cauldhame Farm, Grangemouth Road, Portdownie and Falkirk Gateway (H36-H41, MU11, MU16) sites could have a positive effect on material assets (due to improving the active travel network) Development of Callendar Riggs (MU13) sites could have a negative effect on material assets and cultural heritage (through adversely affecting townscape quality and non-listed buildings of architectural merit by threatening an existing attractive 1930s frontage to Callendar Riggs) Development of the Westburn Avenue (H43) site could have a positive effect on cultural heritage (through enhancing the setting of the Arnothill Conservation Area) or a negative effect on cultural heritage (through potential adverse impact on the setting of the Arnothill Conservation Area) Development of the Grahamston, Bank Street and Williamson Street (MU12, MU14, MU15) sites could have a positive effect on cultural heritage (through enhancing Falkirk Town Centre Conservation Area and its setting) or a negative effect on cultural heritage (through degrading the quality of Falkirk Town Centre Conservation Area and its setting) Development of the Woodend Farm (H42) site could have a positive effect on cultural heritage (through enabling the restoration of a C listed farm steading) a significant negative effect on landscape (due to adverse landscape/visual impacts in an area of medium to high landscape sensitivity) and a negative effect on biodiversity (through reducing habitat connectivity between Callendar Wood and Hallglen Haven) population and human health (due to an adverse impact on the visual quality of the John Muir Way) cultural heritage (through adverse impact on a C listed farm steading and its setting) Development of the Portdownie and Williamson Street (MU11, MU15) sites could have a significant negative effect on cultural heritage (due to the potential for adverse impacts on the Antonine Wall WHS and SM) Development of the Woodend Farm site (H42) could have a significant negative effect on cultural heritage (due to a potential adverse impact on the Callendar Park inventory designed landscape) and a negative effect on biodiversity (due to potential adverse impact on the Callendar Woods Wildlife Site) Development of the Gowan Avenue, Etna Road 1 & 2, Portdownie and Falkirk Gateway (H36-H38, MU11, MU16) sites could have a positive effect on landscape (due to potentially improving the landscape setting of the canal), a significant negative effect on cultural heritage (due to potential for adverse effect on the site 	<p>should include the retention and enhancement of the attractive 1930s frontage to Callendar Riggs to mitigate negative effects on material assets and cultural heritage;</p> <ul style="list-style-type: none"> Development of the Westburn Avenue (H43) site should be undertaken sensitively to enhance the setting of the Antonshill Conservation Area to ensure positive effects and mitigate negative effects on cultural heritage; Development of the Grahamston, Bank Street and Williamson Street (MU12, MU14, MU15) sites should be undertaken sensitively to enhance the Falkirk Town Centre Conservation Area and its setting to ensure positive effects and mitigate negative effects on cultural heritage; Development of the Woodend Farm 1 (H42) site should incorporate the restoration of the C listed farm steading to ensure positive effects and mitigate negative effects on cultural heritage; Development proposals at the Portdownie and Williamson Street (MU11, MU15) sites should be accompanied by cultural heritage assessments which assess the impact of the development of these sites on the outstanding universal value of the Antonine Wall WHS to mitigate significant negative effects on cultural heritage. Development of the Woodend Farm (H42) site should be undertaken sensitively to avoid adverse impacts on the setting of the Callendar Park Inventory Designed Landscape to mitigate significant negative effects on cultural heritage; Development of the Gowan Avenue, Etna Road 1 & 2, Portdownie and Falkirk Gateway (H36-H38, MU11, MU16) sites should be undertaken sensitively to avoid adversely impacting on the site and setting of the Forth and Clyde Canal SAM to avoid significant negative effects on cultural heritage; Development of the Gowan Avenue, Etna Road 1 & 2, Portdownie and Falkirk Gateway (H36-H38, MU11, MU16) sites should incorporate canalside landscaping to soften the canalside environment and ensure positive effects on landscape; Development proposals at the Etna Road 2, Cauldhame Farm 2, Grangemouth Road, Portdownie, Westburn Avenue, and Carron Road (H28, H39, H41, MU11, H43, MU17) sites should be accompanied by tree surveys and tree protection plans which retain mature trees to mitigate negative effects on landscape; Development of the Cauldhame Farm 2 (H39) site should be informed by a rigorous landscape assessment and be designed

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>and setting of the Forth and Clyde Canal SAM) and a negative effect on water (due to potential flood risk from the canal)</p> <ul style="list-style-type: none"> • Development of the Cauldhame Farm (H39) site could have a significant negative effect on landscape (due to loss of open land with adverse landscape and visual impact) • Development of the Falkirk Gateway (MU16) site could have a positive effect on landscape (through improving the landscape setting of the urban fringe) • Development of the Carron Road (MU17) site could have a negative effect on landscape (due to adverse landscape/visual impacts in an area of low landscape sensitivity) 	<p>within a comprehensive planting structure to ensure fit with the landscape, particularly on the escarpment top and on slopes to mitigate significant negative effects on landscape;</p> <ul style="list-style-type: none"> • Development of the Grangemouth Road (H41) site should: retain the open space areas, with a parkland character which provide an attractive frontage to Grangemouth Road and Middlefield Road; retain the woodland strip between Middlefield Road and the playing field; and. Retain boundary hedgerows and trees where possible to mitigate negative effects on landscape; • Development of the Portdownie (MU11) site should incorporate planting/greenspace within the development, particularly along the waterfront to mitigate significant negative effects on landscape; • Development of the Falkirk Gateway(MU16) site should be within an integrated landscape framework to ensure positive effects on landscape; • Development of the Carron Road (MU17) site should: ensure retention of best quality established trees and grassed areas on Carron Road frontage; ensure tree planting avenue at frontage; ensure appropriate landscape treatment along Ronades Road with grass verge, avenue tree planting; keep development back from the road frontage; and ensure appropriate internal landscape treatment on any internal access roads to mitigate negative effects on landscape. • Development at the Woodend Farm (H42) site should: retain existing internal and boundary trees where appropriate; avoiding major changes in natural landform; retain boundary hedgerows; retain core path access / Forestry Commission maintenance / extraction access through site; create a broad open space area with tree planting at the road frontage; ensure overall housing development density remains low with buffer area between mature tree cover of Callendar Woods and dwellings; and maximise views out from site southwards to mitigate significant negative effects on landscape. • Mitigation/enhancement will also be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; the Planning Statement for the Falkirk Gateway; subsequent masterplans for sites; and plan policies PE05 (Antonine Wall), PE06 (Archaeological Sites), PE10 (Historic Gardens and Designed Landscapes), PE18 (Landscape), PE19 (Biodiversity and Geodiversity), PE24 (Flood Management). Etna Road 2 has detailed planning permission and mitigation is provided by the associated masterplan and conditions.

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
Grangemouth H45 MU18	Potential Environmental Effects before Mitigation/Enhancement										<ul style="list-style-type: none"> Development of the Avonhall (H45) site could have a positive effect on cultural heritage (through the conversion and re-use of a B-listed building); and a negative effect on cultural heritage (due to the potential for adverse impact on the character of a B-listed building through conversion, or on its setting). Development of the Avonhall (H45) site could have a negative effect on landscape (through the loss of on site mature trees). Development of the Grangemouth Town Centre (MU18) site could have a positive effect on population and human health (through potential creation of open space which helps to address a local deficiency in access to open space) material assets (due to improving townscape quality within Grangemouth Town Centre and improving the quality of the active travel network) a significant negative effect on population and human health (due to potential to increase the population exposed to risk of injury from major hazards) and cultural heritage (due to potential adverse impact on the setting of the category A listed Dundas Church) and a negative effect on cultural heritage (due to potential adverse impact on the category C listed former La Scala Cinema and the Grangemouth Area of Townscape Value) Development of the Grangemouth Town Centre and Avonhall (MU18, H45) sites could have a positive effect on material assets (due to increasing the amount of LZCGT) a negative effect on air (due to increasing the population exposed to reduced air quality) water (due to potential fluvial/ coastal flood risk) negative effect on population and human health (through marginally increased traffic related noise impacts) air (due to an increase in traffic related air pollution) climatic factors (due to increased release of greenhouse gases) and material assets (increased use of primary resources in the construction process and increased vehicular traffic on the local road network) 	<ul style="list-style-type: none"> Development of the Grangemouth Town Centre (MU18) site should incorporate the creation of new park or amenity space of 0.2ha or greater to meet a local deficiency in access to open space and ensure positive effects on population and human health; The number of new houses within the Grangemouth Town Centre (MU18) site should be restricted to avoid unacceptably increasing the population exposed to risk of injury from major hazards and mitigate significant negative effects on population and human health; Development proposals at Grangemouth Town Centre (MU18) should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; Development of both sites should incorporate on site LZCGT to ensure positive effects on material assets; Development of the Grangemouth Town Centre (MU18) site should contribute towards the improvement of the active travel network to ensure positive effects on material assets; Development at the Grangemouth Town Centre (MU18) site should be undertaken sensitively to avoid adversely impacting on the category A listed Dundas Church and the C listed former La Scala Cinema and the Grangemouth Area of Townscape Value to mitigate significant negative effects on cultural heritage; Development at the Avonhall (H45) site should be undertaken sensitively to avoid adversely impacting on the character or setting of the B-listed building to mitigate negative effects on cultural heritage. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule; a future masterplan for Grangemouth Town Centre; and plan policies PE07 (Listed Buildings), PE24 (Flood Management) and JE06 (Major Hazards). Avonhall has detailed planning permission and mitigation is provided by the associated masterplan and conditions
Residual Environmental Effects After Mitigation/Enhancement												
N	+	-	N	-	-	-	+	-	-	+		
Larbert & Stenhousemuir Proposals H46-47 MU19	Potential Environmental Effects before Mitigation/Enhancement										<ul style="list-style-type: none"> Development of the Hill of Kinnaird 1 & 2 (H46, MU19) sites could have a positive effect on biodiversity (through connecting fragmented parts of the broadleaved habitat network) a significant negative effect on soil (through development of prime quality agricultural land) a negative effect on biodiversity (through potentially adversely impacting the Stenhousemuir SINC) Development of the Hill of Kinnaird 1 and Pretoria Road (H46, H47) sites could have a positive effect on population and human health (through improving the quality 	<ul style="list-style-type: none"> Approved masterplans/ planning permissions are in place for the Hill of Kinnaird 1& 2 (H46) sites. These will act to ensure the significant positive effects and mitigate the significant negative effects caused by the development of these sites. Development of the Hill of Kinnaird 2 (MU19) site should incorporate new broadleaved woodland habitat to connect up fragmented parts of the broadleaved habitat network and
Residual Environmental Effects After Mitigation/Enhancement												
+	-	+	-	+	-	-	+	-	+	-		

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>and connectivity of the green network) and material assets (due to potential to improve the active travel network)</p> <ul style="list-style-type: none"> • Development of the Hill of Kinnaird 1 & 2 (H46, MU19) sites could have a positive effect on population and human health (through creation of new open space) • Development of the Pretoria Road (H47) site could have a positive effect on population and human health (through improving the quality of existing open space) a significant negative effect on biodiversity (through potential adverse impact on legally protected species) and cultural heritage (due to potential adverse impact on the setting of the Category A listed Larbert Old Church, Churchyard with James Bruce Monument and the James Bruce Monument Scheduled Ancient Monument) and a negative effect on biodiversity (due to loss of scrubland habitat) and soil (through loss of agricultural land) • Development of the Hill of Kinnaird 1 (H46) site could have a negative effect on population and human health (through noise impact from the nearby motorway) and material assets (due to potential adverse impact on the active travel network) • Development of the Hill of Kinnaird 1 (H46) sites could have a significant negative effect on water (due to potential fluvial flood risk) • Development of the Hill of Kinnaird 1 & 2, and Pretoria Road (H47, H48, MU19) sites could have a positive effect on material assets (through increasing the amount of LZCGT) and a negative effect on population and human health (due to a marginal increase in road noise from traffic) air (due to an increase in traffic related air pollution) climatic factors (due to increased release of greenhouse gases) material assets (due to increased use of primary resources in the construction process and increased vehicular traffic on the local road network) • Development of the Pretoria Road and Hill of Kinnaird 2 (H47, MU19) sites could have a positive effect on material assets (through improving townscape quality along Denny Road and Bellsdyke Road respectively) and a negative effect on material assets (through degrading townscape quality along Denny Road and Bellsdyke Road respectively) and landscape (due to adverse landscape/visual impacts in an area of low landscape sensitivity) • Development of the Hill of Kinnaird 1 & 2(H46, MU19) sites could have a negative effect on landscape (due to loss of open land) 	<p>ensure positive effects on biodiversity</p> <ul style="list-style-type: none"> • Development of the Hill of Kinnaird 2 (MU19) site should incorporate a suitably designed undeveloped buffer around the Stenhousemuir SINC to mitigate potential negative effects on biodiversity • Development proposals at the Pretoria Road (H47) site should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity; • Development proposals at the Pretoria Road (H47) site should be accompanied by ecological assessments which identify habitats of ecological value and be designed to retain these area to avoid negative effects on biodiversity; • Development of the Pretoria Road (H47)site should incorporate an enhanced pedestrian entrance to the Forth Valley Royal Hospital to ensure positive effects on population and human health and material assets • Development of the Hill of Kinnaird 2 (MU19) site should include the creation of a new sports area to ensure positive effects on population and human health • Development of the Pretoria Road (H47) site should provide financial contributions towards the improvement of off-site open space to ensure positive effects on population and human health • Development at the Pretoria Road (H47) site should be undertaken sensitively to avoid adversely impacting on the setting of the Category A listed Larbert Old Church, Churchyard with James Bruce Monument and the James Bruce Monument Scheduled Ancient Monument to mitigate significant negative effects on cultural heritage. • Development proposals at the Pretoria Road and Hill of Kinnaird 1 & 2 (H46, H47, MU19) sites should incorporate on site LZCGT to ensure positive effects on material assets; • Development at the Pretoria Road and Hill of Kinnaird 2 (H47, MU19)sites should ensure a high quality frontage treatment to Denny Road and Bellsdyke Road respectively to ensure positive effects and mitigate negative effects on material assets; • Development at the Pretoria Road site should provide structure woodland planting on western edge of site to demarcate edge of settlement as a whole and mitigate negative effects on landscape; • Development at the Hill of Kinnaird 2 (MU19) site should: retain existing trees along the Eastern boundary and strengthen with buffer / screen planting to delineate urban edge; and provide a

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
											<p>strong landscape treatment along Bellsdyke Road frontage and to the minor road to the East to mitigate negative effects on landscape.</p> <ul style="list-style-type: none"> Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule; and plan policies PE07 (Listed Buildings), PE06 (Archaeological Sites); PE10 (Historic Gardens and Designed Landscapes), PE19 (Biodiversity and Geodiversity), PE24 (Flood Management). 	
<p>Rural North</p> <p>Proposals H48 - H52</p>	<p>Potential Environmental Effects before Mitigation/Enhancement</p>										<ul style="list-style-type: none"> Development of the Castle View (H48) site could have a positive effect on biodiversity (due to potential to reinforce the broadleaved woodland habitat network) Development of the Castle View (H48) site could have a significant negative effect on biodiversity (due to potential adverse impacts on legally protected species) Development of the Glebe (H50) sites could have a significant negative effect on biodiversity (due to loss of potential supporting habitat to the Firth of Forth SPA) Development of the Castle View, Airth Castle South, Former Torwood School and McLaren Park (H48, H49, H51, H52) sites could have a negative effect on biodiversity (due to potential adverse impact on broadleaved woodland habitat) Development of the Castle View, Airth Castle South, Former Torwood School and McLaren Park (H48, H49, H51, H52) sites could have a positive effect on population and human health (due to creation of new open space which addresses a deficiency in access to open space in the local area) Development of the Glebe (H50) site could have a positive effect on population and human health (due to improving the quality of existing open space) Development of the Castle View, Airth Castle South and Glebe (H48, H49, H50) sites could have a positive effect on soil (due to making safe unstable land) and a negative effect on material assets (due to potential sterilization of shallow coal deposits) Development of the Castle View, Airth Castle South, the Glebe, and McLaren Park (H48, H49, H50, H52) sites could have a negative effect on soil (due to loss of agricultural land) Development of the Castle View, Airth Castle South, Glebe, and Former Torwood School (H48, H49, H50, H51) sites could have a significant negative effect on water (due to potential fluvial flood risk) All sites could have a positive effect on material assets (through increasing the amount of LZCGT) and a negative effect on population and human health (due to increased road traffic noise) air (due to an increase in traffic related air pollution) climatic factors (due to increased release of greenhouse gases) material assets (due to increased use of primary resources in the construction process and increased traffic on the local road network) Development of the Former Torwood School (H51) site could have a positive effect material assets (through improving townscape quality through regeneration of a brownfield site) Development of the McLaren Park (H52) site could have a positive effect on 	<ul style="list-style-type: none"> Development of the Castle View (H48) site should incorporate new broadleaved woodland planting to reinforce the habitat network and ensure positive effects on biodiversity Development proposals the Castle View South (H48) site should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity; Developments at the Glebe (H50) site should be accompanied by bird surveys which clarify the role of the sites as supporting habitat to the Firth of Forth SPA to mitigate significant negative effects on biodiversity; Development proposals at the Castle View, Airth Castle South, Glebe, Former Torwood School and McLaren Park (H48, H49, H51, H52) sites should be accompanied by ecological assessments which identify habitats of ecological value and be designed to retain these area to avoid negative effects on biodiversity; Development of the Castle View, Airth Castle South, Former Torwood School and McLaren Park (H48, H49, H51, H52) sites should incorporate park and playspace facilities as appropriate to address local deficiencies in access to different kinds of open space and ensure positive effects on population and human health; Development of the Glebe (H50) sites should provide financial contributions towards the improvement of existing open space to ensure positive effects on population and human health; Development of the Castle View, Airth Castle South, and Glebe (H48-H50) sites should investigate and make safe potentially unstable land to ensure positive effects on soil; Development proposals at Castle View, Airth Castle South, Glebe, and Former Torwood School (H48-H51) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; All sites should incorporate on site LZCGT to ensure positive effects on material assets;
	<p>Residual Environmental Effects After Mitigation/Enhancement</p>											

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation														
										<p>material assets (through improving the connectivity of the active travel network)</p> <ul style="list-style-type: none"> Development of the Castle View (H48) site could have a negative effect on material assets (due to potential to sever the active travel network) Development of the Castle View and Glebe (H48, H50) sites could have a negative effect on material assets (due to potential to degrade townscape quality at the northern gateway to Airth.) Development of the Former Torwood School (H51) site could have a negative effect on material assets (due to degrading townscape quality at the southern gateway to Torwood and breaching the capacity of the local waste water treatment works) Development of the Airth Castle South (H49) site could have a significant negative effect on cultural heritage (due to potential to adversely impact the setting of Airth Castle and Airth Old Church category A listed buildings and Airth Old Church SAM) Development of the Glebe (042) site could have a significant negative effect on cultural heritage (due to potential adverse impact on the setting of an inventory designed landscape) and a negative effect on biodiversity (due to loss of hedgerow and wet ditch habitat) Development of the Castle View, Airth Castle South, and Glebe (H48, H49, H50) sites could have a negative effect on landscape (due to adverse landscape and visual impact) 	<ul style="list-style-type: none"> Development at the Castle View and Glebe (H48, H50) sites should ensure high quality frontage design to the A905 to mitigate negative effects on material assets; Development at the McLaren Park (H52) site should provide a pedestrian link through neighbouring woodland towards Castle Crescent to ensure positive effects on material assets; Development of the Castle View (H48) site should avoid severing the active travel network and improve the quality of the active travel network to ensure positive effects and mitigate negative effects on material assets; Development of the Former Torwood School (H51) site should incorporate high quality frontage design to the A9 to mitigate negative effects on material assets; Torwood Waste Water Treatment Works should be expanded to mitigate negative effects on material assets; Development of the Airth Castle South (H49) site should be undertaken sensitively to avoid an adverse impact on the setting of Airth Castle and Airth Old Church category A listed buildings and Airth Old Church SAM and mitigate significant negative effects on cultural heritage; Development of the Glebe (H50) site should incorporate planting to the north and west of the site to mitigate significant negative effects on cultural heritage; Development at the Castle View (H48) site should provide compensatory planting to replace any on site woodland lost due to development to mitigate negative effects on landscape; Development of the Glebe (H50) site should provide new structure planting along the northern boundary; and ensure low density development fronting the road to retain rural character and minimise effects on adjacent inventory designed landscape to mitigate negative effects on landscape. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule; and plan policies PE07 (Listed Buildings), PE06 (Archaeological Sites); PE10 (Historic Gardens and Designed Landscapes), PE19 (Biodiversity and Geodiversity), PE24 (Flood Management) 														
SPATIAL STRATEGY: BUSINESS AND TOURISM																									
Falkirk Investment Zone BUS05-07 MU16	<p>Potential Environmental Effects before Mitigation/Enhancement</p> <table border="1"> <tr> <td>+</td><td>-</td><td>+</td><td>-</td><td>+</td><td>-</td><td>--</td><td>-</td><td>-</td><td>+</td><td>-</td><td>--</td><td>+</td><td>-</td> </tr> </table>									+	-	+	-	+	-	--	-	-	+	-	--	+	-	<ul style="list-style-type: none"> Development of the Falkirk Gateway (MU16) site could have a significant positive effect on population and human health (through enabling the creation of a significant new green corridor) a positive effect on biodiversity (due to the potential to enhance the riparian environment) population and human health (through enhancing the recreational amenity of the Forth and Clyde Canal) material assets (due to improving townscape quality through creation of an western gateway to 	<ul style="list-style-type: none"> Development at the Falkirk Gateway (MU16) site should investigate opportunities to enhance the riparian environment and recreational amenity of the Forth and Clyde Canal to ensure positive effects on biodiversity and population and human health; Development at the Falkirk Gateway (MU16) site should
+	-	+	-	+	-	--	-	-	+	-	--	+	-												

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>Falkirk and increasing the amount of LZCGT) and landscape (through improving the landscape setting of the canal and improving the landscape setting of the urban fringe) a significant negative effect on cultural heritage (due to potential for adverse effect on the site and setting of the Forth and Clyde Canal SM) a negative effect on biodiversity (due to loss of scrub habitat and potential adverse impact on the Forth and Clyde Canal Wildlife Site) water (due to potential flood risk from the canal)</p> <ul style="list-style-type: none"> Development of the Falkirk Stadium (MU16) site could have a positive effect on biodiversity (through connecting up fragmented parts of the broadleaved woodland habitat network) material assets (through improving townscape quality) and a negative effect on biodiversity (due to loss of broadleaved woodland habitat) Development of the Falkirk Gateway and Falkirk Stadium (080 & 081) sites could have a positive effect on population and human health (through improving the quality and connectivity of the green network) a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) and water (due to potential fluvial flood risk) Development of the Abbotsford Business Park (BUS06) site could have a significant positive effect on population and human health (through regeneration of vacant/derelict land) soil (through removal of historic contamination) and material assets (through improving townscape quality due to regeneration of brownfield land) negative effect on biodiversity (due to loss of open mosaic habitat) Development of the Falkirk Gateway, Falkirk Stadium, Abbotsford Business Park & Caledon Business Park (MU16, BUS05-BUS07) sites could have a positive effect on material assets (due to increasing the amount of LZCGT) a negative effect on population and human health (due to noise impact from adjacent busy local roads, through marginally increased traffic related noise impacts) climatic factors (due to increased release of greenhouse gases) and air (due to an increase in traffic related air pollution) and a significant negative effect on material assets (increased use of primary resources in the construction process and increased vehicular traffic on the local road network) Development of the Falkirk Gateway and Abbotsford Business Park (MU06, BUS06) sites could have a negative effect on water (due to potential surface water flood risk) Development of the Falkirk Gateway and Caledon Business Park (MU06, BUS07) sites could have a positive effect on material assets (through improving the quality of the active travel network) negative effect on soil (due to loss of agricultural land) Development of the Caledon Business Park (083) site could have a positive effect on material assets (due to improving townscape quality through screening old industrial buildings) negative effect on biodiversity (due to loss of scrub habitat) Development of the Falkirk Stadium and Caledon Business Park (MU16, BUS07) sites could have a negative effect on landscape (due to adverse landscape impact) 	<p>incorporate new broadleaved woodland planting to connect up fragmented parts of the habitat network and ensure positive effects on biodiversity;</p> <ul style="list-style-type: none"> Development proposals at the Falkirk Gateway and Falkirk Stadium (MU16, BUS05) sites should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity; Development at the Falkirk Gateway (080) site should be undertaken sensitively to avoid adversely impacting on the Forth and Clyde Canal Wildlife Site and mitigate negative effects on biodiversity; Development proposals at all sites should be accompanied by ecological assessments which identify habitats of ecological value and be designed to retain these area to avoid negative effects on biodiversity; Development at the Falkirk Gateway (MU16) site should include the creation of a new green corridor connecting the Helix to Victoria Park to ensure significant positive effects on population and human health; Development at the Abbotsford Business Park (BUS06) site should investigate and remediate sources of historic contamination to ensure positive effects on soil; Development of the Falkirk Gateway and Falkirk Stadium (MU16, BUS05) sites should contribute towards landscape and access improvements at the Helix to ensure positive effects on population and human health; Development of the Falkirk Gateway, Falkirk Stadium and Abbotsford Business Park (MU16, BUS05, BUS06) sites should incorporate suitable noise mitigation measures to mitigate negative effects on population and human health; Development proposals at the Falkirk Stadium and Falkirk Gateway (MU16, BUS05) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; Development proposals at the Falkirk Gateway and Abbotsford Business Park (MU16, BUS06) sites should be accompanied by drainage strategies which adequately manage existing surface water flood risk to mitigate negative effects on water; Scottish Canals should be consulted with on development proposals at the Falkirk Gateway (MU16) site to determine potential flood risk from infrastructure failure and consideration should be given to mitigation measures within the design of the sites to avoid negative effects on water;
	Residual Environmental Effects After Mitigation/Enhancement										
	+	-	+	-	-	-	+	-	+		

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
											<ul style="list-style-type: none"> Development of all sites should incorporate on site LZCGT to ensure positive effects on material assets; Development of the Falkirk Gateway and Caledon Business Park (MU16, BUS07) sites should enhance the active travel network to ensure positive effects on material assets; Development at the Falkirk Stadium (MU16) site should involve the creation of the final stand and infilling of corners to ensure positive effects on material assets; Development of the Caledon Business Park (BUS07) site should replace or screen the old industrial buildings along Bog Road to ensure positive effects on material assets; Development of the Falkirk Gateway (MU16) site should be undertaken sensitively to avoid adversely impacting on the site and setting of the Forth and Clyde Canal SAM to avoid significant negative effects on cultural heritage; Development of Falkirk Gateway (MU16) site should incorporate canalside landscaping to soften the canalside environment and ensure positive effects on landscape; Development of the Falkirk Gateway (MU16) site should be within an integrated landscape framework to ensure positive effects on landscape; Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; the Planning Statement for the Falkirk Gateway; subsequent masterplans for sites; and plan policies PE06 (Archaeological Sites), PE19 (Biodiversity and Geodiversity), and PE24 (Flood Management). 	
Grangemouth Investment Zone Proposals BUS12-BUS18	Potential Environmental Effects before Mitigation/Enhancement										<ul style="list-style-type: none"> Development of the Grangemouth Docks West (BUS15) site could have a significant negative effect on biodiversity (due to increased disturbance of Firth of Forth/Forth Islands SPA, Firth of Forth and St Andrew's Bay pSPA, River Teith SAC species caused by increased shipping) Development of the South Bridge Street and Grangemouth Docks West (BUS14, BUS15) sites could have a significant negative effect on biodiversity (due to the loss of potential supporting habitat to the Firth of Forth SPA) 	<ul style="list-style-type: none"> Development proposals at the South Bridge Street and Grangemouth Docks West (BUS14, BUS15) sites should be accompanied by bird surveys which clarify the role of the site as supporting habitat to the Firth of Forth SPA to mitigate significant negative effects on biodiversity; Development proposals at the Grangemouth Docks West, Bo'ness Road and Wholeflats Road (BUS15-BUS17) sites should be accompanied by an appropriate assessment which demonstrates that development can be carried out without causing an adverse impact on the integrity of the Firth of Forth SPA; the Forth Islands SPA; the Firth of Forth and St Andrews Bay pSPA and the River Teith SAC either alone or in combination with other plans and projects to mitigate significant negative effects on biodiversity. Development proposals at the Glensburgh, South Bridge Street, Grangemouth Docks West, and Wholeflats Business Park, (BUS13, BUS14, BUS15, BUS18) should be accompanied by
Residual Environmental Effects After Mitigation/Enhancement											<ul style="list-style-type: none"> Development of the Grangemouth Docks West, Bo'ness Road and Wholeflats Road (BUS15-BUS17) sites could have a significant negative effect on biodiversity (due to potential disturbance of Firth of Forth/Forth Islands SPA, Firth of Forth and St Andrew's Bay pSPA, River Teith SAC species during construction and operation) Development of the South Bridge Street and Grangemouth Docks West (BUS14, BUS15) sites could have a negative effect on biodiversity (due to loss of open mosaic habitat) Development of the Grangemouth Docks West (BUS15) site could have a negative effect on biodiversity (due to potential to sever the broadleaved woodland habitat network) 	

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<ul style="list-style-type: none"> Development of the Glensburgh (BUS13) site could have a negative effect on biodiversity (due to loss of scrub habitat) water (due to potential surface water flood risk) and material assets (due to degrading townscape value at a prominent gateway to Grangemouth) Development of the Grangemouth Docks West and Wholeflats Business Park (BUS15, BUS18) sites could have a negative effect on biodiversity (due to loss of broadleaved woodland habitat) Development of the Earlsgate Park and Grangemouth Docks West (BUS12, BUS15) sites could have a positive effect on population and human health (due to potential increase in waste management infrastructure capacity) climatic factors (due to reduction of methane emissions from landfill caused by development of energy from waste facilities) and a negative effect on landscape (due to potential adverse visual impact of large scale industrial uses) Development of the Earlsgate Park, Glensburgh and Wholeflats Business Park (BUS12, BUS13, BUS18) sites could have a negative effect on population and human health (due to increased population exposed to nuisance noise/ odour from busy adjacent roads) Development of the Earlsgate Park, South Bridge Street, Grangemouth Docks West, Wholeflats Business Park, Bo'ness Road and Wholeflats Road (BUS12, BUS14-BUS17) sites could have a positive effect on population and human health and material assets (through improving townscape value due to regeneration of vacant/derelict land) Development of the Earlsgate Park, Glensburgh, South Bridge Street, Grangemouth Docks West, Wholeflats Business Park, Bo'ness Road and Wholeflats Road (BUS12-BUS17) sites could have a cumulatively significant positive effect on soil (through remediating historic contamination) Development of the Grangemouth Docks West, Bo'ness Road and Wholeflats Road (BUS15-BUS17) sites could have a significant negative effect on water (due to potential coastal flood risk) Development of the Wholeflats Road (BUS17) site could have a significant negative effect on water (due to potential fluvial flood risk) Development of the Grangemouth Dock West (BUS15) site could have a significant positive effect on climatic factors (through enabling the creation of significant renewable energy generation capacity which significantly reduces greenhouse gas emissions) Development of the Grangemouth Docks West (BUS15) site could have a negative effect on material assets (due to the negative townscape impact of introducing a large scale power plant which is visually prominent from the town centre.) All sites could have a positive effect on material assets (through increasing the amount of LZCGT) a cumulatively significant negative effect on air (due to an increase in traffic and industrial related air pollution within an Air Quality Management Area) material assets (due to increased vehicular traffic on the strategic and local road network) and a negative effect on population and human health (due to increased road traffic noise) climatic factors (due to increased 	<p>ecological assessments which identify habitats of ecological value and be designed to retain these area to mitigate negative effects on biodiversity;</p> <ul style="list-style-type: none"> Development of the Grangemouth Docks West (BUS15) sites should avoid severing the broadleaved woodland habitat network to mitigate negative effects on biodiversity; Development of the Glensburgh (BUS13) site should be accompanied by a drainage strategy to mitigate negative effects on water; High quality landscape or frontage design treatment should be incorporated at the Glensburgh (BUS13) site to avoid adverse impacts on townscape and mitigate negative effects on material assets; Development of the Earlsgate Park, Glensburgh and Wholeflats Business Park (BUS12, BUS13, BUS18) sites should incorporate noise mitigation measures to mitigate negative effects on population and human health; Development of the Earlsgate Park, Glensburgh, South Bridge Street, Grangemouth Docks West, Wholeflats Business Park, Bo'ness Road and Wholeflats Road (BUS12-BUS17) sites should investigate and remediate historic contamination to ensure cumulatively significant positive effects on soil; Development proposals at the Grangemouth Docks West, Bo'ness Road and Wholeflats Road (BUS15-BUS17) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water. Alternately, the Grangemouth Flood Protection Scheme may provide suitable mitigation. Any new Carbon Capture and Storage Power Station in Grangemouth should ensure its feed stock is not delivered by road to mitigate significant negative effects on air and material assets. All sites should incorporate on site LZCGT to ensure positive effects on material assets; Significant improvements should be made to the strategic road network to mitigate cumulatively significant negative effects on material assets. This is provided for by infrastructure proposal IN08 Development of the Grangemouth Docks West (BUS15) site should be undertaken sensitively to avoid an adverse impact on the C listed workshop building to mitigate negative effects on cultural heritage; Development of the Glensburgh and Wholeflats Business Park

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>release of greenhouse gases) and material assets (due to increased use of primary resources in the construction process)</p> <ul style="list-style-type: none"> • Development of the Grangemouth Docks West (BUS15) site could have a negative effect on cultural heritage (due to potential adverse impact on a category C listed building). • Development of the Bo'ness Road and Wholeflats Road sites (BUS16, BUS17) could have a significant negative effect on population and human health (due to the potential for new major hazards which increase the population exposed to risk). • Development of the Glensburgh, Grangemouth Docks West, and Wholeflats Business Park (BUS13, BUS15, BUS18) sites could have a negative effect on landscape (due to loss of open land) 	<p>(BUS13, BUS18) sites should incorporate improved screen planting along Glensburgh Road and Wholeflats Road respectively to mitigate negative effects on landscape Any new hazardous substances consents should be assessed in relation to any increased risk which they may pose for the local population to mitigate significant negative effects on population and human health.</p> <ul style="list-style-type: none"> • Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; subsequent masterplans for sites; and plan policies PE19 (Biodiversity and Geodiversity), PE24 (Flood Management), JE06 (Major Hazards), IR05 (Transport Assessment), IR12 (Energy Generation Development).
<p>Larbert Gateway</p> <p>Proposals BUS19-BUS20 MU19</p>	<p>Potential Environmental Effects before Mitigation/Enhancement</p>									<ul style="list-style-type: none"> • Development of the Hill of Kinnaird 2 (MU19) site could have a positive effect on biodiversity (through connecting fragmented parts of the broadleaved habitat network) population and human health (through creation of new open space) material assets (through improving townscape quality along Bellsdyke Road) a negative effect on biodiversity (through adversely impacting the Stenhousemuir SINC) material assets (due to degrading townscape quality along Bellsdyke Road) and landscape (due to adverse landscape/visual impacts in an area of low landscape sensitivity) • Development of the Glenbervie (BUS19) site could have a positive effect on water (due to potential for watercourse restoration) material assets (through improving the townscape quality at the northern gateway to Larbert); and a negative effect on biodiversity (due to loss of habitat) population and human health (due to increased exposure to nuisance noise from the adjacent M876) material assets (due to degrading townscape quality at the northern gateway to Larbert) • Development of the Glenbervie, Glenbervie Business Park and Hill of Kinnaird 2 (BUS19, BUS20, MU19) sites could have a positive effect on population and human health (through contributing towards the improvement of the green network) material assets (through increasing the amount of LZCGT) and a negative effect on population and human health (due to a marginal increase in road noise from traffic) air (due to an increase in traffic related air pollution) climatic factors (due to increased release of greenhouse gases) material assets (due to increased use of primary resources in the construction process, increased vehicular traffic on the local road network) • Development of the Glenbervie and Hill of Kinnaird 2 (BUS19, MU19) sites could have a significant negative effect on soil (through development of prime quality agricultural land) • Development of the Glenbervie and Glenbervie Business Park (BUS19, BUS20) sites could have a significant negative effect on water (due to potential fluvial flood risk) and a negative effect on biodiversity (due to loss of broadleaved woodland 	<ul style="list-style-type: none"> • Development of the Hill of Kinnaird 2 (0MU19) site should incorporate new broadleaved woodland habitat to connect up fragmented parts of the broadleaved habitat network and ensure positive effects on biodiversity • Development of the Glenbervie and Glenbervie Business Park (BUS19, BUS20) sites should be accompanied by ecological assessments which identify habitats of ecological value and be designed to retain these area to avoid negative effects on biodiversity; • Development of the Hill of Kinnaird 2 (MU19) site should incorporate a suitably designed undeveloped buffer around the Stenhousemuir SINC to mitigate potential negative effects on biodiversity • Development of the Hill of Kinnaird 2 (MU19) site should include the creation of a new sports area to ensure positive effects on population and human health • Development of the Glenbervie and Glenbervie Business Park (BUS19, BUS20) sites should contribute towards the delivery of the Glenbervie to Denny path green network opportunity to ensure positive effect on population and human health; • Development proposals at Glenbervie and Glenbervie Business Park (BUS19, 20) should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; • Opportunities for on-site watercourse restoration should be explored at the Glenbervie (BUS19) site to ensure positive effects on water; • Development proposals at the Hill of Kinnaird 2 (MU19) site
	<p>Residual Environmental Effects After Mitigation/Enhancement</p>										

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
	+ -	+ -	-	+ -	-	-	+ -	N	-	habitat)	<ul style="list-style-type: none"> should incorporate on site LZCGT to ensure positive effects on material assets; Development at the Glenbervie, Glenbervie Business Park and Hill of Kinnaird 2 (BUS19, BUS20, MU19) sites should ensure a high quality frontage treatment to Bellsdyke Road respectively to ensure positive effects and mitigate negative effects on material assets; Development at the Hill of Kinnaird 2 (MU19) site should: retain existing trees along the Eastern boundary and strengthen with buffer / screen planting to delineate urban edge; and provide a strong landscape treatment along Bellsdyke Road frontage and to the minor road to the East to mitigate negative effects on landscape. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and plan policy PE24 (Flood Management). 	
Eastern Gateway Proposals BUS02- BUS04 BUS21	Potential Environmental Effects before Mitigation/Enhancement										<ul style="list-style-type: none"> Development of Manuel Works, Gilston and A801 Union Canal (BUS02, BUS21, BUS04) sites could have a cumulatively significant positive effect on biodiversity (through connecting up significant fragmented habitats) a positive effect on population and human health (through improving the quality and connectivity of the green network) and a negative effect on material assets (due to potential adverse impact on the water supply network) Development of the Manuel Works and Gilston (BUS02, BUS21,) sites could have a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) and water (due to potential fluvial flood risk) Development of the Manuel Works (BUS02) site could have a significant positive effect on population and human health and material assets (by improving townscape value through regeneration of a vacant/derelict brownfield site) and soil (due to potential remediation of historic contamination) and a positive effect on biodiversity (through reinforcing the broadleaved woodland habitat network) Development of the Manuel Works (BUS02) site should have a significant negative effect on population and human health (through creation of new open space in an area of deficiency) and soil (through making safe unstable ground) a significant negative effect on biodiversity and landscape (due to potential loss of long established woodland of plantation origin) population and human health (due to exposure to risk from major hazard pipelines) and landscape (due to potentially significant adverse landscape impacts) and a negative effect on biodiversity (due to adverse impact on the Haining Wood Wildlife Site and the potential to sever parts of the broadleaved woodland habitat network) and material assets (due to potential to sever the active travel network) Development of the Manuel Works, Beancross, Gilston and A801 Union Canal (BUS02, BUS03, BUS21, BUS04) sites could have a positive effect on material assets (due to increasing the amount of LZCGT and improving the quality of the active travel network) a negative effect on population and human health (due to 	<ul style="list-style-type: none"> Development at the Gilston and A801 Union Canal (BUS21, BUS04) sites should incorporate a new broadleaved woodland corridor to connect up fragmented habitats to ensure significant positive effects on biodiversity; Development proposals at the Manuel Works and Gilston (BUS02, BUS21) sites should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity; Development at the Manuel Works (BUS02) site should retain areas of long established woodland of plantation origin and provide appropriately sized habitat buffers to mitigate significant negative effects on biodiversity and landscape; Development at the Manuel Works (BUS02) site should incorporate appropriately sized undeveloped habitat buffers adjacent to the Haining Wood Wildlife Site and the Union Canal SINC to and avoid severing the broadleaved woodland habitat network to mitigate negative effects on biodiversity; Development at the A801 Union Canal (BUS04) site should incorporate appropriately sized undeveloped habitat buffers adjacent to the Union Canal SINC to mitigate negative effects on biodiversity; Development at the Gilston (BUS21) site should avoid adversely impacting on the Gilston Burn riparian corridor to mitigate negative effects on biodiversity; Development at the Manuel Works (BUS02) site should incorporate new open space to meet local deficiencies in access to open space to ensure positive effects on population
Residual Environmental Effects After Mitigation/Enhancement												
+	-	+	-	+	-	-	+	-	-			

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>increased exposure to nuisance odour from the nearby landfill and the potential to compromise waste handling operations and increased exposure to nuisance noise from the adjacent railway line and increased noise from road traffic) air (due to increased emissions from motorised transport) climatic factors (due to increased emissions of greenhouse gases) material assets (due to increased use of primary resources in the construction process and increased traffic on the local road network)</p> <ul style="list-style-type: none"> • Development of the Gilston and A801 Union Canal (BUS21, BUS04) sites will have a significant negative effect on soil (due to loss of prime agricultural land). • Development of the Manuel Works and A801 Union Canal (BUS02, BUS04) sites could have a significant negative effect on cultural heritage (through adverse impact on the Union Canal SM and its setting) and a negative effect on biodiversity (through potential adverse impact on the Union Canal SINC) • Development of the Manuel Works (BUS02) site could have a significant negative effect on the setting on cultural heritage (through adverse impact on Almond Castle SAM and its setting); and a positive impact on cultural heritage (through the stabilisation and restoration of Almond Castle SAM) • Development of the Gilston (BUS21) site could have a negative effect on biodiversity (through adverse impact on riparian habitat) cultural heritage (due to potential adverse impact on an early house and doocot at Nicolton Farm) and landscape (due to adverse landscape and visual impact in an area of medium sensitivity to landscape change) • Development of the Beancross (BUS03) site could have a significant negative effect on water (due to fluvial flood risk affecting the site and cultural heritage (through an adverse effect on the Antonine Wall WHS); a negative effect on material assets (through degradation of the core path network) and landscape (through expansion of a business within the green belt) and a positive effect on population and human health (through reinforcing the green network). 	<p>and human health;</p> <ul style="list-style-type: none"> • Development at the Gilston (BUS21) site should contribute towards: the establishment of an accessible woodland buffer between the eastern extents of the site and the A801; and establish an accessible green network corridor along the Gilston Burn to ensure positive effects on population and human health; • Development at the Manuel Works and A801 Union Canal (BUS02, BUS04) sites should contribute towards landscape and access improvements at the John Muir Way to ensure positive effects on population and human health; • Sensitive land uses should be excluded from major hazard pipeline zones on the Manuel Works (BUS02) site to mitigate significant negative effects on population and human health • Development at the Manuel Works, Gilston and A801 Union Canal (BUS02,BUS21,, BUS04)should incorporate noise mitigation measures to mitigate negative effects on population and human health; • Development at the Manuel Works (BUS02) site should make safe unstable ground to ensure positive effects on soil; • Development at the Manuel Works (BUS02) site should investigate and remediate historic contamination to ensure significant positive effects on soil; • Development proposals at the Manuel Works, Beancross and Gilston (BUS02, BUS21) sites should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water; • All sites should incorporate on site LZCGT to ensure positive effects on material assets; • Development at the Manuel Works, Beancross, Gilston and A801 Union Canal (BUS02, BUS03, BUS216, BUS04)sites should improve the quality of the active travel network to ensure positive effects on material assets; • A Water Supply Impact Assessment will be required to determine capacity at Polmont's service reservoir which may need upgraded dependant on the cumulative scale of housing growth within its catchment to mitigate negative effects on material assets. • Development of the Manuel Works (BUS02) site should avoid severing the active travel network to mitigate negative effects on material assets; • Development at the Manuel Works and A801 Union Canal (BUS02, MU06) sites should be undertaken sensitively to avoid

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
											<p>adversely impacting on the Union Canal SAM or its setting to mitigate significant negative effects on cultural heritage;</p> <ul style="list-style-type: none"> Development at the Manuel Works (BUS02) site should be undertaken sensitively to avoid adversely impacting on Almond Castle or its setting to mitigate significant negative effects on cultural heritage; Archaeological investigation should be carried out at the early house and doocot at Nicolton Farm to mitigate negative effects on cultural heritage caused by development of the Gilston (BUS21) site; Development at the Manuel Works (BUS02) site should retain existing woodland and hedgerows; and provide a comprehensive landscape framework to integrate the new development into its surroundings to mitigate significant negative effects on landscape; Development at Beancross (BUS03) should be undertaken sensitively to avoid an adverse impact on the setting of the Antonine Wall WHS in order to mitigate significant negative effects on cultural heritage; Development at the Gilston (BUS216) site should: retain tree / hedgerow cover along watercourses, minor road (Nicolton Road) to the East and internally along former field boundaries; retain boundary tree cover and trees along the Eastern boundary to the A801 and on elevated land with woodland area in SE corner of site; ensure additional planting in areas of retained tree / hedgerow cover to enhance habitat network; retain distinct local rural landscape character of elevated wooded area in the South East corner of site and hedgerows / mature trees on the Southern section of Nicolton Road; ensure strong landscape treatment along the Northern boundary to A803 and to the West fronting Gilston Crescent and Gilston farm; and provide strong native species woodland buffer / screen planting around the proposed industrial/ business area to screen from existing and proposed housing and wider area to mitigate negative effects on landscape. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule and Development Guidance for Major Areas of Change; subsequent development framework and masterplans for the sites; and plan policies PE05 (Antonine Wall), PE06 (Archaeological Sites), PE12 (Canals); PE18 (Landscape), PE19 (Biodiversity and Geodiversity), PE20 (Trees, Woodland and Hedgerows), PE24 (Flood Management), JE06 (Major Hazards).
Local Business	Potential Environmental Effects before Mitigation/Enhancement									<ul style="list-style-type: none"> Development of the Maddiston Fire Station (BUS22) site could have a significant 	<ul style="list-style-type: none"> Development at Rosebank Distillery should be undertaken

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
Sites BUS08 BUS09 BUS22 BUS23	+ + +	+ + ++	++ ++ ++	+ + +	- N -	- - -	+ + +	+ + +	N N N	<p>positive effect on soil (due to regeneration of vacant/derelict land and removal of historic contamination and through making safe unstable ground) and material assets (through improving townscape value through regenerating brownfield land)</p> <ul style="list-style-type: none"> Development of the Maddiston Fire Station (BUS22) could have a positive effect on biodiversity (through connecting up fragmented parts of (due to the broadleaved woodland habitats network), population and human health (due to potential to improve the quality and connectivity of the green network and potential to improve the quality of existing open space), water (due to potential for watercourse restoration), material assets (through improving townscape value through regenerating brownfield land due to potential to increase the amount of LZCGT and potential to improve the quality of the active travel network). Development of the Maddiston Fire Station (BUS22) site could have a negative effect on biodiversity (through potential adverse impact on the Maddiston West Wildlife Site and through potential loss of scrubland and broadleaved woodland habitat), population and human health (through potential adverse impact on the green network, loss of open space and due to an increase in noise from road traffic), air (due to increase emissions from motorised transport), climatic factors (due to increased emissions of greenhouse gases) and material assets (due to increased traffic on the local road network, increased use of primary resource in the construction process, adverse impact on the water supply network and potential to sever the core path network) Development of the Maddiston Fire Station (BUS22) site could have a significant negative effect on biodiversity (through potential adverse impact on legally protected species) and water (due to potential fluvial flood risk) Development of the Maddiston Fire Station (BUS22) site could have a negative effect on biodiversity (through potential adverse impact on the Maddiston West Wildlife Site and through potential loss of scrubland and broadleaved woodland habitat), population and human health (through potential adverse impact on the green network, loss of open space and due to an increase in noise from road traffic), air due to increased emissions from motorised transport), climatic factors (due to increased emissions of greenhouse gases) and material assets (due to increased traffic on the local road network, increased use of primary resources in the construction process, adverse impact on the water supply network and potential to sever the core path network). Development of the Rosebank Distillery (BUS08) site could have a negative effect on biodiversity (through potential adverse effect on the Forth and Clyde Canal Wildlife Site and the Union Canal SINC) Development of the Callendar Business Park, (BUS09) site could have a negative effect on biodiversity (through loss of habitat); Development of all sites could cause cumulatively negative effects on air, climatic factors and material assets (through increased traffic generation and resultant increase in vehicular emissions and greenhouse gasses); Development of the Rosebank Distillery (BUS08) site could have a significant negative effect on cultural heritage (through adverse impact on the Category B 	<p>sensitively to minimise negative effects and maximise positive effects on cultural heritage, population and health and material assets</p> <ul style="list-style-type: none"> Proposals for Maddiston Fire Station (BUS22) should incorporate new broadleaved woodland planting to reinforce the broadleaved woodland network and ensure positive effects on biodiversity Proposals for Maddiston Fire Station (BUS22) should be accompanied by protected species surveys and appropriate mitigation should be employed to mitigation significant effects on biodiversity. Proposals for Maddiston Fire Station (BUS22) and Callendar Business Park (BUS09) (should be accompanied by ecological assessments which identify habitats of ecological value and be sensitively designed to mitigate negative effects on biodiversity Proposals for Maddiston Fire Station (BUS22) should contribute towards implementation of the Manuel Burn corridor green network opportunity to ensure positive effects on population and human health Proposals for Maddiston Fire Station (BUS22) should create open space or provide financial contributions toward the improvement of existing open space to ensure positive effects on population and human health Proposals for Maddiston Fire Station (BUS22) should investigate and remediate potential sources of historic contamination to ensure positive effects on soil Proposals for Maddiston Fire Station (BUS22) should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigated significant effects on water Development at Maddiston Fire Station (BUS22) should avoid severing the Manuel Burn green corridor to mitigate negative effects on population and human health, incorporate a robust habitat buffer between the wildlife site and development to mitigate negative effects on biodiversity; and investigate opportunities for watercourse restoration to ensure positive effects on water. Development of all sites should incorporate on site LZCGT to mitigate negative effects on climatic factors and also promote and encourage use of sustainable modes of travel (walking, public transport etc.) to mitigate negative effects on air, climatic factors and material assets. Further development at Grandsable Road (BUS23) site should be sensitively designed, taking into account the settings of
Residual Environmental Effects After Mitigation/Enhancement											

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
										<p>listed Rosebank Distillery; the Forth and Clyde Canal SM; and the Antonshill Conservation Area)</p> <ul style="list-style-type: none"> Development of the Rosebank Distillery (BUS08) site could have a significant positive effect on cultural heritage, population and human health and material assets (through redevelopment of brownfield land and restoration and re-use of the redundant Category B-listed building). Further development at Grandsable Road (BUS23) site could have significant negative impacts on water (due to potential fluvial risk) and on cultural heritage (due to adverse impacts on Antonine Wall WHS and its) Further development at Grandsable Road (BUS23) site could pose negative effects on landscape due to visual and landscapes impacts of further development within the setting of the greenbelt and related loss of settlement setting and amenity. 	<p>green belt, settlements and related amenity, to avoid negative effects on landscape.</p> <ul style="list-style-type: none"> Further development at Grandsable Road (BUS23) site should be undertaken sensitively to avoid adversely impacting on the setting of the Antonine Wall WHS to mitigate significant negative effects on cultural heritage; Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule; subsequent masterplans; and plan policies PE05 (Antonine Wall), PE06 (Archaeological Sites), PE12 (Canals), Flood Management (PE24) and .PE18 (Biodiversity and Geodiversity). In addition, Grandsable Road has detailed planning permission with mitigation provided by associated conditions 	
<p>Tourism Opportunities</p> <p>BUS01 BUS10 BUS11</p>	<p>Potential Environmental Effects before Mitigation/Enhancement</p>										<ul style="list-style-type: none"> Development of the Wester Carmuir (BUS10) site could have a significant negative effect on cultural heritage (due to potential adverse impact on the setting of the Antonine Wall WHS and Roman Camp Scheduled Monument) Development of the Kinneil Walled Garden (BUS01) site could have a positive effect on cultural heritage (through enabling the restoration of the category C listed walled garden) a significant negative effect on cultural heritage (due to potential adverse impact on the setting of the category A listed Kinneil House and the Antonine Wall WHS) and a negative effect on cultural heritage (due to potential adverse impacts on the category C listed walled garden and the setting of the C listed duchess Anne Cottages and Kinneil Estate non inventory designed landscape) Development of the Kinneil Walled Garden, Wester Carmuir, and Falkirk Wheel (BUS01, BUS10, BUS11) sites could have a positive effect on population and human health (due to potential to improve the quality and connectivity of the green network) and material assets (due to the potential to improve the quality of the active travel network and increase the amount of LZCGT) and a negative effect on population and human health (due to increased road traffic noise) air (due to increased traffic related emissions) climatic factors (due to increased greenhouse gas emissions) and material assets (due to increased congestion on the local road network) Development of the Falkirk Wheel (BUS11) site could have a significant negative effect on cultural heritage (due to potential adverse impact on the Forth and Clyde Canal Scheduled Monument and the Antonine Wall WHS) and negative effects on biodiversity (due to potential adverse impact on the Roughcastle and Forth and Clyde Canal Wildlife Sites) population and human health (due to loss of open space) material assets (due to potential to sever the active travel network) and landscape (due to potential landscape and visual impacts) Development of the Wester Carmuir and Falkirk Wheel sites (BUS10, BUS11) could have a significant negative effect on water (due to potential fluvial flood risk) 	<ul style="list-style-type: none"> Development at the Falkirk Wheel (BUS11) site should incorporate suitably wide undeveloped buffer zones around the adjacent Roughcastle and Forth and Clyde Canal Wildlife Sites to mitigate negative effects on biodiversity; Development at the Falkirk Wheel (BUS11) site should contribute towards landscape and access improvements along the John Muir way to ensure positive effects on population and human health; Any loss of open space caused by development at the Falkirk Wheel (BUS11) site should be compensated for through improvements to other parts of the open space resource to mitigate negative effects on population and human health; Development of the Wester Carmuir (BUS10) site should contribute towards opportunities for watercourse restoration and habitat enhancement alongside the Carmuir burn to ensure positive effects on population and human health; Development at the Kinneil Walled Garden (BUS01) should contribute towards creating a recreational node at Kinneil Estate to ensure positive effects on population and human health Development of all sites should incorporate on site LZCGT to ensure positive effects on material assets; Development of all sites should contribute towards the improvement of the active travel network to ensure positive effects on material assets; Development of the Falkirk Wheel (BUS11) site should avoid severing the active travel network to mitigate negative effects on material assets; Development of the Kinneil Walled Garden (BUS01) site should be undertaken sensitively to avoid adverse impact on the category A listed Kinneil House, category C listed Walled
<p>Residual Environmental Effects After Mitigation/Enhancement</p>												

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
											<p>Garden and Duchess Anne House, the Antonine Wall WHS and the Kinneil Estate non inventory designed landscape to mitigate significant negative effects on cultural heritage;</p> <ul style="list-style-type: none"> Development of the Wester Carmuir (BUS10) site should be undertaken sensitively to avoid adverse impact on the setting of the Antonine Wall WHS and SAM to mitigate significant negative effects on cultural heritage; Development of the Falkirk Wheel (BUS11) site should be undertaken sensitively to avoid adversely impacting on the setting of the Forth and Clyde Canal SAM and the Antonine Wall WHS to mitigate significant negative effects on cultural heritage. Development of the Wester Carmuir and Falkirk Wheel sites (BUS10, BUS11) should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water. Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule; subsequent masterplans; and plan policies PE05 (Antonine Wall), PE06 (Archaeological Sites), PE12 (Canals), Flood Management (PE24) and .PE18 (Biodiversity and Geodiversity). In addition, Grandsable Road has detailed planning permission with mitigation provided by associated conditions
SPATIAL STRATEGY: TOWN CENTRES											
Falkirk Town Centre MU12-MU15	Potential Environmental Effects before Mitigation/Enhancement									<ul style="list-style-type: none"> Development of the Callendar Riggs (MU13) site could have a positive effect on population and human health (through improving the quality of existing open space) and a negative effect on material assets and cultural heritage (through adversely affecting townscape quality and non-listed buildings of architectural merit by threatening an existing attractive 1930s frontage to Callendar Riggs). It could have a significant positive effect on material assets (through upgrading of the bus station) Development of Grahamston (MU12) site could have a positive effect on population and human health (through creation of new open space which helps to meet an existing local deficit in access to open space) and cultural heritage (through enhancing Falkirk Town Centre Conservation Area and its setting) and a negative effect on water (due to potential surface water flood risk) and cultural heritage (through degrading the quality of Falkirk Town Centre Conservation Area and its setting) Development of all the sites could have a significant positive effect on soil (through removal of significant amounts of historic contamination) and material assets (due to improving townscape quality through regeneration of brownfield land and increasing the amount of LZCGT) a significant negative effect on air (due to 	<ul style="list-style-type: none"> Development of the Callendar Riggs (MU13) site should provide financial contributions towards the improvement of off-site open space to positive effects on population and human health; Development of the Grahamston (MU12) site should involve the creation of new open space to ensure positive effects on population and human health; Development of the Grahamston and Callendar Riggs (MU12, MU13) sites should incorporate suitable noise mitigation measures to mitigate negative effects on population and human health; Development proposals at the Grahamston (MU12) site should be accompanied by drainage strategy which adequately manage existing surface water flood risk to mitigate negative effects on water; Development of all sites should incorporate on site LZCGT to ensure positive effects on material assets; Development proposals at the Callendar Riggs (MU13) site
Residual Environmental Effects After Mitigation/Enhancement											

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation																						
										<p>increasing the population exposed to reduced air quality associated with the Falkirk Town Centre AQMA) a negative effect on population and human health (due to noise impact from adjacent busy local roads and marginally increased traffic related noise impacts) air (due to an increase in traffic related air pollution) climatic factors (due to increased release of greenhouse gases) and material assets (increased use of primary resources in the construction process and increased vehicular traffic on the local road network)</p> <ul style="list-style-type: none"> Development at the Bank Street and Williamson Street (MU14, MU15) sites could have a positive effect on cultural heritage (through enhancing Falkirk Town Centre Conservation Area and its setting) and a negative effect on cultural heritage (through degrading the quality of Falkirk Town Centre Conservation Area and its setting) Development of the Williamson Street (MU15) site could have a significant negative effect on cultural heritage (due to potential for adverse impacts on the Antonine Wall WHS) 	<p>should include the retention and enhancement of the attractive 1930s frontage to Callendar Riggs to mitigate negative effects on material assets and cultural heritage; and ensure incorporation of an improved bus station to ensure significant positive effects on material assets.</p> <ul style="list-style-type: none"> Development of the Grahamston, Bank Street and Williamson Street (MU11) sites should be undertaken sensitively to enhance the Falkirk Town Centre Conservation Area and its setting to ensure positive effects and mitigate negative effects on cultural heritage; Development proposals at the Williamson Street (MU15) site should be accompanied by a heritage assessment which assesses the impact of development on the outstanding universal value of the Antonine Wall WHS to mitigate potential significant adverse impacts on cultural heritage. <p>Mitigation/enhancement will be provided by plan policies PE05 (Antonine Wall) and, PE25 (Air Quality).</p>																						
<p>District and Local Centres</p> <p>MU01 MU05 MU10 MU17 MU18</p>	<p>Potential Environmental Effects before Mitigation/Enhancement</p>										<ul style="list-style-type: none"> Development of the Church Walk (MU10) site could have a significant positive effect on population and human health and material assets (through regenerating a prominent vacant site and significantly improving townscape value) a significant negative effect on material assets (due to increased traffic on the local road network impacting on Denny Cross which is currently operating over capacity) and a negative effect on cultural heritage (through potential adverse impact on the setting of the category B listed Denny Parish Church and the Denny Area of Townscape Value) Development of the Carron Road and Links Road (MU10, MU01) sites could have a positive effect on population and human health (through improving the quality of existing open space) and a negative effect on water (due to potential surface water flood risk) 	<ul style="list-style-type: none"> Development of the Carron Road and Links Road (MU10, MU01) sites should provide financial contributions towards the improvement of off-site open space to ensure positive effects on population and human health; Development of the Grangemouth Town Centre (MU18) site should incorporate the creation of new park or amenity space of 0.2ha or greater to meet a local deficiency in access to open space and ensure positive effects on population and human health; Development of the Carron Road and Links Road (MU10, MU01) sites should incorporate suitable noise mitigation measures to mitigate negative effects on population and human health; The number of new houses within the Grangemouth Town Centre (MU18) site should be restricted to avoid unacceptably increasing the population exposed to risk of injury from major hazards and mitigate significant negative effects on population and human health; Development at the Links Road (MU01) site should investigate and remediate potential sources of historic contamination to ensure positive effects on soil; Development proposals at the Grangemouth Town Centre (MU18) site should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water. Mitigation may also be secured through the Grangemouth Flood Protection Scheme 																					
	<p>Residual Environmental Effects After Mitigation/Enhancement</p>																																
	N	+	-	++	-	+	-	-	+	-	+	-	-	+	-	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-	+	-	N

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation																																													
										<p>loss of broadleaved woodland habitat) population and human health (due to exposure to nuisance noise and odour from adjacent iron foundry) and cultural heritage (due to potential adverse impact on the setting of the category B listed Ballantine Bo'ness Iron Company Warehouse and Pattern Shop and the Bo'ness Town Centre Conservation Area)</p> <ul style="list-style-type: none"> Development of all sites could have a positive effect on material assets (due to increasing the amount of LZCGT) negative effect on population and human health (through marginally increased traffic related noise impacts) air (due to an increase in traffic related air pollution) climatic factors (due to increased release of greenhouse gases) and material assets (increased use of primary resources in the construction process and increased vehicular traffic on the local road network) Development of the Grangemouth Town Centre and Links Road (MU18, MU01) sites could have a positive effect on material assets (through improving the quality of the active travel network) 	<ul style="list-style-type: none"> Development proposals at the Carron Road and Links Road (MU10, MU01) sites should be accompanied by drainage strategies which adequately manage existing surface water flood risk to mitigate negative effects on water; Development of all sites should incorporate on site LZCGT to ensure positive effects on material assets; Development at the Church Walk (MU10) site should provide proportionate financial contributions towards the construction of the Denny Eastern Access Road to mitigate significant negative effects on material assets; Development of the Grangemouth Town Centre and Links Road (MU18, MU01) sites should contribute towards the improvement of the active travel network to ensure positive effects on material assets; Development at the Church Walk (MU10) site should be undertaken sensitively to avoid adversely impacting on the category B listed Denny Parish Church and the Denny Area of Townscape Value to mitigate negative effects on cultural heritage; Development at the Grangemouth Town Centre (MU18) site should be undertaken sensitively to avoid adversely impacting on the category A listed Dundas Church and the C listed former La Scala Cinema and the Grangemouth Area of Townscape Value to mitigate significant negative effects on cultural heritage; Development of the Links Road (MU01) site should be undertaken sensitively to avoid adversely impacting on the setting of the category B listed Ballantine Bo'ness Iron Company Warehouse and Pattern Shop and the Bo'ness Town Centre Conservation Area to mitigate negative effects on cultural heritage; Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule, and plan policies PE07 (Listed Buildings), PE24 (Flood Management), PE26 (Air Quality), JE06 (Major Hazards), IR02 (Developer Contributions). 																																													
SPATIAL STRATEGY; INFRASTRUCTURE																																																								
Infrastructure Proposals IN01-IN40	Potential Environmental Effects before Mitigation/Enhancement									Strategic transport proposals	<ul style="list-style-type: none"> All proposals involving additional land take should be accompanied by ecological assessments which identify habitats of ecological value and should be designed to retain these area to avoid negative effects on biodiversity; The Dalderse Waste Water treatment Works upgrade (IN19) should be accompanied by a project specific appropriate assessment which demonstrates that the scheme can be carried out without having an adverse effect on the River Teith 																																													
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
	+	-	+	-	+	-	+	-	-	<p>emissions)</p> <ul style="list-style-type: none"> The delivery of these projects may also have negative effects on biodiversity (through loss of habitat) and soil and landscape (through development on greenfield land) Junction improvement proposals present the opportunity for capturing the surface water which currently runs off existing roads and storing it in SUDS this could have a positive effect on water (through improving run off quality and reducing flood risk) and material assets (through reducing pressure on the sewerage network) The M9 junction 5 upgrade (IN03) could have a significant negative effect on cultural heritage (through adversely impacting on the setting of the Antonine Wall at Cadger's Brae); M80J7 Improvement (IN04) could have a negative effect on material assets (through degrading townscape value) and landscape (due to adverse landscape impacts) The A801 corridor Avon Gorge (IN05) upgrade will have a significant negative effect on landscape (through major adverse landscape impact) and soil (through loss of prime agricultural land) <p><u>Local transport proposals</u></p> <ul style="list-style-type: none"> New local road network infrastructure will act to ease congestion. Increasing the capacity of the road network will have significant positive effects on material assets. There are likely to be both significant positive and negative effects on air and population and human health in the short term (due to increased or decreased noise, vibration, emissions etc.). However, in the long term the net effect of road improvements is likely be significantly negative for climatic factors (through increased greenhouse gas emissions). The A904 corridor improvement proposals in Falkirk (IN06) could have a positive effect on population and human health and material assets (through improving active travel access to the Helix and increasing recreational opportunity) but could also have a negative effect on population and human health (due to loss of open space) The A803 corridor improvement proposals in Falkirk (IN07) could have a significant negative effect on cultural heritage (through adversely impacting on the setting of the Forth and Clyde Canal SM) a negative effect on population and human health (through loss of open space) and material assets (through adversely affecting townscape value) The Grangemouth Access Improvements (IN08) have not been fully scoped out but could have a significant adverse impact on biodiversity (due to potential impact on legally protected species) and water (due to potential impact on adjacent watercourses); and a negative impact on biodiversity (due to loss of habitat) and soil (due use of greenfield land) The Denny Eastern Access Road (IN09) proposal could have a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) 	<p>SAC either alone or in combination with other plans and projects to mitigate significant negative effects on biodiversity;</p> <ul style="list-style-type: none"> The A904/A993 junction improvement project in Bo'ness (IN10) should avoid encroaching on the Bo'ness Foreshore Wildlife Site to mitigate any negative effects on biodiversity; The DEAR and all Cemetery Extension projects (IN09, IN37-40) should be accompanied by protected species surveys and appropriate mitigation employed to avoid significant negative effects on biodiversity; The DEAR project (IN09) should incorporate new broadleaved woodland planting to connect up fragmented parts of the broadleaved woodland habitat network and ensure significant positive effects on biodiversity The A904 and A803 corridor improvement, the DEAR and the A904/A993 junction improvement projects (IN06, IN07, IN09, IN10) should provide financial compensation for the loss of any open space which should be invested in improving the quality of open space elsewhere to mitigate negative effects on population and human health; The Falkirk-Denny/Bonnybridge Path and Bo'ness to Grangemouth Path (IN16, IN17) proposals should avoid disturbing major hazard pipelines to mitigate significant negative effects on population and human health; Capacity enhancements all schools should ensure that development does not lead to the school having an inadequate amount of playground space to meet the needs of the increased school population to mitigate negative effects on population and human health; The A904 corridor improvement project (IN06) should incorporate enhanced pedestrian and cycle crossing facilities to ensure positive effects on population and human health and material assets All Cemetery Extension Projects (IN37-IN40) should be accompanied by a detailed assessment of suitability of ground conditions and potential mitigation in relation to SEPA's guidance on assessing the impacts of cemeteries on groundwater to mitigate negative effects on water. Redevelopment proposals at Falkirk Bus Station (IN12) should be of a high quality design to improve townscape value and ensure positive effects on material assets; The Denny Cross upgrade project (IN09) should be carried out sensitively to avoid adversely impacting on the category B listed Denny Parish Church or the Denny Area of Townscape Value to mitigate negative effects on cultural heritage;

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>a negative effect on biodiversity (through loss of habitat) population and human health (through noise impact on future residents and loss of open space) soil (through use of greenfield land) water (through a potential new road culvert over the Little Denny Burn) and landscape (through adverse landscape and visual impact). However, it also has the potential to have a significant positive effect on biodiversity (through creating new broadleaved habitat linking significant existing habitat networks) and positive effect on air and material assets (through reducing existing traffic congestion at Denny Cross)</p> <ul style="list-style-type: none"> The Denny Cross upgrade (IN09) could have a negative effect on cultural heritage (through potential adverse impact on the setting of the category B listed Denny Parish Church and the Denny Area of Townscape Value) The A904/A993 junction improvement project in Bo'ness (IN10) could have a significant negative effect on cultural heritage (due to potential adverse impact on the Antonine Wall WHS) and a negative effect on biodiversity (due to potential adverse impact on the Bo'ness Foreshore Wildlife Site) and population and human health (due to loss of open space) C116 Waterslap Road Improvement (IN11) could have a negative effect on landscape (due to adverse landscape impact in the greenbelt) <p><u>Public transport proposals</u></p> <ul style="list-style-type: none"> Improvements to sustainable transport infrastructure will have a significant positive effect on air and climatic factors (through reducing traffic growth and greenhouse gas emissions) and material assets (through reducing use of the road network) Improvements at Falkirk Bus Station (IN12) could have a positive effect on material assets (due to improving townscape value at an important gateway to Falkirk) The safeguarding of sites for future railway stations at Grangemouth and Bonnybridge (IN13, IN14) will not have any environmental effect. The Greenhill Junction rail improvement (IN15) could have a significant negative effect on biodiversity (due to potential adverse impact on legally protected species) <p><u>Active travel</u></p> <ul style="list-style-type: none"> Active travel proposals (IN16-IN18) will lead to a significant positive effect on population and human health and material assets (through creation of new and improved path networks leading to enhanced recreational opportunity) Falkirk-Denny/Bonnybridge Path and Bo'ness to Grangemouth Path (IN16, IN17) proposals could have a significant negative effect on population and human health (due to potentially impacting on a major hazard pipeline) The Bo'ness to Grangemouth Path and A904 Road Realignment proposals (IN17) 	<ul style="list-style-type: none"> The M9J5 upgrade, A904/A993 junction improvement, Bo'ness to Grangemouth Path and A904 Road Realignment (IN03, IN10, IN17) proposals should be carried out sensitively to avoid adversely impacting on the setting of the Antonine Wall WHS to mitigate significant negative effects on cultural heritage; The A803 corridor improvement project (IN07) should be carried out sensitively to avoid adversely impacting of the Forth and Clyde Canal SAM and its setting to mitigate significant negative effects on cultural heritage; Development of the new Falkirk Community Hospital (IN33) should be carried out sensitively to avoid adversely affecting the setting of the Arnothill Conservation Area and mitigate negative effects on cultural heritage; Screen planting and boundary landscaping should be carried out for all strategic and local road projects where appropriate to mitigate negative effects on landscape; Mitigation/enhancement will be provided by wording in the Proposals and Opportunities Schedule, and plan policies PE05 (Antonine Wall), PE06 (Archaeological Sites), PE18 (Biodiversity and Geodiversity); PE20 (Trees, Woodland and Hedgerows) and, PE21 (The Water Environment)

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>could have a significant negative effect on cultural heritage (through potential adverse impact on the setting of the Antonine Wall WHS)</p> <p><u>Drainage and Flood Management</u></p> <ul style="list-style-type: none"> Upgrades to Waste Water Treatment Works at Whitecross, Torwood and Dalderse (IN19-IN21) will have a significant positive effect on material assets (through increasing the capacity of environmental infrastructure) and a positive effect on water (through improving the quality of effluent being discharged from existing WWTW) Upgrades to Waste Water Treatment Works at Dalderse (IN19) could have a significant negative effect on biodiversity (due to likely significant effect on the River Teith SAC caused by sediment release during construction and increased water pollution during operation) <p><u>Education, Healthcare and Community Facilities</u></p> <ul style="list-style-type: none"> Capacity enhancements Denny, Braes and Graeme High Schools (IN23-IN25) and at Kinnaird, Denny, Maddiston, Bankier, , Whitecross and Head of Muir Primary Schools (IN26-IN32) are likely to involve the loss of existing school grounds which could have a negative effect on population and human health (through reducing recreational opportunity) The New Falkirk Community Hospital (IN33) will be on the site of the former Falkirk Royal Infirmary. This will have significant positive effects on population and human health and material assets (through improving townscape quality by regenerating a brownfield site) but could also have negative effects on cultural heritage (through adversely affecting the setting of the Arnohill Conservation Area) The new 3G Pitch Hubs (23) will have a positive effect on population and human health (through improving recreational opportunity) but potentially a negative effect on population and human health (due to increased noise and light pollution on any neighbouring residential areas. <p><u>Cemeteries</u></p> <ul style="list-style-type: none"> Extensions at Camelon, Muiravonside, Hills of Dunipace, Weedingshall (24) could have a positive effect on population and human health (through creation of new open space) a significant negative effect on biodiversity (through potential adverse impact on legally protected species) and water (due to potential detrimental effect on groundwater quality and potential surface water flood risk) and a negative effect on biodiversity (through potential loss of woodland) and landscape (due to potential adverse landscape and visual effects) 	

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
Energy	Potential Environmental Effects before Mitigation/Enhancement										<p>The spatial strategy for energy highlights three specific elements:</p> <ul style="list-style-type: none"> Spatial framework for wind energy development Heat network development with focus on Grangemouth Energy Project area Thermal energy generation with carbon capture and storage in Grangemouth (as per NPF3) <p>The spatial framework for wind energy development provides a generally positive framework for new wind energy capacity. As such there will potentially be significant positive effects on air (through reductions in pollution from fossil fuel burning energy generation), climatic factors (through reduction in greenhouse gas emissions) and material assets (through installation of significant renewable energy development). Wind energy developments have the potential for negative effects on biodiversity, population and human health, soil, water, air, cultural heritage and landscape. However, the spatial framework, which reflects SPP, identifies areas of significant protection, and as such should avoid any significant negative effects.</p> <p>The spatial strategy for heat networks may encourage the development of heat sources close to the proposed heat network opportunities in Grangemouth. There is the potential for a significant negative effect on air (due to increasing industrial and traffic related emissions in an Air Quality Management Area) and a positive effect on climatic factors and material assets (if new heat sources use renewable energy which displaces the use of heat from non-renewable sources)</p> <p>Developing the pipework necessary to operate heat networks could have a range of environmental effects depending on the sensitivity of the environment where they are installed. At this stage the location of potential heat networks are too generalised to know with any accuracy where new pipework infrastructure will be laid, therefore the environmental effects of putting in this infrastructure cannot be meaningfully predicted at this stage.</p> <p>No site has as yet been specified in the Proposed Plan for the CCS project, and so it is only possible to generalise about its environmental effects. In general, negative effects likely to be similar to those generated by the Grangemouth Investment Zone, i.e. potential significant negative effects on biodiversity (due to disturbance/loss of supporting habitat in relation to Firth of Forth/Forth Islands SPA, Firth of Forth and St Andrew's Bay pSPA, River Teith SAC species), population and human health (due to increased noise and disturbance from increased industrial traffic), air (due to increased emissions from plant and industrial traffic in an AQMA), water (due to development in an area of coastal flood risk). There would be potential significant positive effects on climatic factors (through reduction in emissions arising from CCS technology) and material assets (through development of low carbon technology).</p>	<p>The spatial framework for wind energy development should be underpinned by a robust energy generation policies and associated topic policies and supplementary guidance to mitigate potential negative effects.</p> <p>In respect of any future CCS project, this should where necessary be accompanied by an appropriate assessment which demonstrates that development can be carried out without causing an adverse impact on the integrity of the Firth of Forth SPA; the Forth Islands SPA; the Firth of Forth and St Andrews Bay pSPA and the River Teith SAC either alone or in combination with other plans and projects to mitigate significant negative effects on biodiversity. Any site selected for CCS should be accompanied by a flood risk assessment and areas at risk of flooding should be excluded from development to mitigate significant negative effects on water. Alternately, the Grangemouth Flood Protection Scheme may provide suitable mitigation. New thermal heat source constructed in Grangemouth should ensure its feed stock is not delivered by road to mitigate significant negative effects on air and population and human health.</p>
Residual Environmental Effects After Mitigation/Enhancement												

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
Onshore Gas and Minerals	Potential Environmental Effects before Mitigation/Enhancement										<p>The spatial strategy for onshore gas and minerals highlights three specific elements:</p> <ul style="list-style-type: none"> • Areas of search for surface coal mining in the Slamannan Plateau; • Operational quarries north of Denny • PEDL licence areas identified as required by SPP <p>The areas of search for surface coal mining exclude areas of known resources around Airth and Banknock, specifically so as to avoid potentially significant negative effects on landscape, population and human health and cultural heritage in these localities. Within the areas of search on the Slamannan Plateau, proposals could have a wide range of significant negative effects including on biodiversity, population and human health, soil, water and landscape, and negative effects on air and climatic factors. There are also potential significant positive effects on soil and landscape (through site restoration).</p>	The Proposed Plan contains a robust policy on the assessment of mineral proposals (Policy IR16) which, together with the environmental policies to which it refers will mitigate significant environmental effects across the range of relevant environmental areas.
	Residual Environmental Effects After Mitigation/Enhancement											
	-	-	-	+	-	-	-	N	N	-		
										<p>The identification of existing, consented operational quarries within the Council area does not, in itself have any environmental effects. Policy IR16 deals with the assessment of mineral applications – its environmental effects are assessed elsewhere.</p> <p>Likewise the identification of the PEDL licence areas, as required by SPP, has no specific environmental effects.</p>		
POLICIES: PLACE AND ENVIRONMENT												
PE01 Placemaking	++	++	N	++	++	++	++	++	++	++	<p>This is a broadly based placemaking policy which consolidates previous design policies, is based around the Scottish Government's six qualities of successful places and cross references to other relevant environmental policies. It will have wide ranging significant positive effects on biodiversity (through encouraging green infrastructure and sensitive integration of natural features), population and human health (through encouraging the creation of safe and accessible places), water (through encouraging sustainable water management in development), air and climatic factors (through encouraging active travel and thereby reducing vehicle pollution and emissions), material assets (through improving townscape); cultural heritage (through sensitive integration of historic environment feature); and landscape (through encouraging green infrastructure).</p> <p>Alternative policy approaches have been assessed at the MIR stage and are reported in original Environmental Report.</p>	Enhancement will be provided by the supporting policies and associated supplementary guidance.
PE02 Placemaking Tools	++	++	N	++	++	++	++	++	++	++	<p>This policy is a partner policy to PE01 and identifies the means by which PE01 will be implemented. As such the environmental effects are seen as being similar to those for PE01.</p>	
PE03 Advertisements	N	N	N	N	N	N	N	N	N	N	<p>This policy indicates that proposals for advertisements will not be permitted where they would have an adverse effect on the visual amenity of the property or the wider area, or would create a road safety hazard. This should safeguard against potentially significant negative effects on population and human health (through the creation of road safety hazards) and material assets (through degradation of townscape quality).</p> <p>There are no reasonable alternatives, other than not having such a policy.</p>	
PE04	N	N	N	N	N	N	+	+	N		<p>This policy indicates that the design of new or altered shopfronts should be well-</p>	Enhancement will be provided by supplementary guidance on

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
Shopfronts										<p>proportioned and sympathetic to the character of the building of which they are part. This should safeguard against potentially significant negative effects on material assets (through degradation of townscape quality) and cultural heritage (through adversely affecting the character and setting of listed buildings and conservation areas) but also lead to positive effects on material assets and cultural heritage (through improved design of shopfronts).</p> <p>There are no reasonable alternatives, other than not having such as policy.</p>	shopfronts.
PE05 Antonine Wall	N	N	N	N	N	N	N	++	N	<p>This policy indicates that the Council will seek to retain, protect, preserve and enhance the Antonine Wall, its associated archaeology, character and setting. This should safeguard against potentially significant adverse impacts on cultural heritage, as well as securing a significant positive effect on cultural heritage.</p> <p>This is an agreed policy with the other planning authorities covering the Antonine Wall, and reflects commitments made through the inscribing of the Wall as a WHS.</p> <p>There are no reasonable alternatives.</p>	Enhancement will be provided by supplementary guidance.
PE06 Archaeological Sites	N	N	N	N	N	N	N	--	N	<p>This policy indicates that developments which have an adverse effect on scheduled monuments or their setting will not be permitted unless there are exceptional circumstances and that all other archaeological resources will be preserved in situ wherever feasible. This should safeguard against potentially significant adverse impacts on cultural heritage, although the policy does allow development with adverse impacts in exceptional circumstances, allowing the possibility of significant negative effects.</p> <p>The policy reflects SPP and there are no reasonable alternatives.</p>	Mitigation is provided in the policy through the requirement to make provision for excavation, recording, analysis and publication in the event of development being permitted
PE07 Listed Buildings	N	N	N	N	N	N	+	++	N	<p>This policy supports the sustainable re-use and management of the historic built environment, encourages the sensitive restoration of listed buildings, seeks to preserve their character and setting, and indicates the exceptional circumstances in which demolition would be considered. Therefore the policy will have significant positive effects on cultural heritage (through supporting sensitive restoration of listed buildings) and positive effects on material assets (through associated townscape improvement).</p> <p>The policy reflects SPP and HES policy and there are no reasonable alternatives.</p>	Enhancement will be provided by supplementary guidance.
PE08 Conservation Areas	N	N	N	N	N	N	+	++	N	<p>This policy seeks to preserve and enhance the character, amenity and setting of conservation areas, and to prevent the demolition of unlisted buildings in conservation areas unless exceptional circumstances apply. As well as safeguarding against significant negative effects, the policy should have significant positive effects on cultural heritage (through supporting sensitive new development in conservation areas) and positive effects on material assets (through associated townscape improvement).</p> <p>The policy reflects SPP and HES policy and there are no reasonable alternatives.</p>	Enhancement will be provided by supplementary guidance.
PE09	N	N	N	N	N	N	+	+	N	This policy seeks to maintain the distinctive character of locally defined areas of	

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
Areas of Townscape Value										townscape value, which are not as yet designated as conservation areas, but may have potential for conservation area status in the future. This should have positive effects on cultural heritage (through supporting sensitive new development in areas of townscape value) and material assets (through associated townscape improvement)	
PE09 Areas of Townscape Value	N	N	N	N	N	N	-	-	N	The alternative is not to identify areas of townscape value, this being a local designation which is not specifically provided for in legislation, SPP or HES policy. This is likely to make it more difficult to enforce sensitive design in these areas of lesser value resulting in negative effects on cultural heritage and material assets .	
Alternative											
PE10 Historic Gardens and Designed Landscapes	N	N	N	N	N	N	N	++	++	This policy seeks to protect and secure sensitive restoration of both Inventory Gardens and Designed Landscapes and non-inventory sites. As well as safeguarding against significant negative impacts, the policy should have significant positive effects on cultural heritage and landscape (through encouraging good design and restoration of historic gardens and designed landscapes). The policy reflects SPP and HES policy and there are no reasonable alternatives.	Enhancement will be provided by supplementary guidance, which identifies non-inventory sites of potential value.
PE11 Battlefield Sites	N	N	N	N	N	N	N	++	N	This policy protects sites covered by the Inventory of Historic Battlefields and also encourages sensitive management and interpretation of these sites. Therefore, as well as avoiding significant negative effects, there should be significant positive effects on cultural heritage (through bringing battlefield sites under management). The policy reflects SPP and HES policy and there are no reasonable alternatives.	
PE12 Canals	+	++	N	+	N	N	++	++	+	This policy acknowledges the importance of the Lowland Canals to the area and supports their sustainable development, with reference to the range of environmental, recreational, social and development benefits which they offer. The policy should have a significant positive effect on population and human health , material assets and cultural heritage (through enhancement of the canals as a strategic recreational and cultural asset), a positive effect on biodiversity , water and landscape (through enhancement of the ecology, amenity and built heritage of the canals). Other significant negative effects which could occur from canal related development will be avoided due to need to conform with other LDP policies. This policy accords with national and local strategies on canals are no reasonable alternatives.	
PE13 Green and Blue Network	++	++	++	++	++	++	++	N	**	This policy provides support for the delivery of the green network strategies in the area including the promotion of specific opportunities identified in the Proposed Plan (and previously assessed as part of the Spatial Strategy) and opportunities within new development. Considered in general terms, the policy is expected to have significant positive effects for all receptors apart from cultural heritage. This policy accords with national and local strategies on the green network and there are no reasonable alternatives.	Enhancement to ensure incorporation of the policy within new development will be provided by supplementary guidance and other more detailed topic policies within the Proposed Plan.
PE14	-	+	++	++	++	++	++	N	++	This policy generally constrains new development to within defined Urban and Village	Enhancement will be provided by supplementary guidance.

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation		
Countryside	-	+								Limits except in exceptional circumstances. It will tend to concentrate development within the urban area and will therefore have significant positive effects on population and human health, soil and material assets (through encouraging the regeneration of brownfield sites, remediation of contaminated sites and townscape improvement), water (through avoiding proliferation of private sewage treatment plants), landscape (through protecting the landscape setting of settlements). It should have significant positive effects on air and climatic factors (through reducing the need to travel and consequent transport pollution and emissions). There are potential significant positive and negative effects on biodiversity (through restricting loss of habitat in the countryside, but making loss of urban brownfield habitat more likely).			
PE15 Green Belt	-	+	+	+	+	+	+	N	+	This policy constrains new development within green belt areas within there is a stronger and longer term presumption against development than the general countryside. As with the countryside policy, the effect will be one of urban consolidation and the environmental effects may be expected to be similar to those for the countryside policy. Because of the more limited extent of the green belt, relative to the countryside, the effects are identified as positive, rather than significant positive.			
PE16 Protection of Open Space	N	-	+	N	N	N	N	-	+	N	N	This policy offers protection to open space and outdoor sports facilities subject to certain criteria. It should avoid significant negative effects on landscape (through loss of the amenity value of open space) and negative effects on biodiversity (through loss of ecologically valuable open space). The policy makes provision for compensation in the event of the loss of open space of recreational value. This could give rise to both positive and negative effects on population and human health and material assets (through degradation or enhancement of the green network and open space resource). The policy reflects SPP and there are no reasonable alternatives	
PE17 Open Space and New Development	+	++	N	N	N	N	++	N	++	This policy sets out how new development should contribute to the provision of open space. There will significant positive effects on population and human health (through enhancement of the green network), landscape (through provision of landscaped open space) and material assets (through improvement of townscape), and positive effects on biodiversity (through creation of new habitat). Alternative policy approaches have been assessed at the MIR stage and are reported in original Environmental Report.	Enhancement will be provided by supplementary guidance.		
PE18 Landscape	N	N	N	N	N	N	N	N	+	This policy seeks to protect and enhance landscape character and quality, with particular reference to Local Landscape Areas. The policy will protect against significant negative effects on landscape, but could also result in some positive effects for landscape (through active landscape improvement implemented as part of proposals). The policy reflects SPP and SNH guidance and there are no reasonable alternatives.	Enhancement will be provided by supplementary guidance.		
PE19 Biodiversity and Geodiversity	-	+	N	N	N	N	N	N	N	The policy sets out a tiered approach to the protection of international, national and locally important habitats and species, including provision for mitigation. The policy will guard against significant negative effects on designated sites and species. However, the policy refers to circumstances where ecological considerations can be overridden by social or economic factors of varying degrees of importance, and so significant negative	Enhancement will be provided by supplementary guidance.		

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										effects on biodiversity could still occur. There is the also potential for significant positive effects on biodiversity (through habitat improvement and management measures which are implemented as mitigation). The policy reflects SPP and relevant legislation and there are no reasonable alternatives.	
PE20 Trees Woodland and Hedgerows	N	N	N	N	N	N	N	N	N	This policy seeks to safeguard trees, woodland and hedgerows of value, with particular reference to ancient woodland and TPOs). The policy will guard against significant negative effects on landscape and biodiversity (through loss of important woodland). The policy reflects SPP, other legislation and strategies, and there are no reasonable alternatives.	Enhancement will be provided by supplementary guidance and supporting policy on biodiversity.
PE21 Promotion of Forestry and Woodland	++	++	N	N	N	++	++	N	++	This policy supports the implementation of the Falkirk Forestry and Woodland Strategy, which in turn promotes the expansion of sustainable forestry to achieve a variety of environmental aims. It should result in significant positive effects on biodiversity and landscape (through creation of new woodland habitats and enhancement of landscape quality), population and human health (through enhancement of the green network), material assets (through creation of woodland as a biomass resource) and climatic factors (by offsetting carbon emissions through new woodland). The policy reflects the Forestry and Woodland Strategy, and there are no reasonable alternatives.	Enhancement is provided by the Forestry and Woodland Strategy itself.
PE22 The Water Environment	+	+	N	++	N	N	+	N	N	This policy supports the development of measures identified in the Forth Area River management Plan designed to improve the water environment and promotes the water environment as a recreational resource. It should have a positive effect on biodiversity and water (through improving the quality of water and riparian habitat) and on population and human health and material assets (through improving the green network and outdoor access network). The policy presumes against development which would have a detrimental effect on the water environment or increase flood risk and so will safeguard against significant negative effects on the biodiversity and water. The policy reflects SPP, other legislation and strategies, and there are no reasonable alternatives.	Enhancement will be provided by supplementary guidance and other supporting policies.
PE23 Marine Planning and the Coastal Zone	N	N	N	N	N	N	N	N	N	This policy cross refers to the National Marine Plan, and other environmental policies relevant to the coastal zone. As such it does not have any independent policy content and is therefore not considered to have any environmental effects in itself.	
PE24 Flood Management	N	N	N	++	N	N	N	N	N	This policy supports the delivery of the Local Flood risk Management Strategies and Plans, and states that development should be assessed against the flood risk framework in SPP. It sets out requirements for flood risk assessment. The policy will safeguard against significant negative effects on water (due to increasing the number of people at risk from flooding) but will also have a significant positive effect on water (through enabling the reduction of flood risk). The implementation of individual actions under the FRMP may have a range of environmental effects but it is not possible to	Mitigation for any adverse impacts which may arise from future FRMP schemes will be provided by topic environmental policies within the Proposed Plan.

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation			
										identify these until schemes have been drawn up.				
										The policy reflects SPP and other strategies, and there are no reasonable alternatives.				
PE25 Soils and Agricultural Land	N	N	--	N	N	--	N	N	N	This policy indicates that development involving the loss of prime quality agricultural land, carbon rich, carbon rich or rare soil will not be permitted unless certain criteria are met. Whilst this policy should reduce the frequency of significant negative effects on soil (through loss of prime agricultural land, carbon rich or rare soil) and climatic factors (through release of greenhouse gas and reduced greenhouse gas absorption capacity) it does not rule them out, so significant effects are still recorded.				
PE26 Air Quality	N	--	N	N	--	N	N	N	N	The policy reflects SPP and there are no reasonable alternatives.				
PE26 Air Quality	N	--	N	N	--	N	N	N	N	This policy states that development should not exacerbate existing air quality issues without mitigation, with particular reference to Air Quality Management Areas. Whilst this should reduce the frequency of significant negative effects on population and human health and air (through breaches of National Air Quality Standards or significantly increasing concentrations within an existing AQMA) it does not rule them out especially where there are overriding issues of national or local importance, so significant negative effects are still recorded.				
PE26 Air Quality Alternative	N	N	N	N	-	N	N	N	N	This alternative is to not permit development proposals that result in either a breach of National Air Quality Standards or a significant increase in concentrations within an existing AQMA in any circumstance. This will safeguard against significant negative effects on population and human health and air (through breaches of National Air Quality Standards or significantly increasing concentrations within an existing AQMA) but negative effects on air (through reduction in air quality) are still recorded.				
PE27 Vacant, Derelict, Unstable and Contaminated Land	-	+	++	++	N	N	N	++	N	++	++	This policy indicates that encouragement will be given to proposals that reduce the incidence of vacant, derelict and contaminated land, subject to compliance with other plan policies, particularly those relating to the countryside. This should have cumulatively significant positive effects on population and human health, soil, material assets and landscape (through regeneration of brownfield sites, removal of contamination and improvement of townscape and landscape quality) Vacant and derelict land can be valuable habitat so proposals that reduce the incidence of vacant, derelict and contaminated land could have a significant negative effect on biodiversity , however the incidence of vacant derelict and contaminated land can also be reduced by regenerating the site for the purposes of nature conservation so this policy could also have a positive effect on biodiversity .	Mitigation is provided by biodiversity policy in the Proposed Plan.	
POLICIES: HOMES AND COMMUNITIES														
HC01 Housing Land	-	+	-	+	-	+	-	+	-	+	-	+	This policy sets out the housing supply target for the area which will be met through the Spatial Strategy. It also indicates circumstances in which additional sites may be supported, in the event of a shortfall in the 5 year housing land supply.	Mitigation/enhancement measures have been highlighted previously in respect of specific sites within the Spatial Strategy. In respect of the additional sites policy, mitigation is built into the policy (proposals must constitute sustainable development) and is also provided by means of other Proposed Plan policies.
										The environmental effects of the housing aspects of the Spatial Strategy have already been assessed, on a community by community basis. Reasonable alternatives have been assessed through the MIR Environmental Report. In combination with the policy				

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
	-	++	++	N	+	+	++	+	+	on additional sites, there are potential significant positive and negative effects for all receptors, apart from air and climatic factors which are significantly negative.	
HC02 Windfall Housing	-	++	++	N	+	+	++	+	+	<p>This policy indicates the circumstances where housing development within the urban and village limits, in addition to proposals identified within the LDP, will be supported. The policy encourages development on brownfield sites within existing settlements so could have a significant positive effect on population and human health, soil and material assets (through encouraging the regeneration of potentially contaminated brownfield land) and a positive effect on air and climatic factors (through reducing the need for greenfield development where residents would generally be more car dependent and greenhouse gas emissions would arise from land use change), cultural heritage (through encouraging the reuse and restoration of historic buildings) and landscape (through reducing need for greenfield development) but could also have a negative effect on biodiversity (through loss of valuable brownfield habitat). This policy will also guard against housing within the urban and village limits causing cumulatively significant negative effects on population and human health (through loss of residential amenity), water (through increasing the number of properties at high risk of flooding) air, climatic factors and material assets (through encouraging increased car usage) and material assets (through breaching the capacity of the local sewer network or waste water treatment works).</p> <p>The only reasonable alternative would be not to have the policy, which would result in neutral environmental effects.</p>	
HC03 Affordable Housing	N	N	N	N	N	N	N	N	N	This policy sets out requirements with regard to the inclusion of affordable housing on housing sites. The affordability or tenure of housing is not considered, of itself, to have any environmental effects.	
HC04 Housing Density and Site Capacity	+	++	N	+	N	N	++	+	+	<p>This policy sets out the considerations which should inform housing site density and capacity, including masterplanning exercises, and placemaking principles contained in Policy PE01. It should have significant positive effects on material assets (through improving townscape quality), and population and human health (through avoiding over development of sites), and positive effects on water, landscape, biodiversity and cultural heritage (through taking account of natural and built features in the layout of development).</p> <p>The only reasonable alternative would be not to have the policy, which would result in negative rather than positive environmental effects against the receptors identified.</p>	
HC05 Housing in the Countryside	-	N	-	-	-	-	-	-	+	<p>This policy indicates the circumstances in which proposals for housing development in the countryside will be permitted. To a large extent, the restrictive nature of this policy will safeguard against a range of negative effects. However, the policy does allow for some housing in the countryside. Negative effects are predicted on biodiversity (through loss of habitat); soil (through loss agricultural land) and landscape (through adverse landscape and visual impact). Enabling development to secure the rehabilitation of historic buildings or structures could have a cumulative significant positive effect on cultural heritage although negative effects could also occur through enabling development having an adverse impact on the setting of the historic building. Cumulative negative effects of air, climatic factors and material assets are predicted</p>	Enhancement will be provided through supplementary guidance on development in the countryside.

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>as housing development in the countryside increases the need to travel by private car with consequential increase in the release pollutants, greenhouse gas emissions and increased pressure on the local road network . Cumulatively negative effects on biodiversity and water also predicted as housing in the countryside is likely to required private sewage treatment with consequential impacts on local water quality.</p> <p>The policy broadly reflects SPP and, although the detailed criteria may be varied to a degree, it is not considered that there are any substantively different reasonable alternatives.</p>	
HC06 Infill Development and Plot Sub Division	N	N	N	N	N	N	N	N	N	<p>This policy indicates the circumstances under which proposals for infill development or the sub division of plots would be permitted. The policy should safeguard against negative effects on population and human health and material assets (through adverse effect on residential amenity and degradation of townscape quality caused by inappropriate infill development and sub division of plots).</p> <p>The only reasonable alternative would be not to have the policy, which would result in negative effects against the receptors identified above.</p>	
HC07 Established Residential Areas	N	N	N	N	N	N	N	N	N	<p>This policy indicates that uses within established residential areas which would be incompatible with the residential character and amenity of the area will not be permitted. The policy should safeguard against negative effects on population and human health (through reduced residential amenity caused by the introduction of incompatible land uses into established residential areas).</p> <p>The only reasonable alternative would be not to have the policy, which would result in negative effects against the receptors identified above.</p>	
HC08 Residential Extensions and Alterations	N	N	N	N	N	N	N	N	N	<p>This policy only permits proposals for house extensions and alterations where they safeguard the existing character and amenity of the area. The policy should safeguard against negative effects on population and human health and material assets (through reduced residential amenity and degradation of townscape quality caused by inappropriate house extensions and alterations).</p> <p>The only reasonable alternative would be not to have the policy, which would result in negative effects against the receptors identified above.</p>	Enhancement will be provided through supplementary guidance on residential extensions and alteration s.
HC09 Gypsy Traveller Sites	-	N	-	N	N	N	N	N	-	<p>This policy sets out criteria for assessing proposals for small privately owned sites for gypsy/travellers. Although it requires that there be no adverse impact on the amenity of the area and cross references to other environmental policies, the policy is more likely to result in development of gypsy traveller sites in the countryside, with potential negative effects on biodiversity (through loss of habitat), soil (through loss of agricultural land), and landscape (through adverse landscape and visual impact).</p> <p>The only reasonable alternative would be not to have the policy, which would result in neutral environmental effects.</p>	
HC10	N	+	N	N	+	+	+	N	N	This policy directs proposals for new residential care homes to areas with a good	

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Residential Care Homes										<p>residential environment where there is good access to community facilities and public transport and where sufficient garden ground can be provided for the enjoyment of the residents, it will therefore have positive effects on population and human health (through improving residential amenity) and air, climatic factors and material assets (through reducing car dependency and its consequential increase in emissions of greenhouse gases and other pollutants and reducing pressure on the road network). This policy also seeks to support proposals for new residential care homes where development is of a scale and character appropriate to the site, it will therefore safeguard against negative effects on material assets (through degradation of townscape quality caused by inappropriately designed development).</p> <p>The only reasonable alternative would be not to have the policy, which would result in neutral environmental effects.</p>		
POLICIES: JOBS AND ECONOMY												
JE01 Business and Tourism	-	+	-	+	-	+	-	+	-	+	<p>This policy highlights and promotes the Strategic Business Locations which form part of the Spatial Strategy and supports development which supports the tourism networks, themes and nodes set out in the Spatial Strategy.</p> <p>The environmental effects of the business aspects of the Spatial Strategy have already been assessed, on a community by community basis. Reasonable alternatives have been assessed through the MIR Environmental Report. Cumulatively, there are potential significant positive and negative effects for all receptors, apart from air and climatic factors which are significantly negative.</p>	Mitigation/enhancement measures have been highlighted previously in respect of specific sites within the Spatial Strategy. Mitigation is also provided by means of other Proposed Plan policies.
JE02 Core Business Areas	N	-	+	-	N	-	+	N	-	N	<p>This policy indicates that the core business areas identified on the Proposals Map will be retained primarily in business and industrial use. Encouraging employment in these established employment areas should generally avoid negative effects on population and human health and air (through appropriately segregating business and residential uses). However, a number of existing core business areas (particularly in Bonnybridge) are relatively inaccessible from the trunk road network and located close to existing residential areas, retaining them could have a negative effect on population and human health and air through increased HGV traffic and nuisance noise and odour through and within residential areas caused by any intensification of use within core business areas. Restricting development to employment use in these areas could potentially inhibit regeneration of brownfield land resulting in negative effects on population and human health, soil and material assets.</p>	
JE02 Core Business Areas Alternative	N	-	+	+	N	-	+	N	+	N	<p>The alternative would be not to safeguard core business areas for employment use. This would potentially lead to inadequate segregation of employment and residential uses with negative effects on population and human health and air, although there could also be positive effects on these receptors by virtue of business uses being forced out of the urban area by redevelopment for other uses. Positive effects on population and human health, soil and material assets may also arise through greater flexibility to promote regeneration of brownfield sites.</p>	
JE03	N	-	+	+	N	-	+	N	+	N	<p>This policy indicates that within the business areas with potential for redevelopment, as</p>	

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Business Areas with Potential for Redevelopment										identified on the Proposals Map, and any other non-core business land/premises within the Urban Limit, redevelopment for alternative uses will be permitted provided such uses are compatible with the character of the surrounding area, and comply with other LDP policies. The flexibility accorded to these areas will effectively give rise to the same environmental effects as the alternative of not having protected core business areas.	
JE04 Business Development Outwith Designated Business Areas	N	N	N	N	N	N	N	N	N	This policy allows for business development in areas within the urban limit not specifically allocated for such use, subject to compatibility with adjacent uses. There is a possibility that this may introduce business uses into residential areas where negative environmental effects may arise, but the caveats should be sufficient to mitigate this. Neutral effects are therefore recorded.	
JE05 Business Development in the Countryside	-	++	- +	- +	-	-	- +	-	-	<p>This policy sets out the circumstances in which business development will be permitted in the countryside, i.e. proposals involving brownfield land, limited extensions to existing uses, or where a need for a countryside location is demonstrated. Cumulatively significant positive effects are predicted for population and human health, soil and material assets (through enabling the remediation of potentially contaminated brownfield land and improving the quality of the built environment). Cumulative negative effects are predicted on biodiversity (through loss of habitat), soil (through loss of agricultural land) and landscape (through adverse landscape and visual impact). Cumulative negative effects of air, climatic factors and material assets are predicted as business development in the countryside increases the need to travel by private car with consequential increase in the release pollutants, greenhouse gas emissions and increased pressure on the local road network. Cumulative negative effects on biodiversity and water also predicted as business in the countryside is likely to require private sewage treatment with consequential impacts on local water quality.</p> <p>The alternative would be to not specifically allow business development on brownfield sites in the countryside. This would remove the positive effects on population and human health, soil and material assets.</p>	
JE06 Major Hazards	N	- +	- +	N	N	N	- -	- -	N	<p>This policy indicates that proposals within Major Hazard Sites and Pipelines Consultation Zones will be assessed in the context of: the increase in the number of people exposed to risk in the area; the existing permitted use of the site or buildings; the extent to which the proposal may achieve regeneration benefits, which cannot be secured by any other means; and the potential impact on existing chemical and petrochemical sites and pipelines. The policy will generally act to restrict the number of people within consultation zones so there will be a significant positive effect on population and human health (through reducing risk to human life). However, regeneration is introduced as a balancing consideration which could potentially allow risk factors to be set aside in certain circumstances, giving potentially significant negative effects.</p> <p>The general restriction which this policy places on redevelopment within Major Hazard Consultation Zones may have significant negative effects on population and human</p>	The policy itself attempts to mitigate the negative effects of the health and safety restrictions on regeneration, but in doing so, potentially creates negative effects in terms of exposing more people to risk.

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										<p>health, soils, material assets and cultural heritage (through restricting the potential for brownfield regeneration and historic building restoration), notwithstanding the caveat that regeneration benefits would be taken into account.</p> <p>This policy reflects SPP and legislation, and there are no reasonable alternatives which would significantly alter its effect.</p>		
JE07 Town and Local Centres	N	+	+	N	+	-	++	++	++	N	<p>The policy promotes the vitality and viability of town and local centres, and the town centres first principle. There is a generally flexible approach adopted to changes of use in town centres. The policy should have significant positive effects on climatic factors and air (through promoting retail and community uses in locations served by accessible transport and thereby reducing vehicle derived greenhouse gas emissions and general levels of air pollution), and material assets and cultural heritage (through encouraging investment in historic town centres), and positive effects on population and human health and soil (through encouraging regeneration and remediation of brownfield sites in town centres). It will also safeguard against negative effects on biodiversity, soil and landscape (through encouraging development on town centre sites rather than out of town greenfield sites). However, Falkirk Town Centre is an AQMA so encouraging further development in the Town Centre is likely to have a significant negative effect on air (through exacerbating air quality issues in an AQMA).</p> <p>The policy reflects SPP and other strategies and there is no reasonable alternative.</p>	Mitigation of air quality issues in Falkirk Town Centre and other centres would be provided by the air quality policy,
JE08 Commercial Centres	N	N	N	N	N	N	N	N	N	<p>The policy states how existing commercial centres will be controlled. This largely reflects existing use, permissions and legal agreements. The policy is not considered to have any environmental effects</p>		
JE09 Retail and Commercial Leisure Development	N	+	+	N	--	++	++	++	N	<p>This policy sets out criteria for assessing retail, commercial leisure and other large footfall generating uses, requiring that they satisfy the sequential approach. The policy complements the policy supporting town and local centres, and its environmental effects are likely to be similar.</p>		
POLICIES: INFRASTRUCTURE												
IR01 Strategic Infrastructure	+	-	+	-	+	-	+	-	+	-	<p>This policy supports and safeguards land for the provision of infrastructure as set out in the Spatial Strategy.</p> <p>The environmental effects of the individual infrastructure projects have already been assessed. Cumulatively, there are potential significant positive and negative effects for most environmental areas, apart from cultural heritage and landscape which are significantly negative.</p>	Mitigation/enhancement measures have been highlighted previously in respect of specific projects within the Spatial Strategy. Mitigation is also provided by means of other Proposed Plan policies.
IR02 Developer Contributions	N	N	N	N	+	+	+	N	N	<p>The policy requires developers to contribute to the provision, upgrading and maintenance of community infrastructure where development will exacerbate deficiencies in, or impose significantly increased burdens on existing infrastructure.</p> <p>The provision, upgrading and maintenance of local facilities should have a positive effect on air, climatic factors and material assets (through reducing the need for longer car journeys to access community facilities and therefore associated increases in emissions of greenhouse gases and other pollutants and use of the road network) and</p>		

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
										<p>also a positive effect on material assets (through the improvement in townscape quality due to the refurbishment of local facilities)</p> <p>Alternative approaches to developer contributions were considered as part of the MIR and assessed in the original Environmental Report.</p>	
IR03 Education and New Housing Development					+	+	+			<p>This policy indicates that where there is insufficient capacity within the catchment school(s) to accommodate children from new housing development, developer contributions will be required towards improved provision. This policy should have a positive effect on air, climatic factors and material assets (through reducing the need for longer car journeys to access school facilities and therefore associated increases in emissions of greenhouse gasses and other pollutants and use of the road network).</p> <p>Alternative approaches to developer contributions were considered as part of the MIR and assessed in the original Environmental Report.</p>	
IR04 Community Facilities					+	+				<p>The policy seeks to safeguard community facilities unless certain criteria are satisfied. It sets out criteria for assessing proposals for new community facilities including that they are located in centres, or in locations accessible by sustainable transport.</p> <p>Ensuring that community facilities are accessible to sustainable transport should have positive effects on air and climatic factors ((through reducing the need for longer car journeys to access community facilities and therefore associated increases in emissions of greenhouse gases and other pollutants and use of the road network).</p> <p>The only reasonable alternative would be not to have the policy, which would result in negative rather than positive environmental effects against the receptors identified.</p>	
IR05 Transport Assessment	N	N	N	N	+	+	+	N	N	<p>This policy requires transport assessments for development proposals where the impact of the development on the transport network is likely to result in an increase in the number of trips, such that there will be significant impact on the operation of the transport network, requiring mitigation.</p> <p>The policy should guard against significant negative effects on material assets (through degradation of the local road network caused by new development increasing traffic to a level where the capacity of key routes and junctions is exceeded) and negative effects on air (through reducing local air quality). The policy also indicates that the transport assessment will focus on the hierarchy of transport modes, favouring the use of walking, cycling and public transport over use of the car. This should have a positive effect on air, climatic factors and material assets (through encouraging the use of sustainable forms of transport over private motor transport and thereby reducing emissions of greenhouse gasses and other pollutants and use of the road network).</p> <p>The policy reflects SPP and other national and local strategies and there are no reasonable alternatives.</p>	
IR06	N	++	N	N	+	+	++	N	N	This policy states that the Council will safeguard, improve and extend the network of	

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation
Active Travel										<p>active travel routes, with particular emphasis on the core path network. It sets out the terms for developers to contribute to active travel infrastructure, and design criteria.</p> <p>The policy will have a significant positive effect on population and human health (through contributing to the green network) and material assets (through enhancement of the core path network). It will have a positive effect on air, climatic factors and material assets (through encouraging the use of sustainable forms of transport over private motor transport and thereby reducing emissions of greenhouse gases and other pollutants and use of the road network).</p> <p>The policy reflects SPP and other national and local strategies and there are no reasonable alternatives.</p>	
IR07 Bus Travel	N	N	N	N	+	+	+	N	N	<p>This policy requires development to have good access to bus services, and highlights the measures which may have to be taken by developers to ensure this.</p> <p>This will have a positive effect on air, climatic factors and material assets (through encouraging the use of sustainable forms of transport over private motor transport and thereby reducing emissions of greenhouse gases and other pollutants and use of the road network)</p> <p>The policy reflects SPP and other national and local strategies and there are no reasonable alternatives.</p>	
IR08 Freight Transport	N	N	N	N	-	+	+	+	N	<p>This policy seeks to direct freight intensive development to the Grangemouth Investment Zone and other locations that can be accessed without significant impact on local communities, or on the local and strategic road network. This should safeguard against significant negative effects on population and human health and air (through increased noise and air pollution caused by freight intensive development). The policy also seeks to encourage the transfer of freight from road to rail, including the development of freight handling facilities. This should have a positive effect on air, climatic factors and material assets (through reducing use of the road network by freight traffic and thereby reducing emissions of greenhouse gases and other pollutants) It could also have negative effects on air (through increasing freight movements close to intermodal hubs giving localised air quality problems).</p> <p>The only reasonable alternative would be not to have the policy, which would result in significant negative effects for population and human health and air.</p>	
IR09 Parking	N	N	N	N	- ?	+ ?	- ?	+ ?	- ?	<p>The policy states that the Council will apply the parking standards in the National Roads Development Guide, that parking in centres will be managed to support the role of centres and sustainable travel, and that new car parking as part of significant new commercial of community uses should incorporate electric vehicle charging points.</p> <p>The balancing of town centre vitality against sustainable travel objectives has uncertain effects for air, climatic factors and material assets, as maintaining vitality is likely to be equated with maintaining levels of car parking and improving vehicle access. The promotion of vehicle charging points will have positive effects for material assets, air</p>	

Alternative	Biodiversity Flora & Fauna	Population & Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape	Assessment commentary	Enhancement/ Mitigation	
										and climatic factors (through the development of low carbon vehicle technologies and consequent benefits in reducing carbon emissions and pollution).		
IR10 Drainage Infrastructure	+	N	N	+	N	N	N	N	N	This policy requires sewerage infrastructure to meet SEPA standards, for surface water management to comply with SUDs best practice, and for development proposals to be accompanied by drainage strategies. The policy should safeguard against potentially significant negative effects on biodiversity and water (through ensuring a sustainable approach to the provision of sewerage infrastructure). The policy encourages retrofit of SUDS in redevelopment where possible which has the potential for positive effects on biodiversity and water .		
IR11 Digital Infrastructure	N	N	N	N	N	N	-	-	-	This policy seeks to ensure that the potential negative environmental effects of digital infrastructure are controlled and minimised. The policy should guard against such infrastructure having a significant negative effect on material assets (through adversely affecting townscape quality) cultural heritage (through adversely affecting the site or setting of important elements of the historic environment) and landscape (through adverse visual impact). However, even optimum sites are still likely to some negative effects for these receptors. The policy reflects SPP and there are no reasonable alternatives.	Enhancement is provided by other environmental policies in the plan.	
POLICIES: ENERGY												
IR12 Energy Generation Development	-	-	-	-	-	+	-	+	-	-	This policy sets out the criteria against which energy infrastructure developments will be assessed, including criteria related to Spatial Framework for Wind Farm Development which is included in the Spatial Strategy. The policy should safeguard against a wide range of significant negative effects which energy development can create including on biodiversity, population and human health, soil, water, air, cultural heritage and landscape . However, some negative effects could still occur. The contribution to renewable energy generation targets is a criterion which would have positive effects on climatic factors and material assets . The policy reflects SPP and there are no reasonable alternatives.	Enhancement is provided by other environmental policies in the plan.
IR13 Low and Zero Carbon Development	N	N	N	N	N	+	+	-	-	N	This policy sets out the requirement for buildings to incorporate on-site low and zero carbon-generating technologies (LZCGT), and for the design and layout of development to minimise energy requirements. The policy on LZCGT will have a significant positive effect on material assets (through the development of low carbon and renewable energy technologies). It will not have any effect on climatic factors , because this requirement is contained within the emissions reduction standard required by Building Standards, and not additional to it. However, the requirement for design and layout to minimise energy requirements will have a positive effect on climatic factors . The introduction of LZCGT may have an adverse effect on material assets and cultural heritage (due to equipment detracting from the quality of the townscape or historic buildings).	

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IR14 Heat Networks	N	N	N	N	N	++	++	N	N	<p>The policy is required by legislation and so there are no reasonable alternatives.</p> <p>This policy supports decentralised energy generation with heat recovery and district heating systems, requiring feasibility to be assessed through energy statements, and futureproofing where possible.</p> <p>The policy could have a significant positive effect on material assets (through the development of low carbon and renewable energy technologies), climatic factors (through more efficient generation and use of energy reducing carbon emissions).</p>	
POLICIES: MINERALS											
IR15 Mineral Resources	-	-	+	-	-	-	N	N	+	<p>This policy sets out the approach to various types of minerals, including areas of search for surface coal, and a moratorium on hard rock quarries unless there is evidence that a 10 year landbank no longer exists). Other extractive processes must comply with the general criteria for mineral proposals. There is a presumption against development which would sterilise minerals resources which could be extracted in an environmentally acceptable way</p> <p>The environmental effects of the areas of search for surface coal have been assessed as part of the Spatial Strategy. The areas of search exclude areas of known resources around Airth and Banknock, specifically so as to avoid potentially significant negative effects on landscape, population and human health and cultural heritage in these localities. Within the areas of search on the Slamannan Plateau, with mitigation, negative effects may still occur on biodiversity, population and human health, soil, water, air, climatic factors and landscape, with significant positive effects on soil and landscape (through site restoration).</p> <p>The conservative approach to new hard rock quarries and the sterilisation of mineral resources will safeguard against negative effects on material assets.</p>	
IR16 Assessment of Mineral Proposals	-	-	+	-	-	N	-	-	+	<p>This policy states that mineral proposals will only be permitted where there is no significant adverse impact on the environment or the local community. The policy sets out a set of criteria against which proposals would be assessed, and information that should be submitted along with applications.</p> <p>The policy should safeguard against significant negative effects on a wide range of receptors including biodiversity, population and human health soil, water, air, material assets, cultural heritage and landscape. Nonetheless negative effects across these areas are recorded. The policy also acknowledges the positive benefits of site restoration as a consideration, giving significant positive effects on soil and landscape.</p> <p>The policy reflects SPP and there are no reasonable alternatives.</p>	Enhancement is provided by other environmental policies in the plan.
POLICIES: WASTE											

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IR17 Waste Management Facilities	N	+	N	N	N	N	+	N	N	<p>The policy supports development which supports the waste hierarchy principles, with the preferred location of waste management facilities being in or adjacent to existing facilities or in business/industrial areas. Criteria for assessing proposals are set out. Existing waste management facilities are safeguarded.</p> <p>The policy promotes development which will support the waste hierarchy and so will have a positive effect on population and human health and material assets (through maximising reuse, recycling and recovery of resources). The policy will safeguard against significant negative effects on population and human health (through ensuring sufficient separation between waste management facilities and other facilities such that noise and odour are minimised) , material assets (through ensuring that waste management sites are not prejudiced by the encroachment of other uses), and soil and landscape (through ensuring sites are subject to restoration and aftercare)</p>	
IR18 Waste Management in New Development	N	N	N	N	N	N	++	N	N	<p>This policy requires all development to minimise waste during construction and operation, particularly through site waste management.</p> <p>The policy should have cumulatively significantly positive effects on material assets (through reducing the use of primary resources in construction).</p>	

FALKIRK

Local Development Plan**2**

Proposed Plan

Strategic Environmental Assessment

Revised Environmental Report

Appendix 2: Detailed Environmental Assessment Matrices

September 2018



Falkirk Council