18.4 Mitigation Measures

18.4.1 This section sets out all the additional mitigation measures that have been assumed in the assessment of residual effects. Design mitigation is set out in Table 4-1 in Chapter 4 and sets out how all the mitigation will be secured. Additional construction mitigation is set out in Table 18-3 and will all be secured through the Strategic CEMP and the Outline SWMP. Additional operation mitigation is set out in Table 18-4 and will be secured by means of planning conditions and S106 contributions.

Table 18-3 Summary of Additional Mitigation Measures: Construction

Topic	Mitigation Measures
Chapter 5 Agriculture and Soils	• Best practice soil handling. • Notice period to allow agricultural enterprise to adapt business to loss of land.
Chapter 6 Air Quality	• Site Management (logging of incidents/complaints) • Monitoring (site inspections, soiling checks, compliance with Dust Management plan, etc) • Preparing and Maintaining the Application Site (locate dust causing activities away from receptors, barriers, cleaning, enclosed specific operations with high potential for dust production, cover stockpiles, etc) • Operating vehicle/machinery and sustainable travel (comply with NRMM standards, no idling, use mains electricity, travel plan etc) • Operations (employ dust suppression, use enclosed chutes, minimise drop heights, etc) • Demolition measures (damp down, avoid explosive blasting, soft strip interiors before demolition, etc) • Earthworks measures (revegetate promptly, use hessian mulches and cover with topsoil, etc) • Construction measures (avoid scabbling, keep aggregates damp, ensure fine powder materials are delivered enclosed and stored in silos, ensure bags are sealed after use) • Trackout measures (wash access and local roads, avid dry sweeping of large areas, ensure vehicle-borne materials are covered, install hard surface haul routes, wheel washing, etc)
Chapter 7 Biodiversity	• Appropriate measures are put in place to protect water quality in aquatic features across the Application Site. This would also protect downstream habitats. • Appropriate measures are put in place to control dust and other emissions that could affect air quality. • Site compounds, storage facilities and staff facilities are suitably bunded and located in places that would not have an adverse effect on the environment. • In advance of site clearance, protective fencing is installed to protect retained and/or ecologically sensitive habitats (the watercourse, retained ponds including the Military Lake, mature trees and hedgerows, prevention of spread / eradication of non-native invasive species) and their associated buffer zones to ensure that they are not subject to accidental damage (to be determined on a phase by phase basis). • Haul routes, storage compounds and staff facilities would be located away from retained habitats where possible to minimise disturbance to the species they support.

Topic	Mitigation Measures
	• Pre-construction surveys are carried out by an ecologist to confirm the nature and extent of any ecological constraints in advance of site clearance, to ensure that appropriate mitigation measures including licences are in place in advance of site clearance, and to confirm that no new constraints have arisen since the publication of the Environmental Statement. • A qualified ecologist to advise on site clearance, in particular any works that have the potential to disturb notable ecological features. They would also ensure that the mitigation measures proposed adhere to best practice guidelines and take account of any changes in legislation that may have occurred. • To avoid impacts on breeding birds, works close to retained habitats would commence outside of the bird breeding season where possible (i.e. they would commence in the period between the months of September and February, inclusive). Where this is not possible advice will be sought from a qualified ecologist to confirm the absence of nesting birds prior to vegetation removal and ensure the protection of any confirmed nesting sites. Should the presence of nesting birds be established, buffer zones would be fenced to ensure the birds are not disturbed and works would cease in the locality until the young birds have fledged. Note: the area of buffer zones for ground nesting species such as skylark may exceed a 50m radius. • In advance of construction, bird nesting boxes would be installed in the hedgerows and on retained trees, in suitable locations away from the construction. This would ensure alternative nesting opportunities are provided to mitigate for any disturbance effects. • Prior to any removal of hedgerows, pre-construction checks for any species of conservation concern, such as reptiles and hedgehogs, would be undertaken. Any features of value to hibernating reptiles would not be disturbed during the reptile hibernation period (October through to March). Should hedgehog(s) be found at this time, they would be moved to a safe location. • The construction site drainage solutions would incorporate measures to ensure that all surface water runoff is balanced and treated and returned to the watercourse at greenfield runoff rates. • Care would be taken with the design of site drainage to prevent unbalance of and untreated silt laden surface water runoff from entering retained habitats. • If night-time construction lighting is required during the period April to November, it would be directed away from the watercourses, woodlands and hedgerows when bats are active. • The Strategic CEMP will minimise the chances of Schedule 9 plants to enter or spread within or outside of the proposed Development. • Regular monitoring of the ecological protection measures outlined in the CEMP would be undertaken by a qualified ecologist to ensure that the protection measures remain in place for the time that they are required.
Chapter 8 Climate Change	Measures to minimise GHG emissions during construction would include: • Implementation of materials and logistics saving measures as set out in Chapter 15: Transport and the Strategic CEMP and to be agreed as part of the detailed design and reserved matters. • Minimising energy requirements and emissions from equipment and plant (including minimising the use of diesel or petrol powered generators and instead using mains electricity or battery powered equipment; powering down of equipment / plant during periods of non-utilisation; optimising vehicle utilisation; use of energy efficient lighting) as set out in the Strategic CEMP.

Topic	Mitigation Measures
	Measures to minimise GHG emissions associated with the production of waste are set out in Chapter 16: Waste and Resources and include: • reuse and recovery of materials where possible • endeavouring to achieve a cut and fill balance to avoid excavation waste • implementation of a Site Waste Management Plan to record the movements of waste, control its management and to encourage better waste management practices • employ modern methods of construction such as prefabrication of units and products off-site • appropriate phasing of construction to allow the opportunity for the construction wastes to be reused or recycled on-site in subsequent stages of the development Measures to minimise GHG emissions associated with materials will be agreed at detailed design and reserved matters stage. The Strategic CEMP will be used as the basis for the Phase-specific CEMPs, which will be prepared by the Principal Contractor ahead of construction commencing. The following measures would be in place during construction: • The Principal Contractor would register the proposed Development with the EA Flood Warning Service. This service provides alerts to warn of the risk of an impending flood event. In the case of a warning or severe warning alert, plans would be put into action to ensure that construction worksites and access routes are made safe and are evacuated of construction personnel. • A high-level risk assessment of severe weather impacts on the construction process would be produced by the Principal Contractor to inform mitigation measures. Any receptors and/or construction-related operations and activities potentially sensitive to severe weather events should be considered in the assessment. • During the construction phase, extended dry spells may cause increased dust production. This consequence would be minimised as far as reasonably practicable, through the measures incorporated into the Strategic CEMP (e.g. reduce dust emissions through the effective transportation and storage of materials), including the proposed monitoring regime.
Chapter 9 Cultural Heritage	A Heritage Environmental Management Plan (HEMP) will be developed and implemented by the applicant upon appointment of a principal contractor. The HEMP will present a methodology for undertaking monitoring of early stage works which, subject to health and safety considerations in respect of contaminated land and UXO, will minimise the impact of these activities on known archaeological remains and correspondingly allows the greatest possibility of identifying areas of hitherto unknown survival. The HEMP will detail measures to manage the risk of adversely affecting historic resources, including reporting any potential finds and how potential archaeological investigations or recording would be accommodated in the programme. This would include the following measures: • Preservation in situ • Earthwork survey, trial trenching, excavation • Trial trenching, excavation • Recording of extant remains. • Recording of any remaining extant features. • Incorporation of elements of the former airfield into masterplan design.

Topic	Mitigation Measures
	• The HEMP will be consistently applied through all phase-specific CEMPs.
Chapter 10 Ground Conditions	• Use of appropriate PPE and site hygiene on site. • Determine areas of contaminated soils prior to earthworks detailed within a remediation strategy. • UXO Strategy implemented prior to construction. • Use of best practice on site to avoid creation of dust. • Baseline survey prior to development of construction compounds. Best practice e.g. implementation of pollution prevention measures. Repeat survey at end of construction and removal of any contamination created. • Use of pollution prevention measures on site. Removal of contaminated materials via remediation strategy to reduce mobilisation. Appropriate construction techniques (e.g. piling) to reduce risk of creating pathways. • Best practice in stockpiling of materials away from water courses • Assessment of ground conditions around existing features to prevent impacts on existing buildings.
Chapter 11 Health	• Strategic CEMP to address issues including residential amenity (working hours, construction traffic routes, communication with residents). • Encourage apprenticeships / training in construction trades through contract procurement process. • Mitigation relating to air quality, landscape and visual amenity, noise and transport is described in Chapters 6, 12, 13 and 15 respectively as well as the Framework Travel Plan, Low Emissions Strategy and Landscape Strategy. • Mitigation measures relating to minimising the use of resources are set out in Chapter 16 (Waste and Resource Management). • Mitigation measures associated with the effects on climate from GHG emissions are set out in Chapter 8 (Climate Change).
Chapter 12 Landscape and Visual	The following measures set out in the Strategic CEMP will be implemented, where possible, but not limited to: • Site management • Good housekeeping measures will minimise unsightly waste and secure storage will be provided for materials at risk from displacement by wind. • Temporary stockpiles will be located in defined storage areas, away from sensitive visual receptors. • Construction plant, machinery and vehicle parking areas will be located as far as practicable from sensitive receptors. • Hoarding and Fencing • Use of well-maintained fencing and hoardings to prevent unwanted access to the construction site, to provide noise attenuation, screening, and site security where required. • Use of different types of fencing and hoarding to minimise visual intrusion. • Retaining existing walls, fences, hedges and earth banks for the purpose of screening as far as reasonably practicable. • Lighting

Topic	Mitigation Measures
	• Lighting will be designed, positioned and directed so as not to unnecessarily intrude on adjacent buildings or habitats such as trees and so as to prevent unnecessary interference with local residents, passing motorists, the navigation lights for air traffic and wildlife breeding seasons. • At night and during periods of darkness, directional security lighting will be used. • Any temporary fencing will be removed as soon as reasonably practicable after completion of the works. • Adherence to the Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light, with regards to light spill, glare and sky glow. All lighting related to the works will be designed and fitted to minimise light intrusion onto any sensitive habitat such as hedgerows, mature trees and woodland. • Existing Trees • Maximising the retention and protection of existing tree and vegetation where possible and in accordance with the parameter plans; • Aftercare and establishment works are to be carried out by an approved landscape sub-contractor in accordance with good horticultural practice. • Planting • Advance Planting to be implemented in the first available season after commencement of works, to provide early establishment of vegetation to control views between the proposed Development and receptors
Chapter 13 Noise and Vibration	The following mitigation measures are included within the Strategic CEMP to reduce the impact of noise and vibration within construction works: • Best Practicable Measures (BPM) (as outlined in Section 72 of COPA will be employed in order to minimise noise and vibration levels throughout the period of the works; • Recommendations and good practice as shown in BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Part 1, Noise and Part 2 Vibration' would be adopted; and The measures set out in BS 5228 will include the following as appropriate: • Construction working hours will be agreed with SCDC; • Construction tasks anticipated to have the potential to cause greater adverse effects caused by noise and vibration will be identified at the earliest opportunity, such as any piling works, to enable careful planning of methodology, programming of the works at less sensitive times, and the selection of plant; • Careful selection of plant, construction methods and programming. Only plant conforming with relevant national or international standards, directives and recommendations on noise and vibration emissions will be used; • Construction plant will be located, as far as is reasonably practicable, away from adjacent occupied buildings or as close as possible to noise barriers or site hoardings where these are located between the plant and the buildings; • Careful attention will be paid to the selection and location of generators so as to minimise adverse effects on the local community; • Static and semi-static plant/equipment will be fitted with suitable enclosures where practicable; • Personnel will be instructed on BPM to reduce noise and vibration as part of their induction training and as required prior to specific work activities;

Topic	Mitigation Measures
	• When plant is not being used, it will be shut down and not left to idle; • Vehicles will not wait with engines running; • Where practicable, all audible warning systems and alarms will be designed to minimise noise. Broadband reverse alarms will be fitted to all vehicles; • Local residents will be notified in advance of the works commencing; and • Localised mobile screening will be used where reasonably practicable to reduce the noise levels from handheld tools such as concrete saws. • Appropriate construction traffic routing be implemented to minimise noise effects on sensitive receptors. Details of the routing of construction vehicles and visitors to the Application Site will be agreed with Cambridgeshire County Council (CCC)/SCDC. All construction traffic entering and leaving the Application Site will be closely controlled.
Chapter 14 Socio economics	• Construction areas would be cordoned off to prevent public access and a range of health safety protection measures as outlined in the Strategic CEMP will mitigate the risk. • A range of mitigation measures are proposed and are outlined in the Strategic CEMP. This includes screening, controlling working hours and street lighting for landscape and visual amenity and construction traffic management plans, parking controls and designated vehicle routes for transport. • Mitigation measures relating to air quality, landscape, noise and transport (which may impact upon residential amenity) are described in more detail in Chapters 6, 12, 13 and 15 respectively as well as the Framework Travel Plan, Low Emissions Strategy and Landscape Strategy.
Chapter 15 Transport	A Construction Traffic Management Plan (CTMP) would be implemented to minimise the effects of road traffic during the construction phase and would be anticipated to incorporate: • Identification of appropriate safe routes for the proposed Development traffic to and from the site (which will be via the A14 Huntingdon Road and the B1050); • Where possible the development would utilise raw materials from local sources to reduce the vehicular traffic impact; • Staff travelling to work would be encouraged to car-share, walk, cycle and travel via public transport and appropriate vehicle constraint targets will be set out within the CTMP; • Full staff welfare facilities would be provided as part of the compound construction to reduce the requirement to travel off-site on lunch breaks and encourage sustainable travel; • Frequent inspections and monitoring to confirm the required measures would be implemented; • There would be designated and adequate onsite parking facilities for site workers who travel by car, or other vehicles, to ensure that vehicles are not parked on the highway; • The contractor would implement cleaning measures, such as wheel washing or wash-down facilities, which would serve to minimise the spread of dust, mud and other materials on to the roads; • Regular sweeping of roads would be undertaken, both on and off the site to reduce the spread of mud; and • Additional measures in relation to construction vehicles have been suggested within Chapter 6 Air Quality and Chapter 13 Noise and Vibration.

Topic	Mitigation Measures
	• The Strategic CEMP will also set out how the applicant, developers and contractors will manage, and where practical minimise, the impact of the proposed Development's construction upon surrounding environmental receptors. • The construction mitigation relevant to transport is provided in Chapter 4: Access Arrangements of the Strategic CEMP, which includes details on haulage routes, deliveries and on public access.
Chapter 16 Waste and Resources	• Employ best practice methods of construction as set out in the Strategic CEMP. • Waste sent to landfill minimised. • Endeavour to achieve a cut and fill balance to minimise excavation waste. • Excavation materials to be reused onsite where possible as new landscape features. • Any waste produced to be managed and recycling and reuse opportunities maximised throughout the proposed Development through the implementation of the Outline SWMP.

Table 18-4 Summary of operation additional mitigation measures

	Mitigation Measures
Chapter 5 Agriculture and Soils	• No additional mitigation measures required.
Chapter 6 Air Quality	• No additional mitigation measures required.
Chapter 7 Biodiversity	• Provision of an off-site area for farmland birds to achieve biodiversity net gain targets • Preparation of an Ecological Management and Monitoring Plan (EMMP) to guide the approach to habitats and species as each parcel of the proposed Development is built out, as set out in detail in Table 7-22 of the chapter. • Non-native Invasive Species Management Plan • Preparation of a Lighting Strategy
Chapter 8 Climate Change	• No additional mitigation required.
Chapter 9 Cultural Heritage	• Community engagement involving local groups in researching and recording heritage assets. A heritage strategy for Northstowe is being produced by a Heritage Core Team established as part of implementation of the Phase 2 planning permission. • Involving local interest groups in deciding how assets are preserved, enhanced and interpreted, especially utilising the potential Heritage Centre in Phase 2. • On-site interpretation resources containing information on heritage assets (as derived from the archaeological investigations). • Open days for the public during excavations. • Temporary displays of artefacts found from the Application Site. • Dissemination of data derived on the historic environment of the Application Site to the local population, general public and academia.

	Mitigation Measures
Chapter 10 Ground Conditions	• No additional mitigation measures required.
Chapter 11 Health	• No additional mitigation measures required.
Chapter 12 Landscape and Visual	• No additional mitigation measures required.
Chapter 13 Noise and Vibration	• No additional mitigation measures required.
Chapter 14 Socio economics	• No additional mitigation measures required.
Chapter 15 Transport	<u>Link 30 – Ramper Road</u> • Improvements for walkers and cyclists including traffic calming measures and signage delivered through a Section 106 contribution and in conjunction with the discharge of a condition for Northstowe Phase 2 <u>Junction 02 Boxworth End/ Ramper Road</u> • Provision of right turning facility (as shown in Appendix I of the Transport Assessment) <u>Link 270 – B1050 Station Road and 290 - Stirling Road</u> • Junction capacity improvements comprising provision of additional southbound flare length at B1050 / Crabtree Road / Stirling Road junction (as shown in Appendix I of the Transport Assessment). • Likely rerouting of traffic to more suitable southern routes out of Northstowe. <u>B1050 George Street (Link 730), Willingham</u> • Measures to improve conditions for pedestrians and cyclists will be considered alongside measures being investigated as part of Phase 2 mitigation and delivered via a S106 agreement for Phase 3A. • Junction Improvements that reduce driver delay <u>Junction 103 A14 Bar Hill roundabout</u> • Widening to three lanes on the circulatory carriageway and provision of a left turn flare on the westbound off-slip. <u>Junction 13 and 14 (Local Access Road Junctions)</u> • Widening on the northern arms of each junction to provide a 30m long flare with some slight widening on the entry to the roundabout. • Junction 09 Dry Drayton Road/ Cambridge Road: Changes to phasing/ staging and road markings.
Chapter 16 Waste and Resources	• Meet SCDC's current average recycling rate.

18.5 Monitoring

18.5.1 The monitoring identified for the construction and operation phases of the proposed Development are set out in Tables 18-5 and 18-6.

Table 18-5 Summary of Monitoring Requirements: Construction

	Monitoring Requirements
Chapter 5 Agriculture and Soils	• None required
Chapter 6 Air Quality	• None required
Chapter 7 Biodiversity	• Regular monitoring of the ecological protection measures are outlined in the CEMP and should be undertaken by a qualified ecologist, to ensure that the protection measures are effective remain in place for the time period required. • Monitoring of the reptile translocation areas will be required, to evaluate the success of the translocation(s). This will be required during both the construction and operation phases and should be secured as a component of each parcel proceeding through the planning process, as appropriate. • Additional monitoring requirements may be identified as part of the detailed design for each parcel. This should be secured as each parcel proceeds towards construction, through liaison with an ecologist.
Chapter 8 Climate Change	• None required
Chapter 9 Cultural Heritage	• Archaeological monitoring is likely to be required during construction but the nature and extent of this will be determined at detailed design stage.
Chapter 10 Ground Conditions	• None required.
Chapter 11 Health	• None required.
Chapter 12 Landscape and Visual	• The setting out, protection of existing landscape features, and the implementation of the proposed softworks will be regularly and professionally monitored by the relevant 'competent person'. • In the event that any tree dies or is removed without the prior consent of SCDC, it would be replaced as soon as is reasonably practicable and, in any case, by not later than the end of the first available planting season, with trees of such size, species and in such number and positions as may be agreed with the SCDC. This would be secured by the monitoring set out in the Strategic CEMP.
Chapter 13 Noise and Vibration	• Monitoring may be required to demonstrate compliance with any planning conditions that may form part of a planning approval in relation to the control of adverse noise and vibration effects. Such planning conditions may relate to either the construction phase or the detailed design of specific elements of the proposed Development. This could relate to construction compliance noise and vibration monitoring of activities identified in the Strategic CEMP as having the potential for greater adverse effects.

	Monitoring Requirements
Chapter 14 Socio economics	• None required.
Chapter 15 Transport	• None required.
Chapter 16 Waste and Resources	• Principal contractor to monitor waste arisings, management and minimisation during construction through the SWMP; • As part of the SWMP, a monitoring report should then be generated on a bi-annual basis which would include details of the progress made in diverting waste materials from landfill, against the pre-agreed rates; • All waste collected from site by the employed waste carrier(s) should be recorded and monitored by the Principal Contractor using the SWMP; and • Skips should be monitored to ensure that there is no contamination of the separate waste streams

Table 18-6 Summary of Monitoring Requirements: Operation

	Monitoring Requirements
Chapter 5 Agriculture and Soils	• None required
Chapter 6 Air Quality	• None required

Chapter 7 Biodiversity	• Monitoring of the bat usage of the will may need to be conducted, to inform the success of avoidance mitigation for existing roosts and commuting corridors.
	• An Ecological Management and Monitoring Plan will be required to monitor the status of the following habitat and species receptors:
	  ◦ Habitats
	  ◦ Badger setts
	  ◦ Bats - retained or created habitats, including roosts
	  ◦ Retained or created GCN habitats
	  ◦ This will need to be compiled as each parcel proceeds to occupation.
	• Monitoring of off-site mitigation areas at Smithy Fen will be required throughout the operation phase to determine the success of the farmland bird mitigation. The requirements for this should be specified within a habitat creation, management and monitoring plan for the off-site mitigation areas.

Chapter 8 Climate Change	• None required.
Chapter 9 Cultural Heritage	• None required.
Chapter 10 Ground Conditions	• None required.
Chapter 11 Health	• None required.

	Monitoring Requirements
Chapter 12 Landscape and Visual	• The habitats created would be managed via an Ecological Management Plan (EMP) to achieve the target condition. Monitoring will be required to ensure that management is effective.
Chapter 13 Noise and Vibration	• No further monitoring required, although there is potential for elements to be required following reserved matters applications
Chapter 14 Socio economics	• None required.
Chapter 15 Transport	• A traffic monitoring strategy is anticipated to be required by CCC as a planning condition. This will set out proposals for monitoring and the relationship of the monitoring programme to that proposed for Phase 1 and 2.
Chapter 16 Waste and Resources	• None required.

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