

Draft Infrastructure Delivery Plan

Halsnead Masterplan SPD

January 2017

Knowsley Metropolitan Borough Council

Turley

Mott MacDonald

Draft Infrastructure Delivery Plan

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Knowsley Metropolitan Borough Council

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1 Introduction

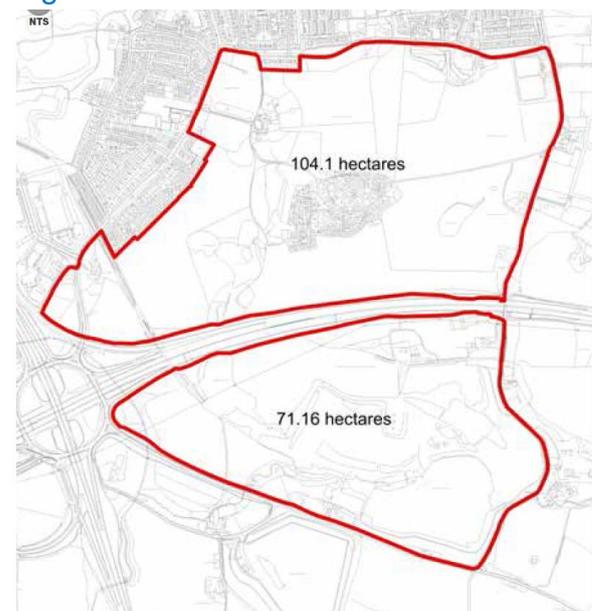
1.1.1 Mott MacDonald and Turley have been commissioned by Knowsley Metropolitan Borough Council (the Council) to produce a masterplan Supplementary Planning Document (SPD) to help guide delivery of a Sustainable Urban Extension (SUE), covering two sites formerly known as “Land south of Whiston” located to the north of the M62 as well as “Land south of the M62”. These two sites have collectively been termed ‘Halsnead’.

1.2 Background to the site

1.2.1 The SUE was removed from the Green Belt and allocated for development in January 2016. The SUE, now Halsnead, comprises:

- **Land South of Whiston** – C3 Dwelling Houses; and
- **Land South of the M62** – B8 Storage and Distribution or uses within the Liverpool City Region growth sectors, and a country park

Figure 1.1: The SUE site



1.2.2 The Land South of Whiston site covers an area of 104.1 hectares, whilst the Land South of the M62 site covers 71.16 hectares (Figure 1.1). Located south of the existing urban area of Whiston, Halsnead will benefit from easy accessibility to Whiston railway station which provides rail connections between Liverpool and Manchester. It is also located adjacent to Tarbock Island, at the interchange of the M62 and M57, delivering good access onto the strategic highway network. The site is also close to Whiston village centre, which provides local amenities, convenience shopping, and education and health services.

1.2.3 The northern half of Halsnead (Land South of Whiston) is bounded by existing residential development to the west and north and by Fox’s Bank Lane to the east, a rural road which passes under the M62. Currently in the centre of the northern part of the site is the Halsnead Park mobile home park, which

functions as an over 55's community. The southern half of the site (Land South of the M62) is bordered by the A5080 Cronton Road to the south, and Fox's Bank Lane to the east. The remainder of the site is abutted to the M62. A large proportion of the site is the former Cronton Colliery.

- 1.2.4 The north-eastern part of the site is proposed predominantly for residential use, with employment to be located on the southern part of the site as well as a new Country Park focussed on the former Cronton Colliery site.

1.3 Purpose of this report

- 1.3.1 This report sets out an indicative plan for delivering the required infrastructure for Halsnead. It covers both the infrastructure to be delivered directly by the developer, and infrastructure to which the developer would make a contribution through a Section 106 agreement or other legal agreement with the Council.

- 1.3.2 The report identifies the infrastructure required to develop Halsnead in terms of:

- Education;
- Community and health care facilities;
- Sports facilities;
- Open space;
- Public art;
- Heritage;
- Archaeology;
- Ecology;
- Geo-technical;
- Surface water drainage;
- Foul water drainage;
- Utilities;
- Air quality and noise mitigation;
- Highways;
- Pedestrian and cycling facilities;
- Bus infrastructure and service provision;
- Travel plans; and
- Fees and contingencies.

- 1.3.3 This Draft Infrastructure Delivery Plan also provides an outline strategy for the delivery sequence of the infrastructure.
- 1.3.4 Indicative high level costings are provided for the above items. It should be noted that costs are based on currently available global pricing information. It should be noted that costs may change due to the outline nature of the masterplan infrastructure which will vary. Limited information is available in some areas of this report and a number of assumptions have had to be made. These assumptions will need to be reviewed and updated as required as the development of the site progresses.

1.4 Basis for costs

- 1.4.1 The high level budget costs provided are based on construction costs having reference to industry standard costing publications such as SPONS, Franklyn and Andrews Little Black Books, recent tender rates and experience.
- 1.4.2 They represent a guide only and cannot be regarded as an estimate based on a bill of quantities, no design has been carried out within the masterplan process hence they represent an order of cost only. It is considered that further design work is required to develop an outline masterplan design which could then be quantified and costed in more detail.
- 1.4.3 In addition, no risk or fee element is included within the cost (as used within the viability review). Risk (optimism bias or similar) would normally be applied to costs at this stage with an order of 40% being normal for those known elements of the proposal. Fee may generally be set between 10% and 15%.
- 1.4.4 Utilities costs carry a higher risk as they are based on limited information provided in 2013/2014. Further investigations and more detailed discussions are needed to refine the utilities costs.

Developer Contributions

- 1.4.5 There is not currently an adopted Community Infrastructure Levy (CIL) in Knowsley, and therefore the requirements towards Section 106 and Section

278 agreements are set out within the Knowsley Local Plan Core Strategy (January 2016) and Developer Contributions SPD (June 2016).

- 1.4.6 The full scale of contribution, and triggers for payment will be determined during pre-application discussions with the Council and will be dependent upon the scale of the development. While this draft IDP sets out some indicative estimated contributions, these are subject to further testing. In other areas, estimations have not been provided; where this is the case, this IDP states that the contribution is 'To be determined'.

1.5 Note on naming

For clarity, the following terms are used throughout this report to refer to the site:

- **'Halsnead'** or **'The site'** are used to refer to the site in its entirety, covering both the Land South of Whiston and the Land South of the M62;
- **'Land South of Whiston'** is used to refer to the northern half part of the site, covering the 104.1 hectares north of the M62; and
- **'Land South of the M62'** is used to refer to the southern part of the site, covering the 71.16 hectares south of the M62.

2 Infrastructure requirements

2.1 Education

Background

- 2.1.1 The Education Act 1996 suggests that an acceptable walking distance for a local school is 2 miles (3.2km) for a child under 8 years and 3 miles (4.8km) for a child over 8 years. From a sustainability perspective, proximity within 1.2km (equivalent to a 15 minute walk) is more likely to promote walking as a modal choice.

Primary education

- 2.1.2 There are 20 primary schools located within a 2 mile radius of Halsnead. 9 of the 20 schools have capacity to accommodate new pupils, including St Leo's and Southmead. Overall there is a net surplus of 259 primary school places across the 20 schools.
- 2.1.3 The figure above does not take account of deficit capacity (i.e. where schools are currently accommodating a greater number of pupils than their capacity suggests), as prescribed by guidance from the Audit Commission.
- 2.1.4 Within close proximity to the site, in South Whiston, there are two primary schools: St.Leo's and Southmead Catholic Primary School (current surplus of 34 spaces), Halsnead Community Primary School (current surplus of 62 places).
- 2.1.5 Although there is a current surplus in nearby schools, from around 400 homes, the nearest primary schools will not be able to provide for additional demand generated by the Halsnead development. The scale of housing provision within the site means that the Council's expectation is that new on-site primary school provision will be necessary.
- 2.1.6 It is currently assumed that this will need to be a 2.5 form entry with capacity to extend to 3 form entry facility. The school will be required to be operational before 300 housing units are reached. This means the school will be operational in advance of the 400 units "pinch point" on existing schools. The early delivery of the new primary school is necessary to allow for parental preference of new and existing residents, particularly given that some

adjacent schools are church schools. The early delivery is also necessary to ensure that the position of currently oversubscribed schools, including in Prescot, is not exacerbated. Finally, there is evidence from market housing developers that a new primary school delivered on site will be a significant selling point of the site, particularly when combined with the use of the school building for community uses.

- 2.1.7 Developers will be required to contribute to the costs of provision of the new primary school proportionally with the expected pupil numbers generated from new residential development.

Secondary education

- 2.1.8 There are 4 secondary schools within a 2 mile radius of the site. The closest is St. Edmund Arrowsmith Catholic Centre for Learning (VA). There is surplus provision within existing secondary schools equivalent to 520 places. Therefore no on-site secondary school provision is expected to be provided.

Early years / nursery

- 2.1.9 It is considered that 3-4 year old entitlement (universal and Extended Childcare Offer) would be adequately met by a 2-form entry nursery attached to, within or adjacent the new on-site primary school, providing wraparound and flexible offer is factored into provision. 0-2 year old provision could be met by the market providing a suitable partner is identified and expansion of current or new provision is facilitated/supported by the LA Early Years developers.
- 2.1.10 It is expected that any additional early years / nursery facilities would be located at the new on-site primary school, supplemented by existing or expanded private nursery facilities within the local area.

Adult & community learning

- 2.1.11 Whiston and Prescot City Learning Centre is located in Whiston approximately 0.5 mile from Halsnead. No new facilities are anticipated as being required on-site, although support for additional services may be required through Section 106 developer contributions.

Infrastructure requirements

- 2.1.12 The Council has sourced the following information on facility requirements and build costs from recently developed education facilities.
- 2.1.13 Table 2.1 summarises the expected costs of education provision for Halsnead.

Table 2.1: Education infrastructure requirements

Infrastructure	Estimated cost
1 new primary school on-site (2.5FE)	£10.255m
Additional early years provision (S106 contribution)	To be determined
Adult & community learning (S106 contribution)	To be determined

2.2 Health care and community facilities

Background

- 2.2.1 Table 4.1 of the draft SPD states that any future application for planning permission should contain a contribution for health provision if evidence at the time indicates a need connected with the proposed development.
- 2.2.2 Based on evidence from the NHS directory, there are 14 GP surgeries within 3.2km of the site. At approximately 1.3km, Whiston Primary Care Resource Centre (Aston Healthcare) is the closest practice. All but one of the practices (Prescot Medical Centre) are currently accepting new patients, with 37 GPs and 51,879 patients registered.
- 2.2.3 Based on the Royal Academy of General Practitioners GP to patient ratio (1 GP per 1,800 people), there is a requirement for 29 GPs to serve the number of patients currently registered at existing practices. This suggests that there is sufficient provision of GPs within existing healthcare facilities local to the site.

- 2.2.4 The Robert Foulkes Centre, Dragon Lane Community Centre and George Howard Centres are all located within Whiston. No new facilities are currently anticipated as being required on site at Halsnead.

Infrastructure requirements

- 2.2.5 The expected costs of health care and community facilities provision for the SUE will be determined by the Council on the basis of planning applications received and met by the developers via financial contribution secured by a S106 agreement.

2.3 Sports facilities

Background

- 2.3.1 The Knowsley Leisure and Culture Park in Huyton and Prescot Soccer Centre are the closest leisure and sport facilities to Halsnead; both located approximately 1.7 miles away. St. Helens Broadway Leisure Centre is also close to the site, located 1.5 miles from Whiston Hospital and 2.2 miles from Halsnead. No new facilities are anticipated as being required on-site, although support may be required through developer contributions.
- 2.3.2 Outdoor sports and playing space is discussed in section 2.4 (Open space).

Infrastructure requirements

- 2.3.3 The expected costs of sports facilities provision for the SUE will be determined by the Council on the basis of planning applications received and met by the developers via financial contribution secured by a S106 agreement.

2.4 Open space

Background

- 2.4.1 Policy SUE2 of the Knowsley Local Plan Core Strategy requires the Sustainable Urban Extensions to “include appropriate provision for public open space (POS), walking and cycling routes as part of the Green Infrastructure network integrating with existing POS, recreational assets and areas of ecological value”.
- 2.4.2 The Developer Contributions Supplementary Planning Document (SPD) requires large new residential developments (300 persons or more) to include provision of new open space on-site up to the required standards, plus a commuted sum towards maintenance or an agreed maintenance programme.
- 2.4.3 A Greenspace Audit was undertaken in 2012 for the Prescott, Whiston, Cronton and Knowsley Village (PWCKV) Community Area¹. The audit identifies a total of 130.95 hectares of public open space representing an overall surplus of 56.97ha relative to current standards but masks deficiencies in certain typologies.
- 2.4.4 Whilst there is a significant surplus of Parks and Gardens typology (59.46ha) and Amenity Greenspace typology, there is a deficit in terms of provision for children and young people (-3.93ha), allotments (-0.76 ha) and outdoor sports provision (-17.04 ha).
- 2.4.5 Appropriate green infrastructure will therefore be required to be delivered at the site. This is expected to include:
- Enhancements to Lickers Lane Playing Fields which are being retained;
 - Local Area of Play (LAP) and Local Equipped Area of Play (LEAP) facilities;
 - Space for and provision of allotments.
- 2.4.6 Maintenance requirements for green infrastructure are set out in Knowsley Council’s *Developer Contributions* Supplementary Planning Document.

¹ Knowsley Council (2012), Knowsley Evidence Base (EB) 21: Greenspace Audit.
<http://www.knowsley.gov.uk/residents/building-and-planning/local-plan/examination-library/knowsley-evidence-base>

Infrastructure requirements

2.4.7 Table 2.2 summarises the expected area of open space provision for Halsnead.

Table 2.2: Open space infrastructure requirements

Infrastructure	Masterplan area (Ha)
Parks and gardens	39.01
Amenity greenspace (accessible woodland and grassland)	28.90
Facilities for children and young people (based on 2 LEAPs and 1 LAP)	0.70
Allotments (based on 1 allotment)	1.27
Outdoor sports facilities (based on 4 football pitches)	3.30
Structural planting and landscaping	4.11

2.4.8 The provision of open space, in accordance with the Masterplan, will be provided on site by the developer. The cost of management and maintenance will be met by the developer, secured by a S106 financial contribution as per the rates in the adopted Developer Contributions SPD.

2.5 Country Park

Background

2.5.1 The proposed Country Park is focused on the former Cronton Colliery site, south of M62. The proposed Country Park will be served by an access point from A5080 Cronton Road and could host facilities to serve the site, subject to detailed design and planning consent.

Infrastructure requirements

2.5.2 The provision of an access point to serve the proposed Country Park from A5080 Cronton Road. See Section 2.15 for more information.

2.6 Public art

Background

- 2.6.1 The Council have confirmed they do not expect to collect contributions to public art through a S106 agreement, although they will encourage appropriate public art to form part of the overall public realm strategy for Halsnead.

2.7 Heritage

Background

- 2.7.1 There are a number of heritage assets both within and around the site associated with the site's history as the Halsnead Park Estate (hall demolished 1932). This is a key characteristic and asset which will be a fundamental consideration in any development proposal. There are both Listed Buildings and non-designated heritage assets with and immediately adjacent to the site.
- 2.7.2 Knowsley's Local Plan Core Strategy (Policy CS20) specifies that development proposals in Knowsley should preserve or enhance the borough's historic and architectural assets, including Listed Buildings, Conservation Areas, Historic Parks and Gardens and archaeological remains, together with other local areas, buildings and structures of historic importance. It is therefore the responsibility of the developer to preserve the heritage assets associated with Halsnead.

Infrastructure requirements

- 2.7.3 If required, any infrastructure will need to be bespoke to the proposed development and therefore should be determined during pre-application discussions with the Council.

2.8 Archaeology

Background

- 2.8.1 An archaeological assessment has been undertaken as part of the Stage 1 Baseline report for the site. Archaeological potential within the proposed development areas has been assessed as 'moderate to high' with a high potential for medieval and post-medieval remains across both halves of the site relating to Halsnead Park Estate, and a moderate potential for prehistoric or Roman remains. In addition, a high potential for modern remains was predicted for the Land South of the M62 development area relating the former use of the site as a colliery.
- 2.8.2 There are however large areas within the site that have undergone significant development which will have truncated or removed archaeological remains. It is therefore considered that these areas have a low to negligible potential for remains from all but the modern period.
- 2.8.3 Further archaeological investigation will be required in order to gain further detail of the archaeological potential of the development area.

Infrastructure requirements

- 2.8.4 If required, any infrastructure will need to be bespoke to the proposed development and therefore should be determined during pre-application discussions with the Council.

2.9 Ecology

Background

- 2.9.1 An Ecological Baseline has been established for the SUE to provide an initial assessment of the ecological importance of the habitats in the areas relevant to the redevelopment of the site, and the potential for these areas to support protected ecological features and species. Two non-statutory sites are located

within in the proposed development area, and a further fourteen non-statutory designated sites are present within 2km of the site.

- 2.9.2 The Ecological Baseline refers to the site having potential for roosting bats, nesting birds and water voles in the vegetation, and makes recommendations regarding retention of habitats as much as is possible. Invasive species have also been noted during the previous site surveys. Therefore, an invasive species management plan is recommended for the site to limit the spread of these plants.

Infrastructure requirements

- 2.9.3 Necessary ecological mitigation and infrastructure will relate to what is being proposed and should be determined in pre-application discussions with the Council.

2.10 Geo-technical

Background

- 2.10.1 The SUE and wider area has an extensive coal mining history – historic mine entries are present on both sides of the M62, with three shafts on the site south of the M62. Halsnead is also classed as a Mine Gas Site. The site is located partially within a Coal Authority Surface Coal Resource Area. A Coal Authority Development High Risk Area (DHRA) coincides with an area of probable shallow coal workings and coal outcrops.
- 2.10.2 A geo-technical risk register has been produced for the site, qualitatively summarising potential geotechnical risks identified at an initial desktop study stage. Identified potential risks include:
- Made Ground (including Colliery Spoil): Variations in composition, thickness and strength, potential presence of perched water, variable pore water pressure, presence of previously unrecorded in-filled land/ structures, obstructions, high loss on ignition (LOI) and high sulphate content;

- Superficial Deposits (Devensian Till and Alluvium): Piling obstructions, variable thickness and variable composition; and
- Pennine Middle Coal Measures: Variable rockhead level, presence of pyrite, shallow coal workings, extensively worked lower seams, mine entries and potential for coal resource sterilisation.

2.10.3 Ground conditions across the site require further investigation to determine the ground model and parameters for geo-technical design. A quantitative geo-technical risk assessment would allow the approximate scope of mitigation and/or remediation to be determined for costing purposes.

Infrastructure requirements

2.10.4 The Land South of Whiston site is shown to contain eight mine entry points (abstracted from various record plans whose accuracy cannot be confirmed). Significant areas of the central area of the site have the potential to contain shallow mine workings and these areas are classified as 'Development High Risk Areas' (having the potential for instability or a degree of risk to the surface from the legacy coal mining operations).

2.10.5 The Land South of the M62 contains colliery waste, probably in mounds, some of which is classed as combustible. There may also be asbestos and the occasional area of other contaminates. Three mine entries are present and these (the area containing them) are classed as Mine Gas Sites. Gas vents are present.

2.10.6 There are no standard global rates for remediation and the affected areas are not currently accurately defined. There is no quantitative assessment available. Further investigation should be undertaken by developers to assess the requirements for remediation and associated costs. It is expected that these costs would be met by the developers.

2.11 Surface water drainage

Background

Flood risk

- 2.11.1 Local Plan Core Strategy (Policy CS22) relates to the management flood risk, including the provision of Sustainable Drainage Systems (SuDS) and flood resilient design for infrastructure and property.
- 2.11.2 The Land South of Whiston appears to have few flood risk constraints, as the avoidance of areas susceptible to fluvial flooding appears to be relatively simple and does not significantly affect development. The risks associated with Surface Water Flooding can be managed as development progresses.
- 2.11.3 Flood risk in the Land South of the M62 appears to be more complex than in the northern area. Much of the area lies within Flood Zone 1, however the north west corner lies within Flood Zones 2 (1 in 100 to 1 in 1000 annual probability of flooding) and areas of Flood Zone 2 and 3 (less than 1 in 100 annual probability of flooding) occur adjacent to Fox's Bank Brook to the centre/west of the overall former Cronton Colliery site (including the proposed country park area).
- 2.11.4 Flow attenuation to green field flow will be required as will consideration of climate change. The mode of attenuation will need to be consideration by developers as part of their planning application in the context of an integrated surface water drainage strategy for the site.

Land South of Whiston

- 2.11.5 United Utilities have confirmed that surface water flows should discharge to the most sustainable system.
- 2.11.6 All surface water drainage will require approval from the SuDS Approving Body (SAB) under the provisions of the Flood and Surface Water Management Act 2010. That body is usually the Unitary Authority (i.e. Knowsley MBC) or the County Council. For main rivers, Environment Agency approvals would be required.

- 2.11.7 Developers will be required to develop their drainage strategy having regard to the total site.
- 2.11.8 It is assumed that flow attenuation and control will occur within the individual development sites and the school (reducing the size of the main outfall sewer). Interceptors and attenuation ponds will need to be provided prior to the outfall in accordance with Environment Agency requirements. The location of these should be considered in relation to their potential to assist with buffering noise and air quality impacts associated with the M62. Potential outfalls are to the outlet watercourse from Big Water (passes beneath M62 in culvert and classified as an ordinary watercourse) and to Blundells Brook (main river) outside the south eastern site boundary.
- 2.11.9 Internal site attenuation costs for the individual sites are not considered to be part of strategic infrastructure costs. Attenuation is a standard requirement for any development proposal.
- 2.11.10 Developers will need to agree discharge limits from their sites with the Environment Agency, Lead Flood Authority and the Council.

Land South of the M62

- 2.11.11 For this area the surface water outfall is expected to be to the existing main river (Chapel Brook/Ochre Brook or Fox's Bank Brook both main rivers) adjacent to Cronton Road.
- 2.11.12 The site comprises a single catchment draining development sites (the northern areas of the former Cronton Colliery site).

Infrastructure requirements

Land South of Whiston

- 2.11.13 The developer will need to provide a drainage layout consistent with an integrated drainage strategy for the site. Individual planning applications shall not prejudice development of the masterplan site. It is expected that these costs would be met by the developers.

Land South of the M62

- 2.11.14 The developer will need to provide a drainage layout consistent with an integrated drainage strategy for the site. Individual planning applications shall not prejudice development of the masterplan site. It is expected that these costs would be met by the developers.

Estimated costs

- 2.11.15 The scale and cost of this will be determined by the developer and ensuring that individual site drainage does not prejudice the overall site masterplan proposals.

2.12 Foul water drainage

Background

Land South of Whiston

- 2.12.1 United Utilities have advised that the foul water drainage may discharge to the 1000mm combined sewer within Lickers Lane.
- 2.12.2 The site generally falls from the north east to the south west and south (from Lickers Lane to the M62 and to Fox's Bank Lane). The scale of fall is of the order of 15m. The potential outfall for foul sewage is the existing 1000mm diameter foul sewer situated at the junction of Windy Arbor Road and Lickers Lane.
- 2.12.3 Pumping stations will be required to transfer flows from the various outfalls to the main sewer in Lickers Lane.

Land South of the M62

- 2.12.4 There are no foul water sewers close to the site. The use of an onsite treatment plant is to be determined by the developer.
- 2.12.5 Discussions with the Environment Agency and United Utilities will need to be entered into by the developer during the planning application process.

Infrastructure requirements

Land South of Whiston

- 2.12.6 The developer will need to provide a drainage layout consistent with an integrated drainage strategy for the site. Individual planning applications shall not prejudice development of the masterplan site. It is expected that these costs would be met by the developers.
- 2.12.7 United Utilities have emphasised the importance of delivering foul and surface water drainage strategies in accordance with an integrated strategy as well as a requirement to minimise the number of pumping stations. This is to secure coordination between parcels and numerous developers over many years of development. The approach will help secure the most sustainable approach to foul and surface water drainage design for the site as a whole.

Land South of the M62

- 2.12.8 The nearest foul sewer lies south along Cronton Road approximately 2km from the site; whereas the Huyton treatment works lies a similar distance away across farmland with no direct route by road. A package treatment plant is likely to be required.
- 2.12.9 The developer will need to provide a drainage layout consistent with an integrated drainage strategy for the site. Individual planning applications shall not prejudice development of the masterplan site. It is expected that these costs would be met by the developers.

2.13 Utilities

Background

Land South of Whiston

- 2.13.1 Developers will need to liaise with utility providers to ensure an integrated approach to service provision is incorporated with their planning application. The approach should not prejudice development of the total site area.
- 2.13.2 **Telecommunications** networks appear to be readily available around the periphery of the site.
- 2.13.3 **Potable Water** supplies are available; information provided by United Utilities indicates that some network reinforcement is to be anticipated.
- 2.13.4 **Electricity** supplies are readily available; it is understood that network reinforcement is required.
- 2.13.5 **Gas** supplies are available; it is understood that network reinforcement is considered necessary.

Land South of the M62

- 2.13.6 Developers will need to liaise with utility providers to ensure an integrated approach to service provision is incorporated with their planning application. The approach should not prejudice development of the total site area.
- 2.13.7 **Telecommunications** networks appear to be readily available around the periphery of the site.
- 2.13.8 **Potable Water** supplies are available with small diameter distribution mains being shown within the site. It is not known whether these have sufficient capacity to serve the developed site. An 18 inch trunk main runs to the west of the site footprint to the northern side of the Tarbock Interchange. There is also an 18 inch main approximately 1.5km south of the site adjacent to Cronton Lane/Alder Lane. It is understood that network reinforcement will be required.

2.13.9 **Electricity supplies** are readily available; however, capacity is understood to be limited, significant network reinforcement may be required.

2.13.10 **Gas:** no gas mains are indicated within the immediate area of the site. Network reinforcement will be required.

Infrastructure requirements

2.13.11 Developer to liaise with utility providers to determine the scale and cost of provision required. Individual planning applications shall not prejudice development of the masterplan site. It is expected that these costs will be met by the developer.

2.14 Air quality and noise mitigation

Background

Air quality

2.14.1 A review of available reports from the Council concludes that air quality around the proposed development is generally good as no Air Quality Monitors Areas (AQMAs) have been declared. However, the proposed development has the potential to cause air quality impacts during both the construction and operational phases.

2.14.2 Based on the monitoring data available it is likely that annual mean NO₂ concentrations at the proposed development site have the potential to be close to or above the annual mean objectives for NO₂ at locations close to the M62 and M57. These concentrations are likely to reduce with distance from these roads and be below the objectives across the majority of the proposed development site.

Noise

- 2.14.3 The noise constraints on both elements of the site primarily relate to traffic noise emanating primarily from the M62, the A5080 Cronton Road to the south and the Tarbock Island.
- 2.14.4 The noise levels predicted by DEFRA noise mapping and in historic measurements for the Land South of Whiston are significant across the site. They are of an order for which it could be concluded that without mitigation, WHO and BS8233 recommendations for internal ambient noise levels both within and external to dwellings would be exceeded.
- 2.14.5 For the Land South of Whiston, the DEFRA noise mapping indicates that during the day-time, the noise levels within a zone which, depending upon topography, reaches some 80 to 150m from the M62 are predicted to be in the range LAeq,16hour 65.0 – 79.9 dB and a more significant band reaching to the perimeter of the existing park home site of LAeq,16hour 60.0 – 64.9 dB. Most the remainder of the site falls within the range LAeq,16hour 55.0 – 59.9 dB.
- 2.14.6 With reference to the WHO Guidelines for Community Noise, this indicates that the majority of the site falls above the threshold for serious annoyance in outdoor amenity areas, which is LAeq, 16hour 55 dB².
- 2.14.7 Noise screening along the motorway boundary could take the form of landscaped earth bunds or proprietary noise fences. The key principle is to remove line of sight between the motorway and residences.

Infrastructure requirements

- 2.14.8 Developers will need to conduct their own investigations into noise and air quality infrastructure requirements to support their planning applications, the cost of which would be met by the developer.

² World Health Organisation (1999), Guidelines for Community Noise – Guideline Values.
<http://www.who.int/docstore/peh/noise/Commnoise4.htm>

2.15 Highways

Background

Land South of Whiston

- 2.15.1 The site is bounded to the west by Windy Arbor Road, which is a single carriageway and bus route serving significant housing areas. It is bounded to the north by Lickers Lane, a single carriageway with traffic calming in the form of speed humps. Lickers Lane also serves large areas of established and modern housing within the existing built-up area to the south of Whiston. To the east the site is bounded by Fox's Bank Lane, a narrow rural single carriageway that links Whiston to Cronton, passing beneath the M62. These highways would provide access to the study area if developed.
- 2.15.2 To the south lies the M62 with a major junction (Tarbock Interchange) in the south west. This junction links local roads to the M62, the M57 and the A5300 Knowsley Expressway.
- 2.15.3 Windy Arbor Road and Lickers Lane are identified in the Knowsley Local Plan Core Strategy Transport Modelling Report as having potential capacity issues in both the AM and PM peaks by 2024 without the SUE proposals.

Land South of the M62

- 2.15.4 The site is bounded by the A5080 Cronton Road to the west, the M62 to the north and Fox's Bank Lane to the east. The main access points to the site would be taken from Cronton Road with only minor secondary access from Fox's Bank Lane.

Infrastructure requirements

On-site: Land South of Whiston

- 2.15.5 Further information on the access points proposed is provided in the Masterplan SPD. Developers are expected to undertake their own assessments in relation to access points to the site as part of their planning application.

2.15.6 Developers will be required to provide an integrated highway network demonstrating its ability to serve the total site as part of any planning submission. Individual planning applications shall not prejudice development of the masterplan site.

2.15.7 It is expected that the on-site access junctions and highway would be paid for by developers as part of their planning applications.

2.15.8

On-site: Land South of the M62

2.15.9 Access to the site is from Cronton Road, which would serve the employment use trips and access to the Country Park facilities.

2.15.10 It is envisaged that an existing junction on Fox's Bank Lane south of the M62 may be used to access the small scale proposed residential development proposed in this area. No new junction will be provided on Fox's Bank Lane south of the M62.

2.15.11 It is expected that the on-site access junctions and highway would be paid for by developers as part of their planning applications.

2.15.12 Developers will be required to provide an integrated highway network demonstrating its ability to serve the total site as part of any planning submission. Individual planning applications shall not prejudice development of the masterplan site.

Off-site highways improvements

2.15.13 Mott MacDonald have completed a Transport Assessment for the Land South of Whiston and the Land South of the M62³. The Transport Assessment reviewed the impact of the proposed development on the existing highway network. A SATURN model has been developed to aid the traffic impact assessment of the proposed development during the AM (0800-0900) and PM (1700-1800) peaks. SATURN is a well-established and industry standard modelling platform that enables urban areas to be modelled in detail, taking

³ Mott MacDonald (2016), Land South of Whiston: Transport Assessment Summary.

into account the delays that are experienced at junctions as traffic volumes increase and the knock-on effect this can have on route choice. The model has been calibrated at a base year of 2015 and provides a good representation of observed traffic conditions.

- 2.15.14 Improvements to the existing junction layouts to accommodate the future development flows were tested using Do Minimum (without development) and Do Something (with development) flows derived from the SATURN model, using 2030 as the future forecast year.
- 2.15.15 The Transport Assessment identified that six existing junctions would potentially experience capacity issues under the 2030 Do Something scenario. These junctions would therefore require improvement – both to enable adequate site accessibility, and to allow development trips to distribute to the wider network:
- Windy Arbor Road / Lickers Lane – to enable development trips to exit Lickers Lane;
 - Lickers Lane / Fox’s Bank Lane – again to enable development trips to exit Lickers Lane;
 - Cronton Road / Fox’s Bank Lane – to mitigate traffic impacts during the PM peak and improve the road safety of this junction;
 - Windy Arbor Road / Dragon Lane – to allow development trips to access local destinations;
 - Dragon Lane/Stoney Lane – to improve access to local destinations; and
 - Stoney Lane/Cumber Lane – to mitigate traffic impacts.
- 2.15.16 Additionally, discussions with Highways England have identified that the M62 Junction 6 ‘Tarbock Island’ would experience capacity and operational issues under development conditions. Accordingly, this junction would also require improvement - both to enable adequate site accessibility, and to allow development trips to distribute to the wider network.
- 2.15.17 The analysis conducted to date recommends the following improvement options for these seven junctions (Table 2.3):

Table 2.3: Recommended improvements options to existing junctions

Junction	Proposed Improvements
M62 Junction 6 'Tarbock Island'	Widening to internal quadrants and certain entry slip roads, together with further signalisation of nodes.
Windy Arbor Road/ Lickers Lane	<p>Widening to the north and south to facilitate:</p> <ul style="list-style-type: none"> • A two lane approach on Lickers Lane; • A separate right and through lane on Windy Arbor Road northbound; and • The introduction of controlled pedestrian crossing facilities across two arms of the junction. <p>The works would require the reconstruction of the boundary wall around the recreation ground, and the relocation of a bus stop on Lickers Lane further to the east.</p>
Lickers Lane / Fox's Bank Lane	Introduction of traffic signals to allow the controlled movement of traffic out of Lickers Lane, and also the controlled movement of pedestrians over all arms of the junction.
Windy Arbor Road / Dragon Lane	Windy Arbor Road approach to Dragon Lane widened to allow for a two lane approach.
Stoney Lane / Dragon Lane / Meadway	Improved designation of the right turn from Dragon Lane to Stoney Lane and improved through alignment on Dragon Lane.
Stoney Lane / Cumber Lane	Provision of traffic signals and controlled pedestrian crossing facilities on all arms of the junction.
Cronton Road / Fox's Bank Lane	<p>Realignment of Prescott Road to the south to opposite Fox's Bank Road to provide a crossroads arrangement; and widening of Cronton Road to enable the provision of right turn pockets for vehicles turning to the north and south.</p> <p>Relocation of the existing bus stops to the west of the junction into new laybys. Advanced cycle stop lines with lead in lanes to be provided on Cronton Road.</p>

- 2.15.18 It is currently expected that the off-site highway works would be paid for by the developers through S106 contributions to be determined that pre-planning application discussions.

Maintenance requirements

- 2.15.19 The Council has adopted a charging policy for any growth in street lighting, traffic signs and related assets to its 25-year PFI maintenance contract, which commenced on August 2011 and extends to 2036. There will therefore be a requirement to contribute to the additional maintenance and energy costs of the new infrastructure provided.

2.16 Pedestrian and cycling facilities

Background

- 2.16.1 Policy SUE2 requires the SUE to “include appropriate provision for public open space (POS), walking and cycling routes as part of the Green Infrastructure network integrating with existing POS, recreational assets and areas of ecological value”.
- 2.16.2 Pedestrian provision along Windy Arbor Road and Lickers Lane predominately varies between single-sided and double-sided footpaths. A short stretch of Lickers Lane at its easternmost end has no footway. There are also dropped kerbs, formal crossing facilities and traffic calming measures present along Lickers Lane, up to its junction with Pennywood Drive. Pennywood Drive also provides a direct pedestrian route to Whiston railway station, with wide verges separating the footpath from the adjacent highway.
- 2.16.3 Fox’s Bank Lane is largely unsuitable for pedestrians due to poor quality, very narrow or absent footpaths. To the south of the Land South of the M62 site, the A5080 Cronton Road has a footpath along one side; however this is generally narrow. Cronton Road is also constrained by Junction 6 of the M62 and Fox’s Bank Lane; both of which limit pedestrian movement to/from Cronton Road and thus the site south of the M62.

- 2.16.4 The M62 acts as a significant barrier to movement between the two potential development sites under consideration. This is exacerbated by poor quality pedestrian and cycle links between the sites via the roundabout of the M62 Junction 6/A5080 Cronton Road and Fox's Bank Lane.
- 2.16.5 The possibility of using the existing bridge (situated on the line of a former mineral railway) crossing the M62 to link the two parts of the SUE was examined as part of the *2014 Infrastructure and Development Options Study*. The study considered that the bridge was unsuitable for large vehicles such as buses, but could be suitable for pedestrians, cyclists, equestrians and light vehicles.

Infrastructure requirements

- 2.16.6 Walking and cycling facilities within the site itself are to be provided as part of the new highway infrastructure (as discussed in section 2.15).
- 2.16.7 A developer contribution towards upgrading existing facilities in the vicinity of the SUE, including walking/cycling routes to Whiston station, local schools, shops and health services would also be required.
- 2.16.8 At this stage it is assumed that a bridge over the M62 will be used as the main pedestrian, equestrian and cyclist crossing between the two sites. However, the existing bridges over the M62 will require improving.
- 2.16.9 It is expected that the developer will cover the costs of providing this infrastructure and contributions towards maintenance will be required.

2.17 Bus infrastructure and service provision

Background

- 2.17.1 Parts of the two sites (approximately 10% of the total site area) that border the A5080 Cronton Road, Windy Arbor Road and Lickers Lane are within a 200m catchment area of local bus stops.
- 2.17.2 Current bus services in the vicinity of the site include:
- 61: Liverpool – Runcorn (every 20 minutes)

- 99: Whiston – Prescott circular (every 60 minutes)
- 139: Liverpool – St Helens (every 30 minutes)
- 248: Huyton – Prescott circular (every 30 minutes AM, every 60 minutes PM)
- Y1: Cronton – Prescott circular (six services per day)
- 6/116/7a: Liverpool – Warrington (every 60 minutes)
- 265: Halewood – Bold Heath (every 90 minutes)

2.17.3 To accommodate bus services within the Land South of Whiston, the internal layout of the site would require an accessible through route. There is potential to divert and increase the service frequency of existing bus services in the area. This may be a more commercially viable option for bus operators and would carry less financial risk than introducing new services. However, the provision of additional bus services in the study area is dependent on commercial operators being satisfied that a commercially viable service is possible, based on forecasts of passenger demand.

2.17.4 For supported bus services, Merseytravel generally advise the provision of £120,000 (gross) per annum for 5 years if a new 7-day bus service is provided.

2.17.5 Specific bus service enhancements cannot be determined at this stage as they are dependent upon the final occupiers. However, access to education, employment, retail and health opportunities would be expected trip generators for bus services.

Infrastructure requirements

2.17.6 It is assumed that bus services will be provided on a commercial basis. It will be the responsibility of the developer to accommodate bus routes on internal site roads by including stops, shelters and accessible kerbs.

2.18 Travel plans

Background

- 2.18.1 Knowsley's *Ensuring a Choice of Travel* Supplementary Planning Document (2010) supports the planning policies of the Council and provides guidance to developers on ensuring that their development proposals are accessible and promote sustainable travel patterns. The document provides advice on parking standards and requirements for the submission of documents required to support a planning application, including Transport Assessments and Travel Plans.

Infrastructure requirements

- 2.18.2 The creation of a Travel Plan and the appointment of a Travel Plan Advisor will be a requirement for the site, in line with Knowsley Council's *Ensuring a Choice of Travel* SPD. The costs of this are yet to be determined, and would be secured through a S106 contribution.
- 2.18.3 Developers would be required to produce a Travel Plan as part of their planning application.

2.19 Fees and contingencies

- 2.19.1 The Council will charge for its reasonable legal and administrative costs for drafting and completion of the S106 agreement, on the basis of a solicitor's hourly rate. While the majority of legal agreements will not warrant a monitoring fee, where the developer has requested payment of contributions to be phased, the Council may impose a fee to reflect the increased administrative and financial burden of monitoring such obligations. The additional fee will vary depending on the monitoring required.
- 2.19.2 Depending on the potential future delivery model for the Halsnead site (which could include models such as a Joint Venture Partnership), the Council or the delivery body may request contributions towards legal fees, project management, and contract administration. It is not currently possible to

estimate the scale of such costs. It should be noted that these fees would be collected outside of the S106 / developer contributions process.

2.20 Summary

2.20.1 Table 2.4 provides a summary of the total infrastructure required.

Table 2.4: Summary of Infrastructure Requirements

Infrastructure element	Infrastructure requirement	Trigger/Delivery Sequence	Lead Delivery Agency	Estimated Cost / Mechanism
Education	A new 2.5 form entry Primary School with playing fields. Early years provision as part of new or extended facility. (See HSPD8).	Required to be operational prior to occupation of the 300 th dwelling	KMBC	Approx. £10m through developer contributions and other funding
Health care and community facilities	A contribution for health care provision and community facilities should be provided if there is evidence at the time of application that indicates a need, connected with the proposed development. This will be for improvement of existing GP and Dental health services, building capacity in the area.	All planning applications to determine requirement at pre-application discussions	KMBC	Developer contributions
Sports facilities	Enhancements to the existing facility on Lickers Lane with potential for additional provision via the proposed Primary School for Land North of M62.	All planning applications to determine requirement at pre-application discussions	KMBC	Developer contributions
Open space	Development will make provision for open space across 4 'tiers' to include Parks and Gardens; Amenity Greenspace; NEAPs and LEAPs; Allotments; Natural and semi-natural green space and corridors. A new Country Park should be provided on Land South of M62. (See HSPD11)	All planning applications to determine requirement at pre-application discussions	Developers	Maintenance and management through developer contributions

Infrastructure element	Infrastructure requirement	Trigger/Delivery Sequence	Lead Delivery Agency	Estimated Cost / Mechanism
Heritage and Archaeological mitigation	Dependent upon development, however a sensitive response will be required to preserve listed buildings, structures and heritage assets. (See HSPD6)	All planning applications to determine requirement at pre-application discussions	Developers	Dependent upon impact – developer contributions
Ecology mitigation	Planning applications to be accompanied by an ecological impact assessment detailing mitigation and management proposals for the site. (See HSPD12)	All planning applications to determine requirement at pre-application discussions	Developers	Dependent upon impact – developer contributions
Geo-technical mitigation	Planning applications will require to be accompanied by a comprehensive risk assessment describing all investigations and mitigation proposals. (See HSPD10)	All planning applications to determine requirement at pre-application discussions.	Developers	Mitigation met by developer on-site
Surface water drainage	Drainage, SuDS and attenuation ponds are required to manage surface water.	Delivery sequence will determine provision. See Table 7.1 within the SPD.	Developers	Mitigation met by developer on-site
Foul water drainage	Pumping stations and new rising mains are required to support the masterplan area.	Delivery sequence will determine provision. See Table 7.1 within the SPD.	Developers	Mitigation met by developer on-site
Utilities provision	Water, power and telecoms supplies will be required to serve the masterplan site.	Delivery sequence will determine provision. See Table 7.1 within the SPD.	Developers	Mitigation met by developer on-site
Air quality and noise mitigation	Noise and air quality attenuation bunds will be required to mitigate against adverse impacts associated with noise and pollutants from the M62 and any other locations considered necessary in the vicinity of the site.	Delivery sequence will determine provision. See Table 7.1 within the SPD.	Developers	Mitigation met by developer on-site

Infrastructure element	Infrastructure requirement	Trigger/Delivery Sequence	Lead Delivery Agency	Estimated Cost / Mechanism
Highways access to the masterplan area	Access to be provided as shown in the Framework Plan and Access and Movement Plan. (See HSPD7)	Delivery sequence of highway infrastructure should be as per the Movement and Urban Design Framework as well as the Delivery Sequence (chapter 7), both detailed in the Masterplan SPD.	Developers and KMBC through developer contributions	£10m through developer contributions Maintenance cost contributions to be determined
Off site highway mitigation	Off site highway improvements are anticipated to be required in 6 locations, as set out in Table 5.2 of the Mastepplan SPD.	Developers will be required to contribute to the necessary off-site works to enable their delivery when required.	KMBC through developer contributions (potential funding sought from SIF).	£8m through developer contributions Maintenance cost contributions to be determined
Pedestrian and cycle facilities	Access to be provided as shown in the Framework Plan and Access and Movement Plan. Pedestrians and cyclists are to be at the top of the movement hierarchy. Infrastructure required includes crossing facilities, footways and a pedestrian/cycling/equestrian route along the former mineral railway line including an upgrade to the existing footbridge over the M62. (See HSPD7)	Delivery sequence of highway infrastructure should be as per the Movement and Urban Design Framework as well as the Delivery Sequence (chapter 7), both detailed in the SPD.	Developers and KMBC through developer contributions	Developer contributions Maintenance cost contributions to be determined

Infrastructure element	Infrastructure requirement	Trigger/Delivery Sequence	Lead Delivery Agency	Estimated Cost / Mechanism
<p>Bus infrastructure and service provision</p>	<p>Access to be provided as shown in the Framework Plan and Access and Movement Plan. This includes for a route capable of accommodating buses and provision of bus stops (including kerbs and shelters) at optimum locations in accordance with Merseytravel’s design standards. Bus services would be commercially operated. (See HSPD70</p>	<p>All planning applications to determine requirement at pre-application discussions</p>	<p>Developers and KMBC through developer contributions s Bus services would be commercially operated</p>	<p>Developer contributions towards infrastructure only</p>
<p>Travel plans</p>	<p>Travel Plans should be produced to support planning applications to demonstrate the sustainability objectives of the development and identify necessary contributions to sustainable transport initiatives.</p>	<p>All planning applications to determine requirement at pre-application discussions</p>	<p>Developers</p>	<p>Developer prepares and contributions to Travel Plan Advisor post</p>

3 Delivery sequence

3.1 Introduction

- 3.1.1 The Council does not have a majority landownership at Halsnead. The private sector will be required to take a lead role in both land assembly and the delivery process.
- 3.1.2 Technical analysis has identified the need for a comprehensive approach to infrastructure provision across both the employment and residential sites.
- 3.1.3 The Council will need to be satisfied that development of individual parcels will not sterilise or frustrate delivery of other parts of the site. In the circumstances, it will be critical for applications submitted for individual development parcels to appropriately accommodate, and provide for, necessary strategic physical infrastructure that opens up successive, complementary development parcels to ensure the full site-wide development opportunity is realised over time.
- 3.1.4 Developers will also be required to make appropriate and proportionate contributions as specified within this IDP document..

3.2 Development Parcels

- 3.2.1 The indicative parcelation plan for the Land South of Whiston is shown in Figure 3.1 below.

Figure 3.1: Indicative residential development parcels for Land North of M62



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3.2.2 A summary of the anticipated housing delivery for each parcel of the development of land north of the M62 is shown in Table 3.1 below.

Table 3.1: Residential Development Capacity Summary Table

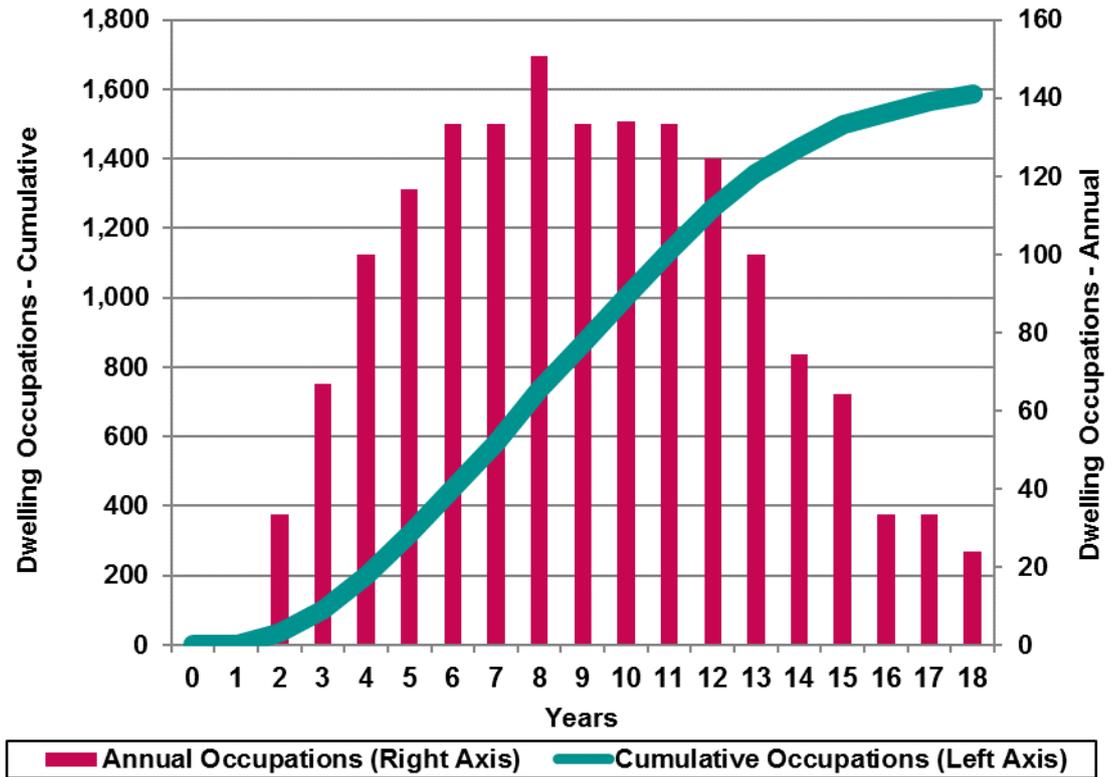
Phasing	Dev Parcel Area (Ha)	% NDA (Est.)	Average Density (DPH)	No. Residential Units	Total Units
1(a)	1.49	90%	30	40	338
	5.26	80%	35	147	
	4.47	90%	37.5	151	
1(b)	0.47	85%	37.5	15	184
	1.01	85%	37.5	32	
	0.81	80%	45	29	
	3.59	80%	37.5	108	

Phasing	Dev Parcel Area (Ha)	% NDA (Est.)	Average Density (DPH)	No. Residential Units	Total Units
1 (c)	5.25	85%	37.5	167	167
2(a)	5.05	85%	35	150	295
	5.35	90%	30	144	
2(b)	3.97	80%	35	111	208
	3.06	90%	35	97	
2(c)	2.42	90%	45	98	274
	4.35	90%	45	176	
3	3.89	90%	35	123	123
TOTALS	50.44	86%	37	1589	1589

3.3 Delivery trajectory

- 3.3.1 There is no prescribed trajectory for delivery across Halsnead.
- 3.3.2 For the purposes of understanding the viability of the site and to develop this IDP (and ultimately inform the Masterplan SPD), the Council has prepared an indicative residential development trajectory, which assumes that the first housing development will commence in 2018 and continue over a circa 17-year period to 2035, at an annual average completion rate of circa 93 dwellings per annum (dpa) inclusive of affordable housing; development is expected to peak at 150dpa in 2025.
- 3.3.3 The trajectory assumes concurrent delivery increasing from two housebuilders initially, to four housebuilders conducting sales from multiple outlets across the site at the peak of the delivery trajectory.
- 3.3.4 The indicative development trajectory is set out on an annualised basis below.

Figure 3.2: Halsnead Indicative Delivery Trajectory - Occupations



3.3.5 Table 3.2 shows the forecast annual and cumulative occupations across the Land South of Whiston.

Table 3.2: Forecast occupations

Year	Date	Annual Occupations	Cumulative Occupations	Cumulative Occupations (%)
0	2017	0	0	0%
1	2018	0	0	0%
2	2019	33	33	2%
3	2020	67	100	6%
4	2021	100	200	13%
5	2022	117	317	20%

Year	Date	Annual Occupations	Cumulative Occupations	Cumulative Occupations (%)
6	2023	133	450	28%
7	2024	133	583	37%
8	2025	151	734	46%
9	2026	133	868	55%
10	2027	134	1,002	63%
11	2028	133	1,135	71%
12	2029	124	1,259	79%
13	2030	100	1,359	86%
14	2031	74	1,434	90%
15	2032	64	1,498	94%
16	2033	33	1,531	96%
17	2034	33	1,565	98%
18	2035	24	1,589	100%
19	2036	0	1,589	100%
20	2037	0	1,589	100%
21	2038	0	1,589	100%
Total		1,589	1,589	100%

3.4 Delivery sequence

3.4.1 Based on the technical information available the Council has set out its expected approach to infrastructure delivery.

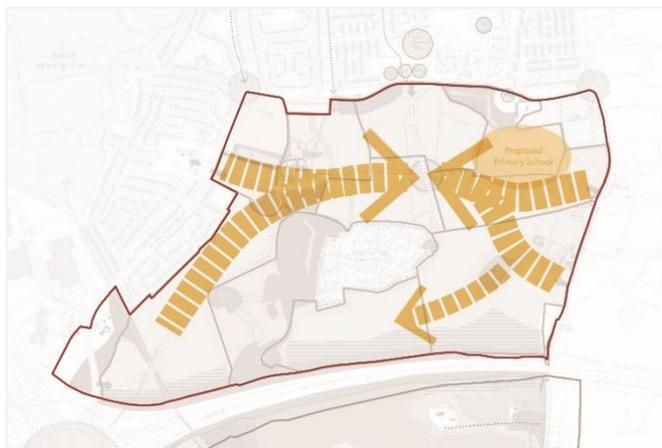
3.4.2 This has been influenced by a range of factors including: current landownerships and assembly status, market intelligence from the housebuilding industry, requirements for early highways infrastructure, drainage provision, noise/air quality mitigation, early delivery of the new Primary School.

- 3.4.3 The following delivery sequence has been prepared to ensure the timely provision of necessary infrastructure, including United Utilities' stated requirement to minimise the number of pumping stations to serve the development:
- a) It is expected that residential delivery will commence in the south west of the site with provision of a new access from Windy Arbor Road (area 1a). Development is expected to move north as highways, drainage, noise attenuation and other infrastructure is delivered and dwellings are subsequently constructed. Development in this area has been assumed to provide the main foul and surface water outfalls for parcels 1(b) and parts of parcels 1(c) and 2(c) to minimise pumping station provision and limit surface water outfalls such that the risk of pollution to Big Water is minimised, The rising main from the foul pumping station will need to discharge to United Utilities' main sewers in Lickers Lane. The area will need to provide noise attenuation measures/Green Infrastructure adjacent to the M62 motorway and open spaces within the development parcel in accordance with the Council's policy standards.
 - b) A second vehicular access is to be provided from Windy Arbor Road opposite St Nicholas Parish Church creating the primary (bus) route through the site. Development is then expected to move sequentially from west to east with parcels accessed off the new primary west-east Main Street through the site.
 - c) A new on-site primary school will be delivered by the Council at an early stage of the development (before circa 300 residential occupations). The school will be constructed on land in public sector ownership at the north east of the site. Developer contributions will be sought towards the capital costs of constructing the school.
 - d) Simultaneously, residential delivery could also be progressed in the east of the site on land securing access through a primary route to Fox's Bank Lane. Development is expected to move west and north as highways, drainage, noise attenuation and other infrastructure is delivered and dwellings are subsequently constructed. Foul and surface water outfalls serving parcels 2(a), 2(b), the proposed school and parts of parcels 1(c) and 2(c) will be provided in a comprehensive system. The rising main will need to extend from

- a pumping station to Lickers Lane. Noise attenuation measures/Green Infrastructure will be provided adjacent to the M62 motorway and, local greenspace within the development area in accordance with the Council's adopted policy standards.
- e) A second access from Fox's Bank Lane at the north-eastern part of the site will provide a secondary highways route for east to west movement, connecting up with the Main Street.
 - f) Land at the extreme north and south of the site will be delivered once access and other enabling infrastructure has been provided via adjoining earlier development parcels. The rising main will need to extend from a pumping station to Lickers Lane. The area will need to provide noise attenuation measures/Green Infrastructure adjacent to the M62 motorway and local open space should be provided within the development area in accordance with the Council's adopted standards.
 - g) Land currently occupied by the mobile home park would be developed as a final parcel, in the event of this land becoming available. Infrastructure connections to facilitate this final phase will be included within relevant surrounding development parcels.
- 3.4.4 It is expected that residential delivery will commence in the south west of the site with provision of a new access from Windy Arbor Road (area 1a). Development is expected to move north as highways, drainage, noise attenuation and other infrastructure is delivered and dwellings are subsequently constructed. Development in this area has been assumed to provide the main foul and surface water outfalls for parcels 1(b) and parts of parcels 1(c) and 2(c) to minimise pumping station provision and limit surface water outfalls such that the risk of pollution to Big Water is minimised, The rising main from the foul pumping station will need to discharge to United Utilities' main sewers in Lickers Lane. The area will need to provide noise attenuation measures/Green Infrastructure adjacent to the M62 motorway and open spaces within the development parcel in accordance with the Council's policy standards.
- 3.4.5 A second vehicular access is to be provided from Windy Arbor Road opposite St Nicholas Parish Church creating the primary (bus) route through the site.

- Development is then expected to move sequentially from west to east with parcels accessed off the new primary west-east Main Street through the site.
- 3.4.6 A new on-site primary school will be delivered by the Council at an early stage of the development. The school will be constructed on land in public sector ownership at the north east of the site. Developer contributions will be sought towards the capital costs of constructing the school.
- 3.4.7 Simultaneously, residential delivery could also be progressed in the east of the site on land securing access through a primary route to Fox's Bank Lane. Development is expected to move west and north as highways, drainage, noise attenuation and other infrastructure is delivered and dwellings are subsequently constructed. Foul and surface water outfalls serving parcels 2(a), 2(b), the proposed school and parts of parcels 1(c) and 2(c) will be provided in a comprehensive system. The rising main will need to extend from a pumping station to Lickers Lane. Noise attenuation measures/Green Infrastructure will be provided adjacent to the M62 motorway and, local greenspace within the development area in accordance with the Council's adopted policy standards.
- 3.4.8 A second access from Fox's Bank Lane at the north-eastern part of the site will provide a secondary highways route for east to west movement, connecting up with the Main Street.
- 3.4.9 Land at the extreme north and south of the site will be delivered once access and other enabling infrastructure has been provided via adjoining earlier development parcels. The rising main will need to extend from a pumping station to Lickers Lane. The area will need to provide noise attenuation measures/Green Infrastructure adjacent to the M62 motorway and local open space should be provided within the development area in accordance with the Council's adopted standards.
- 3.4.10 Land currently occupied by the mobile home park would be developed as a final parcel, in the event of this land becoming available. Infrastructure connections to facilitate this final phase will be included within relevant surrounding development parcels.

Figure 3.3: Diagrammatic summary of the potential development route



3.4.11 Individual planning applications that propose an alternative approach to development sequencing proposed above will be considered by the Council where robust evidence is provided that technical solutions to infrastructure provision will not prejudice the comprehensive development of Halsnead.

3.5 In Kind Infrastructure

3.5.1 The following table sets out the key strategic infrastructure requirements for Halsnead, to be delivered directly by new development. It identifies infrastructure requirements where coordination over delivery between different areas and ownerships is most critical.

3.5.2 It will be necessary for landowners and developers to collaborate to ensure deliverability is not prejudiced where strategic infrastructure will be required to cross ownership boundaries.

Table 3.3: Strategic area-specific infrastructure requirements

Area	Infrastructure Requirements	Links to Other Parcels	Triggers
1(a)	Highway junction with Windy Arbor Road Internal highways (including sewer easement)	Infrastructure is to be extended to site limits to allow all future connections	Discharge of planning conditions for first and subsequent

Area	Infrastructure Requirements	Links to Other Parcels	Triggers
	Internal walking and cycling routes Utilities: Drainage (surface water) – SuDS and attenuation ponds Drainage (foul water) – pumping station and rising main (oversized to accommodate future flows) Water supply Power supply Telecoms supply Noise and air quality attenuation bund Green infrastructure and open space as per framework plans	necessary. Links with parcel 1(b) and areas within parcel 1(c) and 2(c).	sites within the area.
1(b)	Highway junction with Windy Arbor Road Pedestrian/cycling access from Lickers Lane and Windy Arbor Road Internal highways (including sewer easement) Internal walking and cycling routes Utilities: Drainage (surface water) – SuDs Drainage (foul water) –rising main (oversized to accommodate future flows) Water supply Power supply Telecoms supply Green infrastructure and open space as per framework plans Maintaining access to retained	Infrastructure is to be extended to site limits to allow all future connections necessary. Links with parcel 1(a), 1(c) and 2(c)	Discharge of planning conditions. Completion of enabling infrastructure within parcel 1(a).

Area	Infrastructure Requirements	Links to Other Parcels	Triggers
	properties, dwellings and facilities		
1(c)	<p>Internal highways</p> <p>Internal walking and cycling routes</p> <p>Utilities:</p> <p>Drainage (surface water) – SuDs</p> <p>Drainage (foul water) – rising main (oversized to accommodate future flows)</p> <p>Water supply</p> <p>Power supply</p> <p>Telecoms supply</p> <p>Green infrastructure and open space as per framework plans</p>	<p>Infrastructure is to be extended to site limits to allow all future connections necessary.</p> <p>Links with parcels 1(b), 2(a), 2(b) and 2(c).</p> <p>Potential future link with redevelopment of mobile home park.</p>	<p>Discharge of Planning conditions.</p> <p>Completion of enabling infrastructure within area 1 (a) and 1(b).</p>
2(a)	<p>Highway junction with Fox’s Bank Lane</p> <p>Pedestrian/cycling access from Fox’s Bank Lane</p> <p>Internal highways</p> <p>Internal walking and cycling routes</p> <p>Utilities:</p> <p>Drainage (surface water) – SuDS and attenuation ponds</p> <p>Drainage (foul water) – pumping station and rising main (oversized to accommodate future flows)</p> <p>Water supply</p> <p>Power supply</p> <p>Telecoms supply</p> <p>Noise and air quality attenuation bund</p> <p>Green infrastructure and open space as per framework plans</p>	<p>Infrastructure is to be extended to site limits to allow all future connections necessary.</p> <p>Links with parcel 1(c), 2(b), school parcel and parcel 3</p> <p>Potential future link with redevelopment of mobile home park</p>	<p>Discharge of planning conditions for first and subsequent sites within the area.</p> <p>Completion of enabling infrastructure within parcel 1(b), 1(c), 2(b)</p>

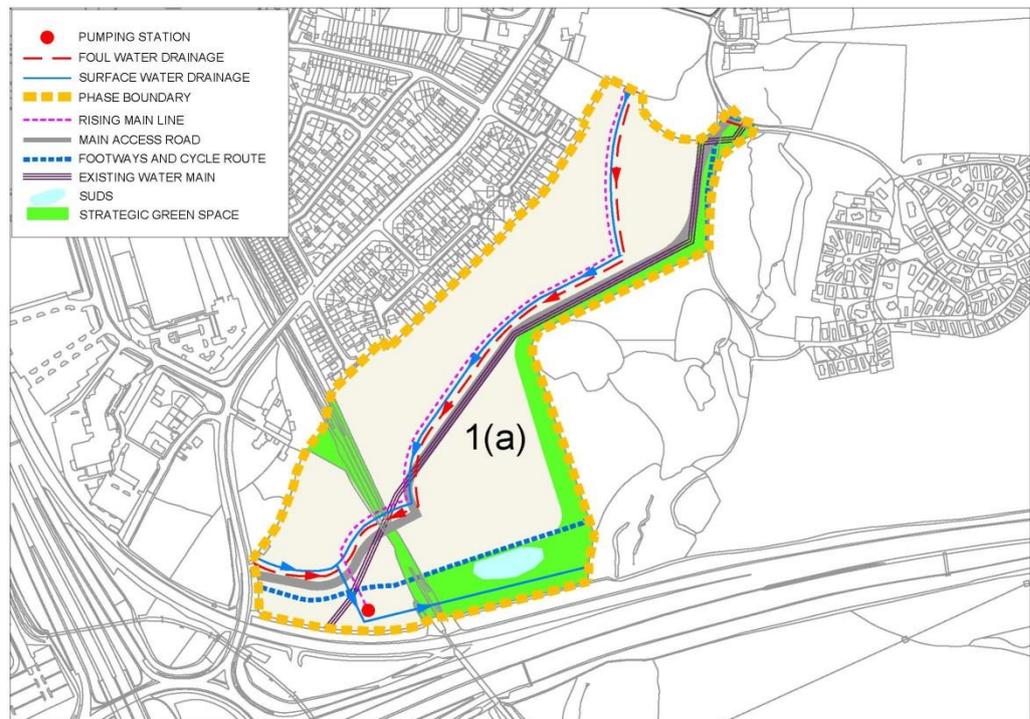
Area	Infrastructure Requirements	Links to Other Parcels	Triggers
2(b)	Highway junction with Fox's Bank Lane Pedestrian/cycling access from Fox's Bank Lane Internal highways Internal walking and cycling routes Utilities: Drainage (surface water) – SuDS Drainage (foul water) –rising main (oversized to accommodate future flows) Water supply Power supply Telecoms supply Green infrastructure and open space as per framework plans	Infrastructure is to be extended to site limits to allow all future connections necessary. Links with school parcel, parcel 1(b), 1(c), 2(a), and 2(c).	Discharge of Planning conditions. Completion of enabling infrastructure within parcel 1(b), 1(c), 2(a), and school parcel.
2(c)	Highway junction with Lickers Lane Pedestrian/cycling access from Lickers Lane Internal highways Internal walking and cycling routes Utilities: Drainage (surface water) – SuDS Drainage (foul water) –rising main (oversized to accommodate future flows) Water supply Power supply Telecoms supply Green infrastructure and open space as per framework plans	Infrastructure is to be extended to site limits to allow all future connections necessary. Links with school parcel, parcel 1(b), 1(c), and 2(b).	Discharge of Planning conditions. Completion of enabling infrastructure within all 1, 2 parcels and school parcel.

Area	Infrastructure Requirements	Links to Other Parcels	Triggers
3	Internal highways Internal walking and cycling routes Utilities: Drainage (surface water) – SuDS and attenuation ponds Drainage (foul water) – pumping station and rising main (oversized to accommodate future flows) Water supply Power supply Telecoms supply Noise and air quality attenuation bund Green infrastructure and open space as per framework plans	Infrastructure is to be extended to site limits to allow all future connections necessary. Links with parcel 2(a). Potential future link with redevelopment of mobile home park.	Discharge of Planning conditions. Completion of enabling infrastructure within parcel 2(a).
Primary School	Pedestrian/cycling access from Lickers Lane Internal highways Internal walking and cycling route Utilities: Drainage (surface water) – SuDS Drainage (foul water) – rising main (oversized to accommodate future flows) Water supply Power supply Telecoms supply Green infrastructure and open space as per framework plans	Infrastructure is to be extended to site limits to allow all future connections necessary	Discharge of Planning conditions. Completion of enabling infrastructure within parcel 2 2(b).

3.6 Development areas and on site infrastructure

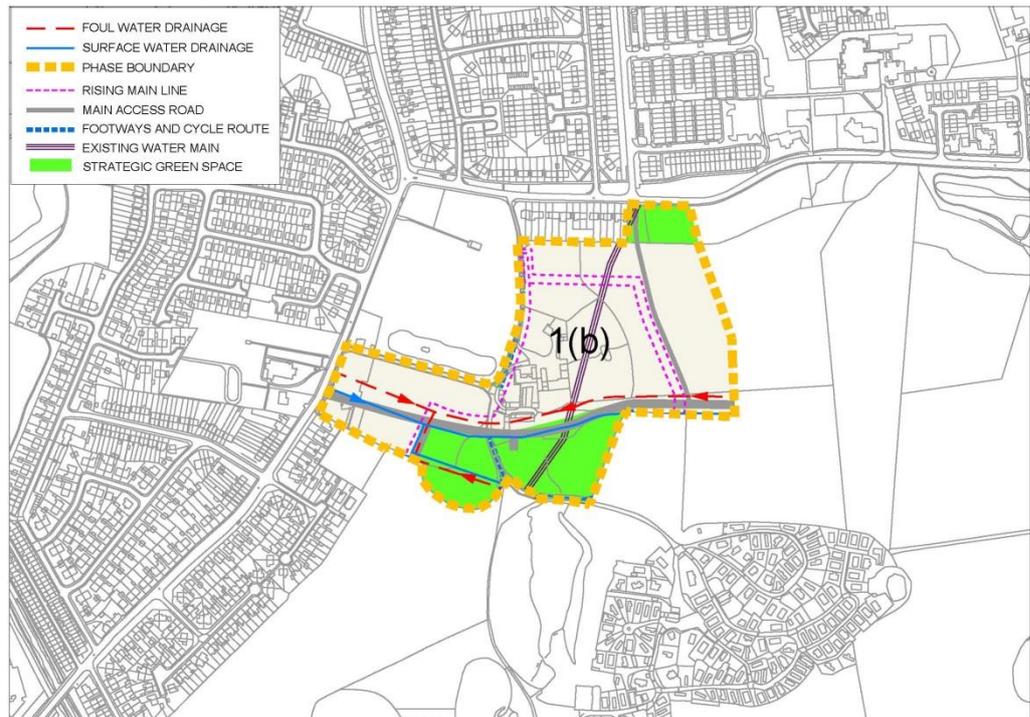
3.6.1 The following plans show the illustrative strategic infrastructure projects in accordance with the above table.

Figure 3.4: Primary infrastructure concept: development areas 1a



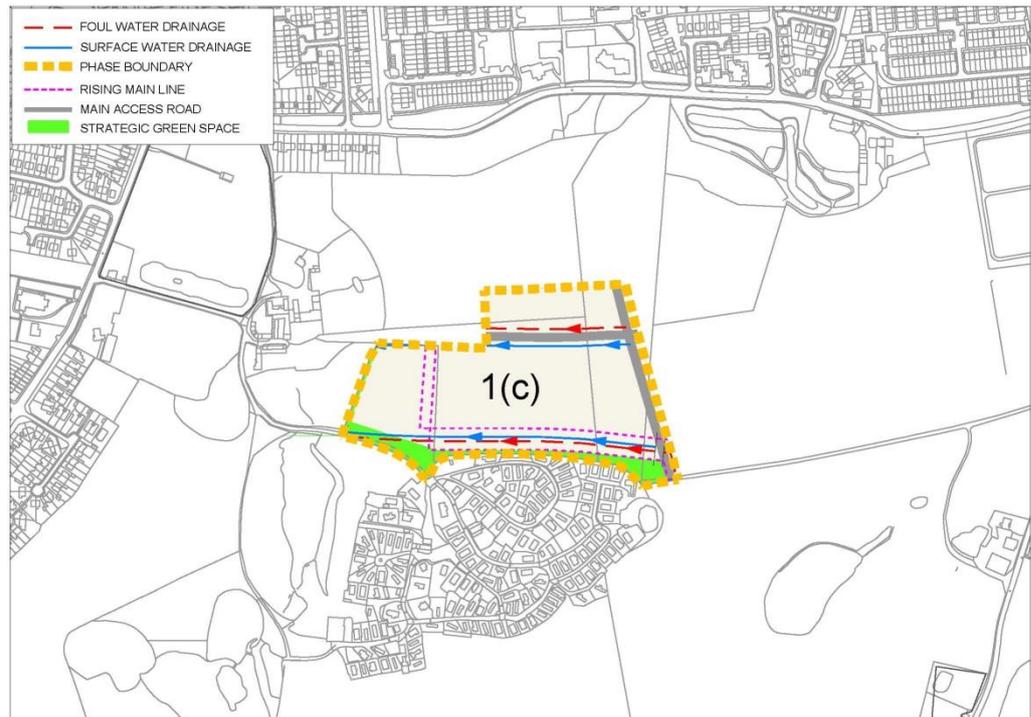
Not to scale. Crown Copyright Knowsley MBC 100017655, 2016.

Figure 3.5: Primary infrastructure concept: development area 1b



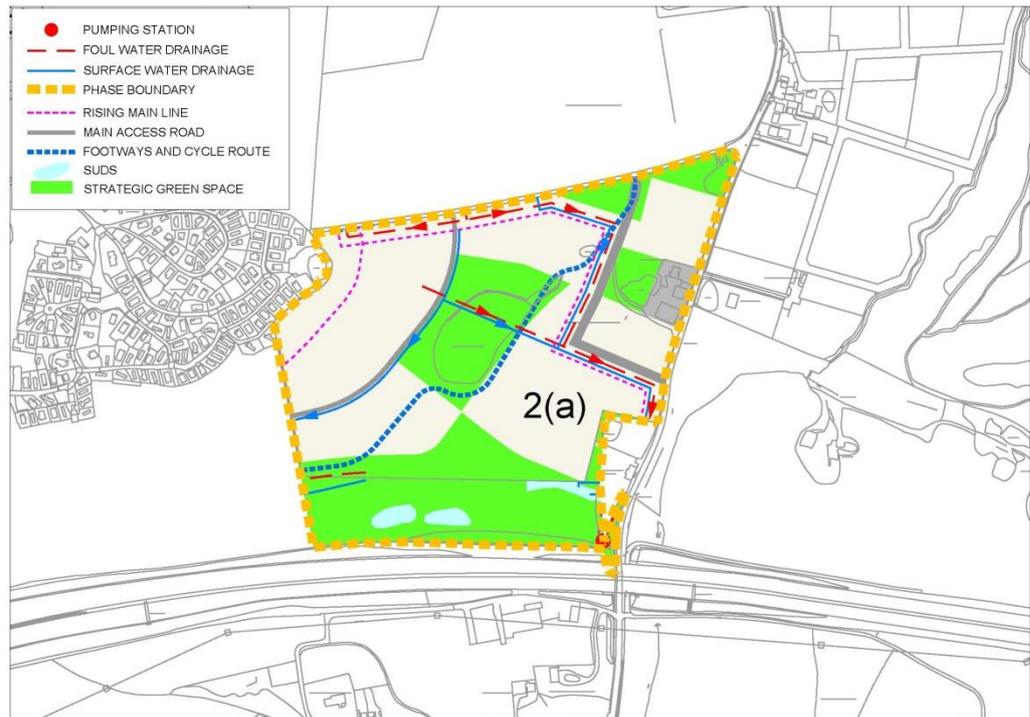
Not to scale. Crown Copyright Knowsley MBC 100017655, 2016.

Figure 3.6: Primary infrastructure concept: development areas 1c



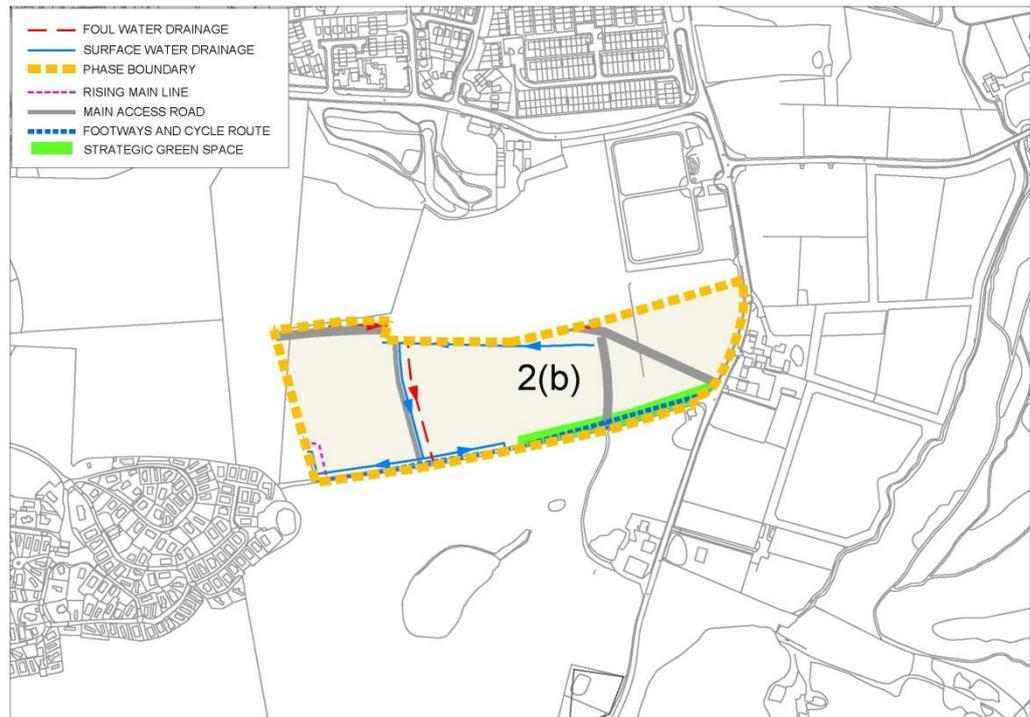
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Figure 3.7: Primary infrastructure concept: development area 2a



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Figure 3.8: Primary infrastructure concept: development areas 2b



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Figure 3.9: Primary infrastructure concept: development area 2c



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Figure 3.10: Primary infrastructure concept: development areas 3



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3.7 Funding

3.7.1 The Council is actively pursuing opportunities to access public sector funding in order to subsidise and forward fund the delivery of key strategic infrastructure. The objective is to accelerate delivery at Halsnead, by de-risking private sector investment through reducing the requirement for significant up-front capital expenditure.

3.7.2 Specifically, the Council is seeking to secure forward funding for the delivery of the new primary school. The capital cost of construction and compensation for the provision of public sector land will be recouped via planning obligations.

3.7.3 In addition, the Council is bidding for separate funding to subsidise the capital cost of off-site highways infrastructure upgrades with costs to be recouped via planning obligations.