

East Cambridge: Fen Ditton

Land at Horningsea Road
Feasibility Vision
09 / 2012

Mole



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Contents

0.1	Introduction
0.2	Approach
1.0	Strategy
1.1	Context Analysis
1.2	Constraints
1.2	Integration
1.3	Densities
1.4	Village Greens
1.5	Approaches Study
1.6	Strategy Diagram
2.0	Vision
2.1	Vision Overview
2.2	Infrastructure - Roads
2.3	Infrastructure - Drainage
2.4	Routes
2.5	The Green
2.6	Live/Work
2.7	Residential Heirarchy
2.8	The School
2.9	Plan
2.10	3D Overview

Introduction

This report has been produced for Carter Jonas by Mole Architects. It provides a feasibility vision for residential led strategic development of land at Horningsea Road, Fen Ditton, Cambridge.

Our Approach



27 Madingley Road (2010) New build private house, Cambridge



Dept. of Architecture, University of Cambridge (2008)

Mole Architects are a progressive and innovative award winning practice based in Cambridgeshire.

Leaders in environmental design, Mole have an extensive experience of working with low energy strategies and infrastructure at all scales of building from individual dwellings to masterplanning.



The Black House (2001) New build private house, Cambridgeshire



18 Cavendish Avenue (2008) New build private house, Cambridge



Hsinchu Eco Village (2012) Mixed use resort, Taiwan

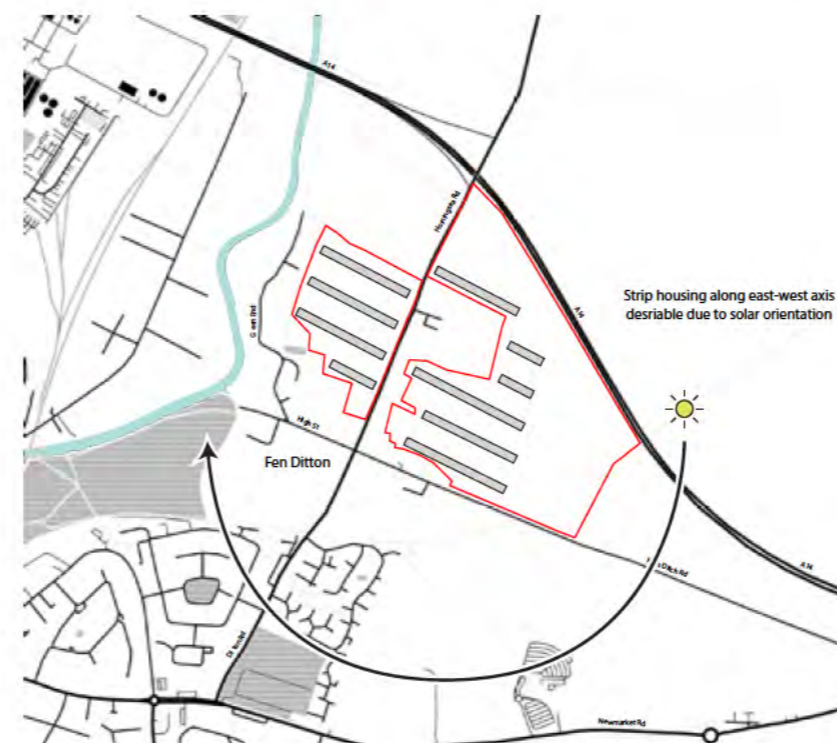
Strategy



Context Analysis



Area of Growth



Orientation

The north edge of the site is bounded by the A14. A green buffer zone between the road and the new development is therefore desirable as it will offer a degree of separation between the road's busy traffic and new residential areas. Where possible, streets should run from east to west, thus maximising the number of south facing units and the potential for solar gain.

The village of Fen Ditton lies towards the south of the site. Existing playing fields and Musgrave Farm begin to form a green buffer between the site and the existing village. However, placement of the new development adjacent to Fen Ditton is desirable to allow integration between the two areas and sharing of amenities.

Constraints



Traffic Routes: Bus / Pedestrian / Vehicular

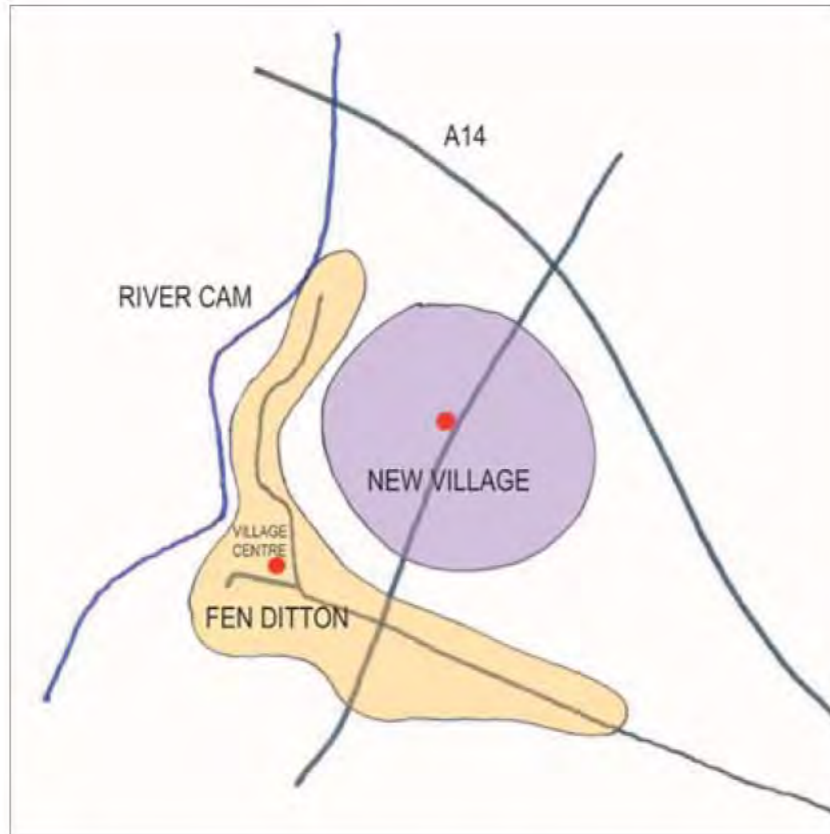


Church Views



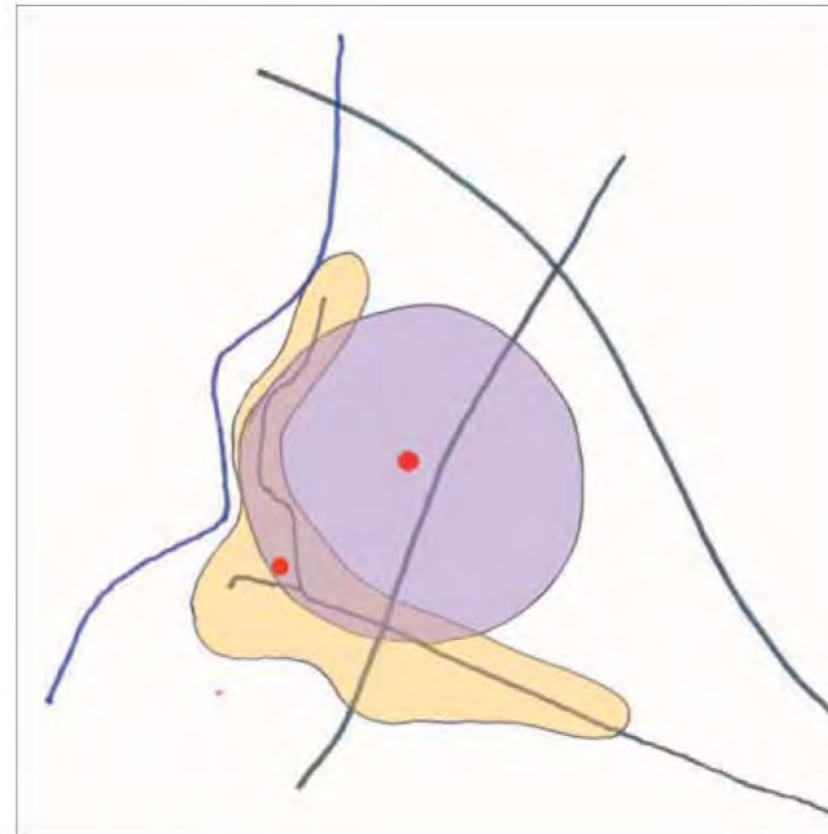
Drainage Strategy

Integration



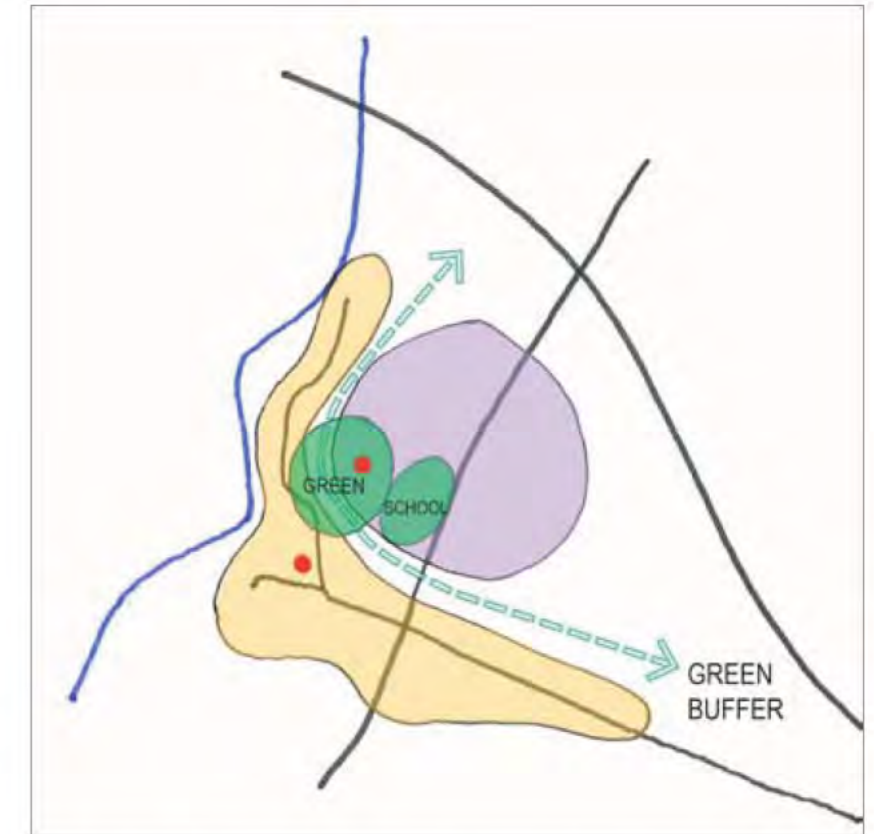
01 Polycentric - Exclusive New Village

Free standing new development stands apart from Fen Ditton village.



02 Integrated Village

New development to reinforce and consolidate existing communities.

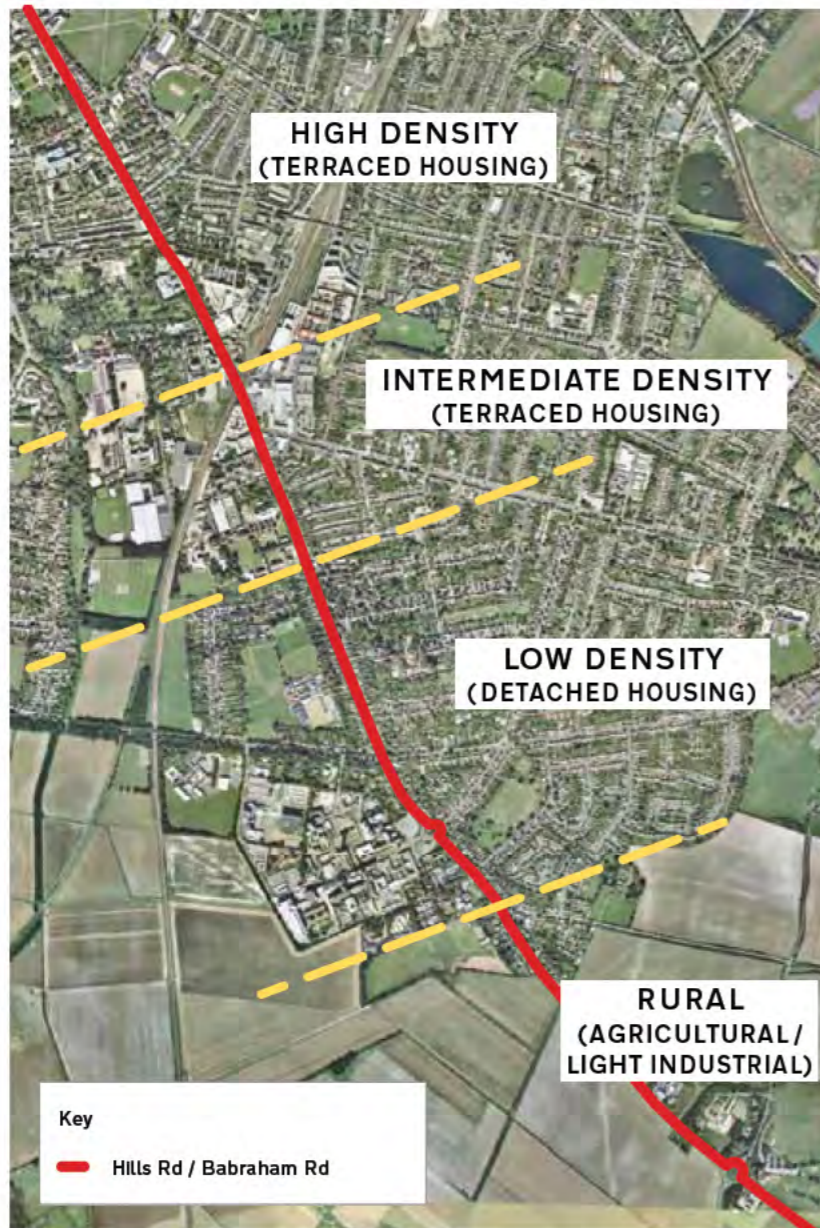


03 Integrated Around New Centres

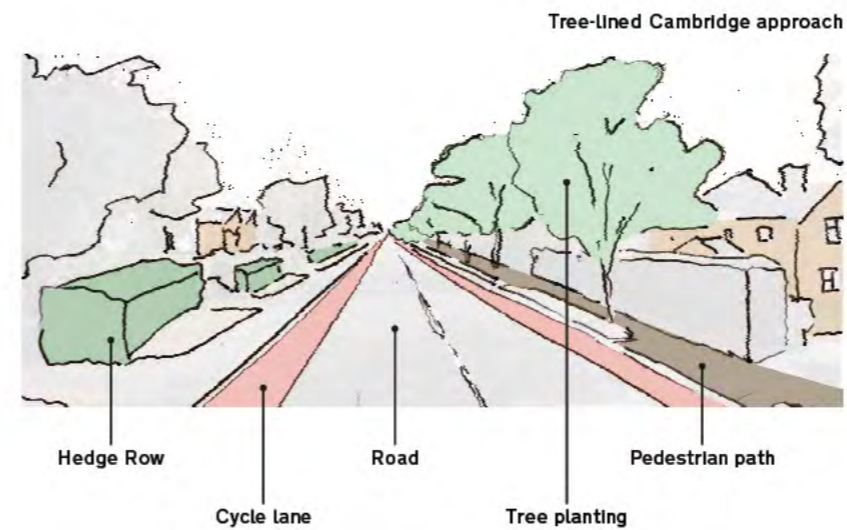
Connects to existing village through school and playing fields.

Retains ecological separation
Reinforces community connections
Places centres in close proximity

Approaches & Suburbs



18 Cavendish Avenue



Cambridge approach roads are characterised by strong hedge-lines and substantial tree belts on the outer limits of the built up area. The density of housing found in these areas is typically low, but increases towards the City Centre, as the detached housing is replaced by terraces. The houses on the west side of the suburban area of Hills Road are in wide plots set perpendicular to the edge of the road.



Key

- Non-residential building
- Key space

Village Greens

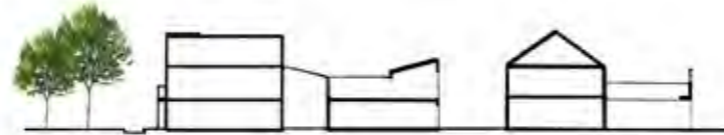
Having identified the existing playing fields as a possible link between the new development and Fen Ditton, we looked at existing village greens and studied their successful aspects. Such areas were found to be centrally placed and acted as a focal point, grouping different types of activity.



Densities & Centres



High Density: 'Live/work'

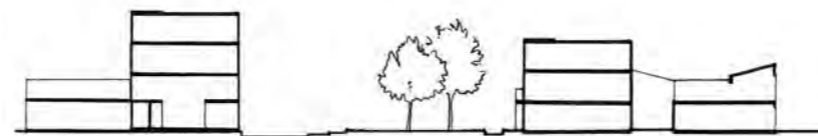


To achieve diversity of focus and character across the development a varying density is proposed. In addition to examples from our own work, a selection of award winning case studies provide useful references.

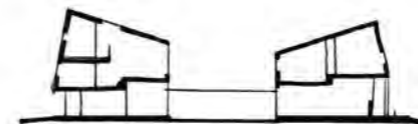
While densities are generally higher than those feasible for the site, the design and approach of these recently built housing projects provide precedents and benchmarks for the proposal, which has a mixture of live/work higher density areas, street frontage medium density and yard type low density development.



Medium Density: 'Street frontage'



Low Density: 'Yard'



Strategy








Vision

2




Vision Overview

Site A
Average 26.5 dwellings/ha
10ha developable area

-  New Primary School
-  New Community Centre
-  Live/work Spaces
-  Commercial Spaces
-  Self build Plots

Site B
Average 28.0 dwellings/ha
7ha developable area

-  0.7ha land available for social housing through relocation of school

Infrastructure - Roads



Existing Bus Routes & Bridleway

Road Junctions

The 'Draft Strategic Access Vision' document identifies four potential access points to the new site:

- A) Horningsea Road (opposite Allotment Gardens)
- B) Horningsea Road (north of Musgrave Way)
- C) High Ditch Road (east of Dismantled Railway)
- D) High Ditch Road (west of dismantled railway)

This feasibility vision suggests integration of the proposed priority junction or roundabout off Horningsea Road (opposite Allotment Gardens), into a triangular green space (A).

This main junction (A) would provide access to both east and west areas of the site, with the addition of a secondary (single direction) exit route (E) from the west site.

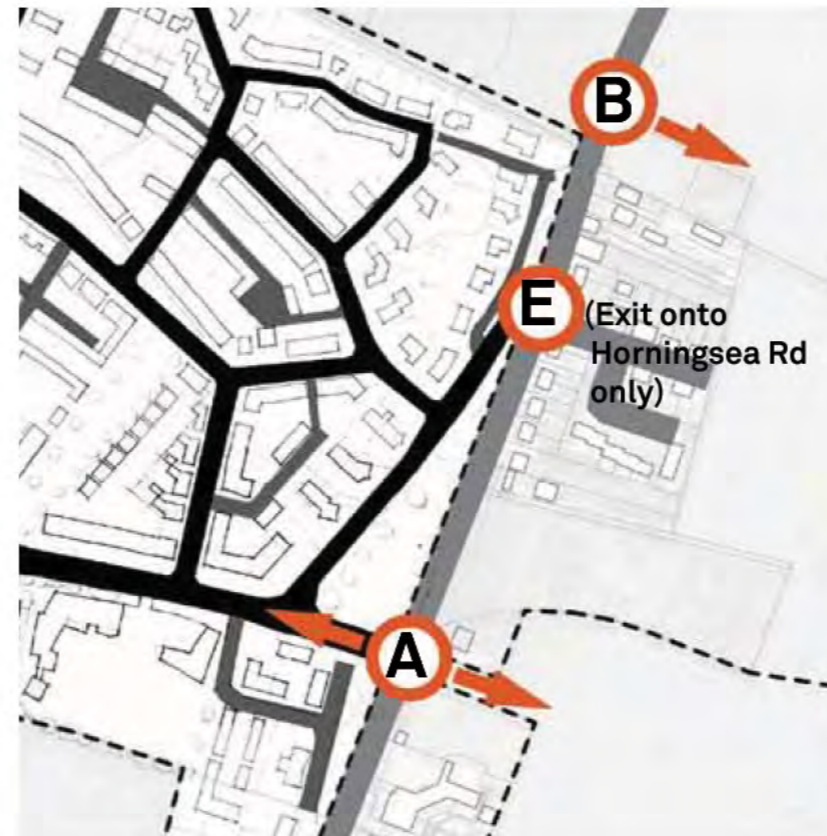
This will:

- allow a concentration of development around one main access point
- preserve views of St Mary's Church
- allow safe access to the large detached properties along the road's frontage
- alleviate traffic flow to the north, relieving pressure on the proposed southern junction

Access to the east site would be supplemented by a secondary access to the south, from High Ditch Road (west of dismantled railway) (D).



Locations of Proposed Junctions



Infrastructure - Drainage

Surface Water Drainage

The Initial Flood Risk Assessment suggests limiting the proposed discharge of surface water to greenfield rates with an outfall due to low infiltration rates.

It is suggested that conveyance and storage is best achieved through the use of SuDs (Sustainable Drainage Systems) within open, soft landscaped features swales, ditches, grassed basins and seasonally wet ponds.

In line with the assessment, this feasibility vision suggests that runoff from the western site should follow the topography towards the properties on the site boundary via a series of drainage swales running from south east to the west.

These drainage swales would feed into an interception channel/bund running adjacent to the existing footpath, a new off site surface water sewer at the North western perimeter leading to an outflow in the River Cam.

Likewise, runoff from the eastern area will flow eastwards via a series of drainage swales/network of ditches and enter drainage channels taking it northwards, beneath the A14.



Routes

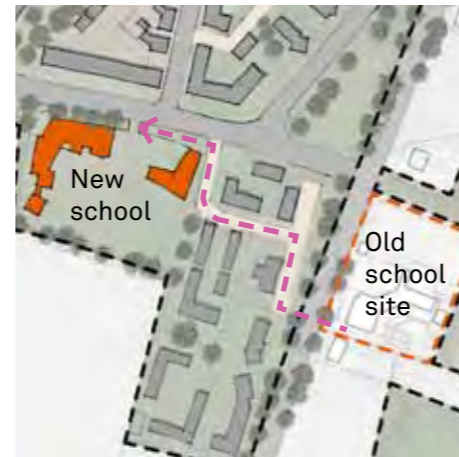
The Chisolm Trail

The feasibility vision supports the connection of the Chisolme Trail cycle route as a key commuter route, from the city centre and new rail station to the development, through a series of cycle paths that connect with key centres



Pedestrian Routes

Pedestrian routes should be given high priority in the development through the use of pedestrian friendly home zones, new crossings and a network of pedestrian walkways that traverse the site, allowing safe access between the main vehicular routes.



Cycle and Leisure Strategy

Cycle routes towards Milton via a route alongside the River and Horningsea via a route along Horningsea road for use as Leisure cycling and walking are integrated into the feasibility vision.



The Green

Within the proposed development, the non-residential areas, including live/work, commercial, community centre and the primary school, are all grouped around the south-west corner of the site. Resultantly, the focal point lies around the existing playing fields.

This green space therefore becomes the centre of the community and also offers a connection between the new residential area and the existing village.

This connection is reinforced by the location of key transport links: the bus route is located adjacent to this area and the extension to the Chisholm Trail forms a key route across the green.



Live / Work

Introducing live/work units to the development is desirable as this function generates activity during the day. The area is not exclusively a commuter area, which could be left isolated during working hours.

This additional function helps to reinforce and diversify the central area of the development which connects the new residential areas with Fen Ditton. Ideas of identity and place are strengthened by small scale local business which is specific to the local area.



Residential Hierarchy



'Street'
High density housing
Small commercial
Live/work

Within the proposed development, we believe that a variety of dwelling densities and typologies will provide a richer and more diverse community, with a greater sense of place and individuality.

As previously identified through precedent research, it is intended to shape the development with a mixture of high-density Live/work and interspersed commercial units, medium density terraced and semi-detached 'street frontage' residential, and finally small-scale 'yard' type clusters of dwellings, which enable pocket communities to develop, encouraging safe environments for play in shared external spaces.



'Home Zones'
Med density housing

The high-density housing, small commercial and live/work units will be located centrally, in close proximity to the main east-west road connecting to Horningsea Road, and where possible facing onto the central village green, thus activating and enriching the frontage.

Medium-density housing will front the secondary streets, allowing for a mixture of residential typologies with varying plot sizes.

Low-density houses will be located in groups from shared access drives, furthest from the new centre.

All dwellings will be well connected (both physically and visually) by east-west pedestrian routes, which will be enriched by landscaping and drainage swales/SuDS systems.



'Yards'
Low density housing



The School

Redevelopment of the school will become a necessity due to the substantial population added by the new development. Two possible locations have been identified for the new school, each offering its advantages and disadvantages.

The first option would be for the school to remain in its current location, with a new building upon another part of the existing site. Such a location would integrate the second phase of the development with the first phase and with Fen Ditton. This location is, however, less central and would diminish the focus of the new development around the village green.

Another possibility would be to move the location of the school to the north of Musgrave Farm. The scenario would reinforce the village green as the centre of the new development. However, a second phase of development could be left isolated from the new development as it would be separated by Horningsea Road and contain only residential buildings.



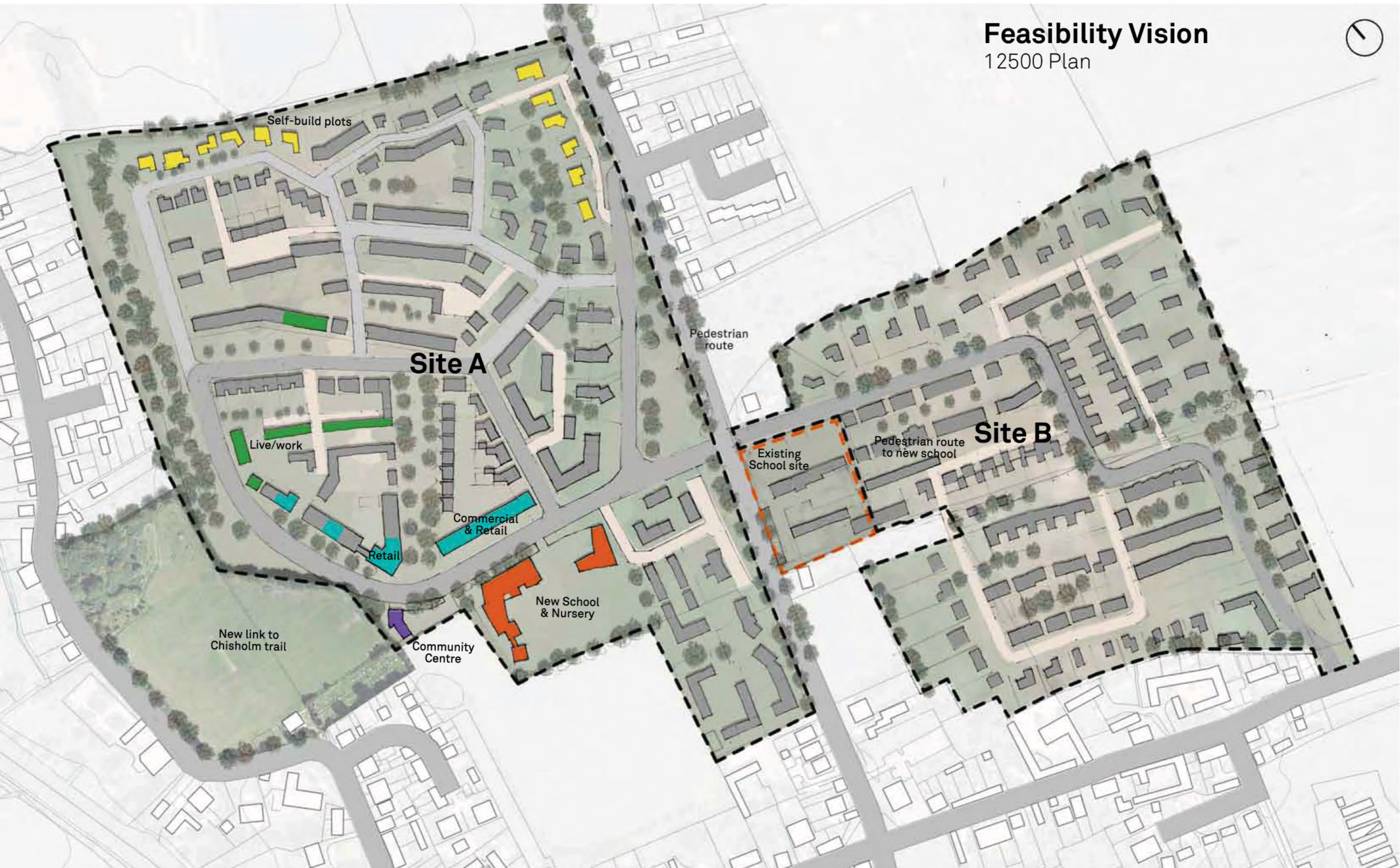
Option A: School in current location



Option B: School in new location

Feasibility Vision

12500 Plan



Feasibility Vision

3D Aerial View



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