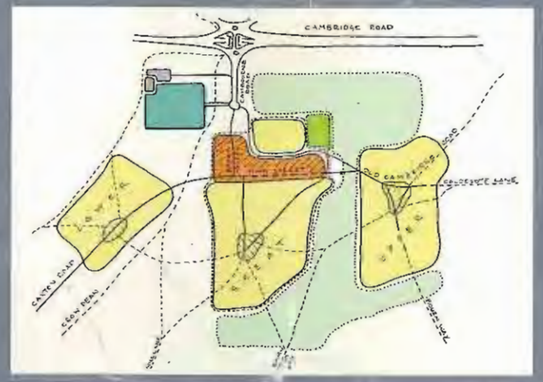
CAMBOURNE

MASTER PLAN REPORT

CAM/RP/03/011/-



ALFRED M'ALPINE

MAY 1995

PREPARED BY
TERRY FARRELL & COMPANY

THE PROJECT TEAM

The Cambourne Master Plan project team brings together the full range of disciplines required for developing the designs for the new settlement.

Developer
Alfred M^cAlpine
Peregrine House
Falconry Court
Bakers Lane
Epping
Essex CM16 5DQ
T: 01992 561 777

Masterplanners
Terry Farrell & Company
17 Hatton Street
London NW8 8PL
T: 0171 258 3433

Landscape Architect
Randall Thorp Associates
105-107 Princess Street
Manchester M1 6DD
T: 0161 228 7721

Ecological Consultants
ESL (Ecological Services) Ltd
8 Townley Close
Holmes Way
Horncastle
Lincolnshire LN9 6AT
T: 01507 523 881

Consulting Engineers (Infrastructure Services)
Frank Graham Consulting Engineers Ltd
Graham House
Yeomans Court
Ware Road
Hertford SG13 7NJ
T: 01992 587 848

Consulting Engineers (Environmental)
Battle McCarthy
57 Poland Street
London W1V 3DP
T: 0171 434 4488

Engineering Sub-Consultant (Water/Highways)
Sir William Halcrow & Ptns Ltd
Vineyard House
44 Brook Green
London W6 7BY
T: 0171 602 7282

Engineering Sub-Consultant (Transport)
Halcrow Fox
Vineyard House
44 Brook Green
London W6 7BY
T: 0171 603 1618

Consulting Engineers (Highways)
Tucker Parry Knowles Partnership
3 London Road
Newbury
Berkshire RG14 1JL
T: 01635 314 40

Marketing Consultant
Aylesworth Fleming Ltd
Fleming House
Poole Hill
Bournemouth BH2 5PS
T: 01202 295 723

P R Consultant
Kartupelis Associates
St John's Innovation Centre
St John' Innovation Park
Cowley Road
Cambridge CB4 4WS
T: 01223 421 145

Market Research
MARS Consulting
Suite 210
Christchurch Business Centre
Grange Road
Christchurch
Dorset BH23 4JD
T: 01425 278 270

Golf Advisors
Pachesham Consulting Services Ltd
Oaklawn Road
Leatherhead
Surrey KT22 0BT
T: 01372 843453

Golf Course Architects
Robert R Dalton
95 Hursley Road
Chandlers Ford
Eastleigh
Hampshire SO53 1JD
T: 01264 355 513

Historical Research
Harvey Van Sickle
42 Penrith Road
Basingstoke
Hampshire RG21 1XW
T: 01256 55983

LOCAL AUTHORITY

Planners & Local Authority
South Cambridge District Council
Council Offices
9-11 Hills Road
Cambridge CB2 1PL
T: 01223 351 795

SCDC Design Consultant
Andrew Martin Associates
Croxton's Mill
Little Waltham
Chelmsford
Essex CM3 3PJ
T: 01245 361611

County Council
Cambridgeshire County Council
Shire Hall
Castle Hill
Cambridge CB3 0AP
T:01223 317 111

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INTRODUCTION

Planning consent for development of a new village on land south of the A428 near Caxton and Bourn was granted to Alfred McAlpine Projects Ltd. on 20th April 1994.

A number of conditions were attached to the consent which were set out in the planing permission notice.

The Section 106 Agreement establishes the legal framework for the progression of the development and the undertakings associated with it.

The purpose of this report and drawings submitted under separate cover, is to explain the Master Plan and address the elements of the S.106 Agreement and Planning Consent relevant to the Master Planning stage.

MASTER PLAN PRINCIPLES
WHAT IS A MASTER PLAN?

The purpose of a Master Plan is to demonstrate that future development of an area can be properly planned in a flexible manner in order to safeguard the appropriate and most efficient use of land.

A Master Plan is the design of the general structure of land uses and their distribution to provide a framework within the development can be brought forward.

A Master Plan is not the design of a series of individual buildings.

CAMBOURNE

AIMS AND OBJECTIVES FOR CAMBOURNE

The primary aim and objective for the development of Cambourne which is embodied in the Master Plan is **Sustainability**.

Environmentally sustainable development is defined as:

> *"Development which meets the needs of the present without compromising the ability of future generations to meet their own needs, and which avoids irreparable or long-term damage to the environment."*

This approach manifests itself in numerous ways, but may be summarised as:-

- **CONSERVATION OF VILLAGE CHARACTER**
- Development will occur in a manner that respects traditional English settlement patterns for villages and market towns. The quintessential character of villages and market towns will be the basis for the Master Plan, whilst elements of village built form will be interpreted in the townscape designs.
- **CONSERVATION OF COMMUNITY**
- Village life is often centred around certain key activities and/or buildings. The disposition of these elements in the Master Plan will reflect the social and community benefits that arise from the function of these buildings.
- Within a larger overall community, there may be subdivision into smaller groups that help to establish identity for individuals and the area in which they live and work.
- The Master Plan will respect the existing communities in the area by avoiding any unnecessary strain or burden upon their current framework.
- **CONSERVATION OF RURAL CHARACTER**
- The landscape of South Cambridgeshire includes parkland, woodland and many delightful, intimate rural landscapes associated with villages and country houses, within wide expanses of otherwise open arable land.
- The Master Plan will conserve existing features of landscape value within the site.
- An attractive rural landscape will be created which reflects the best traditions of the South Cambridgeshire villages and country houses.
- The landscape framework will enable the new settlement to be integrated harmoniously into the surrounding countryside.
- **CONSERVATION OF ECOLOGY**
- Ecological considerations will be incorporated throughout the design process, and all development stages.
- Existing habitats and species of nature conservation value will be protected.
- Biodiversity will be conserved and enhanced by habitat management and creation.
- Habitats characteristic of the local area and region will be created.
- **CONSERVATION OF ENERGY**
- The UK government is bound by the Rio Climate changes agreement to reduce carbon dioxide emissions to 1990 levels by 2000. As part of the nationwide effort to reduce energy use, the Cambourne Master Plan will facilitate the creation of low-energy buildings.
- Conservation of energy in relation to journeys within, to and from the site will be respected. Movement by foot, bicycle and other non-vehicular forms will be facilitated and encouraged.
- Public transport connections to the wider area with an efficient routing through the site must be established.
- Motor vehicles must be adequately provided for but that provision will not be dominant in the plan.
- Facilities will be provided to allow residents and business users to recycle the fullest range of waste materials.

CAMBOURNE

SITE LOCATION AND ACCESS

The Site is located in the south east of England in the County of Cambridgeshire.

Cambridge lies approximately 6 miles to the east, St Neots 6 miles to the west and Huntingdon 7 miles to the north.

The site has substantial frontage to the A428 trunk road (formerly A45) which offers connections to the M11, A1 and strategic road networks of Cambridgeshire.

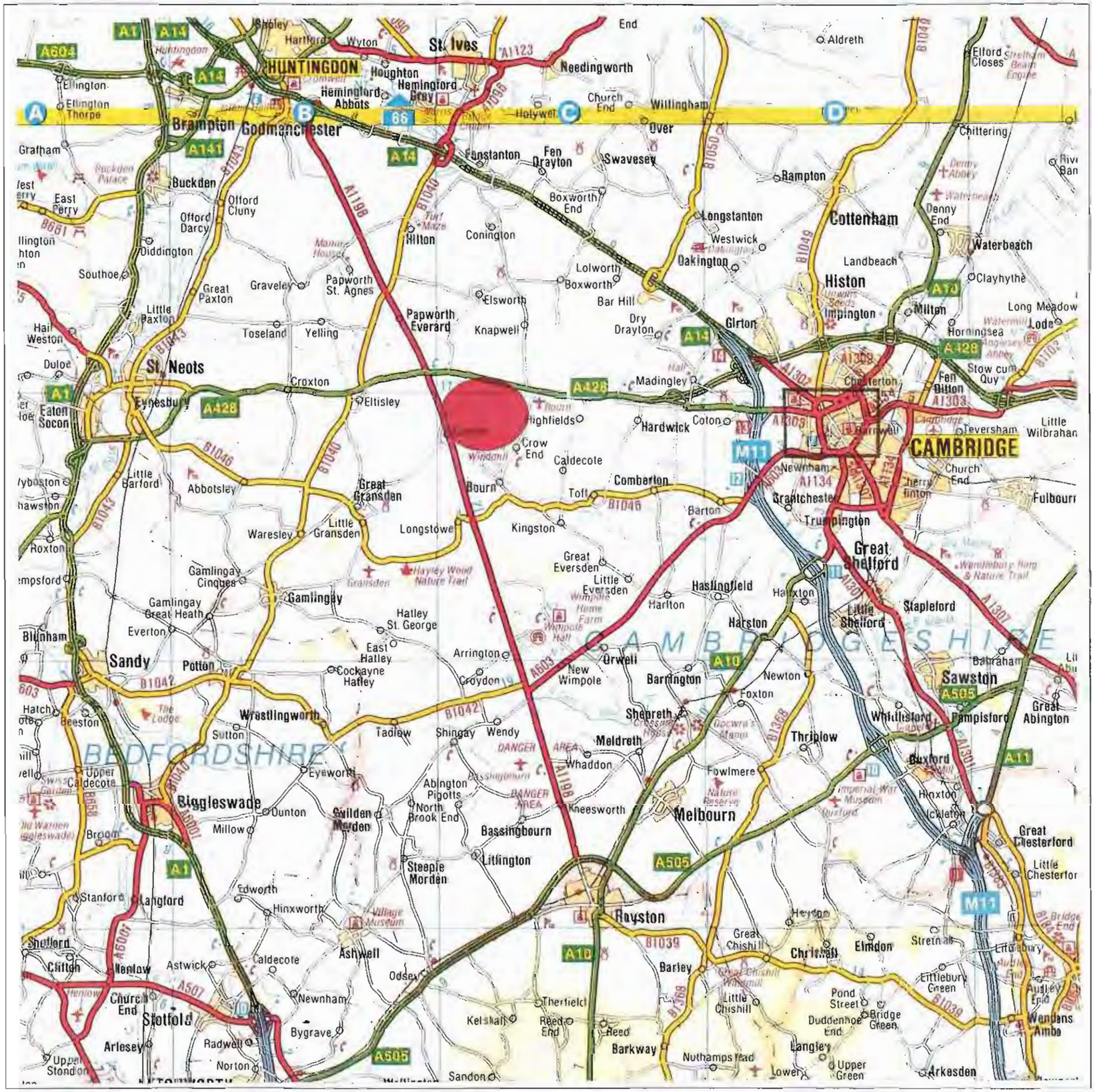
For vehicles, the main point of access into the site will be directly from a new junction on the A428 between Caxton Gibbet and the Broadway junction. The second means of access will be from a new bypass east of Caxton on the A1198. Other than these two accesses, private vehicles will have no other way of travelling into or out of Cambourne.

It is proposed that buses will be able to enter and leave the village using a restricted route from the Broadway so as to enable more efficient routing of bus services between Cambourne, its neighbouring villages and Cambridge.

A number of Public Footpaths and a Public Bridleways cross the site, offering direct connections to neighbouring villages and linking in to the Wimpole Way and Harcamlow Way forming longer distance paths.

Wider connections are offered via Railway Stations at Cambridge, St Neots, Huntingdon and Royston. Stanstead Airport is approximately 35 miles away.

CAMBOURNE



AERIAL PHOTOGRAPHS

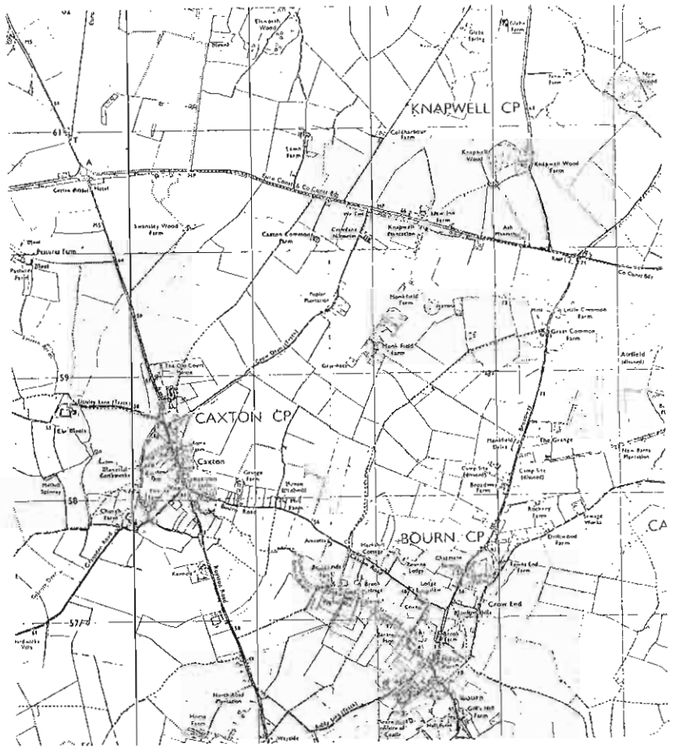
1. View North
2. View East
3. View South
4. View West

1. View of the site looking north from Bourn Road looking up Crow Dean to the left, the Broadway and Bourn Airfield to the right and the A428 running along the northern boundary of the site.

2. View of the site looking east across the ridge of the site (along the A428) towards Cambridge in the distance.

3. View of the site looking south with the fringes of Toft to the left Bourn central and Caxton to the right beyond the site.

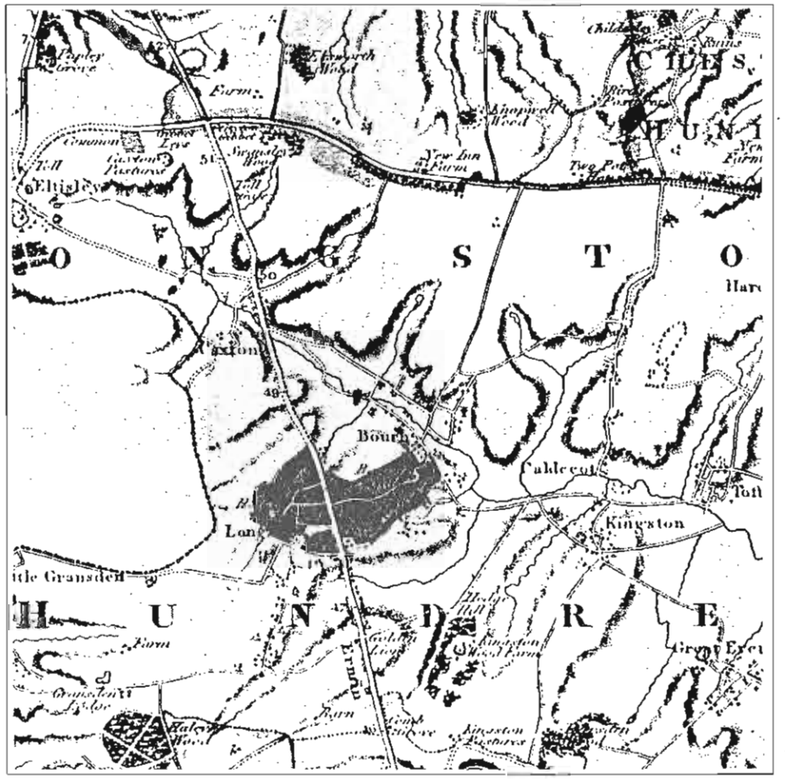
4. View of the site looking west with Bourn airfield in the foreground and in the background Caxton Gibbet and Eltisley beyond.



CAMBOURNE

HISTORICAL OUTLINE

Bakers Map 1824



Caxton Fields c1830

Ordnance Survey Map 1881

The site of the proposed village lies within the ancient parishes of Caxton and Bourn, the settlements of which apparently date to the early 11th-century Scandinavian occupation of the woods and fields bordering Ermine Street.

Since the Conquest, the area has seen four patterns of ownership which have gradually divided the land into smaller units held by more owners. The first of these was the longest: for some 400 years prior to the dissolution of St. Neot's, ownership of the site area was divided mainly between the priory and the parish common fields. The second pattern, which existed from the Dissolution until the early 1800s, saw private landowners taking the place of the dissolved priory, but retained open-field cultivation. The 19th-century enclosures raised the number of owners, but until c.1900 the larger landowners still held sway. Since then, however, the large estates have been broken up and the land has been held in smaller parcels.

As was usual, the priory's estates came to it as endowments given by local landowners. In Bourn, the Domesday survey recorded that most of the parish's land was owned by Picot, the Sheriff of Cambridgeshire; early in the next century, however, these estates were confiscated from Picot's son and two-thirds of the parish was granted by Henry I to Pain Peverel. Peverel's son William — who died in 1148 during the Second Crusade — gave 100 acres of land to St. Neot's, and this formed the core of the priory's estate of Monk Fields. In Caxton, the priory's holdings centred on the manor of Swansley (or Monks' Manor), given to them by Stephen de Scalers sometime before 1168, and between them these two estates claimed most of the privately-held frontage to the road between St. Neot's and Cambridge.

Although the priory was dissolved in 1539 and its lands distributed in the usual manner among the Tudor gentry, large private holdings were again formed in the 1550's. Between 1553 and 1557 Thomas Treece purchased the Manor of Swansley (first as an existing leasehold, and then as freehold), and from 1554 onwards John Haggar proceeded to buy up most of Bourn parish. (By the time of his death in 1589, Haggar held the main manor, at least three other manors, and numerous other holdings). In Caxton, Swansley was sold in 1573 by Treece's son Richard, and resold the following year to form part of Dr. John Caius's endowment to Gonville and Caius College.

This period marks the peak of Caxton and Bourn's mediaeval development: in the early 1580s, for example, the Swansley Estate consisted of the manor-house, two barns, two stables and malting house inside the moat enclosure. Similarly, until 1600 Bourn was the most populous parish in the Hundred of Longstow, and the village was much more built up than it is today. (As late as 1824 two routes are shown leading to Caxton, which at one time had numerous closes running off them. The latter disappeared at an early date, while the southern route between the villages was disused during the 19th century and appears only as a footpath on the Ordnance Survey of 1881).

The 17th century continued to see many physical improvements in the parish. Bourn Windmill — thought to be perhaps the oldest preserved windmill in Cambridgeshire — was rebuilt in the early 1600's, as was Brook Farm; new houses were built at Crow End Farm in 1656 and Upper Farm in 1664; and in 1663 Ermine Street was turnpiked. (The St. Neots to Cambridge road was not similarly improved until 1772).

In the following century, however, the area went into a long period of decline. The Haggar family sold their Bourn estates in 1733 to Baltzar Lyell, an East India merchant; by 1750 the road between Caxton and Bourn was little more than an ill-marked track through Mill Field; and by 1762 the only building within Swansley's moat was the manorial brick barn. New life came in the early 1800s, however, when a major change in ownership was accompanied by enclosure and privatisation of the common fields.

In 1803, the Lyell estates in Bourn passed to Henry Lyell's grandson George West, the 5th Earl de la Warr (who has succeeded to the title at the age of four, and was still only twelve years old). In 1820, Bourn's six common fields were enclosed and dew farms such as Great Common Farm, Broadway Farm and The Barracks were created. (Great Common Field was north and west of the village towards Caxton, while Broad Field was divided by Broadway). The enclosure of Caxton's common fields followed in 1835, at which date the field paths linking Caxton to Bourn were made public roads and Caxton Common Farm was created on the parish's former cow and sheep commons.

Both parishes, however, were to see further change within a few decades. In 1862 the railway passed nearby, and in 1883 the 7th Earl de la Warr sold his core estate of Bourn Hall to John James Briscoe. Five years later 850 acres, was sold to Thomas Dence and another 650 acres in the northeast part of the parish went to Robert Sayle, and in 1899 the Swansley Estate was similarly disposed of by Gonville and Caius College (with most of it being purchased by Mrs Hooley of Papworth Hall).

This fracturing of the larger local estates continued after World War I, with the Briscoe land and the nominal lordship being sold and resold in 1920 and 1923, and a leased estate owned by Christ's College being bought by its tenant farmers the same year. Another major impact of the 20th century occurred in 1942, when some local farms and a school at Childerley Gate were cleared for the building of the airfield. This was abandoned after the war, when the huts were colonised by squatters — later housed in a newly-built estate at Bourn.

Rural landscape often seems immutable, but it is not; the only constant is change itself. The rise and decline of the village of Bourn runs counter to one's general impression of increasing congestion in a modern world, and the long history of Caxton and Bourn underlines the fact that the post-enclosure landscape — to say nothing of the number of freehold owners — would have seemed alien to the tenants who lived on the land for 80% of its settled history.

CAMBOURNE

Chronology

Pre-Conquest	St. Neots Priory founded c.970-75; virtually destroyed in Danish invasion, 1010, and refounded c. 1080.
1086	Picot, Sheriff of County, resident at Bourn Castle.
1092-c.1130	Picot lands in Bourn passed to son, confiscated by Henry I and two-thirds of parish granted to Pain Peveral. Passed to son William Peverel, who gave 100 acres to St. Neot's.
c.1150	Swansley granted to St. Neot's by Stephen de Scalers. (50 acres in Swaneslehul, herbage in Swansley Wood, and other properties); also became known as Monks' Manor.
1539	St. Neots priory dissolved. While Bourn lands apparently granted to various owners, Swansley held on long lease to William Hawle.
1553	40 acres in Bourn sold to Thomas Reeve and George Colton; Swansley re-let and eventually owned by Thomas Treece (who purchased the freehold by 1557).
1554-1559	John Haggar purchased the main Bourn manor of Ragons or Dives (1554); 260 acres from Sir Robert Charter and William Turpin (1556); and 300 acres from GeorgeGrede (1559).
1573-1583	Swansley and 172 acres sold to James and Robert Altham and resold to estate of Dr. John Caius as an endowment for Gonville and Caius College. "New building" mentioned 1579, and by 1583 the Manor-House, two barns, two stables and malting house existed inside the moat.
1580-1589	John Haggar purchased c.100 acres from Richard Tryte (1580), and died in 1589 owning the 160-acre Monk Fields and manors in Bourn. Estates passed to son, John Haggar.
1617	Haggar estates passed to son, Robert Haggar.
Early 1600s	Present Bourn windmill built.
1600s	Date for new house at Brook Farm.
1652	Haggar estates passed to son, John Haggar.
1656	Date for new house at Crow End Farm.
1663	Ermine Street turnpiked. 1664 Date for new house at Upper Farm.
1733	Haggar estates sold to Baltzar Lyell, an East India merchant.
c.1750	Caxton/Bourn road merely an uncertain track through Mill Field.
1752	Lyell lands in Bourn passed to nephew, Henry Lyell.
1762	Only building within Swansley moat was brick barn.
1772	St. Neots Road turnpiked.
1783	Lyell's daughter Catherine married 4th Earl de la Warr.
1803	Lyell estates passed to grandson, George West, 5th Earl de la Warr (then 12 years old).
1809	Act passed to enclose Bourn common fields.
1820	Bourn enclosure award.
1824	Map of area, by Baker.
1835	Caxton enclosure award; Caxton Common Farm created from former cow and sheep commons.
1862	Railway opened.
1869/1873	De la Warr estates passed to Charles Richard Sackville-6th Earl de la Warr, and then to brother, Reginald Windsor Sackville, 7th Earl.
1881	Ordnance Survey.
1883	Bourn Hall Estate sold to John James Briscow (Bart, 1910).
1888	850 acres, sold by de la Warr to Thomas Dence; 650 acres in northeast sold to Robert Sayle.
1899	Most of Swansley Estate sold by Gonville & Caius College to Mrs Hooley of Papworth Hall.
1919-1920	Briscoe died, and estates broken up; Hall and lordship sold to Capt. W H Ockleston. Christ's College estate in Bourn sold to tenant farmers.
1923	Bourn Hall and lordship sold to Major John McLean Griffin, sin-in-law of the 7th Earl who had sold the estate in 1883.
1942	Airfield built; farms and elementary school at Childerley gate demolished.
Post-War	Squatters colonised airfield huts.
1949	Northeast corner of Bourn parish transferred to Caldecote.
1957-1958	Bourn Hall and lordship sold to Peter King.
1965	Railway closed.
1994	Outline planning consent awarded for new settlement.

BACKGROUND TO THE NAMING OF CAMBOURNE

Wide ranging research was undertaken in order to establish a name for the village.

AIMS

- A name with a local connection.
- A name reflecting the scale and proposed layout of the village(s).
- A name which gives an established, traditional feel, rather than that of a new town.

BACKGROUND TO NAME

- The village's proximity to Cambridge and the River Cam.
- Bourne - firstly, with an 'e' to distinguish the new settlement from the existing village of Bourn; secondly (and by coincidence), bourne means goal - it is the aim to create a village for the 21st century.
- Alfred McAlpine's recent survey of residents from the catchment area showed that: over 60% of respondents liked the name Cambourne, with 26% preferring the 'working title' Monkfields and 9% with no preference or like both names equally.

HISTORY

- A local record of 1736 talks of the '...this Parish of Bourne'.
- Historical research shows that the village of Bourn Cambridgeshire has been spelled both Bronna and Brunne indicating Scandinavian origin, rather than the old English word for spring (bourn or burn). These findings do show the variation of spelling over the years, thus historically, Bourne is quite acceptable.
- The Settlement Centre will be on the site of Monkfield Farm. It is important to retain this link with a traditional name. A focal point of the new village will be named after Monkfield and variations will be used for the naming of the roads. This is a positive response to local consultations.

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SITE DIMENSIONS

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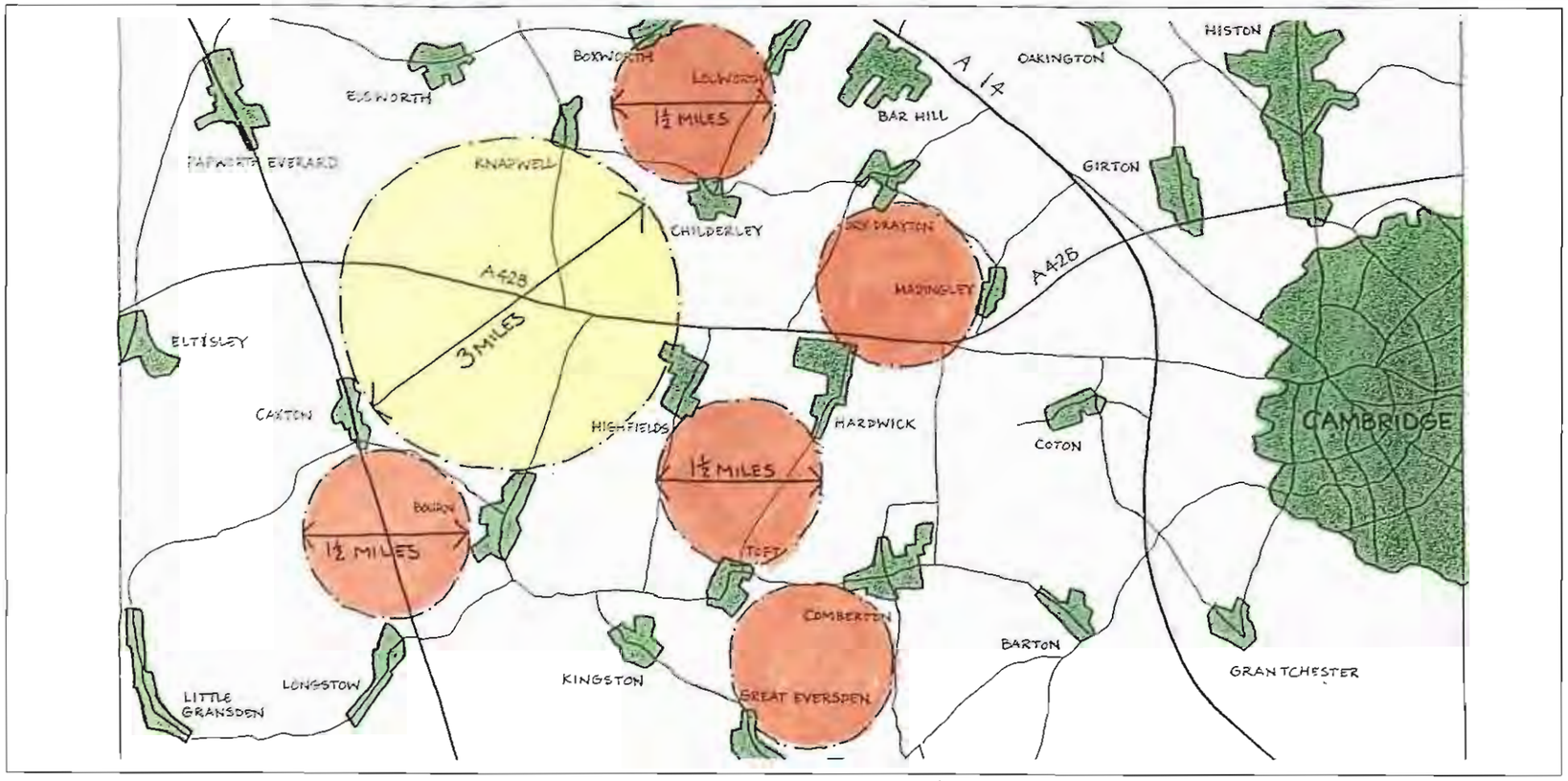
COMMUNITY



EXISTING VILLAGE SPACING

The surrounding villages are spaced approximately 1.5 miles apart. The site lies within a back land area which has historically been void of any villages.

BOURN

The neighbouring village of Bourn to the south of the site is typical of the English Village with its village shop, post office, bus stop, village green and public house.

CAXTON

Caxton to the west of the site is also typical, but is dominated by its high street which has become a major road connecting Royston with Huntingdon.

The surrounding villages also use a characteristic in their names that is typical of paired or tripartite settlements.

"Little and Great", "Upper and Lower". As the name implies, the village is divided or has evolved in two or three distinct parts, having their own character, but sharing the collective identity and facilities of a larger grouping.

CAMBOURNE

GENERIC FORMS

1. English Settlement
2. Upwood Village
3. Continental Settlement
4. Poundbury, Dorset

ENGLISH SETTLEMENT

The Typically English Settlement is informal and relaxed in its nature. Settlements generally occur at cross roads or junctions around a public green space

UPWOOD VILLAGE

The centre of Upwood village, 5 miles due north of Huntingdon, is formed around the village pub, the church, the post box and bus stop.

CONTINENTAL SETTLEMENT

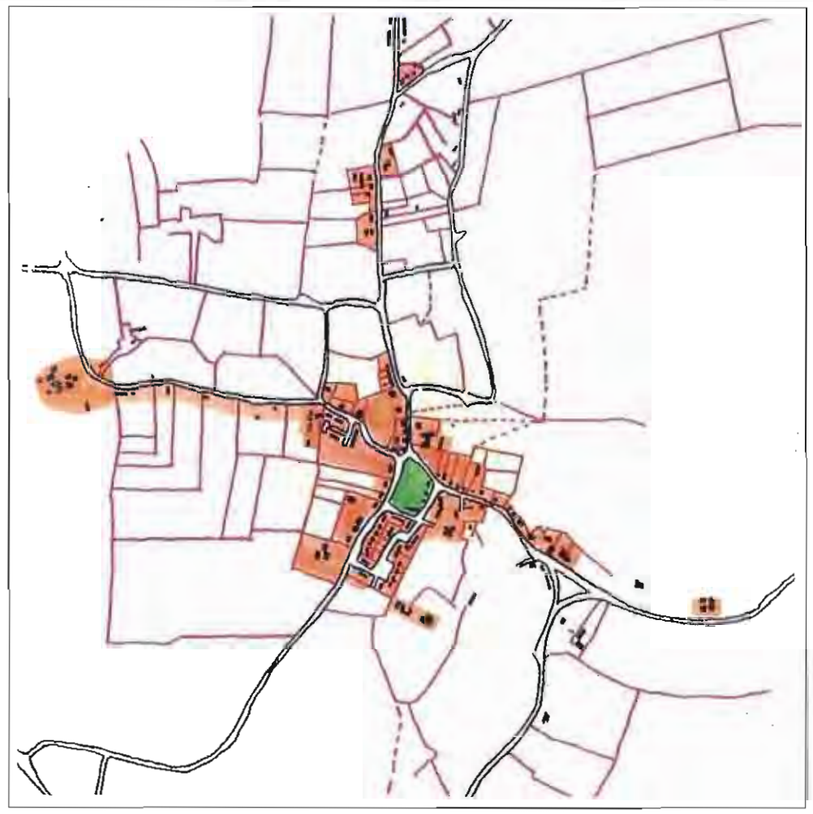
The typical continental settlement is defensive in nature with a perimeter road and a dense centre.

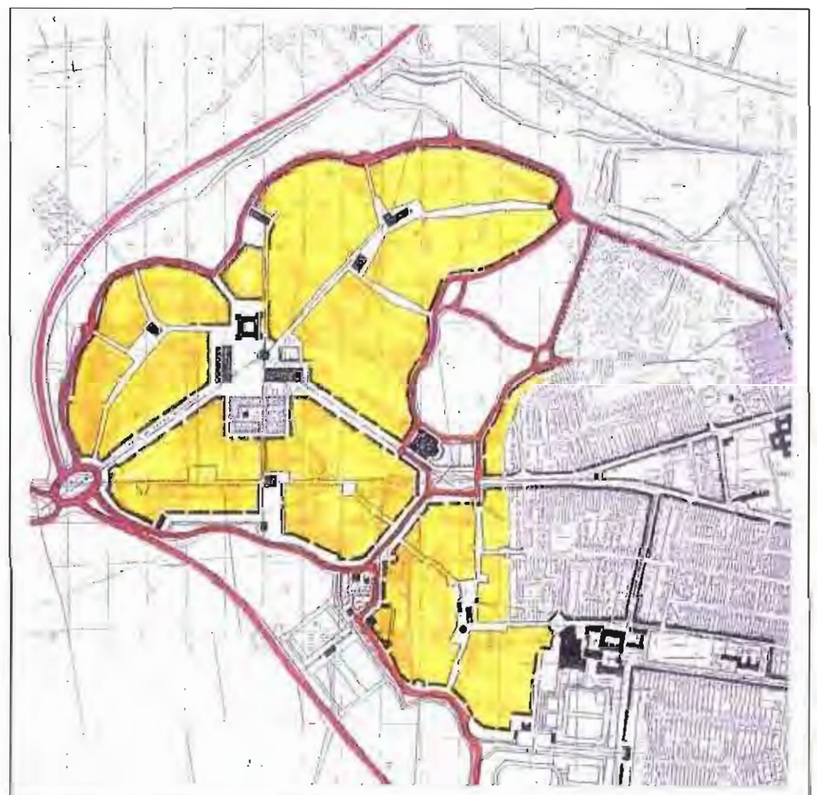
POUNDBURY, DORSET

Leon Krier's plan for Poundbury adopts this continental approach with a perimeter ring road. The plan is also divided into 'Quarters' by boulevards. The ring road excludes as much traffic as possible from the town centre.

LINEAR VILLAGES

Two examples of typically English villages. The plan on the left shows the High Street passing informally through the linear green space. On the right the village greens at each end of the High Street are formed at the road junctions.





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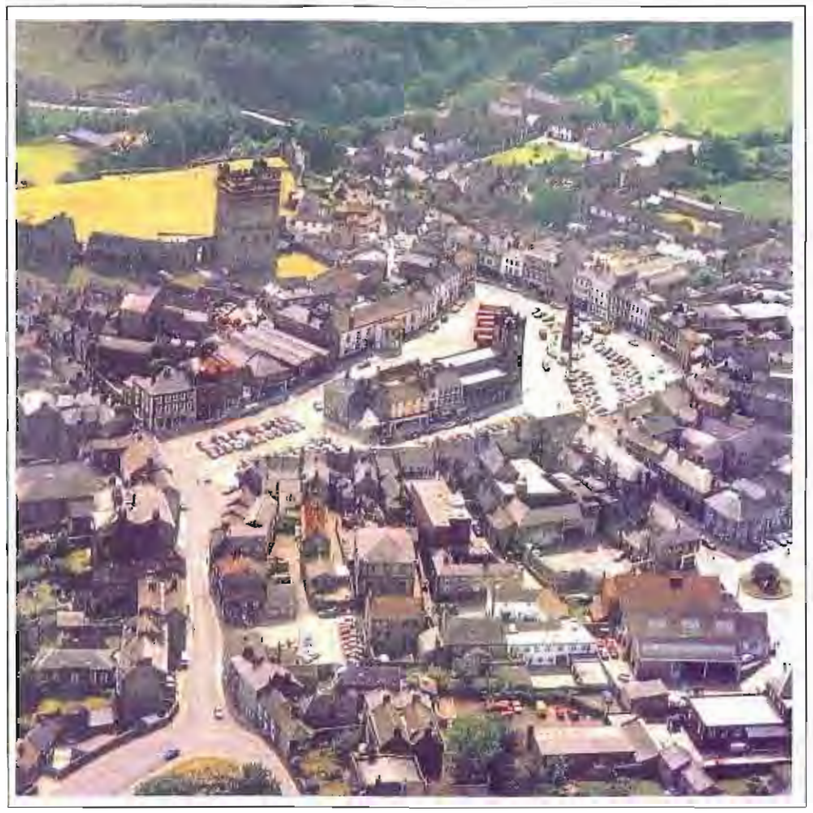
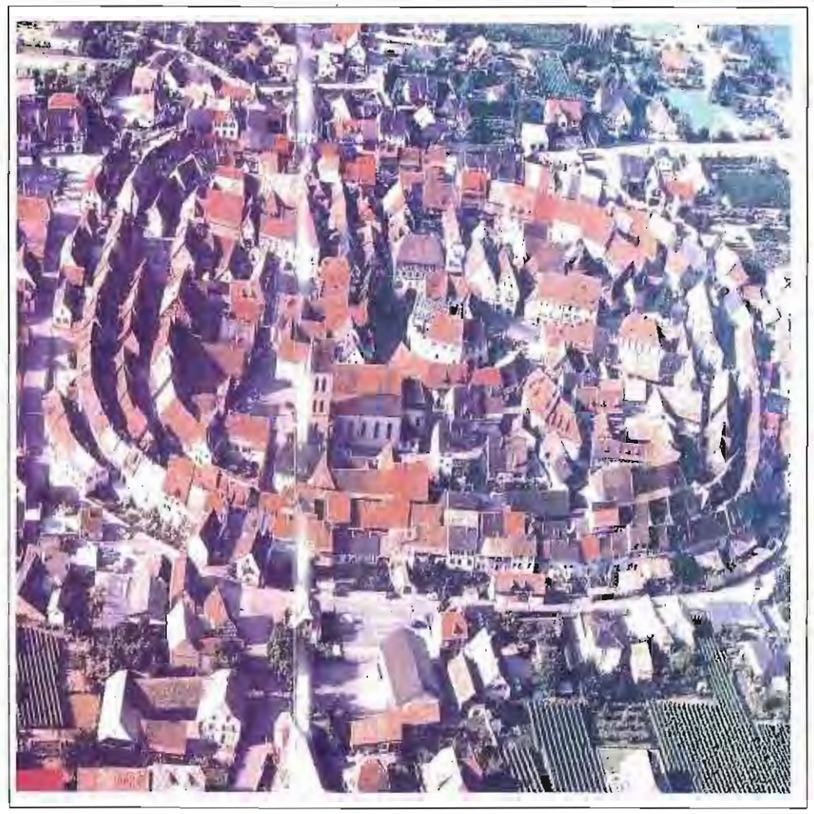
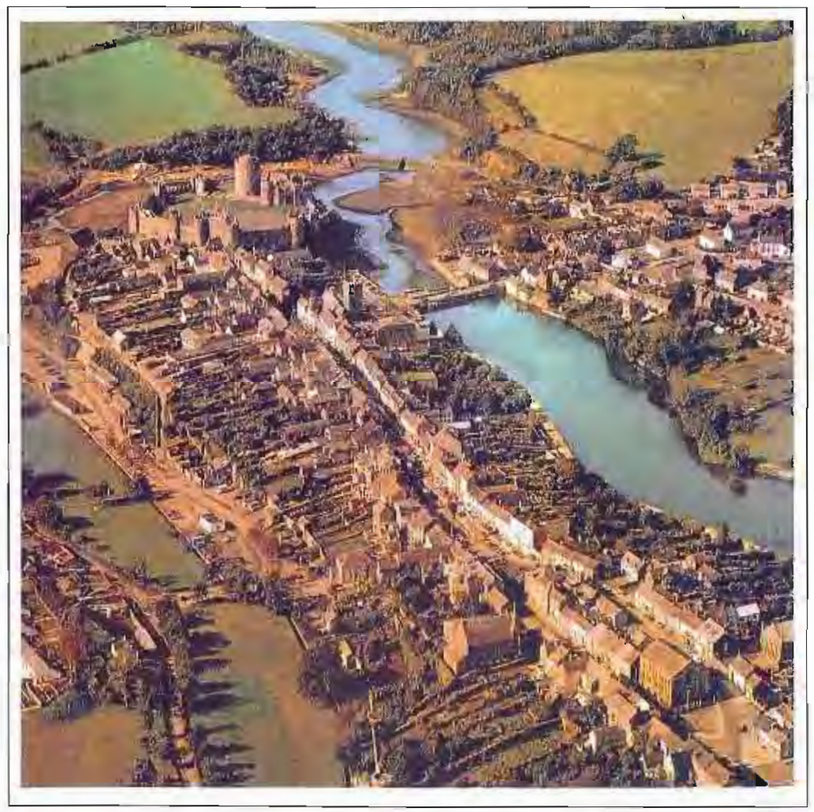






GENERIC FORMS

1. Richmond, Yorkshire
2. Egushien, Alsace
3. Haverfordwest, Dywed
4. Pembroke, Dywed

RICHMOND, YORKSHIRE

Richmond is a good example of the more relaxed, traditional English town with an informal plan. The centre of this vibrant community provides a market square and transport interchange. The green space around the castle is close to the centre.

EGUSHIEN, ALSACE

This is a good example of the defensive continental settlement. The town centre is so dense that no green space is possible.

HAVERFORDWEST, DYWED

The High Street should be capable of being transformed on Special or Festival Days. For example, a fair or Carnival in the centre enlivens and brings a community together as well as attracting visitors from outside the area.

PEMBROKE, DYWED

The 800 metre long High Street runs down hill from the Norman castle and parallel to a tidal stream.

CAMBOURNE

GEOLOGY

- The site is underlain by glacial drift deposits of boulder clay over Kimmeridge clay up to 27 metres deep.

SOILS

- The soil type is identified by the Soil Survey of England and Wales as 411d : typical calcareous pelosols. The soil is described as "slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous clayey soils. Slight risk of water erosion.

DRAINAGE

- The watershed between the Rivers Great Ouse and Cam lies at the northern side of the site. The majority of the site drains south to the Bourn Brook via two shallow valleys; identified as Crow Dean, to the west and the Great common Valley to the east.

TOPOGRAPHY

- The site is very gently undulating with the most pronounced landform changes in the valleys. The steepest slopes within the site are no more than 1 in 32, and the majority of the site is much flatter than this.

MICROCLIMATE

- The site comprises some of the highest ground of the clayb uplands to the west of Cambridge and is exposed to high winds. A relative paucity of vegetation within the site increases the apparent exposure.

AGRICULTURAL LAND

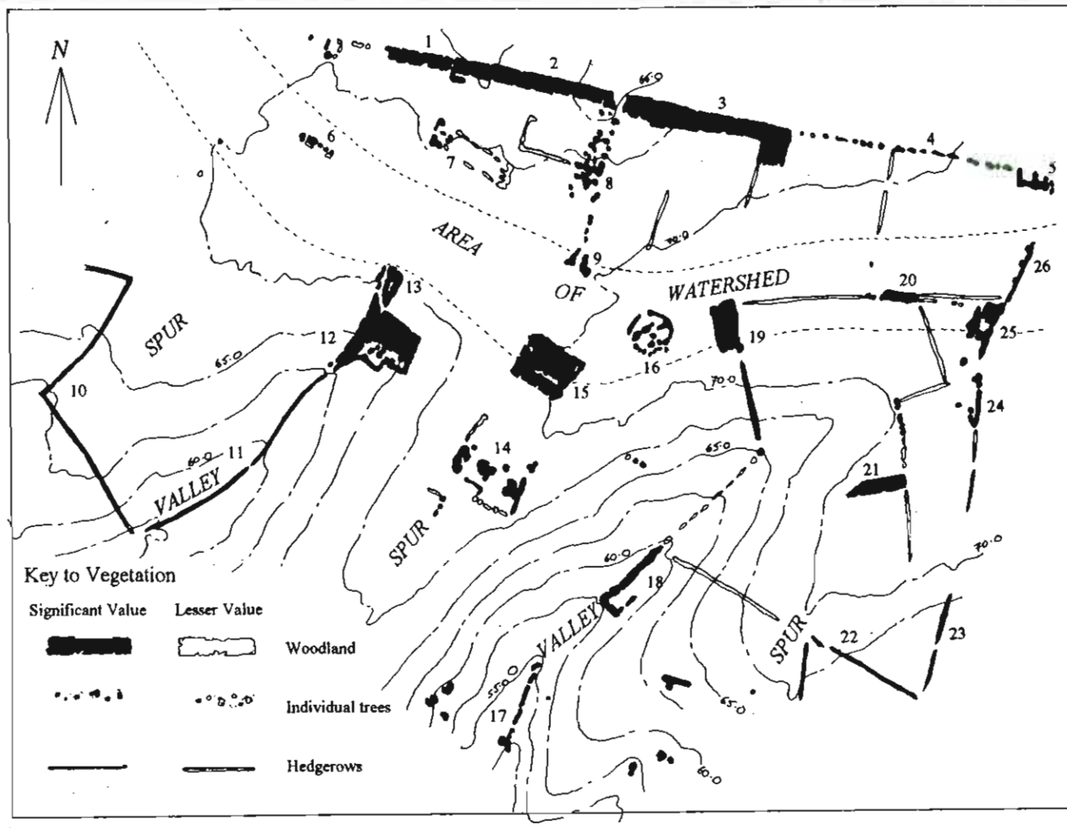
- The site is primarily arable land, classified as grades 3a and 2 by the Ministry of Agriculture. Small areas are under trees and have traditionally been used for game.

VEGETATION

- The plan above shows the disposition of existing vegetation around the site which has been assessed for its visual and physical condition. Such vegetation as there is affords a significant level of shelter in local areas and will be retained within the development.

SPATIAL ANALYSIS

- The adjacent plan illustrates how the site is perceived as a series of different areas, each with their own character.



Existing Vegetation and Topography

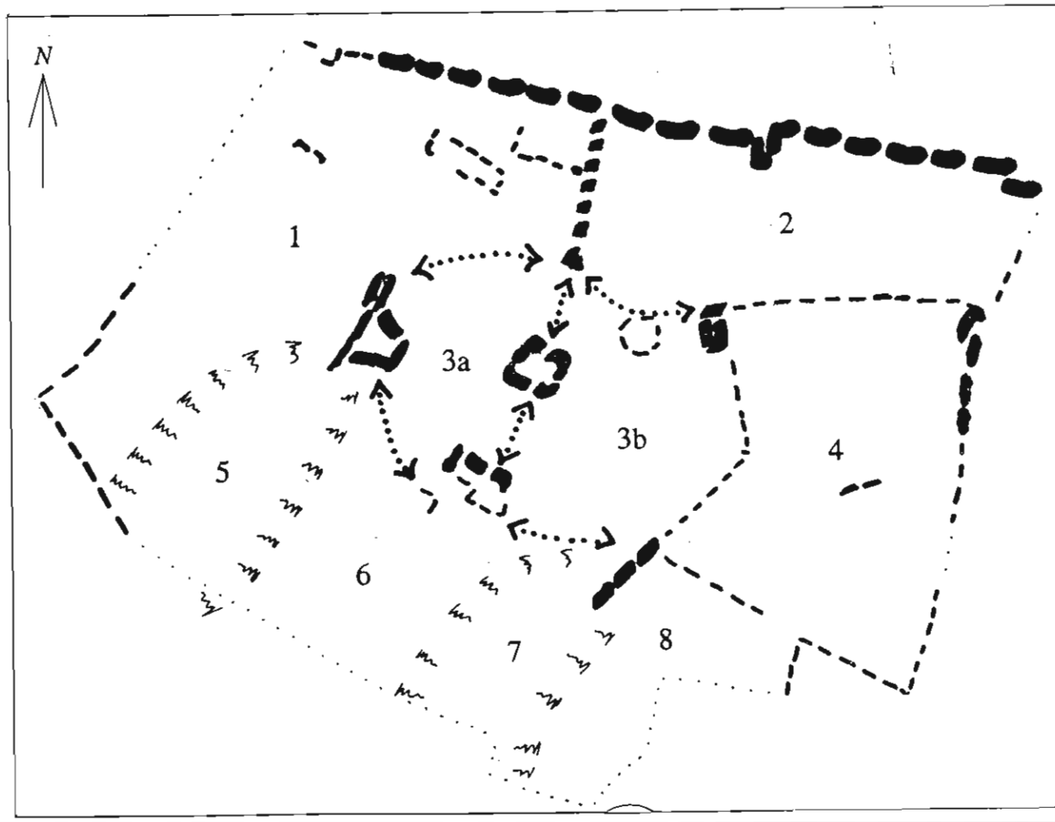
An initial study of aerial photos of the site was carried out to plot the main trees, woodland and hedgerows. This plot was then checked by site visits. Features were assessed visually for their contribution to the landscape.
The resulting plan identifies:

- Features of significant landscape value to be retained.
- Features of lesser landscape value to be retained if possible/appropriate.
- Features of poor landscape value have not been marked on the plan.

Key to Locations:

1: Knapwell Plantation west
2 Knapwell Plantation central
3: Knapwell Plantation east
4: A428 Trees
5: Reservoir
6: Caxton Common Farm
7: Crow Dean Nurseries
8: Monk Drive
9: Monkfield Farm
10: Caxton Hedgerows
11: Crow Dean
12: Poplar Plantation
13: Poplar Plantation (north)
14: Monkfield Farm (south)
15: Monkfield Farm Plantation
16: Jeavons
17: Great Common Brook
18: Oakdene
19: Great Common Plantation (west)
20: Great Common Plantation (north)
21: Great Common Plantation (south)
22: Monkfield Drive
23: Broadway (south)
24: Great Common Farm
25: Mast
26: Broadway (north)

Contour and Drainage information has been taken from Randall Surveys` 1:10,000 site survey.



Spatial Analysis

The interrelationship of vegetation and topography has been mapped to show existing spacial relationships within the site.

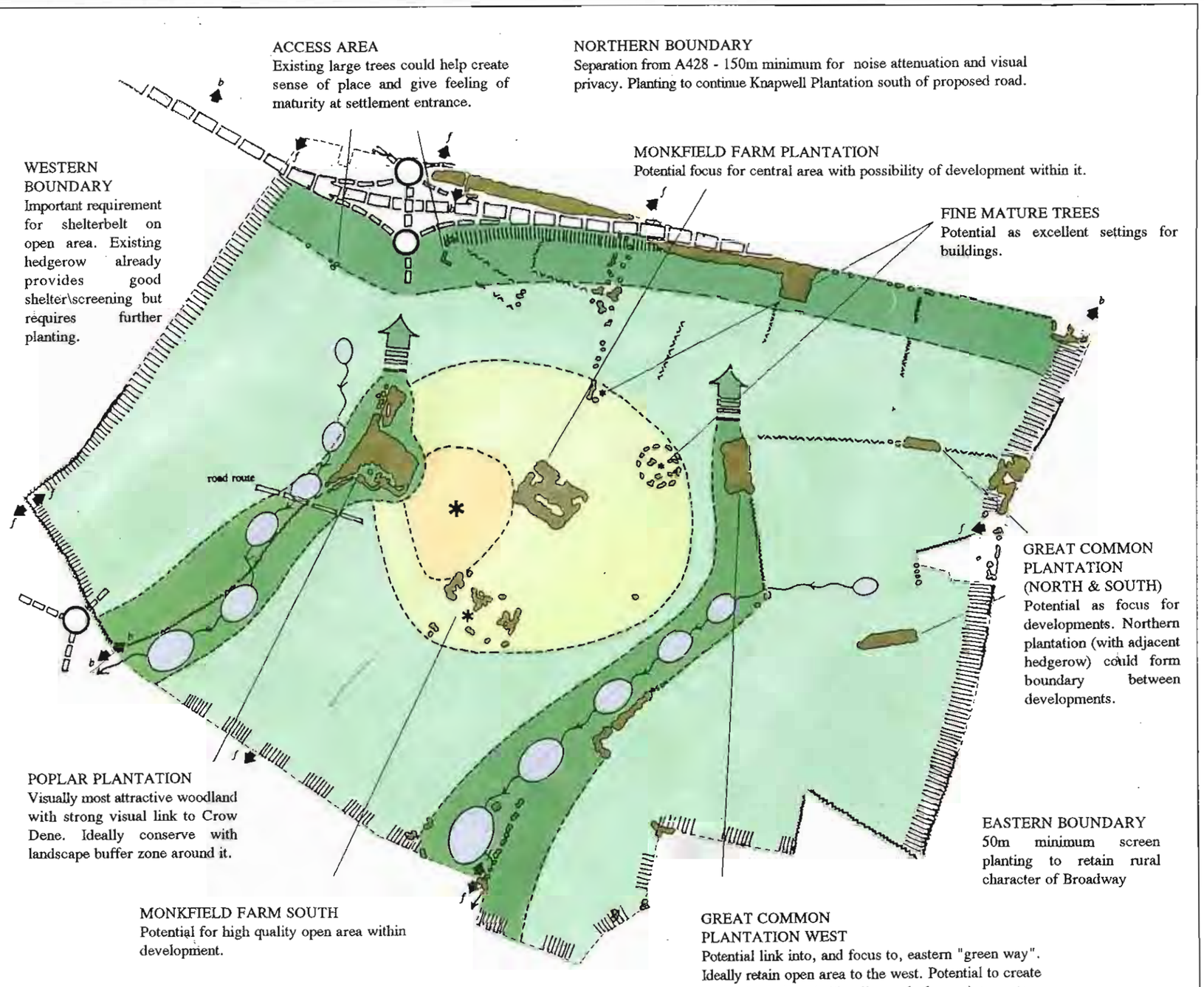
Separate areas are identified, each with its own character. The boundaries of these areas are formed by visual screens, visible changes in landform, or visual links between features.

1 Caxton Common:	Comprises areas of both main watershed ridge and Caxton Spur. High bleak ground, open to the west.
2 Northern fields:	Extensive high ground but sheltered and enclosed at boundaries.
3a Monkfield west:	Level, high ground framed by small woodland blocks presents most enclosed part of the site with more interesting visual elements within it than other areas. Views out to areas 1 and 6.
3b Monkfield east:	Gently south east sloping ground, similar to 3a but with visual links over area 4.
4 Great Common:	Mostly level ground with developing valley towards the west, framed by linear hedgerows and woodlands.
5 Crow Dean:	Gentle valley with controlled ditch drainage system - strong linear link between Poplar Plantation and Caxton Village.
6 Monkfield Spur:	High ground open to the south.
7 Great Common Valley:	Gentle valley with patches of woodland in bottom at Oak Dene. Broad valley is topographically most enclosed and sheltered part of site.
8 Bourn Spur	High ground open to the south and south east, visible from Broadway.

CAMBOURNE

LANDSCAPE ASSESSMENT AND SITE POTENTIAL

This plan illustrates an analysis of all landscape survey material, but principally topography, vegetation and spatial analysis, which have been combined with an analysis of the development brief to determine the suitability of different parts of the site for development, and areas of landscape of greatest potential as open space.



Key

Most sheltered, attractive part of site with strong sense of place. Good area for first phase housing/sales.

Centre of site ringed by, and containing many attractive landscape features. Potential as settlement centre.

General development areas.

Attractive sheltered valleys with footpath links out of the site. Potential as open space\"green ways" into\through the site.

Continuation of "green ways" north to A428.

Water balancing areas in valley bottoms. Potential to form string of lakes up the valleys continuing into development areas.

Landscape buffer zone to A428.

Exposed edge in need of visual screening or shelter planting.

Woodlands\trees of good quality, with potential landscape benefit to development.

Hedgerows of good quality, with potential landscape benefit to development.

Hedgerows of fair quality, possible landscape benefits to development.

Existing footpath (*f*) Bridleway (*b*) links into\away from the site.

Attractive landscape setting.

CAMBOURNE

NATURE CONSERVATION STATUS

1 Jeavons Wood
2 Pollard Willow
3 Common Spotted Orchid
4 Green Hellebore

The Cambourne site does not include any area with a statutory nature conservation designation. Crow Dean track and Poplar Plantation are together designated by the Cambridgeshire Wildlife Trust as a non-statutory site of nature conservation interest: a 'Site of Natural History Interest' (NHI). No plant species recorded is statutorily protected, nationally rare or nationally scarce. However, a small number of plant species are of interest in a Cambridgeshire context.

The woodlands present on the site are of low county nature conservation interest due to their small size, limited species interest, presence of alien species, disturbance and their woodland community types, which are common, widespread and typical of arable areas of lowland Britain. In the context of the Cambourne site, however, the longer established woodlands are of moderate to high nature conservation value. In part this is a result of the predominance of arable land and the relative scarcity of woodland habitat, but also the woods do possess some intrinsic interest. This interest stems from, for example, the presence of fine ash and pedunculate oak standards, and possibly of common spotted and twayblade orchids, in Poplar Plantation and the wood opposite. The latter site is also of interest for the example of ecological succession from scrub to woodland that it represents. The wood near Jeavons is of interest for its mature canopy-forming elms and other trees, and for the presence of green hellebore in the ground flora; although since it is not common in Cambridgeshire, this plant may be an introduction.

The improved grasslands and tall herb areas are of very limited nature conservation interest both in the context of the county and the site since the habitats, and their associated plant communities and species are all common or very common. The scattered areas of herb-rich grassland occurring along Crow Dean track provide a feature of local conservation value as recognised by its designation as an NHI. Three species from the green lane, in particular, are of interest in Cambridgeshire: meadow fescue, gromwell and (although probably planted) small-leaved lime. The relict herb-rich grassland present on the banks of some drainage ditches confers upon them a nature conservation interest but this is low and only in the context of the site.

The ponds on site are of very limited nature conservation interest in a county context because they are small, shaded and have a restricted flora. Only the pond near Monkfield Farm is of interest in a site context for its relatively diverse flora. The drainage ditches within and bordering the site are small, lack species interest, are dry or tend to dry out, and have an intensive management regime as the surrounding arable land; consequently their nature conservation interest, even in the context of the site, is low. The most important hedgerows on the site are those with a diverse tree and shrub flora, often with elm and mature trees, including willow pollards. Only five such hedges occur; the remainder are of low nature conservation interest, and none are valuable in a Cambridgeshire context.

CAMBOURNE

HABITATS

The Cambourne site is dominated by intensively managed arable land.

Other types of habitats are scattered and small in extent, and are generally isolated due to the removal of the hedgerow network. This has occurred particularly in the western two- thirds of the site, although more hedges have survived agricultural intensification in the eastern third. Habitats other than arable land present on the site are grasslands, woodlands and scrub, wetlands and hedgerows.

The grasslands comprise agriculturally improved, species-poor pastures, areas of rank tall herbs, the banks of drainage ditches, and Crow Dean track.

Areas of woodland and scrub occur as isolated regularly-shaped small blocks of secondary broad-leaved woodland, new plantations, shelter belts and field corner scrubby areas.

Wetland habitats are limited to a small number of ponds, of varying shape and size, and field boundary ditches with seasonal standing or flowing water.

The remaining hedgerows vary greatly in species composition, structure and management. At one end of the scale are low, narrow, gappy, species-poor hedges without trees. At the other extreme are hedges which are tall, broad, dense, comprise a range of shrub species and incorporate mature trees. Further diversity is provided by occasional hedgebanks, or parallel, banked hedges separated by a ditch or parallel ditches.

FLORA

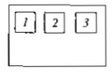
The flora of the Cambourne site is dominated by species which are common and typically found in the parts of lowland eastern England characterised by small woodlands and improved grasslands set within intensively farmed arable fields.

The agriculturally improved grasslands are dominated by perennial rye-grass, whilst the tall rank herb areas are characterised by couch grass, false oat-grass, cock's-foot, nettle and hogweed. Amongst the long list of plants recorded from Crow Dean track are all the above species, plus a range of low-growing herbs and fine grasses, including black knapweed, common mouse-ear, meadow fescue, lady's bedstraw, meadow vetchling, meadow buttercup and common sorrel. The banks of the drainage ditches generally support tall coarse grasses and herbs, but with small areas of relict herb-rich grassland where the flora includes black knapweed, cowslip, lady's and hedge bedstraws, glaucous sedge, red fescue and ribwort plantain.

The woodlands have a relatively limited flora. The new plantations typically comprise ash, alder, pedunculate oak, field maple and hazel. The canopy of the longer-established woodlands is typically a mixture of ash, pedunculate oak, elm and field maple, with small amounts of hawthorn, sycamore and horse chestnut. The sparse and open shrub layers are composed of hawthorn, dog rose, elder, elm, dogwood, wild privet, wayfaring tree, blackthorn, field rose, hazel, spindle and gooseberry. The elm and blackthorn locally form dense suckering patches. The ground of some woodlands is carpeted by ivy; elsewhere little more than a layer of dead leaves and twigs occur; and other areas are densely covered in a luxuriant growth of the common mosses Brachythecium rutabulum and Eurhynchium praelongum. Bluebell, dog's mercury and lesser celandine occur but only locally.

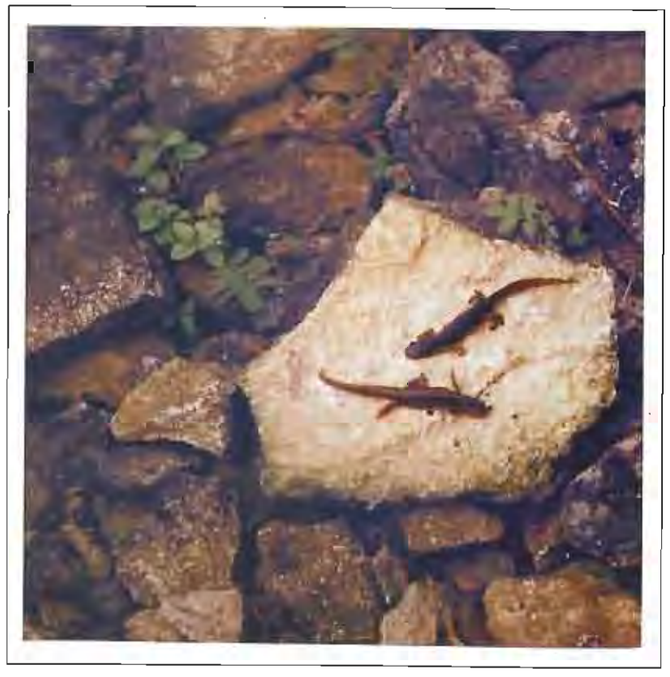
Overall the ponds have a poor and sparse flora. Two ponds have only fool's water-cress, hard rush and false fox sedge, but a third supports a more diverse flora including hard and jointed rushes, greater reedmace, creeping bent, false fox sedge, great willowherb, water crowfoot and broad-leaved pondweed. The network of ditches and drains also has a poor wetland flora, being limited to only occasional plants of greater reedmace, great willowherb, hard rush, brooklime and tufted hair-grass.

The most common hedgerow tree and shrub species are hawthorn, dog rose, elder, ash and blackthorn; elm is locally abundant as suckers and occasionally occurs as mature trees. Other species present include pedunculate oak, buckthorn, hazel and wayfaring tree.



1 Trees in arable land
2 Secondary broad-leaved woodland
3 Bluebells

CAMBOURNE



INTERACTION WITH THE WIDER ENVIRONMENT

The Cambourne site is situated within an open landscape of intensive arable cultivation with small villages and farmsteads and fragmented areas of woodland and pasture. In the wider surrounding area, there are a number of recognised sites of conservation interest. These include statutorily designated Sites of Special Scientific Interest (SSSI), such as Caldecote Meadows, Hardwick Wood and Kingston Wood, and non-statutory Sites of Natural History Interest (NHI) identified by the Cambridgeshire Wildlife Trust. The latter represent sites of county conservation interest and are currently being resurveyed with possible redesignation as County Wildlife Sites. None of the designated sites are intrinsically linked to the Cambourne site in terms of key wildlife corridors or critical habitats. However given the predominantly arable land use, the sites form an important component in the wider network of semi-natural habitats.

The site is located within a general area of high badger activity. Badger social groups have been identified in areas immediately adjacent to the site, thus it is important that the development does not disturb the existing distribution pattern. Although there are records of otters in the lower reaches of Bourn Brook, surveys have shown that there is little suitable habitat to support otters above Toft. However, the maintenance of existing water quality is important to protect the downstream habitats.

FAUNA

The site supports a range of small mammals typical of lowland England, including woodmice, voles, shrews, hedgehogs, moles, brown rats, stoats and weasels. Grey squirrels are common in all Mthe mature woodlands and both rabbits and hares use the open fields, whilst foxes and muntjac deer occur in all habitats. Two thriving badger social groups also use the area, feeding mainly in the arable fields but also regularly visiting gardens in surrounding villages.

Most of the larger ponds on site have been stocked with fish, native or ornamental, whilst the smaller water bodies either have high populations of 3-spined sticklebacks or are otherwise unsuitable for amphibians. Sticklebacks also occur in the permanent field drains. Despite this, small numbers of frogs, smooth newts and great crested newts are present.

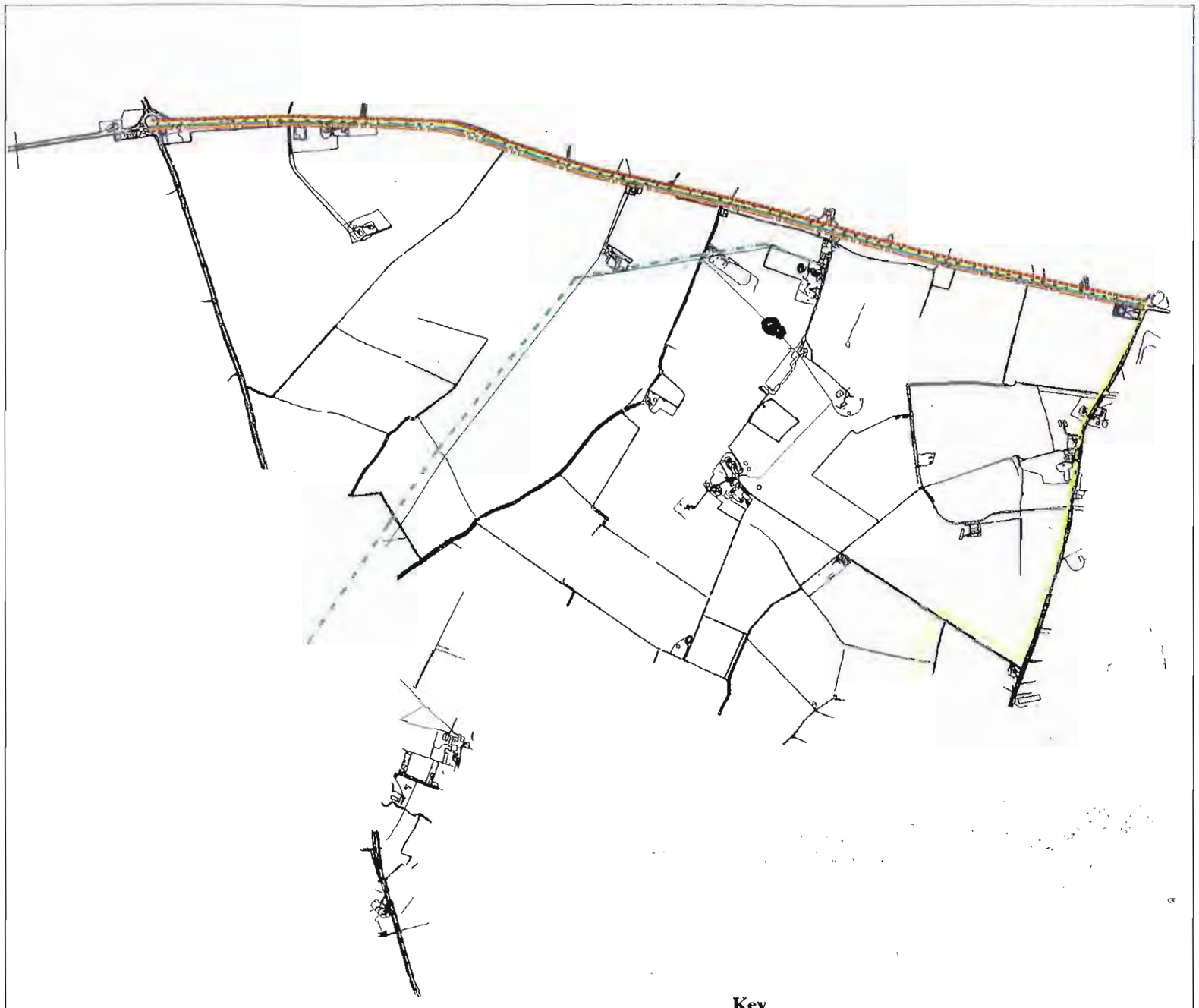
As would be expected from the site's largely arable nature, many of the birds recorded are those of open habitats including skylark, meadow pipit, lapwing and red-legged partridge, with wintering flocks of rooks, jackdaws, fieldfares and golden plover. The mature woodlands have a range of typical woodland species including willow warbler, blackcap, chaffinch, wren, blackbird, blue tit, woodpigeon and great spotted woodpecker, while the scrubbier areas and hedgerows have linnet, whitethroat, long-tailed tit, robin and dunnock. Water birds are scarce at present, but both mallard and moorhen occur.

Possibly because of the openness of the site butterfly numbers are low, though species recorded include small tortoiseshell, meadow brown and red admiral. A survey for beetles typical of old trees was mainly negative, though the old willow pollards in the eastern valley may be of interest for their invertebrate populations. In general both numbers and species diversity of aquatic invertebrates are also low, though small numbers of damselfly, caddisfly nymphs and water-beetle larvae are present.

1 2 3

1 Smooth newt
2 Chaffinch
3 Badger footprint

CAMBOURNE



Key

- Cambridge Cable
- British Telecom
- Cambridge Water
- Energis
- Eastern Electricity

Existing Site Plan

INFRASTRUCTURE AND PRIMARY SERVICES PROVISION

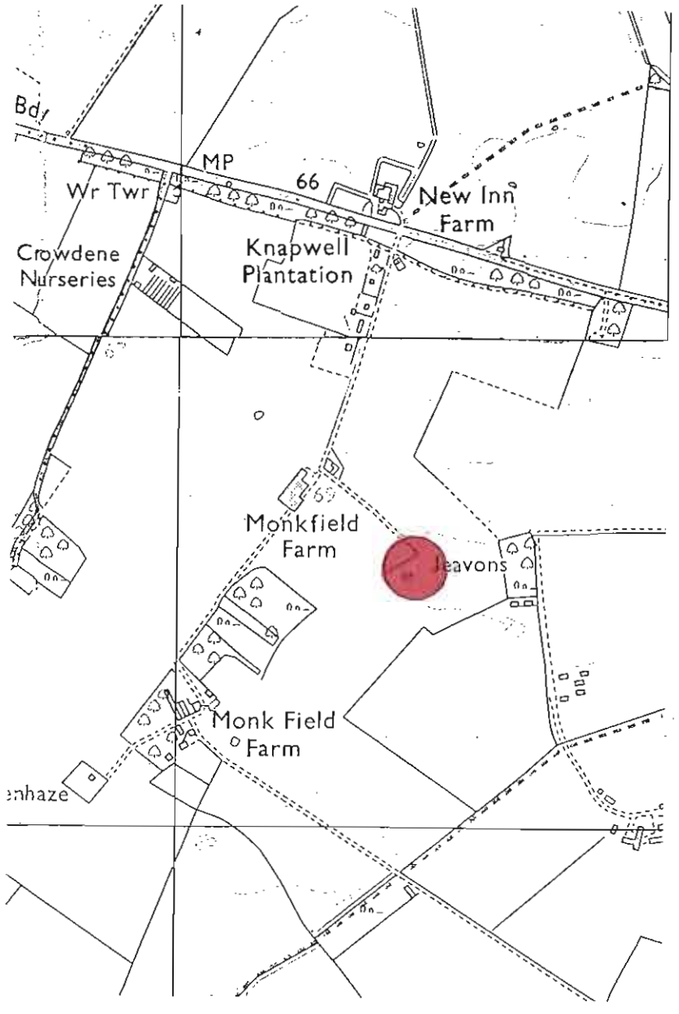
EXISTING SERVICES

- **Cambridge Water Company**
  Water Tower at Crow Dean Nurseries fed from covered service reservoir at NE corner of site, fed from Coton 9" water main in northern verge and control cable in southern verge of existing A428.
- **Eastern Electricity**
  Existing supply from Caxton Village west of site along Crow Dean Track. Primary 33/11kv sub station in Caxton Road, Bourn under Bridle Way to the southern edge of the site.
- **British Telecom**
  Existing telephone exchange in Caxton viullage, 2 x fibre optic cables in northern verge, 2 way ducts in southern verge of existing A428. Buried plant running east side of site in Broadway.
- **Cambridge Cable**
  Primary roiute running along the northern verge of the existing A428. This route links St Neots and Papworth with Cambridge and comprises twin ducts laid at a depth of approximately 450mm of cover. All buried plant is fibre optic cables.
- **Energis Communications Limited**
  Fibre optic cables in southern verge of existing A428 from Cambridge to Eaton Socon.

CAMBOURNE

EXISTING PROPERTIES

To the east of Monkfield Farm a track runs from Monk Drive to a satellite dwelling known as Jeavons. A ring of trees provides shelter for the house, various outbuildings, ponds, mixed vegetation and just inside the perimeter of trees a model railway.

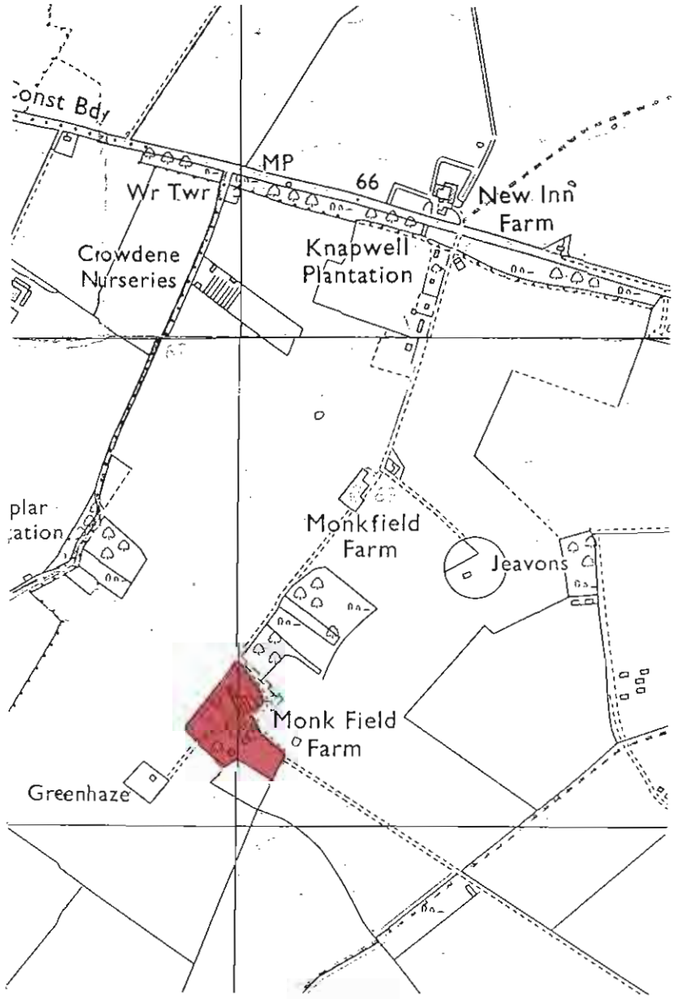


CAMBOURNE

EXISTING PROPERTIES: MONK FIELD FARM

South down Monk Drive past Monk Field Farm one arrives at a series of buildings known as Monk Filed Farm.

1. Large brick building at Junction of Monk Drive and Monkfield Drive with forecourt and tennis courts to the east.
2. Pair of cottages now converted into one house.
3. Recent bungalow situated to the rear of 1.
4. View from Greenhaze looking north towards the back of Monk Field Farm building.



CAMBOURNE

GENERIC FORM STUDY TYPES

A number of generic forms for the Master Plan were considered. For each form, the eccentric site access points and the need to phase the development were acknowledged. Each of these forms could be a valid basis for development.

A. Outwardly expanding single settlement.

B. Single centre village centred at crossroads.

C. Linear village with dispersed localised centres.

D. Three villages connected by roads.

E. Three villages connected by footpaths and bridleways.

F. Three connected villages with linear centre on cross axis.

G. Three merged villages with shared centres.

H. Three villages with connected centres.

I. Ring road form.

Accessibility to the primary activities within the settlement has an important bearing on the selection of a suitable form. The S.106 agreement provides for a singular set of community facilities:- Community Centre, Library, Health Centre etc. The expected school population however gives rise to the 2 primary schools.

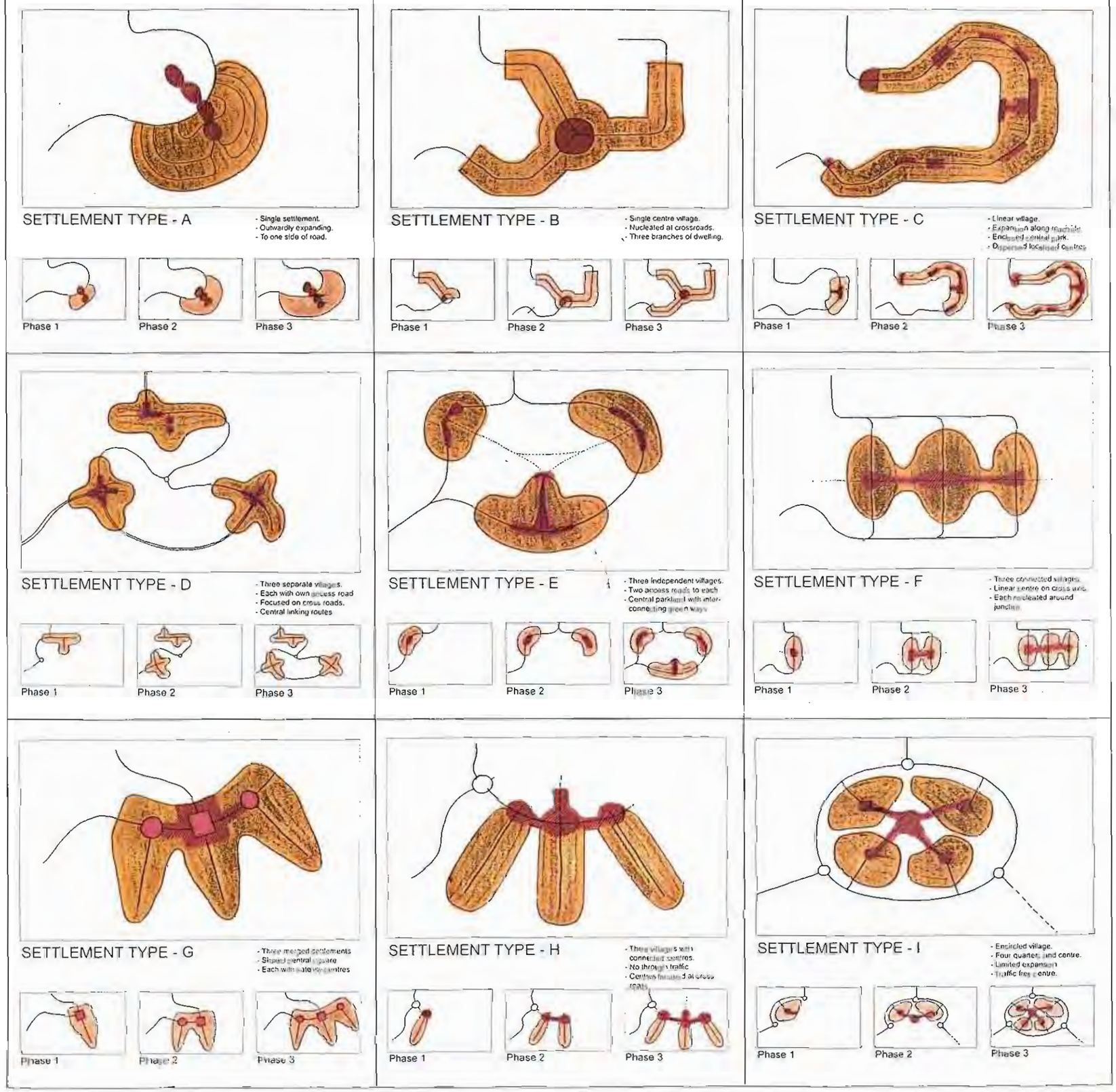
A compact form of development would provide close proximity to all facilities allowing access within a short walk. However the resultant built form would tend towards an urban feel.

The linear forms facilitate good public transport provision, locating all development areas within close proximity to routes capable of accommodating bus services. The community facilities would tend to be dispersed along the route.

The ring road or by pass approach where traffic is kept away from the developed areas, is undoubtedly very efficient in terms of distributing traffic but it removes the essential element of variety and interest in the different areas of the settlement.

(Bar Hill, 5 miles north east of the site is a prime example of the perimeter ring road type development. The ring road distributes the traffic into residential roads and cul-de-sacs. The settlement centre is an anonymous space and has no real relationship with the residential areas.)

The "three village" forms begin to create an identity or personality for each residential area. However those types that have greatest physical separation between each village divide the community facilities leading to unequal provision in each village.



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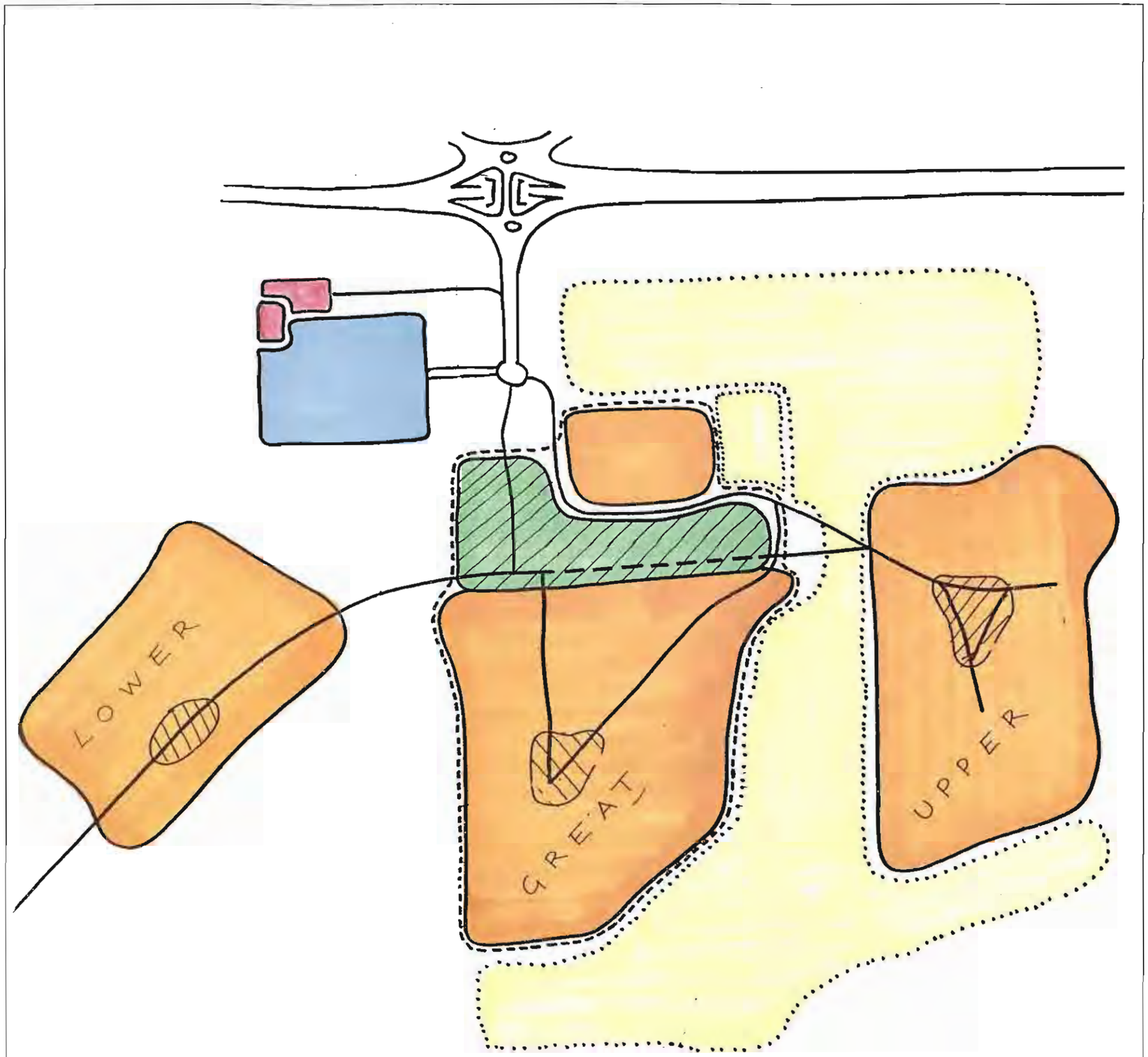


SETTLEMENT TYPE - J

GENERIC FORM REMODELLED TO SITE

In diagram type J, the three villages generic form is remodelled to take account of the specific site constraints for Cambourne.

The Settlement Centre is embodied into the larger of the three villages. The singular elements of the S.106 agreement can be distributed along the key routes in the centre, whilst the dual provision of schools can be positioned at either end of the east - west axis. In this way the schools form an integral part of the Cambourne Community, yet benefit from immediate access to wider open space.

The road layout structures the Settlement Centre, which together with the diverse range of uses generates activity avoiding the sterility of an overtly zoned settlement.

By placing all the Community facilities in close proximity to each other, total travel distances can be reduced by the possibility of shared journeys.

Within each village, a village green serves as a local focus accommodating local facilities; shop, pub, pavilion/hall, whilst also offering the potential for village centred recreational activities.

The Business and Industrial areas, having wider "regional" uses are positioned closer to the main site access, thereby reducing the impact of heavy goods vehicles on the settlement.

The density of development can vary from Market Town characteristics in the centre to village fringe characteristics at the edges.

The open space areas between each village and surrounding the site are utilised for formal and informal recreational use.

By relaxing the area of land occupied by the golf course and introducing more out-of-play areas, the character of the landscape can be preserved as widely accessible.

The Landscape Structure serves to bind together the tripartite grouping whilst the permeability of landscape into the settlement areas gives a higher level of close proximity to open space for all uses.

The resultant plan is in some ways an amalgamation of the linear village with the three village forms.

The concept of a Mental Map is developed as the means by which residents come to know Cambourne. The villages take the prefixes Great, Upper and Lower. The roads and routes become known by the name of the place that they lead to.

CAMBOURNE

SITE VISIBILITY

VIEWS FROM VILLAGES

- Although the site is located on high ground, generally the villages around ,it lie in the stream valleys, and have a restricted field of view with no extensive views over the site.
- Only the edges of the site may be visible from a few properties on the ,outskirts of Caxton and Bourn.
- Outlying properties south of Papworth Village may have views of the northern site boundary.
- There will be no views from Knapwell, Eltisley, or Boxworth.
- Highfields and Eltisley are located on high ground but views towards the sites,are blocked by existing woodlands.
- Careful consideration will be given to the landscape treatment of all site boundaries to ensure that a predominantly rural outlook is maintained from all of the existing villages.

VIEWS FROM HIGH GROUND

- More extensive views over the site are obtained from other areas of high ground which are crossed by roads and footpaths, but are otherwise relatively sparsely developed.

NOTES ON VIEWPOINTS

- The plan illustrates the principal areas from which views may be obtained.

These are described below:

A. Around Caxton Gibbet: High ground affording some clear views of the north west corner of the site.

B. A1198 Between Caxton Gibbet and Caxton: The road undulates. Views of the western boundary are obtained from high ground.

C. Caxton Village: See notes above.

D. Caxton Kennels: High ground on A1198 allowing clear view of southern boundary.

E. Bourn Windmill: Clear view of southern site boundary and Great Common Valley from high spot along road.

F. Footpaths around Bourn and south to Kingston Pastures: Views from high ground only across Bourn Valley. Impact diminishes with distance.

G. Bourn Village: See notes above.

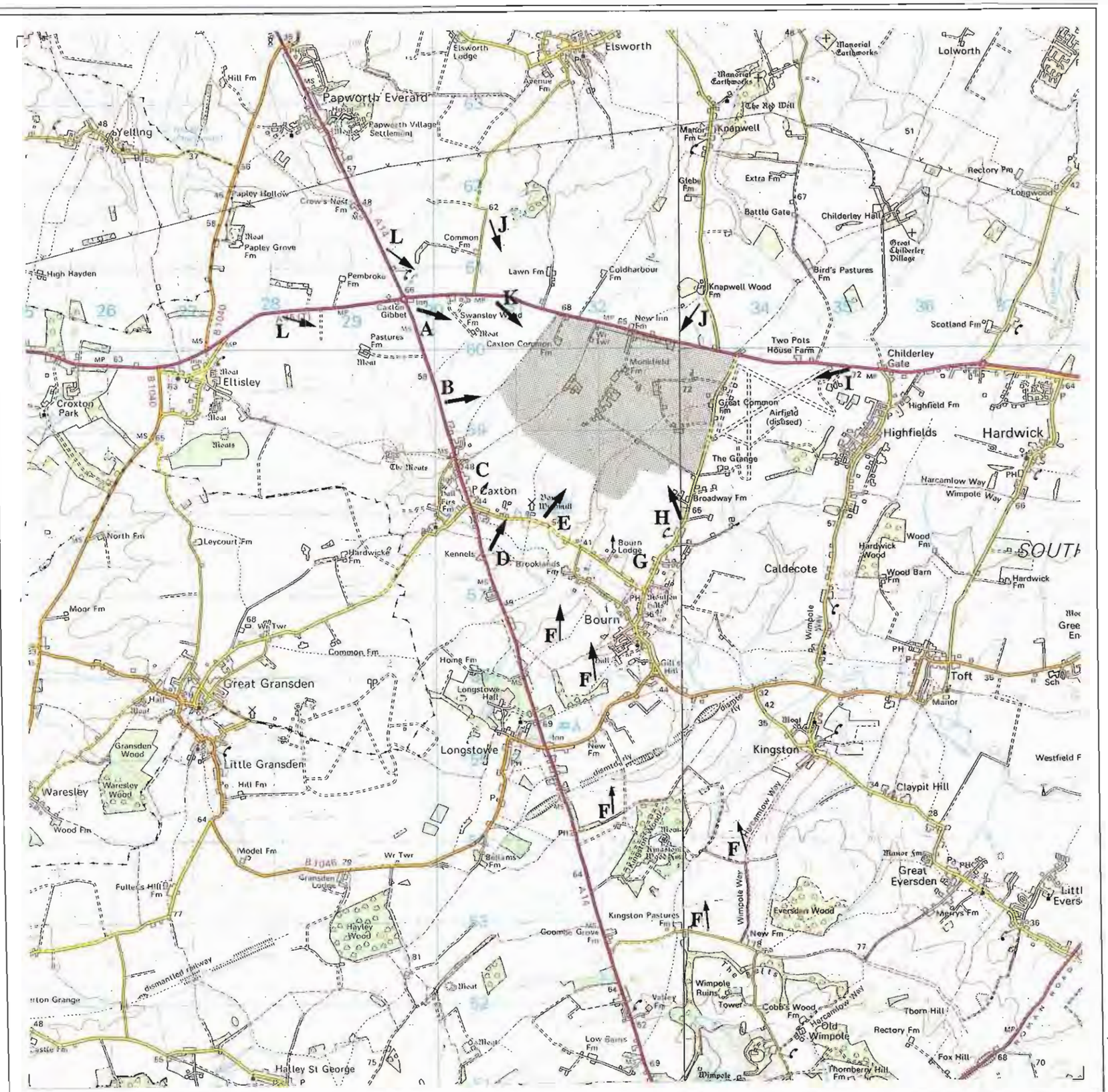
H. Broadway: Views of south east corner of site as road gains in height.

I. A428 east of the site: Views across airfield to eastern boundary.

J. Lanes and paths to Knapwell and Eltisley, north of the site: Views to northern boundary and north west corner partially screened by existing vegetation.

K. A428 west of the site: Views across arable land to north west corner of site.

L. A428 and A1198 west and north of Caxton Gibbet: Views across open land to north west corner of site as roads rise onto plateau.



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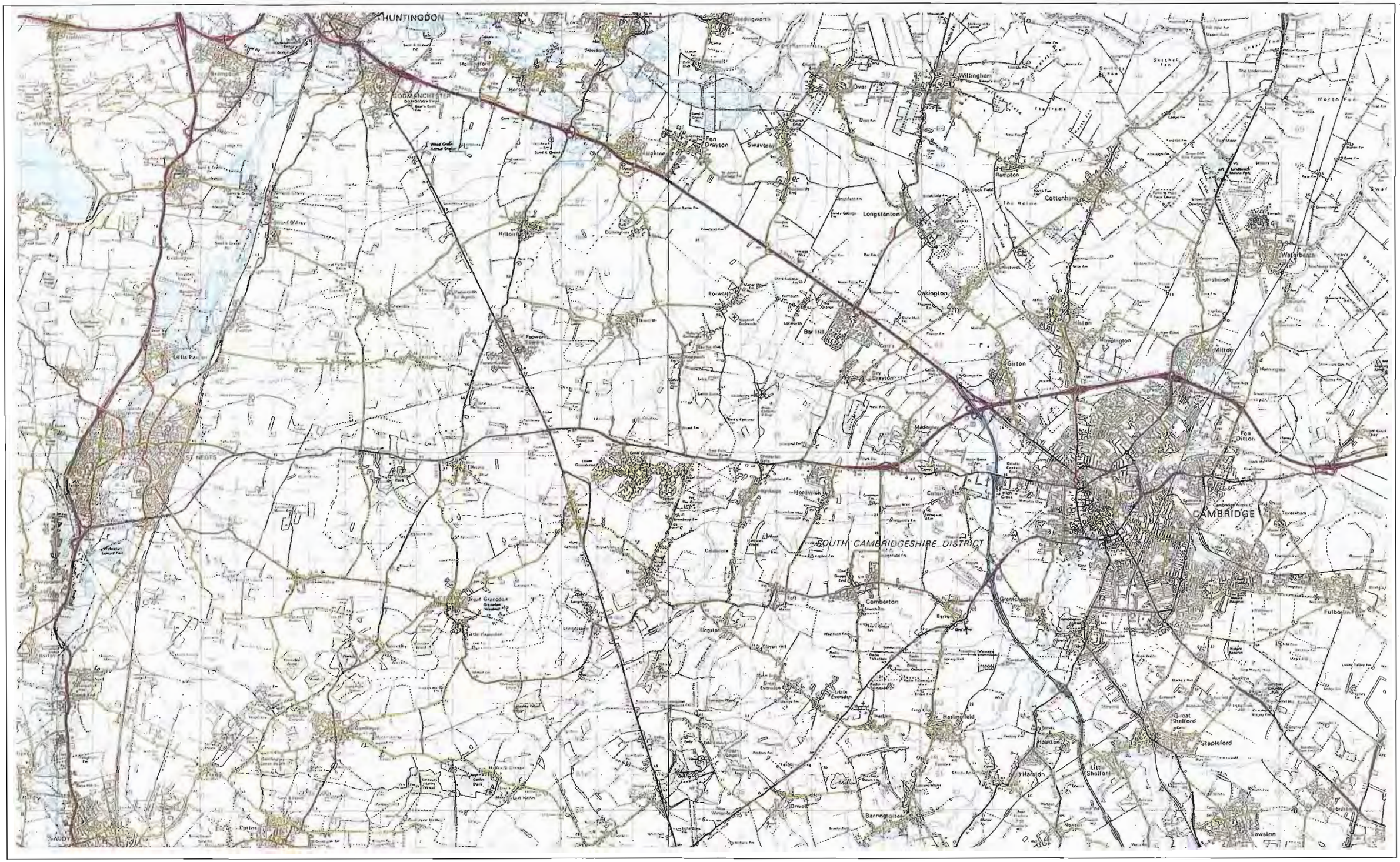


MASTER PLAN CONTEXT

CAMBOURNE

MASTER PLAN

CAMBOURNE

MASTER PLAN SHOWING USES

S.106 AGREEMENT REQUIREMENTS

6. Village recycling centre
7. Waste recycling transfer centre
8. Trailer Storage Compound
9. Ecumenical Centre
10. Health Centre
11. Library
12. Community Centre
15. Grade separated junction
17. Allotments
18. Burial ground
20. Police Station and Fire Station
22. Sports Centre
23. Child/Family Centre

DEVELOPERS ILLUSTRATIVE PROPOSALS

D. Sales Centre and Show Homes
E. Sales Centre car park
F. Village centre: Convenience Store/Public House
G. Golf Driving Range
H. 9 Hole Golf Course
J. Golf Club House
K. Country Store
L. Hotel
M. 18 Hole Golf Course

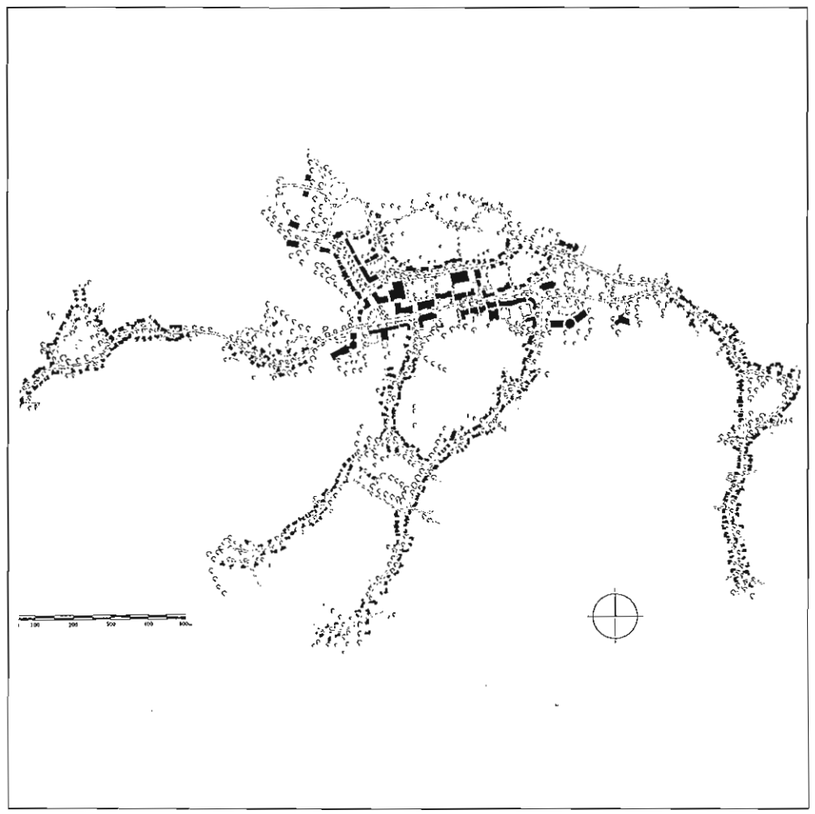
CAMBOURNE

MASTER PLAN INDICATING RESIDENTIAL DENSITIES

CAMBOURNE

VILLAGE STRUCTURE

1. Cambridge linear village
2. Cambourne figure ground diagram
3. Density illustrations
4. Aerial view of linear village



Cambourne has been based on the organic patterning of a typical English linear village structure.

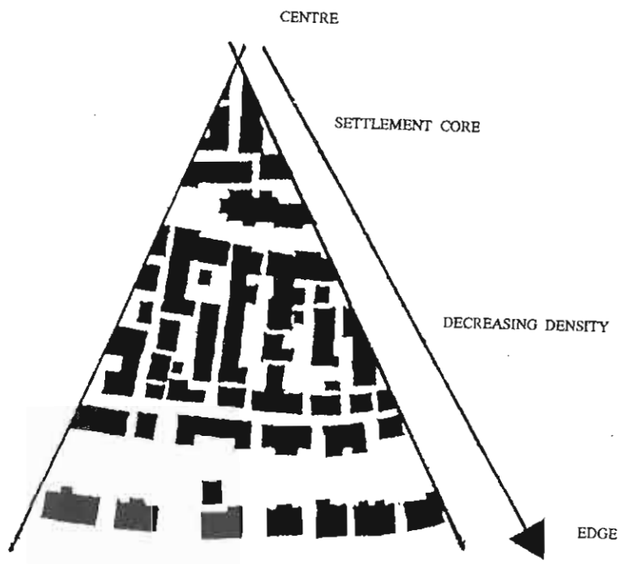
As with traditional villages, the pattern of density has concentration of central development around the Market Square, High Street and Broad Street with a thinning of the density towards the peripheral areas of the villages.

Development is also concentrated to a lesser degree around the spine axial roads linking the village modes together.

In the more concentrated areas of the village the buildings should be predominant in defining the spatial quality. As the village progresses towards the edge the landscape should take over as defining spatial structure.

Residential plots are defined by the green landscape fingers and structural planting to establish an atmosphere of containment. This will also serve to visually diversify the view from adjoining areas into the site.

Conventional housing development densities have been slackened to achieve a village character. The number of dwellings per acre and the square footage per acre of the development has been reduced to attain a suitable ambience.



CAMBOURNE

PLOT FRAMEWORK PLAN RESIDENTIAL

CAMBOURNE

PLOT FRAMEWORK RESIDENTIAL

GREAT CAMBOURNE

Total Area	134 acres
Total Dwellings	1343
Open Space	5.5 acres
Average Density	10.1 dwellings per acre
Area/Acre (max)	11,500 ft2 per acre

PLOT BREAKDOWN

Plot No	Area (Acres)	No of Dwellings	Private Housing	Social Housing	Density
GC 01	5.6	65	46	19	11.7
GC 02	7.6	86	60	26	11.3
GC 03	4.6	68	41	27	14.7
GC 04	7.2	75	41	34	10.4
GC 05	2.2	33	22	11	15.0
GC 06	3.9	22	22	0	5.6
GC 07	4.2	26	26	0	6.2
GC 08	3.6	53	35	18	14.7
GC 09	2.2	26	18	8	11.8
GC 10	3.2	42	28	14	13.1
GC 11	5.2	47	32	15	9.1
GC 12	5.3	65	45	20	12.3
GC 13	7.9	74	52	22	9.3
GC 14	6.1	73	51	22	12.0
GC 15	7.4	67	47	20	9.1
GC 16	3.4	24	24	0	7.0
GC 17	5.0	68	47	21	13.6
GC 18	7.1	76	51	25	10.7
GC 19	4.2	28	28	0	6.7
GC 20	6.8	73	51	22	10.7
GC 21	7.2	49	49	0	6.8
GC 22	8.0	64	44	20	8.0
GC 23	9.0	96	68	28	10.6
GC 24	1.9	11	11	0	5.7
GC 25	4.9	32	32	0	6.5
TOTAL	134	1343	971	372	10.1

UPPER CAMBOURNE

Total Area	123 acres
Total Dwellings	1238
Open Space	5 acres
Average Density	10.1 dwellings per acre
Area/Acre (max)	11,000 ft2 per acre

PLOT BREAKDOWN

Plot No	Area (Acres)	No of Dwellings	Private Housing	Social Housing	Density
UC 01	10.1	132	132	0	13.1
UC 02	7.5	82	82	0	10.9
UC 03	8.5	112	50	62	13.1
UC 04	10.3	136	136	0	13.2
UC 05	7.0	50	50	0	7.1
UC 06	9.1	65	65	0	7.2
UC 07	6.1	75	30	45	12.3
UC 08	7.3	87	33	54	11.9
UC 09	3.1	19	10	9	6.1
UC 10	2.2	24	12	12	11.0
UC 11	3.6	45	20	25	12.3
UC 12	3.9	48	26	22	12.3
UC 13	5.1	56	23	33	10.8
UC 14	8.8	77	77	0	8.7
UC 15	9.7	70	70	0	7.2
UC 16	6.1	46	46	0	7.6
UC 17	7.2	57	57	0	7.8
UC 18	7.1	57	57	0	8.0
TOTAL	123	1238	976	262	10.1

LOWER CAMBOURNE

Total Area	65 acres
Total Dwellings	612
Open Space	2.2 acres
Average Density	9.6 dwellings per acre
Area/Acre (max)	10,500 ft2 per acre

PLOT BREAKDOWN

Plot No	Area (Acres)	No of Dwellings	Private Housing	Social Housing	Density
LC 01	4.1	41	22	19	10.0
LC 02	5.1	54	27	27	10.6
LC 03	4.0	43	26	17	10.7
LC 04	6.6	67	45	22	10.1
LC 05	6.3	77	51	26	12.1
LC 06	2.5	27	17	10	10.5
LC 07	4.3	34	22	12	7.9
LC 08	7.2	41	21	20	5.7
LC 09	4.4	49	35	14	11.1
LC 10	7.4	58	34	24	7.8
LC 11	6.5	81	53	28	12.4
LC 12	6.6	40	23	17	6.4
TOTAL	65.0	612	376	236	9.6

CAMBOURNE

PLOT FRAMEWORK
SETTLEMENT CENTRE

S.106 AGREEMENT REQUIREMENTS

Plot No	Development	Plot Area (acres)	Building Area (ft2)
CB02	"Jeavons" School	5	-
CB03	Ecumenical Centre	1.0	-
CB04	Health Centre	0.35*	-
CB05	Library	0.51	3,100
CB06	Community Centre	0.7*	4,850
CB09	Police Station	0.35	3,650
CB10	Fire Station	0.5	3,450
CB12	"Park" School	5	-
CB13	Sports Centre	1.75	15,340
CB14	Children and Family Centre	0.51	3,120

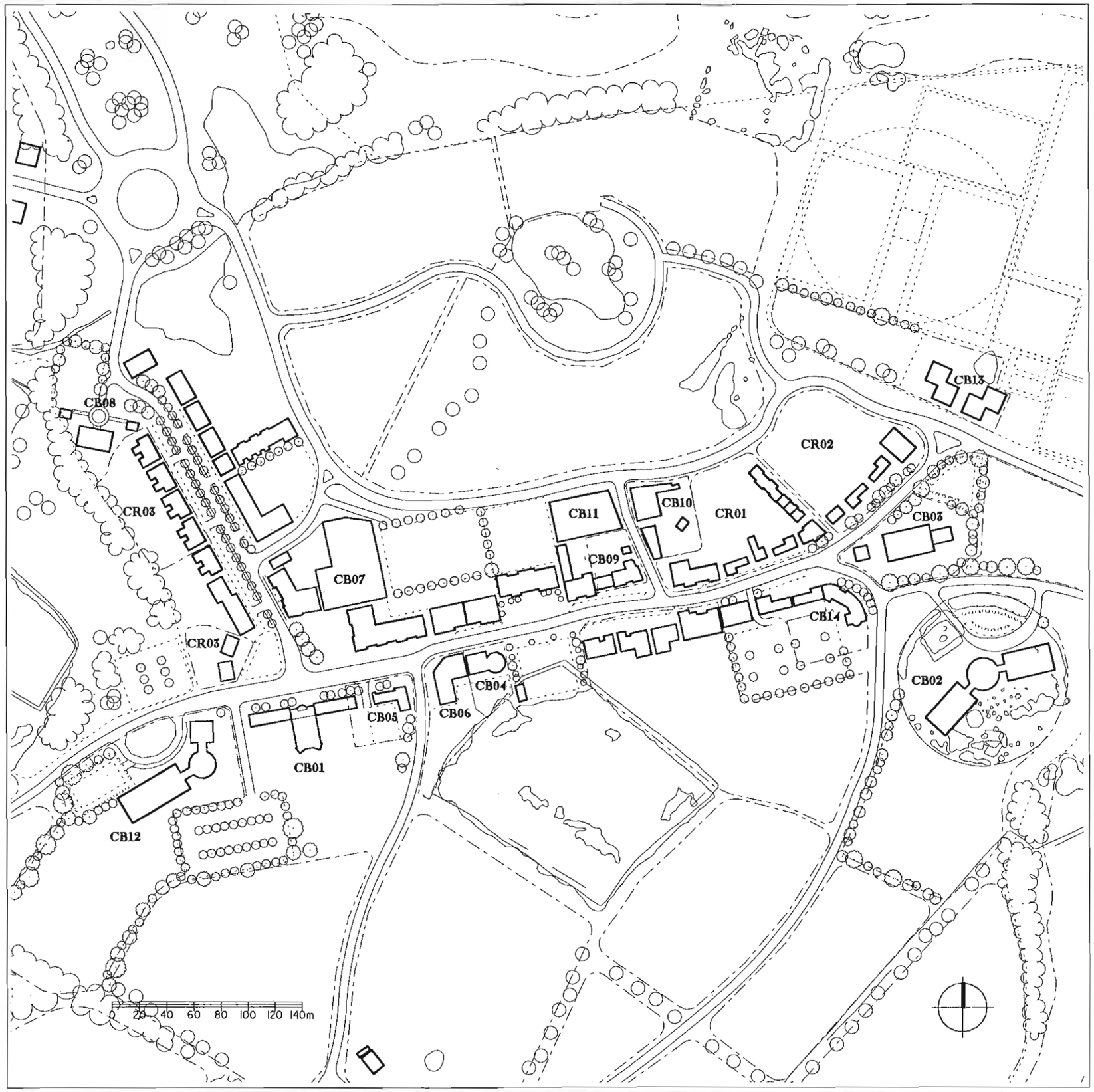
* Part of parking provision incorporated in general parking areas.

DEVELOPERS ILLUSTRATIVE PROPOSALS

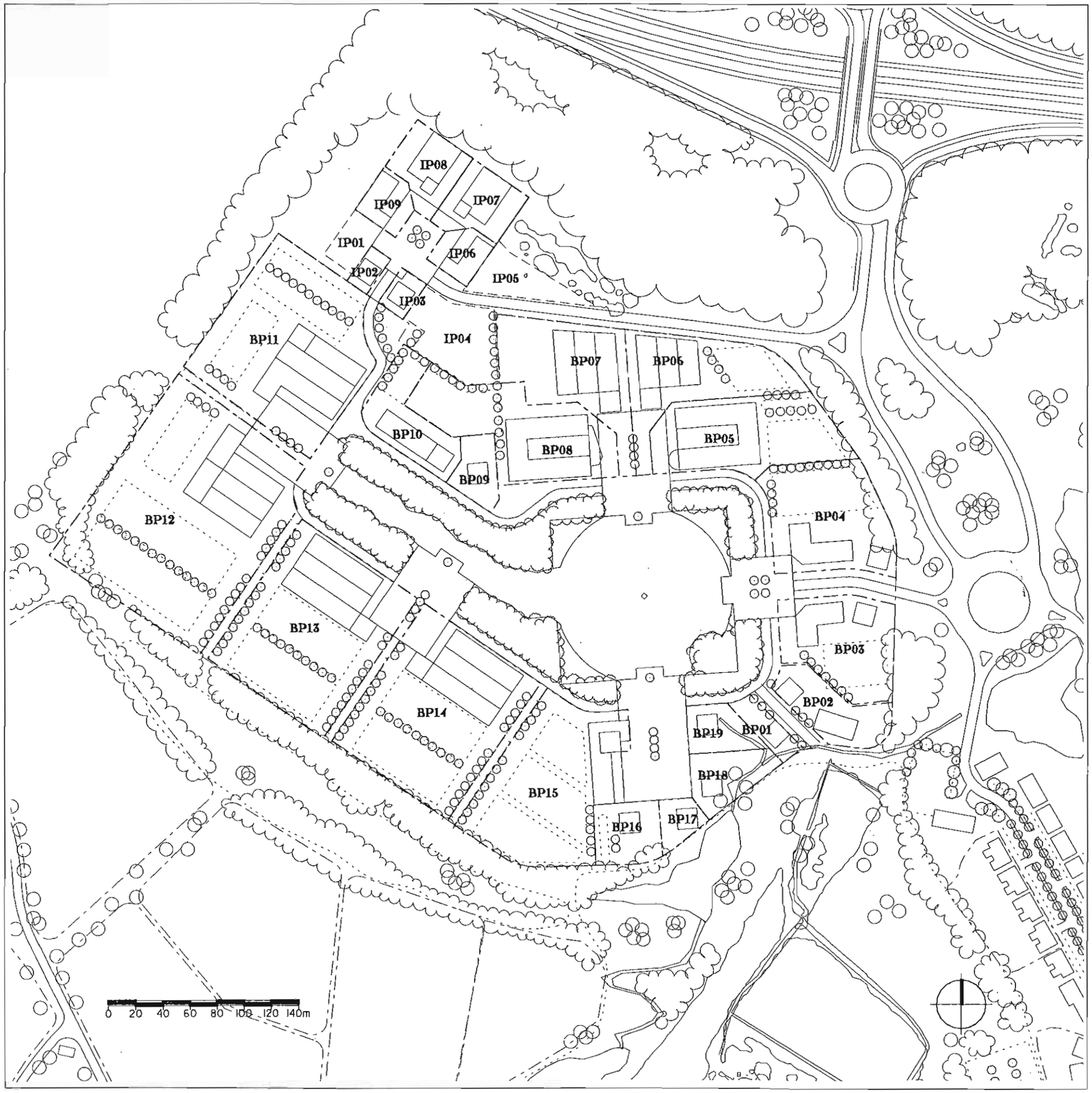
		Building Area (ft2)
CB01	Exchange/Sales Centre	9,500
CB07	Country Store	25,000
CB08	Hotel	12,000
CB11	Garden Centre	15,000
	General Retail Business/Residential	191,000
	ECOcentre	1,200

RESIDENTIAL PLOTS

Plot No	Area (Acres)	No of Dwellings	Private Housing	Social Housing	Density
CR01	1.8	47	32	15	26.0
CR02	2.0	20	15	5	10.0
CR03	1.5	40	30	10	13.2
TOTAL	5.3	107	77	30	



CAMBOURNE



PLOT FRAMEWORK
BUSINESS & INDUSTRIAL PARK

BUSINESS PARK

Plot Number	Plot Area (Acres)	Building Area (ft2)
BP01 (2 storeys)	0.25	5,000
BP02 (2 storeys)	0.70	15,000
BP03 (3 storeys)	1.35	34,000
BP04 (3 storeys)	1.70	37,500
BP05 (3 storeys)	1.75	72,000
BP06 (3 storeys)	1.55	51,000
BP07 (3 storeys)	1.55	51,000
BP08 (3 storeys)	1.85	72,000
BP09 (3 storeys)	0.40	7,500
BP10 (3 storeys)	0.80	30,000
BP11 (3 storeys)	3.25	82,500
BP12 (3 storeys)	5.00	85,000
BP13 (3 storeys)	3.15	71,000
BP14 (3 storeys)	3.15	71,000
BP15 (3 storeys)	2.60	38,000
BP16 (3 storeys)	0.55	7,500
BP17 (3 storeys)	0.25	5,000
BP18 (3 storeys)	0.55	7,500
BP19 (3 storeys)	0.40	7,500

29.75a

750,000 B1

INDUSTRIAL PARK

Plot Number	Plot Area	Building Area (ft2)
IP01 Waste Recycling Transfer	0.25	-
IP02	0.15	2,500
IP03	0.15	2,500
IP04 Trailer Storage Area	0.80	-
IP05 Trailer Storage Area	0.45	-
IP06	0.35	8,000
IP07	0.60	10,000
IP08	0.60	10,000
IP09	0.35	8,000.

3.7

32.95

41,000 B2

CAMBOURNE

PLOT FRAMEWORK PLAN OPEN LAND

CAMBOURNE

PLOT FRAMEWORK
OPEN LAND

GOLF COURSE	Area (acres)
Playing areas	153
Woodland	25
Scrub, Marsh etc	9
Edge Landscape	22
Water	9
Visitor Facilities	3.6
Driving Range	7
Total	228.6 acres

COUNTRY PARK	Area (acres)
Rough Grass and Tree Clumps	65.5
Woodland	48
Water	9
Paddocks	8
Orchard	3.6
Scrub, Marsh etc	4.8
Total	139 acres

ECO PARK	Area (acres)
Grass, Shrubs etc	10
Woodland	14.2
Water	1.5
Visitors Facilities	2
Total	27.7 acres

BUSINESS PARK	Area (acres)
Water	3.7
Ornamental	8.7
Total	12.4 acres

NATURE RESERVE	Area (acres)
Woodland	86.4
Water	0.8
Meadow	17.4
Total	105 acres

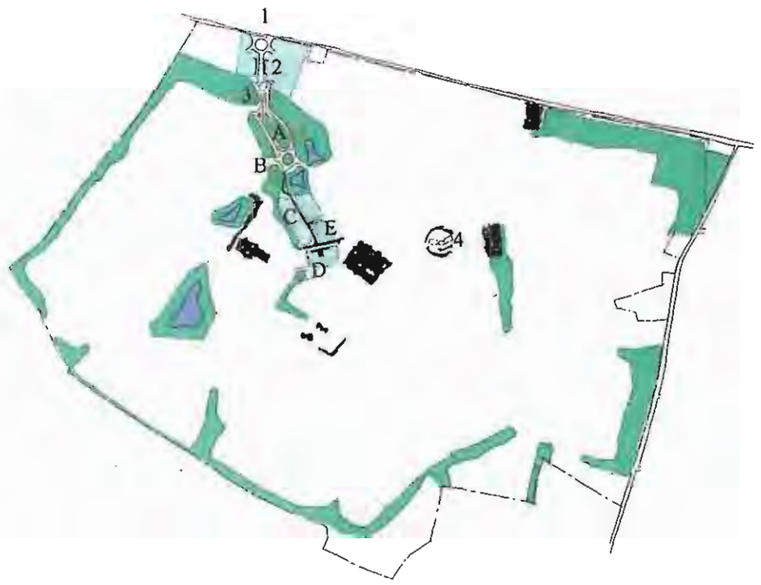
ENTRANCE AREA	Area (acres)
Water	1.8
Grass, Tree Clumps	8
Shrubs, Trees	3.7
Total	13.5 acres

ROAD ISLANDS	Area (acres)
Woodland	4.2
Grass	1.4
Total	5.6 acres

URBAN LANDSCAPES	Area (acres)
Playing Fields	22.4
School Fields	5.9
Burial Grounds	2.0
Village Greens	12.1
Town Green	0.7
Town Wood	5.2
Allotments	6
Road Verges	-
Greenways/Incidental Open Space	13
Total	67.3 acres

TOTAL OPEN SPACE **599 acres**

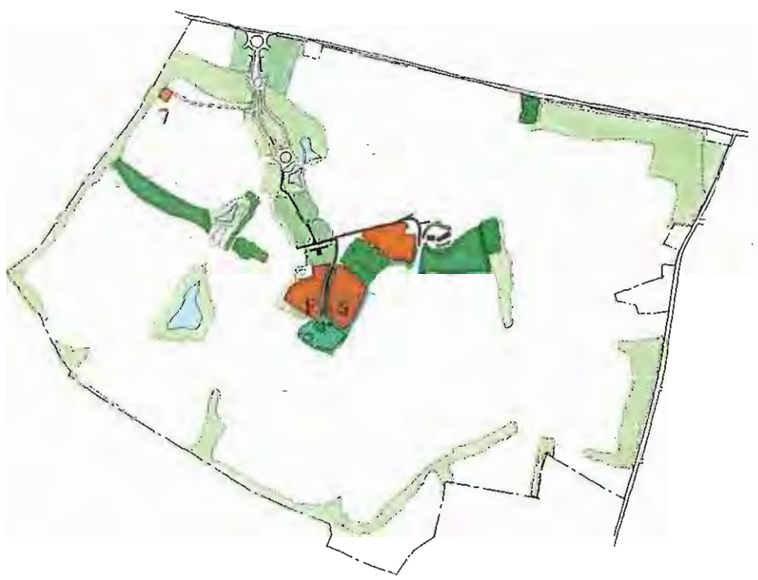
CAMBOURNE



PHASE 1 SALES CENTRE

PHASE 3 500 HOMES

PHASE 5 1000 HOMES



PHASE 2 200 HOMES

PHASE 4 700 HOMES

PHASE 6 1400 HOMES

PHASE 7 2000 HOMES

PHASE 9 3000 HOMES

PHASE 8 2500 HOMES

PHASE 10 3300 HOMES

PHASING

Residential development triggers the S.106 Requirements.
Commercial and Business development phasing is *illustrative.*

S.106 AGREEMENT REQUIREMENTS

1. Northern grade roundabout to A428
2. Bridge for grade separation
3. Southern grade roundabout to A428
4. Site for First School
5. Sewage pipeline to Uttons Drove
6. Village recycling centre
7. Waste recycling transfer centre
8. Trailer Storage Compound
9. Ecumenical Centre
10. Health Centre
11. Library
12. Community Centre
13. By-pass northern section roundabout
14. Extensions to Uttons Drove Sewage Treatment Works
15. Grade separated junction
16. Access road from Caxton by-pass to Great Cambourne
17. Allotments
18. Burial ground
19. Southern section of Caxton by-pass
20. Police Station and Fire Station
21. Site for Second School
22. Sports Centre
23. Child/Family Centre
24. Multi-purpose flood lit area

DEVELOPERS ILLUSTRATIVE PROPOSALS

A. Dual access road
B. Roundabout to Business Park
C. Access road to Great Cambourne
D. Sales Centre and Show Homes
E. Sales Centre car park
F. Village centre: Convenience Store/Public House
G. Golf Driving Range
H. 9 Hole Golf Course
J. Golf Club House
K. Country Store
L. Hotel
M. 18 Hole Golf Course

KEY

- Development this phase
- Development already complete
- Lakes this phase
- Lakes already complete
- Landscaping this phase
- Landscaping already complete
- Temporary Landscape

CAMBOURNE

OFF-SITE HIGHWAY WORK

INTRODUCTION

Planning permission for Cambourne requires the Developer to build and fund substantial improvements to the existing A428 St Neots Road, as well as to build a bypass around the village of Caxton on the A1198.

Implementation of these improvements will be phased over the duration of the new village development in accordance with conditions set out in the planning permission and to a programme agreed with the highway authorities.

Where the Developer will be responsible for designing and building new roads, these works will be carried out in accordance with detailed plans and specifications approved by the Highways Agency in the case of the A428, or by Cambridgeshire County Council in the case of the Caxton Bypass.

TRAFFIC IMPACT

The impact of additional traffic generated by the proposed development was considered carefully in extensive discussions with both the County Council and the Highways Agency.

Trip generation rates applicable to both residential and commercial development were agreed with the County Council. From these figures, and from agreed assessment of the distribution of traffic to and from Cambourne, analysis of the pattern of future traffic movement on the surrounding road network was possible. The full details of the traffic impact analysis were submitted to and agreed with the highway authorities prior to the grant of planning permission for Cambourne. Since that time, more up to date information has been obtained about present day traffic flows on both the A428 and the A1198 Ermine Street through Caxton. These present day flows are similar to the flows assumed in the original traffic assessment work, and therefore the conclusions of that work remain valid for this Master Plan.

A428 TRUNK ROAD

Improvements to the A428 trunk road will take place in three phases, all of which will be overseen by the Highways Agency on behalf of the Department of Transport (DOT).

The first phase will provide a new roundabout on the St Neots Road, close to the existing water tower, about one mile east of the Caxton Gibbet Roundabout. This roundabout will provide the main access into Cambourne and will be completed before any of the development is occupied.

After 700 houses have been built , the next stage of road improvement to the A428 will be to construct about 2km of dual carriageway bypassing much of the existing trunk road between Caxton Gibbet and The Broadway. This dual carriageway, running to the south of the existing road, will also incorporate further development of the access into the site to enable trunk road traffic to pass unimpeded past Cambourne.

For most of its length, the dual carriageway will run at about existing ground levels. At the Cambourne junction the dual carriageway will drop into a cutting about 6 metres deep to enable a bridge to be built unobtrusively across the trunk road.

This bridge, will form part of the junction into the site, and will also carry the diverted Crow Dean Bridleway across the trunk road.

The bypassed section of existing trunk road will be closed off at each end to through traffic, but will be retained and connected to the new junction to allow all vehicles access to adjoining fields and existing development.

The final phase of the A428 improvement will involve the Developer in making substantial financial contributions to the DOT to enable it to undertake road improvements to the A428 between Cambourne and Hardwick. The Developer will have no control over the scope or programming of these works, which will be the responsibility of the Highways Agency as part of its management of the trunk road network in Cambridgeshire.

CAXTON BYPASS

As development of Cambourne proceeds, a bypass on the A1198 will be built to the east of the village of Caxton. The bypass will be a single carriageway road constructed in two phases as set out in the planning conditions. Initially, these conditions also require that before 300 houses have been completed, full design details of the the bypass have to be submitted to the local authorities for their approval.

The first phase of roadworks will be to construct the northern section of the bypass, running between a roundabout on the A1198 north of Caxton and a roundabout which will form the second point of access into Cambourne. This first section will run at about ground level and will be completed by the Developer before 500 houses have been occupied.

The second and final stage of the bypass construction will be built before 1,400 houses have been occupied, and will take the bypass from the site access roundabout southwards in a deep cutting under Bourn Road before connecting back onto the A1198 to the south of Caxton. There will be a connection between Ermine Street and the bypass, but there will be no direct connection onto Bourn Road, which will bridge over the bypass. The existing alignment and level of Bourn Road will not be altered significantly, and the bridge will not affect access to existing properties on Bourn Road.

Where the route of the bypass crosses the Crow Dean Bridleway, the bridleway will be retained on its existing alignment and the bypass will bridge across it. Elsewhere, existing footpaths will cross the bypass at ground level.

LANDSCAPING

As part of the roadworks, the A428 dualling and the Caxton Bypass will both be provided with extensive landscaping not only to soften the appearance of embankments and deeper cuttings, but also to create landforms which minimise visual intrusion into the countryside. Details of the planting scheme will be prepared by the Developer, and will be agreed with the local planning authority.

TRAFFIC NOISE

It is not anticipated that there will be appreciable noise impact from the new roads upon nearby properties. Many properties, particularly those in the centre of Caxton and alongside the existing A428, will benefit from reductions in noise as the new roads move traffic away from their vicinity. In those areas where there may be a small perceptible change in noise conditions (e.g. close to the site access roundabout on the A428, and close to Bourn Road on the Caxton Bypass), the design of the new roads will include noise protection measures to ensure noise levels remain within acceptable limits.

DRAINAGE

The drainage of surface water from the A428 dualling will be partly into the existing watercouses alongside the present trunk road, and partly into the system of surface water balancing ponds to be constructed as part of the Cambourne development. The outfall for runoff from the Caxton Bypass will be into existing streams and watercourses adjacent to the bypass route. In all cases, measures to prevent oil pollution, and where necessary to control the rate of discharge into existing streams, will be agreed with the water authorities.

LIGHTING

In the interest of highway safety, all of the new junctions will be lit in accordance with current DOT standards. Elsewhere the A428 dualling and the Caxton Bypass will not be lit. New lighting will be designed in accordance with the principles set out by the DOT in its booklet "Road Lighting and the Environment" so as to minimise unnecessary spread of light beyond the highway boundaries.

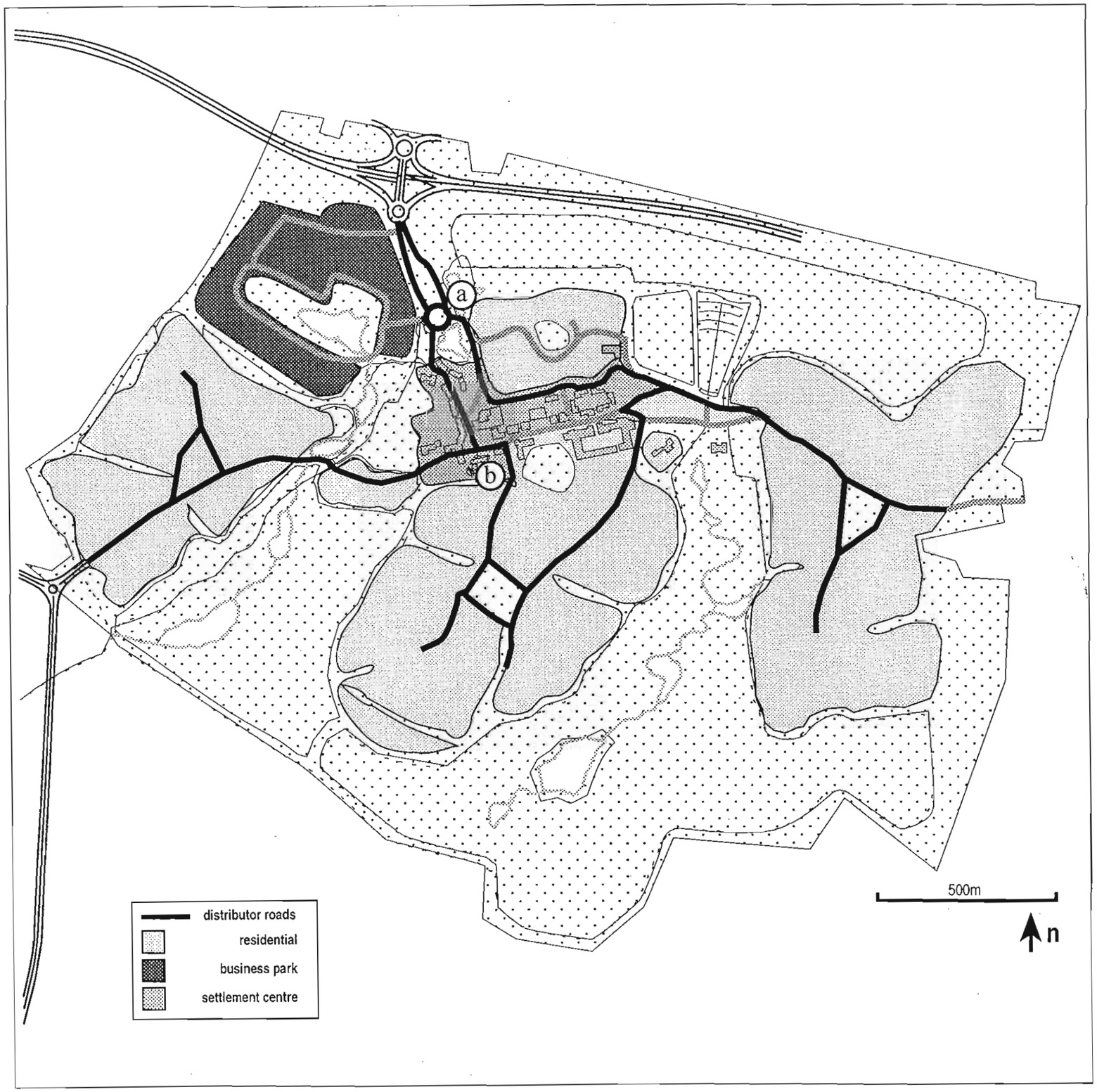
CONSTRUCTION

Both road schemes will be implemented under working procedures and restrictions agreed with the local authorities. These will be designed to ensure access to property and farms is maintained, and that any temporary inconvenience to road users, local residents and farmers is kept to a minimum.

WILDLIFE

Considerable research has taken place concerning the effect of the proposed roadworks on badger movements in the area, and both road schemes will include provision for badgers to continue to move safely across the route of the new roads.

ACCESS



ACCESS STRATEGY

In this day and age it is difficult to predict the popularity of different modes of travel and in any case these will change from time to time. There will also be the needs of visitors and the emergency and other services to take into account. Consequently most parts of the development have been provided with access facilities for pedestrians, cyclists and drivers of a variety of vehicles.

Public transport in the form of bus services has been considered within the development of the Master Plan and a bus routing proposed. By creating a route through the development we have been able to bring a large proportion of the population within the bus services catchment area, thereby increasing the viability of the services for both the operators and the customers.

The access strategy recognises the current role of the private car in our society while creating appropriate infrastucture to cater for expansion in the use of public transport modes, such as bus.

By providing a variety of convenient and attractive routes around the development, as well as make bus services readily accessible we can encourage the population to make their own choice as to the most approporiate mode of travel for each type of journey.

The access strategy recognises the need to provide roads but they will be designed to reduce the predominance of the car over pedestrians and cyclists through attention to the role of road space in the overall relationship to urban form which should induce car drivers to respect other users, their own speed and behaviour etc.

ON-SITE TRAFFIC FLOWS

The primary access to the development is from the A428 to the North. This route terminates in a large 4 arm roundabout junction, noted on the plan at 'a'. Access is provided into the business and industrial centre off the western arm of the roundabout, and from a left in left out arrangement off the northbound exit from the roundabout. This means that all traffic entering the business and industrial centre must use the roundabout, whichever access is used.

Thereafter, the access road divides into a route passing behind the retail centre to serve the Upper village and a route continuing south to a "Tee" junction to serve the remaining two villages and as an entry point to the "High Street" area; this junction is noted on the plan at 'b'.

For the purposes of the traffic flow analysis the dual and single roads have been assumed to comprise 7.3m wide carriageways.

TRAFFIC MANAGEMENT

The primary objectives of the design of the on-site road system are to minimise:-

- risks of accidents involving pedestrians and cyclists with motor vehicles.
- nuisance caused by vehicle noise, fumes and vibrations.

The detail design of the road layout will take account of the above objectives by planning to reduce vehicle speeds through use of horizontal alignment features rather than vertical features. In addition the use of weight restrictions and 20mph speed restictions will be considered if necessary to reinforce the effectiveness of the road alignments in addressing the above objectives.

CAMBOURNE

ACCESS

TRAFFIC GENERATION DATA

The basis of the initial assessments are the traffic forecasts by Tucker Parry Knowles Partnership in their Traffic Impact Assessment prepared for Alfred McAlpine Projects Limited dated 10 June 1993 and agreed subsequently with Cambridge County Council. The same trip generation rates were assumed for the residential and business park/industrial uses and the effects of the retail development were excluded on the assumption that the facilities will serve internal needs only and no external to internal trips would be generated.

The assumed vehicle trip rates were:-

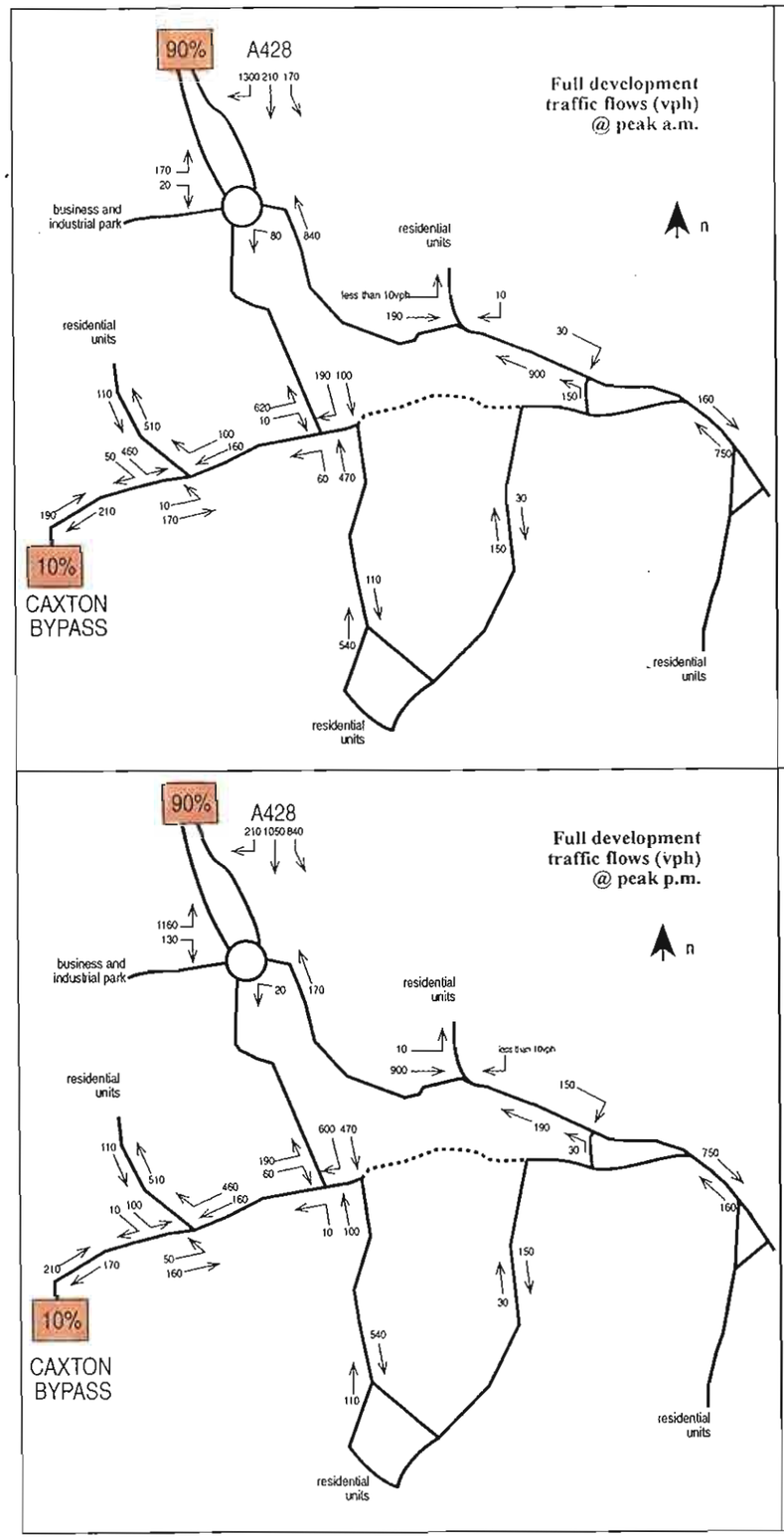
	AM Peak In	Out	Total	PM Peak In	Out	Total
(i) Residential (Per unit)	0.12	0.58	0.70	0.58	0.12	0.70
(ii) Business (per 100 sq.m GFA)	1.70	0.22	1.92	0.27	1.51	1.78

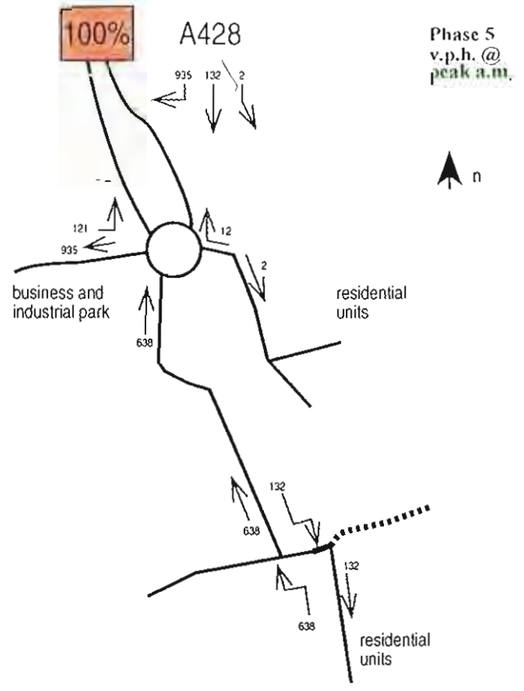
The resultant total trips for the morning and evening peak hours (08.00 to 09.00 and 17.00 to 18.00 hours, respectively) were then assigned to the internal road network.

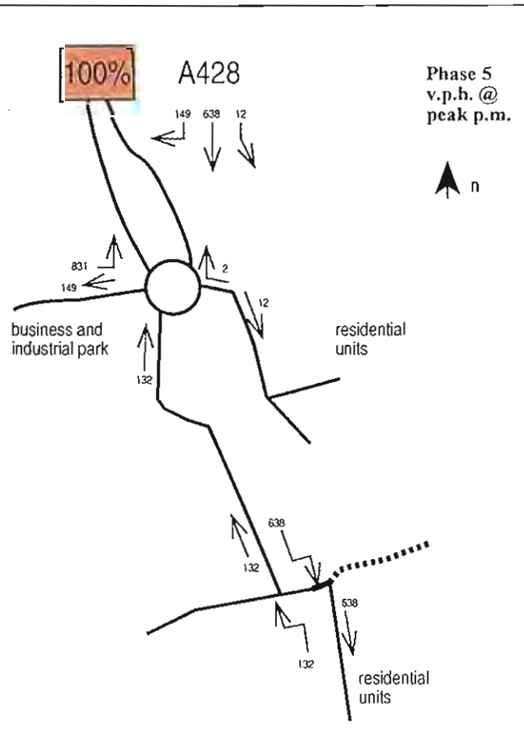
INITIAL PHASES

An analysis of the initial development phases has been carried out to confirm the acceptability of the operation of the Tee junction at the Southern end of the Broad Street without signal controls.

For this test condition it was assumed that access from the Caxton Bypass would be denied until completion of the southern arm of the bypass in phase 6.

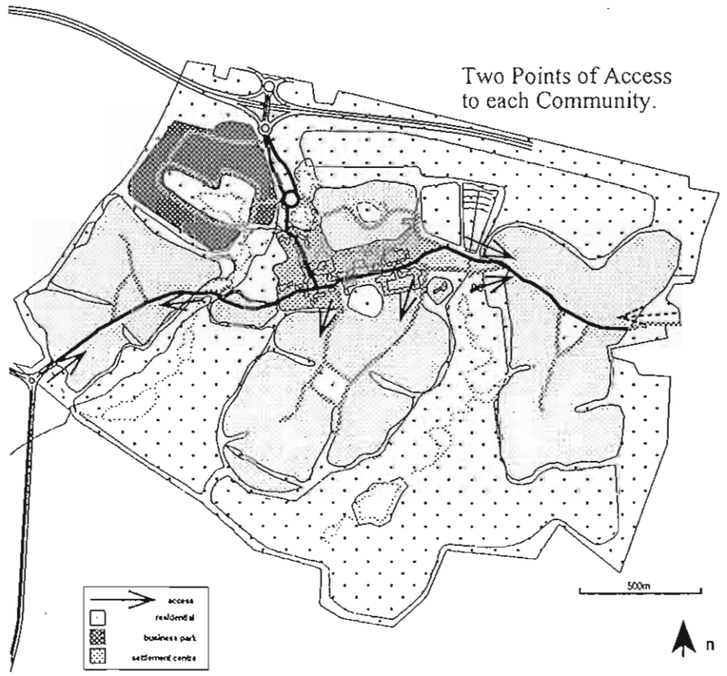


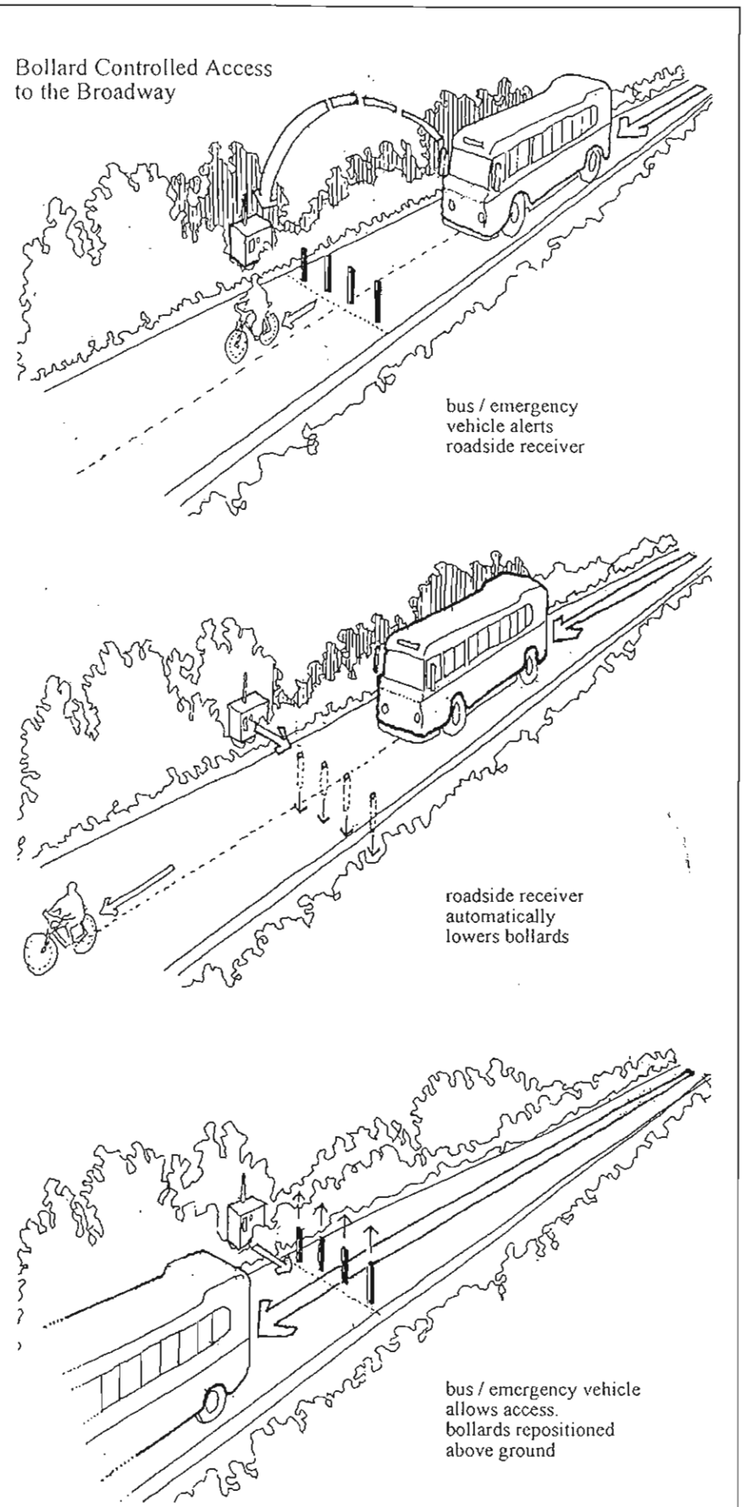




CAMBOURNE

Loop Roads within
Residential Cells





ACCESS

ACCESS: EMERGENCY VEHICLES

Residential areas could become inaccessible in, or due to an emergency. This situation has been eliminated by use of alternative means of access.

1. Loop roads within the residential cells.
2. Two points of access from the Settlement Centre into Upper and Great Cambourne.
3. Alternative access to Lower Cambourne from the Caxton By-pass.
4. Alternative access to Upper Cambourne for the Broadway, via a bollard controlled route.

Design Bulletin 32 recommendations regarding carriageway widths will be referred to during detail design stage.

RESTRICTED ACCESS ROUTES

A system of retractable bollards has successfully been implemented in Cambridge City Centre. Such an installation permits access by emergency services, public transport vehicles, pedestrians and cyclists, but prevents the passage of general motor vehicles.

Such an installation is proposed for the access route onto the Broadway.

Authorised access is obtained by using a hand held transponder linked to a road-side server.

CAMBOURNE

PUBLIC TRANSPORT SERVICE CAMBOURNE - CAMBRIDGE

STRATEGY

The aspiration of the Master Plan is to foster the permeability and convenience of public transport services, so that services can respond to changes in patronage should the operating climate change in the future.

EXISTING SERVICES

A review of the existing bus services in the area identified the following services:-

Whippet 1 passes the site on the A45 and provides around one bus per hour each way between Cambridge and St Ives with some doubling of frequency at peaks. The last bus from Cambridge to the development site is at 18.05 hours with a journey time of about 20 minutes. The operator is Whippet Coaches.

Whippet 2 operates from Cambridge to Caldecote 9 times a day, 5 of which cater for wheelchair access. The first bus in the morning from Caldecote is at 7.30 am, the last bus departs Cambridge at 17.35. No Sunday service. The operator is Whippet Coaches.

Service X3/X4 passes the site on the A45 and provides an hourly service in each direction between Cambridge and St Neots. The last bus from Cambridge is a 22:30 hours with a journey time to the site of about 15 minutes. The operator is United Counties.

Service 118/119 serves the southern side of Caxton en route between Cambridge and Gamlingay. The buses run at approximately 2 hourly intervals and the last bus from Cambridge is at 17:50 hours. No Sunday service. The operator is Cambus.

Service 120 serves the southern side of Caxton en route between Cambridge and Bassingbourn or Guilden Morden. There is one bus per day to and from Caxton operated in turn by Cambus and Andrews Coaches. No Sunday service.

PROPOSAL

A summary of the existing Whippet 1 and services X3/X4 compared to the Section 106 requirements is shown on this page.

The summary indicates that the Section 106 requirements can be satisfied by diverting services Whippet 1, X3 and X4 through the development with only a slight increase to afternoon peak services to Cambridge. The rerouting of these existing services would help to increase their viability by potentially increasing patronage and thereby encourage operators to increase the frequency of services.

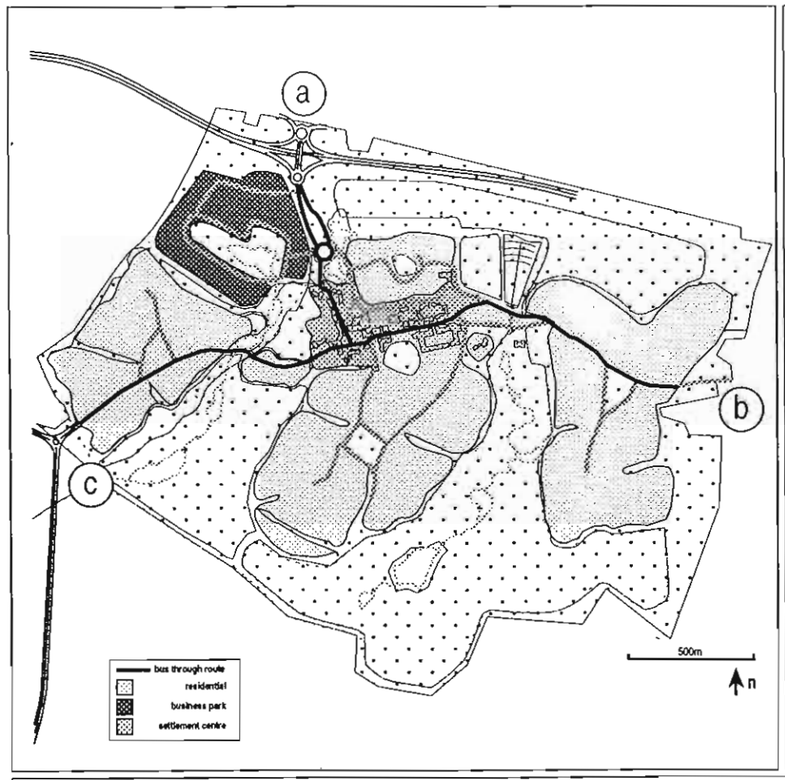
The Master Plan road layout for the completed development provides for a combination of access points which will also encourage the diversion of additional services Whippet 2, 118, 119 and 120 through the settlement, thereby offering a greater choice of services to the community. The attached site plan indicates the primary bus routes through the site, showing external access points:-

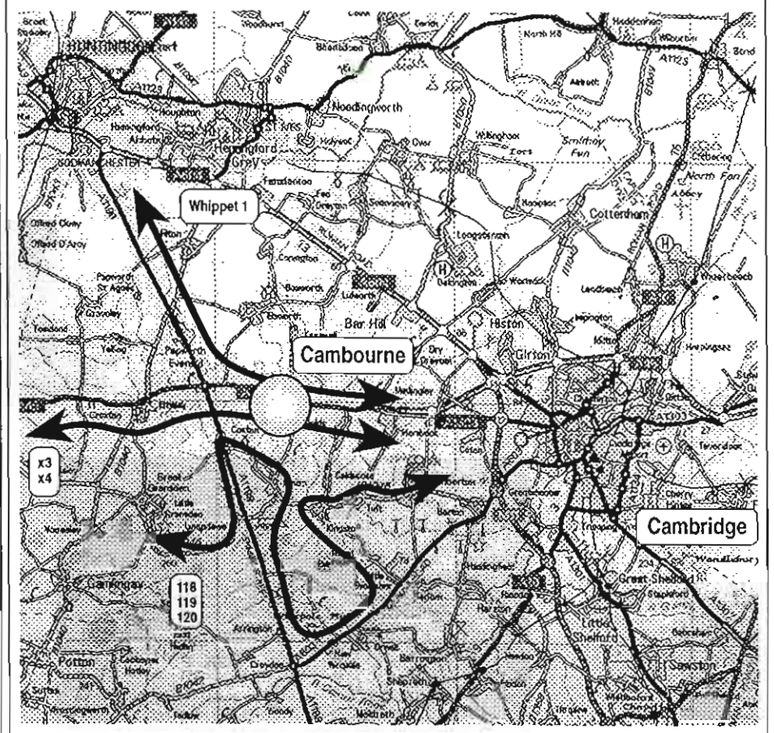
a: access to A428

b: access for bus and emergency vehicles only via transponder controlled roadway to the Broadway.

c: access to proposed Caxton Bypass.

CAMBOURNE



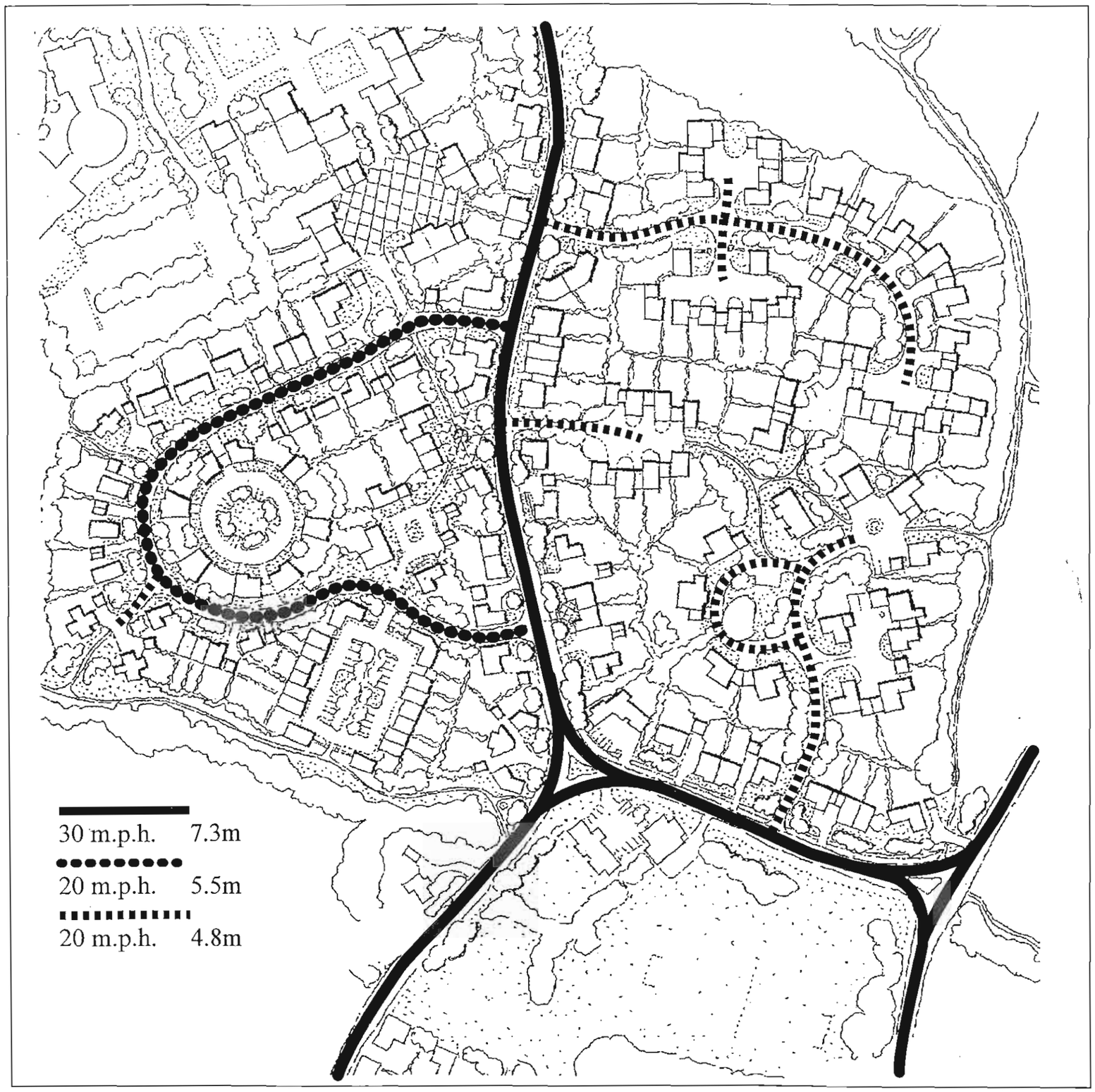


Section 106 Requirements (cl:7.6.2)				Existing Services				
Monday-Saturday:	Peak hours: 7.30-9.00	Half-hourly service	= 4No	To Cambridge: Whippet 1 / Service X3 / Total	2 / 2 / 4	From Cambridge: Whippet 1 / Service X3 / Total	2 / 2 / 4	1
	Off-peak: 9.00-16.00	Hourly service	= 7No	To Cambridge: Whippet 1 / Service X3/X4 / Total	4 / 8 / 12	From Cambridge: Whippet 1 / Service X3/X4 / Total	5 / 8 / 13	1
	Peak hours: 16.00-18.00	Half-hourly service	= 4No	To Cambridge: Whippet 1 / Service X3/X4 / Total	2 / 1 / 3	From Cambridge: Whippet 1 / Service X3/X4 / Total	2 / 3 / 5	2
	Off-peak: 18.00-20.00	Two-hourly service	= 1No	To Cambridge: Whippet 1 / Service X3/X4 / Total	0 / 2 / 2	From Cambridge: Whippet 1 / Service X3/X4 / Total	1 / 1 / 2	1
Sundays	10.00-18.00	Two-hourly service	= 5No	To Cambridge: Whippet 1 / Service X3 / Total	4 / 4 / 8	From Cambridge: Whippet 1 / Service X3 / Total	4 / 3 / 7	1

Comments Key:

1 Existing services adequate provided they divert onto the site.

2 Existing service to Cambridge inadequate, to meet Section 106 requirements.



ROADS

DESCRIPTION

The Master Plan indicates the layout of the principal roads within the development. These will be developed into a detailed design as each phase of the development is progressed.

The attached plan indicates the proposed hierarchy of roads and speed limits in a typical residential area.

DESIGN STANDARD

All estate roads will be offered to the County Council for adoption, approved construction details to satisfy a Section 38 agreement will be produced as part of the detail design of the roads.

The Design Guide for Estate Roads in Cambridgeshire, Parts 1 and 2, will be guidance on the geometric and pavement design and specification for the road works, except for the dual carriageway where reference will be made to DOT guidance, Roads and Traffic in Urban Areas and DOT specification for Highway Works.

It is the design team's intention that for speed limits/traffic calming, horizontal alignments will be used in preference to vertical features. Design Bulletin 32 provides guidance on the measures that can be followed in detail design to physically impose speed restrictions on the vehicles using the residential roads.

DRAINAGE STRATEGY

CCC design guide sets out the design criteria for the road drainage, requiring a capacity equal to 25mm/hr rainfall and for self cleansing velocities in the pipes. Road drainage will be provided generally by trapped gullies and routed to discharge into the development surface water system. Large parking areas and areas of increased risk of pollution will be passed through interceptors. The surface water system discharges via flow attenuation ponds in the west and east valleys and then to Bourn Brook. Reed beds will be installed at each outfall location to filter the discharge before entry to the pond system.

ROAD LEVELS

The development is generally flat with existing ground sloping at 1 in 700 in the vicinity of the southern roundabout. To the east the land is relatively steep and with slopes as steep as 1 in 30. The minimum road gradients are generally not prescribed in the design guides, and the road can be virtually flat if needed. To facilitate road drainage it is desirable to provide a minimum longitudinal fall of 1 in 200, to achieve this on flat roads, some treatment may be required to depress the drainage channels to locally fall to the drainage gullies. These details will be considered at detailed design stage.

SITE INVESTIGATION

A site investigation at selected locations along the line of major roads and known ditches/existing features will be undertaken prior to the commencement of detail design of the road system.

CAMBOURNE

JUNCTION ASSESSMENT

ROUNDABOUT

The analysis of the operation of the access roundabout during full development conditions, was undertaken using the proprietary assessment program, ARCADY3.

For this preliminary assessment, it was assumed that all traffic entering and leaving the business and industrial park would use the western arm of the roundabout, and not the left in, left out arrangement on the northbound exit of the site. In addition, to ensure a "worst case" scenario, the flows leaving the business and industrial park from the western arm of the roundabout were increased by 10% for both peak hour periods.

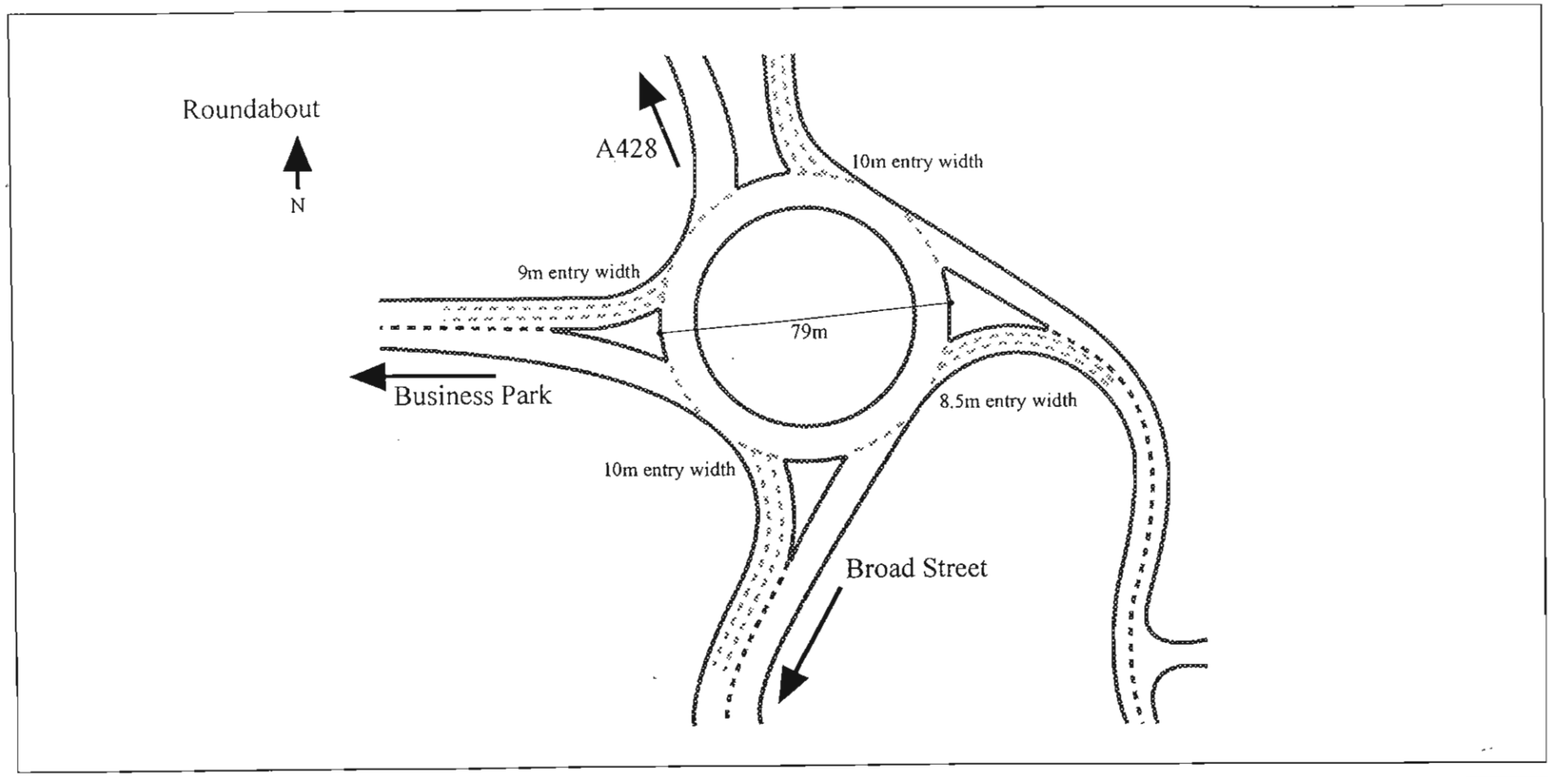
The results show that, apart from the southern approach arm in the AM peak, the roundabout operates well within capacity. With reference to the full ARCADY3 output for the middle half an hour of the AM peak gives a maximum of 22 vehicles queuing during this time. This quickly dissipated to just 1 vehicle over the next half hour, hence in practice the queue time per vehicle is only a few minutes. This is a theoretical worst case prediction and in reality daily variations of drivers start times and travel behaviour will significantly reduce this relatively short duration peak queue.

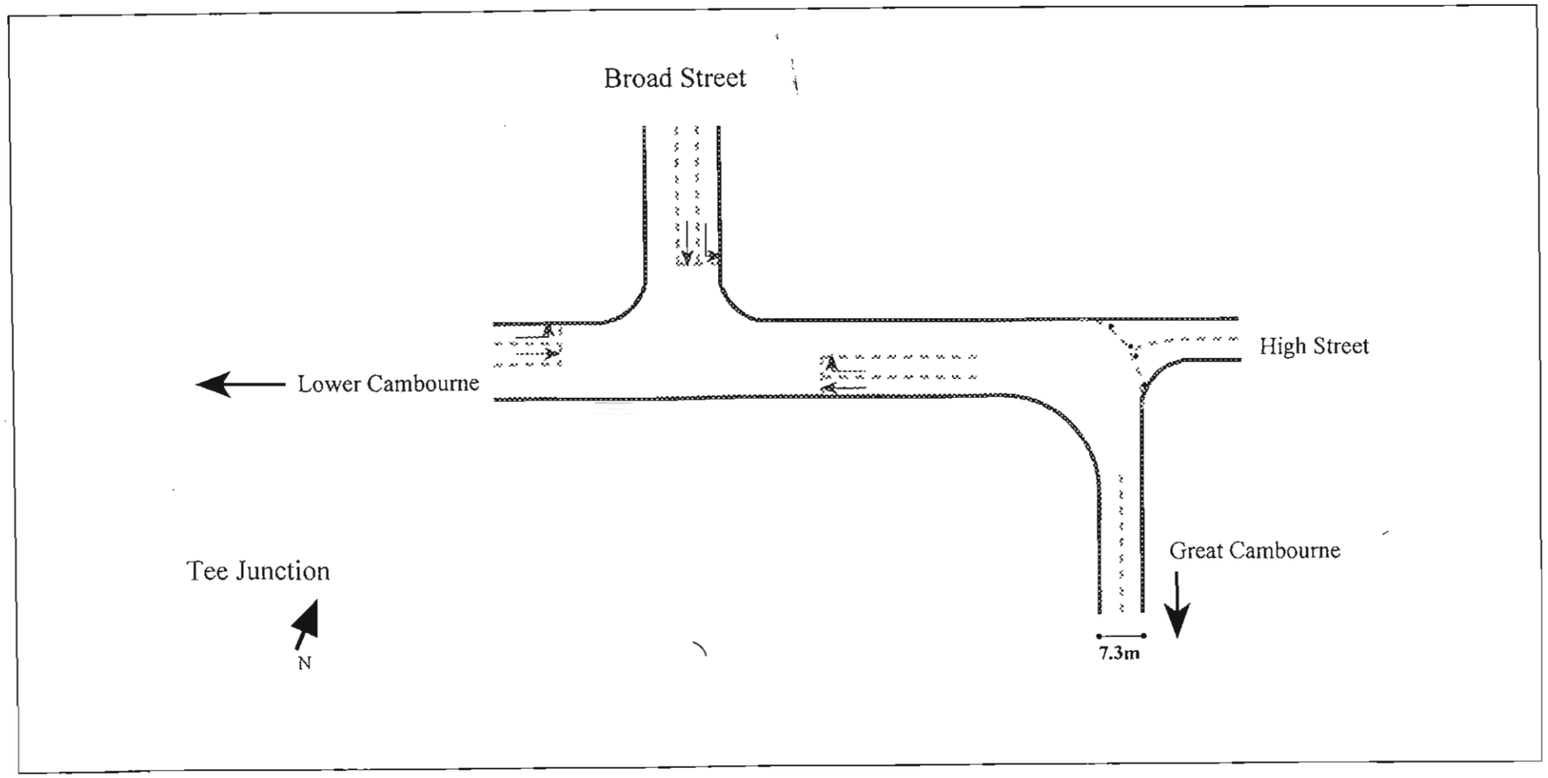
The figure opposite shows an example of a layout for the access roundabout. With an inscribed circular diameter of 79m. This example satisfies both capacity and geometric requirements, but will be the subject of further assessment during the detailed design stage.

TEE JUNCTION: BROAD STREET/HIGH STREET

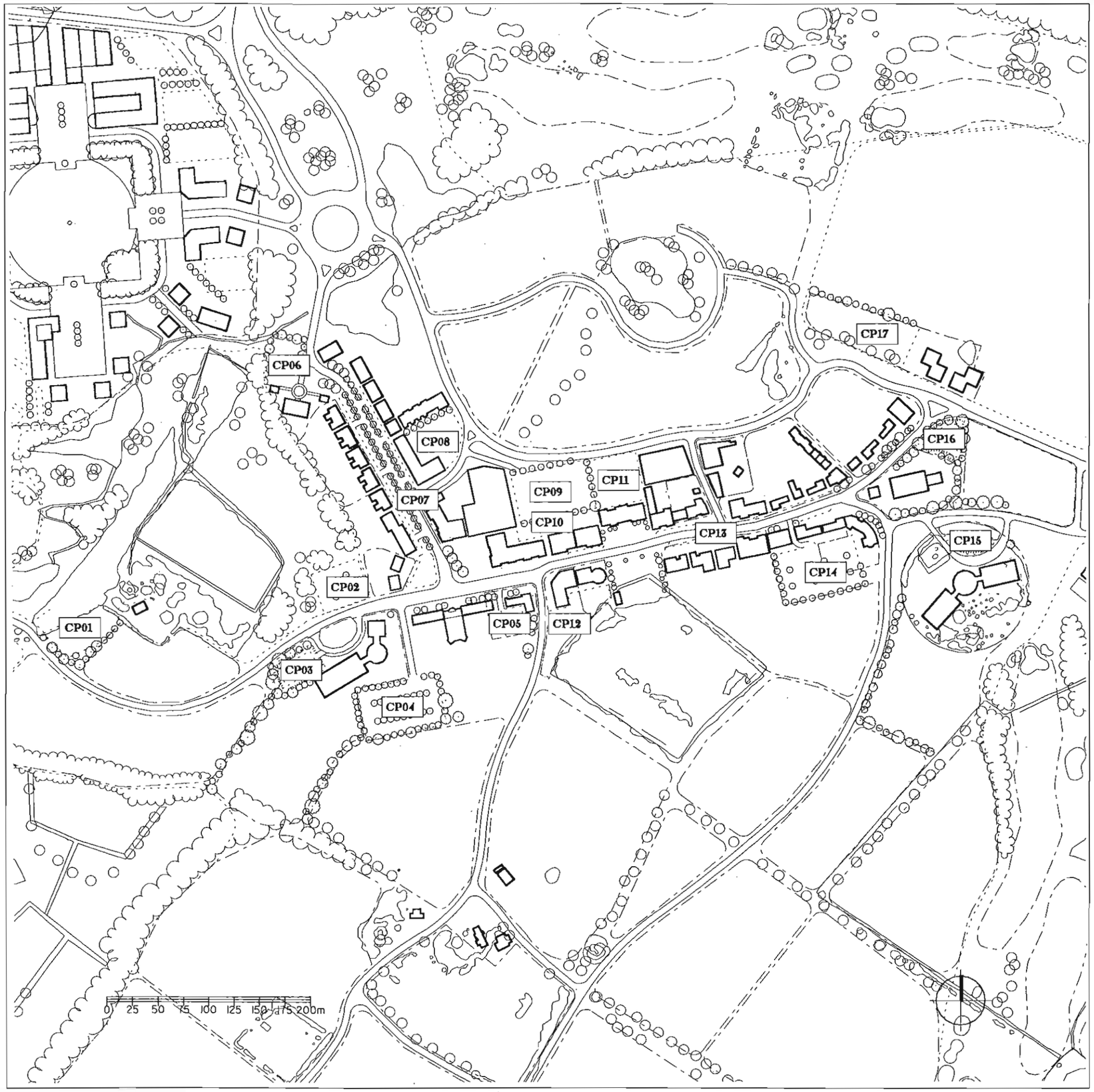
The initial analysis of the "Tee" junction arrangement with full development conditions confirmed that a simple priority control method would not be satisfactory. We then assessed a possible configuration using traffic signals using the proprietary design program, OSACDY. A satisfactory layout emerged from the analysis and is shown opposite.

We also considered the implications of traffic conditions resulting from a phased development. In our opinion there will be scope to introduce the signal controlled "Tee" junction in a phased manner since, during initial phases, there will be very few turning movement conflicts and although it may be appropriate to build out the junction form to the final scale it will not be necessary to provide the traffic signals.





CAMBOURNE



CAR PARKING SETTLEMENT CENTRE

The car parking provided throughout the settlement centre is based on the planning standards set out by SCDC. Parking is provided for the community buildings as set out in the S106 agreement.

It should be noted that although specific car parking numbers have been allocated for each building type, the actual car parking numbers are provided as a total throughout the centre. Some buildings may share car parking while some buildings require daytime parking, others evening parking.

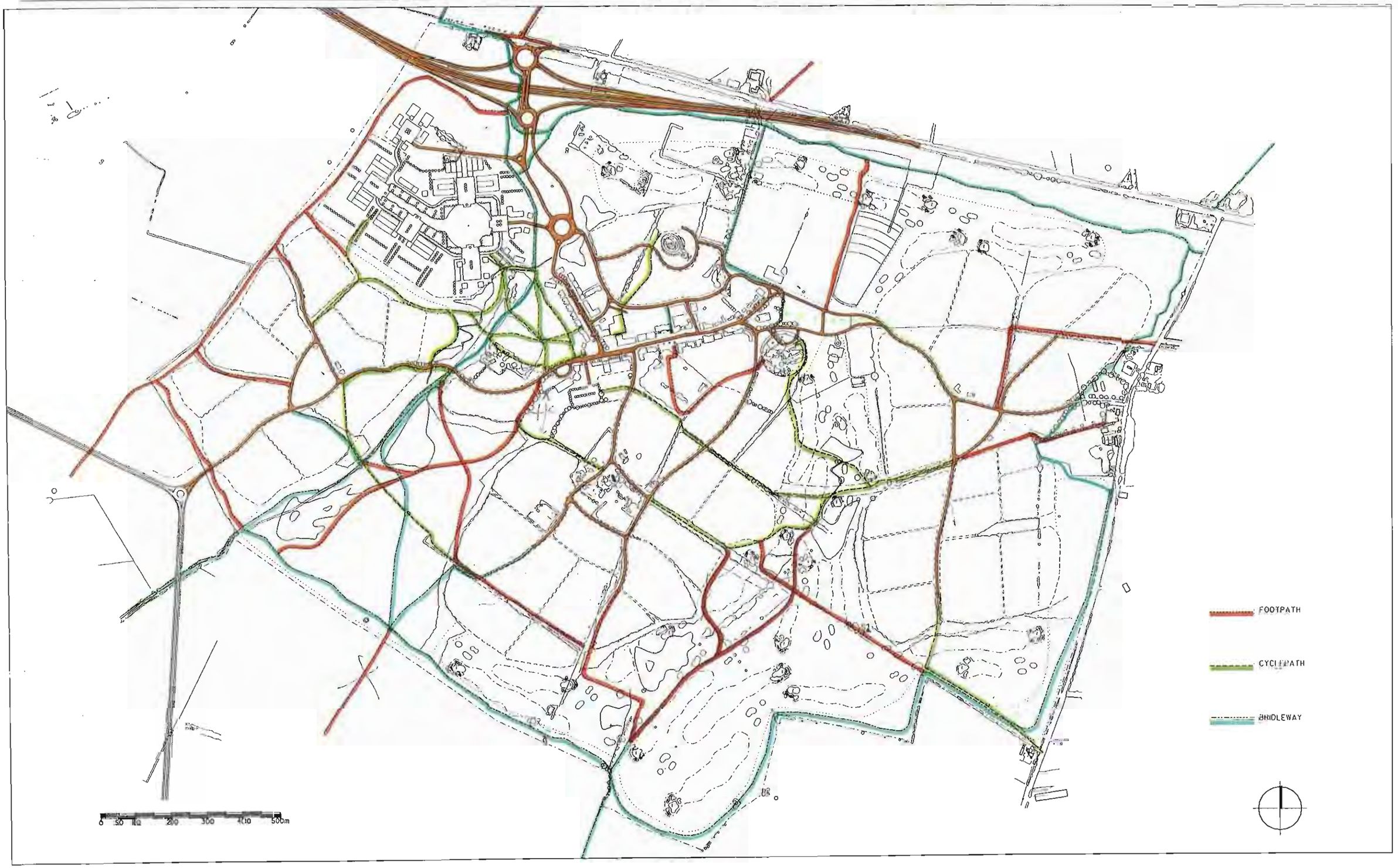
Car Parking Requirements based on SCDC Planning Standards are:

Building Type		No. of Spaces
Bank, Building Society, Post Office		33
Hotel		60
Pubs -	small	20
	large	53
Restaurants, cafe's, take-aways		120
Retail -	country store	270
	garden centre	160
	small shops	80
Ecumenical Centre		50
Health Centre		30
Community Centre		75
Library		30
Sales Centre		100
Family Centre		15
Schools		100
Ecological Centre		20
Sports Centre		144
Total		**1360**

Car Parking Provided is:

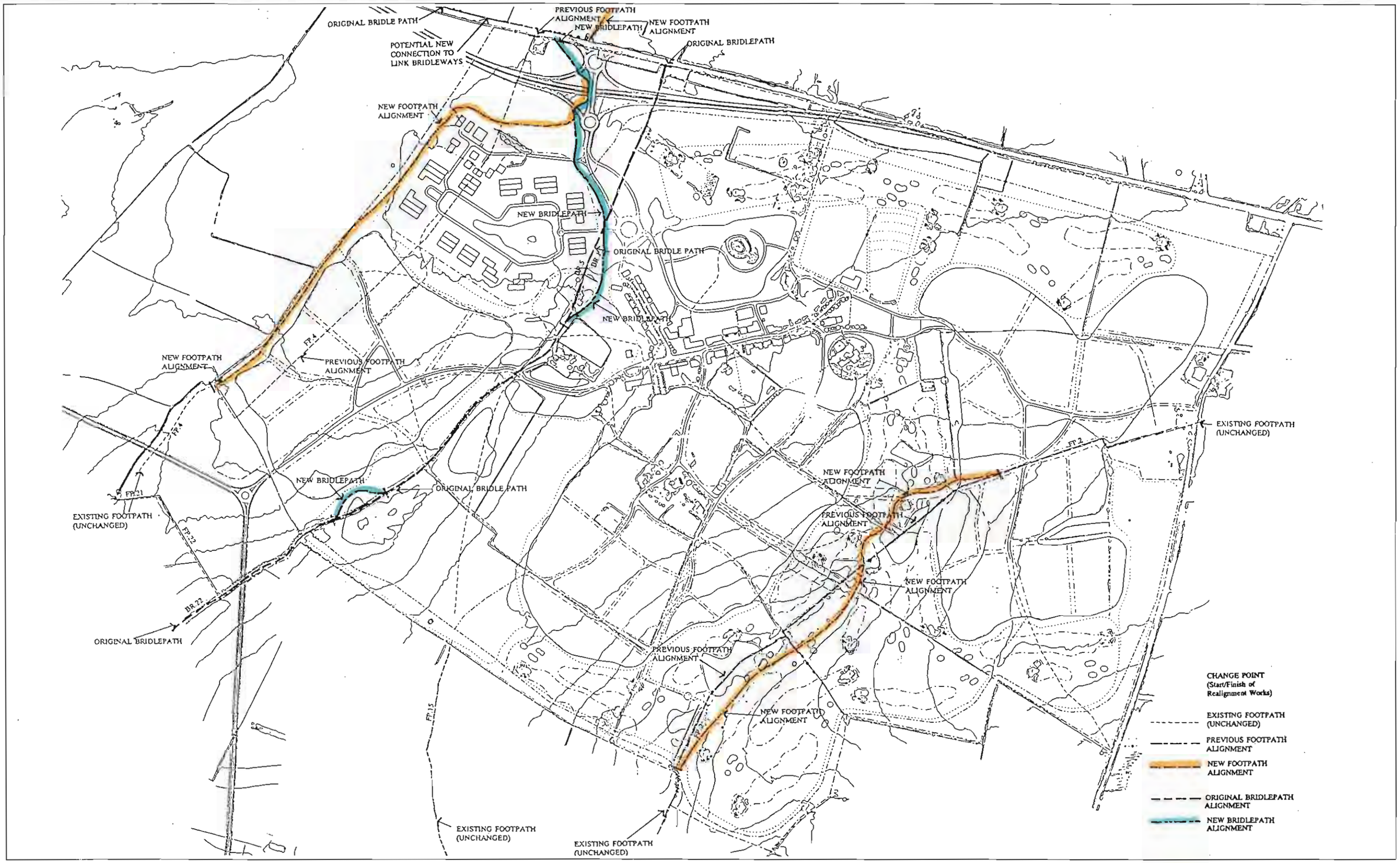
Car Park	No. of Spaces	Car Park	No. of Spaces
CP01	50	CP10	58
CP02	84	CP11	90
CP03	42	CP12	68
CP04	180	CP13	78
CP05	21	CP14	160
CP06	64	CP15	30
CP07	75	CP16	42
CP08	79	CP17	~~13~~ 180
CP09	162		
		Total	**1360**

CAMBOURNE



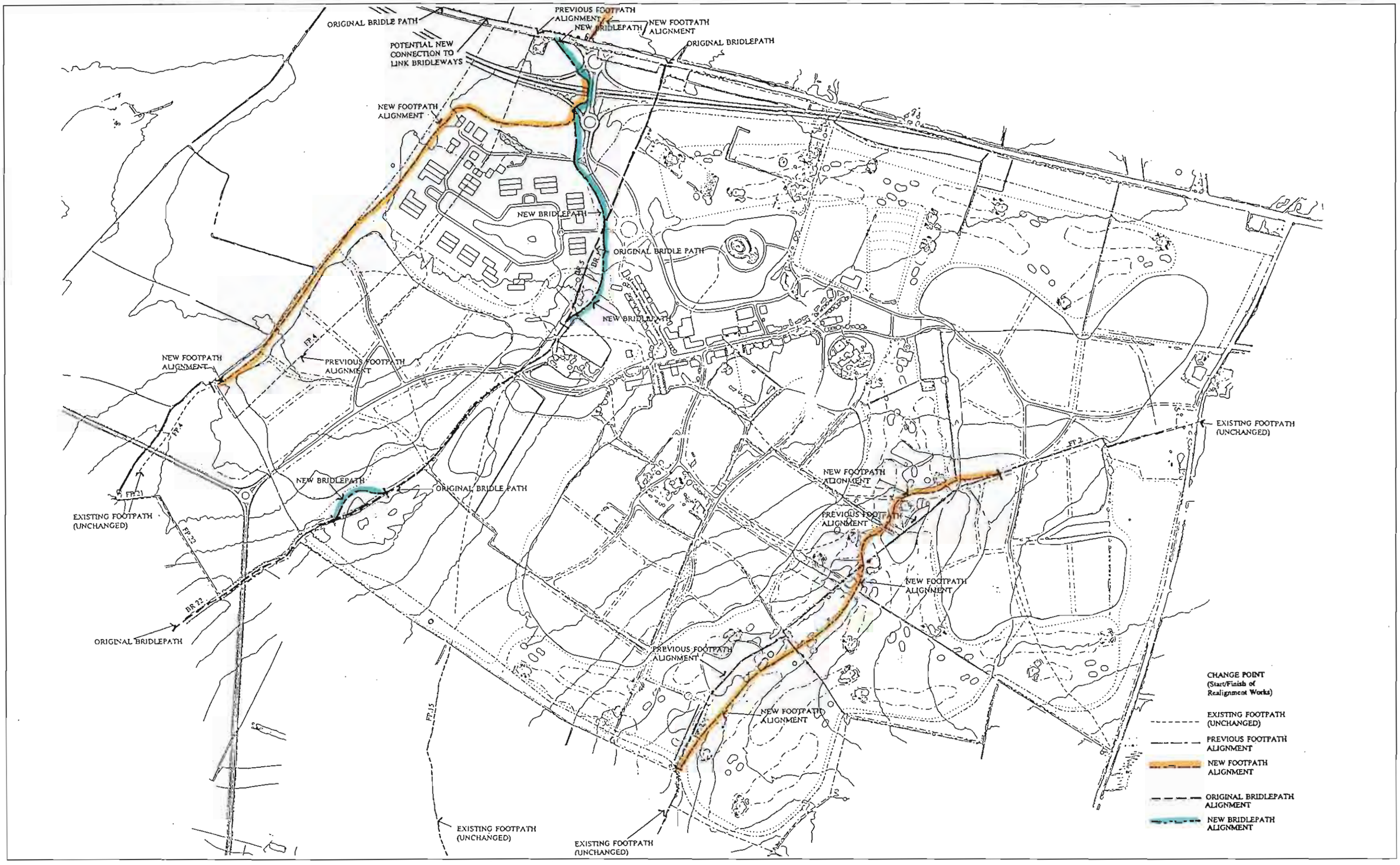
PEDESTRIAN, CYCLING AND BRIDLEWAY ROUTES

CAMBOURNE



PUBLIC FOOTPATH/BRIDLEWAY DIVERSIONS

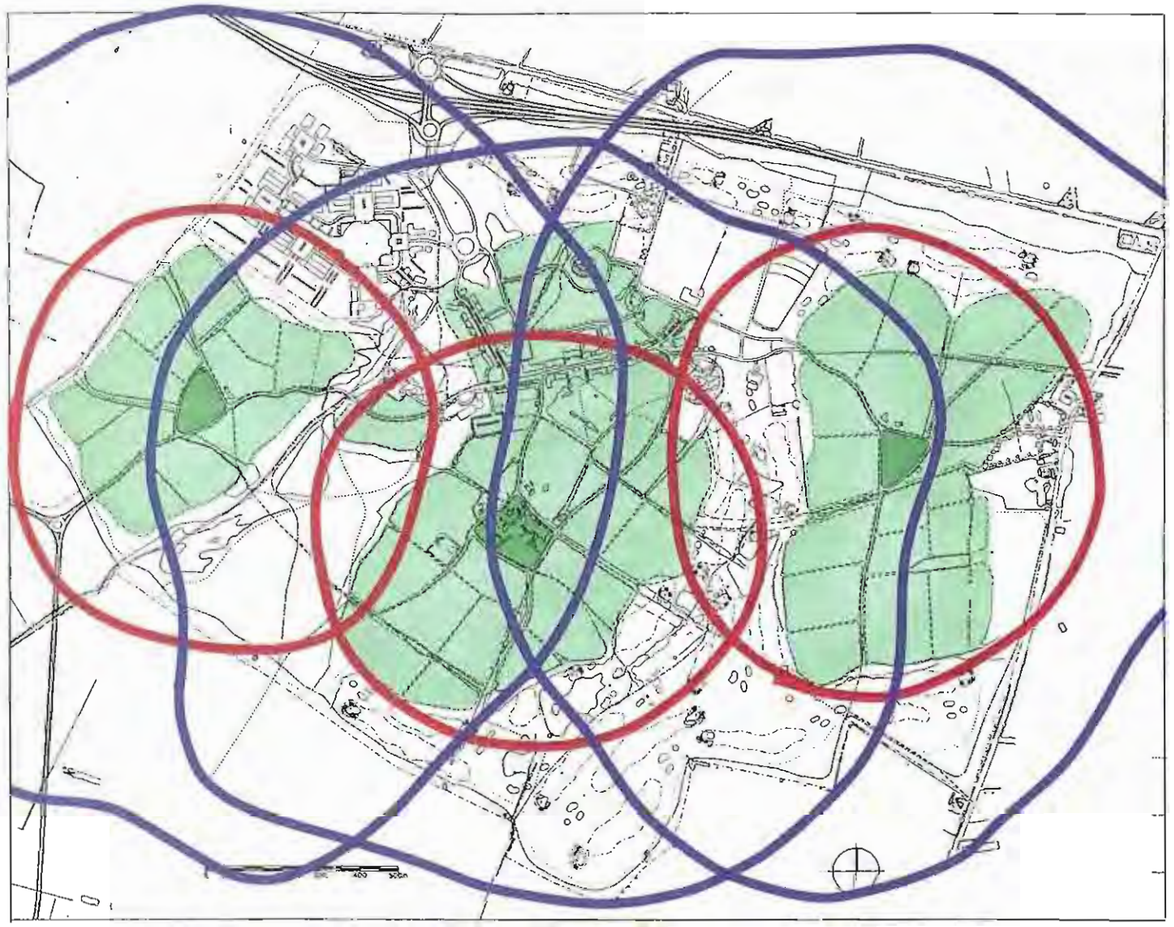
CAMBOURNE



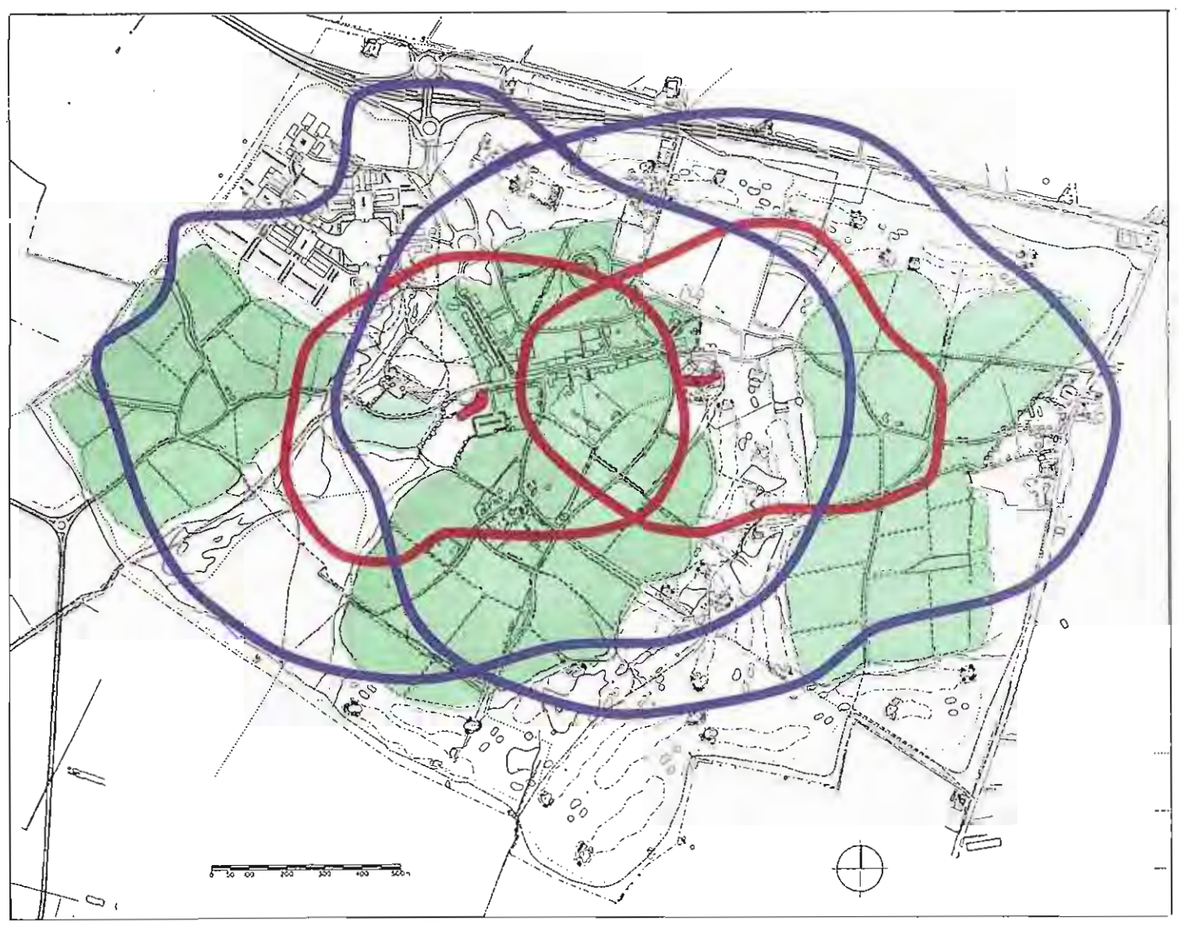
PUBLIC FOOTPATH/BRIDLEWAY DIVERSIONS

CAMBOURNE

WALKING DIAGRAM - VILLAGE CENTRED



WALKING DIAGRAM - SCHOOL CENTRED



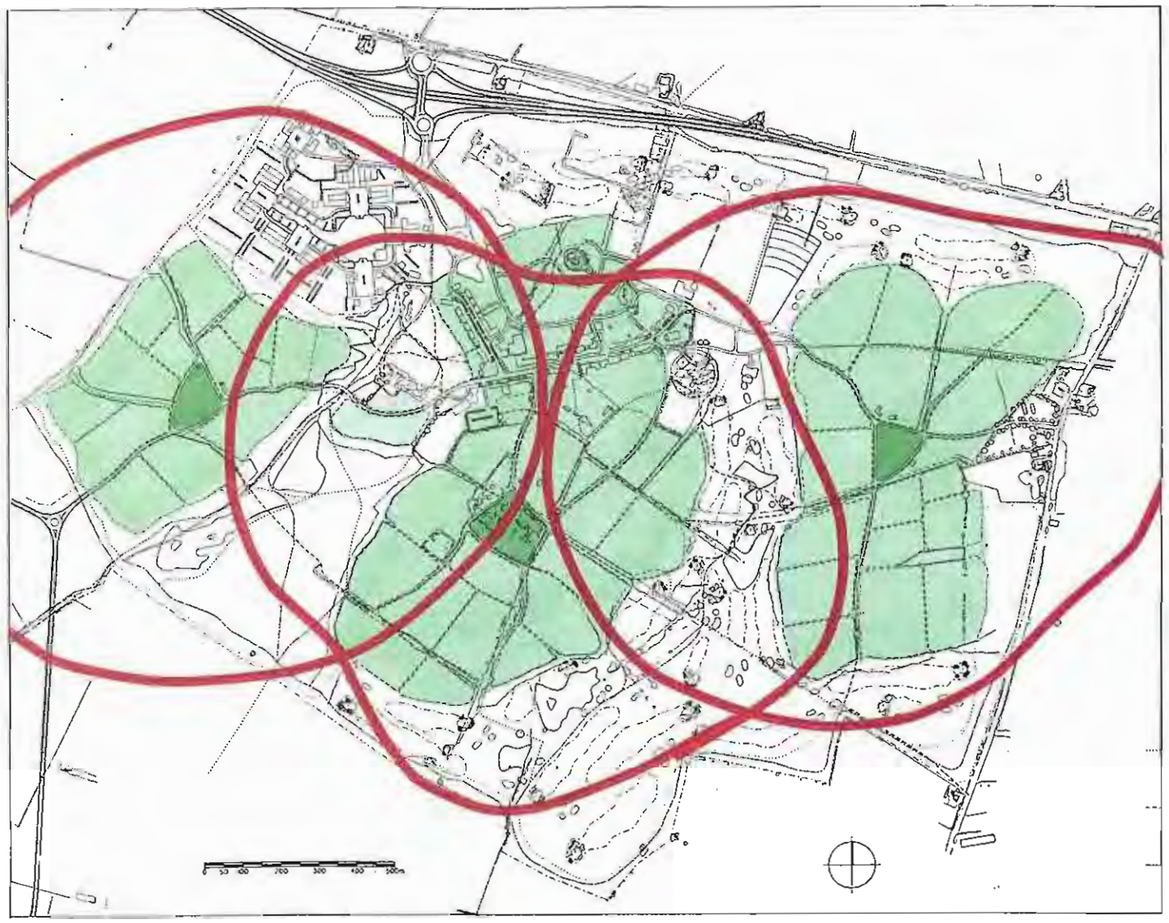
DENOTES 5 MINUTE TRAVEL LIMIT

DENOTES 10 MINUTE TRAVEL LIMIT

WALKING DIAGRAMS

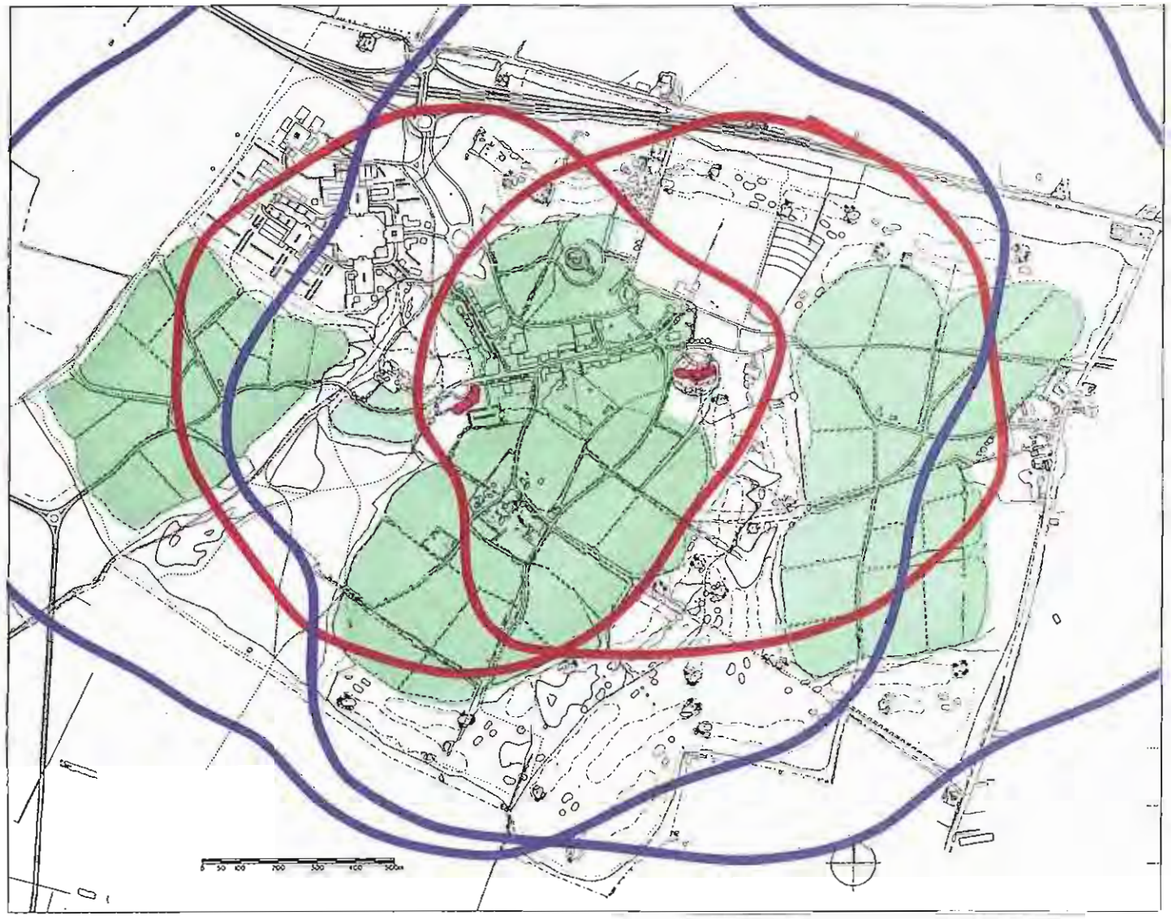
CAMBOURNE

CYCLING DIAGRAM - VILLAGE CENTRED



DENOTES 5 MINUTE TRAVEL LIMIT

CYCLING DIAGRAM - SCHOOL CENTRED



DENOTES 10 MINUTE TRAVEL LIMIT

CYCLING DIAGRAMS

CAMBOURNE

INFRASTRUCTURE SERVICES

GAS SUPPLY

- **Strategy For Supply**

STRATEGY FOR SUPPLY

Currently no gas supply is available in the Cambourne area. It is proposed to supply Cambourne by piping from the existing distribution network.

Gas will be supplied by bringing a main from the existing intermediate pressure main in the A604 across country over a distance of approximately 7km to provide capacity for the whole development.

OFF-SITE MAINS

Provision of a supply requires an off-site main across agricultural land from the A604 entering the Cambourne development at the main A428 site access.

OFF-SITE REINFORCEMENTS

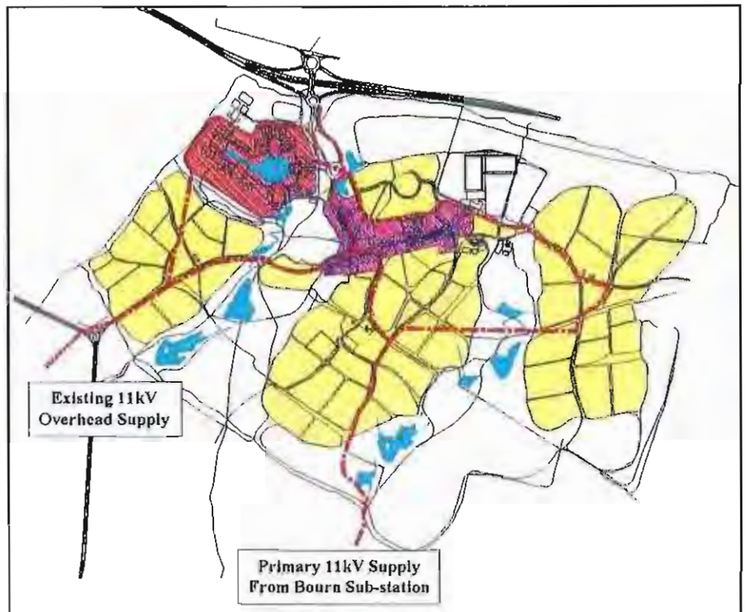
Other than the off-site mains noted above, no other off-site reinforcements are envisaged.

ON-SITE MEDIUM PRESSURE NETWORK

Will entail a medium pressure main being laid east to west through the primary routes of the three villages.

PRESSURE REDUCING STATIONS (PRS)

Pressure reducing stations will be required within the Cambourne development, to interface between the medium and low pressure systems. These are normally above-ground structures approximately 3m x 3m square.



ELECTRICITY SUPPLY

- **Existing Supply**

ON-SITE LOW PRESSURE DISTRIBUTION

Within the three village developments and the business park, gas will be distributed via a low pressure network of mains laid within adoptable highways.

EXISTING SUPPLY

An 11kv overhead supply runs from Caxton Village across Cambourne development site along the Crow Dean Track. To the south of Cambourne at Caxton Road, Bourn is a 33/11kv primary Sub Station.

INITIAL REQUIREMENTS

Initial supply to the site access roads and show area/village settlement could be provided from the existing 11kv overhead lines. These lines could be grounded in advance of incorporation into the future ring main of Cambourne.

DIVERSION WORKS

The existing 11kv overhead lines and two further low voltage crossings to the A428 will require diversion.

STRATEGY FOR SUPPLY

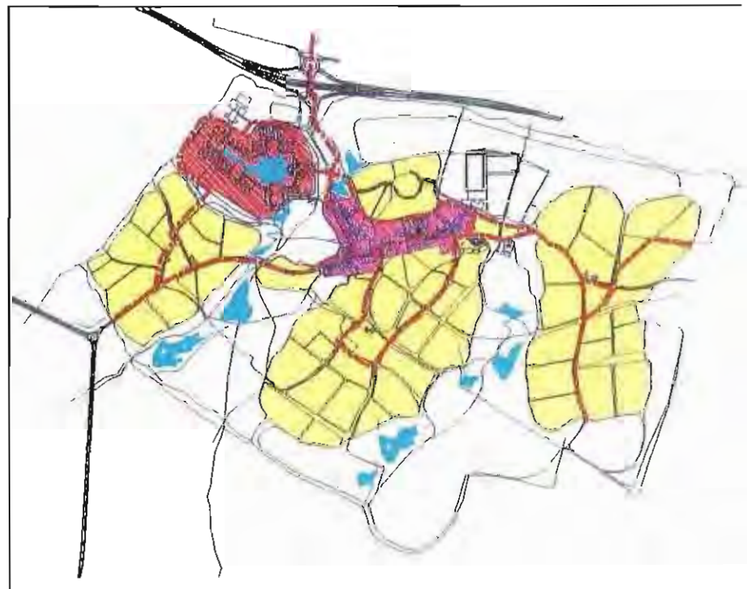
Cambourne will be supplied on an 11kv ring main fed from the primary Sub Station at Bourn. Phased development could be supplied without the whole ring main being in place. Security of supply will be guaranteed by temporary backup ring mains.

PRIMARY 33KV SUPPLY FROM CAXTON SUB STATION

High voltage cables will be routed into Cambourne from the primary Sub Station at Bourn via easements to be establish by Eastern Electricity.

RING MAIN AND SECURITY OF SUPPLY

Security of supply will be guaranteed by the provision of ring main networks which will evolve with the phased development. Modern developments in switch gear technology and the provision of Sub Stations within the mains network will ensure that supply is always maintained.



TELECOMMUNICATIONS SUPPLY

- **Strategy For Supply**

STRATEGY FOR SUPPLY

Cambourne will be served by both British Telecom and Cambridge Cable who own the Cable Television Franchise for the Cambridge area.

BRITISH TELECOM

BT are able to provide services to the whole of Cambourne without the need for a new telephone exchange.

CAMBRIDGE CABLE

Cable television and alternative telephone supply can be provided to the whole of Cambourne.

ENERGIS

A third telecommunications operator has existing plant in the vicinity but will not be involved in the development.

DIVERSION WORKS

BT, Cambridge Cable and Energis all have existing fibre optic or copper cables in the A428. All necessary diversion works or protection to existing plant will be undertaken.

KIOSKS

BT and Cambridge Cable will install kiosks as part of the distribution networks.

ON-SITE NETWORKS

Comprehensive networks of telecommunications ducts will be installed throughout the 3 village settlements and the business park, in accordance with NJUG guidelines and the New Road and Streetworks Act 1991.

ADVANCES IN TECHNOLOGY

BT and Cambridge Cable are able to provide telephone links for computer users.

CAMBOURNE

FOUL DRAINAGE

SURFACE WATER DRAINAGE

WATER SUPPLY

- **Foul Drainage Strategy**

FOUL DRAINAGE STRATEGY

A new gravity drainage system will be constructed for each of the three villages, discharging into three new pumping stations, one for each catchment. Effluent will be pumped to a primary pumping station located between Great Cambourne and Lower Cambourne. From the primary pumping station, twin rising mains will be routed northwards across country to outfall at the existing Uttons Drove Sewage Treatment Works.

PRIMARY ON-SITE PUMPING STATION

This will receive effluent from the three secondary pumping stations and also be fed by gravity from the northern catchment areas of the site. The pumping station will comprise a buried structure to house the pumps and valve gear with a small workshop building roughly the size of a double garage.

OFF-SITE RISING MAINS

The route of the twin rising mains across country will be established with Anglian Water using their statutory powers under Section 30 of the Anglian Water Authority Act (1977) to negotiate easements and agree compensation.

UTTONS DROVE SEWAGE TREATMENT WORKS

Has capacity to receive effluent from the equivalent of 600 dwellings. Anglian Water has agreed to extend Uttons Drove to provide adequate capacity for the whole of the Cambourne development.

ON-SITE SEWERAGE

Foul drainage networks for the three villages and business park will be designed and constructed to serve all Cambourne.

Secondary (Village) Pumping Stations

Each of the three villages will have its own pumping station which will comprise a buried structure with a small above ground control kiosk.

- **Surface Water Drainage Strategy**

DESIGN STANDARDS

The on-site and off-site foul drainage networks will be designed to current standards and will be offered for adoption by Anglian Water.

SURFACE WATER DRAINAGE STRATEGY

This has been assessed to take into account existing and proposed site levels so as to achieve a gravity system. The site is broadly divisible into three natural catchment areas; Upper Cambourne and Eastern Great Cambourne will drain into the eastern valley, Western Great Cambourne and Lower Cambourne will drain into the western valley. The relatively minor run off from the northern portion of the site will be split between the two valley catchments. A series of lakes is planned for each valley and discrete sub catchment areas will be piped to drain into the different lakes. Controlled discharge from the site will be to existing water courses.

DESIGN STANDARDS

The surface water drainage networks will be designed and constructed to current standards. Surface water sewer pipework up to and including the outfall structures to the ponds will be offered for adoption by Anglian Water.

HIGHWAY DRAINAGE

Roads and paved areas will be constructed with trapped gullies and piped drainage systems linking into the surface water system.

COMMERCIAL AREA RUN-OFF

Consideration will be given to the use of oil interceptors at any locations where pollution may occur for instance, vehicle wash down areas, or workshops.

PETROL INTERCEPTORS

Surface water sewer outfalls to the ponds could be provided with petrol interceptors to safeguard the pond ecology. These interceptors could be offered for adoption by Anglian Water.

- **Strategy For Supply**

STRATEGY FOR SUPPLY

Cambridge Water Company's existing water tower adjacent to the A428 has capacity to serve up to 200 dwellings. The existing reservoir and pumping station at the junction at the A428 and Broadway will be extended within the requisite timescale to provide supply to the whole of Cambourne.

OFF-SITE REINFORCEMENTS

The new cross-Cambridge water main between Cherry Hinton reservoir and Coton reservoir will provide the necessary off-site network reinforcement to ensure supply to Cambourne.

ON-SITE REQUISITIONABLE WORKS

The primary on-site mains network will be provided by requisition under Section 41 of the Water Industries Act 1991. This work will include the reservoir, the booster pumping station, the primary on-site ring mains and the new link main between the pumping station and existing water tower.

RESERVOIR NEEDS

Cambridge Water Company would extend the existing Broadway reservoir to provide capacity for the whole of Cambourne. The existing water tower provides a backup supply in case of pumping station failure.

PUMPING STATION

The booster pumping station will provide adequate pressure for the whole of the Cambourne Development.

ON-SITE MAINS DISTRIBUTION

Individuals development areas will take supply from the primary ring mains.

CAMBOURNE

WATER MANAGEMENT
FLOOD ATTENUATION

OBJECTIVES

The site is currently an undeveloped area, the development of which will increase the rate of storm water run off, whilst this would not necessarily cause flooding of the site itself it may exacerbate existing flooding problems downstream. It is a condition of the 106 agreement that surface water run off from the site will be provided with flow balancing to attenuate off site flows.

The attenuation ponds are provided to control the rate of discharge to the existing Bourn Brook. In addition they will serve the following functions:-

i) improve water quality

ii) form a visual feature in amenity areas

iii) provide a natural habitat to wildlife

iv) provide on-site storage of water for golf course irrigation

v) provide on-site storage of water for wc flushing in the Business Park

EXISTING WATERCOURSES AND DRAINAGE

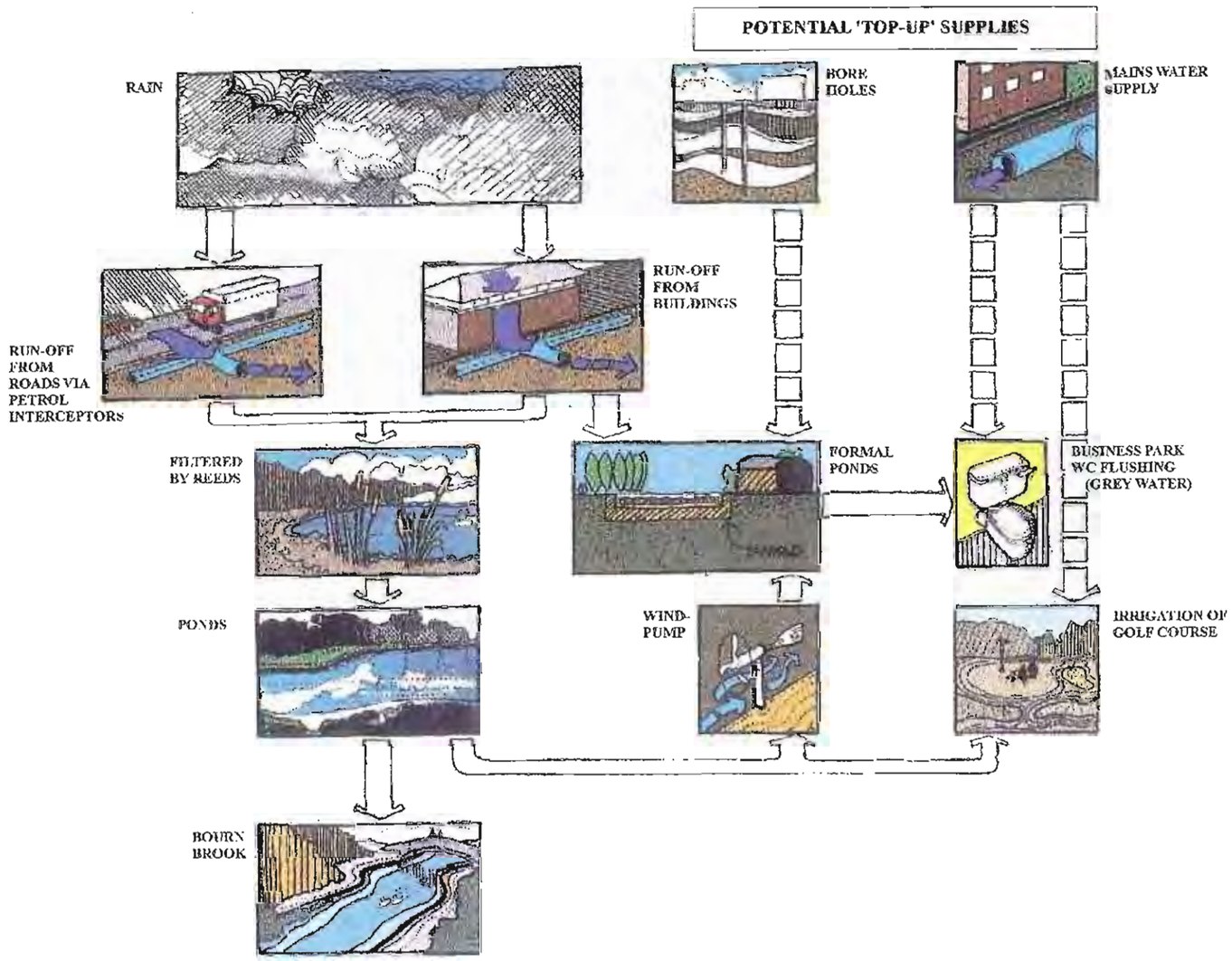
The existing landform of two valleys drains to the Bourn Brook.

MANAGEMENT

As previously noted under Infrastructure, it is proposed to offer the surface water pipework and petrol interceptors for adoption by Anglian Water.

Maintenance of the ponds and control structures will be undertaken by the Cambourne Estate Management Company.

SCHEMATIC DIAGRAM



CAMBOURNE

WATER BALANCE

Northern Feature Lakes

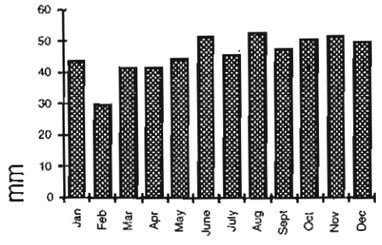
WATER			
IN	BUILDING RUNOFF (16800m^3)	TOP-UP FROM LOWER LAKES = (4600m^3)	
OUT	EVAPORATION & PERCOLATION LOSSES (15400m^3)	GREY WATER USAGE IN COMMERCIAL DEVELOPMENT (6000m^3)	

West Valley Lakes

WATER				
IN	SURFACE WATER RUNOFF (188500m^3)			
OUT	EVAP. & PERC. LOSSES (25600m^3)	TOP-UP TO NORTH LAKES (4600m^3)	DISCHARGE TO BOURN (158300m^3)	

East Valley Lakes

WATER				
IN	SURFACE WATER RUNOFF = (115000m^3)			
OUT	EVAP. + PERC. LOSSES (21000m^3)	GOLF COURSE IRRIGATION (6000m^3)	DISCHARGE TO BOURN (88000m^3)	



Average montly rainfall

Note:
Above figures based on an average rainfall of 553mm/year.

The site strategy for disposal/storage of surface water in accordance with the preceeding schematic diagram has been quantified as summarised on the adjacent table.

Our estimate of the water balance shows that there is a need to pump water from the lower ponds to maintain levels in the Northern feature ponds. The lower ponds will need to have a greater storage capacity below normal water level if the upper ponds levels are to be maintained during a dry summer. Alternative sources of water will be required for filling during initial phases of the development.

The estimates are based on partial supply of golf course irrigation and grey water useage in the business park, the balance coming from the mains supply. This has been done to limit water level variations due to losses based upon assumed permeability and evaporation rates. The appraisal of losses from ponds indicates that the lower ponds will remain approximately at normal level during a mean rainfall year, whilst during a dry summer the drop in level has been estimated at 300mm. Increased abstraction rates would increase level variations especially in dry years.

The estimates indicate continued discharge of significant volumes of water to the Bourn Brook; however, these will be in a more controlled manner than currently, to lessen the risk of flooding due to surges of storm water.

CAMBOURNE

FLOOD PROTECTION

The elevation of the site is such that on site flooding is unlikely to present a problem. However the capacity of the downstream water courses and Bourn Brook are not sufficient to accept uncontrolled discharge from the site. It is therefore proposed to provide flood attenuation ponds in both the east and west valleys. The NRA have stipulated that the run off should be limited to the pre-development peak flows for return periods of up to 1 in 100 years and this may be approximated as 3l/sec/ha of developed catchment.

DOWNSTREAM WATER COURSES

The west valley drainage ditches discharge via a small stream running to the north of Caxton and then adjacent to St Peter's Street to a ford on Bourn Brook. The existing ditches and stream run through various short culverts ranging from 2100 x 1100 to 300mm diameter some of which cause restriction and flooding under present conditions.

The east valley drainage ditches discharge via a small stream culverted under Caxton Road and then to a ford on Bourn Brook adjacent to Brooklands Farm.

There is a history of flooding of both the streams leading to Bourn and the Bourn Brook itself. It is a condition of the Section 106 agreement that surface water run off from the site be provided with a means of flow balancing to attenuate off site flows.

POND SIZING

The ponds will be sized to meet the following attenuation requirements. The non attenuation ponds are sized on architectural and ecological requirements taking account of restrictions in the volume of water available.

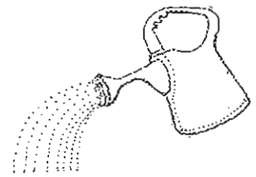
Attenuation of surface water run off is to be provided by ponds 2, 4, 11 and 12, two in each valley constructed to match the development phasing. Preliminary sizing has resulted in the following storage requirements above the normal water level.

Pond No	Attenuation Storage m3	Phase
2	20 500	3
4	13 700	5
11	19 000	1
12	22 300	8

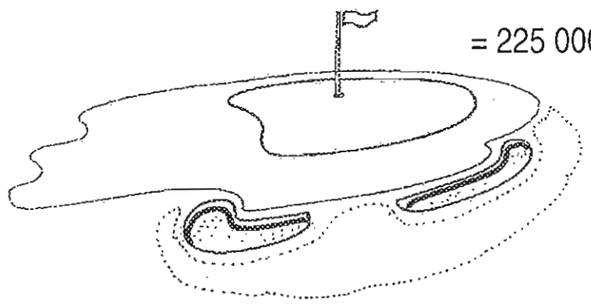
CAMBOURNE

GOLF COURSE IRRIGATION

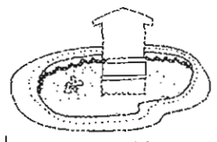
a. Water Volume Required



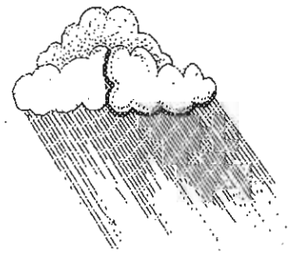
Total area of 27 holes	Irrigation rate	Total
= 225 000m²	358m³ / day	total water volume required April to September inclusive (183 days) = 65400m³

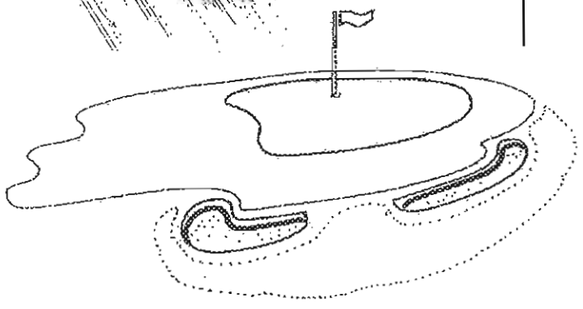


b. Water Sources



Rainfall: April to September	Rainfall m³	Abstracted from ponds m³	From mains m³	Total required
Average = 286mm	64 500	900	0	65 400m³
Dry Year = 138mm	31 100	6000	28 300	65 400m³
Worst case for a single month = 1mm	225	1000	9675	10 900m³





DESCRIPTION

As an integrated part of the Cambourne Development it is proposed to construct an 18 hole golf course in the east valley and a 9 hole course to the north of Great and Upper Cambourne. These courses will require irrigation during part of the year in order to maintain the required standards.

REQUIREMENTS OF GOLF COURSE CONSULTANT

The golf course design consultant, Pachesham Golf, have detailed their irrigation demand as 325m3 per day plus 10% for an exceptionally dry summer, our calculations are based on this total figure of 358m3/day. As can be seen from the following breakdown of the irrigation requirements this is the worst case figure.

GOLF COURSE IRRIGATION REQUIREMENTS

18 holes - greens, tees & approaches	= 170m3)	
9 holes - "	= 70m3)	= 240m3
alternatively:-		
18 holes - greens, tees, approaches & fairways	= 240m3)	
9 holes - "	= 85m3)	= 325m3

PROPOSED SYSTEM

We do not believe that run off from the site will provide an adequate source of water to meet the maximum golf course irrigation demand currently proposed by the golf course consultant.

It is proposed that, subject to obtaining an abstraction licence, up to 1000 m3/month is taken from pond 12 for irrigation of the golf course during April to September. A mains supply capable of meeting the peak irrigation demand will also be provided to supplement the pond water and meet the demands when pond water is not available.

CAMBOURNE

ECOLOGICAL ENHANCEMENT

1 Mature hazel coppice
2 Lake
3 Herb-rich grassland
4 Marsh flora

Ecological enhancement at the Cambourne site will involve the creation of woodlands, grasslands, marshes, ponds and lakes, and hedges. These habitats will form a mosaic in the open land of the golf courses, Country Park, Eco-Park, village greens and site perimeter.

To mirror the nature of local surrounding sites, the woodlands to be created would have ash, pedunculate oak and field maple as the dominant canopy forming trees, with smaller proportions of crab apple and silver birch. The mixed shrub layer would have hazel as the dominant species in association with hawthorn, dogwood, spindle and wayfaring tree. Bluebell, primrose and dogs mercury would characterize the ground flora. To enhance ecological diversity the woodlands would include both small and large scale earthworks, narrow winding paths, ponds and glades. The northern woodland will incorporate Knapwell Plantation as an established core. Here, the objective is to create a woodland whose species composition and structure would be suitable in 10-20 years for the introduction of dormouse. Other areas along the northern edge of the Cambourne site would become woodland through natural regeneration of designated sites from existing copses.

Grasslands will form a major part of the two golf courses, Country Park and village greens, in addition to meadow nature reserves to be located at the eastern edge of the site. Three kinds of grassland occur in the local area and would be created on the Cambourne site using native seeds and other material. One type of grassland is characterised by an abundance of tall herbs such as black knapweed, ox-eye daisy, wild carrot, burnet saxifrage and greater burnet saxifrage and could be used for golf course roughs and in the Country Park, whereas the second is a fine-grained mixture of cowslip, clovers, buttercups, small sedges and fine-leaved grasses and could be used to form the meadow nature reserves. The third is characterised by tall fescue, cowslip, black knapweed and wild onion and could also be used for golf course roughs and in the Country Park.

Cambourne's wetlands will consist of two strings of open water bodies and marshes linked by streams. Ecological diversity will be promoted by the design of the habitats and the introduction of appropriate plants. Specific design features include; the incorporation of islands in the larger lakes to create refuges for birds; the introduction of cliffs to attract breeding kingfisher and sand martin; the provision of varying depth profiles to give abundant shallow water for aquatic and marginal plants and to benefit amphibians; and varied shore outlines to provide bays sheltered from wind and waves. Species found in local wetlands would be planted into the non-ornamental areas in order to establish their local character.

CAMBOURNE

SPECIES PROTECTION

1. *Badger dung pit*
2. *Newt trapping under licence*

Although most of the animal species now present on the site are common and widespread, a small number are afforded statutory protection by the Wildlife and Countryside Act of 1981 and its later amendments or, for badgers, a series of specific Badger Acts. Special arrangements have been made to protect these species throughout the development phase and to provide for their requirements in the Master Plan.

The two badger social groups have been extensively investigated to determine the extent of their present foraging areas and the access routes between the main setts and the feeding grounds and drinking water sources for each group. This information has been incorporated into the Master Plan so that when the development is complete the setts will still lie in suitable undisturbed surroundings with full and easy access to water and good feeding areas. The badgers and their main setts will be protected during development by careful routing of access roads and siting of plant compounds, by fencing off active working areas so that foraging badgers are not at risk from excavations, by provision of tunnels on new major roads which cross traditional pathways and by prohibiting any activity in the vicinity of the sett. The latter will be carefully undertaken so that attention is not drawn to the sett locations. Some removal, under licence, of small non-breeding outlier setts will be necessary where these are dug in areas scheduled for development, but any new setts arising in the nature reserve and Country Park areas will also be protected.

To date the great crested newt population on site is small, but can be expected to grow. To cater for newts found in areas scheduled for future development a habitat area will be created for them in proposed open land at an early stage. This will incorporate a fish-free pond, rubble piles for hibernation, and sufficient area of scrub and rough grassland for feeding. Ponds and wetlands will be investigated in advance of development and any great crested newts found will be trapped and transported, under licence, to the new habitat area.

Bats are known to occur on the site and all species are protected. All buildings and any trees which may have to be removed during the development and which are likely to hold roosting or breeding bats will therefore be carefully examined over the preceding year. This will enable the demolition or felling to be timed for a period when any roost site is not in use. As a further precaution any such demolition or felling will only take place in the presence of an experienced bat ecologist who will direct the operation and remove any bats still present to a safe place.

At present no breeding bird species specially protected under the Wildlife & Countryside Act occurs on the site, but a watching brief will be maintained every summer so that special precautions can be taken should any such species colonise. Since the nests, eggs and unfledged young of all birds are also protected by this Act, removal of any potential nesting habitats will only take place outside the breeding season.

HABITAT MANAGEMENT

At Cambourne the principal objective is for the integrated management of all semi-natural habitats in order to provide for visual amenity, cater for informal recreation, establish an educational resource, provide opportunities for scientific study and to conserve wildlife. Habitat management aims to be mainly low-intensity and to maintain and enhance ecological diversity, whilst developing community involvement and appreciation of the site's wildlife. Each of the main habitat types will be subject to specific management regimes in order to conserve and enhance their conservation value.

After initial planting and protection from deer, woodland management requirements are few. Some thinning of trees may be needed and paths must be kept clear of obstructions. Once established, some areas can be managed as coppice on rotationswhose length is designed for the supply of woodland products such as pea sticks and bean poles for use within the community. The northern woodland will be managed from the start to provide suitable habitat for the introduction of dormouse.

Most areas of grassland will not require constant and expensiveattention. Golf course roughs, the eastern meadows, woodland glades, the orchard ground layer and Country Park grasslands, for instance, could be managed in various low-intensity ways. Some areas could produce a hay crop for local sale after the vegetation had grown up, flowered and set seed. Other areas could be grazed by the community's own flock of rare breed sheep, and further areas need to be mown only once every two or three years, so that the tall vegetation provides a refuge for insects and small mammals, without loss of floristic diversity.

The wetlands will only require minimal management, such as removal of small areas of emergent plants on rotation once every five years. Natural processes which result in accumulations of plant litter, deposits of silt, fallen branches and eroding banks in streams and lakes provide ecological diversity and need not be 'tidied-up' under a low-intensity management regime. Some hedges can be managed by involving the community in undertaking traditional laying and others can be allowed to grow untended to become tall and bushy.

CAMBOURNE

Key

Existing:

- Woodlands
- Trees
- Hedgerows

Proposed:

- Woodlands
- Trees
- Hedgerows
- Shrubs
- Lakes (Surface water attenuation)
- Marsh
- Rough grass
- Mown grass
- Greenways
- Bridleway
- Cycleway
- Footpath

LANDSCAPE FRAMEWORK PLAN

CAMBOURNE

CAM/RP/03/011/56

STRUCTURE PLANTING

THE STRUCTURAL LANDSCAPE PERFORMS A VARIETY OF FUNCTIONS:

- Visual screening of the development from neighbouring villages and roads.
- Separation of busy roads from the development.
- Provision of shelter to improve the settlement microclimate.
- Visual integration of development into the countryside.
- Opportunities for informal recreation .
- Opportunities for nature conservation and habitat creation.

SCHEDULE OF STRUCTURAL LANDSCAPE PLANTING

Location	Approx. area	Functions
Northern Woodland	22 ha	Primary: separation/shelter/ integration/recreation/nature Secondary: screen
Eastern Woodland	5.5 ha	Primary: screen/shelter integration/ recreation/nature
South+east woodland	10.997 ha	Primary: screen/shelter/ integration Secondary: recreation/nature
Western woodland	9.7 ha	Primary: screen/shelter integration/ recreation Secondary: separation/nature
Northern fields golf course woodland	2 ha	Primary: shelter/integration Secondary: screen/nature
Eastern valley golf course woodland	1.84 ha	Primary: shelter/integration Secondary: screen/nature
Country park woodland	2.9 ha	Primary:shelter/integration/ recreation/nature Secondary: screen
Entrance park woodland	1 ha	Primary: separation/integration Secondary:shelter/nature
Eco park woodland	5.74 ha	Primary: integration/recreation nature Secondary: shelter

SURFACE WATER, LAKES AND WETLANDS

SURFACE WATER ATTENUATION LAKES

Open water is a feature throughout the open land. Two lakes in each of the valleys are functional surface water attenuation lakes, marked swa on theplan. Preliminary calculations have been undertaken to ensure that these waterbodies are correctly sized for their function. Each lake will be designed to retain water permanently. In their normal 'dry weather' state the four lakes will each be of a different size, of between 2.2 acres to 4.6 acres. In storm conditions thelake levels will rise and flood adjacent land. It is intended that these lakes will be designed with nature conservation in mind, with one of the country park lakes reserved for fishing and one of the golf course lakes also being a potential water reserve for irrigation.

OTHER LAKES

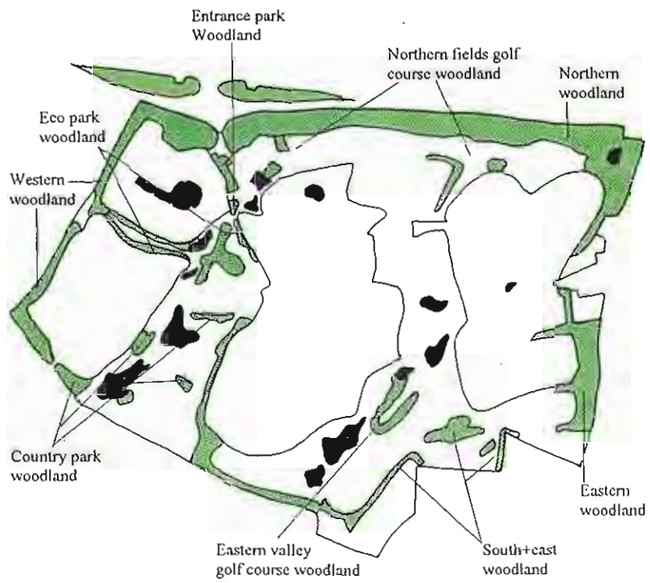
In addition to the attenuation lakes a series of other ponds and marshy areas will be created which will have purely visual, ecological, or recreational functions. These include two pools each of around 1 acre in size at the settlement entrance, a 'feature' lake within the business park which may be up to 4 acres in extent, and a range of smaller pools, reed beds and marshy areas within the eco park, nature reserve, and golf course. The total area of these pools shown on the masterplan is in the order of 5 acres.

REED BEDS

For water filtration and cleansing reed beds will be developed at inlets to lakes and at the final outlet from the site before discharge of runoff to the Bourn Brook.

OPEN DITCHES

Open ditches which are a feature of the existing landscape, will be retained alongside greenways and footways, and new ditches will be created to form a comprehensive system feeding into the open land lakes.



THE LANDSCAPE FRAMEWORK OPEN LAND STRATEGY

Following analysis of the existing landscape, ecology and development brief requirements, the following aims have been identified for the open land.

- Harmonise with local landscape character and create a coherent landscape, in accordance with the aims of the Cambridgeshire Landscape Guidelines.
- Protect and incorporate within the development, existing features of landscape interest, existing habitats, and species of nature conservation value, and aim to expand these interests.
- Provide significant areas of new woodland which achieve visual screening and separation from neighbouring land uses, and a suitable microclimate for the new settlement.
- Plan open spaces so as to enhance the sense of community and accommodate the formal recreation requirements of the new population..
- Provide a coherent informal recreational facility which links to the wider network of paths in the surrounding countryside, with easy access from the home to open countryside.
- Conserve and enhance biodiversity by habitat creation and management and ensure the long term sustainability by using ecological principles for landscape design throughout the development.
- Provide opportunities for environmental education and nature conservation.
- Provide a range of appropriate landscape settings from 'market town' to totally rural.
- Provide the context for water to be used and managed positively in accordance with the water strategy.

The landscape framework plan has been developed in response to the open land strategy.

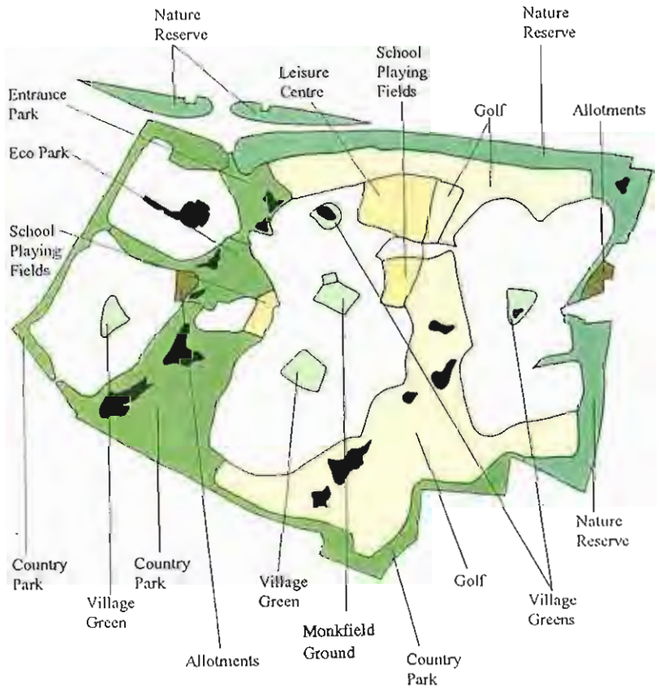
CAMBOURNE

GREENWAYS AND VILLAGE GREENS

The village Greens and greenways provide an important transition between 'village' and country.

Village greens are provided in the centre of each village. These provide attractive accessible, green spaces, and a variety of formal and informal recreational opportunities within the heart of each development.

The centre of each village is linked to the surrounding open countryside by a series of 'Greenways'. These extend from the village green, bringing the countryside and nature into the heart of the development, and providing access to the extensive network of bridlepaths, cyclepaths, and footpaths around the settlement.



CAMBOURNE

INFORMAL RECREATION

THE ENTIRE SITE

Informal recreation opportunities are available throughout the settlement, emanating from the Eco Park at the settlement centre, south and north through the country park in the western valley and at the settlement entrance, and extending as a series of footpaths through the entire development.

ECO PARK

The Eco park forms the heart of the country park network. Facilities within the park will include an environmental 'centre' with educational facilities, interpretive trails, seating and picnic sites, kickabout space and childrens adventure play.

The landscape of the eco park will include many varied elements,grassland, water, woodland and shrubby areas, all designed and appropriately managed to a high standard.

WESTERN VALLEY COUNTRY PARK

Facilities within the park will include: small car park; network of bridlepaths, cyclepaths and footpaths; seating and picnic areas; educational trails; fishing lake.

The landscape will comprise open grassy areas; woodland, scrub, lakes and pools; marsh etc; and will be designed to allow some areas to be available for management by livestock.

ENTRANCE PARK

The entrance park accommodates the main road access into the village from the A428, together with footpath and bridlepath connections to the north. This area will have a country house parkland character with views across the golf course and to the settlement centre.

NATURE RESERVE, GOLF COURSE AND PERIMETER WALKS

An extensive network of paths around the site boundaries, across the golf course and through nature reserve areas will be created which will include seating and picnic spaces as appropriate..

VILLAGE GREENS AND GREENWAYS

The village greens will provide informal recreation space as well as space for village sports, and will be connected to the wider open recreational areas via the greenways.

MONKFIELD GROUND

This area can provide formal gardens in addition to general sitting out and relaxation spaces.

FORMAL RECREATION

The masterplan provides a full range of facilities for formal recreation.

SPORTS PITCHES

The main complex of sports pitches is located adjacent to the leisure centre with additional areas capable of accommodating pitches distributed through the development. The total area available for sports pitches is shown in the table below:

Location	Acreage	Facilities
Leisure Centre	22.5 27.07	2 Football 3 Hockey 1 Cricket 2 Rugby
Eco Park	1.5 4.0	Junior kickabout
Upper Cambourne Green	3.0 2.38	1 Vill. Cricket 1 Vill. Football
Great Cambourne Green	4.25 6.52	1 Vill. Football
Lower Cambourne Green Bands	3.25 4.5	1 Vill. Cricket 1 Vill. Football
Total	34.5	

Additional possibilities exist for community use of formal recreation sites atschools where football and hockey pitches are provided.

OTHER SMALL SCALE SPORTS AND GAMES

Provision is made for two tennis courts and a synthetic grass area adjacent to the leisure centre, a 7 acre golf driving range adjacent to the leisure centre, and a bowling green in Monkfiled Ground. Other possibilities for formal games provision occur in association with commercial public house developments which could make further provision for e.g. bowls or quoits.

GOLF

Golfing facilities are sited in the eastern valley which accommodates an 84 acre 18 hole course, and in the northern fields which accommodate a 55 acre 9 hole course.

CHILDRENS PLAY

Childrens play facilities will be provided in association with the family centre and health centre, and in school grounds, with the intention that the latter should be made available for general use out of school hours. Facilities for teenagers are to be concentrated at the leisure centre with an adventure play facility in the eco-park. Toddler play facilities will be provided within the residential areas.

ALLOTMENTS

Two allotment sites are designated totalling 5 acres.

GOLFING FACILITY

Nationally, the Professional Golfers' Association (PGA) has done much to encourage the development of new golf courses and the increased up-take of new players. As part of this process, the PGA has identified that the greatest up-take of golf is by ladics. In addition, there is an increased requirement for 9 hole facilities to both complement existing 18 hole courses and to satisfy an alternative market which plays golf but cannot afford the time to commit to a full round.

According to local statistics, there are approximately 19,000 golfers in the region, 11,000 of which are casual players and utilise pay and play facilities. The figures suggest a level of activity greater than the national average, which taken with the projected 4% increase in player take-up (assuming the facilities are available and accessible) and the projected population rises over the next decade, provide a convincing case for additional facilities.

The shifting trend in golf provision however, has implications toward the type of golf facility which should be provided in the future. It would be incorrect to think of an 18 hole golf course as providing the definitive golf facility. As a leisure activity which appeals to the young and old, as well as both sexes, any future provision needs to take account of this market. They therefore represent different yet complementary markets which require slightly different facilities. Such trends in the provision of facilities can be seen from local market assessment.

Over the last 10 years, fourteen new courses, facilities or additions have been opened within a 10 mile radius of the site. Of these, only five represent new 18 hole courses which have general public access, and another four are 9 hole courses. The others are either private or public, but in both cases access/membership is not available.

The standard of all these new facilities are of an average - good quality (90%). There is however, little differentiation in product but clearly there is a trend toward the broader golf centre package geared to encouraging all levels of activity and high standards of facility.

The proposals within the Master Plan incorporate an 18 + 9 hole golf course and driving range. The site offers the opportunity and commercial considerations demand such a provision, to accommodate existing and future players of all standards and abilities. In operational terms, such a facility offers the opportunity to develop a golf academy which satisfies the requirements of regular and competent golfers but also encourages the take-up by youngsters and other beginners. It will also encourage the progression through the courses and encourage a more comprehensive family orientated facility. This would also serve to contrast with the other sports provision within the settlement which is geared to physical and youth activity.

This type of facility will therefore achieve the following:

- A high quality, high accessibility golfing academy.
- Provide an attraction to potential home owners and business occupiers.
- Provide a format which is economic to develop and operate into the future.

CAMBOURNE

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CAMBOURNE

MANAGEMENT OF THE DEVELOPMENT

Alfred M^{c}Alpine controls all the land which comprises the approved site for the new settlement. The company therefore has the responsibility to ensure that the development comes forward in strict compliance with the provisions of the planning consent and associated planning legal agreement.

Whilst not strictly requisite for the approval of the Masterplan and Design Guide, the following statement represents how it is proposed to take the project forward from the planning stage to implementation.

PROJECT MANAGEMENT

The Company will be responsible for:

- Securing all necessary planning and statutory consents relating to the overall infrastructure of the settlement, for instance estate roads, sewers, power supplies, water provision etc.
- Ensuring that the provisions relating to the social and community facilities and detailed in the planning consent are satisfied. Such matters will relate to the phasing of the schools, police station, library and all necessary contributions etc.
- All necessary consultation including the establishment of the Management Liaison Committee (comprising local representatives, the developers and owners' interests) prior to the establishment of the new Parish Council. The MLC will be in place prior to the completion of the first house.

The cost of all of the above will be met in strict accordance with the S.106 Agreement

ESTATE MANAGEMENT

This area of operation relates to the activities within the site and relating to the building activities.

The Company will be responsible for:

- The implementation of all infrastructure works

  a) where undertaken by sub contractors on behalf of the developers.

  b) in strict accordance with the detailed approvals from local authorities and statutory utilities.

- Ensure that the land or buildings which are required to be handed over to the respective authorities for instance, schools, libraries etc., is done so in strict compliance with the overall project requirements and all subsequent detailed agreements.

The cost of each of the above will be met in strict accordance with the S.106 Agreement.

- Comply with all requirements in respect of setting out the areas of amenity, including the Country Park, detailed in the Masterplan and subject to individual Management Plans which are to be submitted to and agreed with the local authorities.
- In the case of the various sports facilities and pitches etc. these are to be carried out by the developers to council standards (as a minimum) and conveyed to the parish at no cost when it assumes responsibility.

Setting out and maintenance of these will be funded in perpetuity by the Cambourne Company in accordance with the S.106 Agreement.

Alfred McAlpine wish to ensure that the quality of the overall development is maintained from the overall Masterplan and Design Guide, through implementation over 15 years and subsequently in perpetuity.

STRATEGY FOR THE PRESERVATION AND/OR RECORDING OF ARCHAEOLOGICAL DEPOSITS

Introduction

In the brief, Archaeological Investigation, supplied by Cambridgeshire County Council as Annexure 4 of the s.106 agreement, the need to include archaeological remains as a material consideration within the Cambourne proposal was emphasised. Archaeological consultants, Wessex Archaeology,

have been retained as part of the Cambourne Project team.

'SWANSLEY WOOD' SEGMENT

The western two-thirds of the area was part of the 1030 acre Swansley Wood proposal. An initial study was carried out by Wessex Archaeology in 1989. This consisted of a desktop assessment and a programme of field walking of all suitable fields. Within the area now proposed for Cambourne only very limited archaeological potential could be demonstrated. The study also provided, in discussion with the County Archaeologist and the Inspector of Ancient Monuments, a series of recommendations for further 'Stage 2' evaluation work. The information gathered by the evaluations will be used to determine whether, within the development, measures are needed to preserve monuments in-situ or to undertake rescue excavations as a further stage of fieldwork.

'GREAT COMMON FARM' SEGMENT

The eastern third of the Cambourne site formed part of the Great Common Farm proposal. For this area, the County Sites and Monuments Record was reviewed by Land Use Consultants. No find spots were recorded for that part of the Great Common Farm scheme now within the Cambourne Proposal.

PROPOSALS

Continue initial evaluation fieldwork into remainder of Cambourne site.

Implement existing recommendations develop, in consultation with the County

Archaeology Office, strategies for additional Stage 2 evaluations, where necessary. Include any resulting proposals, for the preservation or recording of archaeological deposits, within the development programme. Publish any archaeological results in a suitable journal such as the Cambridge Antiquarian Society.

CONSULTEES

As part of the planning process, the Master Plan as described in this document, has been or will be discussed with the following.

DISTRICT AND COUNTY COUNCILS

South Cambridgeshire District Council

- Planning Committee
- Conservation Committee
- Planning Officers

Cambridgeshire County Council

- Corporate Planning
- County Archaeologist
- Education Property
- Fire and Rescue
- Library Headquarters
- Police Headquarters
- Rural Group
- Social Services
- Structure Plan Group
- Transportation

Cambridge City Council

East Cambridgeshire District Council

PARISH COUNCILS

Barton Parish Council

Bourn Parish Council

Boxworth Parish Council

Caldecote Parish Council

Caxton Parish Council

Childerley Parish Council

Comberton Parish Council

Coton Parish Council

Dry Drayton Parish Council

Elsworth Parish Council

Eltisley Parish Council

Hardwick Parish Council

Kingston Parish Council

Knapwell Parish Council

Madingley Parish Council

Papworth Everard Parish Council

Toft Parish Council

PUBLIC TRANSPORT COMPANIES

Pullman Motor Services

United Counties Omnibus Ltd

Whippet Coaches Ltd

ORGANISATIONS

Bourn Flying Club

BT Telephone House

Civil Aviation Authority

Cambridgeshire Community Council

Cambridge Water Company

The Cambridgeshire Wildlife Trust

Cambridgeshire Woodland Fund

Comberton Village College (C of G)

Confederation of British Industry

Council for the Protection of Rural England

CountrysideCommission
Eastern Regional Office

Department of the Environment

The Department of Transport

Diocese of Ely

ECSR

English Heritage

English Nature

Family Health Services Authority

Health and Safety Executive

Internal Drainage Board

Ministry of Agriculture Fisheries and Food

Land Use Planning Unit

National Rivers Authority

New Settlement Action Group

The Ramblers Association

Town and Country Planning Association

CAMBOURNE