Vodafone Supporting Technical Information for: -

CS63715C Bolton Upon Dearne

This site is to improve quality of 3G coverage to Bolton Upon Dearne residential area.

Date Prepared: 23 February 2009

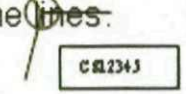
KEY TO COVERAGE PLOTS

The enclosed radio propagation plots are based on Ordnance Survey geographical information.

The level of coverage provided by a particular site is dependant on a number of variables. The main factors which determine the extent of coverage are: the frequency of the signal emitted, the height of the antenna above ground level, the characteristics of the surrounding topography and the type and occurrence of ground clutter such as buildings and trees which can cause 'shadows' or reflections and can absorb the signal.

Vodafone's Radio Engineers have produced accurate visual representations of the level of coverage available in this particular area by using advanced computer modelling software based on a Geographical Information System. The programme takes the numerous variables as above into account and can then calculate and plot the strength of the signal.

Existing and proposed sites are indicated by a circle with site number. The orientation of the antennas is shown by the lines.



Existing Site - indicates orientation of antennas

- Motorways are illustrated by ***Dark Blue*** lines;
- A Class roads are illustrated as ***Cyan*** lines;
- B Roads are illustrated as *Grey* lines;
- Railway lines are illustrated as *Pink* lines; and

Key for GSM (2G) Plots

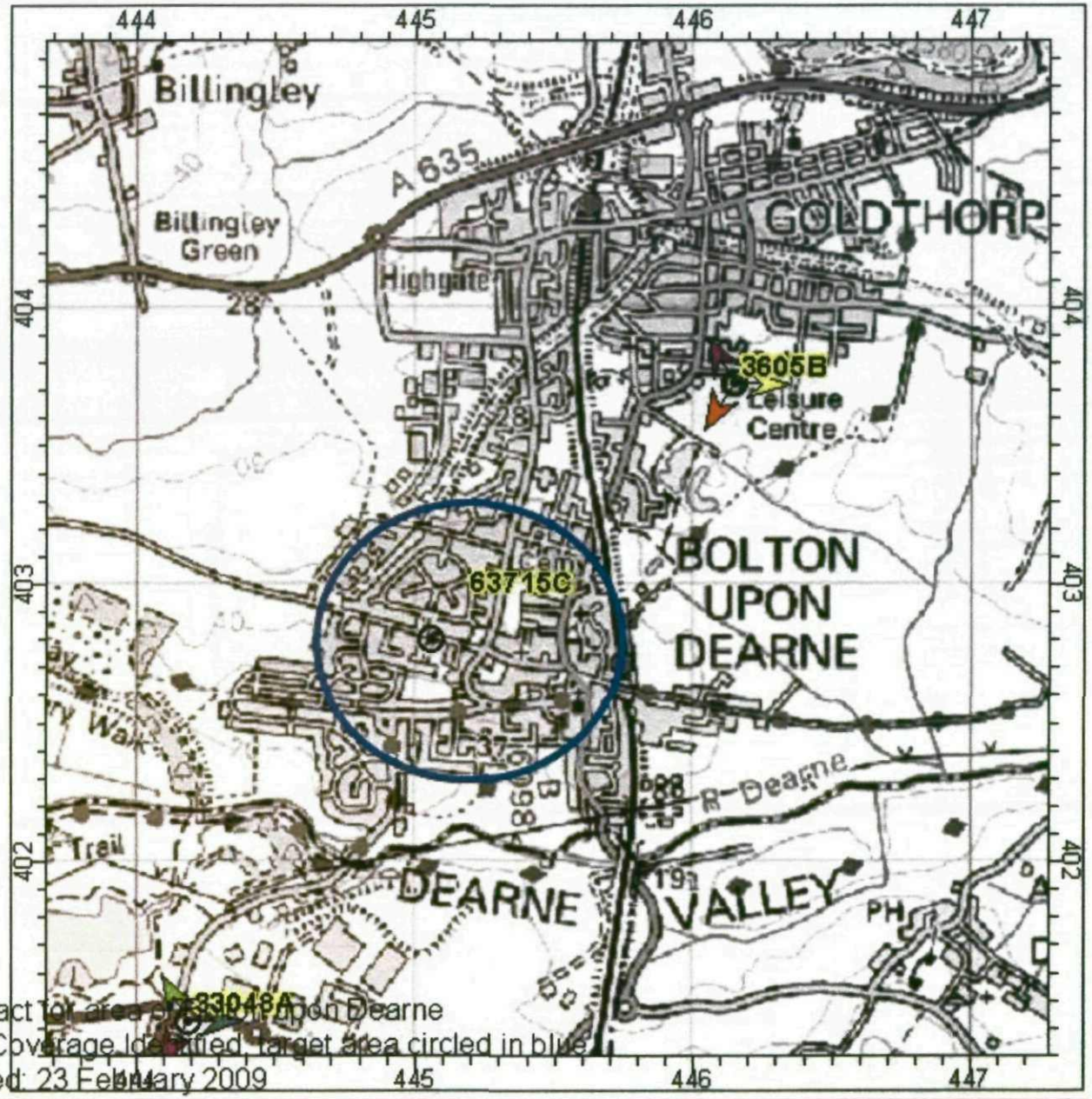
Orange	Sufficient signal strength to provide adequate service for indoor use of a hand portable mobile in urban areas.	Urban
Red	Sufficient signal strength to provide adequate service for indoor use of a hand portable mobile in suburban areas	Suburban
Green	Sufficient signal strength to provide adequate service for use of a hand portable mobile in a car	In Car
Yellow	Sufficient signal strength to provide adequate service for outdoor use of a hand portable mobile.	Outdoor
No Colour	Insufficient signal strength to provide reliable service.	No Coverage

Key for 3G plots

Pink	Sufficient signal strength to provide adequate service for indoor use of a hand portable mobile in dense urban areas, such as major cities and large industrial areas.	Dense Urban
Orange	Sufficient signal strength to provide adequate service for indoor use of a hand portable mobile in urban areas, for example dense residential and industrial areas.	Urban
Yellow	Sufficient signal strength to provide adequate service for indoor use of a hand portable mobile in suburban areas or on a train.	Suburban
Green	Sufficient signal strength to provide adequate service for use of a hand portable mobile in a car	In Car
Blue	Sufficient signal strength to provide adequate service for outdoor use of a hand portable mobile.	Outdoor
No Colour	Insufficient signal strength to provide reliable service.	No Coverage

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CS63715 Bolton Upon Dearne

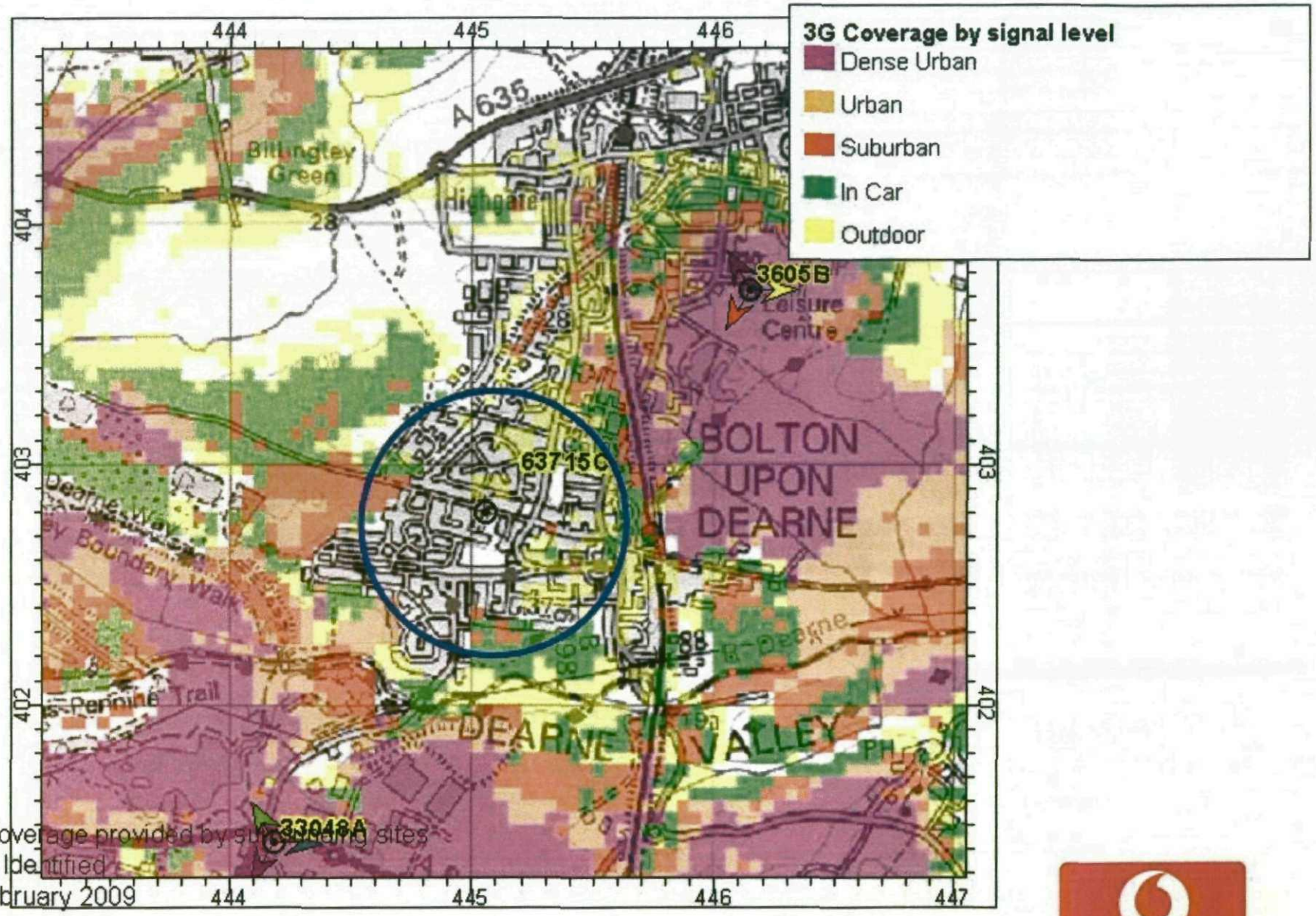


OS map extract for area of Bolton Upon Dearne
UMTS (3G) Coverage identified, target area circled in blue
Date Prepared: 23 February 2009

This coverage plan must be read in conjunction with the key and site specific supplementary information.
Each colour block represents 100 metres square.

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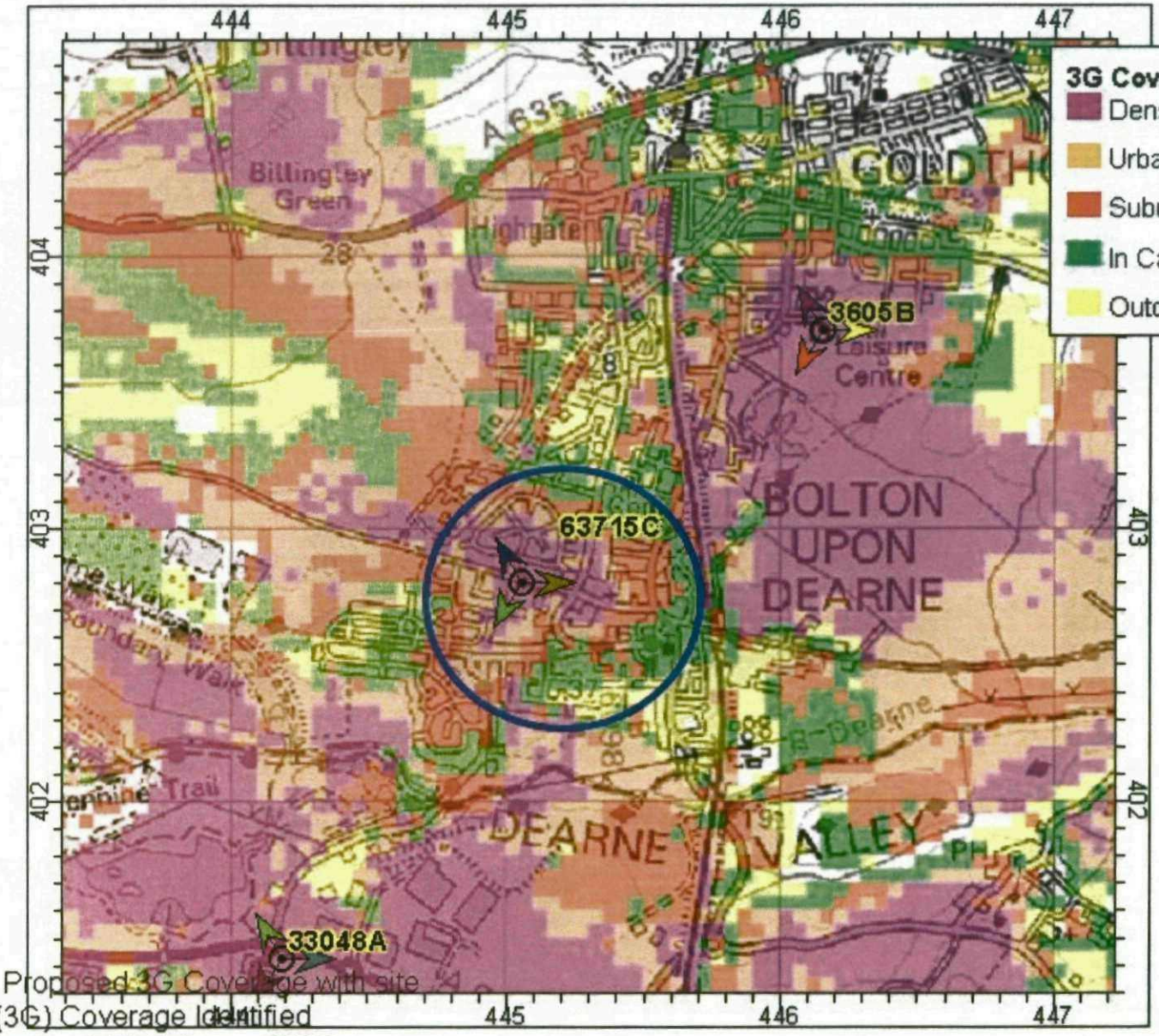
CS63715 Bolton Upon Dearne - Present 3G Coverage



Plot 1 – Existing 3G Coverage provided by surrounding sites
UMTS (3G) Coverage Identified
Date Prepared: 23 February 2009

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Each colour block represents 100 metres square.

CS63715 Bolton Upon Dearne - Proposed 3G Coverage



3G Coverage by signal level

- Dense Urban
- Urban
- Suburban
- In Car
- Outdoor

Plot 2 - Proposed 3G Coverage with site
UMTS (3G) Coverage Identified
Date Prepared: 23 February 2009

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