

**BOSTON UNITED FOOTBALL  
CLUB**

**Developments at York Street and  
Tattershall Road, Boston**

**Environmental Appraisal**

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**DEVELOPMENTS AT YORK STREET AND TATTERSHALL ROAD, BOSTON**  
**ENVIRONMENTAL APPRAISAL**

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## DRAWINGS

EA01: York Street Photoview Location Plan & Plates 1 - 10

EA02: Tattershall Road Photoview Location Plan & Plates 1 - 10

## **1 INTRODUCTION**

**1.1** An Environmental Statement (ES) has been prepared, as Volume 2 of the planning documentation, for the proposed stadium and ancillary development at Boardsides, Boston. The ES sets out the environmental impacts of the development on the Boardsides site.

**1.2** This environmental appraisal of developments at York Street and Tattershall Road analyses the impacts of the change from existing use (football stadia and pitches) to the proposed residential development on these sites. Whilst these sites are subject to separate planning applications the impacts generated by the proposed changes of use will be indirect effects of the development at Boardsides.

**1.3** The first part of each section of this report analyses impacts of the proposed development at the York Street site. This is followed by impacts on the Tattershall Road site.

**1.4** The following section describes the nature of development at each of these sites. This is followed by separate sections of this report analysing the following impacts:-

- Landscape and visual impact
- Ecology
- Cultural heritage
- Noise
- Air quality

## **2 SITE DESCRIPTIONS AND NATURE OF PROPOSED DEVELOPMENT**

### **York Street Site**

**2.1** Existing development on the site comprises the main Boston United Football Stadium, floodlighting, ancillary buildings and an open parking area. York Street, with residential properties, forms the eastern boundary of the site. The southern boundary is formed by Spayne Road with residential properties and the western boundary is delineated by a large building housing The Gliderdrome. Residential properties on York Street, a Matalan store, Esso petrol station and car parking area are located to the north, with John Adams Way beyond.

**2.2** The proposed scheme, illustrated by drawing EA 01, would comprise a row of semi-detached residential properties on the northern side of Spayne Road, two storey flats alongside York Street and three to four storey flats in the central and

north-western part of the site. Car parking for residents, landscape planting and a diagonal walkway form an integral part of the scheme.

### **Tattershall Road Site**

- 2.3** Existing development comprises a sports pitch with covered spectator terraces, floodlighting, football pitches and ancillary buildings with an open car parking area. The site is bounded by residential properties on Tattershall Road and allotment gardens to the east, arable farmland to the north, with the Witham Way Country Park to the west and south.
- 2.4** The proposed scheme, illustrated by drawing EA02, would comprise a layout of detached and semi-detached two storey residential properties. Two mini football pitches would be retained to the south of the existing stadium. The scheme includes two holding ponds and further landscape planting.

## **3 LANDSCAPE AND VISUAL IMPACT**

### **Introduction and Methodology**

- 3.1** The main impacts of the proposed residential schemes comprise visual impacts.
- 3.2** Visual assessments have been undertaken based on methodology set out in the Landscape Institute and The Institute of Environmental Management Assessment's Guidelines for Landscape and Visual Impact Assessment published by Spon (2002). This methodology is described in detail in Chapter 4 of the ES for the Stadium Site at Boardsides. The assessment took the form of a preliminary desk study followed by a site survey.
- 3.3** The desk based assessment identified potentially sensitive visual receptors (highways, public rights of way and residential properties).
- 3.4** Site survey work was carried out on 12th October 2004 and this further identified the key residential properties, public highways, footpaths and other public amenity areas that would have potential views. A series of representative photographs were taken and these have been used as the basis of the visual impact assessment. These have been included as Plates 1 to 7 for York Street and 1 to 10 for Tattershall Road (see location plan drawings EA01 and EA02).
- 3.5** This assessment analysed visual impact on residents, highway/footpath users and users of public open space where applicable. The degree of visual impact is based upon the following factors:
- Visibility of the development
  - Sensitivity of the viewpoint

- Distance between the viewpoint and the development
- Scale and magnitude of changes between the existing and proposed situation
- Duration of impacts upon the viewpoint

**3.6** Short term impacts would result from operations and features associated with the dismantling of the existing development and construction of the residential development, car parking facilities and implementation of the landscape proposals. These operations have the potential to generate substantial adverse visual impacts, if temporarily.

**3.7** Following the completion of short term operations and the implementation of landscape proposals, long term visual impacts would comprise a change to the existing view coupled with the establishment of the landscape proposals.

### **York Street Visual Impacts**

#### *Visual Impact on Residential Properties*

**3.8** Properties on York Street currently experience views of the existing stadium. Even numbered properties from nos 18 to 40 have open views from the front of each property, whilst no 16 and even numbered properties 42 to 50 have more restricted oblique views. Odd numbered properties 11 to 17 (to the north east of the site) have oblique views from the rear of these properties, whilst no 19 (to the south east of the site) has a side view of the existing development. Views from these properties are illustrated by Plates 1, 6 and 7 (Appendix One).

**3.9** The existing stadium, floodlight towers and ancillary buildings with an open carpark area dominate current views. Distant views, including those of “Boston Stump” (tower of St Botolph’s church), are generally blocked by this development. Levels of activity relate to match days and events.

**3.10** During demolition of existing development and construction of the proposed residential development, there would be a high level of activity on the site with the use of cranes, backactors, dumper trucks and other demolition or construction machinery. The site would be enclosed during this period with mesh fencing. Visual impacts during this period are likely to be substantial adverse but would be of limited duration.

**3.11** Following completion of the proposed scheme, the nature of the view would be substantially altered with views of two storey flats and semi-detached properties in the foreground and three to four storey flats beyond. The diagonal walkway which crosses from the south-east to the north-west of the site will open views of the “Boston Stump”, especially from the even numbered properties nos 34 to 38,

York Street. The streetscape will be considerably improved by the proposed development which has been designed to fit the existing pattern of development along York Street and Spayne Road. Landscape planting within the scheme will improve this streetscape further over time. In addition, the level of activity compared with match events will be considerably reduced.

- 3.12** Given the visual sensitivity of the residential properties on York Street and the nature of the proposed scheme compared with the existing development, visual impacts on these properties will be substantial adverse during construction changing to moderate to substantial beneficial following completion and as the landscape proposals mature over time.
- 3.13** Odd numbered property numbers 23 to 59 Spayne Road currently have direct views of the existing development, whilst odd numbered properties 13 to 19 (illustrated by Plate 5, Appendix 1) have oblique views. The majority of these properties currently experience views of the high side wall of the stadium which blocks further views.
- 3.14** Visual impacts during demolition and construction would be substantial adverse but would be of limited duration. Following completion of the proposed development these properties on Spayne Road would have more open views of two storey semi-detached properties with flats beyond (generally three to four storey with two storey flats at the eastern end of the site). There would be a substantial improvement in the streetscape which would improve further as landscape planting develops over time. Levels of activity at the eastern end of the site compared with current match events will be considerably reduced.
- 3.15** Visual impacts on properties in Spayne Road with current views of the site will be substantial adverse during construction changing to moderate beneficial (for properties with oblique views) to substantial beneficial (for properties with direct views).
- 3.16** Properties with odd numbers between 13 and 21 at the far eastern end of Main Ridge West and property nos 6 to 9 on Albion Terrace (both located on the northern side of John Adams Way), have rear of property or oblique views of the site similar to Plates 2 and 3 respectively (Appendix 1). Views towards the site from remaining properties on Main Ridge West and Albion Terrace are screened by intervening trees. Current views are of the high side wall of the stadium seen between the Matalan Store and The Gliderdrome.

- 3.17** The proposed demolition and construction activities would be visible but would be seen as a background activity beyond an area of current visual activity including traffic on John Adams Way, access and exit to the Esso filling station and car parking associated with the Matalan store. Visual impacts during construction would therefore be slight adverse.
- 3.18** The nature of this background view would change with the proposed scheme, with the high side wall of the stadium being replaced by a landscaped area with adjacent car parking and three to four storey residential flats beyond.
- 3.19** Visual impacts on affected properties on Main Ridge West and Albion Terrace would therefore be slight beneficial, improving over time as landscape planting develops.

*Visual Impact on Highways*

- 3.20** The nature of changes to views from York Street and Spayne Road would be similar to that described for residential properties. However, the sensitivity of road users would be less than from residential properties. As a consequence visual impacts are likely to be moderate adverse during demolition and construction, changing to moderate beneficial following completion of the scheme.
- 3.21** Views from John Adams Way are illustrated by Plates 2, 3 and 4 (Appendix 1). However, views would be oblique and therefore of even lower sensitivity. As a consequence, visual impacts would be negligible adverse during construction and negligible beneficial following completion of the scheme.

*Visual Impact from Public Rights of Way*

- 3.22** The nearest public right of way is the Macmillan Way which links “Boston Stump” with The Haven tidal rivercourse to the south of the town. Glimpse views of the floodlighting towers at the stadium are possible from some town centre sections of this Recreational Path. The removal of these towers as part of the scheme would generate a negligible to slight beneficial change to these views.
- 3.23** Pedestrians on York Street, Spayne Road and John Adams Way would experience similar views to that described above for residential properties and highways, as illustrated by Plates 1 to 7 (Appendix 1). Visual impacts from York Street and Spayne Road would be substantial adverse during demolition and construction, changing to moderate to substantial beneficial following completion of the scheme.



- 3.24** Pedestrians on John Adams Way would experience similar views to vehicular traffic but as visual receptors would have higher sensitivity. As a consequence, negligible to slight beneficial change would be experienced following completion of the scheme.
- 3.25** Pedestrians using the walkway between York Street and the Esso Filling Station currently experience views of the high side wall of the stadium. These views will be replaced by more open views of residential flats, car parking areas and landscape planting. Whilst adverse change will be experienced during demolition and construction, substantial beneficial visual change would occur on completion of the scheme.

### **Tattershall Road**

#### *Visual Impact from Residential Properties*

- 3.26** Views of the site from residential properties to the south are well screened by intervening woodland. These views would be unaffected by the proposed scheme. Views from properties on the western side of Tattershall Road are also well screened by intervening vegetation and allotment gardens. Whilst much of the intervening vegetation which is currently within the application area will be retained, there may be some opening up of views of the proposed residential development for the even numbered properties nos 120 to 136 Tattershall Road. This is likely to lead to slight to moderate adverse visual change for these properties, during and following construction, depending upon the extent of removal of intervening vegetation.
- 3.27** The properties Tresillion House and Barn Lodge currently have limited views of the stadium buildings as these are generally screened by the hedgerows surrounding the intervening allotment gardens. Replacement of the stadium buildings with residential properties would generate no or negligible visual change, although there may be oblique views of new properties in the south-eastern corner of the site leading to an overall slight adverse impact.
- 3.28** Views of the site from remaining properties on the northern section of Tattershall Road are generally blocked by intervening development, such as the glasshouses at High Hill Farm.
- 3.29** Properties on Rawsons Lane including Corner Farm and Walnut Tree Farm have longer distance views of the site illustrated by Plate 10 (Appendix 2). These properties have views of the existing stadium which will be replaced by views of residential properties. These views will be partially screened over time by

landscape planting within the scheme. As a consequence, visual impact will be of negligible significance.

*Visual Impact from Highways*

- 3.30** Views of the site from Tattershall Road are well screened by a combination of intervening vegetation, residential properties and other development, including glasshouses.
- 3.31** Views from Rawsons Lane would be similar to those described for Corner Farm and Walnut Tree Farm above. However, such views would be oblique and, due to the lower sensitivity of road users as visual receptors, the degree of visual change would be within the range of nil to negligible significance.
- 3.32** Views of the site from other roads are screened by intervening vegetation or development.

*Visual Impact from Public Rights of Way*

- 3.33** Part of the National Cycle Network follows the course of the River Witham to the west of the site. Views towards the site from this footpath and cycleway are generally well screened by vegetation within the intervening Witham Country Park. However, there are limited, partial views of the site looking north east (illustrated by Plate 5, Appendix 2) and looking due east (illustrated by Plate 9, Appendix 2) from this path.
- 3.34** Negligible changes to view would be experienced from the location of Plate 5 (Appendix 2) due to intervening vegetation and the retention of tree planting on the western site boundary.
- 3.35** Slight adverse visual impact would be experienced from the location of Plate 9 (Appendix 2) due to the placement of the proposed residential development on existing sports pitches at the northern end of the site. This new development would be seen in the context of a background of the existing residential development and glasshouses on Tattershall Road. In addition it would be partially screened by existing vegetation to the north of the site.
- 3.36** A footpath linking with Rawsons Lane joins the cycleway to the north of the location of Plate 9. Where views of the site currently exist from this footpath, the proposed development would replace views of the current stadium, being similar to the views from Rawsons Lane (ie similar to Plate 10, Appendix 2).

*Visual Impact from Areas of Public Open Space*

- 3.37** Witham Way Country Park is located immediately adjacent to the southern and western boundaries of the site. As a consequence, views of the existing stadium buildings and pitches are possible from the network of footpaths within the Country Park.
- 3.38** Views from the entrance footpath (to the south of the site) are shown by Plates 1 and 3 (Appendix 2). From this footpath the current views of the stadium with associated buildings and open carpark would be replaced by views of detached and semi-detached residential properties. The sports pitches to the south of the existing stadium would be retained as two mini football pitches. Some loss of scrub and woodland planting may be apparent in the south eastern corner of the site. Thus whilst the nature of the view would change, the degree of visual change experienced from this footpath would be within the range of negligible to slight adverse.
- 3.39** Plate 4 (Appendix 2) shows the view from the picnic area within the Country Park. From this location, views of the south eastern part of the site would generally be screened by intervening woodland. The existing view of the stadium would be replaced by views of residential development. Here the nature of the view would change but the impact of this change would be neutral.
- 3.40** Views from the Country Park to the west of the site are illustrated by Plates 6 and 7 (Appendix 2). The existing stadium development is generally screened by vegetation both within the Country Park and forming the boundary to the site. However, some of the floodlighting towers are visible and there are glimpse views of the stadium where intervening vegetation is thin. These floodlighting towers would be removed as part of the proposed development. Glimpse views of the stadium would be replaced by glimpse views of the proposed residential properties, gardens and landscape planting. As a consequence, there would be a negligible to slight beneficial change to these views.
- 3.41** An open view of the northern part of the site is possible from the far north-eastern boundary of the Country Park, as illustrated by Plate 8 (Appendix 2). From this point there would be a substantial change of view, with the existing sports pitches being replaced with views of residential properties. This view would be partially screened over time by the proposed landscape planting. The main central part of the site would also be visible from this point with views of the existing walls of the stadium being replaced by residential properties, gardens and landscape planting. As a consequence, the overall degree of visual change from this viewpoint would be moderate adverse.

**3.42** Views from the allotment gardens between the site and Tattershall Road are well screened by an intervening mature hedgerow, although the loss of the floodlighting towers within the site would be apparent.

**3.43** The access road to the allotments currently has views of the car park stadium buildings and floodlighting towers, as illustrated by Plate 2 (Appendix 2). The nature of this view would be substantially altered to views of the proposed residential properties, gardens and landscape planting.

## **4 ECOLOGY**

### **Introduction and Methodology**

**4.1** Preliminary ecological appraisals of the York Street and Tattershall Road sites were carried out on 12 October 2004 by carrying out a brief walkover survey to provide an overview of potential habitats which may be affected by the proposed change of use to residential development. Reference was also made to the English Nature website, [www.natureonthemap.org.uk](http://www.natureonthemap.org.uk), to establish the proximity of statutory ecological designations.

### **York Street Ecological Impacts**

**4.2** There are no statutory nature conservation designations within 2km of the site. The Haven tidal river, located approximately 300 metres to the west of the site, is shown as a Biodiversity Action Plan (BAP) Priority Habitat to the south of the A52 road bridge. However, this would be unaffected by the proposed scheme.

**4.3** The site comprises the existing football stadium, associated buildings and an area of hardstanding used as a car park. No vegetation was noted on the site. Consequently, there are no habitats of potential value for wildlife.

### **Tattershall Road Ecological Impacts**

**4.4** There are no statutory nature conservation designations within 2km of the site. The site comprises an existing football stadium, associated buildings, managed football pitches, an area of hardstanding used as a car park and peripheral scrub and tree planting within rough grassland.

**4.5** The habitats present within the site are likely to be of low potential value for wildlife. The scrub and tree planting in the south east corner of the site may have low and limited potential for nesting birds. As a precautionary measure any scrub or tree clearance works should be undertaken outside the bird breeding season, March to August inclusive. Given the nature of the habitats present, it is likely that the proposed residential development would have a negligible impact on wildlife within the site.

- 4.6** There was no standing water for Great Crested Newts or evidence of badgers at the time of site visit.

## **5 CULTURAL HERITAGE**

### **Introduction and Methodology**

- 5.1** An outline archaeological appraisal of the York Street and Tattershall Road sites has been undertaken. This comprised an inspection of the available map evidence, a remote appraisal of the site and reference to the MAGIC website [www.magic.gov.uk](http://www.magic.gov.uk) to establish the presence of statutory sites.

### **York Street Cultural Heritage Impacts**

- 5.2** There are no statutorily designated heritage sites within or in the near vicinity of the York Street site which is currently occupied by the present Boston United Football Club ground.

- 5.3** The stadium structure is constructed from brick and corrugated iron and is of little or no architectural value. The area surrounding the ground comprises hard standing for car parking with a number of small ancillary brick structures. The site is located away from the core of the medieval town and therefore it is unlikely that archaeological remains exist in the area. Furthermore the ground preparation and construction of the present ground is likely to have disturbed any archaeological features, should they have been present.

- 5.4** It is therefore considered that there is little potential for the presence of significant archaeological deposits being present within the York Street site.

### **Tattershall Road Cultural Heritage Impacts**

- 5.5** There is a single designated heritage site within one kilometre of the site. This is the registered park, Boston Cemetery, which is listed as a Grade II House.

**5.6** The site is currently occupied by a sports pitch, small stands for spectators and changing facilities for the players. The surrounding area comprises land used as a Country Park and unused ground. None of the structures have any architectural value and there is no evidence for archaeological earthworks on the site. The position of the Tattershall Road site at the northern extent of the town indicates that it is at a considerable distance from the medieval core of the settlement. The site has experienced relatively little development in comparison with the York Street site and its location in a wider landscape of high archaeological activity suggests that there may be the potential for the presence of archaeological remains, predating the medieval period, to be present at the site.

**5.7** Discussions should therefore be held with the County Archaeologist to establish whether any archaeological investigations are required.

## **6 NOISE**

### **Introduction**

**6.1** This section of the environmental statement outlines the potential for noise at proposed developments at Boston United Football Club's York Street and Tattershall Road sites. Precise construction details will depend on a range of factors, which are not definable at this stage. For example, the number of vehicles required for the export of demolition or site preparation spoil would be dependent on the construction programme and the ability to recycle or re-use materials on site.

**6.2** Construction plant components are not certain at this stage, and hence noise is difficult to estimate with precision. Furthermore, potential construction or demolition impacts are largely dependent on attention to management control (for example use of quiet plant or siting of noisy plant). The aim here then is to define mitigation measures to offset impacts identified, rather than precisely predict effects. The greatest potential for impact is from demolition and earthworking phases although the duration should be short lived. Both sites are set off from a main thoroughfare although traffic noise will probably predominate.

### **Mitigation**

**6.3** In order to mitigate against the potentially most adverse impacts from construction activities it would be prudent to consider a construction management plan.

- Normal working hours should be restricted to between 07:30 and 18:00 hours on weekdays and 07:30 to 13:00 hours on Saturdays. Sunday and evening working should only be required on exceptional occasions. There would be no

night time working. Any specific operation requiring activity in abnormal periods would be subject to prior notification.

- A “best practical means” approach would be adopted for potentially noisy operations, i.e. those within 100 metres of sensitive properties. These would be as below:
  - all plant and equipment to be used for the works will be properly maintained, silenced where appropriate and operated to prevent excessive noise. Plant should be certified to meet any relevant EC Directives or UK or BS5228 standards.
  - all contractors should be familiar with the guidance in BS5228 (Parts 1 and 2).
- Set a speed limit of 15 mph for the site roads. Roads will be maintained in a good condition and free from potholes.
- Use of ambient reverse alarms to reduce the impact of reversing beepers.
- Delivery of goods to be during the day only.
- Guidance on acceptable levels of construction noise is contained in DoE (now DEFRA) Advisory Leaflet AL72 published in 1976. This advisory limit adopts the original guidelines contained in the Wilson Committee Report on Noise (Cmnd 2056) which advised on the basis of speech interference criteria, that the noise level outside the nearest occupied room should not exceed:
  - 75 dB(A) averaged over 1 hour in urban areas near main roads and heavy industrial areas
  - 70 dB(A) averaged over 1 hour in rural, suburban and urban areas away from main road traffic and industrial noise

**6.4** The latter figure would appear to be the target here and for any evening/ Sunday working the criteria should be reduced to 65 dB(A) averaged over the hour.

## **RESIDUAL IMPACTS**

### **York Street**

**6.5** Demolition of the stadium will be the noisiest phase of the development but this should be a relatively short lived operation. The construction of the flats/houses would then be like any other building site.

- 6.6** Once built the houses having a similar location to the dwellings along York Street and Spayne Road should mean that the ambient noise climate is unlikely to be an issue.

### **Tattershall Road**

- 6.7** Any demolition should be on a much smaller scale than the York Street site so that again construction noise should be at a typical level for a house building site.
- 6.8** The completed development will be neighboured on two sides by a park and agricultural land. The other sides comprise residential usage and the site is well separated from Tattershall Road. Ambient noise should therefore not represent an issue.

### **Conclusion**

- 6.9** With the appropriate construction plan in place, noise should not be an issue at either site either during construction or once inhabited.

### **Reference**

1. BS5228: Noise and Vibration Control on Construction and Open Sites Part 1: Code of Practice for basic information and procedures for noise and vibration control (1997)

## **7 AIR QUALITY**

### **Introduction**

- 7.1** This section provides an evaluation of the air quality impact of the proposed residential developments in the light of prevailing conditions. Existing air quality within the York Street and Tattershall Road areas are reviewed in the context of the National Air Quality Strategy and any possible adverse impacts resulting from the proposed development are discussed. Both sites are within the boundary of Boston Borough Council and therefore the most recent air quality review/updating and screening assessment is considered. This statement also considers the short term construction related impacts and particularly dust emission that could arise during the early phases of development.



## Air Quality Guidelines and Criteria

**7.2** Ambient air quality is generally assessed in relation to the following key air pollutants associated with industry and transport.

- Fine Particulate Matter (PM10);
- Nitrogen dioxide (NO<sub>2</sub>);
- Sulphur dioxide (SO<sub>2</sub>);
- Lead;
- Benzene
- 1, 3 Butadiene;
- Carbon Monoxide (CO).

**7.3** The Government Air Quality Strategy for England, Wales, Scotland and Northern Ireland published in 2000, together with an addendum published in February 2003, sets out a framework for air quality improvements including a series of objectives for these seven key air pollutants; see Table 1 below.

<b>Table 1</b>		
<b>Air Quality Objectives</b>		
<b>Substance</b>	<b>Air Quality Levels</b>	<b>Air Quality Dates</b>
Benzene	16.25 micrograms per cubic metre or less, when expressed as a running annual mean.	31 December 2003
	5 micrograms per cubic metre or less, when expressed as a running annual mean.	31 December 2010
1, 3 Butadiene	2.25 micrograms per cubic metre or less, when expressed as a running annual mean.	31 December 2003
Polycyclic aromatic hydrocarbons (PAH)	0.25 nanograms per cubic metre (B[a]P) as an annual average.	31 December 2010
Carbon Monoxide	10 milligrams per cubic metre or less, when expressed as an annual mean	21 December 2003
Lead	0.5 micrograms per cubic metre or less, when expressed as an annual mean.	31 December 2004
	0.25 micrograms per cubic metre or less, when expressed as an annual mean.	31 December 2008
Nitrogen Dioxide	200 micrograms per cubic metre, when expressed as an hourly mean, not to be exceeded more than 18 times a year.	31 December 2005
	40 micrograms per cubic metre or less, when expressed as an annual mean.	31 December 2005
PM <sub>10</sub>	50 micrograms per cubic metre or less, when expressed as a 24 hour mean, not to be exceeded more than 35 times a year.	31 December 2004
	40 micrograms per cubic metre or less, when expressed as an annual mean.	31 December 2004
Sulphur Dioxide	125 micrograms per cubic metre or less, when expressed as a 24 hour mean, not to be exceeded more than 3 times a year.	31 December 2004

<b>Table 1</b>		
<b>Air Quality Objectives</b>		
<b>Substance</b>	<b>Air Quality Levels</b>	<b>Air Quality Dates</b>
	350 micrograms per cubic metre or less, when expressed as an hourly mean, not to be exceeded more than 24 times a year.	31 December 2004
	266 micrograms per cubic metre or less, when expressed as a 15 minute mean, not to be exceeded more than 35 times a year.	31 December 2004

**7.4** Table 2 below provides guidance on the circumstances under which the standards are to be applied.

<b>Table 2</b>		
<b>Examples of where the Air Quality Objectives should/should not apply</b>		
<b>Averaging Period</b>	<b>Objectives should apply at</b>	<b>Objectives should generally not apply at</b>
Annual Mean	All background locations where members of the public might be regularly exposed.  Building facades of residential properties, schools, hospitals, libraries, etc.	Building facades of offices or other places of work where members of the public do not have regular access.  Gardens of residential properties.  Kerbside sites or any other location where public exposure is expected to be short term.
24 Hour (daily) mean/8 hour mean	All locations where the annual mean objectives would apply Garden of residential properties.	Kerbside sites, or any other location where public exposure is expected to be short term.
1 hour	All Locations where the annual mean and 24 and 8-hour objectives apply.  Kerbside sites (e.g. pavements of busy shopping streets)  Those parts of car parks and railway stations etc. which are not fully enclosed Any outdoor locations to which the public might reasonably be exposed for a period of 15 minutes or longer.	Kerbside sites where public would not be expected to have regular access.

**7.5** Apart from the absolute pollutant concentrations used to define the National Air Quality (NAQ) standards and objectives, there is little formal guidance on the significance to be placed on concentration changes relative to either ambient conditions or the NAQ standards and objectives. For assessing the changes in air quality due to a scheme, the Government’s Guidance on the Methodology for

Multi-Modal Studies (GOMMS) requires a qualitative comment to be provided if either of the following situations apply:

- the proposal leads to an increase in annual average PM10 concentrations of at least  $2\mu\text{g}/\text{m}^3$  or;
- the proposal leads to an increase in annual average NO2 concentrations of at least  $4\mu\text{g}/\text{m}^3$  and where the road within the proposal is above the AQS objective of  $40\mu\text{g}/\text{m}^3$

**7.6** A Technical Guidance Note on Air Quality Assessments, prepared by the Association of London Government Transport and Environment Committee in March 2001, also provides guidance for Planning Applications. Although developed for use by the London Boroughs, the guidance does provide useful criteria for evaluating the significance of change. To assist with determining the significance or otherwise of air quality changes associated with a new development, the guidance suggests the following:

- Would the development result in the designation of a new Air Quality Management Area (AQMA)?
- Would the development result in an extension to the area covered by an existing AQMA?
- Is there a conflict with any measures that are contained in the Local Authority's Action Plan for the AQMA?
- Where air quality objectives are predicted to be breached, would the development increase concentrations of a pollutant by the amounts given in the following table (Table 3).

<b>Air Pollutant Objective</b>	<b>Predicted Increase in Pollutant Concentration above Objective</b>
Sulphur Dioxide $266\mu\text{g}/\text{m}^3$ (100ppb) measured as a 15 minute average, not to be exceeded more than 35 times per year.	$\geq 6.7\mu\text{g}/\text{m}^3$ (2.5ppb)
Nitrogen Dioxide $200\mu\text{g}/\text{m}^3$ (105ppb) measured as an hourly mean not to be exceeded more than 18 times per year. $40\mu\text{g}/\text{m}^3$ (21ppb) measured as an annual mean	$\geq 5\mu\text{g}/\text{m}^3$ (2.5ppb) $\geq 1\mu\text{g}/\text{m}^3$ (0.5ppb)
Particles (PM <sub>10</sub> ) $50\mu\text{g}/\text{m}^3$ measured as a 24 hour mean not to be exceeded more than 35 times per year. $40\mu\text{g}/\text{m}^3$ measured as an annual mean.	$\geq 1.25\mu\text{g}/\text{m}^3$ $\geq 1\mu\text{g}/\text{m}^3$

- 7.7** National and International policy measures are likely to result in the above air quality objectives being achieved in most locations but where areas of poor air quality remain, local authorities are required to use powers provided under Part IV of the Environment Act 1995 to bring about any necessary improvement.
- 7.8** Central to achieving the air quality objectives detailed in Table 1 is the periodic review of ambient air quality by the local authority. Where the periodic review indicates that existing or future predicted air quality in an area is likely to fall short of relevant air quality objectives, the local authority must designate an Air Quality Management Area (AQMA) and produce an Action Plan.

### **Baseline Situation**

Boston Borough Council – Air Quality Review and Updating and Screening Assessment.

- 7.9** Both application sites are located within the boundaries of the Boston Borough Council. The conclusions from both the Local Authority 2003 Stage 4 Air Quality Review and the Local Air Quality Management Updating and Screening Assessment (LAQM USA 2003), undertaken by Boston Borough Council have so far indicated that all the air quality objectives are likely to be met. The one exception is nitrogen dioxide.
- 7.10** An Air Quality Management area has been declared in the Liquorpond Street and Haven Bridge Area of the Boston Town Centre with regard to levels of nitrogen dioxide.
- 7.11** The Council undertakes no PM10 monitoring within its administrative area. In the absence of monitoring data to assist local authorities in undertaking the periodic reviews of ambient air quality, the Department of the Environment (DEFRA) have produced detailed guidance and assessment tools. One such tool is the DEFRA air quality archive ([www.airquality.co.uk/archive/laqm/tools/php](http://www.airquality.co.uk/archive/laqm/tools/php)) which shows maps of the country and a database for each local authority giving background concentrations of the various air pollutants based on 1km grid squares.
- York Street*
- 7.12** The York Street site is approximately 300 metres to the north east of the Air Quality Management area referred to above. Housing exists along York Street and Spayne Road and there is a large hall adjacent to the western side of the current stadium.
- 7.13** There is no significant industrial activity in the immediate vicinity of the site. However, there is the port facility, which handles deliveries of such materials as

coal, cement and grain. There is also Fogarty Ltd a quilt and pillow manufacturer. Neither activity has been considered significant sources of emissions in the Council's recent screening assessment and both are nearly 1km distant from York Street. The nearest important source of particulates will be from road traffic along John Adams Way approximately 80 metres to the west of the current stadium.

**7.14** The ambient concentrations of particulates, however, decline quite quickly with distance from the road centre. This is illustrated in Figure 1, which is reproduced from the Design Manual for Roads and Bridges (DMRB), 19991. The curve below represents the relationship between particulate concentration as a function of the distance from the road centre. Significant reductions occur even 50 metres, from the road centre so that it is likely that at York Street, PM10 concentrations will have declined significantly from those at the John Adams Way roadside.

**7.15** The grid square in the air quality archive, which provides the most representative estimate of air quality data, is located at Grid Reference 532500E 343500N. The background concentration for 2004 has been obtained from the relevant Excel spreadsheet. The value given is 18.6 µg/m<sup>3</sup> which is well within the air quality objective.

### ***Tattershall Road***

**7.16** The Tattershall Road Site lies in the north of Boston. There is residential housing along Tattershall Road and along numerous side roads. To the north is agricultural land and to the west is Witham Way Country Park.

**7.17** Boston crematorium is situated approximately 250 metres to the south east of the site. The crematorium is an authorised process with permitted maximum levels of pollutants such as particulates and NO<sub>x</sub>. We understand that there have been no complaints from residents living between the facility and Tattershall road.

**7.18** There is also agricultural land to the north where there is the possibility of short term odour from for example cabbage cutting and manure spreading. Again we understand that this has not represented an issue.

**7.19** The grid square in the air quality archive, which provides the most representative estimate of air quality data, is located at Grid Reference 531500E 344500N. The background concentration for 2004 has been obtained from the relevant Excel spreadsheet. The value given is 18.4  $\mu\text{g}/\text{m}^3$  which is well within the air quality objective.

## **8 DUST**

**8.1** Construction sites, particularly in urban areas are perceived to be a significant source of dust emissions and, if such operations are not properly controlled, they can give rise to nuisance. In severe cases this can potentially harm the health of construction workers and the local population. In addition to the nature of the activity being undertaken, wind direction, windspeed, the type and quantity of material being handled, its particle size distribution and moisture content will all influence whether the potential for nuisance exists.

**8.2** At the present time, there are no formal standards relating to acceptable levels of dust deposition in the UK. However, a commonly used guideline suggests that deposition rates in excess of 200  $\text{mg}/\text{m}^2/\text{day}$  (as a monthly average) may cause nuisance. It should be noted that the nature of deposit could influence strongly the perception of nuisance. For example, black coal dust, which has a high contrast with its background, may cause complaints if deposited at a rate in excess of only 80  $\text{mg}/\text{m}^2/\text{day}$ .

**8.3** The Building Research Establishment (BRE) has quite recently undertaken an extensive research programme and supported by the DTI Construction Directorate provides information on best practice in relation to dust control and on the impact of construction operations.

**8.4** The BRE have published the main findings of their research in a series of Pollution Control Guides (Parts 1 to 5) in 2003. The Guides provide information on best practice in relation to dust, vapour and noise pollution control on construction sites from the pre-project planning stage through demolition, haulage and materials handling to project completion. An associated dust monitoring programme was also undertaken on a major construction site where current “best practice” measures had been implemented.

**8.5** Details regarding the BRE monitoring programme were reported in Clean Air (2002)2 where it was explained that PM10 concentrations in the vicinity of a construction site was monitored continuously for a six month period. During this period, a 6500  $\text{m}^3$  industrial building was decontaminated and then stripped of asbestos before being demolished and removed from the site. Following this a

one metre soil layer was removed and the site was infilled and levelled. The monitoring study found that, during working hours, there was only a “small” increase in baseline PM<sub>10</sub> concentrations measured at the boundary of the site and no discernible impact 150 metres downwind.

**8.6** The impact of construction and demolition operations for this BRE study was variable in terms of PM<sub>10</sub> loading and it was noted that the small increase during site preparation and earthworks was probably due to diesel exhaust emissions. The following specific increases were recorded at the boundary of the study site:

- Around 3 µg/m<sup>3</sup> during internal stripping operations;
- Around 11 µg/m<sup>3</sup> during demolition operations;
- Around 5 µg/m<sup>3</sup> during earth-working operations.

**8.7** The BRE monitoring survey found that, with best practice control measures in place there was only one occasion over the six month monitoring programme when the PM<sub>10</sub> air quality standard (50 µg/m<sup>3</sup>, 24 hour) was exceeded. This coincided with an episode of generally elevated PM<sub>10</sub> concentrations in the local area.

#### **York Street**

**8.8** In the case of this proposed development there are numerous dwellings along dwellings along York Street and Spayne Road as well as a hall immediately adjoining the western side of the current stadium. It is therefore important during demolition and construction phases of the project to contain dust emissions as much as possible.

**8.9** However in the worst case assuming a background concentration of 18.6 µg/m<sup>3</sup> then with demolition operations the highest concentration should be no more than 28-29 µg/m<sup>3</sup>. This is below the National Air Quality Objective.

#### **Tattershall Road**

**8.10** Most of the proposed development is well separated from existing housing although the nearest part adjoins dwellings along Tattershall Road and some allotment gardens. There is also the impact of dust deposition on nearby crops as well as vegetation in the country park. So control of dust emissions is just as important as at York Street.

- 8.11** However, assuming worst case then with a background concentration of 18.4  $\mu\text{g}/\text{m}^3$  then with demolition operations the highest concentration should be no more than 28-29  $\mu\text{g}/\text{m}^3$ . This is again below the National Air Quality Archive

## **COMPLETED DEVELOPMENT**

### **York Street**

- 8.12** The envisaged scheme is to have seven 2-storey semi-detached houses on the southern side. There will be 2-storey flats on the eastern side and 3-4 storey flats on the site of the present pitch. At the north end there will be a Matalan 'retail' building. The scale of the development is unlikely to have a significant impact on the immediate traffic pattern and hence pollutant levels will be little changed. In addition the dwellings themselves are sufficiently distant from John Adams Way to be relatively unaffected by that source of traffic pollution.

### **Tattershall Road**

- 8.13** Most of the proposed residential development is well separated from any well trafficked roads so that this source of pollution can be disregarded here. The modest size of the development is also unlikely to adversely affect the traffic pattern.

## **Proposed Mitigation**

### **Building Operations**

- 8.14** The period of demolition and earth moving should last only a few weeks. The period of construction would last a year at most.
- 8.15** Important measures for dust control will include:
- fencing off the site area;
  - limitation of the areas of working for the construction phase so that vehicles are confined within an area that can be subjected to appropriate dust control;
  - spraying of delimited areas with water as and when conditions dictate;
  - where possible, areas of paving or other hardstanding should be maintained. All such areas should be maintained, kept wet, using appropriate water bowsers and/or cleaned when necessary;
  - vehicles carrying dust forming material either on or off the site are to be sheeted, if there is any risk of dust blow;



- if complaints arise or incidents of dust deposition occur, these will be investigated immediately, remedial action taken;
- where possible, stockpiles of dust material should be located to provide the optimum practical buffer distances to off-site properties. The same provisions apply to any specific dust producing activities such as on-site concrete/stone crushing.
- In addition, there is detailed advice contained in the BRE Pollution Control Guide “Controlling Particles, vapour and noise pollution from construction sites.” Parts 1 to 5 would need to be implemented comprising:
  - Part 1: pre-project planning and effective management.
  - Part 2: site preparation, demolition, earthworks and landscaping.
  - Part 3: haulage routes, vehicles and plant.
  - Part 4: materials handling, storage, stockpiles and disposal.
  - Part 5: fabrication processes and internal and external finishes.

**8.16** A final air quality issue would be the banning of fires on site, except by prior agreement with local authority.

### **Traffic**

**8.17** Changes in traffic patterns will not be large enough to lead to any adverse impact. It is also considered that there appear to be a sufficient number of proposed access routes in both design plans to minimise congestion.

### **Conclusions**

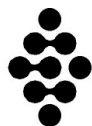
**8.18** This assessment provides a review of existing air quality in Boston Borough Council to assess impacts regarding the proposed York Street and Tattershall Road residential developments. The main issues are considered to be dust and airborne fine particulate matter generated during the building phase.

- The impact of dust arising from the construction phase has been considered in the light of the considerable body of recent work on the subject and monitoring conducted by the Building Research Establishment in the vicinity of a development site. It is concluded that, with best practice control measures in place, the dust impact of construction operation would not lead to a breach of PM10 air quality standards.
- Both locations are considered to be sufficiently distant from major roads to be largely unaffected by traffic pollution.

- Neither site is adversely affected by emissions from any local industries or facilities.
- Traffic related site impacts from the completed developments are predicted to be negligible.

### 8.19 References

1. Design Manual for Roads and Bridges: Volume 11, Section 3, Part 1 Air Quality (May 1999)
2. S Upton and V Kukadia, Measurements of PM<sub>10</sub> Emissions from A Construction Site: A Case Study, Clean Air, Vol 32, 2002.



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