

# Case Name: Sainsbury's supermarket, 55 Bugsby's Way, Greenwich

**Case Number: 1420356**

## Background

English Heritage was asked to assess Sainsbury's supermarket, Bugsby's Way, Greenwich, for listing. The application was prompted by a recent planning application made to (and subsequently granted by) London Borough of Greenwich, for the demolition of the building.

Subsequent to beginning our assessment, a second application was received requesting a Certificate of Immunity from Listing be issued. The listing assessment has therefore been pursued as a COI case.

## Asset(s) under Assessment

Facts about the asset(s) can be found in the Annex(es) to this report.

Annex	List Entry Number	Name	Heritage Category	EH Recommendation
1	N/A	Sainsbury's supermarket	Listing	Do not add to List

## Visits

Date	Visit Type
11 April 2014	Full inspection

## Context

This Sainsbury's store was built in 1999 as part of the partially realised redevelopment of the Greenwich Peninsular as model of sustainable urban renewal. As the building is under 30 years old it is eligible for listing only at Grade II\* or I.

## Assessment

### CONSULTATION

The building's owners and their representatives, the listing and COI applicants, the local planning authority (London Borough of Greenwich), the Greater London Historic Environment Record (GLHER), and an interested party, were provided with copies of our Consultation Report.

Two representatives of the building's owners provided consultation responses. The GLHER and one of the owners confirmed that they did not wish to comment. No response was received from the other consultees.

One of the two consultation responses provided on behalf of the building's owners picked up on some minor factual inaccuracies in the consultation report, and these have been amended in the History and Details section of this report. Both responses criticised the consultation report for being too positive in its tone, mainly on account of information which the respondents considered ought to have been included in the report, but which was omitted (discussed further below). English Heritage considers that the consultation report set out objective facts with a level of detail necessary to inform the weighing up of claims to special interest in the assessment: this is the purpose of the consultation report. Most of the points raised in the representations related to detailed claims as to the building's function, success, and level of survival, which are addressed, if relevant to a listing assessment, in the Discussion below. That notwithstanding, two qualifying words or phrases have been added to the History section to highlight the fact that the Millennium Village, which the

supermarket was built to serve, remains incomplete, and that the press response to the building was not universally positive.

#### Mechanical and Electrical (M & E) services:

Both consultation responses complained that the failings of the building's M & E services, and alterations made to them, were not adequately covered in the consultation report. However, as explained in the consultation report, the services were covered to the extent felt appropriate to inform the assessment of the building's architectural and historic interest. The Discussion below focuses on the architecture of the building, and its historic context. Irrespective of the operational success, or otherwise, and level of survival of the M & E services, it would be inappropriate to identify the fabric of M & E plant as an important element of any special architectural or historic interest applied to the building, in part because this has a finite lifespan which would necessarily require renewal with time, but more importantly, for any building, not least one whose fundamental concept is based on sustainability, it would be legitimate for service-based fabric to be replaced with more efficient or functional systems as these became available. What is relevant however, is the more general success of the building as a model for sustainable development at the time it was built, and since, and the scope which it offers for upgrading, and this is discussed below. So, although the M & E plant was a key aspect in realising the building's original reduced energy consumption, its survival, or success by today's standards, can be given little weight in the assessment for listing, either for or against, and hence it did not require detailed discussion in the consultation report.

#### DISCUSSION

The over-arching criteria for listing are special architectural and historic interest. This special interest may be manifest in a building's architectural design, decoration or technological interest; or in its illustration of important aspects of the nation's social, economic, or cultural history. Supermarkets are a specifically post-war building type, their numbers growing rapidly since the 1980s. They represent a fundamental cultural shift in consumer patterns, which is manifest in their physical form: typically located out of town centres, they are usually large, free-standing, single-storey buildings with uninterrupted interiors. Their architecture is most often weighted heavily in favour of function and efficiency, perhaps with the odd superficial stylistic gesture; they are not a building type usually identified with architectural distinction. Nevertheless, as outlined in the History section of this report, exceptions do exist. As noted in English Heritage's listing selection guide: Commerce and Exchange Buildings (April 2011), while the assessment of commercial buildings must be discerning due to the large numbers which survive, and the high level of standardisation, intact modern retail architecture of note is rare, and therefore the identification of these examples is important. That notwithstanding, the bar for special interest is high, and in the case of those buildings which are under 30 years old, they must be of outstanding quality to meet the test of 'more than special interest' that a listing at Grade II\* or I denotes.

The potential claim to special interest that the Greenwich Sainsbury's presents, rests principally on its exploration of sustainable technologies and design devices, to demonstrate the possibility of a more environmentally sensitive and humanised form of 'big-box' retail architecture, at a time when the sustainability agenda was reaching its stride. The building, constructed in 1999, was intended as a one-off 'concept' store, exploring numerous ideas on the basis that the most successful would inform future stores, rather than as a finished product which would be replicated in toto elsewhere. On a high-profile site, as part of the wider Greenwich Peninsular development, which was intended as an exemplar for sustainable urban living, the building had to represent an exemplar for sustainable retail, so as to demonstrate that it was the Sainsbury's chain leading the way. The building had to be green, and be seen to be green. Architecturally, it wears its credentials on its sleeve: the soft organic curves, grassy slope of its walls and the welcoming splay of the timber cladding, invite shoppers into what might, from the outside, be expected to be a dark, cave-like interior. In actual fact, the interior is flooded with natural light, and the sight of the sky through the elegant curve of the rooflights is surprising and dramatic. The architecture is informed directly by the drive to reduce its energy use, and importantly, the design devices used to achieve this create a building which is graceful, humanised, and inspiring, even more so because it is a supermarket rather than in spite of it. The building is a piece of late-C20 retail architecture of note. That notwithstanding, the nature and use of the building dictates a level of simplicity and functionality in its planning and interior. A major element of its architectural interest therefore rests in its external shell (as it does in many commercial buildings), and while this shell shows beauty and virtuosity in its singleness of concept and expression, in an assessment to quantify architectural interest in a national context, too large a burden falls on this appealingly modest organic form to meet the test of being of 'more than special interest' on grounds of aesthetics alone.

A key test in the assessment of post-war architecture is whether it fulfilled its original brief, not just at the point of its completion, but in its subsequent service in its original function. Whilst Greenwich Sainsbury's was claimed to achieve an impressive 50% energy saving over a conventional supermarket at that time, a principal criticism which has been levelled at the building is its lack of flexibility as a retail space. The heating

and cooling system to some extent dictates the shop-floor layout, and access to under-floor services for maintenance is difficult. This has limited the way in which the shop-floor can be used, and the extent to which upgrading or alteration of these services can be carried out. In addition to this, the architecture of the building does not lend itself to extension or modification to increase floor space. The concept of creating 'loose-fit', flexibly serviced, retail and commercial spaces that allow for adaptability was not new by the turn of the millennium, as can be seen in the design approach to the Milton Keynes Shopping Building of 1973-9 (listed Grade II), a number of large-scale commercial offices by practices such as Arup Associates, and most conventional supermarkets contemporary to this one. How much weight the issue was given when specifically considering environmental, as opposed to economic, sustainability at this time, is less well understood, but it seems unlikely that these problems could not have been foreseen. Given all the building did achieve in its architecture and energy saving, it is unfair to be overly critical on the point of flexibility, but in an assessment of special architectural and historic interest at a national level, this issue has to be recognised as a failing of the building both as a supermarket, as well as as a piece of sustainable design.

It has never been claimed that the building employed new technologies, or that it is a pioneer for sustainable architecture, rather that it is a pioneer for sustainable retail architecture. Certainly, with its claim to such substantial energy savings, the building planted a flag for what could be achieved with sufficient corporate will and investment. However, in terms of setting a precedent for subsequent large-scale sustainable retail architecture, although some features of the building can be identified in other stores, such as earth banking and an aluminium clad roof at Sainsbury's 2008 Dartmouth store, on a practical, and more holistic, level, the Greenwich Sainsbury's would seem in the longer term to have been just as informative about how to avoid limited sustainability in retail architecture, as it has been about achieving sustainability. Almost all development moved, and continues to move, in the direction of greater sustainability from the late 1990s onwards, and it is not considered that this building precipitated a key turning point for sustainable retail development. Rather, the Greenwich Sainsbury's is an illustration of a paradigm, which had already found expression in commercial offices by this time, filtering through into the big-box retail sector. While the building was the first of its type within this sector, it was, and remains, a one-off in its ambition and approach – partly because it was always intended to be so, but partly because of the limitations of its success. For these reasons, the building's historic interest is more as a response to a particular set of circumstances, largely unique to it, rather than as a pioneer responsible for pointing the way towards a new future for supermarket design. The limited direct influence of the building may be less critical to the assessment of its historic significance if it were older and the perspective of time revealed the importance of early examples of sustainable retail architecture in the broader story of changing corporate attitudes to the environment; but after only 15 years, this picture is incomplete.

Of all the supermarket chains, it is Sainsbury's which has done by far the most to bring together the seemingly disparate worlds of big-box retail and architecture. The Greenwich Sainsbury's is perhaps the company's most striking and instantly recognisable foray into high-profile architectural design, and is the only example of a store designed throughout by a single architectural practice. The building is a product of its time, both architecturally and conceptually, demonstrating that even the most mundane building type could be transformed into something sensitive to its environment: it gave physical form to the aspiration of a clean, green, twenty-first century. However, for this building to be listed, it must be identified as being of outstanding quality, justifying its inclusion in a category which would place it amongst the top 8% of listed buildings in the country. For any building under 30 years old this is a particularly challenging threshold to cross, and Greenwich Sainsbury's is not the first environmentally conscientious commercial building of this young age to be assessed for listing. Cemex House, Thorpe (Surrey), 1987-90 by Edward Cullinan and recently listed at Grade II\* is illustrative of the potential for an exceptional marriage of environmental sustainability, sophisticated planning, use of materials, and high quality detailing. At this level, the bar for listing is extremely high, and when Cemex House and Greenwich Sainsbury's are compared, there is a clear distinction in the overall architectural achievement. The Sainsbury's architecture does create a positive and engaging experience, a sense of novelty and delight; but the extent and scope of its achievement is limited by the simplicity of its plan and form. The architecture is successful in many ways but it does not have a richness or sophistication in the quality of materials, detailing and planning to mark it out as outstanding. Crucially also, it lacks flexibility as a retail space: a key element of retail design, and therefore of sustainable retail design. The building's historic interest is as an ambitious one-off 'concept' store showcasing the possibilities for a more environmentally sensitive and humanised form of retail architecture – of undoubted interest, but in its limited success and influence, not demonstrated to be of sufficient importance as a pioneer of, or a turning point for, sustainable retail architecture.

#### CONCLUSION

After examining all the records and other relevant information and having carefully considered the architectural and historic interest of this case, the criteria for listing are not fulfilled. For this reason, Sainsbury's, Bugsby's Road, Greenwich, is not recommended for listing, and it is recommended that a COI should be issued.

## REASONS FOR DESIGNATION DECISION

Sainsbury's, Bugsby's Road, Greenwich, built 1999 as a sustainable 'concept' store, is not recommended for listing (and it is recommended that a COI be issued) for the following principal reasons:

- \* Architectural interest: the building's architecture is graceful and humanised, expressing its concept through its form, but the extent and scope of its achievement is limited by the simplicity of its plan and detail, and, crucially, by its lack of flexibility – a key element of retail sustainability;
- \* Historic interest: though of interest as a one-off 'concept' store, bringing bioclimatic design and striking architecture into the usually prosaic field of supermarket design, the building is not of sufficient importance as a pioneer of, or a turning point for, sustainable retail architecture.

### **Countersigning comments:**

Agreed. Sainsbury's Supermarket on Bugsby's Way, Greenwich is a striking and unusual 1990s retail building. However, given its youth the 30-year rule applies and it must both be under threat (it is proposed for demolition) and listable at Grade II\* or I. As our advice discusses in some detail, the building exhibits a number of design successes but also has flaws. A significant one from the perspective of listing is that as a 'sustainable building' its design lacks flexibility. In addition, while gaining some positive recognition when built, including a Stirling Prize short-list, it has not proven to be influential but rather a one-off. It does not therefore possess the very high degree of special interest required for listing in a higher grade and therefore a COI should be issued.

V. Fiorato, 22nd July 2014

### **Further Comments:**

Agreed, yes issue COI. Tony Calladine. 31 July 2014

### **Further Comments:**

The case has been discussed with the Director, and his views have helped to form the recommendation.  
Tony Calladine. 31 July 2014

# Annex 1

## Factual Details

**Name:** Sainsbury's supermarket

**Location:** 55 Bugsby's Way, London, SE10 0QJ

County	District	District Type	Parish
Greater London Authority	Greenwich	London Borough	Non Civil Parish

## **History**

Sainsbury's supermarket on Bugsby's Way, Greenwich, was built in 1999 to the designs of Chetwood Associates, as a prototype low-energy store for the Sainsbury's chain.

The store stands on the Greenwich Peninsular, formerly an industrial area which was identified for wholesale redevelopment during the 1990s. English Partnerships took responsibility for the site in 1996 and Richard Rogers Partnership produced the masterplan for an ambitious project which was to include the Millennium Dome, and one of the seven Millennium 'villages' proposed under English Partnerships' Millennium Communities Programme. As well as the residential development (which still remains incomplete), the masterplan included a commercial district with a retail park and supermarket. The supermarket site was allocated in the masterplan, but beyond this, its design and development was the result of a tendering process.

Sainsbury's was one of a number of supermarket chains invited to tender for the opportunity to develop the Greenwich site, the brief stipulating that the design should 'reflect the environmental aspirations of the adjacent Millennium Village'. Coincidentally, Sainsbury's had already been working with Chetwood Associates to look at supermarket design from first principles, putting energy efficiency, impact on the environment, and customer comfort, at the heart of the design process. Chetwood produced a non site-specific scheme to explore how this new approach might shape the design of a supermarket building; a scheme which happened to coincide with the initiation of the competition to develop the Greenwich site. Using Chetwood's scheme, Sainsbury's tendered for the Greenwich site, and won. Paul Hinkin was the Project Architect from Chetwood leading the team from the development of the concept, through to the completed store.

The store was designed along the principles of 'bioclimatic' architecture, a term used to describe design which responds to local climate, harnessing natural resources such as sun, wind, daylight and water to contribute to the building's functions and services, thereby minimising the use of energy supplied by non-renewable resources. Through this approach the Sainsbury's design sought to reduce energy consumption by 50% compared to that of a traditional store, whilst also creating a more comfortable environment for customers; it was a test bed for technologies which might then be put to use in other stores. The key elements of the design were: an aerodynamic profile to reduce wind turbulence leading to heat loss; earth-sheltered sides to provide insulation; north-facing lights to provide natural light; under-floor heating which reused heat generated by the refrigeration units; a combined heat and power plant (CHP); boreholes sunk into the chalk aquifer beneath the site to provide water for toilet flushing and cooling for the refrigeration system; reed bed purification and lagoon storage for rainwater run-off from the goods yard; passive ventilation; recycled materials for some of the surface finishes; and wind power and photovoltaic panels to power electronic signage.

The store opened on 14 September 1999 to a widespread and generally positive reception in the architectural and national press, and received a number of awards and accolades. It was short-listed for the Stirling Prize, 2000, won the RIBA Journal Sustainability Award and a RIBA Regional Award, 2000. It was also chosen as a Design Council Millennium Product, forming part of a travelling exhibition which toured the world promoting British design and innovation. It was the first supermarket to achieve a Building Research Establishment Environmental Assessment Method (BREEAM) 'excellent' rating. (For a further explanation of BREEAM, see below.)

In 2007 the store underwent a level of refitting in response to particular servicing issues, and to improve the energy efficiency of the store by a further 20%; these changes are discussed where relevant in the 'Details' section below.

## THE DEVELOPMENT OF SUSTAINABLE COMMERCIAL ARCHITECTURE

Concern for the natural environment, and man's impact on it, emerged in the 1960s, and the term 'bioclimatic architecture' was first introduced in Victor Olgay's book: 'Design with Climate', of 1963. However, even into the 1970s, the response of commercial architecture to environmental concerns was limited. There were some significant developments in the building of sustainable offices into the 1980s, with the use of deep plans to retain heat being a typical device, and by the 1990s most major office projects by important practices had green credentials. Arup Associates and Edward Cullinan Architects were particularly early in this field; the use of earth sheltering and south-facing glazing featured in Cullinan's first major building: the study centre at Minster Lovell, Oxfordshire, 1967-76. Something of this also appears at his Farnborough Grange School, Hampshire, 1987-90 (a precursor school to Cullinan's Millennium School at the Millennium Village, Greenwich). The idea of heavy thermal insulation was developed further at the practice's offices for Ready Mix Concrete at Thorpe in Surrey, 1987-90 (now known as Cemex House and listed at Grade II\*), where roof gardens landscape the building into its surrounding.

The term 'sustainable architecture' was defined by the United Nations in the report 'Our Common Future', commissioned in 1983, and presented in 1987, which called for a balance between the exploitation of natural resources, and economic growth. Into the 1990s, concern for the environment continued to grow, as did the pace of development of alternative technologies. The European Union produced a Green Paper on the Urban Environment in 1990 and established the European Environmental Agency in 1994, while the United Nations held its Rio Summit on Climate Change in 1992, followed by a second conference in Geneva in 1996 and the Kyoto summit on Global Warming in 1997. Architects responded to the step change in environmental awareness, moving towards a holistic approach to planning that included not only landscape but transport and supporting facilities such as shops, workplaces and nurseries. A notable building from this period is Michael Hopkins and Partners' offices for the Inland Revenue in Nottingham of 1992-4. Brick and concrete combine to create a thermal mass; ventilation is through corner staircase towers clad in glass bricks that encourage solar gain to draw air through the building. The blocks have large bands of glazing for natural light and pale coloured ceilings to reflect it into the depths of the offices. The building is significant because the means by which it harnessed natural energy directly influenced its plan-form and elevations. Hopkins and the engineers Arup later developed Nottingham University's Jubilee Campus, where large rotating wind cowls ventilate the staircase towers that draw air from the largely cellular offices via central corridors or glazed atria. This complex won the RIBA Journal Sustainability Award for 2001, but lost out to Sainsbury's, Greenwich, for the Design Sense Award for sustainable architecture and industrial design. Another notable building of this decade was the Building Research Establishment's own offices at Garston, near Watford. Feilden Clegg were commissioned to produce a building that used its mass to moderate temperature, with a maximum use of daylight and natural ventilation – expressed in the five towers along its façade. Completed in 1997, it scored a BREEAM 'excellent' rating.

Although difficult to judge such a recent period objectively, the late 1990s seem to be the key years of development in bioclimatic and sustainable architecture. The biggest change by the 2000s, was the advance from passive systems and insulation towards more complex systems in which mechanical services play a larger part. Regulations overseeing construction became increasingly concerned with securing energy conservation measures: in 2006 the Climate Change and Sustainable Energy Act amended the building regulations to include regulations on the conservation of fuel and power. Many schools of architecture have set up courses in sustainable architecture, and the basic premise that architecture should have regard to, and make efforts to reduce, environmental impact, has become ingrained into both architectural practice, and the planning system. Ongoing development in the technologies and design thinking that allow this agenda to move forward, continue apace.

## SAINSBURY'S AND SUPERMARKET ARCHITECTURE

Originating in the United States, supermarkets are a post-war phenomenon in England. With the end of rationing and rapid growth in personal consumption, self-service grocery shops were an efficient, modern, solution. Sainsbury's opened its first self-service supermarket in Croydon in 1950, but in the 1980s began to lose its dominance in the market to Tesco and Asda, builders of very large out-of-town supermarkets which frequently strove to apply a 'vernacular' aesthetic to their stores. The first of this type was the Asda opened in 1978 at South Woodham Ferrers in Essex, and the overall debt to the Essex Design Guide of 1973 has led the style to be termed 'Essex barn' in many quarters. Fighting back in the late 1980s, Sainsbury's brought in well-known architects to design a handful of its stores on sensitive sites.

The interesting Sainsbury's stores date from the 1980s and early 1990s, and raised the company's corporate profile in a conscious reaction to the Essex barn. The choice of quality architecture was also seen as an advertisement for quality in the choice of goods found inside. For its new Canterbury store, Sainsbury's held a limited competition with Norman Foster, architect of the Sainsbury Centre at the University of East Anglia, as

its assessor. Ahrends, Burton and Koralek were appointed in 1982, with the store completed in 1984. For the store at Marsh Mills on the edge of Plymouth, Jeremy Dixon and Edward Jones were commissioned in 1991 to create 'a glamorous building' and a landmark for a site which is very visible from the surrounding roads. In Camden a new store was built in 1986-8 on the site of the former ABC Bakery, where the local council were determined to have a mixed use and a piece of modern architecture. Nicholas Grimshaw and Partners were specially commissioned and the scheme also included a terrace of eleven houses facing the Regent's Canal, a crèche, workshops and an underground car park. The success of the Camden commission led to a second, for a Homebase store (Homebase being owned by Sainsbury's) on the Great West Road in 1987. Lifschutz Davidson (refounded as Lifschutz Davidson Sandilands in 2003) were consultant 'framework' architects for Sainsbury's and J. Sainsbury Developments for over twelve years. The best-known of the resulting supermarkets is at Canley, Coventry, in 1994, a low steel building that is unusual in featuring natural daylight. It was followed by stores at Watford in 1995, in Deal, Kent, in 1998, and at Richmond, outer London, in 2002. When in 1992, Sainsbury's wanted a quality scheme to replace the recently listed Gilbey's gin distillery in Harlow, it turned to Terry Farrell and Partners. The distillery was delisted in 1993 in favour of the low, brick design, comprising three large pale cubes with arcades beneath, all carefully landscaped. It won a RIBA regional award in 1995.

By contrast, other supermarket chains have commissioned few stores from well-known architects. It is noticeable however, that for almost all of the stores, for whichever chain, the 'name' architect was asked only to design a façade; the Sainsbury's on Bugsby's Way, is a notable exception in this regard.

The history of bioclimatic supermarkets in the 1990s is more limited, though in Kansas, USA, Wal-Mart opened an 'eco-store' as early as 1993. After the Greenwich Sainsbury's in 1999, there seems to be little evidence of supermarkets being awarded BREEAM 'excellent', or the more recent 'outstanding', ratings until 2008, after which time there are quite a few examples, the largest single group being built for Waitrose. It seems likely that this is at least in part a reflection of the changes which took place in the BREEAM rating system in 2008, as a number of the supermarkets awarded a high rating in this year, appear to have been built several years earlier. In the case of Sainsbury's the lack of supermarkets with a high BREEAM rating in the early part of the Millennium is unsurprising, as this was a difficult period for the business, and the chain was not building new stores. Sainsbury's started to build again c.2008, by which time supermarkets with a conventional appearance were achieving high BREEAM ratings through the careful choice of mechanical services and planning gains for the public in the form of transport or environmental initiatives. The advances in energy efficiency in mechanical services by this time is in part illustrated in the upgrades undertaken at the Sainsbury's Greenwich store in 2007, which saw the building's efficiency improved by a further 20%. The most obvious successor to the Greenwich store, both in terms of its architecture and sustainability, is the Sainsbury's at Dartmouth by Stride Treglown, which was one of the first after Greenwich to achieve a BREEAM 'excellent' rating on its completion in 2008. The building comprises a timber frame - exposed internally - supporting an elegant wave-form roof (formed of aluminium with a standing seam, like the Greenwich store), set on one side into an embankment on a naturally sloping site. Natural light comes from side windows under deep eaves to prevent solar gain. Again, recycled aggregates are used in the floor slabs and plastic bottles in lavatories - and also for 'plaswood' fencing, while recycled timber appears in the signage.

#### BREEAM

The Building Research Establishment began to develop its Environmental Assessment Methodology (BREEAM) in 1988, and became heavily promoted once the Building Research Establishment was privatised in the late 1990s. It originated as a simple score sheet for a building's energy and water use, the quality of the internal environment for health and wellbeing, pollution, transport, materials, waste, ecology, and management processes. The first programme, for new offices, was launched in 1990, and was followed by versions for industrial units, old office buildings and, c1998, for retail stores. In that year the system was revamped, with each score weighted accorded to its importance to the environment, and the system was developed to include domestic buildings in 2000. It was updated again in 2006, 2008 and in 2011, when BREEAM New Construction was introduced to assess and certify all new buildings in the United Kingdom. It has since been updated again this year (2014).

#### Details

Sainsbury's supermarket on Bugsby's Way, Greenwich, was built and opened in 1999 as a prototype low-energy store for the Sainsbury's chain. The project architect and team leader was Paul Hinkin for Chetwood Associates; the engineers were Max Fordham and Partners and the Oscar Faber Partnership; the main structure was by WSP (William Sale Partnership).

**MATERIALS:** the building has a steel frame with walls predominantly of concrete, banked with earth externally to help regulate internal temperature. Around the service areas to the rear the walls are faced in grey brickwork. The south-facing entrance is fully glazed with flanking walls clad in varnished timber (the original untreated American white oak was replaced in 2007). The roof is covered in mill-finished aluminium sheet with standing seams. Aluminium was chosen for the roof covering rather than a membrane, as all PVC-based materials were rejected for environmental reasons. Aluminium also did not need to be chemically treated, and would patinate with age. Similarly, Rockwool was chosen for the insulation rather than a more modern oil-based product.

**PLAN:** the building is partly set into the ground, and has been described as 'turtle-shaped'. In plan, it is rather like an inverted strawberry, with the roof curved in section from east to west. The public access to the building is to the south, with a goods yard to the north. Internally there is a café area to the front of the store; behind this are the tills which run in line, east to west, terminating approximately in line with the customer entrance. Behind the tills is the shop floor, which is divided east/west by a principal aisle running in parallel with the tills. To either side, rows of gondolas (long, free-standing shelving units) run north/south, dividing the shop floor into multiple smaller aisles. Fresh fruit and vegetables, chilled and frozen products are located in the eastern half of the store. Around the edge of the shop floor are wall-mounted shelves and delicatessen, meat, fish and bakery counters. This layout is largely similar to the original, bringing customers into the building through the right-hand side of the entrance front, through the aisles east to west, and then leaving via the tills to the left-hand side of the entrance front. Behind the shop floor to the north is the service area, with warehousing, bakery, offices, staff canteen and goods-in bay.

To the south of the building is the customer car park and petrol station. Two horizontally rotating wind turbines stand near the entrance to the building. These were originally vertically rotating turbines which, together with solar panels, powered illuminated advertising boards. The boards and solar panels have now gone and the energy produced by the turbines feeds into the power supply for the petrol station. To the north-east of the building is a natural reed bed system and lagoon, designed to clean run-off water from the service yard; it is now colonised, as intended, by animals and plants. The area is enclosed by fencing and planting, but is accessible to the public. It was planned by landscape architects the Derek Lovejoy Partnership, and includes curved grass mounds and planted evergreens, deciduous trees and bushes.

**EXTERIOR:** the building's wide footprint, and the gentle curve of its sectional profile created by the earth-banked walls and curved roof, give the impression that the recessed entrance, and the store behind, has been excavated out of a low, grassy, hillock. The smooth profile of the building was intended to reduce air turbulence which can add to heat loss. The entrance is formed of a simple curved, glazed, screen, shaded by a brise soleil and the overhang of the main roof, to prevent unwanted solar gain in the summer. Flanking the entrance are timber-clad curved walls which splay outwards and return to the main circumference of the building's footprint.

Set relatively low in the ground and prominent from many angles, the roof is a major feature of the building both aesthetically and functionally. It has rows of north-facing sawtooth lights with external louvred blinds, allowing controllable natural daylight into the store, and forming part of the ventilation system.

The profiled grass-covered banks of the east and west sides of the building are interrupted twice on each side for fire escapes cut back into the banks. There is a hedge and security fence around the eaves of the roof. Towards the rear of the building the earth banks fall away to expose masonry walls with conventional window and door openings to light, and give access to, the service areas of the building. At the very rear is the goods yard, where there is a plant room housing the combined heat and power plant (CHP), and the two 75m boreholes, observable only as two manhole covers. The yard is screened from the road by retaining walls of stone-filled wire gabions.

**INTERIOR:** the interior architecture of the building is dominated by the internal expression of the north-facing roof lights, which create gently curved, stepped, bands of daylight which span nearly the full width of the building. At either end each light is terminated where the roof of the light steps down in a fan-like formation to meet the plane of the ceiling. Beneath each rooflight, set into the supporting structure of the roof, is a row of downwards facing artificial lights. The supermarket is floored in a white-flecked terrazzo, which reflects light upwards to maximise ambient light levels. Originally each gondola was individually lit from above; these lights have now been removed and replaced with suspended lighting rigs in certain parts of the store. 'Solatubes' have also been inserted along the far edges of the store to bring in natural daylight beyond the ends of the roof lights. The customer toilets feature recycled plastic panels at the back of each cubicle.

The interior of the service area is functional in character and without particular architectural note.

**SERVICES:** the services are a complex element of the building, and there is a limit to how much detail is relevant in this context. The services are therefore covered below to the extent felt appropriate to inform the assessment of the building in terms of architectural and historic interest.

Heating, cooling and power - when the ambient temperature outside the building falls within certain limits, the building uses a passive stack ventilation system, whereby warm air within the store is released through controllable vents in the roof lights; this causes fresh air to be drawn in underneath the store floor through earth tubes set into the base of the earth-banked walls; the air is drawn into the shop floor through grills in the base of the gondolas. The earth tubes within the ground maintain a constant temperature so help to pre-condition the air before it enters the building. Artificial heating and cooling is provided by under-floor coils, which also harness the waste heat from the refrigeration units. The services beneath the sales floor are set within a 500mm void and their layout relates to the layout of the gondolas in the store above. In 2007 the ventilation and under-floor heating and cooling system were modified to establish a Cold Aisle Retrieval system, which uses cold air spilt from the sales floor fridges to cool other parts of the building. The building is supplied with electrical power by a gas-fired CHP plant which allows waste heat from power generation to be harnessed into the heating system.

Lighting – high levels of natural light are provided by the north-facing roof lights; external louvred blinds control solar gain and can be closed at night to prevent light pollution. The roof lights were recommissioned in 2007, when all of the louvres were renewed. Beneath the roof lights are bands of daylight-dimming, artificial lighting. In 2007 the gondola lights were removed and additional daylight dimming lights were added on overhead rigs. The Solatubes were also installed at this time.

Borehole water supply – the two boreholes were intended to provide water for toilet flushing, landscape irrigation, and to assist with cooling for the refrigeration system. The Environment Agency licence for use of the water for non-potable supply was not granted until 2007, and although trialled, it was discontinued. The above-ground pipework for the water supporting the cooling system was replaced with plastic in 2007 due to silica corrosion.

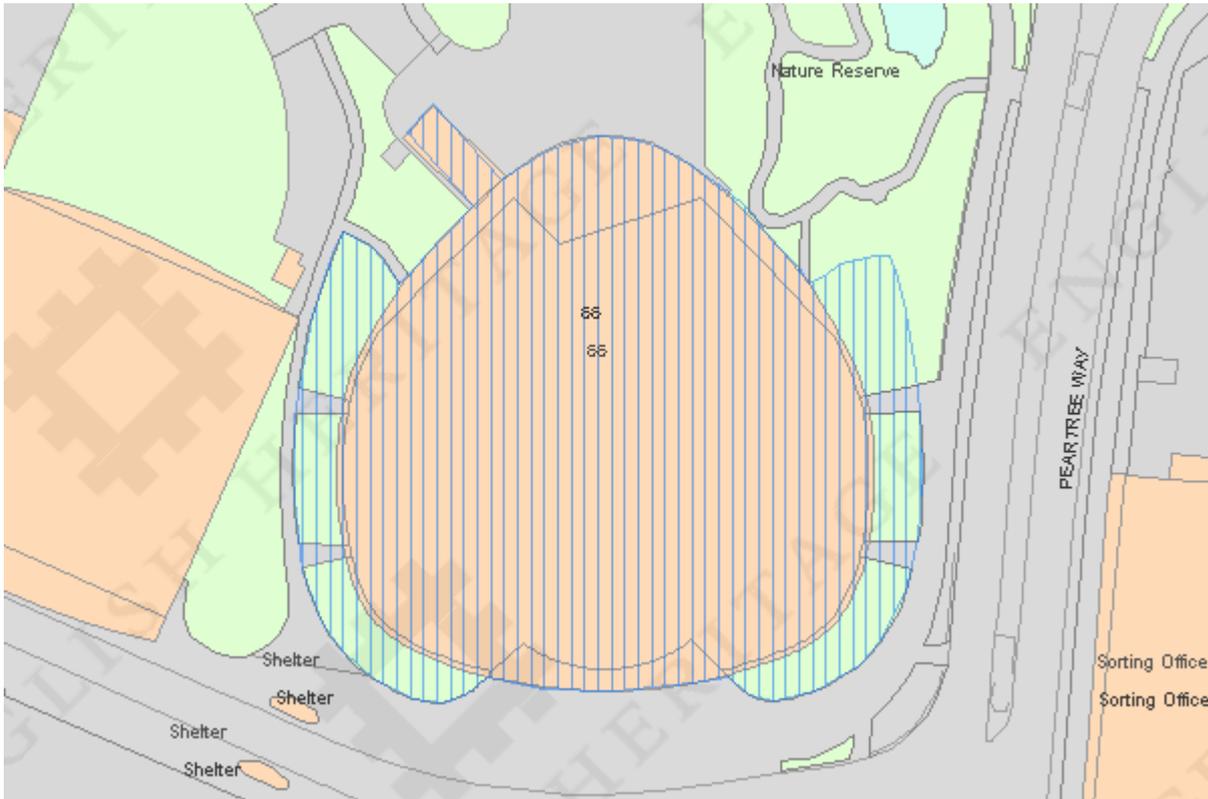
### **Selected Sources**

Morrison, K, *English Shops and Shopping An Architectural History*, 2003

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**Map**

**National Grid Reference:** TQ4010478678



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