



Sustainability and Energy Statement

On behalf of:
Tesco Stores Ltd.

In respect of:
Mark Street, Sandiacre

Date:
November 2010

Reference:
704705/R0010S v.2



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1.0 Executive Summary

1.1 This Sustainability Statement is submitted with the planning application for the development of a mixed use scheme including a Tesco store at Mark Street, Sandiacre. The statement recognises the policy imperatives at national and local levels to achieve high standards of sustainability performance, both in terms of the strategic fit of the proposal and the realisation of the development through its design and construction.

1.2 The development proposals will have a direct positive economic impact through the creation of 200 jobs.

1.3 A total carbon reduction of 10% is achievable through energy efficiency measures, good design principles as well as the inclusion of a CHP energy centre.

- Low energy LED lighting to reduce energy consumption;
- Natural ventilation – removing the need for mechanical systems;
- Draught lobby at the entrance to reduce heat loss;
- Sensor lighting for communal areas;
- Reduced U-Values for thermal elements together with increased air tightness and reduced thermal bridging to significantly reduce heat loss;

	Predicted Energy Consumption (kWh/yr)	Predicted CO ₂ Emissions (kgCO ₂ /yr)
Site Baseline	4,411,620	1,761,154
CHP Savings	736,002	182,057
Total Carbon Savings %		10%

1.4 The proposals are based on Tesco's 'Environmental Store' design format which aims to incorporate the following sustainable design features:

- Rooflights to reduce the need for artificial lighting in store which are gel filled, reducing potential the heat from the sun (solar gain);
- Water efficient measures in store;
- Dedicated staff Travel Plan to promote more sustainable work travel

patterns;

- Timber framed construction is a more sustainable building material which has less carbon in it and reduces the overall embodied energy in the building;
- Implementation and review of environmental management practices such as commitment to the Considerate Constructors Scheme;

1.5 A Site Waste Management Plan will be produced for the site post planning to ensure that waste is managed effectively through construction and post completion phases.

1.6 Public transport bus provision is considered to be good and connects the site to neighbouring important centres such as Derby and Nottingham. Bus stops will be provided within a walking distance of 100m from the store entrance. Cycle use is greatly encouraged within the scheme and cycling access will be promoted via the vehicular access point and the Canal side tow path. The proposal includes a minimum of 20 cycle parking facilities close to the store entrance.

1.7 A number of ecological enhancements have been recommended within the assessment which will provide improved biodiversity at the site. These include erection of bat and bird boxes, the provision of new native tree and shrub planting and ecologically sensitive management throughout for improving the biodiversity of the application site.

1.8 Tesco have a series of annually reported Corporate Key Performance Indicators. These indicators measure the sustainability performance of the store in use and therefore provide a mechanism to ensure delivery of the sustainability aspirations.

2.0 Introduction

Purpose of this Statement

- 2.1 DPP has been commissioned by Tesco Stores Limited to prepare a Sustainability Statement for the proposed development of a retail store and other units of mixed use at Mark Street, Sandiacre.
- 2.2 The analysis provided identifies the sustainability objectives and indicators that are established within the planning and sustainability policy frameworks and demonstrates how the proposal will deliver these requirements. The content of the assessment seeks to provide a consistent and complementary analysis when taken into account with the planning application and should be read alongside the accompanying plans and reports.

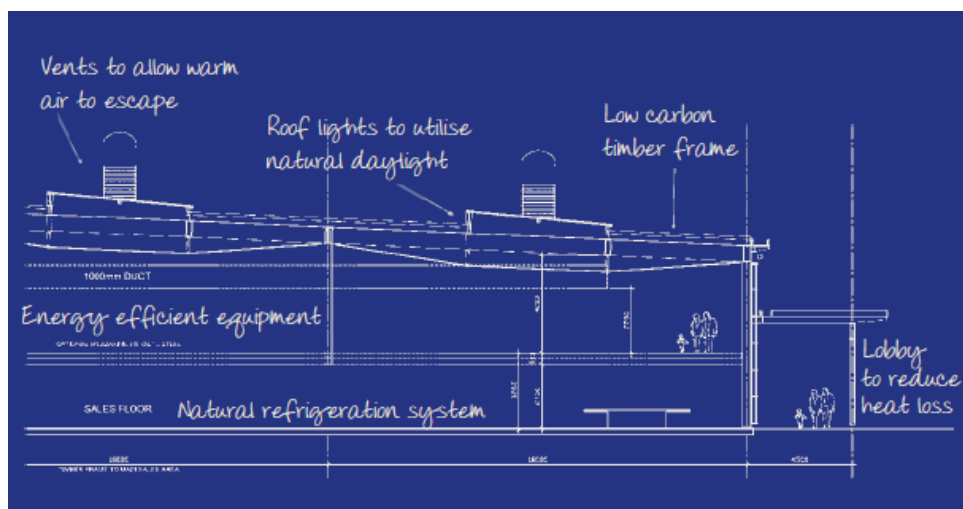
Application Site and Surroundings

- 2.3 The application site presents a vacant industrial warehouse which was built in the 1990s. This disused development raises concerns for both environmental quality and linkages to the rest of the town amenities. The actual access to the site is via Mark Street. At present residential, commercial and industrial uses are found in the vicinity of the application site.
- 2.4 One of the targets of this application is to improve linkages between the site, the town centre and the Erewash Canal so to promote alternative sustainable options of transportation to the traditional use of single occupant cars. A number of pedestrian routes that connect the town centre to the site are already in place but these will be redesigned so to provide a more effective overall access scheme which will result in moving the road access to the site to Mark Street rather than from Station Road (as proposed by the previous application).
- 2.5 The proposed mixed use scheme will include a Class A1 retail store with an internal gross floor area of 3386 m² and other units laid out in two separate blocks identified with use classes A and B1 for an aggregate internal gross floor area of 1095 m², all internal gross floor areas considered to be 95% of the external gross floor areas.

	Gross Floor Area (sq.ft.)	Groos Floor Area (m ²)
Food Store Proposed Area	36,448	3,386
Mixed Use Block 1	5,899	548
Mixed Use Block 2	5,888	547
Total	48,235	4,481

3.0 Tesco Approach to Sustainability

- 3.1 Tesco recognises the role it can play as a leading developer. On the 18th January 2007 Sir Terry Leahy, Chief Executive of Tesco Stores Limited said:
- 3.2 "Our [Tesco] verified carbon footprint includes all our existing stores and distribution centres worldwide. We [Tesco] will reduce emissions from these buildings by at least 50% by 2020. We will ensure that all new stores built between now and 2020 will emit, on average, at least 50% less carbon than an equivalent store built in 2006."
- 3.3 To deliver this Tesco has embarked on a series of initiatives which are coordinated through their internal Centre of Excellence for the Environment. These initiatives include a working group formed of Tesco employees and select industry experts who have designed and specified the totally new Tesco Environmental Format Store which is at the cutting edge of sustainable design.



- 3.4 The first Eco Store opened in January 2009 at Cheetham Hill in Manchester. Tesco cut the carbon footprint of the store by 70% compared to an equivalent store built in 2006. Lessons will be learnt from this prototype and the Tesco Eco Store will be available throughout the country to dramatically reduce the buildings build, operational and decommissioning impact on the environment. The technologies have been tried and tested and are robust. This is a major consideration for Tesco as they recognise that the reliability of equipment can have a large impact on its environmental life cycle, and in the worse cases could actually have an overall negative effect.

3.5 Ramsey is Tesco's first zero-carbon store which was built in Cambridgeshire in 2009. It is designed to use as little energy as possible. The energy that is required is generated on site from renewable fuel, and any excess energy is exported to the National Grid. The store uses a mix of environmentally friendly design, materials and technologies, including:

- Sustainably-sourced timber frame.
- Roof lights and sun pipes that allow natural daylight into the sales floor and staff areas.
- Energy efficient heating and air conditioning systems.
- Rainwater collection to flush the toilets and run the carwash.
- Combined Heat and Power plant to generate electricity using renewable fuel.
- Refrigerant gases in the fridges, heating, ventilation and air conditioning systems that have virtually no environmental impact.
- Energy-efficient equipment such as low energy bakery ovens.
- Flooring tiles made from local materials.

3.6 Tesco have a series of Corporate Key Performance Indicators, reported annually. Those which will influence and provide sustainability benefits of the store from design into the operations include:

Tesco Corporate Key Performance Indicators	2009 Performance	2010 Target
Reduce CO ₂ e emissions from our 2006/7 baseline portfolio of stores and distribution centres by 50% by 2020. Annual target reported as percentage reduction against previous year	7.8%	5.5%
Reduce CO ₂ e emissions from new stores and distribution centres built after 2006 by 50% by 2020, compared to new stores and distribution centres built in 2006.	28.8%	30%
Reduce the amount of CO ₂ used in our distribution network to deliver a case of goods compared to previous year.	6.4%	10%
Percentage of store waste recycled	100%	n/a
Staff fund-raising (£)	£7.4m	£7m
Donate at least 1% of pre-tax profits to charities and good causes	1.94%	1%

4.0 Relevant Planning Policy

National Guidance

- 4.1 **PPS1** Delivering Sustainable Communities sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system. The national guidance seeks to facilitate and promote sustainable and inclusive patterns of development.
- 4.2 Adopted **PPS1 Supplement** Planning and Climate Change sets out how planning should contribute to reducing emissions and stabilising climate change (mitigation) and address its unavoidable consequences (adaptation). Designing for environmental performance is highlighted as important in the design of new development. The document seeks to promote the use of decentralised and renewable technologies in new developments. The guidance requires LPA's to have a sound and tested evidence base prior to setting minimum requirements for renewable energy targets.
- 4.3 The UK government's **Climate Change Act** has established legally binding targets for an 80% reduction in carbon dioxide CO₂ emissions by 2050, with a 34% reduction by 2020. The Government has already established targets for 10% of all UK electricity to be generated from renewables by 2010 and 20% by 2020. **PPS22** Renewable Energy, published in 2004 encourages local authorities to include renewable targets for new developments.
- 4.4 **PPS4 - Planning for Sustainable Economic Growth Policy EC10.2** requires all planning applications for economic development to consider whether the proposal limits carbon dioxide and minimises vulnerability to climate change.
- 4.5 **PPS25** Development and Flood Risk aims to ensure that appropriate considerations regarding flood risk and its management have been adopted in planning applications.
- 4.6 The overarching objective of **PPG13** is the continued integration of planning and transport at the national, regional, strategic and local level. Main objectives of this guidance aim to promote more sustainable transport choices, reducing the need to travel, especially by private car.

Erewash Borough Council Local Plan (2005)

4.7 The following Local Plan Saved policies are relevant to this submission:

- **LP1 – Sustainable Development-** and **DC7 -Development and Flood Risk-** regard submissions where the management of flood can be achieved and require all new development proposals to reflect the principles of sustainable development by protecting the natural environment;
- In terms of access and transport **policy T9** sets the need for all new developments to produce a travel plan, **T2 Parking** suggests that levels of car parking are to be below the maximum number where developments are proposed in locations well served by public transport;
- **T3- Public Transport-** together with **T6- Cycling-** seek new developments to be designed in such a way that would allow maximum exploitation of public transport and provision of appropriate facilities for cyclists.
- **T7- Pedestrians and Disabled People-** only allows new developments where access is designed to meet the needs of people with impaired mobility.

Erewash Borough Council Core Strategy – Options for Consultation

4.8 Policy 1: Climate Change Erewash Borough Council has proposed a 25% low and zero carbon contribution to developments to 2013 based upon a static 2005 benchmark. Following a discussion with the Council, this is not considered a material consideration.

Conclusion

4.9 For the purposes of this submission compliance with **PPS1 Supplement-Delivering Sustainable Communities** to meet a 10%carbon reduction through the use of renewable, low carbon and decentralised energy will be required.

5.0 Management

- 5.1 Tesco have incorporated good sustainability management practices as part of a standardised approach to the delivery of new and extended stores. Tesco ensure the criteria forms part of the agreement with the approved constructors to achieve the highest possible standards. This ethos is also applied to the existing building stock to meet with Tesco stated ambitions to be a zero waste and zero carbon business together with providing sustainable stores.
- 5.2 In relation to management of the proposed development, commissioning is a standard requirement of Tesco Stores Ltd for all new stores at both handover and during the first year of operation to ensure the building operates as efficiently as possible. Commitment to the Considerate Constructors Schemes is also a Tesco standard requirement whereby all constructors on the approved supplier list must achieve the necessary criteria.
- 5.3 Monitoring construction site impacts also occurs with each new store, with a comprehensive set of environmental impact and pollution measures recorded throughout the construction programme. Together with the commissioning, a simple building user guide for the retail operating team will be provided to ensure the building operates to its maximum efficiency.
- 5.4 Other environmental management practices include ensuring refrigerants are contained in a moderately airtight enclosure and a refrigerant leak detection system is in place for high risk parts of the plant.
- 5.5 Tesco have a series of annually reported Corporate Key Performance Indicators, described in Section 3. These indicators measure the sustainability performance of the store in use and therefore provide a mechanism to ensure delivery of the sustainability aspirations.

6.0 Social & Economic Implications

- 6.1 As set out in PPS1 (para. 4) the Government identified environmental, social and economic implications as the key principles underpinning sustainability.
- 6.2 The focus of PPS1 in contributing to sustainable economic development has been supplemented by the adoption of PPS4 in December 2009. This new national guidance seeks to further promote sustainable economic development.
- 6.3 The underlying sustainability policy at the national level (PPS1) also supports development which promotes social inclusion in the development process whilst working towards safe, liveable, and inclusive communities.
- 6.4 The development proposals will have a direct positive economic impact through the creation of 200 jobs.
- 6.5 A Statement of Community Involvement accompanies this submission. It details that throughout the pre-application process the local community and key stakeholders were able to express opinions related to the quality and value given to the new proposals and also it investigates the potentials of the development from a user point of view. This actively targeted the community to ensure the scheme progressed in consultation.
- 6.6 Reviewing the public consultation feedback it is possible to observe a positive response towards the proposed development.

7.0 Energy and Renewable Energy Technologies

7.1 On October 1st 2010 a new version of **Part L – Conservation of Fuel and Power** of the **Building Regulations**, which sets a further 25% reduction on carbon emissions, was brought in to operation. The key areas targeted by Part L include air tightness, solar gains and sustainable production of energy for heating lighting and ventilation.

7.2 Tesco have set themselves a number of long term targets for new store construction specification and are considering the implementation of a number of these at the new store. These measures are aimed at reducing the energy consumption and carbon emissions of the site in accordance with **PPS1 Supplement**.

7.3 Design initiatives that could be introduced to reduce the baseline energy consumption of the proposed Sandiacre development are based on the principles of natural daylight maximisation and the improvement of building air tightness.

7.4 The following list illustrates some energy efficiency measures that are being considered for inclusion in the proposed store:

- Energy efficient lighting, with external Passive Infra Red (PIR) sensors and time switch controls so that lights are only used when required;
- Low energy LED lighting in refrigeration units to reduce energy consumption
- Natural and Mixed Mode ventilation provided through vents in the roof to increase the flow of air through the building while reducing the need for a mechanical system;
- Grey water recycling will include harvesting the rainwater to use for toilet flushing, this saves both energy and water;
- Sustainable Timber Cladding;
- Clerestory Glazing
- Rooflights and Sunpipes to maximise the use of natural daylight and its energy saving properties;
- Windcatchers to allow for natural ventilation;
- Insulation and Draught Wind Lobbies to increase the air tightness of the building envelope and minimise energy loads due to cooling/ heating from external air infiltration; and

- Utility sub-metering to accurately monitor and optimise the site’s energy consumption.

Energy Baseline

7.5 The likely annual energy consumption and associated CO₂ emissions from the proposed development is based on modelled industry benchmarks for energy use obtained from CIBSE Guide F. The data sets in CIBSE Guide F are becoming out of date due to the changing building regulation requirements. The Merton Rule policy guidelines suggest that benchmark figures should be reduced by 8% to compensate for the reductions.

7.6 The energy consumption and CO₂ emissions for the development can be seen in the table below based on the proposed food retail store and the two mixed use blocks:

Baseline	Energy (kWh/yr)	Emissions (kgCO₂/yr)
Food Store	4,009,159	1,594,586
Block 1	201,230	83,284
Block 2	201,230	83,284
Total	4,411,620	1,761,154

7.7 It is expected that through the inclusion of measures such as those outlined in Section 7.4 and the commitment of Tesco as detailed in section 3 that the site will include an effective range of energy efficiency measures.

7.8 This provides a 10% low carbon/renewable energy target of 176,115KgCO₂/yr, which can be seen in the table below.

	Energy (kWh/yr)	Emissions (kgCO₂/yr)
Site Baseline	4,411,620	1,761,154
	10 % Carbon Target	176,115

Site Baseline

Building type	Use	Class	Gas (kWh/m ² /yr)	Electricity (kWh/m ² /yr)	M ²	Total Gas (kWh/yr)	Total Electricity (kWh/yr)	Total Energy (kWh/yr)	Gas CO ₂ (kg/CO ₂)	Elec CO ₂ (kg/CO ₂)	Total CO ₂ (kg/CO ₂)
Air Con.	Offices	B1	164	208	548	89,740	113,940	203,681	16,589	61,710	78,299
Shop	Retail	A1	99	264	547	54,350	144,430	198,780	10,047	78,223	88,270
Supermarket	Retail	A1	477	707	3,386	1,616,747	2,392,412	4,009,159	298,856	1,295,730	1,594,586
TOTAL					4,538	1,760,838	2,650,782	4,411,620	325,491	1,435,664	1,761,154

Renewable / Low and Zero Carbon Technology Options

7.9 The following provides an assessment of available renewable and low/zero carbon technologies to determine which are viable and feasible as part of the Mark Street store. The viability of each technology to be used at the store is scored against a traffic light system to focus attention on where greatest benefits can be gained:

Red	Not viable
Amber	Not currently viable (potentially viable in the future)
Green	Viable

			Applicability Assessment			
Renewable Technology	Description	Design Constraints	Application	Indicative costs	Emission Reduction Potential	Viability at Richmond Drive
Small Scale Wind Turbines	Produce electricity by using the natural power of the wind to drive a generator capable of 6kW to 50kW	Small scale turbines require clear access to wind flow and wind speeds need to be at least 6m/s. Urban areas are not ideal.	Can be installed on the development site. Wind speeds at the development will be variable	Medium capital costs with long paybacks.	Average – offsets electricity which has a high CO ₂ content. Wind speeds may not produce large amount of electricity.	Small scale turbines are not appropriate for site given the large energy demand.
Large scale wind turbines	Produce electricity by using the natural power of the wind to drive a generator capable of 250kW to 5MW	Large structures up to 100m in height and need to be away from housing and in areas of high average wind speeds.	Constrained site adjacent to residential properties.	High – wind turbines can cost significantly	High – potentially a large producer of electricity	Lack of a suitable location within the site makes the adoption of this technology unsuited for this development.
Photovoltaics (PVs)	Modules of semi conductor cells that convert daylight into electricity. Generates approximately 850kWh/yr for a 1kW System	Southerly orientation necessary for optimum performance.	Can form part of the roof or wall structure – requires 3,500 m ²	High – efficiencies and costs have fallen but still very expensive.	High – potentially a large producer of electricity	Would require 3,500m ² of roofspace. Significant costs associated with this amount of PV make this unviable for inclusion.
Solar water heating	Energy from the sun heats fluid in mounted collector, which heats water stored within building. Average collectors generate 500kWh/m ² /yr.	Southerly orientation necessary for optimal performance and a good hot water demand.	Can form part of the roof structure.	Low – additional equipment required minimal and can be easily installed	Limited to the amount of hot water stored, Limited CO ₂ reductions as offsetting gas, will reduce gas demands in the summer	Insufficient demand for hot water to make this a viable option.

Renewable Technology	Description	Design Constraints	Applicability Assessment			
			Application	Indicative costs	Emission Reduction Potential	Viability at Richmond Drive
Biomass heating	Utilises energy from boilers or a local district scheme run on biofuels.	Connection to existing grid network to access a district heating scheme	Biomass boilers can be used commercially for district heating	Medium – removes the need for a gas supply in some cases. Cost to connect to the grid can be expensive	High – low carbon fuel used	Site heat demands make the use of a biomass boiler a feasible option at this stage.
Gas Combined Heat and Power	CHP generates electric and thermal energy in a single system, satisfying two energy demands. Gas CHP converts natural gas into usable energy (e.g., steam and electricity).	Needs to serve a high electrical and heat demand all year round. Running hours of over 6,000 are desirable.	Scope for CHP to be incorporated into ancillary services /storage areas	Medium – cost savings can be considerable if the system operates for most of the year.	High – using natural gas as the fuel input results in large amounts of electricity and heat produced and high emission savings	Constant base loads throughout the year make the use of CHP a viable solution due to the capability of the site to use the full potential of this technology.
Biomass CHP	As above biomass CHP converts organic matter either directly from plants or indirectly from industrial, commercial, domestic or agricultural products	Needs to serve a high electrical and heat demand all year round. Running hours of over 6,000 are desirable. Storage space limited.	Can be applied to district heating schemes on a commercial level	High – biomass CHP is relatively new and based on large systems. Fuel supply is more complex	High – fuel input is normally low carbon and produces heat and electricity efficiently	Technology is not widely used and complications due to operational management make this technology unviable.
Heat pumps	Heat pumps transfer heat from natural source (ground, air and water) into a building to provide space heating and, in some cases, to pre-heat hot water.	Optimal used with under floor heating. Ground conditions may affect viability, boreholes or trenches required for ground source.	Can serve the site providing winter heating and pre-heat hot water requirements.	Medium – ground works can be costly and savings determined by unit prices.	Medium to High – requires electricity to run the heat pump but can produce some emission savings.	Insufficient space for trenching and no suitable water course discourage air source pumps

Technology Review

- 7.10 This section provides a detailed review of available and viable low-carbon and renewable energy options which can be used within the development.

Combined Heat and Power (CHP)

- 7.11 An option to meet the 10% carbon target for renewable and/or decentralised low carbon is through a combined heat and power (CHP) energy centre providing both space heating and electricity to the site, with the potential to export excess electricity to the grid for revenue. The CHP is able to provide hot water, heating and electricity to the site, typically provided by fossil fuel to the site. In addition the electricity generated will further displace carbon emissions.
- 7.12 CHP is a mature technology suitable for long term investment where ownership and maintenance contracts can be put into place for best efficiency. CHP energy centres are capable of providing both heat and power to the development and in addition can export excess electricity to the grid to relieve any local infrastructure pressures. Space has been included within the development for the necessary CHP plant.
- 7.13 The total savings that can be achieved from a 122kWe / 196kWth CHP system is 182,057Kg/CO₂, which equates to 11% carbon saving for this unit. The anticipated cost of such a unit will be in the region of £350,000 for the installation including placement in an appropriate acoustic enclosure.

Unit Size	150Kw
Fuel Input (kW)	395
Electrical Output (kW)	122
Heat Output (kW)	196
Annual running hours	7,300
Annual Electrical Output (kW)	890,551
Annual Heat Output (kW)	1,430,722
Efficiency (%)	89%
Operational CO ₂ emissions (kg)	532,986
CHP CO ₂ savings (kg)	715,043
Net CO ₂ savings (kg)	182,057

Biomass Heating

- 7.14 Biomass boilers fuelled by wood pellets or wood chips could be used to provide space heating and hot water. Biomass is a renewable fuel so the energy generated reduces the site's emissions.
- 7.15 The heat energy generated by these systems is typically at a slightly higher cost than compared to natural gas, for example 3.5p/kWh rather than 3p/kWh, although the escalating cost of energy may see this situation reversed in the short term.
- 7.16 The implications for using this technology would be the proximity of residential dwellings close to the application site. The size of biomass boiler required would result in significant NOx emissions which are unlikely to be acceptable in such close proximity to residents.

Technology	Size/output	Approximate Capital Cost	Renewable Energy (kWh/yr)	Carbon Savings (kg/CO ₂ /yr)	% of Target
Biomass	700kW	£350,000	957,444	176,115	100%

Energy Recommendations

- 7.17 The options review identified CHP and Biomass as technically viable technologies to achieve an overall carbon reduction of 10%.
- 7.18 The CHP is the recommended technology to meet the 10% carbon reduction.

	Savings kgCO ₂ /yr
Site Baseline	1,761,154
CHP	182,057
Total Carbon Savings	10%

8.0 Transport

- 8.1 In line with **PPS1** and **PPG13** a Travel Plan and Transport Assessment has been submitted with this application. This will help to reduce and improve management of the travel demand, traffic growth and congestion produced by the proposed application.
- 8.2 The Travel Plan sets a number of objectives which focus on influencing the travel behaviour of employees and emphasises the benefits for the local community that would arise following development of this project. Home shopping and the organisation of staff shifts to promote car sharing are also considered in the travel plan with the final target of reducing single occupancy car trips.
- 8.3 Travel information, measures to promote public transport, measures to promote and facilitate cycling and walking and a Travel Plan Coordinator are considered. The Travel Plan Coordinator will help to encourage the use of sustainable transport methods by staff when accessing the store. These measures aim to provide potential elements which will help to shift travel modes away from the private car.
- 8.4 Tesco recognise the need for the Travel Plan to be regularly updated in addition to the provision of a simple guide promoting sustainable travel to the store to encourage staff to use sustainable transport methods when accessing the store.
- 8.5 Public transport bus provision in the area is considered to be good and connects the site to neighbouring important centres such as Derby and Nottingham. Bus stops will be provided within a walking distance of 100m from the store entrance. Full details of available bus services are included within the transport assessment.
- 8.6 Cycle use is greatly encouraged within the scheme and cycling access will be promoted via the vehicular access point and the Canal side tow path. The proposal includes a minimum of 20 cycle parking facilities close to the store entrance.
- 8.7 The total proposed number of parking spaces is 286, this figure includes 14 Disabled and 10 Parent and Child spaces in compliance with the standards.

- 8.8 Various pedestrian footways and cycling access to the site will provide safe and convenient linkage to local facilities and will effectively promote alternative methods of transportation to single occupancy car travel. These will be provided from Station Road, the Canal tow path and Mark Street.
- 8.9 Local traffic will not be significantly affected by this proposal, all the junctions to the site will continue to operate within appropriate capacity levels with the exception of the Station Road/Longmoor Lane/Town Street/Derby Road signal controlled junction which is predicted to operate above usual capacity levels in design year due to the proposed highway works which will result in the previously mentioned junction to operate at a "no worse off" condition than if this development were not to take place, which is consistent with the Dft guidance.
- 8.10 The transport assessment by Transport Planning Associates concludes that the site is sustainably located and it should attract a significant number of non-car trips in compliance with national policies **PPS4**, **PPG13** and local policies **T3** and **T6**; this will also be reinforced by the adoption of a Travel Plan. Finally, after considering the proposed highway works, to be undertaken at the same time as the proposed development discussed in this application, the impact of the proposed development on the local traffic dynamics is considered to be of minimal scale.

9.0 Water and Flood Risk

- 9.1 **PPS1 supplement** and Local Plan **Policy DC7** state that threats should be minimised from increased flood risk and developments should be proposed in areas where flood risk management can be effectively achieved.
- 9.2 A Flood Risk Assessment accompanies this application and concludes that the development site lies within Flood risk Zones 2 and 3, this is due to potential flooding from the river Erewash. This means that the chance of flooding each year from rivers or the sea is 0.1 – 1.0%.
- 9.3 The site gets inundated with flood water during an overtopping of the defences. To mitigate against this, the floor levels of the proposed development are raised above the modelled flood level and dry access is provided into Station Road to allow for safe access and egress to and from the site. The proposed development is designed to insure that flood storage is not compromised; this will avoid the detrimental impact that displaced flood water could have on third party land.
- 9.4 The opportunities to use sustainable Drainage Systems (SUDS) have been reviewed within the FRA and it was established that the drainage system will be lined as an infiltration drainage system cannot be utilised effectively for this scheme due to poor ground conditions.
- 9.5 A porous car park will be incorporated in the proposed development to insure the provision of SUDS. In addition the Eco Store format includes specific measures to improve water efficiency including;
- Reduced flow taps;
 - Electronic sensors for taps; and
 - Dual flush toilets.
- 9.6 This approach to water efficiency and more generally in the interest of Flood Risk assessment is consistent and complies with **PPS1 supplement** and **PPS25**.

10.0 Materials and Sustainable Waste Management

- 10.1 **PPS1** advocates the efficient re-use of existing land and buildings in achieving sustainable development.
- 10.2 The proposal involves the efficient development of this site. As an 'Eco Store' it is intended that all materials used in the building will be reviewed for better alternatives (e.g. recycled plastic kerbstones around the building and use of gypsum instead of standard stud walling). During construction prefabrication will occur off-site, reducing the amount of waste generated. It is intended that all elements will be prefabricated where possible.
- 10.3 The national approach to waste management set out in **PPS10** advocates zero growth in all forms of controlled waste by 2016 and waste being treated higher up the 'waste hierarchy' set out in the National Waste Strategy.
- 10.4 A timber cladding system is also used in the construction of the store, instead of more conventional construction methods which require use of non-renewable resources such as steel and glass. The timber cassette panels are prefabricated off-site with an outer rain screen in larch. Larch is chosen as this weathers well to maintain the image of the building, is sustainably grown, and has minimal knots which further reduce waste in construction.
- 10.5 A site waste management plan will be produced by the main contractor at post planning stage. This will control the waste produced by the development and minimise waste to landfill.
- 10.6 At the operational level Tesco are committed to reducing waste and recycling materials wherever possible. As such, there is an internal programme for recycling paper, cardboard and plastic which is carried out at the Tesco store which enables 100% of materials to be recycled.

11.0 Landscape & Ecology

- 11.1 In compliance with **PPS1** and **Local Plan Policies LP1**, a Landscape and Ecological Assessment by Aspect is submitted with this application to address the ecological, landscape and visual issues that could arise.
- 11.2 Particular attention was paid to promote the aspects of Erewash canal. Key characteristics of the canal will be incorporated in the development by the removal of visual barriers and introduction of interesting and active elements to the canal frontage. This will result in open views into the site from the canal's towpath and increased permeability between the site and the towpath as well as to enable views of the proposed built form.
- 11.3 Generally the site presents low ecological value, the assessment identified a number of planted areas which are likely to be replaced, due to their limited quality. Replacement of these with high quality planting will improve the flora and preserve the degree of separation between the site and the residential surroundings thus limiting alterations to the visual landscape.
- 11.4 A number of ecological enhancements have been recommended within the assessment which will provide improved biodiversity at the site. These include erection of bat and bird boxes, the provision of new native tree and shrub planting and ecologically sensitive management throughout for improving the biodiversity of the application site.
- 11.5 The proposal, thanks to its details in the roofscape, stepped structures, and efficiency measures such as roof lights and windcatchers, will result in a visual improvement against the large scale built form of the existing warehouse; and will enhance the localised setting of Station Road.
- 11.6 The landscaping plan submitted with the application demonstrates the level of boundary landscaping to improve the public realm surrounding the application site. The assessments conclude considering integration of the proposal into the existing context to be non detrimental and regard the development as entirely acceptable.

12.0 Pollution

- 12.1 **PPS1** and **PPG24** indicate the general intent of the planning system to ensure that a development does not result in "significant" adverse impacts on the environment.
- 12.2 A Noise Assessment by Mouchel has been submitted with this application. This found that noise as a result of the development will be of less than marginal significance at a number of noise sensitive receptors.
- 12.3 Operations, mechanical services and refrigeration plant will operate such that the adopted maximum noise rating level criteria of 38 dB daytime and 35 dB at any other time is achieved at the nearest noise sensitive property, this will ensure that the requirements for "reasonable" or "good" resting and sleeping conditions are going to be met.
- 12.4 The assessment conclusions identify the noise levels generated by the application's activities as unlikely to have a significant impact on nearby noise sensitive receptors.
- 12.5 It is a Tesco design standard to specify external lighting designed in compliance with ILE guidance. It is also a Tesco design standard to specify the use of separators, interceptors or filtration for areas at risk of pollution.

13.0 Conclusions

- 13.1 Management of the proposed development, including commissioning are standard Tesco requirements for all new stores at both handover and during the first year of operation to ensure the building operates as efficiently as possible. Commitment to the Considerate Constructors Schemes is the standard which all constructors on the approved supplier list must achieve to meet the site management targets.
- 13.2 The development is expected to generate 200 new jobs. The community and other stakeholders have been involved throughout the process as consultees which is detailed in the Statement of Community Involvement which accompanies this submission.
- 13.3 Appropriate design solutions to minimise this application’s environmental impact at both development and operational stage have been considered. This development scheme was particularly set to provide adequate solutions to minimise the flood risk presented by Erewash Canal and uplift the general surroundings scenario.
- 13.4 The application site will benefit from appropriately designed accessibility to bus services, cycling facilities and pedestrian access. The implementation of a Travel Plan will further promote staff and the local community to take advantage of these opportunities and reduce private car use.
- 13.5 With regard to energy efficiency the assessment provided demonstrates that the proposed extension will incorporate a number of design measures. These include the principles of daylighting, energy reduction and monitoring methods. Along with these a CHP unit can help to generate a saving of 10% as summarised below:

	Savings kgCO ₂ /yr
Site Baseline	1,761,154
CHP	182,057
Site Savings	10%