CONSULTATION DRAFT
EAST CARR
MASTERPLAN

Supplementary Planning Document 6

This draft document is for public consultation
Credits

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1. Introduction
   1.1 Purpose of the SPD
   1.2 Policy context
   1.3 Consultation and stakeholder engagement

2. Masterplan principles
   2.1 Masterplan principles
   2.2 Designing as an iterative process
   2.3 Managing impact
   2.4 Appreciating structure and scale
   2.5 Designing in resilience

3. Site context and characteristics
   3.1 Location
   3.2 Opportunities and constraints

4. Movement and connections
   4.1 Existing network
   4.2 Proposed movement framework

5. Form of development
   5.1 Legibility
   5.2 Form, scale and density

6. Public realm and street design
   6.1 Positive and safe public spaces
   6.2 Play spaces and pocket parks
   6.3 Street design
   6.4 ‘SUS Streets’

7. Spatial Masterplan
   7.1 Draft East Carr Masterplan
Introduction
1.1 Purpose of the SPD

This document outlines the process, considerations, qualities, and opportunities that will help to deliver a high-quality residential development at East Carr, an allocated housing site within Hull Local Plan 2016-32. This guidance is essentially aimed at parties with an interest in the site, be that potential development partners, Hull City Council and Hull residents. It promotes the processes that will lead to good design outcomes, and provides a clear understanding of the design approaches and requirements that are likely to be deemed acceptable in design and planning terms.

1.2 Policy context

This Supplementary Planning Document (SPD) supplements policies in the Hull Local Plan 2016-32. It provides additional planning and design guidance related to Policy 14 Design, and Policy 21 Designing for housing. The SPD provides guidance that in some cases is directly or indirectly relevant to other Local Plan policies. This is because new residential development affects many areas of planning policy. Where this is the case the SPD helps to interpret relevant Local Plan policies in the context of the East Carr housing allocation, providing both indicative and specific design advice on both functional aspects (how it may work) and aesthetic properties (how it may look).

Hull City Council has developed a strong policy framework to enable it to appraise development proposals in design terms, and provide developers and their design teams with a clear understanding of how to go about developing a design approach which is likely to be deemed acceptable. This SPD and the spatial masterplan therein is part of that framework specific to East Carr and should be read in conjunction with other SPDs for example those on Flood Risk and Drainage, Open Space and Residential Design. Hull Residential Design Guide SPD published in 2020 is an essential companion guide to this SPD.

1.3 Consultation and stakeholder engagement

Stakeholder and pre-application engagement on the draft SPD to date has been informed by an officer working group covering the specialisms of planning development control and policy; ecology; flood risk; design and conservation; public health; environmental health, transport and highways, housing, and climate change. A site specific stakeholder group has also been formed to help guide the production of this SPD.

A minimum six week public consultation will be held during the production of the SPD and comments received will inform the final version of the SPD to be adopted by Hull City Council.
Masterplan principles
What is a masterplan, and what is it for?
The term masterplan can be misleading and can be interpreted differently by people depending on their own perspectives and interests in a site. This SPD seeks to agree a high-level urban design approach for the East Carr site focusing on issues such as: movement; layout; open space and main landscape features.

A masterplan can be broken down into smaller development parcels which are practical to develop one-by-one, perhaps by different developers as part of an overall consortium. This can be used to plan the phasing of any future development and to test that it will be deliverable.

The SPD and spatial masterplan is informed by the following four guiding principles.

East Carr Masterplan is guided by the following design principles
1. Designing as an iterative process
2. Managing impact
3. Appreciating structure and scale
4. Designing in resilience
Designing as an iterative process

Large-scale urban extensions such as the proposed East Carr development will be designed and influenced by a great variety, and number of stakeholders over a number of years. It is therefore paramount to get the basic structure and design parameters right from the outset, while allowing the scheme to adapt as it evolves through an iterative process.

Cities have developed organically over time and this can be seen through changes in local character, grain, form and architecture, neighbourhood-by-neighbourhood. This organic growth has produced variations of built form and character areas, akin to a mosaic of development across the geographical area of a city. Often resulting in variety and richness of townscape, but sometimes in jarring disconnects as developments from different eras lack cohesion.

Today’s planning system, based on large-scale housing allocations and driven by numeric targets, does not lend itself to the organic development of the past, and risks new development taking place in a vacuum. To mitigate this risk and ensure the integration of new development, urban design practices such as spatial masterplans can be used to design new city fabric in such a way that responds to context so that over time new development becomes a part of a place, as opposed to an autonomous satellite development.

A spatial masterplan also has the advantage of providing certainty for landowners, investors and local communities about the nature of a development, whilst being flexible enough to allow plans to evolve as the detailed design of a development is worked through.

The East Carr Masterplan SPD seeks variety, not merely in terms of design detail, but also in terms of stakeholders capable of imparting their own creativity and distinctiveness within agreed parameters. The masterplan is an opportunity to sub-divide the allocation into development areas and potentially apportion them to different developers and design teams. This will enable a range of designers to participate and is desirable in terms of generating a much richer townscape through a variety in design.

Masterplans are often accompanied by design codes. In certain areas of the site, such as how the edge of the development is treated; and the design of public spaces, this SPD sets out design requirements akin to that commonly prescribed in a design code. In addition to this, Hull Residential Design Guide contains all the necessary detailed design guidance on residential developments in Hull.
A development on this scale and location will have a significant impact on the areas that surround and adjoin it. Some of these impacts may be perceived negatively, and it is important for the spatial masterplan to take every opportunity to integrate with its neighbours.

In this case demand for new housing has been met by allocating an area of land many people will identify with as being ‘countryside’ as the site is located beyond the current built edge of the existing settlement of Hull. Whilst this may be the case, it should not be forgotten that the land on which the Howdale Road estate was built was once also open countryside outside the built footprint of the city.

One of the keys to successful large-scale urban design is to create effective new connections between existing and new: both social and economic, and this to a large extent relies on creating effective physical connections. The residential area immediately to the south of the site around Howdale Road/ Dunvegan Road is typical of a post-1980 estates: car dependent, and characterised by cul-de-sacs and dead-ends. It is therefore more challenging to connect the East Carr development into the surrounding area as well as one would ideally like. There are perhaps only two obvious entrance points and this threatens to make the whole area into a large cul-de-sac, and poorly connected development resulting in congestion and bottlenecks.

To counter this threat the basic structure of the development must be predicated on providing efficient and attractive ways for people to move around without the need to drive. The position and shape of building blocks should promote this, and the location and design of facilities such as open space, public transport, retail and community buildings should take account of the essential need to promote a walkable suburban environment, with all facilities, and focal points, located not more than a five minute walk from the vast majority of front doors.
Appreciating structure and scale

Urban structure refers to the pattern of development blocks, streets, buildings, open space and landscape, which layered together make up built areas. It is the relationship between all these elements that creates the overriding sense of a place.

A place that is planned, rather than one that has grown organically, can look rather contrived. Urban design strategies are needed to mitigate against this threat. New developments can respond positively in a variety of ways such as: varying densities across the scheme through variations in building type; and using local variations in architecture, roofscape, materials and types of detailing.

Whilst it is also important that architectural detailing helps to form the character of new development, this design detail is perhaps for a later stage in the iterative design process. What is more important at this stage of masterplanning the site is to consider in detail the basic urban structure of the new development.

Character of place can be made, or lost, when creating the basic structure of a place. For example, the tightness of street corners, curvature of streets, off-setting of junctions, how buildings enclose streets and spaces, and close views, how landscape is used, and how parking is integrated all have an effect on the character of the place long before detailed building design takes place.

Appreciating scale is about more than adopting a scale of development that fits with the site and its context. Scale is also a tool which designers are expected to use to create attractive places by making them more legible, by creating a strong sense of enclosure around public spaces, and introducing variations and landmarks.

Designing in resilience

Tackling Hull’s climate challenges, such as responding to an increasingly high risk of flooding, and reducing car dependency, are critical themes of the East Carr Masterplan. The spatial masterplan promotes a multi-benefit approach to landscape that supports sustainable drainage requirements, whilst simultaneously providing opportunities for biodiversity, food growing space, and creative play for both children and adults.

Visit any well-established, desirable residential neighbourhood and in most cases natural features such as trees, grassed verges and gardens will be an important part of the character of the area. Natural landscaping is an integral part of the spatial masterplan and the sites existing natural features such as hedgerows and trees will be used to the schemes advantage, rather than seen as a constraint.
Site context and characteristics
The site lies approximately 1.5km north of the centre of the medieval village of Sutton-on-Hull. The proposed site abuts Holderness drain (watercourse) along its northern boundary (which also forms the northern extent of the local authority boundary of Hull). Located between the site and Sutton-on-Hull village is the 1980s private housing estate north of Robson Way, built around, and accessed from Howdale Road. The estate extends to the east in the form of an area of public housing served from Dunvegan Road.

Despite the large number of residential properties in the area south of the site, this part of Hull experiences a dearth of ancillary facilities relative to the number of residential properties. Exceptions to this being Spring Cottage Primary School, a petrol station on Robson Way, and the Saltshouse Tavern public house, located on Robson Way at the junction with East Carr Road and Saltshouse Road.

The site is just under 30 hectares of which approximately 21.5 hectares is considered developable. Approximate 8.5 hectares of the allocated land falls into flood zone 3b which is functional flood plain (see 3.2).
Opportunities and constraints

Fig 2: Opportunities and constraints diagram

Fig 3: Local and community facilities
Transport
The area immediately south of the allocation site is well served by the bus route serving Howdale Road and Dunvegan Road. This bus route will ideally extend to form a loop into the development from Howdale Road, entering and exiting the site via Danby Close. The area is however largely orientated to private cars and this is reflected in the dearth of local facilities and amenities. The Hull to Hornsea cycle route 66 (Trans Pennine Trail) is relatively easy to access from the area and provides a good cycle connection south to Witham on the eastern edge of Hull City Centre.

Heritage
Sutton Village conservation area lies approximately 1.5km to the south. The relatively low-rise nature of the development between Sutton-on-Hull and the allocation site creates an opportunity to exploit views from within the site to the tower of the Grade I listed St James Church. Similarly, there is an opportunity to exploit views north towards the tower of the Church of St Mary in the East Riding village of Swine.

Within the immediate vicinity of the site is the Scheduled Monument of Swine Castle Hill situated within open countryside close to the North East corner of the site (within the East Riding of Yorkshire). Castle Hill at Swine is the remains of a medieval motte which survives reasonably well. Limited excavations have confirmed that evidence of defensive and domestic structures survive on the mound. [https://historicengland.org.uk/listing/the-list/list-entry/1008042](https://historicengland.org.uk/listing/the-list/list-entry/1008042)

Ecology
Hedgerows and flood plain grazing marsh (marshy grassland) are significant natural features within the site. The Natural Environment and Rural Communities Act (NERC Act) classifies these as Habitats of Principal Importance, which the Local Authority has a duty to protect. Redevelopment of the site is required to target ‘no net loss of hedgerows’, and a 10% gain in quantity or quality of habitats. A Habitat Regulations Screening Assessment is required due to potential pollution.impacts on watercourses. In addition, surveys will be required for: Breeding birds; Reptiles; Otters; Water Voles; and Bats (commuting).

Climate change adaptation and mitigation
The widely recognised impacts of climate change need to be taken into account when designing residential developments. Trees should be planted throughout public spaces, including streets, and around seating to provide shade. When possible porous materials should be used to store excess surface water run-off and slopes should direct water into designated areas. It is encouraged to use new innovative technology to adapt to the possibility of frequent flooding and higher temperatures.

EU directive on Electric Vehicle parking is relevant to this development. All homes should include EV charging facilities designed and ready to use, in addition ducting should be provided to increase future EV capacity to two charging points per home.

Local Plan Policy 17 Energy Efficient design applies and the site has ample opportunity for Solar PV for electricity and heating water. Where renewable energy generating technology is provided this should be considered along with in home battery storage which is very likely to become common place in UK homes in the future. Battery storage requires adequate space within the home (similar to a modern boiler) close to distribution boards.

Housing developers should consider whether the development will rely on mains gas, and therefore subjecting future residents to uncertainty over future supply and pricing. Alternatively Air Source Heat Pumps may provide a viable option. Layout and design of streets and houses will consider thermal efficiency, and risk of overheating. Hull Residential Design provides relevant guidance on this issue.
Flood risk and drainage

Guidance provided in this SPD should be read in conjunction with Hull City Council’s Living With Water SPD. It is recommended to divide the site/catchment into two cells: Yorkshire Water main drain systems; and the Environment Agency watercourse system.

For the purposes of modelling a run off rate of 3.5 litres per/sec applies to the site (greenfield). Overland flows and breach outcomes must be picked up in modelling for the Flood Risk Assessment that accompanies any future planning applications, as will details of the Flood Zone B area.

There is a need for a consistent approach to flood management and the phasing of construction and drainage implementation throughout the site if multiple developers are involved.

An holistic approach to Sustainable Urban Drainage Systems (SUDS), both above and below ground, is expected with SUDS incorporated into the design of homes, streets and open space. SUDS are to be designed in line with the new Codes for Adoption so that Yorkshire Water can take on the role of maintaining the system. As such designs should take account of volumes for the 1 in 100 +30 for Climate Change rainfall events.

SUDS should be integrated across the whole development wherever possible i.e. within streets, pocket parks, tree pits, and boundary treatments. This holistic approach to SUDS will help take a proportion of the require storage volume.

There is an opportunity to open the culverted drain in the southwest corner of the site. An 8m maintenance easement along all water courses is required by the Environment Agency, there is an opportunity to design this easement in such a way that provides a perimeter path/green corridor around the site encouraging pedestrian and cycle movements, and linked to surrounding open space and the Trans Pennine Way cycle route.

In terms of building design all facility buildings to utilise store and reuse methods whilst it is expected that as a minimum all houses will be installed with water butts, the volume of which is to be agreed with Hull City Council Flood Risk Management Team.
Movement and connections
Existing network

East Carr has two possible access points for vehicles. Danby Close and East Carr Road. Danby Close is a two-lane cul-de-sac that terminates before Sutton Cross Drain. Danby Close appears to have been designed with the intention of extending the settlement into the proposed site. There is existing pressure on this potential access from existing residents using the carriageway to park cars, limiting the access road to single lane at times. The opposite end of Danby Close is a T junction onto Howdale Road, a primary route through the existing settlement that carries the local bus route.

The other potential vehicular route into the site is from East Carr Road. This is a single lane leading up the eastern edge of the site. As the road crosses the threshold of the existing settlement it downgrades to a track with occasional laybys to allow cars to pass. Vehicle access to the site via East Carr Road is constrained by the narrow carriageway, parked cars in the highway, and several pinch points on East Carr Road between the site and junction with Dunvegan Road.

There is another existing access into the site from East Carr Road to a dog rescue centre, this entrance may also provide a vehicle access into the site from East Carr Road. Further north after crossing Holderness Drain, East Carr Road terminates at the driving range and nature reserve.

The site interior is currently used by pedestrians, often dog walkers, along the circular route formed by the boundaries of the site. Holderness drain links the two northernmost corners of the site. One field boundary further west of the site runs the Trans-Pennine cycle route that connects Hull City Centre with the Holderness Coastal town of Hornsea.

Fig 5: Existing movement framework
Future development of the site will require at least two viable vehicular access points. Danby Close will likely form the main vehicular entrance to the site and at present is the only entrance to the site capable of carrying large vehicles such as buses and bin lorries. Any access into the site from Danby Close will have to span Sutton Cross Drain at the threshold to the site. East Carr Road could be a second vehicular entrance to the site, it is envisaged this will primarily service the southeast of the development and could also expand upon the existing access point where the dog rescue centre is currently located.

Without upgrades to East Carr Road it will not be able to withstand large quantities of traffic. The junction south of the site where East Carr Road meets Dunvegan Road has limited capacity.

The SPD identifies a significant number of additional vehicle movements will emanate from the allocated housing site through two access routes along East Carr Road/Dunvegan Road and Danby Close. Both of these routes intersect with Robson Way/Salthouse Road. These movements will place an additional burden on the local highway network in peak hours and therefore any planning application will need to be accompanied by a detailed transport assessment.

It is likely this transport assessment may identify a need to improve the capacity of the surrounding highway network at critical junctions (e.g. Leads Road roundabout with Wawne Road) to take account of this increase, albeit bus access into the new development is designed to help mitigate the car movements, it will not prevent a significant increase of vehicles within the vicinity. Any identified improvements would need to be funded at least partially by the developer of this housing scheme.

The limited capacity of the road links threatens to turn the site into a large cul-de-sac. It is therefore an imperative that the eventual site layout takes as much pressure off the vehicular entrances as possible. The development shall be designed in such a way that alternative modes of transport, especially walking and cycling, are seen as attractive options when travelling within and out of the site.
Form of development
Fig 7: Legibility: Landscaping and public realm proposals overlay the proposed built form to create a distinctive and legible place.

Future redevelopment of the site shall introduce new legible features such as landmark buildings and focal places (such as pocket parks and play spaces) for neighbours to meet and converse, and for people young and older to exercise and play.

Unique and one-off landmarks in the form of distinctive buildings and spaces are required to give the development legibility by acting as wayfinders that provide reference points within the townscape. These help to orientate people and provide focal points of activity and neighbourhood life.

Distinctive buildings and spaces may find their distinction in a variety of ways such as their scale, architecture, roofscape, materials, use or function, or indeed a combination of these attributes. Legibility and distinctiveness must be genuine; it will not be deemed acceptable for a certain feature, such as a house type that is considered by a developer to be ‘distinctive’, to be repeated several times across the development. This defeats the purpose of a distinctive feature and the idea loses its effectiveness.

Making the most of views both within the layout, and to features outside the development will also aid the legibility of the development and help foster a sense of place. The masterplan should facilitate views towards Castle Hill monument, and exploit long distance views south towards the tower of the Grade I listed St James Church. This is by no means an exhaustive list and other features, both built and natural, will also provide visual interest from both near and afar.

Within the interior of the site greater impact is achieved through what is known as serial vision, where the scenery of a place reveals itself in a series of staggered jerks and revelations.

An important design principle will be to create a series of linked spaces and focal points to act as meeting places, make it easy to get around, and increase legibility.

Fig 8: Memorable moment in the townscape created by locating a distinctive house overlooking an off-set junction.
Form, scale and density

Scale and density will be informed by several factors including an understanding of the surrounding context and what is appropriate for the site. A site density between 30-40 dwellings per hectare (dph) is considered appropriate. This is not a rigid target because rather than meeting arbitrary figures, the ambition is to create a well-connected, compact and walkable neighbourhood.

The general suburban form of the existing development to the south should be respected, however, the new development must not imitate the dispersed car-dependent, and cul-de-sac form of the Howdale Road area.

As a large development there is an opportunity to vary both scale and density in different areas of the site to create local landmarks and different character areas within the masterplan.

‘Cul-de-sac’ housing works best on a small scale and where they provide pedestrian and vehicle access to the rear of plots from internal courtyards. These courtyard spaces can be activated by inner perimeter houses in small numbers between 3-9 depending on the size of the block.

Another key element of this guidance is the requirement to reduce the dominance of car parking on front gardens and streets, allowing more space for planting and soft absorbent landscape to improve amenity and mitigate against flooding.

To achieve this all new houses will be designed with one on-plot parking space preferably to the side of the house, and in a small number of cases to the front. Additional on-plot parking will be provided to the rear of housing to allow frontages to be freed-up for pedestrians, socialising, active lifestyles, and soft absorbent landscape.

Rear on-plot parking will be provided in the form of private garages (or in some cases car ports) designed to be of ample dimensions that encourage them to be used as intended for parking cars. In a small number of cases additional parking will be in the form of dedicated parking spaces within internal courtyards. Houses that align ‘SUD streets’ (see 6.4) will have no vehicular access to the front and therefore sufficient and app parking provision must be provided to the rear.
Public realm and street design
Positive and safe public space

Given the abundance of evidence that describes the many positive impacts of truly public green space on people’s quality of life, standard of living and health and wellbeing; green space has played an integral part in the conceptual masterplan.

East Carr is an island on a sea of green space, and it will be essential to continue this characteristic into the development. The sea of green will be let into the development through a SUDS network that connects residents to central nodes and the surrounding amenity space. It is of paramount importance that an accessible pedestrian route is also maintained around the perimeter of the site. The SUDS network will support cyclists and pedestrians (and other forms of wheeled activity) and will hold right of way over cars.

Public spaces will be looked over by the frontages of surrounding houses. The loose grid layout of the masterplan also supports a series of pocket parks within the suburban blocks.

Public space, larger and small, is to be overlooked by surrounding houses to encourage natural surveillance (fig 11). Where provided seating should look onto any activity space and lighting should clearly define the edges and pathways of public space, the lighting should continue to bus stops and up to any shops and/or other commercial or community buildings.

Careful consideration of planting can achieve a sense of enclosure in place of buildings where necessary. To avoid users feeling exposed and vulnerable in an expanse of space, large open spaces benefit from being sub-dived into smaller more manageable sections. This can be done by having areas of play, sports, bedding, lawn and/or water features as examples. This is especially important to provide equitable access to groups in society who may feel more vulnerable.

There is a large area within the site that is designated as flood zone 3b and as such is considered undevelopable. This area is expected to form a large area of open parkland design to provide areas of activity and tranquillity and be permeable to pedestrians and cyclists.
Play spaces and pocket parks

Play spaces and pocket parks work best when they are at the convergence of two or more pedestrian desire lines, they are more likely to feel safe and subsequently be used.

Play spaces are often a requirement of the planning system but do not always integrate with the rest of the development, they are often put in ‘left over’ spaces as an afterthought. Within the East Carr development, play and recreation must form an integral part of the site layout. The masterplan has identified a ‘green heart’ to the development and this offers a logical location for both play and recreational facilities. Given the large number of homes to be built, as well as the existing population, the ‘green heart’ is seen as a viable location for a community hub building providing facilities such as a café, crèche, changing rooms and public WCs.

A variety of types of play spaces should be considered; including natural playscapes, micro allotments, wildlife homes and feeders, and features that allow children to develop cognitive skills. Sport equipment like goal posts are low maintenance and do not reduce spaces to a single use. Whereas equipment such as climbing walls, skate equipment and playgrounds can be designed to segment large areas of public spaces into manageable sections to create the all-important sense of safety as well as legibility.

Pocket parks should be located where pedestrian routes intersect. Because Pocket Parks are small areas they cannot support multiple uses like larger parks can, but they should have a clear function and be located on the route to busy areas. Many successful pocket parks have a combination of trees, seating and a focal point such as a sculpture, water feature, raised planters or allotments, providing an oasis from the built form. Pocket parks should be overlooked and contain effective lighting. Because of their relative smaller size they also require a strong sense of enclosure and should not be an ‘island’ surrounded by roads.
Street design

Streets will be the most common and arguably most important public spaces within the development. Their design is a critical element in the creation of an identity and sense of place. Streets serve many different roles: as the setting to homes, places for residents to meet their neighbours, playing-out, jogging, walking, cycling, as well as parking and the circulation of traffic. This SPD is unequivocal in asserting its requirement for street design to be inclusive and designed to take account of the full range of users.

The masterplan proposes the creation of a network of streets designed against the following hierarchy of street types taking account of location, role and function.

**Primary streets**

Primary streets are defined by their wider carriageways to allow for buses to serve the development around a loop. A width of approximately 24m (building to building, or building to edge) will in most cases be enough to incorporate footpaths and cycleways on both sides of the carriageway. Footpaths will need to be wide enough to allow for 2m metre utility strips down both sides of the carriageway in a dual main arrangement.

SUD zones will be incorporated between the footpaths and carriageway, and will include features such as street trees in cell systems and rain gardens. Private frontages to the buildings must be a minimum of 2m but this can be extended as appropriate.

**Secondary streets**

Secondary streets will be the main vehicular routes around the development but should feel pedestrian focused. Secondary streets will be similar to the primary streets with the exception of having a narrower carriageway as these streets will not carry buses. A width within the range of 18-22m (building to building, or building to edge) will in most cases be enough to incorporate footpaths and cycleways on both sides of the carriageway. Footpaths will need to be wide enough to allow for 2m metre utility strips down both sides of the carriageway in a dual main arrangement.

SUD zones will be incorporated between the footpaths and carriageway, and will include features such as street trees in cell systems and rain gardens. Private frontages to the buildings must be a minimum of 2m but this can be extended as appropriate.

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Fig 14: Primary street typical section

Fig 15: Secondary street typical section
**Edge of development streets**

Due to the nature of the site some streets will be ‘one sided’. For instance, where houses front onto the open space in the west of the site, and where houses front onto an existing hedge rows.

A width within the range of 14-18m (building to edge) will in most cases be enough to incorporate footpaths on both sides of the carriageway and a designated cycleway. Footpaths will need to be wide enough to allow for a 2m metre utility strip down the side of the carriageway adjacent to the houses.

A SUD zone will be incorporated between the carriageway and footpath adjacent to the houses, and will include features such as street trees in cell systems and rain gardens. Private frontages to the buildings must be a minimum of 2m but this can be extended as appropriate.

**Fig 16: Edge of development street typical section**
‘SUD Streets’

**SUD streets**
Linear green ‘streets’ between the fronts of houses. Although their purpose is to provide a car free network and promote active outdoor activities, the main role of the SUD is to provide sustainable surface water drainage and retention. Given Hull’s topography and especially this site’s location it is essential that above ground SUDS are an integral design feature of the development and ‘SUD streets’ will be a distinctive and exemplar feature of the development.

**Safety and accessibility**
The SUD streets are placed along clear pedestrian desire lines to ensure usage; they should feel safe and accessible to all residents. A comfortable sense of enclosure (height : width ratio) makes spaces feel safe and comfortable and are more likely to be used, natural surveillance also makes public spaces feel safe and inviting.

Surrounding homes should clearly look onto the SUD street. Visual barriers such as fences or walls should be kept low, a clear view from one end to another is important. Gentle curves in the path is advised to provide an element of interest, right angle turns or sharp inclines and declines in height should be avoided to provide equal access to all. As the SUD will be at the front of houses and will connect residents to amenities, the same amount of street-lighting is expected as on a more traditional residential street. SUD Street frontages must be car free.

**Corridors for people and wildlife**
Seating should be interspersed throughout the pedestrian routes either through formal benches set back from the main pathway but looking onto it, or informal seating that introduces an element of play, such as grassy mounds, or ledges set into the SUD’s boundary.

Trees should be carefully planted to provide shading during summer and allow sunlight to enter homes during winter. Tree types should support local ecology and bed planting should support bees and other wildlife and provide green corridors to support the surrounding habitats. Consideration should be given to how planting will look in all four seasons.

Fig 17: Section diagram demonstrating the ‘SUD street’ concept building line to building line
Fig 18: Example of a ‘SUD Street’ at St. Chad’s, Thurrock. Cars are excluded from the street and the swale is made the focus for the main pedestrian route.

Fig 19: A concept design for the ‘East Carr SUD Streets’
**Thresholds and boundary treatments**

Use of public space is largely dependent on the perceived sense of safety, it is important that visibility between homes across the SUD streets is preserved.

Low fences or planters should be used to help animate the SUD and support natural surveillance, but crucially provide a definite boundary between the public and private realm. Robust, integral boundary treatments will deter residents from putting up their own defensive boundary treatments, which inhibit social interaction and sense of community.

**SUDs everywhere**

Given the essentially green character of the site, and the high flood risks every opportunity should be taken to create spaces for planting and growing and to absorb excess rainfall. Boundary treatments provide an excellent opportunity to do this front and back. At the front of properties small areas of enhanced planting belonging to residents provide opportunities for social interaction and casual surveillance.

At the rear raised planters could be incorporated in boundary walls and dividing walls between plots and/or between patios and lawns. Shared inner courtyards can be made more pleasant, sociable spaces through the introduction of micro-allotments and planter beds that double as rain gardens. This could be on an individual basis or collective shared arrangement.
A compact and walkable layout designed through an iterative process of detailed analysis of existing site conditions i.e. flood zones and existing landscape features, and the surrounding context i.e. existing settlement and Castle Hill. The proposed layout demonstrates strategies for integrating a suburban grain into a distinctive grid and block structure defined by a hierarchical street network supporting open spaces, commercial elements envisaged as being primarily food retail, pedestrian movements, SUDS, parking and internal courtyards.

The draft masterplan shown in figure 22 provides the basic layers required for an acceptable new residential development providing 689 plots (can vary) at a density of 32 dph (can vary). The uniformity of grids and blocks creates a clearly defined residential layout that is street-focused with buildings fronting onto the public realm, and private spaces at the back. Perimeter blocks make efficient use of space, maximise connections across the site to ensure opportunities for different routes to be taken, and encourage walking and cycling. Blocks are informal to create a suburban character and their uniformity is loosened up with courtyards or mews streets that activate and give access to the spaces at the centre of the blocks.

The masterplan proposes a ‘green heart’ which is regarded as a viable location for a community and commercial building providing facilities such as a café, crèche, changing rooms and public WCs.

Fig 22: Draft East Carr Masterplan
Fig 23: Draft East Carr Masterplan showing one possible route of bus loop

Fig 24: Legend (zoomed in)