Kettering Buccleuch Academy

Design and Access Statement

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Nicholas Hare Architects LLP
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1.00 Design

1.01 Introduction and background to the project

The proposed building for Kettering Buccleuch Academy is a result of the local competition organized by Northamptonshire County Council under the Partnership for Schools National Framework. It forms the sample school in a batched scheme of three projects, which includes work to two further Academies.

The sponsor for this Academy are the United Learning Trust, who operate 17 academies around the country. The Kettering Buccleuch Academy was created through the joining of Montagu Secondary School with Avondale Infant and Junior Schools under the auspices of the United Learning Trust. The Academy was opened in its existing buildings in September 2010, promoting the ethos of an all-through academy.

Following an ‘Invitation to Tender’ bid submission in November 2010, Willmott Dixon Construction have been selected as preferred bidder and are now developing their proposals. The new Kettering Science Academy building is due to open in January 2013.

This statement should be read in conjunction with the planning statement prepared by Christopher Timothy of CT Planning and the supporting documentation that accompanies the application.

1.02 Consultation

The prelude to the competition stage of this project was the preparation of an Outline Business Case by Northamptonshire County Council and their technical advisors. This described the key aspects of the brief and the aspirations of the sponsor with regard to the design. A series of Design Quality Indicators (DQI’s) were also identified, further clarifying the key priorities of the school.

As part of the preparation of the Outline Business Case, and based on the control scheme designed by John Lyall Architects, discussions were held between the project team and Northamptonshire County Council to identify possible planning issues for an application of this type. The drawings accompanying the OBC were subsequently submitted to the Planning Authority for Outline Planning Consent, which was granted on 28 May 2010.

A series of clarification meetings was held at fortnightly intervals throughout the pre-ITT stage to develop design and technical proposals with the sponsors, the council and their technical advisors.

The Willmott Dixon design team has met with the planning department of Northamptonshire County Council on 26 August, 22 September, 13 October and 11 November to discuss the progress of the scheme. Representatives from Kettering Borough Council were also in attendance at the first of these meetings. In addition, a Secure Design meeting with the Police Liaison Officer took place on 26 August.

Discussions have also been held with Sport England and the Football Foundation.

Public consultations were at the existing Sports Pavilion on 19 November and at the Academy on 23 November 2010.

1.03 Key Design Principles

Our underlying intention has been to respond accurately and imaginatively to the educational priorities of the sponsor in the context of the particular site in Kettering.

The sponsor’s priorities are clearly set out in the Design Brief and have been steadily reinforced throughout the engagement process. This has led to a relatively consistent development of our design proposals, which we hope represent an innovative interpretation of the principles underlying the United Learning Trust’s educational philosophy.

The principal design drivers have been:

• To design an inclusive Academy, in particular with regard to students with hearing impairments

An All-through Academy

The challenge posed to us by the Design brief was to create an academy for students from age 4-19, with a progression through three phases: Foundation, Development and Extension. Each phase was to have an appropriate identity while the new building was nevertheless required to express clearly the unity of the Academy.

In addition, maintaining appropriate child safeguarding measures when dealing with such a broad age range was considered vital.

Sketch view showing the Academy site

The overall arrangement of the new Academy consists of a ribbon of teaching spaces running around the whole building, enclosing a central volume, running through the centre of the building comprising the large communal spaces such as the Theatre, drama spaces and Foundation Hall. The spaces between this central volume and the ribbon of teaching spaces create two atria in the Extension Phase and an external courtyard in the Foundation Phase.
The tri-partite phasing of the new Academy is achieved by locating the Foundation Phase on the ground floor to the east, the Extension Phase to the west and the Development Phase straddling the building from east to west.

This division provides an ideal location for the younger years, giving direct access to the quieter external spaces for play and is also convenient for drop-off and pick-up. Locating the Extension Phase to the west creates strong links to the existing and proposed sports pitches, the Sports Hall and Sports Pavilion.

The early years of the Development Phase are located on the first floor above the Foundation pupils, while the older Development students use the general and specialist classrooms in the Extension Phase. Direct circulation routes link each part of the Academy and as a result there is an organic progression, a rite of passage, from Foundation through Development and into Extension, retaining the identity of each phase while creating natural transitions between them.

The form of the building and the materials from which it is made further articulate these ideas. Within a single building enclosure the Foundation and early Development years are expressed as a two-storey element, predominantly clad in brick with canopies to provide sheltered play creating a more intimate scale. Accommodation for the later years is arranged over three storeys and also clad externally in brick at low level for robustness with metal cladding to the upper floors. The materials therefore express both continuity (brick) and difference (metal).

Good visibility and passive supervision
One of the Key Design Principles described in the brief calls for the design to ‘complement good organisational strategies to yield a positive environment that requires the minimum of overt disciplinary strategies’. Our aim has been to design an Academy that is light, open and transparent, permitting informal or passive supervision. We have also sought to design out opportunities for misbehaviour by avoiding concealed areas, dead-ends etc., that might encourage bullying or other anti-social behaviour. These measures will be reinforced by good CCTV coverage of internal and external spaces.

Circulation
The way students move around the school is clear and visible, with generous circulation routes and staircases.

In the Foundation and early Development Phases, circulation is arranged around an attractive external courtyard, making the student’s experience of moving around the Academy enjoyable and highly visible. All circulation spaces in this phase are sized at a minimum of 2.1m with staircases of 1.8m wide.

In the later Development and Extension Phases of the Academy primary circulation on each floor wraps around the two atrium spaces which flank the central volume of the theatre. Wide staircases with segregated ‘up’ and ‘down’ routes sit within the atria.

Student circulation spaces within this phase are a minimum of 2.5m wide, with staircases of 2.1m wide.
Circulation around the Academy

Passive supervision
Staff offices and faculty workbases for staff have been distributed across the plan in order to allow a discrete yet thorough passive supervision regime. In all cases, discrete glazed panels will allow staff to keep an eye on critical areas. In particular, the rooms at the entrances to the clusters look both ways, allowing staff to observe both the clusters themselves and the primary circulation balconies. These rooms are also located adjacent to the cluster WC blocks, allowing supervision of these often-difficult spaces.

Passive supervision from faculty workrooms
Small offices have also been strategically located at the two ends of the central locker and WC zone on the first floor.

In addition, the Academy’s general office and other miscellaneous offices are located on the ground floor overlooking the main approach to the school, as does the suite of rooms associated with the Principal on the first floor.

Staff offices distributed around the Academy
Full-height vision panels have been incorporated into the classrooms, located adjacent to the doors. These allow passive supervision of the corridor and break-out spaces immediately outside the classroom, but also a degree of observation into the classroom.

‘Bring out the best’
Central to ULT’s core values is the commitment to ‘bring out the best in everyone’. They state that ‘we seek to maximize every individual’s potential, nurturing the self-confidence and self-esteem that will enable them to make the most of their talents’. The design of this Academy building aims to support and reinforce this aspiration through:

• Academic excellence
• Organization and support for learning
• Healthy competition
• Encouragement of the arts
• Sense of community

Academy specialisms
The Academy has specialisms in maths and ICT and sport supported by the theme of business and enterprise. The new Academy building will seek to support these specialisms by the provision of a mixture of flexible and purpose-specific teaching spaces that will allow them to be taught in innovative ways and excellent new facilities for sport.

An inclusive Academy
The Academy has an effective and supportive Inclusion Policy, and the new building and its grounds are designed to support and reinforce this commitment.

The local authority has funded the provision of a Hearing Impaired Unit associated with the Foundation and Development phases of the building. This is located on the first floor above the quiet LRC. There is no accommodation located above the HIU. This facility will be specifically designed to comply with the relevant regulations and guidelines and to satisfy the specific needs of the local authority.

In addition, ‘Soundfield’ acoustically enhanced classrooms will be provided in each faculty and in Foundation. The building as a whole will generally be designed to comply with BB93.
1.04 The site

The site lies to the north of a residential area located in the north east corner of Kettering and is on the edge of the urban settlement. The village of Weekley lies to the north east with Boughton House, ancestral seat of the Duke of Buccleuch a little further to the north east. Historically the emphasis in the site has been from the west and the main body of the town of Kettering.

The proposed Kettering Buccleuch Academy is to be sited on the former Montagu School site. There are open fields to the North East of the site, with a residential area to the South & West, interspersed with small retail outlets. The Montagu School site consists largely of open playing fields, a large community sports hall operated by the school, and single story school buildings. The vast majority of the materials are brick and concrete tile roof, with metal roof cladding to the sports hall. The buildings sit on top of the rise, with the playing fields on two tiers of banked lower ground. There is a staff car park to the east of the site.

The Weekley Glebe Playing Fields, also on a rise, consists of large expanses of open ground to the east of the Montagu School site on heavily undulating ground. Nine football pitches a laid out on the grounds with earth banking setting out the level pitches on the site. Four pitches sit on higher ground and five pitches on the lower ground. Of those five, the grounds have been shaped to accommodate each at varying levels. A small pavilion is located on the south side of the site, by the entrance and behind the houses on Weekley Glebe Road.

The main views into the site are primarily from Weekley Glebe Road. These views are filtered by existing residential properties and vegetation. Secondary views can be obtained from the north east across the playing fields although some of these views are limited by maturing vegetation. Generally a combination of existing topography, property and vegetation screens views from other points outside and within the site.
1.05 Building location and site layout

The site offers a wonderful green setting for the building and its grounds, and will also allow the new Academy to have much greater prominence than the current buildings, being located directly in front of the main entrance from Weekley Glebe Road. The proposal is to locate the building so as to:

- Make the entrances to both Foundation and Extension Phases apparent immediately on entrance to the site.
- Provide a variety of hard and soft play areas around the building appropriate for each phase.
- Ensure a strong link between the new Academy building and the retained facilities.
- Provide safe and secure access for students, staff and visitors whether on foot, bicycle or in a vehicle.

The main plantroom for the Academy has been designed as a standalone block to the south of the main building. In this location the energy centre will be screened by existing trees from the houses along the southern edge of the site, and will be accessible for service and delivery vehicles from the ‘loop’ road at the main entrance to the Academy.
1.06 Aspect and orientation
The primary façade of the building is its south elevation, which faces the entrance to the site and presents the public face of the Academy, visible from Weekley Glebe Road. This façade runs the length of the building, stepping down from the three-storey Extension Phase to the west to the two-storey Foundation Phase to the east. It will create an impressive yet welcoming first impression, with the principal building entrances clearly signified by the canopies and the hard landscaping providing easy and intuitive wayfinding.

To the west the three-storey teaching clusters reach out into the landscape and open out towards the sports pitches creating distinct external spaces for play and study.

To the east, the two-storey Foundation and lower Development Phases present a more intimately-scaled aspect to the open spaces of the Weekley Glebe, with lower canopies creating sheltered external play areas for the youngest children.

To the north, the long façade forms a backdrop to the eastern pitches of the Weekley Glebe.

By orienting the long axis of the building east-west, the majority of the Academy’s rooms face approximately north or south. This is beneficial in that it reduces the quantity of low afternoon or morning sun penetrating the internal spaces. Low sun is particularly difficult to counter, and can contribute to both glare and solar heat gain in the classrooms and other teaching spaces.

1.07 Scale, form and disposition
The proposed building is composed of two- and three-storey elements. The Foundation and Lower Development Phases (Primary), to the east are two-storey with a central courtyard. The Upper Development and Extension Phases (Secondary) to the west are three-storey and are composed of three teaching clusters extending like fingers from the building hub.

The two principal entrances, to the Extension and Foundation Phases, are articulated by generous canopies and are visible on entry to the school site. Further small-scale canopies are used around the Foundation Phase to create sheltered external play areas.

The overall composition of the new building is seen as a series of simple, geometric forms with a regular arrangement of glazing set into robust panels of masonry and metal cladding. This rigorous framework will then be softened by landscape externally and enhanced internally by the quantity of glazing and daylight, and the quality of the finishes.

1.08 Appearance
The selection of materials for use both internally and externally has been guided by the preference of the United Learning Trust for finishes that are of high quality and require low maintenance, but we have also been mindful of the desire to create an inspiring and uplifting environment for staff and pupils alike. We therefore propose a simple, unified palette of materials which is robust yet elegant and creates a visually appealing composition.

The principles of sustainability have also informed our materials selection and wherever possible we have chosen materials with low embodied energy, or which are manufactured in an environmentally responsible manner. This is reflected in our choice of materials with recycled content, or which can be recycled at the end of their life. Materials which are highly rated in the BRE Green Guide will be favoured over those that perform less well. Endeavours will be made to source materials locally and the use of prefabricated systems, where practical, will reduce on-site wastage.

Sketch view of Academy from north
All of our material choices have been assessed for their lifetime cost implications and as such represent a comprehensively cost effective solution for the Academy in the longer term. An outline architectural specification is included in Section CP2 of our bid documentation (and will be developed into full NBS specifications in the next stage), however, the following paragraphs offer a brief summary of the materials proposed.

External materials
The new Kettering Buccleuch Academy (KBA) will be clad in two contrasting materials. The two-storey Foundation and Development part of the building will be clad in brickwork, which also forms a robust plinth to the ground floor of the three-storey Extension phase element. The upper floors of this section of the academy will be clad in sinusoidal-profiled silver metal cladding panels which will reflect the light and change in appearance as the sun moves around the building.

The principal cladding materials are interspersed with thermally efficient aluminium curtain walling and windows. The use of large areas of glazing is fundamental to the building’s design, fulfilling the twin aims of excellent levels of daylight within the internal spaces and maximising views out to the surrounding landscape, thus imbuing the academy with a real sense of place. The glazing also responds to the sponsor’s desire for openness and good visibility throughout.

The window openings reinforce the different characteristics of the two main façade materials; individual punched windows within the brickwork have full brick reveals, reinforcing the solidity and elegance of the masonry, whereas windows set into the metal cladding are linked by recessed flat metal panels coloured to match the window frames, giving the appearance of long ‘ribbon’ window openings that emphasise the horizontal nature of the cladding.

All of the materials proposed are robust and durable, and will weather well over the years, needing only limited maintenance. The result will be a building of evident quality and distinction within its local environment.

Brickwork
The proposed brickwork is a light buff brick, with a slight variation in tone to add warmth and a gently textured face to provide a soft, warm contrast to the crisp, shiny metal surface above. The brick has been carefully chosen to complement the metal cladding, but it also provides a contrast to the red brick surrounding buildings, increasing the impact and presence of the academy within the community.

Metal cladding
The profiled metal cladding with a silver metallic finish at the upper levels will have a good reflectance and the surface profile will generally self-clean. The bright, shiny appearance will provide a strong contrast to the brickwork and afford a degree of excitement and distinctiveness to the elevations.
Render
The protected courtyard at the heart of the primary school will have a white painted sand-cement rendered finish. This will increase the reflectance of light into this space and lend it an equivalence to the internal atrium space in the secondary school.

Curtain Walling and Windows
Full height glazed screens mark out the key spaces, including the academy entrance, the primary entrance, and the LRC. This ensures that these areas are bathed in ample daylight and also that they are highly visible with the life of the academy being on view to the visitor. The restaurant also has full-width and full-height curtain walling, maximising views across the Weekley Glebe to the north. Glazed screens separate the teaching wings where they meet the atrium, allowing views out on to the sheltered courtyards between the wings. At ground floor there is access into these courtyards and on to the sports facilities beyond. There are also strips of curtain walling at the ends of each cluster, bringing daylight into the breakout areas and circulation spaces, aiding orientation and ensuring that there are no disorientating dead-end corridors.

Each general classroom has two large windows extending almost to the soffit, which provide excellent daylighting characteristics to the teaching spaces. This is supplemented by indirect daylight from the cluster roof lights, via internal glazed screens adjacent to the classroom doors. Each window is divided into two low-level and two high-level top-hung opening lights providing fresh air. The high-level windows will be operated by tele-flex winders. Night-time cooling of the thermally massive concrete floor slabs is achieved through the trickle vents built into each window.

Windows in the Foundation and Development phase classrooms will have lowered cill heights, more appropriate to their younger occupants, allowing them to have a view out from a seated position. Ground floor Foundation classrooms will also have double doors opening directly from the classrooms to their external learning / play space. Around the primary courtyard full height glazing at ground floor and slot windows at first floor will have louvres above which connect to the classroom ventilation system.

The windows, curtain walling and louvres are to be a polyester powder-coated, thermally-broken aluminium-framed system. The curtain walling and windows will have dark grey frames in contrast to the light brickwork and silver cladding. Metal panels between the upper level windows will be coloured to match the window frames.

Roof lights
Roof lights are positioned over the central void within each teaching wing, allowing natural light to filter down into the centre of the circulation and breakout space. These roof lights are angles at a 25 pitch to the north with a 65 pitch to the south-facing side, providing an optimum angle and orientation for the possible future provision of solar PV cells. Roof light upstands incorporate automated louvres which control the ventilation of the cluster spaces.

The art studios are provided with two liner north light roof light assemblies with glazing placed at a 75 pitch, thus maximising the quality of light which is desirable in these studio spaces.

Two 6m diameter circular roof lights are provided in the atrium, one over the entrance area and another over the dining area. A further liner roof light is located at the back of the theatre.

Roof lights will all be double glazed and will be framed in either stainless steel or PPC aluminium sections.

Canopies
The two entrances will be marked by double-height canopies with a steel supporting structure and metal soffit panels. A similar canopy is located in the primary courtyard adjacent to the hall, providing an opportunity for covered external dining and other activities.

Reception and key stage 1 classrooms have single storey stretched fabric-type canopies to provide a degree of weather protection to their out door learning and play spaces. The steel supporting structure to these canopies may be painted a different colour.

1.09 Environmental sustainability and energy issues
Willmott Dixon has identified the following sustainability targets for Kettering Buccleuch Academy:

- Achieve a BREEAM ‘Very Good’ rating.
- Meet the requirements of Building Regulations 2006
- Achieve the Partnership for Schools requirement of a 60% reduction in carbon emissions

Willmott Dixon’s approach to sustainable design is to deliver facilities that maximise positive educational outcomes and create positive and inspiring learning environments, which help raise aspirations and attainment.

Our design proposals are based on the good design practice hierarchy:

- Passive design measures
- Active energy efficient measures
- Low and zero carbon technology

The passive design features of the proposed design for Kettering Buccleuch Academy include:

- Solar-control glazing (low g value or solar transmission value amounting to <0.45 while maintaining good light transmission through the glazing LT = >60%)
- The windows proportions and configurations maximise daylight penetration into the space, and provide a light and airy environment without the need for excessive artificial lighting.
- Exposed concrete soffits provide thermal mass to passively temper the internal environment, reducing peak temperatures in
The space:

- Temperature and CO2 detectors help building occupants to maximize control of natural ventilation inlets
- Teaching spaces are naturally ventilated, with mechanical assistance used when necessary.
- High levels of thermal insulation and enhanced fabric reduce heat loss and heat gain.
- Improved U-values

Active energy efficiency measures include:

- energy-efficient lighting throughout, with intelligent daylight dimming and presence detection
- local heating and ventilation control
- variable-speed fan control
- direct sub-metering of substantial energy uses
- free cooling - where physical mechanical cooling is required.

Free cooling is still provided by using adiabatic cooling air handling units rather than conventional refrigeration equipment. Adiabatic cooling uses the cooling effect of water spray introduced into the air stream.

- metering - all substantial energy uses are sub-metered and linked to the BEMS. In addition, metering data is provided to the virtual learning platform via interface software, and data is provided to CCC’s central monitoring.

Low and zero-carbon technology

A major aspect of sustainable design is strategic fuel saving and maximising energy efficiency. The building and engineering systems ensure energy and carbon emissions are minimised. Low and zero carbon (LZC) technologies have been considered in detail.

A LZC appraisal has been carried out for the plant to establish the best technology for the site. The following section discusses the LZC technologies available, and those that are suitable for the building.

The LZC technologies that have been assessed are:

- Biomass boilers
- Bio-oil boilers
- Community heating and combined heat and power (CHP)
- Solar thermal collectors
- Wind turbines
- Photovoltaics
- Ground-source heat pumps

Bio-mass and bio-oil boilers have been considered, and are not the preferred solution for the client due to the requirements for fuel deliveries and ensuring a reliable guaranteed source. Community heating and CHP are not viable due to the lack of a continuous annual heating demand. Wind turbines were dismissed on planning grounds as the hub height would need to be significantly above the building to achieve the required yields. GSHPs were dismissed on the grounds of excessive capital costs exceeding those within the budget.

A solar hot water system uses solar collectors to trap the thermal energy from the sun and heat water. The most common application of solar collectors for providing domestic hot water is solar thermal collectors. These will be located on the existing retained façade, when conditions allow.

- Demand-led heating and cooling strategies to ensure the heating or cooling plant is only used as needed by the school building, including free cooling for night purging.

Adiabatic cooling

The AHUs serving the drama, theatre and primary halls are designed to use adiabatic free cooling that uses the latent heat of evaporation to cool the supply air without the need for artificial cooling or chillers.

Night purge

Free cooling at night time will be used when heat loads in the buildings are high overnight. This will be achieved by running fresh air plant (with no heating or cooling) when the outside air temperature is low enough to naturally cool the internal spaces. Alternatively passive ventilation openings can be used to lower heat loads in the building at night, without the need for mechanical systems, when conditions allow.

Optimum stop / start algorithms

The optimum stop / start algorithm ensures the building is at the correct temperature during occupancy and appropriate comfort on final configuration to complement the solar thermal technology in delivering carbon free energy to the academy.

These measures have enabled the design to achieve the Partnership for Schools requirement of a 60% reduction in carbon emissions, exceed the requirements of Building Regulations and achieve a BREEAM Very Good rating.

Sustainability is ‘designed-in’ from the onset by using the energy conservation BEMS scheme. The sustainability benefits this scheme brings are:

- Daylight control of lights with automatic dimming using light-level monitoring
- Temperature and CO2 detectors help building occupants to maximize control of natural ventilation inlets
- Demand-led heating and cooling strategies to ensure the heating or cooling plant is only used as needed by the school building, including free cooling for night purging.
levels are met. The same algorithm can also be used to switch off plant early, such as under-floor heating and radiator circuits, to save energy.

1.10 Landscape

Particular Challenges
The key challenge has been to unify the two sites into one and to use the existing landscape features to create as much as possible of the proposed landscape thus maintaining the structure of the site. The Montagu School site buildings are visible to all neighbouring properties in Kipling Road and Scott Road with tree screening obscuring the views from Weekley Glebe Road. The car park to the east of the site is not visible from outside the school boundary. Vegetation obscures the site, from both Silver Acre, to the north, where only the tops of the buildings are visible, and from the Weekley Glebe Playing Fields to the east. Trees obscure the Weekley Glebe Playing Field site from the north and the west and there is a large amount of tree screening between the lower and upper tiers of the undulating site. The existing sports pavilion located on the south side of the site, by the entrance and behind the houses on Weekley Glebe Road, currently obstructs the view from these houses across the Playing Fields. To the east the lower playing fields are open to the countryside which spread out further below them. To the South there are varying degrees of tree vegetation backing on to the houses on Weekley Glebe Road.

Through the course of the engagements a further challenge of greater magnitude has presented itself to the design team in that the affordability of the scheme was key to its viability. A number of design decisions have been made to ensure that the scheme hits the criteria for affordability.

Detailed External Design: Our Overall Approach
Our overall approach has been to develop the scheme in accordance with the operational requirements of Northamptonshire County Council, Kettering Borough Council and the United Learning Trust and to ensure that it complies with relevant guidance including, DDA, Secured by Design, Sport England, UK Building Regulations and Building Bulletins and the brief documents where specified.

Design Principles
We have developed the design through a thorough understanding of the school’s curriculum and specialism to provide a Whole Campus Learning experience.

The proposed landscape will not only integrate the new school into the existing landscape context but also enhance it. The site lies on the edge of a built up area; this has directly influenced the design approach with emphasis on large green spaces with a feeling of openness and visual link to the wider landscape beyond with emphasis on developing a relationship with Boughton House to the north east, the seat of the Duke of Buccleuch.

On the public side of the school, the design creates a welcoming and safe environment for pupils, staff and community users. Within the main teaching areas, the design maximises relationships between internal and external adjacencies and the connections and routes between them.

In providing a balanced range of well designed outdoor learning environments, we have followed and implemented guidance from Building Bulletin 98 and Building Bulletin 99 in our analysis of the external environment - hard informal play, soft informal play, MUGA, sports pitches and habitat. In addition to this we have also looked at the BREEAM requirements with a particular emphasis on the ecology and land use sections and the desire to meet these aspirations.

Our approach has been simple from the start. Our first aim was to ensure that the architecture and the adjacencies that it creates are relevant to the external space for each of the academy phases. Our second aim has been to unite the two separate sites and to ensure that the spatial arrangement and access for pedestrians and vehicles is clear.

Our third aim has been to promote the links with the Duke of Buccleuch and we have explored opportunities through the landscape design to do this.

Our fourth aim has been to provide a secure and appropriately scaled site for the foundation stage and to ensure that access to this part of the school is legible.

Our Design Journey
Through our engagements with the academy, the client and the planners we have taken a very practical, hands on approach to delivering the brief requirements of all the stakeholders and the interested parties. Our first engagement was based on working through three options and how the arrangement of external space could be delivered.

Using simple cut out shapes that are scaled and representative of the external area requirements under BB98 and BB99 we worked through a number of spatial adjacencies with the architect and the school to develop preferred options. Key was the retention of the existing soft playing pitches in situ, the creation of dedicated external space for the foundation stage and access to sports for the extension phase.

At this stage we also introduced the idea of how laying out the external spaces on the new academy would be done using the design vocabulary of the gardens and grounds of Boughton. The use of avenues, alleys, vistas, green rooms, woodland and parkland blocks all give the grounds at Boughton a unique character and link landscape to building.

The use of this ‘classic’ landscape design approach will allow us to promote a strong link with the Duke of Buccleuch. In addition to this we are also proposing to use tree species that are thriving on his estate on the proposed school site and in similar locations. These trees are grown on the estate and form part of the Living Landscape Trust Initiative which the school hope to use.
External Space Requirements
We have calculated carefully the external area requirements under Building Bulletins 98 and 99 and can confirm that we are meeting the minimum area requirements in both instances.
Ecology and habitat
Ecology has been a major design consideration ensuring that the ecological value of the site will be enhanced by the scheme with a greater area of ecologically valuable habitat and an increase in species diversity. A number of trees have been removed as part of the key aim to unite the two sites but a significant number are being replanted as replacements. The tree species have been chosen following a study of the trees at Boughton House. This allows us to reinforce the links with the Duke of Buccleuch, use species that have a strong local provenance and that are grown on the estate. The species will include oak, lime, beech, yew, holly, hawthorn, rowan, black walnut, horse chestnut, poplar, cricket bat willow, ash and sycamore.

Hard landscape
A simple and robust palette of materials will be used including: macadam, naturally binding gravel, textured concrete paving slabs and textured concrete block paving. In key areas, high quality materials will be used. To ensure the usability of the teaching and social spaces, a co-ordinated suite of external furniture will be provided including lighting fixtures, seating, workbenches, shelters and litter bins.

Soft landscape
As a response to the character of the adjacent parkland landscape associated with Boughton House, the structure of the landscape will be defined by expanses of grassland with structural tree belts, small clumps of trees and native hedge planting. A variety of plant species will be used to provide a variety of form and texture. Drought-resistant native plant species will be widely used to increase ecological value and reduce the requirement for irrigation. Planting species will also be chosen to become part of the curriculum.
External sports provision

External sports facilities are located to the west of the site within a secure boundary for the development and extension stages of the academy and on the eastern boundary for the foundation stage and provide opportunities for managed community access via the existing Sports Hall. Additional grass pitches on Weekley Glebe are accessed by the community under a managed arrangement with the school from the changing rooms in the north west corner of the site.

The school playing fields are to be retained in accordance with the Output Specification and the requirements of BB98 where appropriate. The playing fields are located to the west of the proposed academy site.

External hard court sports facilities are located in the centre of the site with the existing MUGAs being resurfaced and new fencing and gates provided as appropriate. A new All Weather Pitch has been provided with a type 5a sand filled synthetic turf surface for football and hockey.

The drawing illustrates the sports provision we are providing for summer use on the academy.

Access to sports facilities

Level access routes throughout the site will ensure that the all the MUGAs and the AWP are fully accessible for disabled users. The main sports field and existing MUGA’s and AWP will be available for managed community use outside of school hours via the sports hall building. Maintenance and emergency vehicles access is via a vehicular gate to the east of the changing rooms onto the main playing fields at Weekley Glebe.

External Summer Sports

- 3 x rounders pitches on grass
- 1 x cricket pitch
- 1 x 6 lane 400m grass running track
- 1 x 8 lane 100m grass straight running track
- 1 x long jump pit in sand
- 1 x high jump pit
- 3 x cricket nets with artificial surface
- 4 x fitness trail stations
- 7 x tennis courts on MUGA
- 7 x netball courts on MUGA
- 1 x basketball court on MUGA
- 1 x AWP with a surface for a football
1.11 Security

The site will operate as a dual-purpose development. During the day it will operate wholly as the academy site, and then on evenings, weekends and school holidays it will open up for community use. Therefore the fencing and access strategy has been developed to allow for these two operations.

However there is also a balance of allowing the site to operate safely and securely, without making the design appear institutional and unwelcoming. We have managed this by listening to both the Academy’s and ULT’s concerns, surveying and understanding the physical constraints of the site, and then producing a series of design iterations that have been developed with the clients to the final solution.

The design retains the existing boundary fencing and gates wherever possible; the north and west boundaries, the south west corner, and the section immediately east of the construction technology buildings. These are mainly 2.1m high palisade fences within well established hedges, which add both height and thickness to the fence-line, and therefore security. The section adjacent to the construction technology buildings is 1.8m high, but also within a well established hedge. There are areas where corrective works will be required, such as the existing western pedestrian gate, and areas where under-mining access is an issue. The southern section of existing palisade fence adjacent to the Sports Hall will also be relocated to the actual site boundary; provides additional spaces for landscaping and drainage requirements such as swales.

The remaining boundaries will receive new fencing. The new north-east and eastern boundaries, which adjoin the Weekley Glebe will receive 2.4m high Nylofor 2D/2D Super fencing in green. The same will be installed to the south-east corner to form the access onto the Glebe for the immediate local community; the boundary to the residential properties to this area will not receive any new fencing.

The necessary pedestrian and vehicle gates will be provided across the site, with remote electronic access control where noted, and these have been developed in conjunction with the site plan and the clients. Therefore deliveries, for example to the kitchen, can be accommodated without compromising security.

External Winter Sports

- 3 x grass football pitches
- 2 x grass training grids
- 2 x grass five a side football pitches
- 4 x fitness trail stations
- 7 x tennis courts on MUGA
- 7 x netball courts on MUGA
- 1 x basketball court on MUGA
- 1 x AWP with a surface for a football
Flexibility is built into the design. Once within the school day, the academy can choose to either close the site at the main entrance, limiting and controlling access onto the academy grounds, or have a more open and approachable entrance allowing visitors and the public to enter the Academy Green and the main building entrances. The more sensitive areas of the academy are always protected by 1.8m high Nylofor 2D/2D Super fence and gates always. Both options maintain the public access to the Glebe.

### Public Zone

To the south of the academy building, the public zone is dominated by the academy green, a generous green space which will create an open, calm and welcoming environment. Car parking for visitors and drop off spaces are located towards the western edge of this green space to ensure that they will not be visually dominant.

Coach and bus drop off is located on the south west corner of the academy and is accessed from Weekley Glebe Road. A one way road system takes vehicles round and also provides vehicular access for the energy centre for deliveries.

Separation of the principal academy areas from the public zone is a key requirement. Therefore, as previously described the academy students are always within a secure zone during the school day. Depending on how the academy chooses to operate, which may vary in different circumstances, there will be either a 1.8m high or a 2.4m high secure fence between the academy student areas and those to which the public have access. The fence type has been specified in collaboration with UCT.

From the public zone there are only two entrances into the building, each of which receive access control measures. The main academy entrance will be the primary point of access for all visitors during the school day.
There are a number of external gates, both pedestrian and vehicular, that will need to be managed, closed or locked, at the beginning of the day. These lockdown gates are around the site entrance and the academy green and also to the site boundaries, such as the western and south-western pedestrian gates. Any access, or indeed exit, through these secure fence lines is controlled by the Academy, with the necessary gates linked back to the building. This enables deliveries to be made and the management of staff entering or leaving the site during the day.

In summary the design allows public access to the academy, yet maintains the separation of the student areas, whilst allowing for controlled access when required. The public cannot enter the main academy grounds during the school day, and neither can students leave, without access being provided by the academy.

**Sports Zone**

Sports facilities (playing fields and multi-use games areas) are to be used exclusively by pupils of the academy during the school day and will be accessible for managed community use out of school hours. As well as the usual fencing required immediately to the Sports pitches, such as 3m high to the sides and 5m to the ends of the All Weather Pitch (AWP), there will be some segregation between publicly accessible spaces and those protected within the Academy.

All of the MUGA areas and the new AWP will receive either wholly new or partially new fences, with the necessary gated entrances. The MUGA in the Foundation play area will be open plan to the surrounding space and so will not be fenced. New fencing will be relevant to the use of the space, and the partially new areas will (best) match the existing fence. Gate locations and sizes will consider access linkages to the new Pavilion and maintenance requirements.

The segregation fence is required to secure the less obvious, back-of-house areas within the Academy grounds, to prevent vandalism and damage, during times of community use. It will be a continuation of the 1.8m high Nylofor 2D/2D Super fence used elsewhere on the site, again with the necessary gates required for use during the school day.

The new (refurbished) Pavilion will serve the Weekley Glebe playing fields and so the existing gate linking the site to the Glebe will remain. This will also provide access for maintenance and emergency vehicles.

**Foundation Stage Secure Zone**

To the east of the main academy building, the foundation stage secure zone contains external learning zone, hard and soft informal play areas and a MUGA. In addition there is a pond that acts as both an educational resource and as an attenuation feature for surface water run-off. This zone is to be accessed only by staff and pupils of the foundation stage and is secure at all times.

The Foundation area is therefore not only separated from the publicly accessible areas, but also from the remainder of the academy. Externally this is provided by two lengths of 1.8m high Nylofor 2D/2D Super fence; one to the south of the building (which also demarks the entrance green) and one to the north of the building. Both will have lockable access gates within.

Within the foundation area there will be two areas of fencing to the attenuation pond and around the reception play area. The former is to restrict uncontrolled access by students, and the latter to provide further privacy to the very small children, both with 1.2m high railing type fences. Again the necessary gates will be provided.

**Extension Stage Secure Zone**

This zone is for the use of the staff and pupils of the development and extension stage. The zone includes hard and soft informal play areas, an external dining courtyard.

Although the extension zone has a fence on its western boundary, it will operate open plan to the sports areas, as this fence will only be used when the site is used out-of-hours by the community. The fence does, however, provide some protection for students from any traffic using the site road and car parks, with crossings only at the gated areas.

Separation from the public areas is afforded by the 1.8m high Nylofor 2D/2D Super fence to the south, and the boundary perimeter fence. These also ensure students cannot just wander off the site; exit is via the main reception during the school day. To the east there is also the protective fence enclosing the foundation zone to prevent unsupervised mixing of older children with the younger years.

**Site Circulation**

The following aspects are at the forefront of the site circulation strategy:
- Safety of all site users, especially pedestrians and cyclists
- Entering, and leaving the school site in a comfortable and convenient manner
- Ease of navigation
- Cycle storage and car parking requirements
- Access for community users
- Segregation and securing of academy areas during out of hours use.

**1.13 Fire strategy**

Our Fire Engineering Consultant has worked diligently in conjunction with the design team to develop an economic, safe and robust Fire Strategy. The Academy is served by one protected stair, 3 external staircases and 3 accommodation staircases all with dimensions calculated to cope with the number of people escaping. As the accommodation stairs are located in separate compartments they will have sufficient protection to be used for means of escape by occupants from other compartments that may be fire-affected. Sprinklers will be provided across the school for property protection.

**1.12 Art**

Throughout the development of the scheme, the design team has been actively identifying opportunities for the integration of art into the building and the landscape. This process included a workshop with groups of the Academy’s students, investigating how they perceived their existing school and designing and building a model of their ideal version of some of the spaces for the new Academy.
2.00 Access

2.01 Introduction and approach
Throughout our design development we have followed good practice guidance with regard to access and inclusion and as such the new building:

• Will conform to DDA guidance to provide a completely inclusive environment for the physically, visually or hearing impaired
• Will be physically and perceptually accessible to all regardless of age, gender, religion, ethnicity or disability
• Will be intuitively clear to navigate with easy wayfinding supported by a carefully considered use of signage
• Will be safe and secure for all users and welcoming to the whole of the community it serves

The school is located on a gently sloping site, with the accommodation predominantly arranged on two- and three-storeys. All levels are linked by wide stairs and accessible lifts. Circulation is generous and there are few corridors, ensuring ease of access around the school and site and reducing potential areas of conflict.

2.02 Circulation around the site
Site Entrances
The main site entrance for vehicles, cyclists and pedestrians is located on Weekley Glebe Drive to the south of the site. Additional existing entrances are retained for cyclists and pedestrians are located on the western boundary of the site accessed from the footpath to the allotments and the south west tip of the site and off Weekley Glebe Road to the south of the site.
Pedestrian and cyclist circulation

Pedestrian safety is at the forefront of the site circulation strategy. Site users entering the site on foot do so via the main entrance off Weekley Glebe Road. There is a footpath either side of the access road which lead to a pedestrian gathering point on the southern tip of the academy green. A raised junction table provides a large pedestrian focused crossing for pupils.

Cyclists will have use of dedicated cycle lanes along the main routes from site entrances to the main cycle store area.

Throughout the site, wide pathways will be provided and routes will be as direct as possible within the constraints of the design. The main pedestrian route from Weekley Glebe Road to the main building entrance will be 5m wide and is split so as to differentiate between younger and older school children.
Car circulation and parking

Cars will circulate on designated vehicular routes away from major pedestrian routes. Through the engagement process, a series of car parking options have been developed and the chosen option was to retain the existing car parking spaces on site and maximise the areas around them. 194 car parking spaces will be provided comprising 152 staff spaces, 24 visitor spaces, 18 disabled spaces along with 8 motorcycle spaces. There is also a drop off area for cars and coaches/buses.

Car parking will be split between three car parks servicing the main academy building and sports hall, the existing main car park to the west of the new academy and the changing rooms.

Coach drop off and pick up is located on the one way loop road and provides pedestrian access straight into the main academy entrance.
Service vehicle circulation

Routes for service and delivery vehicles have been designed to ensure that no reversing manoeuvres will be required in pedestrian areas. Where possible, service vehicles routes have been located away from pedestrian routes with the primary route to the north of the new academy.

Emergency services access

Access for Fire and Rescue Service vehicles has been designed to comply with Building Regulations Approved Document B and a 3.7m wide route for fire appliances has been provided to more than 50% of the buildings’ perimeters. In addition, emergency vehicle access for Weekley Glebe playing fields has also been allowed for adjacent to the new changing rooms with gated access onto the fields.
The principal entrance for pedestrians and bicycles will be the existing access off Weekley Glebe Road. This will be a shared access with vehicles, though the surface treatment will clearly identify this area as pedestrian priority. The broad entrance path leads to a circular entrance plaza, at which point the path bifurcates. One path leads directly to the Foundation Phase entrance, the other to the main, Extension Phase entrance. Bicycle storage will be provided adjacent to these approach pathways.

Parents dropping off and picking up their children at Foundation will be able to do so immediately outside their classrooms by walking around the east end of the building.

A second pedestrian access to the site from Weekley Glebe Road, is located approximately 120m to the west of the main entrance and further entrances are located along the western boundary. It is likely that these secondary access points will be open at the beginning and end of the school day only.

Students wishing to access the sports facilities will leave the main building via the atrium and use the ‘desire line’ pathways leading to the Sports Hall, Sports Pavilion and pitches.
2.03 Building entrances and reception
The main entrance is at the Extension Phase of the Academy and is clearly signified by a double-height canopy and consists of two sets of automatically opening doors, creating a security ‘air-lock’. The main reception desk will be staffed throughout the school day and is located beyond the second set of doors. Visitors can be seen by staff manning the desk and allowed through or otherwise. A dropped section of counter for wheelchair users will form part of the main and student receptions and the library issue desk.

There is a separate entrance to the Foundation Phase, again signified by a canopy. This gives access to the Foundation Phase and to the Lower Development Phase on the first floor. This entrance also has two sets of automatically opening doors to create an ‘air-lock’, with a reception desk between the two sets of doors.

2.04 Internal circulation
The way students move around the school is clear and visible, with generous circulation routes and staircases.

In the Foundation and early Development Phases, circulation is arranged around an attractive external courtyard, making the student’s experience of moving around the Academy enjoyable and highly visible. The courtyard becomes the focus for this part of the Academy and aids with orientation and wayfinding. All circulation spaces in this phase are sized at a minimum of 2.1m with staircases of 1.8m wide.

In the later Development and Extension Phases of the Academy primary circulation on each floor wraps around the two atrium spaces which flank the central volume of the theatre. Wide staircases with segregated ‘up’ and ‘down’ routes sit within the atria. All movement and activity in this hub area of the Academy is easily supervised. Within the three teaching clusters, the layouts have been devised to be simple and consistent. The central space within the clusters is naturally daylit both from above and at the end and overlooks the clusters is naturally daylit both from above and at the end and overlooks the clusters.

All student circulation spaces within this phase are a minimum of 2.5m wide, with staircases of 2.1m wide.

It is intended that lifts will be used only by those who are unable to climb stairs and for the delivery of heavy items (books, stationery, chemicals etc.). Swipe card operation will restrict their use for these purposes.

Our plans have been developed in consultation with our Fire Safety Consultants in order to ensure provision for safe emergency evacuation for both able and disabled students, staff and visitors.

2.05 Fixtures and finishes
To assist those with hearing impairments, the acoustic design of both teaching and shared spaces ensures reverberation will be kept to a minimum. Facilities to aid those with hearing aids will be provided by means of fixed induction loops in the theatre and lecture theatre and portable induction loops for use elsewhere in the building. And ‘Soundfield’ systems will be provided in one classroom per faculty in the Extension Phase, and in each classroom in the Foundation Phase.

Well-designed artificial lighting, supporting the high levels of natural daylight, will ensure that students who make use of lip-reading or sign language are able to see teachers, support staff and resources clearly.

The selection of materials and colours will be carefully considered to assist those with visual impairment, conforming with good practice guidelines regarding colour contrast. The provision of manifestations to full height glazing will be of particular importance in this building where the desire for transparency has formed such an important part of the design.

2.06 Toilets and changing facilities
We have responded directly to the clear guidance given on toilet provision which asked for individual, self-contained units to be used by staff, students and visitors alike. These are all located with direct access from main circulation areas, and are dispersed in banks within two of the clusters, with a further provision in the central area adjacent to the Theatre and drama spaces.

A hygiene suite is located on the ground floor near to the SEN suite and accessible toilets are dispersed strategically around the building.
The principal changing rooms are located within the refurbished Sports Pavilion, which includes accessible WCs and individual accessible changing rooms.

All accessible toilets and changing areas will include the appropriate layouts, support rails, colour contrasts, alarm systems and emergency lighting.

2.07 Community facilities
The all-through Academy will be able to enhance all aspects of community development, both within and beyond its boundaries, in line with the 'Every Child Matters' agenda. The academy's community will benefit from increased opportunities for lifelong learning programmes, a promotion of community pride and raised aspirations as a result of the academy's support and its integrated approach.

The Academy will be a welcoming and open institution that will encourage use by the community while ensuring the security and safety of all who use it. The layout has been designed specifically to encourage out-of-hours use by the community.
The greatest community use will come, as it does currently, through sport. The all-weather pitch, multi-use games areas and refurbished sports pavilion will be invaluable additions to the sporting facilities in the area and the new changing rooms will encourage greater use of both the Academy facilities after the school day and the adjacent Weoley Glebe playing fields. The sports pavilion also contains two classrooms, divided by a movable partition, for use by the community.

Within the main Academy building, ICT spaces have generally been located at the head of the main teaching clusters to allow access to them from the atrium, allowing the clusters themselves to be secured.

The Theatre space will also offer exciting opportunities for community use, being a flexible and well-equipped facility located close to the main entrance to the Academy and with catering facilities available in the adjacent atrium.

In the Foundation Phase, a multi-use community room has been located at the Foundation Phase entrance. This can be used for a variety of community activities both during and after the normal school day.

2.08 Information / signage

The clarity of the building organisation, coupled with the high levels of internal transparency, will make wayfinding intuitive and straightforward. The two atrium spaces and Foundation courtyard provide the principal means for people to orientate themselves as they walk around the building and primary circulation generally takes place around or within one of them.

It is therefore intended that wayfinding around the building is in essence instinctive, some signage will of course be required as part of the strategy. Consideration will be given to ensure that this is complimentary to the aesthetics of the building in graphical style and that sensible positions are designed into the overall layout. This will be developed in conjunction with the Academy Trust and the Local Authority.