Design & Access Statement

Gospel Oak Primary School - EYFS BUILDING

DECEMBER 2013
DOCUMENT REF: 14-1-1011-DA-01

Gospel Oak Primary School

Main Site
Mansfield Road
London NW3 2JB

Nursery Building Site
Savernake Road
London NW3 2JB

Head Teacher
John Hayes

Client
London Borough of Camden

Project (Suitability Works Programme 2013-2014)

- Extension and refurbishment of existing Nursery building to provide a new Early Years Foundation Stage Facility for 2 Nursery classes and 2 Reception classes with associated staff facilities.
- External landscaping to limited parts of the existing site

Contents

2.0 Background

EXISTING NURSERY BUILDING TO BE DEVELOPED INTO NEW EYFS FACILITY

2.1 Objective

Gospel Oak Primary School is a state community school for junior and infant boys and girls, plus nursery providing a two form entry located within Gospel Oak in the London Borough of Camden. The school currently teaches it's reception and nursery pupils in two different buildings on split sites. The aim of the proposals is to provide a single amalgamated Early Years Foundation Stage facility to enable the school to teach nursery and reception pupils together following the National curriculum guidelines.

The scheme submitted as part of a Full Planning Application and Conservation Area consent is intended to be constructed on site post receipt of Planning Approval during 2014 to enable the facility to be used by January 2015 at the latest. This Design and Access Statement therefore refers to the proposals necessary to support this essential educational suitability requirement involving a proposed refurbishment and small scale single storey extensions to the existing Nursery building on the Savernake Road site with covered play canopies and associated landscaping.

The project team have had early dialogue with Neil Clearly (Senior Planner, London Borough of Camden) to ensure that the proposals submitted take account of the relevant local planning policies. There has also been a pre application meeting on site on 21.11.13 with Rachel Miller, Planning Officer Case Officer at London Borough of Camden and Nick Baxter from the Planning Department. A formal written response was received on 17.12.13 (2013/6737/PRE).

A Planning Statement is set out in Section 6 outlining -

- The background to the educational requirement
- Relevant planning policies
- Relevant planning history
- A Planning appraisal including :
  - Impact on Green Belt
  - Impact on adjoining Conservation Area
  - Impact on residential amenity
  - Highways and Parking Impact
  - Impact on playing fields (Sport England) and external play space

The scheme illustrated within this report has received the full support of the School Governing Body and the client as well as the parents who currently send their children to the school. Although the Planning Authority have confirmed that there is no requirement for a Traffic Impact Assessment report, this document includes a brief Transport Statement to compliment an updated School Travel Plan which forms part of the Planning Application documentation. There has been a period of extensive consultation with the end user in advance of the planning application. A public consultation event publicised by the London Borough of Camden and Gospel Oak Primary School was held on 18.12.13 in advance of the submission of the Planning application, at which the proposals received over whelming support.

2.0 Background

SITE LOCATION MAP

2.2 Context

Gospel Oak Primary School, Mansfield Road and Savernake Road, Gospel Oak, London

The current main school building on Mansfield Road was built between 1951 and 1952 replacing the remnants of the war damaged Victorian Fleet School. The building is a typical 1950s systems building faced in concrete cladding panels, brickwork, tiling and curtain walling. In 2000 a new two storey block was built on the southern corner of the site providing additional classbases for Year 6 and Reception year groups. The school currently has 472 pupils on roll (which includes nursery pupils) and 76 members of full and part-time staff. There is not proposed to be any additional intake.

EXISTING MAIN SCHOOL BUILDING PHOTOGRAPHS

The Planning Application involves no Planning related amendments to the main school building, although the existing Reception classbases, on completion of the new EYFS facility, will be used by Year 6 allowing the school to use the remaining existing accommodation for teaching training purposes.

In the 1980s a new Nursery building was constructed on the Savernake Road site across the road from the main school building. The building, designed by the Greater London Council Architects Department, is single storey in scale with pitched roofs and facing brickwork. The building is only large enough for two nursery classbases and suffers from condition issues such as no insulation to the existing external walls, leaks to the roof and only single glazed windows. It is not considered to be of major Architectural merit and is not listed, although it is within a Conservation Area.

The project site as highlighted on the map opposite is located within Gospel Oak within the London Borough of Camden in a predominately residential area. The site is within the Mansfield Conservation Area. Pedestrian access to site is currently via a controlled access gate on the Savernake Road site boundary located to the north which is proposed to be relocated along the boundary edge. There is no car parking on the site and this is not proposed to be changed : staff and visitors park in the existing car park providing for xx parking spaces which is accessed from Mansfield Road. The southern, eastern and western site boundaries at the edge of external play spaces abut back gardens to existing residential buildings up to xxx storeys high. External landscaped play areas are a mixture of hard and soft landscaping with established trees and hedges without a sense of unifying masterplan. The nearest house to the western boundary (No 13 Savernake Road) has high level windows overlooking the site but the proposals do not affect the rights of light to these windows.

2.0 Background

SITE ANALYSIS

2.3 Existing site

- The existing floor area is inadequately sized to create two additional Reception year classrooms and wc facilities required to provide a Early Years Foundation Stage building.
- The site is close to residential dwellings on the south, east and west sides of the site.
- There is some noise from traffic only at limited times along Savernake Road.
- The existing main access for pupils and carers as well as staff is to the front of the building on Savernake Road.
- There is no parking on the existing site.
- The site extent includes areas of overgrowth and saplings in front of the site boundary line reducing usable external play space. External play area is restricted in area and cannot be increased to the limits of the site boundary.
- The existing 1980s building construction is not to current thermal performance standards—eg there is no cavity wall insulation.
- There are no canopies outside classbases which limits ability to provide covered play space—an integral part of the early years curriculum of 'learning through play'.
- There is no scope for an additional storey to existing building due to type of existing construction and preference for early years classbases to have access to outdoor spaces.
- Nursery pupils are provided with lunch on the premises brought over from the main school site and kept warm in the servery (ie no cooking is provided on this site).
- Client budget is limited to a refurbishment and extension of the existing building, although to develop the site temporary accommodation will be provided which is subject to a separate Planning Application.
- The Planning Department in initial consultation confirmed there is a preference for retention of the existing building.
- The main school with facilities such as the main hall, staff room, other classbases and external hard play and MUGA is located across the road on the Mansfield Road site.

2.0 Background

SITE OPPORTUNITIES

2.4 Site Opportunities

- Alternative site development opportunities have been explored the potential of the existing Savernake Road site as well as centralising all facilities on the main Mansfield Road site—see page 06 and 07.
- Extending and refurbishing the existing Nursery building maintains the current use of early years provision on the Savernake Road site.
- Remodelling the existing building makes best use of existing resources.
- Although outside of the current budget allowance a new building option offers the opportunity for lower long term life cycle costs and improved building performance eg Zero Carbon/Passivhaus standards.
- Retaining the existing main site entrance and existing building intact to minimise risk of cost uplift for refurbishment works in addition to maintaining familiar access and egress points.
- Relocating the existing reception years classbases releases existing floor area on the Mansfield Road site for other uses—eg teaching training facilities.
- Removing areas of overgrowth within the confines of the site will increase the amount of external play area.
- Provision of a new facility to current standards would be an asset to the London Borough of Camden and the school.
- A separate nursery and reception classbase site entrance would reduce the amount of movement at peak times on the Savernake Road site and the main school site.
- Creation of temporary accommodation on the main Mansfield Road site during construction phase (estimated currently from March to end October 2014) allows teaching to continue effectively.
- An investigation of existing services capacity and locations indicates that a new services installation is required including fibre optic link to the main school site and new gas supply.
- A refurbishment of the existing building including an insulated self finished render system and above Building Regulations standards performance to new building areas ffers the opportunity to provide a new building that supports London Borough of Camden's policies of sustainable developments.
- A new building can enhance the excellent educational environment currently provided by the school.

3.0 Proposals

3.1 Use

The proposals have been developed from a brief based around a general consensus of educational function and area needs appropriate to a Primary School EYFS environment. The design has been developed to fulfil the council's vision to support the key suitability requirement of the site as well as suit the identity, ethos and culture of the school. The proposals are intended to be innovative, sustainable and conceived to inspire and enhance as well as being appropriate to the unique site context.

3.2 Options Explored

During the feasibility study stage of the project various options were explored and costed in order for the client and school to indentify a preferred solution.

Option B Extension and Remodelling of the existing building on Savernake Road site

- Existing access arrangements maintained.
- New extensions to the north and south create the additional floor area required.
- External play spaces retained in existing locations and kept away from 13 Savernake Road.
- Proposed internal remodelling and thermal improvements makes best use of existing spaces and fabric.
- Arboricultural Report is required to determine viability of the new extension locations.

Option C New Build on Savernake Road site

- Demolition of existing building and replacement with new 'modular' building construction.
- Rational circulation and improved thermal performance possible.
- Planning Department feedback confirmed a preference to retain the exisitng building and extend.
- Costs over and above project budget.
- Less floor area proposed than Option 1 due to efficiencies of layout.

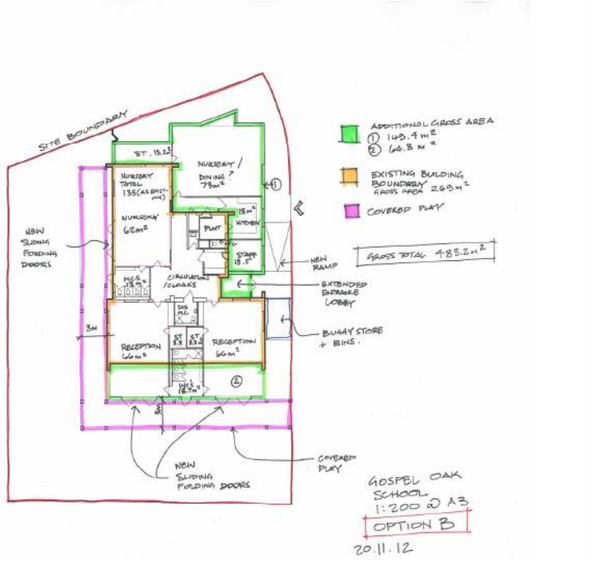
Option D Extension on Mansfield Road site

- Extension proposed adjacent to existing reception classbases to provide new nursery accommodation.
- Possibility of external play space on roof of extension.
- Only one classbase with associated facilities provided - school would have to change existing timetable.
- Opportunity for Savernake Road site to be developed into other uses (subject to Statutory and London Borough of Camden approval processes).
- As early years learn through play with 'free flow' to outside additional nursery pupils within the existing courtyard space may be disruptive to teaching in other classbases.

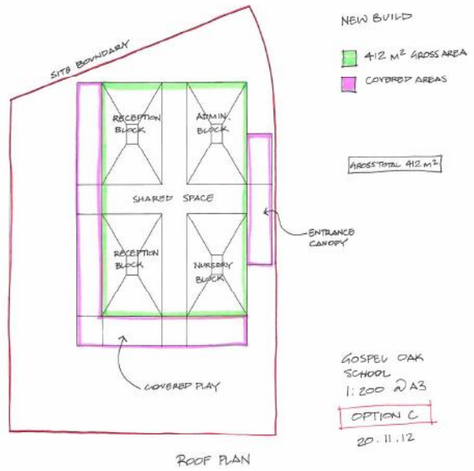
The preferred option (Option A as illustrated), further described in the remainder of this report, achieves the briefing criteria in addition to making best use of existing building stock, limits extensions to single storey in scale with the existing as well as providing a new landscaping masterplan, an improved street presence and coherent appearance.

3.0 Proposals : Options Explored

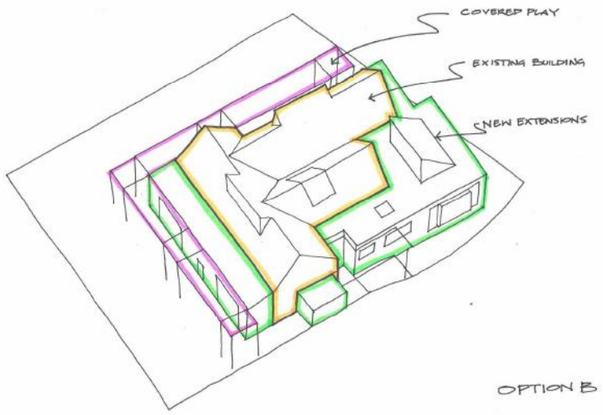
OPTION B EXTEND AND REFURBISH

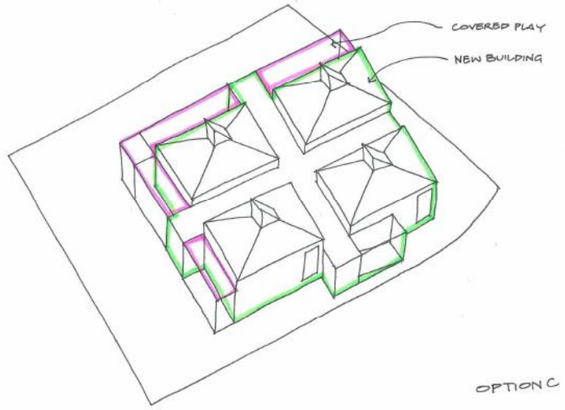


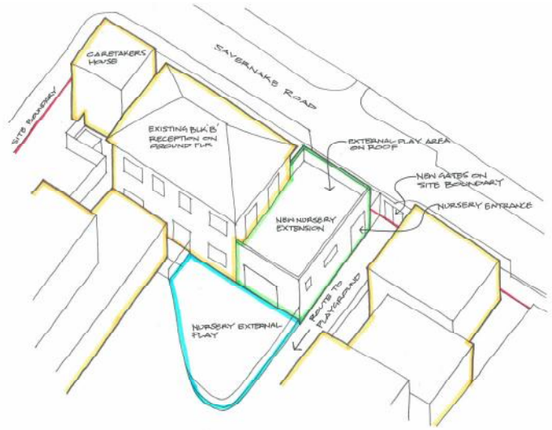
OPTION C —NEW BUILD OP-



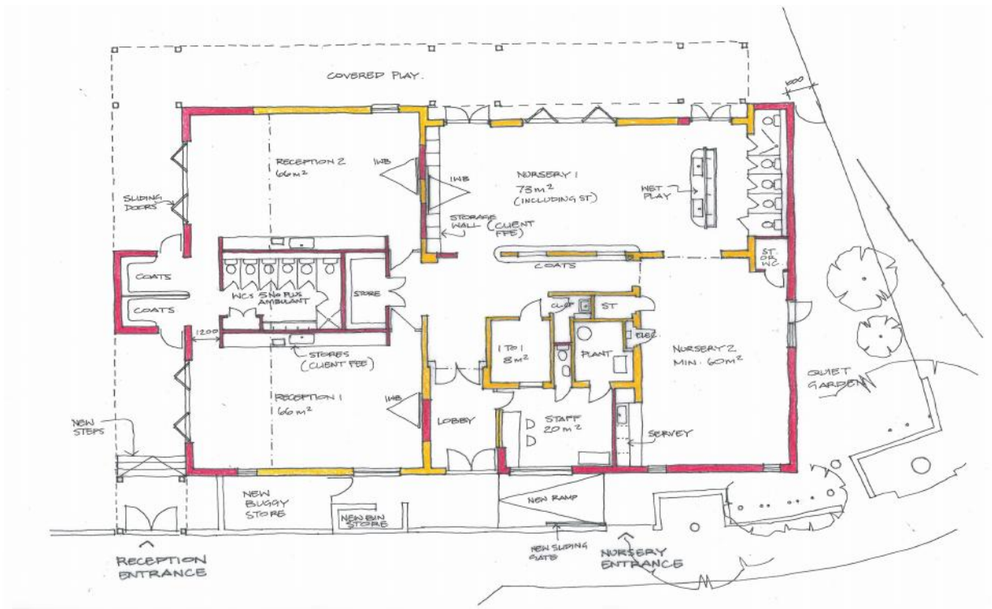
OPTION D - RELOCATE TO MAIN SITE

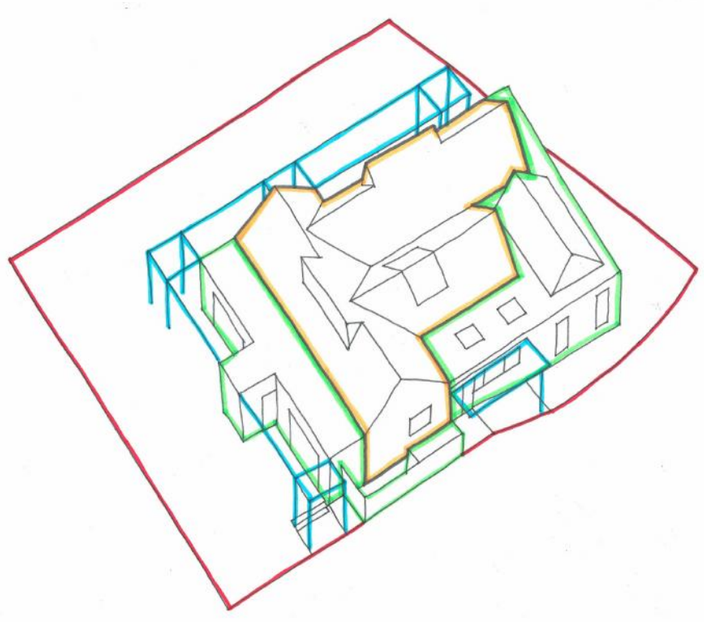






3.0 Proposals





PREFERRED OPTION A SKETCH FLOOR PLAN & 3D MASSING DIAGRAM

3.3 Site Concept

The preferred option developed (Option A) involves refurbishment and extensions to the north (nursery classbase), east (plantroom and admin office)and the south (reception classbases and wcs). The scale of the extensions are modest with flat roofs detailled to be low in height and avoid complicated junctions with the existing pitched roofs. To improve thermal performance to the existing building (the existing cavity to the external walls is only 50mm which is insufficient for blown cavity insulation) a self coloured insulated render facing is proposed which is also to be used on the new extensions to create a consistent appearance. Wrapping around the classbase spaces is a new canopy structure provides covered play space.

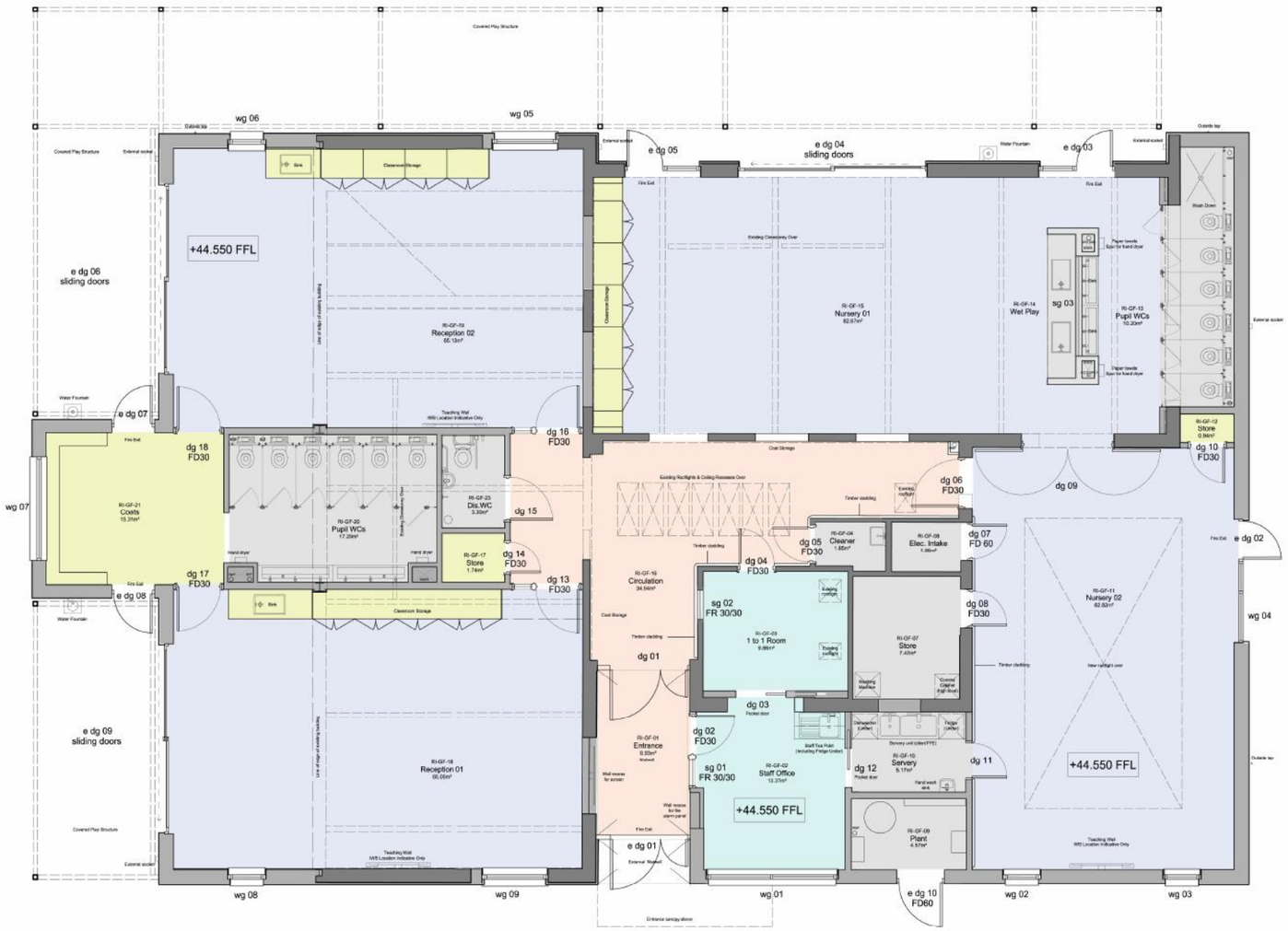
3.4 Building Layout

Based on the preferred cluster arrangement and site plan layout opposite the client brief developed with the end user required the following schedule of accommodation -

- **NURSERY CLASS BASES (2 No) 144sqm**
- **RECEPTION CLASS BASES 130sqm**
- **CLASSBASE STORAGE 13sqm**
- **PUPIL WCS 27sqm**
- **ACCESSIBLE WC/STAFF 3.3sqm**
- **CLEANERS STORE 2sqm**
- **STAFF OFFICE 13sqm**
- **CIRCULATION 35sqm**
- **PLANT (Elec/Mech) 6.5sqm**

There are two access points proposed to the site off Savernake Road including fully DDA compliant access to the main entrance along the sloping site terrain. The proposed single storey building is rectangular in plan with a combination of existing pitched and new flat roofs containing opening rooflights and clerestorey windows to achieve natural cross ventilation. The building adminstration and associated areas core is logically centrally located to minimise the extent of refurbishment, services runs and to aid teacher surpervision. Classroom spaces accessed off the circulation route have generous glazed openings to facilitate use of supervised external play spaces. Class and pupil coat stores in addition to wc facilities are carefully designed to make best use of space standards allocated under Building Bulletin 99.

3.0 Proposals : Proposed Floor Plan



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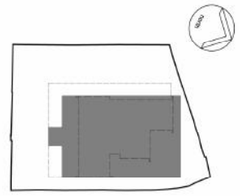

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key

- classroom
- circulation
- admin / office
- storage
- core
- new walls
- existing walls

P1	ISSUED FOR PLANNING			
	REVISED BY: RG	DATE: 04.11.13	CHECKED BY: SS	DATE: 04.11.13

SCALE BAR

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PURPOSE OF ISSUE

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A1

nps group
Property Design and Management Services

Barron and Smith Architects
3 Maltings Place
169 Tower Bridge Road, London
SE1 3JB
TEL: 02079403456 FAX: 02079403460
EMAIL: office@barronandsmith.co.uk

Other Office locations can be found on our website: www.nps.co.uk

CLIENT
London Borough of Camden

PROJECT
Gospel Oak Primary School
Early Years Foundation Stage Proposal
Savernake Road NW3 2JB

TITLE
Ground Floor Plan

SCALES	DATE	DRAWN	CHECKED
1:50 @ A1	Sep 2013	RG	SS

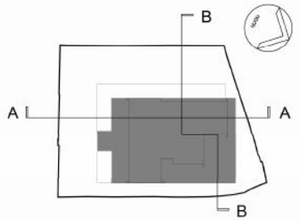
FILE / DRAWING NAME			REV CODE
PROJECT NR	DRAWING FIELDS	UNIQUE NR	
13-1-1011EYBAS-PL-A		066	P1

3.0 Proposals : Proposed Sections

01 SITE SECTION A-A 1:100

02 SITE SECTION B-B 1:100

KEY PLAN



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FILE STATUS CODE

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nps group
Property Design and Management Services

Barron and Smith Architects
3 Mallings Place
189 Tower Bridge Road, London
SE1 3JB
TEL: 02079403455 FAX: 02079403460
EMAIL: william@barronandsmith.co.uk
Head Office:
Lancaster House, 19 Central Avenue, St Andrews Business Park, Norwich, NR7 0HR. See website for other offices.
Other Office locations can be found on our website : www.nps.co.uk

CLIENT
London Borough of Camden

PROJECT
Gospel Oak Primary School
Early Years Foundation Stage Proposal
Savernake Road NW3 2JB

TITLE
Proposed Site Sections

SCALES	DATE	DRAWN	CHECKED
1:100 @ A1	Oct 2013	RG	SS

FILE / DRAWING NAME

PROJECT NR	DRAWING FIELDS	UNIQUE NR	REV CODE
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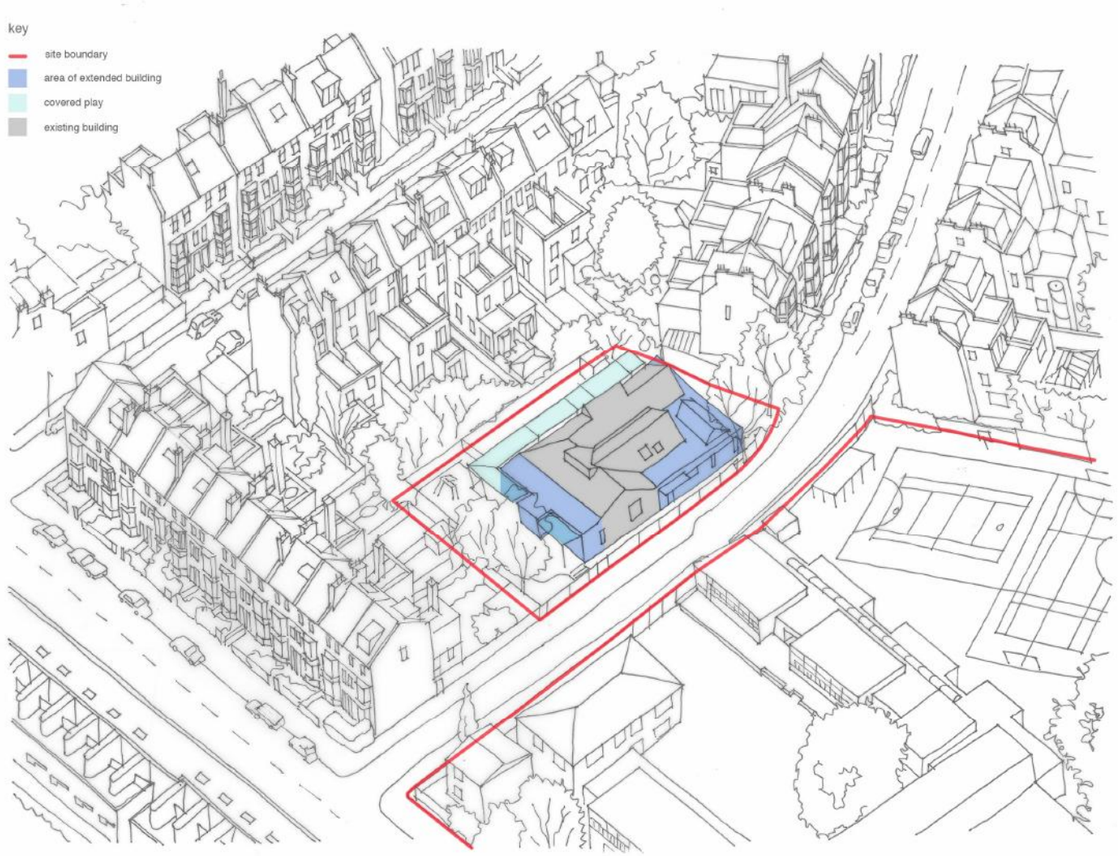
3.0 Proposals



SITE MASSING AERIAL VIEW SHOWING NEW BUILDING IN SITE CONTEXT

3.5 Scale

The scale of the proposals is defined by the extent of accommodation and facilities required to accommodate the additional two reception classbases. To facilitate inclusive access to all areas of the site for pupils, visitors and staff, the proposed spaces have been designed to allow maximum flexibility and ease of movement. The proposed extensions will be single storey consisting of flat roofs springing from the existing eaves line to keep the height of the new build elements to a minimum (also appropriate to the height of the EYFS pupil age group) whilst maintaining the character of the local roofscape.

The building has been sited running parallel to existing to gently address the street frontage whilst keeping a rational distance away so as not to encroach on the existing open spaces. This strategy also maintains appropriate levels of light and ventilation to existing and new classbases. The intent is therefore to provide a modestly scaled addition to the school footprint that also benefits the external landscape by provision of two defined playspaces linked by covered canopies as outdoor learning space. By locating a predominately solid façade with top light alongside the existing western site boundary to 13 Savernake Road, the new extension's impact on has been minimised to the closest neighbouring boundary.

The internal heights within the new build have been designed to maximise height by a compact structural frame and the ceiling following the roof profile to enable the spaces to feel light and airy. Daylight and ventilation will be introduced via strategically placed new rooflights and renewal of existing clerestoreys/ rooflights. The glazing proportions have been carefully designed to maintain a domestic scale that responds to the primary school needs and visual connection for supervision. Overall the proposed new build elements are in-keeping with the surrounding context and sit well within the landscape.

3.6 Amount

The development site has an area of approximately 1238 sq m. The existing building is 269sqm and the and proposed new overall gross floor area is 469sq m . Therefore, total new development amounts to 200 sq m. It is considered through careful relandscaping and building siting that this additional floor area will not have a detrimental effect to the overall massing of the site. Within the landscaping section of this report there is a detailed appraisal of external play space area and a statement from the school clarifying other play strategies for EYFS pupils.

The on-site staff and visitor car parking provision (currently xx spaces) is not required to be increased as the proposals are not an expansion of pupil or staff numbers.

For further details on the effects the proposals are likely to have on traffic and parking please refer to the Transport Statement section of this report and the updated School Travel Plan submitted as part of the planning application.

3.0 Proposals

EXISTING HOUSE ON OAK VILLAGE

HOUSING ON MANSFIELD ROAD

EXISTING HOUSE ON RONA ROAD

HOUSING ON ELAINE ROAD

3.7 Appearance

The proposed scheme is sited within an area of predominately Victorian era buildings with a limited number of 20th Century buildings constructed as a result of war bomb damage and Local Authority development. The existing school on the Mansfield Road site is a dominant feature within a residential area. The existing main school building is a typical 1950s system building school finished externally in a combination of exposed aggregate concrete panels, curtain walling glazing with windows and brickwork infill panels and a large expanse of flat roof. The latest addition is brickwork faced and with a pitched roof. The existing nursery building in comparison is faced in brickwork (red stock bricks not yellow London stock bricks), green painted timber frames and eaves details with a tiled pitched roof—the building is not in a good state of repair and appears uncared for behind the overgrown site boundary vegetation.

The existing main school building and nursery building therefore contrasts with the typical residential buildings within the Mansfield Conservation area which employ a palette of brick, painted render and slate or tiled pitched roofing. The client and school have welcomed the opportunity to review the materials employed on the existing nursery building and new extensions as long as they are robust, appropriate to use, improve thermal performance and easy to maintain. This brief and the existing palette in the immediate environment therefore offers potential for the proposed design to explore. The key strategy in material choice has been to select materials that have both an affinity with the local buildings and the existing school building.

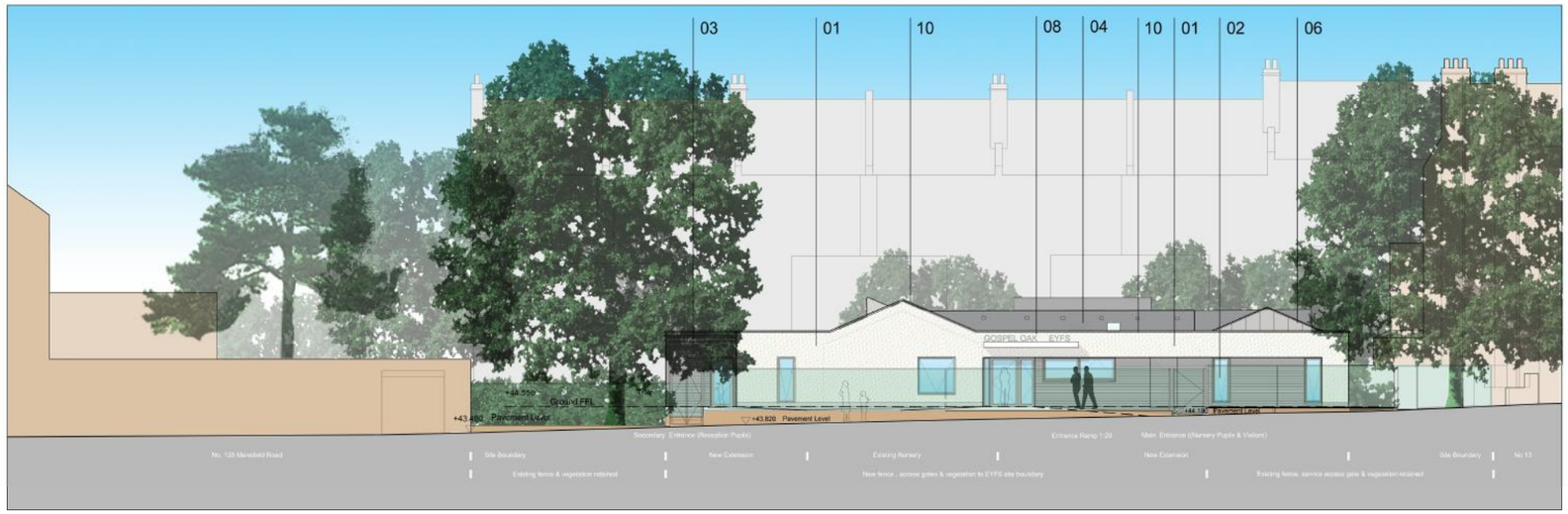
In consultation with the planning department and conservation officer, options were presented for facing materials.

The favoured solution for this project which echoes colours and materials found locally comprise -

- White through colour render to the facades
- Grey coloured flat roofs echoeing the colour of lead used on roofs of local houses
- Grey powder coated aluminium windows and doors
-
- Grey brickwork plinth and splashcoat to limited areas as a base level datum off and to the side of which the render sits to provide a robust practical surface.

As a contrast to these materials the canopy link steel framed elegant structure is proposed to be roof in an opaque roof material to act as a ‘marker’ between the old and new buildings. The school and client fully support the material choice and philosophy as it provides a reflection of a new 21st century addition to the school building stock as well as a neutral background to allow the building users/activities to dominate. Although it is understood the material choice is less favoured by the Conservation Area officer the photographs opposite demonstrate that the materials selected are commonly found within the local domain.

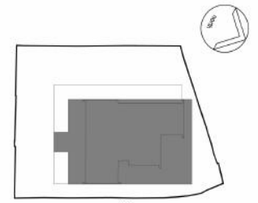
3.0 Proposals : Proposed Street Elevation



01 SAVERNAKE ROAD ELEVATION - PROPOSED STREET ELEVATION 1:100

02 SAVERNAKE ROAD PHOTO PANORAMA - EXISTING STREET ELEVATION

KEY PLAN



NOTES:

material key

01 proprietary insulated self coloured render system
02 ppc alu clad timber window & external door system
03 grey brick slip insulated cladding
04 existing artificial slate roof - repaired
05 existing clerestorey windows renewed as item 02
06 new proprietary rooflight system with sidelights
07 translucent polycarbonate roofing with steel frame
08 ppc aluminium faced entrance canopy with ss lettering
09 plant room door clad in grey brick slips to match item 03
10 ppc aluminium coping to new roofs and existing gables

P1	ISSUED FOR PLANNING			
	REVISED BY: RG	DATE: 04.11.13	CHECKED BY: SS	DATE: 04.11.13

SCALE BAR 0 2m 10m

PURPOSE OF ISSUE: FOR PLANNING

FILE STATUS CODE: -

 A1

Barron and Smith Architects
3 Mariings Place
100 Tower Bridge Road, London
SE1 3JB
TEL: 02079403456 FAX: 02079403460
EMAIL: office@barronandsmith.co.uk
Head Office:
Lancaster House, 19 Cottrell Avenue, St Fabrines Business Park, Nuneaton, NR7 0WR. Tel: 01943 708200 Fax: 01455 764551
Other Office locations can be found on our website www.nps.co.uk

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CLIENT: London Borough of Camden

PROJECT: Gospel Oak Primary School
Early Years Foundation Stage

TITLE: Savernake Road Elevation

SCALES	DATE	DRAWN	CHECKED
1:100 @ A1	Sep 2013	RG	SS

FILE / DRAWING NAME

PROJECT NR	DRAWING FIELDS	UNIQUE NR	REV CODE
13-1-1011EYBAS-EL-A		063	P1

3.0 Proposals : Proposed Elevations

3.0 Proposals : External Materials

White through insulated colour render system (colour found locally)

Areas of insulated brick slip cladding

Alu clad timber window system, proprietary rooflights & polycarbonate to canopy

3.0 Proposals : Internal Materials

Light and airy internal spaces are proposed with a restrained colour scheme to enable the school and pupils to populate spaces. Existing beams will be redecorated with new acoustic ceilings between to simplify and provide 'calm' spaces for learning. The central core is proposed to be clad in a timber acoustic cladding system to unify the refurbished areas.

3.0 Proposals : Landscaping

SITE CONTEXT

3.0 Proposals : Landscaping

REFERENCE IMAGES

3.0 Proposals : Landscaping

3.8 Landscaping

The landscape proposals integrating the new classroom block in the existing topography will create a range of unique and defined spaces. The extent of the proposed external works will ensure minimal disturbance to existing structure while ensuring that both the new and existing buildings are suitably connected whilst providing optimum provision for passive outdoor activities. The concept of the courtyard is derived from the requirement to provide somewhere enclosed and calming which promotes educational and social uses. The mound, comprising artificial grass and the relocated commemorative tree, constitutes a central feature, a shaded lawn. The paving material is proposed as concrete paving of a natural colour to harmonise with the existing and new buildings. By contrast the swale, whilst serving as a stormwater attenuation basin, becomes a more adventurous natural environment comprising dynamic earth formations. The Arboricultural Report included within the Planning Application confirms that the existing tree located to the west of the new covered link is not affected by the proposals.

3.0 Proposals : Landscaping

3.0 Proposals

3.9 Access and Transport Statement

The access into the site and egress on Savernake Road is not proposed to be changed by the proposed EFYS proposals.

Transport

The Pre Application process considered that no full transport impact assessment would be required as no additional vehicular trips connected with the school are envisaged.

The school travel plan supporting this application reviewed in November 2013 concludes the following objectives and targets :

Objectives

- Reduce parking on yellow lines around the school mainly by parents.
- Safer road crossing point between school and nursery in Savernake Road.
- An additional crossing point across Mansfield Road at Oak Village.
- Improved visibility of zebra crossing across Mansfield Road at Estelle Road.
- Possible widening of pavement under Mansfield Road rail bridges.
- Improve the number of staff cycling to school.
- To raise the number of cyclist (both staff and pupils) at the school.

Targets

1. To reduce the number of parents who park on yellow lines around the school to at least half by November 2012.
2. For Camden council to provide a feasibility assessment for a safe road crossing point between Gospel Oak School and our neighbouring nursery by July 2012.
3. For Camden Council to provide a feasibility assessment for an additional crossing at Mansfield Road, junction of Oak Village by July 2012.
4. For Camden council to improve the visibility of the zebra crossing at Mansfield Road, junction of Estelle Road by July 2012.
5. For Camden Council to look into the request of possible widening of pavement under the rail bridge on Mansfield Road to accommodate cyclists by November 2012.
6. To raise the number of staff and pupils undertaking cycle training by at least a quarter by July 2012.

By November 2013 the first 4 points have been achieved. Item 5 and 6 do not directly affect the proposals relating to the EYFS.

Access

The levels of the main road pavement and general access position to the main entrance of the EYFS building remain predominately unchanged. Access from the car park will also be as existing. The approach to the new EYFS main entrance is to be designed in accordance with BS8300:2009 with ramped access to follow the existing gradient at just over 1 in 20. The entrance area is covered providing shelter and an external / internal matwell arrangement with contrasting colours to follow best practice. Level access is also possible to the reception class bases as the building is set back from the site boundary line to facilitate a route around the building.

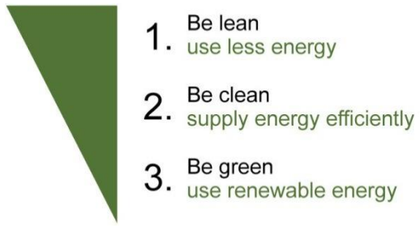
A secondary access point is proposed along Savernake Road where the existing ground level is lower than the internal finished floor level. Neither of these critical levels are able to be amended, therefore the access arrangement at this point with a level difference of 885mm requires a small flight of 4 steps which are designed with wide treads and small risers to comform with Part M of the Building Regulations (stepped access). Provision of a ramp in this location is not feasible due to the proximity of existing tree roots and the user requirement not to lose external play space.

The new classrooms will be fully accessible to those pupils who make use of wheelchairs. A disabled WC will provide accessible sanitary accommodation reached via the main circulation spine which is generous in width to facilitate turning circles. The WC will be constructed in accordance with the guidance within Part M of the Building Regulations and be fitted with an alarm together with a pivot door set that offers access in the event of an emergency. The redesigned landscaping will provide a combination of ramped access at a gradient appropriate for a wheelchair user to move safely. It will provide a range of learning and play experiences and link the indoor learning more effectively with the outdoor space.

4.0 Sustainability

4.1 Sustainability Statement

The sustainability proposals for the EYFS follow the guidelines outlined in the London Borough of Camden's Corporate Sustainanable Design and Construction Policy which is based on an energy strategy in accordance with the three step ***Energy Hierarchy*** :



The strategy has been tested at key stages during design and development through energy modelling and briefing from the client sustainability lead at London Borough of Camden - Mayra Vivo-Torres (Re:Fit Project Manager). The further briefing has requested methods of reducing heat loss by improving the existing building fabric and using energy efficient fittings (eg LED lighting) and sensor flow tap/wc systems. As a direct result of the requirement to provide an efficient U value an insulated render system is proposed as a facing over the existing inefficient uninsulated masonry of the existing building which is then repeated on the new extensions to create a harmonious appearance.

The building has also been designed to be adaptable (although it is not conceived currently that the use as Primary School classrooms will change) and is proposed to be designed to a 40 year design life as determined within the client brief.

The robust and well tested materials specified consider the requirements to ensure that the whole life cycle of the building is sustainable. Materials utilised will be able to be recycled at the end of the building's life through either the product suppliers policies or through London Borough of Camden's waste management procedures.

The design has been 'future proofed' to enable retrofitting to meet tighter energy efficiency standards and the services proposals include a renewable energy source utilising **photovoltaic panels.**

4.2 Environmental and Services Design

The design strategy adopted has envisaged that the engineering services will be designed to achieve low energy use e.g. by maximising the use of natural and heat recovery ventilation, daylight, renewable energy and for the incorporation of 'simple' user controls hence avoiding the use of complex automation. This approach has been supplemented by the building orientation strategy such as ensuring the rooflight over Nursery 02 is North facing.

By reusing the existing electrical supply to the existing building no new mains electrical supply is required. A new mains gas supply is required as the existing boilers have insufficient capacity and the current mains location is under the new extensions . The building will be heated a natural gas fired high efficiency condensing boiler with low surface temperature fan convector radiators.

Heat recovery ventilation will be provided to the toilet areas to ensure the extraction of dirty air which will be replaced by a supply of filtered and supply air preheated by the recovery of heat from the extracted air.

Generally the ventilation will be provided by a natural ventilation strategy via opening windows above generous doors to outside facing north and using the benefits of stack ventilation through automatic rooflights to the rear of the classbases and along the circulation/break out teaching spine. User control will be provided through simply managed systems with a reminder 'traffic light' system by the teaching position.

Each sanitary appliance shall be fitted with a flow limiting quarter turn service valve to enable maintenance and refurbishment to take place without the disruption of water supplies to other areas. Water saving sanitary appliances will involve self closing taps and cistern specification. Light fittings will be of a low energy standard commonly used in education buildings and controlled via daylight sensors.

4.0 Sustainability

SNAP SHOT FROM MODELLING SOFTWARE (above)

SNAP SHOT OF CLASSROOM DAYLIGHT INTENSITY CHECK (above)

4.3 Thermal Modelling

The proposed new 3 classroom block to support the school becoming a 1FE primary has been thermal modelled using recognised software to assess against the SBEM requirements of Part L of the Building Regulations.

The calculations supports the ventilation and day light intensity requirements for the building type.

Snap shots from the modelling software process are illustrated opposite.

4.4 Renewable Energy Proposals

In assessing the proposals against the Planning and Building Control guidance and legislation it is proposed to introduce an element of renewable energy source on site which will reduce the end users energy costs. A number of alternative energy sources such as an air source heat pump were considered. The chosen system utilising PV panels is described below.

Photovoltaic panel installation

PV panels harness the sun's solar energy and convert it to electricity. This electricity can be used within the building to reduce the energy imported from the grid. A PV system will be installed, covering an approximate 25m^2 area of the lower portion of the South-facing roof. This will consist of approximately 16 photovoltaic panels with a combined peak rating of around 4kW.

The PV system shall be installed by a MCS-accredited installer in order to take advantage of the Feed in Tariff (FiT), where money is paid to the building owner for each kWh of energy produced.

4.0 Sustainability

4.5 Flood Risk Assessment Proposals

The results of the GeoTechnical Site Investigations confirm that the existing ground is underlain by a clay with flints formation (clay, silt, sand and gravel) resting on chalk/green sand. Based on this information and the findings of the underground drainage survey Pell Frischmann the FRA consultant has calculated that **42 m^3** of attenuation is required to restrict the runoff to Greenfield rates.

The drainage proposals include a soakaway at the base of the clay layer similar to the existing soakaway (approx 4m deep) but with no borehole down into chalk. A high level overflow will be linked to the existing soakaway. This in turn has a high level overflow to the existing piped system.

The SuDs proposal addresses run-off from the existing building and all new hard standing. Pervious paving is not proposed for two reasons:

1. The existing below ground drainage system is old and its integrity could be undermined by works to excavate and construct an attenuating sub-base.

2. An infiltrating sub-base is not considered feasible due to the clay substrate, as classified ion the FRA report by Pell Frischmann (August 2013 , Ref: R63055Y001B), which would necessitate an deep infiltration system elsewhere.

The SuDs proposals adhere to the CIRIA best practice guidance (C697) and the National Standards for Sustainable drainage Systems by ensuring that there will no direct connection into existing surface water sewerage systems. A closed SuDs system proposed comprises a management train of source control, conveyance and infiltration. Impermeable modular paving and natural falls control and convey hard standing run-off to drainage channels. Downpipes from the roof of the new building connect directly to the proposed soakaway.

Oil interceptors have been recommended in the FRA, however this inclusion exceeds the best practice guidance for the use of the site and therefore is not proposed.

The treatment train therefore for this project comprises two elements - namely interceptors and soakaway fill material, all in accordance with best practice.