

# COUNTY COUNCIL'S RESPONSE TO CONSULTATION ON THE FOLLOWING DEVELOPMENT PROPOSAL

**District:** Cherwell

**Application No:** 19/00963/OUT-2

**Proposal:** Re-submission of application 17/02394/OUT - Outline planning permission for up to 40 dwellings with associated landscaping, open space and vehicular access off Berry Hill Road.

**Location:** East Of Last House Adjoining And North Of Berry Hill Road, Adderbury

**Response date:** *24<sup>th</sup> October 2019*

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This report sets out the officer views of Oxfordshire County Council (OCC) on the above proposal. These are set out by individual service area/technical discipline and include details of any planning conditions or informatives that should be attached in the event that permission is granted and any obligations to be secured by way of a S106 agreement. Where considered appropriate, an overarching strategic commentary is also included. If the local County Council member has provided comments on the application these are provided as a separate attachment.

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## **General Information and Advice**

### **Recommendations for approval contrary to OCC objection:**

IF within this response an OCC officer has raised an objection but the Local Planning Authority are still minded to recommend approval, OCC would be grateful for notification (via [planningconsultations@oxfordshire.gov.uk](mailto:planningconsultations@oxfordshire.gov.uk)) as to why material consideration outweighs OCC's objections, and given an opportunity to make further representations.

### **Outline applications and contributions**

The number and type of dwellings and/or the floor space may be set by the developer at the time of application, or if not stated in the application, a policy compliant mix will be used for assessment of the impact and mitigation in the form of s106 contributions. These are set out on the first page of this response.

In the case of outline applications, once the unit mix/floor space is confirmed by the developer a matrix (if appropriate) will be applied to assess any increase in contributions payable. The matrix will be based on an assumed policy compliant mix as if not agreed during the s106 negotiations.

Where unit mix is established prior to commencement of development, the matrix sum can be fixed based on the supplied mix (with scope for higher contribution if there is a revised reserved matters approval).

### **Where a S106/Planning Obligation is required:**

- **Index Linked** – in order to maintain the real value of s106 contributions, contributions will be index linked. Base values and the index to be applied are set out in the Schedules to this response.
- **Security of payment for deferred contributions** – An approved **bond** will be required to secure payments where the payment of S106 contributions (in aggregate) have been agreed to be deferred to post implementation and the total County contributions for the development exceed £1m (after indexation).
- **Administration and Monitoring Fee - £5000**  
This is an estimate of the amount required to cover the extra monitoring and administration associated with the S106 agreement. The final amount will be based on the OCC's scale of fees and will be adjusted to take account of the number of obligations and the complexity of the S106 agreement.
- **OCC Legal Fees** The applicant will be required to pay OCC's legal fees in relation to legal agreements. Please note the fees apply whether an s106 agreement is completed or not.

### **CIL Regulation 123**

Due to pooling constraints for local authorities set out in Regulation 123 of the Community Infrastructure Levy Regulations 2010 (as amended), OCC may choose

not to seek contributions set out in this response during the s106 drafting and negotiation.

That decision is taken either because:

- OCC considers that to do so it would breach the limit of 5 obligations to that infrastructure type or that infrastructure project or
- OCC considers that it is appropriate to reserve the ability to seek contributions to that infrastructure type or that infrastructure project in relation to the impacts of another proposal.

The district planning authority should however, take into account the whole impact of the proposed development on the county infrastructure, and the lack of mitigation in making its decision.

**Application no: 19/00963/OUT-2**

**Location: East Of Last House Adjoining And North Of Berry Hill Road, Adderbury**

## **Transport Schedule**

### **Recommendation:**

No objection subject to condition(s) and s106 obligations set out in the report below.

### **S106 Contributions**

As set out in the submitted report entitled "Response to Highway Comments – February 2018" which was in response to matters raised by OCC to mitigate and improve highway safety, the applicant accepted the requested contributions.

It is noted that the application is outline and therefore the level of contributions with respect to public transport services would be subject to amendment, should the final size be different to this.

<b>Contribution</b>	<b>Amount £</b>	<b>Price base</b>	<b>Index</b>	<b>Towards (details)</b>
Public transport services	40,000	January 2018	RPI-x	Enhancement of public transport services serving the site. Pump priming of bus services on the A4260.
Public transport infrastructure ( <i>if not dealt with under S278/S38 agreement</i> )	10,000	January 2018	Baxter	Towards the provision of two sets of bus stop poles and premium route standard flags, and bus shelters (£4,000 will be transferred to the Adderbury Parish Council as a commuted sum for maintenance of the shelter).
Public Rights of Way	20,000	January 2018	Baxter	Access mitigation measures on the footpaths to east and north of the site (Adderbury Footpaths 13, 6, 5 and 24 and Bridleway 9). This would fund surface improvement, signing and furniture along the routes.
Traffic Reg Order ( <i>if not dealt with under S278/S38 agreement</i> )	3,120	June 2019	RPI-x	Administration costs towards a Traffic Regulation Order to enable the relocation of the existing 30mph/derestricted speed limit on Berry Hill Road from

				its current location to a point further south by the junction with the A4260 to bring the entire Berry Hill Road under 30mph.
<b>Total</b>	<b>£73,120</b>			

**Key points:**

- Pedestrian link from the western side of the development to Berry Hill Road to ensure that opportunities to promote sustainable transport modes can be taken up and that priority is given first to pedestrian and cycle movements (NPPF Paras 108 and 110)
- Subject to a successful consultation, a Traffic Regulation Order (TRO) shall be required under the Road Traffic Regulation Act 1984 to enable a relocation of the existing speed limit on Berry Hill Road so that the proposed site access lies within a suitable speed zone.

**Comments:**

This application is a revised scheme for up to 40 dwellings, a resubmission of an application that considered up to 55 dwellings. A Transport Position Statement (dated August 2019) has been submitted in support of this revised application. It is noted that in its introduction, the report states that “All highway issues relating to the original planning application (ref: 17/02394/OUT) were resolved to the satisfaction of the local highway Authority, Oxfordshire County Council.” I however, wish to bring it to the applicant’s attention that this application is independent of the original one that was refused. All transport and highway matters are reviewed irrespective of details previously submitted.

**Access**

The primary vehicular and pedestrian access is proposed to be taken via an existing access off Berry Hill Road. This access is located within a section of Berry Hill Road that is subject to national speed limit. Para 2.6.2 of the Transport Statement (TS) suggests that the 30mph speed limit shall be extended to cover the entirety of Berry Hill Road right up to the junction with the A4260 Oxford Road.

The application proposes to implement a new footway along the northern side of Berry Hill Road to provide a direct pedestrian link between the site and the remainder of the village of Adderbury (up to Horn Hill Road). This link will clearly be of benefit to residents of the existing properties along Berry Hill Road in reaching the village centre safely and directly. In addition to that, a new crossing point within a pedestrian refuge with associated dropped kerbs and tactile paving along the A4260 Oxford Road shall be provided. These improvements are welcomed.

In the context of an outline application, all access arrangements need to be agreed at this stage. Besides the primary point of access, I am rather concerned by the lack of pedestrian access onto Berry Hill Road from the western part of the development.

I feel that the application has not taken advantage of its frontage to Berry Hill Road to enhance site permeability by providing a pedestrian connection which would be a direct and shorter path into the existing village. See below.

Without this provision, residents and visitors would have to walk back over 300m through the primary site access and the spine road a distance that should take a few metres from most dwellings. Application is strongly recommended to include this link. **(To be conditioned)**



This access shall be subject to a S278 agreement. For guidance and information on road adoptions and S278 works please contact the County's Road Agreements Team on 01865 815700 or email [Road.Agreements@oxfordshire.gov.uk](mailto:Road.Agreements@oxfordshire.gov.uk)

This application is proposing to implement two new bus stops along the A4260 Oxford Road which measure will significantly improve the accessibility of the site by non-car travel modes as shown by Drawing no 1899-F01 Rev D. This is welcomed.

#### Accident Analysis

It is noted from the "Response to Highway Comments – April 2018" submitted in support of this application that further accident analysis was undertaken back in February 2018 as part of the previous planning application on this site for 60 dwellings. I consider this survey to still be valid (within date) despite the fact that there has been a recent fatal accident having occurred on the local network from the time that survey was undertaken. In review of this application, this recent accident has been given due consideration.

## PROW

In a previous application on this site under planning ref: 17/02394/OUT it was noted that the right of way to the north of the site shall likely be affected and measures were sought to ensure the public footpath is maintained and also improved. The provision of £20,000 for offsite PRow measures is welcomed, especially if trigger can be advanced. Also welcomed is the integration of the site within its footprint and the surrounding/connecting green infrastructure network. The provision of informal POS and paths is also welcomed. Note that these need to be managed in perpetuity as part of the landscape management plan.

## Travel Plan

It is a quite a walk to the nearest bus stop especially from the middle of the development.

There are limited evening and Sunday bus services.

There are no footpaths along Berry Hill Road – the provision of additional footways and crossing points (as mentioned within paragraphs 2.5.4 and 2.5.5 of the transport statement) are welcomed.

The primary school in Adderbury has in the past suffered from inconsiderate and unsafe parental parking. As this development is a considerable distance from the school, I am concerned that the car will be the default option adding to the problematic situation outside school. The school has produced a School Travel Plan.

As this development is for 55 dwellings a Travel Plan Statement will be required. This should be produced prior to first occupation. Further information as to what should be included within the statement can be found within appendix 4 of the OCC guidance document – ‘Transport for New Developments – Transport Assessments and Travel Plans March 2014’.

A Residential Travel Information Pack is also required. This should be produced prior to first occupation and then distributed to all residents at the point of occupation. Reason – to ensure all residents are aware of the travel choices available to them from the outset. Further information as to what is required can be found within the OCC guidance sheet attached with this response.

Please could cycle parking be included within each residential boundary, either within a garage or a garden shed.

## **S106 obligations and their compliance with Regulation 122(2) Community Infrastructure Levy Regulations 2010 (as amended)**

**£40,000 Public Transport Service Contribution** indexed from 2018 Q1 using RPI-x

**Towards:** Enhancement of public transport services serving the site. Pump priming of bus services on the A4260.

**Justification:** Local Transport Plan 4, Policy 34. Oxfordshire County Council will require the layout and design of new developments to proactively encourage walking and cycling, especially for local trips, and allow developments to be served by frequent, reliable and efficient public transport. To do this, we will:

- identify the requirement for passenger transport services to serve the development, seek developer funding for these to be provided until they become commercially viable and provide standing advice for developers on the level of Section 106 contributions towards public transport expected for different locations and scales of development.

**Calculation:** £1000 per dwelling is sought from developments served by the bus routes on the A4260 on a fair and equitable basis.

**£10,000 Public Transport Infrastructure Contribution** indexed from 2018 Q1 using Baxter Index

**Towards:** Provision of two sets of two bus stop pole and premium route standard flags, and a bus shelter (£4,000 will be transferred to the Adderbury Parish Council as a commuted sum for maintenance of the shelter).

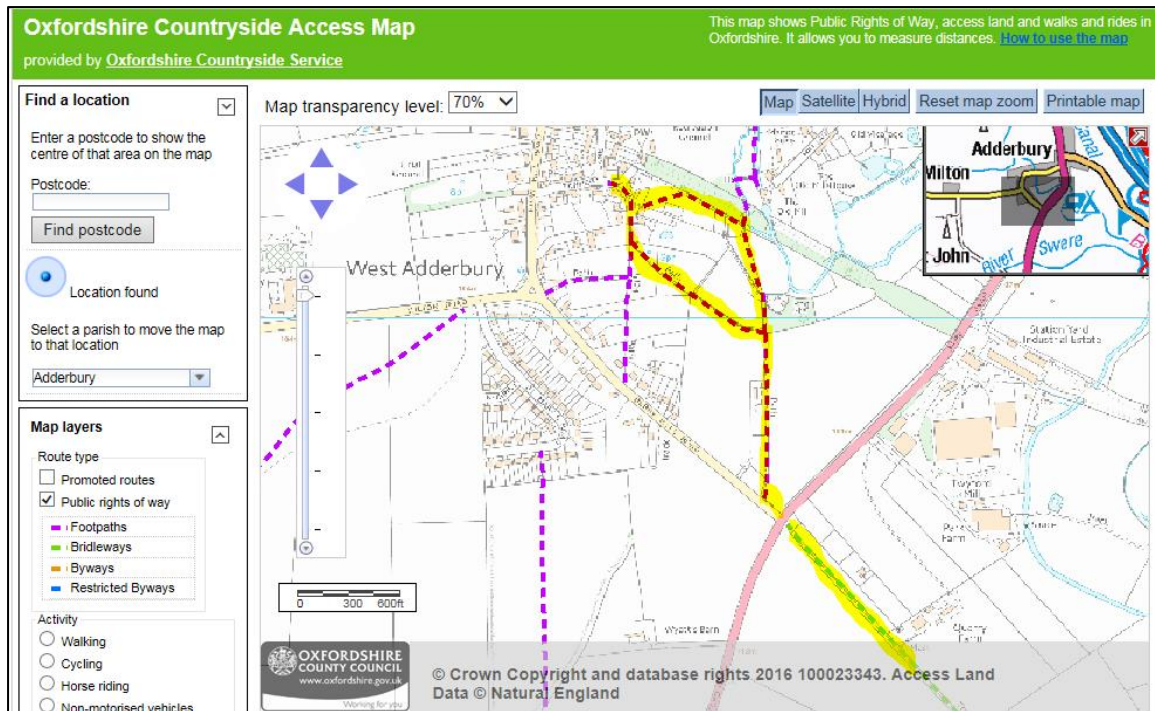
**Justification:** Provision of bus stops within 400m walking distance of the development site.

**Calculation:** Each bus stop pole and premium route standard flags, and a bus shelter is £3000 plus £2000 commuted sum for maintenance, for two bus stops totals £10,000.

**£20,000 Public Rights of Way Contribution indexed from Q1 2018 using Baxter Index**

**Towards:** Access mitigation measures on the footpaths to east and north of the site (Footpaths 13, 6, 5 and 24 and Bridleway 9). This would fund surface improvement, signing and furniture along the routes.





## Justification

a) *necessary to make the proposed development acceptable in planning terms.*  
There is expected to be an increase in numbers of residents and their visitors using the rights of way network in the vicinity of the site due to the proximity of the development. OCC Countryside Access is seeking a contribution to mitigate the impact of this increase in numbers of residents and their visitors accessing the network along these routes.

b) *directly related to the development.*

The site has had a desk assessment to both assess the current situation and look at how public use could be protected and enhanced. With the development site at the centre, the logical and realistic public rights of way network likely to be affected is considered.

c) *fairly and reasonably related in scale and kind to the development.*

The proposed measures are based on the desk assessment of likely costs for the measures. The proposed off-site measures are in the form of a reasonable financial contribution to allow the Countryside Access Team to plan and deliver improvements with third party landowners in a reasonable time period and under the Rights of Way Management Plan aims.

The contribution would be spent on improvements to the public rights of way in the vicinity of the development. Primarily this is to improve the surfaces of all routes to take account of the likely increase in use by residents of the development as well as new or replacement structures like gates, bridges and seating, sub-surfacing and drainage to enable easier access, improved signing etc.

## Calculation

The proposed measures are based on the desk assessment of likely costs for the measures. They are not based on a standard formula or any other kind of per-dwelling or per-m<sup>2</sup> tariff system. Estimated contribution breakdown by activity:

- site surveys & assessments 5%
- habitat survey & mitigation 5%
- landowner negotiations 5%
- Materials, contractor, plant & equipment 60%
- Legal processes e.g. temporary works closures, agreement payments 5-10%
- Contract preparation & supervision 5%
- Admin costs 5%
- Contingency/Follow-up repair works 5-10%

**£3,120 Traffic Regulation Order Contribution** indexed from June 2019 using RPI-x

**Towards:** The cost of administering a Traffic Regulation Order (TRO) which, if successful, will enable the relocation of the existing 30mph/derestricted speed limit on Berry Hill Road from its current location to a point further south by the junction with the A4260 to bring the entire Berry Hill Road under 30mph. This would reduce traffic speeds in both directions.

**Justification:** The Contribution is necessary to make the development acceptable in planning terms as, if successful; it will enable the relocation of existing speed limit signage that is currently within the southern visibility splay of the access of the development. Locating the speed limit outside of the access will also reduce traffic speeds on this road in the vicinity of the proposed development, thereby reducing the likelihood of collisions brought about by excessive vehicle speeds. Therefore, this TRO, if applied successfully, will help provide safe and suitable access to the development in accordance with the National Planning Policy Framework.

The contribution is fair and reasonably related in scale and kind to the development as it is a fixed fee for administrative costs and does not include funding for any physical works.

### **S278 Highway Works:**

An obligation to enter into a S278 Agreement will be required to secure mitigation/improvement works, including:

- A pair of bus stops (hardstanding's) to be provided near to the proposed site entrance / exit on Berry Hill Road to be served by the current S4 bus service.
- Provision of the site access, pedestrian footways, and pedestrian crossing as shall be shown by a plan agreed to with the Highway Authority.

### **Notes**

This is secured by means of S106 restriction not to implement development (or occasionally other trigger point) until S278 agreement has been entered into. Identification of areas required to be dedicated as public highway and agreement of all relevant landowners will be necessary in order to enter into the S278 agreements.

S278 agreements include certain payments that apply to all S278 agreements however the S278 agreement may also include an additional payment(s) relating to specific works.

### **Planning Conditions:**

In the event that permission is to be given, the following planning conditions should be attached:

#### Access: Full Details

Prior to the commencement of the development hereby approved, full details of the means of access between the land and the highway, including, position, layout, construction, drainage and vision splays shall be submitted to and approved in writing by the Local Planning Authority. Thereafter, the means of access shall be constructed and retained in accordance with the approved details.

*Reason - In the interests of highway safety and to comply with Government guidance contained within the National Planning Policy Framework*

#### Vision Splay Protection

The vision splays shall not be obstructed by any object, structure, planting or other material of a height exceeding [ 0.6 m] measured from the carriageway level.

*Reason - In the interests of highway safety and to comply with Government guidance contained within the National Planning Policy Framework*

#### Travel Plan

Prior to first occupation of the development a Travel plan statement shall be submitted to the Local Planning Authority for approval.

#### Travel Information Pack

Prior to first occupation a Travel Information Pack shall be submitted to Local Planning Authority for approval. The first residents of each dwelling shall be provided with a copy of the approved Travel Information Pack.

#### Construction Traffic Management Plan (CTMP)

Prior to commencement of the development hereby approved; a construction traffic management plan shall be submitted to and approved by the Local Planning Authority. The CTMP will need to incorporate the following in detail and throughout development the approved plan must be adhered to

- The CTMP must be appropriately titled, include the site and planning permission number.
- Routing of construction traffic and delivery vehicles is required to be shown and signed appropriately to the necessary standards/requirements. This includes means of access into the site.
- Details of and approval of any road closures needed during construction.
- Details of and approval of any traffic management needed during construction.
- Details of wheel cleaning/wash facilities – to prevent mud etc, in vehicle tyres/wheels, from migrating onto adjacent highway.

- Details of appropriate signing, to accord with the necessary standards/requirements, for pedestrians during construction works, including any footpath diversions.
- The erection and maintenance of security hoarding / scaffolding if required.
- A regime to inspect and maintain all signing, barriers etc.
- Contact details of the Project Manager and Site Supervisor responsible for on-site works to be provided.
- The use of appropriately trained, qualified and certificated banksmen for guiding vehicles/unloading etc.
- No unnecessary parking of site related vehicles (worker transport etc) in the vicinity – details of where these will be parked and occupiers transported to/from site to be submitted for consideration and approval. Areas to be shown on a plan not less than 1:500.
- Layout plan of the site that shows structures, roads, site storage, compound, pedestrian routes etc.
- A before-work commencement highway condition survey and agreement with a representative of the Highways Depot – contact 0845 310 1111. Final correspondence is required to be submitted.
- Local residents to be kept informed of significant deliveries and liaised with through the project. Contact details for person to whom issues should be raised with in first instance to be provided and a record kept of these and subsequent resolution.
- Any temporary access arrangements to be agreed with and approved by Highways Depot.
- Details of times for construction traffic and delivery vehicles, which must be outside network peak and school peak hours.

*Reason: In the interests of highway safety and to mitigate the impact of construction vehicles on the surrounding highway network, road infrastructure and local residents, particularly at morning and afternoon peak traffic times*

**Informative:**

The Advance Payments Code (APC), Sections 219 -225 of the Highways Act, is in force in the county to ensure financial security from the developer to off-set the frontage owners' liability for private street works, typically in the form of a cash deposit or bond. Should a developer wish for a street or estate to remain private then to secure exemption from the APC procedure a 'Private Road Agreement' must be entered into with the County Council to protect the interests of prospective frontage owners. Alternatively, the developer may wish to consider adoption of the estate road under Section 38 of the Highways Act.

Prior to commencement of development, a separate consent must be obtained from OCC Road Agreements Team for the new highway vehicular access under S278 of the Highway Act. Contact: 01865 815700; [RoadAgreements@oxfordshire.gov.uk](mailto:RoadAgreements@oxfordshire.gov.uk).

**Officer's Name: Rashid Bbosa**  
**Officer's Title: Senior Transport Planner**  
**Date: 23 October 2019**

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**Application no: 19/00963/OUT-2**

**Location: East Of Last House Adjoining And North Of Berry Hill Road, Adderbury**

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## **Lead Local Flood Authority**

### **Recommendation:**

Objection

### **Key issues:**

- Previous comments relating to the proposal have not been adequately addressed.
- There still exists a lack of drainage, flood risk, SuDS information to enable a full technical assessment and audit of the proposal.

### **Detailed comments:**

No confirmed detail from Environment Agency to discharge to River Sor.

No infiltration detail supplied to support infiltration proposal (see Section 5.5.4).

**Received and accepted**

MicroDrainage Storage Estimation tool should be applying 40% CC allowance.

MicroDrainage full calculation files to be supplied. Default Cv values have been used. It is felt these are not representative of the site. Recommended Cv values 0.95 for roof areas, 0.9 for hardstanding areas.

Appears to be confusion as to which Ciria SuDS manual should be referred to both C697 and C753 are referenced. No outline drawings provided demonstrating where SuDS features are proposed to be located on site. **Drawing Title 30394\_1\_Preliminary S.W.Drainage Layout – received and accepted as a Concept Design.**

Greenfield discharge rates are expected for all relevant return periods including 40% Climate Change allowance. It appears the site has defaulted to 5l/s. This should be examined and if this is to be used justification to be provided. No outline Management and Maintenance strategy provided. FRA is dated 2017, this should be updated to fall in line with current Local and National Standards and industry best practice.

No evidence that green space on site has been used to its full potential to incorporate SuDS.

No information provided for safe ingress/egress.

No information provided for exceedance events and where surface water flows will be routed or held temporarily on site.

The FRA is closer to a Concept Design stage rather than an Outline Design stage.

The above points need to be addressed and a full Outline Design stage for surface water management needs to be submitted. By the end of the Concept Stage evaluation and initial design/investigations Flows and Volumes should be known. Therefore, we ask that the following Pro-Forma is completed and returned as soon as possible:

**Officer's Name: Adam Littler**  
**Officer's Title: Drainage Engineer**  
**Date: 23 October 2019**

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**Application no: 19/00963/OUT-2**

**Location: East Of Last House Adjoining And North Of Berry Hill Road, Adderbury**

## **Education Schedule**

### **Recommendation:**

As advised in the county's response (dated 15/07/2019) to the original application, this proposed development would contribute towards the need for additional nursery, primary and secondary school places.

This amendment reduces the number of dwellings, and hence pupil generation, and would result in changes to the level of contributions required. The per pupil cost for the expansion of capacity at Christopher Rawlins CE (VA) Primary School has also been updated to include nursery places, so the primary and nursery contributions have now been combined.

The revised contributions would be:

Contribution	Amount £	Price base	Index	Towards (details)
<b>Primary and Nursery</b>	<b>£331,593</b>	<b>2Q17</b>	PUBSEC	Expanding primary and nursery provision at Christopher Rawlins CE (VA) Primary School
<b>Secondary (including sixth form)</b>	<b>£200,771</b>	<b>2Q17</b>	PUBSEC	Expanding secondary provision at The Warriner (Secondary) School
<b>Total</b>	<b>£532,364</b>			

### **Calculation (Primary and Nursery):**

Number of primary and nursery pupils expected to be generated	15.40
Estimated cost per pupil of expanding a primary school, based on the cost of expanding Christopher Rawlins CE (VA) Primary School (£2,390,000 project cost / 111 additional primary and nursery places created)	£21,532
15.40 * £21,532	<b>£331,593</b>

### **Calculation (Secondary and Sixth Form):**

Number of secondary pupils expected to be generated	7.49
Estimated cost per pupil	£23,086

+

Number of sixth form pupils expected to be generated	1.13
Estimated cost per pupil	£24,652
1.13 * £24,652	<b>£27,857</b>

=

Secondary contribution + sixth form contribution	Total
£172,914 + £27,857	<b>£200,771</b>

The above contributions are based on a unit mix of:

- 5 x 1 bed dwellings
- 10 x 2 bed dwellings
- 18 x 3 bed dwellings
- 7 x 4 bed dwellings

It is noted that the application is outline and therefore the above level of contributions would be subject to amendment, should the final unit mix result in an increase in pupil generation.

**Officer's Name: Joanne Booker**  
**Officer's Title: School Organisation Officer**  
**Date: 16 October 2019**

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# SuDS Flows and Volumes - LLFA Technical Assessment Pro-forma

*This form identifies the information required by Oxfordshire County Council LLFA to enable technical assessment of flows and volumes determined as part of drainage / SuDS calculations.*

*Note : \* means delete as appropriate; Numbers in brackets refer to accompanying notes.*

## SITE DETAILS

- 1.1 Planning application reference
- 1.2 Site name
- 1.3 Total application site area (1) .....m<sup>2</sup> ..... ha
- 1.4 Is the site located in a CDA or LFRZ Y/N
- 1.5 Is the site located in a SPZ Y/N

## VOLUME AND FLOW DESIGN INPUTS

- 2.1 Site area which is positively drained by SuDS (2) ..... m<sup>2</sup>
- 2.2 Impermeable area drained pre development (3) ..... m<sup>2</sup>
- 2.3 Impermeable area drained post development (3)1 ..... m<sup>2</sup>
- 2.4 Additional impermeable area (2.3 minus 2.2) ..... m<sup>2</sup>
- 2.5 Predevelopment use (4) Greenfield / Brownfield / Mixed\*
- 2.6 Method of discharge (5) Infiltration / waterbody / storm sewer/ combined sewer\*
- 2.7 Infiltration rate (where applicable) .....m/hr
- 2.8 Influencing factors on infiltration
- 2.9 Depth to highest known ground water table.....mAOD
- 2.10 Coefficient of runoff (Cv) (6)
- 2.11 Justification for Cv used
- 2.12 FEH rainfall data used (Note that FSR is no longer the preferred rainfall calculation method) Y/N
- 2.13 Will storage be subject to surcharge by elevated water levels in watercourse/ sewer Y/N
- 2.14 Invert level at outlet (invert level of final flow control) .....mAOD
- 2.15 Design level used for surcharge water level at point of discharge(14)1.....mAOD

# SuDS Flows and Volumes - LLFA Technical Assessment Pro-forma

## CALCULATION OUTPUTS

Sections 3 and 4 refer to site where storage is provided by attenuation and/or partial infiltration. Where all flows are infiltrated to ground omit Sections 3-5 and complete Section 6.

### 3.0 Defining rate of runoff from the site

- 3.2 Max. discharge for 1 in 1 year rainfall .....l/s/ha, .....l/s for the site
- 3.2 Max. discharge for  $Q_{med}$  rainfall .....l/s/ha, .....l/s for the site
- 3.3 Max. discharge for 1 in 30 year rainfall .....l/s/ha, .....l/s for the site
- 3.4 Max. discharge for 1 in 100 year rainfall .....l/s/ha, .....l/s for the site
- 3.5 Max. discharge for 1 in 100 year plus 40%CC .....l/s/ha, .....l/s for the site

### 4.0 Attenuation storage to manage peak runoff rates from the site

- 4.1 Storage - 1 in 1 year .....m<sup>3</sup> .....m<sup>3</sup>/m<sup>2</sup> (of developed impermeable area)
- 4.2 Storage - 1 in 30 year <sup>(7)</sup> ..... m<sup>3</sup> .....m<sup>3</sup>/m<sup>2</sup>
- 4.3 Storage - 1 in 100 year <sup>(8)</sup> .....m<sup>3</sup> .....m<sup>3</sup>/m<sup>2</sup>
- 4.4 Storage - 1 in 100 year plus 40%CC <sup>(9)</sup> ..... m<sup>3</sup> .....m<sup>3</sup>/m<sup>2</sup>

### 5.0 Controlling volume of runoff from the site

- 5.1 Pre development runoff volume <sup>(1)</sup> ..... m<sup>3</sup> for the site
- 5.2 Post development runoff volume (unmitigated) <sup>(1)</sup> ..... m<sup>3</sup> for the site
- 5.3 Volume to be controlled/does not leave site (5.2-5.1)..... m<sup>3</sup> for the site
- 5.4 Volume control provided by
  - Interception losses <sup>(11)</sup> .....m<sup>3</sup>
  - Rain harvesting <sup>(12)</sup> .....m<sup>3</sup>
  - Infiltration (even at very low rates) .....m<sup>3</sup>
  - Separate area designated as long term storage <sup>(13)</sup> .....m<sup>3</sup>
- 5.5 Total volume control (sum of inputs for 5.4) .....m<sup>3</sup> <sup>(15)</sup>

### 6.0 Site storage volumes (full infiltration only)

- 6.1 Storage - 1 in 30 year <sup>(7)</sup> .....m<sup>3</sup> .....m<sup>3</sup>/m<sup>2</sup> (of developed impermeable area)
- 6.2 Storage - 1 in 100 year plus CC <sup>(9)</sup> .....m<sup>3</sup> .....m<sup>3</sup>/m<sup>2</sup>

# SuDS Flows and Volumes - LLFA Technical Assessment Pro-forma

## Notes

1. All area with the proposed application site boundary to be included.
2. The site area which is positively drained includes all green areas which drain to the SuDS system and area of surface SuDS features. It excludes large open green spaces which do not drain to the SuDS system.
3. Impermeable area should be measured pre and post development. Impermeable surfaces includes, roofs, pavements, driveways and paths where runoff is conveyed to the drainage system.
4. Predevelopment use may impact on the allowable discharge rate. The LLFA will seek for reduction in flow rates to GF status in all instances. The design statement and drawings explain/ demonstrate how flows will be managed from the site.
5. Runoff may be discharge via one or a number of means.
6. Sewers for Adoption 6<sup>th</sup> Edition recommends a Cv of 100% when designing drainage for impermeable area (assumes no loss of runoff from impermeable surfaces) and 0% for permeable areas. Where lower Cv's are used the application should justify the selection of Cv.
7. Storage for the 1 in 30 year must be fully contained within the SuDS components. Note that standing water within SuDS components such as ponds, basins and swales is not classified as flooding. Storage should be calculated for the critical duration rainfall event.
8. Runoff generated from rainfall events up to the 1 in 100 year will not be allowed to leave the site in an uncontrolled way. Temporary flooding of specified areas to shallow depths (150-300mm) may be permitted in agreement with the LLFA.
9. Climate change is specified as 40% increase to rainfall intensity, unless otherwise agreed with the LLFA / EA.
10. To be determined using the 100 year return period 6 hour duration rainfall event.
11. Where Source Control is provided Interception losses will occur. An allowance of 5mm rainfall depth can be subtracted from the net inflow to the storage calculation where interception losses are demonstrated. The Applicant should demonstrate use of subcatchments and source control techniques.
12. Please refer to Rain harvesting BS for guidance on available storage.
13. Flow diverted to Long term storage areas should be infiltrated to the ground, or where this is not possible, discharged to the receiving water at slow flow rates (maximum 2 l/s/ha). LT storage would not be allowed to empty directly back into attenuation storage and would be expected to drain away over 5-10 days. Typically LT storage may be provided on multi-functional open space or sacrificial car parking areas.
14. Careful consideration should be used for calculations where flow control / storage is likely to be influenced by surcharged sewer or peak levels within a watercourse. Storm sewers are designed for pipe full capacity for 1 in 1 to 1 in 5 year return period. Beyond this, the pipe network will usually be in conditions of surcharge. Where information cannot be gathered from Thames Water, engineering judgement should be used to evaluate potential impact (using sensitivity analysis for example).
15. In controlling the volume of runoff the total volume from mitigation measures should be greater than or equal to the additional volume generated.

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