20/05/2019

Unit 23 The Maltings
Stanstead Abbotts
Herts SG12 8HG

Tel 01920 871777
www.eastp.co.uk

Julia Puton

Lead Local Flood Authority
Hertfordshire County Council

By Email

Dear Julia,

6/2019/0882/OUTLINE- Colesdale Farm, Northaw Road West, Northaw, Potters Bar, EN6 4QZ

I am writing with regards to the above application and the response dated 13th May 2019 of which I have enclosed in **Appendix A.** Thank you for your comments. Please find enclosed in this letter a response to all comments received.

1) *Updated drainage strategy to include the final discharge rate limited to Greenfield run-off rates for the relevant rainfall event.*

Please find enclosed in **Appendix B** SK03, a revised SuDS layout. The total outfall from the site has now been restricted to the QBAR rate of 2.3l/s for all events up to and including the 1 in 100-year plus 40% climate change event. This rate has been calculated using the total impermeable area of the site at 0.55 hectares.

The QBAR outfall rate of 2.3 l/s has been calculated using the impermeable area of the site and scaling the rate based on the the QBAR rate for 1 hectare which is 4.3l/s.

Please find enclosed the revised WINDES calculations in **Appendix C**. As a result of reducing the discharge rate, the pond has now increased in size to 246.8m^2 and provides a total attenuation volume of 202.5m^3. The pond remains 1.5m deep with 1:3 side slopes.

2) *Updated drainage layout to include the entire proposed drainage scheme.*

Please find enclosed in **Appendix B** SK03 which indicates the location of the proposed outfall to the Hempshill Brook. An indicative route to the outfall has been included and falls across the neighboring field. Please note, the pipe will be required to fall underneath the access track before it outfalls to the Hempshill Brook.

SK03 also indicates the location of the ditch along the northern boundary which is proposed to be reprofiled and cleared of vegetation to manage surface water flood risk from the adjacent field. The existing top of ditch and base of ditch levels have been enclosed for your reference. These levels have been taken from the topographical survey. The potential location of the French Drain has also been shown on the drawing.

3) *An agreement from the relevant landowner to cross their land to create a new surface water connection into a main river.*

Please find enclosed in **Appendix D** an agreement from the relevant parties confirming land ownership and permission to access and cross the land in order to outfall to the Hempshill Brook.

I hope the above responds to all of your comments however, if you would like to discuss any issues further, please do get in touch.

Yours Sincerely,

Rose Cargill

ENC: **Appendix A**- Response Letter Received from HCC
Appendix B- SK03 SuDS Layout
Appendix C- Revised WINDES Calculations
Appendix D- Land Ownership Confirmation

Appendix A Response Letter Received from HCC

Director of Environment & Infrastructure:
Mark Kemp

Hertfordshire

Elizabeth Aston
Welwyn Hatfield Borough Council,
The Campus,
Welwyn Garden City,
Herts,
AL8 6AE

Post Point CHN 215
Hertfordshire County Council
County Hall, Pegs Lane
HERTFORD SG13 8DN

Contact Julia Puton
Tel 01992 556441
Email FRMConsultations@hertfordshire.gov.uk

Date 13 May 2019

RE: 6/2019/0882/OUTLINE – Colesdale Farm, Northaw Road West, Northaw, Potters Bar, EN6 4QZ

Dear Elizabeth,

Thank you for your consultation in relation to the above planning application for the outline permission for residential development of site of up to 38 dwellings following demolition of the existing buildings and structures with all matters reserved apart from access, at Colesdale Farm, Northaw Road West, Northaw, Potters Bar, EN6 4QZ.

We understand this application seeks outline planning permission for a major development, and we have assessed the Flood Risk Assessment and Drainage Strategy prepared by EAS, job number 2088/2019, revision B, dated 9 April 2019, submitted to support to this application. However, the information provided to date does not provide a suitable basis for an assessment to be made of the flood risks arising from the proposed development.

We therefore object to the grant of planning permission and recommend refusal on this basis for the following reasons.

Details of how surface water arising from a development is to be managed is required under the NPPF for all Major Planning Applications as amended within the NPPG from the 6 April 2015. Therefore for the LLFA to be able to advise the Local Planning Authority that there is no flood risk from surface water an application for outline planning permission should include the following:

1. Updated drainage strategy to include the final discharge rate limited to Greenfield run-off rates for the relevant rainfall event.
2. Updated drainage layout to include the entire proposed drainage scheme.
3. An agreement from the relevant landowner to cross their land to create a new surface water connection into a main river.

Overcoming our objection

1. We acknowledge that the applicant has provided a drainage scheme for the proposed development. The strategy includes lined permeable paving with sub-base, attenuation pond and discharge into a new ditch with the final discharge into a main river running in the vicinity of the site.

   We note that the applicant intends to limit the final surface water run-off discharge rate to 4.7 l/s from the impermeable area on the development site.

   However, we would advise the applicant that the final discharge rate from the development site should be limited to Greenfield run-off rates for the relevant rainfall events.

2. We acknowledge that the applicant has submitted a drainage layout with indicated permeable paving storage areas and attenuation pond.

   We would advise that the entire proposed surface water drainage network should be included on the layout.

   Therefore, we would advise the applicant that the proposed new discharge connection from the site into a main river should be included on the drawing. Moreover, the proposed ditch running along the northern boundary of the site should be indicated on the drainage layout as well.

3. Based on the information included in the report, we understand that the land in the vicinity of the development site is under the same ownership. We would advise that evidence of the land ownership should be provided and submitted in support to this application.

   Moreover, to secure the future drainage discharge mechanism, we would advise the applicant that an agreement from the landowner should be provided to cross their land and to undertake all necessary drainage works to create a positive discharge mechanism from the development site into the main river.

Informative to the LPA

The applicant can overcome our objection by submitting information which covers the deficiencies highlighted above and demonstrates that the development will not increase risk elsewhere and where possible reduces flood risk overall, and gives priority to the use of sustainable drainage methods.

If this cannot be achieved we are likely to maintain our objection to the application.

We ask to be re-consulted when the amended surface drainage assessment will be submitted. We will provide you with bespoke comments within 21 days of receiving formal reconsultation. Our objection will be maintained until an adequate surface water management scheme has been submitted.

Yours sincerely,

Julia Puton
SuDS Officer
Hertfordshire County Council

Appendix B SK01 REV B Revised SuDS Layout

INDICATIVE ROUTE OF DITCH

INDICATIVE LOCATION OF FRENCH FILTER DRAIN

EXISTING DITCH TO BE RE-PROFILED AND CLEARED OF VEGETATION TO MANAGE SURFACE WATER RUN OFF FROM NEARBY FIELD

EXISTING LEVELS
TOP OF DITCH: 60.06m AOD
BASE OF DITCH: 59.94m AOD

EXISTING LEVELS
TOP OF DITCH: 61m AOD
BASE OF DITCH: 60.64m AOD

EXISTING LEVELS
TOP OF DITCH: 62.52m AOD
BASE OF DITCH: 61.67m AOD

APPROXIMATE FALL 1:24

CONTROL CHAMBER CONTAINING HYDROBRAKE TO RESTRICT OUTFALL TO 2.3l/s FOR ALL EVENTS UP TO AND INCLUDING THE 1 IN 100 YEAR PLUS 40% CLIMATE CHANGE

ATTENUATION POND SIZED AT 1.5M DEEP WITH 1:3 SIDE SLOPES WITH A MAXIUMUM SURFACE AREA OF 246.8m^2 PROVIDING 202.5m^3 OF ATTENUATION

HEMPSHILL BROOK

LIDAR DATA USED TO DETERMINE THE BASE LEVEL OF THE BROOK AT APPROXIMATELY 51m AOD.

OUTFALL TO HEMPSHILL BROOK VIA PRE-CAST CONCRETE HEADWALL. TOTAL OUTFALL RESTRICTED TO 2.3l/s FOR ALL EVENTS UP TO AND INCLUDING THE 1 IN 100YR PLUS 40% CLIMATE CHANGE

PIPE REQUIRED TO BE LAID UNDERNEATH THE ACCESS ROAD IN ORDER TO OUTFALL TO THE HEMPSHILL BROOK

52m

TOWARDS THE NORTHAW BROOK

B156

NORTHAW ROAD EAST

B156

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

EAS
Unit 23, The Maltings, Stanstead Abbotts, Hertfordshire, SG12 8HG
Tel: 01920 877777
www.eastp.co.uk

CLIENT:

ARCHITECT:

PROJECT:
COLESDALE FARM, NORTHAW
POTTERS BAR

TITLE:
PROPOSED SUDS LAYOUT

SCALE @ A1:	DESIGN-DRAWN:	DATE:
1:500	RC	16/05/2019
PROJECT No:	DRAWING No:	
2088	SK03	

Appendix C Revised WINDES Calculations

Cascade Summary of Results for Pond Rev A.srcx

Upstream Structures	Outflow To	Overflow To
Permeable Paving.srcx	(None)	(None)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	60.161	0.661	1.6	60.3	O K
30 min Summer	60.297	0.797	1.7	78.6	O K
60 min Summer	60.421	0.921	1.9	97.3	O K
120 min Summer	60.533	1.033	2.0	116.1	O K
180 min Summer	60.593	1.093	2.0	126.8	O K
240 min Summer	60.632	1.132	2.1	134.1	O K
360 min Summer	60.682	1.182	2.1	143.7	O K
480 min Summer	60.717	1.217	2.1	150.7	Flood Risk
600 min Summer	60.742	1.242	2.2	155.9	Flood Risk
720 min Summer	60.762	1.262	2.2	159.9	Flood Risk
960 min Summer	60.790	1.290	2.2	165.9	Flood Risk
1440 min Summer	60.824	1.324	2.2	173.2	Flood Risk
2160 min Summer	60.827	1.327	2.2	173.7	Flood Risk
2880 min Summer	60.794	1.294	2.2	166.7	Flood Risk
4320 min Summer	60.732	1.232	2.2	153.8	Flood Risk
5760 min Summer	60.672	1.172	2.1	141.8	O K
7200 min Summer	60.612	1.112	2.1	130.3	O K
8640 min Summer	60.552	1.052	2.0	119.4	O K
10080 min Summer	60.493	0.993	1.9	109.2	O K
15 min Winter	60.221	0.721	1.7	68.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	143.954	0.0	118.6	184
30 min Summer	92.629	0.0	138.7	283
60 min Summer	56.713	0.0	216.7	388
120 min Summer	33.583	0.0	259.0	500
180 min Summer	24.424	0.0	282.9	578
240 min Summer	19.389	0.0	295.8	638
360 min Summer	13.924	0.0	308.2	740
480 min Summer	11.018	0.0	316.2	830
600 min Summer	9.182	0.0	320.7	912
720 min Summer	7.908	0.0	323.0	992
960 min Summer	6.245	0.0	323.2	1140
1440 min Summer	4.471	0.0	313.7	1444
2160 min Summer	3.197	0.0	443.6	2160
2880 min Summer	2.518	0.0	462.4	2540
4320 min Summer	1.796	0.0	485.2	3212
5760 min Summer	1.413	0.0	504.2	3928
7200 min Summer	1.172	0.0	515.1	4680
8640 min Summer	1.006	0.0	522.6	5440
10080 min Summer	0.884	0.0	527.7	6160
15 min Winter	143.954	0.0	127.9	223

Cascade Summary of Results for Pond Rev A.srcx

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
30 min Winter	60.367	0.867	1.8	88.9	O K
60 min Winter	60.500	1.000	1.9	110.3	O K
120 min Winter	60.620	1.120	2.1	131.9	O K
180 min Winter	60.685	1.185	2.1	144.3	O K
240 min Winter	60.727	1.227	2.2	152.7	Flood Risk
360 min Winter	60.782	1.282	2.2	164.1	Flood Risk
480 min Winter	60.820	1.320	2.2	172.4	Flood Risk
600 min Winter	60.849	1.349	2.3	178.6	Flood Risk
720 min Winter	60.870	1.370	2.3	183.5	Flood Risk
960 min Winter	60.902	1.402	2.3	190.6	Flood Risk
1440 min Winter	60.938	1.438	2.3	199.2	Flood Risk
2160 min Winter	60.952	1.452	2.3	202.5	Flood Risk
2880 min Winter	60.924	1.424	2.3	195.8	Flood Risk
4320 min Winter	60.842	1.342	2.3	177.1	Flood Risk
5760 min Winter	60.755	1.255	2.2	158.5	Flood Risk
7200 min Winter	60.662	1.162	2.1	139.8	O K
8640 min Winter	60.568	1.068	2.0	122.2	O K
10080 min Winter	60.476	0.976	1.9	106.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	92.629	0.0	147.4	330
60 min Winter	56.713	0.0	244.6	442
120 min Winter	33.583	0.0	290.9	560
180 min Winter	24.424	0.0	308.6	640
240 min Winter	19.389	0.0	319.7	702
360 min Winter	13.924	0.0	332.0	804
480 min Winter	11.018	0.0	338.7	896
600 min Winter	9.182	0.0	342.1	980
720 min Winter	7.908	0.0	343.5	1060
960 min Winter	6.245	0.0	342.5	1210
1440 min Winter	4.471	0.0	331.5	1492
2160 min Winter	3.197	0.0	500.6	2120
2880 min Winter	2.518	0.0	522.2	2708
4320 min Winter	1.796	0.0	533.3	3368
5760 min Winter	1.413	0.0	571.8	4152
7200 min Winter	1.172	0.0	585.4	4936
8640 min Winter	1.006	0.0	595.4	5704
10080 min Winter	0.884	0.0	602.6	6392

Cascade Rainfall Details for Pond Rev A.srcx

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.450	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.220

Time (mins) From:	To:	Area (ha)
0	4	0.220

Cascade Model Details for Pond Rev A.srcx

Storage is Online Cover Level (m) 61.000

Tank or Pond Structure

Invert Level (m) 59.500

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	59.8	1.500	246.8

Hydro-Brake® Outflow Control

Design Head (m) 1.500 Hydro-Brake® Type Md4 Invert Level (m) 59.500
Design Flow (l/s) 2.4 Diameter (mm) 50

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.1	1.200	2.1	3.000	3.4	7.000	5.2
0.200	0.9	1.400	2.3	3.500	3.6	7.500	5.3
0.300	1.1	1.600	2.5	4.000	3.9	8.000	5.5
0.400	1.2	1.800	2.6	4.500	4.1	8.500	5.7
0.500	1.4	2.000	2.8	5.000	4.4	9.000	5.8
0.600	1.5	2.200	2.9	5.500	4.6	9.500	6.0
0.800	1.7	2.400	3.0	6.000	4.8		
1.000	1.9	2.600	3.1	6.500	5.0		

Appendix D Land Ownership Confirmation

Claregate
Cattlegate Road
Crews Hill
EN2 8AZ

16 May 2019

To whom it may concern

Colesdale Farm Land Ownership

I, Michael Marrinan of Claregate, Cattlegate Road, Crews Hill EN2 8AZ and Jean Bernadette Marrinan confirm that we jointly own the Colesdale Farm site currently the subject of application reference 6/2019/0882/OUTLINE. This land ownership is partly within HD320427 and partly within HD270820.

We are also joint owners of the land to the north and east within titles HD329634 and HD320427. This includes land to the north and east of the application site including some 450m of the length of Hempshill Brook and including both banks stretching from Northaw Road East to the north.

I confirm that we give agreement for access across our land and for all necessary drainage works to create a positive discharge mechanism from the development site into the main river.

Yours faithfully,

Signed: