
From: Vic Craven
Sent: 27 November 2019 14:47
To: Hilary Saunders
Cc:
Subject: RE: New application post - NYM/2019/0477/FL E Botham & Sons, Enterprise Way, Whitby - SUDS

Hi Hilary.

Please find the attached SuDS report, to be included with the above planning application.

Vic Craven.

From: Hilary Saunders [mailto:h.saunders@northyorkmoors.org.uk]
Sent: Tuesday November 2019 15:20
To:
Cc:
Subject: FW: New application post - NYM/2019/0477/FL E Botham & Sons, Enterprise Way, Whitby - SUDS

Afternoon Vic,

I note that I have not yet received the additional information requested by the Highway Authority and the Lead Local Flood Authority.

I'm unable to determine the application favourably without this information so would be grateful for receipt at your earliest convenience.

Kind regards

Hilary

Mrs Hilary Saunders MRTPI
Planning Team Leader
Development Management

Tel. no 01439 772700

-----Original Message-----

From: Hilary Saunders

Sent: 24 September 2019 16:49

To:

Subject: FW: New application post - NYM/2019/0477/FL E Botham & Sons, Enterprise Way, Whitby - SUDS

Afternoon Vic,

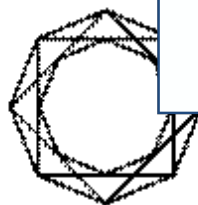
Please also find enclosed comments received from the Lead Local Flood Authority which need addressing.

Kind regards

Hilary

Mrs Hilary Saunders MRTPI
Planning Team Leader
Development Management

Tel. no 01439 772700



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2018

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Paul Waite Associates

Consulting Civil, Structural & Geo-Environmental Engineers

Drainage Strategy

Proposed Extension to existing unit, Bothams Whitby

Report Ref:
19205-PWA-00-XX-RP-C-1000-P01

Prepared For:
Vic Craven

Date: October 2019

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DOCUMENT CONTROL SHEET

NYMNPA
27/11/2019

Issued by: Paul Waite Associates Ltd
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Tel:
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Client: Vic Craven

Our Ref: 19205-PWA-00-XX-RP-C-1000-P01

Project: Proposed Extension to existing bakery, Bothams, Whitby

Report: Drainage Strategy

Status: Preliminary

Date: 01/11/2019

Document Production Record

Issue Details	Name	Signature
Prepared by:	Beth Lauren Sherburn	
Check By:	Beth Lauren Sherburn	

Document Revision Record

Issue No	Date	Revision Details
P01	01/11/2019	First Issue – For Comment
P02		

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3. SUMMARY AND CONCLUSIONS.....	3

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27/11/2019

Report No: 19205-PWA-00-XX-RP-C-P01

Project Details: Proposed Extension to existing bakery, Bothams Whitby

Date: October 2019



Appendices

- Appendix A - Preliminary Site Layout
- Appendix B - Existing/ Proposed Impermeable Area Plan
- Appendix C - Existing Drainage Plan
- Appendix D - Existing Brownfield Discharge Rate Calculation
- Appendix E - Proposed Attenuation Volume Calculation

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1. INTRODUCTION

Paul Waite Associates have been appointed by Vic Craven to undertake a Drainage Strategy/Suds Assessment for the proposed extension of an Existing Bakery located on the intersection of Enterprise way and Stainsacre Lane. Proposals briefly comprise; extension of current bakery building and, associated infrastructure and areas of hardstanding /parking.

The proposed development site is located off Enterprise Way, Whitby The site is approximately 1.1 miles south of Saltwick Bay

The nearest watercourse to the proposed development site has been identified as an unnamed, ordinary watercourse, a tributary of Spital Beck, this ordinary watercourse is located approximately 411m north east of the proposed development site.

The development site covers an area of approximately 1.193(ha), of this, approximately 0.259 ha is occupied by the current building and associated hardstanding, the development proposals as indicated within 'Appendix A' will induce a further 0.323 ha. The development site is wholly located in Flood Zone 1, Low Probability according to the Environment Agency Flood Risk Map.

2. DRAINAGE STRATEGY

2.1. Surface water drainage

The proposed surface water drainage system should seek to meet the requirements of the NPPF. Additionally, the current building regulations, now requires disposal of new development surface water run off to discharge by infiltration (to ground), to water course or to surface water sewer in that order of priority in relation to the preferred hierarchy for sustainable drainage.

Sustainable Urban Drainage Systems (SUDS) should also be used wherever possible to mimic as far as practicable the natural run off regime, improve water quality, reduce run-off volume and attenuate peak flows. These should be designed in accordance with the current guidance, CIRIA C753 'The SuD's Manual'.

Following study of both an environmental Appraisal and Preliminary Site investigation undertaken by Dunelm Geotechnical, it is noted that made ground was encountered down to a depth of 1.2m below ground level, firm and stiff clays were also encountered, down to a depth of at least 4.45m below ground level however it is understood following desktop study that permeability is expected to be low as superficial geology is made up of glacial till, clays and drift deposits. The solid geology underlying the site comprises Jurassic Long Nab Member Mudstone. It is therefor considered that ground conditions and geology observed within this site preclude the use of soakaways. Further to this it is noted within the NYCC SUDS Design Guidance Document 2018 that it must be demonstrated that ground water at the

development site remains a minimum of 1m below the base of any soakaway, following review of the Aforementioned GeoEnvironmental Appraisal undertaken April 2008 by Dunelm Geotechnical and Environmental, it has been noted that Groundwater was observed at 1.2m below ground level within the south-eastern corner of the development site.

To conclude, it is considered that Surface water disposal via infiltration is not a viable option for the proposed development.

If infiltration methods do not prove feasible, the nearest watercourse to the site is the aforementioned, unnamed, ordinary watercourse located approximately 411m north east of the proposed development site. Due to the proximity of the watercourse it would not be feasible to discharge surface water from the site by this means. In order to make a connection it would be required to cross a significant proportion of third-party land.

Therefore we conclude that this is not a viable method for the discharge of surface water.

Further to the above, it is considered that surface water should be discharged at a restricted rate into the public sewer network. Records of the public sewer are not currently held, however these will be appended within this report upon receipt. It is understood that the existing on site drainage has been designed to facilitate the proposed extension, stubs are present for both the surface and foul water discharge. Please refer to Appendix C for further information.

In accordance with CIRIA SuDS Manual 2015 section 24.5, the following criteria must be met in relation to the peak flow control and volume control applying to surface water discharge. Where a site has been previously developed, there may be an agreement that discharge limits can correspond to rates that exist for the current state of the site, or a proportion of these rates. Subject to agreement. In accordance with Section 24.6.2, the modified rational method has been employed in order to determine the brownfield/existing peak runoff rate. Refer to Appendix D.

Considering the predevelopment scenario for the proposed development site, the current surface water drainage system is discharging surface water into the public sewer at an unrestricted rate. Using both the Modified rational method and hydraulic modelling we have established the existing/current peak discharge for the site, these results can be found tabulated below.

Table 3: Existing Discharge rate

	Modified Rational Method	Micro drainage model simulation
Peak existing flow rate Qp	36l/s	98.6l/s

The proposed surface water attenuation calculation in Appendix E illustrates the attenuation volumes that will be needed to meet the CIRIA SuDS Manual 2015 criteria subject to detailed design. The

attenuation required is likely to be achieved using large diameter pipes or crate systems which are restricted by a flow control device prior to discharge. Surface water attenuation volumes are to be designed to cater for 40% uplift for climate change for the existing and proposed site areas.

SUDS will be incorporated into the development using a surface water storage system to attenuate the flows with flow controls downstream, to limit flows to the lower established Qp discharge rate of 36l/s with an allowance for climate change (40%). This 40% uplift should be applied to all rainfall estimates in accordance with the updated NPPF Technical Guidance. All proposed surface water systems should be designed to accommodate the worst case 1 in 30 year storm event without flooding. Furthermore, the worst case 1 in 100 year plus climate change storm event should also be retained on site in an area that will not cause flooding to any existing or proposed buildings. This will provide significant betterment on the predevelopment scenario, by restricting flows in the existing scenario to the lower value ascertained for peak discharge.

The requirement for surface water attenuation/storage will be pro-rata based on the proposed impermeable areas depicted by the proposed site plan. Based on current development proposals it is calculated that 164m³ of storage will be required. This calculation will need to be revisited if further changes are made to current proposals.

In line with current planning requirements and CIRIA guidance, the use of SUDS techniques to assist in the treatment of surface water at source should be considered within developments. Following the SUDS treatment train the source control and treatment stages such as the trapped gullies etc should remove sediment and silt and offer environmental benefits to the quality of the water discharged to the watercourse, swales and basins have the potential to offer increased water quality benefits.

2.2. Foul water drainage

The proposed foul water network should discharge to the public sewer network at an unrestricted rate. The increase in foul flows within the local sewer network will be minimal. During Phase one of the construction works, foul stubs were left on site for future connectivity, these should be utilised for connection. Prior to commencing works on site, the aforementioned foul stubs should be surveyed in order to confirm invert levels are as indicated on the as built/existing drainage plan enclosed within Appendix C.

2.3. Maintenance Requirements

Following development, the developer will have the responsibility to ensure that continued inspection and maintenance of the of the existing private drainage and SuDs features is undertaken by suitably qualified professional

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3. SUMMARY AND CONCLUSIONS

All proposed surface water systems should be designed to accommodate the worst case 1 in 30 year storm event without flooding, the worst case 1 in 100 year plus 40% climate change storm event, volumes should be retained on site.

Peak discharge to be restricted to the lower value of the established range for Q_p in the predevelopment scenario, with an allowance of 40% for climate change within the proposed surface water attenuation system.

164m³ of surface water attenuation storage will be required, this caters for the 1 in 100 year storm event with an allowance for 40% climate change.

Suds techniques should be provided, where possible, to treat the surface water run-off from the site at source, prior to any discharge off site.

The proposed drainage strategy should utilise flow control devices and attenuation structures to manage the peak rate of surface water runoff from the development, restricting this to 36l/s. Surface water run off introduced by the development will be prohibited from leaving the site by introducing falls to direct run off into drainage channels, gully's or swales. Therefore, the development will not cause any increased flood risk downstream of the site or to surrounding areas.

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Report No: 19205-PWA-00-XX-RP-C-P01

Project Details: Proposed Extension to existing bakery, Bothams Whitby

Date: October 2019



Appendix A

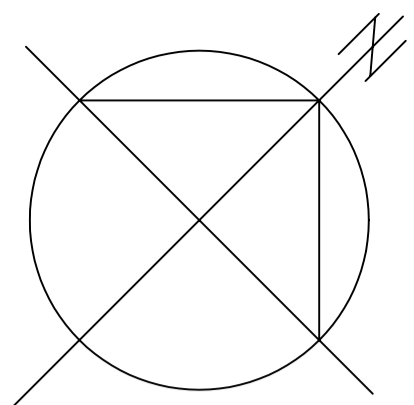
Preliminary Site Layout

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27/11/2019

ENTERPRISE WAY

Site Access



NYMPA
27/11/2019

AMENDED

PARKING IN GRASS CRETE PAVING

PARKING IN GRASS CRETE PAVING

TURNING

PARKING 31No

CYCLES/
M/CYCLES

STAFF PARKING 14No

COACH ACCESS

EXISTING UNIT
836m² (9000 sq.ft.) FOOTPRINT

Staff Entrance

COACH TURNING

Public Entrance

COACH PARKING

NEW UNIT
1705m² (18350 sq.ft.) FOOTPRINT

EXTERNAL SEATING AREA

SERVICE YARD
(existing)

CHILDRENS PLAY AREA

External Store

Personnel Gate

SITE FOR FUTURE 836m² (9000 sq.ft.) FOOTPRINT
(existing)

PROPOSED NEW BAKERY UNIT
ENTERPRISE WAY
WHITBY BUSINESS PARK

SITE LAYOUT PLAN
SCHEME D

Scale: 1:200@ A1 Date 02:03:16 No. 1897/01F

EXISTING PLANTING TO REMAIN

PUBLIC FOOTPATH 30.43/655

WIND TURBINE

CRAVEN
DESIGN
partnership
Architectural Services

Lairgill Lodge
Mount Pleasant
High Bentham
Lancaster
LA2 7JA

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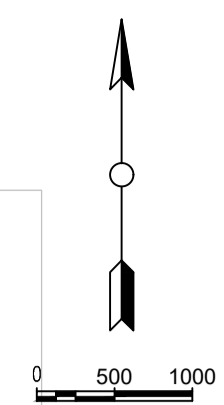
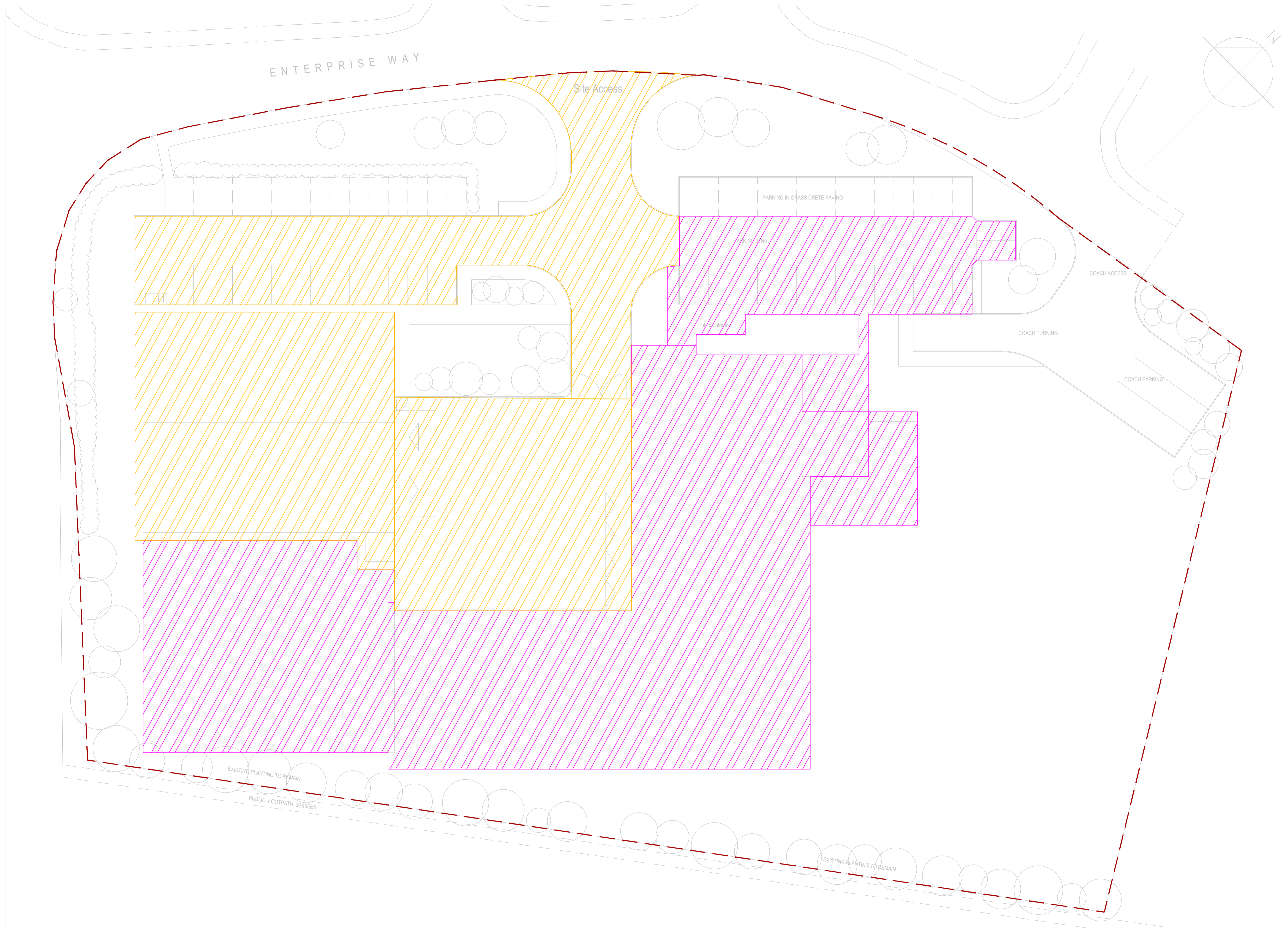
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Appendix B

Existing / Proposed Impermeable Area Plan

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AREA	IMPERMEABLE CATCHMENT AREA, m ² (ha)
PROPOSED IMPERMEABLE	3233m ² (0.323ha)
EXISTING IMPERMEABLE	2599m ² (0.259ha)
TOTAL IMPERMEABLE	5832m ² (0.583ha)

*TOTALS FOR HECTARES (ha) AND METERS SQUARED (m²) DIFFER SLIGHTLY DUE TO ROUNDING AND ACCUMULATION OF INDIVIDUAL AREAS.

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27/11/2019

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Rev	Date	Remarks	Drawn	Chk'd

Client: **BOTHAMS BAKERY**

Project: **PROPOSED EXTENSION BOTHAMS WHITBY**

Title: **IMPERMEABLE AREA PLAN**

Size	Scale	Designed	Checked	Date
A1	1:200	JLE	BLS	OCT 19

Drawing Status: **PRELIMINARY**

Job Number	Originator	Zone	Level	Type	Role	Drawing No.	Rev
19205	PWA	00	XX	DR	C	1000	P01

Report No: 19205-PWA-00-XX-RP-C-P01

Project Details: Proposed Extension to existing bakery, Bothams Whitby

Date: October 2019

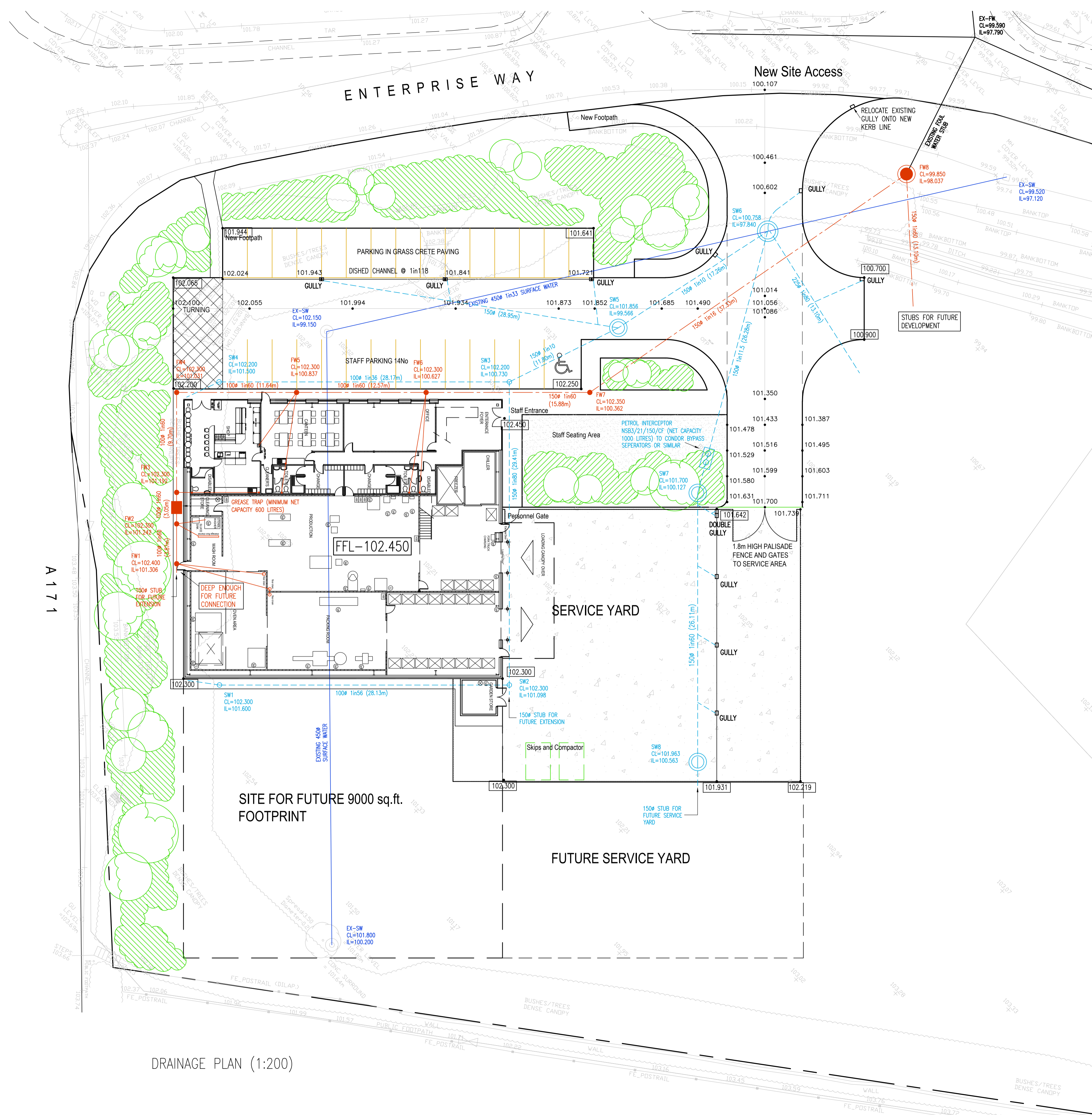


Appendix C

Existing / As Built Drainage Plan

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A 1 7 1

DRAINAGE PLAN (1:200)

B FINAL CONSTRUCTION ISSUE		18.12.08
A DRAINAGE LAYOUT REVISED, AND GREASE TRAP ADDED		19.08.08
Rev	Remarks	Date
<p style="text-align: center;">BARNFIELD CONSTRUCTION</p> <p style="text-align: center;">PROPOSED NEW BAKERY ENTERPRISE WAY WHITBY BUSINESS PARK</p> <p style="text-align: center;">DRAINAGE PLAN</p>		
Date	Drawn By	Checked By
11/07/08	RTM	08011-C-51
uk	CONSTRUCTION	1:200
Scale	Sheet	Drawing Number
	A1	B

Report No: 19205-PWA-00-XX-RP-C-P01

Project Details: Proposed Extension to existing bakery, Bothams Whitby

Date: October 2019



Appendix D

Existing Brownfield Discharge rate calculation

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27/11/2019



Summit House, Riparian Way, The Crossings
Cross Hills, Keighley, West Yorkshire, BD20 7BW

19205-PWA-00-XX-CA-C-1002

Bothams, Whitby

Run-off Analysis of existing Impermeable Area

REVISION. P01

DESIGNED. BLS

CHECKED. BLS

DATE. 16/10/19

The following analysis has been undertaken to establish the peak discharge from the existing (brownfield) development. The analysis relates peak discharge to contributing area, average rainfall intensity and a dimensionless coefficient. The coefficient is generally termed the 'runoff coefficient' and has a range from 0 (no runoff produced) to 1 (perfect conversion of rainfall intensity). A unit conversion factor of 2.78 is applied to account for the units typically used.

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The Modified Rational Method can be expressed as:

$$Q_p = 2.78 CiA$$

Where:

Qp is the peak discharge

C is a dimensionless coefficient

i is the average rainfall intensity during the time of concentration, 50 mm/hr

A is the contributing catchment area

The impermeable area contributing to the surface water outfall, in the existing scenario is:

0.259 ha

$$Q_p = 36.0 \text{ l/s}$$

Proposed Discharge Rate:

In accordance with North Yorkshire Guidelines for brownfield development the updated NYCC SUDS Guidance 2018 has been considered "Proposed developments that have a mixed land use of previously developed land and undeveloped, undrained land prior to development can benefit from partial brownfield drainage principles. The equivalent area of land that has an existing drainage connection prior to development should be restricted to brownfield peak run off rates however new areas of undrained, greenfield land must be restricted to greenfield runoff rates before discharging off site"

In order to utilise the existing "future" connections which were installed on site upon completion of the construction of Phase one, and mitigate the requirement for two separate Surface Water Systems, QMAX will be restricted to the current Peak discharge for the development site. The current site is not restricted by a flow control feature, and as such, is discharging at an unrestricted rate, as demonstrated by the above calculation; the Modified Rational method has been applied in order to ascertain the Peak Discharge for the development site in the current scenario. Surface water attenuation will be provided in order to cater for the additional flows induced by an increase of impermeable area within the site, with an allowance for 30% climate change, whilst restricting overall site discharge to a maximum rate of 36 l/s.

Report No: 19205-PWA-00-XX-RP-C-P01

Project Details: Proposed Extension to existing bakery, Bothams Whitby

Date: October 2019



Appendix E

Proposed Attenuation Volume Calculation

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Summit House, Riparian Way, The Crossings
Cross Hills, Keighley, West Yorkshire, BD20 7BW

19205-PWA-00-XX-CA-C-1001

Bothams, Whitby

Drainage Attenuation Storage

REVISION P01

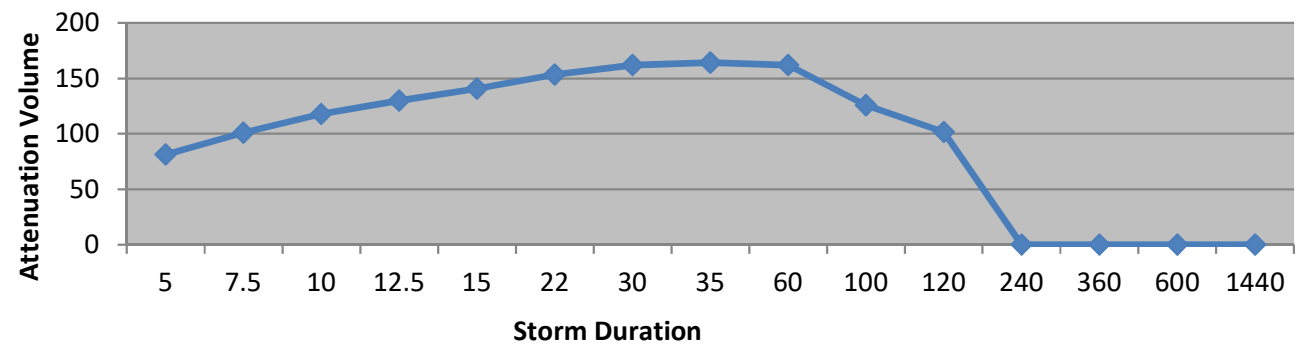
DESIGNED. JLE

CHECKED. BLS

DATE. 14/10/19

Input Data

M5-60 =	19	mm	Fig A.1
r =	0.339		Fig A.2
T =	100	yrs	
C =	2.78		
Max Allowable Flow =	36	l/s	
Contributing Area =	5832	m ²	
Flow/Ha =	61.73	l/s/Ha	
Percentage Increase =	30	%	



Output Data

Duration (Mins)	Z1	M5-D		I mm/h	Increased Rainfall	Qp l/s	Increased Flow	Storage m ³	Percentage Increased Storage m ³
		(M5-60)*Z1	Z2						
5	0.35	6.6	1.83	146	189	236	307	60	81
7.5	0.43	8.3	1.87	123	161	200	260	74	101
10	0.51	9.7	1.90	110	143	179	232	86	118
12.5	0.57	10.8	1.92	99	129	161	209	94	130
15	0.62	11.8	1.94	91	119	148	192	101	141
22	0.71	13.5	1.97	72	94	117	152	107	153
30	0.79	15.0	1.99	60	78	97	126	110	162
35	0.83	15.8	2.00	54	70	88	114	109	164
60	1.00	19.0	2.02	38	50	62	81	95	162
100	1.17	22.3	2.02	27	35	44	57	47	126
120	1.24	23.6	2.02	24	31	39	50	18	102
240	1.54	29.3	1.98	14	19	23	30	0	0
360	1.74	33.1	1.95	11	14	17	23	0	0
600	1.99	37.7	1.91	7	9	12	15	0	0
1440	2.58	49.1	1.82	4	5	6	8	0	0



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27/11/2019

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