Report No: 19/002.01
Revision: 00
Dated: 23rd January 2019

Development of filling station at 245 Barnsley Road Wombwell

Proposed Drainage Scheme

Client:

Dove Retail Ltd
Unit 43
Claycliff Business Park
Cannon Way
Barugh Green
Barnsley
S75 1JU

Prepared by:

joc consultants ltd

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Leathley
Otley
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REVISION HISTORY

Revision	Date	Details
00	23rd January 2019	First issue

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APENDICES

A: Location Plan

B: Topographical survey plan

C: Topographical survey plan

D: Site Layout Plan

E: Calculation of attenuation storage: Table E1

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ABBREVIATIONS

AEP: Annual exceedance probability

AOD: Above Ordnance Datum

CCA: Climate change allowance

FEH: Flood Estimation Handbook

ReFH2: Revitalised Flood Hydrograph model, version 2

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SITE	245 Barnsley Road, Wombwell, Barnsley S73 8DT
PURPOSE OF THIS REPORT	This drainage scheme report is required in connection with a planning application to Barnsley Metropolitan Borough Council for the discharge of Conditions 9 and 12 of the planning permission dated 20th December 2018, issued for application number 2018/0710..
SITE LOCATION AND DESCRIPTION	See Location Plan in Appendix A.
National Grid Reference	439075E, 403990N approx
Gross Site Area	Approximately 1,833m^2.
Ground surface	100% impervious surface.
Geology	Superficial: None recorded. Bedrock: Oaks Rock - Sandstone.
Water bodies	None within the vicinity of the site.
Flood zone	The site is in flood zone 1.
Existing sewers	Yorkshire Water records show: • a 300mm surface water sewer in Barnsley road flowing north-west; and • a 225mm diameter foul sewer in Roy Kilner Road, flowing north-east. See Appendix B.
Existing site drainage	The topographical survey plan shows inspection chambers which appear to discharge into the public sewer in Roy Kilner Road. See Appendix C.
THE DEVELOPMENT	It is proposed to redevelop the site as a road fuel filling station with a shop and a food franchise unit.

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PROPOSED DRAINAGE SCHEME

The proposed drainage scheme is shown on the site layout plan in Appendix D.

WASTE WATER DISPOSAL

Waste water from the shop will discharge to a new foul drain which will connect to the existing foul drainage system discharging to the foul sewer in Roy Kilner Road.

SURFACE WATER DISPOSAL

Infiltration drainage

In view of the potential for pollution of controlled waters, infiltration drainage is not a feasible option for the filling station.

Disposal to a watercourse or other water body

There are no watercourses or water bodies to which the site has direct access and therefore this option is not feasible.

Disposal to the surface water sewer

It is proposed to discharge surface water from the site to the 300mm surface water sewer in Barnsley Road at peak flow rate not exceeding 5 l/s at maximum head, limited by a vortex flow control device.

See Appendix D.

Forecourt drainage

The forecourt drained area is approximately 353.5m^2.

Surface water runoff from the forecourt will be intercepted by 150mm diameter channel drains which discharge to a 10m^3 Class 1 full retention forecourt oil separator fitted with an oil level alarm and automatic closure device. The separator will discharge the treated runoff to the flow control manhole, as shown on the site layout plan.

A non-return valve will be fitted to the outlet pipe from the separator to prevent back-up of water from the flow control manhole.

Rooftop and other hardstanding areas

Surface water runoff from the impervious areas which are not within the forecourt area will be collected in a separate drainage system, also discharging to the flow control manhole.

Attenuation storage

In order to ensure no surface water flooding in a 1% AEP rainfall event, including the effects of climate change, a watertight attenuation storage tank is proposed.

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Climate change

Climate change must be considered over the expected lifetime of the development which, for the development is assumed to be 30 years. Climate change is therefore considered up to the year 2049.

The current guidance on the application of climate change allowances was issued in February 2016 and updated on 3rd February 2017.

The guidance requires the Central and Upper End allowances to be used when assessing the effects of increases to peak rainfall intensities. The allowances apply across the whole of England and in the period 2040 to 2069 are:

- Central allowance: 10%
- Upper end allowance: 20%

Design storage capacity

The storage tank has been designed to accommodate the excess runoff from the 1% AEP rainfall event including a 20% CCA.

Critical storm duration

Runoff volumes have been calculated for various storm durations in order to determine the critical duration. Rainfall depths were obtained for the site from FEH point data and the ReFH2 model.

Figure 2 (see Appendix A) shows the critical duration of the 1% AEP rainfall event including a 20% CCA to be approximately 42 minutes.

Required storage capacity

The required storage for the 1% AEP with 20% CCA is 36m^3 as shown in Figure 2 and Table E1 in Appendix E.

It is proposed to provide a cellular storage tank having the following dimensions:

- Length: 15m
- Width: 5m
- Height: 0.5m
- Voids: 95%

This will provide a gross volume of 37.5m3 and an effective storage volume of 35.63m^3, which is 99% of the required design capacity. As there will be further storage in the drainage system, and as the tank is designed for the upper end CCA, this will be acceptable.

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USE OF REPORT

This report is prepared specifically for Dove Retail Ltd for the purpose of discharging the aforementioned planning conditions and the report may not be used for any other purpose and it may not be assigned to any third party without our written permission.

DISCLAIMER

This Drainage Scheme Report is based on data available at the time of its preparation and JOC Consultants Ltd accepts no liability for the consequences of any changes to or re-assessment of this data in the future.

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APPENDIX A

Figures 1 and 2

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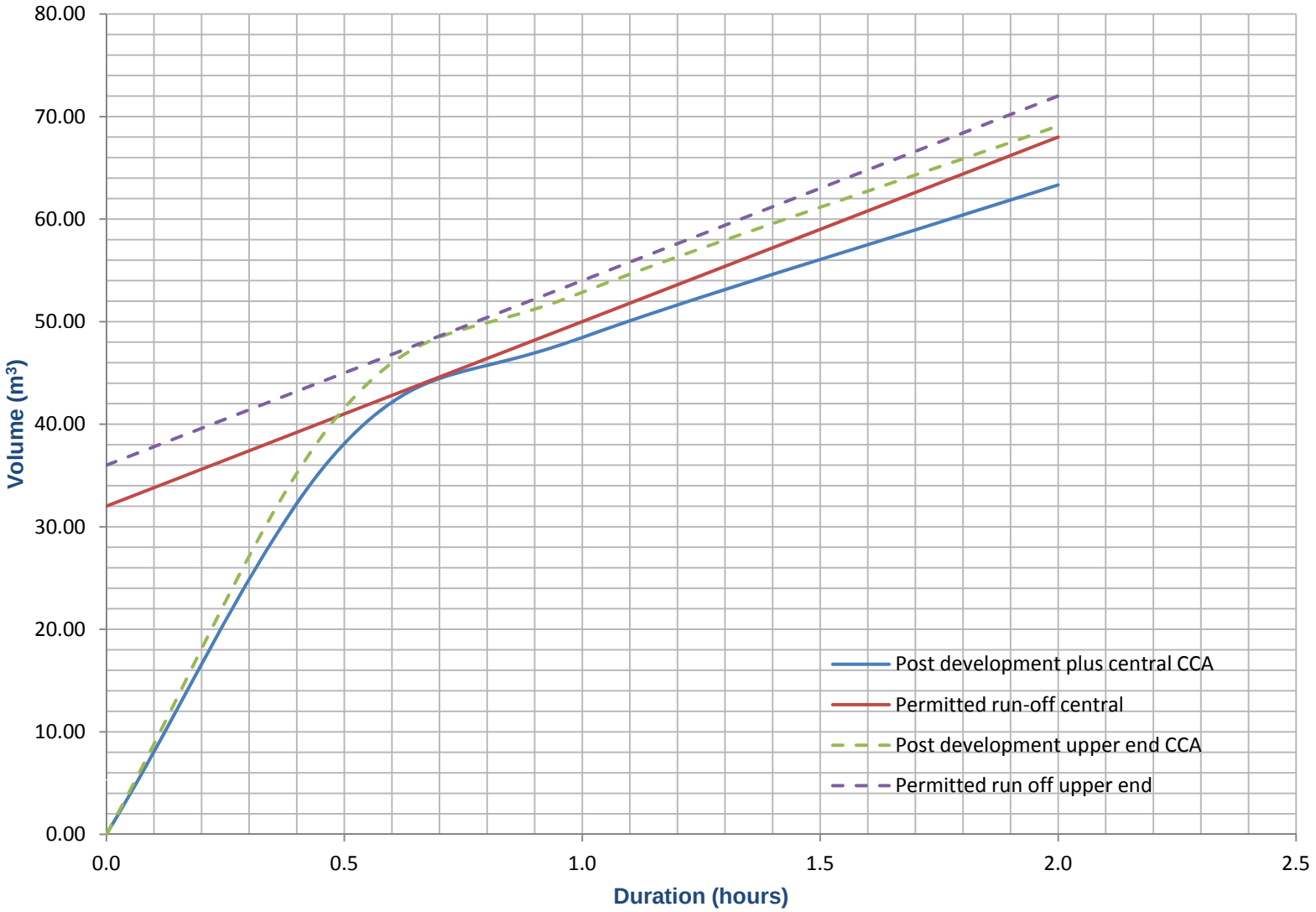


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Promap
LANDMARK INFORMATION GROUP

Figure 1: Location Plan

Figure 2: Surface water run-off from a 1% A.E.P. rainfall event including CCA (post-development)

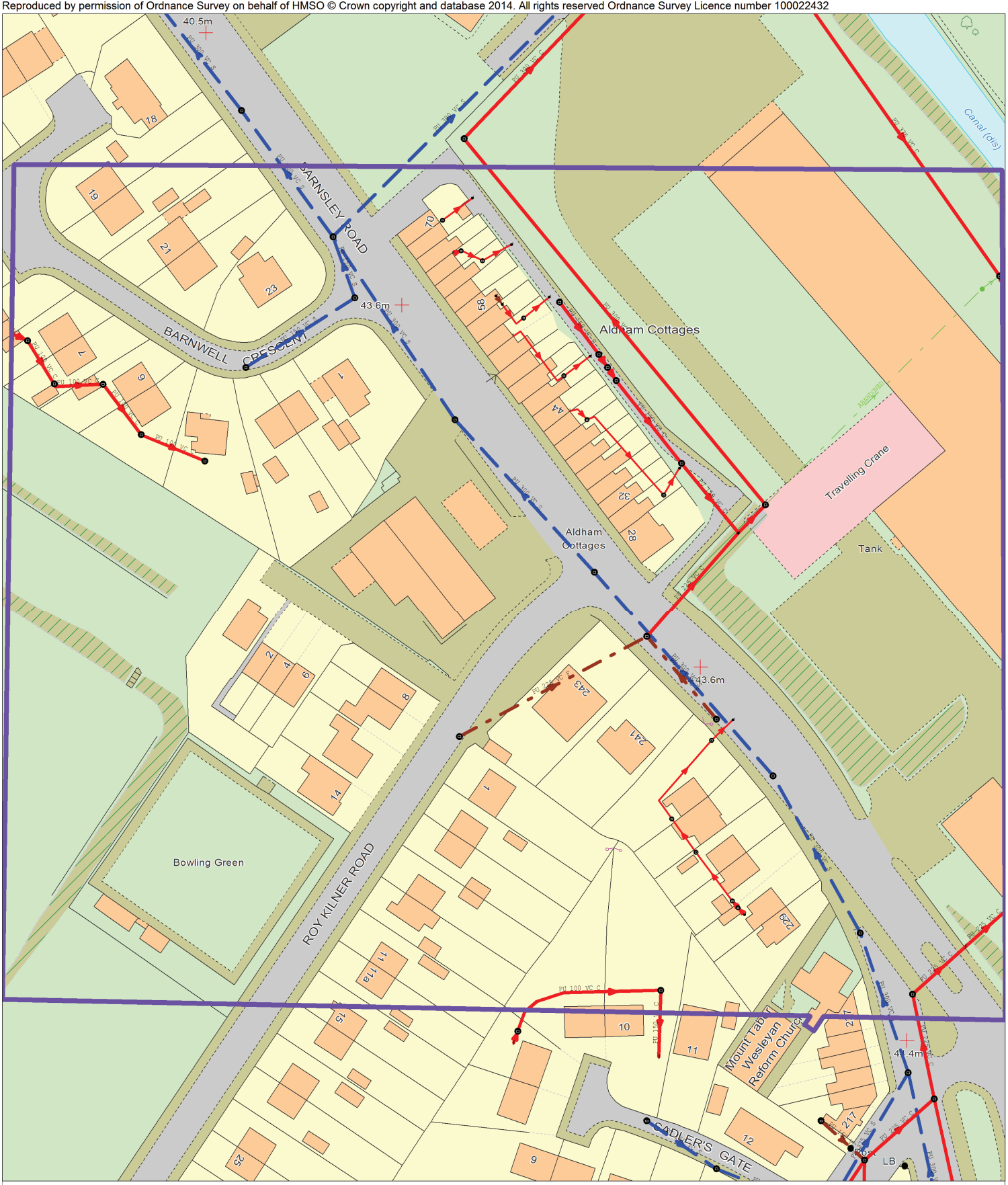


APPENDIX B

Yorkshire Water Sewer Plan

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Public Waste Water Network 30/05/2018 16:40:17 OS Grid Coordinates: 438976 : 403848 Map Name : SE3803NE svcGISSafeMov

Registered Office, Yorkshire Water Services Limited.
Western House, Halifax Road, Bradford BD6 2SZ. Registered in England and Wales No. 2366682

SafeMove
A part of YorkshireWater

APPENDIX C

Topographical Survey Plan

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Station	Easting	Northing	Level
ST01	439087.053	403955.204	44.695
ST02	439099.400	403983.845	43.543
ST03	439094.472	404025.292	43.125
ST04	439042.574	403986.814	47.050
ST01A	439065.007	403977.484	43.906
ST04A	439080.989	404015.435	43.357

404050N 439050E 439100E 404050N 439150E

404000N 404000N

403950N 403950N

BARNSLEY ROAD

ROY KILNER ROAD

BRICK BUILDING

CLADDED BUILDING

CONCRETE

TARMAC

ROUGH TARMAC

ROUGH GRASS

GRASS

OVERGROWN

DILAPIDATED WOOD FENCE

BRICK WALL

BRICK RET WALL

PAVED RET WALL

LOMBRIN PALISADE FENCE HT1.8M

WOOD FENCE HT1.8M

CONC POST WOOD PANEL FENCE HT1.8M

DOLUEDGE

CANOPY

RAMP UP

BRICK PILLAR

STONE COPING

SLOPE

LINE OF METAL RAILS HT 0.8M

FIRE ESCAPE

CHANNEL

ST01 44.695

ST01A 43.906

ST02 43.543

ST03 43.125

ST04 47.050

ST04A 43.357

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ALL SERVICES TO BE FIELD VERIFIED

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THE COORDINATE SYSTEM USED FOR THE PRIMARY CONTROL IS OSGB36(15)

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LOCATION
245 BARNSLEY ROAD, WOMBWELL

CLIENT
ADP ARCHITECTS

LEGEND

AV	AIR VALVE	CC	CONCRETE COVER	FWS	FOUL WATER SEWER	LP	LAMP POST	ST	STOP TAP
B	BOLLARD	CM	CABLE MARKER	G	GULLY	MC	METAL COVER	SV	STOP VALVE
BH	BOREHOLE	CP	CATCH PIT	GV	GAS VALVE	MH	MANHOLE	SWS	SURFACE WATER SEWER
BS	BUS STOP	CTV	CABLE TV LC	HV	HIGH VOLTAGE	MV	MEDIUM VOLTAGE	TL	TRAFFIC LIGHTS
BT	BRITISH TELECOM	DP	DOWN PIPE	IC	INSPECTION COVER	P	POST / POLE	TP	TELEGRAPH POLE
		ECP	ELEC. CABLE PIT	JB	JUNCTION BOX	RE	RODDING EYE	TH	THRESHOLD
		EP	ELEC. POLE/PYLON	KW	KERB WEIR	RS	ROAD SIGN	TWL	TOP OF WALL LEVEL
		ER	EARTH ROD	LB	LITTER BIN	S	STAY	WM	WATER METER
		FH	FIRE HYDRANT	LH	LAMP HOLE	SC	STOP COCK	WO	WASH OUT

SHEET 1 OF 1
SCALE 1 : 200
DRAWN J. G. WHITE (SENIOR SURVEYOR)
CHECKED BY SE
DATE APRIL 2018

LEVEL DATUM GPS
GRID DATUM GPS
DATUM USED GPS

DRAWING NO. 7681/1

APPENDIX D

Site Layout Plan

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BARNSLEY ROAD

ROY KILNER ROAD

entrance

exit

TARMAC

BUS SHELTER

BRICK WALL

TWL 43.84

remove gates

construct new 1.2m dia. manhole in p.c. concrete sections here, to be fitted with hydrobrake outlet to control discharge into existing surface water sewer to maximum 5 litres/sec. at maximum head

outlet pipe from separator to be fitted with non-return valve at the discharge end within new manhole

new Conder 10000 litre Class 1 forecourt separator

existing MH

to exg. 300mm surface water sewer

60000 lt Unleaded

install 2nr. new 75000 lt double skin below ground fuel storage tanks, split as shown

60000 lt Diesel

150mm dia. back up fuel

15000 lt S-UL

15000 lt S-D

offset fills

Adblue

HSD

outline of existing canopy to be removed shown thus

outline of new forecourt canopy

replacement ID sign

ST02 43.543

ST01A 43.906

replace existing wooden boundary fence with new 2m high close boarded acoustic timber fence to Architects details

DILAPIDATED WOOD FENCE

Adblue tank

staff parking

outline of existing buildings to be removed shown thus

new kerb stops

vent from separator

silt trap

access turret

food franchise

customer parking

15 x 5 x 0.5m below ground cellular storage tank, fully watertight

utility bay

air/water

vacuum

high speed charging point

extent of new concrete post and timber palisade boundary fence, 1.8m high, to Architects details

OIG HEDGE

general sales

sales counter

lobby

office

ATM

accessible wc

staff wc

stockroom

deliveries

bins

bins & secure compound

new brick retaining wall built along this line

PAVED RET WALL

BRICK RET WALL

TWL 46.50

LOCHRIN PALISADE FENCE HT1.8M

WOOD FENCE HT1.8M

CHANNEL

CONC POST WOOD PANEL FENCE HT1.8M

existing connection into foul sewer

to exg. 225mm foul sewer

existing IC

BT

FL450 IC — 100mm dia. new surface water drains shown thus (except where indicated larger) new inspection chambers where shown with Fibrelite lid type as indicated

FL60 IC — 100mm dia. new foul drains shown thus (new inspection chambers where shown with Fibrelite lid type as indicated)

FL60 IC — 100mm dia. new forecourt drains shown thus (new inspection chambers where shown with Fibrelite lid type as indicated)

Marshalls Birco 100 channel drainage system fitted with cast iron slotted gratings (D400 load class)

Marshalls Birco 100 junction/outfall unit

Marshalls Birco 100 in-line outfall unit

debonded construction joint to details & spec.

100mm gauges or data duct (except where shown larger)

100mm electrical duct

150mm electrical duct

Fibrelite sump for electrical services to spec. (chamber/lid reference as indicated on plan)

Fibrelite sump for gauges equipment to spec. (chamber/lid reference as indicated on plan)

LP 5m galv. steel floodlight pole for perimeter lighting

E earth rod 3m copper earthing rod approx. location where shown

150mm twin wall duct for main electric supply

water supply pipework

43.700 denotes new finished levels to pump islands etc.

46.650 denotes new finished levels to forecourt areas

46.33 denotes existing levels (generally to be maintained except where new finished levels are shown)

All fuel lines & vent. pipework shown on A+DP drawing 18048D-25-T01

new full build up SMA macadam surfacing shown thus to spec.

concrete surfacing to forecourt shown thus to spec.

block paved pathway to spec.

NB.
all ducts to be min. 500mm depth below finished forecourt level

location plan 1/1250



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rev.	description	date	drawn	appvd
C09	Drainage layout revised	23.01.19	AS	AS
C08	Tank configuration revised	22.01.19	AS	AS
C07	Tank vents added.	18.01.19	AS	AS
P06	Channel drain added adjacent offset fills. Shop layout updated.	15.01.19	AS	AS
P05	Jet washes omitted, additional high speed charging points, new boundary fencing	23.08.18	AS	AS
P04	Kiosk footpath reduced, minor alterations to forecourt layout	22.05.18	AS	AS
P03	Kiosk footpath increased	17.05.18	AS	AS
P02	Revised pump layout	15.05.18	AS	AS
P01	Drawing originated	04.05.18	AS	AS

project: proposed redevelopment of site to reinstate petrol filling station

at: 245, Barnsley Road, Wombwell Barnsley

for: Dove Retail Ltd

title: site plan

number: 18048D-20-C09

scale: 1:100

size: A1

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RIBA Chartered Practice

APPENDIX E

Table E1: Post-development rapid response run-off from impervious area (1% A.E.P. rainfall including upper end CCA)

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Table E1: Post-development rapid response run-off from impervious area (1% A.E.P. rainfall including upper end CCA)

Duration	Rainfall	Area (m^2)			Volume (m^3)			Controlled run off	Tangent
hours	at Site mm	Impervious Area (ha)	Pervious Area (ha)	Total Area (ha)	Impervious Area	Pervious Area	Run-off Volume	m^3	m^3
		C_v Cv	C_v 0.0%					Controlled rate (l/s) 5.0	
0.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	0.00	36.00
0.5	22.7	0.18	0.00	0.18	41.57	0.00	41.57	9.00	45.00
1.0	28.8	0.18	0.00	0.18	52.86	0.00	52.86	18.00	54.00
2.0	37.7	0.18	0.00	0.18	69.09	0.00	69.09	36.00	72.00
3.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	54.00	90.00
4.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	72.00	108.00
6.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	108.00	144.00
8.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	144.00	180.00
12.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	216.00	252.00
18.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	324.00	360.00
24.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	432.00	468.00
36.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	648.00	684.00
48.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	864.00	900.00
72.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	1296.00	1332.00
96.0	0.0	0.18	0.00	0.18	0.00	0.00	0.00	1728.00	1764.00
144.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	2592.00	2628.00
192.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	3456.00	3492.00
								Total Storage Requirement (m^3)	36.00

End of Report