







LEGEND

1:126,172

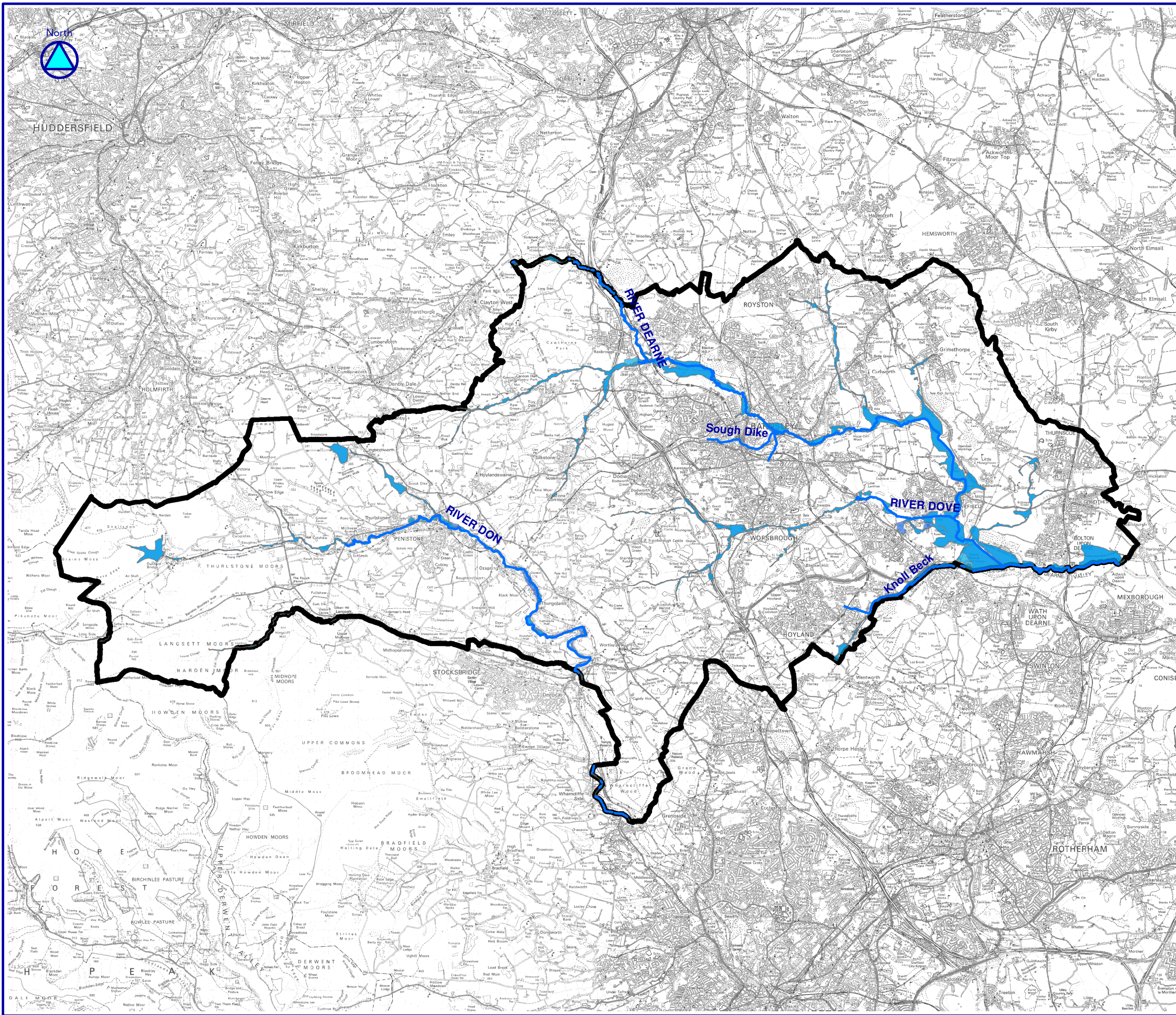
-  Barnsley MBC Boundary
-  Main River
- Historical Flood Extents**
-  June 2007
-  Autumn 2000
-  January 1982
-  March 1947

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MAP 2

HISTORICAL FLOOD EVENTS



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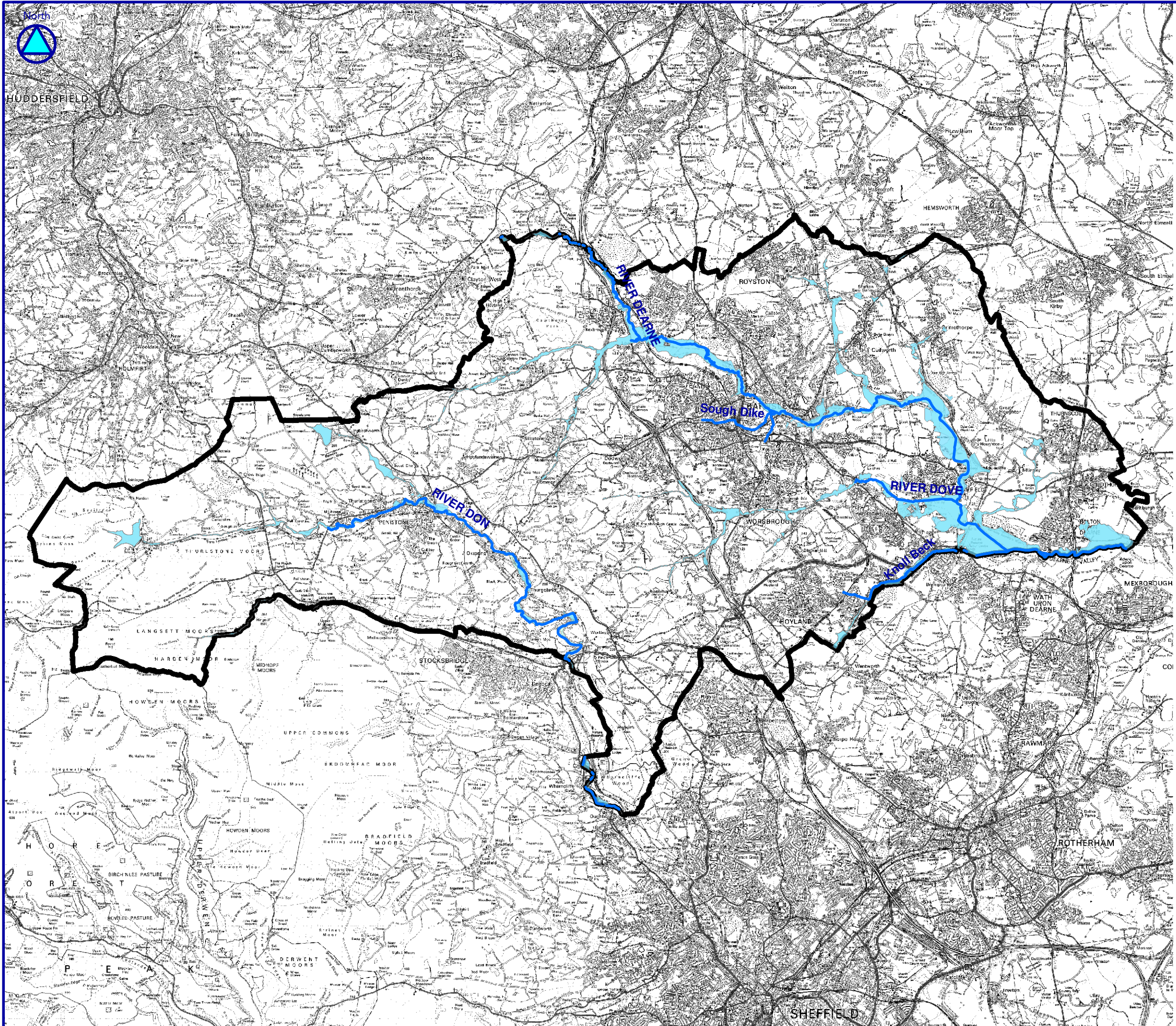
-  Main River
-  Flood Zone 3
-  Barnsley MBC Boundary

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

MAP 3

FLOOD ZONE 3



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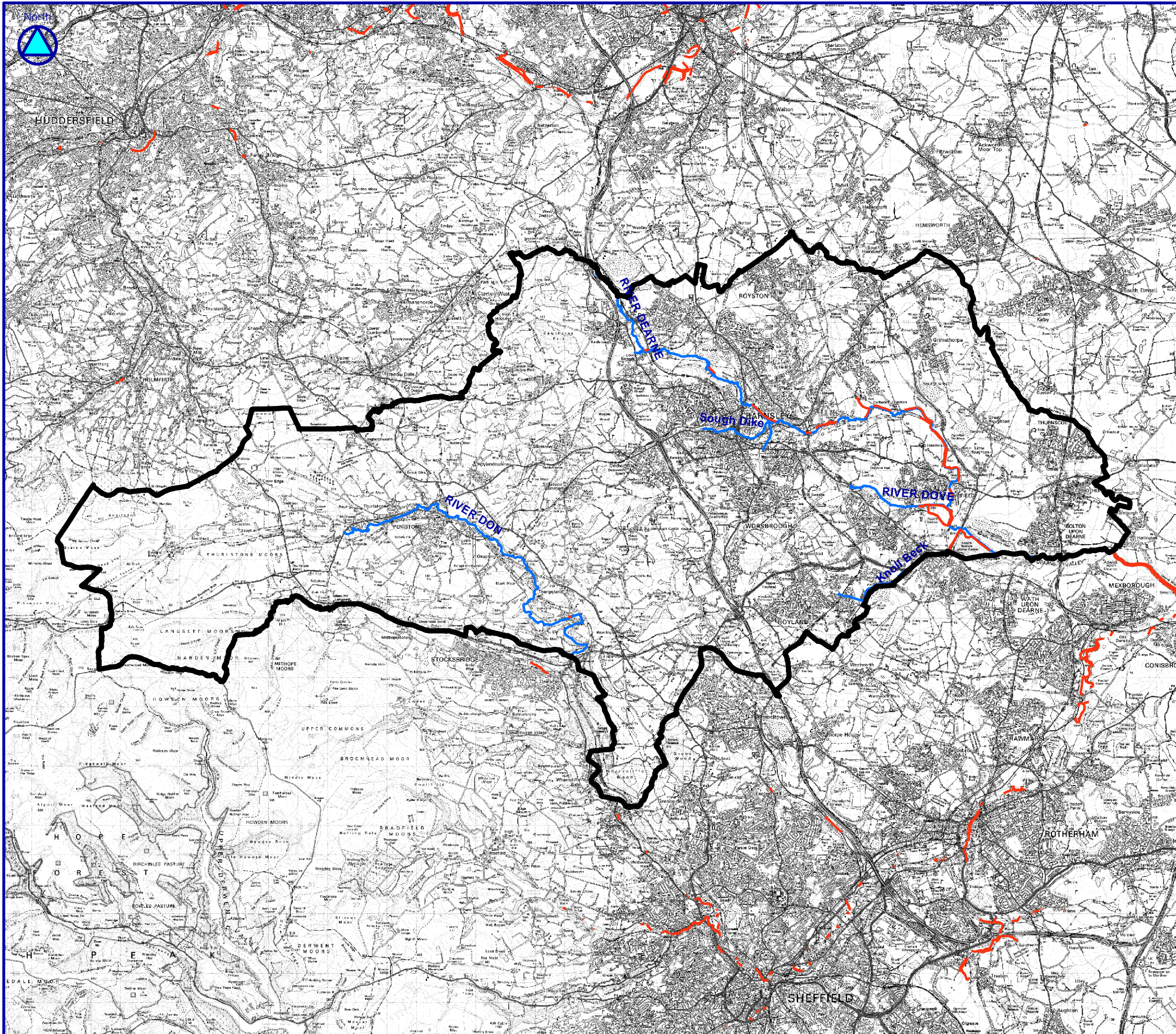
-  Main River
-  Flood Zone 2
-  Barnsley MBC Boundary

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MAP 4

FLOOD ZONE 2



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1:126,172

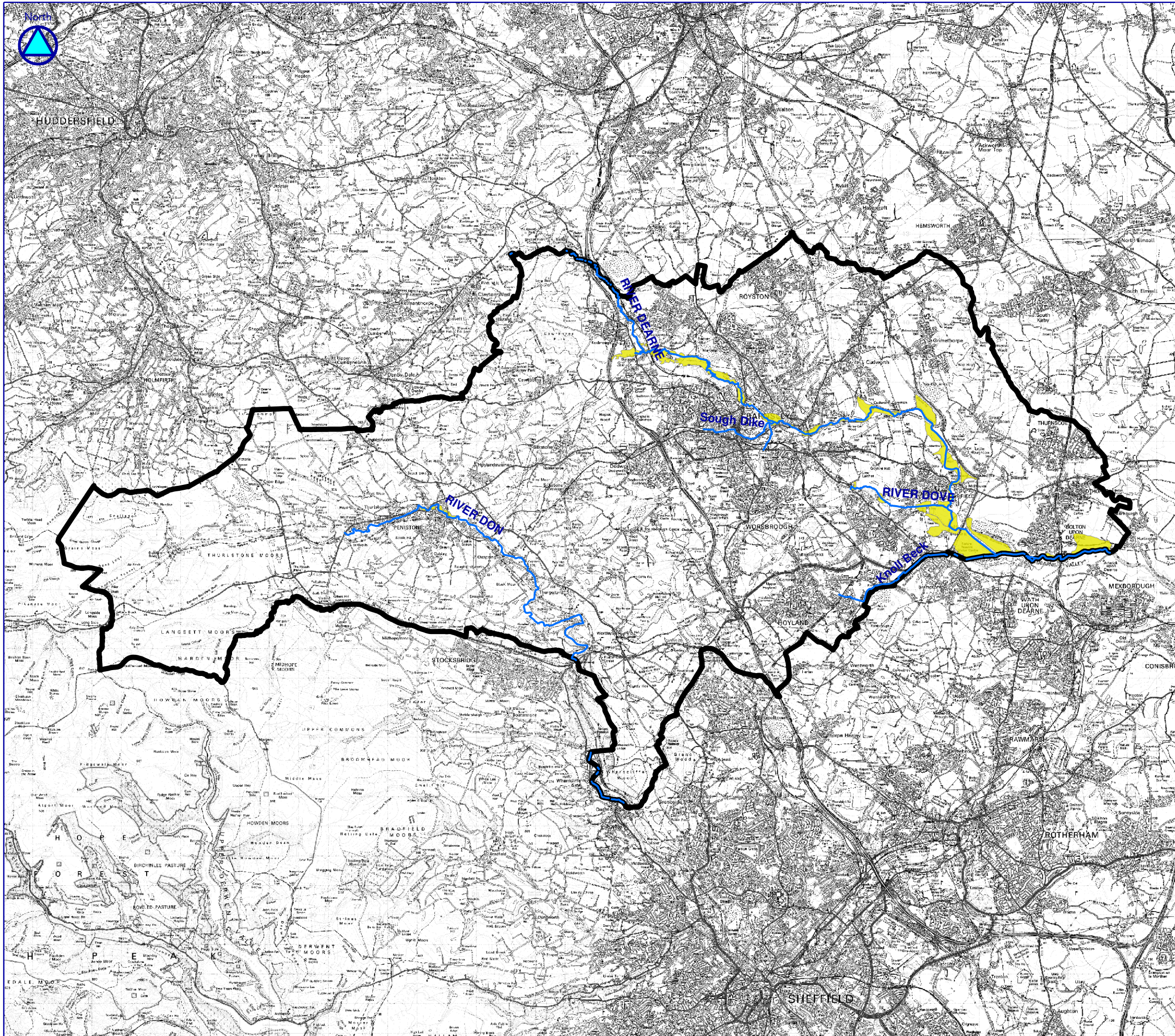
-  Barnsley MBC Boundary
-  Main River
-  Existing Flood Defences
-  Flood Defence

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MAP 5

EXISTING DEFENCES



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-  Main River
-  Barnsley MBC Boundary
-  Functional Floodplain (FZ3b)

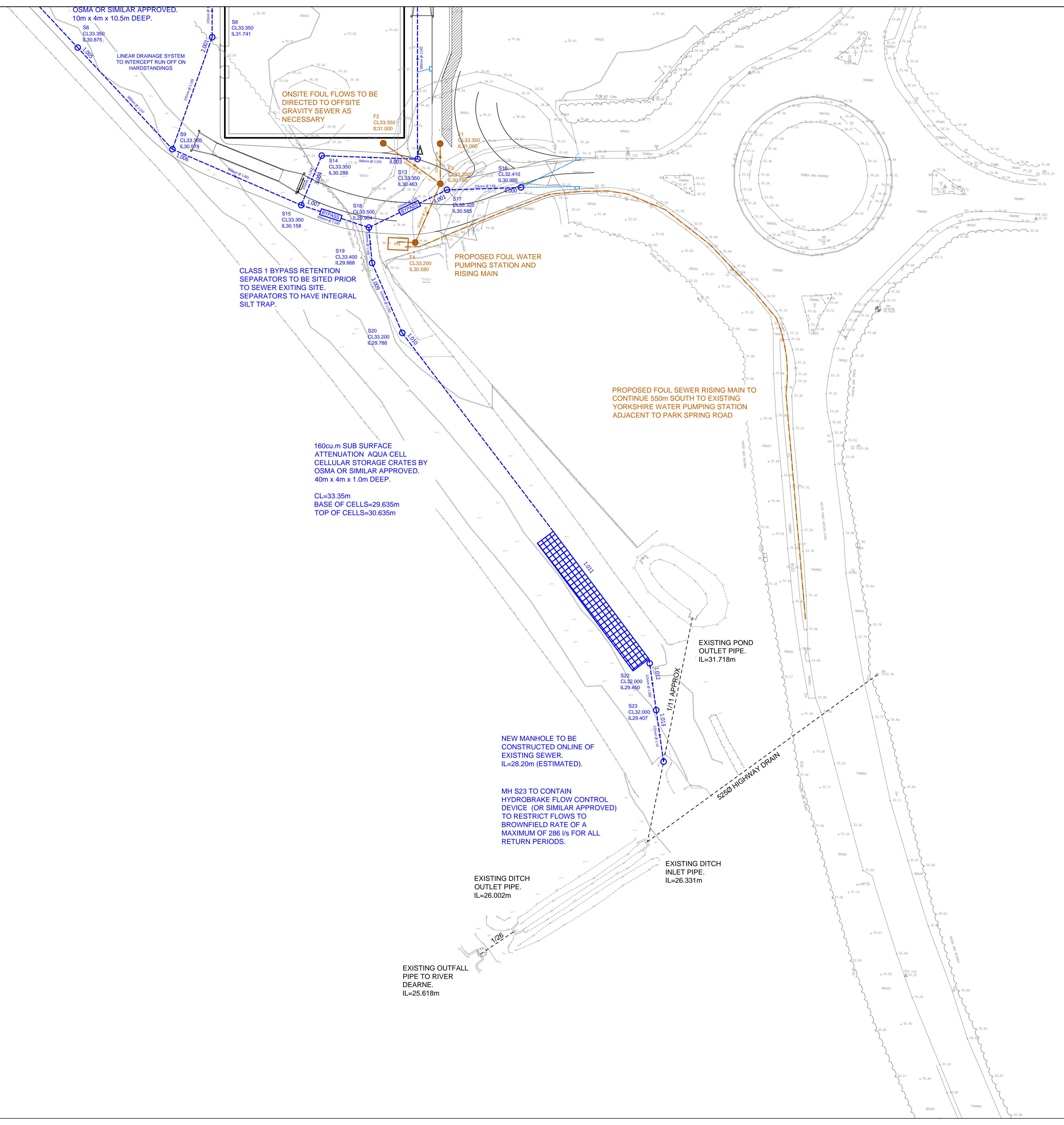
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MAP 6

FUNCTIONAL FLOODPLAIN (FZ3b)

Appendix 6 – Detailed Drainage Design



OSMA OR SIMILAR APPROVED.
10m x 4m x 10.5m DEEP.

LINEAR DRAINAGE SYSTEM
TO INTERCEPT RUN OFF ON
HARDSTANDINGS

ONSITE FOUL FLOWS TO BE
DIRECTED TO OFFSITE
GRAVITY SEWER AS
NECESSARY

CLASS 1 BYPASS RETENTION
SEPARATORS TO BE SITED PRIOR
TO SEWER EXITING SITE.
SEPARATORS TO HAVE INTEGRAL
SILT TRAP.

PROPOSED FOUL WATER
PUMPING STATION AND
RISING MAIN

PROPOSED FOUL SEWER RISING MAIN TO
CONTINUE 550m SOUTH TO EXISTING
YORKSHIRE WATER PUMPING STATION
ADJACENT TO PARK SPRING ROAD

160cu.m SUB SURFACE
ATTENUATION AQUA CELL
CELLULAR STORAGE CRATES BY
OSMA OR SIMILAR APPROVED.
40m x 4m x 1.0m DEEP.

CL=33.35m
BASE OF CELLS=29.635m
TOP OF CELLS=30.635m

EXISTING POND
OUTLET PIPE.
IL=31.718m

NEW MANHOLE TO BE
CONSTRUCTED ONLINE OF
EXISTING SEWER.
IL=28.20m (ESTIMATED).

MH S23 TO CONTAIN
HYDROBRAKE FLOW CONTROL
DEVICE (OR SIMILAR APPROVED)
TO RESTRICT FLOWS TO
BROWNFIELD RATE OF A
MAXIMUM OF 286 l/s FOR ALL
RETURN PERIODS.

EXISTING DITCH
OUTLET PIPE.
IL=26.002m

EXISTING DITCH
INLET PIPE.
IL=26.331m

EXISTING OUTFALL
PIPE TO RIVER
DEARNE.
IL=25.618m

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consent.

CELLULAR STORAGE SYSTEM

Attenuation crates indicated are based upon
AquaCell Core and Plus units by Osma Wavin.
Installation of crates to be in strict accordance with
manufacturers requirements/details.

Attenuation system to have three additional
Inspection Chambers and single layer spines of
AquaCell Plus (centrally and along each outer edge)
in order to assist with future inspection and
maintenance needs. Details in accordance with
manufacturers guidance.

Attenuation system to be wrapped in suitable
impermeable geomembrane and be surrounded in
100mm min of coarse sand or non-angular granular
material. Additional wrap of geo-textile fabric to be
introduced followed by a further 100mm min of
coarse sand or non-angular granular material.

All in accordance with manufacturers specification
and guidance.

P3	01.15	Drainage revised to suit revised masterplan.	LPA	SL
P2	09.14	Foul drainage revised to suit offsite solution.	LPA	SL
P1	05.14	Minor amendments following initial Draft.	LPA	SL
Rev	Date	Description	Drawn	Checked

ABLEY LETCHFORD PARTNERSHIP
Consulting Engineers
Avebury 2, Elcot Park, Elcot Lane
Marlborough, Wiltshire SN8 2BG
www.alpce.co.uk Tel: 01672 519196

Client
ENZYGO LIMITED

Project
**LAND OFF HOUGHTON
MAIN COLLIERY R'BOUT
PARK SPRINGS, BARNSELY**

Title
**DRAINAGE
GENERAL ARRANGEMENT
SHEET 2 OF 2**

Status
FOR PLANNING

Scale	Date	Drawn	Checked
1:500 @ A1	APRIL 14	LPA	SL
Drawing No	A012-02		Revision
			P3

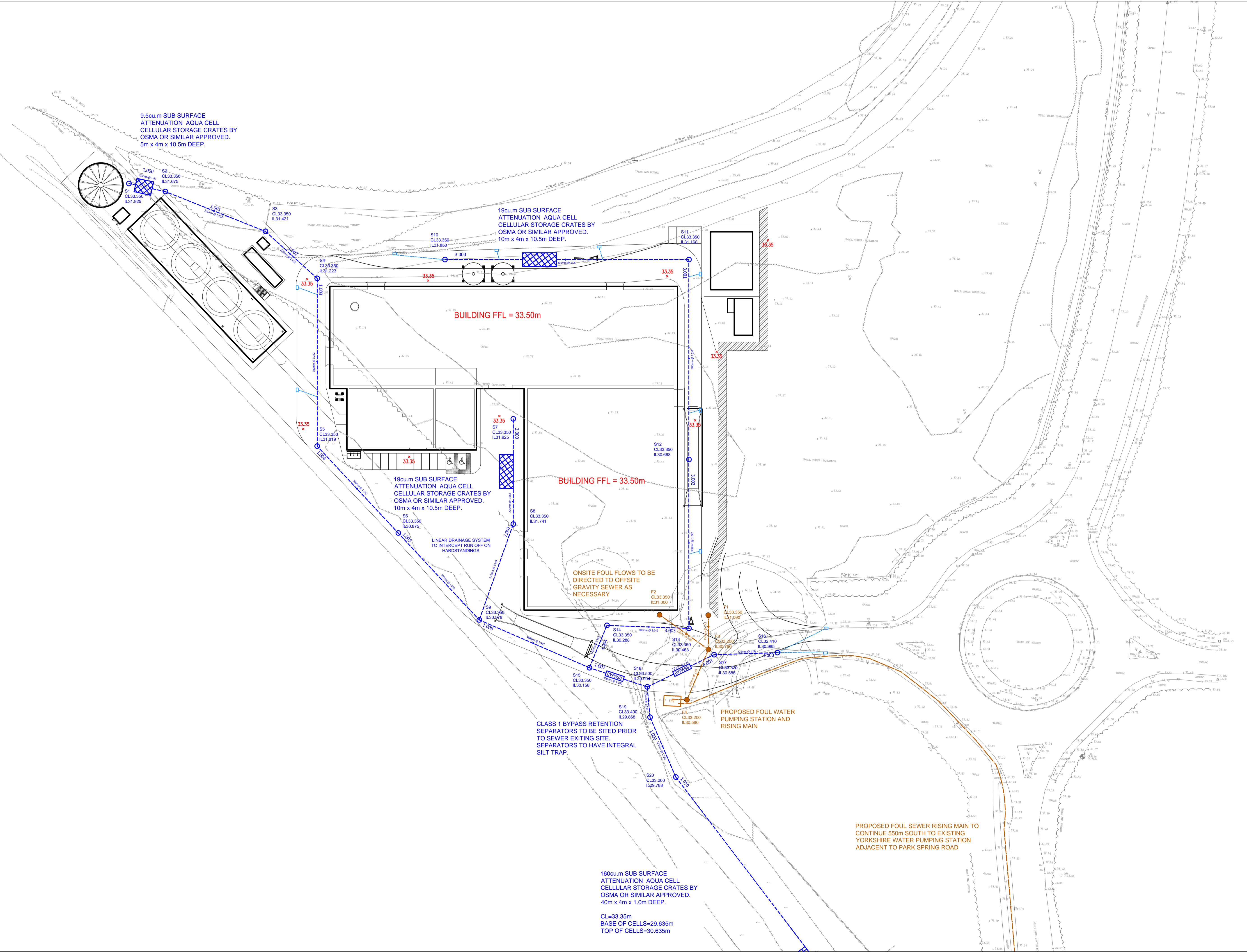
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Attenuation system to have three additional Inspection Chambers and single layer spines of AquaCell Plus (centrally and along each outer edge) in order to assist with future inspection and maintenance needs. Details in accordance with manufacturers guidance.

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www.alpce.co.uk Tel: 01672 519196


Client
ENZIGO LIMITED

Project
LAND OFF HOUGHTON MAIN COLLIERY R'BOUT PARK SPRINGS, BARNSELY

Title
DRAINAGE GENERAL ARRANGEMENT SHEET 1 OF 2

Status
FOR PLANNING

Scale	Date	Drawn	Checked
1:500 @ A1	APRIL 14	LPA	SL
Drawing No	A012-01		Revision
			P3

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XP Solutions	Network 2014.1.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm











Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	5	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.000	Minimum Backdrop Height (m)	0.000
Ratio R	0.355	Maximum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	50	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
S1.000	10.864	0.250	43.5	0.028	5.00	0.0	0.600	o	225	
S1.001	31.537	0.254	124.2	0.043	0.00	0.0	0.600	o	225	
S1.002	20.713	0.123	167.9	0.084	0.00	0.0	0.600	o	225	
S1.003	49.205	0.203	241.9	0.129	0.00	0.0	0.600	o	300	
S1.004	34.862	0.144	241.9	0.114	0.00	0.0	0.600	o	300	
S1.005	34.862	0.147	237.1	0.071	0.00	0.0	0.600	o	300	
S2.000	30.893	0.184	168.2	0.177	5.00	0.0	0.600	o	225	
S2.001	29.814	0.200	149.0	0.135	0.00	0.0	0.600	o	225	
S1.006	35.230	0.088	401.4	0.086	0.00	0.0	0.600	o	450	
S3.000	71.576	0.682	105.0	0.141	5.00	0.0	0.600	o	300	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.09	31.925	0.028	0.0	0.0	0.0	1.99	79.1	3.8
S1.001	50.00	5.54	31.675	0.071	0.0	0.0	0.0	1.17	46.6	9.6
S1.002	50.00	5.88	31.421	0.155	0.0	0.0	0.0	1.01	40.0	21.0
S1.003	50.00	6.70	31.223	0.284	0.0	0.0	0.0	1.01	71.1	38.5
S1.004	50.00	7.27	31.019	0.398	0.0	0.0	0.0	1.01	71.1	53.9
S1.005	50.00	7.85	30.875	0.469	0.0	0.0	0.0	1.02	71.9	63.5
S2.000	50.00	5.51	31.925	0.177	0.0	0.0	0.0	1.01	40.0	24.0
S2.001	50.00	5.98	31.741	0.312	0.0	0.0	0.0	1.07	42.5	42.2
S1.006	50.00	8.43	30.578	0.867	0.0	0.0	0.0	1.01	160.4	117.4
S3.000	50.00	5.78	31.850	0.141	0.0	0.0	0.0	1.53	108.5	19.1

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
S3.001	58.658	0.500	117.3	0.181	0.00	0.0	0.600	o	300	
S3.002	49.548	0.205	241.6	0.137	0.00	0.0	0.600	o	300	
S3.003	24.058	0.100	241.6	0.035	0.00	0.0	0.600	o	300	
S3.004	13.442	0.056	241.6	0.053	0.00	0.0	0.600	o	375	
S1.007	17.878	0.179	100.0	0.031	0.00	0.0	0.600	o	450	
S4.000	26.547	0.400	66.4	0.085	5.00	0.0	0.600	o	225	
S4.001	14.639	0.381	38.4	0.000	0.00	0.0	0.600	o	225	
S1.008	9.065	0.036	250.0	0.000	0.00	0.0	0.600	o	525	
S1.009	19.827	0.079	250.0	0.000	0.00	0.0	0.600	o	525	
S1.010	56.497	0.188	300.0	0.000	0.00	0.0	0.600	o	525	
S1.011	44.910	0.150	300.0	0.000	0.00	0.0	0.600	o	525	
S1.012	13.030	0.043	300.0	0.000	0.00	0.0	0.600	o	525	
S1.013	13.030	0.931	14.0	0.000	0.00	0.0	0.600	o	525	

Network Results Table


PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S3.001	50.00	6.45	31.168	0.322	0.0	0.0	0.0	1.45	102.5	43.6
S3.002	50.00	7.27	30.668	0.459	0.0	0.0	0.0	1.01	71.2	62.1
S3.003	50.00	7.67	30.463	0.493	0.0	0.0	0.0	1.01	71.2	66.8
S3.004	50.00	7.86	30.288	0.546	0.0	0.0	0.0	1.16	128.3	74.0
S1.007	50.00	8.57	30.158	1.444	0.0	0.0	0.0	2.03	323.4	195.6
S4.000	50.00	5.28	30.985	0.085	0.0	0.0	0.0	1.61	63.9	11.5
S4.001	50.00	5.39	30.585	0.085	0.0	0.0	0.0	2.12	84.2	11.5
S1.008	50.00	8.68	29.904	1.529	0.0	0.0	0.0	1.41	305.7	207.1
S1.009	50.00	8.92	29.868	1.529	0.0	0.0	0.0	1.41	305.7	207.1
S1.010	50.00	9.65	29.788	1.529	0.0	0.0	0.0	1.29	278.8	207.1
S1.011	50.00	10.23	29.600	1.529	0.0	0.0	0.0	1.29	278.8	207.1
S1.012	50.00	10.40	29.450	1.529	0.0	0.0	0.0	1.29	278.8	207.1
S1.013	50.00	10.43	29.407	1.529	0.0	0.0	0.0	6.01	1300.9	207.1

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Date 21/01/2014 File OUTLINE V3.MDX		Designed by SL Checked by LA
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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	33.350	1.425	Open Manhole	1200	S1.000	31.925	225				
S2	33.350	1.675	Open Manhole	1200	S1.001	31.675	225	S1.000	31.675	225	
S3	33.350	1.929	Open Manhole	1200	S1.002	31.421	225	S1.001	31.421	225	
S4	33.350	2.127	Open Manhole	1200	S1.003	31.223	300	S1.002	31.298	225	
S5	33.350	2.331	Open Manhole	1200	S1.004	31.019	300	S1.003	31.019	300	
S6	33.350	2.475	Open Manhole	1200	S1.005	30.875	300	S1.004	30.875	300	
S7	33.350	1.425	Open Manhole	1200	S2.000	31.925	225				
S8	33.350	1.609	Open Manhole	1200	S2.001	31.741	225	S2.000	31.741	225	
S9	33.350	2.772	Open Manhole	1350	S1.006	30.578	450	S1.005	30.728	300	
								S2.001	31.541	225	738
S10	33.350	1.500	Open Manhole	1200	S3.000	31.850	300				
S11	33.350	2.182	Open Manhole	1200	S3.001	31.168	300	S3.000	31.168	300	
S12	33.350	2.682	Open Manhole	1200	S3.002	30.668	300	S3.001	30.668	300	
S13	33.350	2.887	Open Manhole	1200	S3.003	30.463	300	S3.002	30.463	300	
S14	33.350	3.062	Open Manhole	1350	S3.004	30.288	375	S3.003	30.363	300	
S15	33.350	3.192	Open Manhole	1350	S1.007	30.158	450	S1.006	30.490	450	333
								S3.004	30.233	375	
S16	32.410	1.425	Open Manhole	1200	S4.000	30.985	225				
S17	33.320	2.735	Open Manhole	1200	S4.001	30.585	225	S4.000	30.585	225	
S18	33.500	3.596	Open Manhole	1500	S1.008	29.904	525	S1.007	29.979	450	
								S4.001	30.204	225	
S19	33.400	3.532	Open Manhole	1500	S1.009	29.868	525	S1.008	29.868	525	
S20	33.200	3.412	Open Manhole	1500	S1.010	29.788	525	S1.009	29.788	525	
S21	32.500	2.900	Open Manhole	1500	S1.011	29.600	525	S1.010	29.600	525	
S22	32.000	2.550	Open Manhole	1500	S1.012	29.450	525	S1.011	29.450	525	
S23	32.000	2.593	Open Manhole	1500	S1.013	29.407	525	S1.012	29.407	525	
S	31.000	2.524	Open Manhole	1500		OUTFALL		S1.013	28.476	525	

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Date 21/01/2014 File OUTLINE V3.MDX	Designed by SL Checked by LA	
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Online Controls for Storm

Hydro-Brake Optimum® Manhole: S23, DS/PN: S1.013, Volume (m³): 7.1

Unit Reference	MD-SHE-0520-2000-1500-2000
Design Head (m)	1.500
Design Flow (l/s)	200.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	520
Invert Level (m)	29.407
Minimum Outlet Pipe Diameter (mm)	Error (Contact Hydro International)
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	199.7
Flush-Flo™	0.750	199.8
Kick-Flo®	1.223	180.8
Mean Flow over Head Range	-	156.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	12.9	1.200	183.0	3.000	280.3	7.000	425.0
0.200	47.6	1.400	193.1	3.500	302.3	7.500	439.7
0.300	97.1	1.600	206.1	4.000	322.8	8.000	453.9
0.400	152.4	1.800	218.3	4.500	342.0	8.500	467.7
0.500	192.5	2.000	229.8	5.000	360.2	9.000	481.0
0.600	197.4	2.200	240.8	5.500	377.5	9.500	494.0
0.800	199.5	2.400	251.3	6.000	394.0		
1.000	194.8	2.600	261.3	6.500	409.8		

Avebury 2
 Elcot Park Elcot Lane
 Marlborough SN8 2BG

HOUGHTON MAIN, BARNSELEY
 SURFACE WATER



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Network 2014.1.1

Storage Structures for Storm

Cellular Storage Manhole: S1, DS/PN: S1.000

Invert Level (m) 31.925 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	20.0	20.0	0.600	0.0	29.0
0.500	20.0	29.0			

Cellular Storage Manhole: S7, DS/PN: S2.000

Invert Level (m) 31.925 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	40.0	40.0	0.600	0.0	54.0
0.500	40.0	54.0			

Cellular Storage Manhole: S10, DS/PN: S3.000

Invert Level (m) 31.850 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	40.0	40.0	0.600	0.0	54.0
0.500	40.0	54.0			


Cellular Storage Manhole: S21, DS/PN: S1.011

Invert Level (m) 29.725 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	60.0	60.0	1.100	0.0	98.0
1.000	60.0	98.0			


Cellular Storage Manhole: S22, DS/PN: S1.012

Invert Level (m) 29.635 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

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Avebury 2 Elcot Park Elcot Lane Marlborough SN8 2BG	HOUGHTON MAIN, BARNSELY SURFACE WATER	
Date 21/01/2014 File OUTLINE V3.MDX	Designed by SL Checked by LA	
XP Solutions	Network 2014.1.1	

Cellular Storage Manhole: S22, DS/PN: S1.012

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	100.0	100.0	1.100	0.0	158.0
1.000	100.0	158.0			

Abley Letchford Ltd		Page 1
Avebury 2 Elcot Park Elcot Lane Marlborough SN8 2BG	HOUGHTON MAIN, BARNSELEY SURFACE WATER	
Date 21/01/2014 File OUTLINE V3.MDX	Designed by SL Checked by LA	
XP Solutions	Network 2014.1.1	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 5
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.355
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 19.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status ON
DVD Status OFF
Inertia Status OFF

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 2
Climate Change (%) 0


PN	Storm	Return Climate Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Winter	2	0%					
S1.001	15 Winter	2	0%					
S1.002	15 Winter	2	0%					
S1.003	15 Winter	2	0%					
S1.004	15 Winter	2	0%					
S1.005	15 Winter	2	0%					
S2.000	15 Winter	2	0%					
S2.001	15 Winter	2	0%					
S1.006	15 Winter	2	0%					
S3.000	15 Winter	2	0%					
S3.001	15 Winter	2	0%					
S3.002	15 Winter	2	0%					
S3.003	15 Winter	2	0%					
S3.004	15 Winter	2	0%					
S1.007	15 Winter	2	0%					
S4.000	15 Winter	2	0%					
S4.001	15 Winter	2	0%					
S1.008	15 Winter	2	0%					
S1.009	15 Winter	2	0%					
S1.010	15 Winter	2	0%					
S1.011	15 Winter	2	0%					
S1.012	30 Winter	2	0%					

Abley Letchford Ltd		Page 2
Avebury 2 Elcot Park Elcot Lane Marlborough SN8 2BG		HOUGHTON MAIN, BARNSELY SURFACE WATER
Date 21/01/2014 File OUTLINE V3.MDX		Designed by SL Checked by LA
XP Solutions		Network 2014.1.1



Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.013	30 Winter	2	0%					
PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
S1.000	S1	31.961	-0.189	0.000	0.06	0.0	4.0	OK
S1.001	S2	31.747	-0.153	0.000	0.22	0.0	9.5	OK
S1.002	S3	31.543	-0.103	0.000	0.56	0.0	20.5	OK
S1.003	S4	31.385	-0.138	0.000	0.55	0.0	37.0	OK
S1.004	S5	31.219	-0.100	0.000	0.77	0.0	50.3	OK
S1.005	S6	31.094	-0.081	0.000	0.87	0.0	57.6	OK
S2.000	S7	32.052	-0.098	0.000	0.59	0.0	22.2	OK
S2.001	S8	31.918	-0.048	0.000	0.97	0.0	38.3	OK
S1.006	S9	30.869	-0.159	0.000	0.75	0.0	104.9	OK
S3.000	S10	31.938	-0.212	0.000	0.18	0.0	18.9	OK
S3.001	S11	31.306	-0.162	0.000	0.42	0.0	40.8	OK
S3.002	S12	30.883	-0.085	0.000	0.84	0.0	56.5	OK
S3.003	S13	30.693	-0.070	0.000	0.94	0.0	59.4	OK
S3.004	S14	30.507	-0.156	0.000	0.64	0.0	64.4	OK
S1.007	S15	30.442	-0.165	0.000	0.72	0.0	172.4	OK
S4.000	S16	31.059	-0.151	0.000	0.23	0.0	13.8	OK
S4.001	S17	30.651	-0.159	0.000	0.19	0.0	13.8	OK
S1.008	S18	30.297	-0.132	0.000	0.92	0.0	179.7	OK
S1.009	S19	30.210	-0.183	0.000	0.75	0.0	178.8	OK
S1.010	S20	30.117	-0.197	0.000	0.70	0.0	176.4	OK
S1.011	S21	29.917	-0.208	0.000	0.67	0.0	164.6	OK
S1.012	S22	29.807	-0.168	0.000	0.68	0.0	135.1	OK
S1.013	S23	29.775	-0.156	0.000	0.18	0.0	135.0	OK

Abley Letchford Ltd		Page 1
Avebury 2 Elcot Park Elcot Lane Marlborough SN8 2BG	HOUGHTON MAIN, BARNSELEY SURFACE WATER	
Date 21/01/2014 File OUTLINE V3.MDX	Designed by SL Checked by LA	
XP Solutions	Network 2014.1.1	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 5
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.355
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 19.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status ON
DVD Status OFF
Inertia Status OFF


Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 30
Climate Change (%) 0

PN	Storm	Return Climate Period Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Winter	30	0%				
S1.001	15 Winter	30	0% 30/15	Summer			
S1.002	15 Winter	30	0% 30/15	Summer			
S1.003	15 Winter	30	0% 30/15	Summer			
S1.004	15 Winter	30	0% 30/15	Summer			
S1.005	15 Winter	30	0% 30/15	Summer			
S2.000	15 Winter	30	0% 30/15	Summer			
S2.001	15 Winter	30	0% 30/15	Summer			
S1.006	15 Winter	30	0% 30/15	Summer			
S3.000	15 Winter	30	0%				
S3.001	15 Winter	30	0% 30/15	Summer			
S3.002	15 Winter	30	0% 30/15	Summer			
S3.003	15 Winter	30	0% 30/15	Summer			
S3.004	15 Winter	30	0% 30/15	Summer			
S1.007	15 Winter	30	0% 30/15	Summer			
S4.000	15 Winter	30	0%				
S4.001	15 Winter	30	0%				
S1.008	15 Winter	30	0% 30/15	Summer			
S1.009	15 Winter	30	0% 30/15	Summer			
S1.010	15 Winter	30	0% 30/15	Winter			
S1.011	30 Winter	30	0% 30/30	Winter			
S1.012	30 Winter	30	0% 30/15	Winter			



Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	Storm	Return Climate Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.013	30	Winter	30	0%	30/15	Winter		
PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
S1.000	S1	32.012	-0.138	0.000	0.20	0.0	13.6	OK
S1.001	S2	32.052	0.152	0.000	0.52	0.0	22.6	SURCHARGED
S1.002	S3	32.032	0.386	0.000	1.07	0.0	38.9	SURCHARGED
S1.003	S4	31.945	0.423	0.000	0.94	0.0	63.1	SURCHARGED
S1.004	S5	31.757	0.438	0.000	1.38	0.0	90.6	SURCHARGED
S1.005	S6	31.468	0.292	0.000	1.61	0.0	106.1	SURCHARGED
S2.000	S7	32.246	0.096	0.000	0.95	0.0	35.6	SURCHARGED
S2.001	S8	32.158	0.192	0.000	1.39	0.0	55.2	SURCHARGED
S1.006	S9	31.064	0.036	0.000	1.25	0.0	175.8	SURCHARGED
S3.000	S10	31.980	-0.170	0.000	0.37	0.0	39.0	OK
S3.001	S11	31.708	0.240	0.000	0.71	0.0	69.3	SURCHARGED
S3.002	S12	31.487	0.519	0.000	1.40	0.0	93.7	SURCHARGED
S3.003	S13	31.123	0.360	0.000	1.53	0.0	96.9	SURCHARGED
S3.004	S14	30.907	0.244	0.000	1.03	0.0	103.6	SURCHARGED
S1.007	S15	30.850	0.243	0.000	1.14	0.0	271.6	SURCHARGED
S4.000	S16	31.091	-0.119	0.000	0.44	0.0	26.2	OK
S4.001	S17	30.679	-0.131	0.000	0.35	0.0	26.1	OK
S1.008	S18	30.615	0.186	0.000	1.46	0.0	285.7	SURCHARGED
S1.009	S19	30.478	0.085	0.000	1.20	0.0	285.6	SURCHARGED
S1.010	S20	30.341	0.028	0.000	1.12	0.0	282.1	SURCHARGED
S1.011	S21	30.131	0.006	0.000	0.97	0.0	238.9	SURCHARGED
S1.012	S22	30.032	0.057	0.000	1.00	0.0	197.1	SURCHARGED
S1.013	S23	29.989	0.057	0.000	0.27	0.0	196.7	SURCHARGED

Abley Letchford Ltd		Page 1
Avebury 2 Elcot Park Elcot Lane Marlborough SN8 2BG	HOUGHTON MAIN, BARNSELEY SURFACE WATER	
Date 21/01/2014 File OUTLINE V3.MDX	Designed by SL Checked by LA	
XP Solutions	Network 2014.1.1	

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M5-60 (mm) 19.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status ON
DVD Status OFF
Inertia Status OFF

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 100
Climate Change (%) 30

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Winter	100	+30%	100/15	Summer			
S1.001	15 Winter	100	+30%	100/15	Summer			
S1.002	15 Winter	100	+30%	100/15	Summer			
S1.003	15 Winter	100	+30%	100/15	Summer			
S1.004	15 Winter	100	+30%	100/15	Summer			
S1.005	15 Winter	100	+30%	100/15	Summer			
S2.000	15 Winter	100	+30%	100/15	Summer			
S2.001	15 Winter	100	+30%	100/15	Summer			
S1.006	15 Winter	100	+30%	100/15	Summer			
S3.000	15 Winter	100	+30%	100/15	Summer			
S3.001	15 Winter	100	+30%	100/15	Summer			
S3.002	15 Winter	100	+30%	100/15	Summer			
S3.003	15 Winter	100	+30%	100/15	Summer			
S3.004	15 Winter	100	+30%	100/15	Summer			
S1.007	15 Winter	100	+30%	100/15	Summer			
S4.000	15 Winter	100	+30%	100/15	Summer			
S4.001	15 Winter	100	+30%	100/15	Summer			
S1.008	15 Winter	100	+30%	100/15	Summer			
S1.009	30 Winter	100	+30%	100/15	Summer			
S1.010	30 Winter	100	+30%	100/15	Summer			
S1.011	30 Winter	100	+30%	100/15	Summer			
S1.012	30 Winter	100	+30%	100/15	Summer			