

Key

- MH S100 = 824m²
- MH S101 = 538m²
- MH S102 = 403m²
- MH S103 = 223m²
- MH S200 = 396m²
- MH S300 = 188m²
- MH S301 = 239m²
- MH S302 = 132m²
- MH S303 = 1655m²
- MH S400 = 486m²

DO NOT SCALE THIS DRAWING

A1

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REVISIONS

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
A	03.03.23	Updated Drainage Layout	CS	JP
B	26.04.23	Site Layout updated	CS	JP
C	22.05.23	Site Layout updated	CS	JP
D	16.11.23	Updated for Detailed Design	CS	JP
E	05.03.24	Updated Site Layout	CS	NJ
F	31.05.24	Tender Issue. Drawing sheet renumbered from 101 to 103.	CH	NJ
G	18.03.25	Site layout updated.	NJ	MWJ
H	09.03.26	Site layout updated.	CS	NJ

DRAWING STATUS:

FOR PLANNING



CLIENT:

CNG Fuels Ltd

PROJECT:

CNG Station, Hlinckley 2

DRAWING TITLE:

Proposed Catchment Plan

DATE CREATED: 08.12.2022 DRAWING SCALE: 1:250 DRAWN BY: CS CHECKED BY: JP QA CATEGORY: 1

DRAWING REF: TC / P9298 / 23 / 103 REV: H

APPENDIX F
GREENFIELD RUNOFF ESTIMATION

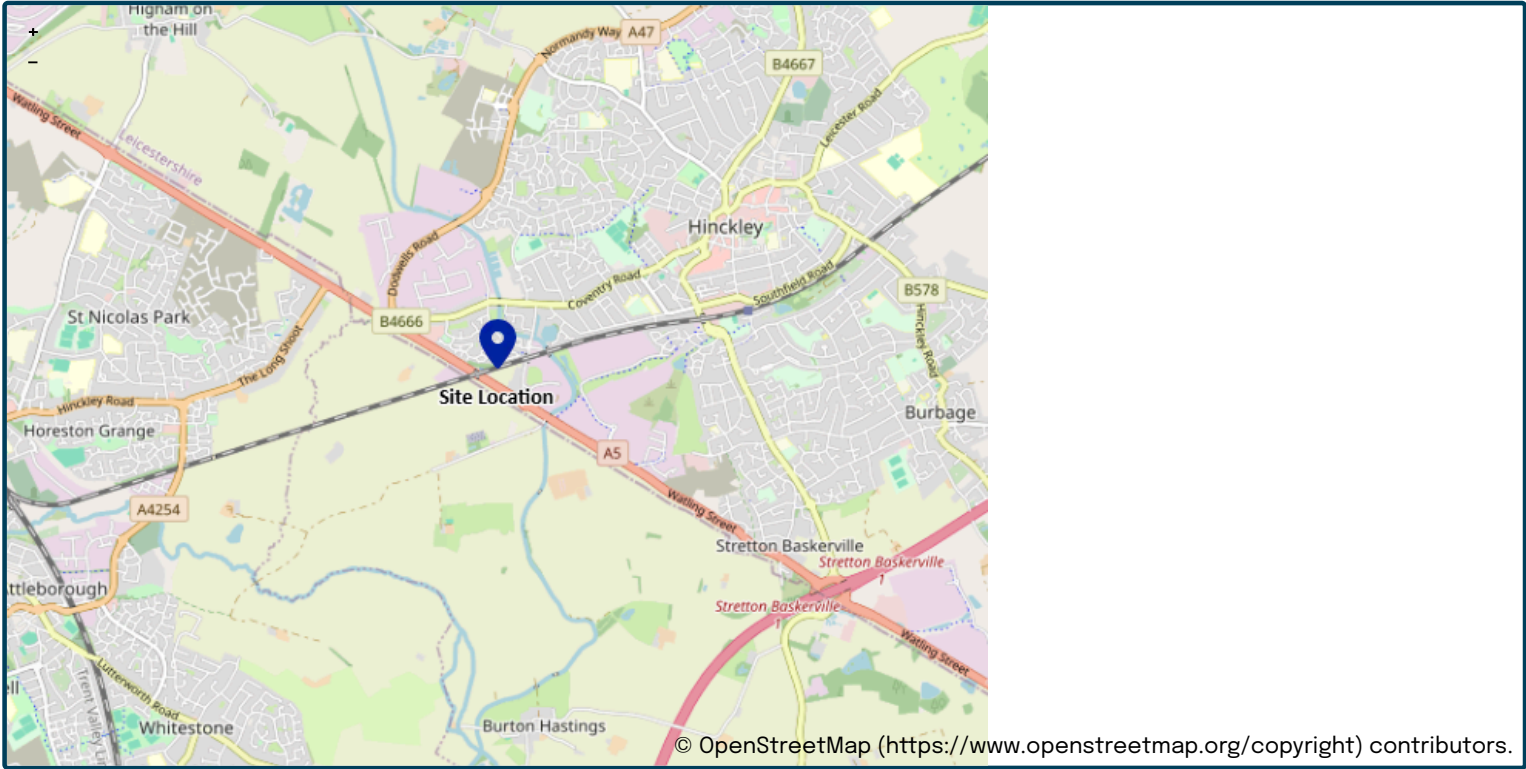
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	12/03/2026
Calculated by	
Reference	
Model version	2.2.3

Location

Site name	CNG Hinckley
Site location	CNG Hinckley



Site easting (British National Grid)	440775
Site northing (British National Grid)	292567

Site details

Total site area (ha)	0.84	ha
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Greenfield runoff

Method

Method	FEH statistical (2025)
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FEH statistical (2025)

	<u>My value</u>	<u>Map value</u>
SAAR9120 (mm)	658	mm
BFIHOST19scaled	0.368	
QMed-QBar conversion	1.124	1.124
QMed (l/s)	2.9	l/s
QBar (FEH statistical 2025) (l/s)	3.3	l/s

Growth curve factors

	<u>My value</u>	<u>Map value</u>
Hydrological region	4	4
1 year growth factor	0.83	
2 year growth factor	0.89	
10 year growth factor	1.49	
30 year growth factor	2	
100 year growth factor	2.57	
200 year growth factor	3.04	

Results

Method	FEH statistical (2025)
Flow rate 1 year (l/s)	2.7
Flow rate 2 year (l/s)	2.9
Flow rate 10 years (l/s)	4.9
Flow rate 30 years (l/s)	6.5
Flow rate 100 years (l/s)	8.4
Flow rate 200 years (l/s)	9.9

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

APPENDIX G
SURFACE WATER CALCULATIONS

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	5	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	1.000
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
S100	0.082	5.00	88.990	1200	440703.043	292569.517	1.425	87.565
S101	0.054	5.00	88.675	1200	440729.781	292553.451	1.500	87.175
S102	0.040	5.00	88.605	1500	440746.817	292543.214	1.640	86.965
S103	0.022	5.00	88.710	1200	440762.887	292532.986	1.805	86.905
Int In			89.000		440765.628	292531.321	2.105	86.895
Int Out			88.980		440773.351	292541.092	2.285	86.695
S104			88.990	1200	440774.428	292540.467	2.300	86.690
Storage In			89.050		440775.489	292539.814	2.365	86.685
Attenuation			89.100		440781.957	292531.985	2.416	86.684
Storage Out			89.250		440786.315	292526.769	2.570	86.680
S105			89.100	1200	440788.328	292525.559	2.430	86.670
S106			88.925	1200	440783.936	292518.034	2.285	86.640
S107		5.00	89.600	460	440902.242	292440.699	1.100	88.500
Outfall			89.600		440902.619	292437.565	1.130	88.470
S200	0.040	5.00	89.180	1200	440742.473	292574.568	1.425	87.755
S300	0.019	5.00	89.250	460	440793.535	292534.414	1.375	87.875
S301	0.024	5.00	89.250	460	440781.799	292541.495	1.456	87.794
S302	0.013	5.00	89.400	460	440788.913	292553.334	1.763	87.637
S303	0.166	5.00	89.265	1200	440762.470	292569.228	2.200	87.065
S400	0.049	5.00	89.500	460	440794.226	292562.176	1.350	88.150
0.000								

Pipeline Schedule

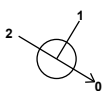
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1.000	31.194	99.0	225	Circular	88.990	87.565	1.200	88.675	87.250	1.200
S1.001	19.875	147.2	300	Circular	88.675	87.175	1.200	88.605	87.040	1.265
S1.002	19.049	317.5	375	Circular	88.605	86.965	1.265	88.710	86.905	1.430
S1.003	3.207	320.7	375	Circular	88.710	86.905	1.430	89.000	86.895	1.730
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type		
S1.000	S100	1200	Manhole	Adoptable	S101	1200	Manhole	Adoptable		
S1.001	S101	1200	Manhole	Adoptable	S102	1500	Manhole	Adoptable		
S1.002	S102	1500	Manhole	Adoptable	S103	1200	Manhole	Adoptable		
S1.003	S103	1200	Manhole	Adoptable	Int In		Junction			

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1.003A	12.455	62.3	375	Circular	89.000	86.895	1.730	88.980	86.695	1.910
S1.004	1.245	249.0	375	Circular	88.980	86.695	1.910	88.990	86.690	1.925
S1.005	1.246	249.2	375	Circular	88.990	86.690	1.925	89.050	86.685	1.990
S1.005A	10.155	10155.2	375	Circular	89.050	86.685	1.990	89.100	86.684	2.041
S1.005B	6.797	1699.2	375	Circular	89.100	86.684	2.041	89.250	86.680	2.195
S1.006	2.349	234.9	375	Circular	89.250	86.680	2.195	89.100	86.670	2.055
S1.007	8.713	290.4	375	Circular	89.100	86.670	2.055	88.925	86.640	1.910
S1.009	3.000	100.0	225	Circular	89.600	88.500	0.875	89.600	88.470	0.905
S2.000	24.638	48.8	225	Circular	89.180	87.755	1.200	88.675	87.250	1.200
S3.000	13.707	169.2	225	Circular	89.250	87.875	1.150	89.250	87.794	1.231
S3.001	13.812	168.4	225	Circular	89.250	87.794	1.231	89.400	87.712	1.463
S3.002	30.852	62.1	300	Circular	89.400	87.637	1.463	89.265	87.140	1.825
S3.003	30.360	303.6	375	Circular	89.265	87.065	1.825	88.605	86.965	1.265
S4.000	10.315	28.4	150	Circular	89.500	88.150	1.200	89.400	87.787	1.463

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1.003A	Int In		Junction		Int Out		Junction	
S1.004	Int Out		Junction		S104	1200	Manhole	Adoptable
S1.005	S104	1200	Manhole	Adoptable	Storage In		Junction	
S1.005A	Storage In		Junction		Attenuation		Junction	
S1.005B	Attenuation		Junction		Storage Out		Junction	
S1.006	Storage Out		Junction		S105	1200	Manhole	Adoptable
S1.007	S105	1200	Manhole	Adoptable	S106	1200	Manhole	Adoptable
S1.009	S107	460	Manhole	Adoptable	Outfall		Junction	
S2.000	S200	1200	Manhole	Adoptable	S101	1200	Manhole	Adoptable
S3.000	S300	460	Manhole	Adoptable	S301	460	Manhole	Adoptable
S3.001	S301	460	Manhole	Adoptable	S302	460	Manhole	Adoptable
S3.002	S302	460	Manhole	Adoptable	S303	1200	Manhole	Adoptable
S3.003	S303	1200	Manhole	Adoptable	S102	1500	Manhole	Adoptable
S4.000	S400	460	Manhole	Adoptable	S302	460	Manhole	Adoptable

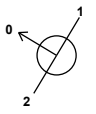
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S100	440703.043	292569.517	88.990	1.425	1200				
						0	S1.000	87.565	225
S101	440729.781	292553.451	88.675	1.500	1200				
						1	S2.000	87.250	225
						2	S1.000	87.250	225
						0	S1.001	87.175	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S102	440746.817	292543.214	88.605	1.640	1500		1	S1.001	87.040	300
							2	S3.003	86.965	375
							0	S1.002	86.965	375
S103	440762.887	292532.986	88.710	1.805	1200		1	S1.002	86.905	375
							0	S1.003	86.905	375
Int In	440765.628	292531.321	89.000	2.105			1	S1.003	86.895	375
							0	S1.003A	86.895	375
Int Out	440773.351	292541.092	88.980	2.285			1	S1.003A	86.695	375
							0	S1.004	86.695	375
S104	440774.428	292540.467	88.990	2.300	1200		1	S1.004	86.690	375
							0	S1.005	86.690	375
Storage In	440775.489	292539.814	89.050	2.365			1	S1.005	86.685	375
							0	S1.005A	86.685	375
Attenuation	440781.957	292531.985	89.100	2.416			1	S1.005A	86.684	375
							0	S1.005B	86.684	375
Storage Out	440786.315	292526.769	89.250	2.570			1	S1.005B	86.680	375
							0	S1.006	86.680	375
S105	440788.328	292525.559	89.100	2.430	1200		1	S1.006	86.670	375
S106	440783.936	292518.034	88.925	2.285	1200			0	S1.007	86.670
							1	S1.007	86.640	375
S107	440902.242	292440.699	89.600	1.100	460		0	S1.009	88.500	225
Outfall	440902.619	292437.565	89.600	1.130				1	S1.009	88.470
S200	440742.473	292574.568	89.180	1.425	1200		0	S2.000	87.755	225
								0	S2.000	87.755

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S300	440793.535	292534.414	89.250	1.375	460				
						0	S3.000	87.875	225
S301	440781.799	292541.495	89.250	1.456	460		1	S3.000	87.794
						0	S3.001	87.794	225
S302	440788.913	292553.334	89.400	1.763	460		1	S4.000	87.787
						2	S3.001	87.712	225
						0	S3.002	87.637	300
S303	440762.470	292569.228	89.265	2.200	1200		1	S3.002	87.140
						0	S3.003	87.065	375
S400	440794.226	292562.176	89.500	1.350	460		0	S4.000	88.150
						0	S4.000	88.150	150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s) x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume x
Winter CV	0.840	Additional Storage (m³/ha)	20.0	

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
10	0	0	0
30	0	0	0
100	40	0	0

Node S106 Offline Pump Control

Flap Valve	x	Invert Level (m)	86.640	Switch off depth (m)	0.000
Loop to Node	S107	Switch on depth (m)	0.001		
		Depth (m)	0.001	Flow (l/s)	3.300

Node Attenuation Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	86.684
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.96	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	281.6	0.0	1.100	281.6	0.0	1.101	0.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S100	10	87.635	0.070	10.8	0.1591	0.0000	OK
15 minute winter	S101	10	87.281	0.106	22.7	0.1967	0.0000	OK
15 minute winter	S102	11	87.179	0.214	62.1	0.4827	0.0000	OK
15 minute winter	S103	11	87.099	0.194	64.8	0.2669	0.0000	OK
15 minute winter	Int In	11	87.027	0.132	66.9	0.0000	0.0000	OK
15 minute winter	Int Out	11	86.947	0.252	65.2	0.0000	0.0000	OK
15 minute winter	S104	11	86.936	0.246	65.4	0.2780	0.0000	OK
360 minute winter	Storage In	272	86.918	0.233	12.1	0.0000	0.0000	OK
360 minute winter	Attenuation	272	86.918	0.234	12.0	63.2605	0.0000	OK
360 minute winter	Storage Out	272	86.918	0.238	7.2	0.0000	0.0000	OK
360 minute winter	S105	272	86.918	0.248	7.4	0.2804	0.0000	OK
360 minute winter	S106	272	86.917	0.277	5.4	0.3138	0.0000	OK
120 minute winter	S107	76	88.540	0.040	3.3	0.0067	0.0000	OK
120 minute summer	Outfall	82	88.508	0.038	3.3	0.0000	0.0000	OK
15 minute winter	S200	10	87.796	0.041	5.3	0.0689	0.0000	OK
15 minute winter	S300	10	87.913	0.038	2.5	0.0168	0.0000	OK
15 minute winter	S301	10	87.853	0.059	5.7	0.0291	0.0000	OK
15 minute winter	S302	10	87.700	0.063	13.7	0.0197	0.0000	OK
15 minute winter	S303	11	87.212	0.147	35.5	0.3884	0.0000	OK
15 minute winter	S400	10	88.197	0.047	6.5	0.0417	0.0000	OK

US Node	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Discharge Vol (m³)
S100	S101	10.5	1.022	0.200	
S101	S102	22.6	0.907	0.247	
S102	S103	62.1	1.013	0.556	
S103	Int In	66.9	1.456	0.602	
Int In	Int Out	65.2	1.149	0.257	
Int Out	S104	65.4	0.843	0.518	
S104	Storage In	65.2	0.964	0.516	
Storage In	Attenuation	12.0	0.732	0.640	
Attenuation	Storage Out	7.2	0.360	0.152	
Storage Out	S105	7.4	0.428	0.057	
S105	S106	5.4	0.744	0.046	
S106	S107	3.3			89.4
S107	Outfall	3.3	0.716	0.063	55.4
S200	S101	5.2	1.073	0.069	
S300	S301	2.5	0.399	0.062	
S301	S302	5.5	0.698	0.139	
S302	S303	13.6	1.194	0.096	
S303	S102	34.5	0.667	0.302	
S400	S302	6.4	1.422	0.192	

Results for 10 year Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S100	10	87.664	0.099	20.4	0.2268	0.0000	OK
15 minute winter	S101	11	87.330	0.155	43.1	0.2867	0.0000	OK
15 minute winter	S102	11	87.292	0.327	115.1	0.7371	0.0000	OK
15 minute winter	S103	11	87.178	0.273	120.0	0.3752	0.0000	OK
15 minute winter	Int In	11	87.093	0.198	123.7	0.0000	0.0000	OK
360 minute winter	Int Out	304	87.089	0.394	18.9	0.0000	0.0000	SURCHARGED
360 minute winter	S104	304	87.089	0.399	18.7	0.4511	0.0000	SURCHARGED
360 minute winter	Storage In	304	87.089	0.404	18.5	0.0000	0.0000	SURCHARGED
360 minute winter	Attenuation	304	87.089	0.405	18.9	109.4416	0.0000	SURCHARGED
360 minute winter	Storage Out	304	87.089	0.409	11.9	0.0000	0.0000	SURCHARGED
360 minute winter	S105	304	87.089	0.419	16.3	0.4737	0.0000	SURCHARGED
360 minute winter	S106	304	87.089	0.449	8.9	0.5075	0.0000	OK
120 minute winter	S107	60	88.540	0.040	3.3	0.0067	0.0000	OK
120 minute winter	Outfall	60	88.508	0.038	3.3	0.0000	0.0000	OK
15 minute winter	S200	10	87.810	0.055	10.0	0.0932	0.0000	OK
15 minute winter	S300	10	87.927	0.052	4.7	0.0228	0.0000	OK
15 minute winter	S301	10	87.876	0.082	10.6	0.0408	0.0000	OK
15 minute winter	S302	10	87.723	0.086	25.7	0.0269	0.0000	OK
15 minute winter	S303	11	87.325	0.260	66.7	0.6866	0.0000	OK
15 minute winter	S400	10	88.217	0.067	12.2	0.0595	0.0000	OK

US Node	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Discharge Vol (m³)
S100	S101	19.8	1.210	0.379	
S101	S102	42.4	0.904	0.464	
S102	S103	114.8	1.215	1.028	
S103	Int In	123.7	1.698	1.114	
Int In	Int Out	120.8	1.416	0.476	
Int Out	S104	18.7	0.407	0.148	
S104	Storage In	18.5	0.392	0.147	
Storage In	Attenuation	18.9	0.840	1.002	
Attenuation	Storage Out	11.9	0.263	0.251	
Storage Out	S105	16.3	0.343	0.125	
S105	S106	8.9	0.595	0.076	
S106	S107	3.3			94.1
S107	Outfall	3.3	0.716	0.064	61.8
S200	S101	9.9	1.140	0.132	
S300	S301	4.6	0.471	0.117	
S301	S302	10.4	0.826	0.260	
S302	S303	25.5	1.200	0.180	
S303	S102	63.5	0.714	0.555	
S400	S302	12.1	1.671	0.361	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S100	10	87.683	0.118	27.1	0.2689	0.0000	OK
15 minute winter	S101	11	87.421	0.246	57.8	0.4559	0.0000	OK
15 minute winter	S102	11	87.376	0.411	150.5	0.9257	0.0000	SURCHARGED
360 minute winter	S103	344	87.225	0.320	24.4	0.4400	0.0000	OK
360 minute winter	Int In	344	87.225	0.330	25.3	0.0000	0.0000	OK
360 minute winter	Int Out	344	87.225	0.530	24.4	0.0000	0.0000	SURCHARGED
360 minute winter	S104	344	87.225	0.535	24.4	0.6050	0.0000	SURCHARGED
360 minute winter	Storage In	344	87.225	0.540	24.5	0.0000	0.0000	SURCHARGED
360 minute winter	Attenuation	344	87.225	0.541	25.4	146.2283	0.0000	SURCHARGED
360 minute winter	Storage Out	344	87.225	0.545	7.4	0.0000	0.0000	SURCHARGED
360 minute winter	S105	344	87.225	0.555	7.0	0.6276	0.0000	SURCHARGED
360 minute winter	S106	344	87.225	0.585	6.5	0.6614	0.0000	OK
15 minute summer	S107	13	88.540	0.040	3.3	0.0067	0.0000	OK
15 minute summer	Outfall	13	88.508	0.038	3.3	0.0000	0.0000	OK
15 minute winter	S200	10	87.818	0.063	13.2	0.1072	0.0000	OK
15 minute winter	S300	10	87.935	0.060	6.3	0.0265	0.0000	OK
15 minute winter	S301	10	87.891	0.097	14.1	0.0480	0.0000	OK
15 minute winter	S302	10	87.736	0.099	34.2	0.0312	0.0000	OK
15 minute winter	S303	11	87.443	0.378	88.7	0.9971	0.0000	SURCHARGED
15 minute winter	S400	10	88.229	0.079	16.2	0.0708	0.0000	OK

US Node	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Discharge Vol (m³)
S100	S101	26.9	1.251	0.516	
S101	S102	54.3	0.921	0.594	
S102	S103	150.1	1.394	1.344	
S103	Int In	25.3	1.138	0.228	
Int In	Int Out	24.4	0.627	0.096	
Int Out	S104	24.4	0.428	0.194	
S104	Storage In	24.5	0.425	0.194	
Storage In	Attenuation	25.4	0.921	1.350	
Attenuation	Storage Out	7.4	0.234	0.156	
Storage Out	S105	7.0	0.242	0.054	
S105	S106	6.5	0.594	0.055	
S106	S107	3.3			96.9
S107	Outfall	3.3	0.717	0.064	48.3
S200	S101	13.1	1.137	0.175	
S300	S301	6.2	0.509	0.157	
S301	S302	13.9	0.889	0.347	
S302	S303	34.0	1.168	0.240	
S303	S102	85.3	0.773	0.747	
S400	S302	16.1	1.785	0.480	

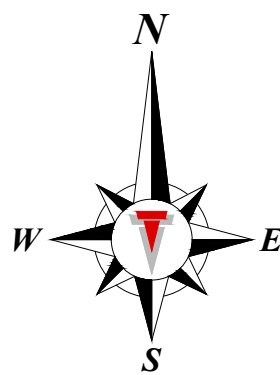
Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.18%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S100	12	88.468	0.903	49.8	2.0617	0.0000	SURCHARGED
480 minute winter	S101	472	88.246	1.071	12.4	1.9830	0.0000	SURCHARGED
480 minute winter	S102	472	88.246	1.281	32.7	2.8892	0.0000	SURCHARGED
480 minute winter	S103	472	88.246	1.341	32.9	1.8441	0.0000	SURCHARGED
480 minute winter	Int In	472	88.246	1.351	32.6	0.0000	0.0000	SURCHARGED
480 minute winter	Int Out	472	88.246	1.551	32.5	0.0000	0.0000	SURCHARGED
480 minute winter	S104	472	88.246	1.556	32.4	1.7599	0.0000	SURCHARGED
480 minute winter	Storage In	472	88.246	1.561	32.2	0.0000	0.0000	SURCHARGED
480 minute winter	Attenuation	472	88.246	1.562	32.1	297.5048	0.0000	SURCHARGED
480 minute winter	Storage Out	472	88.246	1.566	6.0	0.0000	0.0000	SURCHARGED
480 minute winter	S105	472	88.246	1.576	9.2	1.7824	0.0000	SURCHARGED
480 minute winter	S106	472	88.246	1.606	27.7	1.8163	0.0000	OK
60 minute winter	S107	25	88.540	0.040	3.3	0.0067	0.0000	OK
480 minute winter	Outfall	144	88.508	0.038	3.3	0.0000	0.0000	OK
15 minute winter	S200	12	88.280	0.525	24.3	0.8881	0.0000	SURCHARGED
15 minute winter	S300	12	88.379	0.504	11.5	0.2234	0.0000	SURCHARGED
15 minute winter	S301	12	88.371	0.577	24.3	0.2862	0.0000	SURCHARGED
15 minute winter	S302	12	88.335	0.698	57.6	0.2192	0.0000	SURCHARGED
480 minute winter	S303	472	88.246	1.181	19.3	3.1188	0.0000	SURCHARGED
15 minute winter	S400	12	88.606	0.456	29.7	0.4068	0.0000	SURCHARGED

US Node	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Discharge Vol (m³)
S100	S101	41.6	1.255	0.797	
S101	S102	12.2	0.848	0.133	
S102	S103	31.3	0.787	0.280	
S103	Int In	32.6	1.130	0.293	
Int In	Int Out	32.5	0.656	0.128	
Int Out	S104	32.4	0.479	0.256	
S104	Storage In	32.2	0.487	0.255	
Storage In	Attenuation	32.1	0.975	1.707	
Attenuation	Storage Out	6.0	0.249	0.126	
Storage Out	S105	9.2	0.298	0.071	
S105	S106	27.7	1.275	0.237	
S106	S107	3.3			122.5
S107	Outfall	3.3	0.716	0.063	55.4
S200	S101	22.2	1.090	0.297	
S300	S301	10.9	0.581	0.273	
S301	S302	25.9	0.998	0.647	
S302	S303	55.0	1.188	0.390	
S303	S102	17.9	0.543	0.157	
S400	S302	27.2	1.965	0.813	

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

APPENDIX H
DRAINAGE LAYOUT PLAN



Notes

- All drains to be HDPE twinwall pipes.
- All manholes to have min. class F900 cover and frame in trafficked areas.
- All pipework and fittings to be installed in accordance with manufacturers instructions.
- All drainage to comply with relevant British Standards & Part H of Building Regulations.
- Limestone pipe bedding will not be permitted in acidic ground water conditions.
- All connections to be made at soffit to soffit level, unless noted otherwise.

Key

- PCC - Precast Concrete Manhole
- Pumping Station Manhole
- PPIC - Polypropylene Inspection Chamber
- Althon GRC Large Headwall (or similar).
- Highway Gully
- Proposed Rising Main (TBC by Specialist)
- Exceedance Flows
- F900 Rated Manhole Cover & Frame (150mm deep)
- Existing 400mm AC Pressure Combined Sewer
- 560mm Severn Trent Sewer PE100 SDR17 DHPE
- Geo-Cellular Surface Water Attenuation. GRAF UK Ltd
- Proposed Rising Main Easement Zone
- Severn Trent Easement Zone
- Tree Protection Zone

DO NOT SCALE THIS DRAWING

A1

GENERAL NOTES:

- Before construction commences, the setting out Engineer shall ensure that all setting out information is mutually compatible with all the drawings and documents provided by the designers. Where information is apparently contradictory or ambiguous, the design Engineer and/or the Architect is to be informed immediately. Thomas Consulting will accept no liability for setting out errors where work is constructed to incorrect information.
- All drawings and documents are to be read in conjunction with one another, are mutually compatible and shall be read as such. All documents shall be checked to ensure that they are compatible by the contractor before construction commences. In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Thomas Consulting accept no liability in the event of not being so notified and where construction work has commenced.
- In accordance with CDM regulations 2015 this drawing has been prepared with due attention to identifying any unusual design hazards that may exist. Unusual design hazards are hazards that a reasonably competent contractor, experienced in this type of work may not be expected to identify. In dealing with unusual design hazards we have adopted the "ERIC" principle and where possible eliminated (E) the hazard at design stage, if it has not been possible to eliminate the hazard we have endeavoured to reduce (R) it. Where it has not been possible to eliminate these hazards, the hazard is noted on the drawing with appropriate information (I) in order that the hazard can be controlled (C) during construction. It is the contractor's responsibility to fully acquaint themselves with all construction drawings before commencing construction and if in doubt about any matter to ask for clarification from the designer.
- All drawings issued electronically for this scheme are provided for the sole purpose of assisting the design, procurement or construction of the structures for which Thomas Consulting have been appointed as Design Engineers/Consultants. They may not be used for any other purpose, nor may they be amended, copied, redistributed or issued to third parties without the written agreement of Thomas Consulting. All drawings remain under copyright to, and the intellectual property of, Thomas Consulting. Upon completion of the project, all drawings are to be deleted from your computer systems and all other electronic copies destroyed. Where electronic copies of final drawings are to be issued, these will be provided in a digital only format by Thomas Consulting (no other copies may be retained). By opening and using this drawing, it is assumed that you agree to abide by these Terms and Conditions.
- Unless expressly agreed with a director of Thomas Consulting Ltd, for the purposes of the CDM regulations 2015 Thomas Consulting are not the Principal Designer. The client has been advised that they are required to appoint a Principal Designer. For further information see <http://www.hse.gov.uk/>.

IN ADDITION TO THE HAZARDS/RISKS ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS.

ITEM	HAZARD IDENTIFICATION
1	Contractor must proceed with caution to ensure that all existing services within the area of proposed works are to be protected for the full duration of the works. Contractor must review existing services plans and use these as a guide only and all services to be confirmed on site prior to excavation works taking place.

REVISIONS

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
A	28.02.23	Replaced swale with piped outfall	CS	JP
B	26.04.23	Updated Tree Constraint Plan and site layout	CS	JP
C	22.05.23	Updated Site Layout	CS	JP
D	15.11.23	Updated Site Layout	CS	NJ
E	05.03.24	Updated Site Layout	CS	NJ
F	31.05.24	Tender Issue. Drawing sheet renumbered from 102 to 101.	CH	NJ
G	18.03.25	Site layout updated.	NJ	MWJ
H	06.06.25	Minor update to rising main.	NJ	MWJ
I	09.03.26	Updated site layout.	CS	NJ

DRAWING STATUS:

FOR PLANNING



CLIENT:

CNG Fuels Ltd.

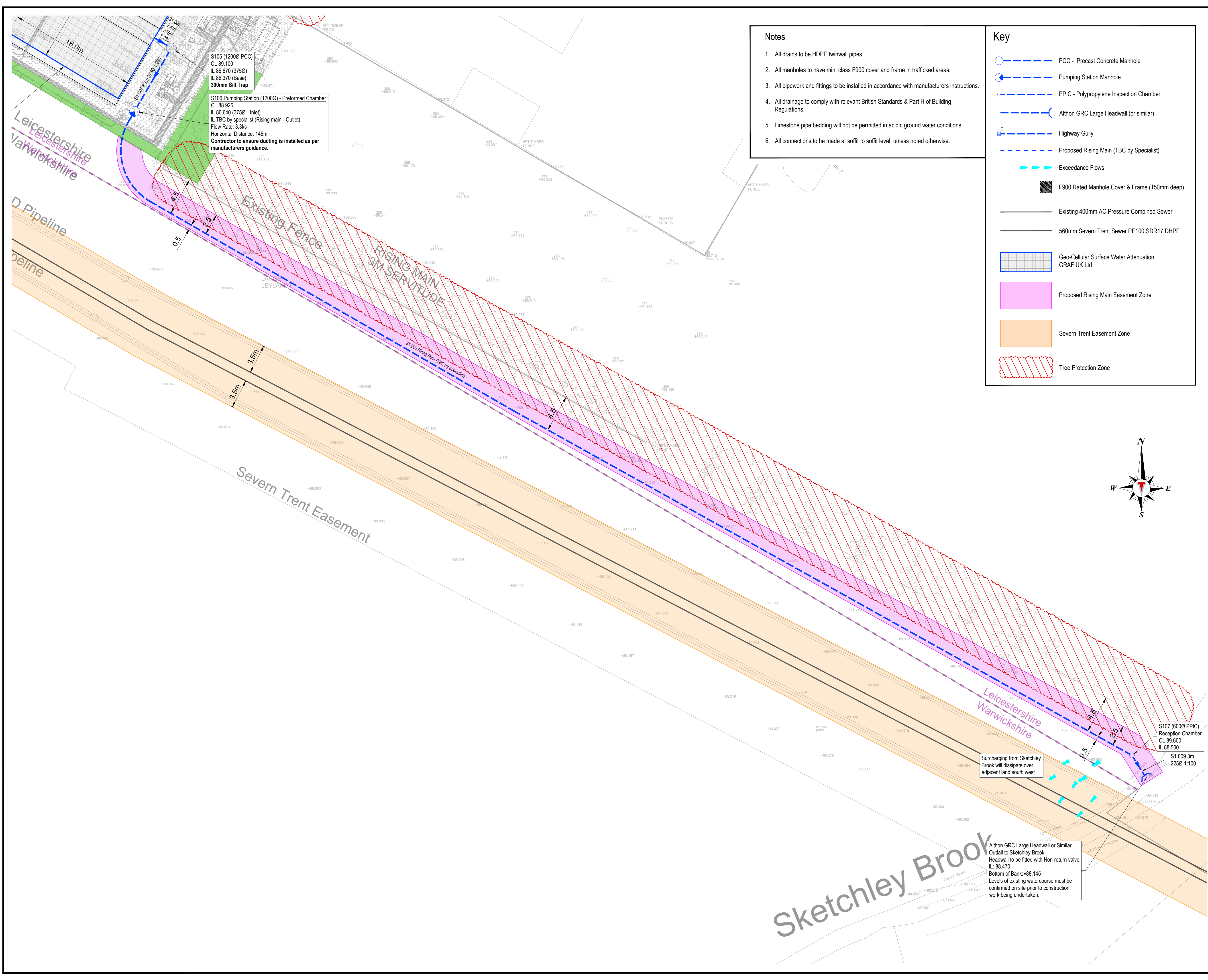
PROJECT:

CNG Station, Hinckley 2

DRAWING TITLE:

Proposed Drainage Layout
Sheet 1 of 2

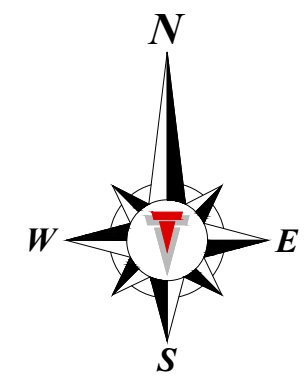
DATE CREATED: 06.12.2022	DRAWING SCALE: 1:250	DRAWN BY: CS	CHECKED BY: JP	QA CATEGORY: 1
DRAWING REF: TC / P9298 / 23 / 101	REV: I			



- Notes**
- All drains to be HDPE twinwall pipes.
 - All manholes to have min. class F900 cover and frame in trafficked areas.
 - All pipework and fittings to be installed in accordance with manufacturers instructions.
 - All drainage to comply with relevant British Standards & Part H of Building Regulations.
 - Limestone pipe bedding will not be permitted in acidic ground water conditions.
 - All connections to be made at soffit to soffit level, unless noted otherwise.

Key

- PCC - Precast Concrete Manhole
- Pumping Station Manhole
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- 560mm Severn Trent Sewer PE100 SDR17 DHPE
- Geo-Cellular Surface Water Attenuation. GRAF UK Ltd
- Proposed Rising Main Easement Zone
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- Tree Protection Zone



DO NOT SCALE THIS DRAWING

A1

GENERAL NOTES:

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- All drawings issued electronically for this scheme are provided for the sole purpose of assisting the design, procurement or construction of the structures for which Thomas Consulting have been appointed as Design Engineers/Consultants. They may not be used for any other purpose, nor may they be amended, copied, redistributed or issued to third parties without the written agreement of Thomas Consulting. All drawings remain under copyright to, and the intellectual property of, Thomas Consulting. Upon completion of the project, all drawings are to be deleted from your computer systems and all other electronic copies destroyed. Where electronic copies of final drawings are to be issued, these will be provided in a digital only format by Thomas Consulting (no other copies may be retained). By opening and using this drawing, it is assumed that you agree to abide by these Terms and Conditions.
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REVISIONS				
REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
A	26.04.23	Updated Tree Constraint Plan and site layout	CS	JP
B	20.11.23	Updated for Detailed Design	CS	NJ
C	31.05.24	Tender Issue. Drawing sheet renumbered from 103 to 102.	CH	NJ
D	18.03.25	Site layout updated.	NJ	MWJ
E	06.06.25	Minor update to rising main.	NJ	MWJ
F	10.03.26	Updated for Planning issue.	CS	NJ

DRAWING STATUS:

FOR PLANNING

THOMAS CONSULTING
STRUCTURAL & CIVIL DESIGN ENGINEERS
Chorley | Lancaster | Liverpool | London | Shrewsbury
01772 299040 | info@thomasconsulting.co.uk

CLIENT:

CNG Fuels Ltd

PROJECT:

CNG Station, Hinckley 2

DRAWING TITLE:

Proposed Drainage Layout Sheet 2 of 2

DATE CREATED:	DRAWING SCALE:	DRAWN BY:	CHECKED BY:	QA CATEGORY:
02.03.2023	1:200	CS	JP	1

DRAWING REF:	REV:
TC / P9298 / 23 / 102	F

APPENDIX I
SIMPLE INDEX METHOD

Simple Index method

Job Name: CNG Hinckley 2

Contract Number: P9298

Date: 20/11/2023

Engineer: CS

Checker: NJ

Calculation Brief

This spreadsheet has been developed to assist in calculating the proposed treatment method for SuDS. The calculation utilises the Simple Index Method outlined in CIRIA Report C753 - The SuDS Manual, V6 - 2015. The calculation considers the Pollution Methods, Total Suspended Solids (TSS), Metals, Hydro-Carbons and balances them again Mitigation Indices for proposed SuDS devices.

Information Source

This spreadhseet has been created using information obtained from CIRIA Report C753 - The SuDS Manual, V6 - 2015. Chapter 26 provides guidance on Water Quality Management and Section 26.7.1 provides guidance on the Simple Index Method. We have also gathered propriatory treatment information information from SPEL's SuDS Handbook.

Pollution Hazard

Select the correlating number to the land use you are looking at. If there is more than one for example roofs and car parking then you can select more than one below. If you only have one hazard/land use then input 0 for the other selections. The total polution hazard is displayed.

TABLE 26.2 Pollution hazard indices for different land use classifications

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways ¹	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways ¹	High	0.8 ²	0.8 ²	0.9 ²

Notes

- 1 Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).
- 2 These should only be used if considered appropriate as part of a detailed risk assessment – required for all these land use types (Table 4.3). When dealing with high hazard sites, the environmental regulator should first be consulted for pre-permitting advice. This will help determine the most appropriate approach to the development of a design solution.

Pollution Hazard Reference	Pollution Hazard	TSS	Metal	Hydro-Carbons
4	Medium	0.70	0.60	0.70
0	N/A	0.00	0.00	0.00
0	N/A	0.00	0.00	0.00
Total Pollution Hazard		0.70	0.60	0.70

Simple Index Method

Job Name: CNG Hinckley 2

Contract Number: P9298

Date: 20/11/2023

Engineer: CS

Checker: NJ

Mitigation

Where the mitigation index of an individual component is insufficient, two components (or more) in series will be required where;

$$\text{Total SuDS mitigation index} = \text{mitigation index} + 0.5 * \text{mitigation index}$$

A factor of 0.5 is used to account for the reduced performance of secondary or tertiary components associated with already reduced inflow concentrations.

Component	Type of SuDS component	TSS	Metal	Hydro-Carbons
Primary	Full Retention Separator	0.8	0.6	0.9
Secondary	None	0	0	0
Tertiary	None	0	0	0
Total Mitigation Index		0.8	0.6	0.9

Summary

	TSS	Metal	Hydro-Carbons
Total Pollution Hazard	0.70	0.60	0.70
Total Mitigation Hazard	0.8	0.6	0.90
Check	PASS	PASS	PASS

References

- CIRIA Report 753, The SuDS Manual, Version 6, 2015
- SPEL SuDS Handbook, 2022

Notes

Total SuDS Mitigation of Full Retention Separator to be confirmed by manufacturer.