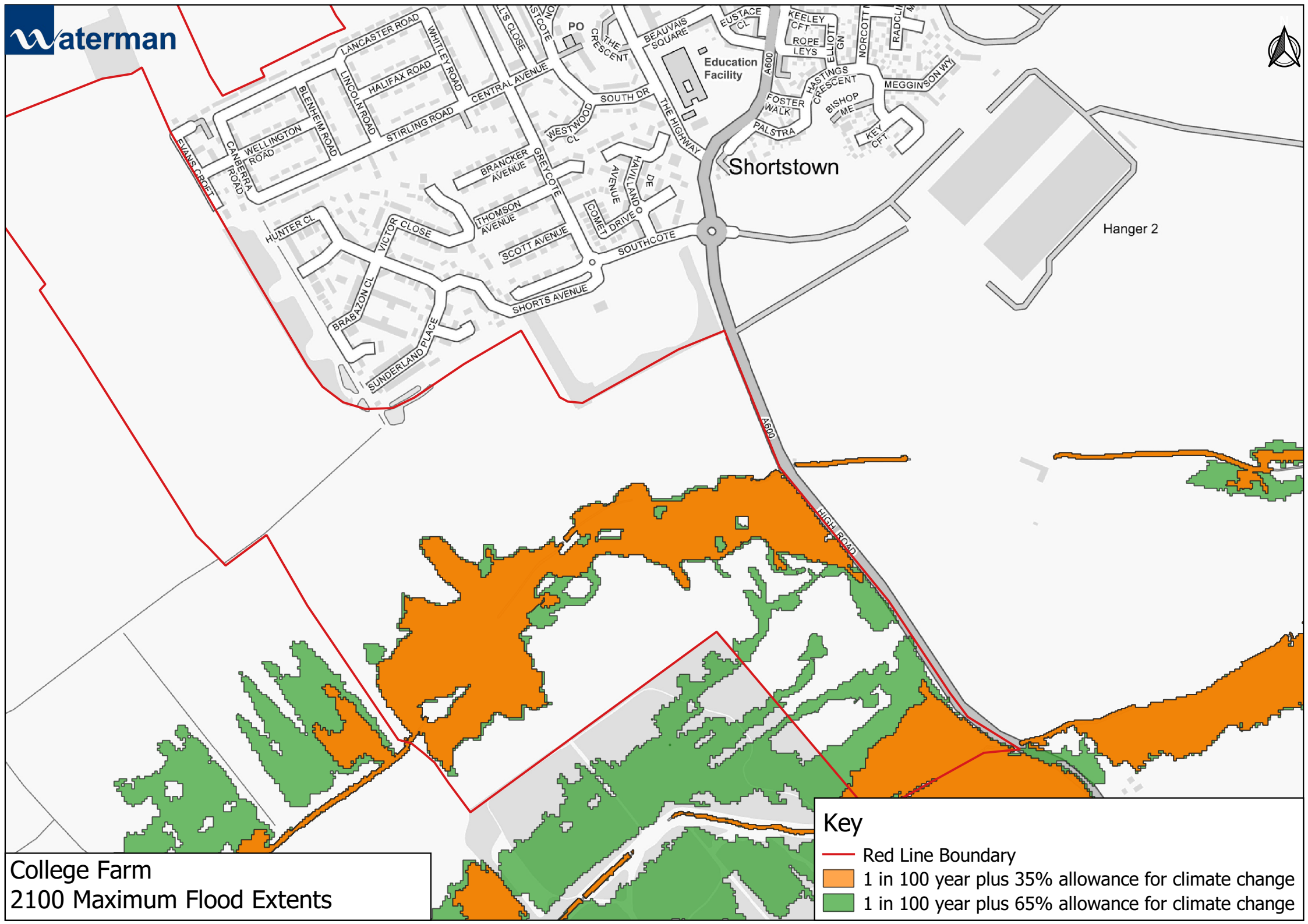
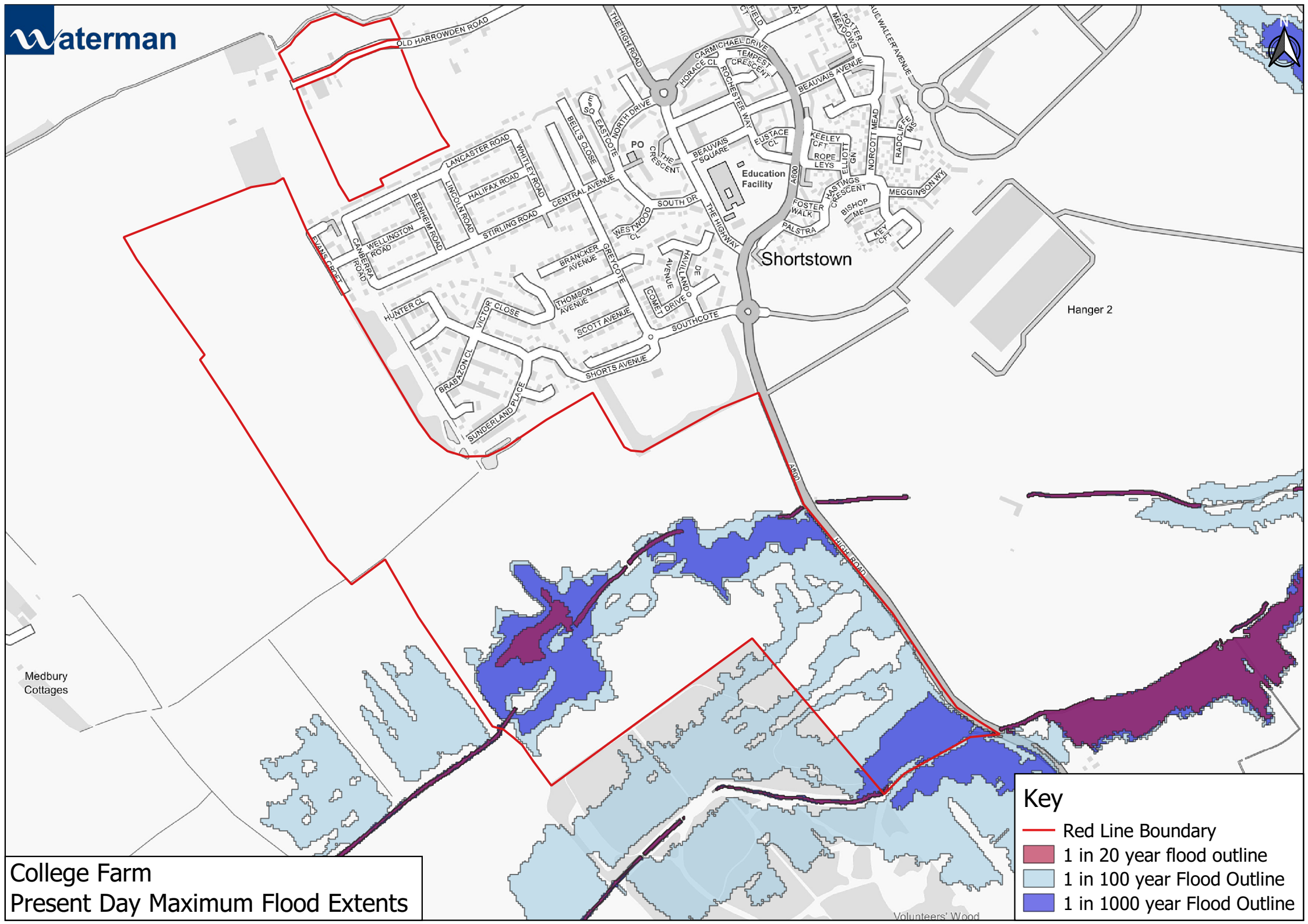
F. Baseline Hydraulic Model Results



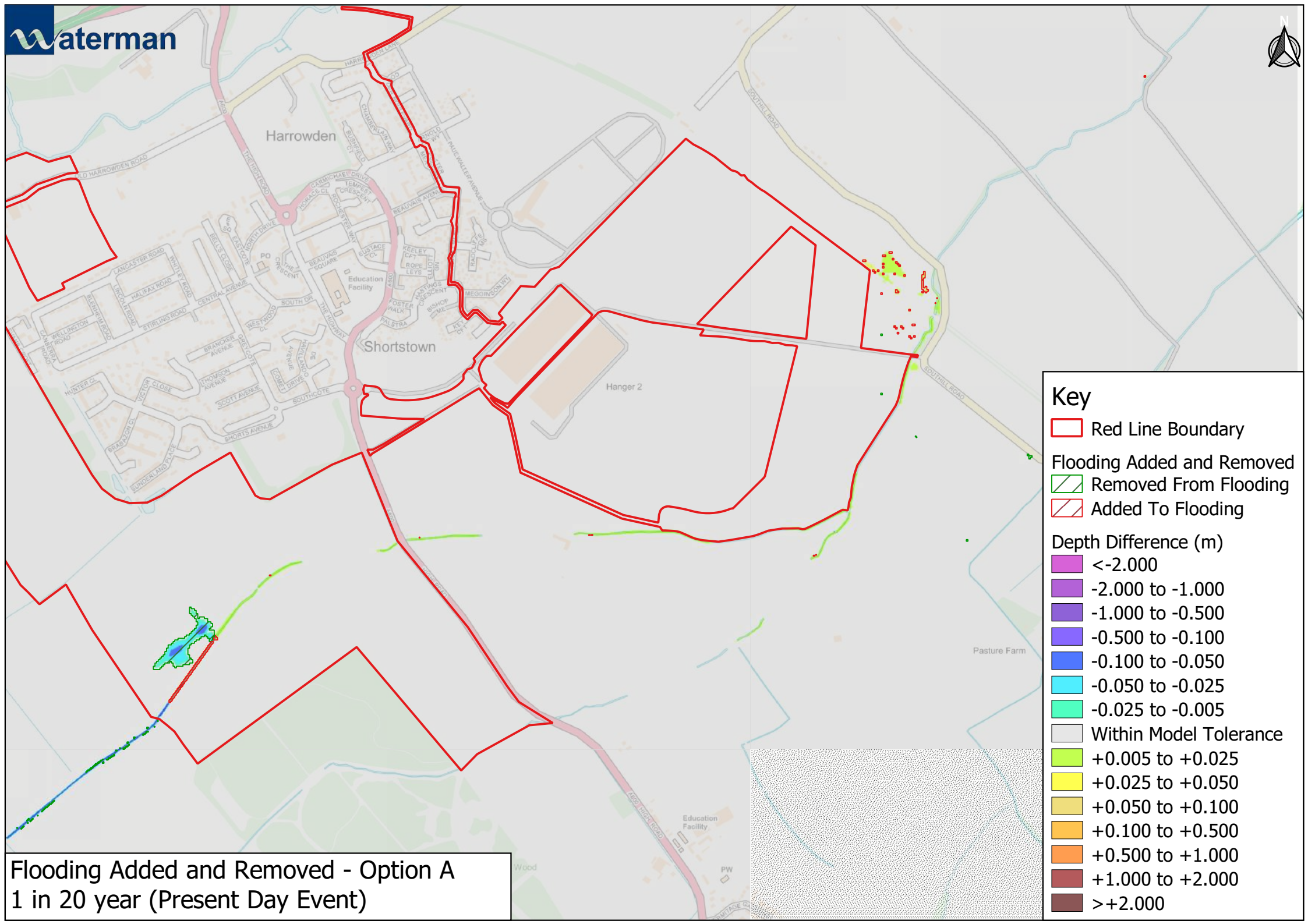
College Farm
2100 Maximum Flood Extents

Key

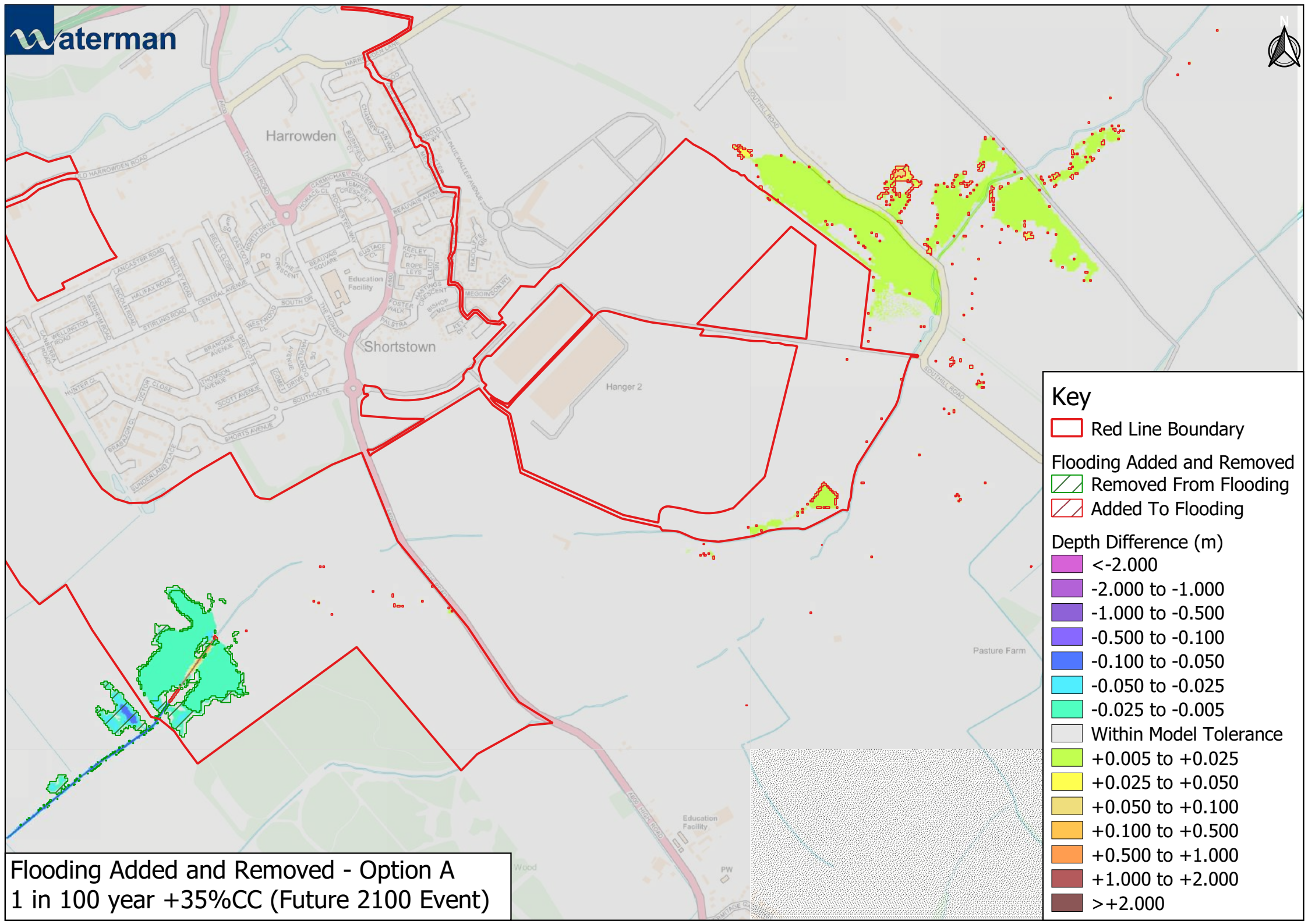
- Red Line Boundary
- 1 in 100 year plus 35% allowance for climate change
- 1 in 100 year plus 65% allowance for climate change


Waterman
OLD HARROWDEN ROAD
THE HIGH ROAD
CARMICHAEL DRIVE
TEMPEST CRESCENT
HORACE CL
ROCHESTER WAY
BEAUVAIS AVENUE
POTTER MEADOWS
AUE WALLER AVENUE
NORTH DRIVE
EAST COTE
BELL'S CLOSE
PO
THE CRESCENT
BEAUVAIS SQUARE
EUSTACE CL
KEELEY CFT
ROPE LEYS
ELLIOTT GN
NORCOTT MEAD
RADCLIFFE MS
Education Facility
A600
HASTINGS CRESCENT
MEGGINSON WY
FOSTER WALK
BISHOP ME
PALSTRA
KEY CFT
LANCASTER ROAD
WHITLEY ROAD
HALIFAX ROAD
LINCOLN ROAD
BLENHEIM ROAD
WELLINGTON ROAD
CANBERRA ROAD
STIRLING ROAD
CENTRAL AVENUE
SOUTH DR
WESTWOOD CL
THE HIGHWAY
EVANS CROFT
BRANCKER AVENUE
GREYCOTE AVENUE
HAVILLAND DE
COMET DRIVE
HUNTER CL
VICTOR CLOSE
THOMSON AVENUE
SCOTT AVENUE
SOUTHCOTE
BRABAZON CL
SHORTS AVENUE
SUNDERLAND PLACE
Shortstown
Hanger 2
Medbury Cottages
Volunteers' Wood
N
College Farm
Present Day Maximum Flood Extents
Key
Red Line Boundary
1 in 20 year flood outline
1 in 100 year Flood Outline
1 in 1000 year Flood Outline

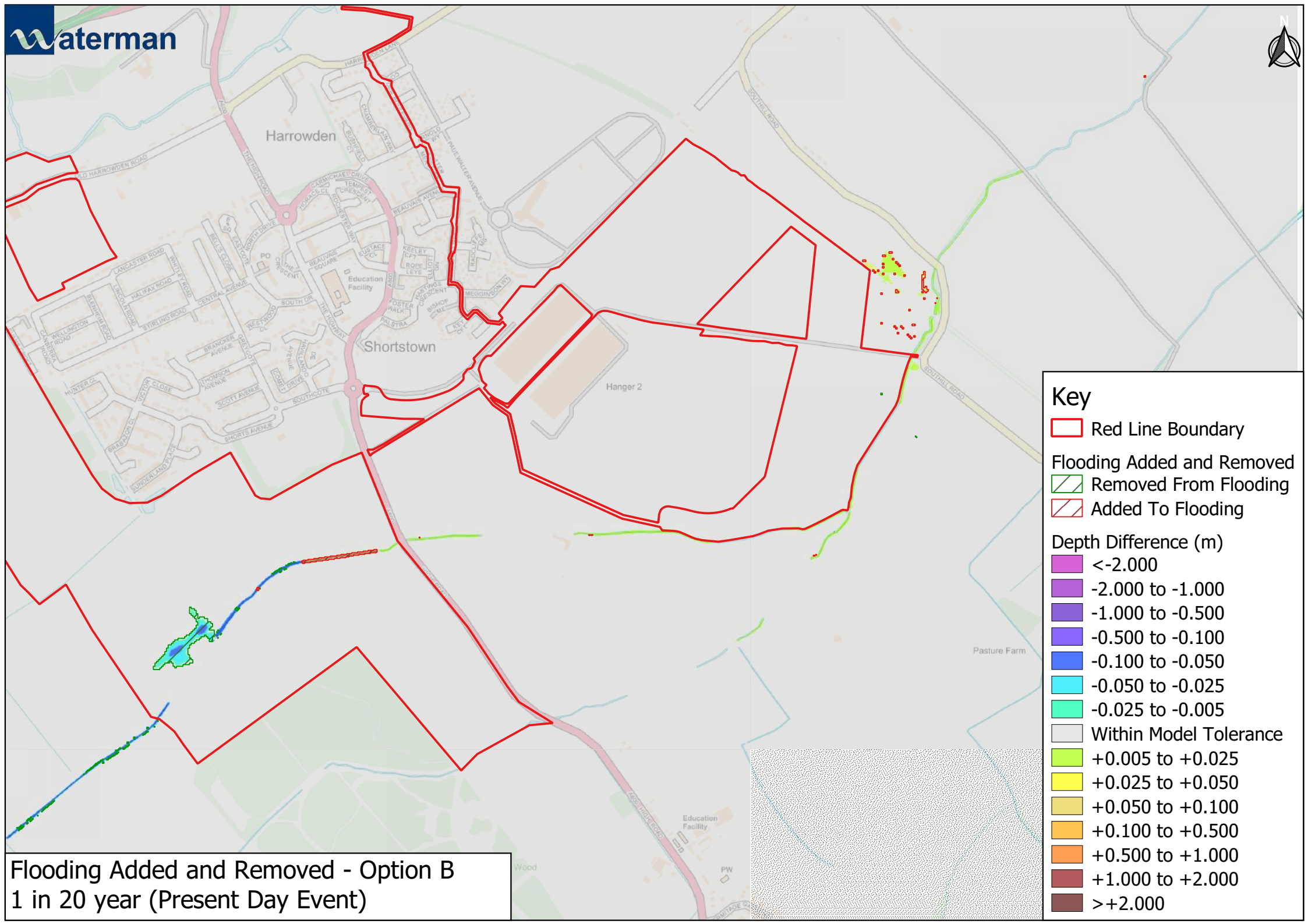
G. Options Hydraulic Model Results



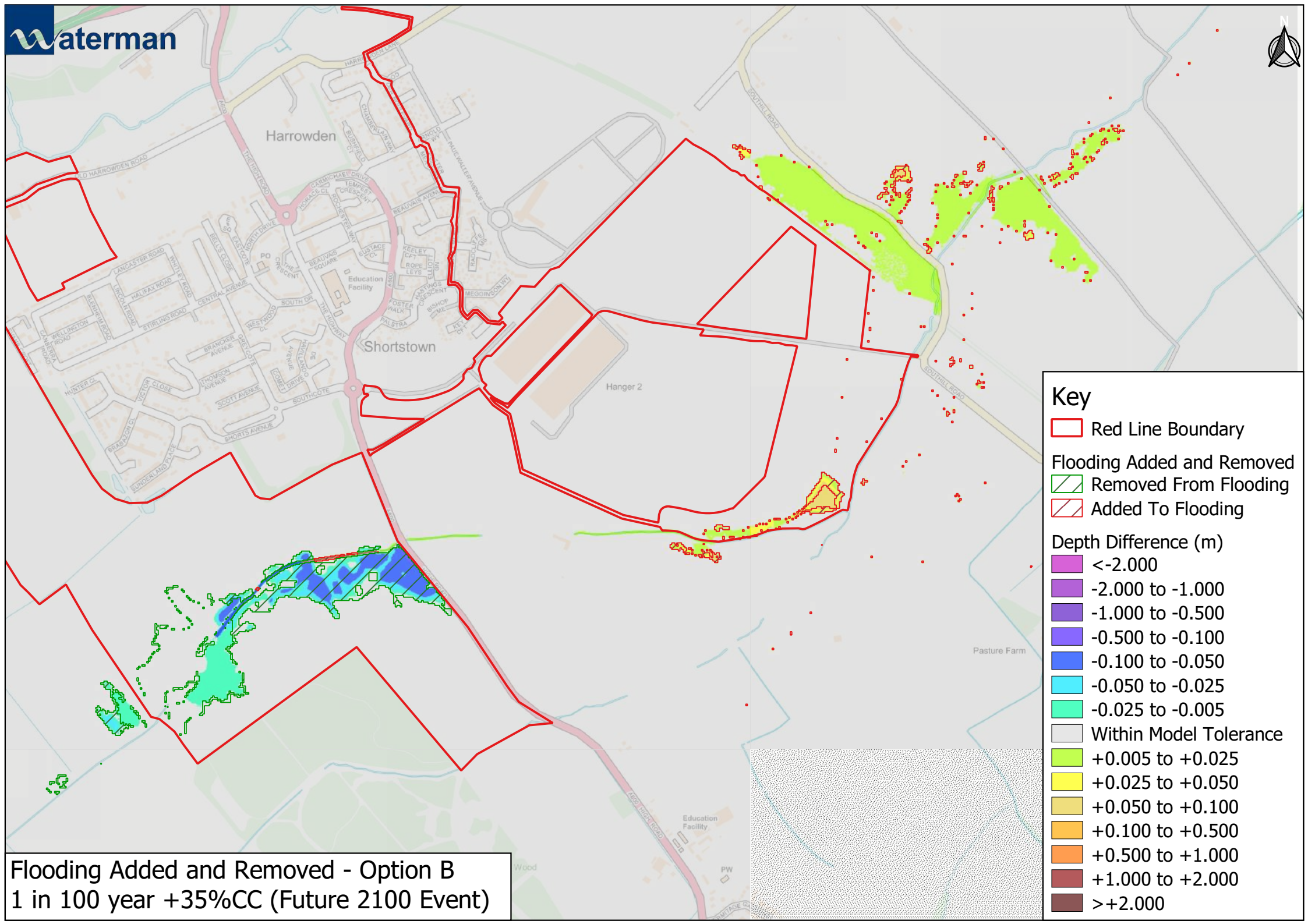
Flooding Added and Removed - Option A
1 in 20 year (Present Day Event)



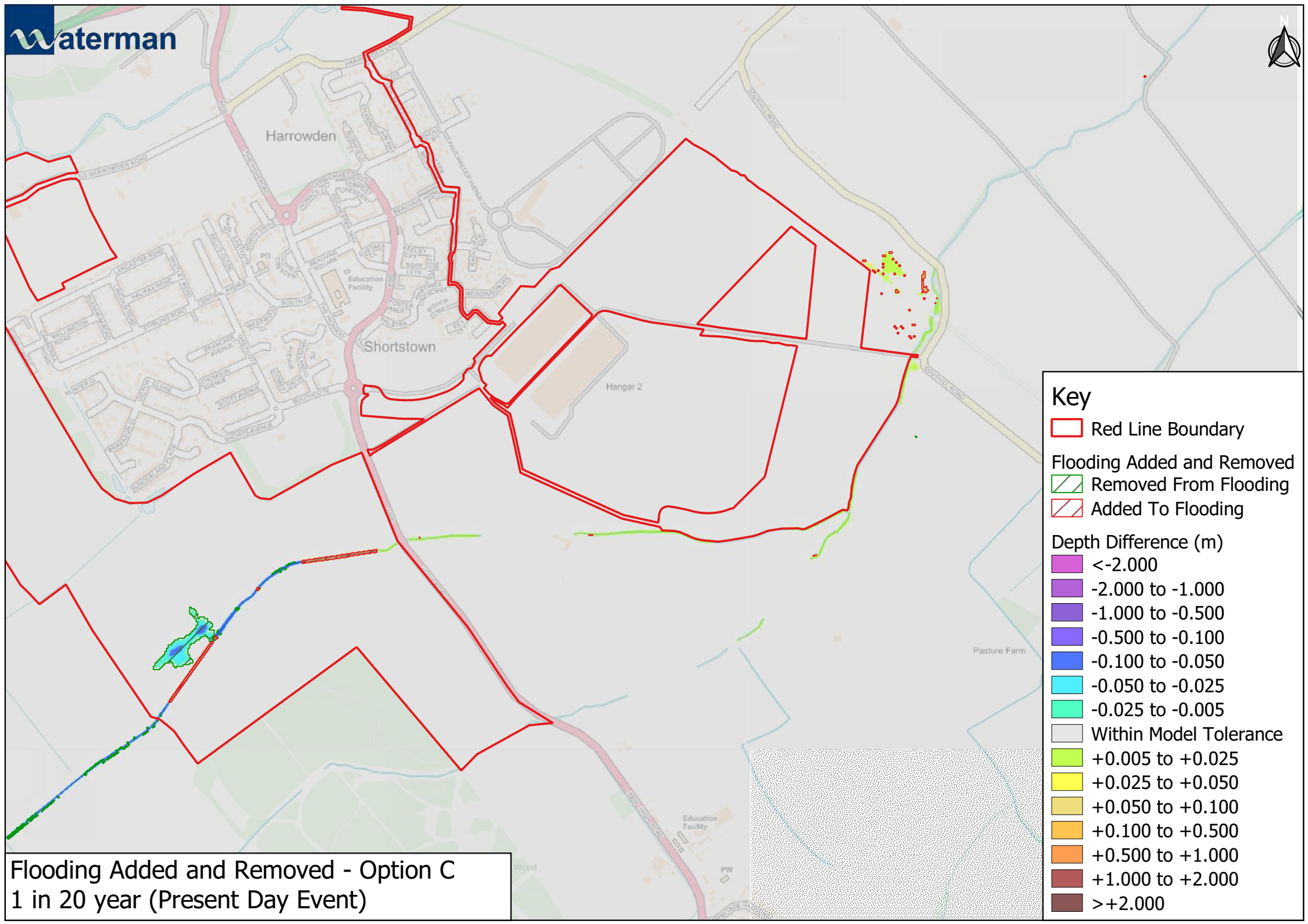
Flooding Added and Removed - Option A
1 in 100 year +35%CC (Future 2100 Event)



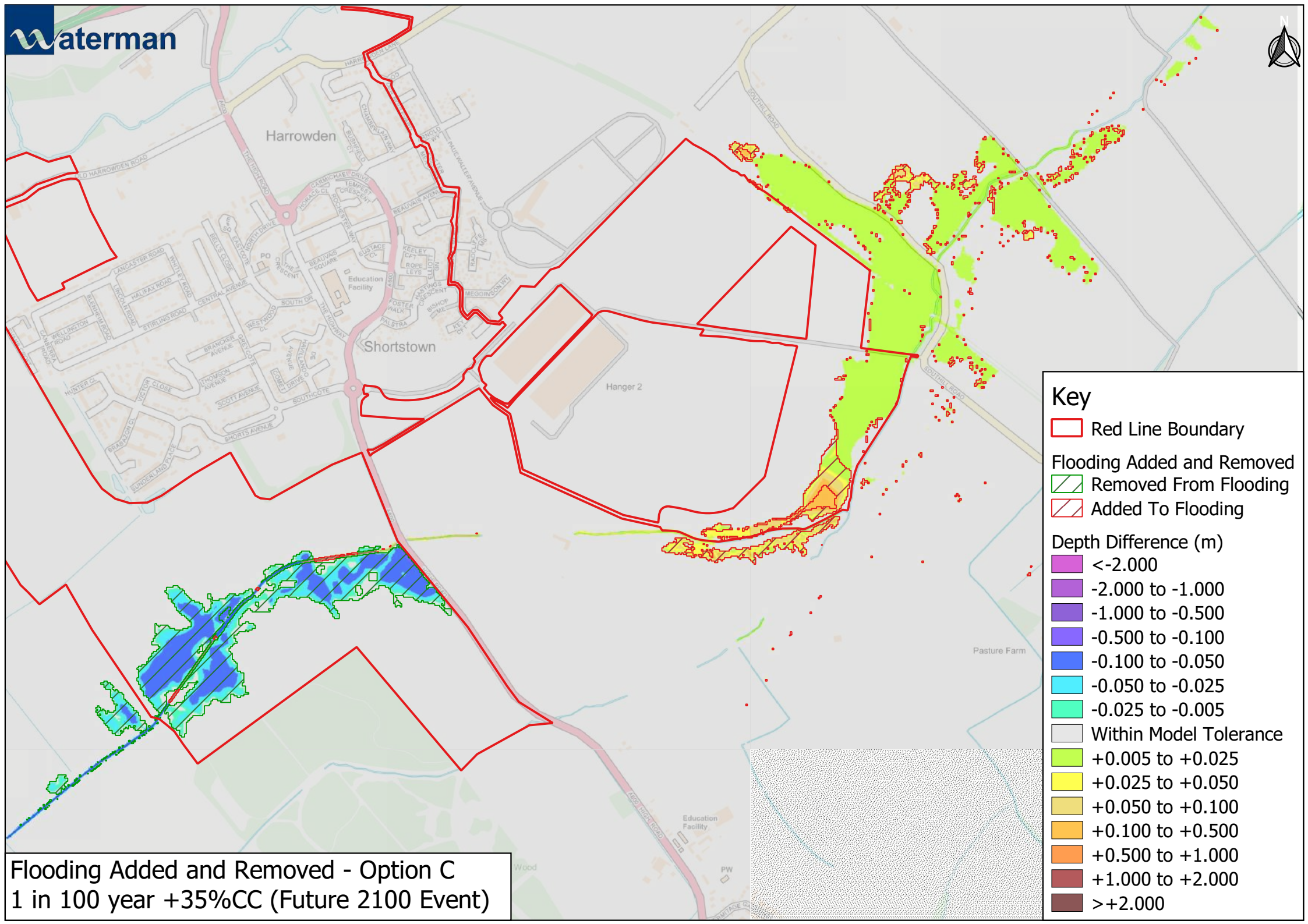
Flooding Added and Removed - Option B
1 in 20 year (Present Day Event)



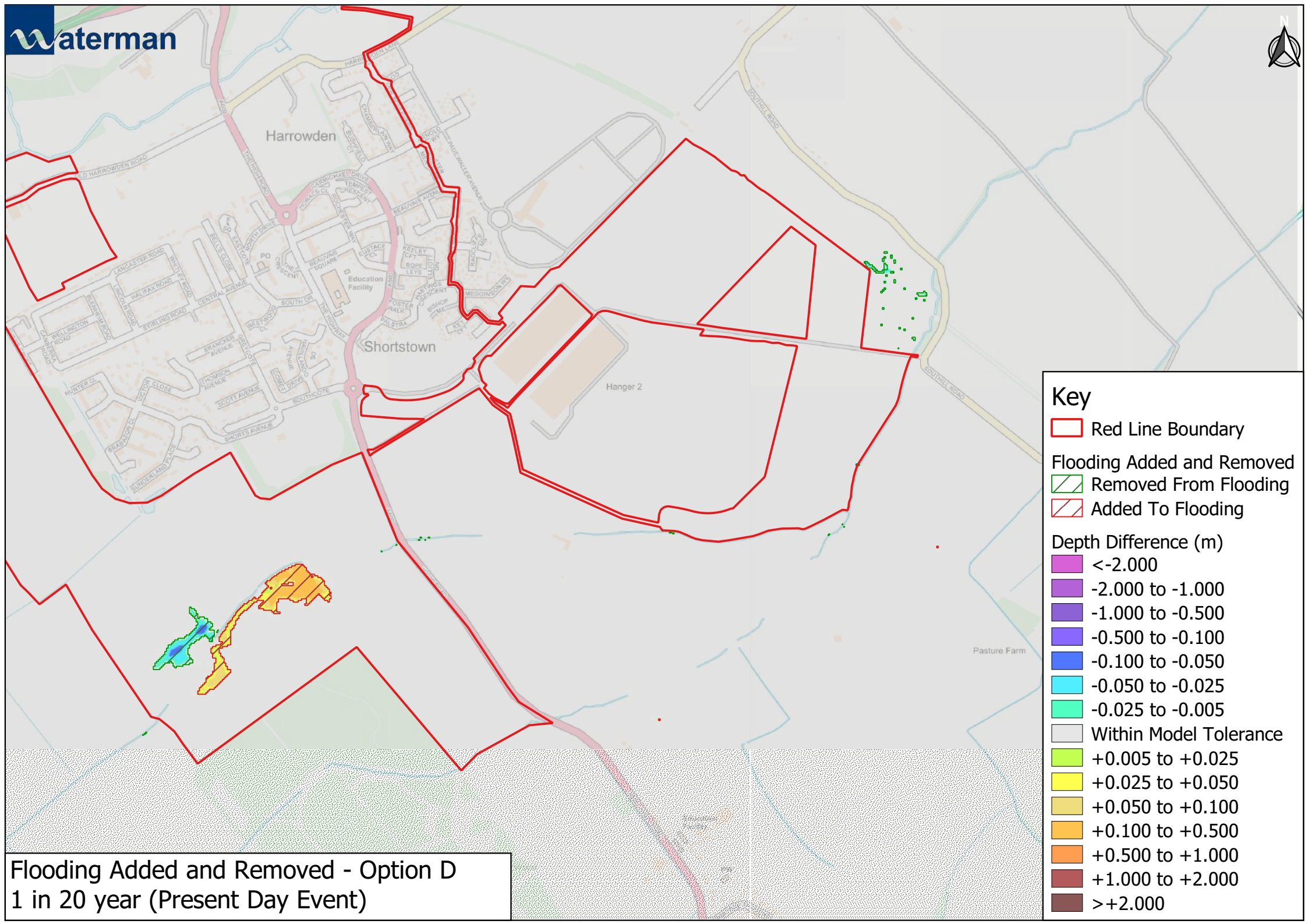
Flooding Added and Removed - Option B
1 in 100 year +35%CC (Future 2100 Event)

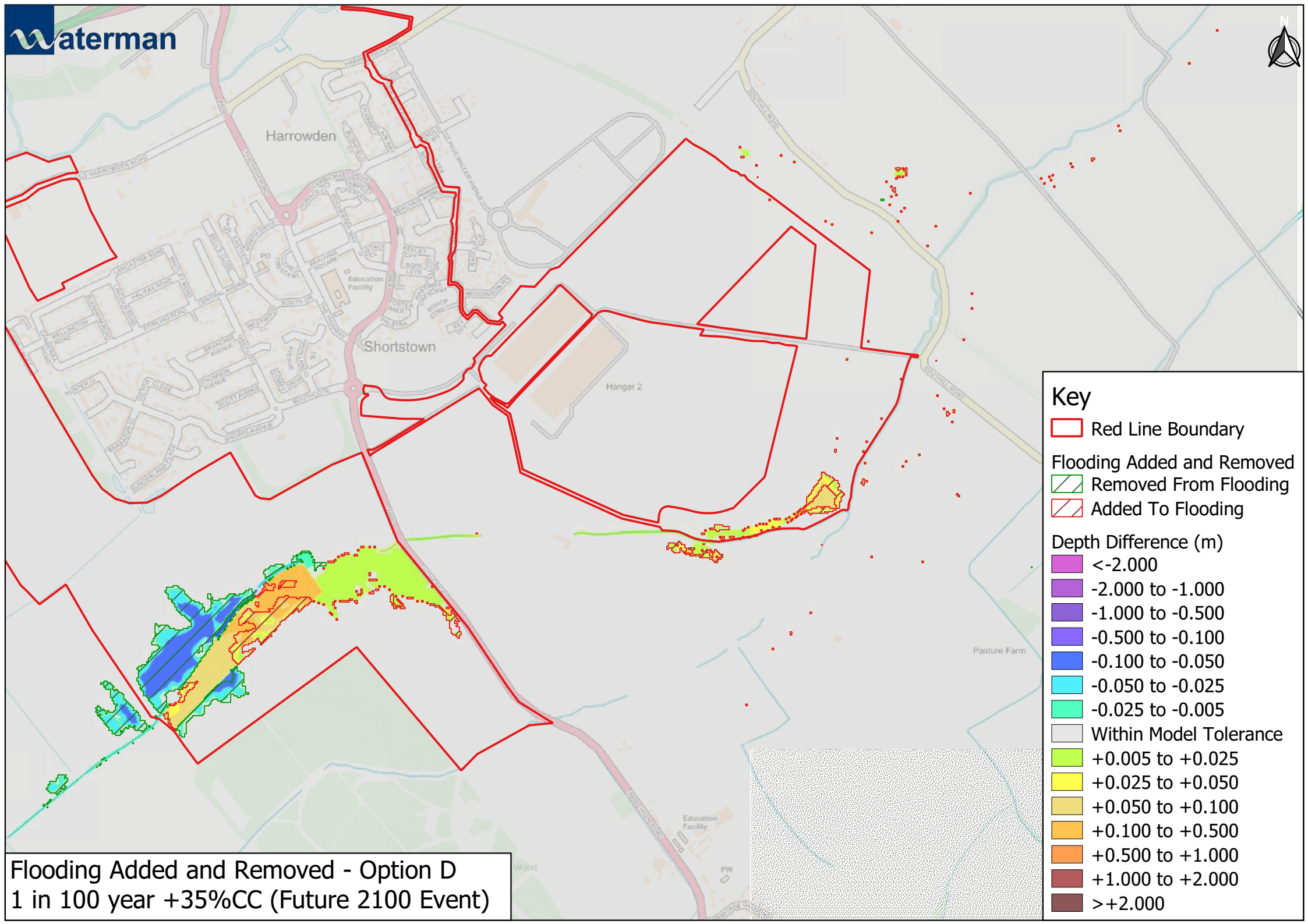


Flooding Added and Removed - Option C
1 in 20 year (Present Day Event)

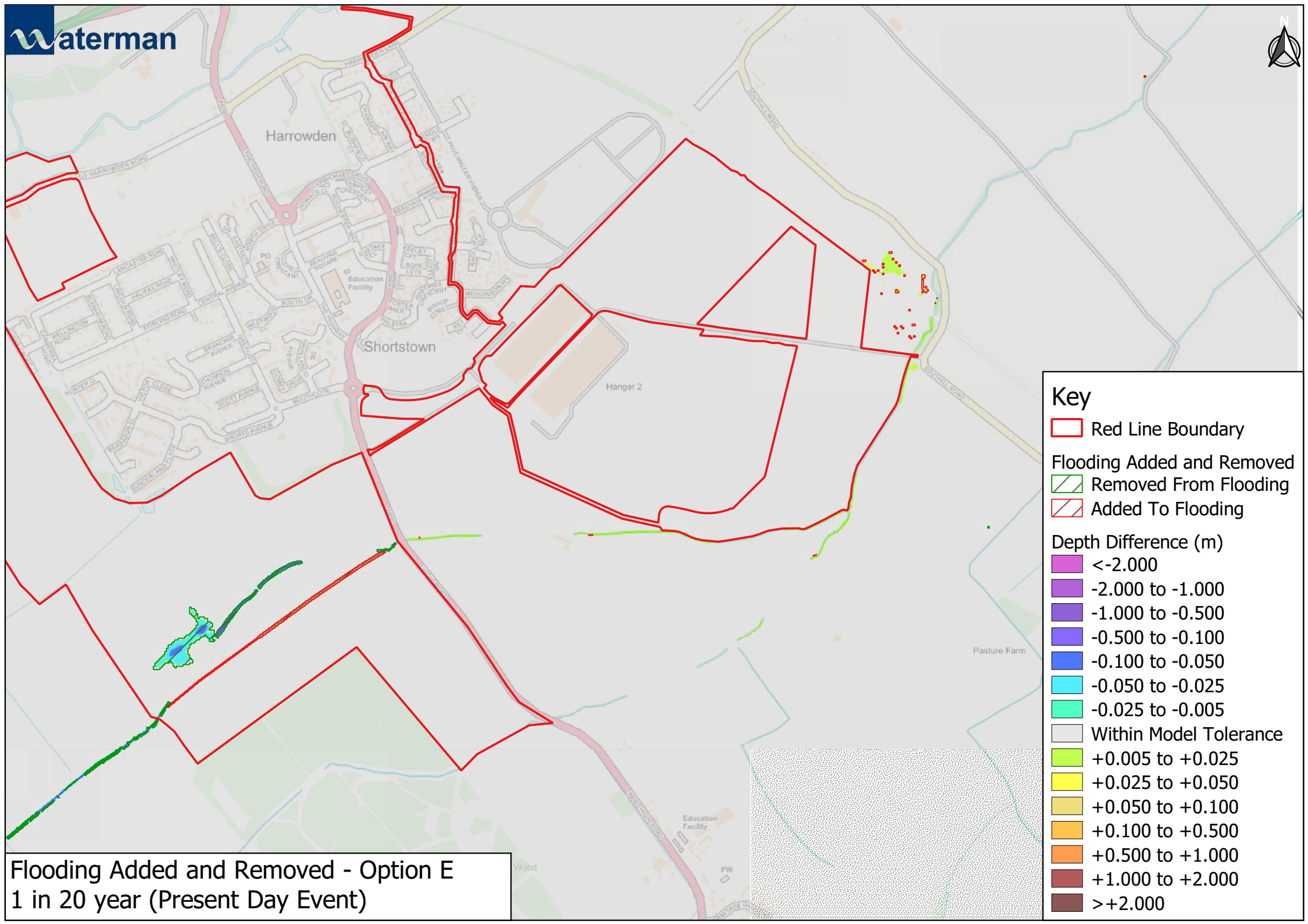


Flooding Added and Removed - Option C
1 in 100 year +35%CC (Future 2100 Event)

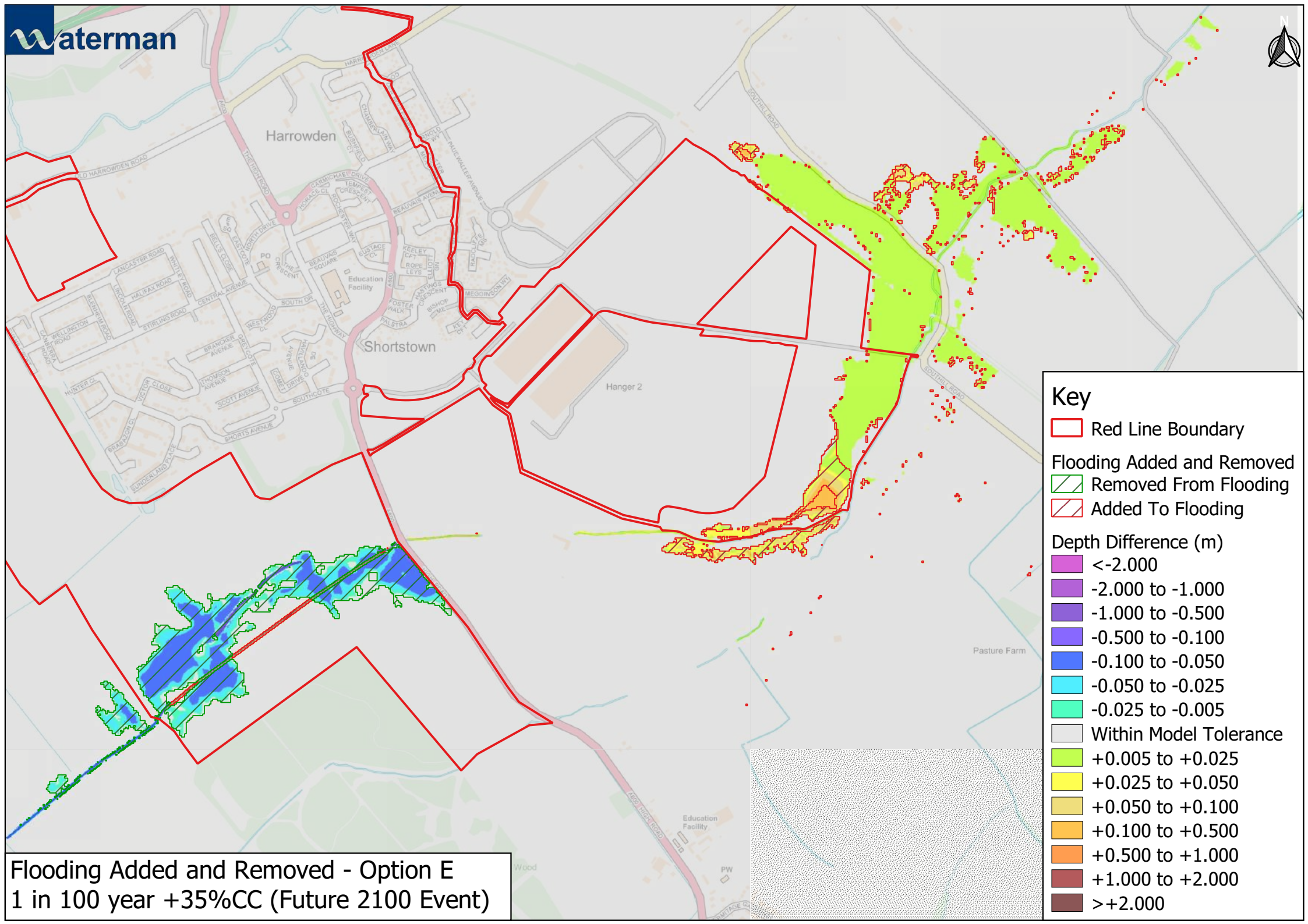

Harrowden
Shortstown
Hanger 2
Pasture Farm
Key
Red Line Boundary
Flooding Added and Removed
Removed From Flooding
Added To Flooding
Depth Difference (m)
<-2.000
-2.000 to -1.000
-1.000 to -0.500
-0.500 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.005
Within Model Tolerance
+0.005 to +0.025
+0.025 to +0.050
+0.050 to +0.100
+0.100 to +0.500
+0.500 to +1.000
+1.000 to +2.000
>+2.000
Flooding Added and Removed - Option D
1 in 20 year (Present Day Event)



Flooding Added and Removed - Option D
1 in 100 year +35%CC (Future 2100 Event)



Flooding Added and Removed - Option E
1 in 20 year (Present Day Event)



Flooding Added and Removed - Option E
1 in 100 year +35%CC (Future 2100 Event)

H. Anglian Water sewer records

Date: 14/05/19 | Scale: 1:1250 | Map Centre: 506679,247043 | Data updated: 30/04/19 | Our Ref: 311242 - 1 | Wastewater Plan A0

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Station
Decommissioned Pumping Station

*(Colour denotes effluent type)

donal.odonovan@watermangroup.com

Area 1

love every drop anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0000	507067	247008	F	39.56	37.85	1.71
0200	506054	247294	F	-	-	-
0200	507093	247245	F	28.7	26.72	1.98
0201	507080	247267	F	26.8	22.97	3.83
0202	507068	247260	F	26.64	23.08	3.56
0203	507039	247251	F	27.68	23.18	4.5
0300	506089	247344	F	28.421	27.347	1.074
0300	507086	247309	F	26.13	22.64	3.49
0301	506074	247302	F	28.649	-	-
0302	506075	247393	F	27.32	25.56	1.76
0303	506023	247380	F	27.08	25.08	2
0304	506081	247371	F	28.34	-	-
0400	507070	247420	F	-	20.93	-
0401	507067	247425	F	-	22.15	-
0500	507073	246590	F	32.41	30.09	2.32
0501	507044	246573	F	32.1	29.86	2.24
0600	507085	246610	F	32.71	30.26	2.45
0601	507008	246672	F	33.85	31.94	1.91
0602	507030	246685	F	34.17	31.73	2.44
0700	507002	246745	F	36.34	34.25	2.09
0701	507026	246757	F	36.44	33.97	2.47
0702	507057	246774	F	36.82	34.24	2.58
0703	507053	246707	F	34.64	31.51	3.13
0704	507062	246776	F	-	-	-
0706	507090	246777	F	-	-	-
0707	507092	246752	F	-	-	-
0708	507069	246711	F	-	-	-
0709	507060	246715	F	-	-	-
0710	507055	246724	F	-	-	-
0711	507040	246743	F	-	-	-
0801	507024	246811	F	38.76	36.95	1.81
0802	507068	246831	F	38.8	36.59	2.21
0803	507087	246801	F	37.79	36.24	1.55
0804	507053	246878	F	40.08	39.38	0.7
0805	507022	246871	F	40.02	38.76	1.26
0806	507017	246880	F	40.19	38.67	1.52
0807	507014	246888	F	40.34	38.57	1.77
0901	507008	246904	F	40.51	37.3	3.21
0902	507018	246965	F	40.11	38.9	1.21
0903	507083	246905	F	40.34	39.14	1.2
0904	507086	246911	F	40.38	39.09	1.29
0905	507049	246989	F	39.87	38.35	1.52
0906	507032	246981	F	40.23	38.66	1.57
1000	507162	247052	F	39.8	37.37	2.43
1001	507114	247030	F	39.69	37.72	1.97
1200	507131	247289	F	26.37	23.13	3.24
1201	507105	247277	F	26.63	22.87	3.76
1300	506142	247331	F	29.035	27.812	1.223
1300	507169	247350	F	25.92	22.33	3.59
1301	506101	247313	F	28.733	27.506	1.227
1500	506170	247507	F	-	21.91	-
1500	507197	246574	F	32.03	29.5	2.53
1504	507168	246587	F	31.87	29.84	2.03
1600	507113	246682	F	34.04	31.03	3.01
1603	507193	246652	F	32.99	30.61	2.38
1604	507196	246665	F	-	-	-
1605	507192	246667	F	-	-	-
1606	507182	246670	F	-	-	-
1701	507168	246789	F	37.33	35.63	1.7
1702	507172	246733	F	-	-	-
1703	507143	246745	F	-	-	-
1704	507135	246740	F	-	-	-
1705	507149	246758	F	-	-	-
1706	507129	246765	F	-	-	-
1707	507125	246743	F	-	-	-
1708	507133	246764	F	-	-	-
1709	507101	246776	F	-	-	-
1710	507120	246718	F	-	-	-
1711	507111	246722	F	-	-	-
1712	507174	246737	F	-	-	-
1713	507170	246727	F	-	-	-
1714	507177	246720	F	-	-	-
1715	507168	246794	F	-	-	-
1801	507167	246803	F	-	-	-
2000	507217	247073	F	40.09	36.89	3.2
2001	507205	247068	F	40.07	37.17	2.9
2100	507279	247102	F	-	-	-
2101	507276	247121	F	-	-	-
2102	507266	247125	F	-	-	-
2103	507260	247125	F	-	-	-
2104	507255	247124	F	-	-	-
2300	506264	247388	F	28.726	26.527	2.199
2300	507263	247387	F	25.96	22.08	3.88
2301	506221	247362	F	29.079	26.819	2.26
2302	506239	247371	F	28.659	26.762	1.897
2303	506209	247371	F	29.06	26.93	2.13
2304	506279	247391	F	28.709	26.664	2.045
2305	506294	247398	F	28.675	26.73	1.945
2400	506259	247416	F	26.407	26.302	0.105
2400	507269	247420	F	25.42	21.83	3.59
2401	506258	247428	F	27.04	25.38	1.66
2401	507278	247477	F	25.5	21.78	3.72
2402	506275	247434	F	26.73	24.82	1.91
2500	507232	246562	F	31.87	29.84	2.03
2501	507257	246573	F	32.02	30.05	1.97
2600	507269	246645	F	32.58	30.15	2.43
2601	507255	246650	F	32.7	29.91	2.79
2602	507237	246652	F	32.83	29.8	3.03
2603	507211	246638	F	32.81	29.29	3.52
2604	507211	246613	F	32.41	29.21	3.2
2605	507279	246638	F	32.55	30.25	2.3
2606	507287	246625	F	32.61	30.36	2.25
2607	507237	246656	F	-	-	-
2608	507228	246672	F	-	-	-
2609	507227	246675	F	-	-	-
2610	507226	246677	F	-	-	-
2611	507222	246676	F	-	-	-
2612	507205	246672	F	-	-	-
2613	507202	246665	F	-	-	-
2701	507244	246778	F	36.87	35.27	1.6
2702	507279	246716	F	35.57	34.67	0.9
2703	507300	246679	F	34.61	33.07	1.54
2704	507239	246714	F	-	-	-
2705	507222	246713	F	-	-	-
2706	507252	246707	F	-	-	-
2707	507241	246707	F	-	-	-
2708	507213	246722	F	-	-	-
2709	507224	246717	F	-	-	-
2710	507221	246703	F	-	-	-
2711	507218	246703	F	-	-	-
2901	507222	246942	F	40.8	38.93	1.87
2902	507261	246941	F	40.77	38.17	2.6
2903	507280	246942	F	40.772	37.952	2.82
2904	507280	246931	F	40.73	38.06	2.67
2905	507220	246903	F	40.444	38.754	1.69
2906	507257	246920	F	-	-	-
3000	507360	247069	F	-	-	-
3002	507328	247086	F	-	-	-
3003	507324	247094	F	-	-	-
3004	507331	247080	F	-	-	-
3005	507331	247072	F	-	-	-
3100	507394	247185	F	-	-	-
3101	507370	247173	F	-	-	-
3102	507387	247152	F	40.336	35.691	4.645
3103	507335	247127	F	-	-	-
3104	507368	247177	F	-	-	-
3105	507366	247182	F	-	-	-
3106	507364	247187	F	-	-	-
3200	507360	247299	F	34.95	32.49	2.46
3201	507399	247226	F	39.79	34.04	5.75
3300	507339	247373	F	-	-	-
3301	507329	247367	F	-	-	-
3400	506370	247442	F	28.351	25.42	2.931
3400	507315	247426	F	-	-	-
3401	506371	247432	F	28.107	26.18	1.927
3600	507313	246651	F	-	-	-
3601	507322	246631	F	-	-	-
3602	507327	246630	F	-	-	-
3603	507375	246650	F	-	-	-
3604	507302	246677	F	33.67	31.51	2.16
3605	507306	246678	F	-	-	-
3606	507299	246663	F	33.44	31.07	2.37
3700	507393	246789	F	-	-	-
3801	507392	246881	F	-	-	-
3802	507363	246854	F	-	-	-
3803	507381	246815	F	-	35.489	-
3804	507391	246819	F	37.489	35.863	1.626
3901	507337	246966	F	40.704	37.524	3.18
3902	507395	246993	F	40.702	37.102	3.6
3903	507378	246903	F	-	-	-
3904	507338	246911	F	-	-	-
3905	507386	246989	F	-	-	-
4001	507401	247099	F	40.595	38.39	2.205
4100	507405	247161	F	-	-	-
4400	506446	247448	F	26.79	23.78	3.01
5400	506516	247467	F	27.13	23.25	3.88
6503	506605	247506	F	-	-	-
7100	506743	247200	F	26.18	24.51	1.67
7300	506713	247397	F	-	21.29	-
8200	506887	247231	F	-	-	-
8201	506873	247245	F	26.6	23.93	2.67
8202	506820	247227	F	26.78	24.18	2.6
8400	506897	247409	F	-	21.11	-
8500	506825	246574	F	-	-	-
8501	506839	246583	F	-	-	-
8502	506876	246577	F	-	-	-
8801	506878	246818	F	40.04	39.13	0.91
9200	506972	247229	F	27.52	23.47	4.05
9201	505979	247282	F	-	-	-
9201	506956	247252	F	26.5	23.58	2.92
9300	505950	247362	F	27.64	24.61	3.03
9301	505964	247303	F	-	-	-
9400	505996	247471	F	-	22.1	-
9500	506947	246563	F	-	-	-
9501	506969	246568	F	-	-	-
9701	506954	246779	F	38.65	37.93	0.72
9702	506990	246796	F	38.71	37.44	1.27
9703	506914	246776	F	-	-	-
9704	506943	246784	F	-	-	-
9801	506976	246829	F	39.5	38.51	0.99
9802	506928	246848	F	40.33	38.54	1.79
9803	506939	246852	F	40.35	38.4	1.95
9804	506961	246862	F	40.32	38.15	2.17
9805	506954	246877	F	40.38	38.04	2.34
9806	506991	246877	F	40.36	38.38	1.98
9807	506982	246872	F	40.38	38.33	2.05
9808	506913	246839	F	-	-	-
9809	506918	246828	F	-	-	-
9810	506927	246811	F	-	-	-
9901	506990	246949	F	39.95	36.74	3.21
9902	506987	246956	F	40.04	36.61	3.43
9903	506899	246913	F	40.08	39.13	0.95
9904	506910	246917	F	40.07	38.97	1.1
9905	506931	246926	F	40.06	37.62	2.44
9906	506957	246939	F	40.03	37.23	2.8
9907	506979	246952	F	40.06	37.01	3.05
0250	506043	247294	S	-	-	-
0351	506074	247304	S	28.698	27.133	1.565
0352	506092	247343	S	28.484	26.757	1.727
0353	506076	247396	S	27.32	25.11	2.21
0354	506018	247382	S	27.12	25.22	1.9
0355	506084	247372	S	28.328	26.514	1.814
0356	506065	247301	S	-	-	-
0357	506014	247318	S	-	-	-
0554	507047	246573	S	32.1	30.77	1.33
0555	507074	246590	S	32.38	30.87	1.51
0650	507002	246640	S	33.47	31.92	1.55
0651	507028	246681	S	34.09	32.48	1.61
0652	507085	246696	S	34.3	32.65	1.65
0653	507087	246611	S	32.72	30.99	1.73
0752	507055	246707	S	34.65	33.02	1.63
0753	507040	246735	S	35.5	33.51	1.99
0754	507056	246772	S	36.78	35.22	1.56
0755	507013	246749	S	36.39	34.53	1.86
0756	507044	246736	S	-	-	-
0757	507063	246775	S	-	-	-
0758	507092	246751	S	-	-	-
0759	507097	246777	S	-	-	-
0760	507060	246714	S	-	-	-
1351	506143	247333	S	29.058	27.291	1.767
1352	506103	247317	S	28.732	26.965	1.767
1353	506165	247371	S	28.82	27.351	1.469
1354	506187	247380	S	28.872	27.589	1.283
1355	506204	247374	S	29.014	27.719	1.295
1451	506198	247423	S	27.2	25.05	2.15
1553	507198	246571	S	31.94	30.27	1.67
1556	507171	246584	S	32.06	30.59	1.47
1651	507116	246685	S	34.08	32.11	1.97
1652	507142	246673	S	33.62	31.95	1.67
1653	507196	246652	S	32.92	31.11	1.81
1751	507200	246787	S	-	-	-
1752	507175	246729	S	-	-	-
1753	507143	246742	S	-	-	-
1754	507136	246738	S	-	-	-
1755	507151	246749	S	-	-	-
1756	507125	246742	S	-	-	-
1758	507121	246717	S	-	-	-
1759	507120	246741	S	-	-	-
1760	507187	246773	S	-	-	-
1761	507178	246736	S	-	-	-
1762	507174	246725	S	-	-	-
2351	506265	247391	S	28.681	26.946	1.735
2352	506217	247362	S	29.301	28.115	1.186
2353	506242	247375	S	28.611	27.247	1.364
2354	506277	247392	S	28.736	27.052	1.684
2451	506261	247431	S	26.7	25.04	1.66
2452	506300	247401	S	29.123	27.664	1.459
2550	507232	246561	S	31.82	30.59	1.23
2551	507256	246571	S	32	30.89	1.11
2655	507213	246638	S	32.79	30.69	2.1
2656	507213	246612	S	32.35	30.53	1.82
2659	507237	246650	S	32.85	30.8	2.05
2660	507256	246649	S	32.69	31.03	1.66
2661	507267	246645	S	32.61	31.08	1.53
2662	507289	246617	S	-	-	-
2663	507279	246636	S	32.57	31.15	1.42
2664	507260	246691	S	-	-	-
2665	507200	246662	S	-	-	-
2666	507268	246694	S	-	-	-
2751	507220	246771	S	-	-	-
2752	507239	246763	S	-	-	-
2753	507261	246724	S	-	-	-
2754	507242	246711	S	-	-	-
2755	507220	246711	S	-	-	-
2756	507215	246768	S	-	-	-
2757	507252	246705	S	-	-	-
2758	507243	246706	S	-	-	-
2759	507223	246717	S	-	-	-
2760	507220	246704	S	-	-	-
3451	506373	247434	S	28.161	26.76	1.401
3452	506260	247415	S	28.341	26.478	1.863
3453	506372	247445	S	28.332	26.575	1.757
3454	506379	247446	S	27.18	25.04	2.14
3455	506378	247411	S	28.414	26.955	1.459
3651	507385	246651	S	-	-	-
3652	507340	246632	S	-	-	-
3653	507315	246683	S	-	-	-
3751	507368	246707	S	-	-	-
3851	507376	246820	S	-	-	-
3853	507390	246816	S	37.462	35.938	1.524
3854	507386	246814	S	46.4	44.975	1.425
3951	507339	246901	S	-	-	-
7850	506796	246878	S	-	-	-
8550	506826	246572	S	-	-	-
8551	506840	246580	S	-	-	-
8552	506883	246573	S	-	-	-
8750	506857	246773	S	-	-	-
8850	506837	246810	S	-	-	-
8851	506885	246839	S	-	-	-
8852	506837	246816	S	-	-	-
8853	506852	246823	S	-	-	-
8854	506830	246819	S	-	-	-
8855	506816	246890	S	-	-	-
9252	505976	247283	S	-	-	-
9253	505977	247259	S	-	-	-
9352	505968	247314	S	-	-	-
9353	505961	247304	S	-	-	-
9550	507000	246592	S	-	-	-
9551	506947	246560	S	-	-	-
9552	506971	246567	S	-	-	-
9650	506993	246661	S	33.68	32.13	1.55
9651	506911	246671	S	-	-	-
9652	506963	246648	S	-	-	-
9653	506938	246655	S	-	-	-
9750	506964	246705	S	35.45	33.75	1.7
9751	506958	246720	S	35.88	33.99	1.89
9752	506906	246796	S	-	-	-
9753	506914	246778	S	-	-	-
9754	506917	246762	S	-	-	-

Date: 14/05/19

Scale: 1:1250

Map Centre: 508007,247035

Data updated: 30/04/19

Our Ref: 311242 - 2

Wastewater Plan A0

This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2019 Ordnance Survey 100022432.This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Station
Decommissioned Pumping Station

*(Colour denotes effluent type)

donal.odonovan@watermangroup.com

Area 2

love every drop anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
2100	507279	247102	F	-	-	-
2101	507276	247121	F	-	-	-
2401	507278	247477	F	25.5	21.78	3.72
2605	507279	246638	F	32.55	30.25	2.3
2606	507287	246625	F	32.61	30.36	2.25
2702	507279	246716	F	35.57	34.67	0.9
2703	507300	246679	F	34.61	33.07	1.54
2903	507280	246942	F	40.772	37.952	2.82
2904	507280	246931	F	40.73	38.06	2.67
3000	507360	247069	F	-	-	-
3002	507328	247086	F	-	-	-
3003	507324	247094	F	-	-	-
3004	507331	247080	F	-	-	-
3005	507331	247072	F	-	-	-
3100	507394	247185	F	-	-	-
3101	507370	247173	F	-	-	-
3102	507387	247152	F	40.336	35.691	4.645
3103	507335	247127	F	-	-	-
3104	507368	247177	F	-	-	-
3105	507366	247182	F	-	-	-
3106	507364	247187	F	-	-	-
3200	507360	247299	F	34.95	32.49	2.46
3201	507399	247226	F	39.79	34.04	5.75
3300	507339	247373	F	-	-	-
3301	507329	247367	F	-	-	-
3400	507315	247426	F	-	-	-
3600	507313	246651	F	-	-	-
3601	507322	246631	F	-	-	-
3602	507327	246630	F	-	-	-
3603	507375	246650	F	-	-	-
3604	507302	246677	F	33.67	31.51	2.16
3605	507306	246678	F	-	-	-
3606	507299	246663	F	33.44	31.07	2.37
3700	507393	246789	F	-	-	-
3801	507392	246881	F	-	-	-
3802	507363	246854	F	-	-	-
3803	507381	246815	F	-	35.489	-
3804	507391	246819	F	37.489	35.863	1.626
3901	507337	246966	F	40.704	37.524	3.18
3902	507395	246993	F	40.702	37.102	3.6
3903	507378	246903	F	-	-	-
3904	507338	246911	F	-	-	-
3905	507386	246989	F	-	-	-
4000	507488	247065	F	-	-	-
4001	507401	247099	F	40.595	38.39	2.205
4002	507460	247096	F	-	-	-
4003	507462	247091	F	-	-	-
4004	507463	247088	F	-	-	-
4005	507465	247085	F	-	-	-
4100	507405	247161	F	-	-	-
4101	507442	247178	F	39.38	35.24	4.14
4102	507436	247174	F	39.473	35.413	4.06
4103	507456	247142	F	40.396	36.661	3.735
4200	507412	247232	F	36.998	34.148	2.85
4600	507449	246674	F	-	-	-
4601	507492	246689	F	34.54	33.34	1.2
4602	507489	246697	F	34.72	33.44	1.28
4700	507420	246732	F	-	-	-
4701	507444	246773	F	36.08	34.45	1.63
4702	507465	246726	F	34.87	33.65	1.22
4703	507470	246715	F	34.65	33.59	1.06
4704	507496	246712	F	-	-	-
4801	507426	246891	F	-	-	-
4802	507420	246833	F	37.839	36.264	1.575
4803	507436	246831	F	37.787	36.663	1.124
4804	507494	246860	F	38.848	36.048	2.8
4805	507485	246856	F	38.703	36.29	2.413
4806	507467	246848	F	38.41	36.854	1.556
4901	507447	246928	F	-	-	-
4902	507417	246950	F	-	-	-
4903	507417	246957	F	-	-	-
4904	507455	246931	F	-	-	-
5000	507534	247030	F	-	-	-
5001	507590	247056	F	-	-	-
5007	507538	247023	F	-	-	-
5100	507537	247108	F	-	-	-
5101	507576	247126	F	-	-	-
5102	507516	247176	F	-	-	-
5103	507531	247192	F	-	-	-
5200	507583	247242	F	-	-	-
5201	507592	247222	F	-	-	-
5202	507550	247206	F	-	-	-
5203	507587	247209	F	-	-	-
5204	507589	247202	F	-	-	-
5400	507595	247434	F	-	-	-
5401	508588	247473	F	-	-	-
5501	508573	247514	F	-	-	-
5700	507542	246720	F	34.955	33.812	1.143
5701	507508	246789	F	37.394	34.841	2.553
5702	507577	246788	F	37.157	35.862	1.295
5703	507535	246763	F	36.335	35.052	1.283
5704	507527	246751	F	36.012	34.317	1.695
5705	507545	246713	F	44.3	-	-
5706	507505	246717	F	-	-	-
5800	507507	246801	F	37.616	35	2.616
5801	507512	246819	F	37.979	35.223	2.756
5802	507516	246829	F	38.188	35.343	2.845
5803	507538	246846	F	38.753	36.511	2.242
5804	507562	246881	F	39.714	37.593	2.121
5805	507551	246852	F	39.05	36.847	2.203
5806	507561	246848	F	39.034	37.046	1.988
5807	507522	246850	F	38.645	35.667	2.978
5808	507585	246871	F	-	-	-
5809	507577	246887	F	-	-	-
5810	507554	246889	F	-	-	-
5811	507549	246887	F	-	-	-
5812	507546	246875	F	-	-	-
5813	507534	246879	F	-	-	-
6000	507685	247027	F	-	-	-
6001	507636	247077	F	-	-	-
6002	507641	247085	F	-	-	-
6003	507656	247054	F	-	-	-
6004	507646	247076	F	-	-	-
6005	507671	247062	F	-	-	-
6006	507686	247072	F	-	-	-
6007	507696	247073	F	-	-	-
6100	507632	247106	F	-	-	-
6101	507637	247115	F	-	-	-
6102	507666	247124	F	-	-	-
6103	507610	247142	F	-	-	-
6104	507616	247140	F	-	-	-
6105	507628	247115	F	-	-	-
6106	507688	247190	F	-	-	-
6107	507638	247179	F	-	-	-
6108	507611	247176	F	-	-	-
6109	507602	247172	F	-	-	-
6200	507688	247220	F	-	-	-
6201	507650	247253	F	-	-	-
6202	507661	247267	F	-	-	-
6203	507612	247254	F	-	-	-
6204	507674	247204	F	-	-	-
6205	507661	247216	F	-	-	-
6206	507642	247225	F	-	-	-
6207	507618	247228	F	-	-	-
6300	507700	247352	F	-	-	-
6301	507686	247356	F	-	-	-
6301	508648	247387	F	-	-	-
6302	507671	247385	F	-	-	-
6303	507646	247306	F	-	-	-
6304	507643	247318	F	-	-	-
6305	507632	247334	F	-	-	-
6306	507622	247360	F	-	-	-
6307	507643	247369	F	-	-	-
6308	507658	247376	F	-	-	-
6400	507695	247487	F	-	-	-
6401	507691	247497	F	-	-	-
6402	507627	247450	F	-	-	-
6403	507642	247454	F	-	-	-
6404	507649	247459	F	-	-	-
6405	507660	247463	F	-	-	-
6406	507674	247469	F	-	-	-
6407	507692	247477	F	-	-	-
6408	507662	247407	F	-	-	-
6409	507662	247416	F	-	-	-
6410	507667	247427	F	-	-	-
6411	507670	247437	F	-	-	-
6412	507667	247449	F	-	-	-
6500	507677	247516	F	-	-	-
6503	507659	247510	F	-	-	-
6800	507614	246884	F	-	-	-
7000	507728	247020	F	-	-	-
7001	507737	247087	F	-	-	-
7002	507712	247022	F	-	-	-
7100	507726	247148	F	-	-	-
7101	507722	247168	F	-	-	-
7102	507706	247137	F	-	-	-
7200	507708	247287	F	-	-	-
7201	507735	247299	F	-	-	-
7300	507754	247308	F	-	-	-
7301	507772	247318	F	-	-	-
7301	508712	247306	F	-	-	-
7302	507791	247330	F	-	-	-
7303	507783	247350	F	-	-	-
7304	507774	247369	F	-	-	-
7305	507763	247389	F	-	-	-
7306	507715	247339	F	-	-	-
7307	507710	247349	F	-	-	-
7400	507744	247423	F	-	-	-
7401	507724	247460	F	-	-	-
7402	507724	247472	F	-	-	-
7403	507706	247478	F	-	-	-
7404	507729	247478	F	-	-	-
2662	507289	246617	S	-	-	-
2663	507279	246636	S	32.57	31.15	1.42
3651	507385	246651	S	-	-	-
3652	507340	246632	S	-	-	-
3653	507315	246683	S	-	-	-
3751	507368	246707	S	-	-	-
3851	507376	246820	S	-	-	-
3853	507390	246816	S	37.462	35.938	1.524
3854	507386	246814	S	46.4	44.975	1.425
3951	507339	246901	S	-	-	-
4651	507451	246676	S	43.65	42.447	1.203
4752	507412	246743	S	-	-	-
4753	507412	246728	S	-	-	-
4754	507421	246740	S	44.53	43.642	0.888
4755	507500	246749	S	35.7	32.75	2.95
4756	507494	246744	S	35.44	32.81	2.63
4757	507483	246730	S	35.13	32.86	2.27
4758	507470	246725	S	34.84	32.9	1.94
4759	507448	246771	S	36.01	33.82	2.19
4851	507420	246830	S	37.809	36.209	1.6
4852	507431	246829	S	37.754	36.509	1.245
4853	507494	246857	S	38.887	36.487	2.4
4854	507467	246845	S	38.365	36.917	1.448
4855	507484	246853	S	38.653	36.983	1.67
5008	507540	247023	S	-	-	-
5050	507537	247030	S	-	-	-
5051	507570	247046	S	-	-	-
5052	507599	247059	S	-	-	-
5053	507512	247096	S	-	-	-
5150	507512	247174	S	-	-	-
5151	507530	247194	S	-	-	-
5152	507536	247186	S	-	-	-
5153	507593	247188	S	-	-	-
5154	507545	247110	S	-	-	-
5155	507578	247125	S	-	-	-
5250	507582	247238	S	-	-	-
5251	507551	247209	S	-	-	-
5252	507569	247210	S	-	-	-
5253	507586	247210	S	-	-	-
5254	507588	247223	S	-	-	-
5255	507586	247203	S	-	-	-
5450	507590	247433	S	-	-	-
5451	507573	247452	S	-	-	-
5452	507569	247471	S	-	-	-
5453	507581	247486	S	-	-	-
5454	507598	247494	S	-	-	-
5651	507505	246697	S	44.03	42.279	1.751
5751	507543	246722	S	34.97	33.548	1.422
5752	507510	246790	S	37.357	35.223	2.134
5753	507534	246766	S	36.422	34.847	1.575
5754	507559	246781	S	36.837	35.542	1.295
5755	507576	246790	S	37.102	35.896	1.206
5756	507527	246754	S	36.23	34.223	2.007
5757	507594	246731	S	44	41.609	2.391
5758	507546	246715	S	34.92	32.54	2.38
5759	507539	246713	S	34.9	32.55	2.35
5760	507518	246711	S	34.94	32.62	2.32
5851	507509	246801	S	37.589	35.468	2.121
5852	507515	246820	S	37.983	35.849	2.134
5853	507518	246828	S	38.139	35.961	2.178
5854	507554	246853	S	39.08	37.416	1.664
5855	507564	246877	S	39.631	38.082	1.549
5856	507539	246844	S	38.765	37.063	1.702
5857	507525	246847	S	38.598	36.185	2.413
6050	507686	247026	S	-	-	-
6051	507635	247076	S	-	-	-
6052	507641	247080	S	-	-	-
6053	507660	247038	S	-	-	-
6054	507655	247052	S	-	-	-
6055	507645	247073	S	-	-	-
6056	507672	247060	S	-	-	-
6057	507687	247069	S	-	-	-
6058	507698	247071	S	-	-	-
6150	507640	247177	S	-	-	-
6151	507624	247176	S	-	-	-
6152	507613	247175	S	-	-	-
6153	507601	247169	S	-	-	-
6154	507691	247189	S	-	-	-
6155	507630	247106	S	-	-	-
6156	507635	247117	S	-	-	-
6157	507667	247127	S	-	-	-
6158	507609	247138	S	-	-	-
6159	507615	247137	S	-	-	-
6160	507625	247118	S	-	-	-
6161	507607	247159	S	-	-	-
6162	507626	247186	S	-	-	-
6250	507671	247269	S	-	-	-
6251	507652	247245	S	-	-	-
6252	507691	247210	S	-	-	-
6253	507606	247247	S	-	-	-
6254	507619	247229	S	-	-	-
6255	507665	247215	S	-	-	-
6256	507674	247207	S	-	-	-
6257	507641	247227	S	-	-	-
6258	507653	247295	S	-	-	-
6350	507690	247352	S	-	-	-
6351	507681	247370	S	-	-	-
6352	507672	247389	S	-	-	-
6353	507649	247303	S	-	-	-
6354	507645	247317	S	-	-	-
6355	507636	247331	S	-	-	-
6356	507632	247340	S	-	-	-
6357	507623	247362	S	-	-	-
6358	507640	247370	S	-	-	-
6359	507655	247377	S	-	-	-
6450	507693	247487	S	-	-	-
6451	507687	247498	S	-	-	-
6452	507609	247496	S	-	-	-
6454	507663	247409	S	-	-	-
6455	507664	247417	S	-	-	-
6456	507670	247427	S	-	-	-
6457	507672	247441	S	-	-	-
6458	507662	247461	S	-	-	-
6459	507678	247468	S	-	-	-
6460	507695	247476	S	-	-	-
6461	507608	247442	S	-	-	-
6462	507629	247453	S	-	-	-
6463	507644	247457	S	-	-	-
6464	507650	247462	S	-	-	-
6550	507675	247517	S	-	-	-
6552	507633	247503	S	-	-	-
6553	507649	247507	S	-	-	-
6554	507657	247511	S	-	-	-
6751	507645	246723	S	43.645	41.471	2.174
6752	507651	246710	S	43.005	41.432	1.573
6850	507653	246878	S	-	-	-
6950	507690	246906	S	-	-	-
7050	507735	247086	S	-	-	-
7051	507726	247017	S	-	-	-
7052	507702	247023	S	-	-	-
7053	507720	247019	S	-	-	-
7054	507718	247092	S	-	-	-
7055	507720	247084	S	-	-	-
7056	507717	247037	S	-	-	-
7150	507722	247151	S	-	-	-
7151	507727	247131	S	-	-	-
7152	507701	247139	S	-	-	-
7250	507705	247283	S	-	-	-
7251	507739	247298	S	-	-	-
7350	507754	247304	S	-	-	-
7351	507767	247312	S	-	-	-
7352	507789	247326	S	-	-	-
7353	507783	247347	S	-	-	-
7354	507771	247371	S	-	-	-
7355	507755	247398	S	-	-	-
7356	507727	247319	S	-	-	-
7357	507713	247348	S	-	-	-
7358	507706	247354	S	-	-	-
7450	507741	247424	S	-	-	-
7451	507722	247462	S	-	-	-
7452	507718	247471	S	-	-	-
7453	507705	247476	S	-	-	-
7454	507728	247481	S	-	-	-
7950	507715	246938	S	-	-	-

Date: 14/05/19 | Scale: 1:1250 | Map Centre: 506676,246087 | Data updated: 30/04/19 | Our Ref: 311242 - 3 | Wastewater Plan A0

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Station
Decommissioned Pumping Station

*(Colour denotes effluent type)

donal.odonovan@watermangroup.com
Area 3

love every drop
anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0400	507090	246473	F	31.33	29.07	2.26
0401	507079	246462	F	31.17	28.56	2.61
0502	507071	246528	F	31.56	29.51	2.05
0503	507093	246541	F	31.72	29.74	1.98
0504	507065	246515	F	31.54	29.41	2.13
1400	507107	246485	F	31.24	28.75	2.49
1501	507186	246544	F	31.68	28.99	2.69
1502	507175	246531	F	31.57	28.93	2.64
1503	507110	246543	F	31.74	29.95	1.79
2500	507232	246562	F	31.87	29.84	2.03
7400	506800	246469	F	-	-	-
9500	506947	246563	F	-	-	-
9501	506969	246568	F	-	-	-
0550	507072	246530	S	31.59	30.34	1.25
0552	507092	246542	S	31.75	30.51	1.24
0553	507057	246555	S	31.88	30.53	1.35
1451	507102	246479	S	31.31	29.93	1.38
1553	507198	246571	S	31.94	30.27	1.67
1554	507177	246531	S	31.56	30.06	1.5
1555	507187	246545	S	31.62	30.09	1.53
1557	507108	246544	S	31.76	30.65	1.11
2550	507232	246561	S	31.82	30.59	1.23
2551	507256	246571	S	32	30.89	1.11
8450	506803	246472	S	-	-	-
9551	506947	246560	S	-	-	-
9552	506971	246567	S	-	-	-

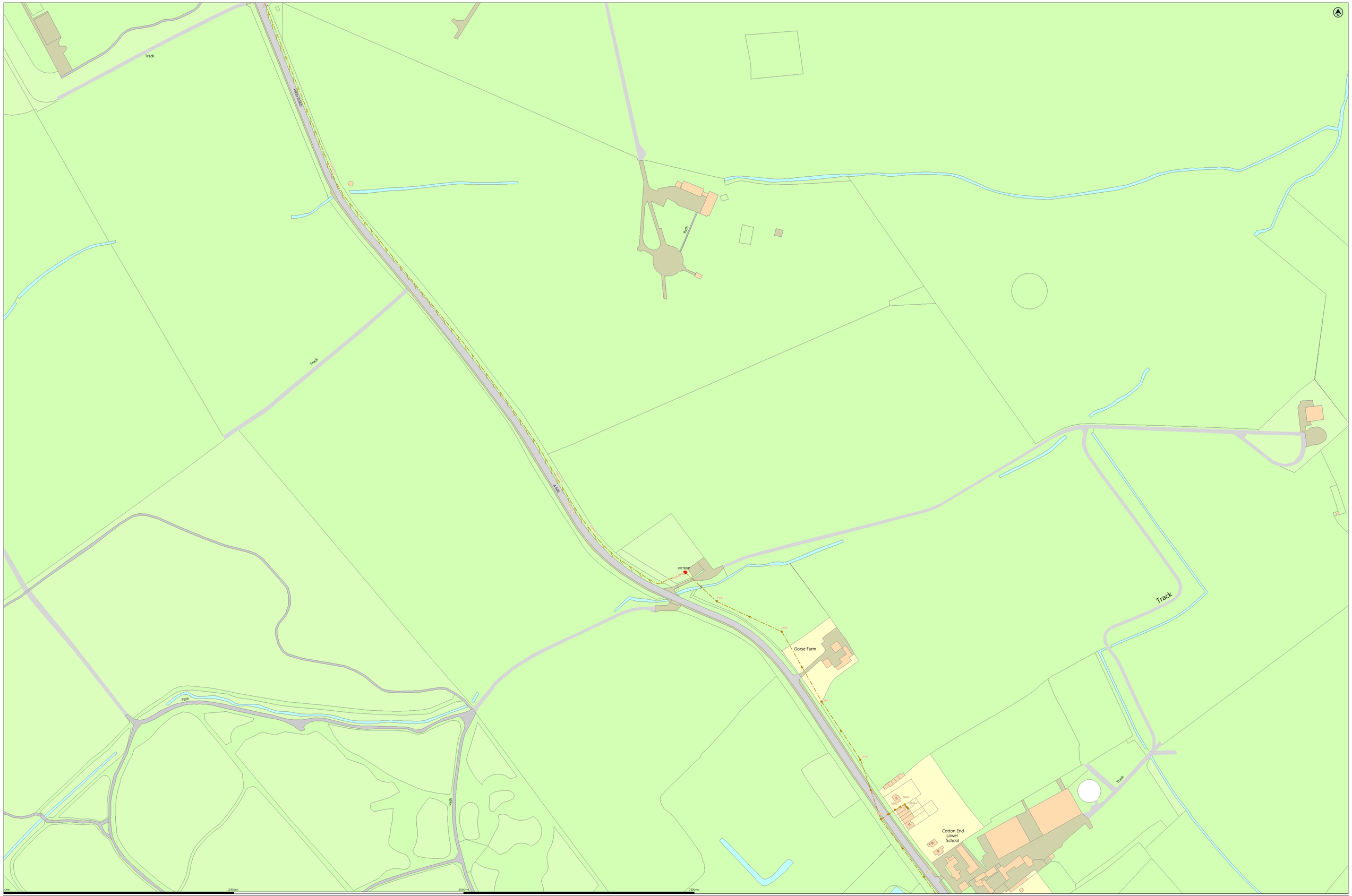
Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert



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Date: 14/05/19

Scale: 1:1250

Map Centre: 508122,246081

Data updated: 30/04/19

Our Ref: 311242 - 4

Wastewater Plan A0

This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2019 Ordnance Survey 100022432.This map is to be used for the purposes of viewing the location of Anglian Water plc assets only. Reproduction or modification of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Foul Sewer	Outfall*	Sewage Treatment Works	
Surface Sewer			
Combined Sewer			
Final Effluent	Inlet*	Public Pumping Station	
Rising Main*			
Private Sewer*	Manhole*	Decommissioned Pumping Station	
Decommissioned Sewer*			

*(Colour denotes effluent type)

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Area 4

love every drop
anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
1900	508166	245915	F	-	-	-
2800	508237	245882	F	-	-	-
2801	508280	245806	F	-	-	-
3600	508344	245678	F	-	-	-
3601	508391	245615	F	-	-	-
3602	508360	245688	F	-	-	-
3603	508371	245694	F	-	-	-
3604	508374	245689	F	-	-	-
3700	508322	245742	F	-	-	-

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

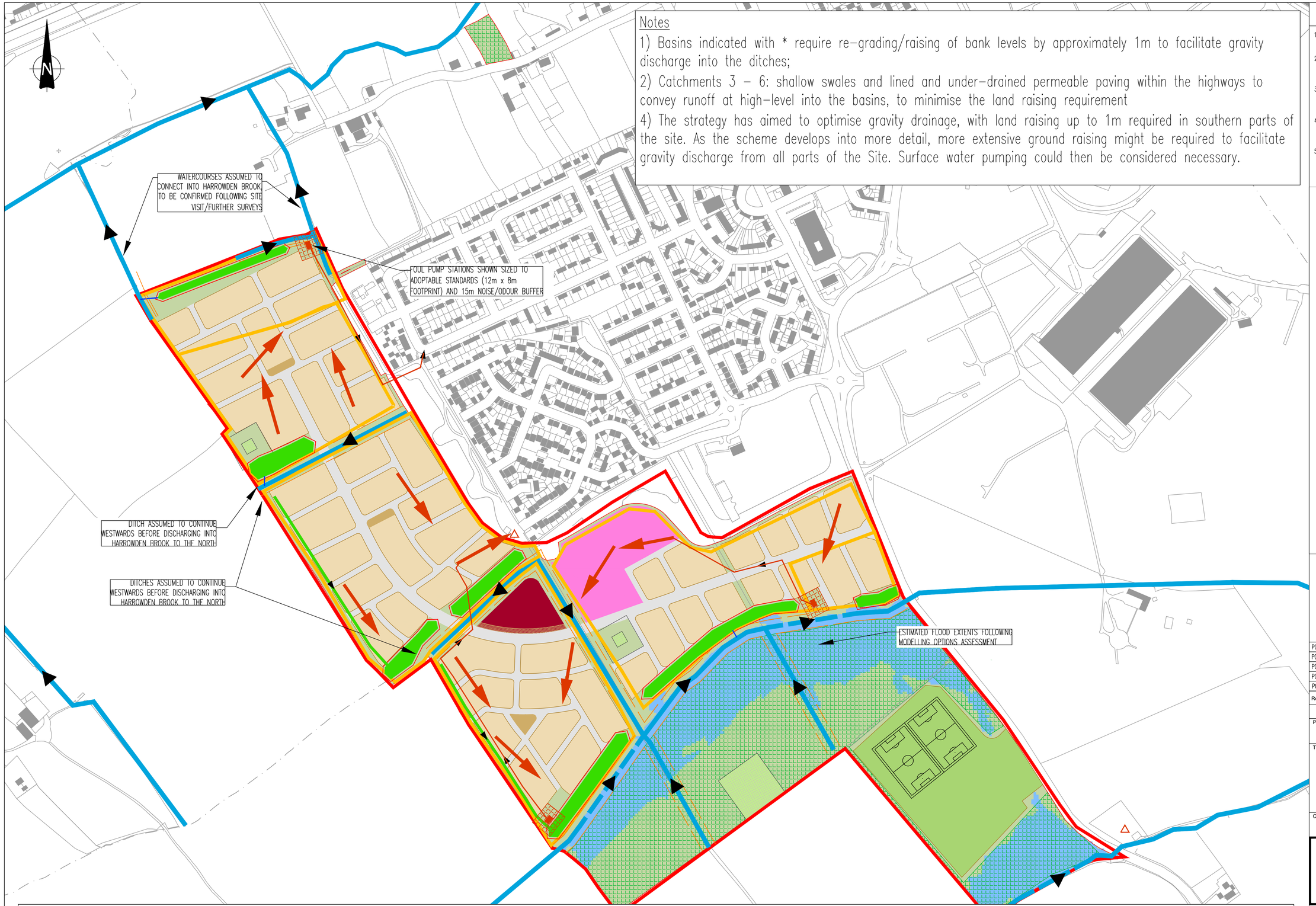
Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

I. Preliminary Drainage Strategy Drawing



Notes

1) Basins indicated with * require re-grading/raising of bank levels by approximately 1m to facilitate gravity discharge into the ditches;

2) Catchments 3 – 6: shallow swales and lined and under-drained permeable paving within the highways to convey runoff at high-level into the basins, to minimise the land raising requirement

4) The strategy has aimed to optimise gravity drainage, with land raising up to 1m required in southern parts of the site. As the scheme develops into more detail, more extensive ground raising might be required to facilitate gravity discharge from all parts of the Site. Surface water pumping could then be considered necessary.

Design Parameters

- Design Storm Event: 1 in 100 year + 40% climate change
- Surface water restricted to 4 l/s/ha as requested by Bedfodshire and River Ivel Internal Drainage Board
- Percentage Impermeable Area (PIMP) 50% with 10% urban creep allowance (55% total PIMP). 15% of attenuation requirement assumed to be provided within permeable paving sub-base within the development plots.
- Detention basins designed as dry, with no permanent water level
- Detention basin dimensions: 1m total depth (0.85m attenuation depth, 0.3m freeboard), 1 in 4 side slopes, 4m maintenance buffer
- Shallow swales: 1 in 500 slope, 0.5m depth
- 9m maintenance buffer either side of existing Ordinary Watercourses

GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEER'S, ARCHITECT'S OR OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
2. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.
3. THE CONTRACTOR MUST ENSURE AND WILL BE HELD RESPONSIBLE FOR THE OVERALL STABILITY OF THE BUILDING/STRUCTURE/EXCAVATION AT ALL STAGES OF THE WORK.
4. ALL WORK BY THE CONTRACTOR MUST BE CARRIED OUT IN SUCH A WAY THAT ALL REQUIREMENTS UNDER THE HEALTH AND SAFETY AT WORK ACT ARE SATISFIED.
5. ALL WORK IS TO BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES AND REGULATIONS.

KEY

- SITE BOUNDARY
- DRAINAGE CATCHMENT
- EXISTING WATERCOURSE/LAND DRAIN
- 9m BUFFER FROM ORDINARY WATERCOURSES
- PROPOSED SURFACE WATER CONNECTION
- PROPOSED DETENTION BASIN (DRY)
- 4m MAINTENANCE BUFFER
- 1 DRAINAGE CATCHMENT
- PROPOSED FOUL RISING MAIN
- PROPOSED FOUL PUMPING STATION
- EXISTING FOUL PUMPING STATION
- PROPOSED GRAVITY FOUL DRAINAGE ROUTES

Rev	Date	Description	By
P05	10.06.20	AMENDED MASTERPLAN	MC
P04	29.05.20	AMENDED MASTERPLAN	NB
P03	05.05.20	AMENDED MASTERPLAN & BASINS	NB
P02	18.03.20	AMENDED FLOOD ZONES	NB
P01	21.06.19	FIRST ISSUE	NB

Amendments

Project

Title

PRELIMINARY DRAINAGE STRATEGY

Client

Gallagher Developments Group Ltd

waterman

Pickfords Wharf Clink Street London SE1 9DG
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mail@watermangroup.com www.watermangroup.com

Drawing Status

PRELIMINARY

Designed by	NB	Checked by	DO	Project No WIE15761
Drawn by	NB	Date	June 2019	
Scales @ A1 work to figured dimensions only	NTS			Computer File No 15761-WIE-ZZ-XX-DR-92001-P05.dwg

Publisher	Zone	Category	Number	Revision
WIE	ZZ	92	001	P05

15761-WIE-ZZ-XX-M1-D-92001, 28786 OS Base_10k, 29533 9301 Concept Plan_rev K, A1-Wat-S

J. Surface Water Calculations

Attenuation Design
WIE15761 - College Farm, Shortstown, Bedford
29.05.2020

STORAGE REQUIRED PER CATCHMENT	Catchment 1	1454 m^3	Catchment 2	2278 m^3	Catchment 3	3870 m^3

DETENTION BASIN 1	
Area of base	946.0 m^2
Perimeter of base	456.0 m
Depth of storage	0.85 m
Gradient of sides	1 in 4
Volume	**1463 m^3**

DETENTION BASIN 2	
Area of base	2339.0 m^2
Perimeter of base	247.0 m
Depth of storage	0.85 m
Gradient of sides	1 in 4
Volume	**2345 m^3**

DETENTION BASIN 3	
Area of base	2004.0 m^2
Perimeter of base	312.0 m
Depth of storage	0.85 m
Gradient of sides	1 in 4
Volume	**2154 m^3**

DETENTION BASIN 4	
Area of base	1640.0 m^2
Perimeter of base	252.0 m
Depth of storage	0.85 m
Gradient of sides	1 in 4
Volume	**1758 m^3**

*bank level requires land raising of approx 1m

TOTAL STORAGE PER CATCHMENT	1463 m^3	2345 m^3	3912 m^3

Catchment 4	**3083**	**m^3**

Catchment 5	**3382**	**m^3**

Catchment 6	**589**	**m^3**

DETENTION BASIN 5		
Area of base	3028.0	m^2
Perimeter of base	433.0	m
Depth of storage	0.85	m
Gradient of sides	1 in	4
Volume	**3199**	**m^3**

*bank level requires land-raising of approx 1m

DETENTION BASIN 6		
Area of base	3003.0	m^2
Perimeter of base	614.0	m
Depth of storage	0.85	m
Gradient of sides	1 in	4
Volume	**3439**	**m^3**

*bank level requires land-raising of approx 1m

DETENTION BASIN 7		
Area of base	478.0	m^2
Perimeter of base	138.0	m
Depth of storage	0.85	m
Gradient of sides	1 in	4
Volume	**605**	**m^3**

*bank level requires land-raising of approx 1m

	3199	**m^3**

	3439	**m^3**

	605	**m^3**

CALCULATIONS

Company:	WIE	Office:	London
Sheet No:	1 of 3	Project No:	WIE15761
By	[redacted]	Date	29.05.2020
Checked:	[redacted]	Date	29.05.2020

Project Title: **College Farm, Shortstown, Bedford**
Calculations Title: **Surface Water Management - Summary Sheet**

LOCATION | CALCULATIONS | OPTIONS

Surface water at the site will be managed in accordance with latest guidance and industry best practice, i.e. surface water discharge restricted to as close to the greenfield rate as practicable, or as requested by the Bedfordshire and River Ivel Internal Drainage Board (IDB).

Existing surface water discharge regime:

Greenfield land discharging into watercourses at the greenfield runoff rate

Proposed surface water discharge regime:

Restrict to 4 l/s/ha of impermeable area for the 1 in 100 year event + 40% climate change as requested by the Bedfordshire and River Ivel IDB

Discharge rate	=	4.0	l/s/ha
Attenuation volume per impermeable hectare	=	798	m3

Intial attenuation estimates

Catchment	Area (ha)	Effective Area (ha)	Rate (l/s)	Att. Plot (m3)	Att. Basin (m3)
1	3.90	2.15	8.6	257	1454
2	6.11	3.36	13.4	402	2278
3	10.38	5.71	22.8	683	3870
4	8.27	4.55	18.2	544	3083
5	9.07	4.99	20.0	597	3382
6	1.58	0.87	3.5	104	589
Total	39.31	21.62	86.4	2586	14656
Total					17242

Notes

*Includes 50% Percentage Impermeable Area (PIMP) and 10% uban creep allowance as per Bedford Borough Council requirement, total PIMP 55%.
*15% of the attenuation volume would be provided within permeable paving sub-base within the development plots.

CALCULATIONS

Company:	WIE	Office:	London
Sheet No:	2 of 3	Project No:	WIE15761
By	[redacted]	Date	29.05.2020
Checked:	[redacted]	Date	29.05.2020

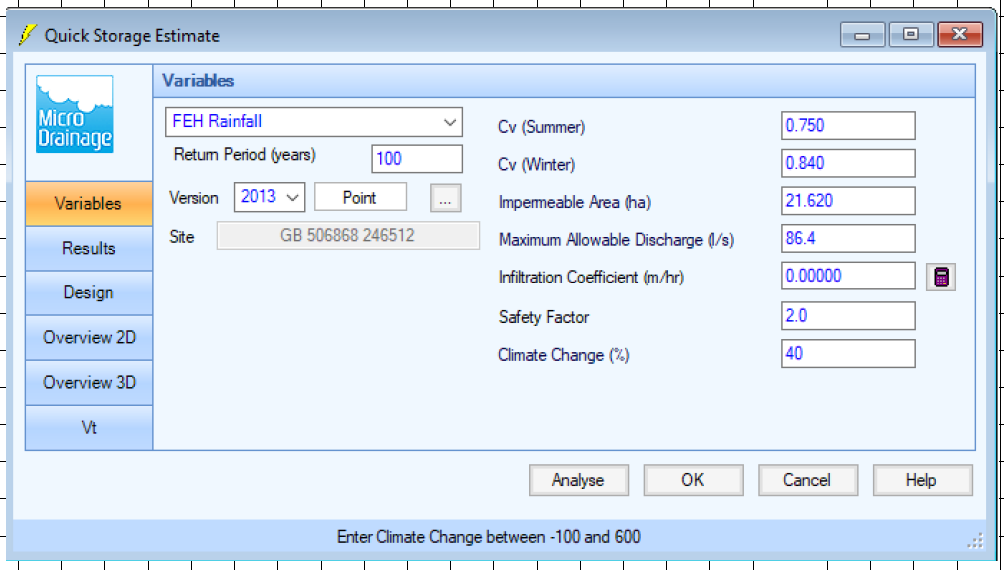
Project Title: **College Farm, Shortstown, Bedford**

Calculations Title: **Preliminary Surface Water Attenuation Volume**

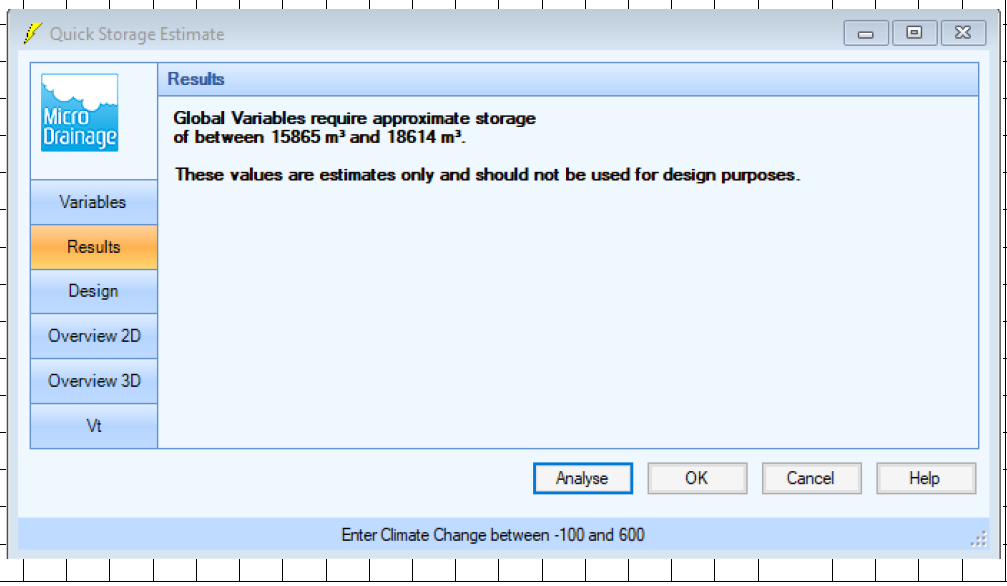
LOCATION	CALCULATIONS	OPTIONS

In order to calculate the volume of surface water attenuation required for the Site, Windes Microdrainage version 2019.1, Source Control module, Quick Storage Estimate has been used. The input and output data for which are shown below;

Input:



Output:



As Windes Quick Storage Estimate provides a range of attenuation volumes it is considered that an average value of the range is suitable for preliminary design sizing.

Minimum:	15,865	m^3			
Maximum:	18,614	m^3	Preliminary Estimate:	**17240**	m^3

CALCULATIONS

Company:	WIE	Office:	London
Sheet No:	3 of 3	Project No:	WIE15761
By	[redacted]	Date	29.05.2020
Checked:	[redacted]	Date	29.05.2020

Project Title: **College Farm, Shortstown, Bedford**

Calculations Title: **Greenfield Runoff Rate (IoH)**

LOCATION	CALCULATIONS	OPTIONS

In orer to calculate the rate of surface water discharge from the permeable portin of the site, the Windes Microdrainage version 2018.1 Source Control module has been utilised. Rural runoff has been calculated using the IoH 124 Methodology. The input and output data for which are shown below;

Waterman Group LTD		Page 1
Pickfords Wharf Clink Street London, SE1 9DG		Micro Drainage
Date 14/06/2019 10:12 File	Designed by CSNB2 Checked by	
Innovyze	Source Control 2018.1	

IH 124 Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	50.000	Urban	0.000
SAAR (mm)	550	Region Number	Region 5

Results l/s

QBAR Rural	165.7
QBAR Urban	165.7
Q100 years	589.7
Q1 year	144.1
Q2 years	148.0
Q5 years	213.7
Q10 years	274.2
Q20 years	346.3
Q25 years	374.7
Q30 years	398.0
Q50 years	470.8
Q100 years	589.7
Q200 years	694.1
Q250 years	727.2
Q1000 years	954.2

Q1	144.1	l/s	0.9	l/s/ha
Qbar (1 in 2.333)	165.7	l/s	1.1	l/s/ha
1 in 100	589.7	l/s	3.9	l/s/ha