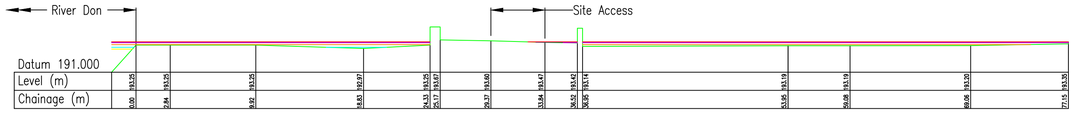
APPENDIX K
Flood Storage Volumes: Cross Sections & Calculations (Development Area B)

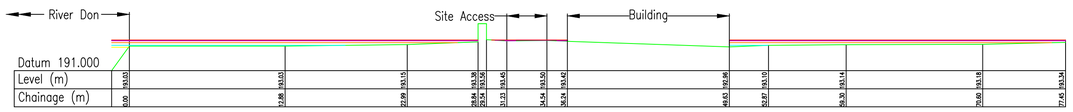
Water Hall Bridge

XS 1
XS 2
XS 3
XS 4
XS 5
XS 6
XS 7
XS 8
XS 9
XS 10
XS 11
XS 12
XS 13
XS 14
XS 15
XS 16
XS 17
XS 18
XS 19

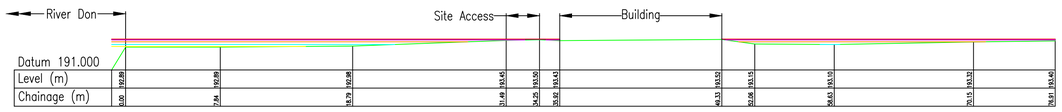
EXISTING SITE
(NTS)



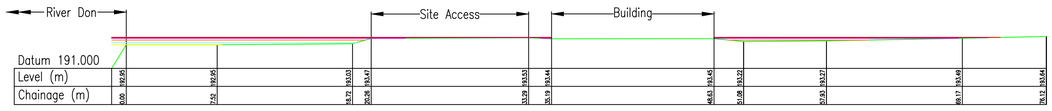
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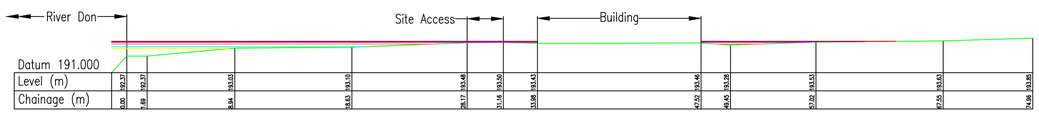
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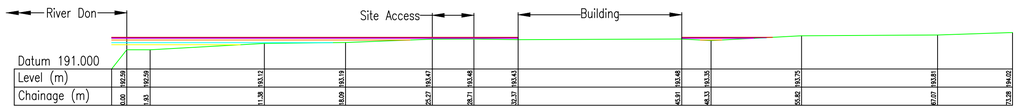
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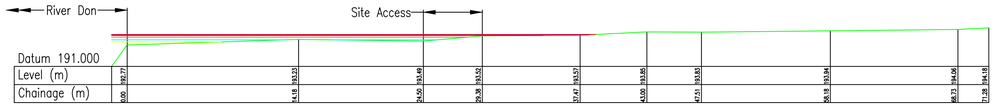
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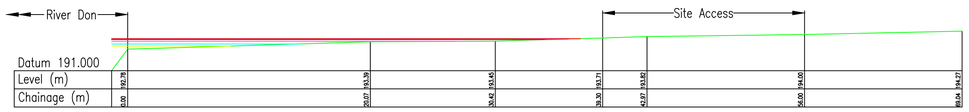
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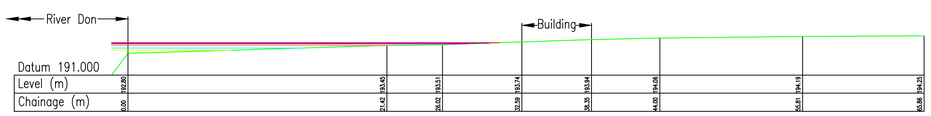
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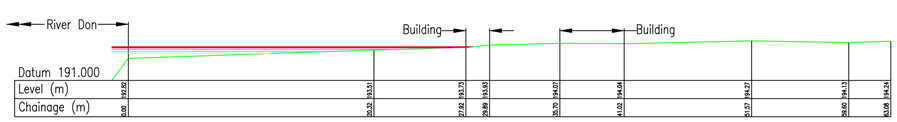
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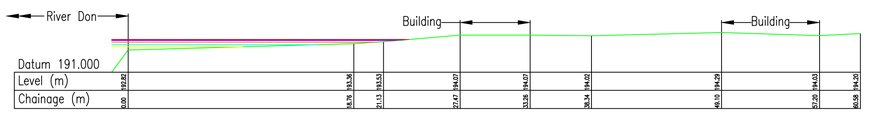
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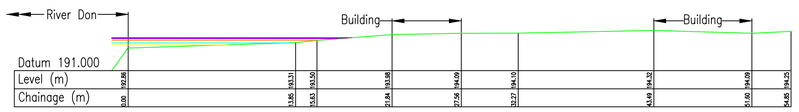
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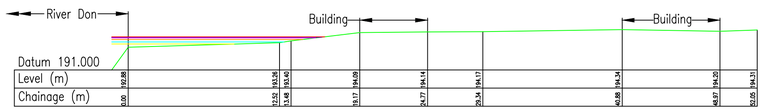
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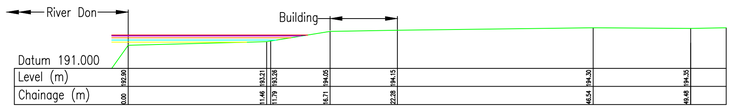
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EXISTING CROSS SECTION 12



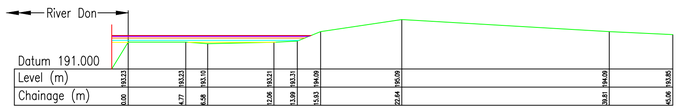
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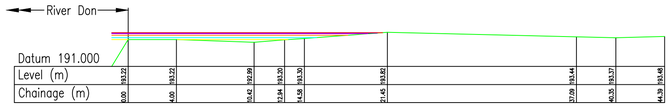
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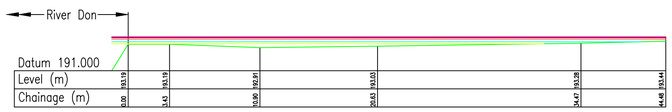
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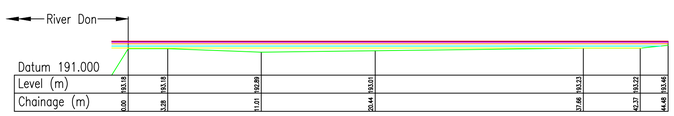
EXISTING CROSS SECTION 16



EXISTING CROSS SECTION 17



EXISTING CROSS SECTION 18



EXISTING CROSS SECTION 19

1 in 5 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	0.000	0.000	0.000	0.000	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.000	5.000	0.000
3	0.659	0.000	0.000	0.000	0.659	0.330	5.000	1.648
4	0.026	0.000	0.000	0.000	0.026	0.343	5.000	1.713
5	3.100	0.000	0.000	0.000	3.100	1.563	5.000	7.815
6	2.364	0.000	0.000	0.000	2.364	2.732	5.000	13.660
7	0.971	0.000	0.000	0.000	0.971	1.668	5.000	8.338
8	1.103	0.000	0.000	0.000	1.103	1.037	5.000	5.185
9	1.097	0.000	0.000	0.000	1.097	1.100	5.000	5.500
10	2.327	0.000	0.000	0.000	2.327	1.712	5.000	8.560
11	1.241	0.000	0.000	0.000	1.241	1.784	5.000	8.920
12	1.081	0.000	0.000	0.000	1.081	1.161	5.000	5.805
13	1.166	0.000	0.000	0.000	1.166	1.124	5.000	5.618
14	1.298	0.000	0.000	0.000	1.298	1.232	5.000	6.160
15	0.649	0.000	0.000	0.000	0.649	0.974	5.000	4.868
16	0.436	0.000	0.000	0.000	0.436	0.543	5.000	2.713
17	1.029	0.000	0.000	0.000	1.029	0.733	5.000	3.663
18	5.496	0.000	0.000	0.000	5.496	3.263	5.000	16.313
19	6.630	0.000	0.000	0.000	6.630	6.063	1.715	10.398
								116.873

1 in 10 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	0.242	0.000	0.000	0.000	0.242			
2	0.209	0.907	0.000	0.000	1.116	0.679	5.000	3.395
3	0.007	3.188	0.000	0.000	3.195	2.156	5.000	10.778
4	2.630	0.000	0.000	0.000	2.630	2.913	5.000	14.563
5	2.316	0.000	0.000	0.000	2.316	2.473	5.000	12.365
6	2.001	0.000	0.000	0.000	2.001	2.159	5.000	10.793
7	0.458	1.800	0.000	0.000	2.258	2.130	5.000	10.648
8	1.995	0.000	0.000	0.000	1.995	2.127	5.000	10.633
9	2.007	0.000	0.000	0.000	2.007	2.001	5.000	10.005
10	2.268	0.000	0.000	0.000	2.268	2.138	5.000	10.688
11	2.155	0.000	0.000	0.000	2.155	2.212	5.000	11.058
12	1.831	0.000	0.000	0.000	1.831	1.993	5.000	9.965
13	1.899	0.000	0.000	0.000	1.899	1.865	5.000	9.325
14	1.912	0.000	0.000	0.000	1.912	1.906	5.000	9.528
15	2.704	0.000	0.000	0.000	2.704	2.308	5.000	11.540
16	1.841	0.000	0.000	0.000	1.841	2.273	5.000	11.363
17	2.319	0.000	0.000	0.000	2.319	2.080	5.000	10.400
18	6.166	0.000	0.000	0.000	6.166	4.243	5.000	21.213
19	6.880	0.000	0.000	0.000	6.880	6.523	1.715	11.187
								199.442

1 in 25 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	2.797	3.879	0.000	0.000	6.676			
2	5.331	4.104	0.000	0.000	9.435	8.056	5.000	40.278
3	5.639	2.886	0.000	0.000	8.525	8.980	5.000	44.900
4	4.308	0.818	0.000	0.000	5.126	6.826	5.000	34.128
5	5.002	0.169	0.000	0.000	5.171	5.149	5.000	25.743
6	4.501	0.043	0.000	0.000	4.544	4.858	5.000	24.288
7	5.800	0.000	0.000	0.000	5.800	5.172	5.000	25.860
8	4.018	0.000	0.000	0.000	4.018	4.909	5.000	24.545
9	3.858	0.000	0.000	0.000	3.858	3.938	5.000	19.690
10	3.758	0.000	0.000	0.000	3.758	3.808	5.000	19.040
11	3.884	0.000	0.000	0.000	3.884	3.821	5.000	19.105
12	3.012	0.000	0.000	0.000	3.012	3.448	5.000	17.240
13	2.782	0.000	0.000	0.000	2.782	2.897	5.000	14.485
14	2.585	0.000	0.000	0.000	2.585	2.684	5.000	13.418
15	4.107	0.000	0.000	0.000	4.107	3.346	5.000	16.730
16	2.829	0.000	0.000	0.000	2.829	3.468	5.000	17.340
17	3.295	0.000	0.000	0.000	3.295	3.062	5.000	15.310
18	8.536	0.000	0.000	0.000	8.536	5.916	5.000	29.578
19	8.560	0.000	0.000	0.000	8.560	8.548	1.715	14.660
								416.335

1 in 50 year

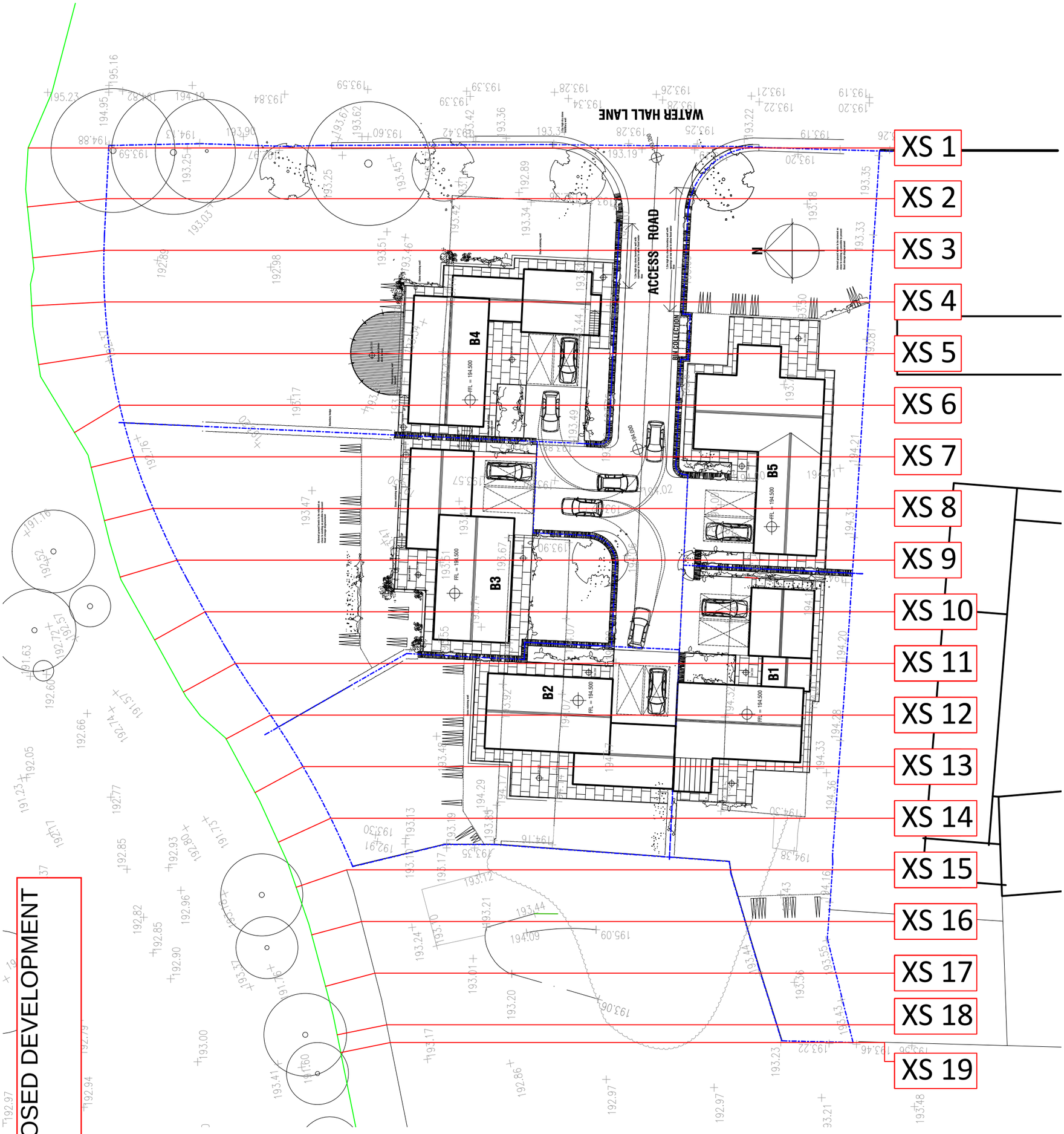
XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	3.650	5.939	0.013	0.000	9.602			
2	4.211	0.005	0.018	4.102	8.336	8.969	5.000	44.845
3	4.431	0.027	3.708	0.000	8.166	8.251	5.000	41.255
4	2.945	2.334	0.000	0.000	5.279	6.723	5.000	33.613
5	4.081	0.944	0.000	0.000	5.025	5.152	5.000	25.760
6	3.992	0.586	0.000	0.000	4.578	4.802	5.000	24.008
7	4.095	0.000	0.000	0.000	4.095	4.337	5.000	21.683
8	4.381	0.000	0.000	0.000	4.381	4.238	5.000	21.190
9	3.455	0.000	0.000	0.000	3.455	3.918	5.000	19.590
10	3.109	0.000	0.000	0.000	3.109	3.282	5.000	16.410
11	2.839	0.000	0.000	0.000	2.839	2.974	5.000	14.870
12	2.178	0.000	0.000	0.000	2.178	2.509	5.000	12.543
13	1.933	0.000	0.000	0.000	1.933	2.056	5.000	10.278
14	1.748	0.000	0.000	0.000	1.748	1.841	5.000	9.203
15	3.130	0.000	0.000	0.000	3.130	2.439	5.000	12.195
16	1.875	0.000	0.000	0.000	1.875	2.503	5.000	12.513
17	2.376	0.000	0.000	0.000	2.376	2.126	5.000	10.628
18	5.516	0.000	0.000	0.000	5.516	3.946	5.000	19.730
19	5.540	0.000	0.000	0.000	5.540	5.528	1.715	9.481
								359.791

1 in 75 year

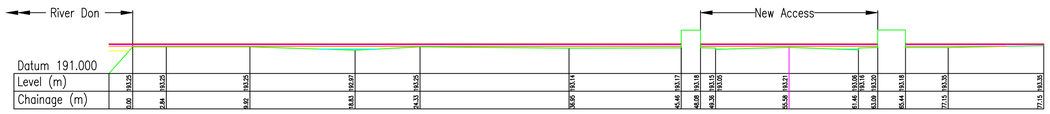
XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	1.217	0.121	2.010	0.000	3.348			
2	1.500	0.224	1.447	0.000	3.171	3.260	5.000	16.298
3	1.849	1.428	0.000	0.000	3.277	3.224	5.000	16.120
4	1.602	1.136	0.000	0.000	2.738	3.008	5.000	15.038
5	1.869	0.594	0.000	0.000	2.463	2.601	5.000	13.003
6	1.845	0.369	0.000	0.000	2.214	2.339	5.000	11.693
7	2.121	0.000	0.000	0.000	2.121	2.168	5.000	10.838
8	2.058	0.000	0.000	0.000	2.058	2.090	5.000	10.448
9	1.711	0.000	0.000	0.000	1.711	1.885	5.000	9.423
10	1.635	0.000	0.000	0.000	1.635	1.673	5.000	8.365
11	1.327	0.000	0.000	0.000	1.327	1.481	5.000	7.405
12	1.046	0.000	0.000	0.000	1.046	1.187	5.000	5.933
13	0.946	0.000	0.000	0.000	0.946	0.996	5.000	4.980
14	0.897	0.000	0.000	0.000	0.897	0.922	5.000	4.608
15	1.572	0.000	0.000	0.000	1.572	1.235	5.000	6.173
16	0.885	0.000	0.000	0.000	0.885	1.229	5.000	6.143
17	1.193	0.000	0.000	0.000	1.193	1.039	5.000	5.195
18	2.669	0.000	0.000	0.000	2.669	1.931	5.000	9.655
19	2.636	0.000	0.000	0.000	2.636	2.653	1.715	4.549
								165.862

1 in 100 year

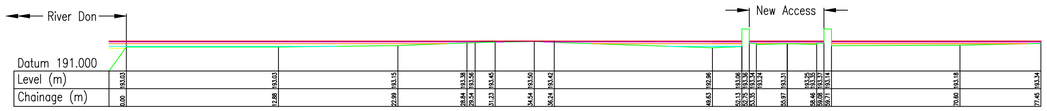
XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	0.462	0.072	0.764	0.000	1.298			
2	0.577	0.123	0.556	0.000	1.256	1.277	5.000	6.385
3	0.790	0.607	0.000	0.000	1.397	1.327	5.000	6.633
4	0.774	0.510	0.000	0.000	1.284	1.341	5.000	6.703
5	0.850	0.370	0.000	0.000	1.220	1.252	5.000	6.260
6	0.874	0.196	0.000	0.000	1.070	1.145	5.000	5.725
7	1.117	0.000	0.000	0.000	1.117	1.094	5.000	5.468
8	1.109	0.000	0.000	0.000	1.109	1.113	5.000	5.565
9	0.939	0.000	0.000	0.000	0.939	1.024	5.000	5.120
10	0.907	0.000	0.000	0.000	0.907	0.923	5.000	4.615
11	0.714	0.000	0.000	0.000	0.714	0.811	5.000	4.053
12	0.568	0.000	0.000	0.000	0.568	0.641	5.000	3.205
13	0.500	0.000	0.000	0.000	0.500	0.534	5.000	2.670
14	0.472	0.000	0.000	0.000	0.472	0.486	5.000	2.430
15	0.886	0.000	0.000	0.000	0.886	0.679	5.000	3.395
16	0.483	0.000	0.000	0.000	0.483	0.685	5.000	3.423
17	0.688	0.000	0.000	0.000	0.688	0.586	5.000	2.928
18	1.423	0.000	0.000	0.000	1.423	1.056	5.000	5.278
19	1.474	0.000	0.000	0.000	1.474	1.449	1.715	2.484
								82.337



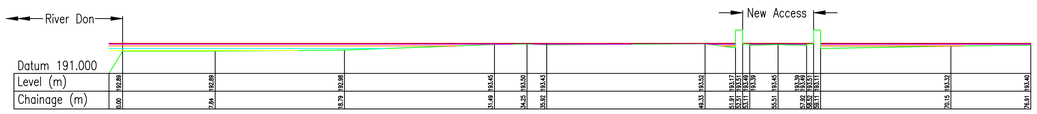
PROPOSED DEVELOPMENT
(NTS)



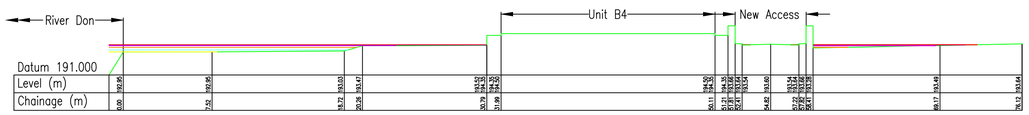
PROPOSED CROSS SECTION 1



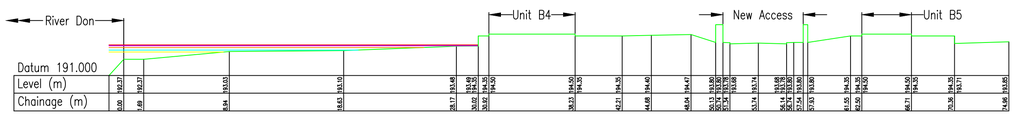
PROPOSED CROSS SECTION 2



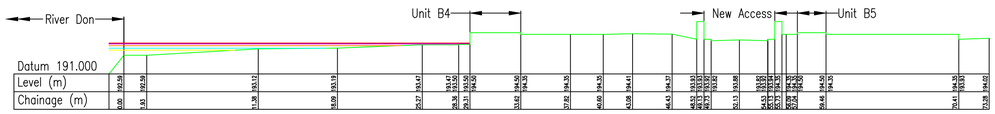
PROPOSED CROSS SECTION 3



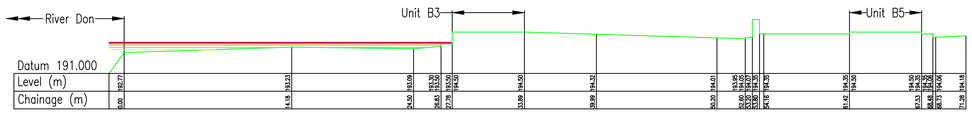
PROPOSED CROSS SECTION 4



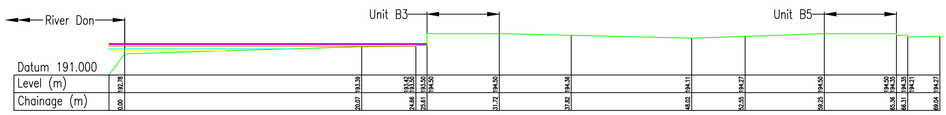
PROPOSED CROSS SECTION 5



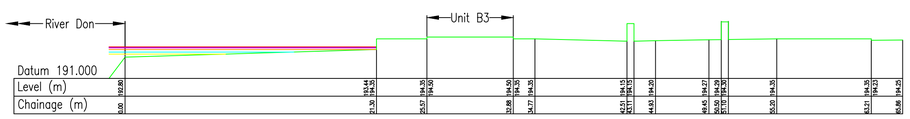
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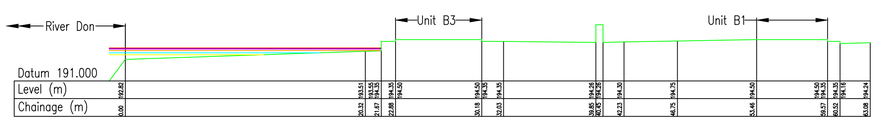
PROPOSED CROSS SECTION 7



PROPOSED CROSS SECTION 8



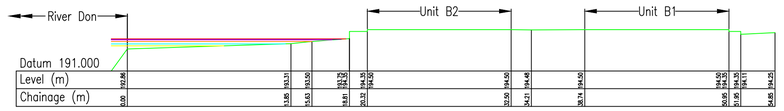
PROPOSED CROSS SECTION 9



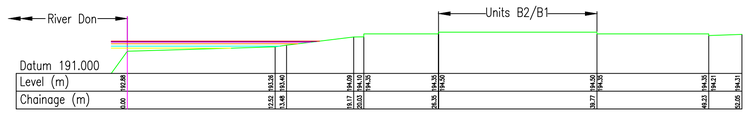
PROPOSED CROSS SECTION 10



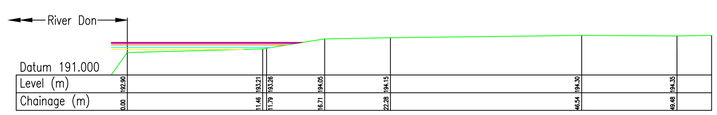
PROPOSED CROSS SECTION 11



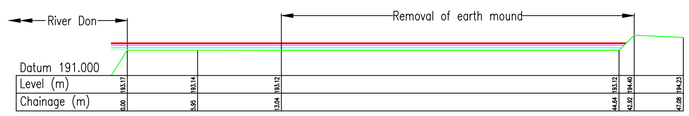
PROPOSED CROSS SECTION 12



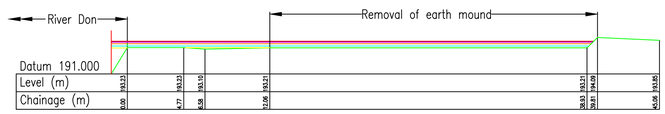
PROPOSED CROSS SECTION 13



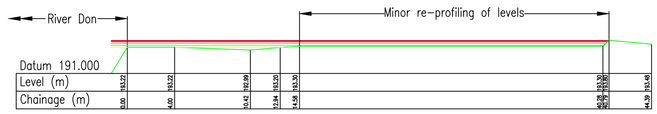
PROPOSED CROSS SECTION 14



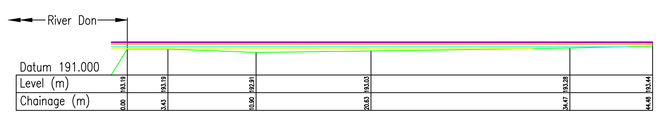
PROPOSED CROSS SECTION 15



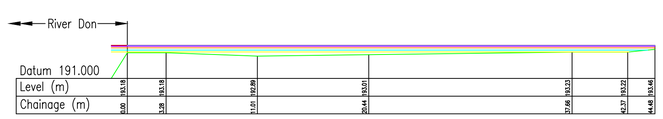
PROPOSED CROSS SECTION 16



PROPOSED CROSS SECTION 17



PROPOSED CROSS SECTION 18



PROPOSED CROSS SECTION 19

1 in 5 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	0.000	0.000	0.000	0.000	0.000			
2	0.000	0.000	0.000	0.000	0.000	0.000	5.000	0.000
3	0.659	0.000	0.000	0.000	0.659	0.330	5.000	1.648
4	0.026	0.000	0.000	0.000	0.026	0.343	5.000	1.713
5	3.010	0.000	0.000	0.000	3.010	1.518	5.000	7.590
6	2.364	0.000	0.000	0.000	2.364	2.687	5.000	13.435
7	0.971	0.000	0.000	0.000	0.971	1.668	5.000	8.338
8	1.104	0.000	0.000	0.000	1.104	1.038	5.000	5.188
9	1.097	0.000	0.000	0.000	1.097	1.101	5.000	5.503
10	2.327	0.000	0.000	0.000	2.327	1.712	5.000	8.560
11	1.242	0.000	0.000	0.000	1.242	1.785	5.000	8.923
12	1.070	0.000	0.000	0.000	1.070	1.156	5.000	5.780
13	1.166	0.000	0.000	0.000	1.166	1.118	5.000	5.590
14	1.298	0.000	0.000	0.000	1.298	1.232	5.000	6.160
15	2.352	0.000	0.000	0.000	2.352	1.825	5.000	9.125
16	0.623	0.000	0.000	0.000	0.623	1.488	5.000	7.438
17	1.029	0.000	0.000	0.000	1.029	0.826	5.000	4.130
18	5.496	0.000	0.000	0.000	5.496	3.263	5.000	16.313
19	6.764	0.000	0.000	0.000	6.764	6.130	1.715	10.513
								125.943

1 in 10 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	0.242	0.061	0.006	0.063	0.372			
2	0.907	0.439	0.000	0.000	1.346	0.859	5.000	4.295
3	3.188	0.000	0.000	0.000	3.188	2.267	5.000	11.335
4	2.630	0.000	0.000	0.000	2.630	2.909	5.000	14.545
5	2.316	0.000	0.000	0.000	2.316	2.473	5.000	12.365
6	2.001	0.000	0.000	0.000	2.001	2.159	5.000	10.793
7	1.800	0.458	0.000	0.000	2.258	2.130	5.000	10.648
8	1.995	0.000	0.000	0.000	1.995	2.127	5.000	10.633
9	2.007	0.000	0.000	0.000	2.007	2.001	5.000	10.005
10	2.269	0.000	0.000	0.000	2.269	2.138	5.000	10.690
11	2.155	0.000	0.000	0.000	2.155	2.212	5.000	11.060
12	1.831	0.000	0.000	0.000	1.831	1.993	5.000	9.965
13	1.899	0.000	0.000	0.000	1.899	1.865	5.000	9.325
14	1.912	0.000	0.000	0.000	1.912	1.906	5.000	9.528
15	6.894	0.000	0.000	0.000	6.894	4.403	5.000	22.015
16	5.554	0.000	0.000	0.000	5.554	6.224	5.000	31.120
17	4.286	0.000	0.000	0.000	4.286	4.920	5.000	24.600
18	6.166	0.000	0.000	0.000	6.166	5.226	5.000	26.130
19	6.880	0.000	0.000	0.000	6.880	6.523	1.715	11.187
								250.237

1 in 25 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	2.797	1.311	2.384	0.568	7.060			
2	5.315	2.131	0.174	2.037	9.657	8.359	5.000	41.793
3	5.639	0.096	1.302	0.000	7.037	8.347	5.000	41.735
4	4.308	0.085	0.000	0.000	4.393	5.715	5.000	28.575
5	5.002	0.000	0.000	0.000	5.002	4.698	5.000	23.488
6	4.511	0.000	0.000	0.000	4.511	4.757	5.000	23.783
7	5.723	0.000	0.000	0.000	5.723	5.117	5.000	25.585
8	3.997	0.000	0.000	0.000	3.997	4.860	5.000	24.300
9	3.819	0.000	0.000	0.000	3.819	3.908	5.000	19.540
10	3.748	0.000	0.000	0.000	3.748	3.784	5.000	18.918
11	3.884	0.000	0.000	0.000	3.884	3.816	5.000	19.080
12	3.020	0.000	0.000	0.000	3.020	3.452	5.000	17.260
13	2.782	0.000	0.000	0.000	2.782	2.901	5.000	14.505
14	2.585	0.000	0.000	0.000	2.585	2.684	5.000	13.418
15	8.351	0.000	0.000	0.000	8.351	5.468	5.000	27.340
16	7.718	0.000	0.000	0.000	7.718	8.035	5.000	40.173
17	7.889	0.000	0.000	0.000	7.889	7.804	5.000	39.018
18	8.536	0.000	0.000	0.000	8.536	8.213	5.000	41.063
19	8.560	0.000	0.000	0.000	8.560	8.548	1.715	14.660
								474.230

1 in 50 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	6.978	2.251	1.666	0.000	10.895			
2	4.325	2.203	0.886	2.609	10.023	10.459	5.000	52.295
3	4.431	0.199	0.531	2.403	7.564	8.794	5.000	43.968
4	2.945	0.974	0.000	0.000	3.919	5.742	5.000	28.708
5	3.926	0.000	0.000	0.000	3.926	3.923	5.000	19.613
6	3.704	0.000	0.000	0.000	3.704	3.815	5.000	19.075
7	3.778	0.000	0.000	0.000	3.778	3.741	5.000	18.705
8	3.444	0.000	0.000	0.000	3.444	3.611	5.000	18.055
9	2.876	0.000	0.000	0.000	2.876	3.160	5.000	15.800
10	2.730	0.000	0.000	0.000	2.730	2.803	5.000	14.015
11	2.839	0.000	0.000	0.000	2.839	2.785	5.000	13.923
12	2.178	0.000	0.000	0.000	2.178	2.509	5.000	12.543
13	1.933	0.000	0.000	0.000	1.933	2.056	5.000	10.278
14	1.791	0.000	0.000	0.000	1.791	1.862	5.000	9.310
15	5.392	0.000	0.000	0.000	5.392	3.592	5.000	17.958
16	4.996	0.000	0.000	0.000	4.996	5.194	5.000	25.970
17	5.077	0.000	0.000	0.000	5.077	5.037	5.000	25.183
18	5.516	0.000	0.000	0.000	5.516	5.297	5.000	26.483
19	5.403	0.000	0.000	0.000	5.403	5.460	1.715	9.363
								381.241

1 in 75 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	2.323	0.750	0.586	0.000	3.659			
2	2.644	0.329	0.923	0.000	3.896	3.778	5.000	18.888
3	2.542	0.286	0.926	0.000	3.754	3.825	5.000	19.125
4	1.495	0.618	0.000	0.000	2.113	2.934	5.000	14.668
5	1.651	0.000	0.000	0.000	1.651	1.882	5.000	9.410
6	1.671	0.000	0.000	0.000	1.671	1.661	5.000	8.305
7	1.584	0.000	0.000	0.000	1.584	1.628	5.000	8.138
8	1.485	0.000	0.000	0.000	1.485	1.535	5.000	7.673
9	1.257	0.000	0.000	0.000	1.257	1.371	5.000	6.855
10	1.278	0.000	0.000	0.000	1.278	1.268	5.000	6.338
11	1.327	0.000	0.000	0.000	1.327	1.303	5.000	6.513
12	1.046	0.000	0.000	0.000	1.046	1.187	5.000	5.933
13	0.945	0.000	0.000	0.000	0.945	0.996	5.000	4.978
14	0.854	0.000	0.000	0.000	0.854	0.900	5.000	4.498
15	2.491	0.000	0.000	0.000	2.491	1.673	5.000	8.363
16	2.327	0.000	0.000	0.000	2.327	2.409	5.000	12.045
17	2.401	0.000	0.000	0.000	2.401	2.364	5.000	11.820
18	2.669	0.000	0.000	0.000	2.669	2.535	5.000	12.675
19	2.636	0.000	0.000	0.000	2.636	2.653	1.715	4.549
								170.769

1 in 100 year

XS REF	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	XSA (sq.m)	Total XSA	Average	L (m)	Volume (cu.m)
1	0.883	0.285	0.223	0.000	1.391			
2	1.042	0.127	0.355	0.000	1.524	1.458	5.000	7.288
3	1.142	0.132	0.391	0.000	1.665	1.595	5.000	7.973
4	0.677	0.295	0.000	0.000	0.972	1.319	5.000	6.593
5	0.751	0.000	0.000	0.000	0.751	0.862	5.000	4.308
6	0.791	0.000	0.000	0.000	0.791	0.771	5.000	3.855
7	0.806	0.000	0.000	0.000	0.806	0.799	5.000	3.993
8	0.768	0.000	0.000	0.000	0.768	0.787	5.000	3.935
9	0.660	0.000	0.000	0.000	0.660	0.714	5.000	3.570
10	0.693	0.000	0.000	0.000	0.693	0.677	5.000	3.383
11	0.714	0.000	0.000	0.000	0.714	0.704	5.000	3.518
12	0.568	0.000	0.000	0.000	0.568	0.641	5.000	3.205
13	0.500	0.000	0.000	0.000	0.500	0.534	5.000	2.670
14	0.472	0.000	0.000	0.000	0.472	0.486	5.000	2.430
15	1.353	0.000	0.000	0.000	1.353	0.913	5.000	4.563
16	1.263	0.000	0.000	0.000	1.263	1.308	5.000	6.540
17	1.345	0.000	0.000	0.000	1.345	1.304	5.000	6.520
18	1.423	0.000	0.000	0.000	1.423	1.384	5.000	6.920
19	1.474	0.000	0.000	0.000	1.474	1.449	1.715	2.484
								83.744