

A01. These notes are intended to augment drawings and specifications. Where conflict of requirements exists the order of precedence shall be as shown in the specification. Otherwise the strictest provision shall govern.

A02. This drawing is to be read in conjunction with all other relevant engineers and architects drawings.

A03. Drawings not to be scaled. All dimensions to be checked on site by the contractor. Any discrepancies to be notified to the Engineer and further instructions obtained before work is commenced.

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Manhole construction - refer to CPA technical bulletin Sept 2001 outlining changes to relevant British Product Standards BS5911-2001:1994. All precast concrete products are to be kitemarked or they will be rejected as part of an adoptable system. Manhole cover slabs to BS5911

Manhole covers to have a clear opening of 600 x 600mm and shall be class D400 to BS EN 124 with 150mm deep frames. Filled ground must be filled and consolidated under the supervision of ST before any sewer works are carried out. All adoptable sewers to be BSI kitemarked, (certified to WIS-4-35-01)

Plastic channels are not acceptable

All custom built trunkwork to be hot dipped galvanised prior to final fitting.

Adoptable sewer pipes to be laid in max 3m lengths unless there is a specific operational need to lay longer lengths.

United Utilities are not obliged to accept filter drain / land drainage runoff into the public sewer network or adoptable drainage network (directly or indirectly). An alternative method of disposal of land drainage runoff will therefore be required and you will have to liaise with the Local Authority, Land Drainage Section with regard to the disposal of the filter drain/land drainage run-off.

MANHOLE CONSTRUCTION.
 IN LIEU OF THE STANDARD DETAILS UNITED UTILITIES WILL ACCEPT FP MACCANN EASI-BASE PRECAST MANHOLE BASES AND FP MACCANN WIDE WALLED MANHOLE RINGS.
 DEVIATION FROM THESE DRAWING BY UTILIZING THE ABOVE PRODUCTS MUST BE APPROVED FOR INDIVIDUAL MANHOLES BY UNITED UTILITIES PRIOR TO CONSTRUCTION

ALL MANHOLES AND DRAINAGE COMPONENTS TO COMPLY WITH CODE FOR ADOPTION STANDARD DETAILS. ANY DEVIATION BETWEEN THESE AND THE CURRENT SIGN TO BE CLARIFIED PRIOR TO CONSTRUCTION.

STREET LIGHTING
 Column: 6m Valmont or ALC aluminium with planted root
 Lantern: Post top mounted Urbis Ampera Mini LED lantern with 8 LED AMPERA MINI - 5118 - 8 LED - NW 4000K - 500mA - 14.2W
 Tilt: 0 degrees (no tilt)
 Other: Integral driver, NEMA socket

Surface water discharge to watercourse
 Approved discharge from S5 49.3 l/s
 Qbar from new development 44.7 l/s
 Total 100year discharge 94.0 l/s

IMPERMEABLE AREAS (Contributing to basin except 2.000 & 2.001)

PIPE REFERENCE	ROOF/DRIVE AREA	10% URBAN CREEP	ROOF/DRIVE TOTAL AREA	ROAD AREA	CATCHMENT TOTAL AREA
1.000 S22-62	0	Existing section 104 sewer	0	0	0
2.000 S64-63	1660 Inc road	Previous planning approval no urban creep	1660	0	1660
2.001 S63-62	0	Previous planning approval no urban creep	0	0	0
1.001 S62-23	0	Existing section 104 sewer	0	0	0
1.002 S23-24	0	Existing section 104 sewer	0	0	0
3.000 S80-94	1550 Inc road	Previous planning approval no urban creep	1550	0	1550
3.001 S94-95	430 Inc road	Previous planning approval no urban creep	430	0	430
3.002 S95-53	160 Inc road	Previous planning approval no urban creep	160	0	160
4.000 S50-60	2010 Inc road	Previous planning approval no urban creep	2010	0	2010
4.001 S60-51	1300 Inc road	Previous planning approval no urban creep	1300	0	1300
4.002 S61-52	880 Inc road	Previous planning approval no urban creep	880	0	880
4.003 S62-53	540 Inc road	Previous planning approval no urban creep	540	0	540
3.003 S63-55	800 Inc road	Previous planning approval no urban creep	800	0	800
3.004 S65-6	111 Inc road	Previous planning approval no urban creep	111	0	111
3.005 S6-10	1361 Inc road	Previous planning approval no urban creep	1361	0	1361
5.000 S1-34	1120	112	1232	1117	2349
6.000 S2-34	1672	167	1839	444	2283
5.001 S34-35	1196	119	1315	293	1608
6.002 S35-36	2022	202	2224	1171	3395
5.003 S36-10	975	0**	975	0	975
3.006 S10-11	0	0	0	0	0
7.000 S3-4	596	59	655	693	1348
7.001 S4-5	0	0	0	0	0
8.000 S9-5	133	13	146	237	383
7.002 S5-7	0	0	0	324	324
7.003 S7-8	0	0	0	0	0
9.000 S12-6	0	0	0	275	275
7.004 S8-13	843	84	927	370	1297
7.005 S13-14	396	40	436	0	436
7.006 S14-11	0	0	0	0	0
3.007 S11-16	224	22	246	0	246
3.008 S16-30	0	0	0	0	0
3.009 S30-45	0	0	0	0	0
1.003 S45-24	0	Existing section 104 sewer	0	0	0
1.004 S24-25	0	Existing section 104 sewer	0	0	0
1.005 S25-26	0	Existing section 104 sewer	0	0	0

SURFACE WATER 100YEAR RESUME OF MICRODRAINAGE RESULTS APPROVED MAXIMUM DISCHARGE TO RIVER 94 l/s

STORM DURATION	DISCHARGE FROM S5	S63 Discharge rate & water level	S30 Discharge rate & water level	DISCHARGE FROM S45**	TOTAL DISCHARGE TO RIVER
15Min	27.6	16.9 / 79.790	28.9 / 79.333	44.9	72.5
30Min	30.8	16.9 / 79.917	29.0 / 79.490	45.8	76.6
60Min	35.5	16.9 / 79.916	29.0 / 79.625	45.6	81.1
120Min	40.3	16.9 / 79.673	29.0 / 79.752	44.4	84.7
180Min	41.4	16.9 / 79.405	29.0 / 79.813	43.9	85.3
240Min	40.9	16.8 / 79.210	29.0 / 79.847	43.1	84.0
300Min	39.1	13.9 / 79.088	29.0 / 79.864	40.2	79.3
480Min		11.4 / 79.062	29.0 / 79.858	37.7	

Basin volume dimensions

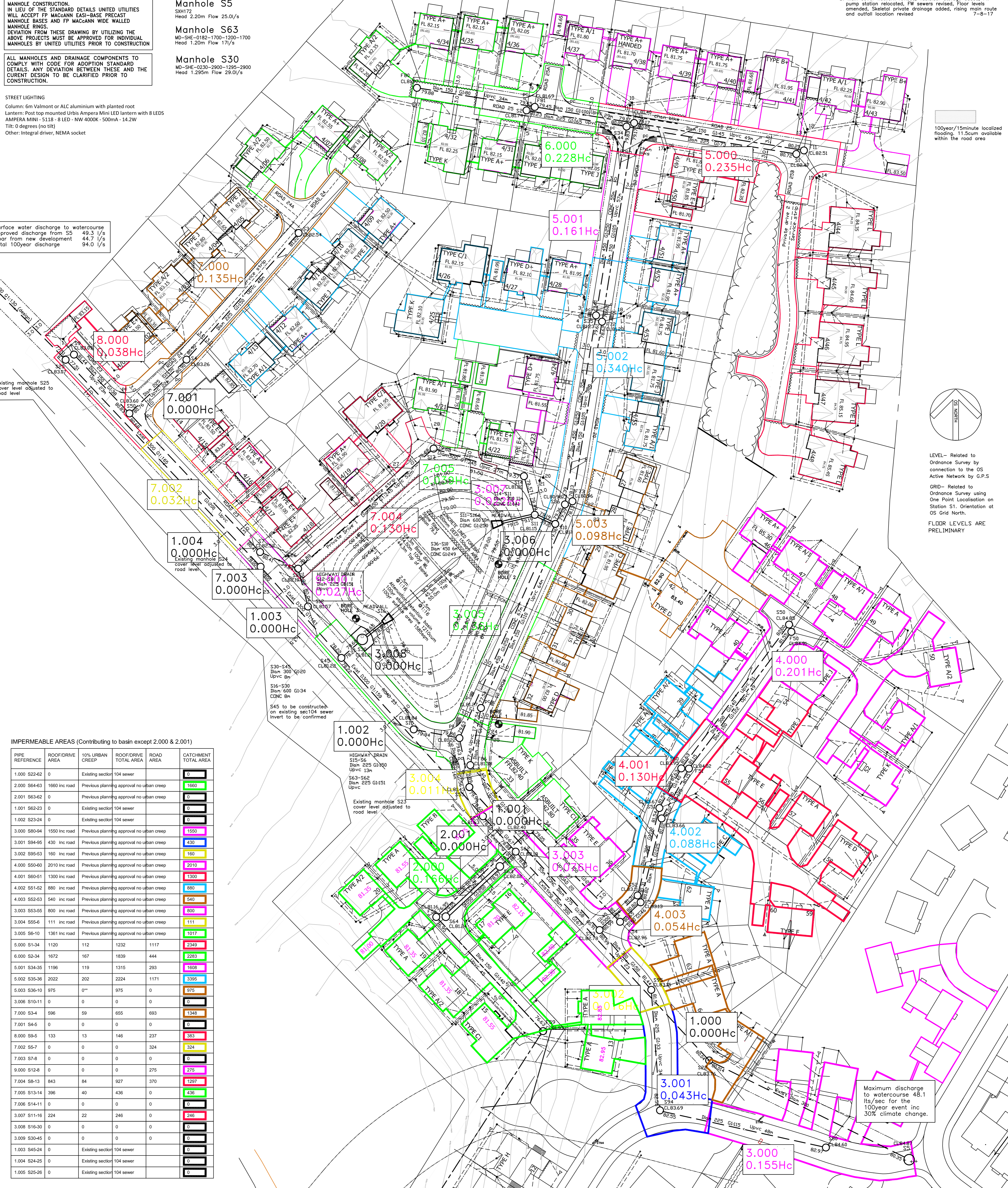
Basin level (contour)	plan area
78.80 (0.1)	275
78.90 (0.1)	945
79.00 (0.2)	1007
79.10 (0.3)	1074
79.20 (0.4)	1143
79.30 (0.5)	1214
79.40 (0.6)	1288
79.50 (0.7)	1363
79.60 (0.8)	1440
79.70 (0.9)	1519
79.80 (1.0)	1599

- C. S85 hydrobrake revised 8-9-17
- D. Foul water pump station revised position 4-9-17
- E. Revised for section 104/38 submission 15-12-17
- F. Plots 15-64 & 80-82 revised and updated for section 104 & 38 submission 18-4-19
- G. Indicative layout added for northern part of the development, existing and proposed sewer routes added following meeting 22-6-19
- H. Full redesign in line with Alpha Design layout 17-10-19
- I. Private drainage added, storage tank No1 volume and tank size revised 19-11-19
- J. Details/revisions for section 104 submission 28-11-19
- K. Revised following UU comment 29-11-19 2-12-19
- L. Phasing clarified 16-7-20
- M. UU reference number added 2-8-20
- N. Full redesign following layout changes and implementation of surface water storage basin 14-8-21
- O. Plots 13-15 & 18 revised 26-8-21
- P. Forbay added to basin 11-10-21
- Q. Street lighting added 19-12-21
- R. Sewer 36-10 increased to D525, impermeable areas to true areas 22-2-22
- S. Ground water monitoring details added 4-4-22
- T. Full redesign following layout changes and current planning approval 20-4-23
- W. Basin levels adjusted, UU comments addressed 26-6-23
- X. S5-7-8-13-14-11, S12-8 & S16-6 revised, private drainage plots 18-23 & S30 hydrobrake amended, Microdrainage schedule amended. 18-7-23
- Y. Plots 27-32, 4/29-4/40, 4/49 & 4/50 FFL revised SW drainage regulated, adjustment to cover levels. Basin amended to UU requirements 12-8-23

GROUND WATER MONITORING

Ref	Basin level	Grnd water level	16/5/22 water level	14/7/22 water level	11/8/22 water level	19/12/22 water level	7/2/23 water level
BH1	78.80	79.50	77.70 (1.80)	77.65 (1.85)	77.60 (1.90)	77.55 (1.85)	77.80 (1.70)
BH2	78.90	79.85	77.43 (2.45)	77.55 (2.30)	77.48 (2.40)	77.45 (2.40)	77.78 (2.10)
BH3	78.80	80.57	77.07 (3.50)	77.62 (2.95)	77.57 (3.00)	77.57 (3.00)	77.57 (3.00)

Figure in brackets are the standing water depths recorded



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High Grange Developments Ltd

Mill Hill, Cleator Moor
 Engineering Layout 27-32 & 4/01-4/55
 Impermeable areas

DRAWN BY rab
 SCALE 1:500 DATE April 17
 DRAWING No 1083-1-2-IMP REV Y

- A. Storage revised to D1800mm, highway vertical alignment revised. 22-5-17
- B. Main sewer network revised, Tubisider storage added, FW pump station relocated, FW sewers revised, Floor levels amended, Skeletal private drainage added, rising main route and outfall location revised 7-8-17

PRELIMINARY ONLY