

# Liddell Road - Phase 2 West Hampstead, London

**Drainage Statement** 

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## 1 Introduction

This statement has been compiled to enable the Local Authority to discharge the drainage planning conditions for the proposed Liddell Road development planning application (Ref: 2014/7651/P), which is located in West Hampstead in the London Borough of Camden. This development is part of a wider development of Liddell Road, Phase 1, (Ref: 2014/7649/P) which was completed in 2017.

Phase 2 consists of three new buildings, providing 106 residential units and 3,700 sqm of mixed commercial use space. Phase 1 was a primary school. A Flood Risk Assessment (FRA) supporting both phases was submitted in December 2014 as part of the joint planning application and subsequently approved. A Drainage Statement to discharge the conditions for Phase 1 was submitted in April 2016 and subsequently approved. Refer to these reports for additional information if required.

### 2 Conditions

#### **Condition 16**

"Prior to commencement of any works comprised in the build out of the development (excluding the following site preparatory works, works of demolition and breaking up of the existing slab) details of a sustainable urban drainage system to achieve a greenfield run off rate for the 1 in 100 year event, allowing for climate change as detailed in the approved flood risk assessment (Price & Myers, Oct 2014) shall be submitted to and approved by the local planning authority and such system shall be implemented as part of the development and thereafter retained and maintained."

#### **Condition 19**

"Prior to commencement of any works comprised in the build out of the development (excluding the following site preparatory works, works of demolition and breaking up of the existing slab) a drainage strategy, prepared in consultation with the sewerage undertaker, detailing any on and/or off site drainage works, has been submitted to and approved by, the local planning authority. No discharge of foul or surface water from the site shall be accepted into the public system until the drainage works referred to in the strategy have been completed.

The strategy shall address the following points:

- 1. There should be no increase to average or peak flows of surface water run off leading towards Network Rail assets, including earthworks, bridges and culverts.
- 2. All surface water run-off and sewage effluent should be handled in accordance with Local Council and Water Company regulations.
- 3. Attenuation should be included as necessary to protect the existing surface water drainage systems from any increase in average or peak loadings due to normal and extreme rainfall events.

- 4. Attenuation ponds, next to the railway, should be designed by a competent specialist engineer and should include adequate storm capacity and overflow arrangements such that there is no risk of flooding of the adjacent railway line during either normal or exceptional rainfall events.
- 5. All surface and foul water arising from the proposed works and any associated soakaways must be collected and diverted away from the railway infrastructure."

### 3 Drainage Strategy

#### 3.1 Existing Drainage

There is an existing 305mm diameter combined water sewer running from east to west along Maygrove Road to the south of the site.

As part of the Phase 1 works a separate surface and foul water drainage system was constructed. The final construction drainage drawings can be found appended to the rear of this report. The accuracy of these is to be confirmed on site.

There is a private 150mm diameter surface water drainage pipe (exMH53) in the south east corner of the site which discharges into the combined water public sewer in Maygrove Road.

The access road running through the site in the west has a separate foul water network and two surface water pipe networks. The 150mm diameter foul water network and the 150mm surface water network were constructed to facilitate future connections for Phase 2. These combine into a manhole in the south of the site (exC20) where the pipe changes to 225mm diameter and discharges into the combined water public sewer in Maygrove Road.

There is also a combined water drainage connection outside of the site to the south-east, which was constructed for Phase 1, however this is not affected by the Phase 2 works.

There is also a surface water drainage network in the access road which drains part of the Phase 1 school and the access road. This runs north to south following the gradient of the road where it discharges into a surface water pumping chamber. This water is pumped back up the road and exits the site in the east where it connects into the school's surface water network. This is unaffected by the works.

It is anticipated that there will be some existing drainage runs within the site boundary which served the previous industrial estate. These will be redundant and can be removed as part of the works.

#### 3.2 Surface Water

#### **Proposed Run-Off**

The FRA calculated that the Greenfield run-off rate from the entire site (Phase 1 & 2) for a 1 in 100year storm (with a 30% allowance for climate change) is 14.97 l/s. The discharge rate was agreed to be split as seen in Table 3.1.

Block	Discharge Rate
1	8.47 l/s
2	6.50 l/s
Total	14.97 l/s

Table 3.1 – Proposed Discharge Rates

It is proposed that the three blocks will each have their own point of discharge into the site wide surface water network due to different ownerships, change in levels, and constraints caused by Phase 1. Therefore, the allowable Phase 2 discharge rate has been split fairly evenly across the site and can be seen in Table 3.2.

Block	Discharge Rate
Block A	2.1 l/s
Block B	2.1 l/s
Block C	2.3 l/s
Total	6.5 l/s

Table 3.2: Proposed Discharge Rates

Whilst the approved FRA stated the drainage network would make a 30% allowance for climate it is worth noting that this has been increased to 40% due to changes in policy since 2014. The MicroDrainage calculations for the 1, 30, 100 and 1 in 100 year + 40% climate change events can be found appended to this document.

#### SuDS Strategy

The site includes the use of SuDS. The proposed drainage layout drawings can be found appended to the rear of this document.

Block A utilises a rainwater harvesting tank which will provide a water supply to appliances and irrigation. This is located below ground and will be provided upstream of any other storage allowing it to fill up first and overflow into other temporary storage features once full. The capacity of the rainwater harvesting system to attenuate rainwater depends on the water use within the building. If there is no activity in the building and the harvester is full, no attenuation will be provided during a subsequent storm event. In the worst-case scenario, the rainwater harvester will provide no attenuation. Therefore, a 60m<sup>3</sup> below ground cellular attenuation tank will provide temporary storage and limits the discharge from the site to 2.1 l/s. This connects in to ExS27 manhole within the access road to the east which was constructed during Phase 1.

Block B utilises an area of permeable paving to the west of the building and will have a minimum 150mm depth of 4/20mm granular material. This works in conjunction with a 40m<sup>3</sup> external below ground cellular attenuation tank and will restrict the discharge to 2.1 l/s. This connects in to ExS25 manhole within the Block A boundary, which was constructed as part of Phase 1.

Block C utilises a 130m<sup>3</sup> below ground cellular attenuation tank and restricts the discharge to 2.3 l/s. This connects in to ExMH53, which utilises an existing 150mm diameter pipe connection into the combined water public sewer in Maygove Road.

Thames Water have approved the surface water discharge rates as part of a pre-development application, their response has been appended to the rear of this document.

#### Maintenance Schedule

The successful implementation and operation of a SuDS system depends on a robust and clear maintenance strategy being implemented. The following measures will form part of the site's proposed management plan.

The drainage pipes, manholes, gullies, permeable paving etc will be maintained by the separate site owners of each Block and will form part of the overall maintenance regime for the site.

SUDS		Maintenance	
Element	Activity	Required Action	Typical Frequency
	Regular	Inspection of the tank for debris and	Annually and following
	Maintenance	sediment build-up, inlets/ outlets/	poor performance
gr		withdrawal devices, overflow areas,	
Stii		pumps, filters	_
LV6		Cleaning of tank, inlets, outlets, gutters,	
На		withdrawal devices and roof drain filters of	
ter		silts and other debris	
Mai	Occasional	Cleaning and/or replacement of any filters	Three monthly, or as
ain	Maintenance		required
Ě.	Remedial	Repair of overflow erosion damage or	As required
	Actions	damage to tank	_
		Pump repairs	
	Monitoring /	Initial inspection	Monthly for three
	Inspections		months after installation
		Inspect for evidence of poor operation	Three-monthly, 48 hours
		and/or weed growth – if required, take	after large storms in first
		remedial action	six months
		Inspect silt accumulation rates and	Annually
		establish appropriate brushing frequencies	
		Monitor inspection chambers	Annually
_	Regular	Brushing and vacuuming -standard	Once a year after
ing	Maintenance	cosmetic sweep over whole surface	autumn leaf fall
Pav		Rubbish and litter removal	As required
ele	Remedial	Remediate any landscaping which through	As required
eab	Actions	vegetation maintenance or soil slip, has	
L		been raised to within 50mm of the level of	
Ре		the paving.	_
		Remedial work to any depressions, rutting	
		and cracked or broken blocks considered	
		detrimental to the structural performance	
		or a hazard to users, and replace lost	
		jointing material	
		Rehabilitation of surface and upper	Every 10 to 15 years or
		substructure by remedial sweeping	as required

SUDS	Maintenance							
Element	Activity	Required Action	Typical Frequency					
	Monitoring /	Inspect all inlets, outlets, vents, overflows	Annually or after severe					
	Inspections	and control structures to ensure they are	storms					
hink		working as they should						
T a		Inspect and identify any elements that are	Monthly for three					
ion		not operating correctly.	months, then half yearly					
uat			or as required.					
ten	Regular	Remove sediments / debris from catch pits /	Annually, after severe					
Att	Maintenance	gullies and control structures	storms or as required					
	Remedial	Repair inlets, outlets, vents, overflows and	As required					
	Actions	control structures.						

Table 3.3: SuDS Maintenance Strategy as taken from the CIRIA SuDS manual

#### 3.3 Foul Water

Each block has its own separate foul water drainage network. Block A connects into exMHF22 in the access road, Block B connects into exMHF20 in the Block A site boundary and Block C connects in to exC20 in the access road via an existing spur constructed during Phase 1.

Thames Water have confirmed that the combined water sewer in Maygrove Road has sufficient capacity to cater for the increase in foul water flow. Their response has been appended to this document.

#### 3.4 Network Rail

The surface water from the site is being discharged to the public sewer at its Greenfield run off rate via the use of attenuation tanks and hydrobrakes; no infiltration is proposed adjacent to the Network rail boundary.

The surface water drainage will not cause flooding on the Network Rail site in the event of a large rainfall event, as our network can cater for a 1 in 100-year storm with an additional 40% allowance for climate and our site is set at a lower level.

### 4 Attachments

- As-Built Phase 1 Drainage Drawings
  - o 22885-620 Manhole Schedules & Setting Out Co-Ordinates
  - 22885-625 Below Ground Drainage Layout Full Site
- Drawings (including 29100 PM Document Issue Register):
  - o 29100-6000 Below Ground Drainage Site Wide Layout
  - o 29100-6001 Below Ground Drainage Block A Sheet 1
  - o 29100-6002 Below Ground Drainage Block B Sheet 2
  - o 29100-6003 Below Ground Drainage Block C Sheet 3
  - o 29100-6004 Below Ground Drainage Block C Sheet 4
  - 29100-6101 Below Ground Drainage Details Sheet 1
  - 29100-6102 Below Ground Drainage Details Sheet 2
  - o 29100-6103 Below Ground Drainage Details Sheet 3
  - o 29100-6104 Below Ground Drainage Details Sheet 4
  - o 29100-6105 Below Ground Drainage Details Sheet 5
  - o 29100-6106 Below Ground Drainage Details Sheet 6
  - o 29100-6200 Access Chambers Schedules
  - o 29100-GN02 General Notes
- MicroDrainage Model
  - o 29100 PM SW Network Details
  - o 29100 PM 1 in 1, 30 & 100
  - 29100 PM 1 in 100 year + 40% CC
  - 29100 PM FW Network Details
- Approvals
  - Thames Water Pre-Development Enquiry Response

File         Solu         Roll         C         Solu         Roll         Ro	Manhole Reference	Cover Level (m)	Invert Level (m)	Manhole Type	Manhole depth (m)	Internal Manhole Size	Cover Clear Opening and Cover Grade	Comments	Manhole Reference	Cover Level (m)	Invert Level (m)	Manhole Type	Manhole depth (m)	Internal Manhole Size	Cover Clear Opening and Cover Grade	Comments
No.         No. <td>F1</td> <td>50.300</td> <td>49.650</td> <td>IC</td> <td>0.650</td> <td>750x600 Rectangular</td> <td>600x450 Opening</td> <td>Internal manhole - double sealed and bolted</td> <td>S1</td> <td>50.085</td> <td>48.885</td> <td>IC</td> <td>1.200</td> <td>750x600 Rectangular</td> <td>600x450 Opening</td> <td></td>	F1	50.300	49.650	IC	0.650	750x600 Rectangular	600x450 Opening	Internal manhole - double sealed and bolted	S1	50.085	48.885	IC	1.200	750x600 Rectangular	600x450 Opening	
m         m<         m         m<         m< <td></td> <td></td> <td></td> <td></td> <td></td> <td>Precast Concrete Blocks</td> <td>BS EN 124 CLASS B125</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Precast Concrete Blocks</td> <td>BS EN 124 CLASS D400</td> <td></td>						Precast Concrete Blocks	BS EN 124 CLASS B125							Precast Concrete Blocks	BS EN 124 CLASS D400	
P2         S100         0.2							Recessed Cover									
No.         No. <td>F2</td> <td>50.300</td> <td>49.303</td> <td>IC</td> <td>0.997</td> <td>600x450 Rectangular</td> <td>600x450 Opening</td> <td>Internal manhole - double sealed and bolted</td> <td>S2</td> <td>48.410</td> <td>47.207</td> <td>IC</td> <td>1.203</td> <td>1200x750 Rectangular</td> <td>1200x675 Opening</td> <td></td>	F2	50.300	49.303	IC	0.997	600x450 Rectangular	600x450 Opening	Internal manhole - double sealed and bolted	S2	48.410	47.207	IC	1.203	1200x750 Rectangular	1200x675 Opening	
P3         42.33         42.64         D         124         12007         1240         12007         1200         12007         1200         12007						Precast Concrete Blocks	BS EN 124 CLASS B125							Precast Concrete Blocks	BS EN 124 CLASS D400	Steps Required
93         93         94         94.95         6         1.34         40.85         0         1.34         40.85         0         1.35         40.85         0         1.35         40.85         0         1.35         60.87							Recessed Cover									
4         500         6100         7         500         6100         7         500         6100         7         500         6100         7         500         6100         7         500         6100         7         500         6100         7         6100         6100         6100         6100         6100 </td <td>F3</td> <td>50.339</td> <td>49.045</td> <td>IC</td> <td>1.294</td> <td>1200x750 Rectangular</td> <td>1200x675 Opening</td> <td></td> <td>S3</td> <td>47.510</td> <td>46.300</td> <td>IC</td> <td>1.210</td> <td>1200x750 Rectangular</td> <td>1200x675 Opening</td> <td></td>	F3	50.339	49.045	IC	1.294	1200x750 Rectangular	1200x675 Opening		S3	47.510	46.300	IC	1.210	1200x750 Rectangular	1200x675 Opening	
44         6 0.07         6 0.07         0.07         000000000000000000000000000000000000						Precast Concrete Blocks	BS EN 124 CLASS B125	Steps Required						Precast Concrete Blocks	BS EN 124 CLASS D400	Steps Required
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interview         interview <t< td=""><td>F4</td><td>50.075</td><td>48.900</td><td>IC</td><td>1.175</td><td>600x450 Rectangular</td><td>600x450 Opening</td><td>Internal manhole - double sealed and bolted</td><td><b>S</b>4</td><td>49.227</td><td>48.215</td><td>IC</td><td>1.012</td><td>1200x750 Rectangular</td><td>BOUXBUU eccentric</td><td>Sealed Manhole</td></t<>	F4	50.075	48.900	IC	1.175	600x450 Rectangular	600x450 Opening	Internal manhole - double sealed and bolted	<b>S</b> 4	49.227	48.215	IC	1.012	1200x750 Rectangular	BOUXBUU eccentric	Sealed Manhole
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g         LOUG         LO	F.6	50.075	49 776	IC	1 200	1200x750 Rootongular	1200x675 Opening		85	50 408	48.005	TYPE B	2 313	1200 Diameter Presast	600x600 eccentric	
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Fig. 0         0         0         0         0         0         0         0         000007         Fig. 0         0000007         Fig. 0						Flecast Coliciete Blocks	Bo EN 124 CLASS B125	Steps Required						Concrete rungs	B3 EN 124 CLA33 D400	Steps Required
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Part         Part <th< td=""><td></td><td></td><td></td><td></td><td></td><td>Precast Concrete Blocks</td><td>BS EN 124 CLASS B125</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Precast Concrete Blocks</td><td>BS EN 124 CLASS B125</td><td>Steps Required</td></th<>						Precast Concrete Blocks	BS EN 124 CLASS B125							Precast Concrete Blocks	BS EN 124 CLASS B125	Steps Required
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Hot         Sole         Apple         Ap						Precast Concrete Blocks	BS EN 124 CLASS B125	Steps Required						Precast Concrete Blocks	BS EN 124 CLASS D400	
File         50.88         48.60         C         1.38         1200/150 Retangular         200/150 (spring)         File         50.91         48.01         TYPE B         2.394         1200 Dimeter Presal         600:00 coentie         55.11 (a CLASS D40)							Recessed Cover									
Image: Note of the image: No	F10	50.980	49.600	IC	1.380	1200x750 Rectangular	1200x675 Opening		S10	50.910	48.016	TYPE B	2.894	1200 Diameter Precast	600x600 eccentric	
F11a         50.850         50.00         E         0.950         600x450 Rectangular Precasi Concrete Biok, B E H 124 CLASS D400 Recessed Cover d00x600 eccentric B E H 124 CLASS D400 Recessed Cover d00x600 eccentric Concrete Rings B E H 124 CLASS D400 Recessed Cover d00x600 eccentric Concrete Rings B E H 124 CLASS D400 Recessed Cover Recessed Cov						Precast Concrete Blocks	BS EN 124 CLASS D400	Steps Required						Concrete Rings	BS EN 124 CLASS D400	Steps Required
Fit a         50.95         50.00         C         0.950         600.450 Retangular         600.																
Print         Special Concrete Blocks         B S IN 124 CLASS D400         Preset Concrete Blocks         B S IN 124 CLASS D400         Preset Concrete Blocks         B S IN 124 CLASS D400         Steps Required           P11         50.980         42.921         TYPE B         2.869         1200 Diameter Precast         600x600 eccentric         B S IN 124 CLASS D400         Steps Required           P12         51.000         48.191         TYPE B         2.869         1200 Diameter Precast         600x600 eccentric         B S IN 124 CLASS D400         Steps Required           P12         51.000         48.911         TYPE B         2.869         1200 Diameter Precast         600x600 eccentric         B S IN 124 CLASS D400         Steps Required           P12         49.076         44.900         TYPE B         2.6101         1200 Diameter Precast         600x600 eccentric         B S IN 124 CLASS D400         Steps Required           P12         49.076         44.900         TYPE B         2.6101         1200 Diameter Precast         600x600 eccentric         B S IN 124 CLASS D400         Steps Required           P12         49.076         44.900         TYPE A         3.381         1200 Diameter Precast         600x600 eccentric         B S IN 124 CLASS D400         Lader required           P12         49.200 </td <td>F11a</td> <td>50.950</td> <td>50.000</td> <td>IC</td> <td>0.950</td> <td>600x450 Rectangular</td> <td>600x450 Opening</td> <td></td> <td>S11</td> <td>50.980</td> <td>50.200</td> <td>IC</td> <td>0.780</td> <td>600x450 Rectangular</td> <td>600x450 Opening</td> <td></td>	F11a	50.950	50.000	IC	0.950	600x450 Rectangular	600x450 Opening		S11	50.980	50.200	IC	0.780	600x450 Rectangular	600x450 Opening	
Recessed Cover         Recessed Cover         BS EN 124 CLASS D400         Steps Required           F12         51.00         48.191         TYPE B         2.00         1.000         Jameter Precast         600:600 eccentric         Steps Required           F22         49.610         47.000         TYPE B         2.000         TYPE B         2.000         Jameter Precast         600:600 eccentric         Steps Required           F22         49.610         47.000         TYPE B         2.000         TYPE B         2.000         Jameter Precast         600:600 eccentric         Steps Required           F22         49.610         47.000         TYPE B         2.001         T200 Diameter Precast         600:600 eccentric         Steps Required           F22         49.610         47.000         TYPE B         2.000         Steps Required         Steps Required           F22         49.610         47.000         TYPE A         3.000         T200 Diameter Precast         600:600 eccentric         Steps Required           F22         49.007         TYPE A         3.490         50.914         47.673         TYPE A         3.491         200 Diameter Precast         600:600 eccentric           F22         47.980         TYPE A         3.380 <t< td=""><td></td><td></td><td></td><td></td><td></td><td>Precast Concrete Blocks</td><td>BS EN 124 CLASS D400</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Precast Concrete Blocks</td><td>BS EN 124 CLASS D400</td><td></td></t<>						Precast Concrete Blocks	BS EN 124 CLASS D400							Precast Concrete Blocks	BS EN 124 CLASS D400	
Fit         50.880         42.82         TYPE B         1.886         1200 Diameter Presat         600x600 scentine Recessed Cover         51.90         47.95         1YPE B         2.805         120 LASS D400         Steps Required Recessed Cover           F12         51.00         48.191         TYPE B         2.805         1200 Ligneter Presat         600x600 scentine Recessed Cover         Steps Required           F20         49.610         47.000         TYPE B         2.610         1200 Diameter Presat         600x600 scentine Concrete Rings         BS EN 124 CLASS D400         Steps Required           F21         49.076         64.00         TYPE B         2.610         1200 Diameter Presat         600x600 scentine Concrete Rings         Steps Required           F22         49.078         44.000         TYPE B         2.610         1200 Diameter Presat         600x600 scentine Concrete Rings         Steps Required           F22         47.960         44.000         TYPE A         3.801         1200 Diameter Presat         600x600 scentine Concrete Rings         Steps Required           F23         49.260         TYPE A         3.801         1200 Diameter Presat         600x600 scentine Concrete Rings         Steps Required           F24         49.260         TYPE A         3.801         120							Recessed Cover		10.00							
F12         51.000         48.191         TYPE B         2.800         TOD Diameter Precast         600x600 eccentric           F12         51.000         48.191         TYPE B         2.800         1200 Diameter Precast         600x600 eccentric         51.124 CLASS D400         Steps Required           F220         49.610         47.000         TYPE B         2.800         1200 Diameter Precast         600x600 eccentric         Steps Required           F21         49.076         46.400         TYPE B         2.876         1200 Diameter Precast         600x600 eccentric         Steps Required           F21         49.076         46.400         TYPE A         3.380         1200 Diameter Precast         600x600 eccentric         Steps Required           F22         47.980         44.000         TYPE A         3.380         1200 Diameter Precast         600x600 eccentric         Steps Required           F22         47.980         44.000         TYPE A         3.380         1200 Diameter Precast         600x600 eccentric         Steps Required           F22         47.980         44.000         TYPE A         3.380         1200 Diameter Precast         600x600 eccentric         Steps Required           F22         47.980         44.000         TYPE A <td< td=""><td>F11</td><td>50.980</td><td>49.282</td><td>TYPE B</td><td>1.698</td><td>1200 Diameter Precast</td><td>600x600 eccentric</td><td></td><td>S12</td><td>50.910</td><td>47.945</td><td>TYPE B</td><td>2.965</td><td>1200 Diameter Precast</td><td>600x600 eccentric</td><td></td></td<>	F11	50.980	49.282	TYPE B	1.698	1200 Diameter Precast	600x600 eccentric		S12	50.910	47.945	TYPE B	2.965	1200 Diameter Precast	600x600 eccentric	
F12         51.000         48.191         TYPE B         2.09         1200 Liameter Precast         600x600 eccentic         Stand         50.983         49.995         IC         1.288         1200x750 Rectangular         1200x750 Re						Concrete Rings	BS EN 124 CLASS D400	Steps Required	_					Concrete Rings	BS EN 124 CLASS D400	Steps Required
P12       51.000       48.191       IYPE B       2.809       T200 Diameter Precast       600x600 accentine       Sta       0.963       48.695       L       1.200       Concrete Rings       BS EN 124 CLASS D400       Steps Required         F20       49.610       47.000       TYPE B       2.616       1200 Diameter Precast       600x600 accentine       BS EN 124 CLASS D400       Steps Required       Precast Concrete Rings       BS EN 124 CLASS D400       Steps Required         F21       49.076       46.400       TYPE B       2.616       1200 Diameter Precast       600x600 accentine       BS EN 124 CLASS D400       Steps Required         F22       47.980       44.600       TYPE A       3.380       1200 Diameter Precast       600x600 accentine       BS EN 124 CLASS D400       Steps Required         F23       44.280       44.600       TYPE A       44.600       TYPE A       3.380       1200 Diameter Precast       600x600 accentine       BS EN 124 CLASS D400       Steps Required         F23       44.280       44.600       TYPE A       44.800       TYPE A       44.800       Goncrete Rings       BS EN 124 CLASS B125       Lader required         F23       44.280       44.300       TYPE A       44.800       TYPE A       3.387       1200 Diameter Pr		54 000	10.101	T/05 0	0.000	1000 0	Recessed Cover			50.000	40.005	10	4 000	1000-750 Daster miles	1000-075 On a lan	
F20         49.810         47.000         TYPE B         2.610         1200 Class D400         Steps Required         Required         Recessed Cover	F12	51.000	48.191	TYPE B	2.809	1200 Diameter Precast	600x600 eccentric		\$13	50.983	49.695	IC.	1.288	1200x 750 Rectangular	1200x675 Opening	Change Description of
F20       49.610       47.000       TYPE B       2.610       1200 Diameter Precast       600x600 eccentric       500x600 eccentric       120x675 Opening       120x675 Opening         F21       49.076       46.400       TYPE B       2.676       1200 Diameter Precast       600x600 eccentric       500x600 eccentric       50.974       49.677       12.67       12.00x750 Rectangular       120x675 Opening       120x675 Opening         F22       47.980       44.800       TYPE A       3.380       1200 Diameter Precast       600x600 eccentric       Steps Required         F22       47.980       44.800       TYPE A       3.380       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS B105       Ladder required         F22       47.980       44.800       TYPE A       3.380       1200 Diameter Precast       600x600 eccentric       Concrete Rings       BS EN 124 CLASS B105       Ladder required         F23       49.201       TYPE A       3.437       1200 Diameter Precast       600x600 eccentric       Concrete Rings       BS EN 124 CLASS B105       Ladder required         F24       49.801       TYPE A       3.457       1200 Diameter Precast       600x600 eccentric       Concrete Rings       BS EN 124 CLASS B105       Ladder required       Recessed Cover       Rec						Concrete Rings	BS EN 124 CLASS D400	Steps Required		-				Flecast Concrete Blocks	Boonsod Coupr	Steps Required
P20         P3010         P1000         P1000         P1000         P1000         P10000         P10000         P100000         P100000         P1000000         P1000000000000000000000000000000000000	E20	49,610	47.000	TVDE B	2 610	1200 Diameter Brogast	600x600 eccentric		814	50.974	49 507	IC	1 /67	1200x750 Rectangular	1200v675 Opening	
F21         49.076         66.00         TYPE B         2.676         1200 Diameter Precast         600x600 eccentric         Start required           F21         49.076         46.400         TYPE B         2.676         1200 Diameter Precast         600x600 eccentric         BS EN 124 CLASS D400         Steps Required         Recessed Cover         BS EN 124 CLASS D400         Ladder required           F22         47.980         44.800         TYPE A         3.380         1200 Diameter Precast         600x600 eccentric         Concrete Rings         BS EN 124 CLASS D400         Ladder required           F23         49.280         44.300         TYPE A         4.980         1200 Diameter Precast         600x600 eccentric         Concrete Rings         BS EN 124 CLASS B125         Ladder required           F23         49.280         44.300         TYPE A         3.457         1200 Diameter Precast         600x600 eccentric         Concrete Rings         BS EN 124 CLASS B125         Ladder required           F24         47.786         TYPE A         3.457         1200 Diameter Precast         600x600 eccentric         Concrete Rings         BS EN 124 CLASS B125         Ladder required           F26         47.786         TYPE B         3.337         1200 Diameter Precast         600x600 eccentric         BS EN 124 C	F20	45.010	47.000	TIFLD	2.010	Concrete Rings	BS EN 124 CLASS D400	Stops Required	314	50.014	40.007	10	1.407	Precast Concrete Blocks	BS EN 124 CLASS B125	Steps Required
F21       49.076       46.00       TYPE B       2.676       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required         F22       47.980       44.600       TYPE A       3.380       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required         F23       49.280       44.300       TYPE A       3.980       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required         F23       49.280       44.300       TYPE A       3.980       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required         F23       49.280       44.300       TYPE A       3.980       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required         F24       51.00       49.827       TYPE B       2.223       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Ladder required         F23       49.280       747.860       TYPE A       3.387       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Ladder required         F24       50.87       47.860       TYPE B       3.337       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 12						Concrete rangs	D3 LIN 124 CLA33 D400	Steps Nequiled							Recessed Cover	oteps required
C1         Concrete Rings         BS EN 124 CLASS D400         Steps Required         Concrete Rings         BS EN 124 CLASS D400         Ladder required           F22         47.980         44.000         TYPE A         3.380         1200 Diameter Precast         600x600 eccentric         Ladder required         S16         50.988         50.000         IC         0.988         475mm Polypropylen         440mm diameter           F23         49.280         44.300         TYPE A         4.980         1200 Diameter Precast         600x600 eccentric         Concrete Rings         BS EN 124 CLASS B125         Ladder required           F1BC         Concrete Rings         BS EN 124 CLASS B125         Ladder required         S16         50.988         50.000         IC         0.988         475mm Polypropylen         440mm diameter           F23         49.280         147.060         TYPE A         4.980         1200 Diameter Precast         600x600 eccentric         BS EN 124 CLASS D400         Ladder required           F1BC         Concrete Rings         BS EN 124 CLASS D400         Ladder required         S17         51.600         49.827         TYPE B         2.223         1200 Diameter Precast         600x600 eccentric         BS EN 124 CLASS D400         Steps Required           C1         50.517	E21	49 076	46 400	TYPE B	2 676	1200 Diameter Precast	600x600 eccentric		\$15	50,914	47.873	TYPE A	3,491	1200 Diameter Precast	600x600 eccentric	450mm Deep sump
F22       47.980       44.600       TYPE A       3.380       1200 Diameter Precast       600x600 eccentric       Recessed Cover       Recessed Cover         F23       49.280       44.300       TYPE A       4.980       1200 Diameter Precast       600x600 eccentric       SE N 124 CLASS B125       Ladder required         F23       49.280       44.300       TYPE A       4.980       1200 Diameter Precast       600x600 eccentric       Cource level TBC - To match existing levels         F23       49.280       44.300       TYPE A       3.457       1200 Diameter Precast       600x600 eccentric       Step Required         F24       F25       47.760       TYPE A       3.457       1200 Diameter Precast       600x600 eccentric       Step Required         F26       47.786       46.500       TYPE A       3.457       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Ladder required         F26       47.786       46.500       TYPE A       3.250       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Ladder required         F27       47.786       46.500       TYPE A       3.250       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Steps Required         F26		10.010			2.0.0	Concrete Rings	BS EN 124 CLASS D400	Steps Required	0.0					Concrete Rings	BS EN 124 CLASS D400	Ladder required
F22       47.980       44.600       TYPE A       3.380       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required       Ring       Ring       440mm diameter         F23       49.280       44.300       TYPE A       4.980       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required       S16       50.988       50.000       IC       0.988       475mm Polypropylene Ring       440mm diameter         F23       49.280       44.300       TYPE A       4.980       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required       S17       51.600       49.827       TYPE B       2.223       1200 Diameter Precast 600x600 eccentric       450mm Deep sump BS EN 124 CLASS B125       Ladder required         C1       50.517       47.060       TYPE A       3.3457       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Ladder required       518       50.837       47.950       TYPE A       3.337       1200 Diameter Precast 600x600 eccentric       600x600 eccentric BS EN 124 CLASS D400       Esp Required         C20       47.786       46.600       TYPE A       3.250       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required							50 211 121 02100 5100	oropo rroquilou							Recessed Cover	Luudon roquirou
August between the service of the service o	F22	47,980	44,600	TYPE A	3,380	1200 Diameter Precast	600x600 eccentric		S16	50,988	50,000	IC	0.988	475mm Polypropylene	440mm diameter	
P23       49.280       44.300       TYPE A       4.980       1200 Diameter Precast BS EN 124 CLASS B125       Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover level TBC - To match existing levels BS EN 124 CLASS B125       Start Cover levels Cover levels Cover levels Cover levels Cover levels C						Concrete Rings	BS EN 124 CLASS B125	Ladder required						Ring	Hepworth SPK8	
49.280       44.300       TYPE A       4.980       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Cover level TBC - To match existing levels BS EN 124 CLASS B125       S17       51.600       49.827       TYPE B       2.223       1200 Diameter Precast BS EN 124 CLASS B125       600x600 eccentric BS EN 124 CLASS B125       Steps Required         C1       50.517       47.080       TYPE A       3.457       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Ladder required       51.800       49.827       TYPE A       3.337       1200 Diameter Precast BS EN 124 CLASS D400       600x600 eccentric BS EN 124 CLASS D400       Ladder required         C2       47.786       46.500       TYPE B       1.286       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Esp Required         C20       47.786       44.000       TYPE A       3.250       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required         C20       47.250       44.000       TYPE A       3.250       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required       Steps Require								le a constante de la langue de							Recessed Cover	
TBC       TBC       Concrete Rings       BS EN 124 CLASS B125       Ladder required         C1       50.517       47.060       TYPE A       3.457       1200 Diameter Precast       600x600 eccentric       58 EN 124 CLASS D400       Ladder required         C2       47.786       46.500       TYPE B       1.286       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Ladder required         C2       47.786       46.500       TYPE B       1.286       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Ladder required         C20       47.786       44.000       TYPE A       3.250       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Steps Required         C20       47.250       44.000       TYPE A       3.250       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Steps Required         C20       47.250       44.000       TYPE A       3.250       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Steps Required         C20       47.250       TYPE A       3.250       1200 Diameter Precast       600x600 eccentric       BS EN 124 CLASS D400       Steps Required         C20       47.250       TYPE A	F23	49.280	44.300	TYPE A	4.980	1200 Diameter Precast	600x600 eccentric	Cover level TBC - To match existing levels	S17	51.600	49.827	TYPE B	2.223	1200 Diameter Precast	600x600 eccentric	450mm Deep sump
Image: Character in the image:		TBC				Concrete Rings	BS EN 124 CLASS B125	Ladder required						Concrete Rings	BS EN 124 CLASS B125	Steps Required
C1       50.517       47.060       TYPE A       3.457       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Lader required       518       50.837       47.950       TYPE A       3.337       1200 Diameter Precast BS EN 124 CLASS D400       450mm Deep sump Lader required         C2       47.786       46.500       TYPE B       1.286       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Est N 124 CLASS D400       Est N 124 CLASS D400       Est N 124 CLASS D400       Step Required         C20       47.786       44.000       TYPE A       3.280       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Step Required         C20       47.250       44.000       TYPE A       3.280       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Step Required         C20       47.250       TYPE A       3.280       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Step Required         C20       47.950       TYPE A       3.357       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Step Required         C20       47.950       TYPE A       1.835       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400															Recessed Cover	
C2       47.786       46.500       TYPE B       1.286       1200 Diameter Precast Doncrete Rings       600x600 eccentric BS EN 124 CLASS D400       Ladder required         C20       47.786       44.000       TYPE A       3.250       1200 Diameter Precast Doncrete Rings       600x600 eccentric BS EN 124 CLASS D400       tages required         C20       47.786       44.000       TYPE A       3.250       1200 Diameter Precast Doncrete Rings       600x600 eccentric BS EN 124 CLASS D400       tages required         C20       47.786       44.000       TYPE A       3.250       1200 Diameter Precast Doncrete Rings       600x600 eccentric BS EN 124 CLASS D400       tages required         C20       47.786       44.000       TYPE A       3.250       1200 Diameter Precast BS EN 124 CLASS D400       tages required         C20       47.786       44.000       TYPE A       3.250       1200 Diameter Precast BS EN 124 CLASS D400       tages required         SEN       44.000       TYPE A       3.250       1200 Diameter Precast BS EN 124 CLASS D400       tages required         C000       C000 create Rings       600x600 eccentric BS EN 124 CLASS D400       tages required       tages required       tages required       tages required       tages required         C000 Concrete Rings       BS EN 124 CLASS D400       tages r	C1	50.517	47.060	TYPE A	3.457	1200 Diameter Precast	600x600 eccentric		S18	50.837	47.950	TYPE A	3.337	1200 Diameter Precast	600x600 eccentric	450mm Deep sump
c2       47.786       46.500       TYPE B       1.280       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required         c20       47.750       44.000       TYPE A       3.250       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required       526       48.890       47.055       TYPE B       1.200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required         c20       47.250       44.000       TYPE A       3.250       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D120       Exp Required         s26       48.890       47.055       TYPE B       1.835       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required         s27       47.890       46.800       IC       1.210       1200x750 Rectangular       1200x750 Rectangular						Concrete Rings	BS EN 124 CLASS D400	Ladder required						Concrete Rings	BS EN 124 CLASS D400	Ladder required
C2       47.786       46.500       TYPE B       1.286       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required       525       49.610       47.500       TYPE B       2.110       1200 Diameter Precast BS EN 124 CLASS D400       Steps Required         C20       47.250       44.000       TYPE A       3.250       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required       526       48.890       47.055       TYPE B       1.00 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required         S26       48.890       47.055       TYPE B       1.835       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS D400       Steps Required         S27       47.890       46.680       IC       1.210       1200x750 Rectangular       1200x750 Opening																
And the set of the set o	C2	47.786	46.500	TYPE B	1.286	1200 Diameter Precast	600x600 eccentric		\$25	49.610	47.500	TYPE B	2.110	1200 Diameter Precast	600x600 eccentric	
C20       47.250       44.000       TYPE A       3.250       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required         S27       47.890       46.800       IC       1.200       1200 Diameter Precast Concrete Rings       600x600 eccentric BS EN 124 CLASS B125       Ladder required						Concrete Rings	BS EN 124 CLASS D400	Steps Required						Concrete Rings	BS EN 124 CLASS D400	Steps Required
C20       47.250       44.000       TYPE A       3.250       1200 Diameter Precast       600x600 eccentric         B E N 124 CLASS B125       Ladder required       S26       48.890       47.055       TYPE B       1.835       1200 Diameter Precast       600x600 eccentric         S27       47.890       46.800       IC       1.210       1200x750 Rectangular       1200x750 Opening																
Concrete Rings         BS EN 124 CLASS B125         Ladder required         Concrete Rings         BS EN 124 CLASS D400         Steps Required           \$27         47.890         46.80         IC         1.210         120x750 Rectangular         120x675 Opening	C20	47.250	44.000	TYPE A	3.250	1200 Diameter Precast	600x600 eccentric		S26	48.890	47.055	TYPE B	1.835	1200 Diameter Precast	600x600 eccentric	
\$27 47.890 46.680 IC 1.210 1200x750 Rectangular 1200x675 Opening						Concrete Rings	BS EN 124 CLASS B125	Ladder required						Concrete Rings	BS EN 124 CLASS D400	Steps Required
<b>\$27</b> 47.890 46.680 IC 1.210 1200x750 Rectangular 1200x675 Opening										17 01 -	10.05	10			1000 075 0	
									S27	47.890	46.680	IC	1.210	1200x750 Rectangular	1200x675 Opening	

S28

S29

FC1

SW PUMP

#### FOUL & COMBINED WATER MANHOLE SCHEDULES

Ch	nannel Drain		
No.	Unit Reference		
CD01	M100D 10.0		
CD02	M100D 30.0		
CD03	M100D 10.0		
CD04	M100D 10.0		
CD05	M100D 30.0		
CD06	M100D 0.0		
CD07	M200D 0.0		Slot Drain
CD08	M200D 0.0	No.	Unit Reference
CD09	M200D 10.0	BS01	M100D 0.0*
CD10a	M100D 10.0	BS02	M100D 0.0*
CD10b	M100D 10.0	BS03	M100D 10.0*
CD11	M100D 0.0	BS04	M100D 0.0*
CD12	M100D 0.0	BS05	M100D 0.0*
CD13	M100D 0.0	BS06	M100D 10.0*
CD14	M100D 20.0	BS07	M100D 10.0*
CD15	M100D 0.0	BS08	M100D 10.0*
CD16	M100D 20.0	BS09	M100D 0.0*
CD17	M100D 0.0	BS10	M100D 30.0*
CD18	M100D 10.0	* With bri	kslot grating

CHANNEL DRAIN & BRICKSLOT SCHEDULE

#### SURFACE WATER MANHOLE SCHEDULE

Concrete Rings

Concrete Rings

GRP PUMP

1200 Diameter Precast

1200 Diameter Precast Concrete Rings

600x600 eccentric

600x600 eccentric

600x600 eccentric

BS EN 124 CLASS D400

BS EN 124 CLASS B125 Steps Required

BS EN 124 CLASS B125 Steps Required

600x600 eccentric BS EN 124 CLASS D400 Ladder required

450mm Deep sump

Refer to New Haden Quote - P-171337 A0

49.230 46.373 TYPE B 2.857 1200 Diameter Precast

1.870

1.238

47.620 46.200 TYPE B

45.947

47.185

50.870

GRP

PUMP

47.100 TYPE B 3.770

MANHOLE SE	TING OUT CO-C
SOP	Eastings (m)
A101	525189.157
A102	525217.519
A103	525215.852
AT04	525187.507
C1	525219.142
C2	525213.084
C20	525104.262
F1	525117.953
F10	525172.161
F11	525183.758
F11a	525215.248
F12	525183.471
F2	525130.894
F20	525089.665
F21	525107.880
F22	525105.560
F23	525116.708
F3	525135.472
F4	525136.246
F5	525137.119
F6	525150.957
F6a	525155.446
F7	525207.567
F8	525189.624
F9	525181.635
FC1	525219.084
S1	525107.808
S10	525158 921
S11	525168 403
\$12	525168 804
S13	525204.965
S14	525186 798
\$15 \$15	525185 003
S15	5257103.303
S10	525210.710
S17	525221.974
310	525220.034
52	525111.045
525	525088.971
520	525108.641
S27	525104.328
S28	525114.610
S29	525106.269
S3	525107.947
S4	525114.196
S5	525142.751
S6	525138.735
S6a	525139.055
S7	525137.931
S8a	525136.263
S9	525161.010

D-ORDINATES							
)	Northings (m)						
	184814.148						
	184809.147						
	184799.693						
	184804,792						
	184798.160						
-	184761.395						
	184779.602						
-	184848.987						
_	184819.816						
-	184817 815						
	184810 373						
	184804 803						
	184845 588						
	184823 468						
	194915 930						
	104010.000						
	104/95.934						
	104/85.538						
	184832.780						
	184809.234						
	184814.143						
	184814.132						
	184839.590						
	184829.655						
	184832.819						
	184834.228						
	184804.419						
	184840.618						
	184815.511						
	184820.531						
	184813.627						
	184814.248						
	184817.007						
	184810.368						
	184827.339						
	184812.212						
	184805.178						
	184803.621						
	184821.801						
	184813.452						
	184794.345						
	184786.892						
	184788.363						
	184784.640						
	184820.593						
	184815.606						
	184839.535						
	184842.084						
	184835.199						
	184824.641						
	184821.645						
	184778.404						

#### Notes :

- This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.
- 2. Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale this bar should be 50mm long @ A1 - 0.25mm long @ A3.
- Health & Safety : All specific drawing notes are to be read in conjunction with the project "Information Pack" and "Site Rules".
- 4. For general notes refer to Drawing No. 22885-600
- Location of manhole covers to be co-ordinated with the Architects & Landscape Architects.

16	04.08.17	AH	KB	Final Construction
15	04.04.17	DLa	KB	Issued for Construction
14	16.03.17	DLa	KB	Issued for Construction
WIP	23.01.17	KB	KB	Work in Progress
13	08.08.16	KB	KB	Manhole S6a added as clouded.
12	18.07.16	KB	KB	Relocated attenuation tank and manhole levels and setting out updated, as clouded.
11	24.05.16	KB	KB	Attenuation tank and F6a setting out included and manholes updated, as clouded.
10	12.05.16	DLa	KB	Linear drains added. Updates clouded
9	19.04.16	DLa	KB	Manhole schedules & setting out co-ordinates amended to suit updated layout as clouded.
8	11.04.16	DLa	KB	Issued for Construction
7	08.04.16	DLa	KB	Issued for Draft Construction
6	12.02.16	AH	KB	Issued for Construction
5	14.12.15	DLa	KB	Revisions Clouded
4	26.10.15	DLa	KB	Issued for Tender
3	18.09.15	DLa	KB	Issued for Tender
2	28.04.15	DLa	KB	Issued for Tender
1	21.04.15	DLa	KB	Issued for Tender
Ver	Date	Drawn	Eng	Amendment

#### KINGSGATE SCHOOL LIDDELL ROAD

#### MANHOLE SCHEDULES & SETTING OUT CO-ORDINATES

#### FINAL CONSTRUCTION

Drawn DLa	Eng KB
Scales NTS at A1	NTS at A3
Drawing No	Ver
22885-620	16

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- This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.
- Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale this bar should be 50mm long @ A1 or 25mm long @ A3.
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- 4. For general notes refer to Drawing No. 22885-600

made every 300mm.

5. Permeable surfaces TBC with Landscape Architect

6. All buried surface water pipes to be Ø150mm & all foul water pipes to be Ø100mm U.N.O.

The installation of the dish channel and channel

drains, along the northern boundary with Network Rail, are to be coordinated with the Structural

Engineers capping beam and setting out drawings.

8. Where stated on the drawing, channel drains or metal edging adjacent to the non-porous wet pour surfacing, require side entry holes to be drilled/cut on the side of the wet pour. The hole is to be located at the base of the permeable surfacing (40nm) below the finished cover level. It is recommended that a 15mm hole is

7.

9. Where stated on the drawing this section of metal edging adjacent to the wet pour surfacing should not have any side holes cut/drilled. The sub-base is required to fall towards the west to allow sub-surface water to flow towards the side holes on the metal edging which is adjacent to the soft landscaping.

9	04.08.17	8.17 AH	KB	Final Construction	ΙK
8	02.06.17	6.17 KB	KB	Notes added as clouded.	
7	04.04.17	4.17 DLa	КВ	Amended to suit latest Landscape Architects layout as clouded.	
6	16.03.17	3.17 DLa	КВ	Amended to suit latest Landscape Architects layout as clouded.	B
wi	P 23.01.17	1.17 DLa	KB	Work in Progress	
5	08.08.16	8.16 KB	КВ	Changes as clouded - cavity drainage and S6a added.	F
4	18.07.16	7.16 KB	КВ	Changes as clouded. Attenuation tank size amended. F12, C1, FC1 & S18 moved to suit. F13 removed.	Sta
Ve	r Date	te Drawr	n Eng	Amendment	

#### KINGSGATE SCHOOL IDDELL ROAD

BELOW GROUND DRAINAGE LAYOUT FULL SITE

FINAL CONSTRUCTION

 Drawn
 DLa
 Eng
 KB

 Scales
 1:200 at A1
 1:400 at A3

 Drawing No
 Ver

 22885-625
 9

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