

PRELIMINARY ISSUE

Maygrove Road Residential Development - Rainwater Discharge Systems

April 2013

Spencer Mayes are aware that no planning constraints with respect to surface water drainage have been advised and that as such no Strategic Flood Risk Assessment has been requested or undertaken.

However, in accordance with PPS25 [Planning Policy Statement 25] which sets out government policy on development and flood risk and in accordance with current best practice guidelines Spencer Mayes propose to provide attenuation up to and including for a 1 in 100 year storm event + 30% for Climate Change.

Our retention calculations are provided within the attached documentation along with key plans defining the sq areas

Sustainable Drainage Systems (SUDS)

The requirements for a sustainable surface water drainage strategy are to,

Limit the peak rate of surface water discharge into the public sewer to the predevelopment level. [As the site has been developed for a considerable number of years guidance and acceptance of appropriate flows will be sort from Thames Water Utilities]

- To attenuate all storm events up to and including the 1 in 100 year storm plus climate change event.
- Prevent pollution of the groundwater
- Infiltration drainage techniques have been precluded owing to site constraints and the underlying geology.

Attenuation can be achieved by the use of a varying number of ecological and economically proven systems.

The Building Regulations recommend a hierarchy of methods for disposal of surface water. In order, these are disposal by infiltration, discharge to watercourses and if neither of these options are reasonably practical then discharge to a public surface water or combined sewer.

In the case of Maygrove Road the controlled discharge to sewer and reuse [rw reclamation] are the only viable options

At roof level the use of and aesthetic appearance of roof finishes tends to favour certain systems being specified.

For the purpose of calculation we have considered the use of Bauder (or similar) drainage mats, drainage boards and drainage trays, these are used in the construction of brown, green and biodiverse roofs, at ground level Bauder (or similar) drainage trays also form the attenuation construction, trays can be laid across both hard and soft landscaped areas, all the systems will achieve substantial attenuation of stormwater at source and subsequently the controlled discharge of stormwater to the authority sewer can be achieved.

Chapter 6 of the Mayor's Draft Water Strategy (Rainwater in London) also sets out a similar hierarchy.

'The objective is for surface water discharged from urban development's to replicate the predevelopment response of the site as far as possible'.

However in the case of Maygrove Road the objective we would present would be to protect the building and site from a 1 in 100 year storm event and to re-use water for irrigation or toilet flushing purposes with both employed to reduce the peak storm load entering the sewer network.

In terms of pollution control all surface water manholes will be catchpits. On site parking and the drainage from any parking areas would route through a monitored petrol separator, trapped gullies will be introduced in all other proposed hard paved areas and the stormwater flow chambers installed to accurately control the discharge to sewer.

We have assumed that the proposed rate of discharge for this development would be approximately 5 l/s as this is the smallest commercial vortex flow control device that would facilitate hydraulic efficiency and would not be prone to blockages.

Therefore the applicable surface water discharge rate is 5 l/s for all storm events up to and including the 1 in 100 year plus 30% for climate change.

The surface water attenuation required from the **roof area** of approx 1600m^2 is 14.3m^3 , for a single 1 in 100 year event of 2mins duration.

Allowing for the use of a Bauder DSE20 (or similar) extensive green roof system, with 20mm drainage trays and roof build up of 105mm [45l/m²].

Construction upstands/parapets would be a min. of 150mm.

The surface water attenuation required from the **garden area** of approx 600m^2 is 5.3m^3 , for a single 1 in 100 year event of 2mins duration.

Allowing for the use of a Bauder DSE60 (or similar) system with 60mm drainage trays [10l/m²] the build up being dependent upon the finishes required.

Construction and building upstands would be a min. of 150mm

The surface attenuation required from the **hardstanding areas** of approx 963m^2 is 8.5m^3 for a single 1 in 100 year event of 2mins duration.

Allowing for the attenuation of the hardstanding areas of 963m² the use of polystorm cells could be considered @ 1000x500x400mm deep they have a volume storage of 190ltrs per block. These would locate at the point of exit from the site.

Provide a 5,000 litre harvesting tank within the Plantroom at basement level with suitable pump and controls for automatic irrigation to serve the soft landscaped areas across the growing season and bin store cleaning.

The pumped system from the front lightwell is $190\text{m}^2 = 1650$ litres of RW to store and then pump away. The pump chamber would be required to accommodate the inflow from a single storm event and any ingress of ground water from the water proofing system installed.

A polypropylene in ground pump station of dims 1500mm dia x 2000mm deep [1500mm working] would accommodate 2.6m^3 , allowing adequate volume for grd water infiltration.

JWS Mayes

MAYGROVE RD

Apr-13

**SURFACE WATER RUN OFF AREAS -
1 in 100 year storm event**

Floor	Ref	Type	Pumped	Area msq	Bauder Membrane	l/s/m2	volume[l]
LG	A	Lightwell	No	16	no	1.18	142.08
	B	Lightwell	Yes	170	no	12.58	1509.60
Grd	C	Balcony	No	50	no	3.70	444.00
	D	Garden	No	600	yes	44.40	5328.00
	E	Walkway	No	78	no	5.77	692.64
	F	Bridge	No	27	No	2.00	239.76
	G	Bridge	No	15	No	1.11	133.20
	H	Bridge	No	21	No	1.55	186.48
	J	Car lift Entrance	No	64	No	4.74	568.32
	K1	Balcony	No	4	No	0.03	3.55
	K2	Balcony	No	4	No	0.03	3.55
	K3	Balcony	No	4	No	0.03	3.55
	K4	Balcony	No	4	No	0.03	3.55
	K5	Balcony	No	4	No	0.03	3.55
	K6	Balcony	No	4	No	0.03	3.55
	K7	Balcony	No	4	No	0.03	3.55
	K8	Balcony	No	4	No	0.03	3.55
1st	N1	Balcony	No	5	No	0.04	4.44
	N2	Balcony	No	4	No	0.03	3.55
	N3	Balcony	No	15	No	0.11	13.32
	N4	Balcony	No	5	No	0.04	4.44
	N5	Balcony	No	5	No	0.04	4.44
	N6	Balcony	No	4	No	0.03	3.55
	N7	Balcony	No	9	No	0.07	7.99
	N8	Balcony	No	12	No	0.09	10.66
	N9	Balcony	No	9	No	0.07	7.99
	N10	Balcony	No	4	No	0.03	3.55
	N11	Balcony	No	4	No	0.03	3.55
	N12	Balcony	No	5	No	0.04	4.44
	N13	Balcony	No	4	No	0.03	3.55
2nd	as 1st		No	85	No	0.63	75.48
3rd	as 1st		No	85	No	0.63	75.48
4th	L1	Balcony	No	64	No	2.37	284.16
	L2	Balcony	No	77	No	2.85	341.88
	L3	Balcony	No	12	No	0.44	53.28
	L4	Balcony	No	12	No	0.44	53.28
	L5	Balcony	No	24	No	0.89	106.56
	L6	Balcony	No	24	No	0.89	106.56
	L7	Balcony	No	65	No	2.41	288.60
	L8	Balcony	No	24	No	0.89	106.56
	L9	Balcony	No	8	No	0.30	35.52
	L10	Balcony	No	8	No	0.30	35.52
	L11	Balcony	No	24	No	0.89	106.56
Roof	M		No	1600	yes	118.40	14208.00
Refuse	N			56	no	4.14	497.28
	P			23	no	1.70	204.24
			area msq	3349	sw flow [l/s/m2]	216.06	25926.94
							26m3
		less Bauder areas D&M					19536.00
		less pumped discharge with collection tank					1509.60
					Max discharge		4881.34

40.6778 l/sec

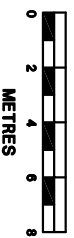
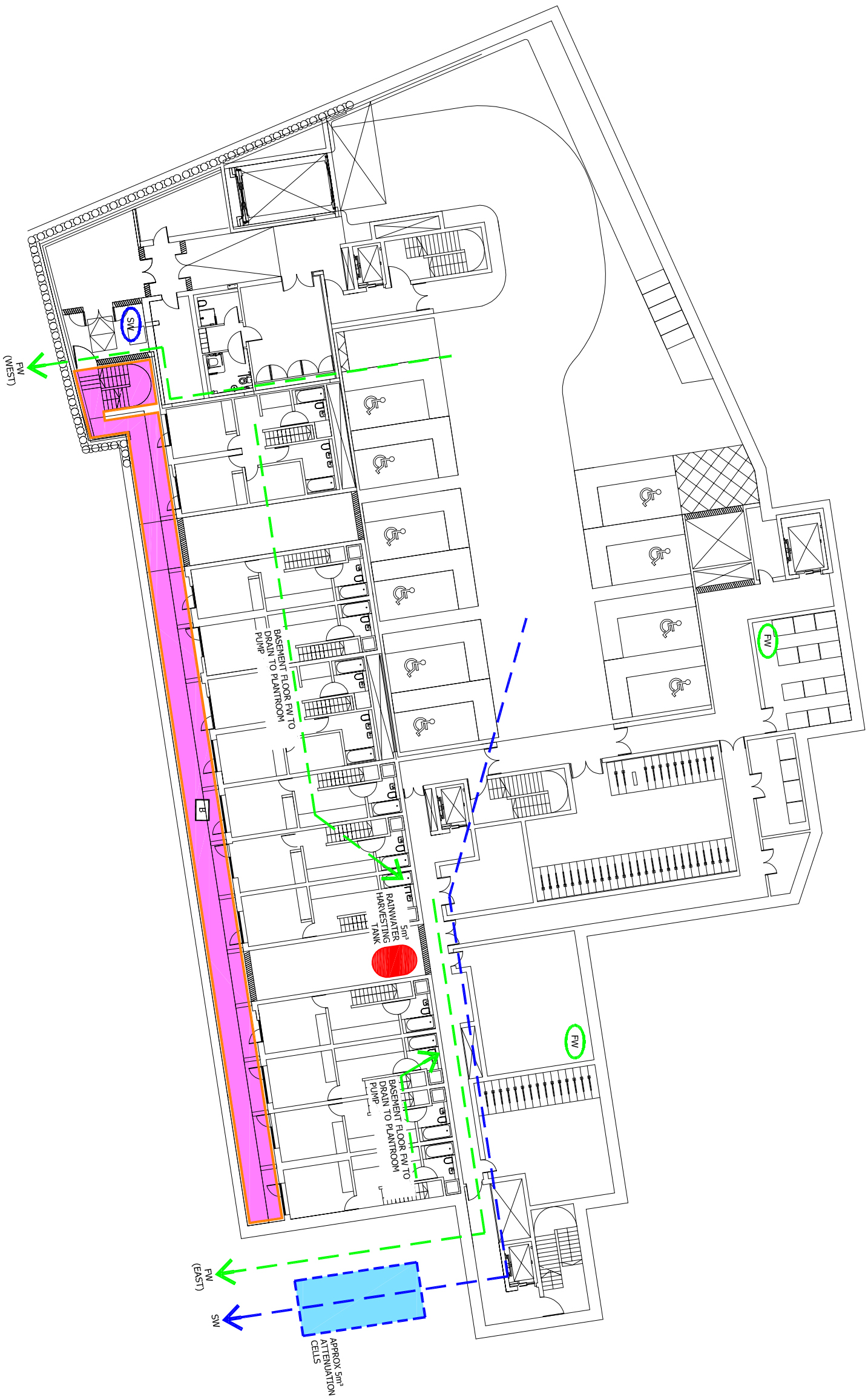
reference BSEN12056, protection based upon 100 year storm event of 2mins duration

These are all covered balconies
most with 3 sides and roof closed

full 1 in 100yr event has been reduced by 90%

full 1 in 100yr event has been reduced by 50%

- EXTERNAL DRAINAGE REQUIRED
- ATTENUATION MEMBRANE
- F/1/ FOULED WATER PUMPS
- F/2/ FOULED WATER PUMPS



REV	DATE	DESCRIPTION	DN	CHKD
A	29.04.13	HARVESTING TANK RELOCATED	MB	JM

SpencerMayes Ltd

Building Services Consultants

EAGLE TOWER
 MONTPELLIER DRIVE
 CHELTENHAM
 GLOUCESTERSHIRE GL50 1TA
 TELEPHONE: 020 7566 0911
 FAX: 020 7566 0912
 EMAIL: SMM@SPENCERMAYES.CO.UK

CLIENT: REGAL HOMES

CONTRACT: 65 MAYGROVE ROAD
 LONDON NW6 2EH

DESCRIPTION: BASEMENT LEVEL
 DRAINAGE REQUIREMENTS

SCALE: 1:100 @ A0 DATE: APRIL 2013

DRAWING NO.: 24281/SK/06

REV A

INFORMATION ISSUE

EXTERNAL DRAINAGE REQUIRED
ATTENUATION MEMBRANE



REV	DATE	DESCRIPTION	DN	CHKD

SpencerMayes Ltd

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EAGLE TOWER
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FAX: 020 7566 0912
EMAIL: SMM@SPENCERMAYES.CO.UK

CLIENT: REGAL HOMES
 CONTRACT: 65 MAYGROVE ROAD LONDON NW6 2EH
 DESCRIPTION: GROUND FLOOR DRAINAGE REQUIREMENTS
 SCALE: 1:100 @ A0 DATE: APRIL 2013
INFORMATION ISSUE
 DRAWING NO.: 24281/SK/07 REV



EXTERNAL DRAINAGE REQUIRED



REV	DATE	DESCRIPTION	DN	CHKD

SpencerMayes Ltd

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EAGLE TOWER
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 EMAIL: SMM@SPENCERMAYES.CO.UK

CLIENT: REGAL HOMES

CONTRACT: 65 MAYGROVE ROAD
 LONDON NW6 2EH

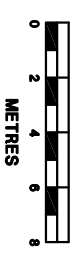
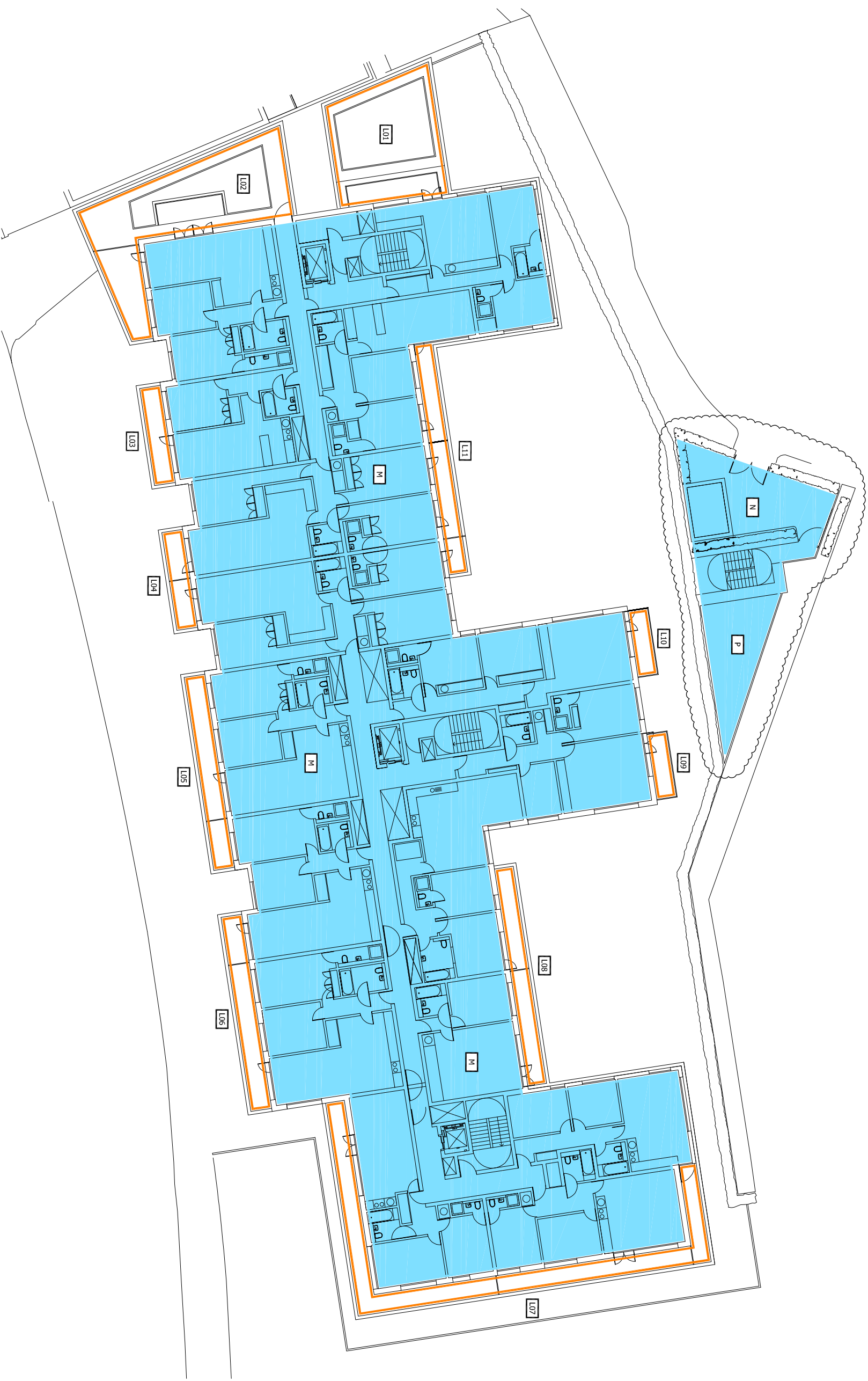
DESCRIPTION: 1ST/2ND/3RD FLOOR
 DRAINAGE REQUIREMENTS

SCALE: 1:100 @ A0 DATE: APRIL 2013

INFORMATION ISSUE

DRAWING NO.: 24281/SK/08 REV

EXTERNAL DRAINAGE REQUIRED
ATTENUATION MEMBRANE



REV	DATE	DESCRIPTION	DN	CHKD
A	29.04.13	REVISED AS BALLOOED	JMB	JM

SpencerMayes Ltd

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EAGLE TOWER
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FAX: 020 7566 0912
EMAIL: SMM@SPENCERMAYES.CO.UK

CLIENT: REGAL HOMES

CONTRACT: 65 MAYGROVE ROAD
LONDON NW6 2EH

DESCRIPTION: PENTHOUSE FLOOR
DRAINAGE REQUIREMENTS

SCALE: 1:100 @ A0 DATE: APRIL 2013

INFORMATION ISSUE

DRAWING NO.: 24281/SK/09 REV: A