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DOHERTY FINEGAN KELLY
CONSULTING CIVIL & STRUCTURAL ENGINEERS

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Land Use, Planning & Transportation Department
South Dublin County Council
County Hall Tallaght,
Dublin 24,
D24 A3XC

29th September 2022

Planning Reference: SD22A/0297– Scoil Aine Naofa, Esker, Lucan, Co. Dublin - Planning Compliance

Dear Sir or Madam,

Please find below Doherty Finegan Kelly's response to Condition No. 3 of Planning Reference: SD22A/0297
Note we are responding to Request number 3 only, response to other requests for information by others.

South Dublin County Council Planning Condition No. 3

Drainage and Water Services

(i) *Prior to the commencement of development the Applicant shall submit for the written agreement of the Planning Authority a drawing in plan and cross sectional views clearly showing proposed Sustainable Drainage Systems (SuDS) features for the development. The developer shall include SuDS measures in the proposed development, such as permeable paving, grasscrete, rain gardens, planter boxes with overflow connection to the public surface water sewer, water butts and channel rills.*

(ii) *If a soakaway is proposed, prior to the commencement of development the Applicant shall submit for the written agreement of the Planning Authority a drawing in plan and cross-sectional view showing design details of same as per BRE Digest 365 Standards. The soakaway shall have an overflow connection to the public surface water sewer. Prior to the commencement of development the Applicant shall also submit for the written agreement of the Planning Authority percolation tests as per BRE Digest 365 Standards. The report which shall include the following details:*
-Which individual had carried out the site test.
-When the test was carried out
-Which location was the test carried out at exactly
The report shall include the time, date and location of percolation tests. Show the start and end time the test started and length f time it took for the trial hole to drain 50% within 24 hours.

(iii) *The developer shall ensure that there is complete separation of the foul and surface water drainage for the proposed development.*

(iv) *All works for this development shall comply with the requirements of the Greater Dublin Regional Code of Practice for Drainage Works.*

(v) *All works shall be carried out in compliance with Irish Water's Standards, Codes and Practices in relation to water and wastewater.*

Reason: *In the interest of public health and to ensure adequate water/wastewater facilities*

DFK Response to Planning Condition No.3

(i) The proposed development includes the construction of 2 temporary single storey prefabricated buildings at Scoil Aine Naofa. The footprint of the proposed buildings is to be located on the existing hardstanding tarmac surface which currently drains to the existing surface water network.

It is proposed to construct the hardstanding areas around the buildings using porous asphalt or similar approved with the exception of the ramps and landings. The surface water run-off generated by the proposed development will drain to the stone media below the porous asphalt before being released at a controlled rate to the existing surface water network.

The surface water network will be designed and arranged in accordance with the requirements of the GDSDS and the GDRC in conjunction with "Recommendations for Site Development Works for Housing Areas" (current edition) published by the (DOEHLG). Cognisance has also been taken of the recommendations contained within the Building Regulations Part H – Drainage and Waste Water Disposal

The surface water network will be laid as a separate system and drains will be laid such as to minimise the risk of misconnections.

We have used the extreme rainfall matrix table obtained from Met Eireann for the proposed site to obtain a rainfall profile for calculation of storage requirements. The rainfall values have been increased by 20% to include for climate change characteristic which is greater than the 10% as required by the GDSDS.

An outflow rate of 2.0l/sec is considered to be the lowest practical outflow rate and therefore has been adopted to size the attenuation volumes. The outflow will be restricted using a controflow flow control chamber. As per Criterion 2 the total attenuation volume required is $9.7m^3$ for the 1 in 30year return period and $16.6m^3$ for the 1 in 100year return period, which includes the additional increment in accordance with GDSDS requirements. A total storage volume of $16.92m^3$ is provided within the stone media below the porous asphalt.

The proposed surface water layout and details are shown on DFK **Drg. 22159-100** and the site specific details included on DFK **Drg. 19266-101**. The surface water calculations are included in **Appendix I**.

(ii) No soakaway proposed.

(iii) Noted. The surface water network will be laid as a separate system and drains will be laid such as to minimise the risk of misconnections

(iv) Noted. All works will comply with the requirements of the Greater Dublin Regional Code of Practice for Drainage Works.

(v) Noted. All works will be carried out in compliance with Irish Water's Standards, Codes and Practices in relation to water and wastewater.

Please do not hesitate to contact me should you wish to discuss any of the above.

SIGNED _____

Seán Gibbons
On behalf of Doherty Finegan Kelly

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APPENDIX II

SURFACE WATER CALCULATIONS

SURFACE WATER CALCULATIONS INDEX

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 303300, Northing: 234250,

	Interval		Years											
DURATION	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.3,	3.4,	4.1,	5.0,	5.7,	6.2,	8.0,	10.1,	11.5,	13.5,	15.4,	16.8,	19.1,	20.8,	22.3,	N/A ,
10 mins	3.2,	4.8,	5.7,	7.0,	8.0,	8.7,	11.2,	14.1,	16.0,	18.8,	21.4,	23.4,	26.6,	29.0,	31.1,	N/A ,
15 mins	3.8,	5.6,	6.7,	8.3,	9.4,	10.2,	13.1,	16.6,	18.9,	22.2,	25.2,	27.6,	31.3,	34.2,	36.6,	N/A ,
30 mins	5.0,	7.4,	8.7,	10.6,	12.0,	13.1,	16.7,	20.8,	23.6,	27.6,	31.2,	34.1,	38.5,	41.9,	44.8,	N/A ,
1 hours	6.6,	9.6,	11.2,	13.7,	15.4,	16.7,	21.1,	26.2,	29.6,	34.4,	38.7,	42.1,	47.4,	51.5,	54.9,	N/A ,
2 hours	8.8,	12.5,	14.6,	17.6,	19.7,	21.4,	26.8,	32.9,	37.0,	42.8,	48.0,	52.1,	58.3,	63.2,	67.2,	N/A ,
3 hours	10.3,	14.6,	16.9,	20.4,	22.8,	24.7,	30.7,	37.7,	42.2,	48.7,	54.5,	58.9,	65.9,	71.2,	75.7,	N/A ,
4 hours	11.6,	16.3,	18.9,	22.7,	25.3,	27.3,	33.9,	41.4,	46.4,	53.3,	59.6,	64.4,	71.8,	77.6,	82.3,	N/A ,
6 hours	13.6,	19.1,	22.0,	26.3,	29.3,	31.5,	39.0,	47.4,	52.9,	60.7,	67.5,	72.9,	81.1,	87.4,	92.7,	N/A ,
9 hours	16.0,	22.3,	25.6,	30.5,	33.8,	36.4,	44.8,	54.2,	60.3,	69.0,	76.6,	82.5,	91.6,	98.6,	104.4,	N/A ,
12 hours	18.0,	24.9,	28.5,	33.9,	37.5,	40.3,	49.4,	59.6,	66.2,	75.5,	83.8,	90.1,	99.8,	107.3,	113.5,	N/A ,
18 hours	21.2,	29.0,	33.2,	39.3,	43.4,	46.5,	56.8,	68.1,	75.6,	85.9,	95.0,	102.0,	112.7,	121.0,	127.8,	N/A ,
24 hours	23.8,	32.4,	36.9,	43.6,	48.1,	51.5,	62.6,	74.9,	82.9,	94.1,	103.9,	111.4,	122.9,	131.7,	139.0,	164.3,
2 days	29.8,	39.6,	44.6,	51.9,	56.7,	60.4,	72.2,	85.0,	93.3,	104.7,	114.6,	122.1,	133.6,	142.4,	149.5,	174.2,
3 days	34.7,	45.3,	50.7,	58.6,	63.7,	67.6,	80.0,	93.4,	101.9,	113.6,	123.8,	131.5,	143.1,	151.9,	159.1,	183.8,
4 days	39.0,	50.3,	56.1,	64.4,	69.8,	73.9,	86.8,	100.7,	109.5,	121.5,	131.9,	139.7,	151.5,	160.5,	167.8,	192.6,
6 days	46.5,	59.1,	65.5,	74.5,	80.3,	84.8,	98.6,	113.3,	122.6,	135.2,	146.0,	154.1,	166.3,	175.6,	183.1,	208.4,
8 days	53.2,	66.9,	73.7,	83.3,	89.5,	94.2,	108.9,	124.3,	134.0,	147.1,	158.3,	166.7,	179.3,	188.8,	196.4,	222.3,
10 days	59.3,	73.9,	81.1,	91.3,	97.9,	102.8,	118.2,	134.3,	144.3,	157.9,	169.4,	178.1,	191.0,	200.7,	208.5,	234.9,
12 days	65.0,	80.5,	88.1,	98.8,	105.7,	110.8,	126.7,	143.4,	153.8,	167.8,	179.7,	188.5,	201.7,	211.7,	219.7,	246.5,
16 days	75.7,	92.6,	100.9,	112.5,	119.9,	125.4,	142.4,	160.2,	171.2,	185.8,	198.3,	207.5,	221.3,	231.6,	239.9,	267.5,
20 days	85.5,	103.8,	112.6,	125.0,	132.9,	138.7,	156.7,	175.3,	186.9,	202.2,	215.1,	224.7,	239.0,	249.6,	258.1,	286.6,
25 days	97.1,	116.8,	126.3,	139.6,	147.9,	154.2,	173.2,	192.8,	204.9,	220.9,	234.4,	244.4,	259.2,	270.1,	279.0,	308.3,

NOTES:
N/A Data not available
These values are derived from a Depth Duration Frequency (DDF) Model
For details refer to:
'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',
Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

JOB NAME: Scoil Aine Naofa, Lucan		**JOB NO:22159**		**DATE:** 26.09.22	
TITLE: ATTENUATION (30 Yr Return Period)			**CALCS BY:** SG	**CHECK'D:** RB	
RCD.	**48**	**ISSUE.**	**1**	**REV.**	**0**

Doherty Finegan Kelly
30-32 Botanic Road, Glasnevin, Dublin 9
Tel: 830 1852, Fax: 860 2265, E-mail: mailroom@dfk.ie

Storm Return Period =	30	Years			
Total Site Area =	0.0000	Hectares (ha)			
Proposed Impermeable Area					
Roof Area =	0.0335	ha	.....@	100%	Impermeable
Hardstanding =	0.0023	ha	.....@	80%	Impermeable
Permeable areas =	0.0141	ha	.....@	80%	Impermeable
Landscaping =	0.0056	ha	.....@	30%	Impermeable
Total Impermeable Area =	**0.0483**	**ha**			

Site Location (Select from tabs below) **Lucan**

Allowable Outflow = **2.00** **litres/sec**

Duration (min)	Rainfall 30 Year (mm)	Intensity (mm/hr)	Discharge Q (= 2.71Ai) (l/s)	Proposed Runoff (m^3)	Contiguous Land Runoff (m^3)	Total ** Runoff (m^3)	Allowable Outflow (m^3)	Storage Req'd (m^3)
2	0.0	0.0	0	0	0	0	0	-0.2
5	11.5	138.0	18	5	0	7	1	5.9
10	16.0	96.0	13	8	0	9	1	7.8
15	18.9	75.6	10	9	0	11	2	8.9
30	23.6	47.2	6	11	0	13	4	9.7
60	29.6	29.6	4	14	0	17	7	9.5
120	37.0	18.5	2	17	0	21	14	6.5
240	46.4	11.6	2	22	0	26	29	-2.6
360	52.9	8.8	1	25	0	30	43	-13.3
720	66.2	5.5	1	31	0	37	86	-49.0
1440	82.9	3.5	0	39	0	47	173	-125.9
2880	93.3	1.9	0	44	0	53	346	-292.8
4320	101.9	1.4	0	48	0	58	518	-460.8

** Includes 20% for climate change

Storage required = 9.7 **m^3**

Oversized Pipe Requirements

Pipe dia. (mm)	Length (m)
600	34
900	15
1050	11
1200	9
1500	6

Twin Pipe Requirements

DIA (mm)	AREA/ PIPE (m^2)	TOTAL AREA (m^2)	LENGTH REQ'D (m)
525	0.216	0.433	23
600	0.283	0.565	17
900	0.636	1.272	8
1050	0.866	1.732	6
1200	1.131	2.262	4

JOB NAME: Scoil Aine Naofa, Lucan	JOB NO:22159	DATE: 26.09.22
TITLE: ATTENUATION (100 Yr Return Period)	CALCS BY: SG	CHECK'D: RB

RCD.	48	ISSUE.	1	REV.	0

Doherty Finegan Kelly
30-32 Botanic Road, Glasnevin, Dublin 9
Tel: 830 1852, Fax: 860 2265, E-mail: mailroom@dfk.ie

SURFACE WATER STORAGE

Storm Return Period =	100	Years			
Total Site Area =	0.0000	Hectares (ha)			
Proposed Impermeable Area					
Roof Area =	0.0335	ha	.....@	100%	Impermeable
Hardstanding =	0.0023	ha	.....@	80%	Impermeable
Permeable areas =	0.0141	ha	.....@	80%	Impermeable
Landscaping =	0.0056	ha	.....@	30%	Impermeable
Total Impermeable Area =	**0.0483**	**ha**			

Site Location (Select from tabs below) **Lucan**

Allowable Outflow = **2.00** **litres/sec**

Duration (min)	Rainfall 100 Year (mm)	Intensity (mm/hr)	Discharge Q (= 2.71Ai) (l/s)	Proposed Runoff (m^3)	Contiguous Land Runoff (m^3)	Total ** Runoff (m^3)	Allowable Outflow (m^3)	Storage Req'd (m^3)
2	0.0	0.0	0	0	0	0	0	-0.2
5	16.8	201.6	26	8	0	9	1	8.9
10	23.4	140.4	18	11	0	13	1	12.0
15	27.6	110.4	14	13	0	16	2	13.8
30	34.1	68.2	9	16	0	19	4	15.7
60	42.1	42.1	6	20	0	24	7	16.6
120	52.1	26.1	3	25	0	29	14	15.1
240	64.4	16.1	2	30	0	36	29	7.6
360	72.9	12.2	2	34	0	41	43	-2.0
720	90.1	7.5	1	42	0	51	86	-35.5
1440	111.4	4.6	1	52	0	63	173	-109.8
2880	122.1	2.5	0	58	0	69	346	-276.6
4320	131.5	1.8	0	62	0	74	518	-444.0

** Includes 20% for climate change

Storage required =	16.6	**m^3**

Oversized Pipe Requirements

Pipe dia. (mm)	Length (m)
600	59
900	26
1050	19
1200	15
1500	9

Twin Pipe Requirements

DIA (mm)	AREA/ PIPE (m^2)	TOTAL AREA (m^2)	LENGTH REQ'D (m)
525	0.216	0.433	38
600	0.283	0.565	29
900	0.636	1.272	13
1050	0.866	1.732	10
1200	1.131	2.262	7