												Enq No	sheet 1	
Client		Mr & Mrs Shelbourne												
Address		5 Frickley Bridge Lane, Brierley, Barnsley, South Yorks												
Capacity calculations for traditional soakaways (crate system)														
Design criteria		Design to the Building Regulations 2002 Approved Document H part H2												
Trial pit	Day	Recorded position			Samle pit size in mm		Invert depth	Date		Time	Time in secs			
		front of dwelling plan 24/012										24hr		
T2	1				300 x 300 x 300		400	21/6/2024		9:30 am	2100			
T2	2				300 x 300 x 300		400	22/6/2024		9.30 AM	79260			
T2	3				300 x 300 x 300		400	23/6/2024		9.30 AM	86400			
											55920	Average		
Volume equation		I - O = S	Where	I =	Inflow from the impermiable area drained to the soakaway									
				O =	The outflow infiltrating into the soil during rainfall									
				S =	The required storage in the soakaway to balance a temporalry outflow									
Inflow to soakaway		I = A x R		A =	Impermiable area drained into the soakaway									
				R =	Total rainfall from approved document H (building regulations)									
Outflow of soakaway		O = a x s x 50 x f x D		O =	The outflow infiltrating into the soil during rainfall									
				as50 =	The internal surface of the soakaway to 50% effective depth excluding base									
				f =	Soil infiltration rate									
				D =	Storm duration									
Total impermiable area to be drained				r1 =	Roof area in sq metres						89	sq metres		
				c1 =	roof constant	@ 1.15 degree pitch					1.15	c1		
							Effective roof area drained				102.35	sq metres		
Total time taken for water dispersal through ground from average recorded times taken in field test (Trial pit T1) where the dispersal rate is calculated based on an dispersion of 75% to 25% of the water within test pit. IE 150mm run off														
										Dispersion rate	55920	sec	average	
										run off in mm	150	mm	half depth	
Water dispersion vp required therefore											372.8	vp		
Filtration rate		f = 0.01/2vp			0.01	2	l37				745.6	f		
											0.000013412017	outflow vol		
Outflow Volume		O = a x s x 50 x f x D			2	0.000013412017	5				0.000134120171	O=outflow vol		
Area drained x rainfall of 10mm					102.35	10	1023.5	/1000		storage capacity	1.0235	cubic metres		
Therefore storage capacity minus the outflow volume =					1.0235	0.000013412017					1.023486588	storage volume 1		
Soakaway dimensions in metres taken below invert					2.5	metres	Length							
					1	metres	Width							
					1.2	metres	Depth							
										Soakaway volume	3	cubic metres		
Therefore consider fill material containing 75% voids therefore soakaway volume x 75%							3	75		100	2.25	storage volume 2		
Therefore using a reserve factor of 1.5 : 1 storage volume 2 to be increased							2.25	1.5			3.375	cubic metres		
Therefore storage volume 2		3.375	is greater than storage volume 1				1.023486588	Therefore designed soakaway is ok				cubic metres		
Therfore by calculation 1 No soakaway				2.5	metres long by		1	metre wide by		1.2	metre deep is ok for the area drained			
Note under the building regulations the maximum area drained should be no more than 25square metres . Per soakaway pit however by calculation the designed enlarged pit dimensions demonstrates the capacity of the soakaway to meet the current building regulations.														
Typical 1m3 ploypipe interlocking crate system will drain an approximate area of 50m2. Individual crates 1000 Long 500 Wide x 400 Deep.														
											Sheet	2		