

Proposed Glenard Wind Farm Development Environmental Impact Assessment Report EIAR – 2022.01.18 – 190114 – F

## $\mathbf{O}$

## **APPENDIX 9-3**

SETTLEMENT POND DESIGN CALCULATIONS

Glenard WF - Settlement Pond Desians								
Drainage Area		Description	Area (m <sup>2</sup> )	1	Settleme	ant Pond Din	onsions*	
brailiage Area		beschpilon	//		Jenienie		Cross-	Pond
							Section Area	Volume
				1 (m)	Denth (m)	Width (m)	(m <sup>2</sup> )	(m <sup>3</sup> )
Catabas ant A1	CD 41	a sub-share sub- A 1	0504	L (m)	Depth (m)	wiath (m)	(m)	(m)
Colonment At	SP-AT		2504	17.00	1.00	5.25	5.25	89
Catchment A2	SP-AZ	catchment A2	515	10.00	1.00	3.00	3.00	30
Catchment A3	SP-A3	catchment A3	1290	14./5	1.00	4.50	4.50	66
Catchment A4	SP-A4	catchment A4	5327	27.75	1.00	8.50	8.50	236
Catchment B1	SP-B1	Catchment B1	1357	15.50	1.00	4.50	4.50	70
Catchment B2	SP-B2	Catchment B2	2686	19.75	1.00	6.50	6.50	128
Catchment B3	SP-B3	Catchment B3	1980	17.75	1.00	5.50	5.50	98
Catchment B4	SP-B4	Catchment B4	2002	17.75	1.00	5.50	5.50	98
Catchment B5	SP-B5	Catchment B5	1519	15.25	1.00	5.00	5.00	76
Catchment C1	SP-C1	Catchment C1	1626	16.50	1.00	5.00	5.00	83
Catchment C2	SP-C2	Catchment C2	1833	18.25	1.00	5.00	5.00	91
Catchment C3	SP-C3	Catchment C3	1679	16.25	1.00	5.00	5.00	84
Catchmont C4	SP C4	Catchment C4	10/7	14.50	1.00	4.50	4.50	45
Catchmont D1	SI -C4	Catchmont D1	1200	14.00	1.00	4.50	4.30	44
Catabasent D0	50-00	Catabasent D0	1233	10.00	1.00	4.00	4.23	
Calchment D2	SP-D2	Calchment D2	901	12.25	1.00	4.00	4.00	49
Catchment D3	SP-D3	Catchment D3	2069	18.50	1.00	5.50	5.50	102
Catchment D4	SP-D4	Catchment D4	2195	18.50	1.00	5.75	5.75	106
Catchment E1	SP-E1	Catchment E1	1729	16.50	1.00	5.25	5.25	87
Catchment E2	SP-E2	Catchment E2	1569	18.00	1.00	5.75	5.75	104
Catchment E3	SP-E3	Catchment E3	1999	17.50	1.00	5.50	5.50	96
Catchment E4	SP-E4	Catchment E4	1608	16.25	1.00	5.00	5.00	81
Catchment E5	SP-E5	Catchment E5	1466	15.00	1.00	5.00	5.00	75
Catchment E6	SP-E6	Catchment E6	2047	18.25	1.00	5.50	5.50	100
Catchment E7	SP-E7	Catchment E7	1685	16.00	1.00	5.25	5.25	84
Catchment F1	SP-F1	Catchment F1	3902	23.75	1.00	7.50	7.50	178
Catchment F2	SP-F2	Catchment F2	2171	18.50	1.00	5.75	5.75	106
Catchment F3	SP-F3	Catchment F3	1696	16.25	1.00	5 25	5 25	85
Catchment G1	SP-G1	Catchment G1	3877	23.50	1.00	7.50	7.50	176
Catchment G2	SP-C-2	Catchment G2	2109	18.00	1.00	5.75	5.75	104
Catchment G3	SP-C3	Catchment G3	1957	17.50	1.00	5.50	5.50	96
Catchmont H1	SI -05	Catchment H1	2203	19.50	1.00	4.00	4.00	111
Catchmont H2		Catchmont H2	4153	24.00	1.00	8.00	8.00	102
Catabasent U2		Catchment H2	4155	24.00	1.00	6.00	8.00	172
Calchment H3	SP-H3	Catabasent II4	1384	16.00	1.00	5.00	5.00	80
Catchment H4	SP-H4	Catchment H4	1251	14.25	1.00	4.50	4.50	64
Catchment H5	SP-H5	Calchment H5	1444	15.00	1.00	5.00	5.00	/5
Catchment H6	SP-H6	Catchment H6	13/2	15.00	1.00	4./5	4./5	/1
Catchment II	SP-II	CatchmentII	6565	28.00	1.00	9.00	9.00	252
Catchment I2	SP-I2	Catchment 12	1488	15.00	1.00	5.00	5.00	75
Catchment I3	SP-I3	Catchment 13	1770	16.75	1.00	5.25	5.25	88
Catchment I4	SP-I4	Catchment I4	4551	25.50	1.00	8.00	8.00	204
Catchment J1	SP-J1	Catchment J1	1336	15.25	1.00	4.50	4.50	69
Catchment J2_PSA	SP-J2 - Peat Repository	Catchment J2_PSA	66027	170.00	1.00	55.00	55.00	9350
Catchment J3	SP-J3	Catchment J3	2066	18.25	1.00	5.50	5.50	100
Catchment J4	SP-J4	Catchment J4	1907	17.00	1.00	5.50	5.50	94
Catchment K1	SP-K1	Catchment K1	5099	26.50	1.00	8.50	8.50	225
Catchment K2	SP-K2	Catchment K2	1951	17.50	1.00	5.50	5.50	96
Catchment K3	SP-K3	Catchment K3	1978	17.50	1.00	5.50	5.50	96
Catchment K4	SP-K4	Catchment K4	1877	17.00	1.00	5.50	5.50	94
Catchment K5	SP-K5	Catchment K5	1877	17.00	1.00	5.50	5.50	94
Catchment L1	SP-L1	Catchment L1	1813	17.00	1.00	5.25	5.25	89
Catchment L2	SP-L2	Catchment L2	1970	17.50	1.00	5.50	5.50	96
Catchment L3	SP-L3	Catchment L3	2117	18.00	1.00	5.75	5.75	104
Catchment L4	SP-L4	Catchment L4	1734	16.50	1.00	5.25	5.25	87
Catchment 1.5	SP-L5	Catchment L5	5884	28.50	1.00	9.00	9.00	257
Catchment M1	SP-M1	Catchment M1	2171	18.00	1.00	6.00	6.00	108
Catchment M2	SP-M2	Catchment M2	2245	18.00	1.00	6.00	6.00	108
Catchment M3	SP-M3	Catchment M3	2024	18.00	1.00	5.50	5.50	99
Catchment M4	SP-M4	Catchment M4	2732	20.00	1.00	6.50	6.50	1.30
Catchment M5	SP-M5	Catchment M5	4086	24.00	1.00	7,75	7,75	186
Catchment N1	SP-N1	Catchment N1	2031	18.00	1.00	5.50	5.50	99
Catchment N2	SP-N2	Catchment N2	2099	18.50	1.00	5.50	5.50	102
Catchment N3	SP_N3	Catchment N3	1924	17.25	1.00	5.50	5.50	95
Catchmont N4	SD NA	Catchment NA	1900	17.20	1.00	5.50	5.50	94
Catchmont N5	SI -114	Catchment N5	3550	22.50	1.00	7.05	7.05	143
Catchment N/	SE-IND SE NIZ	Catebrant N/	1955	17.22	1.00	7.23	7.23	165
Catchineni No	SF-INO	Catabasent NZ	1655	16.75	1.00	5.00	5.30	72
Calchment N/	SP-IN7		1644	16.50	1.00	5.00	5.00	83
Catchment N8_BP	SE-UR - ROLLON LIL		36121	100.00	1.00	30.00	30.00	3000
Catchment OI	SP-OT	Catchment OI	1822	16.50	1.00	5.50	5.50	91
Catchment O2	5F-02	Calchment 02	2020	18.00	1.00	5.50	5.50	99
Catchment O3	54-03	Catchment 03	3678	23.25	1.00	7.25	7.25	169
Catchment P1	5P-P1	Catchment PI	2268	19.00	1.00	5.75	5.75	109
Catchment P2	SP-P2	Catchment P2	1709	16.25	1.00	5.25	5.25	85
Catchment P3	SP-P3	Catchment P3	1954	17.50	1.00	5.50	5.50	96
Catchment Q1	SP-Q1	Catchment Q1	1250	14.25	1.00	4.50	4.50	64
Catchment Q2	SP-Q2	Catchment Q2	3749	23.00	1.00	7.50	7.50	173
Catchment R1	SP-R1	Catchment R1	2545	19.50	1.00	6.25	6.25	122
Catchment \$1	SP-S1	Catchment \$1	1625	16.25	1.00	5.00	5.00	81
Catchment S2	SP-S2	Catchment S2	1619	16.25	1.00	5.00	5.00	81
Catchment S3	SP-S3	Catchment \$3	1669	16.00	1.00	5.25	5.25	84
Catchment S4 SS	SP-S4 - Substation	Catchment S4 SS	33396	90.00	1,00	30.00	30.00	2700
Catchment \$5	SP-S5	Catchment \$5	1957	17.50	1.00	5.25	5.25	92
Catchment I1	SP-T1	Catchment I1	3784	17 50	1.00	5 50	5 50	94
Catchment T2	SP-T2	Catchment T2	1846	23.00	1,00	7,50	7,50	173

Catchmont III	SD 111	Catchment III	1499	17.25	1.00	5.05	5.25	01
Catchmont U2	SP 112	Catchment II2	1439	14.00	1.00	5.25	5.25	94
Catchment II3	SP-113	Catchment U3	2122	15.00	1.00	5.00	5.00	75
Catchment V1	SP_V1	Catchment VI	1977	18.75	1.00	5.50	5.00	103
Catchment V2	SP_V/2	Catchment V2	1612	17.75	1.00	5.50	5.50	98
Catchmont V2	SD 1/2	Catchmont V3	1012	17.75	1.00	5.00	5.00	01
Catchmont V4	SE-V3	Catchment V4	1100	16.23	1.00	3.00	3.00	01
Culchment V4	3F-V4	Catchmont VE	1133	14.00	1.00	4.23	4.23	00
Calchment V5	3P-V3	Calchinent V3	3822	23.25	1.00	7.50	7.50	1/4
Catchment WI	SP-WI		183/	17.25	1.00	5.25	5.25	91
Catchment w2	5P-W2	Catchment w2	1895	17.00	1.00	5.50	5.50	94
Catchment W3	SP-W3	Catchment W3	2190	18.50	1.00	5.75	5.75	106
Catchment W4	SP-W4	Catchment W4	1956	17.50	1.00	5.50	5.50	96
Catchment W5	SP-W5	Catchment W5	5880	28.50	1.00	9.00	9.00	257
Catchment X1	SP-X1	Catchment X1	1794	17.00	1.00	5.25	5.25	89
Catchment X2	SP-X2	Catchment X2	1750	16.50	1.00	5.25	5.25	87
Catchment X3	SP-X3	Catchment X3	1741	16.50	1.00	5.25	5.25	87
Catchment X4	SP-X4	Catchment X4	1683	16.00	1.00	5.25	5.25	84
Catchment Y1	SP-Y1	Catchment Y1	2273	19.00	1.00	5.75	5.75	109
Catchment Y2	SP-Y2	Catchment Y2	3961	24.00	1.00	7.50	7.50	180
Catchment Z1	SP-Z1	Catchment Z1	1758	16.75	1.00	5.25	5.25	88
Catchment Z2	SP-Z2	Catchment Z2	1754	16.50	1.00	5.25	5.25	87
Catchment Z3	SP-Z3	Catchment Z3	2009	16.25	1.00	5.00	5.00	81
Catchment Z4	SP-Z4	Catchment Z4	1163	13.50	1.00	4.50	4.50	61
Catchment Z5	SP-Z5	Catchment Z5	3347	21.50	1.00	7.25	7.25	156
* for removal of pa	articles up to 6 micro	ns in size, and 4 microns in size for PS a	nd BP areas, at 10°C.					

Catchment A:	SP-A1								
Mean Greenfield Runoff Rates									
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	$Q_{mean} = 0.00108 \times (AREA \text{ km}^2)^{0.89} \times (SAAR \text{ mm})^{1.17} \times (SOIL)^{2.17}$								
Area of site (km2)	0.002504								
Area of (site) catchment (m2)	2504	m <sup>2</sup>							
SAAR	1569	mm	1569						
SOIL	0.3				Placed road material				
Q mean =	0.00210107	m³/sec							
Q mean =	2.1	L/s							
Q mean =	181.5	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0021	m <sup>3</sup> /sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.003	m <sup>3</sup> /sec							
10 yr return peak flow	2.9	L/s							
10 vr return peak flow	248.7	m <sup>3</sup> /day							
	210.7	,							
Settlement Pond Design									
			Ĺ						
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg				
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{\gamma}$	<u>10.</u>			365.				
En 10 martine		181							
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles				
Particle Specific gravity	2.6	00							
Kinemetie viegesity		$\frac{1}{m^2}$							
	1.306E-06	(111 / S) m /c							
v <sub>s</sub> (11/300)	0.00002	111/S							
Time for D (m)	0.087	m/nr hrs							
	11.00	1115		1.00	D (m) - depth				
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width				
		0.20		0.20					
Q= V.A implies	V =	0.00055	m/sec						
·									
Required length of Pond =	L =	22.81	m say:	17	m length				
Length to Width ratio		3.24	:1	>=3:1	Acceptable				
			2		Length to width ratio of ~3:1				
Plan Area	A =	89.25	m <sup>-</sup>						
% of catchment area	C% =	3.56%	>3%	OK	Acceptable				
		[ (m)	P (m)	D (m)					
Dimensions of Settlement Pond	1 no.	17	5.25	<b>1.00</b>	Single pond design				
		• •	0.20						
					Good to remove medium to				
Operating Volume:	89	m <sup>3</sup>		OK	fine silts to 0.006mm				

Catchment A:			S	P-A2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.000515				
Area of (site) catchment (m2)	515	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00051424	m <sup>3</sup> /sec			
Q mean =	0.5	L/s			
Q mean =	44.4	m <sup>3</sup> /day			
Eactored Qaua-Rural	0.0005	m <sup>3</sup> /sec			
Groth Eactor - $10 \text{ yr return}$	1.3700				
10 vr return peak flow	0.001	m <sup>3</sup> /sec			
10 yr return peak flow	0.001	1/2			
	0.7	L/3			
10 yr refurn peak flow	60.9	m /uuy			
Sottlement Rend Design					
Semement Fond Design					
	also	$(1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V = \frac{g(3g)}{2}$	$(p-1) \times a_p$	<u>&gt;</u>		365.
	, p	$18\nu$			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				· · · ·
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		3.00	m²	3.00	m width
Q= V.A implies	V =	0.00023	m/sec		
	-				
Required length of Pond =	L =	9.77	m say:	10	m length
1 11 1 AAP 111 1		0.00	,		
Length to Width ratio		3.33	:1	>=3:1	
			m <sup>2</sup>		Length to wath ratio of ~3:1
riun Area	A =	50.00 5 0.00	207	OK	Accontable
	C% =	5.83%	-3%	<u> </u>	Acceptable
		(m)	B (m)		
Dimensions of Settlement Pond:	1 no.	10	3 00	1 00	Single pond design
			0.00		
					Good to remove medium to
Operating Volume:	30	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment A:	SP-A3					
Mean Greenfield Runoff Rates						
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17		
Area of site (km2)	0.00129					
Area of (site) catchment (m2)	1290	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3				Placed road material	
Q mean =	0.00116434	m³/sec				
Q mean =	1.2	L/s				
Q mean =	100.6	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0012	m <sup>3</sup> /sec				
Groth Factor - 10 yr return	1.3700					
10 vr return peak flow	0.002	m <sup>3</sup> /sec				
10 vr return peak flow	1.6	L/s				
10 vr return peak flow	137.8	m <sup>3</sup> /day				
	107.0	,,				
Settlement Pond Desian						
	g(sg	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg	
Using Stokes Law:	$V_p = \frac{3}{2}$	10	_		365.	
	Г	18v				
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles	
Particle Specific gravity	2.6					
Water Temp	10	°C				
Kinematic viscosity	1.306E-06	(m²/s)				
V <sub>s</sub> (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
Time for D (m)	11.56	hrs		-		
			2	1.00	D (m) - depth	
say pond cross section area =		4.50	m <sup>2</sup>	4.50	m width	
Q= V.A implies	V =	0.00035	m/sec			
Deguized length of Dand -		1475		1475	na lan ath	
	L -	14./0	ni suy.	14./0	in lengin	
Length to Width ratio		3.08	•1	>-2.1	Acceptable	
		5.20	• 1	<u>~-0.1</u>	Length to width ratio of ~3.1	
Plan Arag	A -	44.30	m <sup>2</sup>			
% of catchment area	<u>∧</u> =	5 15%	>3%	OK	Acceptable	
		0.10/0				
		L (m)	B (m)	D (m)	1	
Dimensions of Settlement Pond:	1 no.	14.75	4.50	1.00	Single pond design	
		_			Good to remove medium to	
Operating Volume:	66	m³		OK	fine silts to 0.006mm	

Catchment A:			S	iP-A4	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	
Area of site (km2)	0.005327	2			
Area of (site) catchment (m2)	5327	m <sup>2</sup>			
SAAR	1569	mm			Placed road material
SOIL	0.3	3.			
Q mean =	0.00411363	m³/sec			
Q mean =	4.1	L/s			
Q mean =	355.4	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0041	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.006	m <sup>3</sup> /sec			
10 yr return peak flow	5.6	L/s			
10 vr return peak flow	486.9	m <sup>3</sup> /day			
		-			
Settlement Pond Design					
	g(sg)	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	<u>r</u> 1817	<u></u>		365.
For 10 man antiplan		10/	] [		
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6	00			
	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>-</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/nr Time for D (m)	0.08/	m/nr brc			
	11.50	1115		1.00	D(m) denth
		0.50	m <sup>2</sup>	1.00	
say pona cross section area =		8.50		8.50	m wiath
	V -	0.00044	m/soc		
	v -	0.00000	117360		
Required length of Pond =	=	27.58	m sav:	27.75	m length
	-	27.000			
Length to Width ratio		3.26	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	235.88	m <sup>2</sup>		
% of catchment area	C% =	4.43%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	27.75	8.50	1.00	Single pond design
				C II	Good to remove medium to
Operating Volume:	236	111		OK	

Catchment B:			S	P-B1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
Area of site (km2)	0.001357	2			
Area of (site) catchment (m2)	1357	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00121801	m <sup>°</sup> /sec			
Q mean =	1.2	L/s			
Q mean =	105.2	m²/day			
Factored Q <sub>BAR</sub> -Rural	0.0012	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	1.7	L/s			
10 yr return peak flow	144.2	m³/day			
Settlement Pond Design					
	[				
	g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-		363.
For 10 um particlos		107			(mieron particles
Particle Specific gravity	0.00E-06				
Water Temp	2.0	°C			
Kinomatia visoosity	1 20/5 0/	$(m^2/c)$			
	1.306E-06	(111 / S) m/s			
	0.0002	m/br			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		4 50	m <sup>2</sup>	4 50	m width
		1.00		4.00	
Q= V.A implies	V =	0.00037	m/sec		
Required length of Pond =	L =	15.43	m say:	15.5	m length
Length to Width ratio		3.44	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	69.75	m		
% of catchment area	C% =	5.14%	>3%	OK	Acceptable
		1 (22)	D (ma)		
Dimensions of Settlement Pond:	1 no	L (m)	B (m) 4 50	1 00	Single pond design
		10.0	4.00	1.00	
					Good to remove medium to
Operating Volume:	70	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment B:		SP-B2					
Mean Greenfield Runoff Rates							
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1		
Area of site (km2)	0.002686	0					
Area of (site) catchment (m2)	2686	m <sup>2</sup>					
SAAR	1569	mm					
SOIL	0.3	2			Placed road material		
Q mean =	0.00223645	m³/sec					
Q mean =	2.2	L/s					
Q mean =	193.2	m³/day					
Factored Q <sub>BAR</sub> -Rural	0.0022	m³/sec					
Groth Factor - 10 yr return	1.3700						
10 yr return peak flow	0.003	m³/sec					
10 yr return peak flow	3.1	L/s					
10 vr return peak flow	264.7	m <sup>3</sup> /day					
Settlement Pond Design							
		$(1) \sqrt{J^2}$	2		from Metcalf & Eddy 4th Ed. pa		
Using Stokes Law:	$V_p = \frac{g(sg)}{s}$	$\frac{a_p-1}{18\nu} \times a_p$	-		365.		
For 10 µm particles	6 00E-06	m			6 micron particles		
Particle Specific gravity	2.6						
Water Temp	10	°C					
Kinematic viscosity	1.306E-06	$(m^2/s)$					
V. (m/sec)	0.00002	m/s					
	0.087	m/hr					
Time for D (m)	11.56	hrs					
				1.00	D (m) - depth		
say pond cross section area =		6.50	m <sup>2</sup>	6.50	m width		
Q= V.A implies	V =	0.00047	m/sec				
Required length of Pond =	L =	19.61	m say:	19.75	m length		
			-				
Length to Width ratio		3.04	:1	>=3:1	Acceptable		
			2		Length to width ratio of ~3:1		
Plan Area	A =	128.38	111		Accepteble		
% of calchment area	C% =	4./8%	<i>~</i> 3‰				
		(m)	B (m)	D (m)			
Dimensions of Settlement Pond:	1 no.	<b>19.75</b>	6.50	1.00	Single pond design		
			0.00				
Operating Volume:	128.375	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm		

Catchment B:	SP-B3					
Mean Greenfield Runoff Rates						
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17		
Area of site (km2)	0.00198					
Area of (site) catchmont (m2)	1090	m <sup>2</sup>				
	1700	mm				
SOIL	0.3				Placed road material	
Q mean =	0.00170486	m <sup>3</sup> /sec				
Q mean =	1.7	L/s				
Q mean =	147.3	m <sup>3</sup> /day				
	0.0017	m <sup>3</sup> /sec				
Groth Eactor = 10 vr return	1 3700	,				
10 vr return peck flow	0.002	m <sup>3</sup> /sec				
10 yr return peak flow	2.3	1/s				
10 yr return pogk flow	2.0	$m^3/day$				
	201.0	in , aa y				
Settlement Pond Design						
	g(sg	$(n-1) \times d^2$			from Metcalf & Eddy, 4th Ed, pg	
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{\sigma}$	<u>p</u> <u>r</u> 191			365.	
For 10 monorticles		101	 F			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles	
Water Tomp	2.6	°C				
Kinomatic viscosity	1 3045 04	$(m^2/c)$				
V. (m/sec)	0.00002	m/s				
	0.0002	m/br				
Time for D (m)	11.56	hrs				
		-		1.00	D (m) - depth	
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width	
Q= V.A implies	V =	0.00042	m/sec			
Required length of Pond =	L =	17.67	m say:	17.75	m length	
			-			
Length to Width ratio		3.23	:1	>=3:1	Acceptable	
	•	07.40	m <sup>2</sup>		Length to width ratio of ~3:1	
Plan Area	A =	97.63	111	OK	Accontable	
	C%-	4.73/0	~3/0		Acceptable	
		L (m)	B (m)	D (m)		
Dimensions of Settlement Pond:	1 no.	17.75	5.50	1.00	Single pond design	
Operating Volume:	98	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm	

Catchment B:	SP-B4					
Mean Greenfield Runoff Rates						
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17		
Area of site (km2)	0.002002					
Area of (site) catchment (m2)	2002	m²				
SAAR	1569	mm				
SOIL	0.3	<u> </u>			Placed road material	
Q mean =	0.00172171	m³/sec				
Q mean =	1.7	L/s				
Q mean =	148.8	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0017	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 vr return peak flow	0.002	m <sup>3</sup> /sec				
10 vr return peak flow	2.4	L/s				
10 yr return peak flow	203.8	m <sup>3</sup> /day				
	200.0					
Settlement Pond Design						
Using Stokes Law:	$V_p = \frac{g(sg)}{sg}$	$\frac{18}{p}$ -1)× $d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.	
For 10 upp particles	( 005 0 (	101				
<u>For TO µm panicles</u>	6.00E-06	m			6 micron particles	
Punicle specific gravity	2.6	°C				
Kinomatia viagosity	1 20/5 0/	$(m^2/c)$				
	1.306E-06	(111 / S) m /c				
v <sub>s</sub> (11/300)	0.00002	111/5				
Time for D (m)	0.087	m/nr brs				
	11.00	1115		1.00	D (m) - denth	
say pond cross section area =		5 50	m <sup>2</sup>	5.50	m width	
		0.00		0.00		
Q= V.A implies	V =	0.00043	m/sec			
Required length of Pond =	L =	17.84	m say:	17.75	m length	
					-	
Length to Width ratio		3.23	:1	>=3:1	Acceptable	
					Length to width ratio of ~3:1	
Plan Area	A =	97.63	m²			
% of catchment area	C% =	4.88%	>3%	OK	Acceptable	
	1	L (m)	B (m)	D (m)	Circula and share'	
Dimensions of Settlement Pond:	I no.	17.75	5.50	1.00	Single pond design	
					Good to remove medium to	
Operating Volume:	97.625	m <sup>3</sup>		OK	fine silts to 0.006mm	

Catchment B:	SP-B5							
Mean Greenfield Runoff Rates								
$Q_{mean} = 0.00108 \times (AREA km^2)$	$Q_{117} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$							
			(001-)					
Area of site (km2)	0.001519							
Area of (site) catchment (m2)	1.519	m <sup>2</sup>						
SAAR	1569	mm						
SOIL	0.3				Placed road material			
Q mean =	0.00134661	m <sup>3</sup> /sec						
Q mean =	1.3	L/s						
$\Omega$ mean =	1163	m <sup>3</sup> /day						
	0.0013	m <sup>3</sup> /sec						
Croth Eactor = 10  yr rature	1.3700	1117500						
	1.3700	$m^3/coc$						
10 yr refurn peak flow	0.002							
	1.0	L/S						
10 yr return peak flow	159.4	m'/day						
Settlement Pond Design								
	also	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg			
Using Stokes Law:	$V_{n} = \frac{g(3g)}{2}$	$p$ 1) $\wedge a_p$	<u>,</u>		365.			
	P	18v						
For 10 µm particles	6.00E-06	m			6 micron particles			
Particle Specific gravity	2.6							
Water Temp	10	°C						
Kinematic viscosity	1.306E-06	(m²/s)						
V <sub>s</sub> (m/sec)	0.00002	m/s						
m/hr	0.087	m/hr						
Time for D (m)	11.56	hrs						
			2	1.00	D (m) - depth			
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width			
		0.00007						
	V =	0.00037	m/sec					
Required length of Pond =	1 =	15 35	m sav:	15.25	mlenath			
	L	10.00	in say.	10.20				
Length to Width ratio		3.05	:1	>=3:1	Acceptable			
					Length to width ratio of ~3:1			
Plan Area	A =	76.25	m²					
% of catchment area	C% =	5.02%	>3%	OK	Acceptable			
		L (m)	B (m)	D (m)				
Dimensions of Settlement Pond:	1 no.	15.25	5.00	1.00	Single pond design			
					Good to remove medium to			
Operating Volume:	74.05	m <sup>3</sup>		OK	fine silts to 0.006mm			
operating volume.	/ 0.23	l	1					

Catchment C:	SP-C1					
Mean Greenfield Runoff Rates						
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17		
Area of site (km2)	0.001626					
Area of (site) catchment (m2)	1626	m²				
SAAR	1569	mm				
SOIL	0.3				Placed road material	
Q mean =	0.00143071	m³/sec				
Q mean =	1.4	L/s				
Q mean =	123.6	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0014	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m <sup>3</sup> /sec				
10 yr return peak flow	2.0	L/s				
10 vr return peak flow	169.4	m <sup>3</sup> /day				
Settlement Pond Design						
Using Stokes Law:	$V_p = \frac{g(sg)}{sg}$	$\frac{d_p-1}{18u} \times \frac{d_p^2}{d_p^2}$	2		from Metcalf & Eddy, 4th Ed, pg 365.	
For 10 um particlas	( 005 0 (	10/				
Particle Specific gravity	6.00E-06	m			6 micron particles	
Water Temp	2.0	°C				
Kinematic viscosity	1 3045 04	$lm^2/s$				
V (m/sec)	0.00002	m/s				
	0.00002	m/br				
Time for D (m)	11.56	hrs				
	11.00	1110		1.00	D (m) - depth	
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width	
Q= V.A implies	V =	0.00039	m/sec			
Required length of Pond =	L =	16.31	m say:	16.5	m length	
Length to Width ratio		3.30	:1	>=3:1	Acceptable	
					Length to width ratio of ~3:1	
Plan Area	A =	82.50	m²			
% of catchment area	C% =	5.07%	>3%	OK	Acceptable	
					•	
Dimensions of Solliers and Barrat	1 no	L (m)	B (m)	D (m)	Single pend design	
Dimensions of Semement Pond:	1 NO.	10.5	5.00	1.00	single pond design	
Operating Volume:	00 F	m <sup>3</sup>		OK	Good to remove medium to	
operating volume.	02.3	l		<b>U</b> N		

Catchment C:			S	P-C2	
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	-
Area of site (km2)	0.001833				
Area of (site) catchment (m2)	1833	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00159173	m³/sec			
Q mean =	1.6	L/s			
Q mean =	137.5	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0016	m <sup>3</sup> /sec			
Groth Factor - 10 vr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.2	1/s			
10 yr return peak flow	188.4	m <sup>3</sup> /day			
	100.1	,,			
Sottlement Pend Design					
<u>Semement Pond Design</u>					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law.	$\mathbf{v}_p =$	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	$(m^2/s)$			
V <sub>c</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width
Q= V.A implies	V =	0.00044	m/sec		
Required length of Pond =	L =	18.14	m say:	18.25	m length
Length to Width ratio		3.65	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	91.25	m-		
% or catchment area	L% =	4.98%	>3%	OK	Acceptable
		(m)	B (m)	D(m)	
Dimensions of Settlement Pond	1 no	18.25	5 (m) 5 00	1.00	Single pond design
		10,20	0.00		
Operating Volume:	91.25	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment C:			S	P-C3	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	-
Area of site (km2)	0.001679				
Area of (site) catchment (m2)	1679	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00147215	m³/sec			
Q mean =	1.5	L/s			
Q mean =	127.2	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0015	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.0	L/s			
10 yr return peak flow	174.3	m <sup>3</sup> /day			
Sottlement Pend Design					
Semement Fond Design					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365
Using Stokes Law.	$v_p =$	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306F-06	$(m^2/s)$			
V <sub>c</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width
Q= V.A implies	V =	0.00040	m/sec		
Required length of Pond =	L =	16.78	m say:	16.75	m length
			-		
Length to Width ratio		3.35	:1	>=3:1	Acceptable
		00.75	m <sup>2</sup>		Length to width ratio of ~3:1
Plan Area	A =	83./5	111		Accontable
	C/0 -	4.77%	~3%		Acceptuble
		(m)	B (m)	D(m)	
Dimensions of Settlement Pond:	1 no.	16.75	5.00	1.00	Single pond design
Operating Volume:	83.75	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment C:			S	P-C4	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	T
	0.0010//				
Ared of sife (km2)	0.001266				
Area of (site) catchment (m2)	1266	m			
SAAR	1569	mm			Placed read material
	0.0	m <sup>3</sup> /sec			
Q mean =	0.00114504	117300			
	00.0	$m^3/day$			
	98.9	$m^3/coc$			
Factored Q <sub>BAR</sub> -Rural	0.0011	111/360			
	1.3/00	m <sup>3</sup> /coo			
10 yr refurn peak flow	0.002				
	1.0	L/S			
10 yr refurn peak flow	135.5	m /ddy			
Settlement Pond Desian					
<u><u>-</u><u>-</u><u>-</u></u>					
	y = g(sg	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$\mathbf{v}_p =$	18v	-		365.
For 10 µm particles	6 00E-06	m			6 micron particles
Particle Specific aravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	$(m^2/s)$			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		4.50	m²	4.50	m width
Q= V.A implies	V =	0.00035	m/sec		
		14.50		145	
Required length of Pond =	L =	14.50	m say:	14.5	miengm
Length to Width ratio		3 22	•1	>-2.1	Acceptable
		0.22	• 1	2-0.1	Length to width ratio of $\sim 3.1$
Plan Area	A =	65.25	m <sup>2</sup>		
% of catchment area	C% =	5.15%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	14.5	4.50	1.00	Single pond design
					Cood to romove modium to
Operating Volume:	45.05	m <sup>3</sup>		OK	fine silts to 0.006mm
	00.20	· · •			

Catchment D:			S	SP-D1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	-
Area of site (km2)	0.001235				
Area of (site) catchment (m2)	1235	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00112005	m³/sec			
Q mean =	1.1	L/s			
Q mean =	96.8	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0011	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	1.5	L/s			
10 vr return peak flow	132.6	m <sup>3</sup> /day			
	102.0	, ,			
Settlement Pond Design					
	g(sg)	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{\sigma}$	<u>p</u> <u>r</u> 10.			365.
<u> </u>		101			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6	00			
	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>-</sup> /s)			
V <sub>s</sub> (M/SeC)	0.00002	m/s			
m/nr Time for D (m)	0.08/	m/nr brs			
	11.50	1115		1.00	D (m) - depth
say pond cross section area =		4 25	m <sup>2</sup>	4.25	m width
		7.20		4.20	
Q= V.A implies	V =	0.00036	m/sec		
· · · ·					
Required length of Pond =	L =	15.02	m say:	15	m length
Length to Width ratio		3.53	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	63.75	m <sup>-</sup>		
% of catchment area	C% =	5.16%	>3%	OK	ACCEPTADIE
		(m)	B(m)	D(m)	
Dimensions of Settlement Pond	1 no	15	<b>4 25</b>	1.00	Single pond design
					Good to remove medium to
Operating Volume:	64	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment D:			S	P-D2					
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$									
Area of site (km2)	0.000901								
Area of (site) catchment (m2)	901	m²							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00084598	m³/sec							
Q mean =	0.8	L/s							
Q mean =	73.1	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0008	m³/sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.001	m <sup>3</sup> /sec							
10 vr return peak flow	1.2	L/s							
10 vr return peak flow	100.1	m <sup>3</sup> /day							
	100.1	,							
Settlement Pond Design									
	g(sg	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg				
Using Stokes Law:	$V_p =$	18v	-		363.				
For 10 µm particles	6.00E-06	m			6 micron particles				
Particle Specific gravity	2.6				1				
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	(m²/s)							
V <sub>s</sub> (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
				1.00	D (m) - depth				
say pond cross section area =		4.00	m²	4.00	m width				
Q= V.A implies	V =	0.00029	m/sec						
		10.05		10.05					
Required length of Pond =	L =	12.05	m say:	12.25	mlength				
Longth to Width ratio		2.07	.1	>-2.1	Accontable				
		3.06	.1	<u>~-3.1</u>	Acceptable Length to width ratio of $\sim 3.1$				
Plan Area	Δ -	19.00	m <sup>2</sup>						
% of catchment area	$C_{\infty}^{-} =$	5 44%	>3%	ОК	Acceptable				
		0.1170							
		L (m)	B (m)	D (m)					
Dimensions of Settlement Pond:	1 no.	12.25	4.00	1.00	Single pond design				
		з			Good to remove medium to				
Operating Volume:	49	m		OK	tine silts to 0.006mm				

Catchment D:			S	P-D3					
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA \text{ km}^2)^{0.89} \times (SAAR \text{ mm})^{1.17} \times (SOIL)^{2.17}$									
Area of site (km2)	0.002069								
Area of (site) catchment (m2)	2069	m²							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00177289	m³/sec							
Q mean =	1.8	L/s							
Q mean =	153.2	m³/day							
Factored Q <sub>RAR</sub> -Rural	0.0018	m <sup>3</sup> /sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.002	m <sup>3</sup> /sec							
10 yr return peak flow	2.4	1/s							
10 yr return pogk flow	2.9	$m^3/day$							
	207.7	in youy							
Settlement Pond Design									
Semement Fond Design									
	y = g(sg	$(p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg				
Using Stokes Law:	$\mathbf{v}_p =$	18v	-						
For 10 um particles	6 00F-06	m			6 micron particles				
Particle Specific aravity	2.6								
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	$(m^2/s)$							
V <sub>c</sub> (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
				1.00	D (m) - depth				
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width				
Q= V.A implies	V =	0.00044	m/sec						
Required length of Pond =	L =	18.37	m say:	18.5	m length				
Length to Width ratio		3.36	:1	>=3:1	Acceptable				
		101.75			Length to width ratio of ~3:1				
rian Area	A =	101.75	111		Acceptable				
% of catchment drea	C% =	4.92%	>3%	OK	Acceptable				
		$\lfloor m \rfloor$	B (m)	D (m)					
Dimensions of Settlement Pond:	1 no.	18.5	5,50	1.00	Single pond design				
					<u> </u>				
		3			Good to remove medium to				
Operating Volume:	102	m		OK	tine silts to U.UU6mm				

Catchment D:			SI	P-D4	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2.</sup>	.17	
Area of site (km2)	0.002195				
Area of (site) catchment (m2)	2195	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00186867	m³/sec			
Q mean =	1.9	L/s			
Q mean =	161.5	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0019	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.003	m <sup>3</sup> /sec			
10 yr return peak flow	2.6	L/s			
10 yr return peak flow	221.2	m <sup>3</sup> /day			
	221.2	, aa,			
Settlement Pond Desian					
<u> </u>					
	g(59	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{8 \sqrt{58}}{2}$		<u>-</u>		365.
	r	181			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.75	m²	5.75	m width
Q= V.A implies	V =	0.00045	m/sec		
Deguized length of Dand -		10.50		10 <i>E</i>	na la path
	L -	10.32	ni suy.	10.0	mengin
Longth to Width ratio		3 00	•1	>-2.1	Accontable
		5.22	• 1	2-0.1	Length to width ratio of ~3.1
Plan Area	۸ –	102.20	m <sup>2</sup>		
% of catchment area	∩ - C% =	100.00	>3%	OK	Accentable
	<u> </u>	4.00/0	- 070		
		(m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	18.5	5.75	1.00	Single pond design
					Good to remove medium to
Operating Volume:	106	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment E:			S	P-E1					
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$									
		,							
Area of site (km2)	0.001729								
Area of (site) catchment (m2)	1729	m <sup>2</sup>							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.0015111	m <sup>3</sup> /sec							
Q mean =	1.5	L/s							
Q mean =	130.6	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0015	m <sup>3</sup> /sec							
Groth Factor - 10 yr return	1.3700								
10 yr return peak flow	0.002	m <sup>3</sup> /sec							
10 yr return peak flow	2.1	L/s							
10 vr return peak flow	178.9	m <sup>3</sup> /day							
		,							
Settlement Pond Design									
			<u> </u>						
Liener Stellers Lewin	g(sg)	$(p_p-1) \times d_p^2$	5		Ifrom Mercalf & Eday, 4th Ed, pg				
	$V_p \equiv$	18v	-		365.				
For 10 µm particles	6 00F-06	m			6 micron particles				
Particle Specific aravity	2.6								
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	(m²/s)							
V <sub>s</sub> (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
			0	1.00	D (m) - depth				
say pond cross section area =		5.25	m²	<u>5.25</u>	m width				
		0.00000	,						
Q= V.A implies	V =	0.00039	m/sec						
Required length of Pond =	1 =	16.41	m sav:	16.5	mlenath				
	L	10.41	111 Say.	10.0					
Length to Width ratio		3.14	:1	>=3:1	Acceptable				
					Length to width ratio of ~3:1				
Plan Area	A =	86.63	m <sup>2</sup>						
% of catchment area	C% =	5.01%	>3%	OK	Acceptable				
	1	L (m)	B (m)	D (m)	<u>Cincela un aun al al a staur</u>				
imensions of Settlement Pond:	ı no.	16.5	5.25	1.00	single pona design				
					Good to remove medium to				
Operating Volume:	87	m <sup>3</sup>		OK	fine silts to 0.006mm				

Catchment E:			S	P-E2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.002122				
Area of (site) catchment (m2)	2122	m²			
SAAR	1569	mm			
SOIL	0.3	<u>_</u>			Placed road material
Q mean =	0.00181326	m³/sec			
Q mean =	1.8	L/s			
Q mean =	156.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0018	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.5	L/s			
10 vr return peak flow	214.6	m <sup>3</sup> /day			
Settlement Pond Design					
Using Stokes Law:	$V_p = \frac{g(sg)}{sg}$	$\frac{d_p-1}{18u} \times \frac{d_p^2}{d_p^2}$	2		from Metcalf & Eddy, 4th Ed, pg 365.
For 10 um particlas	( 005 0 (	101			
Particle Specific gravity	6.00E-06	m			6 micron particles
Water Temp	2.0	°C			
Kinematic viscosity	1 3045 04	$(m^2/s)$			
V (m/sec)	0.00002	m/s			
	0.00002	m/br			
Time for D (m)	11.56	hrs			
	11.00	1113		1.00	D (m) - depth
say pond cross section area =		5.75	m <sup>2</sup>	5.75	m width
Q= V.A implies	V =	0.00043	m/sec		
Required length of Pond =	L =	17.97	m say:	18	m length
Length to Width ratio		3.13	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	103.50	m²		
% of catchment area	C% =	4.88%	>3%	OK	Acceptable
					•
Dimensions of Sollies and Barrels	1 no	L (m)	B (m)	D (m)	Single pend design
Dimensions of Semement Pond:	1 NO.	18	5./5	1.00	single pond design
Operating Volume:	104	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment E:			S	P-E3					
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$									
Area of site (km2)	0.001999								
Area of (site) catchment (m2)	1999	m <sup>2</sup>							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00171941	m <sup>3</sup> /sec							
Q mean =	1.7	L/s							
Q mean =	148.6	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0017	m <sup>3</sup> /sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.002	m <sup>3</sup> /sec							
10 yr return peak flow	2.4	L/s							
10 yr return peak flow	203 5	m <sup>3</sup> /day							
	200.0	,							
Settlement Pond Design									
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg				
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{\gamma}$	<u>10.</u>			365.				
En 10 martine		181							
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles				
Particle Specific gravity	2.6	00							
Kinomatia viagosity		$\frac{1}{m^2}$							
	1.306E-06	(111 / S) m /c							
v <sub>s</sub> (11/300)	0.00002	111/S							
Time for D (m)	0.087	m/nr hrs							
	11.00	1115		1.00	D (m) - depth				
say pond cross section area =		5 50	m <sup>2</sup>	5 50	m width				
		0.00		0.00					
Q= V.A implies	V =	0.00043	m/sec						
· · ·									
Required length of Pond =	L =	17.82	m say:	17.5	m length				
Length to Width ratio		3.18	:1	>=3:1	Acceptable				
			2		Length to width ratio of ~3:1				
Plan Area	A =	96.25	111						
% of catchment drea	C% =	4.81%	23%	OK	Acceptable				
		(m)	B(m)	D(m)					
Dimensions of Settlement Pond:	1 no.	17.5	5.50	1.00	Sinale pond desian				
					Good to remove medium to				
Operating Volume:	96	m <sup>3</sup>		OK	fine silts to 0.006mm				

Catchment E:			S	P-E4	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site ((ma2))	0.001/09				
Ared of site (km2)	0.001608				
Area of (site) catchment (m2)	1608	111			
SAAR SOII	0.3				Placed road material
	0.0	m <sup>3</sup> /sec			
$\Omega$ mean =	1.4	1/5			
	1.7	$m^3/day$			
	0.0014	m <sup>3</sup> /sec			
Croth Easter 10 yr return	1.3700	1117300			
	1.3700	m <sup>3</sup> /sec			
10 yr return peak flow	0.002	11/300			
	1.7	L/S			
To yr reform peak now	16/./	iii /uuy			
Settlement Pond Design					
<u></u>					
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{0 \cdot 0}{100}$	$\frac{18\nu}{1}$	<u>_</u>		365.
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	nrs		1.00	
		5.00	m <sup>2</sup>	1.00	
say pond cross section area =		5.00		5.00	m width
Q=V A implies	V =	0 00039	m/sec		
	v -	0.00037	111/300		
Required length of Pond =	L =	16.15	m say:	16.25	m length
			,		
Length to Width ratio		3.25	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	81.25	m²		
% of catchment area	C% =	5.05%	>3%	OK	Acceptable
	1	L (m)	B (m)	D (m)	Cincela va availada si sua
Dimensions of Settlement Pond:	I no.	16.25	5.00	1.00	single pond design
					Good to remove medium to
Operating Volume:	81	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment E:			S	P-E5	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.001466				
Area of (site) catchment (m2)	1466	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00130471	m³/sec			
Q mean =	1.3	L/s			
Q mean =	112.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0013	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	1.8	L/s			
10 vr return peak flow	154.4	m <sup>3</sup> /day			
	104.4	,,			
Settlement Pond Desian					
	g(59	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{\delta \sqrt{3} \delta}{2}$	10	_		365.
	r	181			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width
Q= V.A implies	V =	0.00036	m/sec		
Deguized length of Dand -		14.07		15	m longth
	L -	14.07	ini suy.	10	in lengin
Length to Width ratio		3.00	•1	>-2.1	Acceptable
		5.00	• 1	2-0.1	Length to width ratio of ~3.1
Plan Area	A -	75.00	m <sup>2</sup>		
% of catchment area	 C% =	5 12%	>3%	OK	Acceptable
	C /0	5.12/0	- 070		
		L (m)	B (m)	D (m)	1
Dimensions of Settlement Pond:	1 no.	15	5.00	1.00	Single pond design
		_			Good to remove medium to
Operating Volume:	75	m³		OK	fine silts to 0.006mm

Catchment E:	SP-E6				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.002047				
Area of (site) catchment (m2)	2047	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00175611	m³/sec			
Q mean =	1.8	L/s			
Q mean =	151.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0018	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.4	L/s			
10 yr return peak flow	207.9	m³/day			
Settlement Pond Design					
		1 1	2		from Motcalf & Eddy, 4th Ed. pa
Using Stokes Law:	$V - \frac{g(sg)}{sg}$	$(p_p-1) \times d_p$	2		365
Using Stokes Law.	<b>v</b> <sub>p</sub> —	18v			
For 10 µm particles	6.00E-06	m	<b>[</b>		6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.50	m²	5.50	m width
Q= V.A implies	V =	0.00044	m/sec		
Dequired length of Dand -		10.00		10.05	na lan ath
Required length of Pond =	L =	18.20	m say:	16.23	mengin
Length to Width ratio		3 32	•1	>=3.1	Accentable
		0.02	. 1		Length to width ratio of $\sim 3.1$
Plan Area	A =	100.38	m <sup>2</sup>		
% of catchment area	C% =	4.90%	>3%	OK	Acceptable
					• ·
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	18.25	5.50	1.00	Single pond design
		m <sup>3</sup>		<b>O</b> 11	Good to remove medium to
Operating Volume:	100	111		OK	

Catchment E:	SP-E7				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.001685	2			
Area of (site) catchment (m2)	1685	m <sup>2</sup>			
SAAR	1569	mm		_	
SOIL	0.3	3.			Placed road material
Q mean =	0.00147683	m³/sec			
Q mean =	1.5	L/s			
Q mean =	127.6	m²/day			
Factored Q <sub>BAR</sub> -Rural	0.0015	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.0	L/s			
10 yr return peak flow	174.8	m³/day			
Settlement Pond Design					
	g(sg)	$(p_p-1) \times d_p$	2		trom Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-		365.
For 10 um particles		10 <i>v</i>			(migran particles
Particle Specific gravity	6.00E-06	m			8 micron panicies
Water Temp	2.0	°C			
Kinomatic viscosity	1 3045 04	$(m^2/s)$			
	0.00002	(111 / S) m/s			
v <sub>s</sub> (m/sec)	0.00002	m/br			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width
		0.20		0.20	
Q= V.A implies	V =	0.00039	m/sec		
·					
Required length of Pond =	L =	16.03	m say:	16	m length
Length to Width ratio		3.05	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	84.00	m²		
% of catchment area	C% =	4.99%	>3%	OK	Acceptable
		1. 1		D	
Dimensions of Settlement Pand:	1 no	L (m)	в (m) 5 25	D (m)	Single pond design
Dimensions of semement rond.	1 110.	10	5.25	1.00	
					Good to remove medium to
Operating Volume:	84	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment F:	SP-F1				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.003902				
Area of (site) catchment (m2)	3902	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00311818	m³/sec			
Q mean =	3.1	L/s			
Q mean =	269.4	m³/day			
Factored Q <sub>RAR</sub> -Rural	0.0031	m <sup>3</sup> /sec			
Groth Factor - 10 vr return	1.3700				
10 vr return peak flow	0.004	m <sup>3</sup> /sec			
10 yr return peak flow	4.3	1/s			
10 yr return peak flow	340.1	m <sup>3</sup> /day			
	307.1	in /ddy			
Settlement Pond Design					
	g(sg	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_{n} = \frac{808}{100}$		2		365.
	P	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		7.50	m²	7.50	m width
Q= V.A implies	V =	0.00057	m/sec		
		00.70			
Required length of Pond =	L =	23./0	m say:	23./5	mlength
Lange with the AAP stills were the		0.17	.1	. 0.1	
Length to width ratio		3.17	:1	>=3:1	
		170.10			Length to width ratio of ~3:1
rian Area	A =	1/8.13	111		Accepteble
% of catchment drea	C% =	4.56%	>3%	OK	
		[ /ms]	D (mg)	D (ma)	
Dimensions of Settlement Pond:	1 no	23 75	B (III) 7 50	1 00	Single pond design
Sincisions of Sementem Fond.		20.75	7.50	1.00	
					Good to remove medium to
Operating Volume:	178	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment F:	SP-F2				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.002171				
Area of (site) catchment (m2)	2171	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00185047	m³/sec			
Q mean =	1.9	L/s			
Q mean =	159.9	m³/day			
Factored Q <sub>RAR</sub> -Rural	0.0019	m <sup>3</sup> /sec			
Groth Factor - 10 vr return	1.3700				
10 vr return peak flow	0.003	m <sup>3</sup> /sec			
10 yr return peak flow	2.5	1/s			
10 yr return peak flow	219.0	m <sup>3</sup> /day			
	217.0	in /ddy			
Settlement Pond Design					
	g(sg	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_{n} = \frac{808}{100}$		<u>&gt;</u>		365.
	P	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			-	1.00	D (m) - depth
say pond cross section area =		5.75	m²	5.75	m width
Q= V.A implies	V =	0.00044	m/sec		
		10.04			
Required length of Pond =	L =	18.34	m say:	18.5	mlength
		0.00	,		
Length to width ratio		3.22	:1	>=3:1	
		10/00			Length to width ratio of ~3:1
rian Area	A =	106.38	207		Accepteble
% of catchment drea	C% =	4.90%	23%	OK	Acceptable
		[ /ms ]	D. (m)	D (ma)	
Dimensions of Settlement Pond:	1 no	L (m)	5 (m)	1 00	Single pond design
Sincisions of Sementem Fond.		10.5	5.75	1.00	
					Good to remove medium to
Operating Volume:	106	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment F:	SP-F3				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.001696				
Area of (site) catchment (m2)	1696	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	<u>_</u>			Placed road material
Q mean =	0.0014854	m³/sec			
Q mean =	1.5	L/s			
Q mean =	128.3	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0015	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.0	L/s			
10 yr return peak flow	175.8	m³/day			
Settlement Pond Design					
	y = g(sg)	$(\frac{1}{p}-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	18v			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	hrs		1.00	
		5.05		1.00	
say pond cross section area =		5.25	rn -	5.25	m width
	V -	0 00030	m/sec		
	v –	0.00007	111/300		
Required length of Pond =	L =	16.13	m say:	16.25	m length
Length to Width ratio		3.10	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	85.31	m <sup>-</sup>		
% or catchment area	C% =	5.03%	>3%	OK	ACCEPTADIE
		(m)	B(m)	D(m)	
Dimensions of Settlement Pond	1 no.	16.25	5.25	1.00	Single pond design
		10,20	0.20		
Operating Volume:	85	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment G:			S	P-G1	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	-
Area of site (km2)	0.003877				
Area of (site) catchment (m2)	3877	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00310039	m³/sec			
Q mean =	3.1	L/s			
Q mean =	267.9	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0031	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.004	m <sup>3</sup> /sec			
10 yr return peak flow	4.2	L/s			
10 vr return peak flow	367.0	m <sup>3</sup> /day			
Settlement Pond Design					
Using Stokes Law:	$V_p = \frac{g(sg)}{sg}$	$\frac{d_p-1}{d_p} \times d_p^2$	2 > 		from Metcalf & Eddy, 4th Ed, pg 365.
	Г	18v			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	nrs		1.00	
				1.00	
say pond cross section area =		7.50	m	7.50	m width
		0.00057			
	V =	0.00057	m/sec		
Required length of Pond =	L =	23.56	m say:	23.5	m length
Longth to Width ratio		2 1 2	•1	>-2.1	Accontable
		5.15	• 1	<u>~-3.1</u>	Length to width ratio of ~3.1
Plan Area	A =	176 25	m <sup>2</sup>		
% of catchment area	C% =	4.55%	>3%	ОК	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	23.5	7.50	1.00	Single pond design
Operating Volume:	176	m <sup>3</sup>		OK	Good to remove medium to fine silts to 0.006mm

Catchment G:	SP-G2								
Mean Greenfield Runoff Rates									
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	$Q_{mean} = 0.00108 \times (AREA \text{ km}^2)^{0.89} \times (SAAR \text{ mm})^{1.17} \times (SOIL)^{2.17}$								
Area of site (km2)	0.002109								
Area of (site) catchment (m2)	2109	m <sup>2</sup>							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00180337	m³/sec							
Q mean =	1.8	L/s							
Q mean =	155.8	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0018	m <sup>3</sup> /sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.002	m <sup>3</sup> /sec							
10 yr return peak flow	2.5	L/s							
10 vr return peak flow	213.5	m <sup>3</sup> /day							
	210.0	, aa,							
Settlement Pond Desian									
<u> </u>									
	g(sg	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg				
Using Stokes Law:	$V_p = \frac{8.08}{2}$	$\frac{18\nu}{18\nu}$			365.				
For 10 um particles		107 m	_J 		( migran particles				
Particle Specific gravity	6.00E-06	m			6 micron panicles				
Water Temp	2.0	°C							
Kinomatia viagosity	1 20/5 0/	$(m^2/c)$							
	1.306E-06	(111 / S) m /s							
	0.00002	m/br							
Time for D (m)	11 56	hrs							
	11.00	1115		1.00	D (m) - depth				
say pond cross section greg -		5 7 5	m <sup>2</sup>	5 75	m width				
		0.70		0.70					
Q= V.A implies	V =	0.00043	m/sec						
		0.00010	,						
Required length of Pond =	L =	17.88	m say	: 18	m length				
Length to Width ratio		3.13	:1	>=3:1	Acceptable				
					Length to width ratio of ~3:1				
Plan Area	A =	103.50	m <sup>2</sup>						
% of catchment area	C% =	4.91%	>3%	OK	Acceptable				
		L (m)	B (m)	D (m)					
Dimensions of Settlement Pond:	1 no.	18	5.75	1.00	Single pond design				
					Cood to romove medium to				
Operating Volume:	104	m³		ОК	fine silts to 0.006mm				

Catchment G:	SP-G3				
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
Area of site (km2)	0.001957	0			
Area of (site) catchment (m2)	1957	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00168722	m³/sec			
Q mean =	1.7	L/s			
Q mean =	145.8	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0017	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.3	L/s			
10 yr return peak flow	199.7	m³/day			
Settlement Pond Design					
			L		
	g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	181/	-		365.
For 10 um particlos		107			
<u>Porticle Specific growity</u>	6.00E-06	m			6 micron particles
Water Tomp	2.0	°C			
Kinomatia viagosity	1 20/5 0/	$(m^2/c)$			
	1.306E-06	(111 / S) m /s			
v <sub>s</sub> (m/sec)	0.00002	m/br			
Time for D (m)	11.56	hrs			
	11.00	1113		1.00	D (m) - depth
say pond cross section area =		5 50	m <sup>2</sup>	5 50	m width
		0.00		0.00	
Q= V.A implies	V =	0.00042	m/sec		
Required length of Pond =	L =	17.48	m say:	17.5	m length
Length to Width ratio		3.18	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	96.25	m <sup>2</sup>		
% of catchment area	C% =	4.92%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	I no.	17.5	5.50	1.00	single pond design
					Good to remove medium to
Operating Volume:	96	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment H:	SP-H1				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.002293				
Area of (site) catchment (m2)	2293	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00194274	m³/sec			
Q mean =	1.9	L/s			
Q mean =	167.9	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0019	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.003	m <sup>3</sup> /sec			
10 yr return peak flow	2.7	L/s			
10 vr return peak flow	230.0	m <sup>3</sup> /day			
	200.0	,,			
Settlement Pond Design					
	g(sg	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{B \times B}{2}$	10			365.
	-	181			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	hrs		1.00	
			2	1.00	D (m) - depth
say pond cross section area =		6.00	m <sup>-</sup>	6.00	m width
		0.000.4.4			
	V =	0.00044	m/sec		
Required length of Pond -	1 -	18.45	m sav:	18.5	mlength
	L -	10.45	ini say.	10.0	inteligin
Length to Width ratio		3.08	•1	>=3.1	Acceptable
		0.00		0.1	Length to width ratio of $\sim 3:1$
Plan Area	A =	111.00	m <sup>2</sup>		
% of catchment area	C% =	4.84%	>3%	OK	Acceptable
					and the second
		L (m)	B (m)	D (m)	1
Dimensions of Settlement Pond:	1 no.	18.5	6.00	1.00	Single pond design
		3			Good to remove medium to
Operating Volume:	111	m		OK	tine silts to 0.006mm

Catchment H:	SP-H2							
Mean Greenfield Runoff Rates								
$Q_{mean} = 0.00108 \times (AREA km^2)$	$Q_{mean} = 0.00108 \times (AREA \text{ km}^2)^{0.89} \times (SAAR \text{ mm})^{1.17} \times (SOIL)^{2.17}$							
Area of site (km2)	0.004153							
Area of (site) catchment (m2)	4153	m <sup>2</sup>						
SAAR	1569	mm						
SOIL	0.3				Placed road material			
Q mean =	0.00329608	m³/sec						
Q mean =	3.3	L/s						
Q mean =	284.8	m³/day						
Factored Q <sub>BAR</sub> -Rural	0.0033	m³/sec						
Groth Factor - 10 yr return	1.3700							
10 yr return peak flow	0.005	m³/sec						
10 yr return peak flow	4.5	L/s						
10 vr return peak flow	390.2	m <sup>3</sup> /day						
Settlement Pond Design								
	g(sg)	$(m_p - 1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg			
Using Stokes Law:	$V_p =$	$\frac{r}{18\nu}$			365.			
For 10 um particlos		107	_J					
Particle Specific growity	6.00E-06	m			6 micron particles			
Water Temp	2.6	°C						
Kinomatia visoosity	1 20/5 0/	$lm^2/c$						
	1.306E-06	(111 / S) m/s						
	0.0002	m/br						
Time for D (m)	11.56	hrs						
				1.00	D (m) - depth			
say pond cross section area =		8.00	m <sup>2</sup>	8.00	m width			
		0.00		0.00				
Q= V.A implies	V =	0.00056	m/sec					
·								
Required length of Pond =	L =	23.48	m say	/: <u>24</u>	m length			
Length to Width ratio		3.00	:1	>=3:1	Acceptable			
			2		Length to width ratio of ~3:1			
Plan Area	A =	192.00	m <sup>2</sup>					
% ot catchment area	C% =	4.62%	>3%	OK				
		1 (20)	P (ma)					
Dimensions of Settlement Pond:	1 no	L (m)	B (m)	D (m)	Single pond design			
		27	0.00	1.00				
					Good to remove medium to			
Operating Volume:	192	m <sup>3</sup>		OK	fine silts to 0.006mm			

Catchment H:	SP-H3				
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	
Area of site (km2)	0.001584				
Area of (site) catchment (m2)	1584	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00139778	m³/sec			
Q mean =	1.4	L/s			
Q mean =	120.8	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0014	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	1.9	L/s			
10 vr return peak flow	165.5	m <sup>3</sup> /day			
	100.0	,,			
Settlement Pond Desian					
	g(59	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{3}{2}$	10	_		365.
	Г	181			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.00	m²	5.00	m width
Q= V.A implies	V =	0.00038	m/sec		
Doguizad longth of Dond -		15.02		1/	na lan ath
Required length of Forld –	L -	15.75	ni suy.	10	in lengin
Length to Width ratio		3 20	•1	>-2.1	Acceptable
		5.20	• 1	~=0.1	Length to width ratio of ~3.1
Plan Arag	A -	80.00	m <sup>2</sup>		
% of catchment area	<u>∧</u> =	5.05%	>3%	OK	Acceptable
		0.0076			
		L (m)	B (m)	D (m)	1
Dimensions of Settlement Pond:	1 no.	16	5.00	1.00	Single pond design
		_			Good to remove medium to
Operating Volume:	80	m³		OK	fine silts to 0.006mm
Catchment H:			S	P-H4	
---	--------------------------------------	------------------------	---------------------------------------	-------	--
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.001251				
Area of (site) catchment (m2)	1251	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00113296	m <sup>3</sup> /sec			
Q mean =	1.1	L/s			
Q mean =	97.9	m <sup>3</sup> /day			
Factored Q <sub>RAR</sub> -Rural	0.0011	m <sup>3</sup> /sec			
Groth Factor - 10 vr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	1.6	L/s			
10 vr return peak flow	134.1	m <sup>3</sup> /day			
Settlement Pond Design					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	• <i>p</i>	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		4.50	m <sup>2</sup>	4.50	m width
	14	0.0002.4			
Q= V.A Implies	V =	0.00034	m/sec		
Required length of Pond =	L =	14.35	m say:	14.25	m length
			-		
Length to Width ratio		3.17	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	64.13	111		Acconteble
	C /o =	5.13%	~J/0	UK	Acceptuble
		(m)	B (m)	D(m)	
Dimensions of Settlement Pond:	1 no.	14.25	4.50	1.00	Single pond design
					<u> </u>
Operating Volume:	64	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment H:			S	P-H5	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.001444	0			
Area of (site) catchment (m2)	1444	m²			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00128727	m³/sec			
Q mean =	1.3	L/s			
Q mean =	111.2	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0013	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	1.8	L/s			
10 vr return peak flow	152.4	m <sup>3</sup> /day			
Settlement Pond Design					
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	<u>r</u> 1817			365.
For 10 man particles		101	 †		
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6	00			
	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>-</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/nr Time for D (m)	0.08/	m/nr brc			
	11.50	1115		1.00	D(m) denth
		۲.00	m <sup>2</sup>	T.00	
say pona cross section area =		5.00		5.00	m wiath
	V -	0 00035	m/sec		
	• -	0.00000	111/300		
Required length of Pond =	L =	14.67	m sav:	15	m lenath
	_				
Length to Width ratio		3.00	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	75.00	m <sup>2</sup>		
% of catchment area	C% =	5.19%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	15	5.00	1.00	Single pond design
		m <sup>3</sup>			Good to remove medium to
Operating Volume:	75	111		OK	

Catchment H:	SP-H6					
Mean Greenfield Runoff Rates						
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	2.17	-	
Area of site (km2)	0.001372					
Area of (site) catchment (m2)	1372	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3				Placed road material	
Q mean =	0.00122999	m³/sec				
Q mean =	1.2	L/s				
Q mean =	106.3	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0012	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m³/sec				
10 yr return peak flow	1.7	L/s				
10 vr return peak flow	145.6	m <sup>3</sup> /day				
		-				
Settlement Pond Design						
	g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg	
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-		365.	
For 10 um particlos		107				
Particle Specific gravity	6.00E-06	m			6 micron panicies	
Water Temp	2.0	°C				
Kinomatia visaasity	1 20/5 0/	$lm^2/c$				
	0.00002	(111 / S) m/s				
v <sub>s</sub> (m/sec)	0.00002	m/hr				
Time for D (m)	11.56	hrs				
				1.00	D (m) - depth	
say pond cross section area =		4 7.5	m <sup>2</sup>	4 75	m width	
		1.7 0		1.7 0		
Q= V.A implies	V =	0.00035	m/sec			
·						
Required length of Pond =	L =	14.76	m say:	15	m length	
Length to Width ratio		3.16	:1	>=3:1	Acceptable	
			2		Length to width ratio of ~3:1	
Plan Area	A =	71.25	m²			
% ot catchment area	C% =	5.19%	>3%	OK	Acceptable	
		1 (m)	P (ma)		•	
Dimensions of Settlement Pond:	1 no	L (m) 15	D (m)	1 00	Single pond design	
Sincisions of Sementem Fond.		15	4.75	1.00		
					Good to remove medium to	
Operating Volume:	71	m <sup>3</sup>		OK	fine silts to 0.006mm	

Catchment I:			\$	SP-11	
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.006565				
Area of (site) catchment (m2)	6565	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00495444	m³/sec			
Q mean =	5.0	L/s			
Q mean =	428.1	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0050	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.007	m <sup>3</sup> /sec			
10 yr return peak flow	6.8	L/s			
10 yr return peak flow	586.4	m <sup>3</sup> /day			
	000.4	,,			
Settlement Pond Design					
	g(sg	$(1-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{0 < 0}{1}$	<u>p</u> / <u>F</u>			365.
	-	181			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	nrs		1.00	
			2	1.00	
say pond cross section area =		9.00	m	9.00	m width
		0 00075			
	V =	0.00075	m/sec		
Required length of Pond =	1 =	21.28	m sav:	28	mlenath
	L	01.00	in 30y.	20	in longin
Lenath to Width ratio		3.11	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	252.00	m <sup>2</sup>		
% of catchment area	C% =	3.84%	>3%	OK	Acceptable
					• ·
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	28	9.00	1.00	Single pond design
		3			Good to remove medium to
Operating Volume:	252	m		OK	tine silts to 0.006mm

Catchment I:			SP-12					
Mean Greenfield Runoff Rates								
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	-			
Area of site (km2)	0.001488							
Area of (site) catchment (m2)	1488	m²						
SAAR	1569	mm						
SOIL	0.3				Placed road material			
Q mean =	0.00132212	m³/sec						
Q mean =	1.3	L/s						
Q mean =	114.2	m³/day						
Factored Q <sub>BAR</sub> -Rural	0.0013	m <sup>3</sup> /sec						
Groth Factor - 10 yr return	1.3700							
10 vr return peak flow	0.002	m <sup>3</sup> /sec						
10 yr return peak flow	1.8	L/s						
10 vr return peak flow	156.5	m <sup>3</sup> /day						
	100.0	,,						
Settlement Pond Design								
	g(sg	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg			
Using Stokes Law:	$V_p = \frac{3 \times 3}{2}$	10			365.			
	-	181						
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles			
Particle Specific gravity	2.6							
Water Temp	10	°C						
Kinematic viscosity	1.306E-06	(m²/s)						
V <sub>s</sub> (m/sec)	0.00002	m/s						
m/hr	0.087	m/hr						
lime for D (m)	11.56	hrs		1.00				
				1.00				
say pond cross section area =		5.00	m	5.00	m width			
	N/	0.00027						
	V =	0.00036	m/sec					
Required length of Pond =	1 =	15.07	m sav:	15	mlenath			
	L	10.07	in say.		in longin			
Lenath to Width ratio		3.00	:1	>=3:1	Acceptable			
					Length to width ratio of ~3:1			
Plan Area	A =	75.00	m <sup>2</sup>					
% of catchment area	C% =	5.04%	>3%	OK	Acceptable			
					•			
		L (m)	B (m)	D (m)				
Dimensions of Settlement Pond:	1 no.	15	5.00	1.00	Single pond design			
					Good to remove medium to			
Operating Volume:	75	m.		OK	Inte sins to 0.006mm			

Catchment I:				SP-13	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL	) <sup>2.17</sup>	
Area of site (km2)	0.00177				
Area of (site) catchment (m2)	1770	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00154295	m³/sec			
Q mean =	1.5	L/s			
Q mean =	133.3	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0015	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.1	L/s			
10 vr return peak flow	182.6	m <sup>3</sup> /day			
	102.0	, aa,			
Settlement Pond Desian					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	, b	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width
Q= V.A implies	V =	0.00040	m/sec		
Required length of Pond =	L =	16.75	m say:	: <u>16.75</u>	mlength
Length to Width ratio		3.19	:1	>=3:1	
		07.04			Length to wath ratio of ~3:1
Plan Area	A =	8/.94	111		
% of carchment drea	C% =	4.97%	>3%	<u> </u>	Acceptable
		(m)	B (m)	D(m)	
Dimensions of Settlement Pond:	1 no.	16.75	5.25	1.00	Sinale pond desian
Operating Values		m <sup>3</sup>			Good to remove medium to
Operating volume:	88	111		OK	

Catchment I:			S	P-14	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	-
Area of site (km2)	0.004551				
Area of (site) catchment (m2)	4551	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00357578	m <sup>3</sup> /sec			
Q mean =	3.6	L/s			
Q mean =	308.9	m <sup>3</sup> /day			
Factored Q <sub>RAR</sub> -Rural	0.0036	m <sup>3</sup> /sec			
Groth Eactor - 10 yr return	1.3700				
10 vr return peak flow	0.005	m <sup>3</sup> /sec			
10 yr return peak flow	4.9	1/s			
10 yr return pogk flow	402.2	$m^3/day$			
To yr reidin peak llow	423.3	iii /uuy			
Settlement Pond Design					
Schemen Fond Design					
	0(50	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_n = \frac{8(38)}{3}$	$p$ 1)× $a_p$	<u>,</u>		365.
	P	$18\nu$			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		8.00	m <sup>2</sup>	8.00	m width
Q= V.A implies	V =	0.00061	m/sec		
	-				
Required length of Pond =	L =	25.48	m say:	25.5	mlength
		0.10	,		
Length to width ratio		3.19	:1	>=3:1	
					Length to width ratio of ~3:1
rian Area	A =	204.00	207		Acceptable
% of carchment drea	C% =	4.48%	23%	OK	Acceptable
		1 (22)	D /m)		
Dimensions of Settlement Pond:	1 no	25 5	B (m) 8 00	1 00	Single pond design
Sincisions of Sementem Fond.		20.0	0.00	1.00	
					Good to remove medium to
Operating Volume:	204	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment J:				SP-J1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOI	L) <sup>2.17</sup>	
Area of site (km2)	0.001336				
Area of (site) catchment (m2)	1336	m²			
SAAR	1569	mm			
SOIL	0.3	2			Placed road material
Q mean =	0.00120122	m³/sec			
Q mean =	1.2	L/s			
Q mean =	103.8	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0012	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	1.6	L/s			
10 yr return peak flow	142.2	m³/day			
Settlement Pond Design					
	g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	18v	_		365.
For 10 um particles	6 00E 06	m	₽┛		4 micron particles
Particle Specific gravity	0.00L-08				8 micron panicies
Water Temp	10	°C			
Kinematic viscosity	1 304F-04	$(m^2/s)$			
V (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		4.50	m <sup>2</sup>	4.50	m width
Q= V.A implies	V =	0.00037	m/sec		
Required length of Pond =	L =	15.21	m sa	y: <u>15.25</u>	m length
Length to Width ratio		3.39	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	68.63	m <sup>-</sup>		
% ot catchment area	C% =	5.14%	>3%	OK	Acceptable
		1 ()	D ()		
Dimensions of Settlement Pond:	1 no	L (m)	B (m)	D (m)	Single pond design
	1 110.	13.23	4.50	1.00	
					Good to remove medium to
Operating Volume:	69	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment J:	SP-J2 - Peat Repository								
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA \text{ km}^2)^{0.89} \times (SAAR \text{ mm})^{1.17} \times (SOIL)^{2.17}$									
- mount	/ (	,							
Area of site (km2)	0.066027								
Area of (site) catchment (m2)	66027	m²							
SAAR	1569	mm							
SOIL	0.4	3.			Placed peat material				
Q mean =	0.07216473	m <sup>3</sup> /sec							
Q mean =	72.2	L/s							
Q mean =	6235.0	m°/day							
Factored Q <sub>BAR</sub> -Rural	0.0722	m°/sec							
Groth Factor - 10 yr return	1.3700	3.							
10 yr return peak flow	0.099	m <sup>°</sup> /sec							
10 yr return peak flow	98.9	L/s							
10 yr return peak flow	8542.0	m°/day							
CW/ Inflow	15.0	m <sup>3</sup> /day			and aquifer type				
	0.000	$m^3/sec$							
	0.077	1117300							
Settlement Pond Design									
	g(sg	$(n_p - 1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg				
Using Stokes Law:	$V_p =$	$\frac{r}{18\nu}$	-		365.				
For 4 um particles		m			4 micron particles				
Particle Specific aravity	4.001-00	111							
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	$(m^2/s)$							
V <sub>s</sub> (m/sec)	0.00001	m/s							
m/hr	0.038	m/hr							
Time for D (m)	26.00	hrs							
			0	1.00	D (m) - depth				
say pond cross section area =		55.00	m <sup>2</sup>	55.00	m width				
	<u>) (</u>	0.00100							
Q= V.A Implies	V =	0.00180	m/sec						
Required length of Pond =	=	168.56	m sav.	170	m length				
		100.00							
Length to Width ratio		3.09	:1	>=3:1	Acceptable				
					Length to width ratio of ~3:1				
Plan Area	A =	9350.00	m <sup>2</sup>						
% of catchment area	C% =	14.16%	>3%	OK	Acceptable				
	1	L (m)	B (m)	D (m)	Circular and share'				
Dimensions of Settlement Pond:	1 no.	170	55.00	1.00	single pond design				
	∠ NO.	120	37.00	1.00	Apply 2 no. ponds				
					Good to remove fine silts to				
Operating Volume:	9350	m <sup>3</sup>		OK	0.004mm				

Catchment J:			S	P-J3	
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.002066				
Area of (site) catchment (m2)	2066	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00177061	m³/sec			
Q mean =	1.8	L/s			
Q mean =	153.0	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0018	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.4	L/s			
10 yr return peak flow	209.6	m³/day			
Settlement Pond Design					
		1 1	2		from Motoglf & Eddy, 4th Ed. pg
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p$	2		365
Using Stokes Law.	• p —	18v			
For 10 µm particles	6.00E-06	m	<b>[</b>		6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.50	m²	5.50	m width
Q= V.A implies	V =	0.00044	m/sec		
Deguized length of Dand -		10.25		10.05	m longth
Required length of Pond =	L =	18.33	m say:	16.23	miengin
Length to Width ratio		3 32	•1	>=3.1	Accentable
		0.02	. 1		Length to width ratio of $\sim 3.1$
Plan Area	A =	100.38	m <sup>2</sup>		
% of catchment area	C% =	4.86%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	18.25	5.50	1.00	Single pond design
					Good to remove medium to
Operating Volume:	100	Ш.		OK	line sills to 0.006mm

Catchment J:				SP	P-J4	
Mean Greenfield Runoff Rates						
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOI	IL) <sup>2.1</sup>	7	
Area of site (km2)	0.001907					
Area of (site) catchment (m2)	1907	m²				
SAAR	1569	mm				
SOIL	0.3	2				Placed road material
Q mean =	0.0016488	m³/sec				
Q mean =	1.6	L/s				
Q mean =	142.5	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0016	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m <sup>3</sup> /sec				
10 yr return peak flow	2.3	L/s				
10 yr return peak flow	195.2	m³/day				
Settlement Pond Design						
	1		<u> </u>			
	g(sg)	$(p_p-1) \times d_p^2$	2			from Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$\mathbf{v}_p =$	18v	-			363.
For 10 um particles	6 00E 06	m				6 micron particles
Particle Specific gravity	0.002-00					officion panicles
Water Temp	10	°C				
Kinematic viscosity	1 304F-04	$(m^2/s)$				
V (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
Time for D (m)	11.56	hrs				
				Í	1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>		5.50	m width
Q= V.A implies	V =	0.00041	m/sec			
Required length of Pond =	L =	17.09	m sa	ay:	17	m length
Length to Width ratio		3.09	:1		>=3:1	Acceptable
			2			Length to width ratio of ~3:1
Plan Area	A =	93.50	m-			
% or catchment area	C% =	4.90%	>3%		OK	
		(m)	R (m)		D(m)	
Dimensions of Settlement Pond:	1 no.	17	5.50		1.00	Single pond design
						Good to remove medium to
Operating Volume:	94	m³			OK	fine silts to 0.006mm

Catchment K:			S	P-K1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
	0.005000				
Area of sife (km2)	0.005099	2			
Area of (site) catchment (m2)	5099	m			
SAAR	1569	mm			
	0.3	m <sup>3</sup> /200			
Q mean =	0.00395656	m <sup>-</sup> /sec			
Q mean =	4.0	L/S			
Q mean =	341.8	m°/day			
Factored Q <sub>BAR</sub> -Rural	0.0040	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.005	m³/sec			
10 yr return peak flow	5.4	L/s			
10 yr return peak flow	468.3	m³/day			
Settlement Pond Design					
Ilsing Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
Using Stokes Law.	<b>v</b> p —	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		8.50	m²	8.50	m width
Q= V.A implies	V =	0.00064	m/sec		
Dequired length of Dand -		07.53			m longth
Required length of Pond =	L =	26.33	m say:	26.5	miengin
Length to Width ratio		3 1 2	•1	>-2.1	Acceptable
		0.12	• 1	2-0.1	Length to width ratio of ~3.1
Plan Area	A =	225.25	m <sup>2</sup>		
% of catchment area	C% =	4.42%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	1
Dimensions of Settlement Pond:	1 no.	26.5	8.50	1.00	Single pond design
					Good to remove medium to
Operating Volume:	225	[1]		OK	The sins to 0.006mm

Catchment K:		SP-K2				
Mean Greenfield Runoff Rates						
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	2.17	1	
Area of site (km2)	0.001951	0				
Area of (site) catchment (m2)	1951	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3	3.			Placed road material	
Q mean =	0.00168261	m³/sec				
Q mean =	1.7	L/s				
Q mean =	145.4	m²/day				
Factored Q <sub>BAR</sub> -Rural	0.0017	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m <sup>3</sup> /sec				
10 yr return peak flow	2.3	L/s				
10 yr return peak flow	199.2	m³/day				
· · · · · ·						
Settlement Pond Design						
	g(sg)	$(p_p-1) \times d_p^2$	2		trom Metcalt & Eddy, 4th Ed, pg	
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-		365.	
For 10 um particlos		107				
<u>Porticle Specific growity</u>	6.00E-06	m			6 micron particles	
Water Temp	2.0	°C				
Kinomatia visaasity	1 20/5 0/	$(m^2/c)$				
	1.306E-06	(111 / S) m /s				
v <sub>s</sub> (III/sec)	0.00002	m/br				
Time for D (m)	11.56	hrs				
	11.00	1113		1.00	D (m) - depth	
say pond cross section area =		5 50	m <sup>2</sup>	5 50	m width	
		0.00		0.00		
Q= V.A implies	V =	0.00042	m/sec			
Required length of Pond =	L =	17.44	m say:	17.5	m length	
Length to Width ratio		3.18	:1	>=3:1	Acceptable	
					Length to width ratio of ~3:1	
Plan Area	A =	96.25	m²			
% of catchment area	C% =	4.93%	>3%	OK	Acceptable	
	1	L (m)	B (m)	D (m)		
Dimensions of Settlement Pond:	i no.	17.5	5.50	1.00	single pona aesign	
					Good to remove medium to	
Operating Volume:	96	m <sup>3</sup>		ОК	fine silts to 0.006mm	

Catchment K:			S	P-K3	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
Area of site (km2)	0.001978	2			
Area of (site) catchment (m2)	1978	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00170332	m³/sec			
Q mean =	1.7	L/s			
Q mean =	147.2	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0017	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.3	L/s			
10 vr return peak flow	201.6	m <sup>3</sup> /day			
		,			
Settlement Pond Design					
Using Stokes Law:	$V_n = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	P	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.50	m²	5.50	m width
Q= V.A implies	V =	0.00042	m/sec		
		17/5			
Required length of Pond =		17.65	m say:	17.5	miengin
Longth to Width ratio		3 1 9	•1	>-2.1	Accontable
		5.10	• 1	<u>~-3.1</u>	Length to width ratio of ~3:1
Plan Area	۸ –	04 05	m <sup>2</sup>		
% of catchment area	∧ - C% =	70.2J	>3%	OK	Accentable
	~/0	7.0770			
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	17.5	5.50	1.00	Single pond design
					· · · · · · · · · · · · · · · · · · ·
Operating Volume:	96	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment K:			S	SP-K4				
Mean Greenfield Runoff Rates								
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1			
Area of site ((mag))	0.001977							
Ared of site (km2)	0.0018/7							
Area of (site) catchment (m2)	18//	111						
SOU	1367				Placed road material			
O mogn -	0.0	m <sup>3</sup> /sec						
Q mean =	1.6	1/0						
	140.5	$m^3/day$						
	0.0017	m <sup>3</sup> /sec						
Croth Easter 10 vr return	1.3700	1117300						
	1.3700	m <sup>3</sup> /sec						
10 yr return peak flow	0.002	117300						
	102.4	$m^3/day$						
To yr reform peak now	192.4	iii /uuy						
Settlement Pond Design								
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg			
Using Stokes Law:	$V_p = \frac{0 \cdot 0}{100}$	$\frac{18\nu}{1}$			365.			
For 10 µm particles	6.00E-06	m			6 micron particles			
Particle Specific gravity	2.6							
Water Temp	10	°C						
Kinematic viscosity	1.306E-06	(m²/s)						
V <sub>s</sub> (m/sec)	0.00002	m/s						
m/hr	0.087	m/hr						
lime for D (m)	11.56	nrs		1.00	D (m) donth			
		5 50	m <sup>2</sup>	T.00				
say pond cross section area =		5.50		5.50	m width			
Q=V A implies	V =	0 00040	m/sec					
	•	0.00010	111/300					
Required length of Pond =	L =	16.85	m say:	17	m length			
Length to Width ratio		3.09	:1	>=3:1	Acceptable			
					Length to width ratio of ~3:1			
Plan Area	A =	93.50	m²					
% of catchment area	C% =	4.98%	>3%	OK	Acceptable			
	1	L (m)	B (m)	D (m)	Single pand daying			
Dimensions of Semiement Pond:	1 NO.	17	5.50	1.00	single pond design			
					Good to remove medium to			
Operating Volume:	94	m <sup>3</sup>		OK	fine silts to 0.006mm			

Catchment K:		SP-K5				
Mean Greenfield Runoff Rates						
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1	
Area of site (km2)	0.001877					
Area of (site) catchment (m2)	1877	m²				
SAAR	1569	mm				
SOIL	0.3	2			Placed road material	
Q mean =	0.00162569	m³/sec				
Q mean =	1.6	L/s				
Q mean =	140.5	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0016	m <sup>3</sup> /sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m <sup>3</sup> /sec				
10 yr return peak flow	2.2	L/s				
10 vr return peak flow	192.4	m <sup>3</sup> /day				
	172.1	, ,				
Settlement Pond Design						
Usina Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.	
	<sup>P</sup>	$18\nu$				
For 10 µm particles	6.00E-06	m			6 micron particles	
Particle Specific gravity	2.6				•	
Water Temp	10	°C				
Kinematic viscosity	1.306E-06	(m²/s)				
V <sub>s</sub> (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
Time for D (m)	11.56	hrs		_		
				1.00	D (m) - depth	
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width	
		0.000.40				
Q= V.A implies	V =	0.00040	m/sec			
Required length of Pond =	L =	16.85	m say:	17	m length	
				0.1		
Length to Width ratio		3.09	:1	>=3:1	Acceptable	
					Length to width ratio of ~3:1	
Plan Area	A =	93.50	m-			
% of catchment area	C% =	4.98%	>3%	OK	Acceptable	
		1 ()				
Dimensions of Settlement Pand:	1 no	L (m)	B (m)	D (m)	Single pond design	
Dimensions of semement rond:	1 110.	1/	5.50	1.00		
					Good to remove medium to	
Operating Volume:	94	m <sup>3</sup>		OK	fine silts to 0.006mm	

Catchment L:		SP-L1						
Mean Greenfield Runoff Rates								
$Q_{mean} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$								
(		,						
Area of site (km2)	0.001813							
Area of (site) catchment (m2)	1813	m <sup>2</sup>						
SAAR	1569	mm						
SOIL	0.3				Placed road material			
Q mean =	0.00157627	m <sup>3</sup> /sec						
Q mean =	1.6	L/s						
Q mean =	136.2	m <sup>3</sup> /dav						
	0.0014	m <sup>3</sup> /sec						
Groth Eactor = 10 vr return	1 3700	,						
	1.5700	m <sup>3</sup> /sec						
10 yr return pogk flow	0.002	11/300						
	2.2	L/S						
10 yr refurn peak flow	186.6	m /uuy						
Settlement Pond Design								
	o ( so	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg			
Using Stokes Law:	$V_{n} = \frac{8(38)}{3}$	$p$ 1)× $a_1$	<u>,</u>		365.			
	P	<u>18v</u>						
For 10 µm particles	6.00E-06	m			6 micron particles			
Particle Specific gravity	2.6							
Water Temp	10	°C						
Kinematic viscosity	1.306E-06	(m²/s)						
V <sub>s</sub> (m/sec)	0.00002	m/s						
m/hr	0.087	m/hr						
Time for D (m)	11.56	hrs						
			2	1.00	D (m) - depth			
say pond cross section area =		5.25	m	5.25	m width			
		0.000.41						
	V =	0.00041	m/sec					
Required length of Pond =	1 =	1711	m sav.	17	mlenath			
	L	17.11	in say.					
Length to Width ratio		3.24	:1	>=3:1	Acceptable			
				-	Length to width ratio of ~3:1			
Plan Area	A =	89.25	m <sup>2</sup>					
% of catchment area	C% =	4.92%	>3%	OK	Acceptable			
<b></b>	-	L (m)	B (m)	D (m)				
Dimensions of Settlement Pond:	1 no.	17	5.25	1.00	Single pond design			
					Good to remove medium to			
Operating Volume:	00	m <sup>3</sup>		OK	fine silts to 0.006mm			
	07							

Catchment L:			S	P-L2	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
	0.00107				
Area of site (km2)	0.00197	2			
Area of (site) catchment (m2)	1970	m			
SAAR	1569	mm			
SOIL	0.3	34			Placea roda material
Q mean =	0.00169719	m°/sec			
Q mean =	1.7	L/s			
Q mean =	146.6	m°/day			
Factored Q <sub>BAR</sub> -Rural	0.0017	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.3	L/s			
10 yr return peak flow	200.9	m³/day			
Settlement Pond Design					
		$(1) \sqrt{d^2}$	2		from Metcalf & Eddy 4th Ed. pa
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p-1) \times a_p$	<u>,</u>		365.
	, p	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.50	m²	5.50	m width
Q= V.A implies	V =	0.00042	m/sec		
Required length of Pond =	L =	17.59	m say:	17.5	mlength
		2.10	.1	> 0.1	
Lengin to width ratio		3.18	:1	>=3:1	Acceptable
Plan Area	Δ -	04 05	m <sup>2</sup>		
% of catchment area	C% =	70.23 A 89%	>3%	OK	Accentable
	C /0 -	4.07/0	- 070		
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	17.5	5.50	1.00	Single pond design
		3			Good to remove medium to
Operating Volume:	96.25	m		OK	tine silts to 0.006mm

Catchment L:		SP-L3				
Mean Greenfield Runoff Rates						
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	-	
Area of site (km2)	0.002117					
Area of (site) catchment (m2)	2117	m²				
SAAR	1569	mm				
SOIL	0.3	2			Placed road material	
Q mean =	0.00180945	m³/sec				
Q mean =	1.8	L/s				
Q mean =	156.3	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0018	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m <sup>3</sup> /sec				
10 yr return peak flow	2.5	L/s				
10 vr return peak flow	214.2	m <sup>3</sup> /day				
Settlement Pond Design						
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg	
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{\sigma}$	<u>10.</u>			365.	
		181				
For 10 µm particles	6.00E-06	m			6 micron particles	
Particle Specific gravity	2.6					
Water lemp	10	°C				
Kinematic viscosity	1.306E-06	(m²/s)				
V <sub>s</sub> (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
lime for D (m)	11.56	nrs		1.00		
			2	1.00		
say pond cross section area =		5.75	m	5.75	m width	
		0.000.42				
	V =	0.00043	m/sec			
Required length of Pond =	1 =	17.94	m sav:	18	mlenath	
	L	17.74	in say.		in longin	
Lenath to Width ratio		3.13	:1	>=3:1	Acceptable	
		0110			Length to width ratio of ~3:1	
Plan Area	A =	103.50	m <sup>2</sup>			
% of catchment area	C% =	4.89%	>3%	OK	Acceptable	
					· ·	
		L (m)	B (m)	D (m)		
Dimensions of Settlement Pond:	1 no.	18	5.75	1.00	Single pond design	
					Good to remove medium $\overline{10}$	
Operating Volume:	104	m		OK	tine silts to 0.006mm	

Catchment K:			SP-L4				
Mean Greenfield Runoff Rates							
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1		
Area of site (km2)	0.001734	2					
Area of (site) catchment (m2)	1734	m <sup>2</sup>					
SAAR	1569	mm					
SOIL	0.3	3.			Placed road material		
Q mean =	0.00151499	m³/sec					
Q mean =	1.5	L/s					
Q mean =	130.9	m³/day					
Factored Q <sub>BAR</sub> -Rural	0.0015	m³/sec					
Groth Factor - 10 yr return	1.3700						
10 yr return peak flow	0.002	m³/sec					
10 yr return peak flow	2.1	L/s					
10 vr return peak flow	179.3	m <sup>3</sup> /day					
Settlement Pond Design							
Using Stokes Law:	$V_n = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.		
	p	<u>18v</u>					
For 10 µm particles	6.00E-06	m			6 micron particles		
Particle Specific gravity	2.6						
Water Temp	10	°C					
Kinematic viscosity	1.306E-06	(m²/s)					
V <sub>s</sub> (m/sec)	0.00002	m/s					
m/hr	0.087	m/hr					
Time for D (m)	11.56	hrs					
				1.00	D (m) - depth		
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width		
Q= V.A implies	V =	0.00040	m/sec				
Required length of Pond =	L =	16.45	m say:	16.5	m length		
			-				
Length to Width ratio		3.14	:1	>=3:1			
		- · · -			Length to width ratio of ~3:1		
Plan Area	A =	86.63	111				
% or catchment area	C% =	5.00%	>3%	OK	Acceptable		
		[ (m)	P (m)				
Dimensions of Settlement Pond:	1 no	L (m)	5 25	1 00	Single pond design		
		10.5	5.23	1.00			
Operating Volume:	۹7 ۵7	m <sup>3</sup>		OK	Good to remove medium to fine silts to 0.006mm		

Catchment L:			S	SP-L5	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.005884	2			
Area of (site) catchment (m2)	5884	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00449432	m³/sec			
Q mean =	4.5	L/s			
Q mean =	388.3	m²/day			
Factored Q <sub>BAR</sub> -Rural	0.0045	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.006	m <sup>3</sup> /sec			
10 yr return peak flow	6.2	L/s			
10 yr return peak flow	532.0	m³/day			
Settlement Pond Design					
	g(sg)	$(p_p-1) \times d_p$	2		trom Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	<u>18</u> 1/2	-		363.
For 10 um particlos		107			( mieron norticles
<u>Porticle Specific growity</u>	6.00E-06	m			6 micron particles
Water Temp	2.0	°C			
Kinomatic viscosity	1 3045 04	$(m^2/s)$			
	0.00002	(111 / S) m/s			
v <sub>s</sub> (III/sec)	0.00002	m/br			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		9.00	m <sup>2</sup>	9.00	m width
		7.00		7.00	
Q= V.A implies	V =	0.00068	m/sec		
·					
Required length of Pond =	L =	28.46	m say:	28.5	m length
Length to Width ratio		3.17	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	256.50	m²		
% of catchment area	C% =	4.36%	>3%	OK	Acceptable
Dimensions of Settlement Pand:	1 no	L (m)	B (m)	D (m)	Single pond design
Dimensions of semement rond:	1 110.	20.3	7.00	1.00	
					Good to remove medium to
Operating Volume:	257	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment M:	SP-M1				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	2.17	
Area of site (km2)	0.002171				
Area of (site) catchment (m2)	2171	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00185047	m³/sec			
Q mean =	1.9	L/s			
Q mean =	159.9	m³/day			
Factored Q <sub>RAP</sub> -Rural	0.0019	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.003	m <sup>3</sup> /sec			
10 yr return peak flow	2.5	1/s			
10 yr return peak flow	219.0	$m^3/day$			
To yr feforr peak llow	217.0	in /ddy			
Settlement Pond Design					
	g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	18v	-		
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		6.00	m <sup>2</sup>	6.00	m width
Q= V.A implies	V =	0.00042	m/sec		
Required length of Pond =	L =	17.58	m say:	18	m length
Length to Width ratio		3.00	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	108.00	m²		
% of catchment area	C% =	4.97%	>3%	OK	Acceptable
					•
Dimensions of Sottlement Barry	1 no	L (m)	B (m)	D (m)	Single pend design
Dimensions of semiement rond:	1 NO.	18	0.00	1.00	single pona design
					Good to remove medium to
Operating Volume:	108	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment M:			SI	P-M2	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site ((mag))	0.000045				
Ared of site (km2)	0.002245				
Area of (site) catchment (m2)	2245	111			
SOU	0.3				Placed road material
	0.0	m <sup>3</sup> /sec			
Q mean =	1.9	1/0			
	1.7	$m^3/day$			
	0.0010	m <sup>3</sup> /sec			
Croth Easter 10 vr return	1.3700	1117300			
	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	0.003	11/300			
	2.0	L/S			
To yr reform peak now	223./	iii /uuy			
Settlement Pond Design					
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{0 \cdot 0}{2}$	$\frac{18\nu}{1}$	,		365.
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	nrs		1.00	D (m) dooth
		( 00	m <sup>2</sup>	1.00	
say pond cross section area =		6.00		6.00	m width
$\Omega = V A$ implies	V =	0 00044	m/sec		
	•	0.00011	111/300		
Required length of Pond =	L =	18.11	m say:	18	m length
Length to Width ratio		3.00	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	108.00	m²		
% of catchment area	C% =	4.81%	>3%	OK	Acceptable
	1 = 0	L (m)	B (m)	D (m)	Single pand dasi-
Dimensions of Semiement Pond:	1 NO.	18	6.00	1.00	single pond design
					Good to remove medium to
Operating Volume:	108	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment M:	SP-M3				
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2.</sup>	.17	
Area of site (km2)	0.002024				
Area of (site) catchment (m2)	2024	m <sup>2</sup>			
SAAR	1.569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00173853	m <sup>3</sup> /sec			
Q mean =	1.7	L/s			
Q mean =	150.2	m <sup>3</sup> /day			
Factored Q <sub>RAR</sub> -Rural	0.0017	m <sup>3</sup> /sec			
Groth Factor - 10 vr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.4	L/s			
10 vr return peak flow	205.8	m <sup>3</sup> /day			
	20010	. ,			
Settlement Pond Design					
beniemen rona besign					
Usina Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$			from Metcalf & Eddy, 4th Ed, pg 365.
	, b	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs		1.00	
				1.00	D (m) - deptn
say pond cross section area =		5.50	(T)	5.50	m width
	\/ -	0.00043	m/sec		
	v –	0.00043	111/360		
Required length of Pond =	L =	18.02	m say:	18	m length
Length to Width ratio		3.27	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	99.00	m²		
% of catchment area	C% =	4.89%	>3%	OK	Acceptable
		(m)	B (m)	D(m)	
Dimensions of Settlement Pond	1 no.	18	<b>5.50</b>	1.00	Sinale pond design
			0.00		
Operating Volume:	99	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment M:			S	P-M4	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.002732				
Area of (site) catchment (m2)	2732	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00227051	m³/sec			
Q mean =	2.3	L/s			
Q mean =	196.2	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0023	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.003	m <sup>3</sup> /sec			
10 yr return peak flow	3.1	L/s			
10 vr return peak flow	268.8	m <sup>3</sup> /day			
	20010	. ,			
Settlement Pond Design					
Using Stokes Law:	$V_n = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	P	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		6.50	m	6.50	m width
		0.000.40			
	V =	0.00048	m/sec		
Required length of Pond =	1 =	19.91	m sav:	20	mlenath
	L	17.71	in say.	20	in longin
Lenath to Width ratio		3.08	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	130.00	m <sup>2</sup>		
% of catchment area	C% =	4.76%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	20	6.50	1.00	Single pond design
					Cood to romove medium to
Operating Volume:	130	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment M:			S	P-M5	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.004086	0			
Area of (site) catchment (m2)	4086	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00324871	m³/sec			
Q mean =	3.2	L/s			
Q mean =	280.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0032	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.004	m <sup>3</sup> /sec			
10 yr return peak flow	4.5	L/s			
10 yr return peak flow	384.5	m³/day			
Settlement Pond Design					
	g(sg	$(n-1) \times d_{n}^{2}$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{\sigma}$	<u>P</u> F			365.
<u> </u>		101			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6	00			
	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>-</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/nr Time for D (m)	0.08/	m/nr brc			
	11.50	1115		1.00	D(m) denth
		7 7 6	m <sup>2</sup>	7.75	
say pona cross section area =		/./5		/./5	m wiath
	V -	0 00057	m/sec		
	• -	0.00007	117300		
Required length of Pond =	L =	23.89	m sav:	24	m lenath
	_				
Length to Width ratio		3.10	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	186.00	m <sup>2</sup>		
% of catchment area	C% =	4.55%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	24	7.75	1.00	Single pond design
		m <sup>3</sup>			Good to remove medium to
Operating Volume:	186	m		OK	

Catchment N:		SP-N1					
Mean Greenfield Runoff Rates							
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SO	91L) <sup>2.*</sup>	17		
Area of site (km2)	0.002031						
Area of (site) catchment (m2)	2031	m <sup>2</sup>					
SAAR	1569	mm					
SOIL	0.3					Placed road material	
Q mean =	0.00174388	m³/sec					
Q mean =	1.7	L/s					
Q mean =	150.7	m³/day					
Factored Q <sub>BAR</sub> -Rural	0.0017	m <sup>3</sup> /sec					
Groth Factor - 10 yr return	1.3700						
10 vr return peak flow	0.002	m <sup>3</sup> /sec					
10 yr return peak flow	2.4	L/s					
10 vr return peak flow	206.4	m <sup>3</sup> /day					
	200.4	, aa,					
Settlement Pond Desian							
<u> </u>							
Using Stokes Lawr	V = g(sg)	$(p_p-1) \times d_p^2$	2			from Metcalf & Eddy, 4th Ed, pg	
Using stokes Law.	$\mathbf{v}_p - $	18v	_				
For 10 µm particles	6.00E-06	m				6 micron particles	
Particle Specific gravity	2.6						
Water Temp	10	°C					
Kinematic viscosity	1.306E-06	$(m^2/s)$					
V. (m/sec)	0.00002	m/s					
m/hr	0.087	m/hr					
Time for D (m)	11.56	hrs					
					1.00	D (m) - depth	
say pond cross section area =		5.50	m <sup>2</sup>		5.50	m width	
Q= V.A implies	V =	0.00043	m/sec				
Required length of Pond =	L =	18.07	m so	ay:	18	m length	
Length to Width ratio		3.27	:1		>=3:1	Acceptable	
						Length to width ratio of ~3:1	
Plan Area	A =	99.00	111				
	C%=	4.8/%	-3%		UK		
		(m)	B(m)		D(m)		
Dimensions of Settlement Pond	1 no.	18	5 (11)		1.00	Sinale pond design	
			0.00				
						Good to remove medium to	
Operating Volume:	99	m <sup>3</sup>			OK	fine silts to 0.006mm	

Catchment N:			S	P-N2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.002099				
Area of (site) catchment (m2)	2099	m²			
SAAR	1569	mm			
SOIL	0.3	2			Placed road material
Q mean =	0.00179575	m³/sec			
Q mean =	1.8	L/s			
Q mean =	155.2	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0018	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.5	L/s			
10 vr return peak flow	212.6	m <sup>3</sup> /day			
Settlement Pond Design					
Using Stokes Low	V = g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
	$v_p$	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				•
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width
Q= V.A implies	V =	0.00045	m/sec		
Required length of Pond =	L =	18.61	m say:	18.5	m length
				-	
Length to Width ratio		3.36	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	101.75			
% ot catchment area	C% =	4.85%	>3%	OK	Acceptable
Dimensions of Settlement Pand:	1 no	L (m)	B (m)	D (m)	Single pond design
Dimensions of semement rond:	1 110.	10.5	5.50	1.00	
					Good to remove medium to
Operating Volume:	102	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment N:	SP-N3					
Mean Greenfield Runoff Rates						
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17		
Area of site (km2)	0.001924					
Area of (site) catchment (m2)	1924	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3				Placed road material	
Q mean =	0.00166187	m³/sec				
Q mean =	1.7	L/s				
Q mean =	143.6	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0017	m <sup>3</sup> /sec				
Groth Factor - 10 yr return	1.3700					
10 vr return peak flow	0.002	m <sup>3</sup> /sec				
10 vr return peak flow	2.3	L/s				
10 vr return peak flow	196.7	m <sup>3</sup> /day				
	170.7	, aa,				
Settlement Pond Desian						
<u> </u>						
	g(sg	$(r_p - 1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg	
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-		365.	
For 10 µm particles	6.00E-06	m			6 micron particles	
Particle Specific gravity	2.6					
Water Temp	10	°C				
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)				
V <sub>s</sub> (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
Time for D (m)	11.56	hrs				
				1.00	D (m) - depth	
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width	
Q= V.A implies	V =	0.00041	m/sec			
Required length of Pond =	L =	17.22	m say:	17.25	m length	
				0.1		
Length to Width ratio		3.14	:1	>=3:1	Acceptable	
			m <sup>2</sup>		Length to width ratio of ~3:1	
Plan Area	A =	94.88	111			
% or catchment area	C% =	4.93%	>3%	OK	Acceptable	
		[ (m)	P (m)			
Dimensions of Settlement Pond:	1 no	L (m) 17 25	5 (m)	1 00	Single pond design	
		.7.25	0.00	1.50		
					Good to remove medium to	
Operating Volume:	95	m <sup>3</sup>		OK	fine silts to 0.006mm	

Catchment N:			S	P-N4	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	
Area of site ((ma2))	0.001900				
	0.001899	m <sup>2</sup>			
Area of (site) catchment (m2)	1899	111			
SOU	1367				Placed road material
	0.0	m <sup>3</sup> /sec			
Q mean =	1.6	1/0			
	1.0	$m^3/day$			
	0.001/	m <sup>3</sup> /sec			
$\frac{1}{2} \frac{1}{2} \frac{1}$	1.2700	1117300			
	1.3700	m <sup>3</sup> /sec			
10 yr return peak flow	0.002	11/300			
	104.4	L/S			
To yr reform peak now	194.4	iii /uuy			
Settlement Pond Design					
<u></u>					
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{0 \cdot 0}{100}$	$\frac{18\nu}{1}$	<u>_</u>		365.
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	nrs		1.00	
		5 50	m <sup>2</sup>	1.00	
say pond cross section area =		5.50		5.50	m width
Q=V A implies	V =	0.00041	m/sec		
	v -	0.00041	111/300		
Required length of Pond =	L =	17.02	m say:	17	m length
				-	
Length to Width ratio		3.09	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	93.50	m²		
% of catchment area	C% =	4.92%	>3%	OK	Acceptable
				_	
	1	L (m)	B (m)	D (m)	Cincela en el station
Dimensions of Settlement Pond:	I no.	17	5.50	1.00	single pond design
					Good to remove medium to
Operating Volume:	94	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment N:			S	P-N5	
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.00355				
Area of (site) catchment (m2)	3550	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00286655	m³/sec			
Q mean =	2.9	L/s			
Q mean =	247.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0029	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.004	m <sup>3</sup> /sec			
10 yr return peak flow	3.9	L/s			
10 vr return peak flow	339.3	m <sup>3</sup> /day			
Settlement Pond Design					
Using Stokes Law:	$V_n = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	-		from Metcalf & Eddy, 4th Ed, pg 365.
	P	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			- /
			2	1.00	D (m) - depth
say pond cross section area =		7.25	m <sup>-</sup>	7.25	m width
		0.0005.4			
	V =	0.00054	m/sec		
Required length of Pond =	1 =	22.54	m sav:	22.5	mlength
	L	22.04	in say.	22,0	inteligin
Lenath to Width ratio		3.10	:1	>=3:1	Acceptable
		0110			Length to width ratio of ~3:1
Plan Area	A =	163.13	m <sup>2</sup>		
% of catchment area	C% =	4.60%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	22.5	7.25	1.00	Single pond design
Operating Volume:	163	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment N:	SP-N6					
Mean Greenfield Runoff Rates						
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOI	IL) <sup>2.1</sup>	7	
Area of site (km2)	0.001855					
Area of (site) catchment (m2)	1855	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3					Placed road material
Q mean =	0.00160872	m³/sec				
Q mean =	1.6	L/s				
Q mean =	139.0	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0016	m <sup>3</sup> /sec				
Groth Factor - 10 yr return	1.3700					
10 vr return peak flow	0.002	m <sup>3</sup> /sec				
10 vr return peak flow	2.2	L/s				
10 yr return peak flow	190.4	m <sup>3</sup> /day				
	170.4	, aa,				
Settlement Pond Desian						
<u> </u>						
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$	2			from Metcalf & Eddy, 4th Ed, pg 365
	• <sub>p</sub> –	18v				
For 10 um particles	6.00F-06	m	<b>F</b>			6 micron particles
Particle Specific gravity	2.6					
Water Temp	10	°C				
Kinematic viscosity	1.306E-06	$(m^2/s)$				
V. (m/sec)	0.00002	m/s				
	0.087	m/hr				
Time for D (m)	11.56	hrs				
				ľ	1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>		5.50	m width
Q= V.A implies	V =	0.00040	m/sec			
Required length of Pond =	L =	16.67	m sa	ay:	16.75	m length
Length to Width ratio		3.05	:1		>=3:1	Acceptable
			2			Length to width ratio of ~3:1
Plan Area	A =	92.13	m <sup>2</sup>		<b>0</b>	
% of catchment area	C% =	4.97%	>3%		OK	Acceptable
		1 (m)	D (m)		D (m)	
Dimensions of Settlement Pond:	1 no	L (m) 16 75	B (m)		1 00	Single pond design
	1 110.	10.75	5.50		1.00	
				<u> </u>		Good to remove medium to
Operating Volume:	92	m <sup>3</sup>			OK	fine silts to 0.006mm

Catchment N7:			S	P-N7	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
	0.001////				
Ared of sife (km2)	0.001644				
Area of (site) catchment (m2)	1644	m			
SAAR	1569	mm			Placed road material
O mogn -	0.014449	m <sup>3</sup> /sec			
Q mean =	0.0014440	1/2			
	1.4	$m^3/day$			
	124.0	$m^3/sec$			
$\frac{1}{2}$	0.0014	1117300			
	1.3700	m <sup>3</sup> /soc			
10 yr return pogk flow	0.002	111 / 300			
	2.0	L/S			
10 yr refurn peak flow	1/1.0	m /uuy			
Settlement Pond Design					
	g(sg	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{3 \times 3}{2}$	$\frac{p}{18\nu}$			365.
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	nrs		1.00	
		5.00	m <sup>2</sup>	1.00	
say pond cross section area =		5.00		5.00	m width
Q=V A implies	V =	0 00040	m/sec		
	v -	0.00040	111/300		
Required length of Pond =	L =	16.47	m say:	16.5	m length
			,		
Length to Width ratio		3.30	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	82.50	m²		
% of catchment area	C% =	5.02%	>3%	OK	Acceptable
	1	L (m)	B (m)	D (m)	Cincela va availada si sua
Dimensions of Settlement Pond:	I no.	16.5	5.00	1.00	single pond design
					Good to remove medium to
Operating Volume:	83	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment N:			SP-N8 -	Borrow	Pit
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.036121				
Area of (site) catchment (m2)	36121	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Quarry material
Q mean =	0.02259758	m³/sec			
Q mean =	22.6	L/s			
Q mean =	1952.4	m <sup>3</sup> /day			
Factored Q <sub>BAR</sub> -Rural	0.0226	m³/sec			
Groth Factor - 10 yr return	1.3700	3.			
10 yr return peak flow	0.031	m <sup>°</sup> /sec			
10 yr return peak flow	31.0	L/s			
10 yr return peak tlow	2674.8	m²/day			Rased on assumed permeability
GW Inflow	15.0	m <sup>3</sup> /day			and aquifer type
Total Flow (SW+GW)	0.031	m <sup>3</sup> /sec			
Settlement Pond Design					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2 		from Metcalf & Eddy, 4th Ed, pg 365.
	р р	18v			
For 4 µm particles	4.00E-06	m			4 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00001	m/s			
Time for D (m)	26.00	m/nr hrs			
	20.00	1113		1.00	D (m) - depth
say pond cross section area =		30.00	m <sup>2</sup>	30.00	m width
Q= V.A implies	V =	0.00104	m/sec		
Required length of Pond =	L =	97.14	m say:	100	m length
Length to Width ratio		3.33	:1	>=3:1	Acceptable
			0		Length to width ratio of ~3:1
Plan Area	A =	3000.00	m²		
% of catchment area	C% =	8.31%	>3%	OK	Acceptable
		L (m)	P(m)	D(m)	
Dimensions of Settlement Pond <sup>.</sup>	1 no.	100	<b>30 00</b>	1,00	Single pond design
	2 no.	70	22.00	1.00	Apply 2 no. ponds
		3			Good to remove fine silts to
Operating Volume:	3000	m		OK	0.004mm

Catchment O:	SP-O1				
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	
Area of site (km2)	0.001822				
Area of (site) catchment (m2)	1822	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00158323	m³/sec			
Q mean =	1.6	L/s			
Q mean =	136.8	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0016	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 vr return peak flow	2.2	L/s			
10 vr return peak flow	187.4	m <sup>3</sup> /day			
	107.4	,			
Settlement Pond Design					
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{\sigma \cdot \sigma}{\sigma}$	$\frac{p}{18\nu}$			365.
For 10 µm particles	6 00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1 304F-04	$(m^2/s)$			
V (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width
Q= V.A implies	V =	0.00039	m/sec		
· · · · · · · · · · · · · · · · · · ·					
Required length of Pond =	L =	16.41	m say:	16.5	m length
Length to Width ratio		3.00	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	90.75	m²		
% of catchment area	C% =	4.98%	>3%	OK	Acceptable
		1 (1993)	D (ma)		
Dimensions of Settlement Pond:	1 no	L (m)	B (m)	D (m)	Single pond design
	1 110.	10.5	3.30	1.00	
					Good to remove medium to
Operating Volume:	91	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment O:	SP-O2					
Mean Greenfield Runoff Rates						
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SC	DIL) <sup>2.</sup>	17	-
Area of site (km2)	0.00202					
Area of (site) catchment (m2)	2020	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3					Placed road material
Q mean =	0.00173548	m³/sec				
Q mean =	1.7	L/s				
Q mean =	149.9	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0017	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m³/sec				
10 yr return peak flow	2.4	L/s				
10 yr return peak flow	205.4	m <sup>3</sup> /day				
Settlement Pond Design						
			L			
	g(sg)	$(p_p-1) \times d_p^2$	2			from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-			365.
For 10 um particlos		107				
Particle Specific gravity	6.00E-06	m				6 micron particles
Water Temp	2.0	°C				
Kinomatic viscosity	1 3045 04	$(m^2/s)$				
	0.00002	(111 / S) m/s				
v <sub>s</sub> (m/sec)	0.00002	m/hr				
Time for D (m)	11.56	hrs				
					1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>		5.50	m width
		0.00			0.00	
Q= V.A implies	V =	0.00043	m/sec			
Required length of Pond =	L =	17.98	m s	ay:	18	m length
Length to Width ratio		3.27	:1		>=3:1	Acceptable
			2			Length to width ratio of ~3:1
Plan Area	A =	99.00	m-			A 1 1 1
% or catchment area	C% =	4.90%	>3%		OK	
		(m)	R (m)		D (m)	
Dimensions of Settlement Pond:	1 no.	18	5.50		1.00	Single pond design
						Good to remove medium to
Operating Volume:	99	m³			OK	fine silts to 0.006mm
Catchment O:			S	P-O3		
---	--------------------------------------	------------------------	---------------------------------------	-------	---------------------------------	
Mean Greenfield Runoff Rates						
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17		
Area of site (km2)	0.003678	2				
Area of (site) catchment (m2)	3678	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3	37			Placed road material	
Q mean =	0.00295835	m°/sec				
Q mean =	3.0	L/s				
Q mean =	255.6	m°/day				
Factored Q <sub>BAR</sub> -Rural	0.0030	m³/sec				
Groth Factor - 10 yr return	1.3700	-				
10 yr return peak flow	0.004	m³/sec				
10 yr return peak flow	4.1	L/s				
10 yr return peak flow	350.2	m³/day				
Settlement Pond Design						
			<u> </u> >		from Motoclf & Eddy, 4th Ed. pg	
Uking Stokes Laws	V = g(sg)	$(p_p-1) \times d_p^2$	- >		1365	
Using Stokes Edw.	$\mathbf{v}_p = -$	18v				
For 10 µm particles	6.00F-06	m			6 micron particles	
Particle Specific gravity	2.6					
Water Temp	10	°C				
Kinematic viscosity	1.306E-06	$(m^2/s)$				
V <sub>c</sub> (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
Time for D (m)	11.56	hrs				
				1.00	D (m) - depth	
say pond cross section area =		7.25	m <sup>2</sup>	7.25	m width	
Q= V.A implies	V =	0.00056	m/sec			
Required length of Pond =	L =	23.26	m say:	23.25	m length	
Length to Width ratio		3.21	:1	>=3:1	Acceptable	
			2		Length to width ratio of ~3:1	
Plan Area	A =	168.56	m <sup>-</sup>			
% of catchment area	C% =	4.58%	>3%	OK	Acceptable	
		1 (1993)	D (res)			
Dimensions of Settlement Pond:	1 no	23 25	B (m) 7 25	D (m)	Single pond design	
	1 110.	20.25	7.25	1.00		
					Good to remove medium to	
Operating Volume:	169	m <sup>3</sup>		OK	fine silts to 0.006mm	

Catchment P:	SP-P1				
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	
Area of site (km2)	0.002248				
Area of (site) established (m2)	0.002200	m <sup>2</sup>			
	1540	mm			
SOU	0.3				Placed road material
	0.0	m <sup>3</sup> /sec			
Q mean -	1.00172300	1/2			
	1.7	L/S			
Q mean =	166.2	111 / UUy			
Factored Q <sub>BAR</sub> -Rural	0.0019	m <sup>-</sup> /sec			
Groth Factor - 10 yr return	1.3700	3.			
10 yr return peak flow	0.003	m³/sec			
10 yr return peak flow	2.6	L/s			
10 yr return peak flow	227.7	m³/day			
Settlement Pond Design					
<u>semement one besign</u>					
	g(sg	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	18v			365.
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.75	m²	5.75	m width
Q= V.A implies	V =	0.00046	m/sec		
Required length of Pond =	L =	19.07	m say:	19	m length
Length to Width ratio		3.30	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	109.25	m²		
% of catchment area	C% =	4.82%	>3%	OK	Acceptable
	1	L (m)	B (m)	D (m)	Circular and the literature of
Dimensions of Settlement Pond:	I no.	19	5.75	1.00	Single pond design
					Good to remove medium to
Operating Volume:	109	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment P:			S	P-P2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.001709				
Area of (site) catchment (m2)	1709	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00149553	m <sup>3</sup> /sec			
Q mean =	1.5	L/s			
Q mean =	129.2	m <sup>3</sup> /day			
Factored Q <sub>RAR</sub> -Rural	0.0015	m <sup>3</sup> /sec			
Groth Factor - 10 vr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.0	L/s			
10 vr return peak flow	177.0	m <sup>3</sup> /day			
Sottlement Dend Design					
Semement Fond Design					
Ulsing Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	, b	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				· · · ·
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs		1.00	
		5.05		1.00	
say pond cross section area =		5.25		5.25	m width
Q= V A implies	V =	0 00039	m/sec		
	•	0.00007	11/300		
Required length of Pond =	L =	16.24	m say:	16.25	m length
Length to Width ratio		3.10	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	85.31	m-		
% of catchment area	C% =	4.99%	>3%	<u> </u>	Acceptable
		(m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	16.25	5.25	1.00	Single pond design
Operating Volume:	85	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment P:				SP-P3	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	2.17	
Area of site (km2)	0.001954				
Area of (site) catchment (m2)	1954	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	-			Placed road material
Q mean =	0.00168492	m³/sec			
Q mean =	1.7	L/s			
Q mean =	145.6	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0017	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.3	L/s			
10 yr return peak flow	199.4	m³/day			
Settlement Pond Design					
	2(22	$(1) \sqrt{d^2}$	2		from Metcalf & Eddy 4th Ed. pg
Using Stokes Law:	$V = \frac{g(sg)}{s}$	$(p-1) \times a_p$	2		365.
	, b	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs		1.00	
			2	1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width
	<u> </u>	0.00040			
Q= V.A Implies	V =	0.00042	m/sec		
Required length of Pond =	1 =	17 46	m sav:	17.5	m length
	-				
Length to Width ratio		3.18	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	96.25	m²		
% of catchment area	C% =	4.93%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	17.5	5.50	1.00	Single pond design
					Good to remove medium to
Operating Volume:	96	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment Q:			S	P-Q1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
	0.00105				
Area of site (km2)	0.00125	2			
Area of (site) catchment (m2)	1250	m			
SAAR	1569	mm			
SOIL	0.3	31			Placea roda material
Q mean =	0.00113215	m°/sec			
Q mean =	1.1	L/S			
Q mean =	97.8	m°/day			
Factored Q <sub>BAR</sub> -Rural	0.0011	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	1.6	L/s			
10 yr return peak flow	134.0	m³/day			
Settlement Pond Design					
		$(1) \sqrt{d^2}$	2		from Metcalf & Eddy 4th Ed. pa
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p-1) \times a_p$	<u>,</u>		365.
	, p	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		4.50	m²	4.50	m width
Q= V.A implies	V =	0.00034	m/sec		
Required length of Pond =	L =	14.34	m say:	14.25	mlength
		0.17	.1	> 0.1	
Lengin to width ratio		3.17	:1	>=3:1	Acceptable
Plan Area	Δ -	2112	m <sup>2</sup>		
% of catchment area	C% =	5 12%	>3%	OK	Accentable
	C /0	5.15/6	- 070		
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	14.25	4.50	1.00	Single pond design
		з			Good to remove medium to
Operating Volume:	64	m		OK	tine silts to 0.006mm

Catchment Q:			S	P-Q2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	-
Area of site (km2)	0.003749				
Area of (site) catchment (m2)	3749	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00300913	m³/sec			
Q mean =	3.0	L/s			
Q mean =	260.0	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0030	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.004	m <sup>3</sup> /sec			
10 yr return peak flow	4.1	L/s			
10 yr return peak flow	356.2	m <sup>3</sup> /day			
	000.2	, aa,			
Settlement Pond Desian					
<u> </u>					
	y = g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using stokes Law.	$v_p - $	18v	_		
For 10 um particles	6.00F-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	$(m^2/s)$			
V. (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		7.50	m <sup>2</sup>	7.50	m width
Q= V.A implies	V =	0.00055	m/sec		
Required length of Pond =	L =	22.87	m say:	23	m length
Length to Width ratio		3.07	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	172.50	m <sup>2</sup>		
% of catchment area	C% =	4.60%	>3%	OK	Acceptable
Dimonsions of Sottlement Band	1 no	L (m)	B (m)	D (m)	Single pend design
Dimensions of semement rond:	1 110.	23	7.50	1.00	
					Good to remove medium to
Operating Volume:	173	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment R:			S	P-R1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	-
Area of site (km2)	0.002545				
Area of (site) catchment (m2)	2545	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00213166	m³/sec			
Q mean =	2.1	L/s			
Q mean =	184.2	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0021	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.003	m <sup>3</sup> /sec			
10 yr return peak flow	2.9	L/s			
10 vr return peak flow	252.3	m <sup>3</sup> /day			
	202.0	,,			
Settlement Pond Design					
	g(sg	$(1 - 1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{0 < 0}{1}$	<u>10-</u>			365.
	-	181			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	hrs		1.00	
				1.00	
say pond cross section area =		6.25	m	6.25	m width
		0.000.47			
	V =	0.00047	m/sec		
Required length of Pond =	1 =	19 //	m sav:	19.5	mlenath
	L	17.11	in say.	17.0	in longin
Lenath to Width ratio		3.12	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	121.88	m <sup>2</sup>		
% of catchment area	C% =	4.79%	>3%	OK	Acceptable
					•
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	19.5	6.25	1.00	Single pond design
					Good to remove medium to
Operating Volume:	122	m.		OK	Inte sins to 0.006mm

Catchment S:			S	P-S1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
Area of site (km2)	0.001625	2			
Area of (site) catchment (m2)	1625	mf			
SAAR	1569	mm			
SOIL	0.3	···· <sup>3</sup> /····			Placea roda material
Q mean =	0.00142993	m <sup>-</sup> /sec			
Q mean =	1.4	L/S			
Q mean =	123.5	m°/day			
Factored Q <sub>BAR</sub> -Rural	0.0014	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.0	L/s			
10 yr return peak flow	169.3	m³/day			
Settlement Pond Design					
	(	1) 1	2		from Metcalf & Eddy, 4th Ed. pg.
Using Stokes Law:	$V - \frac{g(sg)}{sg}$	$(p_p-1) \times d_p$	2		365.
	• p —	18v			
For 10 µm particles	6.00E-06	m	Γ		6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.00	m²	5.00	m width
Q= V.A implies	V =	0.00039	m/sec		
		1 ( 00		14.05	
Required length of Pond =	L =	16.30	m say:	16.25	miengtn
Longth to Width ratio		3.05	•1	>-2.1	Accontable
		5.25	• 1	2-0.1	Length to width ratio of $\sim 3.1$
Plan Area	A =	R1 25	m <sup>2</sup>		
% of catchment area	C% =	5.00%	>3%	OK	Acceptable
	- / 0	0.0070			
		L (m)	B (m)	D (m)	1
Dimensions of Settlement Pond:	1 no.	16.25	5.00	1.00	Single pond design
		m <sup>3</sup>		OK	Good to remove medium to
Operating volume:	8	111		OK	

Catchment S:			S	P-S2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
Area of site (km2)	0.001619	0			
Area of (site) catchment (m2)	1619	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00142523	m <sup>°</sup> /sec			
Q mean =	1.4	L/s			
Q mean =	123.1	m°/day			
Factored Q <sub>BAR</sub> -Rural	0.0014	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.0	L/s			
10 yr return peak flow	168.7	m³/day			
Settlement Pond Design					
			\ >		
Lieizer Steller Lewin	V = g(sg)	$(p_p-1) \times d_p^2$	2		Ifrom Mercall & Eddy, 4th Ed, pg
Using Stokes Ldw:	$v_p$	18v			
For 10 um particles	6 00E-06	m	-J 		6 micron particles
Particle Specific gravity	0.002-00	111			
Water Temp	10	°C			
Kinematic viscosity	1.306F-06	$(m^2/s)$			
V. (m/sec)	0.00002	m/s			
	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width
					-
Q= V.A implies	V =	0.00039	m/sec		
Required length of Pond =	L =	16.25	m say:	16.25	m length
Length to Width ratio		3.25	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	81.25	m <sup>2</sup>		
% ot catchment area	C% =	5.02%	>3%	OK	Acceptable
Dimensions of Settlement Pond:	1 no	L (m)	B (m)	D (m)	Single pond design
Dimensions of semement rond.	1 110.	10.25	5.00	1.00	
					Good to remove medium to
Operating Volume:	81	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment S:				SP-S3					
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$									
Area of site (km2)	0.001669								
Area of (site) catchment (m2)	1669	m²							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00146434	m³/sec							
Q mean =	1.5	L/s							
Q mean =	126.5	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0015	m³/sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.002	m <sup>3</sup> /sec							
10 yr return peak flow	2.0	L/s							
10 vr return peak flow	173.3	m <sup>3</sup> /day							
Settlement Pond Design									
Lieizer Steller Lewin	V = g(sg)	$(p_p-1) \times d_p^2$			arom Mercall & Eddy, 4th Ed, pg				
Using stokes Ldw:	$v_p$	18v	-						
For 10 um particles	6 00E-06	m			6 micron particles				
Particle Specific gravity	0.002-00								
Water Temp	10	°C							
Kinematic viscosity	1.306F-06	$(m^2/s)$							
V. (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
				1.00	D (m) - depth				
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width				
Q= V.A implies	V =	0.00038	m/sec						
Required length of Pond =	L =	15.90	m say:	16	m length				
Longth to Width ratio		2.05	•1	>-2.1	Accontable				
		5.05	.1	2-3.1	Length to width ratio of ~3:1				
Plan Aroa	۸ –	04.00	m <sup>2</sup>						
7 of catchment area	A - C% =	04.00 5.03%	>3%	OK	Accentable				
	C /0 -	5.05%	- 070						
		L (m)	B (m)	D (m)					
Dimensions of Settlement Pond:	1 no.	16	5.25	1.00	Single pond design				
		_			Good to remove medium to				
Operating Volume:	84	m°		OK	fine silts to 0.006mm				

Catchment N:			SP-S4 -	Substati	on
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	$(SA^{2})^{0.89} \times (SA^{2})^{0.89}$	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.033396				
Area of (site) catchment (m2)	33396	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.02107385	m³/sec			
Q mean =	21.1	L/s			
Q mean =	1820.8	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0211	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.029	m <sup>3</sup> /sec			
10 yr return peak flow	28.9	L/s			
10 vr return peak flow	2494.5	m <sup>3</sup> /day			
	2171.0	, ,			
Settlement Pond Design					
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{c}$	$\frac{p}{18u}$			365.
For the restrictor	1005.01	101	 		
For 4 µm particles	4.00E-06	m			4 micron particles
Particle Specific gravity	2.6	00			
	10	(m <sup>2</sup> /n)			
	1.306E-06	(m /s)			
v <sub>s</sub> (m/sec)	0.00001	m/s m/br			
Time for D (m)	26.00	hrs			
	20.00	1115		1.00	D (m) - depth
say pond cross section area =		30.00	m <sup>2</sup>	30.00	m width
Q= V.A implies	V =	0.00096	m/sec		
· · · · ·					
Required length of Pond =	L =	90.08	m say:	90	m length
Length to Width ratio		3.00	:1	>=3:1	Acceptable
		0700.00	2		Length to width ratio of ~3:1
Plan Area	A =	2/00.00	111		
	C% =	8.08%	-3%	<u> </u>	
L		(m)	B (m)	D(m)	
Dimensions of Settlement Pond:	1 no.	<b>90</b>	<b>30.00</b>	1.00	Sinale pond desian
	2 no.	70	20.00	1.00	Apply 2 no. ponds
					Good to remove medium silts to
Operating Volume:	2700	m <sup>3</sup>		OK	0.004mm

Catchment S:				SP-S5	
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOI	L) <sup>2.17</sup>	
Area of site (km2)	0.00185				
Area of (site) catchment (m2)	1850	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00160487	m³/sec			
Q mean =	1.6	L/s			
Q mean =	138.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0016	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.2	L/s			
10 vr return peak flow	190.0	m <sup>3</sup> /day			
	170.0				
Settlement Pond Desian					
<u> </u>					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	, b	18v			
For 10 µm particles	6.00E-06	m	<b>F</b>		6 micron particles
Particle Specific gravity	2.6				· ·
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.25	m²	5.2	5 m width
Q= V.A implies	V =	0.00042	m/sec		
Required length of Pond =	L =	17.42	m sa	y: <u>17.</u>	5 m length
Length to Width ratio		3.33	:1	>=3;	
					Length to width ratio of ~3:1
rian Area	A =	91.88	> 207		
% of catchment drea	C% =	4.9/%	>3%		
		$\lfloor (m)$	B (m)		
Dimensions of Settlement Pond	1 no.	17.5	5 25	1.00	Single pond design
			0.20	1.00	
		m <sup>3</sup>			Good to remove medium to
Operating Volume:	92	111		OK	

Catchment T:			S	P-T1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.001957				
Area of (site) catchment (m2)	1957	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00168722	m³/sec			
Q mean =	1.7	L/s			
Q mean =	145.8	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0017	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.3	L/s			
10 vr return peak flow	199.7	m <sup>3</sup> /day			
	177.7	,,			
Settlement Pond Desian					
	g(59	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{3}{2}$	10	_		365.
	Г	181			
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.50	m²	5.50	m width
		/ -			
Q= V.A implies	V =	0.00042	m/sec		
Deguized length of Dand -		17.40		17 5	na lan ath
	L -	17.40	ni say.	17.0	in lengin
Length to Width ratio		3 1 8	•1	>-2.1	Acceptable
		5.10	• 1	2-0.1	Length to width ratio of ~3.1
Plan Area	A -	04.05	m <sup>2</sup>		
% of catchment area	<u>∧</u> =	4 92%	>3%	OK	Acceptable
		7.72/0			
		L (m)	B (m)	D (m)	1
Dimensions of Settlement Pond:	1 no.	17.5	5.50	1.00	Single pond design
		2			Good to remove medium to
Operating Volume:	96	m³		OK	fine silts to 0.006mm

Catchment T:			S	P-T2	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
Area of site (km2)	0.003784	2			
Area of (site) catchment (m2)	3784	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00303412	m³/sec			
Q mean =	3.0	L/s			
Q mean =	262.1	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0030	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.004	m³/sec			
10 yr return peak flow	4.2	L/s			
10 vr return peak flow	359.1	m <sup>3</sup> /day			
Settlement Pond Design					
Using Stokes Law:	$V_{\pi} = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	P	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		7.50	m²	7.50	m width
Q= V.A implies	V =	0.00055	m/sec		
Required length of Pond =	L =	23.06	m say:	23	m length
		0.07			
Length to Width ratio		3.07	:1	>=3:1	
			2		Length to width ratio of ~3:1
Plan Area	A =	172.50	111		
% or catchment area	C% =	4.56%	>3%	OK	Acceptable
		[ (m)	P (m)		
Dimensions of Settlement Pond:	1 no	23 L (III)	B (III) 7 50	1 00	Single pond design
		20	7.50	1.00	
					Good to remove medium to
Operating Volume:	173	m_		OK	TIME SITS TO ULUU6MM

Catchment U:			1	SP-U1	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL	) <sup>2.17</sup>	
Area of site (km2)	0.001846				
Area of (site) catchment (m2)	1846	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00160178	m <sup>3</sup> /sec			
Q mean =	1.6	L/s			
Q mean =	138.4	m³/day			
Factored Q <sub>RAP</sub> -Rural	0.0016	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.2	L/s			
10 yr return peak flow	189.6	m <sup>3</sup> /day			
		,			
Settlement Pond Design					
			 >		from Motoglf & Eddy, 4th Ed. pg
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$	2		1365
Using stokes Law.	$v_p =$	18v			
For 10 µm particles	6.00E-06	m	<b>F</b>		6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.25	m <sup>+</sup>	5.25	m width
	N/	0.000.40			
Q= V.A Implies	V =	0.00042	m/sec		
Required length of Pond =	L =	17.39	m say:	: 17.25	m length
Length to Width ratio		3.29	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	90.56	m²		
% of catchment area	C% =	4.91%	>3%	OK	Acceptable
		1 ( )			
Dimensions of Settlement Pond:	1 no	L (m)	в (m) 5 25	D (m)	Single pond design
Dimensions of semement rond.	1 110.	17.23	5.25	1.00	
					Good to remove medium to
Operating Volume:	91	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment U:				SP-U2					
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$									
Area of site (km2)	0.001688								
Area of (site) catchment (m2)	1688	m²							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00147917	m³/sec							
Q mean =	1.5	L/s							
Q mean =	127.8	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0015	m³/sec							
Groth Factor - 10 yr return	1.3700								
10 yr return peak flow	0.002	m³/sec							
10 yr return peak flow	2.0	L/s							
10 yr return peak flow	175.1	m³/day							
Settlement Pond Design									
Using Stokes Low	V = g(sg)	$(p_p-1) \times d_p^2$	- -		from Mercalt & Eddy, 4th Ed, pg				
Using slokes Law:	$\mathbf{v}_p$	18v	_						
For 10 µm particles	6 00E-06	m			6 micron particles				
Particle Specific gravity	2.6								
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)							
V <sub>s</sub> (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
				1.00	D (m) - depth				
say pond cross section area =		5.25	m²	5.25	m width				
Q= V.A implies	V =	0.00039	m/sec						
		1.0.0							
Required length of Pond =	L =	16.06	m say:	16	miength				
Longth to Width ratio		3.05	•1	>=2.1	Accoptable				
		5.05	.1	2-0.1	Length to width ratio of $\sim 3.1$				
Plan Area	Δ =	84.00	m <sup>2</sup>						
% of catchment area	C% =	4 98%	>3%	OK	Acceptable				
		-1.70/0							
		L (m)	B (m)	D (m)					
Dimensions of Settlement Pond:	1 no.	16	5.25	1.00	Single pond design				
Operating Volume:	84	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm				

Catchment U:				SI	P-U3	
Mean Greenfield Runoff Rates						
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (S	SOIL) <sup>2.</sup>	17	
Area of site (km2)	0.001439					
Area of (site) catchment (m2)	1439	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3	-				Placed road material
Q mean =	0.0012833	m³/sec				
Q mean =	1.3	L/s				
Q mean =	110.9	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0013	m³/sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.002	m³/sec				
10 yr return peak flow	1.8	L/s				
10 yr return peak flow	151.9	m³/day				
Settlement Pond Design						
		$(1) \sqrt{d^2}$	2			from Metcalf & Eddy 4th Ed. pa
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p-1) \times a_p$	<u>,</u>			365.
	, p	18v				
For 10 µm particles	6.00E-06	m				6 micron particles
Particle Specific gravity	2.6					
Water Temp	10	°C				
Kinematic viscosity	1.306E-06	(m²/s)				
V <sub>s</sub> (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
Time for D (m)	11.56	hrs			1.00	
			2		1.00	D (m) - depth
say pond cross section area =		5.00	m <sup>-</sup>		5.00	m width
		0.00025				
Q= V.A Implies	V =	0.00035	m/sec			
Required length of Pond =	1 =	14.63	m	sav.	15	m length
	-			001/1		
Length to Width ratio		3.00	:1		>=3:1	Acceptable
						Length to width ratio of ~3:1
Plan Area	A =	75.00	m²			
% of catchment area	C% =	5.21%	>3%		OK	Acceptable
		L (m)	В (	m)	D (m)	
Dimensions of Settlement Pond:	1 no.	15	5.	00	1.00	Single pond design
						Good to remove medium to
Operating Volume:	75	m <sup>3</sup>			ОК	fine silts to 0.006mm

Catchment V:			\$	SP-V1	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	2.17	1
Area of site (km2)	0.002122	2			
Area of (site) catchment (m2)	2122	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00181326	m³/sec			
Q mean =	1.8	L/s			
Q mean =	156.7	m²/day			
Factored Q <sub>BAR</sub> -Rural	0.0018	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.5	L/s			
10 yr return peak flow	214.6	m³/day			
Settlement Pond Design					
			L		
	g(sg)	$(p_p-1) \times d_p$	2		trom Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	<u>18</u> 1/2	-		363.
For 10 um particlos		107			( mieron norticles
<u>Porticle Specific gravity</u>	6.00E-06	m			6 micron particles
Vater Temp	2.0	°C			
Kinomatia visoosity	1 20/5 0/	$lm^2/c$			
	1.306E-06	(111 / S) m /s			
	0.00002	m/br			
Time for D (m)	11.56	hrs			
	11.00	1113		1.00	D (m) - depth
say pond cross section area =		5 50	m <sup>2</sup>	5 50	m width
		0.00		0.00	
Q= V.A implies	V =	0.00045	m/sec		
Required length of Pond =	L =	18.79	m say:	18.75	m length
Length to Width ratio		3.41	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	103.13	m²		
% of catchment area	C% =	4.86%	>3%	OK	Acceptable
Dimonsions of Sottlement Perst	1 no	L (m)	B (m)	D (m)	Single pend design
Dimensions of semement rond:	1 110.	10.75	5.50	1.00	
					Good to remove medium to
Operating Volume:	103	m³		OK	fine silts to 0.006mm

Catchment V:			S	P-V2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	1
Area of site (km2)	0.001977	2			
Area of (site) catchment (m2)	1977	m²			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00170256	m³/sec			
Q mean =	1.7	L/s			
Q mean =	147.1	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0017	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.3	L/s			
10 vr return peak flow	201.5	m <sup>3</sup> /day			
		-			
Settlement Pond Design					
	g(sg	$(n-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{\sigma + \sigma}{\sigma}$	181			365.
<u> </u>		101			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6	00			
	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>-</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/nr Time for D (m)	0.08/	m/nr brc			
	11.50	1115		1.00	D(m) denth
		F F0	m <sup>2</sup>	T.00	
say pona cross section area =		5.50		5.50	m wiath
	V -	0 00042	m/sec		
	• -	0.00042	117300		
Required length of Pond =	L =	17.64	m sav:	17.75	m lenath
	_				
Length to Width ratio		3.23	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	97.63	m <sup>2</sup>		
% of catchment area	C% =	4.94%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	17.75	5.50	1.00	Single pond design
		m <sup>3</sup>		C II	Good to remove medium to
Operating Volume:	98	111		OK	

Catchment V:			S	SP-V3					
Mean Greenfield Runoff Rates									
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17					
Area of site ((m2))	0.001/12								
	0.001612	m <sup>2</sup>							
Area of (sife) catchment (m2)	1612								
SAAR	1569	mm			Placed read material				
	0.3	m <sup>3</sup> /soc							
Q mean =	0.001419/5								
Q mean =	1.4	L/S							
Q mean =	122.7	m'/ddy							
Factored Q <sub>BAR</sub> -Rural	0.0014	m°/sec							
Groth Factor - 10 yr return	1.3700	2							
10 yr return peak flow	0.002	m³/sec							
10 yr return peak flow	1.9	L/s							
10 yr return peak flow	168.1	m³/day							
Settlement Pond Design									
			<u> </u>		frame Marke silf 9. Ealah , Alla Eal. a s				
Lieizer Steller Lewin	V = g(sg)	$(p_p-1) \times d_p^2$	2		Ifrom Mercall & Eddy, 4th Ed, pg				
Using Stokes Law:	$\mathbf{v}_p =$	18v	-						
For 10 um particles	6 00F-06	m			6 micron particles				
Particle Specific gravity	2.6								
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	$(m^2/s)$							
V. (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
				1.00	D (m) - depth				
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width				
Q= V.A implies	V =	0.00039	m/sec						
Required length of Pond =	L =	16.18	m say:	16.25	m length				
Length to Width ratio		3.25	:1	>=3:1	Acceptable				
			2		Length to width ratio of ~3:1				
Plan Area	A =	81.25	m²						
% of catchment area	C% =	5.04%	>3%	OK	Acceptable				
	1	L (m)	B (m)	D (m)	Single pand design				
Dimensions of Semiement Pond:	I NO.	16.25	5.00	1.00	single pona design				
					Good to remove medium to				
Operating Volume:	81	m <sup>3</sup>		ОК	fine silts to 0.006mm				

Catchment V:			2	SP-V4	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.001133				
Area of (site) catchment (m2)	1133	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00103734	m³/sec			
Q mean =	1.0	L/s			
Q mean =	89.6	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0010	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.001	m <sup>3</sup> /sec			
10 yr return peak flow	1.4	L/s			
10 vr return peak flow	122.8	m <sup>3</sup> /day			
Settlement Pond Design					
	g(sg)	$(n - 1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	$\frac{r}{18\nu}$			365.
For 10 um particlos		10/	] †		
Particle Specific growity	6.00E-06	m			6 micron particles
Water Temp	2.6	°C			
Kinomatia visaasity	1 20/5 0/	$lm^2/c$			
	1.306E-06	(111 / S) m /s			
	0.00002	m/br			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		4 25	m <sup>2</sup>	4 25	m width
		1.20		1.20	
Q= V.A implies	V =	0.00033	m/sec		
Required length of Pond =	L =	13.91	m say:	14	m length
Length to Width ratio		3.29	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	59.50	m <sup>2</sup>		
% of catchment area	C% =	5.25%	>3%	OK	Acceptable
Dimensions of Settlement Pard:	1 no	L (m)	B (m)	D (m)	Single pond design
	1 110.	14	4.23	1.00	
					Good to remove medium to
Operating Volume:	60	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment V:				SP-V5	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	2.17	
Area of site (km2)	0.003822				
Area of (site) catchment (m2)	3822	m²			
SAAR	1569	mm			
SOIL	0.3	2			Placed road material
Q mean =	0.00306122	m³/sec			
Q mean =	3.1	L/s			
Q mean =	264.5	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0031	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.004	m <sup>3</sup> /sec			
10 yr return peak flow	4.2	L/s			
10 yr return peak flow	362.4	m³/day			
Settlement Pond Design					
			L		
	y = g(sg)	$(p_p-1) \times d_p^2$			from Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$\mathbf{v}_p \equiv$	18v	-		365.
For 10 um particles	6 00E 06	m			6 micron particles
Particle Specific gravity	0.00L-08				
Water Temp	10	°C			
Kinematic viscosity	1 304F-04	$(m^2/s)$			
V (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		7.50	m <sup>2</sup>	7.50	m width
Q= V.A implies	V =	0.00056	m/sec		
Required length of Pond =	L =	23.26	m say:	23.25	m length
			-		
Length to Width ratio		3.10	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	174.38	111		
% or catchment area	C% =	4.56%	>3%	OK	Acceptable
		(m)	P(m)	D(m)	
Dimensions of Settlement Pond:	1 no	23 25	<b>7 50</b>	1 00	Single pond design
		20.20	7.00	1.00	
					Good to remove medium to
Operating Volume:	174	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment W:			SI	P-W1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.001837				
Area of (site) catchment (m2)	1837	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00159482	m <sup>3</sup> /sec			
Q mean =	1.6	L/s			
Q mean =	137.8	m <sup>3</sup> /day			
Factored Qnap-Rural	0.0016	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.2	L/s			
10 yr return peak flow	188.8	m <sup>3</sup> /day			
	100.0				
Settlement Pond Design					
	 		<u> </u>		
Using Stokes Low	y = g(sg)	$(q_p-1) \times d_p^2$			Ifrom Mercalf & Eddy, 4th Ed, pg
Using Stokes Law:	$\mathbf{v}_p =$	18v	-		365.
For 10 µm particles	6 00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	$(m^2/s)$			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width
Q= V.A implies	V =	0.00042	m/sec		
		17.01		17.05	
Required length of Pond =	L =	17.31	m say:	17.25	miengm
Length to Width ratio		3.20	•1	>=3.1	Accentable
		0.27	• 1	2-0.1	Length to width ratio of $\sim 3.1$
Plan Area	A =	90.54	m <sup>2</sup>		
% of catchment area	C% =	4.93%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	17.25	5.25	1.00	Single pond design
Operating Volume:	91	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment W:			S	P-W2	
Mean Greenfield Runoff Rates					
$Q_{mean} = 0.00108 \times (AREA km^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.001895				
Area of (site) catchment (m2)	1895	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00163956	m³/sec			
Q mean =	1.6	L/s			
Q mean =	141.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0016	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.2	L/s			
10 yr return peak flow	194.1	m <sup>3</sup> /day			
Settlement Pond Design					
	[				
	g(sg)	$(q_p-1) \times d_p^2$	2		trom Metcalt & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-		363.
For 10 um particles		107 m			( migran particles
Particle Specific gravity	0.00E-06	111			
Water Temp	10	°C			
Kinematic viscosity	1 304E-04	$(m^2/s)$			
V (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width
Q= V.A implies	V =	0.00041	m/sec		
Required length of Pond =	L =	16.99	m say:	17	m length
Length to Width ratio		3.09	:1	>=3:1	Acceptable
		00.50			Length to width ratio of ~3:1
Plan Area	A =	93.50	m v ogr		
% of catchment drea	C% =	4.93%	>3%	OK	Acceptable
		$\lfloor (m)$	B (m)	D(m)	
Dimensions of Settlement Pond:	1 no.	<b>17</b>	5.50	1.00	Single pond design
					<u> </u>
					Good to remove medium to
Operating Volume:	94	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment W:			S	P-W3	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1
Area of site (km2)	0.00219	2			
Area of (site) catchment (m2)	2190	m			
SAAR	1569	mm			
SOIL	0.3	34			Placed road material
Q mean =	0.00186488	m°/sec			
Q mean =	1.9	L/s			
Q mean =	161.1	m°/day			
Factored Q <sub>BAR</sub> -Rural	0.0019	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.003	m³/sec			
10 yr return peak flow	2.6	L/s			
10 yr return peak flow	220.7	m³/day			
Settlement Pond Design					
			<u> </u> >		from Motoclf & Eddy, 4th Ed. pg
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p$	, ,		
Using Stokes Law.	$\mathbf{v}_p =$	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	$(m^2/s)$			
V <sub>c</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.75	m <sup>2</sup>	5.75	m width
Q= V.A implies	V =	0.00044	m/sec		
Required length of Pond =	L =	18.49	m say:	18.5	m length
				0.1	
Length to Width ratio		3.22	:1	>=3:1	Acceptable
		10/00			Length to wath ratio of ~3:1
Plan Area	A =	106.38	111		
% of catchment drea	C% =	4.86%	>3%	OK	
		[ (m)	P. (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	18.5	5 (III) 5 75	1 00	Single pond design
		10.0	0.70	1.00	
					Good to remove medium to
Operating Volume:	106	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment W:			S	SP-W4	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	2.17	-
Area of site (km2)	0.001956				
Area of (site) catchment (m2)	1956	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00168645	m³/sec			
Q mean =	1.7	L/s			
Q mean =	145.7	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0017	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m³/sec			
10 yr return peak flow	2.3	L/s			
10 vr return peak flow	199.6	m <sup>3</sup> /day			
		-			
Settlement Pond Design					
	g(sg)	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p =$	$\frac{1}{18\nu}$	-		365.
For 10 um particlos		107			
Particle Specific gravity	6.00E-06	m			6 micron panicies
Water Temp	2.0	°C			
Kinomatia visaasity	1 20/5 0/	$lm^2/c$			
	0.00002	(111 / S) m/s			
v <sub>s</sub> (m/sec)	0.00002	m/br			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.50	m <sup>2</sup>	5.50	m width
		0.00		0.00	
Q= V.A implies	V =	0.00042	m/sec		
Required length of Pond =	L =	17.48	m say:	17.5	m length
Length to Width ratio		3.18	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	96.25	m <sup>4</sup>		
% of catchment area	C% =	4.92%	>3%	OK	Acceptable
Dimensions of Settlement Pond:	1 no	L (m)	B (m)	D (m)	Single pond design
Dimensions of semement Fond.	1 110.	17.5	5.50	1.00	
					Good to remove medium to
Operating Volume:	96	m <sup>3</sup>		OK	fine silts to 0.006mm

Catchment W:			SI	P-W5	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.00588				
Area of (site) catchment (m2)	5880	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.0044916	m <sup>3</sup> /sec			
Q mean =	4.5	L/s			
Q mean =	388.1	m <sup>3</sup> /day			
Factored Qnap-Rural	0.0045	m <sup>3</sup> /sec			
Groth Eactor - 10 yr return	1.3700				
10 vr return pegk flow	0.006	m <sup>3</sup> /sec			
10 yr return peak flow	6.2	L/s			
10 yr return peak flow	531.7	m <sup>3</sup> /day			
	001.7	,,			
Settlement Pond Design					
	4				
Using Stokes Low	y = g(sg)	$(p_p-1) \times d_p^2$	2		Ifrom Mercalf & Eddy, 4th Ed, pg
Using slokes Ldw:	$v_p$	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific aravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		9.00	m <sup>2</sup>	9.00	m width
Q= V.A implies	V =	0.00068	m/sec		
Paguirad longth of Pond -	I -	20.44		<u> </u>	mlonath
	L -	20.44	ini suy.	20.3	mengin
Lenath to Width ratio		317	•1	>=3.1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	256.50	m <sup>2</sup>		
% of catchment area	C% =	4.36%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	28.5	9.00	1.00	Single pond design
Operating Volume:	2.57	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment X:			S	P-X1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	r
Area of site (km2)	0.001794	2			
Area of (site) catchment (m2)	1794	m <sup>2</sup>			
SAAR	1569	mm			
SOIL	0.3	3.			Placed road material
Q mean =	0.00156156	m³/sec			
Q mean =	1.6	L/s			
Q mean =	134.9	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0016	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.1	L/s			
10 vr return peak flow	184.8	m <sup>3</sup> /day			
		,			
Settlement Pond Design					
Using Stokes Law:	$V_n = \frac{g(sg)}{sg}$	$(p_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	P	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.25	m²	5.25	m width
Q= V.A implies	V =	0.00041	m/sec		
		1/05		17	an la cardia
Required length of Pond =	L =	16.95	m say:	/	miength
Longth to Width ratio		2.04	.1	>-2.1	Accontable
		3.24	• 1	<u>~-3.1</u>	Acceptable
	A _	00.05	m <sup>2</sup>		
riun Areu	A =	07.23 1 97%	111 \_307	OK	Acceptable
	<u> </u>	4.///0	- 070		
		(m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	17	5.25	1.00	Single pond design
	d				
Operating Volume:	89	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment X:			S	P-X2	
Mean Greenfield Runoff Rates					
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of site (km2)	0.00175				
Area of (site) catchment (m2)	1750	m <sup>2</sup>			
SAAR	1,569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00152742	m <sup>3</sup> /sec			
Q mean =	1.5	L/s			
Q mean =	132.0	m <sup>3</sup> /day			
Factored Q <sub>RAR</sub> -Rural	0.0015	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow	2.1	L/s			
10 vr return peak flow	180.8	m <sup>3</sup> /day			
		. ,			
Settlement Pond Design					
Illsing Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	, p	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width
	N/	0.000.40			
Q= V.A Implies	V =	0.00040	m/sec		
Required length of Pond =	L =	16.58	m say:	16.5	m length
Length to Width ratio		3.14	:1	>=3:1	Acceptable
			2		Length to width ratio of ~3:1
Plan Area	A =	86.63	m²		
% of catchment area	C% =	4.95%	>3%	ОК	Acceptable
		(m)	B (m)	D (m)	
Dimensions of Settlement Pond <sup>.</sup>	1 no.	16.5	5 (III) 5.25	1.00	Sinale pond design
			0.20		
Operating Volume:	87	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Catchment X3:			S	P-X3	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	
	0.001741				
Ared of sife (km2)	0.001/41				
Area of (site) catchment (m2)	1741	m			
SAAR	1569	mm			Placed read material
	0.0150043	m <sup>3</sup> /sec			
Q mean =	1.5	1/2			
	1.0	$m^3/day$			
	131.4	$m^3/sec$			
Factored Q <sub>BAR</sub> -Rola	0.0015	111/360			
	1.3700	m <sup>3</sup> /soc			
10 yr refurn peak flow	0.002				
	Z.1	L/S			
10 yr refurn peak flow	180.0	m /uuy			
Settlement Pond Design					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law.	$v_p =$	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
			2	1.00	D (m) - depth
say pond cross section area =		5.25	m²	5.25	m width
	N/	0.000.40			
	V =	0.00040	m/sec		
Required length of Pond =	L =	16.51	m sav:	16.5	m length
	-				
Length to Width ratio		3.14	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	86.63	m <sup>2</sup>		
% of catchment area	C% =	4.98%	>3%	OK	Acceptable
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	I no.	16.5	5.25	1.00	single pond design
					Good to remove medium to
Operating Volume:	87	m <sup>3</sup>		ОК	fine silts to 0.006mm

Mean Greenfield Runoff Rates     Image: state of site (km2)     Second State (km2)	Catchment X:			S	P-X4	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Mean Greenfield Runoff Rates					
Area of site (km2)0.001683NoArea of site (km2)1683 m²Image: Site (km2)SAAR1569 mmPlaced road materialQ mean =0.00147327 m²/secPlaced road materialQ mean =1.51 /sImage: Site (km2)Q mean =1.27.5 m²/dayImage: Site (km2)G roth Factor - 10 yr return1.300Image: Site (km2)10 yr return peak flow0.002 m²/secImage: Site (km2)10 yr return peak flow2.01 //sImage: Site (km2)10 yr return peak flow1.000 (km2) m²/secImage: Site (km2)10 yr return peak flow1.04.6 m²/dayImage: Site (km2)10 yr return peak flow1.04.6 m²/dayImage: Site (km2)10 yr return peak flow1.04.6 m²/dayImage: Site (km2)Settlement Pond DesignImage: Site (km2)Image: Site (km2)Ver $g(sg_{p-1}) \times d_p^2$ Image: Site (km2)Water Temp10 °CImage: Site (km2)Water Temp10 °CImage: Site (km2)Water Temp10 °CImage: Site (km2)Minematic viscosity1.306-06 (m²/s)Image: Site (km2)Ver0.0002 m/sImage: Site (km2)Image: Site (km2)Yup ond cross section area =5.25 m²Site (km2)Site (km2) for (km2) for (km2)Image: Site (km2)Image: Site (km2)Quart for (km2) for (km2) for (km2)Image: Site (km2)Image: Site (km2)Yup ond cross section area =5.25 m²Site (km2)Site (km2) for (km2) for (km2) for (km2)Image: Site (km2	Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17	
Area of (sile) catchment (m2)   1683 m²   Image: catchment (m2)   1683 m²     SAAR   1569 mm   Placed road material     Q mean =   0.00147527 m³/sec   Placed road material     Q mean =   1.5 [/s   Placed road material     Q mean =   1.2 [/s   Placed road material     Q mean peak flow   0.001 m³/sec   Placed road material     10 yr return peak flow   0.001 m³/sec   Placed road material     Settlement Pond Design   Image: Placed road material   Placed road material     Using Stokes Low: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18k'}$ from Metcalf & Eddy, 4th Ed, pg     Using Stokes Low: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18k'}$ from Metcalf & Eddy, 4th Ed, pg     Using Stokes Low: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18$	Area of site (km2)	0.001683				
Note planeNote planeSAAR1569mmSOIL0.3Placed road materialG mean =0.00147527m²/secG mean =1.5L/sQ mean =1.27.5m²/secGoth Factor - 10 yr return1.3700Im²/sec10 yr return peak flow0.002m²/sec10 yr return peak flow0.002m²/sec10 yr return peak flow0.002m²/sec10 yr return peak flow1.0J/s10 yr return peak flow1.36.6m²/daySettlement Pond Designfrom Metcalf & Eddy, 4th Ed, pgSettlement Pond Designsfrom Metcalf & Eddy, 4th Ed, pgSettlement Pond Designim6 micron particlesFor 10 um particles6.00E-06mParticle Specific gravity2.6imWater Temp10°CKinematic viscosity1.306E-06im²/sVi (m/sec)0.00002m/hrm/hr1.00D (m) - depthsay pond cross section area =5.25m²Sup ond cross section area =5.25m²Q vA impliesV =0.00038m/secRequired length of Pond =L =16.02m lengthLength to Width ratio3.05<:1	Area of (site) catchment (m2)	1683	m <sup>2</sup>			
Solit100Placed road materialQ mean =0.00147527 m²/secPlaced road materialQ mean =1.5 L/sQQ mean =1.27.5 m³/dayFactored Q <sub>MAS</sub> Rural0.0015 m³/secGroth Factor - 10 yr return peak flow0.002 m³/sec10 yr return peak flow0.002 m³/sec10 yr return peak flow0.002 m³/sec10 yr return peak flow2.0 L/s10 yr return peak flow1.74.6 m³/day10 yr return peak flow2.0 L/s10 yr return peak flow1.74.6 m³/day10 yr return peak flow2.0 L/s10 yr return peak flow1.74.6 m³/day10 yr return peak flow1.13.6 m³/day11 yr return peak flow1.14.6 m³/day11 yr return peak flow1.13.6 m³/day12 yr return peak flow1.13.6 m³/day10 yr return peak flow1.00 plm/hr11 wr return peak flow1.00 plm/hr11 wr return peak flow1.00 plm/hr11 wr return peak flow1.00 plm/hr12 wr return peak flow1.00 plm/hr13 wr return peak flow1.00 plm14 wr return peak flow1.00 plm15 wr return peak flow1.00 plm16 wr return peak f	SAAR	1569	mm			
G mean =   0.00147527 $m^3/sec$ Image: constraint of the second sec	SOIL	0.3				Placed road material
G mean =   1.5 1/s   Image: Constraint of the sector of	Q mean =	0.00147527	m <sup>3</sup> /sec			
Q mean =   127.5 m <sup>3</sup> /day     Factored $O_{\text{BAR}}$ -Rural   0.0015 m <sup>3</sup> /sec     Grath Factor - 10 yr return   1.3700     10 yr return peak flow   0.002 m <sup>3</sup> /sec     10 yr return peak flow   2.0 L/s     10 yr return peak flow   174.6 m <sup>3</sup> /day     10 yr return peak flow   174.6 m <sup>3</sup> /day     10 yr return peak flow   174.6 m <sup>3</sup> /day     Settlement Pond Design   from Metcalf & Eddy. 4th Ed. pg     Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18y}$ For 10 un particles   6.00E-06 m     Particle Specific gravity   2.6     Water Temp   10 °C     Water Temp   10 °C     Water Temp   10 °C     Water Temp   10 °C     Winnematic viscosity   1.306E-06 (m <sup>2</sup> /s)     Water Temp   0.00002 m/s     Water Temp   10 °C     Water Temp   0.00002 m/s     Required length of Pond =   L =     Length to Width ratio   3.0	Q mean =	1.5	L/s			
Factored $Q_{bAR}$ -Rural0.0015m³/sec1Groth Factor - 10 yr retum1.3700m³/sec110 yr retum peak flow2.0 L/s110 yr retum peak flow2.0 L/s110 yr retum peak flow174.6 m³/day1Settlement Pond Design11Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcall & Eddy. 4th Ed, pgSolution Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcall & Eddy. 4th Ed, pgVerifice Specific gravity2.61Verifice Specific gravity2.61Verifice Specific gravity2.61Verifice Specific gravity1.306E-06 m6Mater Temp10 °C1Water Temp10 °C1Verifice Specific gravity1.306E-06 (m²/s)1Verifice Specific gravity1.306E-06 (m²/s)1Grave Specific gravity1.306E-06 (m²/s) <t< td=""><td>Q mean =</td><td>127.5</td><td>m<sup>3</sup>/day</td><td></td><td></td><td></td></t<>	Q mean =	127.5	m <sup>3</sup> /day			
Groth Factor - 10 yr return1.37001.370010 yr return peak flow0.002m²/sec110 yr return peak flow2.0 L/s110 yr return peak flow174.6m³/day10 yr return peak flow174.6m³/day10 yr return peak flow174.6m³/day10 yr return peak flow174.6m³/daySettlement Pond Design11Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18V}$ from Metcalf & Eddy. 4th Ed. pg 365.Verticle Specific gravity2.66Particle Specific gravity2.66Water Temp10 °C6Water Temp10 °C1V (m/sc)0.00020 m/s1V (m/sc)0.00020 m/s1Water Temp10 °C1Water Temp10 °C1V (m/sc)0.00020 m/s1Say pond cross section area =5.25 m²5.25 m widthQ= V.A impliesV =0.00038 m/secRequired length of Pond =L =16.02 m say:16 m lengthLength to Width ratio3.05 :1>=3.1AcceptableLength to Width ratio3.05 :1>=3.1AcceptablePlan AreaA =84.00 m²77% of catchment areaC% =4.97% >3%OKOf catchment areaC% =4.97% >3%OKDimensions of Settlement Pond:1 no.165.251.00Single pond design161.00Single pond design <td>Factored Q<sub>RAR</sub>-Rural</td> <td>0.0015</td> <td>m<sup>3</sup>/sec</td> <td></td> <td></td> <td></td>	Factored Q <sub>RAR</sub> -Rural	0.0015	m <sup>3</sup> /sec			
10 yr return peak flow   0.002 $m^3/sec$ Image: second secon	Groth Factor - 10 vr return	1.3700				
10 yr return peak flow   2.0 L/s   10 yr return peak flow   174.6 m <sup>3</sup> /day     10 yr return peak flow   174.6 m <sup>3</sup> /day	10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 yr return peak flow   174.6 m <sup>3</sup> /day     10 yr return peak flow   174.6 m <sup>3</sup> /day     10 yr return peak flow   174.6 m <sup>3</sup> /day     Settlement Pond Design   5     Settlement Pond Design   5     Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ For 10 µm particles   6.00E-06 m     Particle Specific gravity   2.6     Water Temp   10 °C     Water Temp   0.0002 m/s     V, (m/sec)   0.00002 m/s     0.00002 m/s   1.000 D (m) - depth     say pond cross section area =   5.25 m <sup>2</sup> Q= V.A implies   V =     Q= V.A impli	10 yr return peak flow	2.0	L/s			
Settlement Pond Design   Image: Arrow of the point data in the point data i	10 vr return peak flow	174.6	m <sup>3</sup> /day			
Settlement Pond DesignImage: constraint of the set			. ,			
Settlement Pond DesignImage: constraint of the set						
Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcalf & Eddy, 4th Ed, pg 365.For 10, um particles6.00E-06 m6 micron particlesParticle Specific gravity2.66Water Temp10 °C6Kinematic viscosity1.306E-06 (m²/s)6Vs (m/sec)0.00002 m/s7Time for D (m)11.56 hrs1.000D (m) - depth5.25 m²5.25 mSay pond cross section area =5.25 m²5.25 mRequired length of Pond =L =16.02 msay:Length to Width ratio3.05 :1>=3:1Acceptable1.00 m²1.00 m²Plan AreaA =84.00 m²% of catchment areaC% =4.99% >3%Dimensions of Settlement Pond:1 no.16 m(m)Dimensions of Settlement Pond:1 no.16 m(m)Single pond design	Settlement Pond Design					
Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcalf & Eddy, 4th Ed, pg 365.For 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.6Water Temp10 °CKinematic viscosity1.306E-06 (m²/s)M/r0.00002 m/sImmediate for D (m)1.306E-06 (m²/s)M/r0.00002 m/sImmediate for D (m)1.000 D (m) - depthsay pond cross section area =5.25 m²5.25 m widthQ = 0.00038 m/secParticle Immediate for D (m)1.00 D (m) - depthSay pond cross section area =5.25 m²5.25 m widthQ = 0.00038 m/secParticle Immediate for D (m)1.00 D (m) - depthSay pond cross section area =5.25 m²S.25 m widthQ = 0.00038 m/secParticle Immediate for D (m)Say pond cross section area =Say for Micro for A::1Particle Say for Micro for A::1Particle Say for Micro for A::1Particle Say for Micro for A::1Micro for A::1Particle Say for Micro for A::1Particle Say for Micro for A::1Micro for A:						
Same production $r_p$ $18\nu$ SectorFor 10, µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.69Water Temp10 °C9Kinematic viscosity1.306E-06 (m²/s)9V, (m/sec)0.00002 m/s9m/hr0.087 m/hr9Time for D (m)11.56 hrs9Q= V.A impliesV =0.00038 m/secRequired length of Pond =L =16.02 mLength to Width ratio3.05 :1>=3;1Acceptable19Plan AreaA =84.00 m²MarcaC% =4.99% >3%Dimensions of Settlement Pond:1 no.16Single pond design1 no.16Single pond design1Dimensions of Settlement Pond:1 no.Condition1 no.10Condition1 no.Condition1 no.	Illsing Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
For 10 $\mu$ m particles6.00E-06 m6 micron particlesParticle Specific gravity2.66Water Temp10 °CKinematic viscosity1.306E-06 (m²/s)Vs (m/sec)0.00002 m/sm/hr0.087 m/hrTime for D (m)11.56 hrs11.00D (m) - depthsay pond cross section area =5.25 m²95.25 m²90.00038 m/sec90.00038 m/sec90.0004 m/sec <td></td> <td>• p —</td> <td>18v</td> <td></td> <td></td> <td></td>		• p —	18v			
Particle Specific gravity2.6Water Temp10°CKinematic viscosity1.306E-06 (m²/s)Vs (m/sec)0.00002 m/sm/hr0.087 m/hrTime for D (m)11.56 hrsImage: Specific gravity1.00 D (m) - depthsay pond cross section area =5.25 m²Seq pond cross section area =5.25 m²Seq pond cross section area =0.00038 m/secQ= V.A impliesV =V =0.00038 m/secRequired length of Pond =L =Length to Width ratio3.05 :1Plan AreaA =M =4.99% >3%M for catchment areaC% =Length1.00 D (m)Dimensions of Settlement Pond:1 no.Length1 no.Length1.00 D (m)Single pond designLength1 no.Length1.00 D (m)Single pond designLength1 no.Length1.00 D (m)Length1 no.Length1.00 D (m)Length1 no.Length1.00 D (m)Length1 no.Length1.00 D (m)Length1.00 D (m) <t< td=""><td>For 10 µm particles</td><td>6.00E-06</td><td>m</td><td></td><td></td><td>6 micron particles</td></t<>	For 10 µm particles	6.00E-06	m			6 micron particles
Water Temp10 $^{\circ}$ CKinematic viscosity1.306E-06 (m²/s)Vs (m/sec)0.00002 m/sm/hr0.087 m/hrTime for D (m)11.56 hrsImage: Section area =5.25 m²Say pond cross section area =5.25 m²Q= V.A impliesV =V =0.00038 m/secRequired length of Pond =L =Length to Width ratio3.05 :1Plan AreaA =X of catchment areaC% =LengthN =LengthN =MarceN =Ma	Particle Specific gravity	2.6				
Kinematic viscosity1.306E-06 $(m^2/s)$ Image: constraint of the second s	Water Temp	10	°C			
Vs (m/sec)0.00002 m/sImage: constraint of the matrix of the matri	Kinematic viscosity	1.306E-06	(m²/s)			
m/hr0.087 m/hrImage: constraint of the second secon	V <sub>s</sub> (m/sec)	0.00002	m/s			
Time for D (m)11.56 hrssay pond cross section area = $5.25 \text{ m}^2$ say pond cross section area = $5.25 \text{ m}^2$ Q= V.A impliesV =Q= V.A impliesV =Required length of Pond =L =Length to Width ratio $3.05$ :1Plan AreaA =A = $84.00 \text{ m}^2$ % of catchment areaC% =Length to Width ratioD(m)Length to Width ratio $3.05 \text{ catchment area}$ A = $84.00 \text{ m}^2$ % of catchment areaC% =LengthL (m)B (m)D (m)Dimensions of Settlement Pond:1 no.LengthL (m)LengthCool to remove medium to	m/hr	0.087	m/hr			
Image: section area = $5.25 \text{ m}^2$ $1.00 \text{ D (m) - depth}$ say pond cross section area = $5.25 \text{ m}^2$ $5.25 \text{ m}$ widthQ= V.A impliesV = $0.00038 \text{ m/sec}$ Image: section area =Required length of Pond =L = $16.02 \text{ m}$ say: $16 \text{ m}$ lengthLength to Width ratio $3.05 \text{ :1}$ >=3:1 AcceptableImage: section area = $K = 84.00 \text{ m}^2$ Image: section area =Plan AreaA = $84.00 \text{ m}^2$ Image: section area =% of catchment areaC% = $4.99\% > 3\%$ OKAcceptableImage: section area =Image: section area = <td< td=""><td>Time for D (m)</td><td>11.56</td><td>hrs</td><td></td><td></td><td></td></td<>	Time for D (m)	11.56	hrs			
say pond cross section area = 5.25 m <sup>2</sup> 5.25 m width Q = V.A implies V = 0.00038 m/sec Required length of Pond = L = 16.02 m say: 16 m length Length to Width ratio 3.05 :1 >=3:1 Acceptable Length to width ratio of ~3:1 Plan Area A = 84.00 m <sup>2</sup> % of catchment area C% = 4.99% >3% OK Acceptable Method Single pond design Dimensions of Settlement Pond: 1 no. 16 5.25 D (m) Good to remove medium to				2	1.00	D (m) - depth
Q= V.A impliesV = $0.00038$ m/secRequired length of Pond =L = $16.02$ m say: $16$ m lengthLength to Width ratio $3.05$ :1>=3:1AcceptableLength to Width ratio $3.05$ :1>=3:1AcceptableRequired length of Pond =Length to width ratio of ~3:1 $\sim$ Length to width ratio of ~3:1Plan AreaA = $84.00$ m²OKAcceptable% of catchment areaC% = $4.99\%$ >3%OKAcceptableL (m)B (m)D (m)IntervalSingle pond designDimensions of Settlement Pond:1 no.165.251.00Single pond designIntervalIntervalIntervalIntervalAIntervalIntervalIntervalIntervalAIntervalIntervalIntervalIntervalAInterval <td< td=""><td>say pond cross section area =</td><td></td><td>5.25</td><td>m²</td><td>5.25</td><td>m width</td></td<>	say pond cross section area =		5.25	m²	5.25	m width
Q= V.A impliesV = $0.00038 \text{ m/sec}$ Required length of Pond =L = $16.02 \text{ m}$ say: $16 \text{ m}$ lengthLength to Width ratio $3.05 \text{ :1}$ >=3:1AcceptableLength to Width ratio $3.05 \text{ :1}$ >=3:1AcceptablePlan AreaA = $84.00 \text{ m}^2$ Length to width ratio of ~3:1% of catchment areaC% = $4.99\% > 3\%$ OKAcceptableDimensions of Settlement Pond:1 no.165.251.00Single pond designImage: settlement to the settlement t			0.00000			
Required length of Pond =L = $16.02 \text{ m}$ say: $16 \text{ m}$ lengthLength to Width ratio $3.05 :1$ >=3:1AcceptableLength to Width ratio $3.05 :1$ >=3:1Length to width ratio of ~3:1Plan AreaA = $84.00 \text{ m}^2$ Length to width ratio of ~3:1% of catchment areaC% = $4.99\% >3\%$ OKAcceptableL (m)B (m)D (m)Single pond designDimensions of Settlement Pond:1 no.165.251.00Single pond designImage: constraint of the point	Q= V.A implies	V =	0.00038	m/sec		
Length to Width ratio   3.05 :1   >=3:1   Acceptable     Length to width ratio   A =   84.00 m <sup>2</sup> Length to width ratio of ~3:1     Plan Area   A =   84.00 m <sup>2</sup> Acceptable     % of catchment area   C% =   4.99% >3%   OK   Acceptable     Dimensions of Settlement Pond:   1 no.   16   5.25   1.00   Single pond design     Good to remove medium to   A   A   Acceptable   Acceptable   Acceptable	Required length of Pond =	L =	16.02	m say:	16	m length
Length to Width ratio   3.05 :1   >=3:1   Acceptable     Image: Plan Area   A =   84.00 m²   Image: Plan Area   A =   84.00 m²     % of catchment area   C% =   4.99% >3%   OK   Acceptable     Image: Plan Area   C% =   4.99% >3%   OK   Acceptable     % of catchment area   C% =   4.99% >3%   OK   Acceptable     Image: Plan Area   C% =   4.99% >3%   OK   Acceptable     Image: Plan Area   C% =   4.99% >3%   OK   Acceptable     Image: Plan Area   C% =   4.99% >3%   OK   Acceptable     Image: Plan Area   C% =   4.99% >3%   OK   Acceptable     Image: Plan Area   C% =   4.99% >3%   OK   Acceptable     Image: Plan Area     Image: Plan Area   Image: Plan Area   Image: Plan Area   Image: Plan Area   Image: Plan Area     Image: Plan Area   Image: Plan Area   Image: Plan Area   Image: Plan Area   Image: Plan Area     Image: Plan Area   Image: Plan Area						
Plan Area   A =   84.00 m²   Length to width ratio of ~3:1     % of catchment area   C% =   4.99% >3%   OK   Acceptable     Model   L(m)   B (m)   D (m)   Dimensions of Settlement Pond:   1 no.   16   5.25   1.00   Single pond design	Length to Width ratio		3.05	:1	>=3:1	Acceptable
Plan Area     A =     84.00 m²       % of catchment area     C% =     4.99% >3%     OK     Acceptable       Model     L (m)     B (m)     D (m)     Dimensions of Settlement Pond:     1 no.     16     5.25     1.00     Single pond design       Model				2		Length to width ratio of ~3:1
% of catchment area   C% =   4.99% >3%   OK   Acceptable     Image: Character of the state of the st	Plan Area	A =	84.00	m²		
L (m)   B (m)   D (m)     Dimensions of Settlement Pond:   1 no.   16   5.25   1.00   Single pond design     Image: Settlement Pond:   1 no.   16   5.25   1.00   Single pond design     Image: Settlement Pond:   1 no.   16   5.25   1.00   Single pond design     Image: Settlement Pond:     Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:     Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:     Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:     Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:     Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:   Image: Settlement Pond:     Image: Settlement Pond: Settlement Pond: Settlement Pond: Settlement Pond: Settlement Pond	% of catchment area	C% =	4.99%	>3%	OK	Acceptable
Dimensions of Settlement Pond: 1 no. 16 5.25 1.00 Single pond design   Good to remove medium to			(m)	R /m)	D(m)	
Good to remove medium to	Dimensions of Settlement Pond:	1 no	L (m) 16	5 (m)	1 00	Single pond design
Good to remove medium to			10	0.20	1.00	
Operating Volume: 84 m <sup>3</sup> Or fine silts to 0.004mm	Operating Volume:	RA	m <sup>3</sup>		OK	Good to remove medium to fine silts to 0.006mm

Catchment Y:				SP-Y1	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOII	) <sup>2.17</sup>	
Area of site (km2)	0.002273				
Area of (site) catchment (m2)	2273	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00192765	m³/sec			
Q mean =	1.9	L/s			
Q mean =	166.5	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0019	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.003	m <sup>3</sup> /sec			
10 yr return peak flow	2.6	L/s			
10 vr return peak flow	228.2	m <sup>3</sup> /day			
Settlement Pond Design					
	also	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg
Using Stokes Law:	$V_p = \frac{g(3g)}{2}$	$\frac{19}{19}$	<u>,</u>		365.
For 10 man particles		10/			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6	00			
	10	-C (ma <sup>2</sup> /a)			
	1.306E-06	(m /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
Time for D (m)	11.56	hrs			
	11.00	1115		1.00	D (m) - depth
say pond cross section greg -		5 7 5	m <sup>2</sup>	5 75	
		5.75		0.70	
Q= V.A implies	V =	0.00046	m/sec		
	-		,		
Required length of Pond =	L =	19.11	m say	/: 19	m length
Length to Width ratio		2 20	.1	> _ 2.1	Accepteble
		3.30	.1	>=3:1	Acceptible
Plan Aroa	A -	100.05	m <sup>2</sup>		
Plan Area	A =	109.25	<u>∖</u> 207		Accontable
	C/0 -	4.01%	- 0/0		
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	19	5.75	1.00	Single pond design
Operating Volume:	109	m <sup>3</sup>		ОК	fine silts to 0.006mm

Catchment Y:			S	SP-Y2	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	-
Area of site (km2)	0.003961				
Area of (site) catchment (m2)	3961	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00316011	m³/sec			
Q mean =	3.2	L/s			
Q mean =	273.0	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0032	m³/sec			
Groth Factor - 10 yr return	1.3700				
10 yr return peak flow	0.004	m³/sec			
10 yr return peak flow	4.3	L/s			
10 yr return peak flow	374.1	m <sup>3</sup> /day			
Settlement Pond Design					
Using Stokes Law:	$V_n = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	P	<u>18v</u>			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m²/s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
lime for D (m)	11.56	hrs		1.00	
				1.00	D (m) - depth
say pond cross section area =		7.50	m	7.50	m width
	\/_	0.00050			
	v =	0.00058	m/sec		
Required length of Pond =	L =	24.02	m say:	24	m length
Length to Width ratio		3 20	•1	>-2.1	Acceptable
		5.20	• 1	~=0.1	Length to width ratio of $\sim 3.1$
Plan Area	Δ =	180.00	m <sup>2</sup>		
% of catchment area	C% =	1 5 4 %	>3%	OK	Acceptable
	~/0	7.57/0			
		L (m)	B (m)	D (m)	
Dimensions of Settlement Pond:	1 no.	24	7.50	1.00	Single pond design
Operating Volume:	180	m <sup>3</sup>		ОК	Good to remove medium to fine silts to 0.006mm

Mean Greenfield Runoff Rates     Image: Second Se	Catchment Z:				SP-Z1																																																																																																																																																																																
$G_{mean} = 0.00108 \times (AREA km^2)^{0.89} \times (SAAR mm)^{1.17} \times (SOIL)^{2.17}$ Area of site (km2)   0.001758     Area of site (km2)   0.001758     SAAR   1569 mm     SOIL   0.3     Q mean =   0.001538 4m <sup>3</sup> /sec     Q mean =   1.5 L/s     Q mean =   1.5 L/s     Q mean =   1.5 L/s     Q mean =   1.3 L/s     Goth Factor - 10 yr return   1.3000     10 yr return peak flow   0.002 m <sup>3</sup> /sec     10 yr return peak flow   0.002 m <sup>3</sup> /sec     10 yr return peak flow   1.5 m <sup>3</sup> /day     Settlement Pond Design   50%     Settlement Pond Design   50%     Vr $g(sg_p - 1) \times d_p^2$ Settlement Pond Design   50%     Vr for Un peak flow   1.15%     Vr $g(sg_p - 1) \times d_p^2$ Settlement Pond Design   6micron particles     Vr $g(sg_p - 1) \times d_p^2$ Settlement Pond Design   6micron particles     Vr $g(sg_p - 1) \times d_p^2$ Settlement Pond Design   6micron particles     Vision Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18^2}$	Mean Greenfield Runoff Rates																																																																																																																																																																																				
Area of site (km2)     0.001788     Image: model of site (km2)     0.001788       Area of (site) catchment (m2)     1758 m²     Image: model of site (km2)     Placed road material       SAR     0.3     Placed road material     Placed road material       Q mean =     0.00153344 m³/sec     Placed road material       Q mean =     1.5 Us     Placed road material       G mean =     1.5 Us     Placed road material       G mean =     0.0015 m³/sec     Image: mail of size (km2)       Groth Factor - 10 yr return     1.3700     Image: mail of size (km2)       10 yr return peak flow     0.002 m³/sec     Image: mail of size (km2)       10 yr return peak flow     181.5 m³/day     Image: mail of size (km2)       Settlement Pond Design     Image: mail of size (km2)     Image: mail of size (km2)       Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18v}$ Image: mail of size (km2)       Settlement Pond Design     Image: mail of size (km2)     Image: mail of size (km2)       Ving Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18v}$ Image: mail of size (km2)       Ving Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18v}$ Image: mail of size (km2) <td>Q<sub>mean</sub> = 0.00108 × (AREA km<sup>2</sup></td> <td><sup>2</sup>)<sup>0.89</sup> × (SA</td> <td>AR mm)</td> <td><sup>1.17</sup> × (SOIL</td> <td>)<sup>2.17</sup></td> <td>1</td>	Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL	) <sup>2.17</sup>	1																																																																																																																																																																															
Area of site (km2)   0.001758   Image: constraint of the second state of the second stat																																																																																																																																																																																					
Area of (site) catchment (m2)   1758 m²   mm   mm     SAAR   1569   mm   Placed road material     G mean =   0.00153344 m³/sec   Placed road material     Q mean =   1.5   L/s   Placed road material     Q mean =   1.5   L/s   Placed road material     Q mean =   1.5   L/s   Placed road material     Q mean =   1.52,5 m³/day   Placed road material   Placed road material     G mean =   1.52,5 m³/day   Placed road material   Placed road material     G of preturn peak flow   0.001 m³/sec   Placed road material   Placed road material     10 yr return peak flow   2.1   L/s   Placed road material   Placed road material     10 yr return peak flow   181,5 m³/day   Placed road material   Placed road material   Placed road material     Settlement Pond Design   Isso   Placed road material   Placed road material   Placed road material     Using Stokes Law: $V_p = g(sg_p - 1) × d_p^2$ from Metcalf & Eddy, 4th Ed, placed flow   Placed road material   Placed road material     Using Stokes Law: $V_p = g(sg_p - 1) × d_p^2$ from metcalf & Eddy, 4th E	Area of site (km2)	0.001758																																																																																																																																																																																			
SAR   1569 mm   Placed road material     SOIL   0.3   Placed road material     Q mean =   0.00153344 m²/sec   Placed road material     Q mean =   1.5 L/s   Placed road material     Goth Factor - 10 yr return   1.3700   Placed road material     10 yr return peak flow   0.002 m³/sec   Placed road material     10 yr return peak flow   2.1 L/s   Placed road material     10 yr return peak flow   181.5 m²/day   Placed road material     Settlement Pond Design   For 10 m particles   For Metcall & Eddy, 4th Ed. placed road material     Valing Stokes Law: $V_p = \frac{g(sg_p - 1) × d_p^2}{18V}$ Soft     Eor 10 µm particles   6.00E-06 m   6 micron particles     Valing Stokes Law: $V_p = \frac{g(sg_p - 1) × d_p^2}{18V}$ Soft     Wafer Temp   10 °C   For 10 µm particles   6.00E-06 µm     Valing Stokes Law:   1.306E-06 µm/rs   Placed road material   For 10 µm/rs     Saterematrematic viscosity	Area of (site) catchment (m2)	1758	m <sup>2</sup>																																																																																																																																																																																		
SOIL   0.3   Placed road material     Q mean =   0.00153364 m <sup>3</sup> /sec       Q mean =   1.5 L/s       Q mean =   132.5 m <sup>3</sup> /day       Grath Factor - 10 yr return   1.3700       10 yr return peak flow   0.002 m <sup>3</sup> /sec       10 yr return peak flow   0.002 m <sup>3</sup> /sec       10 yr return peak flow   181.5 m <sup>3</sup> /day       Settlement Pond Design         Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcall & Eddy, 4th Ed, p     Settlement Fond Design         Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ Vater Temp   10<°C	SAAR	1569	mm																																																																																																																																																																																		
Q mean =   0.00153364 m <sup>3</sup> /sec   Image: constraint of the second secon	SOIL	0.3				Placed road material																																																																																																																																																																															
Q mean =   1.5 $1/s$ Image: Sec of the sec of	Q mean =	0.00153364	m³/sec																																																																																																																																																																																		
Q mean =   132.5 m²/day   Image: space of the space	Q mean =	1.5	L/s																																																																																																																																																																																		
Factored $Q_{bAE}$ -Rural0.0015 $m^3/sec$ Groth Factor - 10 yr return1.370010 yr return peak flow0.002 $m^3/sec$ 10 yr return peak flow2.110 yr return peak flow181.5 $m^3/day$ Settlement Pond DesignUsing Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcalf & Eddy, 4th Ed. pSettlement Pond DesignVing Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcalf & Eddy, 4th Ed. pKinematic viscosity2.6Vater Temp10°CKinematic viscosity1.306E-06 (m²/s)V_s (m/sec)0.00002 m/sV_s (m/sec)0.00002 m/sV_s m/hr0.087 m/hrImme for D (m)11.56 hrsQe V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 m say:Length to Width ratio3.19 :1>=3:1AcceptablePlan AreaA = $87.94$ m²Wo f catchment areaC% =5.00% >3%OKAcceptableDimensions of Settlement Pond:1 no.16.75Dimensions of Settlement Pond:1 no.16.75StateDimensions of Settlement Pond:1 no.16.75StateState	Q mean =	132.5	m³/day																																																																																																																																																																																		
Groth Factor - 10 yr return1.370010 yr return peak flow0.002 m³/sec10 yr return peak flow2.1 L/s10 yr return peak flow181.5 m³/day10 yr return peak flow181.5 m³/daySettlement Pond Design10 stateUsing Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ For 10 µm particles6.00E-06 mParticle Specific gravity2.6Water Temp10 °CKinematic viscosity1.306E-06 (m²/s)V <sub>1</sub> (m/sec)0.0002 m/sV <sub>1</sub> (m/sec)0.0002 m/sMrhr1.00Jay pond cross section area =5.25 m²S.25 m²5.25 m widthGe V.A impliesV =0.00040m/secRequired length of Pond =L =16.65m say:16.75m lengthLength to Width ratio3.19 :1Y =0.00040MracaA =87.94m²% of catchment areaC% =5.00%>3%OKAcceptableLength to width ratio5.251.00Single pond design	Factored Q <sub>BAR</sub> -Rural	0.0015	m <sup>3</sup> /sec																																																																																																																																																																																		
10 yr return peak flow   0.002 $m^3/sec$ 1     10 yr return peak flow   2.1   L/s   1     10 yr return peak flow   181.5 $m^3/day$ 1     Settlement Pond Design   1   5   from Metcalf & Eddy, 4th Ed, p     Settlement Pond Design   6   6   6   6     Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ 5   5     For 10 µm particles   6   6   6   6     Particle Specific gravity   2.6   6   6   6     Water Temp   10   °C   6   6   6   6     V, (m/sec)   0.00002 m/s   1	Groth Factor - 10 yr return	1.3700																																																																																																																																																																																			
10 yr return peak flow2.1 L/s10 yr return peak flow181.510 yr return peak flow181.510 yr return peak flow181.5Settlement Pond Design1Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ For 10 µm particles6.00E-06Particle Specific gravity2.6Water Temp10Vc26Water Temp10Vs (m/sec)0.00002Mr0.487 m/hrTime for D (m)11.56 hrsGe V.A impliesV =0.00040m/secRequired length of Pond =L =Length to Width ratio3.1911>=3:1AcceptableLength to Width ratioC% =Length to Width ratioC% =Length to Width ratioC% =Length to Settlement Pond:L (m)B (m)D (m)Dimensions of Settlement Pond:1 no.L (m)B (m)D (m)L (m)B (m)Dimensions of Settlement Pond:1 no.L (m)Suge pond design	10 vr return peak flow	0.002	m <sup>3</sup> /sec																																																																																																																																																																																		
DescriptionDescriptionDescription10 yr return peak flow181.5 m³/day11 yr return peak flow181.5 m³/daySettlement Pond Design1Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ For 10 µm particles6.00E-06 mParticle Specific gravity2.6Particle Specific gravity2.6Water Temp10Vs (m/sec)0.00002 m/sMarter Temp10Vs (m/sec)0.00002 m/sMarter Temp10Vs (m/sec)0.00002 m/sMarter Temp11.56 hrsTime for D (m)11.56 hrsImage of the particle of the pa	10 vr return peak flow	2.1	L/s																																																																																																																																																																																		
To its in the production production in the product in the produc	10 vr return peak flow	181.5	m <sup>3</sup> /day																																																																																																																																																																																		
Settlement Pond DesignImage: constraint of the set		101.0	, aa,																																																																																																																																																																																		
Settlement Pond DesignImage: constraint of the set																																																																																																																																																																																					
Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18v}$ from Metcalf & Eddy, 4th Ed, pBorn Metcalf & Eddy, 4th Ed, pParticles6.00E-06 m6 micron particlesParticle Specific gravity2.6Water Temp10 °CKinematic viscosity1.306E-06 (m²/s)V, (m/sec)0.00002 m/sTime for D (m)11.56 hrsI.00D (m) - depthsay pond cross section area =5.25 m²S.25 m²Required length of Pond =L =16.65 m say:16.75 m lengthLength to Width ratio3.19 :1>=3:1AcceptableLength for Width ratio3.19 :1>=3:1AcceptableLength for Width ratio3.19 :1>=3:1AcceptableLength for Width ratio of ~3:1Plan AreaA =87.94 m²% of catchment areaC% =L (m)B (m)D (m)Journal of Settlement Pond:1 no.L (m)B (m)D (m) <tr <="" td=""><td>Settlement Pond Desian</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Using Stokes Law:<math>V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}</math>from Metcalf &amp; Eddy. 4th Ed, pFor 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.66 micron particlesWater Temp10 °C6 micron particlesKinematic viscosity1.306E-06 (m²/s)6 micron particlesVs (m/sec)0.00002 m/s6 micron particlesM/rr0.087 m/hr6 micron particlesM/rr0.00002 m/s6 micron particlesM/rr0.087 m/hr6 micron particlesMine for D (m)11.56 hrs6 micron particlesMine for D (m)11.56 hrs6 micron particlesMine for D (m)11.56 hrs6 micron particlesMay pond cross section area =5.25 m²5.25 m widthMine for D (m)11.56 hrs1 micron particlesMine for D (m)11.56 m say:16.75 m lengthMicron for form for form for form form form fo</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Image relationImage relationImage relationFor 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.69Water Temp10 °C9Kinematic viscosity1.306E-06 (m²/s)9Vs (m/sec)0.00002 m/s9m/hr0.087 m/hr9Time for D (m)11.56 hrs1.00Mark or coss section area =5.25 m²5.25 m widthQ= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 m say:Length to Width ratio3.19 :1&gt;=3:1Acceptable9Plan AreaA =87.94 m²% of catchment areaC% =5.25Lumpt to width ratio0Lumpt to width areaC% =Lumpt to width area0Lumpt to width areaC% =Lumpt to width area0Marca100Marca</td><td>Using Stokes Law:</td><td><math>V = \frac{g(sg)}{sg}</math></td><td><math>(q_p-1) \times d_p^2</math></td><td>2</td><td></td><td>from Metcalf &amp; Eddy, 4th Ed, pg 365.</td></tr> <tr><td>For 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.6<math>^{\circ}</math>CWater Temp10 °C<math>^{\circ}</math>CKinematic viscosity1.306E-06 (m²/s)<math>^{\circ}</math>CVs (m/sec)0.00002 m/s<math>^{\circ}</math>Cm/hr0.087 m/hr<math>^{\circ}</math>CTime for D (m)11.56 hrs<math>^{\circ}</math>CQ= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 mLength to Width ratio3.19 :1&gt;=3:1AcceptableLength to width ratio of ~3:1Plan AreaA =87.94 m²% of catchment areaC% =5.00% &gt;3%OKAcceptableLength to Softlement Pond:1 no.Limensions of Settlement Pond:1 no.Limensions of Settlement Pond:1 no.</td><td></td><td>, p</td><td>18v</td><td></td><td></td><td></td></tr> <tr><td>Particle Specific gravity2.6Water Temp10 °CKinematic viscosity1.306E-06 (m²/s)<math>V_s</math> (m/sec)0.00002 m/sm/hr0.087 m/hrTime for D (m)11.56 hrsImage: Specific gravity1.00 D (m) - depthsay pond cross section area =5.25 m²Say pond cross section area =5.25 m²Image: Specific gravityV =Image: Specific gravityV =Image: Specific gravityV =Image: Specific gravityN =&lt;</td><td>For 10 µm particles</td><td>6.00E-06</td><td>m</td><td></td><td></td><td>6 micron particles</td></tr> <tr><td>Water Temp10<math>^{\circ}</math>CKinematic viscosity1.306E-06(m²/s)Vs (m/sec)0.00002m/hr0.087m/hr0.087m/hr0.087m/hr0.087m/hr1.00D (m)11.56say pond cross section area =5.25min widthQ= V.A impliesV =V =0.00040m/secin m lengthRequired length of Pond =L =Length to Width ratio3.19in AreaA =87.94m²% of catchment areaC% =C% =5.00%AssOKAcceptableLength to Settlement Pond:1 no.L(m)B (m)D (m)5.251.00Single pond design</td><td>Particle Specific gravity</td><td>2.6</td><td></td><td></td><td></td><td></td></tr> <tr><td>Kinematic viscosity     1.306E-06     (m²/s)     Image: constraint of constraints of constrain</td><td>Water Temp</td><td>10</td><td>°C</td><td></td><td></td><td></td></tr> <tr><td><math>V_s</math> (m/sec)<math>0.00002</math> m/sm/sm/hr<math>0.087</math> m/hr11.56 hrsTime for D (m)11.56 hrssay pond cross section area =<math>5.25</math> m²Q= V.A impliesV =Q= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 msay:16.75 m16.75 mPlan AreaA =87.94 m²% of catchment areaC% =Length to width ratio3.19 :1Length to areaC% =10.00 p0.000 pm²Length to width ratio3.19 :110.00 p0.000 pm²10.00 p1 no.16.75 p0.000 p1 no.16.75 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p</td><td>Kinematic viscosity</td><td>1.306E-06</td><td>(m²/s)</td><td></td><td></td><td></td></tr> <tr><td>m/hr0.087m/hrTime for D (m)11.56hrssay pond cross section area =5.25<math>m^2</math>Q= V.A impliesV =0.00040m/secRequired length of Pond =L =16.65m say:16.75Length to Width ratio3.19:1&gt;=3:1AcceptableLength to width ratio of ~3:1Length to width ratio of ~3:1Plan AreaA =87.94m²% of catchment areaC% =5.00%&gt;3%OKDimensions of Settlement Pond:1 no.16.75Single pond design</td><td>V<sub>s</sub> (m/sec)</td><td>0.00002</td><td>m/s</td><td></td><td></td><td></td></tr> <tr><td>Time for D (m)11.56 hrsImage: constraint of the section area and the section ar</td><td>m/hr</td><td>0.087</td><td>m/hr</td><td></td><td></td><td></td></tr> <tr><td>Image: section area =Image: section area</td><td>Time for D (m)</td><td>11.56</td><td>hrs</td><td></td><td></td><td></td></tr> <tr><td>say pond cross section area =   5.25 m²   5.25 m width     Q= V.A implies   V =   0.00040 m/sec   Image: Comparison of Comparison of Settlement Pond:     Required length of Pond =   L =   16.65 m say:   16.75 m length     Required length of Pond =   L =   16.65 m say:   16.75 m length     Length to Width ratio   3.19 :1   &gt;=3:1   Acceptable     Length to Width ratio   3.19 :1   &gt;=3:1   Acceptable     Marcine   Marcine   Marcine   Marcine     Marcine   Marcine   Marcine   Marcine   Marcine&lt;</td><td></td><td></td><td></td><td></td><td>1.00</td><td>D (m) - depth</td></tr> <tr><td>Q= V.A impliesV =<math>0.00040</math> m/secRequired length of Pond =L =<math>16.65</math> m say:<math>16.75</math> m lengthLength to Width ratio<math>3.19</math> :1&gt;=3:1AcceptableLength to Width ratio<math>3.19</math> :1&gt;=3:1AcceptableMarcaA =<math>87.94</math> m²Ength to width ratio of ~3:1Plan AreaC% =<math>5.00\%</math> &gt;3%OKAcceptableMarcaC% =<math>5.00\%</math> &gt;3%OKAcceptableMarcaL (m)B (m)D (m)Single pond designDimensions of Settlement Pond:1 no.<math>16.75</math><math>5.25</math><math>1.00</math>Single pond design</td><td>say pond cross section area =</td><td></td><td>5.25</td><td>m<sup>2</sup></td><td>5.25</td><td>m width</td></tr> <tr><td>Q= V.A implies   V =   0.00040   m/sec     Required length of Pond =   L =   16.65   m   say:   16.75   m length     Length to Width ratio   3.19   :1   &gt;=3:1   Acceptable     Length to Width ratio   3.19   :1   &gt;=3:1   Acceptable     Plan Area   A =   87.94   m²   M     % of catchment area   C% =   5.00%   &gt;3%   OK   Acceptable     Length to Single pond design   L (m)   B (m)   D (m)   Single pond design</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Required length of Pond =L =16.65m say:16.75m lengthLength to Width ratio3.19:1&gt;=3:1AcceptableLength to Width ratio3.19:1&gt;=3:1AcceptableImage: Second s</td><td>Q= V.A implies</td><td>V =</td><td>0.00040</td><td>m/sec</td><td></td><td></td></tr> <tr><td>Required length of Pond =   L =   16.65 m   say:   16.75 m   m length     Length to Width ratio   3.19 :1   &gt;=3:1   Acceptable     Length to Width ratio   3.19 :1   &gt;=3:1   Acceptable     Plan Area   A =   87.94 m²   Length to width ratio of ~3:1     % of catchment area   C% =   5.00% &gt;3%   OK   Acceptable     L (m)   B (m)   D (m)   Dimensions of Settlement Pond:   1 no.   16.75   Single pond design</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Length to Width ratio3.19:1&gt;=3:1AcceptableLength to Width ratio3.19:1&gt;=3:1AcceptablePlan AreaA =87.94m²Ength to width ratio of ~3:1% of catchment areaC% =5.00%&gt;3%OKAcceptableCL (m)B (m)D (m)Ength to width ratioDimensions of Settlement Pond:1 no.16.755.251.00Single pond design</td><td>Required length of Pond =</td><td>L =</td><td>16.65</td><td>m say</td><td>: 16.75</td><td>m length</td></tr> <tr><td>Length to width ratio   3.19   1   &gt;=3:1   Acceptable     Length to width ratio of ~3:1   Length to width ratio of ~3:1   Length to width ratio of ~3:1     Plan Area   A =   87.94 m²   Acceptable     % of catchment area   C% =   5.00%   &gt;3%   OK     Acceptable   L (m)   B (m)   D (m)     Dimensions of Settlement Pond:   1 no.   16.75   5.25   1.00   Single pond design</td><td></td><td></td><td>2.10</td><td>.1</td><td>&gt; 0.1</td><td></td></tr> <tr><td>Plan Area     A =     87.94 m²     CK     Acceptable       % of catchment area     C% =     5.00% &gt;3%     OK     Acceptable       L (m)     B (m)     D (m)     Dimensions of Settlement Pond:     1 no.     16.75     5.25     1.00     Single pond design</td><td>Length to width ratio</td><td></td><td>3.19</td><td>:1</td><td>&gt;=3:1</td><td>Acceptable</td></tr> <tr><td>Plan Area   A =   87.94 m   OK   Acceptable     % of catchment area   C% =   5.00%   &gt;3%   OK   Acceptable     L (m)   B (m)   D (m)   Dimensions of Settlement Pond:   1 no.   16.75   5.25   1.00   Single pond design</td><td></td><td></td><td>07.04</td><td>m<sup>2</sup></td><td></td><td>Length to width ratio of ~3.1</td></tr> <tr><td>% of calchment dred     C% =     5.00% &gt; 3%     OK     Acceptable       Image: C =     5.00% &gt; 3%     OK     Acceptable       Image: Dimensions of Settlement Pond:     1 no.     B (m)     D (m)       Image: Dimensions of Settlement Pond:     1 no.     16.75     5.25     1.00     Single pond design</td><td>Plan Area</td><td>A =</td><td>87.94 E 0007</td><td>&gt; 207</td><td></td><td>Acceptable</td></tr> <tr><td>L (m) B (m) D (m)   Dimensions of Settlement Pond: 1 no. 16.75 5.25 1.00 Single pond design</td><td></td><td>C/0 -</td><td>5.00%</td><td>-3%</td><td></td><td>Acceptable</td></tr> <tr><td>Dimensions of Settlement Pond: 1 no. 16.75 5.25 1.00 Single pond design</td><td></td><td></td><td>  (m)</td><td>B (m)</td><td>D (m)</td><td></td></tr> <tr><td></td><td>Dimensions of Settlement Pond:</td><td>1 no.</td><td>16.75</td><td>5.25</td><td>1.00</td><td>Sinale pond desian</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Operating Volume: 88 m<sup>3</sup> Good to remove medium to</td><td>Operating Volume:</td><td>οΩ</td><td>m<sup>3</sup></td><td></td><td>OF</td><td>Good to remove medium to fine silts to 0.006mm</td></tr>	Settlement Pond Desian						Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcalf & Eddy. 4th Ed, pFor 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.66 micron particlesWater Temp10 °C6 micron particlesKinematic viscosity1.306E-06 (m²/s)6 micron particlesVs (m/sec)0.00002 m/s6 micron particlesM/rr0.087 m/hr6 micron particlesM/rr0.00002 m/s6 micron particlesM/rr0.087 m/hr6 micron particlesMine for D (m)11.56 hrs6 micron particlesMine for D (m)11.56 hrs6 micron particlesMine for D (m)11.56 hrs6 micron particlesMay pond cross section area =5.25 m²5.25 m widthMine for D (m)11.56 hrs1 micron particlesMine for D (m)11.56 m say:16.75 m lengthMicron for form for form for form form form fo							Image relationImage relationImage relationFor 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.69Water Temp10 °C9Kinematic viscosity1.306E-06 (m²/s)9Vs (m/sec)0.00002 m/s9m/hr0.087 m/hr9Time for D (m)11.56 hrs1.00Mark or coss section area =5.25 m²5.25 m widthQ= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 m say:Length to Width ratio3.19 :1>=3:1Acceptable9Plan AreaA =87.94 m²% of catchment areaC% =5.25Lumpt to width ratio0Lumpt to width areaC% =Lumpt to width area0Lumpt to width areaC% =Lumpt to width area0Marca100Marca	Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.	For 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.6 $^{\circ}$ CWater Temp10 °C $^{\circ}$ CKinematic viscosity1.306E-06 (m²/s) $^{\circ}$ CVs (m/sec)0.00002 m/s $^{\circ}$ Cm/hr0.087 m/hr $^{\circ}$ CTime for D (m)11.56 hrs $^{\circ}$ CQ= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 mLength to Width ratio3.19 :1>=3:1AcceptableLength to width ratio of ~3:1Plan AreaA =87.94 m²% of catchment areaC% =5.00% >3%OKAcceptableLength to Softlement Pond:1 no.Limensions of Settlement Pond:1 no.Limensions of Settlement Pond:1 no.		, p	18v				Particle Specific gravity2.6Water Temp10 °CKinematic viscosity1.306E-06 (m²/s) $V_s$ (m/sec)0.00002 m/sm/hr0.087 m/hrTime for D (m)11.56 hrsImage: Specific gravity1.00 D (m) - depthsay pond cross section area =5.25 m²Say pond cross section area =5.25 m²Image: Specific gravityV =Image: Specific gravityV =Image: Specific gravityV =Image: Specific gravityN =<	For 10 µm particles	6.00E-06	m			6 micron particles	Water Temp10 $^{\circ}$ CKinematic viscosity1.306E-06(m²/s)Vs (m/sec)0.00002m/hr0.087m/hr0.087m/hr0.087m/hr0.087m/hr1.00D (m)11.56say pond cross section area =5.25min widthQ= V.A impliesV =V =0.00040m/secin m lengthRequired length of Pond =L =Length to Width ratio3.19in AreaA =87.94m²% of catchment areaC% =C% =5.00%AssOKAcceptableLength to Settlement Pond:1 no.L(m)B (m)D (m)5.251.00Single pond design	Particle Specific gravity	2.6					Kinematic viscosity     1.306E-06     (m²/s)     Image: constraint of constraints of constrain	Water Temp	10	°C				$V_s$ (m/sec) $0.00002$ m/sm/sm/hr $0.087$ m/hr11.56 hrsTime for D (m)11.56 hrssay pond cross section area = $5.25$ m²Q= V.A impliesV =Q= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 msay:16.75 m16.75 mPlan AreaA =87.94 m²% of catchment areaC% =Length to width ratio3.19 :1Length to areaC% =10.00 p0.000 pm²Length to width ratio3.19 :110.00 p0.000 pm²10.00 p1 no.16.75 p0.000 p1 no.16.75 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p	Kinematic viscosity	1.306E-06	(m²/s)				m/hr0.087m/hrTime for D (m)11.56hrssay pond cross section area =5.25 $m^2$ Q= V.A impliesV =0.00040m/secRequired length of Pond =L =16.65m say:16.75Length to Width ratio3.19:1>=3:1AcceptableLength to width ratio of ~3:1Length to width ratio of ~3:1Plan AreaA =87.94m²% of catchment areaC% =5.00%>3%OKDimensions of Settlement Pond:1 no.16.75Single pond design	V <sub>s</sub> (m/sec)	0.00002	m/s				Time for D (m)11.56 hrsImage: constraint of the section area and the section ar	m/hr	0.087	m/hr				Image: section area =Image: section area	Time for D (m)	11.56	hrs				say pond cross section area =   5.25 m²   5.25 m width     Q= V.A implies   V =   0.00040 m/sec   Image: Comparison of Comparison of Settlement Pond:     Required length of Pond =   L =   16.65 m say:   16.75 m length     Required length of Pond =   L =   16.65 m say:   16.75 m length     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Marcine   Marcine   Marcine   Marcine     Marcine   Marcine   Marcine   Marcine   Marcine<					1.00	D (m) - depth	Q= V.A impliesV = $0.00040$ m/secRequired length of Pond =L = $16.65$ m say: $16.75$ m lengthLength to Width ratio $3.19$ :1>=3:1AcceptableLength to Width ratio $3.19$ :1>=3:1AcceptableMarcaA = $87.94$ m²Ength to width ratio of ~3:1Plan AreaC% = $5.00\%$ >3%OKAcceptableMarcaC% = $5.00\%$ >3%OKAcceptableMarcaL (m)B (m)D (m)Single pond designDimensions of Settlement Pond:1 no. $16.75$ $5.25$ $1.00$ Single pond design	say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width	Q= V.A implies   V =   0.00040   m/sec     Required length of Pond =   L =   16.65   m   say:   16.75   m length     Length to Width ratio   3.19   :1   >=3:1   Acceptable     Length to Width ratio   3.19   :1   >=3:1   Acceptable     Plan Area   A =   87.94   m²   M     % of catchment area   C% =   5.00%   >3%   OK   Acceptable     Length to Single pond design   L (m)   B (m)   D (m)   Single pond design							Required length of Pond =L =16.65m say:16.75m lengthLength to Width ratio3.19:1>=3:1AcceptableLength to Width ratio3.19:1>=3:1AcceptableImage: Second s	Q= V.A implies	V =	0.00040	m/sec			Required length of Pond =   L =   16.65 m   say:   16.75 m   m length     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Plan Area   A =   87.94 m²   Length to width ratio of ~3:1     % of catchment area   C% =   5.00% >3%   OK   Acceptable     L (m)   B (m)   D (m)   Dimensions of Settlement Pond:   1 no.   16.75   Single pond design							Length to Width ratio3.19:1>=3:1AcceptableLength to Width ratio3.19:1>=3:1AcceptablePlan AreaA =87.94m²Ength to width ratio of ~3:1% of catchment areaC% =5.00%>3%OKAcceptableCL (m)B (m)D (m)Ength to width ratioDimensions of Settlement Pond:1 no.16.755.251.00Single pond design	Required length of Pond =	L =	16.65	m say	: 16.75	m length	Length to width ratio   3.19   1   >=3:1   Acceptable     Length to width ratio of ~3:1   Length to width ratio of ~3:1   Length to width ratio of ~3:1     Plan Area   A =   87.94 m²   Acceptable     % of catchment area   C% =   5.00%   >3%   OK     Acceptable   L (m)   B (m)   D (m)     Dimensions of Settlement Pond:   1 no.   16.75   5.25   1.00   Single pond design			2.10	.1	> 0.1		Plan Area     A =     87.94 m²     CK     Acceptable       % of catchment area     C% =     5.00% >3%     OK     Acceptable       L (m)     B (m)     D (m)     Dimensions of Settlement Pond:     1 no.     16.75     5.25     1.00     Single pond design	Length to width ratio		3.19	:1	>=3:1	Acceptable	Plan Area   A =   87.94 m   OK   Acceptable     % of catchment area   C% =   5.00%   >3%   OK   Acceptable     L (m)   B (m)   D (m)   Dimensions of Settlement Pond:   1 no.   16.75   5.25   1.00   Single pond design			07.04	m <sup>2</sup>		Length to width ratio of ~3.1	% of calchment dred     C% =     5.00% > 3%     OK     Acceptable       Image: C =     5.00% > 3%     OK     Acceptable       Image: Dimensions of Settlement Pond:     1 no.     B (m)     D (m)       Image: Dimensions of Settlement Pond:     1 no.     16.75     5.25     1.00     Single pond design	Plan Area	A =	87.94 E 0007	> 207		Acceptable	L (m) B (m) D (m)   Dimensions of Settlement Pond: 1 no. 16.75 5.25 1.00 Single pond design		C/0 -	5.00%	-3%		Acceptable	Dimensions of Settlement Pond: 1 no. 16.75 5.25 1.00 Single pond design			(m)	B (m)	D (m)			Dimensions of Settlement Pond:	1 no.	16.75	5.25	1.00	Sinale pond desian								Operating Volume: 88 m <sup>3</sup> Good to remove medium to	Operating Volume:	οΩ	m <sup>3</sup>		OF	Good to remove medium to fine silts to 0.006mm
Settlement Pond Desian																																																																																																																																																																																					
Using Stokes Law: $V_p = \frac{g(sg_p - 1) \times d_p^2}{18\nu}$ from Metcalf & Eddy. 4th Ed, pFor 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.66 micron particlesWater Temp10 °C6 micron particlesKinematic viscosity1.306E-06 (m²/s)6 micron particlesVs (m/sec)0.00002 m/s6 micron particlesM/rr0.087 m/hr6 micron particlesM/rr0.00002 m/s6 micron particlesM/rr0.087 m/hr6 micron particlesMine for D (m)11.56 hrs6 micron particlesMine for D (m)11.56 hrs6 micron particlesMine for D (m)11.56 hrs6 micron particlesMay pond cross section area =5.25 m²5.25 m widthMine for D (m)11.56 hrs1 micron particlesMine for D (m)11.56 m say:16.75 m lengthMicron for form for form for form form form fo																																																																																																																																																																																					
Image relationImage relationImage relationFor 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.69Water Temp10 °C9Kinematic viscosity1.306E-06 (m²/s)9Vs (m/sec)0.00002 m/s9m/hr0.087 m/hr9Time for D (m)11.56 hrs1.00Mark or coss section area =5.25 m²5.25 m widthQ= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 m say:Length to Width ratio3.19 :1>=3:1Acceptable9Plan AreaA =87.94 m²% of catchment areaC% =5.25Lumpt to width ratio0Lumpt to width areaC% =Lumpt to width area0Lumpt to width areaC% =Lumpt to width area0Marca100Marca	Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.																																																																																																																																																																															
For 10 µm particles6.00E-06 m6 micron particlesParticle Specific gravity2.6 $^{\circ}$ CWater Temp10 °C $^{\circ}$ CKinematic viscosity1.306E-06 (m²/s) $^{\circ}$ CVs (m/sec)0.00002 m/s $^{\circ}$ Cm/hr0.087 m/hr $^{\circ}$ CTime for D (m)11.56 hrs $^{\circ}$ CQ= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 mLength to Width ratio3.19 :1>=3:1AcceptableLength to width ratio of ~3:1Plan AreaA =87.94 m²% of catchment areaC% =5.00% >3%OKAcceptableLength to Softlement Pond:1 no.Limensions of Settlement Pond:1 no.Limensions of Settlement Pond:1 no.		, p	18v																																																																																																																																																																																		
Particle Specific gravity2.6Water Temp10 °CKinematic viscosity1.306E-06 (m²/s) $V_s$ (m/sec)0.00002 m/sm/hr0.087 m/hrTime for D (m)11.56 hrsImage: Specific gravity1.00 D (m) - depthsay pond cross section area =5.25 m²Say pond cross section area =5.25 m²Image: Specific gravityV =Image: Specific gravityV =Image: Specific gravityV =Image: Specific gravityN =<	For 10 µm particles	6.00E-06	m			6 micron particles																																																																																																																																																																															
Water Temp10 $^{\circ}$ CKinematic viscosity1.306E-06(m²/s)Vs (m/sec)0.00002m/hr0.087m/hr0.087m/hr0.087m/hr0.087m/hr1.00D (m)11.56say pond cross section area =5.25min widthQ= V.A impliesV =V =0.00040m/secin m lengthRequired length of Pond =L =Length to Width ratio3.19in AreaA =87.94m²% of catchment areaC% =C% =5.00%AssOKAcceptableLength to Settlement Pond:1 no.L(m)B (m)D (m)5.251.00Single pond design	Particle Specific gravity	2.6																																																																																																																																																																																			
Kinematic viscosity     1.306E-06     (m²/s)     Image: constraint of constraints of constrain	Water Temp	10	°C																																																																																																																																																																																		
$V_s$ (m/sec) $0.00002$ m/sm/sm/hr $0.087$ m/hr11.56 hrsTime for D (m)11.56 hrssay pond cross section area = $5.25$ m²Q= V.A impliesV =Q= V.A impliesV =0.00040 m/secRequired length of Pond =L =16.65 msay:16.75 m16.75 mPlan AreaA =87.94 m²% of catchment areaC% =Length to width ratio3.19 :1Length to areaC% =10.00 p0.000 pm²Length to width ratio3.19 :110.00 p0.000 pm²10.00 p1 no.16.75 p0.000 p1 no.16.75 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p1.00 p0.000 p	Kinematic viscosity	1.306E-06	(m²/s)																																																																																																																																																																																		
m/hr0.087m/hrTime for D (m)11.56hrssay pond cross section area =5.25 $m^2$ Q= V.A impliesV =0.00040m/secRequired length of Pond =L =16.65m say:16.75Length to Width ratio3.19:1>=3:1AcceptableLength to width ratio of ~3:1Length to width ratio of ~3:1Plan AreaA =87.94m²% of catchment areaC% =5.00%>3%OKDimensions of Settlement Pond:1 no.16.75Single pond design	V <sub>s</sub> (m/sec)	0.00002	m/s																																																																																																																																																																																		
Time for D (m)11.56 hrsImage: constraint of the section area and the section ar	m/hr	0.087	m/hr																																																																																																																																																																																		
Image: section area =Image: section area	Time for D (m)	11.56	hrs																																																																																																																																																																																		
say pond cross section area =   5.25 m²   5.25 m width     Q= V.A implies   V =   0.00040 m/sec   Image: Comparison of Comparison of Settlement Pond:     Required length of Pond =   L =   16.65 m say:   16.75 m length     Required length of Pond =   L =   16.65 m say:   16.75 m length     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Marcine   Marcine   Marcine   Marcine     Marcine   Marcine   Marcine   Marcine   Marcine<					1.00	D (m) - depth																																																																																																																																																																															
Q= V.A impliesV = $0.00040$ m/secRequired length of Pond =L = $16.65$ m say: $16.75$ m lengthLength to Width ratio $3.19$ :1>=3:1AcceptableLength to Width ratio $3.19$ :1>=3:1AcceptableMarcaA = $87.94$ m²Ength to width ratio of ~3:1Plan AreaC% = $5.00\%$ >3%OKAcceptableMarcaC% = $5.00\%$ >3%OKAcceptableMarcaL (m)B (m)D (m)Single pond designDimensions of Settlement Pond:1 no. $16.75$ $5.25$ $1.00$ Single pond design	say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width																																																																																																																																																																															
Q= V.A implies   V =   0.00040   m/sec     Required length of Pond =   L =   16.65   m   say:   16.75   m length     Length to Width ratio   3.19   :1   >=3:1   Acceptable     Length to Width ratio   3.19   :1   >=3:1   Acceptable     Plan Area   A =   87.94   m²   M     % of catchment area   C% =   5.00%   >3%   OK   Acceptable     Length to Single pond design   L (m)   B (m)   D (m)   Single pond design																																																																																																																																																																																					
Required length of Pond =L =16.65m say:16.75m lengthLength to Width ratio3.19:1>=3:1AcceptableLength to Width ratio3.19:1>=3:1AcceptableImage: Second s	Q= V.A implies	V =	0.00040	m/sec																																																																																																																																																																																	
Required length of Pond =   L =   16.65 m   say:   16.75 m   m length     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Length to Width ratio   3.19 :1   >=3:1   Acceptable     Plan Area   A =   87.94 m²   Length to width ratio of ~3:1     % of catchment area   C% =   5.00% >3%   OK   Acceptable     L (m)   B (m)   D (m)   Dimensions of Settlement Pond:   1 no.   16.75   Single pond design																																																																																																																																																																																					
Length to Width ratio3.19:1>=3:1AcceptableLength to Width ratio3.19:1>=3:1AcceptablePlan AreaA =87.94m²Ength to width ratio of ~3:1% of catchment areaC% =5.00%>3%OKAcceptableCL (m)B (m)D (m)Ength to width ratioDimensions of Settlement Pond:1 no.16.755.251.00Single pond design	Required length of Pond =	L =	16.65	m say	: 16.75	m length																																																																																																																																																																															
Length to width ratio   3.19   1   >=3:1   Acceptable     Length to width ratio of ~3:1   Length to width ratio of ~3:1   Length to width ratio of ~3:1     Plan Area   A =   87.94 m²   Acceptable     % of catchment area   C% =   5.00%   >3%   OK     Acceptable   L (m)   B (m)   D (m)     Dimensions of Settlement Pond:   1 no.   16.75   5.25   1.00   Single pond design			2.10	.1	> 0.1																																																																																																																																																																																
Plan Area     A =     87.94 m²     CK     Acceptable       % of catchment area     C% =     5.00% >3%     OK     Acceptable       L (m)     B (m)     D (m)     Dimensions of Settlement Pond:     1 no.     16.75     5.25     1.00     Single pond design	Length to width ratio		3.19	:1	>=3:1	Acceptable																																																																																																																																																																															
Plan Area   A =   87.94 m   OK   Acceptable     % of catchment area   C% =   5.00%   >3%   OK   Acceptable     L (m)   B (m)   D (m)   Dimensions of Settlement Pond:   1 no.   16.75   5.25   1.00   Single pond design			07.04	m <sup>2</sup>		Length to width ratio of ~3.1																																																																																																																																																																															
% of calchment dred     C% =     5.00% > 3%     OK     Acceptable       Image: C =     5.00% > 3%     OK     Acceptable       Image: Dimensions of Settlement Pond:     1 no.     B (m)     D (m)       Image: Dimensions of Settlement Pond:     1 no.     16.75     5.25     1.00     Single pond design	Plan Area	A =	87.94 E 0007	> 207		Acceptable																																																																																																																																																																															
L (m) B (m) D (m)   Dimensions of Settlement Pond: 1 no. 16.75 5.25 1.00 Single pond design		C/0 -	5.00%	-3%		Acceptable																																																																																																																																																																															
Dimensions of Settlement Pond: 1 no. 16.75 5.25 1.00 Single pond design			(m)	B (m)	D (m)																																																																																																																																																																																
	Dimensions of Settlement Pond:	1 no.	16.75	5.25	1.00	Sinale pond desian																																																																																																																																																																															
Operating Volume: 88 m <sup>3</sup> Good to remove medium to	Operating Volume:	οΩ	m <sup>3</sup>		OF	Good to remove medium to fine silts to 0.006mm																																																																																																																																																																															

Catchment Z:				SP-Z2	
Mean Greenfield Runoff Rates					
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL)	)2.17	
Area of site (km2)	0.001754				
Area of (site) catchment (m2)	1754	m²			
SAAR	1569	mm			
SOIL	0.3				Placed road material
Q mean =	0.00153053	m³/sec			
Q mean =	1.5	L/s			
Q mean =	132.2	m³/day			
Factored Q <sub>BAR</sub> -Rural	0.0015	m <sup>3</sup> /sec			
Groth Factor - 10 yr return	1.3700				
10 vr return peak flow	0.002	m <sup>3</sup> /sec			
10 vr return peak flow	2.1	L/s			
10 vr return peak flow	181.2	m <sup>3</sup> /day			
	101.2	, aa,			
Settlement Pond Desian					
Using Stokes Law:	$V = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.
	, p	18v			
For 10 µm particles	6.00E-06	m			6 micron particles
Particle Specific gravity	2.6				
Water Temp	10	°C			
Kinematic viscosity	1.306E-06	(m <sup>2</sup> /s)			
V <sub>s</sub> (m/sec)	0.00002	m/s			
m/hr	0.087	m/hr			
Time for D (m)	11.56	hrs			
				1.00	D (m) - depth
say pond cross section area =		5.25	m <sup>2</sup>	5.25	m width
Q= V.A implies	V =	0.00040	m/sec		
Required length of Pond =	L =	16.62	m say:	16.5	m length
			-		
Length to Width ratio		3.14	:1	>=3:1	Acceptable
					Length to width ratio of ~3:1
Plan Area	A =	86.63	111		
% of catchment area	C% =	4.94%	>3%		Acceptable
		$\lfloor (m) \rfloor$	B (m)	D(m)	
Dimensions of Settlement Pond	1 no.	16.5	5 25	1.00	Single pond design
			5.20		
					Good to remove medium to
Operating Volume:	87	III.		OK	TIME SHITS TO ULUU6MM

Catchment Z:			S	P-Z3					
Mean Greenfield Runoff Rates									
$Q_{\text{mean}} = 0.00108 \times (\text{AREA km}^2)$	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	.17					
Area of site (km2)	0.002009								
Area of (site) catchment (m2)	2009	m <sup>2</sup>							
SAAR	1329	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00142218	m³/sec							
Q mean =	1.4	L/s							
Q mean =	122.9	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0014	m <sup>3</sup> /sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.002	m <sup>3</sup> /sec							
10 yr return peak flow	1.9	L/s							
10 vr return peak flow	168.3	m <sup>3</sup> /day							
	100.0	, aa,							
Settlement Pond Desian									
<u> </u>									
	g(59	$(-1) \times d^2$	2		from Metcalf & Eddy, 4th Ed, pg				
Using Stokes Law:	$V_{p} = \frac{8008}{100}$		2		365.				
	r	181							
<u>For 10 µm particles</u>	6.00E-06	m			6 micron particles				
Particle Specific gravity	2.6								
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	(m²/s)							
V <sub>s</sub> (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
			2	1.00	D (m) - depth				
say pond cross section area =		5.00	m <sup>2</sup>	5.00	m width				
Q= V.A implies	V =	0.00039	m/sec						
		17.01		1/ 05					
Required length of Pond =	L =	16.21	m say:	16.23	miengin				
Length to Width ratio		3 25	•1	>-2.1	Acceptable				
		5.25	• 1	2-0.1	Length to width ratio of ~3.1				
Plan Area	Δ =	Q1 05	m <sup>2</sup>						
% of catchment area	/\_ C%=	4 04%	>3%	OK	Accentable				
	C /0	4.04/0	- 070						
		(m)	B (m)	D (m)					
Dimensions of Settlement Pond:	1 no.	16.25	5.00	1.00	Single pond design				
		_			Good to remove medium to				
Operating Volume:	81.25	m³		OK	fine silts to 0.006mm				
Catchment Z:	SP-Z4								
---	--------------------------	------------------------	----------------	---------	---	--	--	--	--
Mean Greenfield Runoff Rates									
$Q_{mean} = 0.00108 \times (AREA \text{ km}^2)^{0.89} \times (SAAR \text{ mm})^{1.17} \times (SOIL)^{2.17}$									
Area of site (km2)	0.001163								
Area of (site) catchment (m2)	1163	m <sup>2</sup>							
SAAR	1569	mm							
SOIL	0.3				Placed road material				
Q mean =	0.00106175	m³/sec							
Q mean =	1.1	L/s							
Q mean =	91.7	m³/day							
Factored Q <sub>BAR</sub> -Rural	0.0011	m³/sec							
Groth Factor - 10 yr return	1.3700								
10 vr return peak flow	0.001	m <sup>3</sup> /sec							
10 yr return peak flow	1.5	L/s							
10 vr return peak flow	125.7	m <sup>3</sup> /day							
	120.7	,							
Settlement Pond Design									
Using Stokes Law:	$V_n = \frac{g(sg)}{sg}$	$(q_p-1) \times d_p^2$	2		from Metcalf & Eddy, 4th Ed, pg 365.				
	P	<u>18v</u>							
For 10 µm particles	6.00E-06	m			6 micron particles				
Particle Specific gravity	2.6								
Water Temp	10	°C							
Kinematic viscosity	1.306E-06	(m²/s)							
V <sub>s</sub> (m/sec)	0.00002	m/s							
m/hr	0.087	m/hr							
Time for D (m)	11.56	hrs							
			-	1.00	D (m) - depth				
say pond cross section area =		4.50	m²	4.50	m width				
Q= V.A implies	V =	0.00032	m/sec						
		10.45		10.5					
Required length of Pond =	L =	13.45	m say:	13.5	mlength				
Length to Width ratio		2.00	.1	> _ 2.1	Assantable				
		3.00	.1	>=3:1	Acceptable				
		10.75	m <sup>2</sup>		Lengin to widin fallo of ~3.1				
rian Area	A =	5 00.7 J	207	OK	Accontable				
	C/0 -	J.ZZ%	- 0/0						
		(m)	B (m)	D(m)	1				
Dimensions of Settlement Pond:	1 no.	13.5	<b>4.50</b>	1.00	Sinale pond desian				
Operating Volume:	/1	m <sup>3</sup>		OK	Good to remove medium to				
operating volume.	01		1	UN					

Catchment Z:	SP-Z5					
Mean Greenfield Runoff Rates						
Q <sub>mean</sub> = 0.00108 × (AREA km <sup>2</sup>	<sup>2</sup> ) <sup>0.89</sup> × (SA	AR mm)	<sup>1.17</sup> × (SOIL) <sup>2</sup>	2.17	1	
Area of site (km2)	0.003347					
Area of (site) catchment (m2)	3347	m <sup>2</sup>				
SAAR	1569	mm				
SOIL	0.3	-			Placed road material	
Q mean =	0.00272019	m³/sec				
Q mean =	2.7	L/s				
Q mean =	235.0	m³/day				
Factored Q <sub>BAR</sub> -Rural	0.0027	m <sup>3</sup> /sec				
Groth Factor - 10 yr return	1.3700					
10 yr return peak flow	0.004	m³/sec				
10 yr return peak flow	3.7	L/s				
10 yr return peak flow	322.0	m³/day				
Settlement Pond Design						
		$(1) \sqrt{d^2}$	2		from Metcalf & Eddy 4th Ed. pa	
Using Stokes Law:	$V = \frac{g(sg)}{s}$	$(p-1) \times a_p$	,		365.	
	, p	18v				
For 10 µm particles	6.00E-06	m			6 micron particles	
Particle Specific gravity	2.6					
Water Temp	10	°C				
Kinematic viscosity	1.306E-06	(m²/s)				
V <sub>s</sub> (m/sec)	0.00002	m/s				
m/hr	0.087	m/hr				
Time for D (m)	11.56	hrs		1.00		
				1.00	D (m) - depth	
say pond cross section area =		7.25	m-	7.25	m width	
	\/ -	0.00051	m /soo			
	v –	0.00031	111/360			
Required length of Pond =	L =	21.38	m sav:	21.5	m lenath	
Length to Width ratio		2.97	:1	>=3:1	Acceptable	
					Length to width ratio of ~3:1	
Plan Area	A =	155.88	m <sup>2</sup>			
% of catchment area	C% =	4.66%	>3%	OK	Acceptable	
		L (m)	B (m)	D (m)		
Dimensions of Settlement Pond:	I no.	21.5	7.25	1.00	Single pond design	
					Good to remove medium to	
Operating Volume:	156	m <sup>3</sup>		ОК	fine silts to 0.006mm	