二 Setting Tank Calculation

1. bisic date

1.1 flow

daily average	flow	Qav =	40000	m^3 / d =	0.46	m^3 /s	
daily minimum	flow	Qmin =	40000	m^3 / d =	0.46	m^3 /s	
daily variation coefficient		Kz =	#NAME?				
daily maximum flow		Qmax =	Kz * Qav =	#NAME?	m^3/d =	#NAME?	m^3 / h
			=	#NAME?	m^3 /s		

2 intake well and weir

2.1 intake size

mixiumum flow	Qmax =	#NAME?	m^3 /s	
minimum flow	Qmin =	0.46	m^3 /s	
Number of Intake Well Grids	n =	1	grids	
Width of the Weir Plate in the Inlet Well	L =	1.5	m	
the length of intake well	W =	1.2	m	
the high of intake well	H =	6	m	
Maximum Upward Flow Velocity in the Inlet	V = Qmax/(n*w*L) =		#NAME?	m/s
Minimum Upward Flow Velocity in the Inlet	V = Qmin/(n*w*L) =		0.26	m/s

2.2 Rectangular weir

2.2.1 Thin-Plate Rectangular Weir (Unsubmerged, No Lateral Contraction, Negligible Velocity)

use formula : The flow rate through the weir is	Q =	$m * b * (2 * g)^{1/2} * H^{3/2}$	
flow fator is	m =	0.405 + 0.0027 / H	
formula value :			
number of wair		2	
single weir width	b =	1.5	m
single weir flow Qma = Qmax/n1 =		#NAME?	m^3 /s
gravitational acceleration	g =	9.81	m / s^2
The following results are obtained using the trial calculation method:			
water depth over the weir	H =	#NAME?	m
flow fator is	m =	#NAME?	
weir volume	q =	#NAME?	l / (m * s)
Check the average flow rate based on single weir overflow			
number of wair	n2 =	1	
single weir width	b =	1.5	m
single weir flow Q' = Qav/(n1-1) =		0.463	m^3 /s
gravitational acceleration	g =	9.81	m / s^2
The following results were obtained using the trial calculation method:			
water depth over the weir	H =	#NAME?	m
folw fator is	m =	#NAME?	
weir volume	q =	308.6	l / (m * s)

2.3 Channel size

flow	q =	#NAME?	cu m / s	
water depth	h=	0.500	m	
channel width	w =	0.900	m	
flow velocity	v = q/h/w	#NAME?	m/s	

2. mechanical bar screen

Selecting rotary bar screens, intending to use products from the Second Cold Mechanical Factory of Yichang City. Each set consists of tw

number of bar screen	n =	2	set		
gap of bar screen	b =	10	mm		
bar screen installation angle	a =	75	°		
width of a single equipment	Wo =	1	m		
Total height of equipment	H2 =		m		
Total width of single equipment	W2 =	1	m		
number of channel	n1 =	2	pieces		
width of each channel	W =	1	m		
width of each channel	H =	1.3	m		
length of flow diversion channel	L1 = H * ctg(a) =		0.616	m	
sludge discharge heigh(distance from the channel bottom)	H1 =	2.3	m		
depth upstream of the screen	h1 =	0.8	m		
flow velocity upstream of the screen	V1 =	#NAME?	m/s		
flow velocity through the screen	V =	1.0	m/s		
Flow rate of a single set of bar screens	Qs =	#NAME?	m^3/d		
head loss across the screen	dh =	0.15	m		
depth downstream of the screen	h2 =	0.65	m		
flow velocity downstream of the screen	V2 =	#NAME?	m/s		
screenings capture rate	f =	0.050	$m^3/10^3m^3$ sewage		
screenings yield	Wf = Qav * f =	2.000	m^3		
Verification of average flow rate through a single channel overflow					
depth upstream of the screen	h1 =	0.90	m		
flow velocity upstream of the screen	V1 =	0.51	m/s		
flow velocity through the screen	V =	#NAME?	m/s		
Flow rate of a single set of bar screens	Qs =	40000.0	m^3/d		
head loss across the screen	dh =	#NAME?	m		
depth downstream of the screen	h2 =	#NAME?	m		
flow velocity downstream of the screen	V2 =	#NAME?	m/s		

3 Setting tank : D=3.5 m

4. Calculation of Weir for Effluent from Sedimentation Tank

use formula : The flow rate through the weir is	Q =	$m * b * (2 * g)^{1/2} * H^{3/2}$		
flow fator is	m =	0.405 + 0.0027 / H		
formula volume :				
number of wair	n2 =	2		
width of single weir	b =	6	m	
flow rate of a single weir	Qma = Qmax/n1 =	#NAME?	m^3 /s	
gravitational acceleration	g =	9.81	m / s^2	
The following results are obtained using the trial calculation method:				
water depth over weir	H =	#NAME?	m	
flow rote is	m =	#NAME?		
weir volume	q =	#NAME?	l / (m * s)	

三 Calculation of Water Distribution Wells

use formula : The flow rate through the weir is	Q =	$m * b * (2 * g)^{1/2} * H^{3/2}$		
flow rote is	m =	0.405 + 0.0027 / H		
formula volume :				
number of weir	n1 =	3		
width of a single weir	b =	3	m	
flow rote of a single weir	Qma = Qmax/n1 =	#NAME?	m^3 /s	
gravitational acceleration	g =	9.81	m / s^2	
the following results are obtained using the trial calcuation method:				
water depth over weir	H =	#NAME?	m	
flow rote is	m =	#NAME?		
weir volume	q =	#NAME?	l / (m * s)	

DN	flow(m^3/s)	flow velocity(m/s)	Length m	damping factor		pressure drop mm
125	0.333	#NAME?	1.0	#NAME?		#NAME?
DN	flow(m^3/s)	flow velocity(m/s)	Length m	damping factor		pressure drop mm
150	0.167	#NAME?	10.0	#NAME?		#NAME?
DN	flow(m^3/s)	flow velocity(m/s)	Length m	damping factor		pressure drop mm
150	0.083	#NAME?	10.0	#NAME?		#NAME?