

Geoflow design excel spread sheet

FIELD FLOW

Job Description:

Cordoba Center - Caretaker residence

Contact:

Steve Hartsell

Prepared by:

Steve Hartsell

Date:

24-Jul-09

Please fill in the shaded areas and drop down menus:  
This spreadsheet serves as a guide, and is not a complete hydraulic design.

Worksheet 1- Field Flow

Total field

Total Quantity of effluent to be disposed perday	450	gallons / day	note
Hydraulic loading rate	0.44	gallons / sq.ft. / day	note
Minimum Dispersal Field Area	1,023	square ft.	note
Total Dispersal Field Area	1,023	square ft.	note

Flow per zone

Number of Zones	1	zone(s)	note
Dispersal area per zone	1,023	square ft.	note
Choose line spacing between WASTEFLOW lines	1	ft.	note
Choose emitter spacing between WASTEFLOW emitter	1	ft.	note
Total linear ft. per zone (minimum required)	1,023	ft. per zone	note
Total number of emitters per zone	1,023	emitters per zone	note
Select Wasteflow dripline (16mm)	Wasteflow PC - 1/2gph	dripline	note
Pressure at the beginning of the dripfield	20	psi	note
Feet of Head at the beginning of the dripfield	46.2	ft.	note
What is the flow rate per emitter in gph?	0.53	gph	note
Dose flow per zone	9.03	gpm	note

Note: A Few States or Counties require additional flow for flushing. Please check your local regulations.  
Flush velocity calculation below is for PC dripline. Classic dripline requires less flow to flush than PC.  
Please refer to Geoflow's spreadsheet "Design Flow and Flush Curves" at [www.geoflow.com](http://www.geoflow.com) or call 800-828-823

If required, choose flush velocity	0.5	ft/sec	note
How many lines of WASTEFLOW per zone?	10	lines	note
Fill in the actual length of longest dripline lateral	103	ft.	note
Flush flow required at the end of each dripline	0.37	gpm	note
Total Flow required to achieve flushing velocity	3.70	gpm	note
Total Flow per zone- worst case scenario	12.73	gpm	note

Select Filters and zone valves

Select Filter Type	BioDisc Filter		note
Recommended Filter (item no.)	BioDisc-150	1.5" Disc Filter 0-30gpm	note
Select Zone Valve Type	Hydraulic	-	note
Recommended Zone Valve (item no.)	0	0	note

Note minimum pressure of 25 psi required for Hydraulic valves. Check pressure in Cell D28 above.

Dosing

Number of doses per day / zone:	12	doses	note
Timer ON- Pump run time per dose/zone:	4:09	mins:secs	4.15
Timer OFF- Pump off time between doses	1:55	hrs:mins	1.93
Per Zone - Pump run time per day/zone:	0:49	hrs:mins	0.83
All Zones - Number of doses per day / all zones	12	doses / day	
Allow time for field to pressurize	0:00:30	hrs:mins:secs	0.500
Filter flush timer	0:00:20	hrs:mins:secs	0.333
Drain timer	0:05:00	hrs:mins:secs	5.000
Field flush timer	0:01:00	hrs:mins:secs	1.000
Field flush counter	3	cycles	note
Time required to complete all functions per day	2:11	hrs:mins	2.19680
Dose volume per zone	38	gallons per dose	note

PF Series 4" Submersible Effluent Pumps (continued)

Specifications, 60 Hz

Pump Model	Design gpm (USGPM)	Design ft. (ft.)	Max. power (kW)	Phase	Maximum voltage	Actual voltage	Design flow amps	Max. amps	Impellers	Discharge size and material <sup>1</sup>	Length, in. (mm)	Min. liquid level, <sup>2</sup> in. (mm)	Weight <sup>3</sup> (lb. (kg))	Rated cycles/day
PF100511	10 (0.6)	0.5 (0.37)	1	115	120	12.7	12.7	6	6	1 1/4 in. GPP	23.0 (580)	16 (406)	26 (12)	300
PF100512	10 (0.6)	0.5 (0.37)	1	230	240	6.3	6.3	6	6	1 1/4 in. GPP	23.0 (580)	16 (406)	26 (12)	300
PF10053200	10 (0.6)	0.5 (0.37)	3	200	208	3.8	3.8	6	6	1 1/4 in. GPP	23.0 (580)	16 (406)	26 (12)	300
PF100712 <sup>1,5</sup>	10 (0.6)	0.75 (0.56)	1	230	240	8.3	8.3	8	8	1 1/4 in. GPP	25.9 (658)	17 (432)	30 (14)	300
PF10073200 <sup>1,5</sup>	10 (0.6)	0.75 (0.56)	3	200	208	5.1	5.2	8	8	1 1/4 in. GPP	25.4 (645)	17 (432)	31 (14)	300
PF101012 <sup>1,5</sup>	10 (0.6)	1 (0.75)	1	230	240	9.6	9.6	9	9	1 1/4 in. GPP	27.9 (709)	18 (457)	33 (15)	100
PF10103200 <sup>1,5</sup>	10 (0.6)	1 (0.75)	3	200	208	5.5	5.5	9	9	1 1/4 in. GPP	27.3 (693)	18 (457)	37 (17)	300
PF102012 <sup>1,5,6</sup>	10 (0.6)	2 (1.49)	1	230	240	12.1	12.1	18	18	1 1/4 in. SS	39.5 (1003)	22 (559)	48 (22)	100
PF102032	10 (0.6)	2 (1.49)	3	220	240	7.5	7.6	18	18	1 1/4 in. SS	37.9 (963)	20 (508)	44 (20)	300
PF10203200 <sup>1,6</sup>	10 (0.6)	2 (1.49)	3	200	208	8.7	8.7	18	18	1 1/4 in. SS	37.9 (963)	20 (508)	44 (20)	300
PF200511	20 (1.5)	0.5 (0.37)	1	115	120	12.3	12.5	4	4	1 1/4 in. GPP	22.3 (566)	18 (457)	25 (11)	300
PF200512	20 (1.5)	0.5 (0.37)	1	230	240	6.4	6.5	4	4	1 1/4 in. GPP	22.5 (572)	18 (457)	26 (12)	300
PF200532	20 (1.5)	0.5 (0.37)	3	230	240	2.9	2.9	4	4	1 1/4 in. GPP	22.3 (566)	18 (457)	26 (12)	300
PF20053200	20 (1.5)	0.5 (0.37)	3	200	208	3.7	3.8	4	4	1 1/4 in. GPP	22.3 (566)	18 (457)	26 (12)	300
PF201012 <sup>1,5</sup>	20 (1.5)	1 (0.75)	1	230	240	10.5	10.5	7	7	1 1/4 in. GPP	28.4 (721)	20 (508)	33 (15)	100

SPECIFICATIONS OF PUMP SELECTED

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PUMP SIZING

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Date:

7/24/2009

Pressure losses may be grossly overstated, particularly if designing with WASTEFLOW Classic  
The letters on the diagram(right) match the letters in section 2 below.

Worksheet - Pump Sizing

Section 1 - Summary from Worksheet 1

Flow required to dose field	9.03	gpm
Flow required to flush field	3.70	gpm
Flow required to dose & flush field	12.73	gpm
Filter	BioDisc-150	
No. of Zones	1	zones
Zone valve	-	
Dripline	Wasteflow PC - 1/2gph	
Dripline longest lateral	103.00	ft.

Section 2

	Ft of head	Pressure
A. Flush line - Losses through return line		
Size of flush line in inches	1	inch
Length of return line	266	ft.
Equivalent length of fittings	5	ft.
Elevation change. (if downhill enter 0)	0	ft.
Pressure loss in 100 ft of pipe	1.26	ft. 0.55 psi
Total pressure loss from end of dripline to return tank	3.4	ft. 1.48 psi

B. Dripline - Losses through Wasteflow dripline		
Length of longest dripline lateral	103	ft.
Minimum dosing pressure required at end of dripline	23.10	ft. 10.00 psi
Loss through dripline during flushing	6.70	ft. 2.90 psi
Total minimum required dripline pressure	29.80	ft. 2.90 psi

A+B. Minimum Pressure required at beginning of dripfield

CALCULATED pressure required at beginning of dripfield	33.21	ft. 14.38 psi
SPECIFIED pressure at beginning of dripfield (from worksht 1)	46.2	ft. 20.00 psi

Great! SPECIFIED Pressure is greater than CALCULATED Pressure requirement. Go to next step

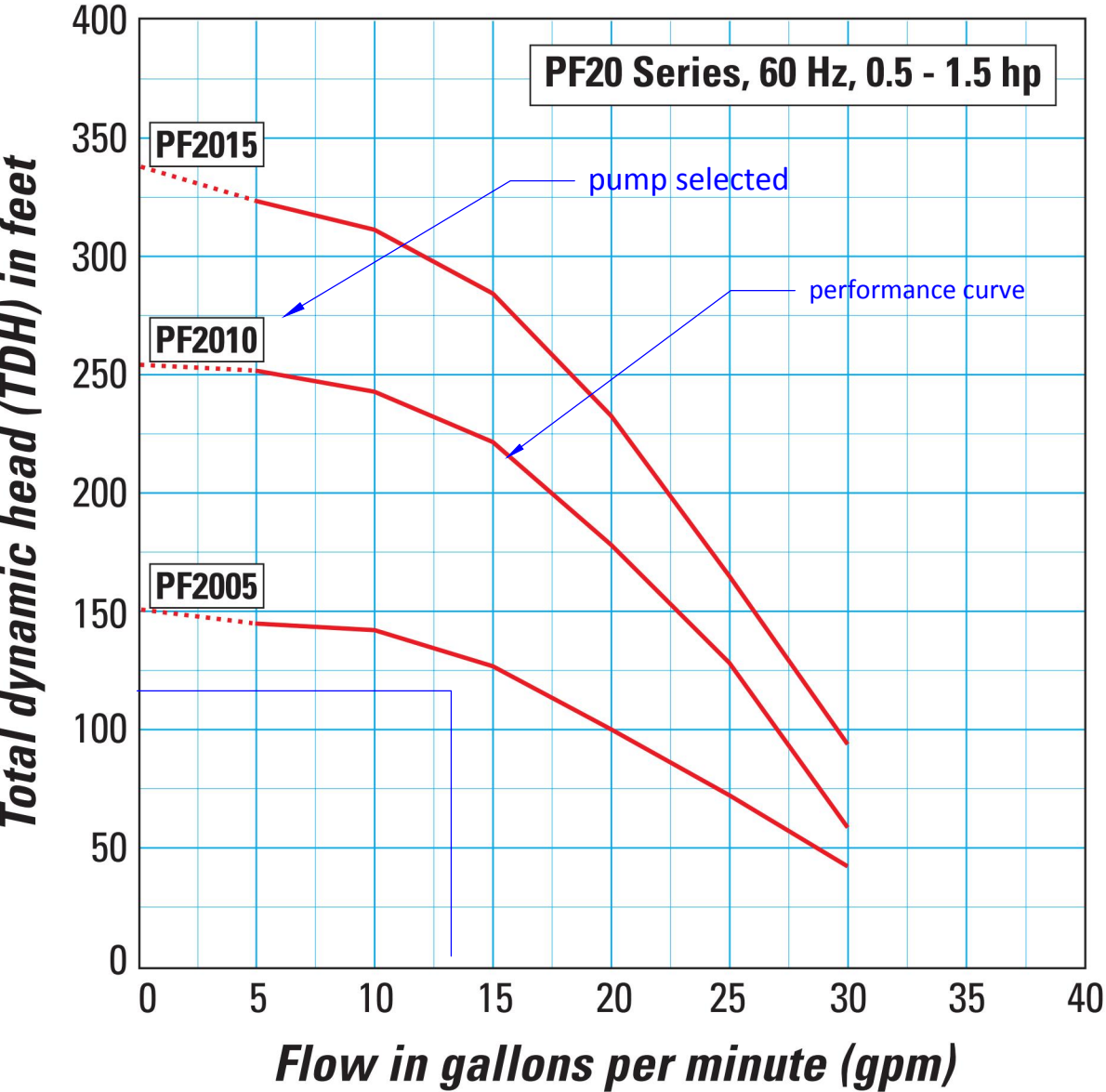
C. Drip components - Losses through headworks

Filter	4.6	ft. 2.00 psi
Zone valve pressure loss (not in diagram)	7.00	ft. - psi
Flow meter pressure loss (not in diagram)	0.50	ft. 0.22 psi
Other pressure losses	5.00	ft. 2.16 psi
Total loss through drip components	17.12	ft. 4.38 psi

D. Supply line - Minimum Pressure head required to get from pump tank to top of dripline

Size of supply line in inches	1.25	inch
Length of supply line	391	ft.
Equivalent length of fittings	5	ft.
Height from pump to tank outlet	5	ft.
Elevation change. (if downhill enter 0)	24	ft.
Pressure loss/gain in 100 ft. of pipe	4.20	ft. 1.82 psi
Total gain or loss from pump to field	45.6	ft. 19.75 psi
Total dynamic head	108.9	ft. 47.16 psi
Pump capacity *	12.7	gpm
Pump Model Number	ORENCO PF201012	
Voltz / Hp / phase	240/1/1	

Total Dynamic Head for this system



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GEOFLOW PARTS LIST partial parts list

Job Description:

Cordoba Center caretaker residence

Contact:

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Prepared by:

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Date:

22-Jul-14

Some of the following parts list will "self fill" as a guide and should not be construed as a complete parts list. Check item numbers and quantities against design layout.  
Most "Item Number" cells have a drop down menu to select from. Just click mouse on the desired cell to find dropdown arrow  
Recommended list prices are subject to change. For actual prices contact your local Geoflow dealer  
Prices for large systems may be overstated in this scenario

Worksheet 3 - Parts List

Qty	Unit/s	Item Number	Description	Recommended List price/unit	Total Price List
Dripline					
1,023	ft.	WFPC16-2-12	Wasteflow PC - 1/2gph, 12in. emitter spacing	\$ 0.920	\$ 940.91
Airvent and box					
4	ea.	APV/BK-1	1" airvent for use on zones less than 50gpm	\$ 21.19	\$ 84.76
4	ea.	AV BOX 6 inch	6" round box	\$ 10.59	\$ 42.36

Pressure Regulators - Use to keep pressure from being too high

1	ea.	Select	Restricts pressure from exceeding required pressure. Required with Clas	\$ -	\$ -
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Controllers

1	ea.	GEOTS-08-SIM	1 -8 zone Touchscreen, simplex pump, Auto flush	\$ 3,400.00	\$ 3,400.00
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Pre-assembled Headworks

Select from cell with BioDisc Filter					
0	-	WHWS-V-1F-A	Sporty Headworks box & guts with 1" Vortex Filter. Automatic flush	\$ 710.00	\$ 710.00
1	ea.	BIODISC Filter Headworks	Select BioDisc Filter Headworks here	\$ -	\$ -
0	-	GEOVAC filter Headworks	-	\$ -	\$ -

\* Solenoid Flush valves - Select only if Headworks is not selected above

1	ea.	SVLV-B-100	Flush valves	\$ -	\$ -
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\* Filters - Select only if Headworks is not selected above

1	ea.	BioDisc-150	1.5" Disc filter with Geoshield protection - Max 30gpm	\$ 140.00	\$ -
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\* Pressure Gauges - Select only if Headworks is not selected above

1	ea.	PG-25-Lead	Pressure gauge with lead	\$ 54.80	\$ -
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Flow Meters

1	ea.	Flow Meter - Digital Display	Select Flow Meter	\$ -	\$ -
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Zone valves -

0	ea.		0	\$ -	\$ -
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Dripline fittings - Quantities below are estimates only.

40	ea.	LTSLIP-600	Lockslip Adapter. 3/4" PVC slip to Wasteflow dripline	\$ 1.12	\$ 44.80
8	ea.	LTC-600	This adds 2 couplings for each coil ordered.	\$ 1.18	\$ 9.44
	ea.	LITEE-600	Lockslip Tee. Fits 16mm Wasteflow dripline	\$ 2.12	\$ -
	ea.	LITEL-600	Lockslip Elbow. Fits 16mm Wasteflow dripline	\$ 2.12	\$ -
	ea.	LTFlex-R-18	18" flex PVC riser with 1 lockslip adapter. Used for risers	\$ 3.60	\$ -
	ea.	LTFlex-L-36	36" flex PVC with 2 lockslip adapters. Used for risers or loops	\$ 7.00	\$ -

Check Valves - Check design for quantitles

	ea.	CV-B-10	1" True Union ball check PVC/Viton	\$ 59.47	\$ -
	ea.	Spring check	Select size from drop down menu left	\$ -	\$ -

Unions

	ea.	Unions		0	\$ -	\$ -
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Non-Geoflow items					
	ea.	Pump Capacity (gpm)	108.94	gpm	
		TDH (ft)	12.73	ft of head	
	ea.	Pump tank		Fill in description	
	ea.	Floats		Fill in description	
	ft.	PVC mainline		Fill in description	
	ft.	PVC Supply manifold (inches)	1.25	" PVC pipe	
	ft.	PVC Return manifold (inches)	1	" PVC pipe	
20	ea.	PVC Supply manifold tees	1.25	" x 3/4" tees	
20	ea.	PVC Return manifold tees	1	" x 3/4" tees	
		PVC parts - Misc			
Total				\$ 5,232.27	

REVISIONS

4	4-15-2016	
COUNTY COMMENTS		SRH



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CALCULATIONS  
CARETAKER  
RESIDENCE

CORDOBA CENTER  
14045 MONTEREY ROAD  
SAN MARTIN, CA 95046  
APN 779-06-002

November 30, 2015

SCALE AS NOTED

BY SRH

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