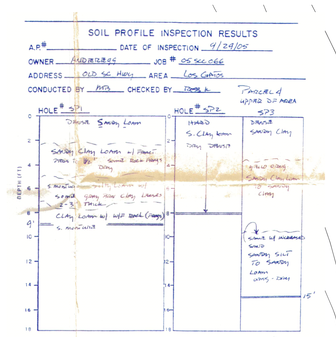
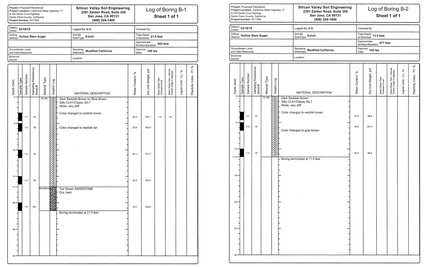


Note: Only SP1, SP3 plotted.



County of Santa Clara - Department of Environmental Health
SOIL PERCOLATION TEST RECORDED MEASUREMENTS (Electronic Version by Chris Day, R.E.H.S.)

OWNER/APPLICANT: Bill Chiocchi | SR #: 852592 | PLN FILE #: | Pg 1 of 1
LOCATION: Old Santa Cruz Hwy Los Gatos APN558410331 | REVIEW: Ross Kanzaki
CONTACT PERSON: CHRIS DAY, R.E.H.S. | PHONE: 650-293-1045 | DATE: 10/4/2017

HOLE #1 | DEPTH: 12" | WATER LEVEL

TIME START	TIME FINISH	WATER LEVEL START	WATER LEVEL FINISH	Δ MIN	Δ INCH	MPI
2:46	3:16	21 1/2	DRY	30		
3:16	3:46	21 1/2	DRY	30		
3:47	4:17	21 1/2	21 5/8	30	1/8	4
4:17	4:33	21 5/8	21 3/4	16	1/8	8
4:51	5:21	21 3/4	21 7/8	30	1/8	4
5:23	5:53	21 7/8	22	30	1/8	4
6:35	7:05	22	22 1/8	30	1/8	4
7:06	7:36	22 1/8	22 1/4	30	1/8	4
7:37	8:07	22 1/4	22 3/8	30	1/8	4
8:08	8:38	22 3/8	22 1/2	30	1/8	4
8:39	9:09	22 1/2	22 5/8	30	1/8	4
9:10	9:40	22 5/8	22 3/4	30	1/8	4
9:41	10:11	22 3/4	22 7/8	30	1/8	4
10:12	10:42	22 7/8	23	30	1/8	4
10:43	11:13	23	23 1/8	30	1/8	4
11:14	11:44	23 1/8	23 1/4	30	1/8	4
11:45	12:15	23 1/4	23 3/8	30	1/8	4
12:16	12:46	23 3/8	23 1/2	30	1/8	4
12:47	1:17	23 1/2	23 5/8	30	1/8	4
1:18	1:48	23 5/8	23 3/4	30	1/8	4
1:49	2:19	23 3/4	23 7/8	30	1/8	4
2:20	2:50	23 7/8	24	30	1/8	4
2:51	3:21	24	24 1/8	30	1/8	4
3:22	3:52	24 1/8	24 1/4	30	1/8	4
3:53	4:23	24 1/4	24 3/8	30	1/8	4
4:24	4:54	24 3/8	24 1/2	30	1/8	4
4:55	5:25	24 1/2	24 5/8	30	1/8	4
5:26	5:56	24 5/8	24 3/4	30	1/8	4
5:57	6:27	24 3/4	24 7/8	30	1/8	4
6:28	6:58	24 7/8	25	30	1/8	4

HOLE #2 | DEPTH: 18" | WATER LEVEL

TIME START	TIME FINISH	WATER LEVEL START	WATER LEVEL FINISH	Δ MIN	Δ INCH	MPI
3:47	4:17	21 3/4	21 3/4	30	0/2	60
4:17	4:47	21 3/4	21 3/4	30	0/2	60
4:48	5:18	21 3/4	21 7/8	30	1/8	8
4:18	4:48	21 5/8	21 7/8	30	1/8	8

HOLE #3 | DEPTH: 15" | WATER LEVEL

TIME START	TIME FINISH	WATER LEVEL START	WATER LEVEL FINISH	Δ MIN	Δ INCH	MPI
2:46	3:16	21 7/8	21 1/8	30	1/4	120
3:16	3:46	21 7/8	21 1/8	30	1/4	120
3:49	4:19	21 7/8	21 1/8	30	1/4	120
4:19	4:49	21 7/8	21 1/8	30	1/4	120

HOLE #4 | DEPTH: 12" | WATER LEVEL

TIME START	TIME FINISH	WATER LEVEL START	WATER LEVEL FINISH	Δ MIN	Δ INCH	MPI
2:50	3:20	21 7/8	21 1/4	30	3/8	80
3:21	3:51	21 1/2	21 3/4	30	4 3/8	6
3:52	4:22	22 1/2	21 3/4	30	3/4	40
4:22	4:52	22 1/2	21 3/4	30	3/4	40

HOLE #5 | DEPTH: 12" | WATER LEVEL

TIME START	TIME FINISH	WATER LEVEL START	WATER LEVEL FINISH	Δ MIN	Δ INCH	MPI
2:51	3:21	23 1/2	DRY			
3:21	3:51	23 1/2	DRY			
3:53	4:08	23 1/4	DRY			
4:09	4:39	23 1/4	DRY			
4:21	4:31	23	DRY			
4:32	4:42	22 7/8	DRY			
5:00		22 3/4	24 1/4	1.50	2	0.75
		22 3/4	24 1/4	1.50	2	0.75
		22 3/4	24 3/4	1.53	2	0.77

HOLE #6 | DEPTH: 12" | WATER LEVEL

TIME START	TIME FINISH	WATER LEVEL START	WATER LEVEL FINISH	Δ MIN	Δ INCH	MPI
2:53	3:23	25 1/4	27 1/4	30	4 1/8	8
3:23	3:54	25 1/4	27 1/4	31	4	8
3:55	4:25	25	27 1/8	30	4 1/8	7
4:26	4:56	25 1/4	27	30	3 7/8	8

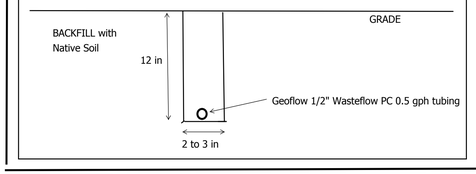
P1 - P6

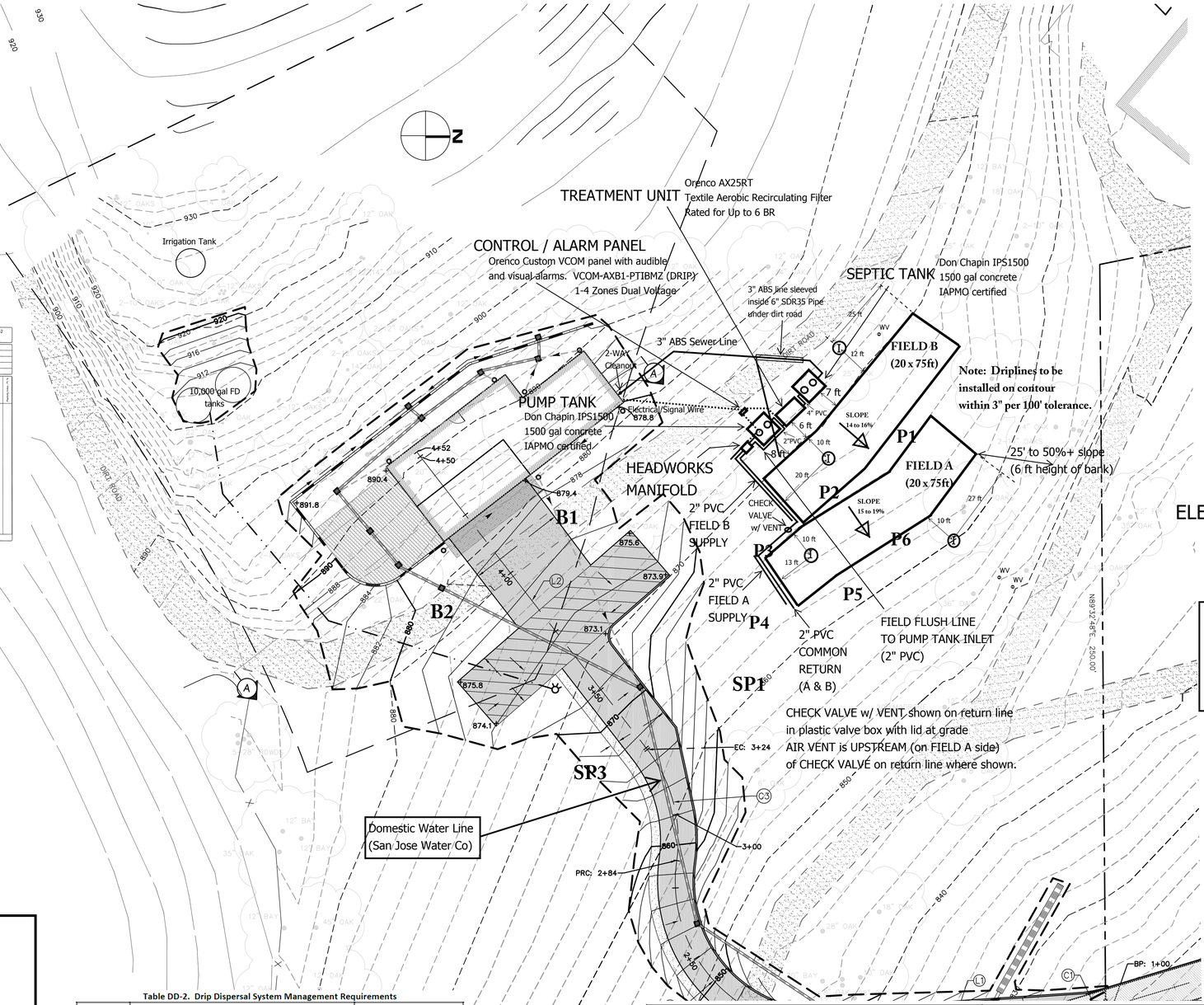
HOLE	1	2	3	4	5	6
Stabilized MPI R	4	73	120	40	0.77	7.6
Adjusted Stabilized MPI $R_A = R \times 1.4$	6	102	168	56	1.1	11
Average Adjusted Stabilized MPI $R_A = (\Sigma R_A)/\#$ Holes	57					
# Bedrooms 5 XXXX FOR OFFICE USE ONLY	Tank Size (Gal)				Leach Line (ft)	

Infiltrative Area & Dispersal Field Sizing:

Flow for 5 BR = 600 gpd
Application rate for 57 MPI perc rate = 0.4 gpd/sq. ft
Dispersal Field Size = 600 gpd/0.4 gpd/sq. ft = 1,500 sq. ft
Dual Dispersal Fields proposed, each 20 ft x 75 ft (1,500 sq. ft).
Dripline Specifications: Emitter Spacing 2 ft, Line Spacing 2 ft
Infiltrative Area Per Emitter = 4 sq. ft. / Emitters per field: 375
Dripline Loops: 5 per field, 150 ft length emitter line each loop.
Plus 6 ft blank tubing for loop & connect fittings.
Burial Depth: 12 inches emitter, 24" supply lines.
Slope in Dispersal Field: 14 to 19%
Dripline Model: Geoflow Wasteflow PC 0.5 gph.

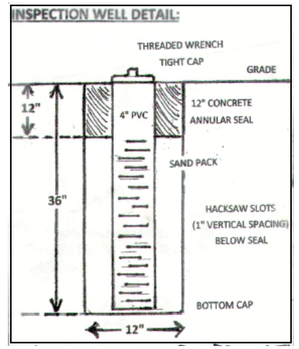
Dripline Trench Schematic: (NOT TO SCALE)





PLAN
0' 0 20'
1 INCH = 20 FEET

Ⓘ = Inspection Well (4)



Entire Dripfield Area shall be fenced off during construction to minimize disturbance.

ELECTRICAL BUILDING PERMIT REQUIRED

All PVC is Sch. 40
(unless otherwise specified)

A drip dispersal type septic system design was selected due to poor water absorption observed in soils below 2 ft depth. The perc. test data and plot plans for these failed tests are on file w/ DEH.

INFILTRATIVE AREA per EMITTER:
(NOT TO SCALE)

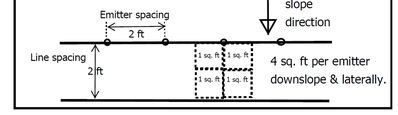


Table DD-2. Drip Dispersal System Management Requirements

	Work	Frequency
Inspection	• Conduct routine visual observations of drip field, downslope area and surroundings for wet areas, pipe leaks or damage, soil erosion, drainage issues, abnormal vegetation, gophers or other problems. • Conduct routine physical inspections of system components, including valves, filters, and headworks box(es). • Perform special inspections of drip field at time of any landscaping work or other digging in drip field area. • Perform inspections of dosing pump(s) and appurtenances (per O&M manual and Performance Evaluation Guidelines, Part 5 of this Manual). • Record observations.	• Every 6 to 12 months.
Maintenance	• Manually remove and clean filter. • Clean and check operation of pressure reducing valves. • Clean flush valves and vacuum release valves.	• Clean filter every 6 months. • Other maintenance annually.
Water Monitoring & Sampling	• Measure and record water levels in dispersal field monitoring wells, as applicable, per permit requirements. • Obtain and analyze water samples from dispersal field monitoring wells, as applicable, per permit requirements.	• According to permit conditions, if applicable.
Reporting	• Report findings to DEH per permit requirements. • Standard report to include dates, monitoring well and other data collected, work performed, corrective actions taken, and performance summary. • Report public health/water quality emergency to DEH immediately.	• According to permit conditions, typically every 1 to 2 years, depending on system size, usage, history, location.

ANNUAL SEPTIC & PUMP TANKS INSPECTION REQUIRED:

1) Access risers & lids in good condition.
2) Structural Integrity - probe interior walls/baffles, inlet/outlet T-pipes.
3) Check Tuf-Tite effluent filter and clean if needed.
4) Septic tank liquid level - should be at outlet invert in tank.
5) Pump tank electrical & signal wires in good condition.
6) Pump tank proper operation of float switches.

SEPTIC TANK SHALL BE PUMPED OUT WHENEVER SOLIDS or FLOATING MATERIAL EXCEED 30% OF TANK VOLUME OR ENCROACH ON INLET/OUTLET T's.

MINIMUM SEPTIC TANK PUMPING FREQUENCY IS 3 TO 5 YEARS.
PUMP TANK to be pumped out when debris may encroach on pump intake.

ONGOING MONTORING & REPORTING REQUIREMENTS:

(must be performed by licensed professional or service provider)

YEARS 1 - 4: Semi-annually // YEARS 5+ of operation: Annually

1) Record wastewater flow based on water meter readings or other method
2) Measurement and recording of water levels in inspection wells.
3) Inspection of pump and valves operation, including squirt test.
4) Inspection of dispersal fields for seepage, erosion, etc.

MONITORING REPORT SHALL BE SIGNED BY LICENSED PROFESSIONAL AND SUBMITTED TO DEH IN ACCORDANCE WITH THE SYSTEM OPERATING PERMIT.

ON-SITE WATER TIGHTNESS TESTING
(REQUIRED PRIOR TO SEPTIC TANK & PUMP TANK USE)

1. FILL TANK TO TOP OF RISER 1 INCH FROM LID
2. LET TANK SIT FOR 1 HOUR
3. OBSERVE WATER LEVEL IN RISER BEFORE AND AFTER 1 HR PERIOD
4. IF LEVEL HAS FALLEN , INSPECT FOR LEAKS
5. REPAIR ANY LEAKS AND REPEAT TEST

Construction Inspections Required w/ Designer & DEH:

1. Layout Inspection - All components staked or painted
2. Open Trench Inspection - Components in & not covered
3. Pump Test - Pumps, squirt test, and alarms operational.
4. Septic & Pump Tank Water Tightness Testing.
5. Final inspection - All components covered.

Owner Reponsiblity for Alternative Type Septic System:

Owner will acknowledge that the property is served by an alternative pressure-dosed trench type septic system requiring an ongoing service contract, maintenance, and an annual DEH operating permit.

PRELIMINARY PLANS NOT FOR CONSTRUCTION
SEPTEMBER 2016

ORIGINAL: 11/10/2017
REV 1:
REV 2:

R.I Engineering, Inc.
303 Potrero St., Suite 42-202, Santa Cruz, CA 95060
831-425-3901 www.rienginneering.com

PLAN BY: Christopher Day, R.E.H.S. Tel. 650-293-1045 christopherday@aol.com
P.O. Box 26, Redwood City, CA 94064

DRIVEWAY IMPROVEMENTS FOR
BILL CHIOCCHI
LOCATED BEHIND PROPERTY AT
19850 OLD SANTA CRUZ HIGHWAY
LOS GATOS, CA
558-410-53

GRADING & DRAINAGE PLAN

project no. 16-015-01
date SEPTEMBER 2016
scale AS SHOWN
dwg name CIVIL1.DWG

C-2

OWTS 1 NEW DUAL DRIP DISPERSAL SEPTIC SYSTEM Old Santa Cruz Hwy., Los Gatos, CA
APN 558-41-033 (SR0852592)
(To Serve Proposed 4 BR House)

APPLICANT: CHIOCCHI ROAD: OLD SANTA CRUZ HIGHWAY COUNTY FILE NO.: N/A PRELIMINARY

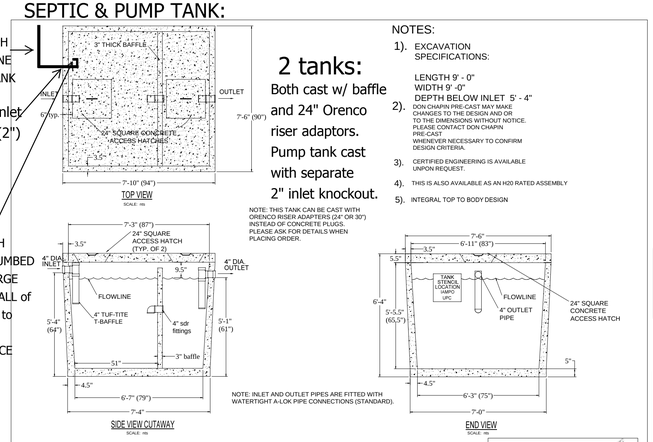
TANKS & TREATMENT SPECIFICATIONS:

SEPTIC & PUMP TANK:

2" PVC FIELD FLUSH RETURN LINE to PUMP TANK

Separate inlet knockout (2") pre-cast

FIELD FLUSH RETURN PLUMBED TO DISCHARGE AGAINST WALL of PUMP TANK to MINIMIZE DISTURBANCE



NOTES:

1). EXCAVATION SPECIFICATIONS:
LENGTH 9' - 0"
WIDTH 9' -0"
DEPTH BELOW INLET 5' - 4"

2). DON CHAPIN PRE-CAST MAY MAKE CHANGES TO THE DESIGN AND OR TO THE DIMENSIONS WITHOUT NOTICE. PLEASE CONTACT DON CHAPIN PRE-CAST WHENEVER NECESSARY TO CONFIRM DESIGN CRITERIA.

3). CERTIFIED ENGINEERING IS AVAILABLE UNPON REQUEST.

4). THIS IS ALSO AVAILABLE AS AN H20 RATED ASSEMBLY

5). INTEGRAL TOP TO BODY DESIGN

2 tanks:

Both cast w/ baffle and 24" Orenco riser adaptors. Pump tank cast with separate 2" inlet knockout.

NOTE: THIS TANK CAN BE CAST WITH ORENCO RISER ADAPTERS (24" OR 30") INSTEAD OF CONCRETE PLUGS. PLEASE ASK FOR DETAILS WHEN PLACING ORDER.

NOTE: INLET AND OUTLET PIPES ARE FITTED WITH WATERTIGHT A-LOK PIPE CONNECTIONS (STANDARD).

THE DON CHAPIN COMPANY
PRE-CAST DIVISION
2735 BOLSA RD.
HOLLISTER, CA 95023
831-630-1042
831-630-5763 FAX

PRE-CAST CONCRETE WATER TIGHT
SEPTIC TANK
CAPACITY 1500 GALLONS
MODEL IPS1500

DON CHAPIN PRE-CAST

2/12/09

Tanks risers & lids:

Septic Tank:	Orenco RR2412 (2) risers
Pump Tank:	Orenco RR2424 (1) riser
	Orenco RR2424S (1) riser
	Lids: FLD24G (4) lids

Septic Tank sizing:

2 x peak flow (600 gpd) = 1,200 gpd
Tank size of 1,500 gal exceeds 2 x flow

Effluent Filter on Treatment

Unit Diagram: Orenco Biotube Filter Model FTS0444-36V

Elevations, Pipe Runs & Slopes:

Finished Floor: 879.5
Septic Tank: Inlet - 871.0, Outlet - 870.7
(Burial Depth 12")
AX25 Unit: Inlet - 869.8, Outlet - 868.7
(Top of Unit At-Grade)
Pump Tank: Inlet - 868.5
(Burial Depth 42")

Sewer Line: 11% slope (79 ft)
Tank to AX: 15% slope (6 ft)
AX to Pump: 3% slope (6 ft)

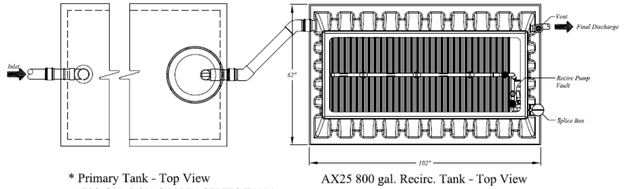
TREATMENT UNIT:

AX25RT Treatment System - Gravity Discharge

UNIT IS RATED FOR UP TO 6 BEDROOMS RESIDENTIAL USE.

NOTE: This unit provides 500 gal emergency storage.

Filter Tank Dry Weight: 959 lbs



* Primary Tank - Top View
1,500 GAL DON CHAPIN SEPTIC TANK

AX25 800 gal. Recirc. Tank - Top View

Design Notes

For residential strength waste up to 6 bedrooms.

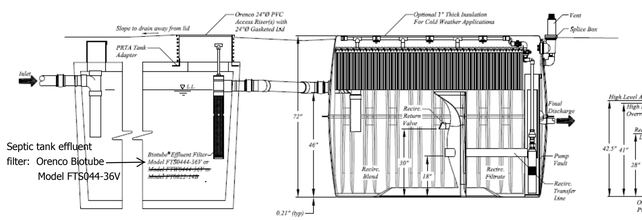
Installation to be performed by an AdvanTex Authorized Installer only.

Start-up and service to be performed by an AdvanTex Authorized Service Provider only.

CUSTOM CONTROL PANEL:
VCOM-AXB1-PTIBMZ (DRIP)
1-4 ZONES
DUAL VOLTAGE.

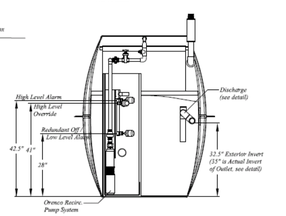
Control Panel Detail
Not To Scale

2" PVC GRAVITY DISCHARGE



* Primary Tank - Side View

AX25 800 gal. Recirc. Tank - Side View



Discharge Chamber - End View

* 1,250 Gallons minimum capacity for 5 bedrooms
1,500 Gallons minimum capacity for 6 bedrooms.

UNAUTHORIZED CHANGES & USES: Orenco has prepared these drawings for use by the design engineer. Orenco will not be responsible or liable for unauthorized changes to or uses of these drawings. All changes to these drawings must be made in writing and must be approved by the design engineer.

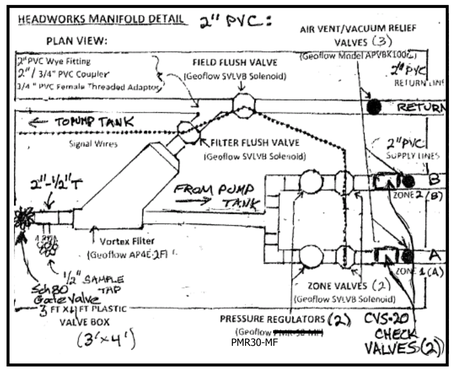
PRODUCT CONFIGURATION DRAWINGS

Orenco Systems® Incorporated
Changing the Way the World Does Wastewater®

Drawn By: BEN SMITH	Project: AX25RT Mode 1A	Scale: 1" = 2'-0"	
Drawn For:		Sheet: 1 OF 1	
	Title: NDW-ATX-RT-STD-17	Rev. A-07	Date: 4/22/2013

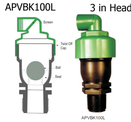
HEADWORKS AND PUMP SPECIFICATIONS:

HEADWORKS MANIFOLD:



GEOFLOW FITTINGS:

Air Vents (4): 1 on Return Line, 3 in Headworks
APVBK100L



Solenoids (4) 4 in Headworks

SVLVB200 and ~~SVLVB 300~~

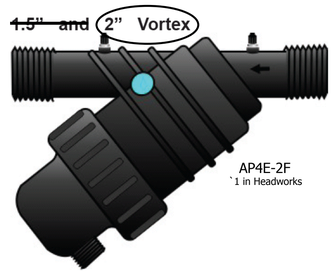
Pressure Regulators (2):

PMR30MF 2 in Headworks

Low, Medium and H Flow Regulator

Spring Check Valves (4)
CV-S-20 2 in Headworks, 1 in Pump Tank, 1 on Return Line

~~4.5" and~~ 2" Vortex



AP4E-2F
1 in Headworks

Item Number	Size (MPT)	Max. Flow rate (GPM)	Filtration (mesh)	Max. Pressure (psi)	(ft.)	Width	Height	Flush Port (MPT)	Area of Filtration (inches²)
AP4E-75F	3/4"	10	150	80	185	6.0"	6.0"	3/4"	28.4
AP4E-1F	1"	20	150	80	185	6.5"	7.0"	3/4"	28.4
AP4E-1.5F	1.5"	45	150	100	231	12"	15.5"	3/4"	60.8
AP4E-2F	2.0"	70	150	80	185	12"	16.0"	3/4"	60.8

* AP4E-75F 3/4inch Vortex Filter has been discontinued. Please use a larger filter for onsite wastewater applications. Replacement parts are still available.

150 mesh = 100 micron

When choosing a filter, choose the filter with the larger screen area.

Geoflow, Inc. Tel 415-927-6000 / 800-828-3388 Fax 415-927-0120 www.geoflow.com

Product Sheet: 2011 Filter VortexSeries1 [RU7.1a]M

Made in the USA Genuine Geoflow Orange of Quality

NOTE: Air Vent and Check Valve on Return Line in Plastic Valve Box with Air Vent upstream of Check Valve

GEOFLOW
SUBSURFACE DRIP

Updated July 2014

FIELD FLOW

Worksheet 1- Field Flow

Total field

Total Quantity of effluent to be disposed per day	600	gallons / day
Hydraulic loading rate	0.4	gallons / sq.ft. / day
Minimum Dispersal Field Area	1,500	square ft.
Total Dispersal Field Area	1,500	square ft.

Flow per zone

Number of Zones	1	zone(s)
Dispersal area per zone	1,500	square ft.
Choose line spacing between WASTEFLOW lines	2	ft.
Choose emitter spacing between WASTEFLOW emit	2	ft.
Total linear ft.per zone (minimum required)	750	ft. per zone
Total number of emitters per zone	375	emitters per zone
Select Wastefow dripline (16mm)	Wasteflow PC - 1/2gph	dripline
Pressure at the beginning of the dripfield	30	psi
Feet of Head at the beginning of the dripfield	69.3	ft.
What is the flow rate per emitter in gph?	0.53	gph
Dose flow per zone	**3.31**	**gpm**
If required, choose flush velocity	0.5	ft/sec
How many lines of WASTEFLOW per zone?	5	lines
Fill in the *actual* length of longest dripline lateral	156	ft.
Flush flow required at the end of each dripline	0.37	gpm
Total Flow required to achieve flushing velocity	1.85	gpm
Total Flow per zone- worst case scenario	**5.16**	**gpm**

Dosing

Number of doses per day / zone:	10	doses
Timer ON. Pump run time per dose/zone:	18.07	mins:secs
Timer OFF. Pump off time between doses	2:05	hrs:mins
Per Zone - Pump run time per day/zone:	3:01	hrs:mins
All Zones - Number of doses per day / all zones	10	doses / day
Allow time for field to pressurize	0:01:30	hrs:mins:secs
Filter flush timer	0:01:20	hrs:mins:secs
Drain timer	0:05:00	hrs:mins:secs
Field flush timer	0:01:00	hrs:mins:secs
Field flush counter	3	cycles
Time required to complete all functions per day	**4:29**	hrs:mins
Dose volume per zone	58	gallons per dose

Worksheet - Pump Sizing

Section 1 - Summary from Worksheet 1

Flow required to dose field	3.31	gpm
Flow required to flush field	1.85	gpm
Flow required to dose & flush field	5.16	gpm
Filter	2" VORTEX	
No. of Zones	1	zones
Zone valve	SOLENOID	
Dripline	Wasteflow PC - 1/2gph	
Dripline longest lateral	156.00	ft.

Section 2	Ft of head	Pressure
A. Flush line - Losses through return line		
Select Pipe from dropdown menu	PVC schedule 40	
Select Flush Line Diameter	2" inch	
Length of return line	97 ft.	
Equivalent length of fittings	159 ft.	
Elevation change. (if downhill enter 0)	9 ft.	
Pressure loss in 100 ft of pipe	0.01 ft.	0.00 psi
Total pressure loss from end of dripline to return tank	*9.0 ft.*	*3.91 psi*
B. Dripline - Losses through Wasteflow dripline		
Length of longest dripline lateral	**162** ft.	
Minimum dosing pressure required at end of dripline	23.10 ft.	10.00 psi
Loss through dripline during flushing	4.97 ft.	2.15 psi
Total minimum required dripline pressure	*28.07 ft*	*12.15 psi*
A+B. Minimum Pressure required at beginning of dripfield		
CALCULATED pressure required at beginning of dripfield	*37.09 ft*	*16.06 psi*
SPECIFIED pressure at beginning of dripfield (from wo	**69.3 ft.**	*30.00 psi*
Great SPECIFIED Pressure is greater than CALCULATED Pressure requirement. Go to next step		
C. Drip components - Losses through headworks		
Filter	0.5 ft.	check filter psi
Zone valve pressure loss (not in diagram)	- ft.	- psi
Flow meter pressure loss (not in diagram)	- ft.	- psi
Other pressure losses	- ft.	- psi
Total loss through drip components	**0.50 ft.**	- psi
D. Supply line - Minimum Pressure head required to get from pump tank to top of dripfield		
Select Pipe from dropdown menu	PVC schedule 40	
Select Supply line diameter	2" inch	
Length of supply line	70 ft.	
Equivalent length of fittings	1.2 ft.	
Height from pump to tank outlet	5 ft.	
Elevation change. (if downhill enter 0)	0 ft.	
Pressure loss/gain in 100 ft. of pipe	0.07 ft	0.03 psi
Total gain or loss from pump to field	*5.0 ft.*	*2.19 psi*
Total dynamic head	**74.8 ft.**	*32.40 psi*
Pump capacity * - Field Flush Flow	**5.2 gpm**	*32.40 psi*
- Field Dose Flow	**3.3 gpm**	
- Filter Flush Flow	**1.9 gpm**	*1.85 psi*
Pump Model Number		
Volts / Hp / phase	SEE BELOW	

Geoflow, Inc. Pump Selection Worksheet, V 2003H

GEOFLOW FITTINGS:

Air Vents (4): 1 on Return Line, 3 in Headworks
APVBK100L

Solenoids (4) 4 in Headworks

SVLVB200 and ~~SVLVB 300~~

Pressure Regulators (2):

PMR30MF 2 in Headworks

Low, Medium and H Flow Regulator

Spring Check Valves (4)
CV-S-20 2 in Headworks, 1 in Pump Tank, 1 on Return Line

~~4.5" and~~ 2" Vortex

AP4E-2F
1 in Headworks

Item Number	Size (MPT)	Max. Flow rate (GPM)	Filtration (mesh)	Max. Pressure (psi)	(ft.)	Width	Height	Flush Port (MPT)	Area of Filtration (inches²)
AP4E-75F	3/4"	10	150	80	185	6.0"	6.0"	3/4"	28.4
AP4E-1F	1"	20	150	80	185	6.5"	7.0"	3/4"	28.4
AP4E-1.5F	1.5"	45	150	100	231	12"	15.5"	3/4"	60.8
AP4E-2F	2.0"	70	150	80	185	12"	16.0"	3/4"	60.8

* AP4E-75F 3/4inch Vortex Filter has been discontinued. Please use a larger filter for onsite wastewater applications. Replacement parts are still available.

150 mesh = 100 micron

When choosing a filter, choose the filter with the larger screen area.

Geoflow, Inc. Tel 415-927-6000 / 800-828-3388 Fax 415-927-0120 www.geoflow.com

Product Sheet: 2011 Filter VortexSeries1 [RU7.1a]M

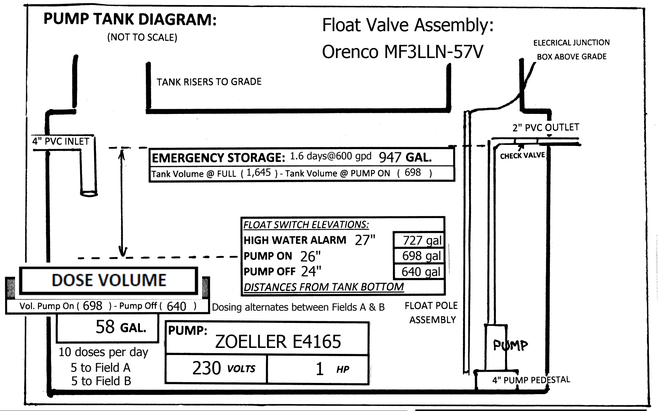
Made in the USA Genuine Geoflow Orange of Quality

NOTE: Air Vent and Check Valve on Return Line in Plastic Valve Box with Air Vent upstream of Check Valve

PUMP TANK DIAGRAM:

(NOT TO SCALE)

Float Valve Assembly:
Orenco MF3LLN-57V



PUMP SELECTION CALCULATIONS & GEOFLOW WORKSHEET INPUTS:

FLOW RATE - From Geoflow Worksheet **5.2 gpm** (Includes Dosing & Field Flushing)
PRESSURE - From Worksheet & Calc. Below **74.8 ft**

Note: All PVC is Schedule 40. $f = L\,(Q/k)^{1.85}$ (SOURCE: COWA Manual, p. 154)

Pump Meeting Flow & Pressure Requirement for Lower Elevation Dripfield A will also be sufficient to serve the upper Dripfield B due to longer run & elevation.

A. Flush Line: Equivalent Length of Fittings - **374 ft**
Return line length = **97 ft**
Elevation Change: **9 ft** (870 - 861 ft)

2" Solenoid in Headworks = 0 ft
Check Valve (1) = 19 ft
T-Thru Runs (9) = 9 x 4 ft = 36 ft

8 x 90° 2" PVC Fittings = 8 x 5.5 ft = 44 ft
T-Branch Runs (5) = 5 x 12 ft = 60 ft
5 x 3/4"–2" pipe expansion = 5 x 43 ft = 215 ft

B. Dripline Length of Longest Lateral (162 ft):
150 ft emitters + 6 ft blank tubing + 2 ft PVC to supply/return + 4 ft Equiv. Length 90° 3/4" PVC (2).

C. Drip Components: Vortex Filter 0.2 psi x 2.3 ft/psi = 0.5 ft (from Geoflow headloss chart) & 2" Solenoid headloss is zero. (From Geoflow headloss charts)
Equivalent Length Headworks Fittings is 1.2 ft (Gate Valve) + 13 ft (Check valve) + 12 ft (T-Branch) + 5.5 (90 Elbow) + 0.5 (Vortex) = 31.7 ft
Headloss due to Equivalent Length of Fittings = 32 ft(5.2 gpm/284.5)$^{1.85}$ = 32 ft x 0.0002 = 0

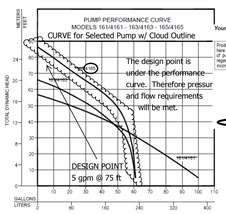
D. Supply Line: Length of Supply Line: **70 ft** (5 ft in tank, 65 ft across manifold and to bottom of Field A)
Equivalent Length of Fittings: **5,822 ft** (2 x 90 elbow in tank & past manifold (12 ft) **//** 4 x T-Branch 1 in manifold, 5 in Field A (60 ft) **//**
5 x Flow Reduction from 2" to 3/4" at Laterals (5,750 ft)) 5,822 ft(5.2 gpm/284.5)$^{1.85}$ = 5,822 ft x 0.0002 = 1.2 ft

Lift in Pump Tank: **5 ft** // Elevation Change: 0 ft (downhill run)

These design points (**5.2 gpm @ 75 ft head**) are labeled on the pump performance curve (attached) for the selected pump:

Zoeller 4165 Submersible Effluent Pump (230 V, 1 HP)

Model	MODEL COMPARISON											CERTIFICATIONS
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex	
E165 / E4165	Single / Double	Non	230	1	10.2	1	60	80 / 87	36 / 39	2 or 3 & 5	4 & 5	UL and cCSAus



Your Peace of Mind is Our Top Priority®

ZOELLER PUMP COMPANY
Zealous Fidelity of Water Solutions

Product information presented here reflects conditions at time of publication. Consult factory for most current revisions or inconsistencies.

TECHNICAL DATA SHEET
HIGH HEAD FLOW-MATE SERIES
Models ~~M1414161, M1634163, M1654165~~ M4165 Submersible Effluent Pumps

Model E4165 is the selected pump. Double-seal non-automatic.
PRODUCT SPECIFICATIONS

MOTOR	Horse Power	1/2 (1614161, 1634163) or 1 (1654165)
	Voltage	115 - 120
	Phase	1 or 2 Ph
	Hertz	60 Hz
	RPM	3450
	Type	Permanent split capacitor or 3 Ph
	Insulation	Class B
	Amps	2.4 - 15.5
PUMP	Operation	Automatic or noncautomatic
	Auto On/Off Points	15-3/4" (400 mm) / 5-1/4" (133 mm)
	Discharge Size	1-1/2" NPT (optional 2" or 3" flange)
	Solids Handling	3/4" (19 mm) spherical solids
	Cord Length	20' (6 m) standard
	Cord Type	1 Ph: UL listed 3-wire neoprene cord and plug or 3 Ph: 4-wire with no plug
	Max. Head	86.5' (26 m)
	Max. Flow Rate	100 GPM (379 LPM)
	Max. Operating Temp.	130 °F (54 °C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload (1 Ph)
MATERIALS	Upper Bearing	Ball bearing
	Lower Bearing	Ball bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Non-clogging vortex
	Impeller	Bronze
	Hardware	Stainless steel
	Motor Shaft	SAE 1317 carbon steel or 416 stainless steel*
	Gasket	Neoprene square ring and gasket

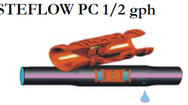
1500-gallon Pinnacle Tank

Height (inches)	Volume in Gallons (with baffles)
0	0
1	24.795
2	49.751
3	74.867
4	100.144
5	125.582
6	151.182
7	176.944
8	202.869
9	228.957
10	255.208
11	281.623
12	308.201
13	334.945
14	361.853
15	388.926
16	416.165
17	443.57
18	471.141
19	498.879
20	526.785
21	554.858
22	583.098
23	611.508
24 PUMP OFF	640.085
27	685.832
28 PUMP ON	697.742
27	726.835
28	756.092
29	785.519
30	815.118
31	844.888
32	874.829
33	904.943
34	935.23
35	965.689
36	996.322
37	1027.129
38	1058.109
39	1089.265
40	1120.595
41	1152.1
42	1183.782
43	1215.639
44	1247.673
45	1279.883
46	1312.271
47	1344.837
48	1377.58
49	1410.502
50	1443.603
51	1476.883
52	1510.343
53	1543.982
54	1577.802
55	1611.803
56 TANK FULL	1645.985

DRIPLINE SPECIFICATIONS:

Emitter Spacing: 24"
Line Spacing: 24"

WASTEFLOW PC 1/2 gph



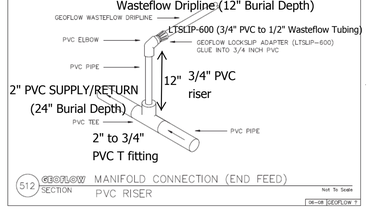
Flow Rate vs. Pressure

Pressure	Head	Flow Rate 1/2 gph PC dripline
7-60 psi	16-139 ft.	0.53 gph

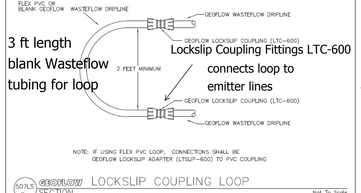
Standard Models:

WFPC16-2-24 WASTEFLOW PC 24"/.53gph or 2lph
~~WFPC16-2-18 WASTEFLOW PC 18"/.53gph or 2lph~~
~~WFPC16-2-12 WASTEFLOW PC 12"/.53gph or 2lph~~
Alternative spacing, flow rates and diameters available upon

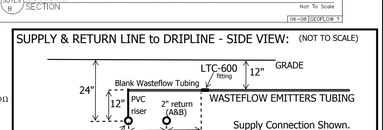
SUPPLY & RETURN LINE CONNECTIONS:



DRIPLINE LOOP ASSEMBLY:



SUPPLY & RETURN LINE to DRIPLINE - SIDE VIEW: (NOT TO SCALE)

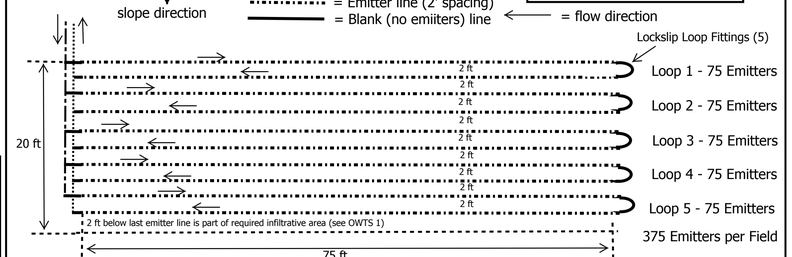


DRIPFIELD DRIPLINES LOOPS DIAGRAM: 1 INCH = 10 FEET

slope direction

= Supply Line (2" PVC)
= Return line (2" PVC)
= Emitter line (2' spacing)
= Blank (no emiiters) line
= flow direction

FIELDS A & B are the same, except for variation to keep driplines on contour (3" per 100').



OWTS 2 NEW DUAL DRIP DISPERSAL SEPTIC SYSTEM Old Santa Cruz Hwy., Los Gatos, CA
(To Serve Proposed 4 BR House) APN 558-41-033 (SR0852592)

OWNER: Bill Chiocchi Tel. 408-605-5445
1175 Valley Quail Circle, San Jose, CA 95120

PLAN BY: Christopher Day, R.E.H.S. Tel. 650-293-1045
P.O. Box 26, Redwood City, CA 94064 christopherday@aol.com

ORIGINAL: 11/19/2017
REV 1: _____
REV 2: _____