

THOMAS HUNT CIVIL ENGINEERING

- A. **SITE PLAN** – See sheet C1.0 of the project plans which shows the configuration of the existing well, building footprint, treatment and leach field.
- B. **PROJECT LOCATION:** AP#008-032-51, Lake County, South half of Section 7 T.13N., R.9W. MDB&M. The Leach field is on AP#008-032-63, via an easement documented in 1991.
- C. **WATER SUPPLY:** The water supply for the subject property is an existing well of approximately 200 feet in depth, and static water level of approximately 50 feet BGS.
- D. **SERVICE AREA Description:** The project area is mainly agriculture with the except of the County Airport in the vicinity of the subject parcel. There are no public water distribution systems or sewer collection systems within approximately 2 miles of the project site. In the past history of the Site development a cost analysis was performed for connecting to the nearest sewer collection system, however it was deemed unfeasible, economically.

2. WASTE WATER CHARACTERIZATION AND TREATMENT

- A. The sanitary sewer domestic waste stream is exclusively from employee restroom facilities.
 - a) The sanitary waste volume is based on 15gpd/person for the estimated number of employees for facility.
 - b) The estimated BOD for sanitary waste is 200mg/L because of a low dilution rate for restrooms only, and COD 250 mg/L.
- B. The process wastewater is generated from the cleaning of industrial size stainless steel mixing bowls using hot water after each batch of product is feed into the thin film processing conveyor belt equipment.
 - c) The process wastewater volume is estimated based on the number batches per day for each mixing bowl.
 - d) Based on preliminary sample data of the process wastewater:
 - BOD for the process wastewater is 470 mg/L - 530 mg/L;
 - Total Suspended Solids is 220 mg/L - 45 mg/L;
 - Total Dissolved Solids 490 mg/L - 480 mg/L;
 - Conductance 230 umhos/cm - 250 umhos/cm;
 - TKN 2.4 mg/L - 3.6 mg/L ;
 - Chloride / - 7.1 mg/L;
 - Sodium 34 mg/L - 23 mg/L
 - Chemical Oxygen Demand 1300 mg/L - 950 mg/L;
 - pH 4.25 - pH 7.06.

3. WASTEWATER TREATMENT SYSTEM

- A. See Sheet C2.0 of the project plans.
- B. Wastewater Pretreatment components:
 - a.) Sanitary Waste pretreatment consists of a 4,800-gallon septic tank for primary treatment.
 - b.) The Process Waste pretreatment consists of two 1,500-gallon tanks in series with an aeration system to assist with the BOD oxygen depletion, and Heritage Chemical feed system to adjust the pH of certain batches of wastewater. The series of three total tanks

THOMAS HUNT CIVIL ENGINEERING

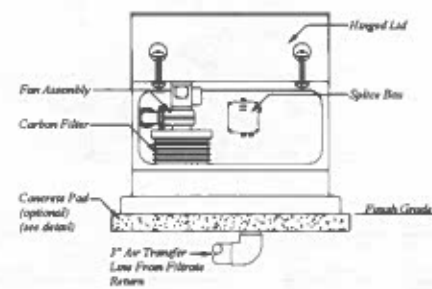
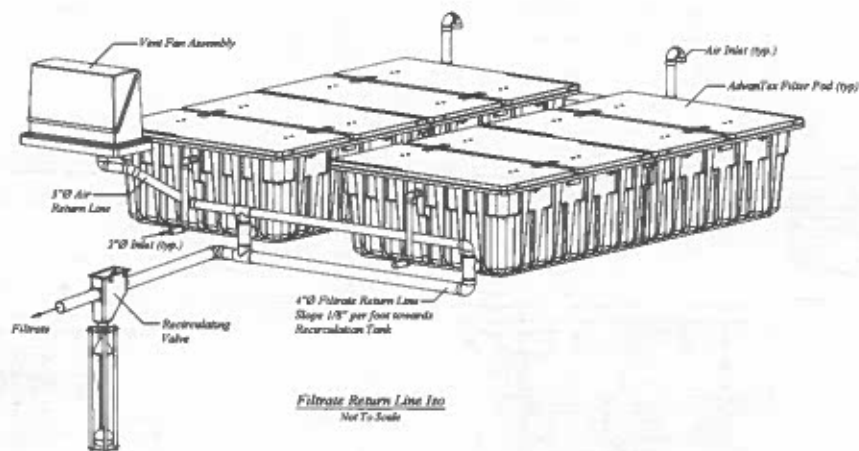
for the process wastewater allows for solids settlement, together with retention time for biological treatment of the wastewater. The series of tanks create a baffle system for settlement, and a screen influent filter install upstream of the pre-anoxic tank.

- c.) The two wastewater streams flow into the 3,000-gallon pre-anoxic blend tank for pumping to the recirculation tank.
- d.) In the 1,500-gallon recirculation tank is a bio tube duplex pump vault to pump effluent into a Orenco AX-100 treatment module. The treatment module uses an air ventilation system blower to assure adequate oxygen is provided to the filter media biological process.
- e.) The recirculation tank will divert a portion of the treatment effluent from to the AX-100 biological filtration system to a 3,500-gallon dosing tank.
- f.) The Dosing tank has a bio tube duplex pump vault to pump treated effluent to a pressurized multi-zone GeoFlow drip leach field. The GeoFlow system will use 0.5-gallon//sf/day with emitters spaced at 1' o.c. and each GeoFlow tube spaced at 2' o.c. for a total of 3,700 sf of soil area. This is a standard flowrate for conservative design of pressurized discharge after pretreatment. The GeoFlow piping will be buried approximately one foot deep to allow for maximum soil absorption by the native silty clay soils. The GeoFlow system will be controlled by electric valves that will alternate the zones and allow flows to loop back to the recirculation tank for flushing.
- g.) There is area for a 100% replacement drip field. The surrounding land use is primarily agriculture or unimproved, except to the north where the end of local airstrip is at least 300 feet away. The depth ground water in area of the leach field is assumed to be greater than 5 feet below the nature grade. The site terrain is relatively flat in the area of the leach field, with a gently drainage swale, between to drain field and the subject project facility, that traverses in a northeasterly direction from the northwest corner of the subject project parcel toward a drainage swale along the south side of the airstrip. The swale depression is about 2 to 3 below the existing grade of the leach field area, with the surrounding terrain sloping 2 to 5% toward the swale. The swale is approximately 300 feet from the existing leach field area. The existing leach field area is to be abandon upon installation of the new piping, and area could be used for future replacement area if needed, together additional area to the east of the proposed drain field.
- h.) It is estimated the treated effluent going to the leach field will have a BOD of 10 to 15 mg/L.
- i.) General maintenance cleaning of all filters and pump vault screens will be performed on regular interval and the upstream tanks will be pumped as needed to remove solids and grit.
- j.) A Control Panel will control all of the electrical circuits for the pumps and valves, including low level shut off and high-level alarms. The Control panel will allow for remote monitoring, data collection, programing, and alarm information.

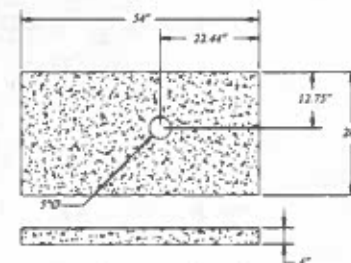
Prepared by: Thomas A. Hunt, P.E.

420 Cochrane Avenue
Ukiah, CA 95482
707-499-0152
Email: thomashuntpe@gmail.com





Above Ground Fan Assembly
Scale: 1" = 2'-0"



Optional Fan Assy Pad Detail
Scale: 1" = 2'-0"



Disclaimer:

Individual air inlet details

File: INDIVIDUAL_AIR_INLET_DETAILS.DWG	Rev: 8.0	Date: 11/08/2022
--	----------	------------------

Rev.	8.0	Date	11/08/2022
------	-----	------	------------

[illegible]

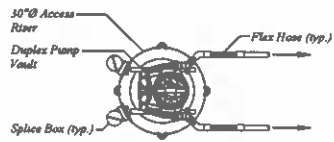
ESTHER FORMULA USA, INC.
4615 WORK RIGHT CIRCLE
LAUREL, CA 95453

ADVANCED TREATMENT MODULE VENTILATION SYSTEM

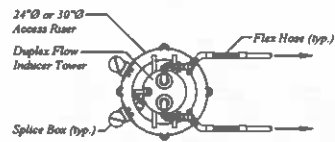


CHRS	18
CHRS	18
AFRO-80	18
DATE	18-3-20
CO-1000	18

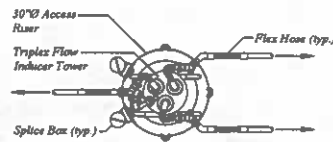
528



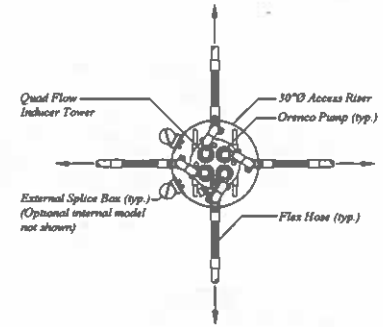
*Duplex Pump Vault
Plan View*



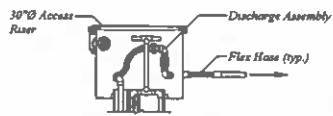
*Duplex Flow Inducer Tower
Plan View*



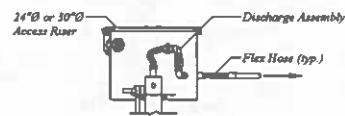
*Triplex Flow Inducer Tower
Plan View*



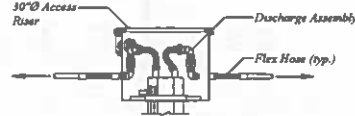
*Quad Flow Inducer Tower
Plan View*



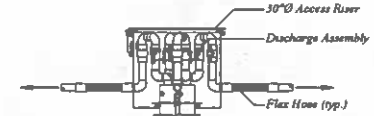
*Duplex Pump Vault
Profile View*



*Duplex Flow Inducer Tower
Profile View*



*Triplex Flow Inducer Tower
Profile View*



*Quad Flow Inducer Tower
Profile View*

Thomas Hunt Civil Engineering
10000 E. 1st Avenue, Suite 100
Denver, CO 80231
Phone: 303.733.1111
Fax: 303.733.1112
Email: thomashunt@earthlink.net



NO.	DATE	DESCRIPTION
1	10-1-2005	ISSUED FOR PERMIT
2	10-1-2005	REVISED
3	10-1-2005	REVISED
4	10-1-2005	REVISED
5	10-1-2005	REVISED
6	10-1-2005	REVISED
7	10-1-2005	REVISED
8	10-1-2005	REVISED
9	10-1-2005	REVISED
10	10-1-2005	REVISED

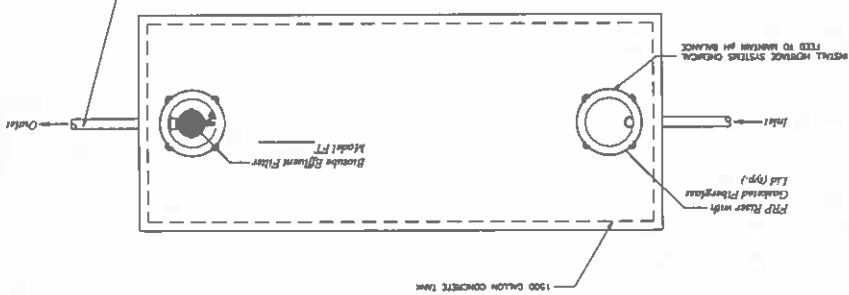
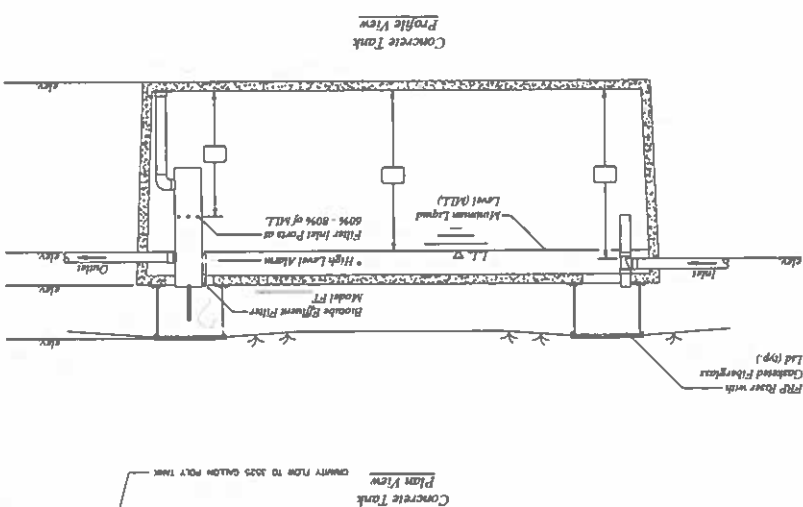
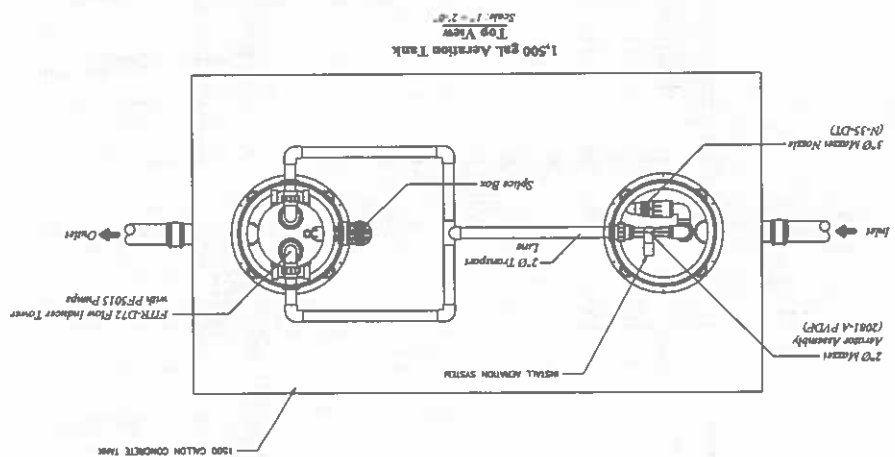
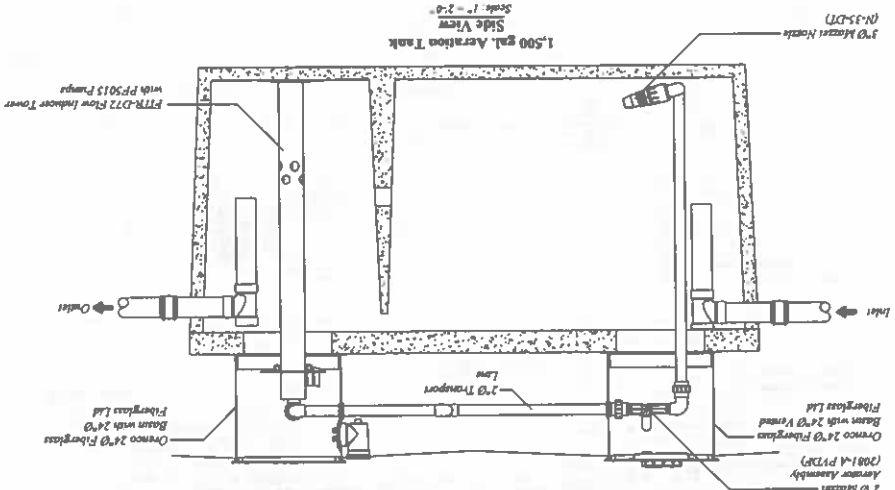
ESTHER FORNIA, L.P.A., INC.
4615 WORK ROAD, SUITE 100
LAUREL, CA 94543

TANK ACCESS RISER PLUMBING DETAILS



DESIGNED	1/2/05
CHECKED	1/2/05
APPROVED	1/2/05
DATE	10-1-2005
SCALE	1"=1'-0"

C.S.O.



C3.0

Drawn	JAM
Checked	JAM
Designed	JAM
Scale	1" = 2'-0"
Date	10-2-2023
Project	ESTHER FORAMULA USA INC.

ESTHER FORAMULA USA INC.
4615 WORK RIGHT CIRCLE
LASPORT, CA 94553

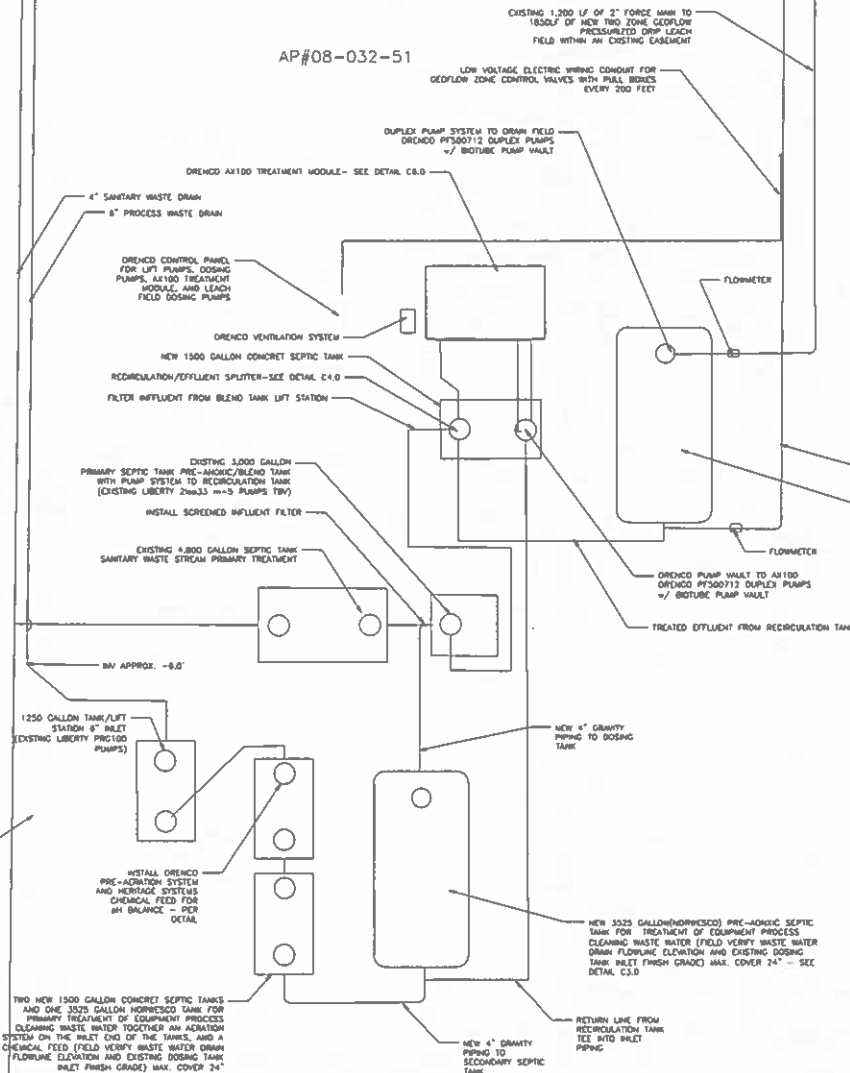
PRIMARY SEPTIC TANK DETAILS

NO.	REVISION	DATE
1	ISSUED FOR PERMIT	10/2/2023
2	REVISED PER COMMENTS	10/11/2023
3	REVISED PER COMMENTS	10/12/2023
4	REVISED PER COMMENTS	10/12/2023

Thomas Hunt Civil Engineering
10000 1st Street, Suite 100
Oakland, CA 94612
908.494.0122
thomas.hunt@thomashuntcivil.com

EXISTING 200 FT x 300 FT
MANUFACTURING BUILDING

AP#08-032-51



SITE PLAN: SEPTIC SYSTEM LAYOUT

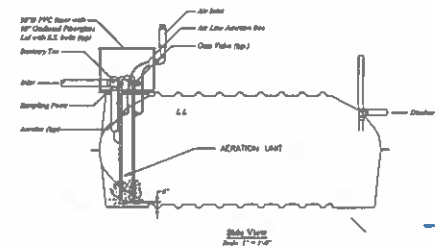
SCALE 1" = 5'

Small Systems Design Sheet

Directions: Fill-in applicable calls in BLACK. Answers appear in PURPLE.

Call	Answer	Definition: 1. Day = 24 hours
1. 3,471 gpd, total	3,471 gpd, total	2. Lateral = supply to return connection total length
2. 0.000 acres, minimum	0.000 acres, minimum	3. Run = number and length within each lateral
3. 250 drip tubing pin	250 drip tubing pin	
4. 8, dripline spacing	8, dripline spacing	
5. 1,250 ft, dripline required	1,250 ft, dripline required	
6. 1 gpd, drip rate	1 gpd, drip rate	
7. 2.02 gpd, drip rate	2.02 gpd, drip rate	
8. 1.07 gpd, drip rate	1.07 gpd, drip rate	
9. 1 gpd, drip rate	1 gpd, drip rate	
10. 1.07 hrs/d, theoretical per drip rate	1.07 hrs/d, theoretical per drip rate	
11. 84 hrs/d, theoretical per drip rate	84 hrs/d, theoretical per drip rate	
12. 1.07 hrs/d, pump run time (12 hrs default)	1.07 hrs/d, pump run time (12 hrs default)	
13. 11 max theoretical zones, no.	11 max theoretical zones, no.	
14. 11 max theoretical zones, no.	11 max theoretical zones, no.	
15. 1,736 gpd, each zone	1,736 gpd, each zone	
16. 855 ft, theoretical drip line length per zone	855 ft, theoretical drip line length per zone	
17. 200.0 ft, lateral length	200.0 ft, lateral length	
18. 200.0 ft, lateral length	200.0 ft, lateral length	
19. 400 gpd, calculated drip line length per zone	400 gpd, calculated drip line length per zone	
20. 6.7 gpm, calculated flow rate	6.7 gpm, calculated flow rate	
21. 6.1 gpm, flow rate	6.1 gpm, flow rate	
22. 1.5 gpm, return flow rate	1.5 gpm, return flow rate	
23. 11.8 min, run time (fully pressurized) per zone per dose	11.8 min, run time (fully pressurized) per zone per dose	
24. 23.15 min, "on" time per dose cycle	23.15 min, "on" time per dose cycle	
25. 65.88 min, "off" time per dose cycle	65.88 min, "off" time per dose cycle	
26. 278 min/d, "on" time, or	278 min/d, "on" time, or	
27. 1,983 min/d, "off" time, or	1,983 min/d, "off" time, or	

CALCULATED < THEORETICAL; ADJUST LENGTH



AERATION SYSTEM SECTION VIEW

Thomas Hunt Civil Engineering
4510 Oakridge Drive
Lakeport, CA 95453
707-426-1122
thomas@thomascivil.com



NO.	DATE	DESCRIPTION
1	08/03/2023	ISSUED FOR PERMIT
2	08/03/2023	ISSUED FOR PERMIT
3	08/03/2023	ISSUED FOR PERMIT

ESTHER FORMULA USA, INC.
4615 WORK RIGHT CIRCLE
LAKEPORT, CA 95453

SEPTIC TREATMENT SYSTEM LAYOUT



NO.	DATE	DESCRIPTION
1	08/03/2023	ISSUED FOR PERMIT
2	08/03/2023	ISSUED FOR PERMIT
3	08/03/2023	ISSUED FOR PERMIT

C2.0

Small Systems Design Sheet

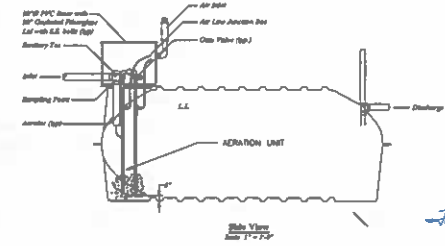
Directions: Put-in applicable calls in BLACK. Answers appear in PURPLE.

02022 Conditions

1. 3.471 K2, total	2. 1.000 K2, total
3. 0.000 K2, total	4. 0.000 K2, total
5. 0.000 K2, total	6. 0.000 K2, total
7. 0.000 K2, total	8. 0.000 K2, total
9. 0.000 K2, total	10. 0.000 K2, total
11. 0.000 K2, total	12. 0.000 K2, total
13. 0.000 K2, total	14. 0.000 K2, total
15. 0.000 K2, total	16. 0.000 K2, total
17. 0.000 K2, total	18. 0.000 K2, total
19. 0.000 K2, total	20. 0.000 K2, total
21. 0.000 K2, total	22. 0.000 K2, total
23. 0.000 K2, total	24. 0.000 K2, total
25. 0.000 K2, total	26. 0.000 K2, total
27. 0.000 K2, total	28. 0.000 K2, total
29. 0.000 K2, total	30. 0.000 K2, total
31. 0.000 K2, total	32. 0.000 K2, total
33. 0.000 K2, total	34. 0.000 K2, total
35. 0.000 K2, total	36. 0.000 K2, total
37. 0.000 K2, total	38. 0.000 K2, total
39. 0.000 K2, total	40. 0.000 K2, total
41. 0.000 K2, total	42. 0.000 K2, total
43. 0.000 K2, total	44. 0.000 K2, total
45. 0.000 K2, total	46. 0.000 K2, total
47. 0.000 K2, total	48. 0.000 K2, total
49. 0.000 K2, total	50. 0.000 K2, total
51. 0.000 K2, total	52. 0.000 K2, total
53. 0.000 K2, total	54. 0.000 K2, total
55. 0.000 K2, total	56. 0.000 K2, total
57. 0.000 K2, total	58. 0.000 K2, total
59. 0.000 K2, total	60. 0.000 K2, total
61. 0.000 K2, total	62. 0.000 K2, total
63. 0.000 K2, total	64. 0.000 K2, total
65. 0.000 K2, total	66. 0.000 K2, total
67. 0.000 K2, total	68. 0.000 K2, total
69. 0.000 K2, total	70. 0.000 K2, total
71. 0.000 K2, total	72. 0.000 K2, total
73. 0.000 K2, total	74. 0.000 K2, total
75. 0.000 K2, total	76. 0.000 K2, total
77. 0.000 K2, total	78. 0.000 K2, total
79. 0.000 K2, total	80. 0.000 K2, total
81. 0.000 K2, total	82. 0.000 K2, total
83. 0.000 K2, total	84. 0.000 K2, total
85. 0.000 K2, total	86. 0.000 K2, total
87. 0.000 K2, total	88. 0.000 K2, total
89. 0.000 K2, total	90. 0.000 K2, total
91. 0.000 K2, total	92. 0.000 K2, total
93. 0.000 K2, total	94. 0.000 K2, total
95. 0.000 K2, total	96. 0.000 K2, total
97. 0.000 K2, total	98. 0.000 K2, total
99. 0.000 K2, total	100. 0.000 K2, total

1" SCH 40 PVC BACK FLUSH DRAIN LINE FROM DRAIN FIELD TEE INTO INLET OF DOSING TANK

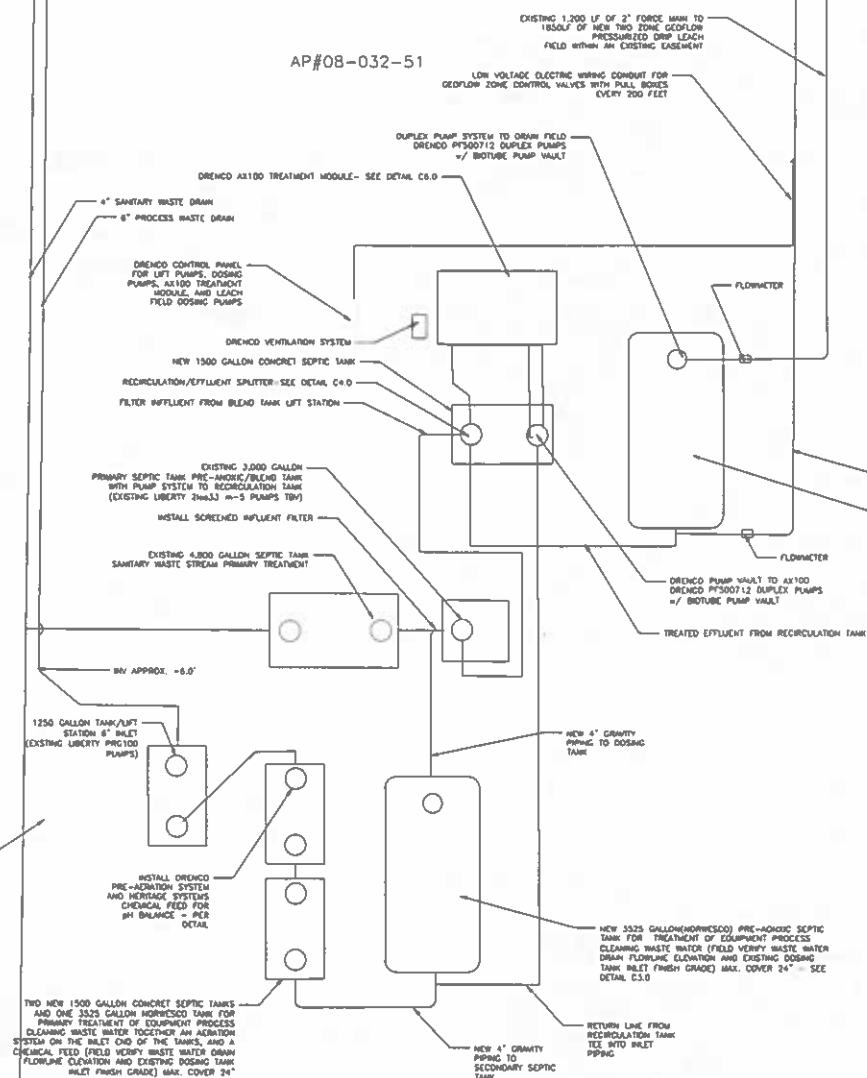
NEW 3525 GALLON (HORNESCO) DOSING TANK



AERATION SYSTEM SECTION VIEW

AP#08-032-51

EXISTING 200 FT x 300 FT MANUFACTURING BUILDING



SITE PLAN: SEPTIC SYSTEM LAYOUT

SCALE 1" = 5'

Thomas Hunt Civil Engineering



ESTHER FORMULA USA INC.

4615 WORK RIGHT CIRCLE

LAKEPORT, CA 95453

SEPTIC TREATMENT SYSTEM LAYOUT

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023

10-3-2023