HAL WEN & ASSOCIATES, INC.
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Lillington, NC 27546
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14 May, 2001

Harnett County Environmental Health
P.O. Box 9
Lillington, NC 27546

Attention: Mr. Joe West

Reference: Detailed Soil Investigation And Septic System Design
Trade Center, Melvin and Geraldine Stewart Property (2.08 Acres)

Dear Mr. West,

It was my pleasure to meet with you at the above site to review the detailed soil investigation and septic system design proposed for the proposed commercial operation. The attached septic system design is for a wastewater flow of 1,500 gallons per day. Within this flow is a 16 ft by 54 ft carry-out pizza restaurant, which generates 432 gallons (50 gal/ 100 sqft), plus 100 gallons for four employees, for a total of 532 gallons. Inside the convenience store will be a deli, which consumes an area of about 16 ft by 20 ft, has two booths or 8 seats, and generates a flow of 480 gallons. The remaining area inside the convenience store constitutes 3,136 sqft and generates a flow of 376 gallons (120 gal/ 1000 sqft). The convenience store and deli will employ together four additional employees, or an additional 100 gallons of wastewater flow. Therefore, 532 gallons (pizza carry-out including 4 employees), 480 gallons (deli including eight seats), and 476 gallons (remaining convenience store including 4 employees to be shared with the deli) yields a total flow of 1,488 gallons per day. The attached septic system design is for a 1,500 gallon per day system and should be adequate for this establishment.

Pizza Carry-out
- 16 ft by 54 @ 50 gal/100 sqft ..... 432 gallons
- 4 employees ..... 100 gallons
- Total ..... 532 gallons

Deli
- 320 sqft (16 X 20) @ 50 gal / 100 sqft ..... 160 gallons
- 8 seats @ 40 gal/ seat ..... 320 gallons
- Total ..... 480 gallons

Convenience Store
- 3,136 sqft @ 120 gal/ 1000 sqft ..... 376 gallons
- 4 employees (to be shared w/ deli) ..... 100 gallons
- Total ..... 476 gallons

Grand Total ..... 1,488 gallons

The proposed initial system and repair system both utilize pressure-manifold distribution into conventional drainlines that should be installed 18 to 24 inches below ground surface. Attached are the system layouts and the supporting information for the pressure-manifold designs. The supporting information is in a table form that has each component needed for a pressure-manifold system.

I trust that this report provides the information that you require at this time. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,

Hal Owen
Licensed Soil Scientist

Trade Center "Stewart Property"

On-site Wastewater Design Specifications

Initial System (1500 gpd of flow)

Pressure-manifold into conventional drainlines
(3 x 110', 2 x 105', 3 x 100' = 840 linear feet)
on contour @ 18-24 inches
LTAR: 0.6 gpd/sqft

Repair System (1500 gpd of flow)

Pressure-manifold into conventional drainlines
(100, 130, 180, 80, 75, 60 = 625 linear feet)
on contour @ 18-24 inches
LTAR: 0.8 gpd/sqft

Lines flagged at site on 9-ft centers.

Initial/ Repair	Line#	Line Color	Drainline Length(ft)	Measured Field Line Length(ft)	Relative Elevation(ft)
Repair	1	W	100	100	99.76
Repair	2	B	130	134	99.71
Repair	3	W	180	182	99.32
Repair	4	B	80	82	99.04
Repair	5	W	75	76	98.9
Repair	6	B	60	64	98.51
N/A	7	W	0	46	98.11
Initial	8	Y	110	113	99.37
Initial	9	W	110	111	99.38
Initial	10	B	110	112	99.39
Initial	11	W	105	106	99.31
Initial	12	B	105	106	99.24
Initial	13	W	100	101	99.16
Initial	14	Y	100	105	99.1
Initial	15	B	100	109	99.13
		Total:	**1465**	**1547**	☆ **EIP = 100.00**

Initial, Geraldine Stewart

Pressure Manifold Design Criteria

Line	Initial / Repair	Drainline Length(ft)	Tap Size/ Schedule	gpm/tap	gpm/ft	gpd/ft	LTAR (gpd/sqft)
8	Initial	110	3/4-80	10.1	0.092	1.70	0.57
9	Initial	110	3/4-80	10.1	0.092	1.70	0.57
10	Initial	110	3/4-80	10.1	0.092	1.70	0.57
11	Initial	105	3/4-80	10.1	0.096	1.79	0.60
12	Initial	105	3/4-80	10.1	0.096	1.79	0.60
13	Initial	100	3/4-80	10.1	0.101	1.87	0.63
14	Initial	100	3/4-80	10.1	0.101	1.87	0.63
15	Initial	100	3/4-80	10.1	0.101	1.87	0.63
						Target LTAR (gpd/sqft)=	0.60
						LTAR + 0.5%	0.63
						Daily PRT(min)=	18.56
Elev Hd(ft)=	To Be Determined	Friction Head(ft)=	To Be Determined	Pressure Head(ft)=	2	Dose PRT(min)=	5.09
		TDH =	To Be Determined	Total Flow (gpm)=	80.8	Dose Vol(gal)=	411.39 @ 75%

Prepared By:
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Repair for Geraldine Stewart

Pressure Manifold Design Criteria

Line	Initial / Repair	Drainline Length(ft)	Tap Size/ Schedule		gpm/tap	gpm/ft	gpd/ft	LTAR (gpd/sqft)
1	Repair	100	1/2-40	7.11 — 3.555	10.665	0.101	2.37	0.79
2	Repair	130	1/2-40	7.11 — 3.555 — 10.1	13.655	0.105	2.47	0.82
3	Repair	180	1-40	20.2 — 10.1 — 8.4	18.5	0.103	2.42	0.81
4	Repair	80	1-80	16.8 — 8.4	8.4	0.105	2.47	0.82
5	Repair	75	1/2-40	7.11	7.11	0.095	2.23	0.74
6	Repair	60	1/2-80	5.5	5.5	0.092	2.15	0.72
							Target LTAR	0.8
							LTAR + 0.5%	0.84
							Daily PRT(min)	23.5
					Pressure Head(ft)=	2	Dose PRT(min)	4.80
					Total Flow (gpm)=	63.83	Dose Vol(gal)=	306.09 @ 70%

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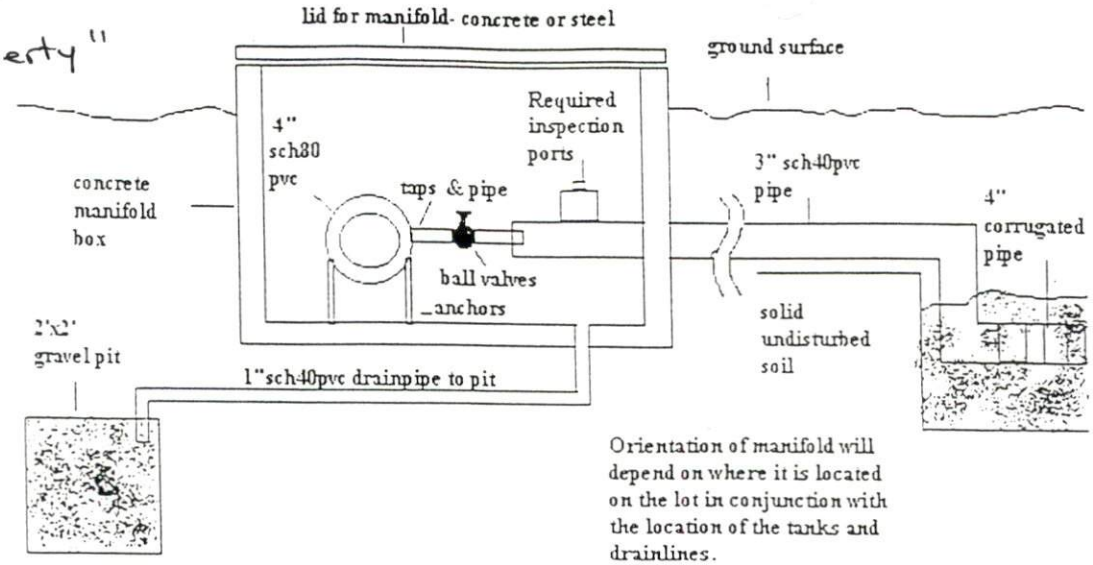
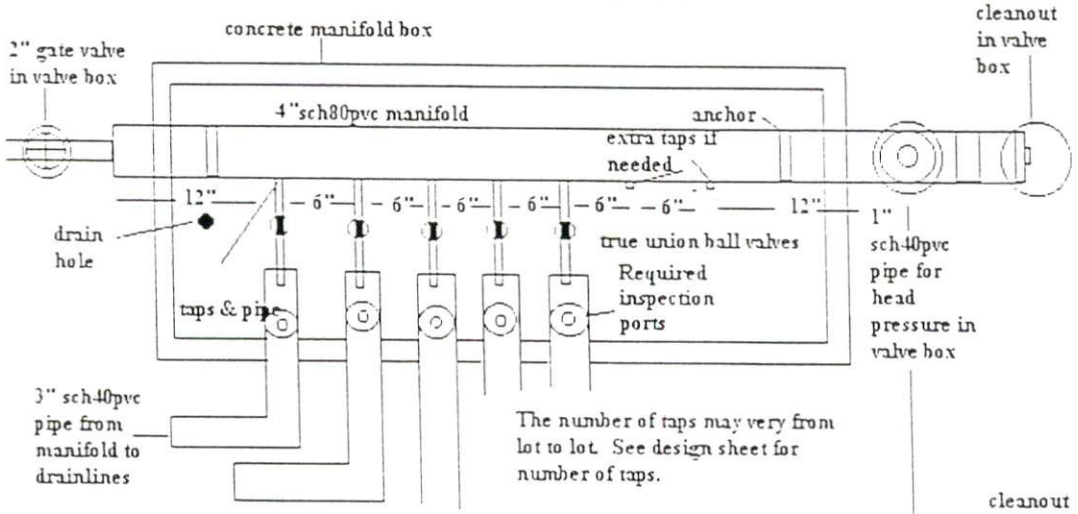
Pressure Manifold Requirements

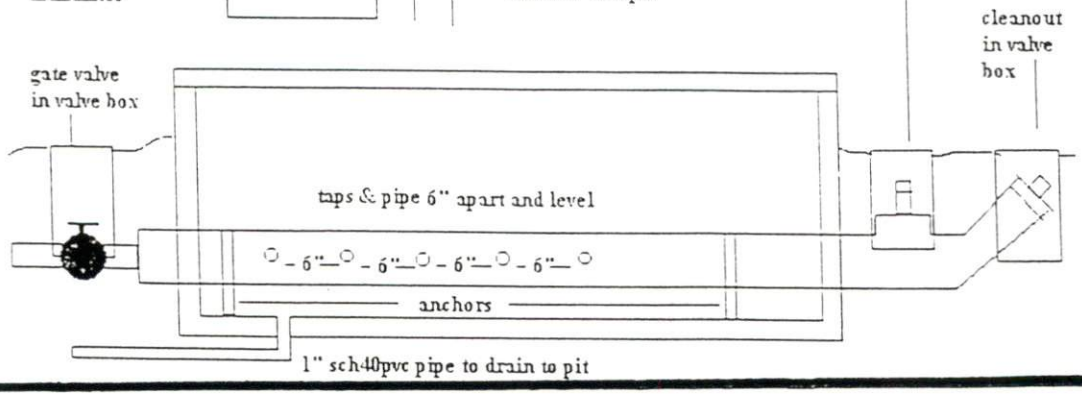
Trade Center
"Stewart Property"



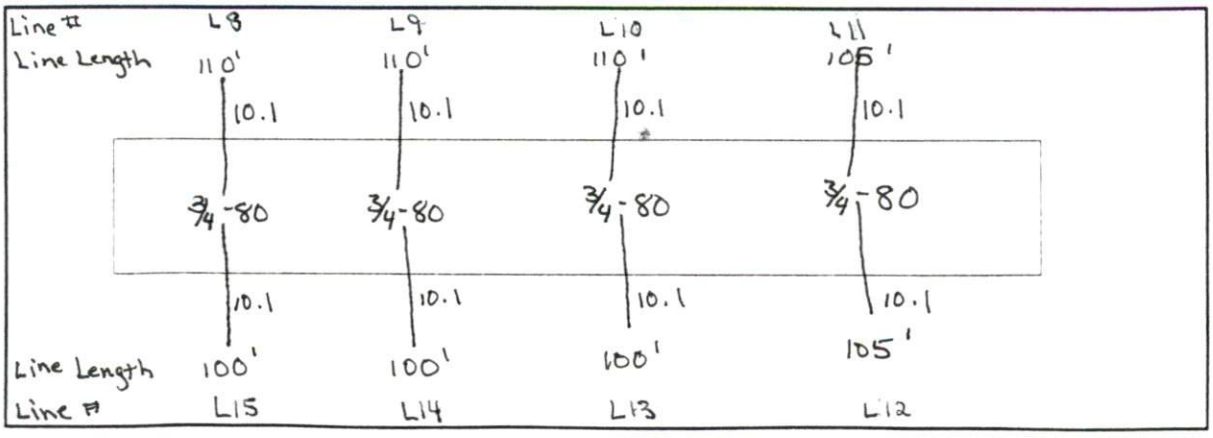
Orientation of manifold will depend on where it is located on the lot in conjunction with the location of the tanks and drainlines.



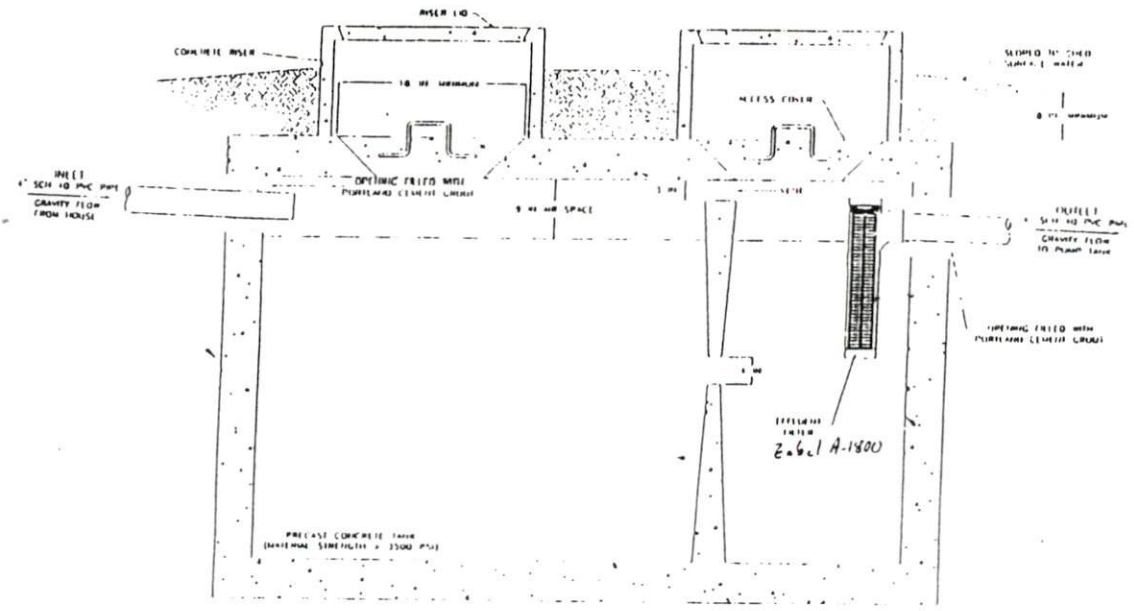
The number of taps may very from lot to lot. See design sheet for number of taps.



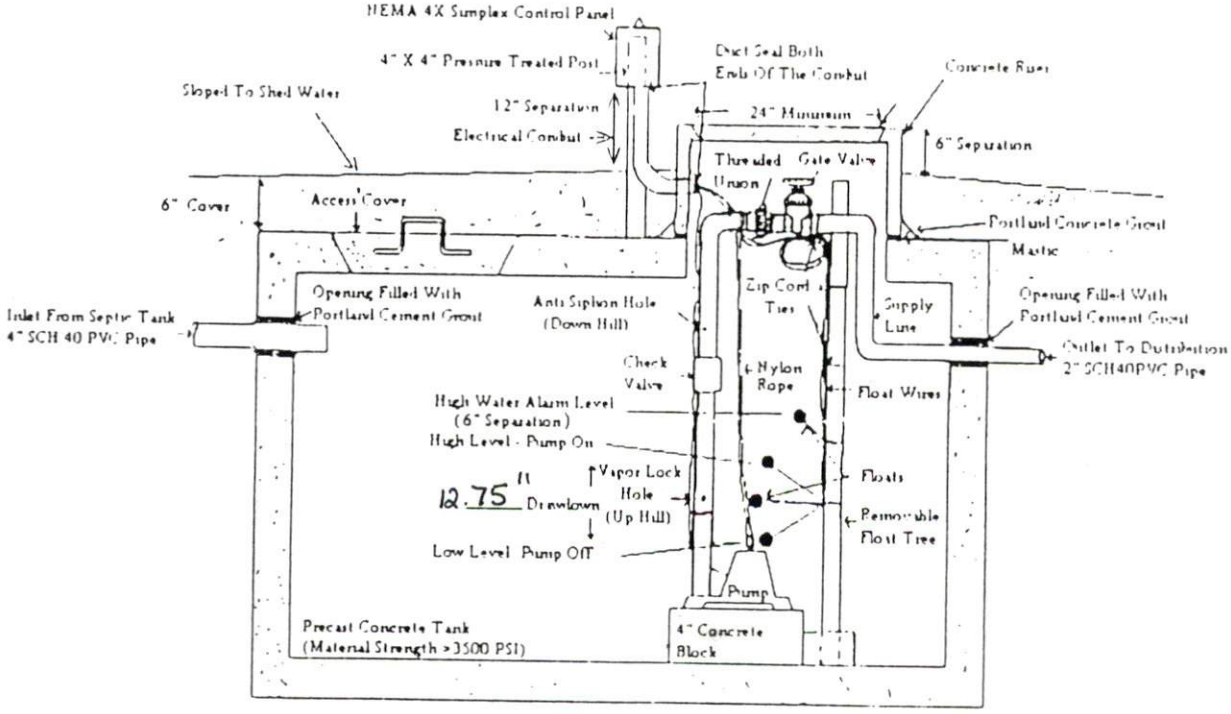
Pressure Manifold 4" Schedule 80 Initial System



Trade Center "St art Property

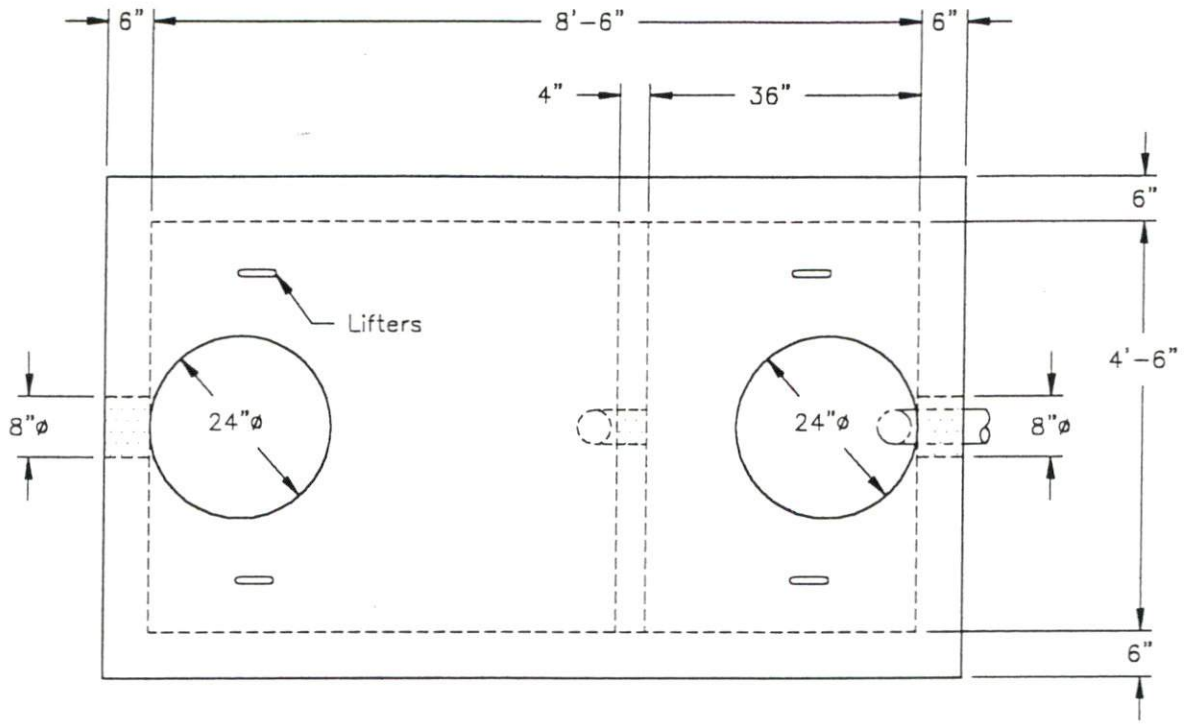


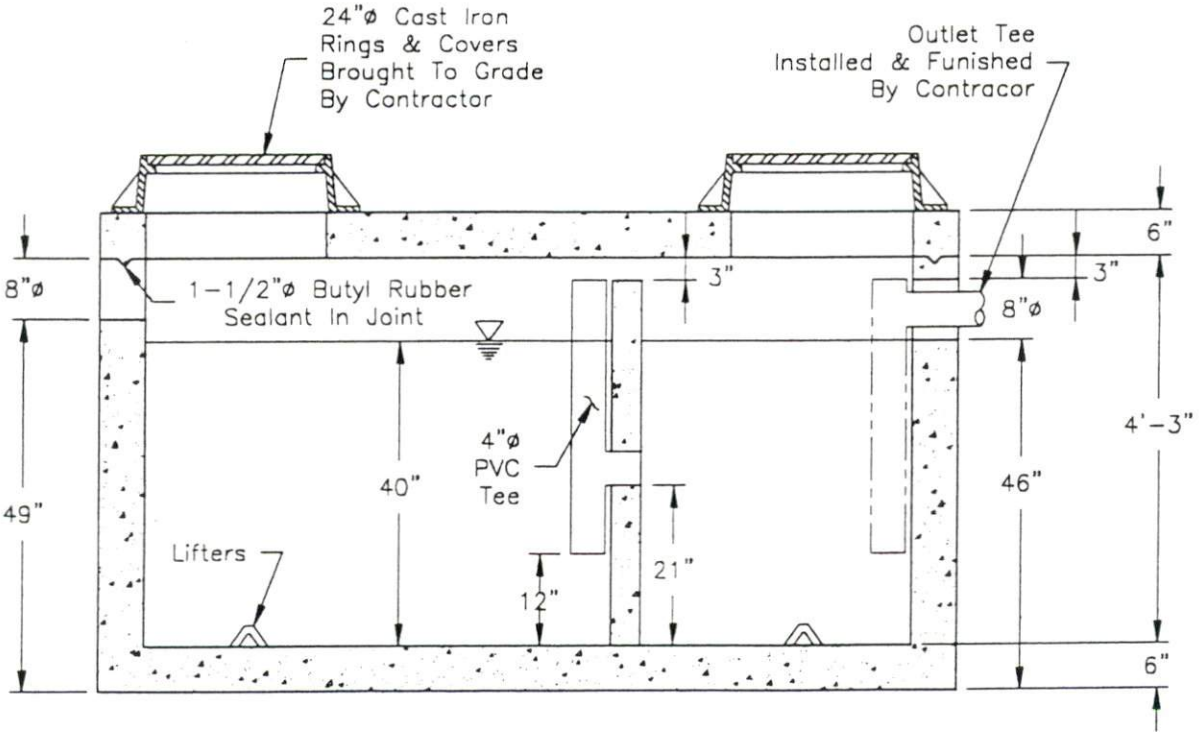
3000 GALLON SEPTIC TANK



2000 GALLON PUMP TANK

Trade Center "Stewart Property





Grease\1000ggi

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