PRESSURE MANIFOLD SYSTEM FOR WASTEWATER TREATMENT

Owner:	Essex Homes
Address:	13310 South Ridge Dr. (Suite A) Charlotte, NC 28273
Phone:	704.423.8988
County:	Iredell
Location:	Autumn Grove Subdivision Lot 22 104 Early Frost Lane, Mooresville, NC 28115
Source of Wastewater Flow:	3 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	360 gpd
System Flow:	24.32

Design Specifications

Drainfield Size:	330
Loading Rate:	0.275
Depth of Gravel in Trench:	NA (25% reduction)
Gravel Size:	NA (25% reduction)
Trench Depth:	36 in.
Trench Width:	36 in.
Septic Tank Size:	1000
Pump Tank Size:	1000
Estimated Supply Line Length:	195
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	33.93
Dosing Volume:	150.84
Supply Manifold:	4 in. SCH 80 PVC
Supply Manifold Length:	4 ft. (minimum)
Supply Manifold Volume:	N/A
Recommended Float Controls:	SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents
Recommended Control Panel:	SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.
Pressure Head:	2 ft.
Friction Head:	2.48
Elevation Head:	7.60
Total Dynamic Head:	13.89
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 at Pressure Manifold
Check Valves:	In Tank
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services and approved by ICHD.

Autumn Grove Subdivision Lot 22
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	360
SOIL APPLICATION RATE:	0.275
TOTAL AREA TRENCH BOTTOM:	990
TOTAL LATERAL LENGTH:	330
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	327.2727273
SUPPLY LINE LENGTH:	195
TOTAL DYNAMIC HEAD:	13.89
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	150.84
PUMP TANK DRAW DOWN*:	7.2
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	1000

**Pump tank draw down based on a volume basis of 21 gallons per inch. Draw down may vary among pump tank manufacturers.*

AUTUMN GROVE LOT #22

Project #: 01-1043

LAYOUT FOR 3 BEDROOM HOME

May 30, 2014

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		2.0			100.00		
INSTR. 1			102.00				
HOUSE CNR				5.70	96.30		
P. TANK				6.20	95.80		
1	ORANGE			3.00	99.00	40	40
2	RED			3.40	98.60	68	68
3	***BLUE***			***3.80***	***98.20***	***95***	***95***
4	***PINK***			***4.00***	***98.00***	***110***	***95***
5	***ORANGE***			***4.60***	***97.40***	***140***	***140***
6	RED			5.20	96.80	80	80
7	PINK			6.00	96.00	53	53
					Total	**586**	**571**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***330***	***0.275***	***ACCEP.***	***0.275***	***ACCEPTED***	***PRESSURE MANIFOLD***
Repair	241	0.275	MOD.	0.275	PPBPS	LOW PRESSURE

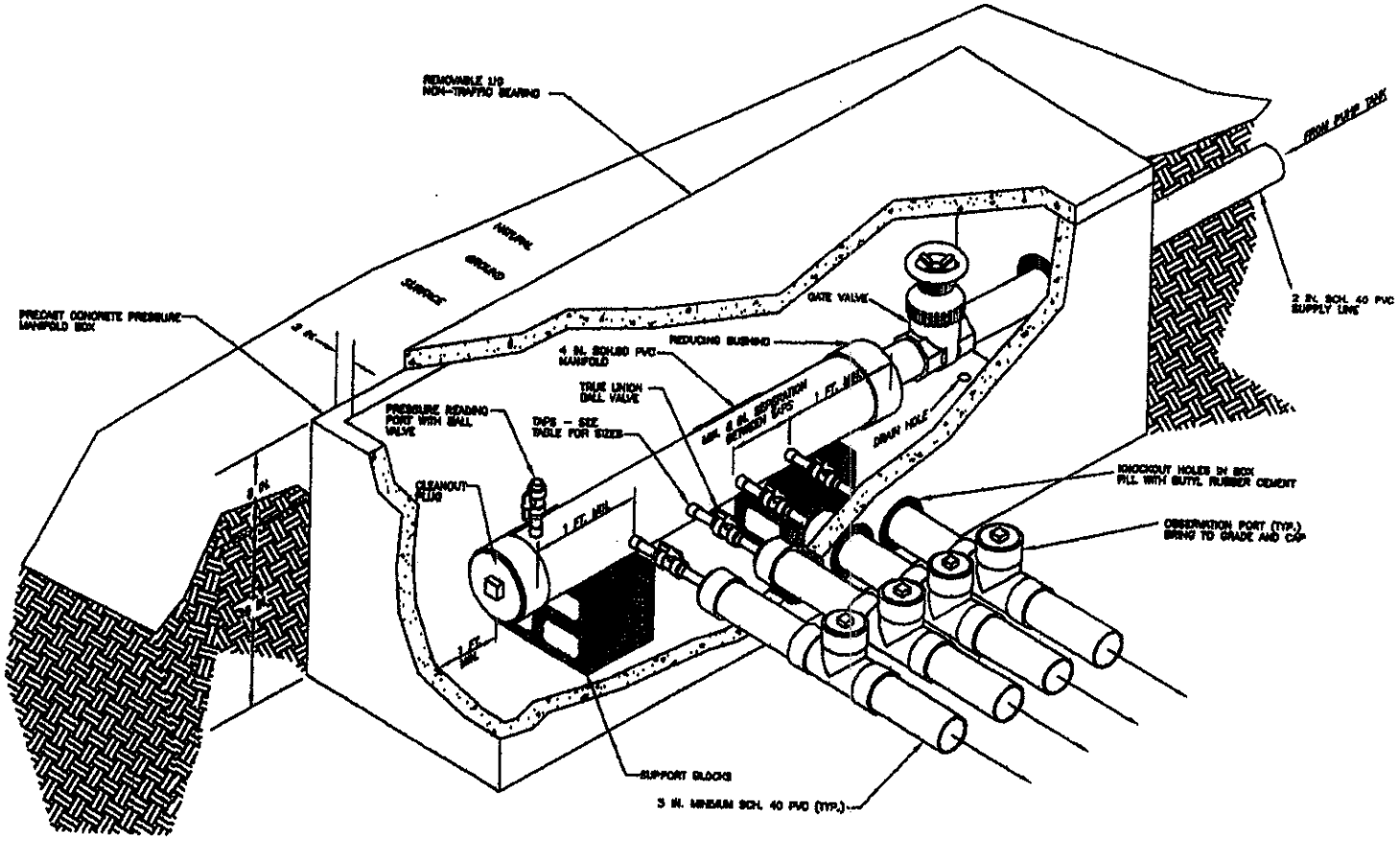
Notes:
** TBM located top of ground at EIP at corner of lot (see site plan)
**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS, HI, and FS indicate rod readings

PRESSURE MANIFOLD TAPSHEET - AUTUMN GROVE LOT #22

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area	Line LTAR
3	BLUE	98.2	*95*	SCH 40 1/2	7.11	285	0.15
4	PINK	98	*95*	SCH 40 1/2	7.11	285	0.15
5	ORANGE	97.4	*140*	SCH 80 3/4	10.1	420	0.15
	total	**feet =**	**330**	**gal/min =**	**24.32**		
			Des. Flow	**360**			
			Pump Run=	**6.20**			
			soil LTAR	**0.275**			
			LTAR +5%	**0.28875**			
			LTAR with ACCEPTED	**0.3031875**			
			LTAR with ACCEPTED + 5%	**0.318346875**			

TYPICAL PRESSURE MANIFOLD DETAIL



CALCULATIONS

Location Autumn Grove Subdivision

Project Number 01-1043

Lot No: Lot 22

No. of Bedrooms	3
Design Flow	360 $^{gal}/_{day}$
LTAR	0.275 $^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES
Supply Line Length	195 ft.
Supply Line Volume	33.93 gal.
Required Feet of Line	327.2727 ft.
Amount of Line from Layout	330 ft.
Gallons per Minute	24.32 $^{gal}/_{min}$
Required Septic Tank Capacity	1000 gal.
Minimum Standard Tank Size	1000
Lateral Line Volume	215.49 gal.
Dosing Volume	150.84 gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	7.2 *Generic Draw Down of 21 gal.per in.*
Pump Run Time	6.20 minutes
Elevation Head	7.6 ft.
Pressure Head	2 ft.
Friction Factor	1.27 ft./100 ft. *(From the interpolater.)*
Friction Head	2.48 ft.
Total Dynamic Head (+15%)	13.89 ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42