ROLLANS *Soil & Environmental Services, Inc.*

470 N Broad Street, Suite D, Mooresville, NC 28115 Phone: (704) 658-1723 Fax: (704) 658-1724

Ashley Rollans, NC Licensed Soil Scientist
Mobile: (704) 746-5046
Email: rollans.ashley@yahoo.com

Brady Freeman, Registered Sanitarian
Mobile: (704) 746-6497
Email: bfree209@yahoo.com

Attached is a proposed design for an Accepted (25% reduction) Septic System with Gravity distribution for a 4 bedroom single family residence on Lot # 99 BELLSCROSSING Subdivision, Iredell County, North Carolina.

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September 30, 2008
Project #: 01-1429
Design By: Rollans Soil and Environmental Services

Gravity 25% Reduction
FOR WASTEWATER TREATMENT

Owner:	Bells Crossing, LLC
Address:	127B Promenade Dr. Mooresville, NC 28117
Phone:	704 361 1084
County:	Iredell
Location:	BELLSCROSSING LOT 99
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	NA

Design Specifications

Drainfield Size:	305
Loading Rate (gpd/ft.^{2}):	0.40
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:	N/A
Estimated Supply Line Length:	3
Supply Line Diameter:	3 in. SCH 40 PVC
Supply Line Volume:	1.08
Dosing Volume:	NA
Supply Manifold:	DROP-BOX
Supply Manifold Length:	NA
Supply Manifold Volume:	N/A
Recommended Float Controls:	NA
Recommended Control Panel:	NA
Pressure Head:	NA
Friction Head:	NA
Elevation Head:	NA
Total Dynamic Head:	NA
Threaded Union:	NA
Gate Valves:	NA NA
Check Valves:	NA
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services.

BELLSCROSSING LOT 99
GRAVITY DISTRIBUTION

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.4
TOTAL AREA TRENCH BOTTOM:	915
TOTAL LATERAL LENGTH:	305
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	300
SUPPLY LINE LENGTH:	3
TOTAL DYNAMIC HEAD:	NA
MANIFOLD SIZE:	NA
DOSING VOLUME:	NA
PUMP TANK DRAW DOWN*:	NA
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	NA

BELLSCROSSING LOT 99

Project #: 01-1429

LAYOUT FOR 4 BEDROOM HOME

September 30, 2008

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		NA			NA		
INSTR. 1			NA				
HOUSE CRN				NA	NA		
P. TANK				NA	NA		
1	***PINK***			***NA***	***NA***	***40***	***40***
2	***RED***			***NA***	***NA***	***68***	***65***
3	***ORANGE***			***NA***	***NA***	***100***	***100***
4	***BLUE***			***NA***	***NA***	***103***	***100***
5	PINK			NA	NA	154	154
6	RED			NA	NA	144	144
					Total	**609**	**603**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	***305***	***0.40***	***ACCEPT.***	***0.40***	***25% RED.***	**GRAVITY**
Repair	298	0.275	*MOD.*	0.275	PPBPS	**DISTRIBUTION** LOW PRESSURE

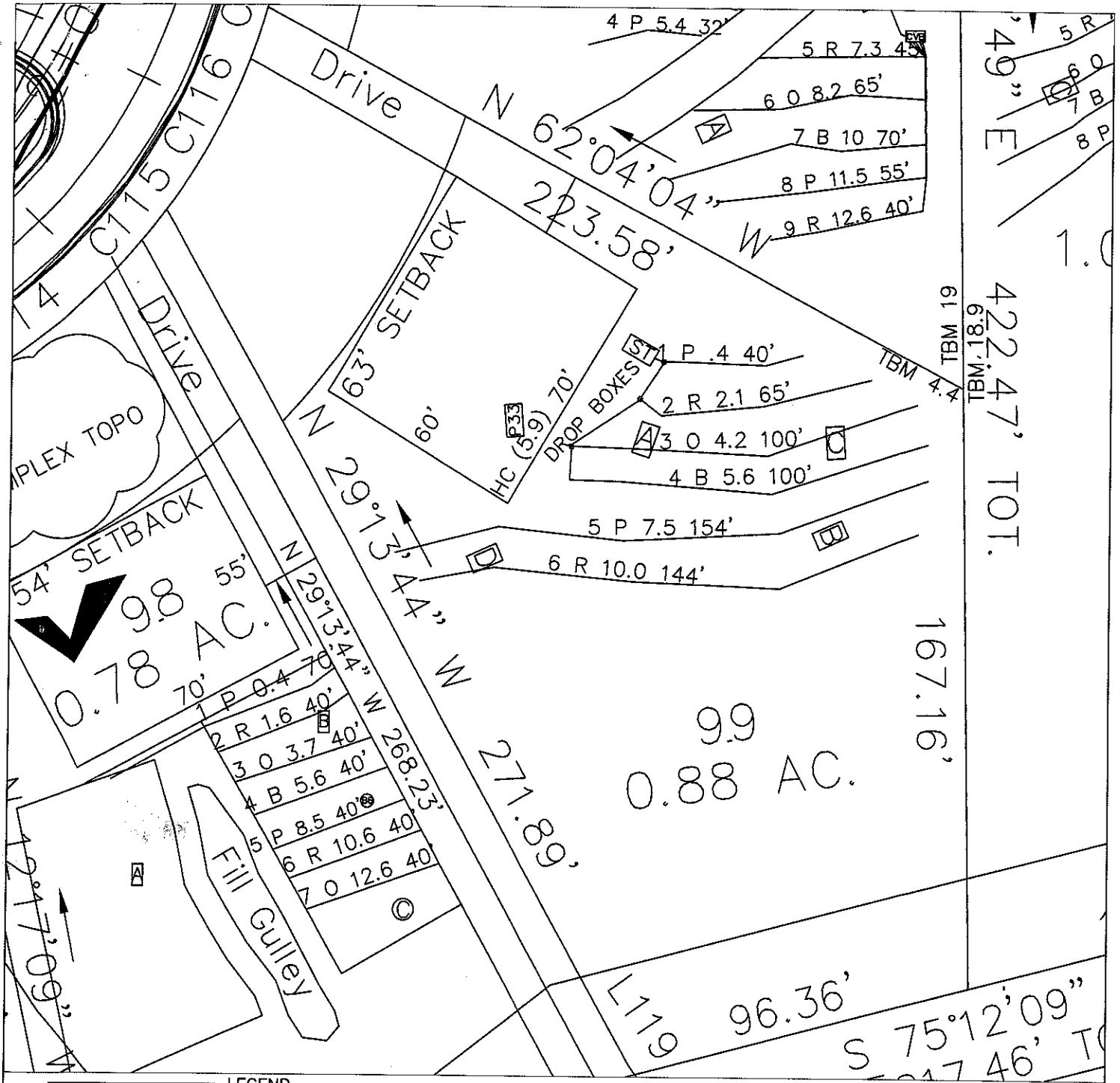
Notes:

** TBM Is Not Required.

**All measures in feet

**Nitrification lines are demonstrated on contour via colored pin flags

**BS, HI, and FS indicate rod readings



LEGEND

House Box.

System lines.

Repair lines.

GRAPHIC SCALE
1" = 40'

40 0 40 80

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE, SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

PLEASE REFER TO ATTACHED SOIL REPORT FOR ADDITIONAL SITE SPECIFIC INFORMATION

ROLLANS SOIL & ENVIRONMENTAL SERVICES
470 NORTH BROAD STREET SUITE D
MOORESVILLE, NC 28115
PHONE: (704) 658-1723
FAX: (704) 658-1724
BRADY FREEMAN, RS
MOBILE: (704) 746 - 6497
EMAIL: BFREE39@YAHOO.COM
ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 796 - 5346
EMAIL: ROLLANS@WINDSTREAM.NET

MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: BELLS CROSSING, LLC / BELLS CROSSING

LOCATION/DATE: PERTH RD, IREDELL COUNTY, NORTH CAROLINA, SEP 2006

JOB # : 01-1429
FILE: C:\JOBS\01-1429
PROJECT MGR.: C.B.F.
FIELD WORK: C.B.F., A.L.P. & M.D.B.
DRAWN BY: C.B.F. & M.D.B.

CALCULATIONS

Location WINDING FOREST

Project Number 01-1429

Lot No: Lot 99

No. of Bedrooms 4

Design Flow 480 $^{gal}/_{day}$

LTAR 0.40 $^{gal}/_{ft^2\ day}$

25% RED.? (YES OR NO) YES

Supply Line Length 3 ft.

Supply Line Volume 1.08 gal.

Required Feet of Line 300 ft.
Amount of Line from Layout 305 ft.

Gallons per Minute NA $^{gal}/_{min}$

Required Septic Tank Capacity 1000 gal.
Minimum Standard Tank Size 1000

Lateral Line Volume 199.165 gal.

Dosing Volume NA gal.
Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down NA *Generic Draw Down of 21 gal.per in.*

Pump Run Time NA minutes

Elevation Head NA ft.
Pressure Head NA ft.
Friction Factor NA ft./100 ft. *(From the interpolater.)*
Friction Head NA ft.

Total Dynamic Head (+15%) NA 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

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

Sheet ___ of ___
PROPERTY ID #: ___
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Bells Crossing lot 99
ADDRESS: see zoning
APPLICATION DATE ___
DATE EVALUATED: ___
PROPOSED FACILITY: ___ PROPOSED DESIGN FLOW (.1949): ___
PROPERTY SIZE: .88 AC.
LOCATION OF SITE: ___
PROPERTY RECORDED: ___
WATER SUPPLY: ☐ Private ☑ Public ☐ Well ☐ Spring ☐ Other ___
EVALUATION METHOD: ☐ Auger Boring ☑ Pit ☐ Cut
TYPE OF WASTEWATER: ☑ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
P 99 1 A	SS 8-12%	0-21	A YCL VFWMSBK	SS,SP,FrSExP	few/com sap	21"	~~PS~~	–	PS 0.4
		21-60	Var sl MassSAP	SS,SP,FrSExP					
			Same						
P 99 2 B	SS 15-20%	0-18	RBC WFABK	SS,S,FrSExP	few sapty S	32"	PS	–	PS .275
		18-32	YR c CL MWRSBK	" SP " "	com/many sap				
		32-48		" " " "					
			water		In	Pit			
P 99 3 C	LSS 10-15%	0-6	BSCL WR	FrSSSPSExP		27"	PS	–	PS .4
		6-22	RCL WSBK	FrSSSP SExP	many sap				
		22-60	L/SL sapm	FrSNSN/NrssP					
			Same						
P 99 4 D	SS 10-15%	0-9	BSLGr	SS,SP FrSExP		42"	PS	–	PS 0.3
		9-25	RC mFSBK	" " " "					
		25-42	RYCL mFSBK	" " " "	com sap				
		42-60	Var SL sapm	" " " "	com Red				
		Same							

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)		
System Type(s)	Accepted	PPBS
Site LTAR	0.4	.275

OTHER FACTORS (.1946): ___
SITE CLASSIFICATION (.1948): ___
EVALUATED BY: Rollins Soil & Environmental
OTHER(S) PRESENT: ___

COMMENTS: ___