ROLLANS *Soil & Environmental Services, PA.*

P.O. Box 832 Mooresville, NC 28115 Phone: (704) 658-1723 Fax: (704) 278-0989

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

Attached is a proposed design for an 25% Reduction Septic System with gravity distribution for a 4 bedroom single family residence on Lot # 21 in Spring Forest Subdivision, Iredell County, North Carolina.

Contents:

	Page
Information for the Installer	1
Design Information	
Design Specifications	2-3
Layout Specifications	4
Site Plan/System Plan	5
Calculations	6
Profile Descriptions	7

August 1, 2014
Project #: 01-2005
Design By: Rollans Soil & Environmental Services, PA

INFORMATION FOR THE INSTALLER:

The permit should be read very carefully prior to bidding. The following are details that must be considered along with all other considerations.

- Tanks shall be approved by NC DENR, and certification supplied by the manufacturer.
- ~~Tanks shall be water tested prior to installation~~ SAR 8/14/15
- The installer shall be responsible to the owner for placement of the tanks and to insure that final grades are returned to the original natural grade, with exception of added structural features.
- The supply trench shall be compacted to eliminate cavities left during initial fill placement.
- Installation of the system shall be during dry conditions in order to protect the soil structure.
- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy bodied glue applied to weld all joints.
- Where required by the county health department, post-installation inspections by the designer must be scheduled 5 week days in advance.
- Trenches shall be carefully excavated so the bottom is within 2" from the highest to the lowest points of elevation within the trench. If the bottom elevation needs adjusting after it has been trenched, it will be done by removing high points rather than filling low points. It is extremely important to insure that trenches are not over excavated during initial trenching. All fine grading within the trench will be hand done with a shovel. No loose material will be left in the trench
- All pipe openings in the tanks shall be properly grouted. This also applies to the joints around the riser.
- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral.
- No heavy equipment shall be used on the field during or after installation. The use of a small loader (i.e. Bobcat) or a trencher (i.e. Ditch Witch 2300/2310) may be used for installation.
- Elevations at pinflag locations should be checked by the installer prior to beginning trenches.
- Septic tank riser shall be a minimum of 6" above finished grade.
- System is specified as a gravity 25% reduction (Accepted) installation.
- Repair is specified as a pump to 25% reduction (Accepted) installation.

GRAVITY ACCEPTED SYSTEM FOR WASTEWATER TREATMENT

Owner/Applicant: Manuel Daskalos

Address: 143 Dellinger Dr.
Statesville NC, 28625

Phone: 704.252.0784

County: Iredell

Location: SPRING FOREST LOT 21

Source of Wastewater Flow: 4 Bedroom Single Family Residence

Estimated Gallons Per Day Flow: 480

System Flow: N/A

Design Specifications

Drainfield Size: 500

Loading Rate (gpd/ft.^{2}): 0.3

Depth of Gravel in Trench: N/a

Gravel Size: N/A

Trench Depth: 24-30 in.

Trench Width: 36 in.

Septic Tank Size: 1000

Estimated Supply Line Length: 15.6ft

Supply Line Diameter: 4 in. SCH 40 PVC

Supply Line Volume: 10.19

Dosing Volume: N/A

Supply Manifold: N/A

Supply Manifold Length: N/A

Supply Manifold Volume: N/A

Recommended Float Controls: N/A

Recommended Control Panel: N/A

Pressure Head: N/A

Friction Head: N/A

Elevation Head: N/A

Total Dynamic Head: N/A

Threaded Union: N/A

Gate Valves: N/A

Check Valves: N/A

Anti-Siphon Hole: N/A

Additional Comments: Soil suitability was performed by Rollans Soil & Environmental Services

SPRING FOREST LOT 21

ACCEPTED SYSTEM

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	1200
TOTAL LATERAL LENGTH:	400
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	400
SUPPLY LINE LENGTH:	15.6
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	1000

SPRING FOREST LOT 21

Project #: 01-2005

LAYOUT FOR 4 BEDROOM HOME

August 15, 2014

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM							
INSTR. 1							
1	*BLUE*					*62*	*50*
2	*YELLOW*					*72*	*70*
3	*ORANGE*					*72*	*70*
4	*RED*					*72*	*70*
5	*BLUE*					*62*	*70*
6	*YELLOW*					*66*	*70*
8	BLUE					119	119
9	ORANGE					124	124
10	RED					133	133
11	YELLOW					140	140
					Total	**922**	**916**

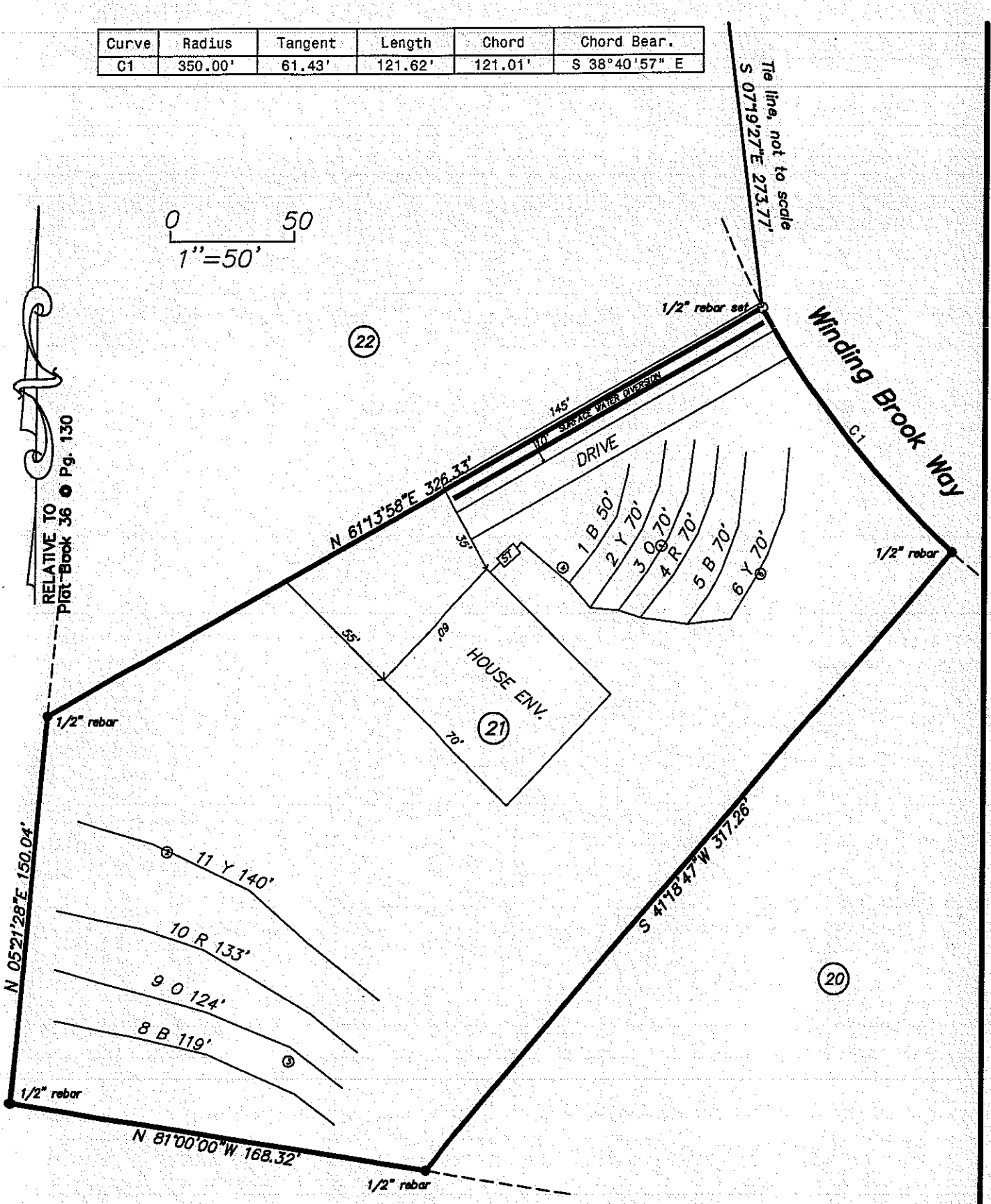
	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
** System*	*400*	*0.300*	*ACCEPT.*	*0.300*	*25% RED.*	*GRAVITY*
Repair	516	0.300	*ACCEPT.*	0.300	*25%RED.*	*PRESSURE* MANIFOLD

Notes: **All measures in feet

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

**BS, HI, and FS indicate rod readings

Curve	Radius	Tangent	Length	Chord	Chord Bear.
C1	350.00'	61.43'	121.62'	121.01'	S 38°40'57" E



PRELIMINARY PLAT:
NOT FOR RECORDATION,
CONVEYANCES, OR SALES

TED BENBOW
Land Surveying

Work Map

Manuel Daskalos

CALCULATIONS

Location SPRING FOREST LOT 21

Project Number #01-2005

Lot No: Lot 21

No. of Bedrooms 4

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

LTAR 0.300 $^{gal}/_{ft^2\,day}$

PPBPS? (YES OR NO) NO

Supply Line Length 15.6 ft.

Supply Line Volume 10.1868 gal.

Required Feet of Line 400 ft.
Amount of Line from Layout 400 ft.

Gallons per Minute N/A $^{gal}/_{min}$

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

Panel Volume N/A gal.
# of Panels N/A
Dosing Volume N/A gal.

Tank Draw Down N/A

Pump Run Time

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

Total Dynamic Head (+15%) N/A 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

OK HS

Sheet 1 of 2
PROPERTY ID #: 4779504268.000
COUNTY:

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: DASKALOS, MANUEL J + JENNIFER C
ADDRESS: 143 DELLINGER DR STATESVILLE, NC 28625
PROPOSED FACILITY: 4 BED ROOM
PROPOSED DESIGN FLOW (.1949): 480 gpd
LOCATION OF SITE: 187 Winding Brook Way, STATESVILLE NC, 28625
WATER SUPPLY: ☐ Private ☒ Public ☐ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☒ Auger Boring ☐ Pit ☐ Cut

APPLICATION DATE 08/2014
DATE EVALUATED: 07/2014
PROPERTY SIZE: 1.56 AC
PROPERTY RECORDED:
TYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
1	B_1/7%	0-10	Bsl gr	Fr SS SP SE-XP		48"			0.3
		10-15	RBCl wfsbk	Fr SS SP SEXP					
		15-48	RC wfsbk	Fr SS SP SE-XP					
2	B_2/6%	0-9	Bsl gr	Fr SS SP SEXP		48"			0.3
		9-48	RC mmAbk/sbk	Fr SS SP					
3	B_3/8%	0-7	Bsl gr	Fr SS SP SEXP		48"			0.3
		7-43	RC mmAbk/sbk	Fr SS SP SEXP					
		43-48	RC wmsbk	Fr SS SP-f.SAP					
4	B_4/10%	0-10	Bsl gr	Fr SS SP SEXP		48"			0.3
		10-36	RyCl-C wfsbk	Fr SS SP					
		36-48	RC wmsbk	Fr SS SP-f.SAP					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Accepted	Accepted
Site LTAR	.3	.3

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: S. Ashley Rollins
OTHER(S) PRESENT: Chad Wagner

COMMENTS:

SOIL/SITE EVALUATION
(Continuation Sheet)

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

PROPERTY ID #: 4775040268.60
DATE OF EVALUATION: 07/2014
COUNTY: Iredell

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZ ON 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
B5	Bs/7%	0-8	Bsl gr	Fr SS SP					
		8-38	RYCl-C wfsbk	Fr SS SP-f.SAP					
		38-48	~~38~~ RC-wmsbk	Fr. SS SP-f.SAP		48"			0.3

OMMENTS: