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ROLLANS *Soil & Environmental Services, PA.*

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Attached is a proposed design for an Accepted Septic System with gravity dist. for a 3 bedroom single family residence on Lot 71, Buffalo Shoals National Golf Club at 120 Cheyenne Ln. (PIN 3793402826), Iredell County, North Carolina.

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LICENSED SOIL SCIENTIST Samuel A. [illegible] 1231 STATE OF NORTH CAROLINA

6/6/16

June 6, 2016
Project #: 01-3177
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.
- 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 low pressure PPBPS (50% reduction) installation.

GRAVITY ACCEPTED SYSTEM FOR WASTEWATER TREATMENT

Applicant: Rollans Soil

Address: P.O. Box 832
Mooresville, NC 28115

Phone: 704.746.5046

County: Iredell

Location: 120 Cheyenne Lane
PIN (3793402826)

Source of Wastewater Flow: 3 Bedroom Single Family Residence

Estimated Gallons Per Day Flow: 360

System Flow: N/A

Design Specifications

Drainfield Size: 300

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

Depth of Gravel in Trench: N/A

Gravel Size: N/A

Trench Depth: 30 in. Repair Trench Bottom 30 in.

Trench Width: 36 in.

Septic Tank Size: 1000

Estimated Supply Line Length: 45

Supply Line Diameter: 4 in. SCH 40 PVC

Supply Line Volume: 29.39

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

120 Cheyenne Lane

ACCEPTED SYSTEM

DESIGN FLOW (gpd):	360
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	900
TOTAL LATERAL LENGTH:	300
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	300
SUPPLY LINE LENGTH:	45
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	1000

Layout Specifications - 120 Cheyenne Lane

Project #: 01-3177

LAYOUT FOR 3 BEDROOM HOME

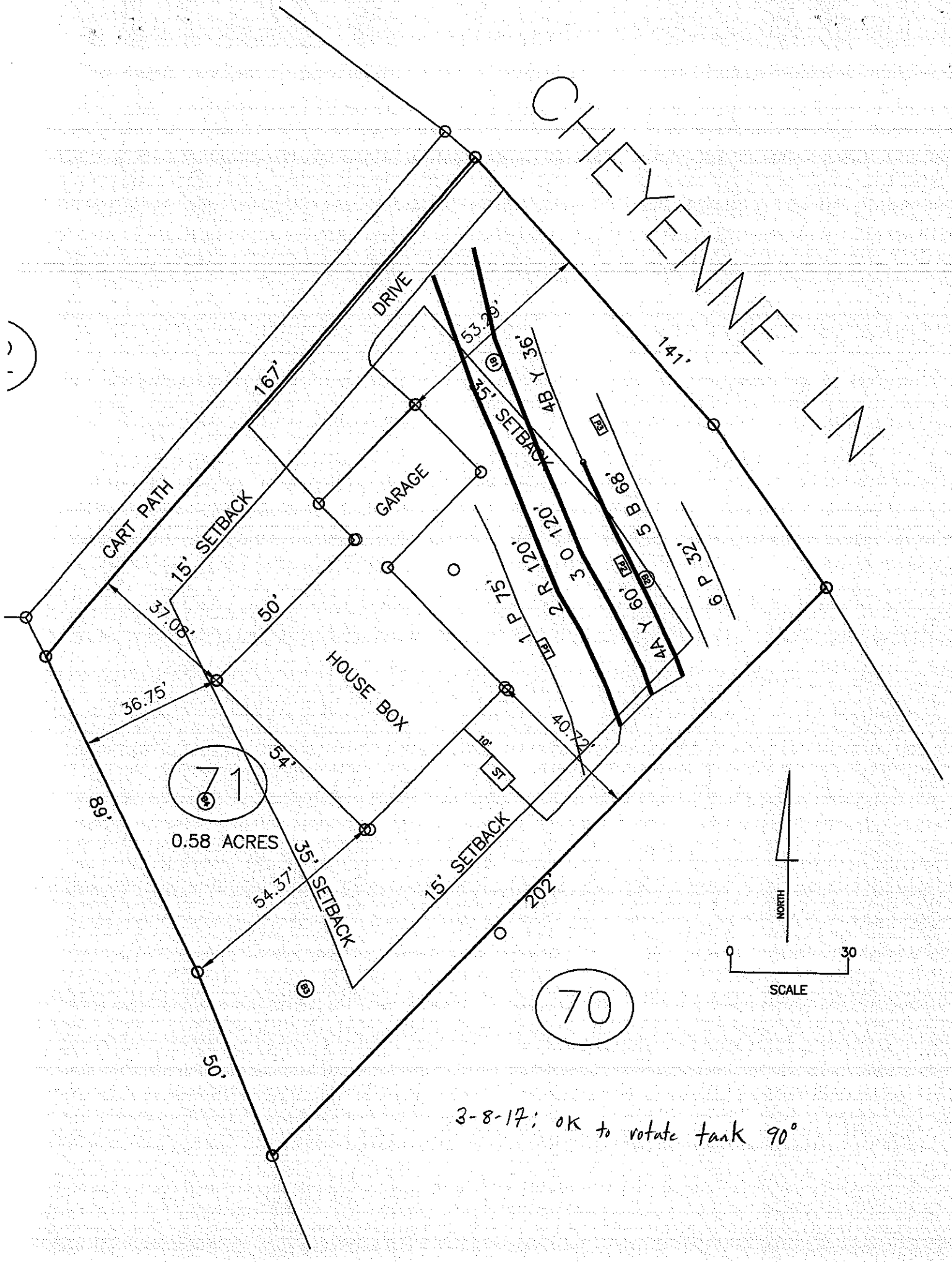
June 6, 2016

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM							
INSTR. 1							
1	PINK					75	75
2	***RED***					***120***	***120***
3	***ORANGE***					***120***	***120***
4A	***YELLOW***					***60***	***60***
4B	YELLOW					36	36
5	BLUE					68	68
6	PINK					32	32
					Total	**511**	**511**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
** System*	***300***	***0.300***	***ACCEPT.***	***0.300***	***25% RED***	***GRAVITY***
Repair	211	0.300	MOD.	0.300	PPBPS	LOW PRESSURE

Notes: **All measures in feet

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



3-8-17; OK to rotate tank 90°

CALCULATIONS

Location 120 Cheyenne Lane, Statesville, NC 28677

Project Number 01-3177

Lot No: 71 Buffalo National Golf Club Estates

No. of Bedrooms 3

Design Flow 360 $^{gal}/_{day}$

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

PPBPS? (YES OR NO) NO

Supply Line Length 45 ft.

Supply Line Volume 29.385 gal.

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

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

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.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

Sheet 1 of 2
PROPERTY ID #: 3753402
COUNTY: Iredell

SOIL/SITE EVALUATION
***for* ON-SITE WASTEWATER SYSTEM**
(Complete all fields in full)

OWNER: Eagle DPS, LLC
ADDRESS: 184 Comanche Ct, Statesville NC 28677
PROPOSED FACILITY: 3BR
PROPOSED DESIGN FLOW (.1949): 360 gpd
LOCATION OF SITE: 120 Cheyenne Ln, Statesville NC 28677
APPLICATION DATE 6/2016
DATE EVALUATED: 5/2016
PROPERTY SIZE: 0.58 ac.
PROPERTY RECORDED: Yes

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
B1	L/0%	0-4	BSl gr	Fr SSSPSEKP		48	—	—	PS 0.3-.35
		4-15	BRclwfsbk	" " " "					
		15-34	RBclwmsbk	" " " "					
		34-48	RBclwfsbk	" " " "	-fsap				
B2	L/7%	0-3	BSlgr	Fr SSSPSEXP		31	PS, confirmed via Pit #2	—	PS 0.35-0.4
		3-6	BRclwmsbk	" " " "					
		6-26	RBclwmsbk	" " " "	-fsap				
		26-31	RBclwfsbk	" " " "	-csap				
		31-48	var l/sl mass	" " " "					
B3	L/12%	0-3	BSlgr	FrSSSPSEXP		?	—	—	Need Pit to verify soil l/vs sap if area to be used.
		3-6	BRclwmsbk	" " " "					
		6-33	RBclwmsbk/Abk	" " " "	-f-csap; -qtz vein 28-46"				
		33-48	RBclwmsbk	" " " "					
B4	L/9%	0-12	BSlgr	FrSSSPSEXP		48	—	—	PS 0.3
		12-20	RBclwfAbk/sbk	" " " "					
		20-36	RBclwmsbk/Abk	" " " "					
		36-48	RBclwfsbk	" " " "	-f-csap				

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Accepted	PPBPS
Site LTAR	0.3	0.3

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

COMMENTS:

SOIL/SITE EVALUATION

(Continuation Sheet-Complete all field in full)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

PROPERTY ID #: 3793402826
DATE OF EVALUATION: 5/2/16
COUNTY: Iredell

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
P1	L/3%	0-4	BlSr	FrSSSPSEXP	f-csap	40	PS	—	PS 0.35
		4-13	BRclmfsbk	" " " "					
		13-28	RBcmmsbk	" " " "					
		28-40	RBclmmsbk	" " " "					
		40-68	var / mass	" " " "					
P2	L/10%	0-5	BRclmmsbk	FrSSSPSEXP	fsap	32	PS	—	PS 0.35
		5-22	RBcmmsbk/Abk	" " " "					
		22-32	RBclmfsbk	" " " "					
		32-62	var / mass	" " " "					
P3	L/7%	0-5	BSlSr	FrSSSPSEXP	f-csap	33	PS	—	PS 0.3
		5-28	RBcmmsbk/Abk	" " " "					
		28-33	RBclmmsbk	" " " "					
		33-62	var / mass	" " " "					

COMMENTS: