Carolina Soil & Septic Consulting, PLLC

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NC Licensed Soil Scientist, SC Professional Soil Classifier,
Certified Septic System Operator, Licensed Septic Installer,
Certified Septic Inspector

Proposed Design for a 25% Reduction Septic System using Gravity distribution for a 4 bedroom single family residence on Lot 35 of Northlake Subdivision, 128 Wylie Trail in Troutman, Iredell County, North Carolina.

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July 31, 2016
Design By: Adrian L. Pruett

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INFORMATION FOR INSTALLER:

- The permit should be read very carefully prior to submitting bid. The following are details that must be considered along with all other considerations.
- Tanks shall be approved by NC DHHS, and certification supplied by the manufacturer.
- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- The installer is responsible for final grades and returning that grade to original, with exception of added structural features.
- The supply trench shall be compacted to eliminate any 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 has no more than 1/4"fall in 10 feet with no high or low areas within. If high or low areas do exist after trench excavation, high areas should be removed rather than filling in low areas. Do not over excavate trenches! Any fine grading should be completed by hand with a rake and shovel, leaving no loose material.
- All pipe openings in the tanks shall be properly grouted. This also applies to the joints around the riser.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral to prevent unwanted lateral water movement.
- 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 pin flag locations should be checked by the installer prior to beginning trenches to insure accuracy.
- If septic tank risers are used they should be a minimum of 6" above finished grade or within 6" of final grade if buried.
- Design precludes use of foundation drains on the residence.
- System is specified as an Accepted 25% Reduction Gravity installation.
- Repair is specified as PPBPS Low Pressure installation.
- Trench width is specified as 36" wide, rake and lime all trench sidewalls
- **If grading for slab foundation is utilized do not grade/create greater than 2 ft of elevation difference within 15 ft of any component of the septic or repair. If back filling do not backfill over any initial or repair septic line.**

OWNER INFORMATION

Owner:	Michael Ryan Homes Inc Michael Blackmon
Address:	10400 Mallard Creek Rd., Ste 102 Charlotte, NC 28262
Phone:	980-216-0652
County:	Iredell
Location:	NORTHLAKE LOT 35, 128 WYLIE TRAIL
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	NA

25% GRAVITY DESIGN INFORMATION

Drainfield Design Flow (gpd):	400
Loading/Soil Application Rate (gpd/ft.^{2}):	0.300
Depth of Gravel in Trench:	NA (25% reduction)
Gravel Size:	NA (25% reduction)
Total Lateral Length From Layout:	400
Total Lateral Length Required:	400
Trench Depth:	32 in. Lowside
Trench Width:	36 in.
TOTAL AREA TRENCH BOTTOM:	1200
Trench Spacing on Center:	9 ft.
Septic Tank Size:	1000 gal.
Estimated Supply Line Length:	11
Supply Line Diameter:	3 in. SCH 40 PVC
Supply Line Volume:	3.96
Dosing Volume:	NA
Supply Manifold:	SERIAL DISTRIBUTION
Additional Comments:	Soil suitability was performed by Adrian L. Pruett LSS

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NORTHLAKE LOT 35, 128 WYLIE TRAIL
FIELD LAYOUT SPECIFICATIONS

LAYOUT FOR 4 BEDROOM RESIDENCE — July 31, 2016

LINE #	FLAG COLOR	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM			NA		
HOUSE CRN		NA	NA		
P. TANK		NA	NA		
1	*YELLOW*	*NA*	*NA*	*76*	*70*
2	*BLUE*	*NA*	*NA*	*109*	*100*
3	*ORANGE*	*NA*	*NA*	*105*	*100*
4	*PINK*	*NA*	*NA*	*106*	*100*
5	*YELLOW*	*NA*	*NA*	*30*	*30*
5	YELLOW	NA	NA	100	100
6	BLUE	NA	NA	145	145
6	ORANGE	NA	NA	125	125
7	PINK	NA	NA	79	79
7	YELLOW	NA	NA	39	39
			Total	**914**	**888**

	LINE LENGTH	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
System	*400*	*ACCEPT.*	*0.300*	*25% RED.*	*GRAVITY*
Repair	488	*ACCEPT.*	0.300	25% RED.	GRAVITY

Notes: ** TBM Is Not Required.
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags

Comments: **Small spoils pile must be removed prior to system installation.**
Iredell County has CS&SC's permission to change septic tank location and distribution type

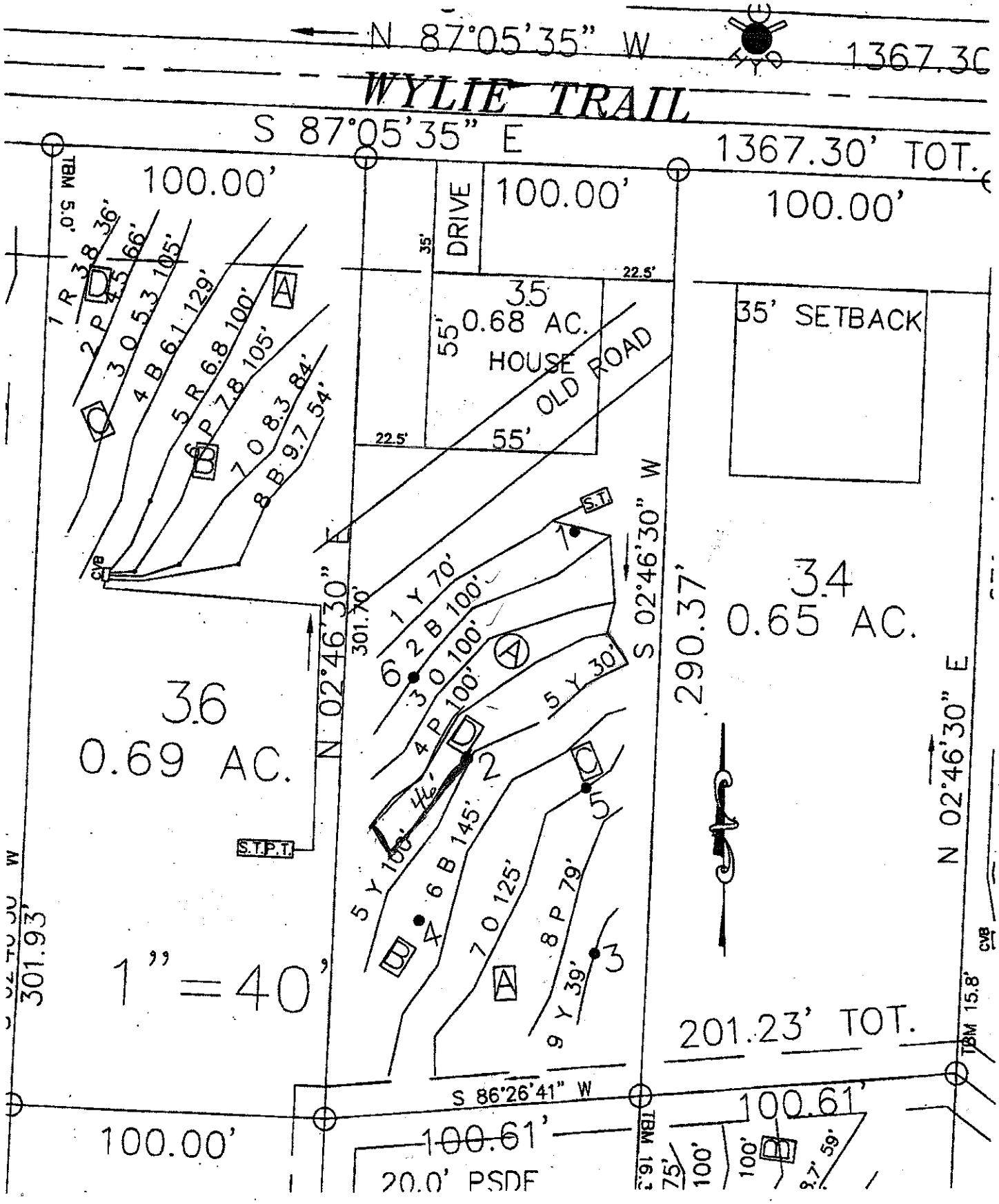
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DOSING CALCULATIONS

Location NORTHLAKE
Lot No: 35
Address: 128 Wylie Trail

No. of Bedrooms	4
Design Flow	480 $^{gal}/_{day}$
LTAR	0.300 $^{gal}/_{ft^2\ day}$
25% RED. Expansion? (YES OR NO)	YES
Supply Line Length	11 ft.
Supply Line Volume	3.96 gal.
Required Feet of 25% RED. Line	400 ft.
Amount of Line from Layout	400 ft.
Gallons per Minute	NA $^{gal}/_{min}$
Septic Tank Capacity	1000 gal.
Minimum Septic Tank Capacity	1000 gal.
Lateral Line Volume	261.2 gal.

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N 87°05'35" W
1367.30
WYLIE TRAIL
S 87°05'35" E
1367.30' TOT.
100.00'
100.00'
100.00'
DRIVE
35'
22.5'
35
0.68 AC.
55'
HOUSE
55' OLD ROAD
22.5'
35' SETBACK
1 R 38 36'
2 P 45 66'
3 O 53 105'
4 B 61 129'
5 R 68 100'
6 P 78 105'
7 O 83 84'
8 B 97 54'
CVB
S.T.
1
1 Y 70'
2 B 100'
3 O 100'
4 P 100'
5 Y 30'
6 B 145'
7 O 125'
8 P 79'
9 Y 39'
5 Y 100'
46'
2
3
4
5
N 02°46'30" W
301.70'
S 02°46'30" W
290.37'
N 02°46'30" E
36
0.69 AC.
34
0.65 AC.
S.T.P.T.
1" = 40'
301.93'
201.23' TOT.
TBM 15.8'
S 86°26'41" W
100.00'
100.61'
100.61'
20.0' PSDF
75'
100'
100'
9.7'
59'
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DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

Sheet 1 of 2
PROPERTY ID #: 4761496
COUNTY: Iredell

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

OWNER: Michael Ryan Homes Inc
APPLICATION DATE: 8-4-16
ADDRESS: 10400 Mallard Crk Rd, Charlotte NC 28262 Ste 102
DATE EVALUATED: 7-30-16
PROPOSED FACILITY: 4 BRM
PROPOSED DESIGN FLOW (.1949): 480 gpd
PROPERTY SIZE: 0.68 ac
LOCATION OF SITE: Lot 35 North Lake 128 Wylie Trl
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
B 1	LSS 6%	0-5	B SL Gr	Fr SS SP SEXP	N/A	48"	N/A	N/A	PS
		5-13	YR SC WFSBK	Compacted F, S, SP SEXP					
		13-28	R C MFSBK	Fr SS SP SEXP	Com Mica				0.3 gpd/sqft
		28-48	YR CL WFSBK	Fr SS SP SEXP	Com sap, com mica				
B 2	LSS 9%	0-8	B CL WFSBK	Fr SS SP SEXP	N/A	48"	N/A	N/A	PS
		8-22	R CL MFSBK	Fr SS SP SEXP	com mica				
		22-30	R CL WFSBK	Fr SS SP SEXP	com mica, few sap				0.3 gpd/sqft
		30-48	R CL WFSBK	Fr SS SP SEXP	Com sap				
B 3	LSS 6%	0-6	BR CL WFSBK	Fr SS SP SEXP	colluvial fill	48"	N/A	N/A	PS
		6-20	B CL/SCL WFSBK	Fr SS SP SEXP	N/A				
		20-32	R C WFSBK	Fr SS SP SEXP					0.3 gpd/sqft
		32-48	R CL WFSBK	Fr SS SP SEXP	com/many sap, yellow minerals				
					some ABK				
B 4	LSS 4%	0-6	B CL WFSBK	Fr, SS, SP, SEXP	N/A	48"	N/A	N/A	PS
		6-18	R C MFSBK	Fr SS SP SEXP					
		18-32	R C MFABK/SBK	Fr, SS SP SEXP	Com sap				0.3 gpd/sqft
		32-48	R CL WFSBK	Fr SS SP SEXP	Com sap				

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Gravity 25%	Gravity 25%
Site LTAR	0.3	0.3

OTHER FACTORS (.1946): None
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: Adrian Price
OTHER(S) PRESENT: None

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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 #: 476149679
DATE OF EVALUATION: 7-30-16
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
B5	LSS 9%	0-4	B SCL/cl wFSBk	Fr SS SP SExP	N/A	48"	N/A	N/A	PS
		4-20	R C MFSBk	Fr SS SP SExP	few sap, com mica				0.3 spd/ sqft
		20-33	R CL wFSBk	Fr SS SP SExP					
		33-48	R CL wFSBk	Fr, SS SP SExP	com sap, com mica				
B6	LSS 4%	0-8	BB SL Gr	Fr SS SP SGxP	N/A	48"	N/A	N/A	PS
		8-32	R C MFSBk	Fr SS SP SExP	few sap @ transition com mica				0.3 spd/sqft
		32-48	R CC wFSBk	Fr SS SP SExP	com sap + mica				

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COMMENTS:

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

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

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

OWNER: Michael Ryan Homes Inc. APPLICATION DATE 8-3-16
ADDRESS: 10 400 Mallard Creek Rd Ste # 102 Charlotte NC DATE EVALUATED: 8-9-16
PROPOSED FACILITY: 4 BR House PROPOSED DESIGN FLOW (.1949): 480 GPD PROPERTY SIZE: 0.68 acres
LOCATION OF SITE: Northlake Lot 35 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	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									
2	LSS ≃12% Repair	0-8	scl W. SBK	SI Friable, SS, SP, Sap	—	48	½	—	0.30 PS
		8-28	Clay w. SBK	SI Firm, SS, SP, Sap					
		28-44	Clay Loam w. SBK	Friable (slightly), SS, SP, Sap					
		44-48 B/E/Bt	Heavy Clay Loam m. SBK	SI Friable SS SP Sap					
			Mixed Sandstone saprolite	Faint glowing					
3	LSS ≃12% Primary	0-5	Clay Loam w. SBK	SI Friable, SS, SP, Sap	—	48	—	—	0.375 PS
		5-26	Clay w. SBK	SI Firm, SS, SP, Sap					
		26-39	CL w. SBK	Friable, SS, SP, Sap					
		39-48	Loam w/ mixed saprolite w/ weak SBK	Very Friable, SS, SP, Sap					
4					Path line OK	—	Location + Length		

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	Yes	Yes
System Type(s)	25% reduction	25% reduction
Site LTAR	0.30	0.30

OTHER FACTORS (.1946): ___
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: Tom Shuet
OTHER(S) PRESENT: Adrian Pruett

COMMENTS: ___