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NC Certified Septic Installer
NC Certified Subsurface Operator
NC Certified Septic Inspector

Attached is a proposed design for an At-Grade Accepted (25% reduction) Septic System with Pressure Manifold distribution for a 3 bedroom single family residence on Wiggins Road, Parcel # 4678665937, Iredell County, North Carolina.

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July 17, 2015
Project No. 01-3045
Design By: Rollans Soil and 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 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.
- 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.
- Pumptank riser should be 6" above grade, control panel should be 12" above grade.
- Septic tank riser shall be a minimum of 6" above finished grade.
- System is specified as an At-Grade Accepted 25% red.n installation w/pressure manifold.
- **System Area will require 8 - 10" of county approved Group I material as cover.** III OR IV
- **Control Panel for Pump must be mounted to the house (above flood elevation).**
- Repair is specified as a subsurface drip irrigation system.
- Rake trench walls, lime sidewalls, install trenches 36" wide and have no more than 1/4" fall in 10 feet.

PRESSURE MANIFOLD SYSTEM FOR WASTEWATER TREATMENT

APPROVED JUL 30 2015

SA

Owner: Johnny Meadows

Address: 431 Wiggins Road
Mooresville, NC 28115

Phone: 704.763.8045

County: Iredell

Location: 431 Wiggins Road

Source of Wastewater Flow: 3 Bedroom Single Family Residence

Estimated Daily Wastewater Production: 360 gpd

System Flow: 21.33

Design Specifications

Drainfield Size: 300

Loading Rate: 0.3

Depth of Gravel in Trench: NA (25% reduction)

Gravel Size: NA (25% reduction)

Trench Depth: 12 in.

Trench Width: 36 in.

Septic Tank Size: 1000

Pump Tank Size: 1000

III or IV

SAR

Cover over Drainfield: **8 - 10 in. of Group I Material (County Approved)**

Estimated Supply Line Length: 195

Supply Line Diameter: 2 in. SCH 40 PVC

Supply Line Volume: 33.93

Dosing Volume: 137.13

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.

(MUST BE ABOVE FLOOD ELEVATION)

Pressure Head: 2 ft.

Friction Head: 2.48

Elevation Head: 5.50

Total Dynamic Head: 11.47

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.

431 Wiggins Road
PRESSURE MANIFOLD DESIGN

APPROVED JUL 30 2015

DESIGN FLOW:	360
SOIL APPLICATION RATE:	0.3
TOTAL AREA TRENCH BOTTOM:	900
TOTAL LATERAL LENGTH:	300
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	300
SUPPLY LINE LENGTH:	195
TOTAL DYNAMIC HEAD:	11.47
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	137.13
PUMP TANK DRAW DOWN*:	6.5
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.*

JOHNNY MEADOWS - WIGGINS ROAD

APPROVED JUL 3 0 2015

RA

Project #: 01-3045

LAYOUT FOR 3 BEDROOM HOME

July 17, 2015

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		3.8			100.00		
INSTR. 1			103.80				
HOUSE CNR				3.70	100.10		
P. TANK				3.80	100.00		
1	*BLUE*			*3.30*	*100.50*	*100*	*100*
2	*YELLOW*			*3.40*	*100.40*	*100*	*100*
3	*RED*			*3.50*	*100.30*	*100*	*100*
					Total	**300**	**300**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	*300*	*0.300*	*ACCEPT.*	*0.300*	*25% RED.*	**PRESSURE MANIFOLD**
Repair	~3500SF	0.200	*INNOV.*	0.200	DRIP	LOW PRESSURE

Notes:

** TBM located on top of ground at corner of existing camper
**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

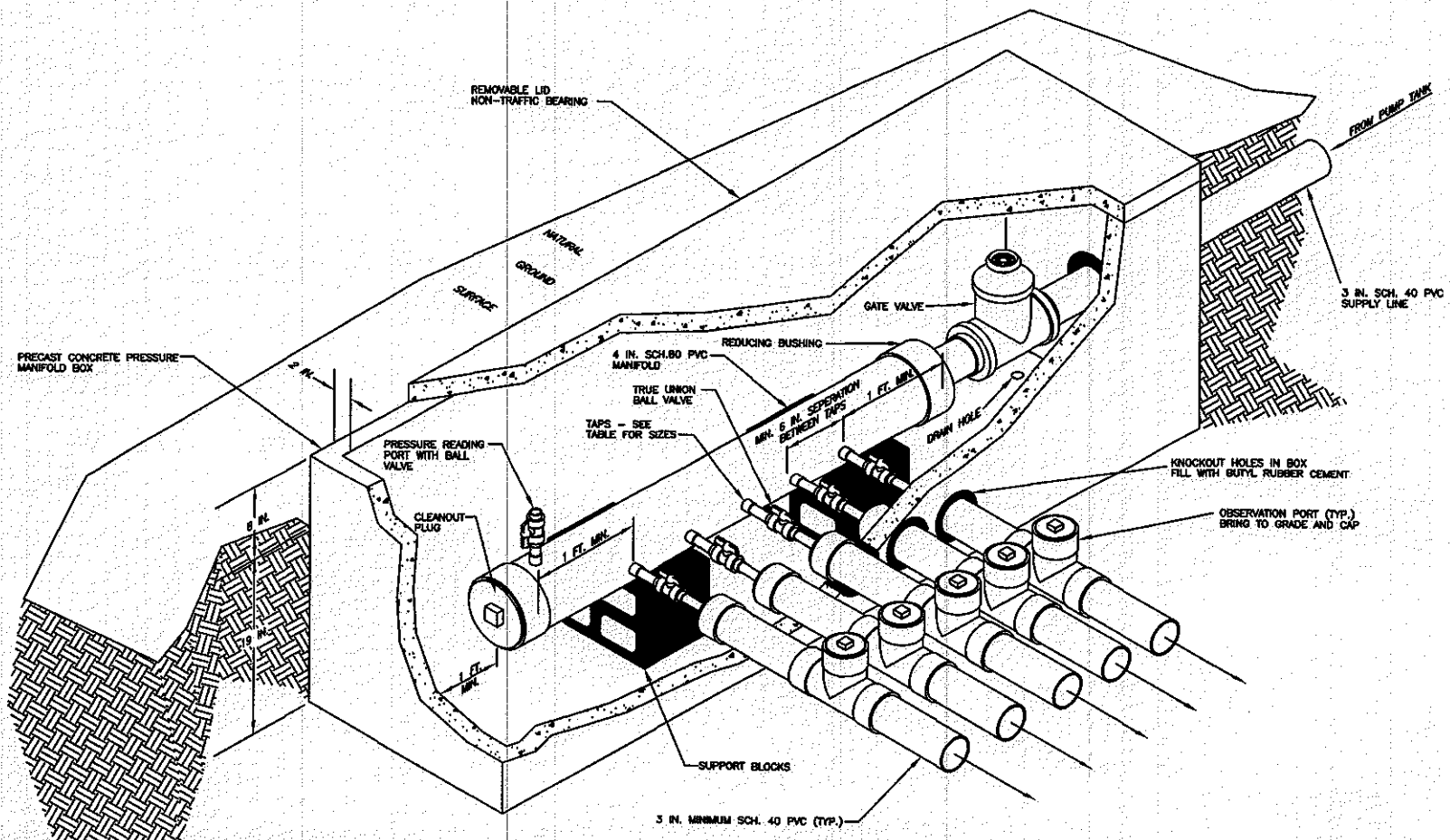
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PRESSURE MANIFOLD TAPSHEET - WIGGINS ROAD

SYSTEM

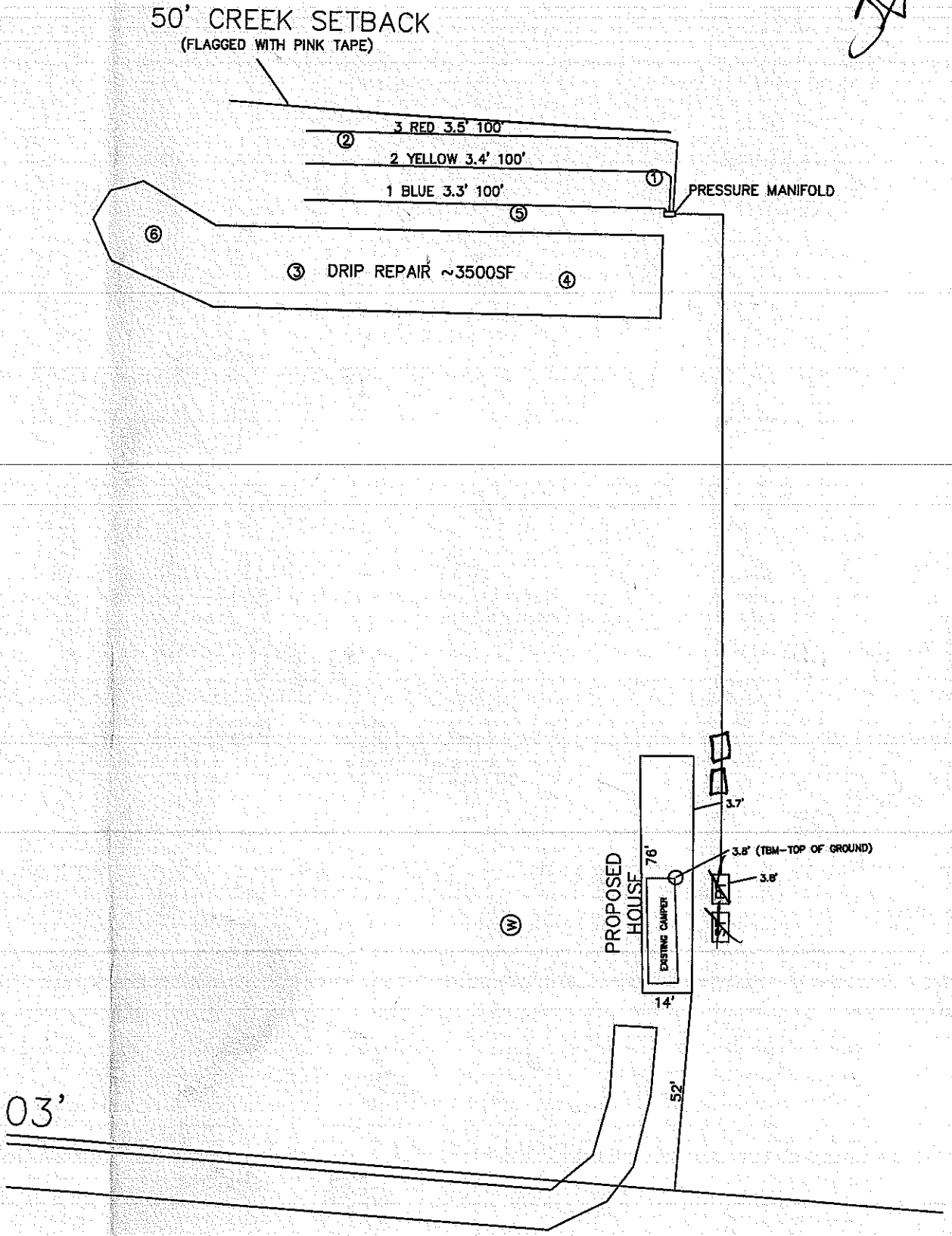
Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area	Line LTAR
1	***BLUE***	100.5	***100***	SCH 40 1/2	**7.11**	300	0.15
2	***YELLOW***	100.4	***100***	SCH 40 1/2	**7.11**	300	0.15
3	***RED***	100.3	***100***	SCH 40 1/2	**7.11**	300	0.15
	total	**feet =**	**300**	**gal/min =**	**21.33**		
			Des. Flow	**480**			
			Pump Run=	**6.43**			
			soil LTAR	**0.3**			
			LTAR +5%	**0.315**			
			LTAR with ACCEPTED	**0.4**			
			LTAR with ACCEPTED + 5%	**0.42**			

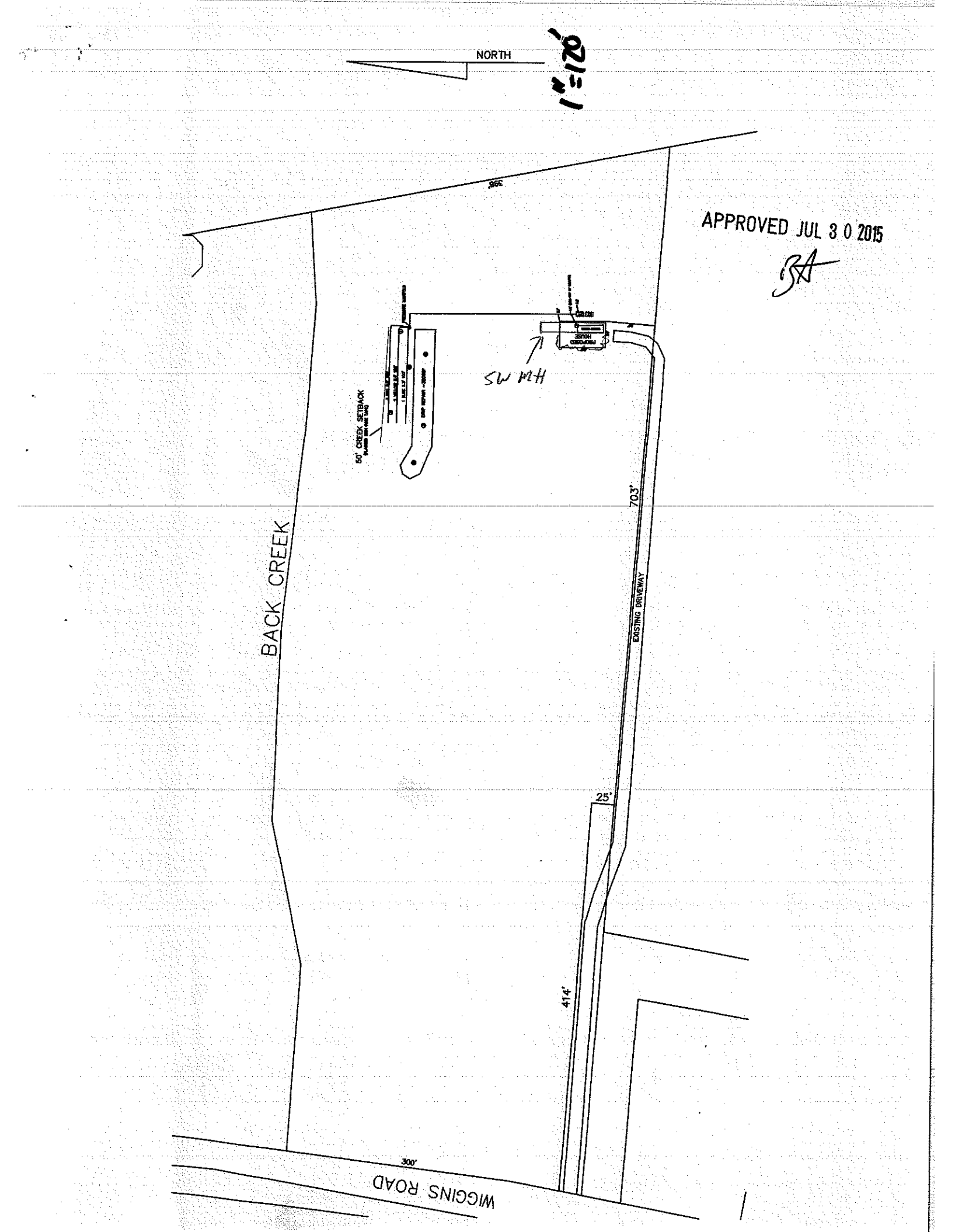
TYPICAL PRESSURE MANIFOLD DETAIL



1" = 40'

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NORTH
1"=120'
APPROVED JUL 3 0 2015
SW MH
50' CREEK SETBACK
BACK CREEK
703'
EXISTING DRIVEWAY
25'
414'
300'
WIGGINS ROAD

APPROVED JUL 3 0 2015

CALCULATIONS

Location WIGGINS ROAD
(PIN # 4678665937)
Project Number 01-3045

Lot No: NA

No. of Bedrooms	3	
Design Flow	360	$^{gal}/_{day}$
LTAR	0.30	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	195	ft.
Supply Line Volume	33.93	gal.
Required Feet of Line	300	ft.
Amount of Line from Layout	300	ft.
Gallons per Minute	21.33	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	195.9	gal.
Dosing Volume	137.13	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	6.5	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	6.43	minutes
Elevation Head	5.5	ft.
Pressure Head	2	ft.
Friction Factor	1.27	ft./100 ft. *(From the interpolater.)*
Friction Head	2.48	ft.
Total Dynamic Head (+15%)	11.47	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

APPROVED JUL 3 0 2015

PROPERTY ID #: 4678665937
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Johnny Meadows
ADDRESS: 431 Wiggins Road, Mooresville, NC 28115
APPLICATION DATE 7/15
DATE EVALUATED: 7/15
PROPOSED FACILITY: 3 BR
PROPOSED DESIGN FLOW (.1949): 360gpd
PROPERTY SIZE: 9.45ac
LOCATION OF SITE: 431 Wiggins Road
PROPERTY RECORDED:
WATER SUPPLY: X Private ☐ Public X Well ☐ Spring ☐ Other
EVALUATION METHOD: X Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: X 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
1	L/2	0-12	BLGR	FRSSSPSEXP	CHR. 2 @36"	40"			PS 0.3
		12-28	BRSL GR	FRSSSPSEXP					
		28-36	VARLS SG	LNSNPNEXP					
		36-40	VARSL/SCL MA	FRSSSPSEXP					
2	L/2	0-12	BLGR	FRSSSPSEXP	CHR. 2 @35"	40"			PS 0.3
		12-28	BRSL GR	FRSSSPSEXP					
		28-35	VARLS/S SG	LNSNPNEXP					
		35-40	VARSCL/CL MA	FRSSSPSEXP					
3	L/2	0-5	BLGR	FRSSSPSEXP		35"			PS 0.3
		5-15	BRSL GR	FRSSSPSEXP					
		15-33	VARLS/S SG	LNSNPNEXP					
		33-35	GREYSCL MA	FRSSSPSEXP					
4	L/2	0-18	BL GR	FRSSSPSEXP	CHR. 2'S @24"				PS 0.2 DRIP
		18-33	VARSL/LS SG	LNSNPNEXP					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	ACCEPTED	DRIP
Site LTAR	0.3	0.2

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: S.ASHLEY ROLLANS
OTHER(S) PRESENT:

COMMENTS:

SOIL/SITE EVALUATION

(Continuation Sheet)

APPROVED JUL 30 2015 BA

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

PROPERTY ID #: 4678665937
DATE OF EVALUATION: 7/15
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
B 5	L/2	0-10	BLGR	FRSSSPSEXP	F. FE. DEPL	40"			PS 0.2
		10-20	VARSL GR	FRSSSPSEXP					
		20-24	VARL/CL GR/SBK	FRSSSPSEXP					
		24-37	VARLS/S SG	LNSNPNEXP					
		37-40	GREYSCL MASS	FRSSSPSEXP					
B 6	L/2	0-12	BLGR	FRSSSPSEXP		~~40~~ 30" SHR			PS 0.2
		12-21	BRCL WFSBL	FRSSSPSEXP					
		21-30	VARSL SG	LNSNPNEXP					

COMMENTS: