STATE OF NORTH CAROLINA
IREDELL COUNTY

I certify that this map was drawn from an actual survey made under my supervision The unadjusted ratio of precision as calculated is 1': 10,000± Boundaries not surveyed, if any, are noted. Deed descriptions are recorded in Book, as Page shown .Witness my hand and seal this day th day of month , 2013.

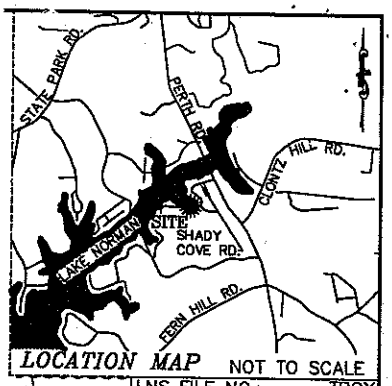
"PRELIMINARY PLAT"

NOT FOR RECORDATION, CONVEYANCES, OR SALES

Professional Land Surveyor
L-3703

NOTES:

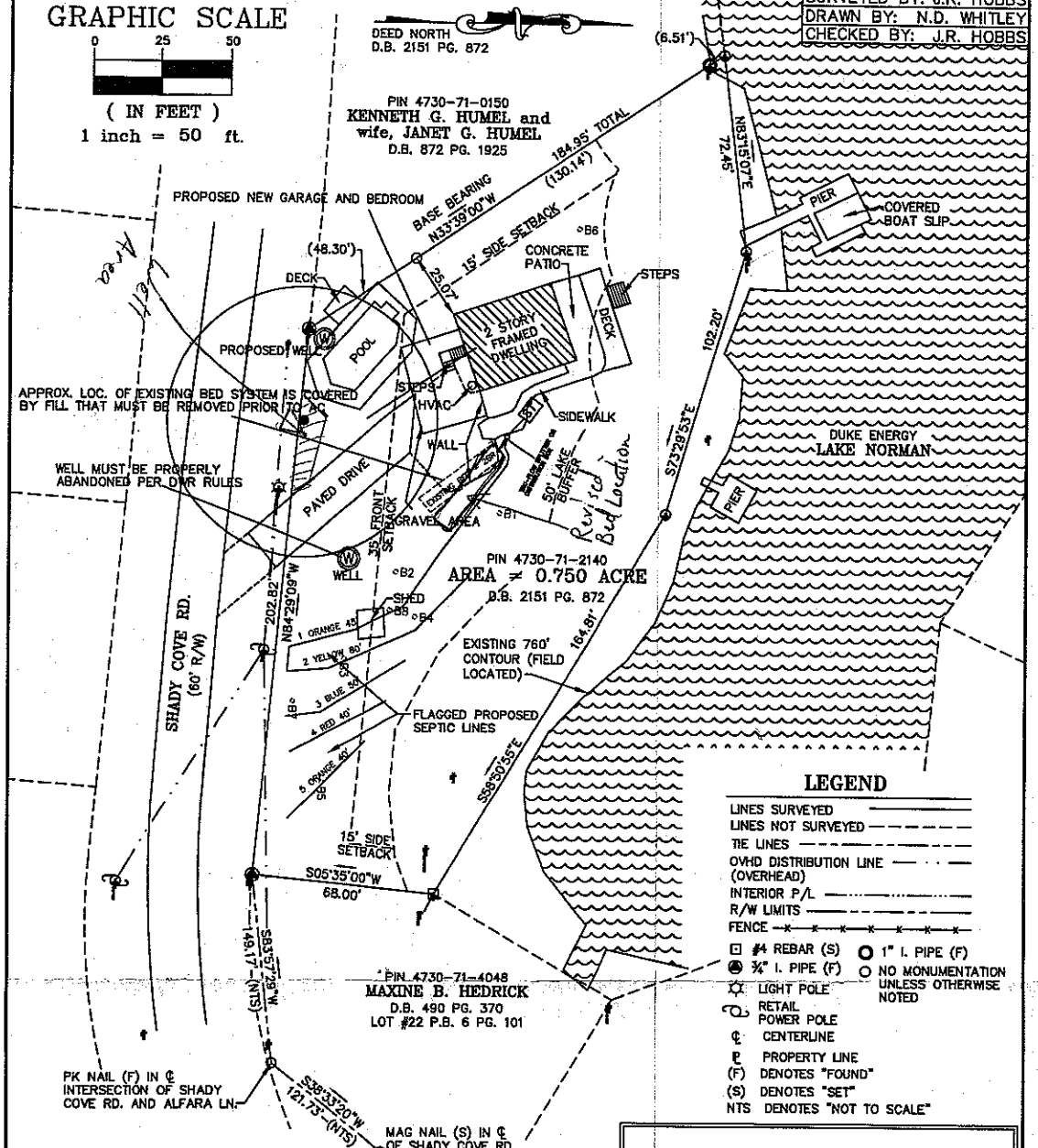
- ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.
- AREA BY COORDINATE COMPUTATION.
- PROPERTY SUBJECT TO ANY VALID & ENFORCEABLE EASEMENTS, RESTRICTIONS & RIGHTS OF WAY OF RECORD.
- SURVEY IS BASED ON PHYSICAL EVIDENCE AND EXISTING MONUMENT FOUND DURING THE SURVEY.
- PROPERTY CORNER PIPE SIZES AS SHOWN ARE NOMINAL INSIDE DIAMETER.
- SOURCE OF ELEVATIONS: DUKE ENERGY LAKE LEVELS JUNE 21, 2014 12:51 P.M. ELEV.= 98.55'



LOCATION MAP NOT TO SCALE

LNS FILE NO.:	TROY
DWG NO.:	S140703
SURVEYED BY:	J.R. HOBBS
DRAWN BY:	N.D. WHITLEY
CHECKED BY:	J.R. HOBBS

GRAPHIC SCALE
0 25 50
(IN FEET)
1 inch = 50 ft.



LEGEND

- LINES SURVEYED
- LINES NOT SURVEYED
- TIE LINES
- OVHD DISTRIBUTION LINE (OVERHEAD)
- INTERIOR P/L
- R/W LIMITS
- FENCE
- ⊡ #4 REBAR (S)
- ◉ ¾" I. PIPE (F)
- ○ 1" I. PIPE (F)
- ○ NO MONUMENTATION UNLESS OTHERWISE NOTED
- LIGHT POLE
- RETAIL POWER POLE
- ℄ CENTERLINE
- ℘ PROPERTY LINE
- (F) DENOTES "FOUND"
- (S) DENOTES "SET"
- NTS DENOTES "NOT TO SCALE"

TAX ID: 4730-71-2140
FOR SOURCE OF TITLE REFER TO D.BK. 2151 PG. 872

PHYSICAL SURVEY OF
PROPERTY OWNED BY

EMILY MURDOCK REYNOLDS and husband, STEVEN TROY REYNOLDS

FALLSTOWN TOWNSHIP IREDELL COUNTY, N.C.

SCALE: 1" = 50'
BOOK: NA

DATE OF SURVEY: JULY 11, 2014
DATE OF MAPPING: JULY 14, 2014

LNS

SURVEY AND MAP PREPARED BY:
LAKE NORMAN SURVEYING & MAPPING PLLC #P-0190
137 Jennings Road, Suite C
Statesville, North Carolina 28625
(704) 876-4450 Fax (704) 876-4451

ROLLANS *Soil & Environmental Services, PA.*

PO Box 832, Mooresville, NC 28115 Phone: (704) 746-5046 Fax: (704) 278-0989

Ashley Rollans, *NC Licensed Soil Scientist, Certified Septic Installer, Certified Wastewater Operator & Certified Septic Inspector* **Contacts**: *704.746.5046*

Email: *rollans.ashley@yahoo.com*

Attached is a proposed design for an upgrade of an existing 2 Bedroom bed system to a 3 bedroom using gravity Accepted Drainlines. Upgrade is for a 1 bedroom addition of a 2 bedroom residence at 196 Shady Cove Road, Troutman, 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

September 30, 2014
Project No.01-2007
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 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.
- 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 Accepted installation coupled with an Existing 2BR Bed System
- 1 Bedroom Repair is specified as a PPBPS installation.
- Backfill 4 - 6" of material (Excavation material) over chambers, install trenches 36" wide to be level but have no more than 1/4" fall in 10 feet.
- **Distribution Devices must be bedded on level pads.**
- **Fill over Existing System must be removed prior to issuance of permit.**
- **Distribution Devices must be bedded on level pads.**
- **Sidewalk and wall around tank and bed system must be removed.**
- **Existing well must be properly abandoned per DWR Rules.**

GRAVITY PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant: Emily & Steven Reynolds

Address: 196 Shady Cove Road
Troutman, NC 28166

Phone: 704.280.4760

County: Iredell

Location: 196 SHADY COVE ROAD

Source of Wastewater Flow: 3 Bedroom Single Family Residence

Estimated Daily Wastewater Production: 360 gpd

System Flow: NA

Design Specifications

Drainfield Size: 125

Loading Rate: 0.25

Depth of Gravel in Trench: NA

Gravel Size: NA

Trench Depth: 24-30 in.

Trench Width: 36 in.

Septic Tank Size: 1000

Pump Tank Size: NA

Estimated Supply Line Length: 74

Supply Line Diameter: 3 in. SCH 40 PVC

Supply Line Volume: 28.12

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

196 SHADY COVE ROAD
GRAVITY PPBPS

DESIGN FLOW:	120 (Upgrade) 360 (Total
SOIL APPLICATION RATE:	0.25
TOTAL AREA TRENCH BOTTOM:	250
TOTAL LATERAL LENGTH:	125
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	120.00
SUPPLY LINE LENGTH:	74
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	N/A

196 SHADY COVE ROAD

Project #:01-2007

LAYOUT FOR 3 BEDROOM HOME

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	9/30/2014 DESIGN LINE LENGTH
TBM							
INSTR. 1							
HOUSE CNR							
P. TANK							
1	*ORANGE*					*45*	*45*
2	*YELLOW*					*80*	*80*
3	BLUE					50	50
4	RED					40	40
5	ORANGE					40	40
EXISTING BED; (35'X5' WIDE) 2BR (MUST HAVE FILL REMOVED)						*35*	*35*
					Total	255	255

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
Existing Bed	**35' x 5'**		**Conv. Bed**		**Bed**	**GRAVITY**
****System***	***125***	***0.25***	***ACCP.***	***0.250***	***25%RED***	***GRAVITY***
(1 BR upgrade only)						
Repair	130	0.25	MOD.	0.250	PPBPS	GRAVITY

Notes: **Lot recorded prior to January 1, 1983. Exempt from Repair Requirement for 2 bedroom

**All measures in feet

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

CALCULATIONS

Location	196 Shady Cove Rd
Project Number	01-2007
Lot No:	NA
Total No. of Bedrooms	4
Design Flow for Upgrade (1 BR)	120 $^{gal}/_{day}$
LTAR	0.25 $^{gal}/_{ft^2 day}$
PPBPS? (YES OR NO)	NO
Supply Line Length	74 ft.
Supply Line Volume	28.12 gal.
Required Feet of Line (Upgrade)	120 ft.
Amount of Line from Layout	125 ft.
Gallons per Minute	NA $^{gal}/_{min}$
Required Septic Tank Capacity	1000 gal.
Minimum Standard Tank Size	1000
Panel Volume	N/A gal.
# of Panels	N/A
Dosing Volume	N/A gal.
Tank Draw Down	N/A
Pump Run Time	N/A minutes
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

Sheet 1 of 2
PROPERTY ID #: 4730712140
COUNTY: Iredell

APPROVED OCT 08 2014 BA

SOIL/SITE EVALUATION *for* ON-SITE WASTEWATER SYSTEM

OWNER: Steve & Emily Reynolds
ADDRESS: 196 Shady Cove Road, Troutman NC 28166
PROPOSED FACILITY: 3BR
LOCATION OF SITE: 196 Shady Cove Rd
PROPOSED DESIGN FLOW (.1949): 360gpd
WATER SUPPLY: ☑ Private ☐ Public ☑ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☑ Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: ☑ Sewage ☐ Industrial Process ☐ Mixed

APPLICATION DATE 9/14
DATE EVALUATED: 9/14
PROPERTY SIZE: ± 0.750ac
PROPERTY RECORDED: 1960's

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 1	L/25%	0-22	Bsl sr	FrSSSPSEXP	- m.sap	28	B		PS-60 0.4-0.5 Need Pit Remove well
		22-28	YBscl wmsbk	" " " "					
		28-60	var sl mass	" " " "					
B 2	L/12%	0-2	B l sr	FrSSSPSEXP	- c [Fe] depl - chr 2's @ 24" - chr 2's clay lenses	36	LN		LN
		2-14	Rc wmsbk	" " " "					
		14-36	YRcl wmsbk	" " " "					
		36-51	var l mass	" " " "					
B 3	L/15%	0-15	B sl sr	FrSSSPSEXP	Blk conc, f-c [Fe] depl (28"c) f sap frc [Fe] depl c sap	52	-	-	PS 0.25
		15-18	BRscl wsbk	" " " "					
		18-46	R-RYc wmsbk	" " " "					
		46-52	RYcl wfsbk	" " " "					
4	L/20%	0-20	B sl sr	FrSSSPSEXP	f [Fe] depl 32" - c [Fe] depl chr 2's @ 47"	52	-	-	PS 0.25
		20-40	Rc wmsbk	" " " "					
		40-50	RYcl wfsbk	" " " "					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Accepted+Bed	PPBPS
Site LTAR	0.25	0.25

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

COMMENTS: *Repair is exempt from 2BRS TBR was demonstrated.

SOIL/SITE EVALUATION

(Continuation Sheet)

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

APPROVED OCT 08 2014

PROPERTY ID #: 9/14
DATE OF EVALUATION: 9/30/2014
COUNTY: Iredell

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
B5	L/12%	0-12	B s l sr	Fr SSSPSExP	f [Fe] depl c sap	49	—	—	PS 0.25-.275
		12-40	RC w msbk	" " " "					
		40-49	RY cl wfsbk	" " " "					
B6	L/15%	0-15	B s l sr	Fr SSSPSExP					UN
		15-20	RBC l msbk	" " " "					
		20"	AR						
B7	L/12%	0-12	B s l sr	Fr SSSPSExP	f [Fe] depl 33% f-c [Fe] depl f-c sap	—	—	—	PS 0.25-.275
		12-40	RC w msbk	" " " "					
		40-50	RY cl wfsbk	" " " "					
B8	L/5%	0-2	B s l sr	Fr SSSPSExP	f-c sap	40"	—	—	PS 0.25-.275
		2-22	BR cl-scl wfsbk	" " " "					
		22-40	RY cl wfsbk	" " " "					
		40-49	rar s/ mass	" " " "					

COMMENTS:

IREDELL COUNTY HEALTH DEPARTMENT - *ENVIRONMENTAL HEALTH* ☐ STATESVILLE OFFICE 704-878-5305 ☒ MOORESVILLE OFFICE 704-664-5

IMPROVEMENT PERMIT / AUTHORIZATION TO CONSTRUCT / OPERATION PERMIT / EXISTING SYSTEM INSPECTION

PERMIT # 71960 PIN # 4770-71-2940 DATE 6-1-12

OWNER Ricky & Emily Reynolds APPLICANT: SAME PHONE: Home/Cell # 704-996-1617 Business #

SITE ADDRESS 196 SHADY COVE RD OWNER / APPLICANT ADDRESS SAME

SITE DIRECTIONS FROM SHADY COVE ON R

SUBDIVISION SHADY COVE BLOCK / SECTION LOT # 23 & 24 LOT AREA .7AC DESIGN FLOW 240 L.T.A.R.

Septic Tank EXISTING Gallons: STB Date

Pump Tank Gallons: P T Date

Pump Make Model Serial #

No. Nitrification Fields: No. Lines EXISTING Linear Feet

Trench Width Max. Trench Bottom Depth Gravel Depth

☐ New System ☐ Repair ☐ Expansion System Type I II III IV V VI

System Description: GRAVITY LPD

Repair System Description:

Maintenance Agreement Required ☐ YES ☒ NO

☒ GRAVITY ☐ PRESSURE

☒ Residence No. Bedrooms 2 Water ☒ Pr

☐ Business No. Persons ☐ Pu

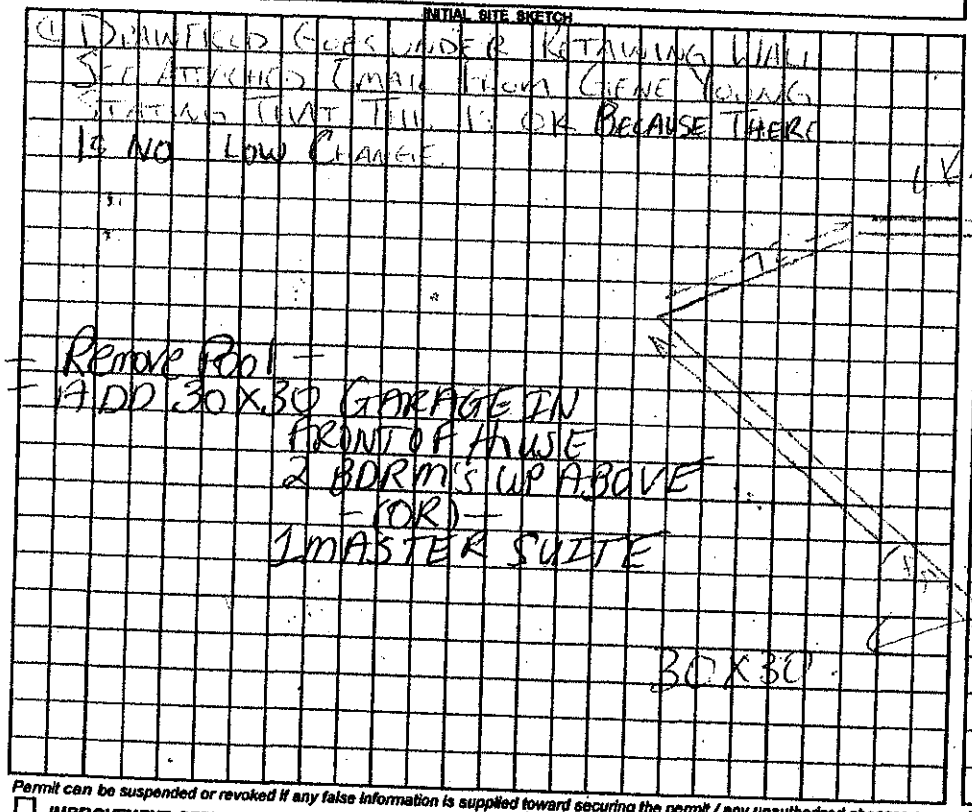
☐ Other No. Employees ☐ Cc

☐ Slab ☐ Crawl Space

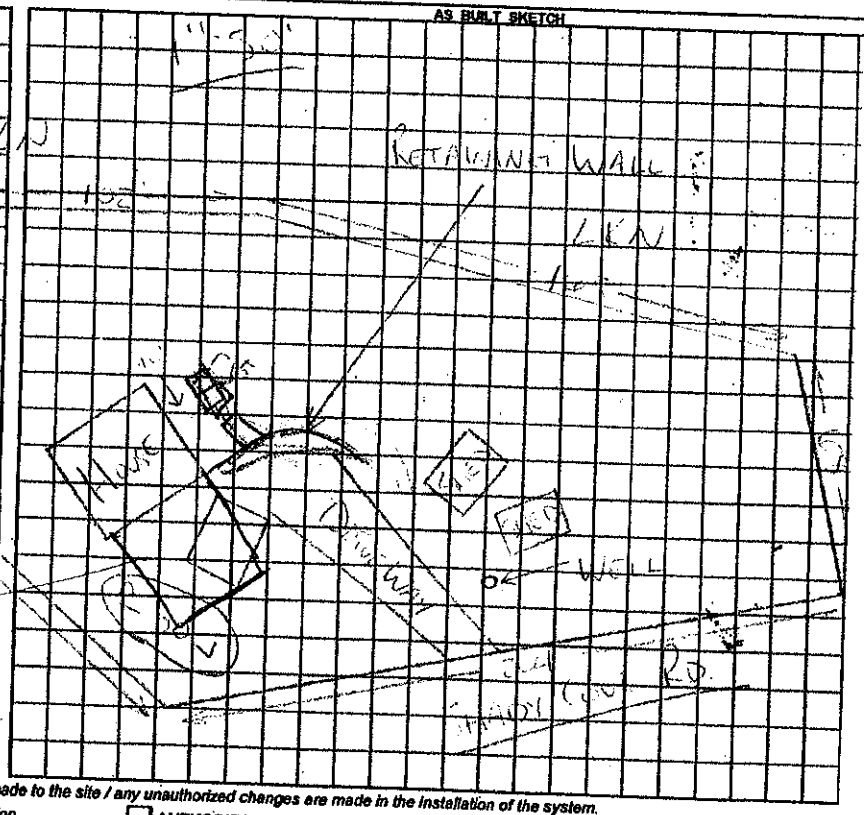
☒ Basement w/plumbing ☐ Basement w/o p

Comments / Conditions

INITIAL SITE SKETCH



AS BUILT SKETCH



Permit can be suspended or revoked if any false information is supplied toward securing the permit / any unauthorized changes are made to the site / any unauthorized changes are made in the installation of the system.

☐ ***IMPROVEMENT PERMIT*** with plat valid without expiration. ☐ ***IMPROVEMENT PERMIT*** with plat valid without expiration. site plan valid 60 days. ☐ ***AUTHORIZATION TO CONSTRUCT*** valid for period equal to IMPROVEMENT PERMIT--not to

Owner / Applicant Signature: Date 6/5/12 Installed by:

IMPROVEMENT PERMIT by: ***REHS*** Date OPERATION PERMIT by: ***REHS*** Date

AUTHORIZATION TO CONSTRUCT by: ***REHS*** Date Existing System Inspected by: ***REHS*** Date 6

YOU SHOULD CONTACT A LOCATOR SERVICE PRIOR TO ANY EXCAVATION

White Copy – Environmental Health YELLOW COPY (Final) Owner / Applicant PINK COPY (Initial) Owner / Applic