# 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 5 bedroom single family residence on Lot 23 of McCrary Woods Subdivision, 314 McCrary Rd, in Mooresville, Iredell County, North Carolina.**

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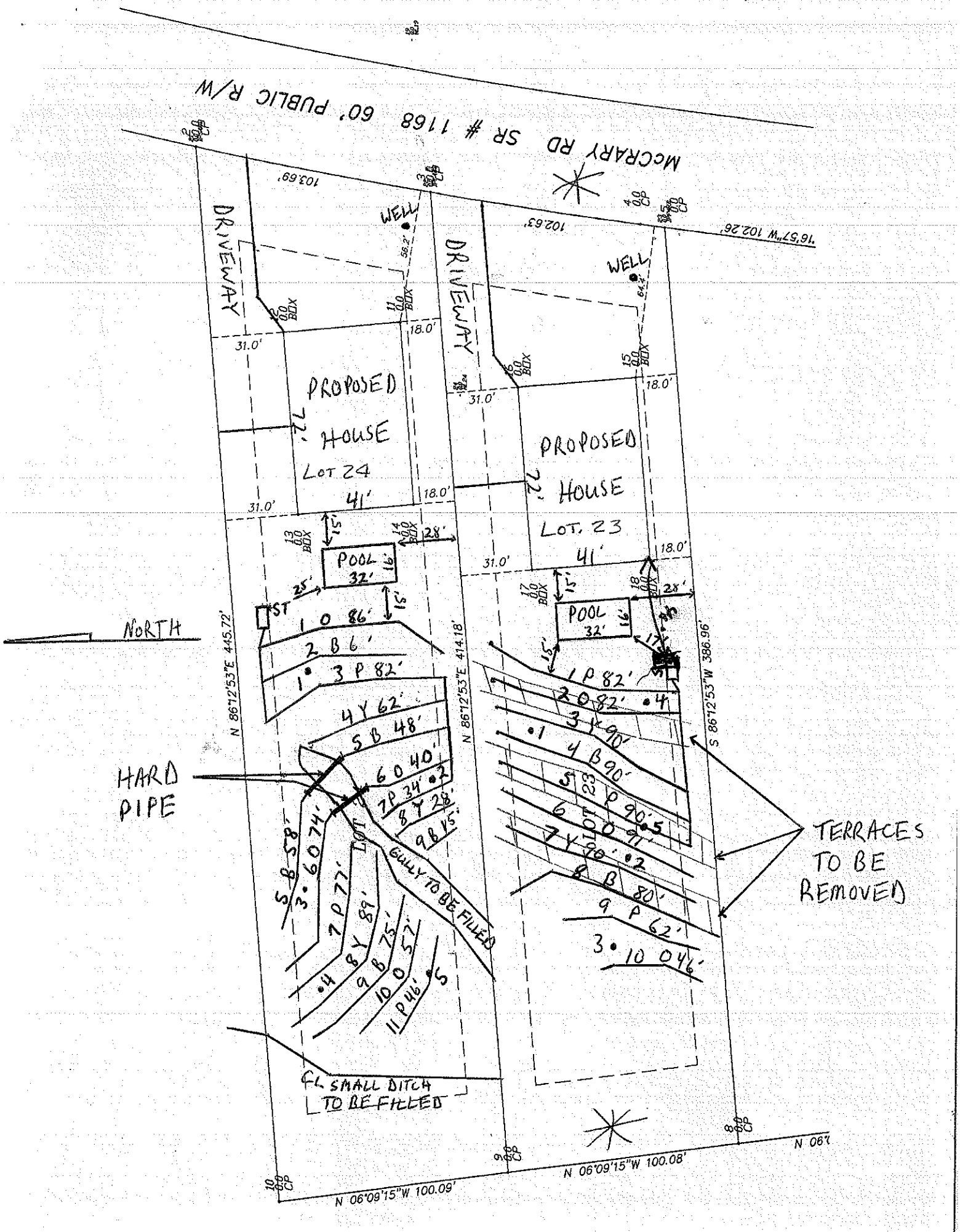
**July 28, 2016**
**Design By: Adrian L. Pruett**



# 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.**

1" = 50'


MCCRARY RD SR # 1168 60' PUBLIC R/W
N 86°12'53"E 445.72'
N 86°12'53"E 414.18'
S 86°12'53"W 386.96'
N 06°09'15"W 100.09'
N 06°09'15"W 100.08'
DRIVEWAY
DRIVEWAY
WELL
WELL
PROPOSED HOUSE LOT 24
PROPOSED HOUSE LOT. 23
POOL 32' 16'
POOL 32' 16'
NORTH
HARD PIPE
GULLY TO BE FILLED
TERRACES TO BE REMOVED
FL SMALL DITCH TO BE FILLED

## OWNER INFORMATION

| | |
|---|---|
| **Owner:** | HNF Builders LLC<br>Caleb Hill |
| **Address:** | 6514 Marion Lavern Rd<br>Huntersville, NC 28078 |
| **Phone:** | 704-306-6676 |
| **County:** | Iredell |
| **Location:** | McCRARY WOODS LOT 23, 314 McCRARY RD |
| **Source of Wastewater Flow:** | 5 Bedroom Single Family Residence |
| **Estimated Gallons Per Day Flow:** | 600 |
| **System Flow:** | NA |

## 25% GRAVITY DESIGN INFORMATION

| | |
|---|---|
| **Drainfield Design Flow (gpd):** | 434 |
| **Loading/Soil Application Rate (gpd/ft.$^2$):** | 0.350 |
| **Depth of Gravel in Trench:** | NA (25% reduction ) |
| **Gravel Size:** | NA (25% reduction ) |
| **Total Lateral Length From Layout:** | 434 |
| **Total Lateral Length Required:** | 428.57 |
| **Trench Depth:** | 24 in. Lowside |
| **Trench Width:** | 36 in. |
| **TOTAL AREA TRENCH BOTTOM:** | 1302 |
| **Trench Spacing on Center:** | 9 ft. |
| **Septic Tank Size:** | 1500 gal. |
| **Estimated Supply Line Length:** | 6 |
| **Supply Line Diameter:** | 3 in. SCH 40 PVC |
| **Supply Line Volume:** | 2.16 |
| **Dosing Volume:** | NA |
| **Supply Manifold:** | SERIAL DISTRIBUTION |
| **Additional Comments:** | Soil suitability was performed by Adrian L. Pruett LSS |

# McCRARY WOODS LOT 23, 314 McCRARY RD
# FIELD LAYOUT SPECIFICATIONS

LAYOUT FOR 5 BEDROOM RESIDENCE — July 28, 2016

| LINE # | FLAG COLOR | FS | ELEVATION | FLAGGED LINE LENGTH | DESIGN LINE LENGTH |
|---|---|---|---|---|---|
| TBM | | | NA | | |
| HOUSE CRN | | NA | NA | | |
| P. TANK | | NA | NA | | |
| *1* | *PINK* | *NA* | *NA* | *85* | *82* |
| *2* | *ORANGE* | *NA* | *NA* | *83* | *82* |
| *3* | *YELLOW* | *NA* | *NA* | *90* | *90* |
| *4* | *BLUE* | *NA* | *NA* | *91* | *90* |
| *5* | *PINK* | *NA* | *NA* | *91* | *90* |
| 6 | ORANGE | NA | NA | 91 | 91 |
| 7 | YELLOW | NA | NA | 90 | 90 |
| 8 | BLUE | NA | NA | 80 | 80 |
| 9 | PINK | NA | NA | 62 | 62 |
| 10 | ORANGE | NA | NA | 46 | 46 |
| | | | **Total** | **809** | **803** |

| | LINE LENGTH | SYSTEM TYPE | SOIL LTAR GPD/FT$^2$ | TRENCH SYSTEM | DISTRIBUTION |
|---|---|---|---|---|---|
| *System* | *434* | *ACCEPT.* | *0.350* | *25% RED.* | *GRAVITY* |
| Repair | 369 | *MOD.* | 0.275 | PPBPS | LOW PRESSURE |

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

Comments: **Three terraces within drainfield area must be graded to contour. DO NOT REMOVE ANY ADDITIONAL SOIL FROM DRAINFIELD AREA.**
**Proposed pool is flagged in blue pin flags**
**Keep maximum distance from pool with setic tank and minimum of 15 ft with drainlines**
**Iredell County has CS&SC's permission to change septic tank location and distribution type**

## DOSING CALCULATIONS

Location McCRARY WOODS

Lot No: 23

| | | |
|---|---|---|
| No. of Bedrooms | 5 | |
| Design Flow | 600 | $^{gal}/_{day}$ |
| LTAR | 0.350 | $^{gal}/_{ft^2 day}$ |
| 25% RED. Expansion? (YES OR NO) | YES | |
| Supply Line Length | 6 | ft. |
| Supply Line Volume | 2.16 | gal. |
| Required Feet of 25% RED. Line | 428.57143 | ft. |
| Amount of Line from Layout | 434 | ft. |
| Gallons per Minute | NA | $^{gal}/_{min}$ |
| Septic Tank Capacity | 1500 | gal. |
| Minimum Septic Tank Capacity | 1500 | gal. |
| Lateral Line Volume | 283.402 | gal. |

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


PROPERTY ID #: 4637156621
COUNTY: Iredell

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

OWNER: HNF Builders, LLC APPLICATION DATE 7/29/16
ADDRESS: 6514 Marion Lavern Rd., Huntersville, NC 28078 DATE EVALUATED: 7/27/16
PROPOSED FACILITY: 5 Bedrooms PROPOSED DESIGN FLOW (.1949): 600 GPD PROPERTY SIZE: 0.92 ac.
LOCATION OF SITE: 314 McCrary Rd., Moorsville, NC 28117 Lot 23 PROPERTY RECORDED: Yes
WATER SUPPLY: X Private ☐ Public ☐ 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) | | OTHER PROFILE FACTORS | | | | PROFILE CLASS & LTAR |
|---|---|---|---|---|---|---|---|---|---|
| | | | .1941 STRUCTURE/ TEXTURE | .1941 CONSISTENCE/ MINERALOGY | .1942 SOIL WETNESS/ COLOR | .1943 SOIL DEPTH | .1956 SAPRO CLASS | .1944 RESTR HORIZ | |
| B 1 | HS/LSS 15% | 0-20 | R CL WFSBK | FR, SS, SP, SEXP | -COM. MICA -COM. SAP | 42" | PS | N/A | PS |
| | | 20-34 | R CL WFSBK | FR, SS, SP, SEXP | | | | | |
| | | 34-42 | YR CL WFSBK | FR, SS, SP, SEXP | -MANY SAP -FEW R CL INCL. | | | | 0.35 GPD/SQFT |
| | | 42-48 | VAR FSL SAP M | FR, SS, SP, SEXP | | | | | |
| | | | | | | | | | |
| B 2 | LSS 15% | 0-31 | R C MFSBK | FR, SS, SP, SEXP | N/A -COM. MICA, FEW QUARTZ | 48" | N/A | N/A | PS |
| | | 31-48 | R CL WFSBK | FR, SS, SP, SEXP | -COM. MICA | | | | 0.3 GPD/SQFT |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| B 3 | FS 15% | 0-12 | B C/CL WFSBK | FR, SS, SP, SEXP | N/A -COM. MN, FEW MICA -FEW MN, FEW MICA -FEW MICA | 48" | N/A | N/A | PS |
| | | 12-35 | YR C WFSBK | FR, SS, SP, SEXP | | | | | 0.275 GPD/SQFT |
| | | 35-39 | R CL WFSBK | FR, SS, SP, SEXP | | | | | |
| | | 39-48 | R CL WFSBK | FR, SS, SP, SEXP | | | | | |
| | | | | | | | | | |
| B 4 | NS 6% | 0-15 | R C MFSBK | FR, SS, SP, SEXP | N/A -FEW/COM. SAP -COM SAP -MANY SAP -COM. R CL INC | 44" | PS | N/A | PS |
| | | 15-26 | R CL WFSBK | FR, SS, SP, SEXP | | | | | |
| | | 26-39 | YR CL WFSBK | FR, SS, SP, SEXP | | | | | 0.35 GPD/SQFT |
| | | 39-44 | YR CL WFSBK | FR, SS, SP, SEXP | | | | | |
| | | 44-48 | VAR L SAP M | FR, SS, SP, SEXP | | | | | |

| DESCRIPTION | INITIAL SYSTEM | REPAIR SYSTEM |
|---|---|---|
| Available Space (.1945) | PS | PS |
| System Type(s) | GRAVITY 25% RED. | LP PPBPS |
| Site LTAR | 0.35 | 0.275 |

OTHER FACTORS (.1946): NONE
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: CS&SC, PLLC
OTHER(S) PRESENT: NONE

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 #: 4637156621
DATE OF EVALUATION: 7/27/16
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 |
|---|---|---|---|---|---|---|---|---|---|
| B 5 | LSS 15% | 0-8 | R C MFSBK | FR, SS, SP, SEXP | N/A | 43" | PS | N/A | PS |
| | | 8-16 | R CL WFSBK | FR, SS, SP, SEXP | -COM. SAP | | | | |
| | | 16-30 | YR CL WFSBK | FR, SS, SP, SEXP | -MANY SAP | | | | 0.35 GPD/SQFT |
| | | 30-43 | YR CL WFSBK | FR, SS, SP, SEXP | -COM. R CL INCL. | | | | |
| | | 43-48 | VAR L SAP M | FR, SS, SP, SEXP | | | | | |
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COMMENTS: _____