# Gravity 25% Reduction
# FOR WASTEWATER TREATMENT

**Owner:** Bells Crossing LLC

**Address:** 127B Promenade Dr.
Mooresville, NC 28117
**Phone:** (704) 361-1084
**County:** Iredell
**Location:** BELLS CROSSING LOT 68

**Source of Wastewater Flow:** 4 Bedroom Single Family Residence
**Estimated Gallons Per Day Flow:** 480
**System Flow:** NA

## Design Specifications

**Drainfield Size:** 440
**Loading Rate (gpd/ft.$^2$):** 0.275
**Depth of Gravel in Trench:** NA (25% reduction )
**Gravel Size:** NA (25% reduction )
**Trench Depth:** 36 in.
**Trench Width:** 36 in.
**Septic Tank Size:** 1000
**Pump Tank Size:** N/A

**Estimated Supply Line Length:** 17
**Supply Line Diameter:** 3 in. SCH 40 PVC
**Supply Line Volume:** 6.12
**Dosing Volume:** NA
**Supply Manifold:** DROP-BOX
**Supply Manifold Length:** NA
**Supply Manifold Volume:** N/A

**Recommended Float Controls:** NA

**Recommended Control Panel:** NA

**Pressure Head:** NA
**Friction Head:** NA
**Elevation Head:** NA
**Total Dynamic Head:** NA

**Threaded Union:** NA
**Gate Valves:** NA
NA
**Check Valves:** NA
**Anti-Siphon Hole:** NA
**Additional Comments:** Soil suitability was performed by Rollans Soil & Environmental Services.

# BELLS CROSSING LOT 68
## GRAVITY DISTRIBUTION

| | |
|---|---|
| **DESIGN FLOW (gpd):** | 480 |
| **SOIL APPLICATION RATE (gpd/ft.$^2$):** | 0.275 |
| **TOTAL AREA TRENCH BOTTOM:** | 1320 |
| **TOTAL LATERAL LENGTH:** | 440 |
| **NUMBER OF FIELDS:** | 1 |
| **LATERAL LENGTH REQUIRED PER FIELD:** | 436.3636364 |
| **SUPPLY LINE LENGTH:** | 17 |
| **TOTAL DYNAMIC HEAD:** | NA |
| **MANIFOLD SIZE:** | NA |
| **DOSING VOLUME:** | NA |
| **PUMP TANK DRAW DOWN*:** | NA |
| **SEPTIC TANK SIZE:** | 1000 |
| **PUMP TANK SIZE:** | NA |

# BELLS CROSSING LOT 68

Project #: 01-1429

LAYOUT FOR 4 BEDROOM HOME

October 28, 2008

| LINE # | FLAG COLOR | BS | HI | FS | ELEVATION | FLAGGED LINE LENGTH | DESIGN LINE LENGTH |
|---|---|---|---|---|---|---|---|
| TBM | | NA | | | NA | | |
| INSTR. 1 | | | NA | | | | |
| HOUSE CRN | | | | NA | NA | | |
| P. TANK | | | | NA | NA | | |
| 1 | RED | | | NA | NA | 27 | 27 |
| 2 | ORANGE | | | NA | NA | 32 | 32 |
| 3 | BLUE | | | NA | NA | 56 | 56 |
| 4 | PINK | | | NA | NA | 79 | 79 |
| 5 | RED | | | NA | NA | 82 | 82 |
| 6 | ORANGE | | | NA | NA | 95 | 95 |
| ***7*** | ***BLUE*** | | | ***NA*** | ***NA*** | ***124*** | ***120*** |
| ***8*** | ***PINK*** | | | ***NA*** | ***NA*** | ***118*** | ***110*** |
| ***9*** | ***RED*** | | | ***NA*** | ***NA*** | ***116*** | ***105*** |
| ***10*** | ***ORANGE*** | | | ***NA*** | ***NA*** | ***108*** | ***105*** |
| | | | | | **Total** | **837** | **811** |

| | LINE LENGTH | LTAR GPD/FT$^2$ | SYSTEM TYPE | SOIL LTAR GPD/FT$^2$ | TRENCH SYSTEM | DISTRIBUTION |
|---|---|---|---|---|---|---|
| **** System*** | ***440*** | ***0.275*** | ***ACCEPT.*** | ***0.275*** | ***25% RED.*** | **GRAVITY** |
| Repair | 371 | 0.30 | *MOD.* | 0.30 | PPBPS | **DISTRIBUTION** LOW PRESSURE |

**Notes:**

** TBM Is Not Required.
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS, HI, and FS indicate rod readings

## CALCULATIONS

Location BELLS CROSSING

Project Number 01-1429

Lot No: Lot 68

No. of Bedrooms 4

Design Flow 480 $^{gal}/_{day}$

LTAR 0.275 $^{gal}/_{ft^2\,day}$

25% RED.? (YES OR NO) YES

Supply Line Length 17 ft.

Supply Line Volume 6.12 gal.

Required Feet of Line 436.3636 ft.
Amount of Line from Layout 440 ft.

Gallons per Minute NA $^{gal}/_{min}$

Required Septic Tank Capacity 1000 gal.
Minimum Standard Tank Size 1000

Lateral Line Volume 287.32 gal.

Dosing Volume NA gal.

*Note: Dosing Volume based on70% of lateral line volume*

Tank Draw Down NA *Generic Draw Down of 21 gal.per in.*

Pump Run Time NA minutes

Elevation Head NA ft.
Pressure Head NA ft.
Friction Factor NA ft./100 ft. *(From the interpolater.)*
Friction Head NA ft.

Total Dynamic Head (+15%) NA 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 |