09/13/2007 13:06 7047956996 KIM WIDENHOUSE PAGE 02/03
PERMIT-2008 10:54 MECKLENBURG CO GWS

BM

FILE NUMBER: 7344B

SEPTIC FEE: 709
DATE: 9/21/07

Revised On: August 31, 2007

APPLICATION NUMBER: 2738

MECKLENBURG COUNTY GROUNDWATER & WASTEWATER SERVICES
APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT/ CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER SYSTEM, NEW WELL INSTALLATION, OR REPAIR OF EXISTING WELL

WELL FEE: ____
DATE: ____

1. SEPTIC / TYPE APPLICATION: ☐ NONE ☒ NEW SYSTEM ☐ ALTERATION ☐ REPAIR ☐ MODIFIED SYSTEM

2. WELL / TYPE APPLICATION: ☒ NONE ☐ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

3. JOB LOCATION INFORMATION:
TAX PARCEL NUMBER: 139-034-18
STREET ADDRESS: 8817 Talcott Dr.
CITY: Mint Hill
STATE: NC ZIP: 28227
SUBDIVISION NAME: Stonebridge at Mint Hill
LOT #: 99 LOT SIZE (acres): .707 acres
TOWNSHIP:
☐ 0-MECKLENBURG ☐ 3-CORNELIUS ☐ 6-HUNTERSVILLE
☐ 1-CHARLOTTE ☐ 4-PINEVILLE ☒ 7-MINT HILL
☐ 2-DAVIDSON ☐ 5-MATTHEWS

4. BUILDING INFORMATION:
BUILDING TYPE:
☐ SINGLE MODULAR HOME ☐ MODULAR HOME
☐ DOUBLE WIDE ☐ MULTIPLE FAMILY
☒ HOUSE ☐ OTHER
HEATED SQUARE FOOTAGE: 4,160
NUMBER OF BEDROOMS: 4 (Rec) 4-18-08
NUMBER OF OCCUPANTS: 4
FOUNDATION TYPE:
☐ CONCRETE SLAB ☐ BASEMENT (CRAWL SPACE)
☒ CRAWL SPACE ☐ BASEMENT (WALK-OUT OPENING)

5. IF PLANNING TO EXPAND OR ALTER THE EXISTING SYSTEM PLEASE COMPLETE THE FOLLOWING SECTION: N/A
NUMBER OF BEDROOMS TO BE ADDED: ____ NUMBER OF ADDITIONAL OCCUPANTS IN THE HOUSEHOLD: ____

6. WATER SUPPLY: ☒ MUNICIPAL ☐ PUBLIC WELL ☐ PRIVATE WELL ☐ SHARED WELL ☐ SPRING
7. PROPOSED USE OF WELL: ☒ N/A ☐ IRRIGATION ☐ POTABLE ☐ GEOTHERMAL ☐ OTHER

8. PLEASE INDICATE AND RANK DESIRED SEPTIC SYSTEM TYPE(S) IN ORDER OF PREFERENCE (1-MOST DESIRED, ETC., IF USED).
8A. RANK: ☒ ANY TYPE ☐ CONVENTIONAL ☐ ACCEPTED ☐ INNOVATIVE ☐ ALTERNATIVE ☐ OTHER ____

9. DO ANY OF THE FOLLOWING APPLY TO THE PROPERTY IN QUESTION? IF "YES" PLEASE ATTACH SUPPORTING DOCUMENTATION

BURIED CABLES, LANDFILLS, STUMPHOLES	☐ YES	☒ NO	GRADING/SOIL REMOVAL PERFORMED	☐ YES	☒ NO
EXISTING WASTEWATER (SEPTIC) SYSTEMS	☐ YES	☒ NO	JURISDICTIONAL WETLANDS	☐ YES	☒ NO
WELLS, SPRINGS, OR WATER LINES	☐ YES	☒ NO	APPROVAL REQUIRED BY ANY OTHER PUBLIC AGENCY	☐ YES	☒ NO
EASEMENTS OR RIGHT-OF-WAYS	☒ YES	☐ NO	WASTEWATER OTHER THAN DOMESTIC SEWAGE	☐ YES	☒ NO

10. PROPERTY OWNER:
NAME: NVR, Inc dba Ryan Homes
ADDRESS: 10815 David Taylor Dr., Ste 100
CITY: Charlotte
STATE: NC ZIP: 28262
HOME PHONE: ____ WORK PHONE: 704-541-2141 704-503-4576
MOBILE PHONE: ____ FAX: 704-503-4516

11. OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:
NAME: Kim Widenhouse
ADDRESS: PO Box 176
CITY: Stanfield
STATE: NC ZIP: 28163
HOME PHONE: 704-982-9633 WORK PHONE: 704 Same
MOBILE PHONE: 704-791-6351 FAX: 704 Same

12. WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? 9-14-07
13. WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY? ASAP

14. SEPTIC SYSTEM PERMIT APPLICATION SIGNATURE SECTION:
If the information in this application is falsified, changed, or the site is altered, then the Improvement Permit and Authorization to Construct shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for either 60 months or is non-expiring depending upon the documentation submitted: complete site plan = 60 months; complete plot = non-expiring.

Kim Widenhouse 9/19/07
Property Owner's or Owner's Legal Representative Signature Date

15. WELL PERMIT APPLICATION SIGNATURE SECTION:
If the information in this application is falsified, changed, or the site is altered, then the Well Permit shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for a period of 12 months from the date of issuance.

Property Owner's or Owner's Legal Representative Signature Date

☐ SURVEY PLAT TO SCALE SUBMITTED ☒ SCALED SITE PLAN SUBMITTED ☐ NON-SCALED SITE PLAN SUBMITTED

BM

BR1099

FILE NUMBER: 7344B

Revised On: August 31, 2007

APPLICATION NUMBER: 2738

SEPTIC FEE: 209
DATE: 9/12/07
on acct

MECKLENBURG COUNTY GROUNDWATER & WASTEWATER SERVICES
APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT/ CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER SYSTEM, NEW WELL INSTALLATION, OR REPAIR OF EXISTING WELL

WELL FEE: _____
DATE: _____

1. SEPTIC / TYPE APPLICATION: ☐ NONE ☒ NEW SYSTEM ☐ ALTERATION ☐ REPAIR ☐ MODIFIED PLOT PLAN

2. WELL / TYPE APPLICATION: ☒ NONE ☐ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

3. JOB LOCATION INFORMATION:

TAX PARCEL NUMBER: 139-034-18
STREET ADDRESS: 8017 Talcott Dr.
CITY: Mint Hill
STATE: NC ZIP: 28227
SUBDIVISION NAME: Stonebridge at Mint Hill
LOT #: 99 LOT SIZE (acres): .707 acres
TOWNSHIP:
☐ 0-MECKLENBURG ☐ 3-CORNELIUS ☐ 6-HUNTERSVILLE
☐ 1-CHARLOTTE ☐ 4-PINEVILLE ☒ 7-MINT HILL
☐ 2-DAVIDSON ☐ 5-MATTHEWS

4. BUILDING INFORMATION:

BUILDING TYPE:
☐ SINGLE MOBILE HOME ☐ MODULAR HOME
☐ DOUBLE WIDE ☐ MULTIPLE FAMILY
☒ HOUSE ☐ OTHER _____
HEATED SQUARE FOOTAGE: 4080
NUMBER OF BEDROOMS: 5
NUMBER OF OCCUPANTS: 4
FOUNDATION TYPE:
☐ CONCRETE SLAB ☐ BASEMENT WITH PLUMBING
☒ CRAWL SPACE ☐ BASEMENT WITH NO PLUMBING

6. IF PLANNING TO EXPAND OR ALTER THE EXISTING SYSTEM PLEASE COMPLETE THE FOLLOWING SECTION: ☒ N/A
NUMBER OF BEDROOMS TO BE ADDED: _____ NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE: _____

6. WATER SUPPLY: ☒ MUNICIPAL ☐ PUBLIC WELL ☐ PRIVATE WELL ☐ SHARED WELL ☐ SPRING
7. PROPOSED USE OF WELL: ☒ N/A ☐ IRRIGATION ☐ POTABLE ☐ GEOTHERMAL ☐ OTHER

8. PLEASE INDICATE AND RANK DESIRED SEPTIC SYSTEM TYPE(S) IN ORDER OF PREFERENCE *(1-MOST DESIRED 5-LEAST DESIRED)*:

8A. RANK: ☒ ANY TYPE ☐ CONVENTIONAL ☐ ACCEPTED ☐ INNOVATIVE ☐ ALTERNATIVE ☐ OTHER _____

9. DO ANY OF THE FOLLOWING APPLY TO THE PROPERTY IN QUESTION? IF "YES" PLEASE ATTACH SUPPORTING DOCUMENTATION.

BURIED CABLES, LANDFILLS, STUMPHOLES	☐ YES	☒ NO	GRADING/SOIL REMOVAL PERFORMED	☐ YES	☒ NO
EXISTING WASTEWATER (SEPTIC) SYSTEMS	☐ YES	☒ NO	JURISDICTIONAL WETLANDS	☐ YES	☒ NO
WELLS, SPRINGS, OR WATER LINES	☐ YES	☒ NO	APPROVAL REQUIRED BY ANY OTHER PUBLIC AGENCY	☐ YES	☒ NO
EASEMENTS OR RIGHT-OF-WAYS	☒ YES	☐ NO	WASTEWATER OTHER THAN DOMESTIC SEWAGE	☐ YES	☒ NO

10. PROPERTY OWNER:

NAME: NVR, Inc. dba Ryan Homes
ADDRESS: 10815 David Taylor Dr., Ste 100
CITY: Charlotte
STATE: NC ZIP: 28262
HOME PHONE: WORK PHONE: ~~704-503-4510~~ 548-3534
MOBILE PHONE: FAX: 704-503-4516

11. OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:

NAME: Kim Widenhouse
ADDRESS: PO Box 176
CITY: Stanfield
STATE: NC ZIP: 28163
HOME PHONE: 704-792-9637 WORK PHONE: ~~704~~ Same
MOBILE PHONE: 704-791-6852 FAX: 704-795-6996

12. WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? 9-14-07
13 WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY? Jan 2008

14. SEPTIC SYSTEM PERMIT APPLICATION SIGNATURE SECTION:
If the information in this application is falsified, changed, or the site is altered, then the Improvement Permit and Authorization to Construct shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for either 60 months or is non-expiring depending upon the documentation submitted: complete site plan = 60 months, complete plat = non-expiring.

Kim Widenhouse 9/19/07
Property Owner's or Owner's Legal Representative Signature Date

15. WELL PERMIT APPLICATION SIGNATURE SECTION:
If the information in this application is falsified, changed, or the site is altered, then the Well Permit shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for a period of 12 months from the date of issuance.

_____
Property Owner's or Owner's Legal Representative Signature Date

☐ SURVEY PLAT TO SCALE SUBMITTED ☒ SCALED SITE PLAN SUBMITTED ☐ UN-SCALED SITE PLAN SUBMITTED

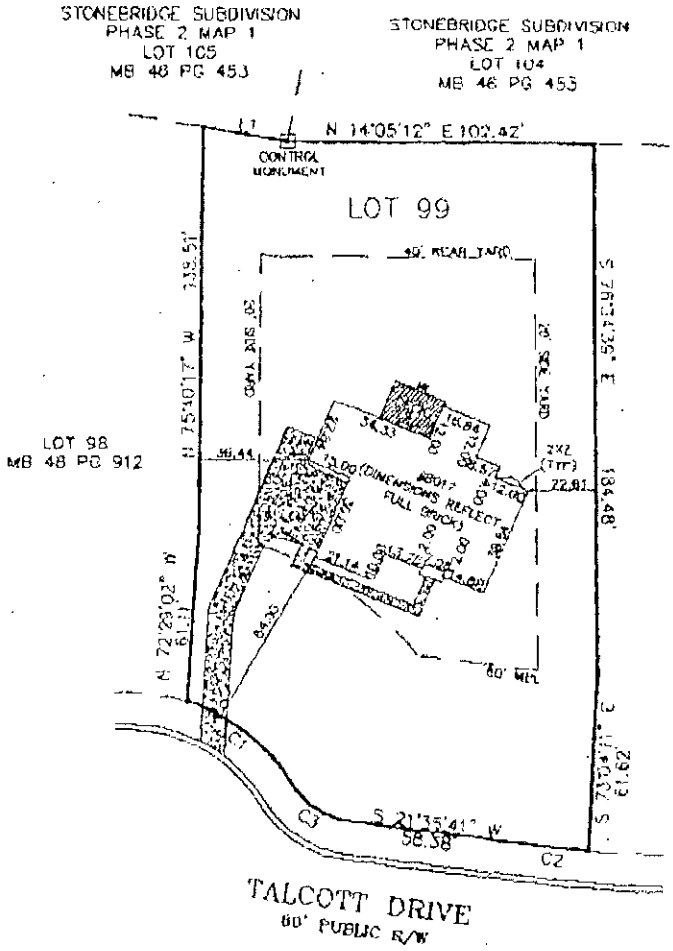
SITE DEVELOPMENT PLAN

PREPARED BY:

DELTA LAND SERVICES, INC.
6033 FLORENCE AVENUE, SUITE 100
CHARLOTTE, NORTH CAROLINA 28212
(704) 536-6190

THIS SITE PLAN IS TO SHOW THE PROPOSED LOCATION OF THE HOUSE ON THE LOT AND IS NOT TO BE RELIED UPON FOR CONSTRUCTION.

SCALE: 1" = 50'



ESTIMATED DRIVEWAY
AREA = 1468.7 SQ.FT.±

LINE TABLE		
LINE	LENGTH	BEARING
L1	28.74	N 09°33'55" E

CURVE TABLE					
CURVE	RADIUS	LENGTH	CHORD	BEARING	DELTA
C1	60.00	44.74	43.71	N 03°16'56" E	42°43'56"
C2	475.00	22.55	22.55	N 69°17'48" E	2°43'07"
C3	15.00	22.84	20.68	N 47°45'36" E	87°13'07"

STAKEOUT

NOT FOR RECORDATION, CONVEYANCES OR SALES

Subdivision STONEBRIDGE SUBDIVISION, PHASE 2, MAP 2 County MECKLENBURG
Address 8017 TALCOTT DRIVE Owner RYAN
Lot 99 Block ___ Plan BROOKMERE Elevation C Drive (Left) SIDE (Right) ___ (Courtyard) ___ Deck X
Patio ___ Fireplace REAR Garage (1 Car) ___ (2 Car) ___ (3 Car) X Brick FULL Basement ___ Curtain Wall X
Crawl ___ Slab ___ Other MORNING ROOM, GUEST SUITE, SITTING ROOM, PARTIAL FRONT PORCH, BAY & STUDY REAR

REVISED:

DWN: JDA CKD: END DATE: 9 / 17 / 07

STONEBRIDGE/SD-00099.DWG - JDA

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1 of 2
Property ID: 139-034-18
Lot #: 99
File #: 7344B
AppID: 2738

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Owner: NVR,Inc/Ryan Homes
Applicant: Kim Widenhouse
Address: 10815 David Taylor Dr., Ste 100, Charlotte, NC 28262
Date Evaluated: 11/29/2007
Proposed Facility: Residence
Design Flow (.1949): 480 gpd
Property Size: .707a
Location of Site: 8017 Talcott Dr
Property Recorded:
Water Supply: [x] Public [ ] Individual [ ] Well [ ] Spring [ ] Other
Evaluation Method: [ ] Auger Boring [x] Pit [ ] Cut
Type of Wastewater: [x] Sewage [ ] Industrial Process [ ] Mixed

PROFILE #	1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY 1941		PROFILE FACTORS b				
			1941 Structure/ Texture	1941 Consistence Mineralogy	1942 Soil Wetness/ Color	1943 Soil Depth (IN.)	1956 Sapro Class	1944 Restr Horiz	Profile Class & LTAR
1P	LS,10	0-9	GR/SL	FR/SS/SP/SEXP	2.5Y 7/1@40"	50	N/A	N/A	US,IV
		9-27	SBK/C	FI/S/P/SEXP					.1 GPD/FT^2/LPP
		27-50	M/C	FI/S/P/SEXP					
2P	"	0-2	GR/SL	FR/SS/SP/SEXP	>56" TO SOIL WETNESS	26	US	"	"
		2-26	ABK/SBK/C	FI/S/P/SEXP					
		26-56	M/SAP/SCL	FI/S/P/SEXP					
3P	"	0-2	COMPACTED	MASSIVE	2.5Y 7/1@22"	57	N/A	"	US
		2-18	SBK/ABK/C	FI/S/P/SEXP					
		18-57	M/PL/C	FI/S/P/SEXP					
4P	"	0-2	GR/SL	FR/SS/SP/SEXP	>54" TO SOIL WETNESS	26	US	"	"
		2-26	PL/C	FI/S/P/SEXP					
		26-54	M/SAP/SCL	FI/S/P/SEXP					
5P	"	0-6	GR/SL	FR/SS/SP/SEXP	>48" TO SOIL WETNESS	17	"	"	"
		6-17	SBK/C	FI/S/P/SEXP					
		17-48	M/SAP/SCL	FI/S/P/SEXP					
					SITE LTAR PITS 1,2				.1 GPD/FT^2/LPP

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	V	V
Site LTAR	0.1	0.1

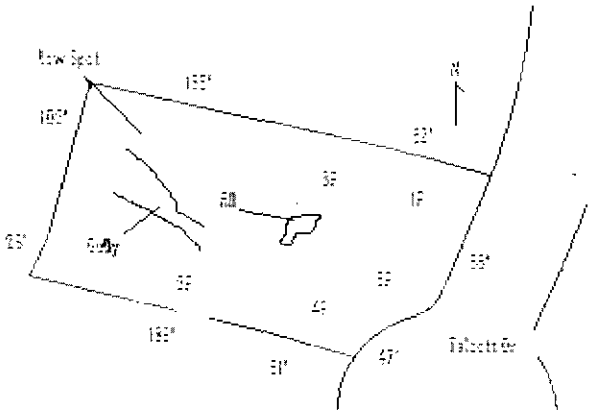
Other Factors (.1946):
Soil Evaluation By: C.Sherrill,RS,LSS
Others Present: K.Widenhouse
Site Classification (.1948): Provisionally Suitable
Site Evaluation By: David Cornelius, RS
Others Present:

COMMENTS: 100% REPAIR

Landscape Position	Group	Texture	.1955 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	SG-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		M-Massive
LS-Linear Slope				CR-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	GR-Granular
NS-Nose Slope		L-Loam		SBK-Subangular Blocky
HS-Head Slope				ABK-Angular Blocky
CC-Concave Slope	III	SI-Silt	0.6 - 0.3	PL-Platy
CV-Convex Slope		SICL-Silty Clay Loam		PR-Prismatic
T-Terrace				
FP-Flood Plain		CL-Clay Loam		
		SCL-Sandy Clay Loam		
	IV	SC-Sandy Clay	0.4 - 0.1	
		SIC-Silty Clay		
		C-Clay		

Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	NS-Non-Sticky	SEXP-Slightly Expansive
FR-Friable	SS-Slightly Sticky	EXP-Expansive
FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-0894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: 30002738 GWS File #: 7344B Tax Parcel #: 139-034-18

- This IMPROVEMENT PERMIT is subject to revocation if site plans or the intended use change. There is to be NO grading, filling, or disturbance of the soil in the area of the septic tank system or repair area.
- CONSTRUCTION AUTHORIZATION must be obtained prior to receiving a Building Permit. The Construction Authorization is NOT transferable. Do not clear, grade, fill or disturb soil prior to obtaining a Construction Authorization.
- Domestic-type wastewater only. No industrial process wastewater may be discharged into the system.

I. This Improvement Permit Shall: Expire In Five (5) Years **Expiration Date (If Applicable):** 4/17/2013

Type of Installation: Residential - New System Lot Number: 99

Structure Type: HOUSE Size (ft^2): 4000 # Bedrooms: 4 # Occupants: 4

Building Foundation: Crawl Space Water Supply: Municipal

II. Initial System Type: Drip Irrigation **System Classification:** V3

Initial System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.1	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1000
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	4800	Total Trench Length (ft):	1600
Maximum Trench Depth (in):	6	Depth of Media (in):	N/A	Distribution Device:	Headworks Drip In		

III. Repair System Type: Drip Irrigation **System Classification:** V3

Repair System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.1	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1000
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	4800	Total Trench Length (ft):	1600
Maximum Trench Depth (in):	6	Depth of Media (in):	N/A	Distribution Device:	Headworks Drip In		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius

Signature: _____

Date Issued: 4/17/2008

Owner/Legal Agent: Kim Widenhouse
Print Name

Signature: Kim Widenhouse

Sign Here

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-8934

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: 30002738 GWS File #: 7344B

IV. Permit Conditions/Comments:

- This type of septic system requires an inspection once every year by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- This type of septic system requires a Certified Operator to maintain the system. A system maintenance contract with a Certified Operator must be on file prior to issuance of an Operation Permit.
- This Improvement Permit is being issued based on a supplemental soil investigation performed by staff from our office.
- All components of the septic system must be installed in accordance with the required setbacks listed on the corresponding plot plan.
- All components of the septic system must be located at least 100 ft. (50 ft. minimum) from all private wells.
- All waterlines must be located a minimum of 10 ft. from any part of the septic system.
- Upon completion of the project the system designer shall provide Groundwater & Wastewater Services with a letter certifying that the system was installed in accordance with the approved design.
- The system must be water tested during the final inspection to verify proper operation and set system pressure.
- An effluent filter is required on the pump discharge pipe exiting the pump tank.
- Install according to plans on file submitted by Larry Thompson 1/12/08. A maintenance contract with a certified operator is required before CO release. A certification letter from designer is required to be on file when installation is complete.

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

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- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius

Signature: [signature]

Date Issued: 4/17/2008

Owner/Legal Agent: Kim Widenhouse
Print Name

Signature: Kim Widenhouse

Sign Here

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: 30002738 GWS File #: 7344B Tax Parcel #: 139-034-18

- This IMPROVEMENT PERMIT is subject to revocation if site plans or the intended use change. There is to be **NO** grading, filling, or disturbance of the soil in the area of the septic tank system or repair area.
- CONSTRUCTION AUTHORIZATION must be obtained prior to receiving a Building Permit. The Construction Authorization is **NOT** transferable. Do not clear, grade, fill or disturb soil prior to obtaining a Construction Authorization.
- Domestic-type wastewater only. No industrial process wastewater may be discharged into the system.

I. This Improvement Permit Shall: Expire in Five (5) Years **Expiration Date (If Applicable):** 4/17/2013

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Structure Type: HOUSE Size (ft^2): 4000 # Bedrooms: 4 # Occupants: 4

Building Foundation: Crawl Space Water Supply: Municipal

II. Initial System Type: Drip Irrigation **System Classification:** Va

Initial System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.1	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1000
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	4800	Total Trench Length (ft):	1600
Maximum Trench Depth (in):	6	Depth of Media (in):	N/A	Distribution Device:	Headworks (Drip Irr.		

III. Repair System Type: Drip Irrigation **System Classification:** Va

Repair System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.1	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1000
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	4800	Total Trench Length (ft):	1600
Maximum Trench Depth (in):	6	Depth of Media (in):	N/A	Distribution Device:	Headworks (Drip Irr.		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

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- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius Owner/Legal Agent: _____
Print Name

Signature: _____ Signature: _____

Date Issued: 4/17/2008

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: 30002738 GWS File #: 7344B

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- This Improvement Permit is being issued based on a supplemental soil investigation performed by staff from our office.
- All components of the septic system must be installed in accordance with the required setbacks listed on the corresponding plot plan.
- All components of the septic system must be located at least 100 ft. (50 ft. minimum) from all private wells.
- All waterlines must be located a minimum of 10 ft. from any part of the septic system.
- Upon completion of the project the system designer shall provide Groundwater & Wastewater Services with a letter certifying that the system was installed in accordance with the approved design.
- The system must be water tested during the final inspection to verify proper operation and set system pressure.
- An effluent filter is required on the pump discharge pipe exiting the pump tank.
- Install according to plans on file submitted by Larry Thompson 1/12/08. A maintenance contract with a certified operator is required before CO release. A certification letter from designer is required to be on file when installation is complete.

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius

Signature: _____

Date Issued: 4/17/2008

Owner/Legal Agent: _____
Print Name

Signature: _____

Residential Subsurface Wastewater Treatment and Disposal System Design

for

Lot 99 – Stonebridge at Mint Hill
8017 Talcott Drive
Mint Hill, North Carolina

Tax Parcel # 139-034-18
Mecklenburg County File # 7344B
January 12, 2008

GWS Septic System Design Review

GWS File #: 7344B **Approved** ☒ **Disapproved** ☐

Design Review: TGT 1-23-08 22

Field Review: 2/14/08 ☒ ☐

*Projects are not considered "APPROVED" until both sections above are completed and indicate an APPROVED status.

Prepared for:

NVR, Inc.
10815 David Taylor Drive, Ste. 100
Charlotte, NC 28262

Prepared by:

Larry Thompson, RS, PWS, LSS
Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, NC 28097-8748
Phone: 704-301-4881
Fax: 704-888-1496
larry@thompsonenv.com

cc: Mr. David Cornelius, RS
Mecklenburg County Environmental Health

American Manufacturing Company, Inc.

22011 Greenhouse Rd. Elkwood, VA 22718
800-345-3132

January 16, 2008

Larry Thompson
Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, North Carolina 28097

Re: Stonebridge Lot 99
NVR, Inc.
Site: 8017 Talcott Drive
Charlotte, NC
(Mecklenburg County)
Drip Dispersal System Design

Mr. Thompson,

Upon our review of your proposed *Drip Dispersal system* for *Stonebridge Lot 99 on 8017 Talcott Drive in Mecklenburg County, North Carolina*, I hereby certify that the system has been designed in compliance with the manufacturer's recommendations.

Sincerely,

Jesse N. Cordy

Jesse N. Cordy
American Manufacturing Company, Inc.

Details

The following proposal is submitted to the Mecklenburg County Health Department (MCHD), Ground Water Section, to help assist the county in the issuance of an Improvement Permit for a 4-bedroom residence served by a municipal water supply on Lot 99 of the Stonebridge at Mint Hill Subdivision.

Based upon an investigation by Thompson Environmental Consulting, Inc. (TEC), it was determined that Lot 99 would be considered "Unsuitable" under the *Laws and Rules for Sewage Treatment, and Disposal Systems* 15A NCAC 18A .1900 (North Carolina Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section). There is, however, a sufficient amount of "Suitable" Group IV soils located on the property which would allow for the installation of a Type V innovative system (**American Perc-Rite® Subsurface Drip System**) for a 4-bedroom residence (initial and repair). It is the desire of the owner that the MCHD consider issuing an Improvement Permit, based upon the following proposal.

It should be noted at this time that the contractor for this septic system must be certified by American Manufacturing Company, Inc. (800-345-3132) prior to constructing any portion of the proposed system.

Location

The subject property is located in Stonebridge Subdivision (Lot 99 – 8017 Talcott Drive) in the town of Mint Hill, North Carolina. From NC 51, travel south on NC 218 approximately 0.9 mile, turn left onto SR 3109 (Bartlett Road). Stonebridge is the first subdivision on the right after crossing the I-485 overpass. Turn right onto Stonebridge Way and right onto Talcott Drive. Lot 99 is located on the right at the cul-de-sac.

References

Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A, Section .1900, Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section, August 1, 2007.

Onsite Wastewater Treatment and Disposal Systems; EPA 625/R-00/008 Design Manual, February 2002.

Innovative Wastewater System Approval No: IWWS-93-1-R4; American Perc-Rite® Subsurface Drip System, November 1, 2005.

Plans and Specifications

Septic Tank

- The septic tank shall be State approved (Section .1953 of 15A NCAC 18A), watertight, structurally sound, and 1500 gallons in capacity.
- The septic tank will be fitted with an approved effluent filter and riser for easy access and periodic maintenance.
- It is the responsibility of the septic contractor to thoroughly inspect the septic tank *prior to accepting delivery to assure that the tank has had time to properly cure and is* free of cracks or other structural deficiencies.

Pump Tank

- The pump tank shall be State approved, of one-piece construction, watertight, structurally sound and 1000 gallons in capacity. Again, it is the responsibility of the septic tank contractor to thoroughly inspect each pump tank prior to accepting delivery.
- The pump tank shall have access risers that extend, at a minimum, 6 inches above finished grade and must have less than 36 inches of fill over its top once finished grade has been established (a reinforced concrete tank will be required if finished soil cover is 36 inches or greater in depth).
- The pump and alarm controls shall be provided with manual circuit disconnects within a watertight, corrosion resistant, Nema 4X rated Perc-Rite® drip system *control panel* (**DP122-SAB124-AHJLRY *Simplex 2 Zone Control***). *The control* panel must be securely mounted outside, adjacent to the pump tank riser and at a minimum of 32 inches above finished grade. Pump and float control wiring should be long enough to reach from the tank to the control panel without splicing, routed through wire conduit, and sealed at the openings within the pump tank as well as the control panel enclosure. It is paramount that the conduit is properly sealed to prevent the escape of flammable gases from the pump tank. Furthermore, there must be two electrical circuits for the pump tank controls: one for the pump and one for the alarm controls.
- Controls shall provide for delivery of designer-specified preprogrammed volumes of effluent to each zone (adjustable and variable between zones) at designer-specified time intervals (flow equalization); automatic flushing of integral unit filters (filter flushing), initiated by a timer (adjustable duration); automatic flushing (at least weekly) of the drip laterals (field flushing) with filtered effluent for designer-specified duration; and monitor pump cycles and run times (for each pump and field *zone) and flow (with totalizing flow meter, or equal).*
- Controls and float levels Controls and float levels shall be synchronized to assure the minimum dose is available prior to initiating a dosing cycle to a zone or subfield. Minimum dose volume per zone shall be set as needed so that at least 80-percent of each dose is delivered when the minimum pressure in the field network pressure is at least 10 pounds per square inch. This shall be approximated by using five times the liquid capacity of the drip laterals plus the liquid capacity of the supply and return

manifold lines (only the portion which drain between doses), unless a smaller volume is field-determined to meet this performance criteria. Minimum automatic field flushing volume per zone shall be two times the liquid capacity of the drip laterals plus the liquid capacity of supply and return and manifold lines that drain between doses.

- Float switch tie downs must be made of a corrosion resistant material (do not use electrical tape or metal hose clamps to secure these switches). Floats should be mounted on a separate "float tree" rather than the pump supply line (see pump tank detail).
- Unit shall include effluent rated turbine pumps with cooling flow collars, effluent rated suction lift self-priming centrifugal pump(s), or high head submersible pump(s) in accordance with Rule .1952(c)(2), and as specified by American (**15 GPM Multistage Pump**). For a suction lift pump, the intake pipe shall contain a screen and foot valve as specified by American. Pump, controls, intake pipe and screen, as applicable, shall be easily accessible by the system operator for routine operation, maintenance, monitoring and servicing.

Hydrostatic Tank Check

- All tanks (septic and dosing tanks) shall undergo a 24 hour hydrostatic check after installation and backfill. It is recommended that the check be initiated the day of the final inspection and completed the next day; after which, the proper operation check and pressure head adjustments can be made.

Two Filter ASD 15GPM Hydraulic Unit

- The system headworks (**2 FILT/2 ZONE HYD UNIT KIT**) are self contained within a fiberglass vault and include a flow meter, solenoids, and self-cleaning disc filters.
- The hydraulic unit must be placed on a bed of gravel for drainage.

Pipe and Fittings

- All discharge piping, supply lines, valves and disconnects should be made of Schedule 40 PVC TYPE 1 rated for pressure applications, unless otherwise noted.
- All joints must be properly "welded" utilizing the appropriate PVC cement for each application unless otherwise noted by the parts manufacturer.
- The supply lines (see attached detail) shall be 1.00 inch Schedule 40 PVC.
- Laterals shall be ½ inch Schedule 40 PVC with connections to the drip line made via a PVC reducing tee.
- Loops between runs of drip lines shall be ½ inch flex PVC with connections to the drip line being made via PVC FIP adapters.
- The common return line (see attached detail) shall be 1.00 inch Schedule 40 PVC.

NETAFIM PC Dripline

- The field network shall utilize 1/2-inch (0.67 inch O.D., 0.57 inch I.D.) nominal size NETAFIM PC polyethylene dripline. Pressure compensating emitters containing a biocide shall be spaced uniformly along the dripline on a maximum of two foot centers and designed to deliver 0.61 to 0.65 gallons per hour per emitter (+ or - 5%) at internal tubing pressures of 7 to 60 pounds per square inch.
- Individual drip lines shall be designed and installed level, following the naturally occurring ground contour (allow maximum variance of + or - two inches within any linear segment), on at least two foot centers. Solvent welded heavy duty nonperforated flexible PVC pipe shall be used to connect the supply and return manifolds with the driplines, or to connect common driplines installed at varying depths or locations (e.g.: in stepdowns or to connect looped drip line segments). The connection lines shall be made to the driplines by solvent welded American Perc-Rite® compression or insert adapters or fittings, or approved equal. Connection lines shall be conveyed over earthen dams constructed at least 2-inches higher than the driplines served, to retain effluent in the lines at the end of each dose cycle.

Air Vacuum Relief Valves

- Field appurtenances include an air vent at the high point(s)/outlet of each zone; an isolation valve and check valve at the high point/outlet of each zone (when there are more than one zone); solenoid valve with separate isolation valves on each side at the low point/inlet to each zone (or by an appropriate alternate method which enables all valves to be serviced without effluent discharge from supply/return lines); cleanout at each end of the supply and return manifolds; a separate cleanout at the distal end of the supply line to each zone; and pressure monitoring fittings at the field inlet and outlet points, and at the headworks for measuring dead-head and operating pressures. The operator must be able to service all solenoid valves and air vents and check pressures without effluent discharging from the network in preparation for these maintenance/testing procedures. Valves, pressure monitoring fittings, and cleanouts shall be provided with protective vaults or boxes that extend at least to finished grade (shall be accessible at all times).

Drain Field Installation

- Once the drain field area has been approved by the MCHD, the property owner/builder should mark this area and isolate it as much as possible from construction traffic. Prior to the system installation, the septic contractor shall contact the MCHD for a preconstruction conference at which time the drainfield area will be re-verified.
- Under no circumstances shall any construction take place within the drain field area while the soil is in a wet condition. If the installer has doubts as to whether or not the drainfield area is dry enough to begin construction, the MCHD should be contacted for permission to proceed with the installation.

- The proposed drain field is a Type V Innovative, specifically the **American Perc-Rite® Subsurface Drip System**.
- All force mains shall be tested for leaks prior to drip tubing installation and prior to system startup. Uncovered force mains shall be visibly inspected for leaks.
- The drain field consists of 2400 linear feet of **NETAFIM PC** drip tubing.
- The maximum trench depth for this system shall be 6 inches.
- The drip tubing shall be installed using a vibratory plow, trencher, or by hand.
- All cutting of PVC pipe, flexible PVC and drip tubing of size 1 ½" or smaller shall be accomplished with pipe cutters approved by American Manufacturing Company, Inc. No sawing of PVC, flexible PVC or drip tubing of size 1 ½" or smaller is allowed.
- The drip line is to be installed on contour with the land. Prior to beginning construction, layout the individual drip lines using an engineer's level and maintaining two foot centers.
- Run force main and distribution manifolds as per design specifications. Guidelines for Dripper Line Installation recommend that the drip tubing runs have a minimum spacing of 18". Do not exceed 300' on any lateral. Install air release/vacuum breaker with gravel in 6" valve box at the highest point of the field or elevated zone returns. One breaker per dripper zone is provided. Install dripper line with vibratory plough, trencher, or by hand without any kinks and without any rocks or debris in direct contact. Connect BioLine® dripper line to flexible P.V.C. assembly. Flexible PVC must extend a minimum of 12" into the run trench before connecting to dripper line to protect tubing from crimping. Connect field flush return manifold in same manner as the supply manifold. Continue to run P.V.C. from manifold back to the unit so that the dripper lines can be flushed automatically. DO NOT CONNECT return line air valves until the system has been flushed. Dripper line should always be run parallel to ground contours and field flush from the highest point.
- All automatic valves (zone valves and field flush return valves) shall be installed with isolation valves, bypass valves, and disconnects (i.e. unions, flanges) for manual field operation during field maintenance events. All valves must be provided with at-grade access.
- When connecting flexible pipe (i.e. loops) to adjacent drip tubing runs to combine into a single lateral, the loops should be constructed to drain to each individual run to prevent freezing and draindown to the lowest run.
- **Never leave the dripper line or PVC lines with open ends during the construction process. Duct tape may be used to close all exposed ends until permanent connections are made. Care must be taken to keep all construction debris from entering force mains, manifolds and dripper line.**

Final Landscaping

- The drainfield shall be shaped to shed rainwater and be free from low spots.
- The entire area of the drainfield should be planted with grass as soon as possible to prevent erosion. The soil should be properly tilled, limed (if necessary) and fertilized prior to planting. After applying grass seed, the area should be heavily mulched with straw or other suitable material.

Utility Conflicts

- The builder and property owner must take special care in planning for water, power, gas, telephone and cable lines. These utilities shall be kept clear of all parts of the septic system and its proposed repair area. Improper planning for underground utilities can negatively impact the installation and, in some cases, cause irreparable damage. If there are any questions regarding preferred routes, contact the MCHD as soon as possible.
- Lawn irrigation must not be installed in the septic drain field area.

Maintenance

Operation and Maintenance

The designed system is classified as a Type V wastewater treatment and disposal system and requires ongoing maintenance. State regulations require that a system of this type be managed by a person certified by the North Carolina Department of Environment and Natural Resources to operate subsurface wastewater systems (Section .1961 Maintenance of Sewage Systems). A "Maintenance Contract" between the system owner and a Certified Operator will be required by the MCHD prior to the issuance of a final system approval or Operation Permit.

- System management entity, inspection/maintenance and reporting frequency requirements shall be comparable to at least Type V(a) systems in Rule .1961(b), Table V(b), except that the maximum inspection interval for systems up to 1500 gallons per day shall be quarterly for the first year of operation (more frequently as required for advanced pretreatment units, where applicable). During the first operational inspection after system start-up, an American Manufacturing representative will meet with the Operator in Responsible Charge (ORC) and the property owner to explain the system and answer any questions. In the event any system is found to be out of compliance, American Manufacturing will assist in the development of an action plan to bring the system back into compliance. The maximum inspection/maintenance/inspection frequency shall revert to quarterly for a period of one year after a system found to be out of compliance is repaired.
- At least once per year the ORC shall, at a minimum, measure and report to the health department:
    a. sludge and scum levels in the septic tank,
    b. sludge level and grease presence in the pump tank,
    c. drain field pump delivery rate (drawdown test), and
    d. drain field dosing volume and measure or calculate average pump run time.
- It should be noted that the septic and dosing tanks may need to be pumped every 4 years (in some situations, the tank may need to be pumped more frequently). At a minimum the tanks should be pumped when the solids within the septic tank reach an elevation that is equivalent to 1/3 of the volume of the tank.

- Effluent filters should be inspected semi-annually. When it becomes necessary to clean the effluent filters, the filters should be removed and the accumulated debris washed back into the septic or pump tank – not onto the lawn.
- All piping and valves should be inspected semi-annually for damage and corrections/repairs made immediately.
- The pump and float controls/switches should be inspected semi-annually to assure proper operation
- The drain field area should be maintained to prevent over growth of vegetation. Any damp areas, leakages or malfunctions should be addressed immediately.

Suggestions to the Home Owner

- If you are planning to use a garbage disposal, you should plan to have your septic and pump tanks cleaned out annually.
- Grease, cooking oils, coffee grounds and non-degradable solids (disposable diapers, cigarettes and solid paper wastes) should never be put into a septic tank.
- Used motor oil or any oily liquids should not be disposed of in a septic tank.
- Be aware of the amount of water that you are using in your business. Water saving fixtures and devices can be installed on sinks, toilets and showers to reduce the volume of wastewater that you are sending to your drain field.
- Run dishwashers and washing machines only when you have a full load.
- Use liquid detergents. Powdered detergents have binding agents in them that can precipitate in the wastewater disposal system.
- Repair leaky faucets and toilets. Small drips equal large volumes of water over time and can over burden your drain field.
- Divert gutter downspouts and surface water runoff away from the septic and pump tanks.
- Do not use chemical additives in your system. Several studies that we have reviewed indicate that they do not increase the biological activity that naturally occurs in the septic system and, in some cases, they have been found to be detrimental to the biological activity of a system.
- Finally, taking good care of your septic system will help to assure that you experience years of trouble free service at a relatively low cost. On-site wastewater treatment and disposal is still the most environmentally friendly method of treating residential/commercial waste and you should keep your system in use for as long as it is properly functioning! If you have additional questions, please feel free to contact your system designer or the MCHD.

Design Specifics

Daily Design Flow:	480 GPD
Effluent Loading Rate:	0.1 GPD per sq. ft.
Septic Tank Size:	1500 gallons (minimum)
Drain Field Dosing Tank:	1000 gallons (one piece)
Length of Drip Line:	2400 linear feet (1/2" NETAFIM PC)
Number of Zones:	(2) 1200 linear feet each
Number of Emitters:	1200 (2 foot on centers)
Supply Length and Diameter:	Approx. (2) 50 feet of 1.00 inch Sch. 40 PVC supply lines and 160 feet of a common 1.00 inch Sch. 40 PVC return line
Dosing Volume:	54.6 gallons per dose
Doses Per Day (calculated standard):	5.3 doses
Doses per Day (calculated peak):	8.8 doses
Flow Rate Through System:	6.10 gallons per minute
Maximum Lift Allowed:	75
Pump Requirements:	6.10 GPM at 75 TDH
Pump Run Time:	463.9 seconds
Pump Rest Time (calculated standard):	273 minutes
Pump Rest Time (calculated peak):	163.8 minutes
Check Valve:	Yes

* Please note that supply line and elevation head measurements are approximate. It is the contractor's responsibility to confirm these values based upon the actual house and plumbing location. If there is a discrepancy, contact the system designer prior to beginning construction.

MB 48 PG 912
L1
N 14°05'12" E 102.42'
CONTROL MONUMENT
LOT 99
138.51'
N 75°40'17" W
S 76°34'39" E
DECK
16.00
12.00
12.00
19.33
8.87
21.60
12.00
#8017
(DIMENSIONS REFLECT BRICK FRONT)
52.42
36.42
2.00
2.00
13.75
7.08
14.45
10.00
20.72
49.07
ST
PT
HU
184.48'
LOT 98
B 48 PG 912
LOT
MB 48
Zone 1 Supply Line
Zone 2 Supply Line
LEGEND
ST= Septic Tank
PT: Pump Tank
HU: Headworks Unit
100.00
Drip Irrigation Repair Area
N 72°29'02" W
61.11'
Zone 2
Zone 1
100'
100'
24'
24'
S 73°04'11" E
61.62'
C1
C3
S21°35'41"W
58.38'
Common Return Line
C2
TALCOTT DRIVE
60' PUBLIC R/W
Stonebridge
LOT 99
Scale: 1" = 30'

AMERICAN NORTH CAROLINA PERC-RITE®

DESIGN SUBMITTAL

Perc-Rite® CalcTool version 1.2

American Manufacturing Company, Inc.
1-800-345-3132 www.americanonsite.com

JOB NAME: Stonebridge - Lot 99

DATE: 12-Jan-08

OWNER:
NVR, Inc.
10815 David Taylor Drive, Suite 100
Charlotte, NC 28262

DESIGNER:
Larry Thompson, RS, LSS
114 Orchard Ridge Road
Locust, NC 28097-8748

SITE ADDRESS:
8017 Talcott Drive
Charlotte, NC

SIGNATURE:

	SELECT ONE
Site Plan Attached:	yes
Zone Detail Attached:	yes
Model Number Specs:	yes

SITE DIRECTIONS:

From Mint Hill, travel south on NC 218, turn left onto Bartlett Road, right onto Stonebridge Way and right onto Talcott Drive. Lot 99 is located on the right at the cul-de-sac.

SYSTEM INFORMATION: (Automatically Computed based on Worksheet)

Effluent Quality :	**Anaerobic**	**Total LF Tubing Provided :**	**2400**
Zone Detail :	**Z 2 4 3**	**# Bedrooms x 120 :**	**480**

ELECTRICAL REQUIREMENTS:

Pump :	**1/2 HP, 115V, 1 PHASE**
Control :	**15 AMP, 115V, 1 PHASE**
Other :	

SYSTEM MODEL NUMBER: **You may use either drop-down list. SELECT ONLY ONE.**

Aerobic OR Anaerobic:	ASD152-S122: 2 Zone Drip w/ Simplex 2 Filter, 2 Zone Control Panel
Anaerobic Only:	None

OPTIONS

1.	**SEQUENCEVALVE2: Sequence Valve 1-1/4", 4 Outlet 2 Zone**	no
2.	**Blower Cut out**	no
3.	**DH-INSKIT225: Insulation & Heater Kit for Large Enclosure (225W)**	no
4.	**BIOLINE500: Drip Tubing per 500 ft Roll**	1
5.	**BIOLINE1000: Drip Tubing per 1000 ft Roll**	2

Click link below to access PDF for selected model number.
~ Contains Installation Instructions, Specifications, & Standard Details

NORTH CAROLINA WORKSHEET - Dispersal system design worksheet for residential systems.

line #	INPUTS	Select One	You must be able to answer **YES** to both questions in order to continue.
		yes	Are supply and return pipes 1"?
		yes	Is the lift to the HU <8' and the run to the HU<30' with 1-1/2" pipe?
1	Anaerobic	Select One: Anaerobic or Aerobic?	Aerobic may use either ASD 15 or QM Zone Details. Anaerobic may only use ASD 15 Zone Details.
2	Soil Group IV.	Select One: Soil or Saprolite Group?	Found in column 1 on the Loading Rate Chart. (given by site evaluator)
3	480	Select One # Bedrooms x 120	Design quantity of wastewater to disperse. This row equals the total number of GPD. **Remember to multiply # Bedrooms by 120.**
4	100	Contour Run Length	Enter the tubing length along contour. If run length is not on table, use the actual run length. Example: 85 ft.
5	100	Supply LF	Length of supply line between hydraulic unit and farthest zone.
6	12	Lift Ft.	Vertical lift from off level in the pump chamber and highest zone elevation.
7	**0.1**	Area (gpd/ft^2) per code: Tab over from **Perc Rate Soil Group IV.** on **Loading Rate Chart**	Area loading rate required to treat and disperse wastewater. **This line is to be input from Loading Rate Chart.** (See Loading Rate Chart)
8	4800	Area Calculation	Total land area needed to disperse wastewater.
9	2400	Total LF Tubing	**Required** total linear feet of tubing to treat and disperse wastewater.
10	24.00 24	Calculated Runs Min. # Runs	Determines number of runs (Total LF / Contour RL). **Rounds up to the next whole number**. Found on Zone Detail Table.
11	Z L R Z 2 4 3	Zone Detail ASD 15 gpm	ASD 15: **Z243** QM 12: **0** Input the appropriate Zone Detail # into the drop-down list to the left.
			On **Zone Detail Table**, cross the next highest **Run Length** (ft) from **100** with the row for at least **24** runs
			You may use: **only the ASD 15 Zone Detail Table.** Select zone detail from column with next higher **Contour Run Length** and with equal or greater **# Runs**. You may input your Zone Detail # in the indicated cell next to the chart. It will then appear in the second column to the left on this worksheet.
12	75	Max. Lift Allowed	ASD 15: **75** QM 12: **0** Input the appropriate Lift into the cell to the left.
			On **Lift & Distance Table**, cross the **Supply/Return 100** with the column for **4** laterals
			You may use: **only the ASD 15 Lift & Distance Table.** You may input your Lift in the indicated cell next to the chart. It will then appear in the second column to the left on this worksheet.
13	2400	LF Provided	Total linear feet of tubing **Provided** to disperse wastewater.
14	1200	LF/Zone	Total linear feet per zone.
15	**YES**	Will zone flush?	Reference Lift & Distance Table for pump capacity determined by the length of run to the farthest field and the number of laterals. For 1" supply and return only.

*In line **# 11**, **Z** = # of zones, **L** = laterals per zone, **R** = runs per lateral

given by engineer

auto-computed

looked up on tables

user select

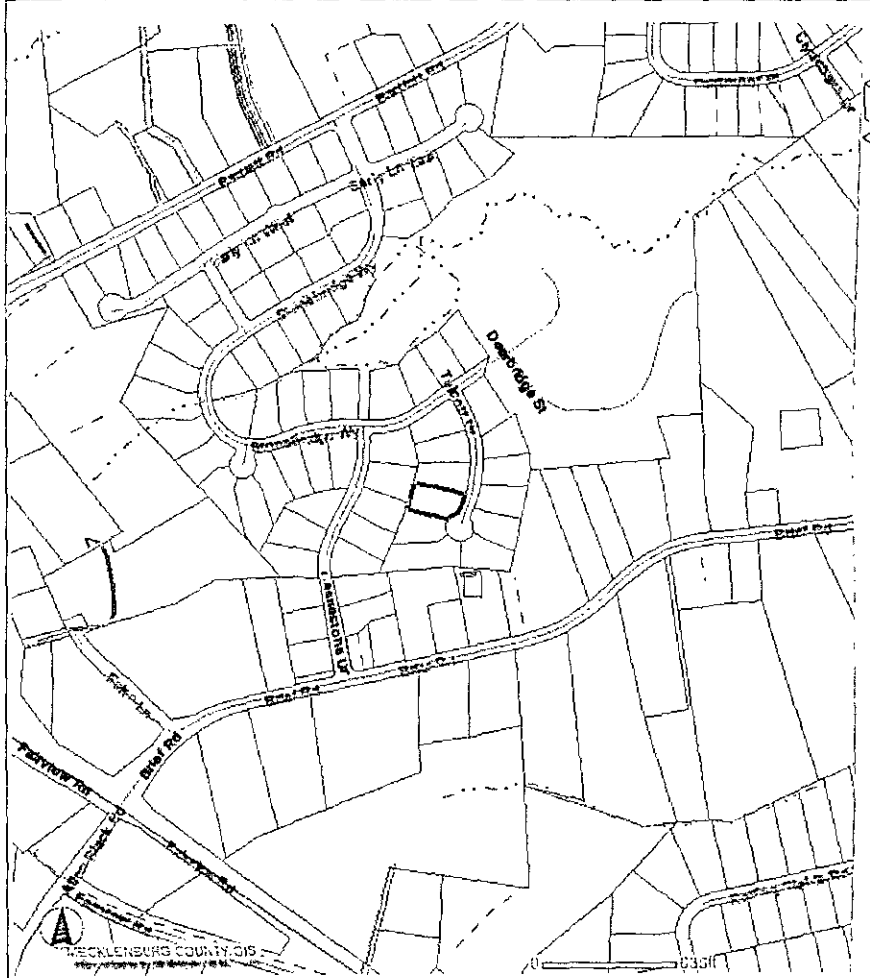
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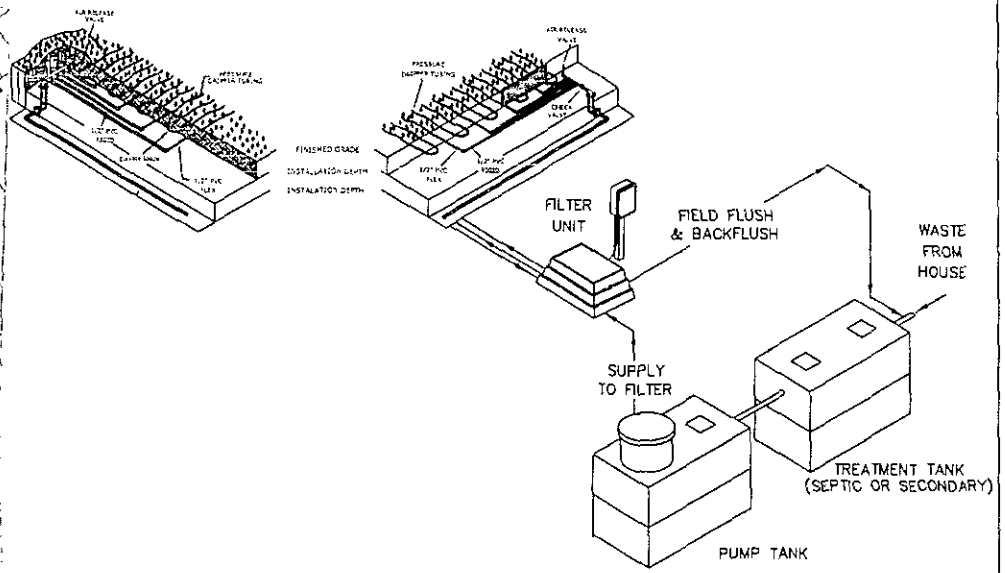
OPERATING PARAMETERS

16	480		Peak Gallons per day	Maximum or design gallons per day.
17	288		Average Gallons per day	Average gallons per day. (calculated as 60% of Peak)
18	6.10		Dosing Flow (gpm)	Based on .61 gph per emitter.
19	9.30		Flushing Flow (gpm)	Flow to generate 2 fps at the distal end of each lateral.
20	54.6		Gallons per dose	The zone dose volume is 3.5 - 5 times the volume of the pipe.
21	8.79		Peak Design Doses per day	The total number of zone doses. Individual zone doses is this number divided by the number of zones.
22	463.9		Run Time (Seconds)	Estimated run time for dose gallons based on filtration capacity, flushing flow, and dosing rate
23	Zone: 2	min: 180	Default Standard Rest Time	This is the rest time at average flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
24	Zone: 2	min: 108	Default Peak Rest Time	This is the rest time at peak flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
25	Zone: 2	min: 273	*(Recommended)* Calculated Standard Rest	*This is the rest time at average flow. The rest time is independent of run time.* (60 min. rest = 24 doses per day)
26	Zone: 2	min: 163.8	(Recommended) Calculated Peak Rest Time	This is the rest time at peak flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
27	Zone: 2	doses/ day: 5.3	(Recommended) Calculated Standard doses per day	This is the total number of doses per day independent of the number of zones. The rest time is independent of run time. (450 gal. per day / 50 gal per dose = 9 doses per day) for a 2, 3, or 4 zone system.
28	Zone: 2	doses/ day: 8.8	*(Recommended)* Calculated Peak doses per day	This is the total number of doses per day independent of the number of zones. The rest time is independent of run time. (450 gal. per day / 50 gal per dose = 9 doses per day) for a 2, 3, or 4 zone system.

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SUBSURFACE DISTRIBUTION SYSTEM

SCOPE: Household Sewage will flow by gravity through an septic tank unit, then to a drip dispersal equalization pump tank. From the drip pump tank the effluent is filtered through a 115 micron disc filter and dispersed through a drip dispersal piping network. The network is composed of pressure compensating drip tubing laid on contour and managed by the Perc-Rite® process.

American Manufacturing Company, Inc. has designed the drip dispersal system for the specific site in accordance with findings recommendations with the site evaluator/soils evaluator, who is the consultant for the owner. American's pre-engineered system has been selected for the site by the owners representative. American only certifies the system mechnical application for this site and makes no representation for soil suitability or other site engineering code requirements.

NOTE: REFERENCE NOTES IN SPECIFICATION BOOK

CONTENTS:

Page 1 . . . . . Cover Sheet
Page 2 . . . . . Site Layout Plan
Page 3 . . . . . Hydraulic Profile, Pump Tank, & Zone Details
Page 4 . . . . . Control Details, Pump Curve, & Cool Guide
Page 5 . . . . . Drip Detail Schematics
Page 6 . . . . . Calculation Sheet

I hereby certify that the evaluations and designs contained herein (refer to subdivision , lot, etc.) were conducted in accordance with the *Sewage Handling and Disposal Regulations* (12 VAC 5-610-10 et. seq., the *"Regulations"*) and the policies of the Virginia Department of Health for implementation of those *Regulations*. Furthermore, I certify that the evaluations and designs comply with the minimum requirements of the *Regulations*.

I recommend a _____ be _____

Licensed PE: _____ Date _____

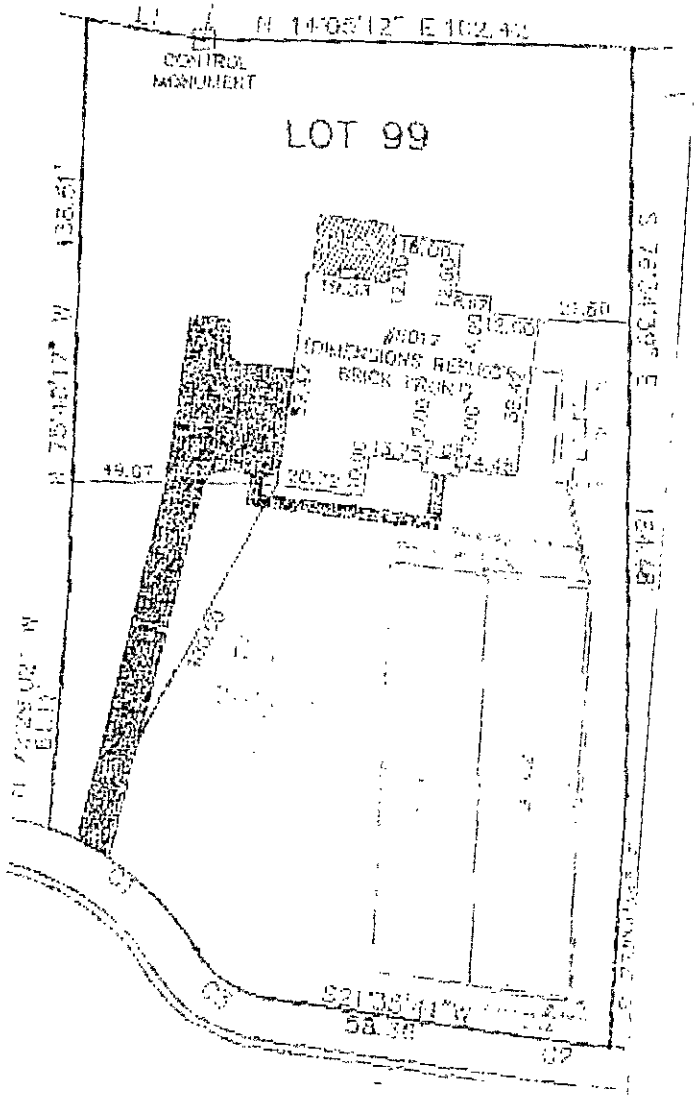
Seal

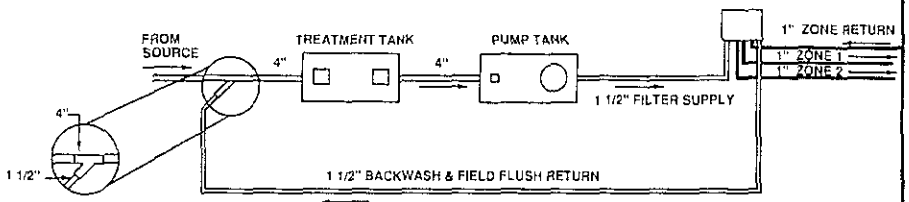
AMERICAN MANUFACTURING CO.
5517 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

PROJECT NAME :	DRAFTER:	DATE: 03/20/06
Stonebridge	CHECKED:	DATE:
LOT 99	APPROVED:	DATE:
COUNTY : Mecklenburg	TITLE : COVER SHEET PERC-RITE® DRIP DESIGN	

FILE: S:\Residential_Plan\01DRIPRES15.dwg | SCALE : NTS | SHEET: 1 OF 6

SITE PLAN (SYSTEM LAYOUT SKETCH)





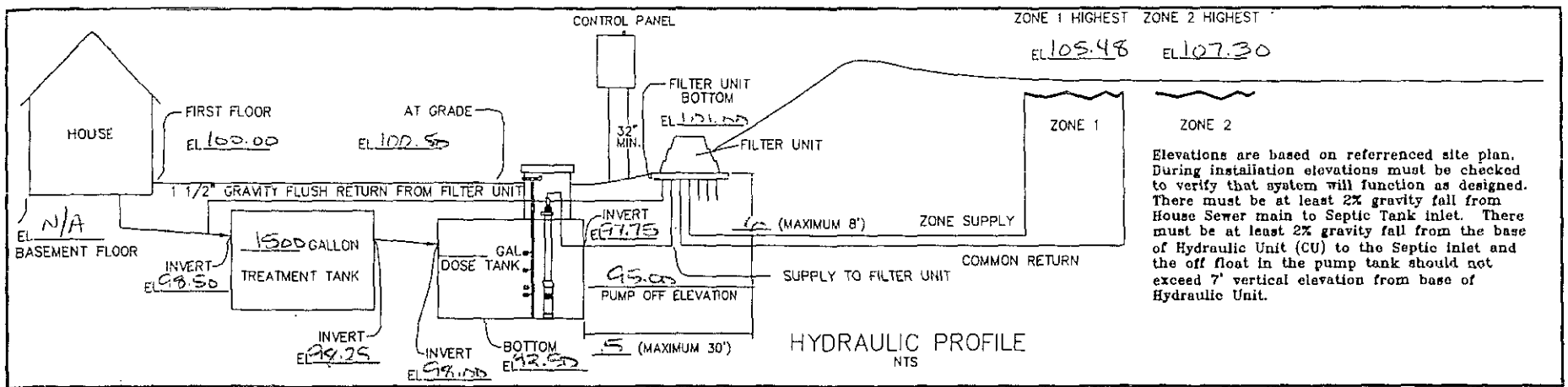
TANK EQUIPMENT AREA
SCHEMATIC PLAN
NOT TO SCALE

TANK information:
150 GALLON TREATMENT TANK, 1000 GALLON DRIP DOSE TANK. INSTALL TANKS TO AVOID SWALES OR LOW LYING AREAS!

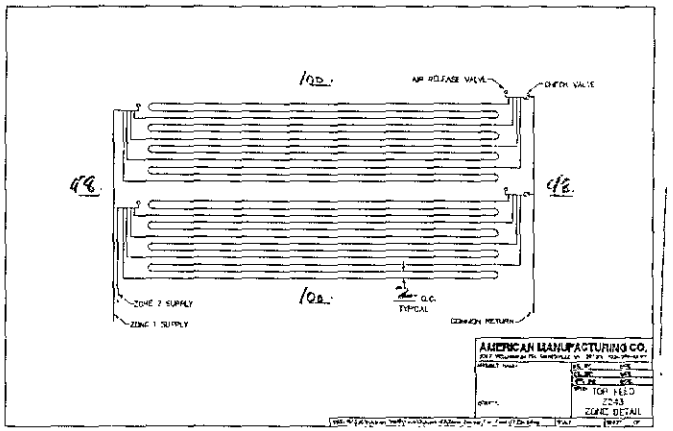
NOTE: REFERENCE NOTES IN SPECIFICATION BOOK

AMERICAN MANUFACTURING CO.
5517 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

PROJECT NAME : Stonebridge LOT 99	DRAFTER:	DATE: 03/20/06
	CHECKED:	DATE
	APPROVED:	DATE
COUNTY : Mecklenburg	TITLE : SITE LAYOUT PLAN 1 ZONE DRIP DESIGN	
FILE: S:\Residential_Plan\010RIPRES15.dwg	SCALE : NTS	SHEET: 2 OF 6

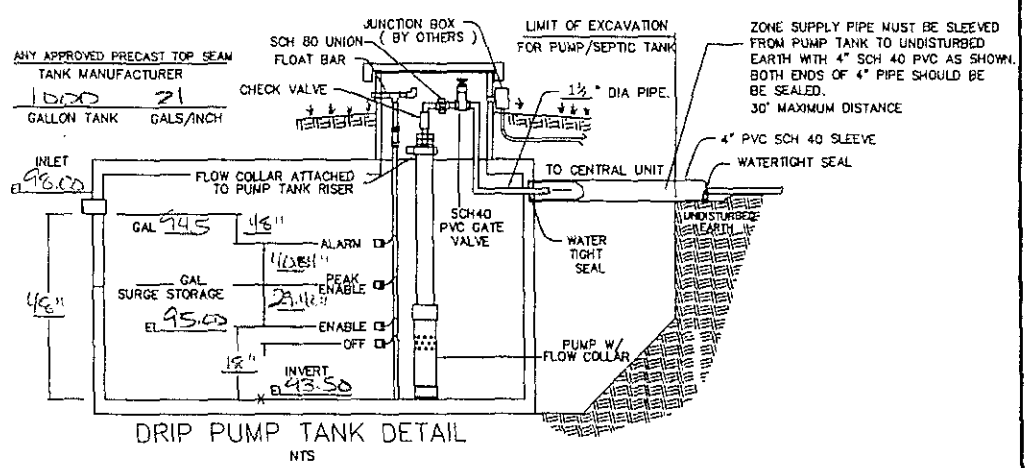


ZONE DETAIL Z243
(NOT TO SCALE)



NOTE: 2-Zone drip detail (Z243) with 4 laterals, 3 tubing runs per lateral for a total of 24 tubing runs @100' length = 2400 total LF turbing.

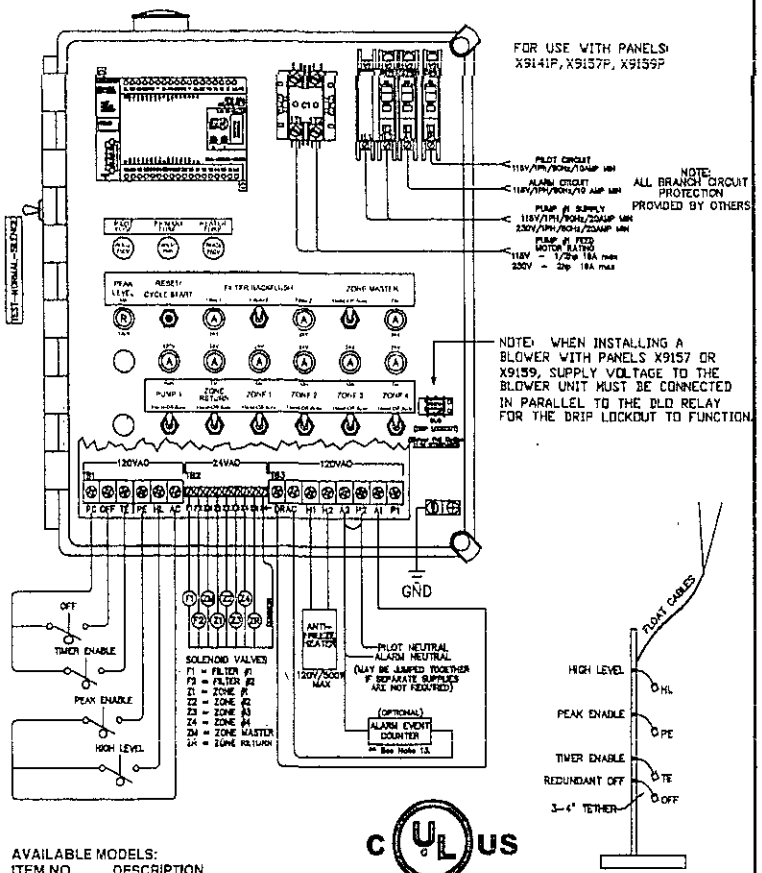
NOTE: Install tubing on contour at 6" depth. Install Supply and Return Lines at 24-36" (Below frost line) Minimize site activity, NO machinery on site except minimum required to install tubing. SITE PROTECTION IS VERY IMPORTANT!



AMERICAN MANUFACTURING CO.
5517 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

PROJECT NAME : Stonebridge Lot 99	DRAFTER:	DATE: 03/20/06
	CHECKED:	DATE:
	APPROVED:	DATE:
COUNTY Mecklenburg	TITLE : HYDRAULIC PROFILE, DRIP & ZONE DETAILS 1 ZONE DRIP DESIGN	
FILE: S:\Residential_Plans\01DRIPRES15.dwg	SCALE : NTS	SHEET: 3 OF 6

Simplex 4 Zone PERC-RITE Drip System



AVAILABLE MODELS:

ITEM NO.	DESCRIPTION
DP1-B9140P	DRIP SIMPLEX CONTROL 2 ZONE
DP1-B9158	DRIP SIMPLEX CONTROL 2 ZONE W/ DVC
DP1-B9141P	DRIP SIMPLEX CONTROL 4 ZONE
DP1-B9157P	DRIP SIMPLEX CONTROL 4 ZONE W/ ZONE MASTER
DP1-B9159	DRIP SIMPLEX CONTROL 4 ZONE W/ DVC & ZONE MASTER
DP1-B9146	DRIP DUPLEX CONTROL 4 ZONE
DP1-B9156P	DRIP DUPLEX CONTROL 4 ZONE W/ DVC & ZONE MASTER

* DVC = DIRECT VOLTAGE CUTOUT

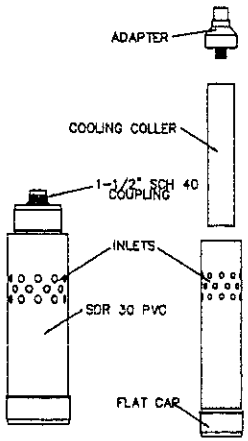
COOL GUIDE

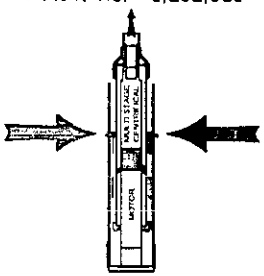
FLOW COLLAR (COOL GUIDE)
SPECIFICATION

The laminar flow collar shall be made of non-corrosive, glueable PVC and have sufficient holes in the outer guide tube to assure laminar flow for the rated capacity. The inner flow collar shall extend near the bottom to provide sufficient cooling flow for the motor. The dimension between the inner collar and the pump motor shall not restrict flow to the pump intake, but will provide for scouring of surfaces. The laminar flow collar shall be a "Cool Guide" as manufactured by American Manufacturing Company, Inc. Patent # 6,262,689.

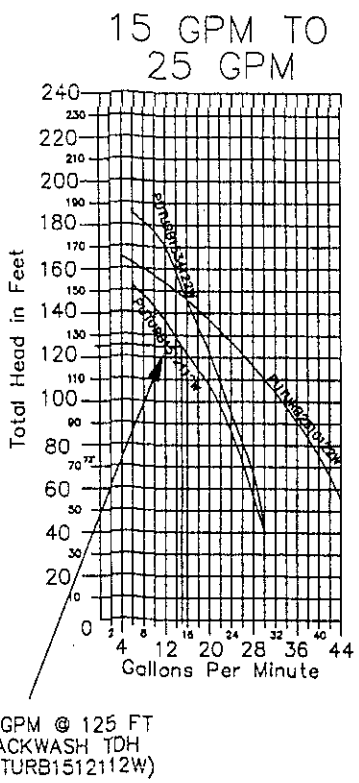
"COOL GUIDE"
INSTALLATION INSTRUCTIONS

1. Measure the distance from the bottom of the tank to 6" down from the top of the riser. Cut the extension pipe (by others) to the length necessary to reach this height. Cut 1/2 of the pipe down 12" to 18" away from the top of the pipe for pump discharge pipe.
3. Glue the extension coupling (by others) to the extension pipe and to the Cool Guide.
4. For repairs: glue on the Cool Guide flat cap and place the Cool Guide firmly in the of the tank. Attach the extension to the riser, with the anchors as shown.
5. For new construction: Anchor the flat cap to the bottom of the tank in the proper location to hold Cool Guide and extension. The cap may or may not be glued to the device. Attach the extension to the riser with the anchors as shown.
6. Place the pipe dope on the Cool Guide adapter threads and thread them into pump discharge.
7. Attach cooling collar to adapter with set screw provided.
8. Glue pipe into flow collar and with pump attached, lower into the guide tube.
9. Attach to discharge pipe, valves, and connect electrical as specified.





PUMP CURVE



15 GPM @ 125 FT
BACKWASH TDH
(PUTURB1512112W)

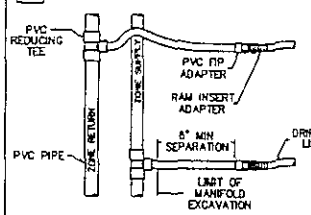
AMERICAN MANUFACTURING CO.
5511 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

PROJECT NAME :	DRAFTER:	DATE: 03/20/06
	CHECKED:	DATE:
	APPROVED:	DATE:
COUNTY :	TITLE : CONTROL, COOL GUIDE & PUMP CURVE DETAILS	
FILE: S:\Residential_Plans\01DRIPRES15.dwg	SCALE : NTS	SHEET: 4 OF 7

STANDARD RESIDENTIAL DRIP SYSTEM DETAILS

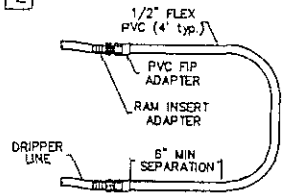
1

SIDE FEED OPTION
FLAT SITES ONLY.



DRIP LINE CONNECTION TO MANIFOLD
NTS

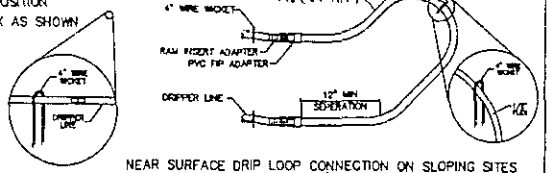
2



BURIED DRIP LOOP CONNECTION
NTS

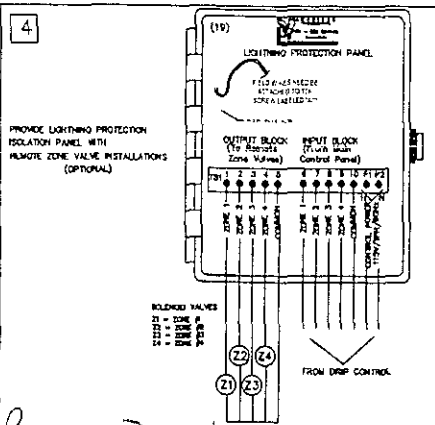
3

FOR SURFACE OR ,
NEAR SURFACE INSTALLATIONS
USE WIRE WICKETS TO
SECURE DRIP TUBING AND FLEX
IN INSTALLED POSITION
AND LOOP FLEX AS SHOWN

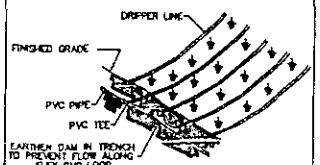


NEAR SURFACE DRIP LOOP CONNECTION ON SLOPING SITES
NTS

4



5



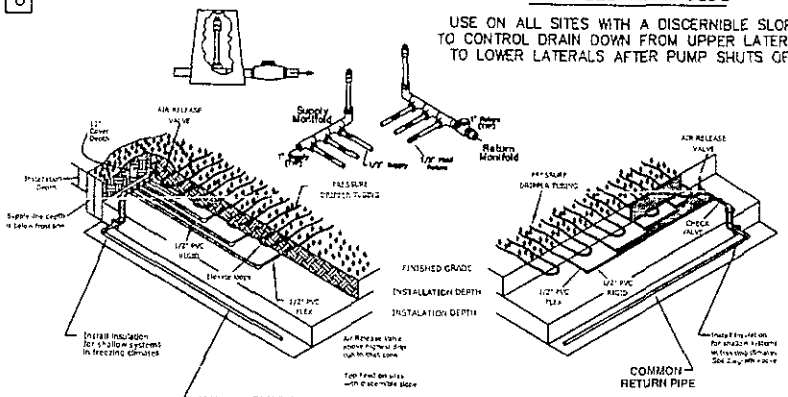
DRIPPER LINE SECTION DETAIL
NTS

SIDE FEED OPTION
FLAT SITES ONLY.

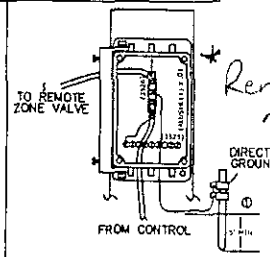
6

TOP FEED MANIFOLDS

USE ON ALL SITES WITH A DISCERNIBLE SLOPE TO CONTROL DRAIN DOWN FROM UPPER LATERALS TO LOWER LATERALS AFTER PUMP SHUTS OFF.

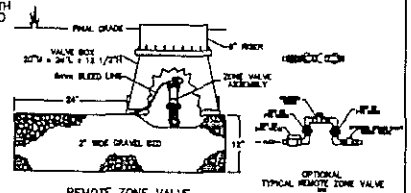


RESIDENTIAL Patent No. 5,984,574B

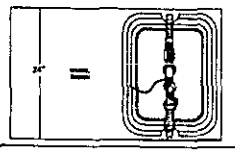


Remote Zone Valves are Not Required

NOTE:
1. DO NOT COIL GROUND WIRE USE AWG #10 SOLID COPPER.
2. GALANIZED GROUND STAKE, DRIVEN INTO MIN. 5 FEET OF MOIST SOIL. DOUBLE CLAMP GROUND WIRE TO GROUND STAKE.



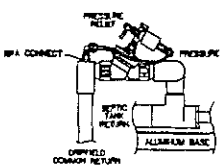
REMOTE ZONE VALVE ELEVATION DETAIL
NTS



REMOTE ZONE VALVE DETAIL (OPTIONAL)

7

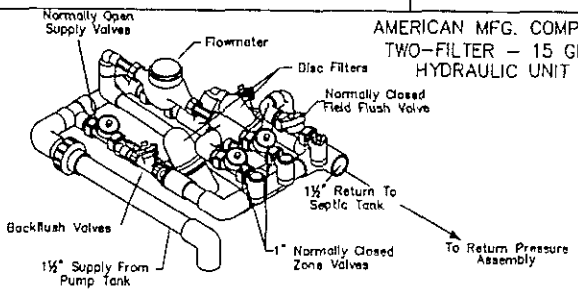




RETURN PRESSURE ASSEMBLY (RPA)
NTS

NOTE:
IN THE EVENT THE DRIP ZONES ARE A DISCERNIBLE VERTICAL ELEVATION ABOVE THE HYDRAULIC UNIT, INSTALL A "RETURN PRESSURE ASSEMBLY." THE ASSEMBLY IS TO BE USED TO PREVENT THE RETURN LINE FROM DRAINING AFTER OR DURING A DOSE. REMOVE THE ZONE RETURN CONNECTION AND REINSTALL A SHORT 1" NIPPLE IN THE RETURN VALVE. INSTALL ASSEMBLY AS SHOWN TO THE LEFT. THE HYDRAULIC TUBING PROVIDING PRESSURE FOR THE REST OF THE UNIT MUST BE PLUGGED AND THE NEW TUBING FROM THE ASSEMBLY CONNECTED TO THE PRESSURE SIDE OF THE SILENOID.

AMERICAN MFG. COMPANY
TWO-FILTER – 15 GPM
HYDRAULIC UNIT



AMERICAN MANUFACTURING CO.
5517 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

PROJECT NAME :	DRAFTER:	DATE: 03/20/06
Stonebridge	CHECKED:	DATE:
Lot 99	APPROVED:	DATE:
COUNTY : Mecklenburg	TITLE : DRIP DETAIL SCHEMATICS	

FILE: S:\Residential_Plans\01DRIPRES15.dwg | SCALE : NTS | SHEET: 5 OF 6

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1 of 2
Property ID: 139-034-18
Lot #: 99
File #: 7344B
AppID: 2738

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Owner: NVR,Inc/Ryan Homes
Applicant: Kim Widenhouse
Address: 10815 David Taylor Dr., Ste 100, Charlotte, NC 28262
Date Evaluated: 11/29/2007
Proposed Facility: Residence
Design Flow (.1949): 600 gpd
Property Size: .707a
Location of Site: 8017 Talcott Dr
Property Recorded:
Water Supply: [x] Public [ ] Individual [ ] Well [ ] Spring [ ] Other
Evaluation Method: [ ] Auger Boring [x] 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	PROFILE FACTORS[b] .1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr. Horiz	Profile Class & LTAR
1P	LS,10	0-9	GR/SL	FR/SS/SP/SEXP	2.5Y 7/1@40"	50	N/A	N/A	US,IV
		9-27	SBK/C	FI/S/P/SEXP					.1 GPD/FT^2/LPP
		27-50	M/C	FI/S/P/SEXP					
2P	"	0-2	GR/SL	FR/SS/SP/SEXP	>56" TO SOIL WETNESS	26	US	"	"
		2-26	ABK/SBK/C	FI/S/P/SEXP					
		26-56	M/SAP/SCL	FI/S/P/SEXP					
3P	"	0-2	COMPACTED	MASSIVE	2.5Y 7/1@22"	57	N/A	"	US
		2-18	SBK/ABK/C	FI/S/P/SEXP					
		18-57	M/PL/C	FI/S/P/SEXP					
4P	"	0-2	GR/SL	FR/SS/SP/SEXP	>54" TO SOIL WETNESS	26	US	"	"
		2-26	PL/C	FI/S/P/SEXP					
		26-54	M/SAP/SCL	FI/S/P/SEXP					
5P	"	0-6	GR/SL	FR/SS/SP/SEXP	>48" TO SOIL WETNESS	17	"	"	"
		6-17	SBK/C	FI/S/P/SEXP					
		17-48	M/SAP/SCL	FI/S/P/SEXP					
					SITE LTAR PITS 1,2				.1 GPD/FT^2/LPP

Description	Initial System	Repair System
Available Space (.1945)		
System Type(s)		
Site LTAR		

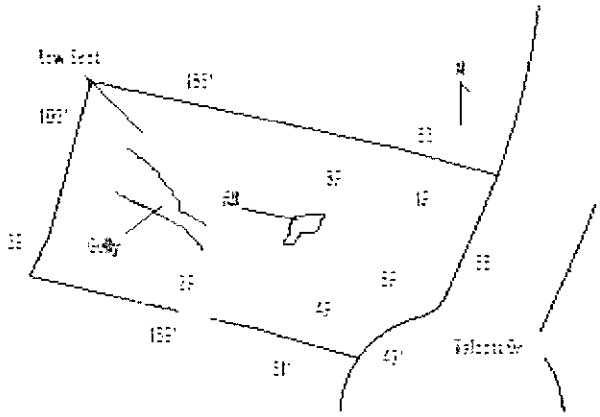
Other Factors (.1946):
Soil Evaluation By: C.Sherrill,RS,LSS
Others Present: K.Widenhouse
Site Classification (.1948):
Site Evaluation By:
Others Present:

COMMENTS: 100% REPAIR

Landscape Position	Group	Texture	.1955 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	SG-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		M-Massive
LS-Linear Slope				CR-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	GR-Granular
NS-Nose Slope		L-Loam		SBK-Subangular Blocky
HS-Head Slope				ABK-Angular Blocky
CC-Concave Slope	III	SI-Silt	0.6 - 0.3	PL-Platy
CV-Convex Slope		SICL-Silty Clay Loam		PR-Prismatic
T-Terrace				
FP-Flood Plain		CL-Clay Loam		
		SCL-Sandy Clay Loam		
	IV	SC-Sandy Clay	0.4 - 0.1	
		SIC-Silty Clay		
		C-Clay		

Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	NS-Non-Sticky	SEXP-Slightly Expansive
FR-Friable	SS-Slightly Sticky	EXP-Expansive
FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	04/29/08	**Amount:**	150.00
Receipt #:	57110	**Tendered:**	0.00
Check / Auth #:	CHARGE	**Returned:**	0.00
Received By:	GLADNAG		

Account Information

Account #: X33577
Contractor: NVR INC (SOUTH)
Attn:
Address: 10710 SIKES PLACE
Address: STE 200
City/State/Zip: CHARLOTTE, NC 28277

Item	Description	Permit#	Quantity	Unit Price	Total Price
0734	Auth for Waste Wtr Sys Constr 8017 TALCOTT DR		1	150.00	150.00

----------Outstanding Balances----------

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
28,098.11	46,376.45	1,041.90			

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	04/29/08	**Amount:**	150.00
Receipt #:	57111	**Tendered:**	0.00
Check / Auth #:	CHARGE	**Returned:**	0.00
Received By:	GLADNAG		

Account Information

Account #: X33577
Contractor: NVR INC (SOUTH)
Attn:
Address: 10710 SIKES PLACE
Address: STE 200
City/State/Zip: CHARLOTTE, NC 28277

Item	Description	Permit#	Quantity	Unit Price	Total Price
0703	Installation/Final Approval 8017 TALCOTT DR		1	150.00	150.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
28,248.11	46,376.45	1,041.90			

FEE: 300.00
DATE: 9/19/2008

CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

MECKLENBURG COUNTY
GROUNDWATER & WASTEWATER SERVICES

FILE NUMBER: 7344B

PERMIT NUMBER: 30002738

PARCEL NUMBER: 13903418

JOB LOCATION INFORMATION

ADDRESS: 8017 TALCOTT DR

CITY: CHARLOTTE **STATE:** NC **ZIP:** 28227

ISSUED TO: NVR, INC DBA RYAN HOMES

CONSTRUCTION AUTHORIZATION ISSUANCE DATE: 9/19/2008

CONSTRUCTION AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NUMBER 30002738, AND THE ATTACHED SITE PLAN WITH SYSTEM DETAILS. CONSTRUCTION AND INSTALLATION MUST ALSO MEET ALL REQUIREMENTS SET FORTH IN THE RULES GOVERNING SANITARY SEWAGE COLLECTION, TREATMENT, AND DISPOSAL AND ANY OTHER APPLICABLE RULES AND LAWS.

2. AN INSTALLATION APPROVAL MUST BE SECURED PRIOR TO INSTALLATION OF THE SEPTIC TANK SYSTEM. THE INSTALLER OF THE SYSTEM SHALL BE A REGISTERED SEPTIC TANK CONTRACTOR WITH THE MECKLENBURG COUNTY HEALTH DEPARTMENT.

3. ANY ALTERATION IN SITE OR SOIL CONDITIONS (INCLUDING LOCATION OF STRUCTURES AND APPURTENANCES) OR MODIFICATION IN USE, DESIGN WASTEWATER FLOW, OR WASTEWATER CHARACTERISTICS AS SPECIFIED IN THE ASSOCIATED IMPROVEMENT PERMIT AND APPLICATION, MAY SUBJECT THIS CONSTRUCTION AUTHORIZATION AND ASSOCIATED PERMIT(S) TO REVOCATION.

4. THIS CONSTRUCTION AUTHORIZATION AS PROVIDED IN G.S. 130A-335(f) AND G.S. 130A-336(b) SHALL BE VALID FOR A PERIOD EQUAL TO THE VALIDITY OF THE IMPROVEMENT PERMIT, NOT TO EXCEED 60 MONTHS.
   *CONSTRUCTION AUTHORIZATION EXPIRATION DATE: 4/17/2013

Aug. 27. 2008 11:52AM

Lot 99 Block 1 Community Stonebridge

CHANGE ORDER ADDENDUM TO PURCHASE AGREEMENT

Addendum made this 18th day of August 2008 to a Purchase Agreement by and between NVR, Inc. t/a Ryan Homes ("Seller") and Brian Lawrence and Heather Lawrence (collectively, "Purchaser"), dated 3/31/08 (the "Agreement").

The undersigned Purchaser and Seller hereby agree to the following:

1. The Agreement is hereby amended to include the changes to the Property specified below:

Add/ Delete	Code	Description	Charge
Add	999ZZ01	Add 3 additional street trees, for a total of 4, in lieu of removed tree in front yard ($450 cost)	$0
Add	999ZZ02	Re-route dry creek bed in rear yard on RH side of lot. ($1700 cost)	$0
Add	999ZZ03	Clarification: No irrigation because of septic design in front yard	$0
Add	454ED13	Add 24 SF to deck for a total of 336 SF (14X24, 480.00 cost).	$0
Delete	VBB	Remove closet 2nd floor in bonus room. (Removing this closet makes this house a 4 bedroom home with bonus room.)	$ (600)
Add	999ZZ04	In lieu of irrigation, add additional landscaping on LH and RH side of property and clean up underbrush in wooded areas in front and rear yard and replace with pine needles. See attached layout. ($3200 cost)	$0
		Total	$ (600)

2. The changes above result in an ☐ Increase ☒ Decrease of $ 600 to the Purchase Price. The Purchase Price is hereby changed from $ 413,200 to $ 412,600. Purchaser is responsible for any additional cash required at Settlement as a result of the above changes.

☐ The Deposit is hereby increased to $_____, of which $_____ is non-refundable.

☐ The Non-cash Discount, as defined in the Agreement, is hereby ☐ Increased ☐ Decreased by $_____ which results in a change from $_____ to $_____

☐ The Cash Discount, as defined in the Agreement, is hereby ☐ Increased ☐ Decreased by $_____ which results in a change from $_____ to $_____.

3. Purchaser understands that the above changes may require revisions to the blueprints or other modifications to the home in order to accommodate the changes and Purchaser hereby accepts these required revisions and/or modifications.

4. All other terms and conditions of the Agreement shall remain unchanged and in full force and effect.

This Addendum, upon execution by both parties, is herewith made an integral part of the aforementioned Agreement.

PURCHASER:

DATE: 8/18/08 Heather Lawrence

DATE: 8/18/08 Brian Lawrence

SELLER:
NVR, Inc. t/a Ryan Homes

DATE: 8/20/08 By: _____
Vice President

SUBCONTRACTORS TO BE NOTIFIED:

MHBK NO. 56
Updated 01/01/08

Lot 100 Block 1 Community BR - Stonebridge

CHANGE ORDER ADDENDUM TO PURCHASE AGREEMENT

Addendum made this 13th day of August, 2008 to a Purchase Agreement by and between NVR, Inc. t/a Ryan Homes ("Seller") and Jason Little and Heather Little, (collectively, "Purchaser"), dated _____ (the "Agreement").

The undersigned Purchaser and Seller hereby agree to the following:

1. The Agreement is hereby amended to include the changes to the Property specified below:

Add/ Delete	Code	Description	Charge
Add	999ZZ02	Shutters and front door to be black in lieu of black beam. (500 cost)	$0
Add	999ZZ03	Add steps from rear door to grade in lieu of gate (750 cost)	$0
Add	999ZZ05	Clarification: Remove closet 2nd floor in bonus room over garage. (Removing this closet makes this home a 4 bedroom home with bonus room.	$ (600)
Add	999ZZ06	Add sheetrock and insulation to garage walls (front and side wall over door). Sheetrock to remain firetaped only. ($450 cost)	$0
Add	999ZZ07	Light at dinette to be model # P3459-09- Brushed nickel ($125 cost)	$0
Add	999ZZ08	Add crown in great room, dinette, and kitchen and 2 piece chair rail in study in lieu of lost square footage in the owner's closet and bonus room ($750 cost).	$0
Add	999ZZ09	Add an additional shelf in linen closet in upstairs hall and penury. ($50 cost)	$0
		Total	$ (600)

2. The changes above result in an ☐ Increase ☒ Decrease of $ 600 to the Purchase Price. The Purchase Price is hereby changed from $ 433,850 to $ 433,250. Purchaser is responsible for any additional cash required at Settlement as a result of the above changes.

☐ The Deposit is hereby increased to $_____, of which $_____ is non-refundable.

☐ The Non-cash Discount, as defined in the Agreement, is hereby ☐ Increased ☐ Decreased by $_____ which results in a change from $_____ to $_____.

☐ The Cash Discount, as defined in the Agreement, is hereby ☐ Increased ☐ Decreased by $_____ which results in a change from $_____ to $_____.

3. Purchaser understands that the above changes may require revisions to the blueprints or other modifications to the home in order to accommodate the changes and Purchaser hereby accepts these required revisions and/or modifications.

4. All other terms and conditions of the Agreement shall remain unchanged and in full force and effect.

This Addendum, upon execution by both parties, is herewith made an integral part of the aforementioned Agreement.

PURCHASER:

X DATE: 8-13-08 K. Jason Little

X DATE: 8-13-08 A. Heather Little

SELLER:
NVR, Inc. t/a Ryan Homes

DATE: 8/20/08 By: _____ Vice President

SUBCONTRACTORS TO BE NOTIFIED:

PM

Construction has started.

Ryan Homes
ryanhomes.com

Fax Transmission

To: Kelly Randall 704-336-6894

From: Tim Rayborn - Ryan Homes

Date: 8-22-08

Pages: 3 (including cover sheet)

Mr. Randall,

Attached are the change orders containing the verbiage reducing the house to a 4 bedroom home. It also shows the customer's awareness of these costs. Please feel free to contact me if you have any questions. (704) 507-8760

10710 Sikes Place - Suite 250 - Charlotte, NC 28277 - 704-815-0190 - FAX 704-[illegible]

We are pledged to the letter and spirit of U.S. policy for the achievement of equal housing opportunity throughout the nation. We encourage and support an affirmative advertising and marketing program in which there are no barriers to obtaining housing because of race, color, religion, sex, handicap, familial status or national origin.