



North Carolina Department of Environment and Natural Resources  
Division of Waste Management

Pat McCrory  
Governor

Dexter R. Matthews  
Director

John E. Skvarla, III  
Secretary

STATE OF NORTH CAROLINA  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF WASTE MANAGEMENT  
SOLID WASTE SECTION

**PERMIT TO OPERATE A SEPTAGE LAND  
APPLICATION SITE**

Ray's Septic Service  
Ray A. Zamora, Sr.  
1142 Gould Rd.  
Jacksonville, NC 28540

is hereby permitted to operate Septage Land and Application Site with permit # **SLAS-67-11** located on SR 1221 in Onslow County at approximate position 34.85831°N latitude and -77.57112°W longitude. This site is permitted only for operations that are conducted in accordance with the representations made in the approved application, with all conditions attached to this permit, and with all of the provisions of 15A NCAC 13B.0800 -- Septage Management. Failure to operate as permitted may result in the Department suspending or revoking this permit, initiating action to enjoin the unpermitted operation, imposing administrative penalties, or invoking any other remedy as provided in Chapter 130A, Article 1, Part 2 of the North Carolina General Statutes.

This permit shall be reviewed annually to determine if soil test results and management activities are in compliance with the Septage Management Rules and the conditions of this permit. Modifications, where necessary, shall be made in accordance with rules in effect at the time of review.

Date Issued 9/30/2013

  
Martin A. Gallagher, Branch Head  
Composting & Land Application Branch

## CONDITIONS OF OPERATING PERMIT

1. This permit shall become void if the soils fail to adequately assimilate the septage and shall be rescinded unless the site is maintained and operated in a manner which will protect the assigned water quality standards of both surface and ground waters.
2. This site shall be operated and maintained in accordance with the nutrient management plan submitted by Ray Zamora, Sr. and approved by the Division of Waste Management. The 19.4-acre site shall be established in bermuda and divided into five fields. The bermudagrass shall be overseeded with cereal rye around mid-October of each year at a rate of 100 to 120 lbs/ac. If the bermudagrass coverage falls below eighty (80) percent, the area or field shall be resprigged in March or April with bermudagrass at a rate of 30 – 40 bu/ac or seeded with Cheyenne Bermudagrass at 10 – 15 lbs/ac. The bermudagrass shall be cut and baled for hay when the grass is 12-15 inches tall or roughly at four to five week intervals. The winter overseed shall be cut and baled for hay during April to early May. The 30-day waiting period between the last application of septage and the harvest of a crop shall be met by alternating septage applications between the five permitted fields. All discharges shall be at locations on the site consistent with the crop rotation in the approved plan.
3. This site shall be operated and maintained in accordance with the erosion and runoff control plan submitted by Ray Zamora, Sr. in such a manner as to prevent the migration of wastes off of the designated waste receiving site. A 50-ft buffer planted in bermudagrass and ryegrass shall remain around the perimeter of the permitted area. Any site improvements noted in the plan must be installed within 30 days of plan approval. The installation of groundwater monitoring wells shall be required as deemed necessary by the Division.
4. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other local, state, and federal government agencies which have jurisdiction. It is the responsibility of the Permittee to be in compliance with the Federal Regulations listed in the Code of Federal Regulations, 40 CFR Part 503.
5. This permit may be modified or reissued at any time to incorporate any conditions, limitations, and / or monitoring requirements the Division deems necessary to adequately protect the environment and public health.

6. **This site is only permitted for the land application of domestic septage and grease trap pumpings.** Domestic septage pH shall be raised to 12 or higher by alkali addition and, without the addition of additional alkali, shall remain at 12 or higher for 30 minutes prior to land application. Grease septage or grease septage mixed with domestic septage shall be raised to pH 12 or higher by alkali addition and, without the addition of additional alkali, shall remain at 12 or higher for 2 hours prior to land application.
7. **This site contains approximately 19.4 acres that are available for land application of septage. The maximum annual application rate shall be 50,000 gallons per acre per year. This application rate assumes equal septage distribution, on an annual basis, over the entire permitted area. Septage applications shall not exceed the maximum annual application amounts for each field as listed in the table below or the monthly application rates as stated in the approved nutrient management plan.**

<b>Maximum Annual Application Amounts (gallons) Per Field<sup>a</sup></b>						
<b>Field</b>	<b>1</b>	<b>2</b>	<b>3a</b>	<b>3b</b>	<b>4</b>	<b>SITE TOTAL</b>
<b>Crop</b>	Bermudagrass / Rye (overseed)					
<b>Acres</b>	3.0	3.8	2.0	1.2	9.4	19.4
<b>2013<sup>b</sup></b>	0	65,000	43,800	60,000	0	168,800
<b>2014</b>	134,000	190,000	100,000	60,000	437,000	921,000
<b>2015</b>	150,000	190,000	100,000	60,000	470,000	970,000

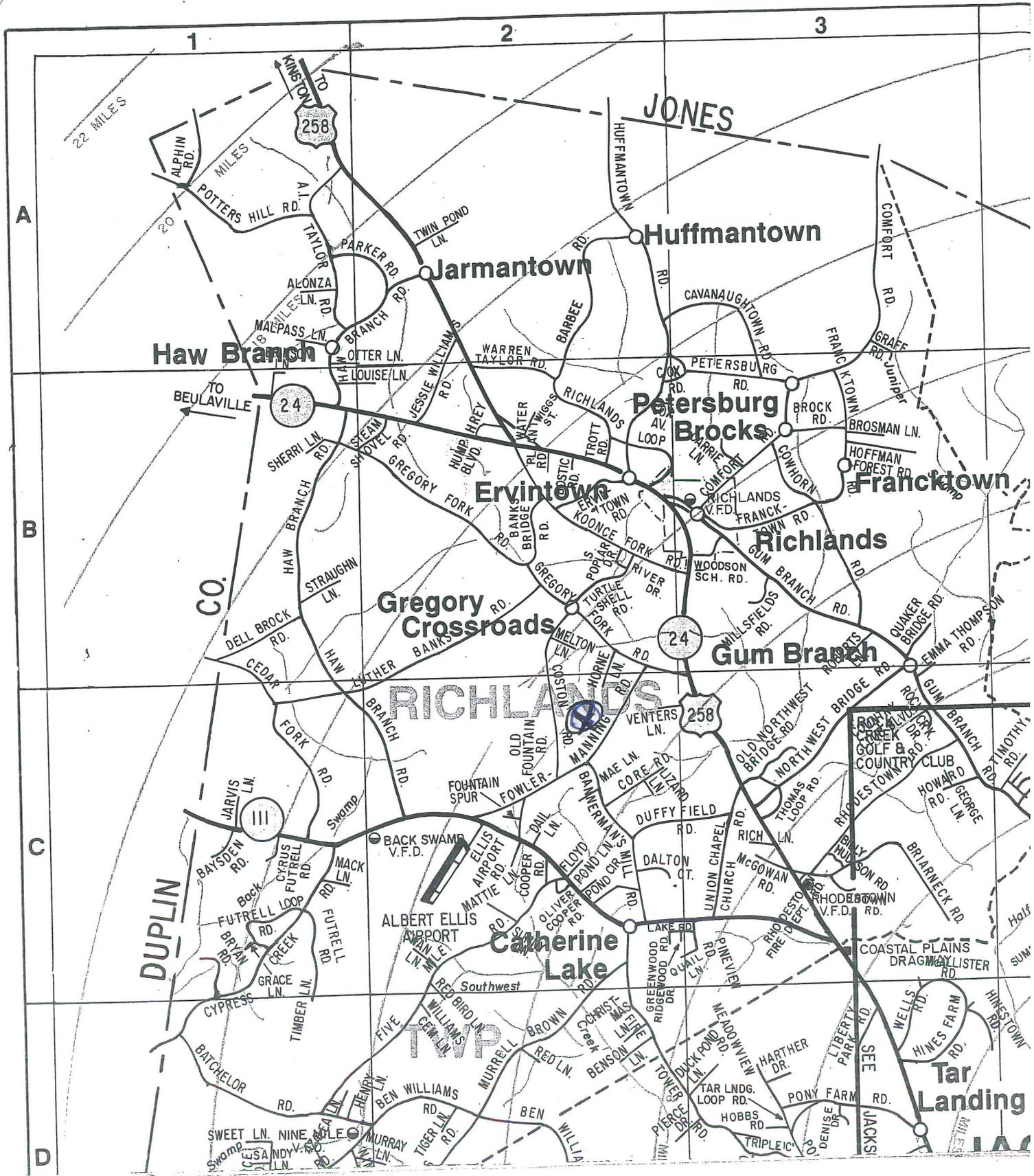
<sup>a</sup> 50,000 gal/ac/yr application rate and monthly rates shall not be exceeded.

<sup>b</sup> For September through December.

8. An approved above ground septage detention system with a minimum design capacity of 20,000 gallons shall be available prior to operation of this site unless an approved wastewater treatment plant is available for use during periods of adverse weather. The storage capacity may be adjusted if it is demonstrated during the operation of the site that this volume of storage is inappropriate.
9. Only the area designated on the attached site map(s) shall be utilized for septage disposal. Each load of septage discharged at the site shall be distributed from a moving vehicle in such a manner that there is no standing water when the discharge is complete.
10. Septage shall not be applied during any precipitation event, or if there is standing water on the soil surface, if the soil surface is frozen, or if the soil surface is snow covered. The Permittee shall consider pending weather conditions when making the decision to land apply in order to prevent any discharge of septage outside of the permitted boundary.
11. Septage shall not be applied during periods of high soil moisture. Septage applications that will result in ruts greater than three inches in the soil surface are prohibited.

12. Any discharge of septage outside of the permitted boundaries via runoff, aerial drift, etc. is prohibited.
13. This permit shall become voidable unless the land application activities are carried out in accordance with the conditions of this permit and in the manner approved by this Division. No one other than the Permittee or an employee of the firm named in this permit shall discharge septage at this site without prior appropriate notification and written approval from the Division.
14. Prior to any transfer of this land, a notice shall be given to the new owner that gives full details of the materials applied or incorporated at this site. The Division shall be notified prior to site closure. This permit is non-transferable.
15. **This permit shall expire on September 26, 2015.** Modifications, when necessary, shall be made in accordance with the rules in effect at the time of renewal. An application for permit renewal shall be submitted at least ninety (90) days prior to the permit renewal date. A septage application log for the period of time this permit was valid shall be submitted along with an application for permit renewal or modification. The information required in the log is described in Rule 15A NCAC 13B .0838 (e) (1) of the NC Septage Management Rules and the Code of Federal Regulations, 40 CFR Part 503.17 (b).
16. Records shall be kept in accordance with 40 CFR 503.17(b). These records shall be made available to a representative of the Division upon request.
17. Any duly authorized officer, employee, or representative of the Division may, upon presentation of credentials, enter and inspect any property, premises, or place on or related to the disposal site and facility at any reasonable time for the purpose of determining compliance with this permit; may inspect or copy any records that must be kept under the conditions of this permit; or may obtain samples of groundwater, surface water, or leachate.
18. Field separations in the nutrient management plan and all pertinent setbacks shall be clearly located on the site. Boundaries of the permitted septage land application fields shall be clearly marked on the ground.
19. The areas that can be used for land application of septage shall be maintained at least 500 feet from any existing wells, residences, places of business, or places of public assembly. Septage shall not be disposed of within 50 feet of any property line or within 100 feet of any ditch.

- 20. All Fields shall remain closed until inspected and approved by the Division for crop coverage prior to any septage applications. Fields 1 and 4 shall remain closed for the remainder of 2013.**
  
- 21. Monthly land application records shall be emailed or submitted to the Division at the first of each month until further notice.**



22 MILES

20 MILES

15 MILES

10 MILES

5 MILES

0 MILES

5 MILES

10 MILES

15 MILES

20 MILES

25 MILES

30 MILES

35 MILES

40 MILES

45 MILES

50 MILES

55 MILES

60 MILES

65 MILES

70 MILES

75 MILES

80 MILES

85 MILES

90 MILES

95 MILES

100 MILES

105 MILES

110 MILES

115 MILES

120 MILES

125 MILES

130 MILES

135 MILES

140 MILES

145 MILES

150 MILES

155 MILES

160 MILES

165 MILES

170 MILES

175 MILES

180 MILES

185 MILES

190 MILES

195 MILES

200 MILES

205 MILES

210 MILES

215 MILES

220 MILES

225 MILES

230 MILES

235 MILES

240 MILES

245 MILES

250 MILES

255 MILES

260 MILES

265 MILES

270 MILES

275 MILES

280 MILES

285 MILES

290 MILES

295 MILES

300 MILES

305 MILES

310 MILES

315 MILES

320 MILES

325 MILES

330 MILES

335 MILES

340 MILES

345 MILES

350 MILES

355 MILES

360 MILES

365 MILES

370 MILES

375 MILES

380 MILES

385 MILES

390 MILES

395 MILES

400 MILES

405 MILES

410 MILES

415 MILES

420 MILES

425 MILES

430 MILES

435 MILES

440 MILES

445 MILES

450 MILES

455 MILES

460 MILES

465 MILES

470 MILES

475 MILES

480 MILES

485 MILES

490 MILES

495 MILES

500 MILES

505 MILES

510 MILES

515 MILES

520 MILES

525 MILES

530 MILES

535 MILES

540 MILES

545 MILES

550 MILES

555 MILES

560 MILES

565 MILES

570 MILES

575 MILES

580 MILES

585 MILES

590 MILES

595 MILES

600 MILES

605 MILES

610 MILES

615 MILES

620 MILES

625 MILES

630 MILES

635 MILES

640 MILES

645 MILES

650 MILES

655 MILES

660 MILES

665 MILES

670 MILES

675 MILES

680 MILES

685 MILES

690 MILES

695 MILES

700 MILES

705 MILES

710 MILES

715 MILES

720 MILES

725 MILES

730 MILES

735 MILES

740 MILES

745 MILES

750 MILES

755 MILES

760 MILES

765 MILES

770 MILES

775 MILES

780 MILES

785 MILES

790 MILES

795 MILES

800 MILES

805 MILES

810 MILES

815 MILES

820 MILES

825 MILES

830 MILES

835 MILES

840 MILES

845 MILES

850 MILES

855 MILES

860 MILES

865 MILES

870 MILES

875 MILES

880 MILES

885 MILES

890 MILES

895 MILES

900 MILES

905 MILES

910 MILES

915 MILES

920 MILES

925 MILES

930 MILES

935 MILES

940 MILES

945 MILES

950 MILES

955 MILES

960 MILES

965 MILES

970 MILES

975 MILES

980 MILES

985 MILES

990 MILES

995 MILES

1000 MILES

1005 MILES

1010 MILES

1015 MILES

1020 MILES

1025 MILES

1030 MILES

1035 MILES

1040 MILES

1045 MILES

1050 MILES

1055 MILES

1060 MILES

1065 MILES

1070 MILES

1075 MILES

1080 MILES

1085 MILES

1090 MILES

1095 MILES

1100 MILES

1105 MILES

1110 MILES

1115 MILES

1120 MILES

1125 MILES

1130 MILES

1135 MILES

1140 MILES

1145 MILES

1150 MILES

1155 MILES

1160 MILES

1165 MILES

1170 MILES

1175 MILES

1180 MILES

1185 MILES

1190 MILES

1195 MILES

1200 MILES

1205 MILES

1210 MILES

1215 MILES

1220 MILES

1225 MILES

1230 MILES

1235 MILES

1240 MILES

1245 MILES

1250 MILES

1255 MILES

1260 MILES

1265 MILES

1270 MILES

1275 MILES

1280 MILES

1285 MILES

1290 MILES

1295 MILES

1300 MILES

1305 MILES

1310 MILES

1315 MILES

1320 MILES

1325 MILES

1330 MILES

1335 MILES

1340 MILES

1345 MILES

1350 MILES

1355 MILES

1360 MILES

1365 MILES

1370 MILES

1375 MILES

1380 MILES

1385 MILES

1390 MILES

1395 MILES

1400 MILES

1405 MILES

1410 MILES

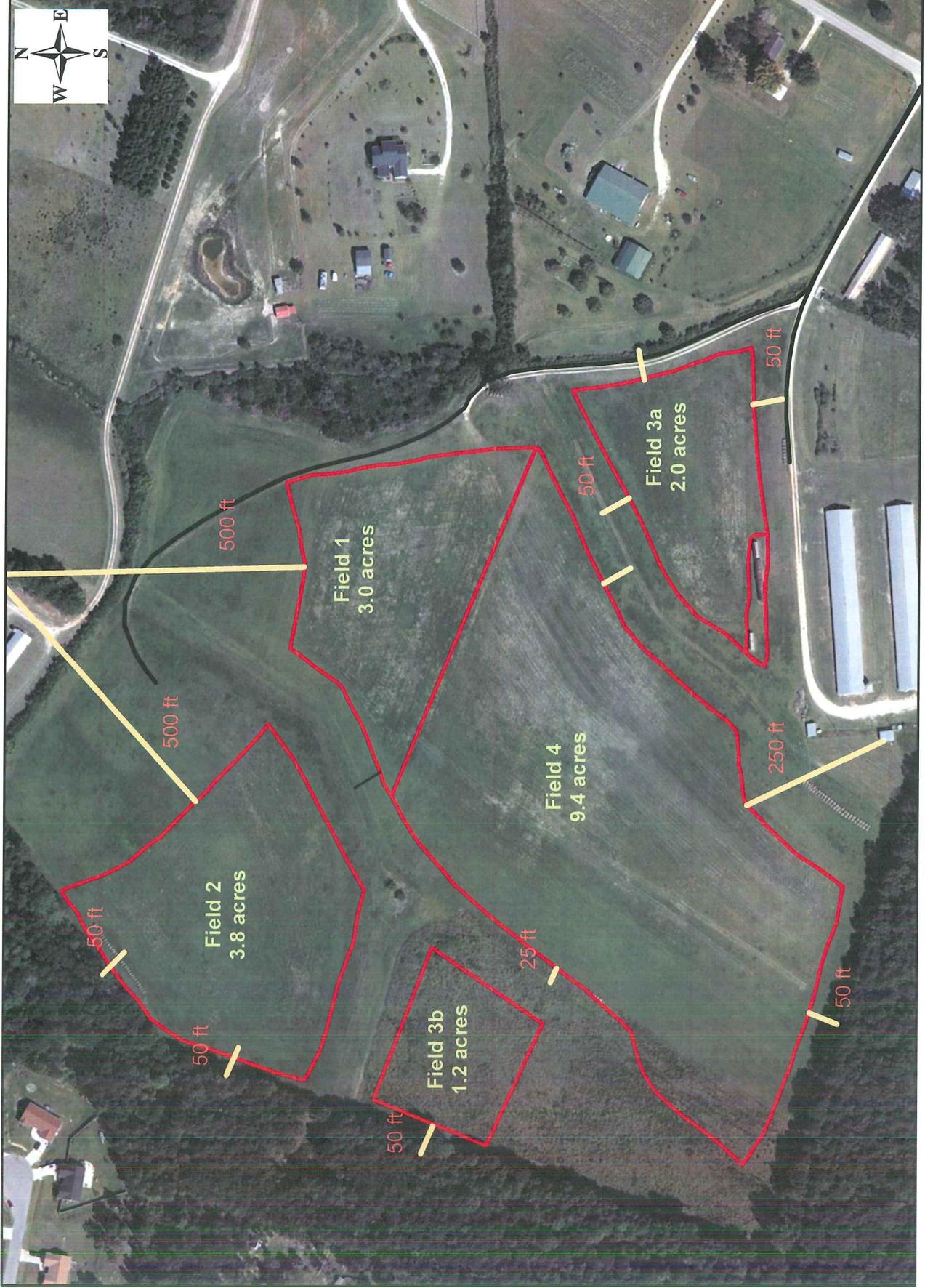
1415 MILES

1420 MILES

1425 MILES

1430 MILES

# SLAS-67-11



Source: Bing Maps aerial imagery, ESRI, (c) 2010 Microsoft Corporation and its data suppliers; site boundary, NC DENR Division of Waste Management. Map created by NC DENR Division of Waste Management, Compost and Land Application Branch for permitting purposes only.



North Carolina Department of Environment and Natural Resources  
Division of Waste Management

Pat McCrory  
Governor

Dexter R. Matthews  
Director

John E. Skvarla, III  
Secretary

September 30, 2013

Mr. Ray Zamora Sr.  
Ray's Septic Service  
1142 Gould Rd.  
Jacksonville, NC 28540

**RE: SLAS-67-11 Permit Renewal  
Ray's Septic Service  
SR 1221 in Onslow County**

Dear Mr. Zamora:

The NC Division of Waste Management has reviewed your application for renewal of septage land application site permit, **SLAS-67-11**, in Onslow County. Your application has been approved in accordance with NC Septage Management Rules and your permit, **SLAS-67-11**, is enclosed. Please read all permit conditions carefully. The nutrient management and soil erosion and runoff control plans you submitted have been incorporated into your permit. In particular, pay close attention to **Permit Conditions 2, 6, 7, 10, 11, 12, 15, 20 and 21**. The following is a summation of those Conditions.

- **Condition 2.** This condition incorporates crop management details listed in the submitted nutrient management plan.
- **Condition 6.** States that this site is only permitted to receive domestic septage and grease trap pumpings. Disposal of any other type of septage or waste at this site is prohibited.
- **Condition 7.** States that there are approximately 19.4 acres available at this site for the land application of septage. **The maximum annual application rate for this site is 50,000 gallons per acre per year. The maximum annual application amounts per field for 2013 through 2015 is listed in a table within Condition 7.** These rates along with the monthly rates listed in the nutrient management plan are not to be exceeded.

**CONTINUE ON BACK**

- **Condition 10.** Septage shall only be applied when soil and weather conditions are favorable for application.
- **Condition 11.** Soil conditions must be monitored such that any septage application will not result in ruts greater than three inches in the soil surface.
- **Condition 12.** Any discharge, including aerial drift, of septage outside of the permitted boundaries is prohibited.
- **Condition 15.** **This permit is set to expire on September 26, 2015.** Ninety (90) days prior to the expiration of your permit, you must submit an application for permit renewal along with your septage land application logs for the entire time your current permit was valid.
- **Condition 20.** States that all fields shall remain closed until inspected and approved by the Division. **Fields 1 and 4 shall remain closed for the remainder of 2013.**
- **Condition 21.** Monthly application records are to be submitted to the Division at the first of each month.

Again, please pay close attention to all of the conditions within the enclosed permit. Remember that violations to the NC Septage Management Rules or this permit could subject you to administrative penalties of up to \$15,000 per violation per day. If you have any questions concerning your permit or septage in general, please do not hesitate to contact me at (919) 707-8283. When communicating to the Division about this permit, please refer to it as "**SLAS-67-11.**"

Sincerely,



Chester R. Cobb, Soil Scientist  
Composting & Land Application Branch

Enclosures

cc: Central Office  
Will Burke, Environmental Senior Specialist  
Onslow County Health Department

S:\Solid\_Waste\cla\septage\slasper\67-Onslo\Zamora\6711cl13p.docx

APPLICATION FOR A PERMIT TO OPERATE A SEPTAGE LAND APPLICATION SITE

North Carolina Department of Environment and Natural Resources  
Division of Waste Management – Solid Waste Section  
1646 Mail Service Center, Raleigh, NC 27699-1646



I. Site and Operator Information

1. Applicant Ray's Septic Service - Ray Zamora, Sr  
Address 1142 Gould Rd  
Jacksonville, NC 28540  
Phone 910-347-7867

2. Contact person for site operation (if different from applicant): Ray Zamora, Sr  
Title or position owner Phone 910-347-7867  
Address 1142 Gould Rd  
Jacksonville, NC 28540

3. Landowner Ray Zamora, Sr  
Address 1142 Gould Rd  
Jacksonville, NC 28540

4. Site Location: County Onslow State Road Number 1221  
Directions to site: from Jacksonville take Hwy 24 W toward Richlands, take left on Hwy 111, go approx 5.5 miles & take right just past Albert Ellis Airport, go about 1 1/2 miles on left

5. Indicate whether request is: new \_\_\_\_\_ renewal  modification \_\_\_\_\_

For a permit renewal or modification, provide the following information:  
Existing site permit number: SLAS 67-11 permit expiration date: June 12, 12

6. Number of acres meeting the requirements of the N.C. Septage Management Rules: 20.8 acres.

7. Substances other than septage or grease trap pumpings previously disposed of on the site:  
(a) None , or (b) Attach a list indicating other substances, the amounts discharged, and the dates of discharge.

8. Attach written, notarized landowner authorization to operate a septage disposal site signed by the landowner (if the permit applicant does not own the property). **If a corporation owns the land use a corporate landowner authorization form. If limited liability company owns the land, use a limited liability company landowner authorization form.**

9. Attach site evaluation report, including aerial photograph and soil analysis with metals results, unless the Division prepared the report.

10. Attach a vicinity map (county road map showing site location).

(over)

910-389-0972

II. Site Management Information:

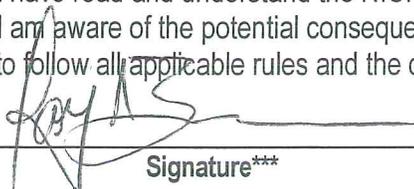
The following information shall be included with the application form:

1. Nutrient Management Plan
2. Soil Erosion and Runoff Control Plan
3. Alternative plan for disposal (detention facility permit number or wastewater treatment plant authorization): SDTF 67-11
4. Types of septage proposed to be discharged at the site (check all that apply):
  - (a) Domestic septage pumped from septic tanks
  - (b) Grease trap pumpings  residential
  - (c) Portable toilet waste \_\_\_\_\_
  - (d) Commercial / Industrial septage \_\_\_\_\_
5. Proposed treatment method of each type of septage to be land applied (use additional paper to explain if necessary): lime stabilization of domestic septage to a ph of 12 and held for 30 min. prior to land application - for grease - lime stabilization to a ph of 12 & held at 12 for 2 hours prior to Application
6. Proposed method of applying septage to land, including septage distribution plan if required \* (use additional paper to explain if necessary): splash plate used at rear of pump truck while it is moving forward with valve open, splash is about 25'-30' wide to spray evenly on field
7. Demonstration from the appropriate state or federal government agency that the land application site complies with the Endangered Species Law \*\* or if any part of the site specified is not agricultural land (use additional paper to explain if necessary): site is agricultural - endangered species law does not apply

III. Certification

I hereby certify that:

1. The information provided on this application is true, complete, and correct to the best of my knowledge.
2. I have read and understand the N.C. Septage Management Rules, and
3. I am aware of the potential consequences, including penalties and permit revocation, for failing to follow all applicable rules and the conditions of a Septage Land Application Site permit.

  
\_\_\_\_\_  
Signature\*\*\*  
Ray Zamora, Sr  
\_\_\_\_\_  
Print name

6-12-12  
\_\_\_\_\_  
Date  
owner  
\_\_\_\_\_  
Title

Note: This application will not be reviewed until all parts of the application are complete.

\* Refer to Section .0837(e) of the N.C. Septage Management Rules.

\*\* Refer to Section .0837(g) of the N.C. Septage Management Rules.

\*\*\*Signature of company official required.

**Landowner's Authorization to Operate a Septage Land Application Site**

North Carolina Department of Environment and Natural Resources  
Division of Waste Management - Solid Waste Section  
1646 Mail Service Center, Raleigh, NC 27699-1646



I, Diana Zamora (name of site owner) hereby certify that I am the owner of 49 acres of land located Fowler Manning Rd, Richlands, NC and identified by Deed Book 1674, pg 959 (book and page of recorded deed or tax map parcel) and that I agree to allow Ray Zamora (Ray's Septic) (name of site operator) to use said land for septage land application for a period of 10 yrs (length of time), beginning Jan 1, 2013 (month, day and year) and that I have read the North Carolina Septage Management Rules \*, and I understand and agree to maintain the restrictions on land use after septage land application ends \*\*. I further understand that no septage may be land applied until the Division of Waste Management has issued a permit for a septage land application site. The above described property is owned solely by me or jointly with Ray A. Zamora, Sr (names of all co-owners, or state none).

Signature of landowner [Signature] Date RAZ ~~2-13-13~~ 2-13-13

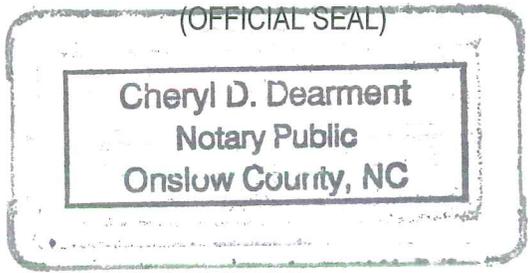
Signature of landowner [Signature] Date 2-13-13

Sworn to and subscribed before me this 13<sup>th</sup> day of February, 2013.

[Signature]  
(Notary Public)

My Commission expires: 2-27-16

\* 15A N.C. Admin. Code 13B Section .0800  
\*\* As required by Rule .0843



Septage Nutrient Management Plan  
for  
Ray's Septic Service  
Fowler-Manning Road SLAS  
Onslow County, NC



Owner: Ray Zamora  
1142 Gould Road  
Jacksonville NC 28540  
910-347-7867  
(renewal of SLAS 67-11)

Purpose: The purpose of this document is to renew the septage nutrient management plan of SLAS #67-11 and to provide updated compliance with state regulations.

Existing Site Conditions: The relevant property lines, approved site limits, natural geographic conditions and known site improvements are incorporated from the prior plan.

**A. General Information:**

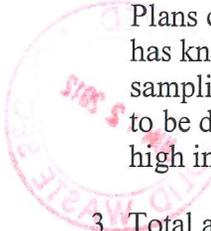
1. Septage will be sampled at least three (3) times per year for waste analysis. These samples will be used to monitor nutrient loadings. The recommended procedure for collecting the samples is as follows:
  - a) Make sure the septage has been stabilized at a pH of 12 with hydrated lime for 30 minutes (domestic septage) or for 2 hours (grease trap septage).
  - b) Set out some pans in the path where the truck will be disposing the septage. Plastic pans are recommended. Do not use zinc plated or galvanized metal pans; the metals content will be distorted.
  - c) Mix contents of 3-4 pans and fill a 16-20 ounce plastic bottle  $\frac{3}{4}$  full. Squeeze out some of the excess air and label the bottle with your name and septage sample identification.

If samples are collected over a couple of days or from different truckloads, it makes for a more representative sample; however, samples should be kept cool. Only one sample is needed, as long as it is mixed from several different sub-samples.

**Bring the samples by the Extension Office for forwarding to the NCDA&CS lab.**

Please use a check made out to NCDA&CS (\$5.00 per sample). Bottles need to be clearly labeled as a household -lime stabilized- septage sample (waste code MLS). For extra security, place the bottle in a plastic freezer bag. The form and check can be put in an envelope and placed in the bag with the bottle. The NCDA&CS Septage Sample Cover Sheet (blank copy attached to this plan) is also to be completed.

2. An annual soil sampling of each numbered field will be conducted and the results maintained on file. Pay particular attention to: soil pH, zinc index, and copper index.



Plans cannot be written for sites with zinc or copper indexes greater than 3,000. This site has known elevated levels of both zinc and copper. Multi-depth (6", 12", and 18") soil sampling was completed in early 2012, to evaluate zinc and copper with depth. Field 2 is to be deep tilled in June 2012, to try to reduce the zinc level at the surface. The pH is also high in all of the fields, and is to be reduced through the use of elemental sulfur.

3. Total available area for septage application on this site is 19.43 acres. This is divided into five smaller fields:
  - a) Field #1 contains approximately 2.96 acres
  - b) Field #2 contains approximately 3.78 acres
  - c) Field #3a contains approximately 2.05 acres
  - d) Field #3b contains approximately 1.2 acres
  - e) Field #4 contains approximately 9.44 acres (well setback reduced to 250' per conversation with Joe Gallo, 11/01/06)
4. The dominant soil series at this site are Norfolk B (NoB: 2-6% slope) and Foreston A (FoA: 0-2% slope) according to the Onslow Co. Soil Survey, sheet 13. The soils for each field are as follows:
  - a) Field #1 Norfolk B
  - b) Field #2 Foreston A
  - c) Field #3a Norfolk B
  - d) Field #3b Foreston A
  - e) Field #4 Foreston A
5. Septage will not be applied when and where the site is untrafficable. Untrafficable is defined as soil that will allow a loaded truck to leave a depression in sod greater than 3 inches in depth. It also will not be applied when the field is flooded, frozen, or snow covered.
6. Grease septage is to be diluted at least 1:1 from its original concentration when pumped with domestic septage or water. Grease septage applications shall not exceed 25,000 gallons/acre/yr.
7. Septage storage shall be provided to account for the average volume of septage pumped per week, or an alternative plan, such as disposal at a waste treatment plant, should be in place. Existing storage tanks are located on site at SDTF 67-11.
8. If the forage is to be grazed, the nitrogen recommendations are to be reduced by 25% for each applicable field.

**B. Crops to be grown and approximate planting and harvest times:**

1. The fields are to have Bermuda during the warm season; and cereal rye, wheat, or small grain mix for the cool season.
2. On established fields, the Bermuda hay harvest each year will be when the grass is 12 to 15 inches tall. Subsequent cuttings should occur at four- to five-week intervals or when it

is 12 to 15 inches tall, whichever comes first. Recommended Bermudagrass practices are detailed in the attached Extension publication, *Bermudagrass Management in North Carolina*. It should be noted that true "common" Bermudagrass does not grow very tall and will be shorter than the Cheyenne. Mowing all varieties of Bermudagrass will help the grass spread and reduce weed problems. Maintaining proper soil pH is very important. If the pH gets above 6.5, it is recommended that 300 lbs/acre of elemental sulfur be applied to the field.

Overseeding with cereal rye, wheat, or small grain mix ("winter overseed") will occur near mid-October of each year, at a rate of approximately 2.5 bu/acre to 3 bu/acre (roughly 100-120 lbs per acre). This seeding rate is from *Planting Guide for Forage Crops in North Carolina*, to obtain the proper crop stand density required to meet the realistic yield expectations. Failure of sufficient germination will likely require reseeding in affected areas. The winter overseed crop will be harvested as hay, preferably by late April to very early-May.

### 3. General Note: grass establishment

Prior to initial seeding with Bermuda, any existing crop will be cut, removed, and the remaining vegetation sprayed with plant killer, especially if ryegrass is present. For better germination, it is recommended that a cultipacker be used during seeding to improve seed/soil contact. If the stand of Bermuda grass in any field falls below 80% coverage, then the field (or specific problem areas) will be sprigged, in March or April, with 30-40 bushels of Bermuda grass sprigs per acre or seeded, in April or May, with 10-15 lbs per acre Cheyenne Bermuda (or another seeded variety) grass seed. If weeds caused the problem with the grass coverage, the weed problem is to be addressed **before** re-seeding or sprigging. In bare areas, a light discing can be used to incorporate the sprigs. The winter cover crop needs to be removed before the Bermuda is put out and the pumping schedule adjusted accordingly.

Bermuda grass establishes best at a pH of 6-6.5. Use the soil test report to determine if lime, phosphorus and potassium additions are needed. If the soil pH is greater than 6.5, apply 300 lb/acre elemental sulfur. When growth starts, 30 pounds of nitrogen per acre can be applied. After the plants begin to make runners, an additional 30 pounds of nitrogen per acre can be applied. These nitrogen applications are to be documented and kept along with the other application records. If weedy grasses are not a problem, let the new grass grow 8-10 inches tall before clipping. During establishment, clipping (short mowing) will encourage the plants to spread across the soil, and will also help control some weeds.

### 4. Weed control

Well-managed Bermudagrass is competitive with most perennial and summer annual weeds. If weeds become a problem, especially during grass establishment, contact your technical specialist for assistance and/or the most recent *North Carolina Agricultural Chemicals Manual* for herbicides to control specific weeds. Promptly removing the winter overseed crop is important to avoid shading out and competing with the Bermuda early in its growing season. Pre-emergent herbicides can be used to control crabgrass and other warm season annual weeds; **do not use in areas that are to be reseeded.**

**C. Nitrogen needs for crops grown:**

RYE = Realistic Yield Expectation

N App. Rate = Suggested nitrogen application rate

<i>Field</i>	<i>Crop (as hay)</i>	<i>RYE tons/acre</i>	<i>N App. Rate lbs/dry ton</i>	<i>Total lbs N/ac</i>	<i>*Gal/ac/yr</i>	<i>Adjusted Gal/ac/yr</i>	<i>Actual lbs N/ac</i>
1	Overseed	2.5	40	100	38,460	20,000	52
	Bermuda	5.5	40	220	84,610	30,000	78
2	Overseed	2.8	40	112	43,050	20,000	52
	Bermuda	5.2	40	208	80,000	30,000	78
3a	Overseed	2.5	40	100	38,460	20,000	52
	Bermuda	5.5	40	220	84,610	30,000	78
3b	Overseed	2.8	40	112	43,050	20,000	52
	Bermuda	5.2	40	208	80,000	30,000	78
4	Overseed	2.8	40	112	43,050	20,000	52
	Bermuda	5.2	40	208	80,000	30,000	78

\* This column represents the number of gallons needed to meet the total nitrogen needs of the crops. The maximum permitted application is 50,000 gal/acre/yr, with a maximum winter monthly application of 5,000 gal/acre.

Crops will be harvested as hay and removed from site for feed, bedding, or other approved uses. The **Adjusted gal/acre/year** column represents what can be applied so as not to exceed the maximum permitted application rate of 50,000 gal/acre/yr.

Because the nitrogen needs will not be met with the septage applications, commercial nitrogen fertilizer, such as 10-0-0 can be used IF NEEDED. A Plant Tissue Analysis sample can be collected to determine if the plants are deficient. If fertilizer is used, it is important that the crop N requirements not be exceeded! The difference between the “Actual lbs N/ac” and the “Total lbs N/ac” is the amount of supplemental nitrogen that can be added. All such additions are to be documented.

**D. Monthly/yearly application rate estimates in gallons:**

<i>Crop</i>	<i>Maximum Uptake Period</i>
Bermudagrass (hay)	May-September
Winter overseed (hay)	February-April

As shown in the above table, the winter overseed has its maximum nutrient uptake during February through April. There is some uptake, however, as the crop first grows and becomes established. It is generally recommended that 1/3 of the nutrients be applied during the lower growth months (November-January) and the remaining 2/3 be applied during February-April.

It is understood that homeowner pumping requests are greatest during the winter months.

The application recommendations in the table below, therefore, are given as the permissible amount WEATHER, CROP, AND FIELD CONDITIONS PERMITTING. In order to get more customers to request summer pumping, you may want to offer a “price incentive” (i.e., have a summer price that is less than the winter price). This would reduce your risk of either an application or crop cover violation. Again, this is just a recommendation.

<i>Month</i>	<i>Field 1, 2, 3a, 3b, &amp; 4 application per acre Bermuda &amp; Overseed</i>
January*	low
February*	low
March*	medium
April	low
May	medium
June	high
July	high
August	high
September	medium
October	medium
November*	low
December*	low

Low = up to 5,000 gallons; medium = up to 10,000 gallons; high = up to 15,000 gallons

\* These months can have wetter soil conditions than during the other months. It is exceedingly important that the applications be applied to the largest surface area practicable, so as not to have any ponding or runoff, and to minimize untrafficable areas

Note: Application dates are approximate and subject to adjustments due to harvesting (30 day rest periods) and weather. They are given as an application guide.

It is understood that weather conditions can cause the winter crop to mature earlier or later than the specified field harvest date. Regulations mandate that a crop be planted or break dormancy within 30 days of any application of septage. No crop can be harvested until at least 30 days after the last septage application to that crop if it is to be used as forage or bedding. Harvests should, therefore, be staggered at intervals among the fields such that at least one is available for application while the others go through the 30 day rest period.

#### **E. Application method:**

The preceding information is based on septage being **evenly applied** over the entire permitted site by pumper truck with a splash plate. If the entire area within a field is not covered each time, markers or some form of consistent rotation are needed to ensure that one portion of the field is not more heavily loaded than other portions of the field. This can be accomplished by dividing each field into sub-fields.

An application record for each sub-field is highly recommended. Waste record forms SLUR-1 and SLUR-2 can be used for record keeping. These and additional forms are available from the local Cooperative Extension office.

**F. Additional fertility requirements:**

Optimum nitrogen uptake will not occur if the concentrations of other nutrients limit the crop growth. Septage does not provide adequate supplies of all necessary nutrients over a prolonged period of time, so periodic supplements may be required. These maintenance applications should be based on annual soil test analyses. The soil samples should be taken in late Fall or early Winter, so that the supplements can be added in the Spring prior to the Bermudagrass breaking dormancy. **DO NOT FOLLOW THE NITROGEN RECOMMENDATION FROM THE SOIL TEST REPORT!** You are to use the nitrogen amounts given in this waste application plan.

A separate soil sample should be collected for the buffer areas. Commercial fertilizer applications to the buffers are to be based on the soil sample results. If you have questions, feel free to ask a Certified Waste Management Plan person in the local Cooperative Extension or Soil & Water Conservation offices. You can also contact Tim Hall, NCDA&CS Regional Agronomist, for stand health questions (324-9924).

**G. Harvest of the crops and their use:**

1. The Bermudagrass will be cut as hay and baled at four- to five-week intervals or when it is 12 to 15 inches tall, whichever comes first. Recommended Bermudagrass practices are detailed in the Extension publication, *Bermudagrass Management in North Carolina*.
2. The winter overseed will be cut and baled as hay during April to early May. This is necessary to prevent the winter crop from shading out the Bermuda, which is beginning to grow at this time.
3. The baled crops will be transported off site and used as livestock feed or other approved uses.
4. A 30-day waiting period must be observed between the last application of septage and harvest if the material is to be used as livestock feed or bedding; therefore, an application rotation will need to be established among the fields. Record keeping will be an important factor in documenting proper application. This cycle will continue until your next plan update or other instructions from either DENR or a Certified Waste Management Plan person. Any changes are to be put into writing, placed in your plan file, and copies given to the appropriate agencies.

**H. Records required to be kept for five years:**

1. Soil tests are to be done annually and the reports kept. Although nitrogen and phosphorus are the main nutrients of interest, some micronutrients are also of concern. Check your soil test results and compare them to the follow table:

<i>Pollutant</i>	<i>Maximum Cumulative Loading Rate (kilograms per hectare)</i>	<i>Equivalent Soil Test Report Value (parts per million)</i>
Zinc	2800	1400
Copper	1500	750
Cadmium	39	19.5
Nickel	420	210

<i>Pollutant</i>	<i>Maximum Cumulative Loading Rate (kilograms per hectare)</i>	<i>Equivalent Soil Test Report Value (parts per million)</i>
Lead	300	150
Selenium	100	50
Arsenic	41	20.5
Mercury	17	8.5

2. Septage pumping log
3. Septage land application log
4. Septage land application log cover sheet with signed certification

The NC Septage Management Rules (15A NCAC 13B .0822(e)) and the Federal Rules (40 CRF 503.17(b)) require that specific information be recorded and maintained for septage land application sites. Incomplete record keeping may result in penalties. If you do not include the required records your site may not be re-permitted. If you have more than one site and each site has a separate permit number, the records for each must be maintained separately.

One **Septage Land Application Log Cover Sheet** is to be attached to each set of log forms submitted to DENR. The **Septage Pumping Log** (modified SLUR-1) is used to record septage pumped by the firm. The **Septage Land Application Log** (modified SLUR-2) is used to record how the septage is treated and land applied. All blocks are to be completed. One Septage Land Application Log is to be kept for each field and crop. Your site would have a minimum of 10 log forms for each year:

- Field #1 Overseed,
- Field #1 Bermudagrass,
- Field #2 Overseed,
- Field #2 Bermudagrass
- Field #3a Overseed,
- Field #3a Bermudagrass,
- Field #3b Overseed,
- Field #3b Bermudagrass,
- Field #4 Overseed,
- Field #4 Bermudagrass.

If the fields are sub-divided for applications, additional forms may be used. Although not required, crop harvest records are strongly recommended.

Questions regarding the regulations? Contact Chester Cobb (Division of Waste Management, Land Application and Composting Branch) at 919-707-8283.

### **Soil Erosion and Runoff Control Plan**

Natural Resource Conservation Service best management practices (BMPs) are readily available and directly applicable to septage application sites. Some recommended BMPs for this site include:

1. Maintain a vegetative cover. At any time of the year, crops or their residue should be present on the site.
2. Manage soil surface for maximum infiltration. Minimize soil disturbance by drill planting the Winter small grain crop. The Onslow Extension Center has a grain drill available for rent. If soil compaction should become evident (ponding of applied septage), use a subsoiler to loosen the soil and improve infiltration. Field traffic should be kept to a minimum.
3. Maintain vegetation on swales, ditch channels, and all other field exits for stormwater runoff. Bermudagrass buffers at least 50 feet wide should be maintained around the site. A 200 ft buffer is to be maintained in areas adjacent to streams. If additional control or screening is needed, contact the Soil & Water Conservation office to see if the site qualifies for Cost Share assistance. They may be able to help you get trees or shrubs.
4. Extra care and control may be needed on those areas with increased slope. If possible, field edges should be shaped to detain runoff.

Nutrient management and erosion control plans are not static instruments; they are blueprints for planning and optimizing the defined crop use goals. As crop use goals or site conditions change, the management plan may need to be amended. Information sources, such as Cooperative Extension or Soil & Water Conservation, should be used on an ongoing basis.

Submitted by:  Date: 6/11/12

Plan prepared by:  Date: 06/11/12

Address: Diana M.C. Rashash, PhD, EI  
North Carolina Cooperative Extension  
4024 Richlands Hwy.  
Jacksonville NC 28540

Phone: (910) 455-5873

Fax: (910) 455-0977

email: [diana\\_rashash@ncsu.edu](mailto:diana_rashash@ncsu.edu)

Attachments: This is an update of the plan written 05/14/09. All aerial photos, maps, booklets, and forms from the prior plan should be kept and attached to this plan.

Please sign both copies and send one copy to:

*Chester Cobb, Soil Scientist  
NC DENR, Division of Waste Management  
1646 Mail Service Center  
Raleigh NC 27699-1646*

# Septage Land Application Log Cover Sheet

Site Operator: Ray A Zamora

SLAS Permit #: 67-11

Site Location: 314 Fowler Manning Rd. Richards N.C.  
(street address for the site or latitude and longitude)

Number of Acres Permitted: 20.8  
(from SLAS permit)

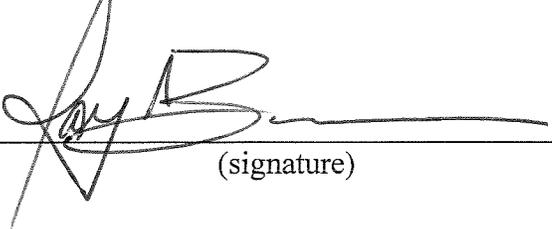
Application Rate: \_\_\_\_\_  
(from SLAS permit: gallons septage per acre per year)

Crop Present: bermuda

Crop Nitrogen Requirement: \_\_\_\_\_  
(pounds nitrogen per acre) (permitted) / (applied)

## CERTIFICATION:

"I certify, under penalty of law, that the pathogen requirements in (503.32(c)(1) or 503.32 (c)(2)) and the vector attraction reduction requirements in (503.33(b)(9), 503.33(b)(10) or 503.33 (b)(12)) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment."

  
(signature)

6/11/12  
(date)

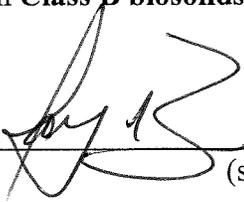
NCDA&CS Septage Sample Cover Sheet

Site Operator: Ray A Zamora  
SLAS Permit #: 67-11  
Site Location: 314 Fowler Marrett Rd. Richards A.C.  
(street address for the site or latitude and longitude)

CERTIFICATION:

"I certify, under penalty of law, that the pathogen requirements in (503.32(c)(1) or 503.32 (c)(2)) and the vector attraction reduction requirements in (503.33(b)(9), 503.33(b)(10) or 503.33 (b)(12)) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment."

The pH of the septage was raised to a pH of 12 and stabilized at 12 for 2 hours. The increase in pH is obtained through the addition of hydrated lime. This level of treatment is required to reach **Class B biosolids** as classified by EPA.

  
(signature)

6/11/12  
(date)

# SLAS Permit Review

Permit # 67-11

0-12-12  
NMP

RECEIVED 6-18-12  New  Renewal  Modification

ISSUED 6-11-09 EXPIRES 6-12-12

Application COMPLETE

Landowner Authorization Form PERMITTEE OWNS WITH LANDOWNER FORM SENT ON 2-19-13 WERE.

Maps ON FILE

Nutrient Management Plan

CROPS: BERMUDAGRASS / RYE

Planting

FIELDS 1, 2, 3, 4

80% Coverage (replanting guidelines)

18.2 acres 910,000

Harvest

Fields: 5 ~~(ACTIVE)~~

CRC Acres: 19.4

Field 3b

Total Annual Application Amount: \_\_\_\_\_

1.2 acres 69,000 gallons

NITROGEN RATE

970,000 gal

- PLAN WRITTEN TO ADDRESS HEAVY PH & COPPER & ZINC LEVELS.

Records

ON S DRIVE

Over annual maximum amount

Over monthly amount

BY FIELD

- WENT OVER ON ANNUAL AMOUNTS

- WENT OVER MONTHLY AMOUNTS

- SEE ATTACHED RECORD SUMMARIES

- NOU DATED 9-26-13

- AUDIT REPORT DATED 7-1-13

✓ Notice of Violations

DATE	RULE \ COMMENT
1-29-10	.0838 g. 19. APPROVED CROP NOT PRESENT ON FIELDS 1 & 4

Comments:

- CALLED RAY ON 1-16-13 TO REQUEST REMAINING 2009 RECORDS (JAN.-APR.) AND 2012 RECORDS.

- RAY SAID RYE LOOKED GOOD. WILL HAVE TO REED BERMUDA.

PERMIT RATES FOR 2013

FIELD 1 CLOSED

FIELD 2  $(3.8 \times 50,000) - 125,000 = 65,000$  GAL.

FIELD 3a  $(2.0 \times 50,000) - 56,200 = 43,800$  GAL.

FIELD 3b  $(1.2 \times 50,000) - 0 = 60,000$  GAL.

FIELD 4 CLOSED

2014

FIELD 2 190,000

FIELD 3a 100,000

FIELD 3b 60,000

FIELD 1 134,000

FIELD 4 ~~437,000~~

921,000

$$19.4 \times 50,000 = 970,000$$

CRC  
9-2013

	SLAS-67-11				19.43 Acres	971500 gal/yr
	2013					
	Field 1	Field 2	Field 3	Field 4	→ <i>Other</i>	Rate
						F1, F3a, F3b, F4
January	28,000	-	14,000	55,600		L
February	13,500	17,000	9,500	45,500		L
March	29,900	32,500	19,800	73,200		M
April	13,700	33,300	9,900	41,400		L
May	29,400	30,200	-	41,400		M
June	28,400	12,000	3,000	33,700		H
July	-	-	-	-		H
August	-	-	-	-		H
September	-	-	-	-		M
October	-	-	-	-		M
November	-	-	-	-		L
December	-	-	-	-		L
TOTAL	142,900	125,000	56,200	290,800		614,900
			Low	Med	High	
Field #1	2.96		14,800	29,600	44,400	
Field #2	3.78		18,900	37,800	56,700	
Field #3a	2.05		10,250	20,500	30,750	
Field #4	9.44		47,200	94,400	141,600	
Field #3b	1.2		6,000	12,000	18,000	

2013

FIELD #1  
 PERMIT AMOUNT 148,000 GAL.  
 APPLIED SO FAR. -142,900 GAL.  
 LEFT 5,100 GAL.

2010-2012 OVERAGE - 21,100 GAL.  
-16,000 GAL.

2013

FIELD #4  
 PERMIT AMOUNT 472,000 GAL.  
 APPLIED SO FAR 290,800 GAL.  
 LEFT 181,200 GAL.

2009-2012 OVERAGE 214,370 GAL.  
-33,170 GAL.

2014

PERMIT AMOUNT 150,000 GAL.  
 REMAINING OVERAGE -16,000 GAL.  
134,000 GAL.  
 PERMIT AMOUNT

2014

PERMIT AMOUNT 470,000 GAL.  
 REMAINING OVERAGE -33,170 GAL.  
436,830 GAL.  
 PERMIT AMOUNT

Field	Acres	Permitted Amount (gal.)	Applied Amount (gal.)										Amount that can be applied in 2013
			2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	
1	2.96	148,000	169,620	156,300	175,200	133,600	142,900	C (21,620)	(8,300)	(27,200)	14,400	5,100	126,900
2	3.78	189,000	189,220	102,700	162,350	125,000	(220)	62,100	86,300	26,650	64,000		
3a	2.05	102,500	109,200	72,800	107,500	56,200	(6,700)	10,480	29,700	(5,000)	60,000	46,300	
3b	1.2	60,000	0	0	0	0	60,000	60,000	60,000	60,000	60,000	60,000	
4	9.44	472,000	530,040	601,690	509,820	290,800	d (58,040)	8,180	(129,690)	(37,820)	481,200		
TOTAL	19.43	971,500	998,080	839,040	952,390	614,900	(26,580)	132,460	19,110	58,230	356,600		254,630

a - PERMITTED AMOUNT FOR FIELD 1 WENT FROM 4.0 TO 2.96 ACRES ON JUNE 11, 2009. +3,000 gal  
 b - PERMITTED AMOUNT FOR FIELD 4 WENT FROM 9.5 TO 9.44 ACRES ON JUNE 11, 2009.

c - DID NOT COUNT OVER APPLICATION DUE TO CHANGE IN ACREAGE DURING MIDDLE OF CALENDAR YEAR,

d - ONLY COUNTED 55,040 GAL. ~~AGAINST~~ AGAINST PERMITTED AMOUNT FOR FIELD 4 DUE TO 0.06 DECREASE IN ACRES.

- AMOUNT TO BE SUBTRACTED FROM 2013 PERMIT AMOUNT.

FIELD 1 = 21,100 GAL.

FIELD 4 = ~~227,330 GAL.~~  
 214,370 GAL.

4-23-13

Prior 6/11/09					
Field 1	Field 2	Field 3a	Field 3b	Field 4	
4	3.5	2.2	1.6	9.5	
<i>2009</i> → <i>4 AC FIELD THROUGH JUNE 2009</i> <i>MONTHLY OVERAGES</i>					
	Field 1	Field 2	Field 3a	Field 3b	Field 4
L	<del>OK 400</del>	(6,680)	(10,250)		(13,200)
L	<del>OK 5,020</del>	(2,900)	(1,750)		10,500
M	<del>OK 7,200</del>	(13,200)	(20,500)		(58,400)
L	<del>OK 2,000</del>	(7,600)	(10,250)		12,200
M	(20,700)	(37,800)	(2,700)		(28,400)
H	(44,400)	(5,400)	(8,450)		(95,880)
H	(44,400)	(18,900)	(13,750)		(79,100)
H	(34,400)	(5,100)	(9,950)		(104,600)
M	(20,600)	(19,600)	(16,500)		(39,180)
M	(3,600)	(11,400)	(11,500)		(83,600)
L	(200)	(1,100)	(10,250)		(27,400)
L	(2,300)	(2,400)	(450)		(1,300)
<i>2010</i>					
	Field 1	Field 2	Field 3a	Field 3b	Field 4
L	(1,800)	(4,900)	(450)		(1,400)
L	(4,800)	(18,900)	(10,250)		(47,200)
M	(29,600)	(6,500)	(20,500)		(42,500)
L	5,300	(1,100)	1,050		(1,000)
M	(17,800)	(34,800)	(1,100)		(59,580)
H	(31,600)	(2,900)	(20,150)		(108,600)
H	(27,800)	(18,900)	(30,750)		(90,600)
H	(20,400)	(18,900)	(19,250)		(94,700)
M	(29,600)	(37,800)	(15,480)		(56,100)
M	(9,600)	(37,800)	(4,600)		(49,400)
L	200	(1,000)	(1,750)		(2,300)
L	(1,800)	(10,900)	(10,250)		(21,200)

NUMBER IN PARENTHESES  
IS NEGATIVE  
CRC



SLAS-67-11

4-23-13

	After 6/11/09				
	Field 1	Field 2	Field 3a	Field 3b	Field 4
	2.96	3.78	2.05	1.2	9.44
L	14,800	18,900	10,250	-	47,200
M	29,600	37,800	20,500	-	94,400
H	44,400	56,700	30,750	-	141,600
<b>2009</b>					
	Field 1	Field 2	Field 3a	Field 3b	Field 4
January	15,200	12,220			34,000
February	19,820	16,000	8,500		57,700
March	36,800	24,600	-		36,000
April	16,800	30,200	-		59,400
May	8,900	-	17,800		66,000
June	-	13,500	22,300		45,720
July	-	-	17,000		62,500
August	10,000	13,800	20,800		37,000
September	9,000	18,200	4,000		55,220
October	26,000	26,400	9,000		10,800
November	14,600	17,800	-		19,800
December	12,500	16,500	9,800		45,900
TOTAL	169,620	189,220	109,200	-	530,040
Permit MAX	148,000	189,000	102,500	-	472,000
Overage	21,620	-220	6,700	-	58,040
<p>Handwritten notes: 200,000 @ 4.0 acres; YEAR SET BETWEEN 2.96 acres AND 4.0 acres; 475,000</p>					
<b>2010</b>					
	Field 1	Field 2	Field 3a	Field 3b	Field 4
January	13,000	14,000	9,800	-	45,800
February	10,000	-	-	-	-
March	-	31,300	-	-	51,900
April	20,100	36,700	11,300	-	46,200
May	11,800	3,000	19,400	-	34,820
June	12,800	16,000	10,600	-	33,000
July	16,600	-	-	-	51,000
August	24,000	-	11,500	-	46,900
September	-	-	5,020	-	38,300
October	20,000	-	15,900	-	45,000
November	15,000	17,900	8,500	-	44,900
December	13,000	8,000	-	-	26,000
TOTAL	156,300	126,900	92,020	-	463,820
Permit MAX	148,000	189,000	102,500	-	472,000
Overage	-8,300	(62,100)	(10,480)	-	(8,180)

PAPER LOGS

71,040,000 @ 20.8 acres

	2011					
	Field 1	Field 2	Field 3a	Field 3b	Field 4	
January	10,800	-	1,900	-	31,000	
February	9,000	9,000	-	-	44,200	
March	27,300	36,000	-	-	81,100	
April	14,600	30,700	10,900	-	44,500	
May	-	14,000	15,000	-	53,800	
June	24,000	-	-	-	49,000	
July	24,500	-	8,000	-	41,020	
August	20,500	2,000	11,000	-	61,200	
September	13,000	-	9,000	-	60,520	
October	14,600	-	13,000	-	57,030	
November	8,500	11,000	-	-	34,700	
December	8,400	-	4,000	-	43,620	
TOTAL	175,200	102,700	72,800	-	601,690	952,390
Permit MAX	148,000	189,000	102,500	-	472,000	911,500
Overage	27,200	(86,300)	(29,700)	-	129,690	40,890
	2012					
	Field 1	Field 2	Field 3a	Field 3b	Field 4	
January	12,600	10,000	5,600		44,200	
February	14,600	18,500	10,000		46,500	
March	29,600	35,900	20,000		63,100	
April	13,000	38,300	10,500		45,600	
May	25,100	-	-		66,900	
June	5,000	12,500	11,000		42,820	
July	5,000	14,300	16,000		61,800	
August	-	13,350	24,200		49,500	
September	9,000	5,600	7,600		45,700	
October	15,700	7,900	2,600		29,800	
November	4,000	6,000			13,900	
December	-	-	-		-	
TOTAL	133,600	162,350	107,500	-	509,820	913,270
Permit MAX	148,000	189,000	102,500	-	472,000	911,500
Overage	(14,400)	(26,650)	5,000	-	37,820	1,770

SITE LOG SLAS 6711

*ELECTRONIC RECORDS STARTED MAY 2009*

**ANNUAL SUMMARY**

**SLAS 6711**

	Pumped / Applied	Field Maximum
Septage	601,840	
Grease	-2,020	
PTW	0	
Field 1	169,420	148,000
Field 2	189,220	189,000
Field 3a	109,200	102,500
Field 3b	-	0
Field 4	530,040	472,000
Field 5	0	0

Maximum Annual Application Rate	911,500
---------------------------------	---------

Total Amount Applied to Site	<del>630,840</del> 998,080
------------------------------	-------------------------------

**Monthly Application Totals**

	January	February	March	April	May	June	July	August	September	October	November	December
	0	0	0	0	92,700	81,520	79,500	81,600	86,420	72,200	52,200	84,700

2010

Ray's Septic Service      SEPTAGE LAND APPLICATION  
 SITE LOG SLAS 6711

**ANNUAL SUMMARY**

**SLAS 6711**

	Pumped / Applied	Field Maximum
Septage	831,540	
Grease	0	
PTW	0	
Field 1	156,300	148,000
Field 2	126,900	189,000
Field 3	92,020	102,500
Field 4	0	0
Field 5	463,820	472,000
Field 6	0	0

Maximum Annual Application Rate  
 911,500

Total Amount Applied to Site  
 839,040

**Monthly Application Totals**

	January	February	March	April	May	June	July	August	September	October	November	December
	82,600	10,000	83,200	114,300	69,020	72,400	67,600	82,400	43,320	80,900	86,300	47,000

April

Monthly Totals

Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	Total Monthly Application		
114,300	0	0	20,100	36,700	11,300	0	46,200	0	114,300		
<i>Do Not Exceed Monthly or Annual Application Rates</i>											
Maximum "Monthly" Application Rate			Acres	2.96	3.78	0	9.44	0	<i>Annual Permit totals</i>		
Application Rate			Rate	5,000	5,000	5,000	5,000	5,000	Annual Total Applied To Date		
Maximum "Annual" Application by "Field"			Gallons	14,800	37,800	10,250	47,200	0	Maximum Annual Application		
Currently Applied			Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	911,500		
			148,000	189,000	102,500	0	472,000	0			
			156,300	126,900	92,020	0	463,820	0			
Date Discharged	Time Discharged	Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	pH
4/1/2010	11:00	2000							2000		13
4/1/2010	5:00	1000							1000		13
4/1/2010	1:00	3000							3000		13
4/2/2010	10:30	3000							3000		13
4/2/2010	3:00	3000							3000		13
4/2/2010	4:45	1000							1000		13
4/2/2010	11:15	2000							2000		13
4/2/2010	4:00	2000							2000		13
4/5/2010	12:00	1000							1000		13
4/5/2010	3:30	1000							1000		13
4/5/2010	5:15	1000							1000		13
4/5/2010	1:30	2000							2000		13
4/6/2010	7:45	2000							2000		13
4/6/2010	12:00	3000							3000		13
4/6/2010	3:30	1000							1000		13
4/6/2010	10:30	1000							1000		13
4/6/2010	12:30	1000							1000		13
4/6/2010	4:00	2000							2000		13
4/7/2010	2:00	1500			1500						13





November

Monthly Totals

Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	Total Monthly Application
84,300	0	0	15,000	17,900	8,500	0	44,900	0	86,300
<i>Do Not Exceed Monthly or Annual Application Rates</i>									
Maximum "Monthly" Application Rate			Acres	3.78	2.05	0	9.44	0	<i>Annual Permit totals</i>
Application Rate			Rate	5,000	5,000		5,000		Annual Total Applied To Date
Gallons			Gallons	14,800	18,900	10,250	47,200	0	839,040
Maximum "Annual" Application by "Field"			Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	Maximum Annual Application
Currently Applied			148,000	189,000	102,500	0	472,000	0	911,500
			156,300	126,900	92,020	0	463,820	0	

Date Discharged	Time Discharged	Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	pH
11/1/2010	12:00	2000					2000				13
11/1/2010	4:30	1000					1000				13
11/2/2010	12:00	3000							3000		13
11/2/2010	4:00	2000							2000		13
11/3/2010	11:00	2000			2000						13
11/3/2010	4:00	2000			2000						13
11/4/2010	11:00	2000			2000						13
11/4/2010	2:30	2000			2000						13
11/5/2010	12:00	2000			2000						13
11/5/2010	3:00	2000			2000						13
11/8/2010	2:45	2000							2000		13
11/8/2010	4:00	1000							1000		13
11/9/2010	11:00	2000							2000		13
11/9/2010	1:30	2000							2000		13
11/9/2010	4:00	1000							1000		13
11/10/2010	10:15	1000							1000		13
11/10/2010	1:30	2000							2000		13
11/10/2010	4:00	2000							2000		13
11/11/2010	11:00	2000				2000					13



**ANNUAL SUMMARY**

**SLAS 6711**

	<i>Pumped / Applied</i>	<i>Field Maximum</i>
Septage	928,870	
Grease	2,020	
PTW	0	
Field 1	175,200	148,000
Field 2	102,700	189,000
Field 3	72,800	102,500
Field 4	0	0
Field 5	601,690	472,000
Field 6	0	0

*Maximum Annual Application Rate*

911,500

*Total Amount Applied to Site*

952,390

**Monthly Application Totals**

	January	February	March	April	May	June	July	August	September	October	November	December
	43,700	62,200	144,400	100,700	82,800	73,000	73,520	94,700	82,520	84,630	54,200	56,020

April

Monthly Totals

Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	Total Monthly Application		
100,700	0	0	14,600	30,700	10,900	0	44,500	0	100,700		
<i>Do Not Exceed Monthly or Annual Application Rates</i>											
Maximum "Monthly" Application Rate			Acres	2.96	3.78	0	9.44	0	<i>Annual Permit totals</i>		
Maximum "Annual" Application by "Field"			Rate	5,000	5,000	0	5,000	0	Annual Total Applied To Date		
			Gallons	14,800	37,800	0	47,200	0	Maximum Annual Application		
			Field 1		Field 2	Field 3a	Field 4	Field 5	911,500		
			148,000	189,000	102,500	0	472,000	0			
			175,200	102,700	72,800	0	601,690	0			
			Currently Applied		Field 1	Field 2	Field 3a	Field 3b			
Date Discharged	Time Discharged	Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	pH
4/1/2011	4:00	2000			2000						13
4/1/2011	3:00	2000			2000						13
4/4/2011	3:30	3000			3000						13
4/4/2011	4:00	1600			1600						13
4/5/2011	4:30	3000			3000						13
4/6/2011	3:00	3000			3000						13
4/6/2011	11:30	2000							2000		13
4/6/2011	3:30	2000							2000		13
4/6/2011	5:15	1000							1000		13
4/7/2011	12:30	2000							2000		13
4/7/2011	1:30	2000							2000		13
4/8/2011	2:00	2000							2000		13
4/8/2011	11:30	2000							2000		13
4/9/2011	11:30	1000							1000		13
4/9/2011	1:30	1000							1000		13
4/11/2011	11:30	2500							2500		13
4/11/2011	1:30	1000							1000		13
4/12/2011	10:30	1000							1000		13
4/12/2011	3:15	1000							1000		13



2012

**ANNUAL SUMMARY**

**SLAS 6711**

	Pumped / Applied	Field Maximum
Septage	855,270	
Grease	0	
PTW	0	
Field 1	133,600	148,000
Field 2	162,350	189,000
Field 3	107,500	102,500
Field 4	0	0
Field 5	509,820	472,000
Field 6	0	0

Maximum Annual Application Rate	911,500
---------------------------------	---------

Total Amount Applied to Site	913,270
------------------------------	---------

**Monthly Application Totals**

	January	February	March	April	May	June	July	August	September	October	November	December
	72,400	89,600	148,600	107,400	92,000	71,320	97,100	87,050	67,900	56,000	23,900	0

March

Monthly Totals

Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	Total Monthly Applications		
131,600	0	0	29,600	35,900	20,000	0	94,600	0	180,100		
<i>Do Not Exceed Monthly or Annual Application Rates</i>											
Maximum "Monthly" Application Rate			Acres	3.78	2.05	0	9.44	0	<i>Annual Permit totals</i>		
Application Rate			Rate	10,000	10,000		10,000		Annual Total Applied To Date		
Gallons			Gallons	29,600	37,800	0	94,400	0	<del>944,770</del>		
Maximum "Annual" Application by "Field"			Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	Maximum Annual Application		
Currently Applied			148,000	189,000	102,500	0	472,000	0	911,500		
			133,600	162,350	107,500	0	541,320	0			
Date Discharged	Time Discharged	Septage	Grease	PTW	Field 1	Field 2	Field 3a	Field 3b	Field 4	Field 5	pH
3/1/2012	12:00	3000							3000		13
3/1/2012	5:00	3000							3000		13
3/1/2012	10:30	2000							2000		13
3/2/2012	10:00	2000							2000		13
3/2/2012	1:30	2000							2000		13
3/2/2012	3:45	2000							2000		13
3/2/2012	5:30	2000							2000		13
3/6/2012	3:30	2000							2000		13
3/6/2012	5:30	2000							2000		13
3/7/2012	11:00	2000							2000		13
3/7/2012	1:30	2000							2000		13
3/7/2012	12:45	3000							3000		13
3/8/2012	3:00	2000							2000		13
3/8/2012	5:00	2000							2000		13
3/8/2012	1:00	2000							2000		13
3/8/2012	1:00	1500 tanks							1500		13
3/8/2012	2:15	3500 tanks							35000		13
3/9/2012	10:15	2000							2000		13
3/12/2012	11:00	1000							1000		13
3/12/2012	4:00	2000							2000		13

3500





## Cobb, Chester

---

**From:** Diana Rashash <diana\_rashash@ncsu.edu>  
**Sent:** Tuesday, May 01, 2012 11:41 AM  
**To:** Cobb, Chester  
**Subject:** Ray Zamora fields

Chester,

Ray Zamora came in the other day with concerns about clover in his application fields. He estimates that he has 50% clover in his bermuda.

As part of the recommendation process, we asked him to bring in his soil reports. He is in my office right now. The zinc indexes are way high, as is the pH. I wish you or Joe had mentioned it to me a couple of years ago. For Field 1, the Zn index is above 4,000. The others are all above 2,500.

I am recommending that he deep soil sample, so we can get an idea of the levels 12-18 inches down. If those are low, I'm going to ask him to do a deep tilling.

Right now, I've let him know that once field zinc indexes get above 3,000, I CANNOT write an application plan for him. I've told him that he may want to start looking for additional application fields. He is also wanting to do solid separation and just apply the liquid, but he has to find someone willing to take the solids. We will approach the county landfill, again.

He did say that his rye did very well this year. He got around 65-70 round bales off the site this spring.

Comments?

Diana

--

Diana M. C. Rashash, PhD EI  
NC Cooperative Extension Service  
4024 Richlands Hwy.  
Jacksonville NC 28540

Extension Area Specialized Agent  
Natural Resources-Environmental Education  
email: [diana\\_rashash@ncsu.edu](mailto:diana_rashash@ncsu.edu)  
Phone: (910)455-5873  
Fax: (910) 455-0977

NOTICE: PLEASE READ!

Pursuant to North Carolina General Statutes, Chapter 132, email correspondence to and from this address may be considered public record under the North Carolina Public Records Law and may be disclosed to third parties.

## Cobb, Chester

---

**From:** Diana Rashash <diana\_rashash@ncsu.edu>  
**Sent:** Friday, May 11, 2012 3:09 PM  
**To:** Cobb, Chester; Scott, Michael  
**Subject:** amendment to Ray Zamora plan - draft, please comment  
**Attachments:** Zamora051012.docx

Gentlemen,

Ray Zamora is having several issues with his septage fields:

much clover (nearing 50%)  
high pH  
very high zinc indexes (2500-4000 from fall samples)

Please see attached letter with recommendations. He is coming by my office on Monday. He has already made arrangements with someone to till Field 2; he has just been waiting on the new soil test results and my recommendations & letter.

The soil samples he just took (6", 12", and 18"; he borrowed an auger from me) came back with lower Zn-I than the Sept. samples Joe took. For now, I thought we'd just plow up Field 2.

Thanks,  
Diana

--

Diana M. C. Rashash, PhD EI  
NC Cooperative Extension Service  
4024 Richlands Hwy.  
Jacksonville NC 28540

Extension Area Specialized Agent  
Natural Resources-Environmental Education  
email: [diana\\_rashash@ncsu.edu](mailto:diana_rashash@ncsu.edu)  
Phone: (910)455-5873  
Fax: (910) 455-0977

NOTICE: PLEASE READ!

Pursuant to North Carolina General Statutes, Chapter 132, email correspondence to and from this address may be considered public record under the North Carolina Public Records Law and may be disclosed to third parties.

Onslow County Center  
Onslow County MultiPurpose Complex  
4024 Richlands Hwy.  
Jacksonville NC 28540  
910-455-5873  
910-455-0977 FAX  
Web Address:  
<http://onslow.ces.ncsu.edu/>

May 11, 2012

Mr. Ray Zamora  
1142 Gould Road  
Jacksonville, NC 28540

Subject: plan amendment for reducing pH and zinc index in fields

Dear Mr. Zamora,

This letter is in reference to your visit to my office on May 1, 2012, and our subsequent telephone conversations. At the time of your visit, you were concerned with the amount of white clover growing on your septage application fields. You brought copies of your soil test reports (09/21/11), which showed elevated pH and very elevated zinc indexes. It was recommended that you resample each field, and do so at depths of 6", 12", and 18".

The soil test results are now available online. From these results, it is recommended that Field 2 be tilled to mix the surface soil with the soil at deeper depth. Roughly 200 lbs/acre of elemental sulfur should be added pre-tilling, to bring down the soil pH. After 6-8 weeks, resample the soil at a depth of 4-6". If the pH is still too high, a repeat surface application of sulfur can be made.

After tilling Field 2, the Bermuda will need to be reseeded and will receive reduced septage applications until the grass establishes. The other three fields should receive surface applications of elemental sulfur (200 lbs/acre) to reduce the pH. As with Field 2, resample the soil in each field 6-8 weeks after applying the sulfur.

This letter serves as an amendment to your Septage Nutrient Management Plan (SLAS 67-11), enabling you to proceed with the above recommendations.

Please let me know if you have any questions.

Sincerely,

Diana M. C. Rashash, PhD, EI  
Area Specialized Agent-Natural Resources

**Cobb, Chester**

---

**From:** Diana Rashash <diana\_rashash@ncsu.edu>  
**Sent:** Friday, May 18, 2012 3:25 PM  
**To:** Cobb, Chester  
**Subject:** Zamora letter  
**Attachments:** Zamora051012.pdf

Chester,

I gave Ray a copy of the letter today. He will be checking into the price of elemental sulfur.

Diana

--

Diana M. C. Rashash, PhD EI  
NC Cooperative Extension Service  
4024 Richlands Hwy.  
Jacksonville NC 28540

Extension Area Specialized Agent  
Natural Resources-Environmental Education  
email: [diana\\_rashash@ncsu.edu](mailto:diana_rashash@ncsu.edu)  
Phone: (910)455-5873  
Fax: (910) 455-0977

**NOTICE: PLEASE READ!**

Pursuant to North Carolina General Statutes, Chapter 132, email correspondence to and from this address may be considered public record under the North Carolina Public Records Law and may be disclosed to third parties.

May 18, 2012

Mr. Ray Zamora  
1142 Gould Road  
Jacksonville, NC 28540

Onslow County Center  
Onslow County MultiPurpose Complex  
4024 Richlands Hwy.  
Jacksonville NC 28540  
910-455-5873  
910-455-0977 FAX  
Web Address:  
<http://onslow.ces.ncsu.edu/>

Subject: plan amendment for reducing pH and zinc index in fields, & clover control

Dear Mr. Zamora,

This letter is in reference to your visit to my office on May 1, 2012, and our subsequent telephone conversations. At the time of your visit, you were concerned with the amount of white clover growing on your septage application fields. You brought copies of your soil test reports (09/21/11), which showed elevated pH and very elevated zinc indexes. It was recommended that you resample each field, and do so at depths of 6", 12", and 18".

The soil test results are now available online. From these results, it is recommended that Field 2 be tilled to mix the surface soil with the soil at deeper depth. Roughly 400 lbs/acre of elemental sulfur should be added pre-tilling, to bring down the soil pH. After 6-8 weeks, resample the soil at a depth of 4-6". If the pH is still too high, a repeat surface application of sulfur can be made.

After tilling Field 2, the Bermuda will need to be reseeded and will receive reduced septage applications until the grass establishes. The other three fields should receive surface applications of elemental sulfur (350 lbs/acre) to reduce the pH. As with Field 2, resample the soil in each field 6-8 weeks after applying the sulfur.

Also, follow the application recommendations for the Cimmeron, to help get the clover under control in all fields. The Bermuda may be mowed in the affected fields to promote the formation of runners. Once the Bermuda fills in again, go back to normal harvesting and removal.

This letter serves as an amendment to your Septage Nutrient Management Plan (SLAS 67-11), enabling you to proceed with the above recommendations.

**Permit expires in June 2012.** Please let me know if you have any questions.

Sincerely,

Diana M. C. Rashash, PhD, EI  
Area Specialized Agent-Natural Resources

cc: Chester Cobb, NCDENR

## Cobb, Chester

---

**From:** Diana Rashash <diana\_rashash@ncsu.edu>  
**Sent:** Friday, June 08, 2012 1:03 PM  
**To:** Cobb, Chester  
**Subject:** Ray Z.

Chester,

Just spoke to Ray. I should have his plan ready by Monday afternoon. He has purchased all of his sulfur. Field 2 has been chisel plowed (to break it up, apparently very hard soil), sulfur added, and about to be deep plowed to turn everything over and mix well. The sulfur will be added to the other fields right after the next cuttings, which are coming up this week. I told him to hold off a bit on using the Cimarron to control the clover, until after we see what impact the sulfur has on it. So, cut hay, add sulfur, wait a week or two, then use the Cimarron.

Have a great weekend!  
Diana

--

Diana M. C. Rashash, PhD EI  
NC Cooperative Extension Service  
4024 Richlands Hwy.  
Jacksonville NC 28540

Extension Area Specialized Agent  
Natural Resources-Environmental Education  
email: [diana\\_rashash@ncsu.edu](mailto:diana_rashash@ncsu.edu)  
Phone: (910)455-5873  
Fax: (910) 455-0977

### NOTICE: PLEASE READ!

Pursuant to North Carolina General Statutes, Chapter 132, email correspondence to and from this address may be considered public record under the North Carolina Public Records Law and may be disclosed to third parties.