



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

Pat McCrory
Governor

John E. Skvarla, III
Secretary

March 25, 2014

Mr. Garry Lipscomb
Mr. Bill Corey
NewSoil Vermiculture LLC
314 Latta Road
Durham, NC 27712

Solid Waste Compost Demonstration Approval (SWCD-32-01)

Dear Mr. Lipscomb and Mr. Corey:

The Division of Waste Management, Solid Waste Section, has reviewed your request for approval of a Solid Waste Composting Demonstration Approval (SWCD-32-01) located at 314 Latta Road, Durham, NC 27712. Your request is considered approved in accordance with the N.C. Solid Waste Management Rules, 15A NCAC 13B .1409 and subject to the following conditions:

- (1) The approval period is from receipt of this letter to March 25, 2014. If an extension is needed it must be requested by December 25, 2014 with a justification for the extension.
- (2) A full Solid Waste Compost facility permit will not be issued for this facility without approval from the appropriate local zoning officials or a letter indicating that the property is not zoned. Any local zoning approvals necessary for the demonstration approval are the responsibility of the applicant.
- (3) Composting at this site shall be limited to the materials specified in the application.
- (4) The site shall be prepared to control run-off and run-on. Best management practices shall be utilized for this purpose. All run-off from the site and any leachate generated shall be managed to prevent any impact to ground or surface waters. A full Solid Waste Compost facility permit will not be issued for this facility until storm water and leachate from the site are managed according to the Division of Water Quality's standards.
- (5) This approval is subject to immediate revocation if activities on site result in a direct or potential threat to the public health or the environment or if significant odor problems are created. The Division of Waste Management reserves the right to apply any other requirements of 15A NCAC 13B Section .1400 as the Division deems necessary during the above approval period.
- (6) Operation of the facility and compost monitoring activities shall be in accordance with the approved application and Section .1406 of the Solid Waste Management Rules. Records of temperatures shall be maintained to show pathogen reduction and vector attraction reduction requirements have been met and shall be available to representatives of the Section upon request.



- (7) Compost testing, frequency of testing, and reporting of test results shall be in accordance with the approved application and Section .1408 of the Solid Waste Management Rules. Classification and distribution of compost shall be in accordance with Section .1407 of the Solid Waste Management Rules.
- (8) **All compost shall be tested and the results approved by the Solid Waste Section prior to being used at the facility or removed from the facility for any use.**
- (9) Any changes or additions to this facility, subsequent to receipt of this letter shall be approved prior to the start of the operation.
- (10) This approval is not transferable.
- (11) A pre-operational inspection is required to confirm the site's setbacks in accordance with NC Solid Waste Composting Rule 15A NCAC 13B .1404 **prior** to accepting feedstock's for composting.
- (14) John Patrone, Environmental Senior Specialist, will be responsible for oversight and inspection of the facility and related activities. Mr. Patrone can be contacted at (336) 771-5095.

If you have questions concerning this approval please contact me at (919) 707-8280.

Sincerely,

Martin A. Gallagher, Environmental Supervisor
Composting & Land Application Branch

Cc: John Patrone, Environmental Senior Specialist
Jason Watkins, Western District Supervisor

S:\Solid_Waste\CLA\COMPOST\DEMO\APPROVAL\32-Durham\NewSoil Vermiculture\SWCD 32-01 Approval 3-25-2014

Compost Pilot and Demonstration Project

Application of NewSoil Vermiculture LLC

Date Submitted: Dec. 30, 2013



Owners and Operators:

Garry Lipscomb
(202) 374-0403 (c)

Bill Corey
(857) 204-9839 (c)

NewSoil Vermiculture LLC
314 Latta Road
Durham, NC 27712
(919) 237-2219

Why We Are Vermicomposting:

More than 50% of the total wastes that is deposited in landfills is organic material. Moreover, it is estimated that the largest single component of landfill is waste from our kitchens, which in turn is the largest producer of methane gas (CH₄), a significant contributor to global warming. Our start-up business dreams of harnessing this immense and wasted source of energy by recycling it through the burgeoning science of vermiculture.

Besides taking longer to mature and containing less nitrogen, traditionally-created compost also has lower microbial content, since the anaerobic, thermolythic process necessary to cure the compost kills many helpful microbes. Vermicompost is likewise devoid of pathogens, while at the same time being greatly enriched with helpful microorganisms, plus it is more moist, more nitrogen-rich, has a smaller particle size, and is better oxygenated than regular compost.

By vermicomposting our family not only reduces our household's total waste sent to landfill, but we enormously enrich our gardens and houseplants with the rich loamy by-product of our worms' work. And after years of growing our business from one small worm castle to nine large barrels, we finally have enough worms and vermicompost to distribute to others to enrich their gardens, yards, and plants.

We also plan to offer "Worm Tea" and "Worm Tea Bags" for distribution, made from our vermicompost.

Landowner:

David Eddinger
7300 Dogwood Road
Baltimore, MD 21244-1804
(410) 487-4588 (c)

Please see Landowner's notarized statement of approval attached at Tab 1.

Location:

Facility and operations are located in the basement of 314 Latta Road, Durham, NC 27712. Records are kept in the NewSoil office upstairs.

Driving Directions: Drive north on Roxboro Road; turn left on Latta Road; drive .5 miles; property is on right; gravel driveway is opposite mailbox #314. Or, drive north on Guess Road; turn right on Latta Road; drive .5 miles; property is on left; gravel driveway is opposite mailbox #314.

Property is not within the FEMA 100-year flood plain.

Please see various required maps attached at Tab 2.

Ingredients:

"Green" ingredients are solely the vegetarian waste products of our 3-member household. There is no dairy, meat or oils included in our composted table scraps. Typical contents of our family's compost pail are: vegetable peelings, stale bread, coffee grounds, non-meat containing food that has spoiled in our refrigerator or pantry shelves, etc. Scraps are ground in a food processor and fed to the worms along with the appropriate amounts of "brown" ingredients, which consist uniquely of partially composted and sterilized dead leaves from the trees on our property: pin oaks and red oaks.

Testing:

Please refer to a Diagnostic Waste Report by the NCDA & CS Division run on our vermicompost in January of 2013, attached at Tab 3. The third sample (NSC201) was culled from our indoor worm barrels. The other tests were run on material from outdoor compost bins which are not a part of our worm and vermicompost business, and which are not a part of this application.

We are currently having new tests run which should be ready at the time of a site visit or before, both NCDA & CS tests and additional lab tests as required by law.

Schedule:

We have been growing worms and vermicompost for over three years, since we moved into this property in July of 2010. We incorporated as NewSoil Vermiculture LLC with the NC Secretary of State in March of 2013 and began a modest business selling worms at that time, having received the appropriate federal, state and county sales permits. We would like to begin selling our vermicompost, primarily at 2014 Farmers Markets, and thus need the only appropriate state permit afforded to us as homeowners by the Compost Pilots and Demos Project.

We would like an approval of 12 months, in order to begin selling in April of 2014 (the start of the spring/summer Farmers Market season) and end selling in October (well into the fall season), since many people apply compost during this time.

Depending on the success of our project, we will either re-apply for another 12 month approval for 2015 or perhaps at that time we will be able to move our business to a commercial site appropriate for a larger scale vermicomposting operation, where we will be able to process food waste acquired from sources other than our own home. We would thereupon apply for the necessary commercial state permits for handling solid waste.

Methodology:

We currently have nine 50-gallon, heavy duty plastic barrels that we have modified for the processing of food waste by worms, specifically red wigglers (*Eisenia foetida*). The barrels are stored and carefully maintained in our basement, a perfect environment since it's cool enough in the heat of summer and warm enough in the cold of winter to permit year-round vermicomposting.

There is a drained, 10' x 10' cement-floored walking space built into the crawl space of the basement which is walled with cinder blocks and which makes a perfect place for storing and accessing our barrels.

The tops of the barrels are cut out to allow easy access and feeding. We have fabricated special lids which offer insulation and access to the top surface and the feeding worms. Sturdy grills on which the composting vermicompost rests are installed at approximately 1/3 of the height of the barrels, and 1' x 2' doors covered by removable Plexiglas are cut into the very bottom of the barrels, through which the finished vermicompost is harvested.

Please see pictures attached of our worm barrels and basement operation at Tab 4.

Aeration:

The most recently-added contents at the tops of the barrels are routinely aerated by hand, generally at the time prior to the regular, twice-weekly watering of the barrels. This aerates and mixes the

composting material, both the “green” household waste and the “brown” composting leaves, which were initially added in layers. Further aeration occurs at the time of harvesting, sifting and packaging, as described below.

Blending:

As described above, we alternate layers of ground-up household food waste with partially composted leaves collected from our leaf pile outside. These leaves are sterilized in our stove, baking the leaves for approximately ½ hour at 350°F in order to minimize pathogens and insects such as mealy bugs. This mixture is further aerated and blended by hand over weeks and weeks, generally at the time of watering of the barrels (as described above).

The finished vermicompost at the bottom of the barrels is further aerated and blended at the time of harvesting when it is collected through the grill at the bottom of the barrels with garden forks. The harvested vermicompost is then screened twice, first with 1/4” mesh and then 1/8” mesh composting screens before it is bagged in temporary plastic bags, prior to our planned final blending and bagging in labeled ten-pound plastic bags which we will offer for distribution.

Monitoring:

As described above, records are kept about when the barrels are started, fed, watered, and harvested. Records are also kept regarding sifting, blending and bagging of the finished vermicompost.

We plan to have at least twice-yearly, quarterly or even more frequent tests run on our vermicompost by the NCDA & CS Agronomic Division as well as by independent labs, as required by law.

We use a basic “squeeze” method of monitoring the moisture content of our vermicompost as it processes, i.e., forming a small ball of compost in the fingers and squeezing out tiny drops of water to determine if the worms have appropriate moisture in their environment. This is done at the time of the twice-weekly water of the worm barrels. We later bring the finished and harvested vermicompost to an appropriate level of dryness, using dry lights in the basement or the warmth of the sunlight outside.

We plan on doing more sophisticated pH level, C:N ratio, and moisture content testing on our product as our skill base increases.

Leachate:

Any leachate that collects in the bottom of the worm barrels is carefully collected and fed to the plants in our own gardens and houseplants. There is no run-off of leachate into the environment.

On-Site Storage:

There is little need for on-site storage of food waste since it is fed directly to the worms upon collection and grinding. Occasionally ground-up food is stored in lidded 5-gallon pails prior to feeding. A ready supply of sterilized leaves is kept in the basement in bags or bins. Finished and harvested vermicompost is stored in plastic bags prior to final sifting, blending and bagging for distribution.

Product Testing:

Tests will be regularly run as described above and as required by law. This will include testing for fecal coliform and salmonella, as well as determining foreign matter content and heavy metal content. As discussed above, in addition to the regular required testing done by the NCDA & CS Agronomic Division, we plan on using more sophisticated, home-based methods of determining pH level, C:N ratio, as well as moisture content of our product.

Record Keeping:

Paperwork is carefully maintained on all aspects of business in the NewSoil office, located in our home. Such records include sales, licensing and permitting, business plan and marketing, monitoring and testing, research, product labeling and packaging, etc.

EPA Standards:

NewSoil vermicompost will meet all appropriate and required EPA standards, in particular EPA's "Process to Further Reduce Pathogens" (PFRP) standards. We will particularly adhere to the NC Solid Waste Compost Rules (Section .1400 of the NC Administrative Code).

Finishing the Application:

Our end-of-project report, completed prior to or after 12-months, will include the following (with estimated amounts of production):

- 1) Amount of ingredients added to the system: 10 pounds (approx.) per week;
- 2) Amount of vermicompost produced (includes vermicompost already produced and currently under production): 10,000 pounds (approx.);
- 3) Amount of vermicompost distributed (includes vermicompost already produced and currently under production): 5,000+ (approx.);
- 4) Copies of all test reports;
- 5) Copies of all monitoring reports; and
- 6) Narrative Explanation of Project's Success.

Additional Pertinent Information:

NewSoil Vermiculture LLC's FEIN (Federal Employee Identification No.): 46-2070748.

NewSoil Vermiculture LLC's SOSID (NC Secretary of State Identification) No.: 1306740.

NewSoil Vermiculture LLC's Durham County/City HOP (Home Occupation Permit) No.: HO1300128
(for all business activities, record and bookkeeping, sales calls, etc.; construction of vermiculture systems: bins, barrels, screens, etc.; growth of worms, worm castings and vermicompost in basement – no outdoor storage/activities -- all sales offsite).

NewSoil Vermiculture LLC's City of Durham Privilege License (Peddlers by Vehicle) Account No.: 31310.

NewSoil Vermiculture LLC
Compost Demonstration Addendum to Application
March 24, 2014

Garry Lipscomb
Bill Corey
314 Latta Road
Durham, NC 27712
(919) 237-2219
(202) 374-0403 (Lipscomb cell)
(857) 204-9839 (Corey cell)
NewSoil@nc.rr.com

Regarding feedstock, we currently feed each 55-gallon barrel of worms a range of 0-7 pounds of ground-up food scraps per barrel, with an average of approximately 2 pounds per barrel per week. We give each barrel a range of 0-5 pounds of composting leaves, with an average of 2 pounds per barrel per week. The amounts vary so much and can only be approximately reported here because we feed each barrel depending on its current worm population, and also it depends on how much waste our household is currently producing. Our records show in greater detail how much weight of feedstock each barrel receives.

As our worm population has been booming over the past several months, the amounts of feedstock going into the barrels has been increasing exponentially. (We've had to supplement our table scraps by adding cheap or close-to-expiration bargains at the markets, and sometimes spice up our worms' diet with cooked oatmeal or brown rice.) However, the amounts described above indicate current levels of intake based on our most recent records.

Another point to note: since the process of grinding our food scraps is greatly eased by adding lots of water, the food we feed them is subsequently very "wet" and this is the reason why the "green" nitrogen-rich food scraps are equal in weight to the "brown" carbon-rich leaf mulch, though the leaf mulch is greater in volume, by two, three, or even four-fold. Also, it explains why we don't need to add so much water weekly, as described immediately below.

So, regarding watering, each barrel receives approximately 0-2 cups of water per week. The exact amount is hard to quantify exactly, since we spray the water into the top of the barrels, sometimes very lightly and more than once a week. The amount also depends on the feeding schedule, since as described above, the worms' food is very liquid, and it depends also on the weather, since we find less watering is necessary in the cold of winter than in the heat of summer.

Regarding your questions about containment of leachate, our barrels are very solidly constructed, consisting of durable, reinforced plastic ranging in thickness from 1/8" to over 1/2". They are very solidly set on concrete blocks and on timber platforms made of pressure treated lumber, covered with thick 9 mil plastic. Each 22" wide barrel is set into a 3" deep, 25" wide basin which contains any loose compost or leachate. The basins have a spout for easy collection of any spillage. The leachate will be collected and stored in 5 gallon buckets with lids which we introduce back into the barrels for added moisture as needed.

In the worst case scenario, say tipping over or cracking of a barrel resulting in a release of a large amount of vermicompost, recently introduced feedstock, worms, and/or leachate onto the floor, we have a buffer of an inch or more of pine sawdust and shavings on the floor, which would soak up any spilled materials, and which would be reintroduced back into our composting system.

The wide angle photo that we used in our recent Application doesn't show our current indoor operation accurately. It does not show the basins described above, or the sawdust and shavings on the floor. Also, since that photo, we have installed plastic sheeting between the ceiling joists, which isolate the overhead insulation. We have improved the electrical system, adding several lights and outlets. And we have added hoses which allow easy access to both hot and cold running water.

Statement of Approval

Composting and Land Application Branch Staff
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

I hereby approve of the plan of my tenants Garry Lipscomb and Bill Corey to produce and sell worms and worm compost (vermicompost) from my property located at the address below:

314 Latta Road
Durham, NC 27712
Parcel ID Nos. 182969 and 201866

Signature: Marjorie E. Eddinger
David W Eddinger Date: June 24, 2013
David Eddinger
7300 Dogwood Road
Baltimore, MD 21244

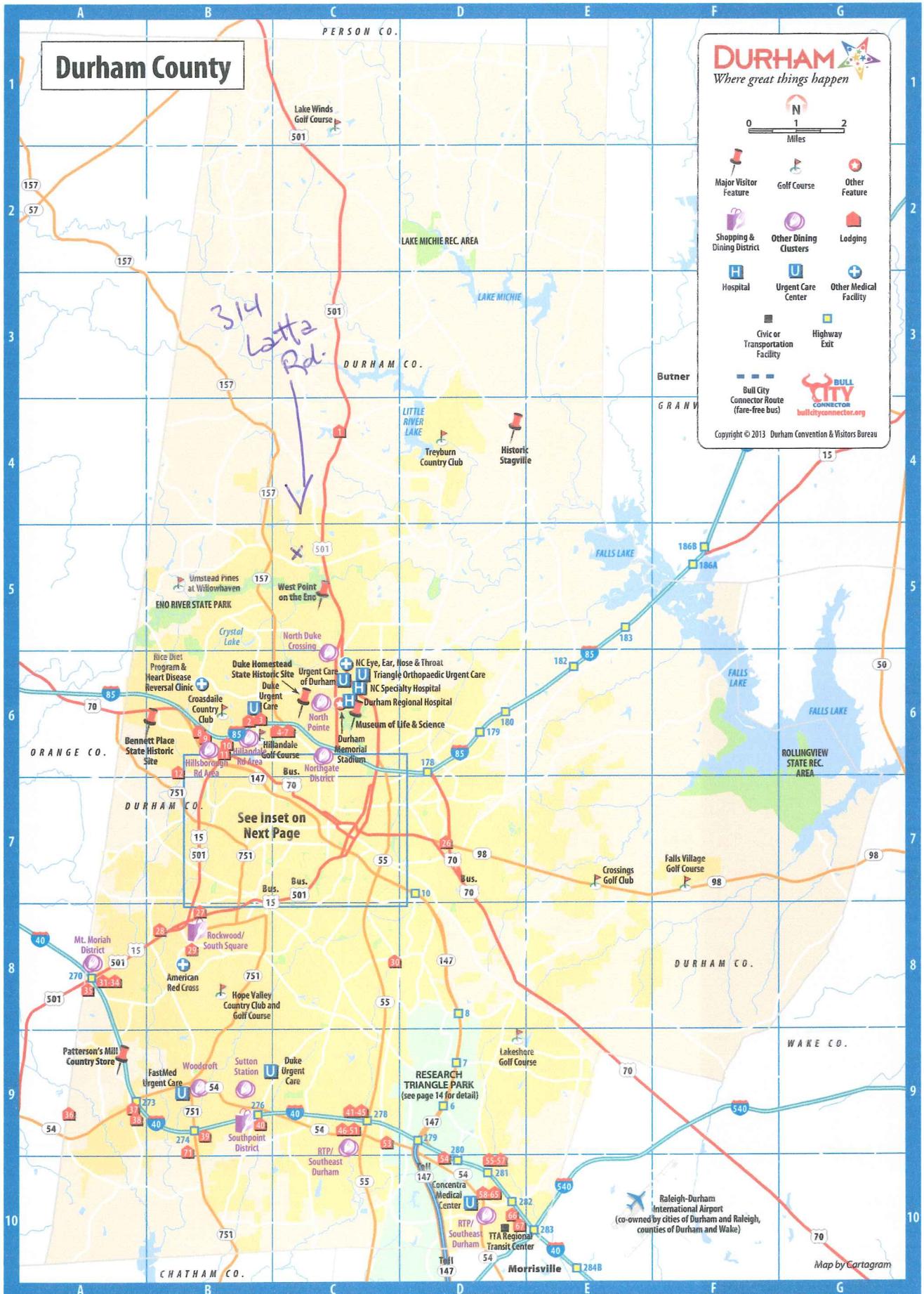
NOTARY PUBLIC

Signature: Tara Patel Date: 6-24-13
TARA PATEL
NOTARY PUBLIC
BALTIMORE COUNTY
MARYLAND
My Commission Expires August 21, 2016



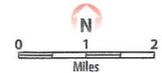
Aerial Map of 314 Latta Rd

1 inch = 400 feet



Durham County

DURHAM
Where great things happen



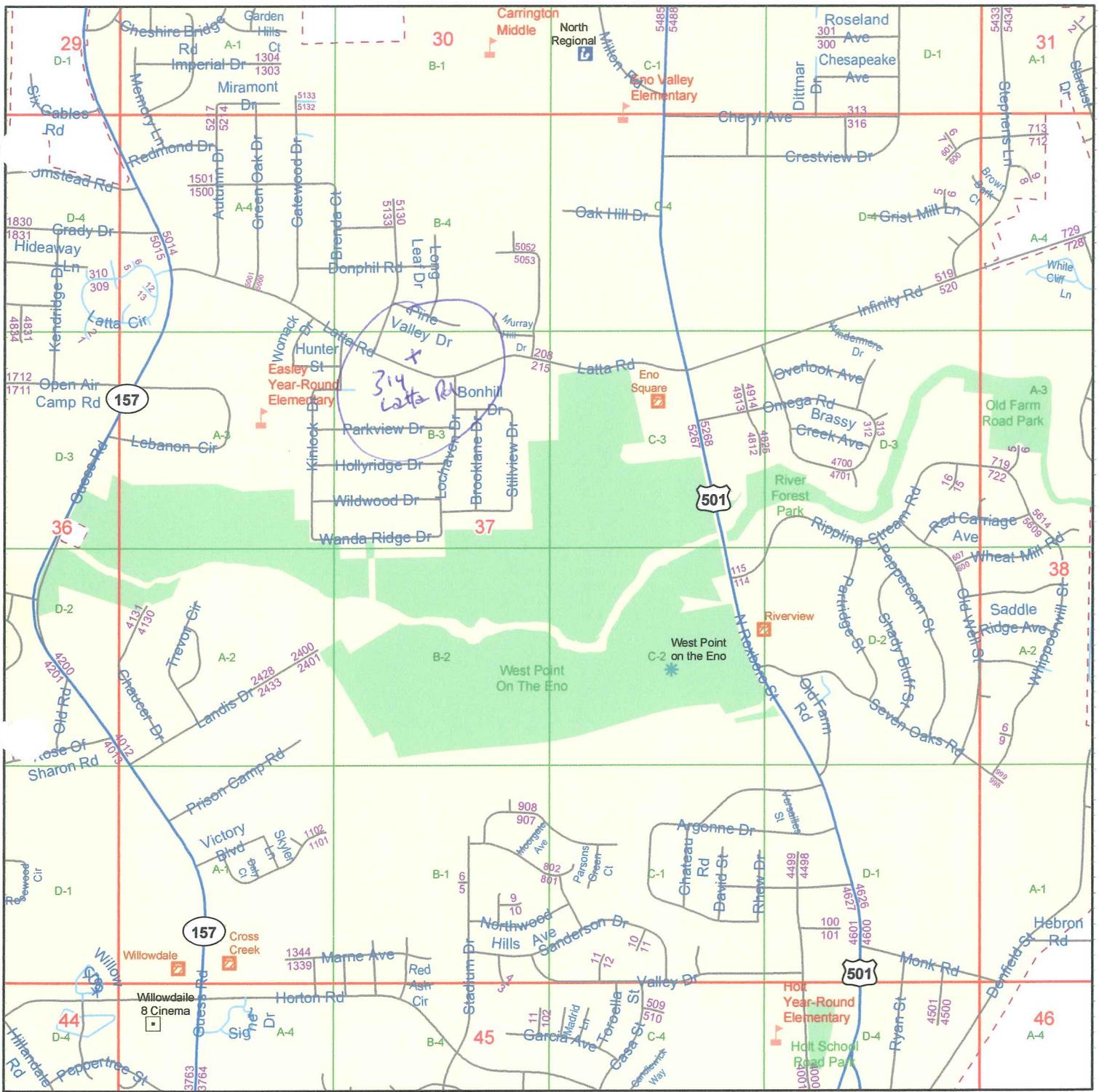
- Major Visitor Feature
 - Golf Course
 - Other Feature
 - Shopping & Dining District
 - Other Dining Clusters
 - Lodging
 - Hospital
 - Urgent Care Center
 - Other Medical Facility
 - Civic or Transportation Facility
 - Highway Exit
 - Bull City Connector Route (fare-free bus)
 - BULL CITY CONNECTOR bullcityconnector.org
- Copyright © 2013 Durham Convention & Visitors Bureau

314
Latta
Rd.

See inset on
Next Page

Raleigh-Durham
International Airport
(co-owned by cities of Durham and Raleigh,
counties of Durham and Wake)

Map by Cartagram



Durham County Street Atlas

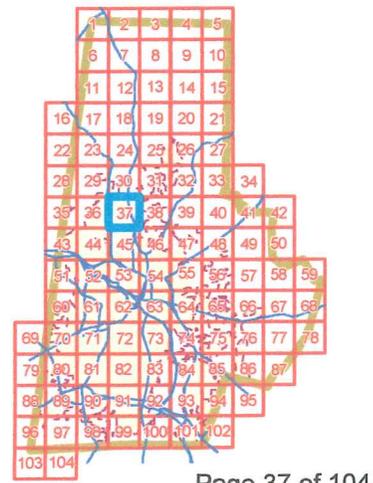
37 (NCSP Map 0824)



Map Prepared by Durham GIS on
04 Mar 2013

Information depicted hereon is for reference purposes only and is compiled from the best available sources. The City of Durham/Durham County assumes no responsibility for errors arising from use or misuse of this map.

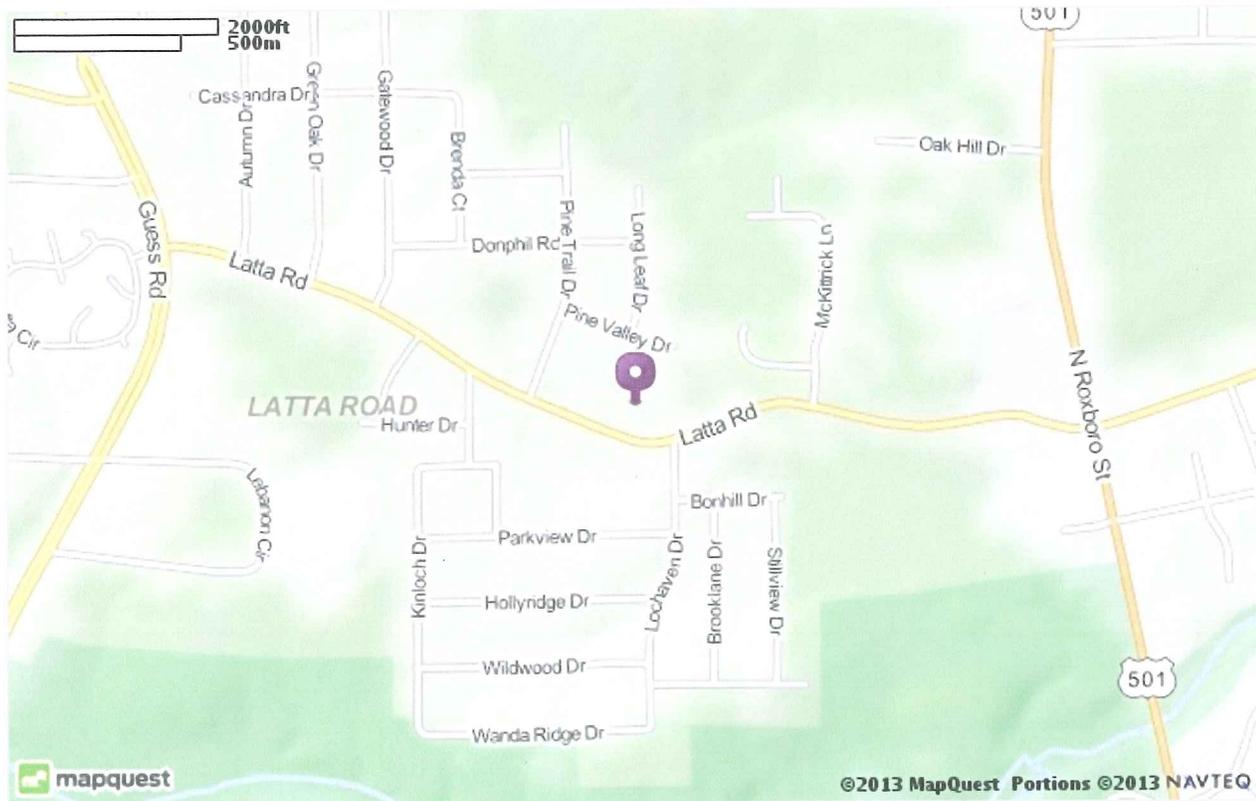
- City of Durham
- 10,000' Atlas Page Grid
- 2,500' Index Locator Grid
- Hospitals
- + Medical Centers
- Highways
- Public Streets
- Private Streets
- - - Alleys
- Ramps
- - - Under Construction
- ★ Law Enforcement
- Parks
- ? Visitor Information
- ♣ Golf Courses
- ⚡ Stadium/Performance
- Cinemas
- 🏬 Shopping Centers
- 🏠 Lodging
- 🏛️ Civic Facilities
- 🎓 Public Schools
- 📖 Libraries
- ★ Other Attractions
- ✳️ RTP Company
- Durham County Line



Notes



Map of:
314 Latta Rd
Durham, NC 27712-2728



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WASTE SAMPLE INFORMATION

SAMPLE TYPE
(circle designation(s) / see instructions)

- Predictive Diagnostic
- Research Out of State

NCDA&CS Agronomic Division Plant/Waste/Solution/Media Section
 Mailing Address: 1040 Mail Service Center, Raleigh NC 27699-1040
 Physical Address (UPS/FedEx): 4300 Reedy Creek Road, Raleigh NC 27607
 Phone: (919) 733-2655 Web Address: www.ncagr.gov/agronomi

FOR OFFICE USE ONLY
 REPORT # _____
 DATE REC'D _____
 INITIAL _____



SAMPLE INFORMATION	PAYMENT	GROWER INFORMATION (please print)	CONSULTANT/OTHER RECIPIENT
FARM ID <i>New Soil</i>	FEE TOTAL _____	LAST NAME <i>Lipscomb</i>	FIRST NAME _____
SAMPLED BY <input checked="" type="checkbox"/> Grower <input type="checkbox"/> NCDA&CS Agronomist <input type="checkbox"/> Advisor <input type="checkbox"/> Coop. Ext. Agent	AMT PAID _____	ADDRESS <i>314 La He Road</i>	ADDRESS _____
SAMPLE DATE <i>1-14-13</i>	METHOD OF PAYMENT () CASH () CHECK <i>(payable to NCDA&CS)</i> () MONEY ORDER () ESCROW <i>(provide account name below)</i>	CITY <i>Durham</i>	CITY STATE ZIP <i>Durham NC 27712</i>
COUNTY <i>(where collected)</i> <i>Durham</i>		PHONE <i>(919) 237-2219</i>	PHONE (____) _____
NUMBER OF SAMPLES _____		E-MAIL ADDRESS <i>NewSoil@ncagr.com</i>	E-MAIL ADDRESS _____ <input type="checkbox"/> Do Not notify me when report is available.

LAB NUMBER (leave blank)	SAMPLE ID	WASTE CODE	SAMPLE DESCRIPTION / COMMENTS	APPLICATION METHODS	SOIL	CORRESPONDING PLANT	SAMPLE ID SOLUTION	SPECIAL TESTS (\$10) NO ₃ -N, NH ₄ ⁺ , Heavy metals, CCE	LAB USE ONLY PH EC C %DM S
1	NS12121	FLW	New Soil Phase 1 compost	BR SI					
2	NS12121	FLW	New Soil Phase 2 compost	BR SI					
3	NS12121	FLW	New Soil Vermicompost	BR SI					
4									
5									

INSTRUCTIONS (provide all information requested in shaded areas)

SAMPLE TYPE — *Predictive* samples are analyzed for nutrient content. The report provides interpretation & general recommendations. An agronomist reviews results of *diagnostic* samples, identifies potential nutritional problems & makes suggestions for management. *Research* designates samples submitted in connection with an approved research contract agreement.

Out of state is the correct designation for samples submitted from outside North Carolina.

SAMPLE INFORMATION — Provide all requested information, especially payment details (refer to WASTE ANALYSIS FEES on the back of this form).

GROWER INFORMATION — Provide accurate contact information (phone with area code, address, e-mail).

SAMPLE ID — Provide sample identification (no more than six digits or letters). Put the same ID on the sample container.

WASTE CODE — Identify the type of waste in the sample by using codes (see back of this form).

SAMPLE DESCRIPTION / COMMENTS — Briefly describe problem or reason for sampling (necessary for diagnostic samples).

APPLICATION METHODS — Select one or two application methods from the list at the right for estimation of nutrient availability.

CORRESPONDING SAMPLE ID — List the IDs of any matching soil, plant or solution samples submitted.

SPECIAL TESTS — Indicate nonstandard tests desired: nitrogen breakout (nitrate & ammonium), heavy metals, calcium carbonate equivalence.

APPLICATION METHODS

BR = Waste broadcast on soil surface & left uncovered more than 2 days

SI = Waste broadcast on soil surface & soil incorporated within 2 days

IN = Waste injected directly into the soil

IR = Waste broadcast through irrigation system & left uncovered more than 2 days

Thank you for using agronomic services to manage nutrients and safeguard environmental quality. — Steve Troxler, Commissioner of Agriculture



Diagnostic

Waste Report

[Links to Helpful Information](#)

Client: Garry Lipscomb
314 Latta Rd
Durham, NC 27712

County: Durham

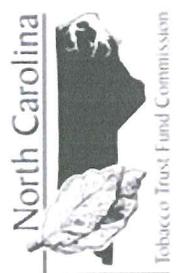
Advisor:

Sampled: 01/14/2013 **Received:** 01/16/2013 **Completed:** 01/16/2013 **Farm:** NEW SOIL

Sample Information	Nutrient and Other Measurements												
	Nitrogen (N) (ppm)	P (ppm)	K (ppm)	Ca (ppm)	Mg (ppm)	S (ppm)	Fe (ppm)	Mn (ppm)	Zn (ppm)	Cu (ppm)	B (ppm)	Na (ppm)	C (ppm)
Sample ID: NSC101	15300	1320	4970	28700	2240	1650	2330	1130	111	35.1	84.1	3660	302000
Waste Code: FCW													
Description: Composted Waste - Other	<i>Total Kjeldahl N</i>												
Comments:	<i>Inorganic N</i>												
	<i>NH4-N</i>												
	<i>NO3-N</i>												
	<i>Organic N</i>												
	<i>Urea</i>												
	<i>pH</i>	<i>DM (%)</i>	<i>SS (10⁻⁵S/cm)</i>	<i>EC (mS/cm)</i>	<i>CCE (%)</i>	<i>ALE (tons)</i>	<i>C:N</i>						
	6.90	30.9	227	2.27			19.7 : 1						
	<i>Ni (ppm)</i>	<i>Cd (ppm)</i>	<i>Pb (ppm)</i>	<i>Al (ppm)</i>	<i>Se (ppm)</i>	<i>Li (ppm)</i>	<i>As (ppm)</i>	<i>Cr (ppm)</i>	<i>Co (ppm)</i>	<i>Cl (ppm)</i>	<i>Mo (ppm)</i>		

Application Method	Estimate of Nutrients Available for First Crop (lb / ton)												
	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Other Elements (lb / ton)
Broadcast	3.79	1.12	2.95	10.6	0.83	0.61	0.87	0.42	0.04	0.01	0.03	2.26	Cl Na Ni Cd Pb Al Se Li
Injection	4.73	1.40	3.32	13.3	1.04	0.77	1.08	0.52	0.05	0.02	0.04	2.26	

Agronomist's Comments:
Ideal C:N depends on the materials used. Generally the ideal C:N ratio ranges from 20-30. Aaron Pettit 1/23/2013 9:42 AM



Reprogramming of the laboratory-information-management system that makes this report possible is being funded through a grant from the North Carolina Tobacco Trust Fund Commission.

Thank you for using agronomic services to manage nutrients and safeguard environmental quality.
- Steve Troxler, Commissioner of Agriculture.

Sample Information	Nutrient and Other Measurements													
Sample ID: NSC201	Nitrogen (N) (ppm)	P (ppm)	K (ppm)	Ca (ppm)	Mg (ppm)	S (ppm)	Fe (ppm)	Mn (ppm)	Zn (ppm)	Cu (ppm)	B (ppm)	Na (ppm)	C (ppm)	
Waste Code: FCW	Total N	2020	5240	18300	2560	1760	2550	855	123	35.3	34.6	2540	195000	
Description:	Total Kjeldahl N													
Composted Waste - Other	Inorganic N	pH	DM (%)	SS (10 ⁻⁵ S/cm)	EC (mS/cm)				CCE (%)	ALE(tons)			C:N	
Comments:	NH4-N	7.47	35.6	217	2.17								17.3 : 1	
	NO3-N													
	Organic N	Ni (ppm)	Cd (ppm)	Pb (ppm)	Al (ppm)	Se (ppm)	Li (ppm)	As (ppm)	Cr (ppm)	Co (ppm)	Cl (ppm)	Mo (ppm)		
	Urea													

Application Method	Estimate of Nutrients Available for First Crop (lb / ton)													
Broadcast	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Other Elements (lb / ton)	
Soil Incorporated	3.21	1.97	3.58	7.82	1.09	0.75	1.09	0.37	0.05	0.02	0.01	1.80	Cl	Na
	4.01	2.47	4.02	9.77	1.37	0.94	1.36	0.46	0.07	0.02	0.02	1.80	Pb	Al
													Cd	Se
													Li	

Agronomist's Comments:
 Ideal C:N depends on the materials used. Generally the ideal C:N ratio ranges from 20-30
 The ideal pH for potting media ranges from 5.0-6.5 depending upon the plant being grown. pH that is outside of this range can limit availability of some plant nutrients and/or cause root damage. To adjust pH consider blending with other materials.

Nutrient and Other Measurements	
<i>Nitrogen (N) (ppm)</i>	<i>P (ppm)</i> 1870 <i>K (ppm)</i> 5800 <i>Ca (ppm)</i> 25400 <i>Mg (ppm)</i> 2000 <i>S (ppm)</i> 2110 <i>Fe (ppm)</i> 1750 <i>Mn (ppm)</i> 486 <i>Zn (ppm)</i> 158 <i>Cu (ppm)</i> 30.5 <i>B (ppm)</i> 26.6 <i>Na (ppm)</i> 1810 <i>C (ppm)</i> 243000
<i>Total N</i>	19100
<i>Total Kjeldahl N</i>	
<i>Inorganic N</i>	
<i>NH4-N</i>	<i>pH</i> 6.07 <i>DM (%)</i> 42.0 <i>SS (10⁻⁵S/cm)</i> 610 <i>EC (mS/cm)</i> 6.10 <i>CCE (%)</i> <i>ALE (tons)</i> <i>C:N</i> 12.7 : 1
<i>NO3-N</i>	
<i>Organic N</i>	
<i>Urea</i>	<i>Ni (ppm)</i> <i>Cd (ppm)</i> <i>Pb (ppm)</i> <i>Al (ppm)</i> <i>Se (ppm)</i> <i>Li (ppm)</i> <i>As (ppm)</i> <i>Cr (ppm)</i> <i>Co (ppm)</i> <i>Cl (ppm)</i> <i>Mo (ppm)</i>

Estimate of Nutrients Available for First Crop (lb / ton)	
<i>N</i>	<i>P2O5</i> <i>K2O</i> <i>Ca</i> <i>Mg</i> <i>S</i> <i>Fe</i> <i>Mn</i> <i>Zn</i> <i>Cu</i> <i>B</i> <i>Mo</i>
6.42	2.16 4.69 12.8 1.01 1.07 0.88 0.25 0.08 0.02 0.01
8.02	2.70 5.27 16.0 1.26 1.33 1.10 0.31 0.10 0.02 0.02
	<i>Other Elements (lb / ton)</i>
	<i>Cl</i> <i>Na</i> <i>Ni</i> <i>Cd</i> <i>Pb</i> <i>Al</i> <i>Se</i> <i>Li</i>
	1.53 1.53

Agronomist's Comments:
 Ideal C:N depends on the materials used. Generally the ideal C:N ratio ranges from 20-30. The electrical conductivity is high in this sample. If using this material in a container substrate mix, take this property into consideration. High EC can indicate good fertilizer value. High EC can also lead to root damage if the media is allowed to dry out.





