



Borough of Wernersville Land Application of Leaves Project #616

Prepared for:
Borough of Wernersville

100 N. Reber Street
Wernersville, PA 19565
(610) 678-1486

Sponsored by:
Pennsylvania Department of Environmental Protection

400 Market Street
Harrisburg, Pennsylvania 17101
(717) 787-8685

www.depweb.state.pa.us

Prepared by:
SCS ENGINEERS
11260 Roger Bacon Drive
Suite 300
Reston, Virginia
(703) 471-6150

August 2018
File No. 02217011.00
Task #16

SCS Engineers is a waste management, environmental engineering, consulting, and construction firm. Nothing herein shall be considered or interpreted to be the provision of legal services or advice.

Offices Nationwide
www.scsengineers.com

Table of Contents

Section	Page
Acknowledgements.....	2
1 Statement of Problem	3
2 Summary of Work Performed.....	4
3 Results.....	5
3.1 Current Program	5
3.2 Leaf Collection Program and Annual Quantities.....	6
3.3 Land Application Requirements.....	6
3.4 Proposed Land Application Site - Clements Farm	7
3.5 Savings from Land Application of Leaves.....	7
3.6 Leaves and Nutrient Management	7
4 Recommendations	9
4.1 Land Application Form.....	9
4.2 Leaf Collection.....	9
4.3 Leaf Tipping on Farm Fields	9
4.4 Contingency Planning.....	10
4.5 Best Practices for Land Application of Leaves	10
4.6 Formalize Stakeholder Arrangements to Reduce Liability.....	10
4.7 Residential Education	11
5 Conclusion.....	12
Bibliography.....	13

Appendices

- A – Wernersville Borough and South Heidelberg Township Agreement
- B – Letter of Approval for Wernersville Yard Waste Site
- C – Clements Farm Land Application Form
- D – Sheet Leaf Composting Guidance
- E - PADEP Approval Letter for Clements Farm to Land Apply Leaves

ACKNOWLEDGEMENTS

SCS Engineers acknowledges the support of Sustainable Resources Consulting, LLC in providing technical assistance to the Borough of Wernersville.

Sustainable Resources Consulting, LLC
Steve Deasy, LEED AP, SCRP
313 Sample Bridge Road
Mechanicsburg, PA 17050

1 STATEMENT OF PROBLEM

The Borough of Wernersville (Borough) is located in Berks County, Pennsylvania and implements its residential recycling program in accordance with Borough Ordinance 549, including the collection of leaves and yard waste. Yard waste, as defined by the Pennsylvania Department of Environmental Protection (PADEP) Land Application of Yard Waste Guidelines, includes leaves, grass clippings, garden residue, tree trimmings, chipped shrubbery, and other vegetative material.

With the consideration of increasing costs to manage leaves and yard waste, the Borough is interested in alternatives to cost effectively manage leaves that are separated from the waste stream to be composted. This project focuses on the land application of leaves to farm fields after curbside collection from residential establishments located in the Borough. The Borough, a local landowner, and a farmer are evaluating a partnership to reduce costs while adding leaves (i.e., valuable organic matter) to the soil on the proposed farm.

Important project elements include:

- **Compliance** – The Borough needs to comply with collection requirements of Borough Ordinance 549 and assure that leaves separated for recycling are delivered to a PADEP-approved facility. In this case the “facility” is a farm, which must be approved for land application of leaves by submitting a Land Application Form and supplemental documents to PADEP for review and approval.
- **Varying Leaf Quantities** – Annual leaf volumes vary significantly. This influences the Borough’s leaf collection and disposal expenses but also impacts the quantities available for land application which can create inconsistency in operations and loading rates of leaves to farm fields.
- **Contamination and Illegal Dumping** – Leaves collected along streets contain unwanted materials/residuals. Separation and removal of unacceptable materials is necessary before land application. Staging areas for leaves can attract illegal dumping by the general public, contractors, and others.
- **Public Education** – Public outreach and monitoring related to leaf collection is required, primarily to minimize avoidable contamination that is caused by Borough residents during seasonal leaf collections.

Technical assistance was requested to help the Borough comply with land application requirements, and to develop guidance relating to land applying leaves to farm fields each fall.

2 SUMMARY OF WORK PERFORMED

This section summarizes the work activities performed as part of this recycling technical assistance project broken down by key tasks.

Task 1 – Data Collection

Sustainable Resources Consulting (SRC) obtained background information from the Borough and the Berks County Solid Waste Authority to guide the project and to complete the Land Application Form for submittal to PADEP. SRC also contacted PADEP, the Berks County Conservation District, and the Penn State University Agricultural Department for clarifications on loading rates, nutrient management requirements and regulatory requirements for land application of leaves to farm fields. The following information was obtained and reviewed:

- Year 2018 Recycling Grant application (Completed by Wernersville);
- Land ownership information (i.e. farm deeds, parcel boundaries, land use, etc.);
- Annual quantities of leaves, yard waste, trash, and recycling generated;
- Leaf collection methods, schedule, and proposed methods for delivery and land application;
- Waste collection and recycling program budget data;
- Nutrient management loading rates and best practices for land application of leaves.

Task 2 – Land Application Form Development and Project Recommendations

SRC prepared the documents required for submitting the required Land Application Form to PADEP including forms, operational narrative, and maps. SRC also provided best practices for land applying leaves and coordinated the management of leaves among the landowner, Borough, and farmer.

Task 3 – Final Report

This project report was prepared to summarize the findings and recommendations of this project. The completed Land Application Form is appended to this Report.

3 RESULTS

3.1 CURRENT PROGRAM

The Borough contracts with a private waste hauler to provide weekly curbside trash and recyclables collection. Borough road crews collect separated yard waste at the curbside twice per year (once in spring and once in fall) and provide curbside leaf collection seasonally from October through December. Christmas trees are also collected for two weeks in January. Separated yard waste is delivered to the South Heidelberg Township Organic Matter Drop-Off Site and then ground and processed by Hopewell trucking and excavating. The agreement between the Borough of Wernersville and South Heidelberg Township to process leaves and yard waste is contained in **Appendix A**. Christmas trees are converted to mulch using the Borough’s chipper. In April 2018, the Borough applied for an Act 101 Recycling Grant to develop a yard waste drop-off site to reduce hauling and processing fees. The yard waste drop-off site was approved by PADEP in June 2018 (**Appendix B, Letter of Approval for Wernersville Yard Waste Site**).

Table 1 shows the distribution (by weight) for disposed trash, recyclables, yard waste, and leaves. Average weights were calculated using annual Borough data from 2014 – 2017 and U.S. Environmental Protection Agency (USEPA) municipal solid waste generation rates. Annual leaf collection summary data from 2017 is also shown in **Table 1**.

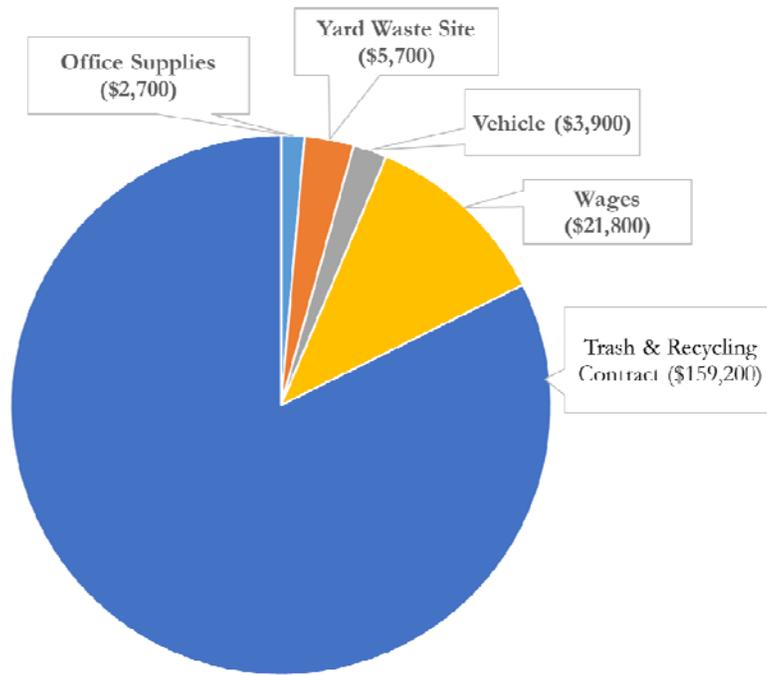
Table 1. Average Annual Solid Waste Quantities

<i>Units</i>	<i>Trash</i>	<i>Recycling</i>	<i>Yard Waste</i>	<i>Leaves</i>	<i>Total</i>
Tons Collected	1,307	232	189	169	1,897
Percent Comp.	69%	12%	10%	9%	100%

Sources: Wernersville Borough, USEPA Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2012.

Residents pay \$264 per year for refuse and recycling services. The bill covers curbside trash and recyclables collection plus disposal/processing. Certain program administrative costs and the cost of leaf vacuum services are recovered through the General Fund tax revenue. **Figure 1** summarizes annual waste collection and recycling costs including fall leaf collection and spring and fall yard waste collection. The year 2017 costs are broken down by administrative and operational functions. “Office Supplies” costs include the billing for trash and recycling services plus educational expenses. “Vehicle” costs shown include fuel, maintenance, and insurance. “Wage” costs include public works and secretarial costs. “Yard Waste Site” costs include the annual costs incurred by the Borough under the agreement with South Heidelberg Township to dispose and process leaves and yard waste. In 2017, the Borough spent more than \$31,000 on residential yard waste and leaf removal combined based on vehicle costs, labor, and processing costs at the South Heidelberg Site. These expenses are counted in the “Yard Waste Site,” “Vehicle,” and “Wages” sections of **Figure 1**.

Figure 1. Waste & Recycling Program Cost Summary (2017)



Source: Wernersville Borough

3.2 LEAF COLLECTION PROGRAM AND ANNUAL QUANTITIES

Borough road crews vacuum leaves placed at the curbside from October through December, five days per week. After curbside pickup, they transport the leaves to the South Heidelberg Site. Following consolidation at the South Heidelberg Site, leaves are taken to Martins’ Mulch in Ephrata, PA for processing and composting. Leaf collection quantities vary significantly from year to year. Factors affecting annual quantities of leaves and associated collection costs can include weather, collection schedules, data variances, and participation. Assuming 75 loads of leaves per year carry an average of 10 yards per load (e.g., due to settling), it is estimated that the Borough recovers 650 – 850 cubic yards annually (or 145 to 190 tons). Assuming all leaves are diverted to land application on 10 acres, about 14 to 19 tons of leaves will be land applied per acre per year. Spreading over 10 tons of leaves per acre per year may require adding nitrogen to supplement farm soils (refer to **Section 4.5**).

3.3 LAND APPLICATION REQUIREMENTS

Pennsylvania requirements for the land application of leaves are included within the PADEP Guidelines for Yard Waste Composting Facilities¹. A Land Application Form contained within these guidelines must be completed and submitted to PADEP for review and approval. PADEP

¹ [Guidelines for Yard Waste Composting Facilities](#)

does not issue a permit for land application of leaves and does not maintain detailed records of approved land application sites. The Land Application Form including Project Location Map, General Site Plan and Proof of Land Ownership for Clements Farm and the Borough of Wernersville is contained in **Appendix C**.

3.4 PROPOSED LAND APPLICATION SITE - CLEMENTS FARM

The proposed site for land application of leaves is the Clements Farm located in Wernersville, PA. The site is adjacent to the Wernersville Public Works Facility and the proposed Borough yard waste site anticipated to be constructed within two years provided Act 101 Recycling Grant funds can be secured. The 14-acre farm is accessible from Berks County Park. The farmer rotates soybeans and corn on the fields and controls for weeds one time per year. No onsite water sources are used by the farmer and there is no nutrient management plan.

3.5 SAVINGS FROM LAND APPLICATION OF LEAVES

When the Borough implements land application of all vacuumed leaves, there will be immediate cost savings that result from eliminating processing fees and transportation costs to the South Heidelberg Township's facility; and ultimately to Martin's Mulch in Ephrata, PA. A steady increase in vehicle, administration, and wage costs can be observed over the past 3 years based on the Borough's annual cost records. Based on 750 cubic yards of leaves collected annually and the current disposal fee of \$4.00 per cubic yard of leaves, the Borough would save an estimated \$3,000 annually on leaf disposal. The Borough can reduce environmental impacts associated with transportation compared to the current leaf processing alternative since Clements Farm is closer to the Borough than the current leaf processing site.

Assuming the Borough is awarded funding through its Recycling Grant and develops a yard waste drop-off site, the Borough will have processing costs for site operation, but will pay actual costs for material processing rather than incur the shared costs for the South Heidelberg site. The Borough would also realize cost savings from reduced transportation for yard wastes delivered to the new site located in the Borough.

3.6 LEAVES AND NUTRIENT MANAGEMENT

Effective application and incorporation of leaves on cropland depends on an understanding of site-specific nutrient management requirements, application rates, and the methods and equipment used to apply leaves and incorporate them into the soil. Based on literature reviews and discussions with staff at Penn State University's Agricultural Department, the anticipated quantity of leaves (650 – 850 cubic yards) expected to be land applied on 10 acres of farmland will be beneficial to soils. No adjustments to growing methods or changes to fertilizer quantities or types are anticipated, but additional nitrogen may be required periodically when over 10 tons of leaves (high in carbon) are added to farm fields every year. Key points relating to general nutrient management and land application of leaves include:

- The mineralization rate of the leaves and carbon-to-nitrogen balance in the soil depend on the mixing and incorporation of the leaves with the soil. Applying small quantities of

leaves, less than or equal to 10 to 20 dry tons per acre, and thorough mixing of leaves into the soil help balance the carbon-to-nitrogen ratio while speeding up mineralization².

- The standard volume-to-weight conversion rate for leaves is 4 cubic yards per ton. In practice, loose, dry leaves (10 cubic yards per ton) have a higher volume to weight conversion rate than tightly packed, moist leaves (2 cubic yards per ton).
- The application of leaves on cropland had no net effect on soil pH³.
- A conventional rear unloading spreader was reported as the best method for uniform distribution⁴.
- Best practices for leaf incorporation include:
 - Shred leaves prior to land application⁵;
 - Perform two passes with a chisel plow⁶;
 - Use rototiller attachment for leaf applications under 40 tons per acre⁷;
 - Perform harrowing and moldboard plowing (less than 3-inch layers of applied leaves).
- The pre-tilling of the cropland to reduce residue interference will aid in the incorporation of leaves; however, the extra tillage will result in higher incorporation costs.
- Important considerations for site accessibility include: all weather access; good field drainage; and minimizing field traffic.

² Peterson, personal communication.

³ Kluchinski, *Leaf Mulching*.

⁴ Kluchinski, Evaluation of Methods and Equipment.

⁵ Peterson, personal communication.

⁶ Kluchinski, Evaluation of Methods and Equipment

⁷ Peterson et al, Effects of Applying Leaves.

4 RECOMMENDATIONS

The following recommendations are based on a review of background data including the Sheet Leaf Composting Guidance (**Appendix D**) and land application requirements for leaves, and based on the understanding of desired project outcomes. These recommendations are presented for consideration by the Borough and include best practices for managing leaves that will be land applied to farm fields:

4.1 LAND APPLICATION FORM

- Submit the Land Application Form (**Appendix C**) to PADEP for review and approval. This was completed June 11, 2018 as part of this project.
- Since a “permit” is not issued for Land Application of Leaves, request PADEP to provide a written letter to confirm PADEP approval of the Land Application Form for Clements Farm. PADEP issued a letter to Mr. Brian Clements dated July 30, 2018 stating that Clements Farm meets the requirements for the land application of leaves. This letter is provided in **Appendix E**.

4.2 LEAF COLLECTION

- Keep inbound materials clean, including training for employees at least annually prior to the start of leaf collection.
- Train collection crews to avoid vacuuming trash to the extent feasible. Establish measures to notify customers that place unwanted materials with leaves at the curb (such as door hangers or stickers stating the issue observed).
- Keep annual records of leaf quantities, share data with the farmer, and re-assess opportunities for program adjustments (such as expansion) at least annually. It is recommended the Borough weigh several truckloads of leaves to get an average measured baseline weight per truckload and use this data to estimate leaves (in tons) in the future.

4.3 LEAF TIPPING ON FARM FIELDS

- Establish more than one access point and tipping area, accessible in all weather conditions.
- Coordinate with property owner/farmer to assure compatibility of tipping location and schedules.
- Conduct routine access road and tipping area maintenance to assure that vehicles have access to leaf tipping areas and to prevent ruts and water ponding to the extent feasible.
- As needed, construct small leaf berms (~2' high) to contain runoff.

- Leaf trucks arriving to dump leaves should proceed to the farthest end of the tipping area and tip leaves to form a row of leaves, working toward the access road/point. As needed, form multiple rows parallel to one another.

4.4 CONTINGENCY PLANNING

- In the event the farm cannot accept leaves, the Borough should have at least one backup location and arrangement in place to accept separated leaves for composting. The Borough is encouraged to continue a relationship with South Heidelberg Township, including the development of an agreement that includes language stating that in the event the Borough cannot take leaves to Clements Farm, the Borough may deliver leaves to the South Heidelberg Township Organic Matter Drop-Off Site. Agreement provisions should specify notice or lead timeframes, processing fees, and other conditions affecting management and operations. The Borough could also use its own yard waste drop-off site when the site becomes operational.

4.5 BEST PRACTICES FOR LAND APPLICATION OF LEAVES

- Directly apply the leaves to the fields after consolidation at drop off location and examination for possible contaminants (e.g. within 14 days of delivery). If staging and mixing leaves is feasible, this is encouraged to create a homogenous and broken-down leaf mix that is more easily incorporated into soils and demands less nitrogen.
- If leaves are land applied at a rate of more than 10 tons per acre per year, it is recommended the soils are tested to verify any change in fertilizer requirements. Pennsylvania State University Agricultural Laboratory and Eurofins Lancaster Laboratories Environmental, LLC provide soil testing for under \$100.
- Add nitrogen, in the form of grass clippings or other green organic materials, to leaves to improve the quality of the compost and minimize the potential (i.e., supplemental nitrogen) to offset increased nitrogen demand resulting from land application.

4.6 FORMALIZE STAKEHOLDER ARRANGEMENTS TO REDUCE LIABILITY

- The Borough, landowner, and farmer should formalize operational procedures, dispute resolution, and related site management procedures in a written formal arrangement to protect the interests of the parties and to assure that the leaf land application program is sustainable. Agreements can include a Memorandum of Understanding (MOU), contract(s), operating agreement(s), ordinance(s), or a combination of the above. The intent is to reduce risks to participants and to clarify the responsibilities of each party, particularly since operating conditions can change (e.g., land is sold, farmer stops farming, etc.). The formal arrangements may address the following:
 - Tipping fee and method of payment;

- Quantities of leaves that will be accepted;
- Specific requirements for the delivery of leaves free of physical contaminants;
- Time period and locations for delivering the leaves to the farm;
- Procedures and responsibilities for the handling and disposal of unacceptable materials;
- Record keeping;
- Provisions to review and amend the contract as conditions may change;
- Other operational and site-specific requirements (tipping area and access road maintenance, signage, etc.);
- Notification periods by parties, particularly relating to changes that may impact management and operation of the land application program.

4.7 RESIDENTIAL EDUCATION

- Upon approval by PADEP to land apply leaves at Clements Farm, the Borough should adapt public education information to highlight this change and to emphasize the importance of placing clean leaves at the curb to benefit the farm. This information can be integrated with the Borough website, quarterly newsletter, and by direct mailing and should include these key messages and considerations:
 - Use of the local farm has immediate cost savings for the Borough;
 - Contamination by unwanted materials threatens the ability to use the farm as an affordable and environmentally preferred option;
 - Create and maintain a web page linked from the Borough's website dedicated to yard waste and leaf collection;
 - Create a social media campaign with tips about leaf management, curbside collection best practices, and benefits of leaf composting and land application

These recommendations are geared to foster a collaborative approach between the landowner, farmer, and Borough of Wernersville. Implementing the actions recommended in this report have the potential to reduce the Borough's waste management expenses, formalize the partnership between the Borough and Clements Farm, streamline leaf management, and increase community engagement.

5 CONCLUSION

Current processing costs for leaves delivered to South Heidelberg Township's drop-off facility have been increasing and are highly variable. Diverting Borough leaves to Clements Farm for land application will reduce and stabilize costs. During the startup of this program, there will be no tip fees or processing fees and beneficial organic material will be added to enhance the quality of farm soils. It will be important to formalize management and operating arrangements among the landowner, Borough and farmer. Provided the Borough and its residents assure the leaves delivered to the farm do not contain unwanted materials, land application is a cost effective and environmentally responsible alternative.

BIBLIOGRAPHY

Connecticut Department of Energy and Environmental Protection Recycling Program. "Sheet Leaf Composting: The Land Application and Incorporation of Leaves on Cropland." Last modified May 20, 2015.

Kluchinski, D. (2)., J. Heckman, J. Mahar, D. Derr, Rutgers University, and F. Kelly. *Leaf Mulching : Using Municipal Leaf Waste as A Soil Amendment*. USDA-SCS, 1992.

Kluchinski, D. (3)., *Evaluation of Methods and Equipment for the Spread and Incorporation of Leaf Waste on Agricultural Land*. Rutgers Cooperative Extension.

Peterson, A. E., P.E. Speth, D. E. Schlough, T. H. Wright, and T. B. Ginder. *Effects of Applying Leaves From Middletown, Wisconsin on Cropland*. University of Wisconsin-Madison, 1989.

Peterson, A. E., Department of Soil Science, University of Wisconsin-Madison, personal communications, May, 1994.

Appendix A
Wernersville Borough and South Heidelberg Township Agreement

ORDINANCE NO. 549

AN ORDINANCE AUTHORIZING THE BOROUGH OF WERNERSVILLE, BERKS COUNTY, PENNSYLVANIA, TO ENTER INTO AN INTERGOVERNMENTAL COOPERATION AGREEMENT WITH THE TOWNSHIP OF SOUTH HEIDELBERG, BERKS COUNTY, PENNSYLVANIA, FOR THE USE OF THE SOUTH HEIDELBERG TOWNSHIP ORGANIC MATTER DROP-OFF SITE

WHEREAS, the Township of South Heidelberg (the "Township"), in order to better serve its residents and comply with Act 101 of 1988, has established an organic matter drop-off site (the "Facility") located at the Wernersville State Hospital off of Point Road and leased from the Commonwealth of Pennsylvania; and

WHEREAS, the Borough of Wernersville, Berks County, Pennsylvania (the "Borough"), has determined that it would be desirable to utilize the Facility for deposit of leaves collected by Borough employees throughout its annual fall leaf collection; and

WHEREAS, the Township wishes to accommodate the Borough; and

WHEREAS, under the Pennsylvania Intergovernmental Cooperation Act, Act 177 of 1996 (53 Pa.C.S.A. Section 2301, et seq.) as amended (the "Act"), a municipality may enter into an intergovernmental cooperation agreement upon the passage of an ordinance by its governing body; and

WHEREAS, the Township and the Borough desire to enter into an intergovernmental cooperation agreement for use of the Facility by the Borough (the "Agreement").

NOW, THEREFORE, BE IT ENACTED AND ORDAINED by the Borough Council of Wernersville, Berks County, Pennsylvania, and it is hereby ENACTED AND ORDAINED as follows:

SECTION 1. SHORT TITLE. The short title of this Ordinance shall be "The Yard Residuals Collection Facility Intergovernmental Cooperation Ordinance", and the same may be cited in that manner.

SECTION 2. PURPOSE AND OBJECTIVES. The purpose of this Ordinance is for the Township to provide collection facilities to employees of the Borough for Yard Residuals and to authorize continued negotiations between the Township and the Borough whereby the Facility would be available for use by the residents of the Borough.

SECTION 3. DEFINITIONS. Unless the context clearly indicates otherwise, the following terms used in this Ordinance shall have the following meanings:

“Act 101 of 1988” - The Municipal Waste Planning, Recycling and Waste Reduction Act, Act of July 28, 1988, P.L. 528, as now or hereafter amended.

“Borough” – The Borough of Wernersville, Berks County, Commonwealth of Pennsylvania.

“Facility” - Township designated facility for the collection of Yard Residuals.

“Township” - The Township of South Heidelberg, Berks County, Commonwealth of Pennsylvania.

“Yard Residuals” - shall consist solely of grass clippings, leaves and woody materials such as tree limbs, shrubs, slashings and brush.

SECTION 4. GRANT OF POWER. This Ordinance is adopted pursuant to authority granted in the Act.

SECTION 5. AUTHORIZATION. The Borough Council hereby approves entering into an Agreement, a copy of which is attached hereto and incorporated herein by reference (and which shall be filed with the minutes of the meeting at which this Ordinance was enacted), with the intent and effect that the Borough shall be bound by the Agreement.

SECTION 6. EXECUTION. The President of Borough Council is hereby authorized and directed on behalf of the Borough: (i) to execute and deliver the Agreement; and (ii) to execute and deliver such additional instruments, and to take such further actions, as may be necessary or appropriate to carry forth the Agreement and the transactions to be effected under the Agreement.

SECTION 7. CONDITIONS OF AGREEMENT. The conditions of the agreement between the parties are as set forth in the Agreement.

SECTION 8. FINANCES. The Facility shall be operated with funds provided by the Township and the Borough in accordance with the provisions of the Agreement and such other grants or funding as may be available.

SECTION 9. TERM. The Agreement shall be for an indefinite term subject to termination as set forth therein.

SECTION 10. ORGANIZATIONAL STRUCTURE. There is no organizational structure necessary to implement the Agreement.

SECTION 11. REAL OR PERSONAL PROPERTY. No real or personal property is intended to be acquired, managed, licensed or disposed of pursuant to the Agreement, other than as set forth therein.

SECTION 12. ENTITY. No entity is created pursuant to the Agreement.

SECTION 13. AMENDMENTS. Any amendments to the Agreement in furtherance of its purposes and objectives as set forth in Section 2 above shall be approved by resolution of the Township from time to time.

SECTION 14. SEVERABILITY. The provisions of this Ordinance are severable and if any section, sentence, clause, or part or provision hereof shall be held to be illegal, invalid or unconstitutional by any court of competent jurisdiction such decision of the court shall not affect the remaining sections, clauses, parts or provisions of this Ordinance. It is hereby declared to be the intent of the Township that such Ordinance would have been enacted if such illegal, invalid or unconstitutional section, sentence, clause, part or provision had not been included herein.

SECTION 15. REPEAL OF ORDINANCE. Any ordinance or part of ordinances conflicting with the provisions of this Ordinance are hereby repealed insofar as they are inconsistent with this Ordinance's provision.

SECTION 16. EFFECTIVE DATE. This Ordinance shall become effective five (5) days from the date of enactment.

DULY ORDAINED AND ENACTED this 1st day of October, 2008,
by the Borough Council of Wernersville, Berks County, Pennsylvania.

Attest: Debra A. Price
Secretary

[Signature]
President

(SEAL)

AMENDMENT TO INTERGOVERNMENTAL COOPERATION AGREEMENT
FOR THE USE OF THE SOUTH HEIDELBERG TOWNSHIP
ORGANIC MATTER DROP-OFF SITE
BY THE BOROUGH OF WERNERSVILLE

THIS FIRST AMENDMENT TO INTERGOVERNMENTAL COOPERATION AGREEMENT (the "Amendment") is made this 6th day of March, 2013 by and between the Borough of Wernersville, Berks County, Pennsylvania ("Borough") and the Township of South Heidelberg, Berks County, Pennsylvania ("Township").

BACKGROUND

A. On or about October 9, 2008, the Township adopted Ordinance No. 212, which authorized the execution of an intergovernmental cooperation agreement dated October 1, 2008 by and between the Borough and the Township (the "Intergovernmental Agreement") in order to permit the employees of the Borough to use the organic matter drop-off site (the "Facility"), which is located in the Township near the Wernersville State Hospital along Point Road and leased from the Commonwealth of Pennsylvania.

B. On or about October 1, 2008, the Borough adopted Ordinance No. 548, which authorized the execution of the Intergovernmental Agreement with the Township in order to permit the employees of the Borough to use the Facility.

C. Pursuant to the aforementioned Ordinances, the Township and the Borough executed the Intergovernmental Agreement pursuant to which the parties agreed to reserve the right for future use of the Facility by residents of the Borough.

D. The Borough has now determined that it would be desirable for its residents to also utilize the Facility for disposal of organic material.

E. The Township is now agreeable to permitting the residents of the Borough to utilize the Facility in accordance with the terms and conditions of the Intergovernmental Agreement.

F. According to Section 13 of Ordinance No. 212 of the Township and Section 13 of Ordinance No. 548 of the Borough, the Intergovernmental Agreement may be amended by a resolution of each of the respective municipalities.

G. On or about February 14, 2013, the Township adopted Resolution No. ___-2013, which authorized the Township to execute an amendment to the Intergovernmental Agreement pursuant to which the residents of the Borough would be permitted to use the Facility.

H. On or about February 14, 2013, the Borough adopted Resolution No. ___-2013, which authorized the Borough to execute an amendment to the Intergovernmental Agreement pursuant to which the residents of the Borough would be permitted to use the Facility.

I. The parties now desire to amend the Intergovernmental Agreement in order to permit the residents of Wernersville to utilize the Facility in accordance with the terms and conditions set forth below. Any defined terms not otherwise defined herein shall have the meanings set forth in the Intergovernmental Agreement.

NOW, THEREFORE, in consideration of the mutual promises contained herein, and INTENDING TO BE LEGALLY BOUND hereby, the parties hereto covenant and agree as follows:

1. Background Clauses. The forgoing Background Clauses are incorporated herein as though more fully set forth herein.

2. Amendment to the Intergovernmental Agreement. Section 1.4 of the Intergovernmental Agreement is hereby amended and restated in its entirety to read as follows:

“1.4 As of Jan 1, 2013, all residents of the Borough and the Township are permitted to use the Facility. Commercial use of the facility, even though in the service of a resident of the Borough or the Township, is strictly prohibited.”

3. Amendment to the Intergovernmental Agreement. Section 4 of the Intergovernmental Agreement is hereby amended and restated in its entirety to read as follows:

“4.1 The Borough shall remit the following to the Township: (a) On an annual basis, a payment in the amount of \$2,700.00 towards the costs of grindings at the Facility; and (b) On an annual basis, payment for disposal of collected leaves at the current rate of \$4.00 per cubic yard. When price increases are received by the Township, such increase shall be communicated to the Borough and reimbursement shall be calculated at the new rate effective immediately. If additional grindings are required throughout a given calendar year, costs associated with those additional grindings shall be shared by all municipalities entitled to utilize the Facility on a per capita basis, calculated using statistics from the most recent census available at that time.”

4. Amendment to the Intergovernmental Agreement. New Section 5, 6 and 7 are hereby added to the Intergovernmental Agreement to read as follows:

“SECTION 5. INSURANCE AND INDEMNITY

5.1 The Township shall maintain appropriate policies of insurance, which shall provide liability coverage to South Heidelberg and the Borough, their officials, officers, agents and employees, against any and all damages, accidents, casualties, occurrences or claims which might arise or be asserted against such municipalities pertaining to the maintenance, condition or operation of the Facility, noting that the same would not apply to any allegations of intentional or

criminal misconduct of the Borough. To the extent that it is judicially determined that liability covered hereunder exceeds the insurance protection afforded under the above-referenced policy, each municipality (through separate liability insurance policies or otherwise) shall bear its own judicially determined proportion of liability.

SECTION 6. INVALIDITY

6.1 The invalidity, illegality or unconstitutionality of any portion of this Agreement shall not impair or affect the invalidity of this Agreement as a whole or any other part thereof.

SECTION 7. COUNTERPARTS

7.1 This Agreement may be signed in counterparts or any number of duplicate originals, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.”

5. Terms of this Amendment to Prevail. In the event of a conflict between the terms of this Amendment and the terms of the Intergovernmental Agreement, the terms of this Amendment shall prevail.

6. Remaining Terms of Intergovernmental Agreement. All other terms and conditions of the Intergovernmental Agreement, which are not amended by the terms hereof, shall remain in full force and effect.

7. Entire Contract and Counterparts. This represents the entire understanding of the parties as to the amendment and modification of the Intergovernmental Agreement, and all prior discussions, memorandum, agreements and other documents on the subject matter are merged herein. No modifications shall be permitted, except written modifications which shall be signed by the parties in order to be effective. This Amendment may be signed in counterparts or any number of duplicate originals, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[Remainder of this page is intentionally left blank – signature page follows]

IN WITNESS WHEREOF, the parties hereto have executed and delivered this Amendment as of the day and year first above written.

TOWNSHIP OF SOUTH HEIDELBERG,
BERKS COUNTY, PENNSYLVANIA

ATTEST:

David A. Schaff
Secretary

By: Richard E. Hummel
Chairman

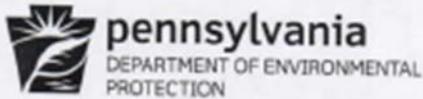
BOROUGH OF WERNERSVILLE,
BERKS COUNTY, PENNSYLVANIA

ATTEST:

John A. Lewis
Secretary

By: [Signature]
President

Appendix B
Letter of Approval for Wernersville Yard Waste Site



June 18, 2018

Debra Pierce
Borough of Wernersville
100 North Reber Street
Wernersville, PA 19565

Re: Yard Waste drop off facility
Wernersville, Berks County

Dear Ms Pierce:

Thank you for submitting a yard waste composting application, received March 28, 2018 for the Borough of Wernersville yard waste transfer/drop off facility located at N. Pine adjacent to the park, in Wernersville, Berks County. As no actual processing or composting of yard waste is proposed to take place at this facility and storage is limited to the volume of a container and then promptly removed to a final processing destination, the Department will not require formal approval of this municipal waste transfer/drop off facility at this time. The facility is acknowledged as being part of Wernersville overall yard waste management plan. The Township's efforts to encourage yard waste recycling by making drop off locations accessible to residents are commendable.

If you find that actual processing (composting, grinding/shredding) becomes needed at this facility or if storage volumes increase above the original proposed container volume, the Department may require a more formal approval under the yard waste composting guidelines. Please contact John Oren at 717.705.4907 to discuss any needed plan amendments and approvals that may be necessary prior to implementation of additional processing/storage at this facility

Sincerely,

A handwritten signature in black ink that reads "Anthony Rathfon".

Anthony Rathfon
Program Manager
Waste Management Program

cc: Berks County Planning Commission
Jane Meeks, Berks County Solid Waste Authority

Appendix C
Clements Farm Land Application Form

LAND APPLICATION FORM

FORM NUMBER 2500-FM-BWM0265

LAND APPLCATION OF LEAVES

BOROUGH OF WERNERSVILLE

CLEMENTS FARM

**Borough of Wernersville
Berks County, Pennsylvania**

JUNE 2018

Preparer

Sustainable Resources Consulting, LLC

LAND APPLICATION FORM (LEAVES)



LAND APPLICATION OF YARD WASTE APPLICATION FORM

Please familiarize yourself with the Pennsylvania Department of Environmental Protection GUIDELINES FOR LAND APPLICATION OF YARD WASTE prior to filling out this form.

1. Sponsoring Municipality or County (Name and Mailing Address)

Telephone Number

Borough of Wernersville

610-678-1486

100 North Reber Street

Wernersville, PA 19565

2. Name of Farm Clements Farm

Contact Telephone Number

Contact Person at Farm Brian Clements

610-373-6062

Property Owner's Name Brian and Julie Clements

Address of Facility N Pine Street, Wernersville, PA 19565

Access via Laurel Street at Berks County Park

(include Access Road Name and Legislative Route Number)

Zip 19565

City-Borough-Township Wernersville County Berks

Attach a U.S.G.S. 7.5" map identifying the farm and the yard waste site boundaries.

3. Total acres for farm land application area: 10 acres of 13.64 total acres

4. Volume of yard waste to be received annually in cubic yards: 650 - 850 cubic yards

5. Prepare and include in this application a general site plan* for the facility which illustrates the location of the following items:

- Access roads in relation to the nearest public road
- Tipping area
- Surface water controls (tipping area only)
- Fields proposed for land application.

** Please note that a hand drawn sketch that includes site dimensions is acceptable. An engineer's drawing is not required.*

6. Please address the following items:

- A complete list of source(s) of yard waste to be received.

Leaves will originate from the Borough of Wernersville's curbside leaf collection program that is conducted annually in the fall.

- Describe the method for inspecting incoming yard waste.

Residents are provided instructions regarding curbside leaf placement and handling procedures including guidance to reduce contamination by unwanted materials. Borough leaf collection crews are trained to identify contaminants and to provide routine quality control during leaf collection. Truckloads/boxes of leaves will be inspected by Borough personnel and/or farm personnel during tipping and when leaves are loaded into farm equipment for land application.

- Describe the plan for rejecting or disposing of unacceptable materials and residuals.

Unacceptable material identified during inspections will be removed by Borough personnel and/or farm personnel. Unacceptable materials/residues removed from leaves will be consolidated in waste receptacles or dumpsters upon removal and disposed/processed by the PADEP-permitted municipal waste disposal facility that is under contract with the Borough of Wernersville.

- Provide the name and location of the disposal or processing site for unacceptable materials and residuals.

All unacceptable materials/residuals will be collected, transported and disposed of under the Borough municipal waste collection contract, in effect at the time of processing.

-
- Attach the farm soil conservation plan and nutrient management plan. Per the Berks County Conservation District, Clements farm does not have and is not required to obtain, soil conservation, erosion/sediment, or nutrient management plans.
 - Describe the volume of yard waste processed during the previous year or expected to be processed during the first year of operation.

A range of 650 – 850 cubic yards of leaves is anticipated in the first year and annually.

-
- Please provide an operational narrative which includes a description of each of the following:
 - Operational hours for receiving yard waste
 - Land application and incorporation frequency
 - Plan for removal of yard waste from bags
 - Spreading and incorporation methods and frequency
 - Source of leaves and grass clippings.

Operational Narrative

The Borough of Wernersville and Clements Farm have entered into a public/private partnership to land apply leaves in an environmentally and economically responsible manner. The farm consists of two parcels that total approximately 14 acres. Leaves will be land applied to approximately 10 acres of farm fields that primarily grow soybeans and corn. The annual quantity of leaves will range from 650 – 850 cubic yards. There are no onsite water sources.

Loose leaves collected/vacuumed at the curbside by the Borough of Wernersville during the fall season will be delivered to the farm Monday through Friday between the hours of 7:00 AM and 3:00 PM. No bagged leaves will be accepted. Leaves will be land applied and incorporated into the soil seasonally using mechanized equipment to evenly distribute or spread leaves and to till leaves into the soil. Contingent upon weather, farm operating conditions, the moisture content or condition of leaves, the land application of leaves will typically occur within 14 days of delivery. As needed, berms comprised of leaves will be constructed as needed to manage surface water including run-off and ponding. The tipping area and access road will be maintained to prevent rutting from vehicles, water ponding, and runoff.

Quality control of unwanted materials in leaf loads will be provided by Borough staff and the farmer. Leaves will be inspected for unwanted materials by Borough crews upon collection and when leaves are tipped at the receiving area of the farm. Farm personnel will assist with leaf inspections when leaves are loaded into farm equipment for land application and incorporation into the soil. Unwanted material/residues that are not suitable for land application will be removed at least weekly by municipal staff and disposed at the PADEP-permitted municipal waste disposal facility under contract with the Borough.

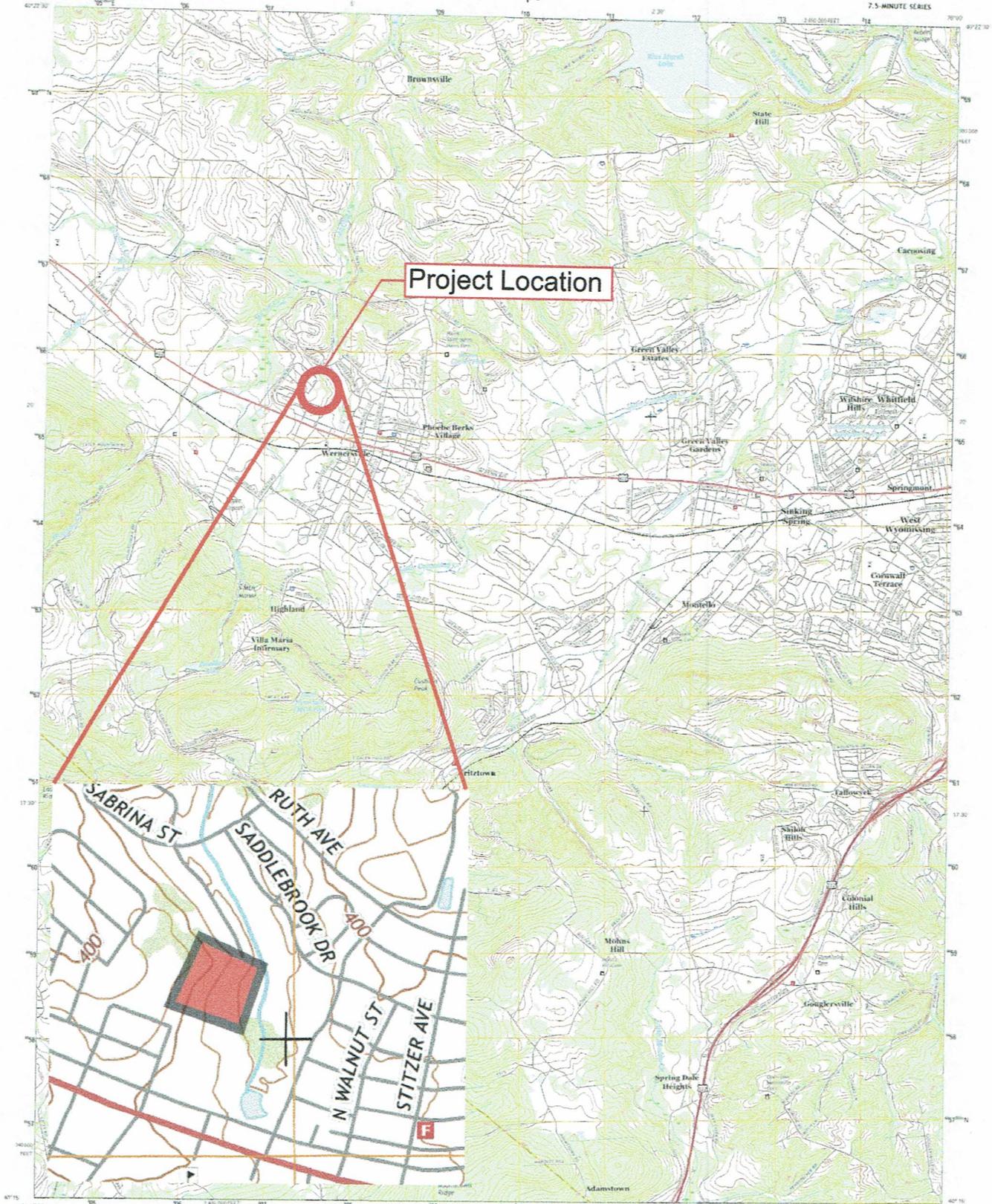
The Borough Police Department and Fire Department will be provided a copy of the Land Application Form.



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



SINKING SPRING QUADRANGLE
PENNSYLVANIA
7.5-MINUTE SERIES



Produced by the United States Geological Survey
with technical support of the following:
World Geodetic System of 1984 (WGS84) Projection and
1:50,000 scale of the National Geographic Survey of 1983
to 100-foot scale, Pennsylvania Coordinate System of 1983
(GCS PA83)

This map is not a legal document. Boundaries may be
generated for this map state. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Map: 2013
Roads: U.S. Census Bureau, 2010
Hydrography: National Hydrography Dataset, 2010
Contours: National Elevation Dataset, 2010
Boundaries: Multiple sources; see metadata file 1722 - 2010

Metadata: PMS National Wetlands Inventory 1977 - 2014

U.S. National Grid
Scale: 1:24,000
Datum: NAD 83
Projection: UTM
Zone: 18N



SCALE 1:24,000
CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geographic Program US Topo Product Standards, 2011.
A metadata file associated with this product is draft version 0.6.19

ROAD CLASSIFICATION

Expressway	Local Connector
Secondary Hwy	Local Road
State	AKS
Interstate Route	US Route
	State Route

1	2	3	1 Scoutstown
4	5	6	2 Souderton
7	8	9	3 Temple
10	11	12	4 Wrentham
13	14	15	5 Reading
16	17	18	6 Galena
19	20	21	7 Tarry Hill
22	23	24	8 Hagerstown

SINKING SPRING, PA
2014



General Site Plan

Legend

-  Access Road
-  Property Boundary
-  Land Application Area
-  Tipping Area



This Indenture,

Made the 31st day of December, in the year
Nineteen hundred and ninety-one (1991),

Between CLEMENTS WASTE SERVICES, INC., a Pennsylvania Corporation, successor
by merger to Waste Controls Corp., having a principal place of business in
Berks County, Pennsylvania,

(hereinafter called the Grantor), of the one part, and

BRIAN W. CLEMENTS and JULIE L. CLEMENTS, his wife, of Berks County, Pennsylvania,

(hereinafter called the Grantee s), of the other part:

Witnesseth, That the said Grantor for and in consideration of the sum of
-----ONE (\$1.00) DOLLAR----- lawful
money of the United States of America, unto it well and truly paid by the
said Grantee s at and before the sealing and delivery of these presents, the receipt
whereof is hereby acknowledged, has granted, bargained, sold, aliened,
enfeoffed, released and confirmed, and by these presents does grant, bargain,
sell, alien, enfeoff, release and confirm unto the said Grantee s, their heirs
and Assigns,

ALL THAT CERTAIN tract or parcel of land situate in Wernersville Borough,
Berks County, Pennsylvania, bounded and described according to a Plan drawn
for Marion Wilson White, by Spotts, Stevens and McCoy, Inc., Consulting
Engineers, dated August 19, 1980, and last revised September 27, 1984, as
follows, to wit:

BEGINNING at a Railroad Spike on the title line in the bed of North
Elm Street (50 feet wide) said point being a corner of lands now or late of
Marion Wilson White, said point also being on the line dividing the Borough of
Wernersville from Lower Heidelberg Township; thence extending from said point
of beginning along the title line in the bed of North Elm Street South 24
degrees 08 minutes 15 seconds West 8.00 feet to a Railroad Spike, a corner of
lands now or late of Edward Smilak; thence extending along said lands the four
following courses and distances. (1) North 59 degrees 21 minutes 19 seconds
West and crossing the Northwesterly side of North Elm Street 624.57 feet to a
steel pin, a corner, (2) South 14 degrees 28 minutes 00 seconds West and
crossing and recrossing a stream 282.42 feet to a Railroad Spike, a corner
(3) South 48 degrees 37 minutes 01 second West and recrossing said stream and
also crossing a lane 15.52 feet to a steel pin, a corner, and (4) South 00 degrees
59 minutes 01 second West and recrossing said stream and also crossing the
Northeasterly side of a 20 feet wide Sanitary Sewer Right-of-Way 225.52 feet
to a steel pipe, a corner of lot No. 1 on said Plan, said point being in the
bed of said Easement and in the bed of said stream; thence extending along Lot

No. 1 and through the bed of said easement and recrossing said stream North 62 degrees 19 minutes 50 seconds West 180.06 feet to a point, a corner of lands now or late of Conrad Weiser Area School District; thence extending along said lands the three following courses and distances, (1) North 62 degrees 26 minutes 48 seconds West and crossing the Northwesterly side of said 20 feet wide Sanitary Sewer Right-of-Way 498.37 feet to a point of curve, (2) Southwestwardly along the arc of a circle curving to the left having a radius of 270.00 feet the arc distance of 213.35 feet to a point of tangent, and (3) South 28 degrees 17 minutes 10 seconds West 50.00 feet to a point on the Southeasterly side of North Pine Street (Unconstructed) (60 feet wide); thence extending North 61 degrees 42 minutes 50 seconds West and crossing said North Pine Street 60.00 feet to a point in line of lands now or late of Marion Wilson White; thence extending along said lands the two following courses and distances, (1) North 28 degrees 17 minutes 10 seconds East 140.81 feet to a point, a corner, and (2) North 43 degrees 29 minutes 15 seconds East 102.70 feet to a point, a corner of lands now or late of Barry Fleischman; thence extending partly along said lands and partly along lands now or late of Marion Wilson White North 28 degrees 17 minutes 10 seconds East and recrossing said land 546.88 feet to a steel pin in line of lands now or late of Marion Wilson White, said point being on the line dividing Wernersville Borough and Lower Heidelberg Township; thence extending along said lands and along said Borough Line South 58 degrees 43 minutes 40 seconds East and recrossing said 20 feet wide Sanitary Sewer Right-of-Way and recrossing said stream and recrossing the Northwesterly side of North Elm Street 1251.10 feet to the first mentioned point and place of beginning.

CONTAINING 8.892 acres of land.

BEING Lot No. 2 as shown on the abovementioned Plan.

BEING PART OF THE SAME PREMISES which Fiorino Grande by Deed dated December 29, 1986, and recorded in Berks County in Record Book 1916, Page 445, conveyed unto Waste Controls Corp. By Articles of Merger, filed with the Department of State, the above recited Waste Controls Corp. merged with Clements Waste Services, Inc. and became known as Clements Waste Services, Inc.

ACTUAL CONSIDERATION: \$40,000.00.

Together with all and singular the improvements, ways, streets, alleys, passages, waters, water-courses, rights, liberties, privileges, hereditaments and appurtenances whatsoever thereunto belonging, or in any wise appertaining, and the reversions and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, property, claim and demand whatsoever of the said Grantor, in law, equity, or otherwise howsoever, of, in, and to the same and every part thereof.

To have and to hold the said

hereditaments

and premises hereby granted, or mentioned and intended so to be, with the appurtenances, unto the said Grantee s, their heirs and Assigns, to and for the only proper use and behoof of the said Grantee s, their heirs and Assigns forever.

And the said Grantor, for itself and its successors does by these presents covenant, grant and agree, to and with the said Grantees, their heirs and Assigns, that it the said Grantor, and its Successors, all and singular the hereditaments and premises herein described and granted, or mentioned and intended so to be, with the appurtenances, unto the said Grantee s, their heirs and Assigns, against the said Grantor and its Successors, and against all and every other Person and Persons whomsoever, lawfully claiming or to claim the same, or any part thereof,

Shall and Will

WARRANT and forever DEFEND.

And the said CLEMENTS WASTE SERVICES, INC.

hereby constitute s and appoint s Brian W. Clements as President and Secretary, to be its Attorney, for it and in its name, and as and for its corporate act and deed to acknowledge this Indenture before any person having authority by the laws of the Commonwealth of Pennsylvania to take such acknowledgment, to the intent that the same may be duly recorded.

In Witness Whereof,

the said Grantor, has caused this Indenture to be executed by its President, attested by its Secretary, and its corporate seal to be affixed the day and year first above written.

Signed, Sealed and Delivered.

In the Presence of

CLEMENTS WASTE SERVICES, INC.

Brian W. Clements President

attest:

Brian W. Clements Secretary

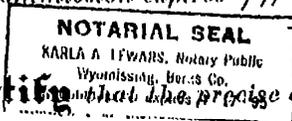
Received, on the day of the date of the above Indenture, of the above-named

Commonwealth of Pennsylvania } ss.
County of Berks

I hereby certify, that on this 27th day of December in the year of our Lord one thousand nine hundred and ninety-one (1991) before me, the subscriber, a Notary Public, residing in the aforesaid County and Commonwealth, personally appeared Brian W. Clements the attorney named in the foregoing Indenture, and by virtue and in pursuance of the authority therein conferred upon him, acknowledged the said Indenture to be the act and deed of the said CLEMENTS WASTE SERVICES, INC.

Witness my hand and Notarial seal the day and year aforesaid

My commission expires 4/11/95



Karla A. Evans
Notary Public

I Heroby Certify

300 N. Elm Street
Wernersville, PA 19565

that the precise address of the grantee is

M. Heller



CLEMENTS WASTE SERVICES, INC., a Pennsylvania Corporation, successor by merger to Waste Controls Corp.,

"GRANTOR"

TO

BRIAN W. CLEMENTS and
JULIE L. CLEMENTS, his wife,

"GRANTEES"

Dated, 19 91

PREMISES: ALL THAT CERTAIN tract or parcel of land situate in Wernersville Borough, Berks County, Pennsylvania

MERVIN A. HELLER, JR., ESQUIRE
BASKIN LEISAWITZ HELLER & ABRAMOWITZ, P.C.
2201 Ridgewood Road - Suite 400
Wyomissing, PA 19610

Commonwealth of Pennsylvania } ss.
County of _____

Recorded in the Office for Recording of Deeds in and for
in Deed Book No.

page Eto.

Witness my hand and seat of Office this
day of Anno Domini 19

3682

2068 1910

#	01-24-92 14:19PAT	3682
DATE		94659
FEE		\$15.00
AMT		\$0.50
PA TRANS TAX		\$400.00
TO BRNSVILLE		\$200.00
TO S. WEISER SD		\$200.00
BT		\$815.50
CHK		\$800.00
CHK		\$15.50
DS		\$0.00

PAY TO THE ORDER OF
 RECORDER OF DEEDS
 LINDA H. FREY
 READING, PA/BERKS CO
 CHK \$15.50
 01-24-92 14:19PAT 94659

RECORDED IN BERKS CO. PA.

IN DEED 2068 PAGE 1910

Linda H. Frey
Recorder of Deeds



Recorder of Deeds

VOL 2268 PAGE 1914

400.00
15.50
400.00

D E E D

File No.: P-28176R

THIS INDENTURE made this 20th day of April, 2001

BETWEEN Melissa A. Coad (hereinafter called the Grantor/s), of the one part and
Brian W. Clements
(hereinafter called the Grantee/s), of the other part,

WITNESSETH, That in consideration of one dollar (\$1.00) and any other good and valuable consideration in hand paid, the receipt whereof is hereby acknowledged, the said Grantor/s do/does hereby grant/s and convey/s unto the said Grantee/s, his/her/their/its heirs/executors and assigns,

ALL THAT CERTAIN piece, parcel or tract of land being Lot No. 3 of the Final Subdivision Plan of the Wernersville Elementary School as recorded in Plan Book Volume 177, page 16, Berks County Records at Reading, Pennsylvania situate on the Eastern side of North Pine Street and the Northern side of Center Avenue, unopened, in the Borough of Wernersville, County of Berks and Commonwealth of Pennsylvania as shown on Plan 6021-019-D-001, prepared by Spotts, Stevens & McCoy, Inc., Consulting Engineers of Reading, Pennsylvania and being more fully bounded and described as follows, to wit:

BEGINNING at a corner marked by an iron pin on the Southeastern topographical building line intersection of North Pine Street, unopened, (60' wide) and West Center Avenue, unopened, (40' wide); thence along the Eastern topographical building line of North Pine Street crossing West Center Avenue, North twenty-eight degrees twenty minutes twenty-one seconds East (N. 28° 20' 21" E.) a distance of ninety and zero hundredths feet (90.00') to a corner marked by an iron pin; thence along property belonging to Waste Controls Corporation, the two (2) following courses and distances, viz: (1) by a line curving to the right having a central angle of forty-five degrees sixteen minutes thirty seconds (45° 16' 30") a radius of two hundred seventy and zero hundredths feet (270.00') a distance along the arc of two hundred thirteen and thirty-five hundredths feet (213.35') a chord bearing of North fifty degrees fifty-eight minutes thirty-six seconds East (N. 50° 58' 36" E.) and a chord distance of two hundred seven and eighty-five hundredths feet (207.85') to a corner marked by an iron pin, said corner being an unopened portion of West Wilson Avenue (50' wide); (2) in and along West Wilson Avenue, South sixty-two degrees twenty-three minutes thirty-seven seconds East (S. 62° 23' 37" E.) a distance of four hundred ninety-eight and thirty-eight hundredths feet (498.38') to a corner marked by an iron pin; thence along property belonging to the Wernersville Municipal Authority the two (2) following courses and distances, viz: (1) South twenty-two degrees nineteen minutes eleven seconds East (S. 22° 19' 11" E.) a distance of three hundred fourteen and nineteen hundredths feet (314.19') to a corner marked by an iron pin; (2) South twenty-seven degrees three minutes fifteen seconds West (S. 27° 03' 15" W.) a distance of eighty-nine and five hundredths feet (89.05') to a corner marked by an iron pin; thence along the Northern side of Lot Nos. 1 and 2 and the Southern side of unopened West Center Avenue (40' wide), North sixty-one degrees thirty-nine minutes thirty-nine seconds West (N. 61° 39' 39" W.) a distance of eight hundred twenty-three and thirty-three hundredths feet (823.33') to the place of Beginning.

CONTAINING in an area four and seven hundred twenty-three thousandths acres (4.723 acres) of land, more or less.

PTN NO. 4366-06-48-0684.

BEING THE SAME PREMISES WHICH Allan D. Coad and Kathleen M. Coad, his wife, granted and conveyed unto Melissa A. Coad by Deed dated October 26, 1995 and recorded in Record Book 2679, page 637, Berks County Records.

THE ACTUAL CONSIDERATION: \$ 55,000.00

VL3326PG0303

AND the said Grantor/s do/does hereby covenants to and with the said Grantee/s that he/she/they/it, the said Grantor/s, for himself/herself/themself/itself, their heirs/executors and assigns, SHALL AND WILL SPECIALLY, Warrant and forever Defend the herein above described premises, with the hereditaments and appurtenances, unto the said Grantee/s his/her/their/its heirs/executors and assigns, against the said Grantor/s and against every other person lawfully claiming or who shall hereafter claim the same or any part thereof, by, from or under he/she/them/it or any of them.

IN WITNESS WHEREOF, the said Grantor/s has/have caused these presents to be duly executed, the day and year first above written.

SEALED AND DELIVERED
in the presence of:

✓ Melissa A. Coad (SEAL)
Melissa A. Coad

United State Virgin Islands
Providence of St Croix

On this, the 20th day of April, 2001, before me, the undersigned officer, personally appeared Melissa A. Coad known to me (or satisfactorily proven) to be the person/s whose name/s is/are subscribed to the within instrument and acknowledged that he/she/they executed the same for the purposes therein contained.

✓ Susan J. Kelley
Notary Public SUSAN J. KELLEY
NPI# 10-997



The address of the Grantee is:

Two Woodland Road 2nd Floor
PO Box 5889
Wymissing An. 19610-5889

VL3326PG0304

Ent

3326 21802 303



RECORDED IN BERKS CO., PA
Ellie Antone
RECORDER OF DEEDS

REC 04-27-2001 09:52	VERONT	11:27.00
CHK		51.00
RECORDER OF DEEDS		51.00
BERKS COUNTY		51.00
RECORDS, PA, 1987:		51.00
ELLIE ANTOINE		51.00
CHK		51.00
REC 04-27-2001 09:52	VERONT	11:27.00
CHK		51.00
RECORDER OF DEEDS		51.00
BERKS COUNTY		51.00
RECORDS, PA, 1987:		51.00
ELLIE ANTOINE		51.00
CHK		51.00
REC 04-27-2001 09:52	VERONT	11:27.00
CHK		51.00
RECORDER OF DEEDS		51.00
BERKS COUNTY		51.00
RECORDS, PA, 1987:		51.00
ELLIE ANTOINE		51.00
CHK		51.00

REC 04-27-2001	09:52	VERONT	11:27.00
CHK			51.00
RECORDER OF DEEDS			51.00
BERKS COUNTY			51.00
RECORDS, PA, 1987:			51.00
ELLIE ANTOINE			51.00
CHK			51.00
REC 04-27-2001	09:52	VERONT	11:27.00
CHK			51.00
RECORDER OF DEEDS			51.00
BERKS COUNTY			51.00
RECORDS, PA, 1987:			51.00
ELLIE ANTOINE			51.00
CHK			51.00

500 20
500
VI 3026 PG0305
500
11:30
15

Appendix D
Sheet Leaf Composting Guidance

SHEET LEAF COMPOSTING

The Land Application and Incorporation of Leaves on Cropland

In addition to bringing leaves to conventional leaf composting facilities, municipalities have the option of working with a local farmer who practices sheet leaf composting as another method of leaf recycling. This primer was generated to provide basic information to municipalities and farmers interested in practicing “Sheet Leaf Composting” (SLC). A literature review on SLC was conducted, compiled and is presented in the following pages for use as a guidance document for interested individuals.



Sheet leaf composting is the application and incorporation of leaves on cropland actively devoted to agricultural production, as a soil amendment and mulch. Studies comparing the cost of conventional windrow composting to SLC conclude that SLC is a considerably less expensive option for recycling leaves. The availability of cropland in October and November, during the bulk of the municipal leaf collection season, makes sheet leaf composting a viable option for many municipalities and farmers. Municipalities now have the opportunity to support local agriculture through public/private partnerships with farmers for the recycling of leaves. These partnerships can be mutually beneficial as outlined below.

Benefits to the Farmer

- Additional income through tipping fees or contracts
- Cropland improvements in soil tilth, moisture holding capacity, structure and nutrients
- Additional compensation for the use of cropland, equipment and man-power that may be underutilized during the post harvest season
- Contributions to sustainable agriculture

Community Benefits

- Lower disposal costs
- Minimal hauling expense
- Eliminating the liability and expense associated with the operation, maintenance and management of a leaf compost facility
- Supporting local farmers

Environmental Benefits

- Decreased soil erosion resulting from increased soil aggregation and surface residue from the practice of sheet leaf composting
- Improved soil nutrient holding capacity reducing leachate and runoff concerns
- Decrease in potential environmental and nuisance problems sometimes associated with poorly operated compost facilities

Municipality, Community and Farmer Cooperation

Farmers and municipalities should work together to overcome the obstacles that could arise with the application of leaves to farmland. The municipality must be responsive to the needs of the farmer and work with the haulers and the community to keep the leaves free of trash and other physical contaminants. This will be an ongoing concern for the farmer. Tipping fees should be adequate to offset the added time

and expense incurred in the handling and incorporating leaves.

The farmer must provide all-weather access to the field locations where the leaves will be applied. The field should have ample access to either directly apply the leaves, or enough area to temporarily stockpile the leaves prior to application. Modifications to crop rotations, field layouts, and access areas may be necessary to accommodate the arrival of leaves. Well-drained land is best suited for the delivery of leaves in all weather conditions.

Considerations for the Farmer

In addition to the labor and time involved with the distribution and incorporation of leaves, other factors can create problems for farmers that incorporate leaves. Potential problems include:

- Removal and disposal of extraneous materials mixed with the leaves during the collection process
- Coordinating land availability and access
- Availability of equipment and labor to distribute and incorporate the leaves to the field in a timely fashion
- Accounting for additional fertilizer which may be needed especially in the first season [Maynard (1)]
- Reduction in the effectiveness of pre-plant herbicide, so other weed control may need to be considered with applications of more than 30 tons (dry weight basis) of leaves per acre [Whitacre]

Municipal Considerations

Municipalities wishing to recycle their leaves should be aware that farmers accepting leaves need to charge the municipality a tilling fee to offset the expense of land application and incorporation.

Municipal considerations are:

- Compensation to the farmers that accept leaves
- Educating the leaf collectors, haulers and the community to reduce extraneous materials when collecting leaves
- Scheduling the deliveries and access to farm field locations
- Cropland may not be in close proximity to the leaf collection areas

Leaf Preparation

Leaves must be free of trash and other physical contamination such as glass, bottles, cans, plastic, large tree limbs, leaf collection bags and branches. A farmer may only apply leaves at agronomic rates that will not adversely affect the farming operation.

Education

Education of all participants is critical to the success of a sheet leaf composting operation. The farmers and the municipalities must reach a mutual understanding as to the responsibility of each party. The municipalities must have a site in close proximity to the leaf source that is accessible in all weather conditions. The public must be educated to recognize the importance of keeping trash and debris out of the leaf collection. When raking leaves to the curb for collection the public must be considerate of the farmer's needs and work to keep the contamination to a minimum. The haulers and collectors must be considerate of the farmer's needs. Communication between the participants is critical to achieve a mutually satisfying public/private partnership.

Contract Requirements

A contract between the parties involved in the sheet composting process is essential. The contract should contain very specific requirements for both the farmers and municipality delivering the leaves. The contract should include but not be limited to the following items:

- Tipping fee and method of payment
- Quantities of leaves that will be accepted
- Specific requirements for the delivery of de-bagged leaves free of physical contaminants
- Time period and locations for delivering the leaves to the farm
- Procedures and individuals responsible for the handling and disposal of unacceptable materials delivered to the farm
- Record Keeping
- Provisions to review and amend the contract as conditions may change
- Other operational and site specific requirements

DEP Requirements

Section 22a-208i(a)-1(g) of the Regulations of Connecticut State Agencies (RCSA) concerning the composting of leaves pertains specifically to sheet leaf composting. The regulation requires that:

- The person practicing SLC must have an Agricultural Sales Tax Exemption Permit issued pursuant to chapter 219 of the Connecticut General Statutes.
- The person practicing SLC must comply with the reporting requirements for recycling facilities pursuant to section 22a-208e(c) of the Connecticut General Statutes.
- DEP must be notified within 30 days before the acceptance of leaves for SLC. A special notification form has been developed and is available through the DEP Recycling Program and on the DEP website.
- No material other than leaves can be used for SCL.
- SLC must be conducted only on land actively devoted to agricultural production.
- Leaves must be delivered to the agricultural land unbagged.
- Prior to the application of leaves to the land, any non-leaf material intermixed with the leaves must be removed and properly disposed.
- Leaves must be applied to the land within fourteen (14) days of delivery and must be spread in a layer no higher than six inches.
- No land may receive, as a result of SLC, more than six inches of leaves within any 12 months. DEP has estimated that this is equivalent to approximately 800 cubic yards or 200 tons of leaves per acre.
- All leaves applied to land must be incorporated into the soil no later than the next tillage season following the time the leaves were applied, unless the leaves are intended as ground mulch.

Anyone interested in practicing sheet leaf composting should become familiar with this regulation. A copy is available through the DEP Recycling Program or on line at

<http://www.dep.state.ct.us/wst/recycle/regshome.htm>

Nutrient Management

Thorough mixing and incorporation of the leaves with the soil is critical to accelerate mineralization of the leaves, and to avoid carbon nitrogen imbalances in the soil. Leaves collected and applied in the fall have a carbon-to-nitrogen ratio between 40:1 and 80:1. When the carbon-to-nitrogen ratio in the soil exceeds 30:1 the rate of leaf degradation is slowed and the nitrogen available



for plant growth is reduced [Peterson (1)]. Most studies indicate that a decrease in crop yield due to nitrogen immobility can result on land where large quantities (greater than 10 to 20 tons dry tons per acre) of leaves have been applied. Nitrogen application rates should be increased to compensate for the nitrogen immobility expected due to heavy leaf applications [Nally, Maynard (1)]. The mineralization rate can be hastened and nitrogen immobility averted, if during incorporation the leaves are thoroughly mixed into the soil profile inoculating the leaves with soil microorganisms [Peterson (2)].

Agronomic benefits to farmers who apply leaves to cropland will vary depending on the existing soil fertility, management practices, soil type, and crop grown. When calculating the application rate of leaves to the land a conversion rate of 4 cubic yards per ton has been a standard. However, the actual conversion rate will depend on the moisture content and density of the leaves at delivery. Loose, dry leaves can measure 10 cubic yards per ton and tightly packed, moist leaves can measure 2 cubic yards per ton.

The nutrient analysis for leaves on a dry ton basis can typically range from 15 to 18 pounds nitrogen, 4 to 5 pounds phosphorus and 10 to 12 pounds potassium. The actual nutrients available for plant growth are released quite slowly. Similar to other soil amendments, the availability of nitrogen, phosphorus and potassium present in leaves depends on soil temperature, pH, soil type, previous crop residues, moisture and other factors. More study is needed to determine the long-term effect of annual leaf applications on nitrogen availability, pH and metals content in the soil. Studies indicate:

- The application of leaves on cropland had no net effect on soil pH [Kluchinski (2)].
- No increases in metal content of the crop or soils were detected with the application of leaves [Whitacre].
- Well drained sandy soils can receive the greatest benefit from the addition of leaves due to increases in organic matter, water holding capacity and overall tilth [Maynard (2)].
- Organic matter content and fertility of the soil is improved with leaf applications [Peterson (1)].
- The incorporation of leaves on cropland will enhance the long-term fertility of the soil.
- Application rates of 20 and 40 dry tons per acre were incorporated into a silt loam with a rototiller and no nitrogen immobility was encountered [Peterson (2)].

A soil nutrient analysis should be performed on all cropland prior to planting to determine crop specific fertilizer recommendations.

Application Methods and Equipment

Practicing farmers should be prepared to experiment with the equipment available to them to determine the most successful leaf application methods for their specific operation. Reports on the best type of equipment for spreading vary. A conventional rear unloading spreader was reported as the best method for uniform distribution [Kluchinski (3)]. Reportedly, spreading leaves with a conventional manure spreader can be quite time consuming due to the capacity of the spreader in comparison to the volume of leaves. Considerable time and expense can be incurred in the loading and land application of the leaves using small capacity conventional spreaders [Nally]. The use of a conventional manure spreader will require the temporary leaf stockpiles to be located convenient to roads and close to the fields where the material is to be spread.

Since leaves are collected in all weather conditions, it is important to site stockpile and application areas with wet weather access in mind. Cropland access should be rotated to address changing weather and site conditions. Well-drained field locations or access areas can be held in reserve for deliveries during wet weather conditions. Appropriate farming practices should be used to minimize trafficking on saturated fields to reduce compaction and rutting.

During dry weather conditions and on well-drained cropland, placing truckloads of leaves at intervals on the cropland can be an effective way to deliver the leaves for direct incorporation [Eisenhauer]. Pushing or grading the leaves piled on the cropland has, in some instances, provided adequate distribution. Saturated leaves can become bunched or unevenly dispersed when front-end loaders are used for distribution.

The grinding of leaves prior to land application allow for the leaves to be uniformly graded with a bucket loader. Leaves are easier to spread and incorporate into the cropland if they are previously shredded [Peterson]. A "Brush Hog" attachment has been used to grind stockpiled leaves in the field to volume reduce the leaves and aid uniform distribution [Robertson].

Incorporation Methods and Equipment



The successful incorporation of leaves into the soil depends on the thickness of the leaf layer, the uniformity of application, moisture conditions of the leaves, whether leaves are shredded, soil type, and the volume and consistency of the existing crop residue. Two passes with a chisel plow proved the best method to incorporate leaf material into the cropland [Kluchinski (3)]. With an application rate of 6 inches it's best to apply the leaves in two three-inch applications incorporating the leaves thoroughly after each application. The use of a rototiller attachment has been effective in incorporating applications of leaves at under 40 tons per acre [Peterson (1)]. Reports indicate harrowing and moldboard plowing are less successful in the incorporation of leaves in greater than 3-inch layers or non-uniform applications. Reports indicate little trouble with the incorporation of 3-inch layers of leaves, however, layers greater than 5-inches proved to be more difficult. Leaves are easier to incorporate if shredded first. The pre-tilling of the cropland to reduce residue interference will aid in the incorporation of leaves, however, the extra tillage will result in higher incorporation costs. Reports indicate the complete incorporation and mixing of the leaves into the soil profile is critical to the uniform growth of the subsequent crop.

Summary

Sheet leaf composting can be a viable alternative for the recycling of municipal leaves in a beneficial manner. The entire community can take pride in conserving local agriculture by supporting the potential for increased on-farm income through sheet leaf composting. By fostering the private/public partnership, local agriculture can help provide another method to recycle leaves.

For More Information

The Connecticut Department of Environmental Protection Recycling Program prepared this SLC primer. For information on sheet leaf composting, the sheet leaf composting notification form, or for information on Connecticut's leaf composting program and requirements, please visit the DEP Composting and Organics Recycling web page at <http://www.dep.state.ct.us/wst/compost/comindex.htm> , or contact:

K.C. Alexander
Department of Environmental Protection
Recycling Program
79 Elm Street

Hartford Connecticut 06106-5127

Phone: 860-424-3365

kathy.alexander@po.state.ct.us

References and Additional Reading

Eisenhauer, S., *Will Leaf Mulch on Farm Replace Leaf Composting*, Waste Dynamics, May, 1993:1.

Fritz, T. and R. Graves, *Land Application of Leaves and Grass Clippings*, Penn State University, Agricultural and Biological Engineering Fact Sheet, 1992.

Hegberg, B., G. Brenniman, and W. Hallenbeck, *Yard Waste Programs*, University of Illinois Center for Waste Management and Research, Chicago, Illinois, July, 1990.

Kluchinski, D. (1)., *Leaf Mulching on Field Crop Acreage*, Rutgers Cooperative Extension, 1992 Report.

Kluchinski, D. (2)., J. Heckman, J. Mahar, D. Derr, Rutgers University, and F. Kelly, USDA-SCS, *Leaf Mulching : Using Municipal Leaf Waste as A Soil Amendment*, 1992 Report.

Kluchinski, D. (3)., *Evaluation of Methods and Equipment for the Spread and Incorporation of Leaf Waste on Agricultural Land*, Rutgers Cooperative Extension Report.

Maynard, A. (1)., The Connecticut Agricultural Experiment Station, Personal Communication, April, 1994.

Maynard, A. (2)., *Cromwell's Leaf Recycling Experiment, Final Report*, The Connecticut Agricultural Experiment Station, August, 1993.

Nally, T., *Leaf Spreading Project - Town of Pittsford*, Cornell Cooperative Extension Project Report, May, 1989.

Peterson, A. E., P.E. Speth, D. E. Schlough, T. H. Wright, and T. B. Ginder., *Effects of Applying Leaves From Middletown, Wisconsin on Cropland*, University of Wisconsin-Madison, 1989 Report.

Peterson, A. E., Department of Soil Science, University of Wisconsin-Madison, Personal Communications, May, 1994

Whitacre, R., R. J. Winter, and W. Chrudimski, *Benefits of Applying Raw and Winter Aged Leaves to Corn and Soybean Cropland*, Illinois State University, 1991 Report.

Appendix E
PADEP Approval Letter for Clements Farm to Land Apply Leaves



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

July 30, 2018

Mr. Brian Clements
300 North Elm Street
Wernersville, PA 19565

Re: Land Application of Yard Waste
Clements Farm
APS ID No. 970018
Wernersville Borough, Berks County

Dear Mr. Clements:

The DEP Southcentral Regional Office Waste Management Program received a Land Application of Yard Waste Form for the land application of leaves prepared by Sustainable Resources Consulting, LLC received on June 11, 2018. A revised Land Application of Yard Waste Form dated July 16, 2018 was received on July 19, 2018.

The location for the land application of leaves is a 14-acre farm field owned by Brian and Julie Clements, 300 N. Elm Street Wernersville, PA. The property also joins N. Pine street and access is via Laurel Street.

The above referenced location meets the requirements for the land application of leaves from the Borough of Wernersville, based on the information received and site inspection conducted by the Southcentral Regional Office Waste Management Program of the Department of Environmental Protection. A maximum volume of 850 cubic yards of leaves may be received annually.

A copy of the land application submittal and operational narrative must be maintained on site.

If you have any questions please contact me at 717.705.4907.

Sincerely,

A handwritten signature in cursive script that reads "Anthony Rathfon".

Anthony Rathfon
Program Manager
Waste Management Program

cc: Borough of Wernersville
Berks County Conservation District
Jane Meeks, Berks County Solid Waste Authority

Brian Clements

- 2 -

July 30, 2018

bcc: Mike Maiolie
Linda Houseal
File
T