



January 17, 2014

Ms. Jaclynne Drummond
North Carolina DENR
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Response to Request for Additional Documentation and Activities and
Request for Time Extension
North Mecklenburg C&D Landfill
Huntersville, North Carolina
Permit #60-13

Dear Ms. Drummond:

On behalf of our client, Greenway Waste Solutions, LLC (GWS), Enviro-Pro, P.C. (EP) is responding to your December 3, 2013 letter as well as to Brian Wootton's letter dated November 22, 2013.

Item 1: Our primary focus to date has been the protection of human health. GWS' managing partner, Mike Griffin, their compliance director, Ellie Allen, and I have participated in meetings and consistent correspondence with the four households with adjacent ground water supply wells. All have agreed that the best solution is to replace their ground water supplies with Charlotte-Mecklenburg Utility Department (CMUD) water. We have minimum weekly email correspondence to report our progress with CMUD as well as discuss our monthly testing of their water supply wells. I have also attached the letters that Mike Griffin sent to the four families. The temporary CMUD water line to the Gilkerson household and the installed carbon filter systems on the Tinsley and Hammill wells have supplied an ample safety net while we work with CMUD on the permanent water supply solution. We are also working with Joseph Wright to supply a permanent solution to his adjacent rental property. A chronological summary of the actions taken to date to protect the human health of the adjacent residents is provided below.

As an interim measure to protect the water quality of adjoining water supply wells, three granular activated charcoal (GAC) units were installed by December 13, 2013. These 100-pound activated carbon canisters were installed at the Tinsley residence and the two wells at the Hammill residence. We have also offered to install a GAC unit for the rental property owned by Joseph Wright.

The November sampling of the Gilkerson water supply showed a small presence of vinyl chloride. GWS immediately agreed to the Gilkerson request for alternative housing while the GWS team found an alternative water supply to the residence. Mike Griffin and Ellie Allen met with CMUD on December 5, 2013 to discuss an interim and a long-term solution. Per CMUD's guidance, GWS hired Sanders Utility Construction, Inc. to install a temporary water line from CMUD's line on Trials End Lane to the Gilkerson residence. This was completed on December 7, 2013 and the Gilkerson family moved back in after a week's stay at local Marriott extended stay facility. GWS personnel have been working with CMUD personnel since September 2013 to locate and design permanent water supply lines that will be run to the Tinsley, Gilkerson, Hammill, and Wright residences. It is currently unclear as to when this work may be completed.

Enviro-Pro, P.C. (EP) personnel began monthly sampling of the Tinsley, Gilkerson, and Hammill water supply wells in October 2013. The Wright well was added in December. Monthly sampling of the Tinsley well, Hammill wells (2), and Wright well will continue until municipal water is supplied to these residences

Item 2: We respectively request a time extension to prepare and submit the additional documentation requests. The Proposed Landfill Gas Control Plan will be submitted by January 24, 2014. The Contaminant Delineation Work Plan will be submitted on or before February 7, 2014.

Items 3, 4, 5 & 6: Work has been initiated to address items 3, 4, and 6. However, these tasks require additional time to implement the field activities necessary to provide the information requested. Recent inclement weather conditions have made access nearly impossible to portions of the landfill facility. Information characterizing the landfill cap has been identified in the landfill files, but additional time is needed to coordinate with Mecklenburg County personnel to also acquire information from their files concerning this matter. In order to adequately address these issues, we are requesting a time extension to no later than April 18, 2014.

We assure you that the protection of human health continues to be our client's highest priority, as evidenced by the actions taken to date. Thank you for your consideration of this request for a time extension on the other items.

Sincerely,
ENVIRO-PRO, P.C.


Thomas H. Bolyard, P.G.
Senior Hydrogeologist





December 9, 2013

Mr. Joseph Wright
13225 Asbury Chapel Rd.
Huntersville, NC 28070

Dear Joseph,

Thanks for taking my call last week. I hope your hunt went well in Ohio. I am following up on our conversation about your property on Wildfire Lane. We had a recent issue that has required some limited activity near our shared property line.

Our compliance team has continued semi-annual sampling of six-perimeter ground water monitoring wells since the 2002 closure of the disposal area nearest your property. Per the enclosed documents, the most recent sampling showed a presence of vinyl chloride in some of our monitoring wells. Internet research will show that this volatile organic compound (VOC) can be found in construction materials and it appears that this year's extraordinary amount of rain and the resulting rise of ground water levels may have caused this VOC to appear in our recent samplings.

On September 9th, we started executing a work plan approved by the Division of Waste Management of the North Carolina Department of Environmental and Natural Resources (NC DENR) to expand our monitoring network to better determine the extent and location of this VOC. Additional monitoring wells closer to our property lines have been installed and more groundwater samples have been pulled. The newest sample results show the VOC decreasing in some wells while also showing a presence in some of the new wells. The fluctuation of the numbers are not surprising being the amounts are very small. The VOC is less than two parts per billion (2 ppb). For perspective, 2 ppb is about the equivalent of two drops of water in 500 55-gallon barrels of water.

In our region, groundwater moves at an estimated pace of 20 to 50 ft. per year so our compliance team is confident we can create a solution before this VOC has any impact on your well. We want to give you as much peace of mind as possible; therefore we would like to sample your groundwater wells to confirm there has not been any impact.

I have also spent a lot of time thinking of additional proactive solutions beyond sampling and the approved NC DENR work plan. I would like to work out an agreement that includes us installing a special carbon filter to help strip out this VOC if it ever gets to your well. We are also looking into the feasibility of installing a water line from CMUD's nearby line. These measures should increase everyone's peace of mind and allow you to more positively market your property to renters.

I would be glad to meet with you and/or get permission for my compliance team to test your well(s) this week. We are also prepared to have our plumber install the carbon filter on your water supply this week. I look forward to hearing from you.

Best regards,

A handwritten signature in black ink that reads "Mike Griffin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Mike Griffin
Co-Owner



North Carolina Department of Environment and Natural Resources

Division of Waste Management

Pat McCrory
Governor

Dexter R. Matthews
Director

John E. Skvarla, III
Secretary

August 15, 2013

Sent Via Email – mike@griffinbrothers.com

Mr. Mike Griffin
Greenway Waste Solutions, LLC
19109 West Catawba Avenue, Suite 200
Cornelius, NC 28031

Re: *Proposed Assessment Monitoring Work Plan*
North Mecklenburg C&D Landfill – Closed Phase I and Phase II
Solid Waste Permit Number 60-13
DIN 19520

Dear Mr. Griffin:

The Solid Waste Section has completed a review of the *Proposed Assessment Monitoring Work Plan* dated August 5, 2013 (DIN 19487) and submitted by Enviro-Pro, P.C. on behalf of Greenway Waste Solutions for the North Mecklenburg C&D Landfill – Closed Phase I and Phase II. The *Proposed Assessment Monitoring Work Plan* was submitted in accordance with the 15A NCAC 13B .0503 and the 15A NCAC 2L rules in response to a confirmed volatile organic compound exceedance within the groundwater monitoring wells at the facility.

Four new shallow and eight new bedrock groundwater monitoring wells will be installed at the facility. The new groundwater monitoring wells will be developed and in-situ permeability testing will be conducted to determine aquifer characteristics. Finally, the new groundwater monitoring wells in addition to the existing groundwater monitoring wells will be sampled for the parameters included within Appendix I of 40 CFR Part 258.

As a result, the *Proposed Assessment Monitoring Work Plan* is approved as described. If you have any questions or concerns regarding this letter, please feel free to contact me at 919-707-8294 or by email at jaclynne.drummond@ncdenr.gov. Thank you for your continued cooperation with this matter.

Sincerely,

Jaclynne Drummond
Compliance Hydrogeologist
Solid Waste Section

cc sent via email: Jason Watkins, Western District Supervisor
Teresa Bradford, Environmental Senior Specialist
John Murray, Permitting Engineer
Brian Wootton, Permitting Hydrogeologist
Ellie Allen, Greenway Waste Solutions Director of Operations
Tom Bolyard, Enviro-Pro, P.C.



August 5, 2013

Ms. Jaclyne Drummond
North Carolina DENR
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Proposed Assessment Monitoring Work Plan
North Mecklenburg C&D Landfill
19300 Holbrooks Road
Huntersville, North Carolina
Permit #60-13
Job No. EP-1217(A)

Dear Ms. Drummond:

On behalf of our client, Greenway Waste Solutions, LLC, Enviro-Pro, P.C. (EP) is submitting this proposed Assessment Monitoring Work Plan for the subject facility. This Plan is in response to the requirements of 15A NCAC 13B.0545(b) and our telephone discussions regarding VOCs detected in several groundwater monitor wells during the first 2013 semi-annual sampling event for this landfill.

Please contact me if you have any questions or wish to discuss this proposed Plan during your review.

Sincerely,
ENVIRO-PRO, P.C.

A handwritten signature in cursive script, reading "Thomas H. Bolyard", is positioned below the typed name.

Thomas H. Bolyard, P.G.
Senior Hydrogeologist



PROPOSED ASSESSMENT MONITORING WORK PLAN

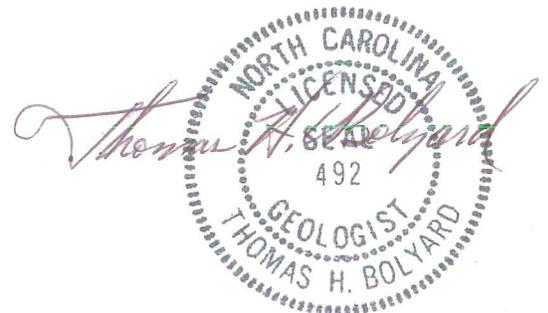
North Mecklenburg Landfill
15300 Holbrooks Road
Huntersville, North Carolina
Permit #60-13

Prepared for:
Mr. Mike Griffin
Greenway Waste Solutions, LLC
19109 West Catawba Avenue, Suite 200
Cornelius, North Carolina 28031-5613

Prepared by:
Enviro-Pro, P.C.
2646 Farmlake Lane
Fort Mill, South Carolina 29708

Project Number EP-1217

August 5, 2013



Background Information

The North Mecklenburg C&D Landfill was closed in October 2002. Semi-Annual sampling of six perimeter groundwater monitor wells has been conducted since that time with reports submitted to the North Carolina DENR Solid Waste Section. Approximate well locations are indicated on Figure 1. The first 2013 semi-annual sampling event conducted by Enviro-Pro, P.C. (EP) personnel on April 25, 2013 indicated the presence of the compound vinyl chloride in four (MW-4, MW-5, MW-10, and MW-11) of the six monitor wells sampled at levels exceeding its 2L Standard of 0.03 parts per billion (ppb). A resampling event conducted by EP personnel on May 30, 2013 confirmed the presence of this volatile organic compound (VOC) at similar concentrations in the same four monitor wells, as well as in one additional monitor well (MW-6).

On July 24, 2013, EP personnel purged and sampled three existing monitor wells (MW-7, MW-8, and MW-9) located along the southwest property line of the landfill. Approximate well locations are indicated on Figure 1. These monitor wells had been installed at the same time as the other six monitor wells previously described but were never included as part of the semi-annual sampling program for this facility. Analytical results indicated that vinyl chloride was detected in MW-8 above its 2L Standard.

Groundwater flows radially out from this landfill facility as evidenced by the placement of monitor wells around its perimeter and the detection of VOCs in these wells in all directions. Potential receptors include Cane Creek along its northern boundary, the Joseph Wright and William Hammill water supply wells to the east, and the Ron Gilkerson and Michael Tinsley water supply wells to the south (Figure 1). The following is a discussion of proposed assessment activities to determine the likelihood that any of these potential receptors may be adversely impacted.

Proposed Assessment Activities

Additional groundwater monitor wells will be installed at the landfill to characterize the nature and extent of vinyl chloride levels exceeding its 2L Standard (Figure 1). These additional wells will aid in determining the lithology and hydraulic conductivity of the bedrock aquifer and saprolite, groundwater flow rates, estimated travel distances/times to potential receptors, the resource value of the aquifer, and the nature, fate and transport of any detected constituents.

Shallow Monitor Well Installation

In accordance with 15A NCAC 13B .0545(a), additional shallow downgradient groundwater monitor wells will be installed at the compliance boundary (i.e., 50 feet inside the landfill property boundary) in the vicinity of impacted monitor wells MW-4, MW-6, and MW-11 as indicated on Figure 1. Due to their topographic setting in close proximity to Cane Creek, there is insufficient space to install additional assessment wells downgradient from MW-5 and MW-10. The hydrogeologic position of MW-11 dictates that two additional shallow monitor wells will need to be installed to the southeast and to the east-northeast. Groundwater flow likely occurs from this area of the landfill in both directions towards Cane Creek across tracts owned by Joseph Wright and Mecklenburg County (Figure 1).

These additional monitor wells will be completed approximately 10 feet below the current water table and constructed of 2-inch diameter schedule 40 PVC with a 15-foot screen. A sandpack will be installed two feet above the screen top and a minimum 2-foot bentonite seal will be placed on top of the sand. The remainder of the annular space will be filled with cement grout to near the ground surface and a lockable metal protective cover and 2-foot x 2-foot cement pad will complete the well installation. Well tags displaying relevant well construction information will be fastened to the outside of each protective cover.

Bedrock Monitor Well Installation

Due to the geochemical characteristics of the compound vinyl chloride, it must be determined whether it has migrated vertically into the fractured bedrock at this site. In order to accomplish this, the installation of Type III bedrock monitor wells is proposed at all locations of documented groundwater impact in the existing monitor wells (i.e., MW-4, MW-5, MW-6, MW-8, MW-10, and MW-11). Two Type III wells will be installed downgradient from MW-11 paired with the two shallow monitor wells previously discussed to determine whether contamination has migrated off site in these directions. An additional Type III well will be paired with a proposed shallow monitor well at the very southern compliance boundary to determine whether contaminant migration onto the Tinsley property has occurred. The approximate locations of these proposed bedrock wells are indicated on Figure 1.

These additional bedrock monitor wells will be completed utilizing 6-inch schedule 40 PVC casing set to depths of approximately 15 to 20 feet below the bottom of the nearest shallow monitor well. This casing will be grouted into place and allowed to set up for 24 hours. At that time a 5.5-inch rotary air hammer bit will be used to drill to the depth of the next water-bearing fracture. A 2-inch Schedule 40 PVC well with a 5-foot screen will

then be constructed as previously described for the shallow wells to intercept this fracture.

All wells will be constructed in accordance with the Standards of Well Construction specified in 15A NCAC 02C.0108 and will be developed via surging and pumping after their completion.

Aquifer Characteristics

In-situ permeability testing will be performed by EP personnel on selected shallow and bedrock monitor wells to determine the hydrogeologic characteristics of the saprolite and bedrock aquifers. Parameters including vertical and horizontal hydraulic gradients, hydraulic conductivities, and groundwater flow rates will be calculated. The calculation of vertical gradients from paired shallow/deep monitor wells on both sides of Cane Creek should enable the identification of the source of groundwater impact along the Creek. This data will also help confirm that Cane Creek is a discharge feature for both this closed landfill facility and the active North Mecklenburg C&D Landfill Infill facility located on the opposite side of the Creek.

Based on the results of proposed assessment activities, the resource value of the bedrock aquifer will be determined. Available construction information from the four existing water supply wells located to the east and south of the landfill facility will also be incorporated in this aquifer evaluation.

Well Sampling Analysis

EP personnel will utilize either dedicated bailers or submersible pumps to collect groundwater samples from the existing and newly installed monitor wells. During the initial sampling event after the additional assessment wells have been installed, all wells will be analyzed for Appendix I constituents in accordance with DENR requirements under the .0500 regulations. QA/QC procedures will include changing disposable gloves between sampling locations and analyzing a laboratory supplied trip blank for VOCs for each sampling event.

For any constituent detected in the proposed additional downgradient shallow or bedrock monitor wells, a minimum of four independent samples from both background and

downgradient wells will be collected and analyzed in order to establish background concentrations for the newly detected constituents. EP will coordinate with the DENR to establish groundwater protection standards for any newly detected constituents that do not have an established 2L Standard.

Groundwater sampling will be performed on a semi-annual frequency unless otherwise directed by the DENR. All analytical work will be conducted by Shealy Environmental Services located in West Columbia, South Carolina, a North Carolina certified laboratory. An Assessment Monitoring Report, certified by a Licensed NC Geologist, will be submitted to the DENR summarizing the results of each semi-annual sampling event.

The groundwater analytical results along with the calculated aquifer characteristics will be utilized to determine the need for any additional site assessment activities, including the installation of additional monitor wells that may be necessary to fully delineate the extent of groundwater impact or to protect existing receptors. Upon completion of proposed Work Plan activities, adjacent property owners will be notified if it appears that contaminants have migrated or are likely to migrate onto their property.



NORTH

EXPANSION AREA 1
CLOSED C&D
LANDFILL CELL

Linda Wester Long
6116/663
Parcel Id:01930105

CLOSED C&D
LANDFILL CELL

Mecklenburg County
19831/428
Parcel Id:01919121

Joseph R. Wright
04647/071
Parcel Id:01918135

William W. Hammill
24377/846

William W. Hammill
24377/846
Parcel Id:01934108

Ron C. Gilkerson
11936/800
Parcel Id:01934118

Ron C. Gilkerson
14946/985
Parcel Id:01934106

SURVEYOR NOTES:

- 1) This property may be subject to any easements and/or Rights-of-way of record.
- 2) Boundary information based on Deed Book 25629 at Page 671, Deed Book: 18455 Page: 134 and Deed Book: 19649 Page: 894 & 898, Deed Book: 18690 at page: 961, Deed Book: 25629 at page: 675, Deed Book: 25230 at Page: 719, Deed Book: 25230 at Page: 741 Deed Book: 25439 at Page: 587 as recorded in the Mecklenburg County Register of Deeds.
- 3) Area by coordinate method.
- 4) This survey is a recombinant survey of the following Parcel Id. numbers, 01919107, 01910108, 01919112, 01919202, 01919113, 01910112, 01919114, 01910102, 01910117 and 01934107.

LEGEND

APPROXIMATE LIMITS OF WASTE	
APPROXIMATE INFILL LIMITS OF WASTE	
BOUNDARY	
EXISTING CREEK	
APPROXIMATE LOCATION OF EXISTING MONITORING WELL	
APPROXIMATE LOCATION OF PROPOSED SHALLOW MONITORING WELL	
APPROXIMATE LOCATION OF PROPOSED BEDROCK MONITORING WELL	

REFERENCE

1. 2013 TOPOGRAPHIC INFORMATION PROVIDED BY PATTERSON LAND SURVEYING, PA - DATE OF AERIAL PHOTOGRAPHY JUNE 1, 2013
2. EXISTING TOPOGRAPHIC CONTOUR INFORMATION PROVIDED BY INDEPENDENT MAPPING CONSULTANTS - FEBRUARY 7, 2008
3. EXISTING AND PROPOSED WELL LOCATIONS PROVIDED BY PATTERSON LAND SURVEYING AND TOM BOLYARD, P.G. FROM ENVIRO-PRO, P.C.

C&E
Civil & Environmental Consultants, Inc.
2030 S. Tryon Street - Suite 3E - Charlotte, NC 28203
Ph: 980.224.8104 · Fax: 980.224.8172
www.cecin.com

GREENWAY WASTE SOLUTIONS OF
NORTH MECK, LLC.
NORTH MECKLENBURG LANDFILL
HUNTERSVILLE, NC
PHASE 1
MONITORING WELL LOCATION MAP

DRAWN BY: TMG CHECKED BY: SLB APPROVED BY: TMG FIGURE NO.: 1
DATE: AUG. 2013 DWG SCALE: 1"=200' PROJECT NO: 111-370.0001



A:\2011\111-370-0001\DWG\111-370.001\GreenwayWasteSolutions\Phase1\LS(0/2/2013 - 10:59:58 AM



September 5, 2013

Tinsley & Gilkerson Family
Trials End Lane
Huntersville, NC 28078

Dear Tinsley & Gilkerson Family,

I am reaching out to let you know we have had a recent issue that will require some limited activity near our shared property line. Our compliance team has continued semi-annual sampling of six-perimeter ground water monitoring wells since the 2002 closure of the disposal area nearest your property. Per the enclosed documents, the most recent sampling showed a presence of the vinyl chloride in four monitoring wells. Internet research will show that this volatile organic compound (VOC) can be found in construction materials and it appears that this year's extraordinary amount of rain and the resulting rise of ground water levels may have caused this VOC to appear in our most recent samplings.

On August 15th, the Division of Waste Management of the North Carolina Department of Environmental and Natural Resources (NC DENR) approved the proposed expansion of the assessment-monitoring network to better determine the extent and location of this VOC. This information will help our compliance team and NC DENR determine the next steps to ensure the proper management of this issue.

We will start executing the work plan detailed in the included documents on Monday, September 9th. You may hear some noise as the contractors start drilling the new wells closer to our shared property line. I would expect more information from these new wells to be available within the next 60 days. In our region, groundwater moves at an estimated pace of 20 to 50 ft. per year so our compliance team has the highest degree of confidence that this issue will be resolved before this VOC has any impact on any receptor wells.

We want to give you as much peace of mind as possible; therefore we would like to sample your groundwater wells to confirm there has not been any impact. I have also spent a lot of time thinking of additional proactive solutions beyond sampling and the DENR work plan. I would like to work out an agreement that includes us underwriting the cost for the planning, permitting, and installation of a water line from CMUD's water main on Trials End to yours and your neighbors homes. This should increase everyone's peace of mind and allow you to more positively market us as a permanent green space neighbor. I know of no other homes this close to downtown Charlotte with this many acres of guaranteed green space. I also hope our closed area has provided ample sound and site buffers from our existing operations.

I would like to meet with you individually or as a group to further discuss the work plan and our offerings at your convenience. I will be glad to meet with you at your home, my office, or our scale house if you would also like a tour of our operations. I look forward to hearing from you.

Best regards,

A handwritten signature in black ink that reads "Mike Griffin". The signature is written in a cursive style with a long horizontal flourish at the end.

Mike Griffin
Co-Owner



North Carolina Department of Environment and Natural Resources

Division of Waste Management

Dexter R. Matthews

Director

August 15, 2013

Pat McCrory
Governor

John E. Skvarla, III
Secretary

Sent Via Email – mike@griffinbrothers.com

Mr. Mike Griffin
Greenway Waste Solutions, LLC
19109 West Catawba Avenue, Suite 200
Cornelius, NC 28031

Re: *Proposed Assessment Monitoring Work Plan*
North Mecklenburg C&D Landfill – Closed Phase I and Phase II
Solid Waste Permit Number 60-13
DIN 19520

Dear Mr. Griffin:

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Four new shallow and eight new bedrock groundwater monitoring wells will be installed at the facility. The new groundwater monitoring wells will be developed and in-situ permeability testing will be conducted to determine aquifer characteristics. Finally, the new groundwater monitoring wells in addition to the existing groundwater monitoring wells will be sampled for the parameters included within Appendix I of 40 CFR Part 258.

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Sincerely,

Jaclynne Drummond
Compliance Hydrogeologist
Solid Waste Section

cc sent via email: Jason Watkins, Western District Supervisor
Teresa Bradford, Environmental Senior Specialist
John Murray, Permitting Engineer
Brian Wootton, Permitting Hydrogeologist
Ellie Allen, Greenway Waste Solutions Director of Operations
Tom Bolyard, Enviro-Pro, P.C.



August 5, 2013

Ms. Jaclyne Drummond
North Carolina DENR
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Proposed Assessment Monitoring Work Plan
North Mecklenburg C&D Landfill
19300 Holbrooks Road
Huntersville, North Carolina
Permit #60-13
Job No. EP-1217(A)

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Please contact me if you have any questions or wish to discuss this proposed Plan during your review.

Sincerely,
ENVIRO-PRO, P.C.

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Thomas H. Bolyard, P.G.
Senior Hydrogeologist



PROPOSED ASSESSMENT MONITORING WORK PLAN

North Mecklenburg Landfill
15300 Holbrooks Road
Huntersville, North Carolina
Permit #60-13

Prepared for:
Mr. Mike Griffin
Greenway Waste Solutions, LLC
19109 West Catawba Avenue, Suite 200
Cornelius, North Carolina 28031-5613

Prepared by:
Enviro-Pro, P.C.
2646 Farmlake Lane
Fort Mill, South Carolina 29708

Project Number EP-1217

August 5, 2013



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Groundwater flows radially out from this landfill facility as evidenced by the placement of monitor wells around its perimeter and the detection of VOCs in these wells in all directions. Potential receptors include Cane Creek along its northern boundary, the Joseph Wright and William Hammill water supply wells to the east, and the Ron Gilkerson and Michael Tinsley water supply wells to the south (Figure 1). The following is a discussion of proposed assessment activities to determine the likelihood that any of these potential receptors may be adversely impacted.

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These additional monitor wells will be completed approximately 10 feet below the current water table and constructed of 2-inch diameter schedule 40 PVC with a 15-foot screen. A sandpack will be installed two feet above the screen top and a minimum 2-foot bentonite seal will be placed on top of the sand. The remainder of the annular space will be filled with cement grout to near the ground surface and a lockable metal protective cover and 2-foot x 2-foot cement pad will complete the well installation. Well tags displaying relevant well construction information will be fastened to the outside of each protective cover.

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These additional bedrock monitor wells will be completed utilizing 6-inch schedule 40 PVC casing set to depths of approximately 15 to 20 feet below the bottom of the nearest shallow monitor well. This casing will be grouted into place and allowed to set up for 24 hours. At that time a 5.5-inch rotary air hammer bit will be used to drill to the depth of the next water-bearing fracture. A 2-inch Schedule 40 PVC well with a 5-foot screen will

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Aquifer Characteristics

In-situ permeability testing will be performed by EP personnel on selected shallow and bedrock monitor wells to determine the hydrogeologic characteristics of the saprolite and bedrock aquifers. Parameters including vertical and horizontal hydraulic gradients, hydraulic conductivities, and groundwater flow rates will be calculated. The calculation of vertical gradients from paired shallow/deep monitor wells on both sides of Cane Creek should enable the identification of the source of groundwater impact along the Creek. This data will also help confirm that Cane Creek is a discharge feature for both this closed landfill facility and the active North Mecklenburg C&D Landfill Infill facility located on the opposite side of the Creek.

Based on the results of proposed assessment activities, the resource value of the bedrock aquifer will be determined. Available construction information from the four existing water supply wells located to the east and south of the landfill facility will also be incorporated in this aquifer evaluation.

Well Sampling Analysis

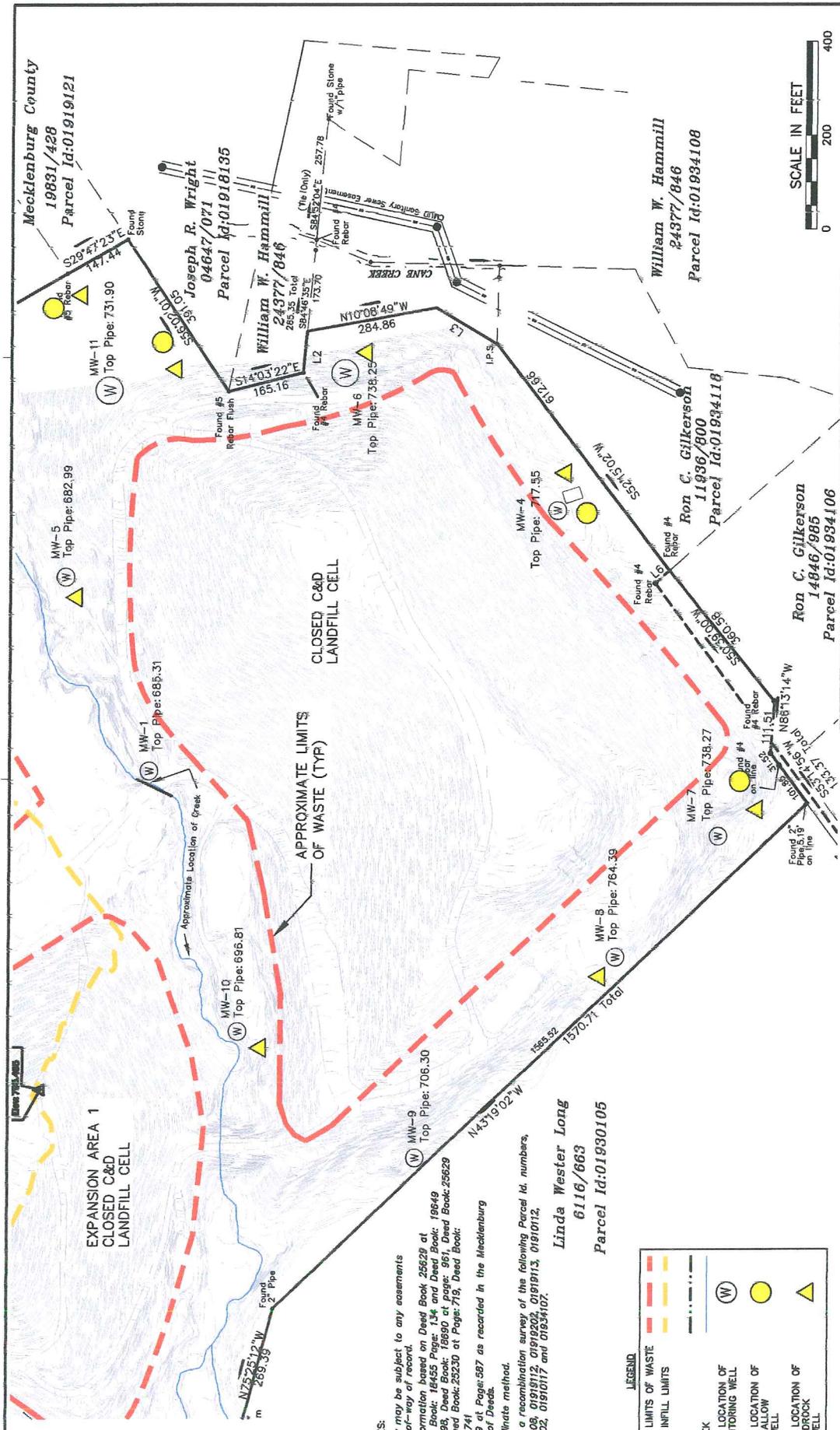
EP personnel will utilize either dedicated bailers or submersible pumps to collect groundwater samples from the existing and newly installed monitor wells. During the initial sampling event after the additional assessment wells have been installed, all wells will be analyzed for Appendix I constituents in accordance with DENR requirements under the .0500 regulations. QA/QC procedures will include changing disposable gloves between sampling locations and analyzing a laboratory supplied trip blank for VOCs for each sampling event.

For any constituent detected in the proposed additional downgradient shallow or bedrock monitor wells, a minimum of four independent samples from both background and

downgradient wells will be collected and analyzed in order to establish background concentrations for the newly detected constituents. EP will coordinate with the DENR to establish groundwater protection standards for any newly detected constituents that do not have an established 2L Standard.

Groundwater sampling will be performed on a semi-annual frequency unless otherwise directed by the DENR. All analytical work will be conducted by Shealy Environmental Services located in West Columbia, South Carolina, a North Carolina certified laboratory. An Assessment Monitoring Report, certified by a Licensed NC Geologist, will be submitted to the DENR summarizing the results of each semi-annual sampling event.

The groundwater analytical results along with the calculated aquifer characteristics will be utilized to determine the need for any additional site assessment activities, including the installation of additional monitor wells that may be necessary to fully delineate the extent of groundwater impact or to protect existing receptors. Upon completion of proposed Work Plan activities, adjacent property owners will be notified if it appears that contaminants have migrated or are likely to migrate onto their property.



SURVEYOR NOTES:

- 1) This property may be subject to any easements and/or Rights-of-way of record.
- 2) Boundary information based on Deed Book 25629 at Page 671, Deed Book: 16455 Page: 134 and Deed Book: 19649 Page: 894 & 895, Deed Book: 16890 at page: 951, Deed Book: 25629 at page: 675, Deed Book: 25230 at Page: 719, Deed Book: 25230 at Page: 741 and Deed Book: 25439 at Page: 587 as recorded in the Mecklenburg County Register of Deeds.
- 3) Area by coordinate method.
- 4) This survey is a recombinational survey of the following Parcel Id. numbers, 01919107, 01910108, 01919112, 01919202, 01919113, 01810112, 01919114, 01910102, 01910117 and 01934107.

Linda Wester Long
6116/663
Parcel Id: 01930105

LEGEND

	APPROXIMATE LIMITS OF WASTE
	APPROXIMATE INFILL LIMITS OF WASTE
	BOUNDARY
	EXISTING CREEK
	APPROXIMATE LOCATION OF EXISTING MONITORING WELL
	APPROXIMATE LOCATION OF PROPOSED SHALLOW MONITORING WELL
	APPROXIMATE LOCATION OF APPROXIMATE BEDROCK MONITORING WELL

REFERENCE

1. 2013 TOPOGRAPHIC INFORMATION PROVIDED BY PATTERSON LAND SURVEYING, PA - DATE OF AERIAL PHOTOGRAPHY JUNE 1, 2013
2. EXISTING TOPOGRAPHIC CONTOUR INFORMATION PROVIDED BY INDEPENDENT MAPPING CONSULTANTS - FEBRUARY 7, 2008
3. EXISTING AND PROPOSED WELL LOCATIONS PROVIDED BY PATTERSON LAND SURVEYING AND TOM BOLDYARD, P.G. FROM ENVIRO-PRO, P.C.



Civil & Environmental Consultants, Inc.
2030 S. Tryon Street • Suite 3E • Charlotte, NC 28203
Ph: 980.224.8104 • Fax: 980.224.8172
www.cecinc.com

GREENWAY WASTE SOLUTIONS OF
NORTH MECK, LLC.
NORTH MECKLENBURG LANDFILL
HUNTERSVILLE, NC
PHASE 1
MONITORING WELL LOCATION MAP

DRAWN BY: TMG / CHECKED BY: SLB / APPROVED BY: TMG / FIGURE NO.: 1
DATE: AUG. 2013 / DWG SCALE: 1" = 200' / PROJECT NO.: 111-370-0001