Appendix G – Stormwater Pollution Prevention Plan

DRAFT

Stormwater Pollution Prevention Plan

Prepared in compliance with City of Northampton
Stormwater Management Permit

North Street Condominiums
Northern Avenue and North Street
Northampton, Massachusetts

April 14, 2009

Prepared by:

The Berkshire Design Group, Inc.
4 Allen Place, Northampton, Massachusetts 01060

Prepared For:
Tofino Associates, Inc.
31 Campus Plaza Road
Hadley, MA 01035

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SITE & PROJECT DESCRIPTION

Project Name and Location

North Street Condominiums
56 Northern Avenue
Northampton MA 01060

Applicant/Owner Name and Address:

Tofino Associates, Inc.
31 Campus Plaza Road
Hadley, MA 01035

Notification – Prior To Construction:

City of Northampton
Department of Public Works
30 Locust Street
Northampton, MA 01060

Mr. Douglas McDonald
NPDES Coordinator
Phone: 413-587-1582

General Contractor/Operator:

To Be Determined

Existing Zoning & Land Use & Site Area

The project parcel is zoned URB district and is located on the west side of Northern Avenue and north of North Street. The site currently contains a large wetland area to the west, with woods, grassed, and small roadway areas throughout the rest of site. The overall curve number in existing conditions is 74 and water flows in a westerly direction through the wetlands and to a small river located at the southwest portion of the property line (see figure 1 on page 3). The total area of the site is approximately 6 acres, of which approximately 2.48 acres will be disturbed by construction activities.

Proposed Project

The proposed development includes 23 new housing units and associated parking areas, driveways, and sidewalks, utilities, landscape features and stormwater management system. A large wetland area exists on the west part of the site and will not be disturbed as a result of construction.

Stormwater management will consist of catch basins, manholes, a stormwater treatment chamber, a detention basin, dry wells, rain gardens and temporary erosion control devices during construction (see attached plan EC1). Treated stormwater discharge will flow into the wetlands as it does in existing conditions.

Soil disturbing activities will include: installation of erosion and sediment controls; tree removal and grubbing; grading; excavation for building foundation, utility trenches, and landscape features, and site grading; installation of retaining walls, curbs, fences/guardrails, light pole foundations; paving of driveways, walkways and parking areas; and preparation for final seeding and planting.

Runoff Coefficient

Drainage calculations for this project, developed using the SCS TR20 method, resulted in an SCS overall curve number (CN) of 78 for the proposed project site.

Sequence of Major Construction Activities

The general order of construction activities at the site will be as follows:

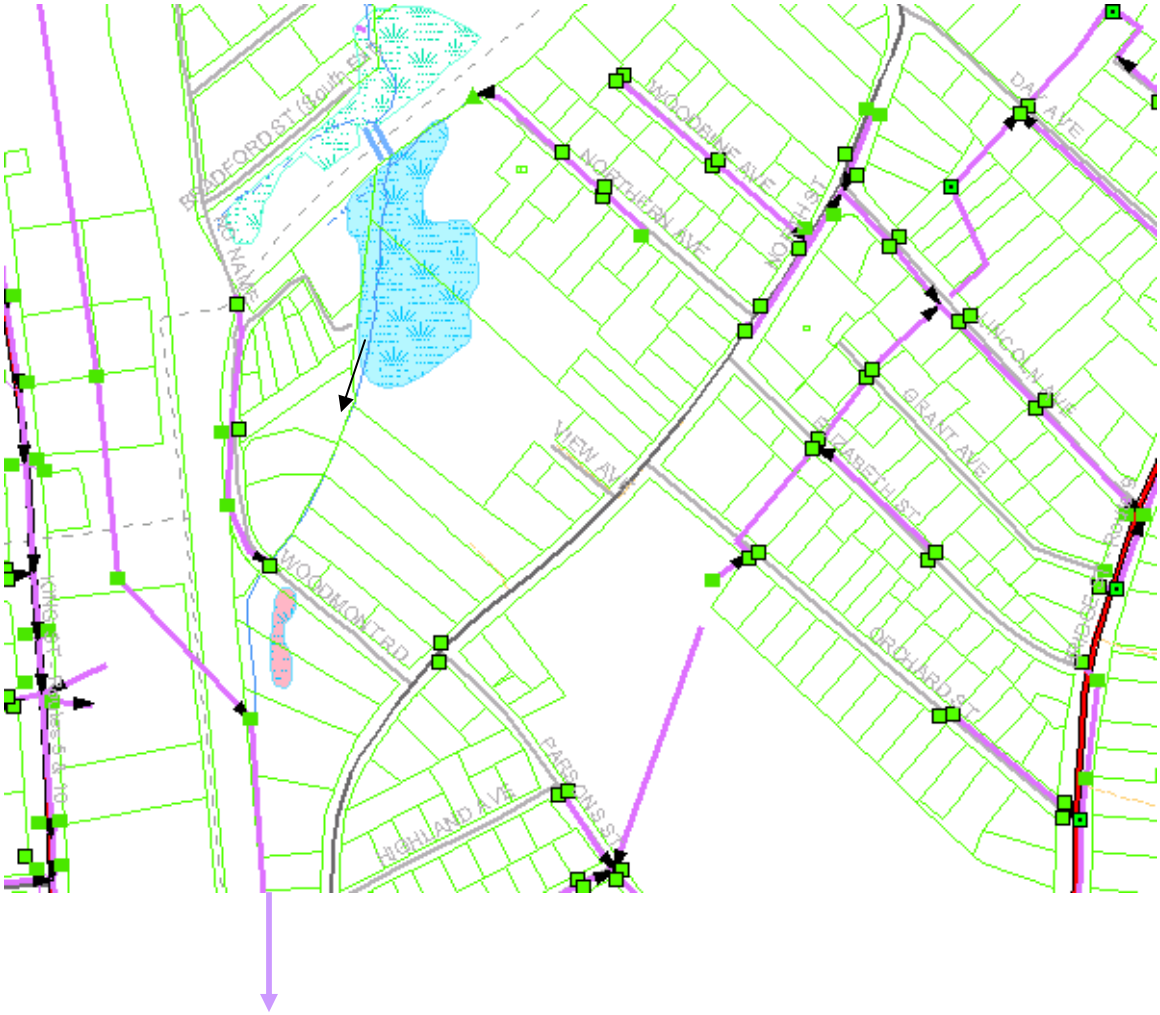
1. Hold preconstruction meeting at least one week prior to start of construction
2. Install stabilized construction entrances
3. Install perimeter sediment barrier in the following four steps:
    a. Field marking of the work limit/sediment barrier location.
    b. Review the marked locations by the approving authority, or the designer, as ordered by the Conservation Commission.
    c. Cutting and removal of vegetation in the area as necessary to allow equipment access for most effective sediment barrier installation (no stumping or grubbing of stumps)
    d. Installation of the sediment barrier, with equipment use as needed. No other work is permitted within 100 feet of the wetland until the Perimeter Sediment Barrier is installed.
4. Clear and grub for sedimentation basins
5. Construct detention basins and swales to be used as temporary sedimentation basins during construction activities
6. Convey overland flow directly to sedimentation basins until stormwater infrastructure is constructed
7. Continue clearing and grubbing
8. Stockpile topsoil
9. Install utilities, storm drainage structures and basins, and curbs.
10. Protect stormwater structure inlets with sediment control devices.
11. Install building foundations and construct buildings
12. Grade and apply gravel base to driveways, walkways, and roadways
13. Complete grading and install paving
14. Install permanent seeding and plantings
15. Remove sediments accumulated in sedimentation basin and in front of silt fence barrier
16. Remove silt fence barrier and reseed areas disturbed by its removal

17. Remove temporary sedimentation basin outlet piping. Grade and seed areas as specified on the grading and utility plans.
18. Clean and flush all drainage structures and lines
19. Schedule post construction conference and inspection

Name of Receiving Waters

The site ultimately to a stream which flows to Market Street Brook which is piped parallel to the railroad tracks all the way to the Old Mill River near the Waste Water Treatment Plant off of Hockanum Road. Please see figure 1 below depicting the stream flow direction.

Figure 1



CONTROLS DURING CONSTRUCTION

Erosion and Sediment Controls

General Sedimentation Control Practices

The following general erosion and sediment controls will be utilized during construction in order to maintain local water quality:

1. Erosion control barriers will be installed prior to clearing and excavation work.
2. Grading and other soil disturbance will be done so as to minimize erosion during wet seasons.
3. A temporary sedimentation basin with required controls will be constructed early in the project to allow the basin to treat runoff prior to discharging from the site.
4. Sediment will periodically be removed from behind sediment trapping devices and from within the temporary sedimentation basin.
5. The clearing of natural vegetation will be minimized; remaining natural vegetation will be protected from nearby construction to the greatest degree possible.
6. Staging and soil stockpile areas shall have a siltation fence or other approved barrier installed immediately downgradient of such areas.
7. Designated temporary dewatering basins will be used for dewatering.
8. Disturbed areas will be stabilized as soon as possible after construction.
9. Maintenance and cleaning of construction vehicles and equipment will take place in designated staging areas only.

Stabilization Practices

The following stabilization practices will be utilized during construction in order to maintain local water quality:

1. Temporary stabilization: temporary seeding, mulching or other suitable stabilization measures will be utilized to protect disturbed areas and stockpiles during prolonged construction periods.

2. Permanent stabilization: areas disturbed by construction will be permanently stabilized by paving with concrete or bituminous concrete, by installation of plant material, or by seeding and mulching with seed mix as described in the project specifications. Seeded areas will be covered with straw mulch or biodegradable netting in order to protect surface until seed germination.

Structural Practices

The following structural erosion and sediment controls will be utilized during construction in order to maintain local water quality:

1. Sediment Barriers: silt barriers will be installed along the downslope edge of areas of work.

    - Sediment will be removed from behind silt fence when it reaches half the original height of the fence.
    - Fences will be inspected weekly and both before and after storm events. Repairs and replacement will take place as necessary.

2. Dewatering Basins/collectors: Dewatering basins/collectors will be constructed where required prior to excavation activities. These basins will act to settle suspended solids from pumped groundwater.

    - Dewatering Basins and collectors will be sized according to the amount of groundwater encountered at a particular location.
    - Dewatering Basins will utilize a perforated standpipe wrapped in filter fabric for discharge

3. Catch Basin Filters: Filters consisting of silt sack and/or filter fabric fence, embedded 4-6" in the ground, will surround each existing and proposed catch basin. Filter fabric will also be installed under each inlet grate.

    - Filters will be placed around each catch basin prior to paving or planting.
    - Sediment will be removed when it reaches half of the original height of the filter.
    - Filter fabric under the inlet grate will be monitored and replaced as required.
    - Filters will be removed only after upgradient areas have been permanently stabilized.

4. Dust Control: Dust control will be maintained by sprinkler or water truck during construction to minimize sediment transport and maintain air quality at an acceptable level.

5. Roadway Stabilization: Until final paving takes place, project roadways and parking areas will be stabilized by grading with clean gravel. Emergency access and service roadways will be maintained as clean gravel surfaces. A temporary Stabilized Construction Access will be constructed prior to the start of excavation work.

Stormwater Management

A system for stormwater management has been designed for this project. The system, designed by a professional engineer, utilizes curbs and gutters, catch basins, a stormwater treatment chamber, rain gardens, dry wells, and a detention basin to reduce total suspended solids (TSS) equal to or in excess of 80% and ensure that peak flows for 2-, 10-, and 100-year storms remain

at or below their estimated historic levels. Water from the project site will be discharged to the wetlands on the west part of the site as it does in existing conditions.

A maintenance plan for the stormwater management system has also been developed. The maintenance plan includes removal of oil and sediment from hooded catch basins, removal of oil and sediment from stormwater treatment chambers, clearing and mowing of debris for all basins, and annual sweeping of drives and parking lots.

Other Controls

Waste Disposal

Waste Materials: Waste materials will be collected and stored in a lidded metal dumpster rented from a licensed solid waste management company. All trash and construction debris will be stored in the dumpster. The dumpster will be emptied at least twice a week, or more if necessary, and disposed of in accordance with local, state and federal regulation. No construction waste materials will be buried on site. Notices stating these procedures will be posted in the job trailer. Site personnel will be instructed in these procedures and site construction supervisor(s) will ensure that the procedures are followed.

Hazardous Waste: Hazardous waste will be disposed of in the manner specified by local, state and federal regulation or by the manufacturer. Site personnel will be instructed in these procedures and site construction supervisor(s) will ensure that the procedures are followed.

Sanitary Waste: Sanitary waste will be collected from portable units a minimum of three times per week by a licensed sanitary waster contractor and disposed of in accordance with local, state and federal regulation.

Off-Site Vehicle Tracking

A stabilized construction entrance will be provided to help reduce tracking of sediments off the site. Stone will be used, which will be large enough not to become embedded in truck tires, at the entrance. The paved street adjacent to the construction entrance will be swept daily to reduce mud, dirt or sediment tracked from the site. Dump trucks hauling material to and from the site will be covered by tarps as necessary.

Timing of Controls

As indicated in the Sequence of major Activities, silt fence barrier, stabilized construction entrance and sedimentation basin will be constructed prior to clearing or grading of any other portions of the site. No excavation or dewatering activities will take place in an area until appropriate dewatering basins or sediment control structures have been installed. Areas where construction activity temporarily ceases for more than 21 days will be stabilized with temporary seed and mulch within 14 days of the last disturbance. Once construction activity ceases permanently in an area that area will be stabilized with plant material or pavement as indicated in

the plans. After the entire site is stabilized, the accumulated sediment will be removed from the sediment basin.

MAINTENANCE AND INSPECTION PROCEDURES

Erosion and Sediment Control Inspection and Maintenance Practices

The following inspection and maintenance practices will be utilized in this project to maintain sediment and erosion controls:

- All control measures will be inspected weekly (at a minimum) and within 24 hours after any storm event of 0.5 inches or greater.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 48 hours of report.
- Contractor will stockpile on site or make available all equipment, materials (e.g. filter fabric, crushed stone, etc.) and labor necessary to make emergency erosion control improvements within 24 hours if necessary.
- Built-up sediment will be removed from silt fence when it has reached one-third the height of the fence.
- Silt fence will be inspected for depth of sediment, tears, to verify that fabric is securely attached to the stakes and to verify that stakes are firmly in the ground.
- Sediment basin(s) will be inspected for depth of sediment, and accumulated sediment will be removed when it reaches 10 percent of the design capacity or at the end of the job.
- Temporary and permanent seeding will be inspected for bare spots, washouts and healthy growth.
- A maintenance inspection report will be made after each inspection.
- The site contractor will select one or more individuals who will be responsible for inspections, maintenance and repair activities and for completing inspection and maintenance reports.
- Individuals selected for inspection and maintenance responsibilities will receive training in all inspection and maintenance practices necessary for keeping the on-site erosion and sediment controls in good working order.

Non-Stormwater Discharges

It is expected that the following non-stormwater discharges will occur from the site during the construction period:

- Water from water line flushings.
- Pavement wash waters (where no spills or leaks of toxic or hazardous chemicals have occurred.
- Uncontaminated groundwater from dewatering excavations.
- Water from washing the exterior of construction vehicles.

Non-stormwater discharges will be directed to stabilized surfaces or the detention basin prior to discharge. Exterior washing and rinsing of vehicles will take place more than 100 feet from wetlands or waterways.

Inventory for Pollution Prevention Plan

Asphalt	Masonry block
Cleaning solvents	Metal studs
Concrete	Paints (enamel and latex)
Detergents	Petroleum-based products
Fertilizers	Solvents
Gravel	Wood

Spill Prevention

All employees will be instructed regarding the following spill prevention practices. Notice of these practices will be posted in the job trailer, and the site construction supervisor will hold responsibility for ensuring that the procedures are followed.

Material Management Practices
The following material management practices will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff:

Good Housekeeping
The following good housekeeping practices will be followed on-site during the construction period:

An effort will be made to store only enough product to do the job.
All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
Products will be kept in their original containers with the original manufacturer's label.
Substances will not be mixed with one another unless recommended by the manufacturer.
Whenever possible, all of a product will be used up before disposing of the container.
Manufacturer's recommendations for proper used and disposal will be followed.
The site superintendent will inspect daily to ensure proper use and disposal of material on-site.

Hazardous Products
The following practices will reduce the risks associated with hazardous materials (e.g. petroleum products, solvents, etc.):

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets (MSDS) will be retained; they contain important product information.
- A copy of the Material Safety Data Sheet (MSDS) for each product used in construction will be kept in the job trailer.
- If surplus product must be disposed of, manufacturer' or local- and state-recommended methods for proper disposal will be followed.

Product Specific Practices

Petroleum Products: All on-site vehicles will be monitored for leaks and will receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed, clearly labeled containers. Any asphalt substances used on-site will be applied according to the manufacturer's recommendations. No vehicle refueling or maintenance will take place within 100 feet of a wetland or waterway. No petroleum-based or asphalt substances will be stored within 100 feet of a wetland or waterway.

Fertilizers: Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Unused fertilizer will be stored in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills. No fertilizers will be stored within 100 feet of a wetland or waterway.

Solvents, Paints and Other Hazardous Substances: All containers will be tightly sealed when not required for use. Excess material will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instruction or local and state regulations. No solvents, paints or other hazardous substances will be stored within 100 feet of a wetland or waterway.

Concrete Trucks: Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.

Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the on-site material storage area. Equipment and materials will include, but is not limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported, regardless of size, to the Massachusetts Department of Environmental Protection at 888-304-1133.
- Should a spill occur, the spill prevention plan will be adjusted to include measures to prevent another spill and to cleanup up the spill should another occur. A description of

the spill, along with the causes and cleanup measures will be included in the updated spill prevention plan.

- The construction superintendent responsible for daily operation on the construction site will be the spill prevention and cleanup coordinator. The superintendent will designate at least three site personnel to receive spill prevention cleanup and training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the on-site job trailer.

CERTIFICATION OF COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS

This stormwater pollution prevention plan reflects State of Massachusetts requirements for stormwater management and sediment and erosion control as established by the *Wetlands Protection Act* (310 CMR 10.00) and by the Department of Environmental Protection *Stormwater Management Policy*. To ensure compliance, this plan was prepared in consultation with the following publications:

Commonwealth of Massachusetts, Department of Environmental Protection. *Stormwater Management Policy*. November 1997.

Commonwealth of Massachusetts, Department of Environmental Protection. *Wetlands Protection Act Regulations: 310 CMR 10.00 for Administering M.G.L. Chapter 31, Section 40.* November 1997.

Commonwealth of Massachusetts, Department of Environmental Protection and Office of Coastal Zone Management. *Stormwater Management, Volume One: Stormwater Policy Handbook*. March 1997.

Commonwealth of Massachusetts, Department of Environmental Protection and Office of Coastal Zone Management. *Stormwater Management, Volume Two: Stormwater Technical Handbook*. March 1997.

United States Environmental Protection Agency. *Storm Water Management For Construction Activities, Developing Pollution Prevention Plans And Best Management Practices, Summary Guidance*. October 1992.

POLLUTION PREVENTION PLAN CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the stormwater discharges associated with industrial activity from the construction site identified as part of this certification.

Signature	**Company**	**Responsible For**
_____	_____	_____
	_____	_____
_____	_____	_____
	Tel: _____	_____
_____	_____	_____
	_____	_____
_____	_____	_____
	Tel:_____	_____
_____	_____	_____
	_____	_____
_____	_____	_____
	Tel: _____	_____

STORMWATER POLLUTION PREVENTION PLAN INSPECTION AND MAINTENANCE REPORT FORM

For

North Street Condominiums

Inspection Schedule:
FORM TO BE COMPLETED EVERY 7 DAYS
(General Permit Section 3.10 Inspections)

Inspector:	
Date:	Time:
Inspector's Qualifications:	
Days Since Last Rainfall:	
Amount of Last Rainfall (inches):	

STABILIZATION MEASURES

Area of Site	Date Since Last Disturbed	Date of Next Disturbance	Stabilized? (Yes/No)	Stabilized With	Condition
Access Drive					

Stabilization Required:

To Be Performed By:	On or Before:

STRUCTURAL CONTROLS

Entrance Tracking Pad

Is Sediment Tracking Pad Catching Sediment Before Collector Road	Is Gravel Clean or Filled With Sediment	Is Tracking Pad Width and Length Adequate to be Effective	Does Tracking Pad Require Replacement/Maintenance

Maintenance Required:

To Be Performed By:	On or Before:

Catch Basins

CB	Is Surface Runoff Being Directed to Catch Basins Properly	Are Sediment Traps Installed at Catch Basin Inlets	Are Catch Basin Outlet Hoods Installed and Working Properly	Depth of Sediment in Basin Sump	Are Any Correction Measures Required
CB#1					
CB#2					
CB#3					

Maintenance Required:

To Be Performed By:	On or Before:

STRUCTURAL CONTROLS –CON'T

Stormwater Treatment Chambers

SWTC	Is Surface Runoff Being Directed Through SWTC Properly	Depth of Sediment in Basin Sump	Are Any Correction Measures Required
SWTC #1			

Maintenance Required:

To Be Performed By:	On or Before:

Rain Garden1

Structure	Is Structure Working Properly	Depth of Sediment in Structure	Are Any Correction Measures Required	Additional Notes
Rain Garden				

Rain Garden2

Structure	Is Structure Working Properly	Depth of Sediment in Structure	Are Any Correction Measures Required	Additional Notes
Rain Garden				

Maintenance Required:

To Be Performed By:	On or Before:

Surface Stormwater Detention Basin

Is Stormwater Entering Basin Correctly	Is Stormwater Being Detained and Discharged Properly	Depth of Sediment in Spreader	Is Erosion Stabilization Properly Installed & Maintained	Is There Any Evidence of Erosion Or unintended Flow Patterns

Maintenance Required:

To Be Performed By:	On or Before:

Dry Wells

Structure	Is Structure Working Properly	Are Any Correction Measures Required	Additional Notes
Dry Well 1			
Dry Well 2			
Dry Well 3			
Dry Well 4			
Dry Well 5			
Dry Well 6			

Maintenance Required:

To Be Performed By:	On or Before:

OTHER CONTROLS

List Other Miscellaneous Controls and Observations

Item	Describe Failure/Inadequate Control	Describe Recommended Remedy

RECOMENDED MODIFICATION(S) TO SWPPP

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN

REASONS FOR CHANGES:

MISCELLANEOUS COMMENTS:

INSPECTOR'S CERTIFICATION:

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature:	**Date:**