City of Atlanta

Department of Public Works
Office of Transportation

City's Public Right-of-Way Manual

Department of Public Works
Office of Transportation
Transportation Engineering

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Part 1: Conflicts with City of Atlanta Code

In the event that some details in this manual or any attachments or Appendix to it, is in conflict with the City's Code of Ordinances, the Code of Ordinances shall prevail. Refer to the City of Atlanta's Code of Ordinance. If there is a conflict between the Utility Franchise Agreement, Code of Ordinance and/or the Right-of-Way Manual, then the Franchise Agreement shall prevail.

Part 2: Purpose, Introduction, Definition and Legal Authority

Section 1: Purpose of ROW Manual

This manual is intended to serve as a reference anyone needing general information regarding activities conducted under a permit, franchise agreement or special agreement within the City's public right-of-way in the City of Atlanta ("City"). This manual is in its first edition and will be updated as necessary. It attempts to address typical issues and frequently asked questions. It does not include a discussion or information concerning every issue that may arise regarding the City's public right-of-way.

Additional Information Source: For additional information please contact:

Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue SW, Suite 4900
Atlanta, Georgia 30303
Telephone 404-330-6501

Section 2: Definitions

As used in this manual, the following terms will have the following definitions:

a. Day: Each day shown on the calendar.

b. Franchised Utility*:* A utility business entity that has entered into a Franchise Agreement with the City for the operation of its utility facilities within the City's public right-of-way. Franchised Utilities make regular franchise fee payments to the City for use of the City's public right-of-way, in accordance with the applicable Franchise Agreement.

c. Governmental Regulations: All applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, standards, executive orders, consent orders, and guidance from regulatory agencies, judicial decrees, permits, licenses or other governmental requirements of any kind.

d. MUTCD *(Manual on Uniform Traffic Control Devices):* http://mutcd.fhwa.dot.gov/ The national standard for traffic control devices for all highways and streets open to public for travel which has been adopted by the State of Georgia and the City.

e. Normal Transportation Purpose: The methods to provide an unencumbered way for travel by the public including pedestrians, vehicles and bicyclist, and to provide access to real property.

f. Person: Any individual or any association, firm, partnership, joint venture, corporation or other legally recognized entity, whether for profit or not for profit. Person does not include the City.

g. City's public right-of-way: Generally property of any interest therein, whether or not in the form of a strip, for or devoted to (a) public transportation purposes; or (b) the placement of the City's utility easements and other traditional uses along a transportation route, whether by dedication, prescription or otherwise, as well as the spaces above and below.

h. Sidewalk: The paved portion of the City's public right-of-way intended for use by pedestrian traffic. Sidewalks are usually concrete or brick. Unusual or decorative sidewalks are permitted by special agreement.

i. Street: The portion of the City's public right-of-way intended for use by vehicular traffic. Streets may be asphalt, concrete, or unimproved.

j. Traveled Way: The portion of the City's public right-of-way reserved for vehicular traffic, exclusive of shoulders and auxiliary lanes.

k. Encroachment: Unauthorized use of City's ROW or easements as for signs, fences, building, utilities, parking storage, etc…

l. Penalty: A punitive measure imposed by the City for a violation of a provision of the City of Atlanta Code of Ordinance, ROW Manual and/or franchise agreement.

m. Violation Notice: Written or verbal warning of an violation of the Code of Ordinance, ROW Manual or Franchise Agreement

n. Encroachment Space: implies "advanced beyond proper limits."

Section 3: Introduction

a. General Purpose of City's public right-of-way

City's public right-of-way was and is established for multiple public purposes. Their primary purpose (Normal Transportation) is to provide for pedestrian and vehicular transportation by the public.

b. Applicable Governmental Requirements/Regulations

Rules regarding the normal movement of pedestrian and vehicular traffic within the City's public right-of-way are contained in various governmental requirements, including the City's Code of Ordinances and the Georgia Uniform Traffic Code. It is not the intent of this manual to provide a discussion of these rules.

c. Utility Location

Another significant purpose of the City's public right-of-way is to provide a location for the installation of water, sewer, gas, electric power, telecommunications and other similar services and utilities.

d. Address System

City's public right-of-way provides for a system of organized and readily identifiable property addresses.

e. Regulation regarding Transportation

Any activity that may interfere with the Normal Transportation purpose or other public purpose of the City's public right-of-way is subject to further regulation by the City. Such regulation may be provided through a permit, franchise agreement, special agreement or any other mechanism recognized by applicable governmental requirements.

Section 4: Improved and Unimproved City's public right-of-way

a. General

The boundaries and ownership of the land are recognized even if that land is "vacant". If a building or structure is built, the land is considered "improved". The improvement may be used or unused, occupied or unoccupied, well maintained or deteriorated.

b. Specific Improvements

City's public right-of-way may or may not be "improved" with a street (travel way), sidewalk or other facilities. It may or may not be graded, drained, or equipped with utilities. Nonetheless, the boundaries and ownership (the state or fact of exclusive rights and control over property) of the City's public right-of-way exist independent of any improvement or lack of any improvement. Ownership may be by fee, expressed dedication or easement.

c. Abandoned City's public right-of-way

1. Scope of Manual with regards to City's public right-of-way Abandonment

The specific terms, conditions, and methods of abandoning a City's public right-of-way under applicable governmental requirements are beyond the scope of this manual. *The City Code of Ordinances Section 138-9 Vacating and Abandoning Streets* outlines requirements for City's public right-of-way abandonment.

Section 5: Legal Authority and Reference Materials

Pursuant to O.C.G.A 32-4-92, the City of Atlanta is authorized to promulgate rules and regulations regarding the management of its Rights-of-Way.

a. Legal Authority

The OGCA 32-4-92 authorizes the Commissioner of Department of Public Works to impose terms and conditions regarding the conduct and permitting of certain activities in the City's public right-of-way necessary to protect the public health and safety. The City Right-of-Way Manual is an administrative document developed to further outline the policies and procedures of the Department of Public Works.

b. Reference Manuals

The Department of Public Works has previously published documents that provide detailed technical information regarding specific issues. These include:

1. Sidewalks Rules and Regulation Governing Sidewalks
2. Standard Details

Department of Public Works Standard Details and the referenced publications are available from the Department of Public Works.

Information concerning sanitary and storm sewers can be obtained from the City's Watershed Management Department

PART 3: Penalties for Violation of City's public right-of-way Regulations

Section 1: Penalties for violation of City's public right-of-way Regulations

With the exception of the franchised utilities, violators of the rules and regulations described in this manual may be subject to the penalties set forth in *138.4 Section* (*Enforcement, Penalties, and Violations*) of the City's Code of Ordinances. This section provides that, among other things, the violator may be subject to one or more of the following penalties:

a. A Fine of up to $1000.00 per day per violation

b. The revocation or suspension of a license, permit or franchise agreement for access to the City's public right-of-way, subject to notice, and opportunity to cure and all other due process procedures as set forth in City of Atlanta Code of Ordinances Chapter 138 Article III, *et seq* and all other applicable agreements between the parties.

c. A Person may appeal the revocation, suspension of a license, permit or franchise agreement for access to the City's public right-of-way to the Commissioner of Public Works.

d. The issuance of a stop work order by the Department of Public Works preventing work on the Public Streets or Sidewalks, City's public right-of-way or any associated private projects in the City until the conditions outlined in the stop work order are met.

e. Notwithstanding the foregoing, a stop work order issued by the City shall be the sole remedy available to the City in the event a franchised utility violates the rules described in this manual.

Section 2: Legal actions against violators of City public right-of-way regulations

The imposition of any of the foregoing penalties does not prevent the City from taking any other administrative or legal actions allowed under applicable regulations, or seeking any other relief that may be granted under applicable law.

Section 3: Repeated Violations

a. If a violation is continuous with respect to time, each day the violation continues may be treated as a separate offense.

b. Violations that are continuous with respect to time are a public nuisance and may be abated by injunctive or other equitable relief and by such other means as are provided by law. The imposition of a penalty does not prevent equitable relief.

c. In the event a violation is committed by a Franchise Utility Company, a stop work order will be issued in lieu of a citation.

Section 4: Enforcement

Notice of Violation -If the City believes that a Person has not complied with the conditions of permit or a term in the Ordinance, the City shall notify the Person in writing of the exact nature of non-compliance. City Code of Ordinance (*138 Section*)

a. Persons shall have the opportunity to respond to the Violation Notice contesting the assertion of non-compliance ; and

b. Persons shall have the opportunity to cure the alleged non-compliant issue prior to the invocation of any penalties contained in the foregoing sections.

Part 4: Commercial Activity within the City's public right-of-way

Section 1: Vending

a. Permit Required

Buying and selling goods within the City' public right-of-way is prohibited except by permit. Vending permits are issued and enforced by the City's Police Department, Licensing and Permits Unit.

b. Blocking Right-of-Way Prohibited

Blocking a sidewalk when conducting an authorized, City permitted sale of goods is prohibited. A minimum passage way width of at least 4 feet must be maintained along the Sidewalk at all times.

Section 2: Vending Machines (food, drinks, etc.)

Unattended vending machines or similar devices may not be located within the City's public right-of-way.

Section 3: Publication-Vending Devices (Newspaper Boxes)

The placement of publication vending devices in the City's public right-of-way must be pursuant to the City Code Chapter 138

a. Permit Required

It is unlawful for any Person to place, locate, or operate any publication-vending device on a Sidewalk or within any part of the City's public right-of-way without first obtaining a permit from the Commissioner of the Department of Public Works.

For information regarding the issuance of a permit, contact:

Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue SW, Suite 4900
Atlanta, Georgia 30303
Telephone 404-330-6501

b. Identification

Every publication-vending device must display the name, address and telephone number of the Person responsible for its placement, maintenance, and repair.

c. Special Encroachment

Constructing, erecting, and maintaining any non-standard structure or facility with in the City's public right-of-way will require a special agreement. Examples include, but are not limited to, street furniture, fountains, trash cans, recreation or playground equipment, kiosk, etc.

1. Encroachments into sidewalk and street

No publication-vending device may project onto, into or over any part of a street, or interfere with or impede the flow of pedestrian or vehicular traffic, including any legally parked or stopped vehicle, or any other lawful use of the applicable City's public right-of-way.

2. Obstruction

No publication-vending device may be located where it presents a dangerous condition or obstruction, or endangers the safety of persons or property, or unreasonably interferes with the entrance or access to any residence, business, utility pole, sign post, traffic sign or signal, fire hydrant, gas or water valve, mailbox or similar utility facility.

3. Multiple Publication-Vending Devices

Publication-vending devices may be placed next to each other, as long as no group of publication-vending devices extends more than 6 feet along a curb or wall, except in Olympic Corridors and in the Downtown Improvement District.

d. Affixation to Property

No publication-vending device may be chained or fastened to any property not owned by the owner of the publication-vending device or to any permanently fixed object. However, publication-vending devices, when placed side by side, may be chained or otherwise attached to one another.

e. Specifically Prohibited Locations

No publication-vending device may be located

1. Within 5 feet of any crosswalk;
2. Within 20 feet of any fire hydrant, fire call box or police call box;
3. Within 5 feet from any driveway;
4. In such a manner that impairs visibility for vehicular traffic;

5. In such a manner that impairs bus, taxicab, truck or passenger loading zones;
6. Within 15 feet of any designated bus stop sign or post;
7. Within 50 feet of any other publication-vending device on the same side of the street containing the same edition of the same publication;
8. At any location where the available area of unobstructed Sidewalk for the passage of pedestrians is reduced to less than 6 feet;
9. Within 2 feet of signs, parking meters, streetlights, or utility facilities;
10. In such a manner that hinders access to parked vehicles in marked parking stalls;
11. In a manner that blocks historic markers, benches, or other public improvements;
12. In any manner otherwise prohibited by applicable governmental requirements;
13. In any area where publication-vending device are prohibited by law;

f. Dimensions

No single publication-vending device may exceed 5 feet in height, 30 inches in width or 2 feet in thickness

g. Maintenance

Each publication-vending device must be maintained in a state of good repair at all times.

h. Abandoned Publication-Vending Devices

Any publication-vending device placed upon the Coty's public right-of-way that appears, in the sole determination of the City's Commissioner of its Department of Public Works or his/her designee, to have been unused in that location for at least 45 Days will be considered abandoned.

The abandoned publication-vending device will be subject to all removal or other remedial procedures provided for in the City's Code of Ordinances or other applicable governmental requirements.

i. Advertising

It is unlawful for any Person to use a publication-vending device for advertising or purposes other than information identifying the publications sold within the specific device.

Additional Requirements for Publication-Vending Devices in Olympic Corridors and the Downtown Improvement District:

1. Uniformity
   Publication-vending devices must be uniform and standardized as per the City's Code of Ordinances.

2. Weight

Publication-vending devices must weigh a minimum of 75 pounds and may be fastened to one another in such a manner that they cannot be easily moved or toppled or otherwise pushed or thrown into a City's public right-of-way or Street.

3. Affixation to Sidewalk

Publication-vending devices may not be fastened to the Sidewalk without prior approval from the Commissioner of the City's Department of Public Works.

4. Groups of Publication-Vending Devices

Publication-vending devices must abut one another beginning at a location not less than 30 feet from the intersection point of the projected curb lines of any intersection. No group of publication-vending devices may extend for more than 13 feet. There must be a space of 50 feet between groups of publication vending devices.

5. Street Furniture Zone

Publication-vending devices must be placed within the Street furniture zone, as described by the pedestrian space plan (sheets 137 and 138 of the City's official zoning map), no closer than 18 inches from the back of the nearest curb of the Street and must be positioned to provide for a minimum of 9 feet of unobstructed Sidewalk, so as not to impede reasonable pedestrian traffic on the Sidewalk. Publication-vending devices will not be permitted on Sidewalks with a width of less than 12 feet.

Section 4: Bus Shelters

A Special Agreement is required to erect or maintain a bus shelter within the City's public right-of-way. Contact the Public Works, Traffic Operations Division for information. Refer to *City Code 138-43 Section* for additional information.

Section 5: Signs within the City's public right-of-way

a. Prohibition

It is unlawful to affix (or cause to be affixed) any signage (including, but not limited to, any handbill, poster, paper, campaign sign, or other written or drawn communication) within the City's public right-of-way or to or upon any Sidewalk, crosswalk, curb, Street lamppost, hydrant, traffic signal control box, utility facilities, tree, stake, post or other structure located within the City's public right-of-way. Refer to City Code Section 138-13 for exceptions.

b. Signs on Private Property

Signs on private property (located outside of City's public right-of-way) are regulated by Sign Ordinance Code and other applicable governmental requirements, and are enforced by, among other Persons, the City's Department of Planning and Community Development.

c. Enforcement

The City of Atlanta Code of Ordinances designates the Department of Public Works as the entity to enforce requirements and penalties related to signs within the City's public right-of-way. Refer to City of Atlanta Code Section 138-4. (*138 Section _*)

d. Removal

The City's Department of Public Works is authorized to remove signage in the right-of-way that violates the City's Code of Ordinances, or to require that it be removed. Refer to City of Atlanta Code Section 138-13. (*138-43 Section)*

e. Penalties

Any violator of this Section may be held accountable as provided in the penalty Section of the Code of Ordinances. The placement of each individual sign will constitute a separate violation.

Part 5: Permitted Construction within the City's public right- of-way

Section 1: Additional Publications

The City's Department of Public Works has previously published various documents outlining the rules, regulations, processes, and standards for various types of municipal construction. These publications include:

a. Rules and Regulation Governing Sidewalks

b. City of Atlanta Department of Public Work Standard Details.

These publications are available from:

Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue SW, Suite 4900
Atlanta, Georgia 30303
Telephone 404-330-6501

Section 2: Authorized Contractor Registration

Franchised Utilities are not subject to the subsequent provisions-See Part 7

- Contractors performing work under permits issued to Franchised Utilities will be covered under the terms of the Franchise Agreement with that Franchised Utility.

- Registration Required

Any Person engaging in construction activities within the City's public right-of-way is required to be registered with the City's Department of Public Works as an Authorized City's public right-of-way Contractor. This process may sometimes be referred to as a "Qualified Contractor Permit". Any Contractor installing utilities must be licensed by the State of Georgia as a "Utility Contractor."

Registration Requirements

To register with the City as a Qualified Contractor, an applicant must provide proof of:

1. A State of Georgia business license or

2. Certificate of Authority issued by the State of Georgia for out-of-state business

3. Liability Insurance with a minimum policy in the amount of $3,000,000. The amount of the policy is updated as deemed necessary by the City's Risk Manager and shall name the City of Atlanta, its officers, employees and agents as additional insured.

4. Qualified to do work required. Qualified Contractors should, contact the City of Atlanta Public Works at (404) 330-6501 for additional information on how to obtain a permit.

a. Registration Information

Authorized City's public right-of-way Contractor registration information will be kept on file in the Department of Public Works.

b. Registration Fee

The Registration Fee varies from $45 - $200 depending on the type of activity being performed within the right-of-way. Annual registration will be valid for multiple work locations. Registration as an Authorized Contractor is separate from and in addition to a Construction Permit.

c. City Department Responsible For Registration

Authorized City's public right-of-way Contractor registration is issued by:

Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue SW, Suite 4900
Atlanta, Georgia 30303
Telephone 404-330-6501

Section 3: City public right-of-way Construction Permits

a. Issuance Relation to Building Permits

Permits for construction within the City public right-of-way are issued by the City's Department of Public Works. These permits are separate from and independent of, Building Permits, which are issued by the Bureau of Buildings for construction activities on private property.

b. Specific activities requiring Permit

A permit from the City's Department of Public Works is required for:

Any type of construction, repair or maintenance of any facility within the City's public right-of-way that impacts the traveled way, with the exception of repair and maintenance conducted by franchise utilities to existing facilities pursuant to the issuance of a maintenance permit as set forth in Sec. 138-65 (a) (1) of the City of Atlanta Code of Ordinances requires a Permit. Maintenance and repair activities

shall include, but not limited to the repair of low hanging cable wires, repair or replacement of poles to facilitate the improvement of the City's public right-of-way or in order to protect public health, safety and welfare.

1. Any type of construction exceeding 500 feet that involves digging, excavating, or placing material within the City's public right-of-way

2. Any type of construction that involves the use of mechanized construction equipment within the City's public right-of-way

3. Digging up and carrying away earth and other material from street or sidewalk. It is unlawful for any person to dump or deposit, remove and carry away gravel earth, dirt, rock, sand or other materials which are a part of any street or sidewalk of the City Refer to City of Atlanta *Code of Ordinances Section 138-11*

4. Any type of construction that involves cutting or removing pavement or placing poles, transformers, or control cabinets.

c. Engineering Drawings Required

To receive a permit to conduct construction activity within a City's public right-of-way, the applicant must submit engineering drawings for review and approval by the City's Department of Public Works.

d. Inspections

All work performed in the City's public right-of-way is subject to inspection by the City's Department of Public Works. It is the obligation of the permitted person to make the site available to inspection within 24 hours.

e. Inspection Costs

The cost of basic site inspection is included in the permit fee. If repeat or extended inspections are required, an inspection fee of $50.00 per hour will be charged. Franchise Utilities are exempt from all permit fees.

Section 4: Construction in the City's public right-of-way in Conjunction with Permitted Private Property Construction

a. Requirements for additional Permit

An additional and separate permit from the City's Department of Public Works is not required if all of the following apply:

1. A private property construction project was issued a Building Permit through the Bureau of Buildings

2. In the course of the permitting process, the permitted plans were reviewed and stamped by the City's Department of Public Works

3. The permitted plans provide for the construction of storm sewers, sanitary sewers, other utilities, Sidewalks, or driveway aprons within the City's public right-of-way as a condition of the building permit, for which permit and inspection fees were paid.

b. Work within the City's public right-of-way

Any work within the City's public right-of-way must be performed by an Authorized public right-of-way Contractor, and the Department of Public Works must be notified immediately prior to construction so that its inspectors may monitor and inspect the work within the City's public right-of-way.

c. Inspection Fees

The cost of inspection will be included in the Site Development inspection fee.

d. The aforementioned section shall not apply to franchised utilities.

Section 5: Additional Permits required

Construction in the City's public right-of-way may require additional permit(s) beyond the construction permit. Additional permits which may be required include:

a. Driveway Permit

1. Requirements

A Driveway Permit is required for a curb cut, or to construct or repair a driveway apron along a public Street. A Person registered as an Authorized City's public right-of-way Contractor must perform any work within the City's public right-of-way.

b. Open Cuts Requirements

1. Contractors must obtain a valid permit.
2. Contractors must call in all locations.
3. Contractors must provide a brief explanation, on the plans, as to why an open cut is necessary.
4. Contractors must call inspectors prior to the start of work.
5. Contractors must use a trench box in all cuts with a depth of 4ft or greater.
6. All work and repairs are to be performed per City of Atlanta's standards.
7. Contractors must provide uniformed officers on major thorough fares, at signaled intersections and full street closures.

c. Exception

A separate Driveway Permit is not required for Construction in the City's public right-of-way in Conjunction with Permitted Private Property Construction if all of the previously listed requirements are met.

d. Issuance

Driveway Permits are issued by:

City of Atlanta
Department of Public Works/Office of Transportation

Suite 4900 City Hall, South
55 Trinity Avenue SW
Atlanta, GA 30303-0325
404-330-6501

e. Fees

The Driveway Permit fee is $50.00 per location unless inspection has been included in other permit fees. Notwithstanding the foregoing, inspection costs shall not apply to franchised utilities. Such payment shall be in lieu of permit, inspection or driveway fees.
Franchise Utilities are exempt from all permit fees.

Section 6: Lane Closure, Full Street Closure or Sidewalk Closure Permit

a. Requirements

With the exception of work conducted by a Franchise Utility pursuant to a scheduled maintenance permit for limited time and scope, a lane closure, full street closure or sidewalk closure permit is required for any activity that requires blocking or closing a lane (s), street or the sidewalk. This permit is in addition to a construction permit. Please refer to Appendix F for specific requirements. In lieu of a permit, Franchise Utilities shall provide general notice to the City of work conducted by a Franchise Utility pursuant to a Scheduled Maintenance Permit.

Full street closure requires submission of application at least 96 business hours in advance of the date of closure in order to notify emergency services, affected property owners and other affected public agencies.

b. Issuance

Street closure, lane closure and sidewalk closure permits are issued by:

Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue SW
Atlanta, GA 30303-0325
Telephone: 404-330-6501

c. Franchise Utilities

Notice of lane and sidewalk closure for limited scope and duration shall be provided by the Franchise Utility to:

Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue SW
Atlanta, GA 30303-0325
Telephone: 404-330-6501

Permits are processed via PWOP

d. Fees

The fees for street closure, lane(s) closure and sidewalk closure depend on a number of factors including the number of days and length of closure. To the extent that a Person pays or remits payment to the City pursuant to section 138-

127 (h)(1) of the City of Atlanta Code of Ordinances, such payment shall be in lieu of permit fees.
Franchise Utilities are only exempt from those permit fees that are specified in State Law or Franchise Agreements. All other permit fees remain in effect.

Section 7: Material Hauling Permit/Haul Route Assignment

a. Requirements

Transporting excavation or fill material to or from a location inside the City will require a permit and the assignment of a "Haul Route". The intent is to ensure that loaded dump trucks and other equipment travel the route that causes the least disruption.

b. Building Permit Condition

The assignment of a haul route may be a condition for the issuance of a building permit for work on private property.

c. Additional Permits maybe Required

Material Hauling Permits are separate from and in addition to other applicable permits.

d. Assignment of Routes: Haul Routes are assigned by:

Department of Public Works/Office of Transportation
Office of Transportation Suite 4900
City Hall South
55 Trinity Avenue, S.W.
Atlanta, GA 30303-0325
Telephone: 404-330-6501

e. Fees

The permit fee for a haul route is $45
Franchise Utilities are exempt from all permit fees.

Section 8: Minimum Requirements for City public right-of-way Construction Permit

a. Requirements

In order to obtain a construction permit, the applicant must provide the following:

An engineering plan meeting the City's Department of Public Works' Standards illustrating the work to be done. In final form (4) sets of plans are required for department approval. The plan will be reviewed and approved by the Department of Public Works prior to the issuance of a permit.

1. At minimum, open cut utility projects require a dimensioned plan showing all existing utilities. Projects proposing directional drilling require a plan and profile. A detailed checklist of information required is available from the City's Department of Public Works.

2. A proposed schedule of activities

3. Proof of registration as an "Authorized City's public right-of-way Contractor or Qualified Contractor" with the Department of Public Works

4. Proof of receipt of any other necessary review or permit which may be required. (Example: Lane Closure, Street Closure Permit, The Georgia Department of Transportation (GDOT) is responsible for review and approval), any work carried out inside the (GDOT) Right-of-Way must be authorized and permitted only by the GDOT.

5. Proof of any required Bonds or Insurance

b. Disposition of Plans

1. Plans not meeting the necessary standards set forth will be marked and returned to the applicant for correction or revision and

2. If a project requires a Lane Closure or street closure or sidewalk closures, the applicant will be referred to the Office of Transportation.

3. Upon meeting all necessary requirements, and payment of appropriate fees, a permit may, at the discretion of the City, be issued.

c. Franchised Utilities

1. Separate Handling

Construction permits for Franchised Utilities are handled separately from other City's public right-of-way construction permits.

2. Issuance

Franchised Utility construction permits are reviewed and issued by
Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue, S.W., Suite 4900
Atlanta, GA 30303-0325
Telephone: 404-330-6501

3. Fees

The permit fee is $200.00 per project location. An inspection fee of $50.00 per hour will also apply. The minimum charge for a single inspection is $50.00 (one hour). Certain companies are exempt as franchise fees are paid in lieu of permit fees as stated in the franchise agreement.

Section 9: Conditions of Permits

a. Compliance

1. Failure to comply with any of the conditions of permit is a violation of the City's Code of Ordinances and will be subject to the penalties set forth in City's Ordinance, (Violation Notices.doc)

2. Notice of Violation-If the City believes that a Person has not complied with the conditions of permit, the City shall notify the Person in writing of the exact nature of non-compliance. ("Violation Notice")

3. Persons shall have the opportunity to respond to the Violation Notice contesting the assertion of non-compliance ; and

4. Persons shall have the opportunity to cure the alleged non-compliant issue prior to the invocation of any penalties contained in the foregoing sections:

b. Standard Condition of Permitting

Any permit for construction or other activities is subject to the following standard conditions unless specifically agreed otherwise in writing.

1. Notification for Inspection

At least 24 hours prior to beginning construction, the Permit Holder must notify the City's Department of Public Works designated contact person, identified on the permit, advise of the pending construction schedule and arrange for inspection of the work by the City. Failure to notify the designated contact person is a violation of the permit and may subject the violator to penalties. Permit inspector's name and contact number will be listed on the approved permit,

2. Access to Abutting Property

Anyone engaged in permitted activities within the City's public right-of-way is obligated to maintain reasonable access to property abutting the City's public right-of-way at all times.

c. Traffic Control:
All traffic control must adhere to the standards set forth by the Manual on Uniform Traffic Control devices (MUTCD) and be approved the Department of Public Works..
Any traffic control left in the right-of-way, overnight, must be properly inspected and maintained by the contractor at the end of the work day.

d. Staging/Storage Areas

Parking equipment and/or storing material or supplies within the City's public right-of-way is not allowed unless a designated parking/storage area is included and approved in the permitted plan.

e. Permissible working hours:

Monday – Friday (9:00 am – 4:00 pm) and (6:00 pm – 10:00 pm)
Exceptions may be granted.

In an effort to minimize the negative effects of noise and traffic congestion caused by construction activities, time limitations may be imposed on construction activities as stated in the City's Noise Ordinance *138-Section (See 138-16) and Code 150-293.*

*f. E*xceptions

Driveways, entrances to businesses, including, but not limited to, loading docks, work areas, parking areas and other methods for obtaining access to property, may be temporarily disrupted only under the following conditions:

1. If specifically stipulated in the permit

2. For periods of short duration at non-critical times

3. After sufficient notice has been given to the affected property owner(s) resident(s) & tenant(s).

Section 10: Public Notification, Signs & Identification

a. Public Notification and Site Identification

1. Whenever construction activities are to be performed in the City's public right-of-way, the Commissioner of Public Works may require the Person conducting activities pursuant to a permit to provide the public with reasonable notification of impending work.

2. Public notice shall be made to the affected neighborhood in the form of the placement and maintenance of appropriate signs in appropriate locations in advance of the construction activities. This will be a condition of the permit for any activity within the public right-of-way that may reasonably be expected to:

- Continue for more than 8 hours
- Cause an unusual degree of noise or vibration
- Involve the closure of a full street.
- Include an excavation within or the cutting or removal of asphalt or concrete pavement.

b. Signs

1. Sign Requirements

The posting of signs must adequately identify each construction site. Failure to properly maintain appropriate signage for the duration of the project could be a cause for suspension of construction permits.

2. Number of Signs

A minimum of two signs must be placed at each construction site. However, where the manual on Uniform Traffic Devices (MUTCD) requires more signage, MUTCD requirements shall be used.

3. Location of Signs Visibility Other Physical and Temporal Sign Requirements:

- Sign location, size and installation shall conform to MUTCD requirements.
- Signs must be placed in a location adjacent to the construction activity, readily visible to the traveling public.
- Signs may be posted on traffic barricades, installed on temporary stakes, or by other means acceptable to the City's Department of Public Works.

Permission must be obtained from the pole owner prior to attaching signs to theirs poles.

- Signs must be visible to vehicles and pedestrians traveling in either direction.
- Signs must have a surface area of not less than 3 square feet.
- Lettering must be legible block letters not less than 2" high.
- Sign material must be sufficient to withstand outdoor exposure for the duration of the project.
- Signs must remain in place until all work is complete, including any re-paving and re-grassing.
- A sample Public Notification and Construction Site Identification Sign is shown in the *Appendix D*

c. Door-to-Door Notification

1. Requirements

Abutting property owners and tenants along the route of the construction must be notified of the pending activity within the City's public right-of-way that would unreasonably interfere with either the egress or ingress into said owner's property. Notification shall consist of the distribution of flyers, pamphlets, door-hangers, etc… identifying the area, activities and duration at least 5 days prior to the beginning of construction. Construction activities should be defined to include work that involves demolition, excavation and explosives and not include routine repairs such as service connects and/or disconnect.

**Note: Franchise Utilities may use any combination of door hangers, signs or mailings to advise affected residents of scheduled and active construction projects.

d. Vehicle Identification

1. Clear Markings Required

Any vehicle and/or construction equipment or equipment used in conjunction with permitted activities within the City's public right-of-way must be clearly marked or labeled, identifying the Company for which the work is being performed, as well as the Company performing the work.

2. Vehicle Display of Type of Permit

All vehicles must display on the rear of the vehicle or inside the rear windshield a notice, in legible form, clearly visible to the public, stating the type of permit under which the work is being performed.

3. Compliance

a. Failure to display appropriate notice will be a violation and will be subject to penalties.

b. Notice of Violation-If the City believes that a Person has not complied with provisions of this section, City shall notify the Person in writing of the exact nature of non-compliance. ("Violation Notice")

c. Persons shall have the opportunity to respond to the Violation Notice contesting the assertion of non-compliance ; and

d. Persons shall have the opportunity to cure the alleged non-compliant issue prior to the invocation of any penalties contained in the foregoing sections.

Section 11: Excavation within the City's public right-of-way

Any permit for construction or other activities that involve excavation within the City's public right-of-way is subject to the following conditions unless specifically agreed otherwise by the City.

a. Tie Back Wall Agreement

A Resolution authorizing the Mayor to accept and execute an agreement to permit the construction of Temporary Retaining Walls, employing a Pre-stressed Tie-Back system locates within the and under the City's public right-of-way adjoining the private property. The City reserves the rights to limit and regulate the usage of the surface, to provide conditions for allowing for other purposes.

b. Utility Location and Marking

1. Utility Protection Notification

Unless part of a large project agreement, at least 48 hours prior to any excavation, directional drilling, jacking and boring, or other similar activity that may damage existing utilities within the City's public right-of-way, the Person responsible for that activity must notify the Utility Protection Center (Call before You Dig) at 1-800-282-7411 or 811 to request the marking of all existing utilities in the affected area. No excavation, directional drilling, jacking or boring, or other similar activity, may begin until all utilities are appropriately and accurately marked.

2. Removal of Utility Markings

Utilty Markings are water soluble and will be removed by normal weather conditions. The City recognizes the following standard marking codes as set by the American Public Works Association (APWA).

Table 1 Department of Public Works Color Code for Underground Utilities Marking (adopted from American Public Works Association)

White	Proposed Excavation
Pink	Temporary Survey Makings
Red	Electric Power Lines, Cables, Conduit, and Lighting Cables
Yellow	Gas, Oil, Steam, Petroleum, or Gaseous Materials

Orange	Communication, Alarm or Signal Lines, Cables or Conduits.
Blue	Potable Water
Purple	Reclaimed Water, Irrigation, and Slurry Lines
Green	Sewers and Drain Lines

c. Duration of Excavation

Upon opening an excavation within the City's public right-of-way, the Permit Holder must diligently execute the work in order to minimize the duration of any open excavation.

d. Dimension of Excavation

The open portion of any trench excavation must be kept at a minimum. Trenches must be backfilled as soon as the necessary utility work is completed. No opening of additional length of trench may be performed prior to the timely backfilling of the completed portion. At no time may any open construction trench or ditch to exceed 500 feet in length. Exceptions may be granted.

e. Closure of Excavations

Persons performing excavations must close all excavations immediately upon completion of the work or upon notice from the City. Where an excavation in a vehicular traffic lane must be temporarily opened to traffic prior to the final closure, a metal plate or plates may be used as a temporary closure so long as appropriate installation and safety issues are addressed, and all conditions set for the use of metal plates in this manual or by applicable governmental requirements are met.

f. Safety

1. Excavation Shoring: Compliance with Governmental requirements

   All work within the City's public right-of-way must be done in a safe and lawful manner. Excavation must be appropriately shored and workers must be adequately protected. Contractors, subcontractors, utility owners, and any other associated Person will all be responsible for meeting the appropriate OSHA regulations and all applicable industry safety requirements and other governmental requirements.

2. Public Protection

   The public must be adequately protected (as specified in the current MUTCD) in and around all excavations by the erection of appropriate barricades, warning signs, flashing lights, and other necessary safety devices. A safe route of passage around the excavation site must be provided to pedestrians at all times. Unless specifically permitted by the City, the use of metal plates to cover sidewalk excavations is prohibited.

3. Compliance

   Failure to maintain a safe site is a violation of applicable governmental requirements and is subject to penalties, including revocation of permit.

a. Notice of Violation-If the City believes that a Person has not complied with provisions of this section, City shall notify the Person in writing of the exact nature of non-compliance. Violation Notices.doc

b. Persons shall have the opportunity to respond to the Violation Notice contesting the assertion of non-compliance ; and

c. Persons shall have the opportunity to cure the alleged non-compliant issue prior to the invocation of any penalties contained in the foregoing sections.

g. Best Management Practices for Soil Erosion and Sedimentation Protection **http://www.state.hi.us/dlnr/dofaw/wmp/bmps.htm**

Persons engaged in "earth-disturbing activities" within the City's public right-of-way must employ "Best Management Practices" for soil erosion and sedimentation protection as required by applicable Georgia Soil and Water Conservation http://www.gaswcc.org/docs/field_manual_4ed.pdf) and the City's Code of Ordinances (ARTICLE II Erosion.doc)Failure to employ best management practices will be reason to Revoke a permit and those responsible will be subject to fines and legal action.

h. Liability for Damage

Permits for construction within the City's public right-of-way do not limit liability for damage to existing utilities or public facilities, or any other damages that may ensue from the Permit Holder's activities. The named Permit Holder is liable for all damages done in the execution of the work. Contractors and Franchised Utilities are liable for all damages caused by any of their contractors, subcontractors, material men, suppliers or other similar Persons at any tier.

i. Alternative Excavation Technology

All Permit Holders must employ all reasonable efforts to minimize damage to the City's public right-of-way and to reduce risk to existing utilities. Persons engaged in excavation in the City's public right-of-way are encouraged to utilize "alternative technology" such as "dirt vacuuming" when such technology is appropriate and will reduce the negative impact on the City's public right-of-way.

j. Directional Drilling

Directional drilling may only be used in those areas in which other construction techniques pose an equal or greater risk of damage to existing utilities, and to areas where the risk of damage is offset by public convenience.

a. Restoration of the City's public right-of-way

1. Restoration after construction

Upon completion of the permitted work, including restoration notification to the Department of Public Works is required. Restoration may include the repaving of streets, removal of barricades, or obstructions and excavation material and the installation of appropriate vegetation.

- Restoration responsibility

The Permit Holder is liable for any damage done in the execution of work within the City's public right-of-way and is responsible for restoring the City's public right-of-way.

- Flowable Fill - Optional as backfill

- Vegetation

  Restoring appropriate vegetation within the City's public right-of-way is a condition of the permit and a requirement of applicable governmental requirements, including Georgia State Law and the City's Code of Ordinances (http://www.municode.com/resources/gateway.asp?pid=10376&sid=10)

k. General Requirements

Unless specifically permitted otherwise by the City, all excavations within the City's public right-of-way that impact the existing asphalt or concrete pavement of Streets or Sidewalks may be backfilled with "Flowable Fill." Excavated material must be removed from the site.

l. Characteristics of Flowable Fill Material:

1. Flowable Fill is also known as "Controlled Low Strength Material (CLSM)", "Lean Mix Backfill", or "Flowable Mortar". It is a blend of cement, water, sand and flyash designed as a low strength, flowable material requiring no subsequent vibration or tamping to achieve complete consolidation. It is self-leveling, self-compacting, and fills all voids. It does not settle or rut under loading, thus preventing the formation of "dips" in the pavement above utility cuts 2 or 3 years after the repair of an excavation.

2. Flowable Fill will generally set hard enough to support the weight of an individual within 2 to 4 hours after its initial placement. (Quicker setting mixes can be achieved at additional cost, if necessary.) At 24 hours, flowable fill can support the weight of vehicles yet can still be excavated manually with a shovel.

Table 2

Compressive Strength of Flowable Material

Days	Compressive Strength, PSI
3	23
7	40+
28	50-100
90	317
180	417
365	403

Typical Ratio of Contents of Flowable Fill***

Cement	100 lbs/cy
Fly Ash (type F)	200 lbs/cy
Sand	2700 lbs/cy
Water	550 lbs/cy

***The City may request the Permit Holder to use a specific ratio of contents of flowable fill, depending upon the specific requirements of the project at issue. And to the extent practicable, the Permit Holder shall make a good faith effort to comply with City's request for a specific ratio of contents of flowable fill.

Flowable fill is NOT a substitute for or interchangeable with concrete. It has no large aggregate and less than 20% of the cement content of concrete. Concrete is also not a substitute for flowable fill.

m. Placement of Flowable Fill at or Below Pavement Level Time Requirements.

1. If the final surface course of pavement can be restored within 3 Days, flowable fill must be placed short of the final surface elevation by the thickness of the final pavement, thereby, allowing the final pavement to be placed flush with the existing pavement. Metal plates must cover the incomplete repair until the final pavement is restored.

2. If the final surface course of pavement cannot be restored within 3 Days, flowable fill must be placed flush with the existing pavement. Metal plates must be used over this flowable fill until the fill has sufficiently hardened to carry traffic loads (approximately 24 hours). Metal plates must then be removed and the backfill must temporarily support traffic until the pavement can be restored. When final pavement is placed, the backfill must be removed to an appropriate thickness such that the final pavement is flush with the existing pavement.

n. Metal Plates

1. Length of Use Limitations

The use of metal plates to cover pavement cuts and excavations will be limited to 5 business days after work is completed unless special permission is granted by the City's Department of Public Works. Plates left in the City's public right-of-way more than 5 business days after work is completed, weather permitting and/or availability of materials, are subject to removal by the Department of Public Works. An assessment of $100.00 will be charged for the removal of any metal plate. The assessment must be paid in full before the Department of Public Works will return the metal plate.
Assessments do not apply to Franchise Utilities.

2. Liability

The owner, lessor, user, installer, or other similar Persons, of metal plates used within the City's public right-of-way is liable for all injuries or damages to

Persons, vehicles or other property (real or personal) that may result from their improper placement or use, or the failure to ensure that they continue to be properly and securely placed and appropriately used.

3. Plate Identification Required

Whenever metal plates are either leased, rented or placed, the said plates must be clearly identified with the name or initials of the owner.

4. Record of Plate Identification Information with City

In order to minimize confusion in identifying plates, plate owners must record their company name and plate identification initials with the Department of Public Works. Plate identification marks currently on record with the Department of Public Works at the time of the publication of this manual are:

1. AGL-Atlanta Gas Light
2. ANSCO–Ansco
3. DPW -Department of Public Works
4. AWW, SEWER – Department of Watershed Management
5. BST – Bell South/AT&T
6. GPC – Georgia Power Company
7. LVL3 – Level (3) Communications
8. USRP – U. S. Rental Plates and
9. BDW – Bureau of Drinking Water
10. COM-Comcast Cable Communications

The City may, from time to time, issue a list of current registrants without the need to formally amend this manual.

5. Alternative Plate Identification Methods

Adhesive plastic signs similar to that typically used on vehicle “bumper stickers” may identify plates provided, however, that the surface of the metal plate is sufficiently prepared to allow the adhesive plastic sign to remain affixed to the metal plate for the entire duration it is intended to protect an excavation area within the City’s public right-of-way.
It is, at all times and regardless of the method of metal plate identification used, the responsibility of the plate user to ensure that plates are adequately and legibly identified at all times.

6. Failure to Identify Plates

Metal plates placed in the City’s public right-of-way without proper identification are subject to immediate removal and confiscation by the Department of Public Works. If an unidentified plate is removed, the site will be made safe by the Department of Public Works.

o. Asphalt Pavement damage repair Requirements:

The Commissioner of Public Works shall require an inlay or overlay beyond the cut limits for the full width of the lane, lanes or road surface to improve the road smoothness and appearance depending on the age of the last paving operations as follows:

1. If the existing pavement is up to 4 years old, mill and/or overlay 100 feet each side of the trench for the full width of the lane, lanes or street.
2. If the existing pavement is 4 years up to 7 years old, mill and/or overlay 50 feet each side of the trench for the full width of the lane, lanes or street.
3. If the existing pavement is over 7 years old, pavement repair shall be replaced in kind using construction procedures in accordance with the City Standard details for the full width of the lane, lanes or street...
4. If in any one block or 500 linear feet, the cumulative damage to the pavement exceeds 200 square feet, the affected lane must be resurfaced for the length of damage.

p. Multiple Lanes

If pavement is damaged in more than one lane, the City may require that the Street be repaved across its full width.

q. Milling Requirements

If field conditions warrant, milling may be required prior to repaving. In the event of a requirement of milling, terms and conditions shall be specified in the permit.

r. Sidewalks

1. Application of City Standards

Damage to Sidewalks must be repaired in accordance with the City's Standard Details.

2. Asphalt Prohibited

Concrete Sidewalks may not be permanently or temporarily repaired with asphalt.

3. Decorative Sidewalk Agreements

Sidewalks previously improved under the terms of a Decorative Sidewalk agreement must be repaired in compliance with the terms of that agreement

4. Additional Special Conditions

The City may impose additional requirements for scheduling work in designated Pedestrian Zones and for the repair of Sidewalks in areas where the Sidewalk improvement program is currently active, according to the MUTCD.

Part 6: Special Agreements

Section 1: General Provisions Concerning Encroachments

Any activity that occupies space (encroaches) in a City's public right-of-way for a continuous or extended period requires, in addition to a permit, a Special Agreement. Special Agreements are in effect contracts between the property owner and other appropriate Persons, depending on the circumstances, and the City. Special

Agreements must be authorized by the City Council and signed by the Mayor or his designee, as set forth in the City's Code of Ordinances.

a. Required Special Agreement Provisions

The City' Code of Ordinances requires Special Agreements to contain certain provisions for the City's protection: Specifically, Special Agreements are generally required to contain provisions including, but not limited to the following:

1. Indemnifying and holding the City harmless
2. Posting Appropriate Bonds
3. Maintaining Adequate Insurance
4. Maintaining the Encroachment
5. Removing the Encroachment
6. Paying rental fees relating to the Encroachment in accordance with the City's Code of Ordinances

b. Contact Information

Persons wishing to enter into special agreements with the City should contact:

Department of Public Works/Office of Transportation
Office of Transportation Suite 4900
City Hall South
55 Trinity Avenue, S.W.
Atlanta, GA 30303-0325
Telephone: 404-330-6501

c. Potential Situations Involving Special Agreements

The most frequently encountered situations requiring Special Agreements are privately constructed and operated Bridges or Tunnels, Decorative Sidewalks, Awnings or Marquises, and Special Encroachments.

Section 2: Bridges and Tunnels

In order for a person to construct, own, or operate a private pedestrian, vehicular, or utility bridge, tunnel, or similar passage between buildings over, under, or into the City's public right-of-way, a Special Agreement is required. Use of a bridge, tunnel, or passageway is limited solely to intermittent passage of pedestrians or vehicles, or for locating (non-franchise) utilities. Encroachment space cannot be utilized as occupied space for Persons, for the transaction of business, or for storage of material.

Section 3: Decorative Sidewalks

a. City Standards Policy

The City maintains standards for Sidewalk construction within the City's public right-of-way. The intent of these standards is to ensure that Sidewalks are constructed in a safe, cost effective, and easily repairable manner.

b. Special Sidewalk Districts:

Certain historic or special districts within the City may have additional requirements for brick Sidewalks, extra width Sidewalks, or other details. These requirements are on file with the City's Bureau of Planning.

c. Decorative Sidewalk Agreements

If a Person desires to construct a Sidewalk in the City's public right-of-way abutting that Person's property that is to be constructed from unusual or exotic material, is to be of a non-standard design or construction, will vary from the requirements of an applicable historic or special district, or otherwise will be special or unique, a Special Agreement (Decorative Sidewalk Agreement) is required. Civic improvement groups or other entities wishing to construct decorative Sidewalks

Abutting multiple properties may enter into Special Agreements with the City.

d. Limitations Applicable To Decorative Sidewalks

1. The use of light gray or buff color tinted concrete, or geometric imprints (hex pattern, brick pattern, etc.) in broom finish concrete, do not alone constitute a Decorative Sidewalk, and do not require a Special Agreement. However, such details must be shown on the engineering plans submitted for a permit.

2. The use of vivid or exotic colors, inlays, special stones, non-standard textures, or pavers does constitute a Decorative Sidewalk and requires a Special Agreement.

3. Unless a Special Agreement specifically states to the contrary, the owner of abutting property is obligated to maintain the Sidewalks fronting the owner's property, including any Decorative Sidewalks. If City or public utility work crews cut or damage a standard Sidewalk, they must repair the Sidewalk to good condition. If City or public utility work crews damage a Decorative Sidewalk, they must make good faith efforts to minimize damage, save paving materials removed, and repair the Sidewalk in a compatible manner.
However, if the repair of a Decorative Sidewalk requires extraordinary time, effort, or material, the owner of the Sidewalk is responsible for the extra time, effort, and material, necessary to make the repair.

Section 4: Awnings and Marquees

Erecting and maintaining any awning, canopy, marquee, or sign structure attached to a building or free standing, that occupies space within the City's public right-of-way, or that, in the event of failure, may present a danger to the public, will require a Special Agreement.

Section 5: Special Encroachment

Constructing, erecting, and maintaining any non-standard structure or facility within the City's public right-of-way will require a Special Agreement. Examples include, but are not limited to, Street furniture, fountains, trash cans, recreation or playground

a. Tie Back Wall Agreement Encroachment

A resolution authorizing the Mayor to accept and execute an agreement to permit the construction of temporary Retaining Walls employing a Pre-stressed Tie-Back system located within and under the City's public right-of-way adjoining the private Property. The City reserves the right to limit and regulate the usage of the surface, subsurface and aerial space within the City's public right-of-way, to provide equipment, kiosk, etc.

Section 6: Categories of City Streets

The City of Atlanta's street system is functionally classified as Local, Collector, Arterial and Expressway. The classification system groups streets based on their intended purpose such as providing mobility between destinations, access to properties and a combination of mobility and access. Please refer to *Appendixes A and B* for a list of collector and arterial streets within the City limit.

Section 7: Time of Day Restrictions

a. Specific Restrictions

Unless specifically stated otherwise in the permit, the following time of Day restrictions will apply to permitted construction within the City's public right-of-way:

1. No lane of any arterial or collector Street may be blocked for any period between 7:00 AM and 9:00 AM or between 4:00 PM and 6:00 PM

2. No nighttime activities are allowed as per City Code Chapter 74, Article IV Noise Control. Please refer to the Code Section for exempted activities and specific requirements.

3. Adjustment of Time of Day Restrictions

    a. The Department of Public Works reserves the right to adjust or amend the allowable time of day restrictions (in general or in a specific location) for any permitted activity within the City's public right-of-way, as circumstances require.

City of Atlanta
Department Of Public Work – Right-of-Way

Plan Review Checklist [Further Discussion by Parties]

Address: _____ Reviewed By: _____

1. Show project number (phase and section number) on plans.
2. Show and label land lot numbers and lines.
3. Show and label land district numbers and lines.
4. Flag project site on location sketch and show north arrow.
5. Note Stations on primary centerline used throughout the project.
6. Label limits of rights of way acquisition on cross streets (where station/offset information is taken from cross street centerline).
7. Note the beginning and end of right of way Acquisition. Mile log designation – to the nearest tenth – if available. Project show one Begin and one end acquisition; with beginning right of way acquisition extending from left to right without regard to the north arrow direction.
8. Show full stations and offsets (on Metric Plans include English and Metric offset distances); if more than one centerline is used state which centerline the information is taken from or provide general note. If general note is provided; please make sure it agrees with centerline stations and offsets are

taken from in alignment. Includes existing and required right –of- way points at P.C. and P.T. Stations.

9. Label survey centerline with bearing.
10. Label construction centerline with bearing.
11. Show street names - all existing locations including mainline, State Route and U.S. Numbers
12. Label or provide legend to identify construction limits, include symbols for cut “C” or fill “F”.
    Sheet may overlap. (For clarity of parcels, however, duplicate information should be kept to a minimum).
13. Label or provide legend for existing right of way and existing limited access. Existing right of way must be shown on County Roads. If existing right of way were determined, please show area maintained as existing right of way.
14. Label or provide legend for required right of way and limited access.
15. Show curve data.
16. Show revision block, all revision must be shown on cover sheet
17. Clearly show for dual project plans the beginning/end of each project.
18. Show the beginning and end Right of way acquisition.
19. Provide a title block.
20. Include “Legend” for limited access, required right of way, property lines, existing right of way, construction limits, easements and any other symbols used in the plans. Complete Standard Right-of-Way Legend by using additional symbols.
    Show Angles and stations where centerline crosses street.
21. Show Edge of pavement where (existing and proposed) on mainline, cross roads and drives.
22. Label limits of rights of way acquisition on cross streets. Where station/offset information is taken from cross street centerline
23. Include equality stations.
24. Identify any utility relocation.
25. Show and label drainage, culverts, channel changes, side and cross drains.
26. Show driveways, tie-ins and cross streets.
27. Sheet must have revision block.
28. Show the scale on each plan sheet.
29. Show property limits on all projects if available
30. Coordinates are required at two points on the centerline for each plan sheet. These points should be reference points such as Pac’s, Pit’s, side sheet centerline intersections or railroad intersections. (If reference point is not available, every station should be used).
31. Right of Way from railroads should be referenced from both the centerline and the nearest railroad milepost. Coordinates are required.
32. Locate the railroad milepost apply to all areas of right of way and easement, which are not contiguous.
33. Right of Way for Individual Property (Parcels). &and P.T. Stations.
34. On all lines within the required right of way, show bearings and distances (arcs), and radius on all curved lines. On Curved line, include chord length and chord bearing. Exception: Bearings not required on existing right of way.
35. The area for required Right of Way. (Square feet and acres) Acres and hectares should be computed to three decimal places; Square Feet and Square Meters to two decimal places.
36. Any Parcels with remainders on each side of a project or which cross street on the project must show separate areas for each remainder. Parcels with easement acquisition only (except driveway easement) should give a

remainder or total lot size. Any area less than an acre should be shown as 0. --+/- Acre, 1- 10 acres -. - And over 10 acres to the nearest acre plus or minus.

37. Provide Easement Labeled or legend. Full Station and Offset required; hatch construction easements. On railroad parcels, easements should not be closer than 15 feet from the centerline of the tract.
38. Driveway easement should have full station and offset on all points. Metric Plans should give both Metric and English Offsets. Specify in Data Table the total number of driveway easements per parcel.
39. Show easement area in square feet for each type of easement. This (Does not include driveway easements). Any Parcels requiring easement only should also give a remainder or total lot size (This does not include driveway easements).
40. Show all applicable parcel number on all sheets. Survey Chain numbers are not acceptable as Parcel numbers.
41. Show all applicable names of the property owner's on all sheets.
42. Label all Buildings. (If Data is Available)
43. Access Breaks. Show dimension of Access Breaks and Driveways. Provide station and offset, parcel number, owner name, and total area.
44. Show paving improvements within required right of way.
45. Show signs, gas islands, pump tanks, and permanent light fixtures. Signs within the required rights of way should be located and annotated.
46. Note the reference parcel number must be shown on sheet to cover the entire parcel as shown on plans.
47. Note any parcels with tracts should show a total area for the required right of way, easement (for each type of easement excluding driveways).
48. Note the descriptions shown for each Parcel should proceed in a clockwise direction.

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Office of Transportation's

Franchised Utilities Section

Part 7: Franchised Utilities

In general, Franchised Utilities with facilities located in the City's public right-of-way are subject to the requirements, conditions, and obligations as any other Person working within the City's public right-of-way. However, certain specifics particularly applicable to Franchised Utilities are more fully discussed.

Section 1:

Permits Issued to Franchised Utilities

Permits for Construction, Maintenance, or Repair of facilities owned by Franchised Utilities in the City's public right-of-way are issued by the City's Department of Public Works. Permits are issued to Franchised Utilities only and not to the Franchised Utilities' individual contractors, subcontractors, material men, suppliers or similar person at any tier. A Franchised Utility is responsible for all work performed in the City's public right-of-way and all damages caused by or resulting from any person performing work for the Franchised Utility.

Section 2:

Submittal of Permit Applications

Permit Applications for work in the City's public right-of-way should be submitted to:

Department of Public Works/Office of Transportation
City Hall South
55 Trinity Avenue, S.W., Suite 4900
Atlanta, GA 30303-0325
Telephone: 404-330-6501

Or electronically by utilizing the Public Work's Online Permitting System

Section 3:

Route Selection

Pursuant to public, health, safety, and welfare, the Department of Public Works reserves the right to review the selection of locations and routes of utilities, proposed by Franchised Utilities. The design and construction of distribution and transmission facilities are in accordance with the National Electric Safety Code (NESC) and is regulated by State & Federal Government.

Placement of Support Facilities:

1. **Right of Review**

   The Department of Public Works reserves the right to review, the placement of support facilities and equipment within the City's public right-of-way, proposed by Franchised Utilities. Support equipment and facilities (switching boxes, amplifiers, connection panels, poles, etc.) must be located such that they do not interfere with the movement of vehicles or pedestrians, or block sight-lines at intersections. Request for placement of support facilities and equipment within the City's public right-of-way by Franchised Utilities shall not be unreasonably withheld. Moreover, Franchised Utility may appeal any denial for request of placement of support facilities and other equipment to the Commissioner of Public Works.

2. Support Facilities

The City may designate geographical areas in which facilities are preferred to be placed underground; provided however, that Franchisees are not required to place transmission and distribution facilities underground when aerial facilities exist and that where existing aerial facilities are being retired and removed from service, replacement will be made using underground construction if technically practical and economically feasible and subject to applicable state and federal law.

Section 4:

Expedited Process for Co-Location and Joint Applications

Policy Statement

1. Intent of Manual

It is the intent of this manual to encourage Franchised Utilities to cooperate with each other in the construction of new facilities, repair and maintenance of existing facilities and similar functions, and the scheduling of activities within the City's public right-of-way. The goal is to minimize the disruption to the public caused by multiple construction projects in any one area.

2. Priority of Permit Applications Complying With Policy

Permit applications meeting the goals of this Policy will be given priority for review by the City's Department of Public Works.

Section 5:

Minimal Submittal Requirements for Utility Construction Permits

a. Engineering Plan

An engineering plan meeting the Department of Public Works' standards illustrating the work to be done must be submitted. The plan must show the proposed work location in reference to neighboring street. The plan will be reviewed and must be approved by the Department of Public Works prior to the issuance of a permit.

1. Traffic Control Plan

Temporary traffic control must be provided in accordance with the current edition of the MUTCD.

2. Schedule

A schedule of activities.

3. Additional Requirements

Additional requirements may apply, depending on the specific circumstances of the application.

Section 6:

Utility Maintenance

Franchised Utilities engaged in routine and repetitive repair and maintenance activities within the City's public right-of-way may be eligible for special blanket permits. These permits are available for limited, short-term, and minimal impact activities. The following provisions apply to Blanket Permits. Blanket permits will be giving to franchise utilities with a good work history. The blanket permit will be issued on a bi-annual basis after a review of previous work history to ensure the continuation of a good work history. In the event a franchise utility is required to park at a parking meter to perform maintenance, no fee is required.

1. Qualifying Activities:

Installation of customer service connections to existing facilities

a. Minor adjustments to existing facilities or service connections.
b. Various miscellaneous activities, such as checking and maintaining equipment.
c. Any and all work necessary to restore services to customers in an impacted area.

2. **The following conditions apply utility scheduled maintenance activities:**

a. No lane of any arterial or collector Street may be blocked for any period between 7:00 and 9:00 AM or between 4:00 and 6:00 PM, Monday through Friday. (Morning and Evening Rush Hour)

b. No lane of any arterial Street may be blocked for any period exceeding 1 hour between 9:00 AM and 4:00 PM, Monday through Friday, unless a uniformed police officer is employed on site to direct traffic. A company flag man may be provided to direct traffic in lieu of uniformed police officer if blockage occurs for less than an hour between 9:00 am – 4:00 pm.

c. No lane of any Street in a commercial or retail area may be blocked for any period exceeding 1 hour between 7:00 am and 6:00 pm, Monday through Friday.

d. No nighttime activities are permitted, seven days a week (9:00 pm to 7:00 am.) unless circumstances exist where there is need to conduct maintenance, trouble calls, restore service to customers or repair work in the evening.

e. No pavement cuts or excavations of any type are permitted. Minimal excavation for the purpose of replacement of existing poles is permitted, as long as dirt is removed from the site or otherwise disposed of in a manner acceptable to the City.

f. No activities that create an unacceptable level of noise, dust, or disruption to normal activities of the population are permitted.

2. Emergency Repair

Work performed pursuant to an emergency shall qualify as work performed.

a. Qualification Requirements

In order to performed work to qualify as activities performed for Emergency Repair one or more of the following circumstances must exist:

1. Immediate danger to life, health, or property
2. Immediate threat of environmental damage
3. Necessity to repair damage to essential facilities resulting from extreme weather events or traffic accidents
4. Loss of service to a single customer
5. Immediate response to the problem will result in significantly reduced inconvenience to the public in the long term
6. Delay of repair will result in further damage to facilities
7. Other extraordinary conditions that can be documented as an emergency.

b. Notification Requirements

Within 24 hours of the occurrence of the emergency or at the beginning of the next business day, whichever later occurs, the Franchised Utility owner must notify the City's Department of Public Works in writing of the location and nature of the emergency and submit the following, as appropriate, specifics concerning the emergency:

1. Information detailing the threat to public health or safety
2. Information concerning the threat of environmental damage
3. An engineering plan meeting the Department of Public Works standards, illustrating the work done or remaining to be done.
4. A schedule of activities
5. Payment of applicable fees and
6. Any additional information that the City may require, depending on the specific circumstances of the event.

c. Maintenance of Equipment in the City's public right-of-way

The owner of any equipment or facility in the City's public right-or-way must maintain that equipment or facility with good appearance. Upon written notice from the City, and receipt of said notice by the owners, owners are required repair vandalism and to remove or cover graffiti as soon as practicable.

Appendix A:

Arterial Streets

Alphabetical Listing

Note: Streets listed may also be classified as State or Federal Highways and may be identified by a highway number designation.

STREET NAME	SEGMENT	Miles
Baker Street, N.E.	Luckie Street to Piedmont Avenue	0.76
Bankhead Highway, N.W.	Marietta Street to City Limits	6.4
Bell Street, N.E.	Auburn Avenue to Hill Street	0.38
Bolton Road, N.W.	Fulton Industrial Blvd. to Marietta Blvd	3.0
Briarcliff Road, N.E.	Ponce de Leon to City Limits	0.47
Buford Highway, N.E.	City Limits to Piedmont Road	1.1
Campbellton Road, S.W.	Lee Street to 166	4.53
Campbellton Road, S.W.	166 to City Limits	2.65
Candler Road, N.E. & S.E.	City Limits to City Limits	0.70
Capitol Avenue, S.W.	University Avenue to MLK Jr. Drive	1.8
Cascade Road, S.W.	City Limits to Gordon Street	3.06
Central Avenue, S.W.	Dodd Avenue to Edgewood Avenue	1.4
Cheshire Bridge Road, N.E.	Piedmont Road to Buford Highway	1.4
Cleveland Avenue, S.E. & S.W.	City Limits to Jonesboro Road	2.85
Courtland Street, N.E.	North Avenue to MLK Jr., Drive	1.5
Crown Road, S.W.	City Limits to City Limits	0.55
Decatur Street, S.E.	Peachtree Street to Gunby Street	1.4
Dekalb Avenue, N.E.	City Limits to Gumby Street	3.1
East Roxboro Road, N.E.	West Roxboro Road to Wood Circle	0.2
Edgewood Avenue, N.E.	Peachtree Street to Krog Street	1.5
Fulton Industrial Blvd., S.W.	Old Gordon Road to Bolton Road	1.8
Fulton Street, S.W.	Pryor Street to Capitol Avenue	0.4
Georgia Avenue, S.W.	Glenn Street to Capitol Avenue	1.15
Glenn Street, S.E.	Murphy Avenue to Stewart Avenue	0.2
Glenwood Avenue, S.E.	Hooper Street to Clifton Street	2.35
Gordon Street, S.W.	Cascade Avenue to Glenn Street	1.2
Harris Street, N.E.	Luckie Street to Piedmont Avenue	0.7
Hightower Road, N.W.	Bankhead Highway to MLK Jr., Drive	1.7
Hill Street, S.E.	Bell Street to Glenwood Avenue	0.4
Howell Mill Road, N.E.	Collier Road to Marietta Street	2.1
International Blvd., N.E.	Northside Drive to Piedmont Avenue	1.2
James Jackson Parkway, N.W.	City Limits to Bankhead Highway	3.0
Jonesboro Road, S.E.	City Limits to McDonough Blvd.	5.4
Juniper Street, N.E.	14th Street to North Avenue	1.0
Lakewood Avenue, S.E.	166 to Jonesboro Road	1.1
Lavista Road, N.E.	Cheshire Bridge Road to City Limits	0.18
Lee Street, S.W.	City Limits to West Whitehall St.	2.4
Linbergh Drive, N.E.	Peachtree Road to Cheshire Bridge Road	2.1
Macon Drive, S.E.	Cleveland Avenue to Lakewood Avenue	1.35
Memorial Drive, S.W. & S.E.	Peachtree Street to City Limits	6.0
Marietta Blvd., N.W.	City Limits to West Marietta Street	3.3

Marietta Street, N.W.	Peachtree Street to West Marietta Street	2.5
MLK Jr. Drive, S.E. & N.W.	Hill Street to City Limits	8.7
Mitchell Street, S.W.	Martin Luther King Jr. Dr. to Capitol Avenue	0.9
Moreland Avenue, S.E. & N.E.	Ponce de Leon Avenue to City Limits	5.7
McDonough Blvd., S.E.	Moreland Avenue to University Avenue	2.5
North Avenue, N.W. & N.E.	Northside Drive to Bonaventure Avenue	2.5
Northside Drive, N.W.	Steward Avenue to Northside Parkway	7.1
Northside Parkway, N.W.	Northside Drive to City Limits	3.6
Old Gordon Road, S.W.	MLK Jr. Dr. to Fulton Industrial Blvd	0.38
Peachtree St. & Rd., N.W. & N.E.	Memorial Drive to City Limits	10.0
Peachtree Center Avenue, N.E.	Decatur Street to Edgewood Avenue	0.1
Peachtree Dunwoody Rd., N.E.	Roxboro Road to Meadowbrook Drive	1.9
Peters Street, S.W.	Trinity Street to West Whitehall Street	1.0
Piedmont Avenue, S.E. & N.E.	ML King Jr. Dr. to Cheshire Bridge Road	4.3
Piedmont Road, N.E.	Cheshire Bridge Road to Roswell Road	3.5
Ponce De Leon, N.E.	Peachtree Street to City Limits	3.2
Pryor Street, S.W.	Edgewood Avenue to University Avenue	2.3
Ridge Avenue, S.E.	Capitol Avenue to Pryor Street	0.4
Roswell Road, N.E. & N.W.	Peachtree Road to City Limits	2.7
Roxboro Road, N.E.	Peachtree Road to East Roxboro Road	0.9
Sawtell Avenue, S.E.	McDonough Blvd. to Jonesboro Road	0.7
South West Connector, S.W.	West Marietta Street to Bankhead Highway	1.0
Spring Street, S.W. & N.W.	Peachtree Street to Trinity Avenue	2.25
Stanton Road, S.W.	Campbellton Road to City Limits	0.4
Steward Avenue, S.W.	City Limits to Glenn Street	4.5
Techwood Drive, N.W.	West Peachtree Place to Walker Street	0.95
Trinity Avenue, S.W.	Spring Street to Memorial Drive	0.5
Walker Street, S.W.	Techwood Drive to Peters Street	0.4
Washington Street, S.W.	Martin Luther King Jr. Dr. to Memorial Drive	0.21
West Marietta Street, N.W.	Ashby Street to Marietta Blvd.	0.55
West Peachtree Street, N.W	Peachtree Street to Peachtree Street	2.2
West Whitehall Street, S.W.	Lee Street to Peters Street	1.52
Whitehall Street, S.W.	Memorial Drive to Murphy Avenue	0.8
Williams Street, N.E.	West Peachtree Place to International Blvd.	0.3
Total # of Arterial Streets = 75	**Total # of Miles**	**158.24**

Appendix B: State Routes

STATE ROUTE	FROM	TO
S. R. 3; U.S. 19/41 (Metropolitan Parkway)	A point 50 feet north of Mt. Zion Road (Hapeville city limits)	Northside Drive
S. R. 3 ; U.S. 19/29/41 (Northside Drive)	Metropolitan Parkway	A point 0.10 miles north of Northside Parkway
S. R. 3; U.S. 41 (Northside Parkway)	A point 0.10 miles north of Northside Drive	Cobb County Line
S. R. 8; U. S. 78/278 (Bankhead Highway)	Cobb County Line	Northside Drive
S. R. 8; U. S. 29/78/278 (North Avenue)	State Route 3/US 19/29/41 (Northside Drive)	Piedmont Avenue
S. R. 8 (Ponce De Leon Avenue)	Piedmont Avenue	Dekalb County Line
S. R. 9; U. S. 19 (14th Street)	Northside Drive	West Peachtree Street
S. R. 9; U. S. 19 (West Peachtree Street)	14th Street	Peachtree Street
S. R. 9; U. S. 19 (Peachtree St./Rd.	West Peachtree Street	Roswell Road
S. R. 9; U. S. 19 (Roswell Road)	Peachtree Road	A point 50 feet north of Meadowbrook Drive
S. R. 9; SOUTH (Spring Street)	Peachtree Street	14th Street
S. R. 10 (Freedom Pkwy.)	State Route 401/I-75	State Route 8/Ponce de Leon Avenue
S. R. 13 (Buford Highway)	Peachtree Road	Dekalb County Line
S. R. 14; U. S. 29 (Lee Street)	A point 0.05 miles north of Womack Avenue (East Point city limits)	Avon Avenue
S. R. 14; U. S. 29 (Lee Street/ West Whitehall Street)	Avon Avenue	Chapel Street
S. R. 14 (West Whitehall Street/Peters Street)	Chapel Street	Spring Street
S. R. 42; U. S. 23 (Moreland Avenue)	Dekalb County Line	A point 0.10 miles south of Custer Avenue
S. R. 42; U. S. 23 (Moreland Avenue)	A point 0.10 miles south of Custer Avenue	Ponce de Leon Avenue
S. R. 42; (Briarcliff Road)	Ponce de Leon Avenue	Dekalb County Line
S. R. 42 CONN. (Freedom Parkway Connector)	State Route 10	State Route 42
S. R. 42 SPUR (McDonough Boulevard)	Moreland Avenue	Jonesboro Road
S. R. 54 (Jonesboro Road)	Clayton County Line	Harper Road

S. R. 54 (Jonesboro Rd., McDonough Blvd., University Ave.)	Harper Road	State Route 401/I-75
S. R. 54 CONN. (Sawtell Avenue)	Jonesboro Road	McDonough Blvd.
S. R. 70 (Fulton Industrial Blvd.)	Aviation Circle	Bankhead Highway
S. R. 139 (Ralph David Abernathy Boulevard)	State Route 14/US 29/ W. Whitehall Street	Martin Luther King Jr. Drive
S. R. 139 (Martin Luther King Jr. Drive)	Ralph David Abernathy Drive	A point 0.10 mile west of Old Gordon Road
S. R. 141 (Peachtree Road)	State Route 9	Dekalb County Line

STATE ROUTE	FROM	TO
S. R. 3; U.S. 19/41 (Metropolitan Parkway)	A point 50 feet north of Mt. Zion Road (Hapeville city limits)	Northside Drive
S. R. 3 ; U.S. 19/29/41 (Northside Drive)	Metropolitan Parkway	A point 0.10 miles north of Northside Parkway
S. R. 3; U.S. 41 (Northside Parkway)	A point 0.10 miles north of Northside Drive	Cobb County Line
S. R. 8; U. S. 78/278 (Bankhead Highway)	Cobb County Line	Northside Drive
S. R. 8; U. S. 29/78/278 (North Avenue)	State Route 3/US 19/29/41 (Northside Drive)	Piedmont Avenue
S. R. 8 (Ponce De Leon Avenue)	Piedmont Avenue	Dekalb County Line
S. R. 9; U. S. 19 (14th Street)	Northside Drive	West Peachtree Street
S. R. 9; U. S. 19 (West Peachtree Street)	14th Street	Peachtree Street
S. R. 9; U. S. 19 (Peachtree St./Rd.	West Peachtree Street	Roswell Road
S. R. 9; U. S. 19 (Roswell Road)	Peachtree Road	A point 50 feet north of Meadowbrook Drive
S. R. 9; SOUTH (Spring Street)	Peachtree Street	14th Street
S. R. 10 (Freedom Pkwy.)	State Route 401/I-75	State Route 8/Ponce de Leon Avenue
S. R. 13 (Buford Highway)	Peachtree Road	Dekalb County Line
S. R. 14; U. S. 29 (Lee Street)	A point 0.05 miles north of Womack Avenue (East Point city limits)	Avon Avenue
S. R. 14; U. S. 29 (Lee Street/ West Whitehall Street)	Avon Avenue	Chapel Street
S. R. 14 (West Whitehall Street/Peters Street)	Chapel Street	Spring Street
S. R. 42; U. S. 23 (Moreland Avenue)	Dekalb County Line	A point 0.10 miles south of Custer Avenue
S. R. 42; U. S. 23 (Moreland Avenue)	A point 0.10 miles south of Custer Avenue	Ponce de Leon Avenue
S. R. 42; (Briarcliff Road)	Ponce de Leon Avenue	Dekalb County Line
S. R. 42 CONN. (Freedom Parkway Connector)	State Route 10	State Route 42
S. R. 42 SPUR (McDonough Boulevard)	Moreland Avenue	Jonesboro Road
S. R. 54 (Jonesboro Road)	Clayton County Line	Harper Road
S. R. 54 (Jonesboro Rd., McDonough Blvd., University Ave.)	Harper Road	State Route 401/I-75
S. R. 54 CONN. (Sawtell Avenue)	Jonesboro Road	McDonough Blvd.
S. R. 70 (Fulton Industrial Blvd.)	Aviation Circle	Bankhead Highway
S. R. 139 (Ralph David Abernathy Boulevard)	State Route 14/US 29/ W. Whitehall Street	Martin Luther King Jr. Drive
S. R. 139 (Martin Luther King Jr. Drive)	Ralph David Abernathy Drive	A point 0.10 mile west of Old Gordon Road
S. R. 141 (Peachtree Road)	State Route 9	Dekalb County Line

Appendix C:

Collector Streets

Alphabetical Listing

Note: Streets listed may also be classified as State or Federal Highways and may be identified by a highway number designation.

STREET NAME	SEGMENT	Miles
Alexander Street, N.E.	Marietta Street to West Peachtree Street	0.47
Arizona Avenue, N.E.	Rogers Street to Dekalb Avenue	0.1
Ashby St, S.W. & N.W.	White Street to West Marietta Street	3.5
Atlanta Avenue, S.E.	Capitol Avenue to Boulevard	1.1
Auburn Avenue, N.E.	Peachtree Street to Randolph Street	1.5
Auburn Avenue, N.E.	Randolph Street to Port Street	0.6
Avon Avenue, S.W.	Lee Street to Cascade Avenue	1.5
Austin Avenue, N.E.	Euclid Avenue to Elizabeth Street	0.3
Bakers Perry Road, S.W.	City Limits to M.L.K. Jr. Dr.	2.0
Baker Road, N.W.	Hightower Road to West North Avenue	0.9
Barge Road, S.W.	Stone Road to Fairburn Road	1.4
Barnett Street, N.E.	Ponce De Leon Avenue to Virginia Avenue	0.6
Beecher Street, S.W.	Donnelly Ave to Benjamin E Maya Drive	2.55
Benjamin E. Mays DR SW	Beecher Road to Fairburn Road	2.95
Berne Street, S.E.	Boulevard South East to Moreland Avenue	1.11
Beverly Road, N.E.	West Peachtree Street to Polo Drive	0.7
Bishop Street, N.E.	Howell Mill Road to Mecaslin Street	0.75
Blackland Road, N.E.	Roswell Road to Northside Drive	1.4
Bohler Road, N.W. ~	West Wesley Road to Defoors Perry Road	1.1
Bolton Road, N.W. - I	Barrett Road. To M.L.K. Dr. Drive	2.2
Bolton Road, N.W.	Coronet Way to Marietta Boulevard	0.3
Bouldercrest Drive, S.E.	Flat Shoals Road to Fayetteville Road	0.85
Boulder Park, S.W.	Fairburn Road to Mendell Drive	1.9
Boulevard, S.E.	North Avenue to Edgewood Avenue	1.1
Boulevard, S.E.	McDonough Blvd to Glenwood Avenue	1.95
Boulevard Drive, N.E.	Moreland Avenue to Candler Road	3.4
Brown Mills Rd, SW &SE	Crown Road to Jonesboro Road	4.2
Butler Street, N.E.	Houston St. to Martin Luther King Jr. Dr.	0.7
Butler Road, S.W.	Tell Road to Campbellton Road	1.3
Carroll Drive, N.W.	Chattahoochee Avenue to Marietta Road	0.6
Centra Villa Drive, S.W.	Cascade Avenue to Campbellton Road	1.0
Chappell Road, N.W.	Bankhead Hwy to M.L.King Jr. Dr.	1.2
Chattahoochee Ave, N.W.	Howell Mill Road to Marietta Boulevard	1.0
Cherokee Avenue, S.E.	Memorial Drive to Atlanta Avenue	1.1
Childress Drive, S.W.	Cascade Road to Campbellton Road	1.6
Claire Drive, S.W.	Lakewood Avenue to Pryor Road	0.85
Clifton Road, N.E.	Ponce De Leon Avenue to Dekalb Avenue	0.8
College Avenue, N.E.	Howard Street to City Limits	0.8
Collier Drive, N.W.	Old Gordon Road to Hightower Road	2.7
Collier Road, N.W.	Defoor Hills Road to Peachtree Street	2.4
Confederate Avenue, S.E.	Boulevard South East to Edie Avenue	0.75
Conley Road, S.E.	Jonesboro Road to City Limits	0.7

Constitution Road, S.E.	Jonesboro Road to Macon Highway	1.0
Continental Colony Pkwy S.W	Greenbriar Parkway to Hogan Road	0.6
County Line Road, S.W.	City Limits to City Limits	0.4
County Line Road, S.W.	Tell Road to City Limits	1.8
Custer Avenue, S.E.	Moreland Avenue to Boulevard	1.1
Defoor Avenue N.W.	Howell Mill Road to Collier Road	1.1
Defoor Ferry Road, N.W.	Collier Road to Coronet Way	1.9
Delmar Lane, N.W.	On Ramp to I-285 East Bound	0.9
Delow Drive, S.W.	Campbellton Road to Cascade Avenue	1.3
Derring Road, N.W.	Northside Drive to Peachtree Street	1.0
Dill Avenue, S.W.	Murphy Avenue to Stewart Avenue	0.9
Dodson Drive, S.W.	City Limits to Cascade Road	1.6
Donnelly Avenue, S.W. -	Lee Street to Cascade Avenue	1.2
East Andrews Drive, N.E.	Roswell Road to West Paces Ferry Road	0.4
East Confederate Ave, S.E.	Edie Avenue to Moreland Avenue	0.8
East Morningside Dr, N.E.	Piedmont Ave to East Rock Spring Rd	0.8
East Paces Ferry Rd, N.E.	Piedmont Road to Roxboro Road	1.15
East Rock Spring Rd, N.E.	Morningside Drive to City Limits	0.8
East Wesley Road, N.E.	Piedmont Road to Peachtree Road	1.3
Ellis Street, N.E.	Piedmont Avenue to Peachtree Street	0.3
Empire Boulevard, S.W.	Oak Drive to Brown Mills Road	0.85
Euclid Avenue, N.E.	Moreland Avenue to Austin Avenue	0.2
Fair Street, S.W.	Walker Street to Lawton Street	1.15
Fairburn Road, S.W.	City Limits to Bolton Road	3.35
Fairburn Road, S.W.	City limits to City Limits	4.1
Fayetteville Road, S.E.	Flat Shoals Road to Bouldercrest Drive	0.65
Flat Shoals Avenue, S.E.	Moreland Avenue to Bouldercrest Drive	1.1
Fiat Shoals Road, S.E.	Bouldercrest Drive to Fayetteville Road	0.85
Forrest Park Road, S.E.	Thomasville Drive to Conley Road	3.5
Forsyth Street, N.W.	Whitehall Street to Peachtree Street	0.9
Fort Street, N.E.	Irwin Street to Auburn Avenue	0.2
Fulton Street, S.E.	Capitol Avenue to Connally Street	0.35
Fulton Street, S.W. -	Humphries Street to Pryor Street	0.6
Garmon Road, N.W.	Mount Paran Road to City Limits	0.6
Georgia Avenue, S.E.	Capitol Avenue to Cherokee Avenue	0.75
Gilbert Road, S.E.	Brown Mills Road to City Limits	1.1
Glen Irish Drive, N.E.	Highland Ave to Ponce Dc Leon Avenue	0.8
Gordon Street, S.W.	Martin Luther King Jr. Dr to Cascade	1.1
Greenbrier Parkway, S.W.	Campbellton Road to Barge Road	1.4
Habersham Road, N.E.	Peachtree Battle Avenue to Roswell Road	2.8
Harbin Road, S.W.	Cascade Road to Campbellton Road	1.3
Hapeville Road, S.W.	Cleveland Avenue to Oak Drive	0.8
Harwell Road, N.W.	Bankhead Highway to Collier Drive -	1.3
Hemphill Avenue, N.W.	Northside Drive to 10th Street	0.40
Hill Street, S.E.	Milton Avenue to Glenwood Avenue	1.65
Hills Avenue, N.W.	Chattahoochee Ave to Defoor Hills Road	0.4
Hillside Drive, N.E.	Powers Ferry Road to Northside Drive	0.8
Highland Avenue, N.E.	Alaska Avenue to Piedmont Avenue	1.14
Hightower Road, N.W.	Bankhead Hwy to James Jackson Pkwy	1.1
Hogan Road, S.W.	City Limits to Continental Colony Pkwy	0.4
Hogan Road, S.W.	Fairburn Road to Stone Road	1.2

Hollywood Road, N.W.	Bolton Road to Bankhead Highways	3.0
Houston Street, N.E.	Butler Street to Peachtree Street	0.4
Howard Street, N.E.	College Avenue to Boulevard Drive	0.6
Huff Road, N.E.	Howell Mill Road to Marietta Boulevard	1.0
Hutchens Road, S.E.	Forrest Park Road to Jonesboro Road	1.1
Irwin Street, N.E.	Lake Avenue to Fort Street	1.0
Jackson Street, N.E.	Decatur Street to Highland Avenue,	0.7
James P Brawley Dr., S.W.	Greensferry Avenue to Bankhead Highway	1.75
Jefferson Street, N.W.	Ashby Street to South West Connector	0.45
Jett Road, N.E.	Powers Ferry Road to City Limits	0.6
Johnson Road, N.W.	Hollywood Road to Perry Boulevard	1.3
Johnson Road, N.E.	Lenox Road to Briar Cliff Road	0.8
Kimberly Road, S.W.	Campbellton Road to Melvin Drive	0.9
Kimberly Road, S.W.	City Limits to City Limits	0.59
Lake Avenue, N.E.	Elizabeth Street to Irwin Street	0.4
Lake Forrest Drive, NW.	Powers Ferry Road to City Limits	2.6
Lakewood Avenue, S.E.	Claire Drive to Milton Avenue	1.1
Lakewood Way, S.E.	Pryor Road to Lakewood Avenue	0.4
Langston Avenue, S.W.	Sylvan Road to Murphy Avenue	1.0
Lawton Street, S.W.	Fair Street to Donnelly Avenue	1.15
Lee Street, S.W.	White Street to West End Avenue	0.8
Lenox Road, N.E.	Cheshire Bridge Road to East Rock Spring	1.45
Lenox Road, N.E.	Peachtree Road to Buford Highway	1.8
Linkwood Road, N.W.	Collier Dr to Martin Luther King Jr. Drive	0.7
Luckie Street, N.W.	North Avenue to Forsyth Street	1.1
Lynhurst Drive, S.W.	Martin Luther King Jr. Dr to Cascade Road	2.2
McDaniel Street, S.W.	Northside Drive to University Avenue	1.7
McLendon Avenue, N.E.	Moreland Avenue to City Limits	1.8
McWilliam Road, S.E.	Brown Mills Road to Forrest Park Road	0.75
Macon Drive, S.W.	Mount Zion Road to Cleveland Avenue	0.6
Marietta Road, N.W.	Perry Boulevard to Bolton Road	2.7
Mason Turner Road, S.W.	Simpson Road to Chappell Road -	0.19
Maynard Terrace, S.E.	Glenwood Avenue to Memorial Drive	0.5
Mecaslin Street, N.E.	Bishop Street to Derring Road	0.2
Milton Avenue, S.E.	Capitol Avenue to Hill Street	0.7
Mitchell Street, S.W.	Martin Luther King Jr., Dr to Magnum St.	0.4
Moores Mill Road, N.W.	Bolton Road to West Paces Ferry Road	3.4
Montgomery Ferry Rd, N.E.	Polo Drive to Piedmont Ave	0.6
Monroe Drive, N.E.	Piedmont Cir to Ponce De Leon Ave	3.1
Mount Gilead Road, S.W.	Fairburn Road to Campbellton Road	1.2
Mount Paran Road, N.W.	City Limits to Paces Ferry Road	2.9
Mount Zion Rd, S.W. & S.E.	Stewart Avenue to Brown Mills Road	1.4
Murphy Avenue, S.W.	Glenn Street to Dill Avenue	1.55
Niskey Lake Road, S.W.	Campbellton Road to County Line Road	1.14
North Avenue, N.E.	Bonaventure Avenue to Oakdale Road	1.1
North Highland Ave, N.E.	East Rock Spring to Alaska Avenue	2.95
Northside Drive, N.W.	Northside Parkway to City Limits -	3.0
Northwest Drive, N.W.	Bolton Road to Hightower Road	1.45
Oakdale Road, N.E.	Dekalb Avenue to City Limits	1.35
Oakland Drive, S.W.	Richland to Campbellton Road	0.8
Old Ivy Road, N.E.	Piedmont Road to Wieuca Road	1.2
Old Hapeville Road, S.W.	Macon Drive to Cleveland Avenue	0.6

Ormond Street, S.E.	Cherokee Avenue to Capitol Avenue	0.75
Parkway Drive, N.E.	Highland Ave to Ponce De Leon Avenue	0.8
Parrott Avenue, N.W.	Bolton Road to Bolton Road	1.0
Peachtree Battle Ave, N.W.	Moores Mill Road to Peachtree Road	3.2
Peachtree Center Ave N.E.	Edgewood Avenue to Peachtree Street	0.6
Perkerson Road, S.W.	Stewart Avenue to Sylvan Road	1.3
Perry Boulevard, N.W.	Southwest Connector to Hollywood Road	2.9
Peyton Road, S.W.	Benjamin E Mays Drive to M.L.K. Jr. Drive	2.2
Pharr Road, N.E.	Peachtree Road to Piedmont Road	0.75
Piedmont Circle, N.E.	Piedmont Avenue to Monroe Drive	0.1
Polo Drive, N.E.	Beverly Road to Montgomery Ferry Road	0.2
Poole Creek Road, S.W.	Jonesboro Road to Brown Mills Road	1.6
Powers Ferry Road, N.W.	Roswell Road to City Limits	1.9
Pryor Road, S.W.	University Avenue to Lakewood Way	1.6
Ralph McGill Blvd, N.E.	North Avenue to Peachtree Street	2.2
Randolph Street, N.E.	Auburn Avenue to Highland Avenue	0.35
Ridgewood Road, N.W.	Paces Ferry Road to Moores Mill Road	2.5
Rogers Street, N.E.	Boulevard Drive to Arizona Avenue	0.5
Sandtown Road, S.W. -	Venetian Drive to Cascade Road	1.0
Simpson Road, N.W.	Collier Road to Marietta Street	4.2
S. River Industrial Blvd SE	Forrest Park Road to City Limits	0.6
Stone Hogan Connector SW	Stone Road to City Limits	0.4
Stone Road, S.W.	Fairburn Road to City Limits	1.8
Sydney Street, S.E.	Connelly Street to Cherokee Avenue	0.4
Sylvan Road, S.W.	Murphy Avenue to City Limits	1.9
Techwood Drive, N.W.	10th Street to 16th Street	0.6
University Avenue, S.W.	Stewart Avenue to Ridge Avenue	1.1
Veltre Circle, S.W.	Cascade Road to Benjamin E Mays Drive	0.7
Venetian Drive, S.W.	Cascade Avenue to Campbellton Road	2.0
Virginia Avenue, N.E.	North Highland Avenue to Monroe Drive	0.75
Waters Road, S.W.	Cleveland Avenue to Hapeville Road	0.4
Wells Street, S.W.	Glenn Street to Humphries Street	0.3
West Lake Avenue, N.W.	Bankhead Hwy to MLK Jr. Dr.	1.5
West North Avenue, N.W.	Baker Road to Chappell Road	1.35
West Peachtree Place, NW	Alexander Street. to Peachtree Street	0.38
West Wesley Road, N.W.	Peachtree Road to Ridgewood Road	3.9
West Wieuca Road, N.W.	Loridans Drive to Lake Forrest Drive	0.9
Westmont Road, S.W.	Venetian Drive to Beecher Street	1.3
Westview Drive, N.W.	Cordon Street to West End Avenue	1.7
Weyuian Avenue, S.W.	Capitol Avenue to Ridge Avenue	0.1
White Street, S.W.	Cordon Street to Ashby Street	0.95
Whitefoord Avenue, N.E.	Memorial Drive to Dekalb Avenue	1.0
Wieuca Road, N.E.	Peachtree Road to Loridans Drive	1.6
Willis Mill Road, S.W.	Cascade Road to Campbellton Road	1.3
Wyman Street, N.E.	Memorial Drive to Boulevard Drive	0.4
Zip Industrial, S.E.	Poole Creek Road to Brown Mills Road	0.7
10th Street, N.W.	Monroe Drive to Howell Mill Road	2.4
14th Street, N.W.	Howell Mill Road to Juniper Street	1.7

TOTAL # of Streets = 195 **Total # of Miles 246.67**

Appendix D:

Time of Day Restrictions for working in the right-of-way

Noted: Include working in inclement weather section

In an effort to minimize the negative effects of noise and traffic congestion caused by construction activities, Time of Day Limitations are imposed on construction activities in certain area of the City.

Unless specifically stipulated otherwise by a written permit from the City of Atlanta:

- No lane of any arterial street shall be blocked for any period between 7:00 AM and 9:00 AM or between 4:00 PM and 6:00 PM.

- No lane of any arterial street shall be blocked for any period exceeding 1 hour between 9:00 AM and 4:00 PM unless a uniformed police officer is employed on site to direct traffic.

- No lane of any street in a commercial or retail zone shall be blocked for any period exceeding 1 hour between 7:00 AM and 6:00 PM.

- No nighttime activities in residential areas, define language 10:00 PM to 7:00 AM excluding maintenance that does not exceed – define levels which requires a noise variance. *74.135 Section*

- No activities that create an unacceptable level of noise, dust, or disruption to normal activities of the population

Exceptions to Time of Day Restrictions

In the event of a legitimate emergency, time of day restrictions may be waived.

Emergency

In order to be recognized as an emergency for the waiver of time of day restrictions one or more of the following restrictions must exist:

- Immediate danger to life, health, or property.

- Immediate threat of environmental damage.

- Necessity to repair damage to essential facilities resulting from extreme weather events or traffic accidents.

- Loss of service to customers.

- Immediate response to the problem will result in significantly reduced inconvenience to the public in the long term.

- Delay of repair will result in further damage to facilities.

- Other extraordinary condition that can be documented as an emergency.

Within 24 hours of the occurrence of the emergency, or at the beginning of the next business day, the facility owner must notify the Department of Public Works of the location and nature of the emergency and submit the following as appropriate:

Permit has to be submit within 5 days

- Notice and explanation of any threat to public health or safety.
- Notice and explanation of any threat of environmental damage.
- An engineering plan meeting the Department of Public Works standards, illustrating the work done or remaining to be done.
- A schedule of activities.
- Payment of applicable fees

Additional requirements may apply, depending on the specific circumstances of the event.

Appendix E:

Public Notification Sign

- Signs to be Posted Prior to Construction and to Remain In Place during Construction
- Signs must be Visible and Legible to Vehicles and Pedestrians Traveling in either direction.
- Signs and Lettering should be sized appropriate to Location
- Signs must have a surface area of not less than 3 square feet.
- Lettering must be legible block letters not less than 2" high.

(Example)

Water Main Construction

Work Performed by *(Name of Contractor)*

Under Contract to (*Name of Owner)*

Begin Construction: (Date)

Project Duration (*# of Days)*

Address questions and complaints to

(*Owner's representative and telephone #)*

24-Hour Emergency Contact (*Telephone #)*

Vehicle Identification Signs (refer to GDOT 3.12

To be displayed in front or rear windshield on each vehicle used on a construction site.

Standard Size: 8 ½" X 11"

Vehicle Identification Signs must be consistent with the Type of Work in Progress

Working under Permit from
City of Atlanta

General Construction
In the Public Right-of-Way

(Name of Contractor)

Under Contract to (*Name of Owner)*

24-Hour Emergency Contact
(*Telephone #)*

Working under Permit from
City of Atlanta

Emergency Utility Repair
In the Public Right-of-Way

(Name of Contractor)

Under Contract to (*Name of Owner)*

24-Hour Emergency Contact
(*Telephone #)*

Working under Permit from
City of Atlanta

Scheduled Utility Maintenance
In the Public Right-of-Way

(Name of Contractor)

Under Contract to (*Name of Owner)*

24-Hour Emergency Contact
(*Telephone #)*

Appendix F:

Areas of Special Impact

Note: City of Atlanta Code of Ordinances - Section 138-126 (i.) In this Code Section, the term "Peachtree Corridor" is used in lieu of the term "Areas of Special Impact". Until this code section is updated, the terms will be interpreted as being interchangeable.

For the purpose of determining Telecommunication Franchise and Revocable License fees and permits, areas of Special Impact (Peachtree Corridor) shall include:

• Buckhead High Impact Area

• Downtown High Impact Area

• Peachtree/Piedmont/Lindberg High Impact Area

Peachtree/Piedmont/Lindberg High Impact Area

1. All of the City's public right-of-way of Peachtree Street and Peachtree Road between Interstate Hwy 85 and Pharr Road
2. All of the City's public right-of-way of Piedmont Road between 14th Street and Pharr Road
3. All of the City's public right-of-way of Lindberg Drive between Peachtree Road and Piedmont Ave

Buckhead High Impact Area

All of the City's public right-of-way within an area bounded as follows:

1. Beginning at the Point of Intersection of the southern right-of-way of Pharr Road and the western right-of-way of Peachtree Road, said point being the Point of Beginning,
2. Hence, running northerly along the western right-of-way of Peachtree Road to its intersection with West Paces Ferry Road and Roswell Road,
3. Hence, running northerly along the western right-of-way of Roswell Road to the intersection of Piedmont Road,
4. Hence, running southerly along the eastern right-of-way of Piedmont Road to the intersection of Buckhead Loop,
5. Hence, running easterly along the northern right-of-way of Buckhead Loop to the intersection of Phipps Boulevard,
6. Hence, running northeasterly along the northwestern right-of-way of Phipps Boulevard to the intersection of Wiecua Road,
7. Hence, running southerly along the eastern right-of-way of Wieuca Road to the intersection of Peachtree Street,

8. Hence, running easterly along the northern right-of-way of Peachtree Road to the intersection of Roxboro Road,
9. Hence, running along the eastern right-of-way of Roxboro Road to the Southern Railway crossing,
10. Hence, running westerly along the Southern Railway right-of-way to the crossing of Ga. Hwy 400,
11. Hence, along the western right-of-way of Ga. Hwy 400 to the intersection of Peachtree Road;
12. Hence, running southwesterly along the southern right-of-way of Peachtree Road to the intersection of Piedmont Road,
13. Hence, running southerly along the eastern right-of-way of Piedmont Road to the intersection of Pharr Road,
14. Hence, running westerly along the southern right-of-way of Pharr Road to the intersection of Peachtree Road, and the Point of Beginning.
15. All of the area thus described, lying within the Corporate Limits of the City of Atlanta, 17th District, Fulton County, Georgia.

Downtown High Impact Area

All of the City's public right-of-way within an area bounded as follows:

1. Beginning at the Intersection of the southern right-of-way of Martin Luther King Jr. Drive and the western right-of-way of Northside Drive, said point being the Point of Beginning,
2. Hence, running northerly along the western right-of-way of Northside Drive to the intersection of Interstate Hwy 75,
3. Hence, running easterly along the northern right-of-way of Interstate Hwy 75 and continuing easterly along the northern right-of-way of Interstate 85 to the intersection of Peachtree Street,
4. Hence, running easterly and southerly along the northern and eastern right-of-way of Peachtree Street to the intersection of 14th Street,
5. Hence, running easterly along the northern right-of-way of 14th Street to the intersection of Piedmont Avenue,
6. Hence, running southerly along the eastern right-of-way of Piedmont Avenue to the intersection of Interstate Hwy 75/85 (Downtown Connector),
7. Hence, running southerly along the eastern right-of-way of Hwy 75/85 (Downtown Connector) to the intersection of Memorial Drive,
8. Hence, running along the southern right-of-way of Memorial Drive to the intersection of Spring Street,
9. Hence, running northerly along the right-of-way of Spring Street to the intersection of Martin Luther King, Jr. Drive and the point of beginning.
10. All of the area thus described, lying within the Corporate Limits of the City of Atlanta, 17th District, Fulton County, Georgia.

Peachtree/Piedmont/Lindberg High Impact Area

1. All of the City's public right-of-way of Peachtree Street and Peachtree Road between the intersections of Interstate Hwy 85 on the south and Pharr Road on the north; and
2. All of the City's public right-of-way of Piedmont Road between 14th Street on the south and Pharr Road on the north; and
3. All of the City's public right-of-way of Lindberg Drive between Peachtree Road on the west and Piedmont Ave. on the east;
4. All of the area thus described, lying within the Corporate Limits of the City of Atlanta, 17th District, Fulton County, Georgia.

Appendix G: Requirements for street, sidewalk and lane closure permit

Procedures for Granting Full Street and Lane Closure Permits for Construction Purposes

• Applications are either faxed or brought in personally to the Office of Transportation.

• The applications are dated, stamped, and assigned to the Permit Engineer.

• The applications shall indicate the time (in days); the length (in feet); the number of lanes and purpose of the closure

• All permits are approved for operations during the off-peak hours of 9 a.m. to 4 p.m.

• Work done between the hours of 6 pm and 10 pm is approved by the Commissioner of Public Works. Work done between the hours of 10:01 p.m. and 9 a.m. is governed by Article IV. Noise Control – Section 74 of the City of Atlanta Code of Ordinances. Section 74 – 139 permits the condition for the temporary variance.

Full street closure permits require 96 hours notice prior to the commencement of the project. The following additional information is required prior to being approved:

- A copy of detour route with signage and traffic management plan as per the Manual of Uniform Traffic Control Devices (MUTCD)

- A copy of notification letter to residences and/or businesses informing them of the closure at least five (5) business days prior to the proposed closure.

- A signed and dated letter (by the applicant) listing residences and businesses that were notified about the closure.

- All residences and businesses affected by the closure must be notified.

The Office of Transportation shall attach a cover letter addressed to the applicant and copied to the Fire Chief; the Chief of Police; Grady memorial Hospital; MARTA; the Atlanta Board of Education. This correspondence should be dated and faxed at least 72 hours before commencement of the project.

- Lane closures shall require a minimum of 24 hours notice prior to the commencement of the project, and require traffic control plan per the MUTCD and Police Officers. The safety of the public must be maintained at all times. With the exception of single lane closure that are the result of routine maintenance and repair for a limited duration of time and scope.

- Lane closure permits are issued between the hours of 8:30 a.m. and 1 p.m. Mondays to Fridays.

Street, Sidewalk & Lane Closures for Franchise Utilities are issued in PWOPS

Appendix H:

Utility Permits Issuance Process

1. Request is received by the Traffic Engineering Section from the Utility Company (4 copies)

    a. Two copies are reviewed for compliance with city code. Are profiles and/or plans (horizontal as well as vertical locates) included, if required based upon method of construction. To be reviewed within 10 business days of receiving the permit.

    b. The lane or street closure requests can be reviewed and issued within 10 business days after step (a) above.

    c. A copy is given to the inspector assigned to that Utility Company, to do a preliminary review of the request. The inspector denotes any differences or possible concerns i.e. vaults in the sidewalk, brick pavers etc. not noted on plans. The inspector also determines if any other company is currently working at or in close proximity to the requested location. To be reviewed and return within 15 business days of step (a) above.

2. After traffic permits from Traffic Operations and preliminary reviews from inspectors in Street Operations are received, i.e. a maximum of 15 business days, the Street Operations Unit's database is checked for open permits at the requested location. Checks are also made by the inspector for any unresolved issues with the requestor, which will impact issuance of the requested permits. If no conflicts are found the permits must be issued, per section 138-65 of the city code, within 60 days.

    a. If there are problems, in sections 1 (a)-(c) make the requestor aware of them via email, U.S. Mail or by telephone within 20 business days from receipt of the permit.

    b. If there is open permit at the location, a second permit shall not be issued unless an exception is granted by the Department of Public Works. Wait until the existing permit is closed, by the inspector, before issuing another permit. If after 60 days the permit has not been completed, notify the requestor in writing (as to why the permit has not been issued) via email or by U. S. Mail.

    c. If there are no problems, stamp, date and sign (include cost, if applicable) two copies and deliver them to the permit clerk before 4:00 p.m. Timeframe for issuance by section 138-65 of the city code of ordinances, no longer than 60 days.

    d. The permit clerk calls the contact person listed on the permit, informing them the permit is being issued.

    e. The permit clerk provides the requestor with the Department of Public Works permit (1 copy) and also provides Public Works with the same permit (1 copy) with drawings. The packet is given to inspector monitoring the Utility Company until completion.

Street, Sidewalk & Lane Closures for Franchise Utilities are covered in PWOPS

CLEAN WATER ATLANTA

drinking water, stormwater, wastewater

City of Atlanta

COLLECTION SYSTEM CONTINGENCY AND EMERGENCY RESPONSE PLAN

Collection and Transmission System Remedial Action Program

September 16, 2002

Approved October 23, 2008

City of Atlanta
Department of Watershed Management

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1.0 INTRODUCTION

Pursuant to the First Amended Consent Decree, Section VIII Remedial Actions for the Collection and Transmission System, paragraph B.1 Collection System Contingency and Emergency Response Plan, the City of Atlanta "shall develop and implement a written Collection System Contingency and Emergency Response Plan (CSCERP) to adequately protect the health and welfare of persons in the event of any sewage overflows from the [City of Atlanta's] wastewater collection and transmission systems". The implementation of this plan will allow the City's compliance with Section VIII. The Plan is designed to correspond with the Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-.05. The user of this manual should be attentive to changes in the Georgia Rules.

2.0 PURPOSE OF THE EMERGENCY RESPONSE PLAN (ERP)

The purpose of the Collection System Contingency and Emergency Response Plan ("ERP") is to assure prompt and appropriate response to every report of a possible sewage spill received by Department of Watershed Management ("the Department") employees so that any adverse effects to public health, water quality or customer service because of a confirmed sewer overflow can be minimized. The ERP further includes provisions to ensure reports are made to the appropriate local, state and federal authorities. For the purposes of this ERP, "confirmed sewage spill" is also sometimes referred to as "sewer overflow", "SO", "overflow", or "pumping station overflow". The effective date of this plan (i.e., final approval by EPA/EPD) was May 14, 2000. Amendments are approved by EPA/EPD from time to time and incorporated into the plan. Accordingly, users should make sure they are using the most recently updated plan.

2.1 Objectives

The primary objectives of the ERP are (1) the protection of public health and the environment, (2) compliance with requirements governing the procedures for managing sewer overflows, and (3) minimization of the risk of enforcement actions against the City of Atlanta.

Additional objectives of the ERP are as follows:

- Protect wastewater treatment plant and collection system personnel;
- Protect the collection system, pumping stations, wastewater treatment facilities, and all appurtenances;
- Protect private and public property adjacent to the collection and treatment facilities;
- Achieve customer service goals.

The ERP shall not supersede other City of Atlanta (City) emergency operations plans or Standard Operating Procedures (SOPs) unless determined and directed otherwise by the appropriate authority.

2.2 Organization of Plan

The key elements of the ERP are addressed individually:

Section 3.0 Overflow Response Procedure
Section 4.0 Monitoring/Sampling of Surface Waters Affected by Major Sewer Spills
Section 5.0 Public Advisory Procedure
Section 6.0 Regulatory Agency Notification Procedure
Section 7.0 Media Notification Procedure
Section 8.0 Distribution and Maintenance of ERP
Section 9.0 Implementation Schedule

2.3 Definitions of Pertinent Terminology

Appendix A is a glossary of selected terms used in the ERP, and for definitions of other relevant terms not necessarily used in the ERP but provided for additional background.

2.4 Sewer Overflow and Pumping Station Overflow Investigation and Tracking

A database that electronically files and tracks the frequency and location of sewer overflows and pumping station overflows will be maintained in the Hansen System. The database will assist the Commissioner of the Department of Watershed Management or his/her designee in directing capital-type corrective measures and to prioritize maintenance activities where chronic problems have been historically encountered.

After an overflow event, an investigative approach will be taken to establish the following criteria:

- As per the First Amended Consent Decree Section VIII.B.1.a.viii, an investigative approach will be taken to determine the cause of a sewage overflow. Guidance provided in Maintenance Procedure 1.1, "Main Line Stoppage", Maintenance Procedure 1.2, "Service Lateral Stoppage", and Maintenance Procedure 2.2, "External Sewer Inspection", contained in the *Maintenance Management Plan*, is available to support the determination of cause(s) of the sewage overflow.
- As per Maintenance Procedure 1.9, "Right-of-Way and Easement Inspection", and Maintenance Procedure 3.7, "Manhole Inspection", from the *Maintenance Management Plan*, rights-of-way and manholes will be inspected to determine the extent of the problem.

These inspections will be conducted a minimum distance of one eighth (1/8) of a mile up sewer and down sewer from the site of the sewage overflow.

- Follow-up inspections will be performed at the site of a sewage overflow, bi-weekly for one month, in order to determine the effectiveness of the corrective actions. Data will be captured on the City's Department of Watershed Management, Bureau of Wastewater Treatment and Collection Work Return form/Work Order. If no additional evidence of overflows is found, these inspections will be terminated.
- After each sewage overflow, the Preventive Maintenance (PM) schedule for the affected sewer(s) for cleanings, inspections, etc., will be reconsidered in order to prevent similar future occurrences. The site of the sewage overflow will remain on an accelerated or more frequent PM schedule, if necessary, until it is reasonably determined that the site is no longer a risk for a future occurrence due to maintenance needs.
- Where similar conditions are known to exist elsewhere in the Wastewater Collection and Transmission System that may pose a considerable risk for an overflow, it will be brought to the attention of supervisors by Bureau of Wastewater Treatment and Collections staff and proactive actions will be taken to minimize the risk of future overflows from occurring. Until the work order and physical inspection databases are complete enough to allow electronic queries to help locate other sites in the Wastewater Collection and Transmission System where similar overflow events may occur, Bureau of Wastewater Treatment and Collections staff will be dependent on their individual knowledge of the work area.
- After the occurrence of a sewage overflow, notification of relevant parties will be conducted (if applicable) in order to prevent future similar occurrences. Examples of relevant parties would include employees and management of restaurants, manufacturers, construction sites, etc., if their actions contributed to an overflow. Notification would include information on City Ordinances applicable to the given parties and type of operation, what requirements must be met in order to comply with the given ordinance, and what measures should be taken by the personnel to eliminate future overflows.
- Rain data will be recorded in each sewer basin, overflow reports will be correlated with the rain data, the location of wet weather related sewage overflows will be determined, and initiation of inspections of sites of wet weather related overflows will occur under the Implementation Schedule presented in Section 9.0. The locations of all confirmed wet weather related sewage overflow locations in Sewer basins receiving rain events exceeding 0.25 inches over a twenty-four (24) period will be inspected. These inspections will occur for a period of at least four (4) months following the last reported overflow at that location.

Information in the Hansen System (example, Appendix B) should facilitate the periodic revision, as necessary, of the "Investigative Flowchart", included in Appendix B-1, to more accurately reflect actual sewer overflow experiences of the department and their respective resolutions. The flowchart can be used to support the investigative approaches described in this section.

3.0 OVERFLOW RESPONSE PROCEDURE

The Overflow Response Procedure presents a strategy for the Department to mobilize labor, materials, tools and equipment to correct or repair and mitigate any condition which may cause or contribute to: 1) an unpermitted discharge (i.e., discharge to surface waters); and, 2) other sewer overflows and pumping station overflows which are successfully contained and present no threat to jurisdictional waters of the United States (surface waters). The plan considers a wide range of potential system failures that could create a spill to surface waters and to structures and/or land surfaces.

3.1. Receipt of Information Regarding a Sewer Overflow or Pumping Station Overflow

A sewer overflow may be detected by Department employees or by others. The Department of Watershed Management Call Center answering telephone calls dialed to 404-954-6340, or other telephone numbers provided by the Department, is primarily responsible for receiving phone calls from customers requesting service and reporting possible sewage overflows from the wastewater collection system and transmission system (e.g., sewer pipes and pump stations) and for notifying the appropriate personnel in the Bureau of Wastewater Treatment and Collection Wastewater Collection Section and/or the Wastewater Collection System Pumping Station Section.

Generally, telephone calls from the public reporting possible sewage overflows and pumping station overflows are received by the Customer Call Center of the Department of Watershed Management. The telephone number is 404-954-6340. The Call Center takes calls 24 hours per day, every day of the year.

1) The Call Center shall obtain information offered by the caller and seek other relevant information regarding the overflow, including:

    a. Time and date the call was received.
    b. Specific location of possible sewer overflow.
    c. Time possible overflow was noticed by the caller.
    d. Caller's name and phone number.
    e. Observations of the caller (e.g., odor, duration, back or front of property).
    f. Whether overflow has reached water or is flowing towards a creek or river.
    g. Whether the overflow has reached or is flowing towards a park, playground, schoolyard or other public access location.
    h. Other relevant information that will enable the responding investigator and crews, if required, to quickly locate, assess and stop the overflow.

2) The Call Center enters the overflow information into the Hansen System using the Customer Complaint Module and notifies the Customer Response Team of the Bureau of Wastewater Treatment and Collections or Manager of the Collection/Pumping Station Section, as appropriate.

   Call Center calls are handled as follows in descending order of priority, based on the degree of public access to the overflow location:

   - Sewage in the Creek; Sewer Overflow or Pumping Station Overflow to Dry Land with immediate and direct public access, as defined in the Glossary (Appendix A) - This is the highest priority. The Call Center shall IMMEDIATELY DISPATCH this call to the Customer Response Team of the Bureau of Wastewater Treatment and Collections. If the Call Center is unable to contact the Customer Response Team for that area, he/she shall continue calling supervisors until a supervisor is reached, regardless of his/her area of responsibility.
   - Cave-in; Sewer Overflow or Pumping Station Overflow to Dry Land with no immediate and direct public access, as defined in the Glossary (Appendix A):
     Order of Priority for Cave-ins:
     1) Sewer pipes damaged/suspected damage
     2) No reported damage
   - Utilities damaged by all construction activity
   - Locating utilities: When receiving such calls, confirm whether or not the call is for emergency-related locating of utilities.
   - Residential/commercial building service requests.

3) The Call Center provides notification of possible sewage overflows to the appropriate Customer Response Team who if needed, contacts the appropriate Maintenance Crew. Confirmed sewage overflows are immediately reported to the Spill Compliance Inspector.

4) Sewage overflows detected by any personnel in the course of their normal duties shall be reported immediately to the Call Center by two-way radio or by telephoning 404-954-6340. The Call Center shall record the relevant overflow information and immediately notify the appropriate Customer Response Team or Pumping Station Section personnel.

5) A Customer Response Team or Pumping Station personnel shall confirm any reported possible sewer spill or pumping station overflow. Until confirmed, the reported possible spill or overflow should be referred to as a "possible" spill or overflow, not as a "sewage overflow" or "unpermitted discharge".

6) The Spill Compliance Inspector shall complete a Spillage to Creek Report form or Overflow to Dry Land form and the Sewer Maintenance and Construction Work Return Form/Work Order (See Figure 1a or Figure 1b respectively) within 24 hours of confirmation that the reported spill has reached a water of the United States or dry land, including structures. Applicable supervisory or management personnel will be responsible for reviewing these

completed forms. Table 1 summarizes the sewage overflow and pumping station overflow response tracking protocol.

7) Notification of pump station overflows are received by Pumping Station Section's personnel at the Bolton Road Pumping Station. The pumping station operator on duty shall immediately convey all information regarding failures and overflows to the appropriate Customer Response Team or Pumping Station Superintendent and initiate the investigation and correction. Alarms due to equipment failure or power outage are reported from some of the pumping stations to the closest WRC. These alarms are reported to the Pumping Station Section Supervisor and are investigated immediately.

8) Note: Assignment of Information Documentation Responsibilities

During each shift, the Spill Compliance Inspector and Pump Station Supervisors shall designate herself/himself or an Inspector as the individual responsible for collecting and recording all information required by the Hansen System. Should a Crew Chief recognize that neither individual is available to document a spill, the Crew Chief should report that fact to the Spill Compliance Manager. The Customer Response Team may ask the Crew Chief to collect the information until the Spill Compliance Inspector or designee arrives at the spill site.

Figure 1a - Spillage to Creek Form

Figure 1b - Spillage to Dryland Form

Figure 1c- Work Return Form

Figure 1d - Work Order Form

TABLE 1 - SEWER OVERFLOW AND PUMPING STATION OVERFLOW RESPONSE TRACKING PROTOCOL

Step	Event/Activity
1 Pg. 4	Report of possible sewer overflow or pumping station overflow received by Call Center by telephone or 2-way radio (404-954-6340)
2 Pg. 4	Call Center completes a Service Request form in Hansen documenting the caller-provided information.
3 Pg. 5	a. Possible Sewer Overflow: Call Center contacts appropriate Customer Response Team in the Bureau of Wastewater Treatment and Collections who investigates the reported sewer overflow. b. Possible Pumping Station Overflow: Call Center contacts the Collection System Pumping Station Section and notifies the operator on duty; operator informs his/her supervisor and investigates the reported overflow.
4 Pg. 5	a. Possible Sewer Overflow: Spill Compliance Inspector or designee reports back to his/her Spill Compliance Manager providing an assessment of the significance of the overflow (e.g., volume/flow rate of spill, contained vs. discharge to surface water) and confirms overflow to the Call Center. Initial telephonic notification of regulatory agencies (i.e., EPD) is made by the Spill Compliance Inspector or designee for all spills to creeks. When applicable (spill ≥ 10,000 gallons or water quality violation), II & SM is notified for the purposes of initiating a Sampling Plan. b. Possible Pumping Station Overflow: Pumping Station Operator reports back to the Superintendent of Pumping Stations the status of the overflow (i.e., confirmed or unconfirmed, contained vs. discharge to surface water). Initial telephonic notification of regulatory agencies (i.e., EPD) made by the Spill Compliance Inspector for all spills to creeks. When required (Major Spill), Industrial Inspection & Stream Monitoring (II & SM) is notified for the purposes of initiating a Sampling Plan.
5 Pg. 5	After containment, correction of overflow or cause of pumping station overflow and cleanup, Spill Compliance Inspector, Supervisor of Pumping Stations or City Designee completes Spillage to Creek or Spillage to Dry Land Report Form.
6 Pg. 28	Spill to Creek Report is faxed within 24 hours and filed with the EPA and GA EPD within five days of confirmation of the spill. Spill to Dryland Report is retained for compilation of Quarterly Report listing of all sewer overflows. Copies provided to each individual on the "cc" distribution list of the Spillage in Creek Report Form only.
7 Pg. 28	Dryland spills are required to be reported to EPD by fax/email within 24 hours. The 5-day written report to EPD is not required. Continue to provide copies of the Spillage to Dryland Report to the "cc" distribution list. Spillage to Dryland Report is to be filed with the spill package documentation and reported in the Quarterly Report.

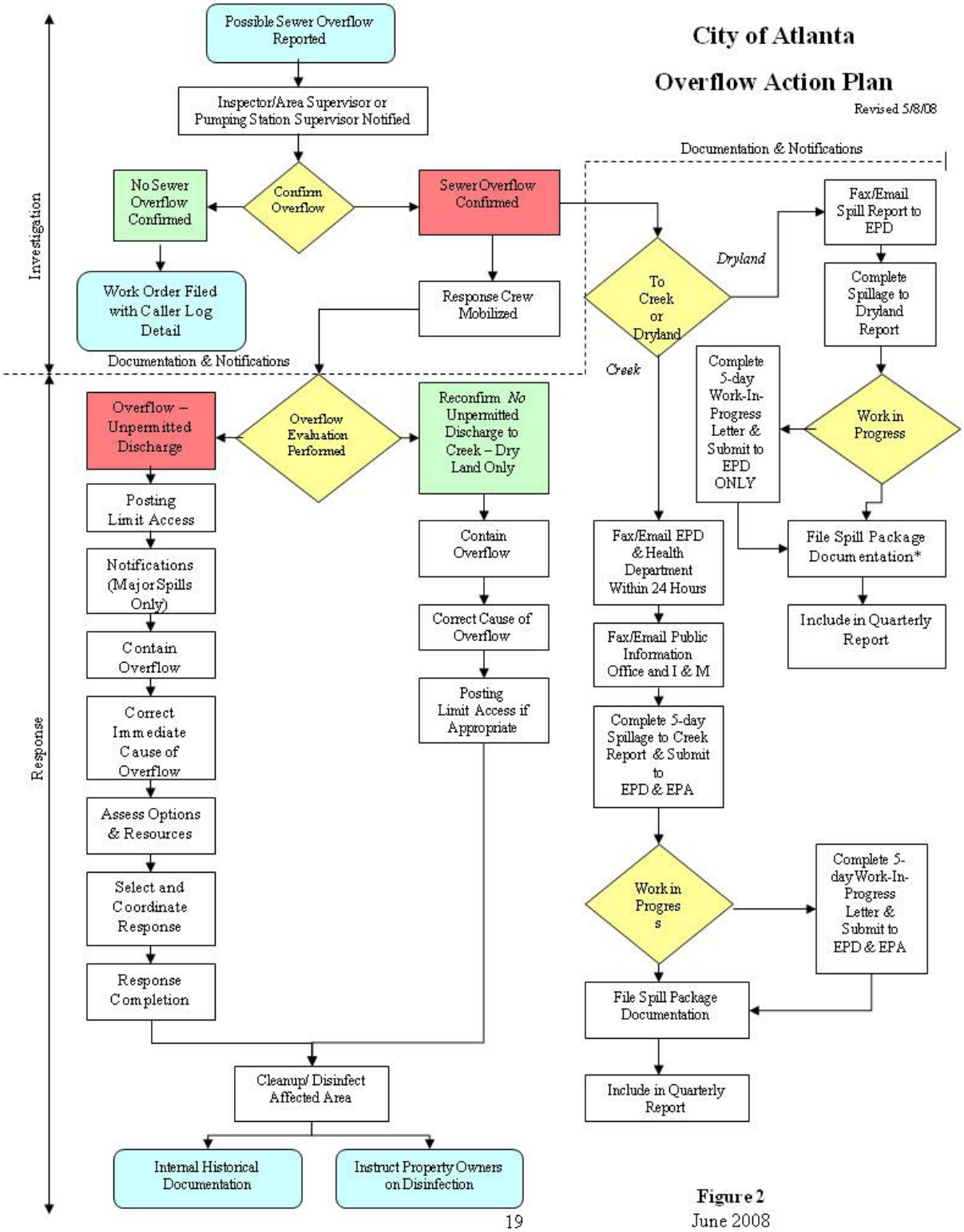

Figure 2
June 2008

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Notifications Regarding Pump Stations during Off-Shifts, Holidays and Weekends:

A skeleton crew of two operators is maintained during off-shifts, holidays and weekends. The operators spend the majority of their time in the field checking pumping stations. Contacting a Pump Station Operator by land telephone lines may be difficult. To avoid delays in communicating pump station problems to Pumping Stations Section personnel during off shifts, holidays and weekends the following call out procedures shall be followed:

Should an emergency situation arise at a pumping station and the immediate contact of a Pumping Station Operator is not successful, the WRC plant crew member handling the emergency call shall first confirm that the reported pumping station is the responsibility of the City of Atlanta. The list shown in Appendix I identify the 16 pumping stations comprising the City's pumping station system and land line telephone numbers for those stations having such service.

Also, the list shown in APPENDIX I include supervisory personnel that are on-duty or on-call 24 hours a day/7 days a week. Upon confirmation, using the listing of home telephone and beeper numbers of all Pumping Station Section supervisory personnel provided the WRC plant crew shall call these numbers, starting with the first one, until they reach an authorized Pumping Station employee no matter what time of day or night that an emergency may arise.

3.2 Dispatch of Appropriate Crews to Site of Sewer Overflow

The purpose of immediate response to a failure of any element within the wastewater collection and pumping station systems, which threatens to cause or causes a sewage overflow, is to isolate and correct the problem. Crews and equipment shall be made available to respond to any actual sewage overflow location. Also, additional maintenance personnel, materials and equipment shall be called in if extra resources are needed. Figure 2 summarizes the Sewer Overflow Action Plan.

1) Dispatching Crews

- Call Center shall receive notification of possible sewage spills as outlined in Section 3.1 "Receipt of Information Regarding a Sewer Overflow or Pumping Station Overflow" and dispatch the request for service to the appropriate Bureau of Wastewater Treatment and Collections Customer Response Team or designee or to a Pumping Station Operator at the Bolton Road Pumping Station.
- Upon confirmation by the Customer Response Team or designee of a reported sewage overflow, if necessary, the Customer Response Team or Pumping Station Operator shall directly call for support additional crews and resources as needed.

2) Crew Instruction and Work Orders

- Customer Response Team shall be dispatched by mobile radio or telephone, and shall take the necessary actions to correct the cause of the spill. If required, the Customer Response Team or the investigating Pumping Station Operator will contact additional

Sewer Collections crews regarding appropriate materials, supplies, and equipment to be deployed to resolve the problem.

- Call Center's Customer Service Representative or other personnel communicating with crews responding to a request for service shall ensure that the entire communication has been received and acknowledged by the responding crews. To avoid delay, all standard communications procedures shall be followed. All employees dispatched to the site of a sewage overflow shall proceed immediately to that site. Any delays or conflicts in assignments must be immediately reported to the appropriate Management Team or designee for resolution.
- Responding crews shall report their findings, including damage to private and public property, to their Management Team or designee as frequently as necessary to keep him/her abreast of the conditions found.
- Customer Response Team or designee shall assist, as necessary, at crew shift changes, in the transfer of all pertinent information to the next shift, including any details of the problems and observations described by customers.

3) Preliminary Assessment of Damage to Private Property

- The objective is resolution of the immediate cause of the overflow. The responding crew shall use discretion in providing assistance to a property owner/occupant who has sustained property damage. Be aware that the Department could face increased liability for any further damages caused to private property during such assistance. The responding crew should not enter private property for purposes of assessing damage unless directed otherwise by a Management Team or designee. Appropriate still photographs and video footage, if possible, should be taken of the impacted outdoor area of the sewer overflow in order to thoroughly document the nature and extent of damage. Copies of photographs, negatives or videotapes shall be maintained by the Spill Compliance Inspector for filing with a copy of the Spill to Creek Report or Spill to Dry Land Report, as appropriate.

4) Field Supervision and Inspection

- The Customer Response Team or designee assigned to a confirmed sewage overflow shall visit the site of the overflow to assure that provisions of this overflow response plan and other directives are met.

- The Spill Compliance Inspector or designee of the responding crew is responsible for completion of the Spill Report. If there is a need for a Work In Progress letter, the Spill Report is distributed to the Commissioner, Deputy Commissioner, Bureau of Wastewater Treatment and Collections Division Chief or Pumping Station Section Supervisor management staff and regulatory agencies, if appropriate. In the case of a pumping station overflow to a creek or dry land, the City designee shall be responsible for completing the Spill to Creek Report or the Spill to Dry Land Report, as appropriate, and informing the Commissioner, Deputy Commissioner, WRC management staff and regulatory agencies, as appropriate.

5) Coordination with Hazardous Material Response

- The investigating Pumping Station Operator or other responding crew shall contact his/her supervisor as soon as possible whenever a suspicious substance (e.g., oil sheen, foamy residue) is found on the ground surface, surface waters or ponded areas, or upon detection of a suspicious odor (e.g., gasoline) not common to the sewer system.

- Should the Customer Response Team decide it is necessary to alert the Atlanta Fire Department's hazardous material response team (HAZ-MAT) in consultation with the Bureau of Wastewater Treatment and Collections Division Chief and the Deputy Commissioner of the Department of Watershed Management, the responding crew shall await the arrival of the hazardous material response team to take over the scene. Remember that any vehicle engine, portable pump or open flame (e.g., cigarette lighter) can ignite an explosion or fire where flammable fluids or vapors are present. Keep a safe distance and observe caution until assistance arrives. The on-site staff shall also take measures to keep the general public away from the impacted area. Perimeter control of pedestrian and vehicular traffic shall be established using traffic barricades, barricade warning tape, or temporary barrier/safety fencing with signage, "Caution Do Not Enter" where appropriate.

- The Atlanta Fire Department's hazardous material response team shall be contacted by dialing 911.

- Upon arrival of the hazardous material response team, the responding crew shall take direction from the lead person with that team. Only when that authority determines it is safe and appropriate for the responding crew to proceed under the ERP with the sewer overflow containment, correction and clean-up activities, can they then proceed. Appendix C provides additional guidance.

3.3 Overflow Correction, Containment, and Cleanup

Spills may result from blocked sewers, pipe failures, power outages or mechanical malfunctions among other natural and manmade causes. The Bureau of Wastewater Treatment and Collections and Collection/Pump Station Section are on alert and shall respond immediately upon receipt of notification of a possible overflow.

This section describes specific actions to be performed by the responding crews during a sewer overflow or pumping station overflow.

The objectives of these actions are:

- To protect public health, environment and property from sewage spills and restore the surrounding area back to normal as soon as possible.
- To establish perimeters and control zones with appropriate traffic cones and barricades, vehicles or use of natural topography (e.g., hills).
- To promptly notify regulatory agency's Call Center of preliminary spill information and potential impacts.
- To contain the sewer overflow to the maximum extent possible including preventing the discharge of sewage into surface waters.

- To minimize the City of Atlanta's exposure to any regulatory agency penalties and fines.

Under most circumstances, the Department will handle response activities with its own work forces. The Bureau of Wastewater Treatment and Collections possesses the skills and experience to respond rapidly and in the most appropriate manner. An important issue with respect to an emergency response is to ensure that the temporary actions necessary to divert flows and repair the problem do not produce problems elsewhere in the system. For example, the repair of a force main requires the shutdown of the pump station and diversion of the flow at an upstream location. If the closure is not handled properly, a backup of sewage may create other spills.

Circumstances may arise when the Bureau of Wastewater Treatment and Collections requires the support of an outside construction contractor. This may occur when a deep and large diameter pipe requires an emergency repair in order to resolve the overflow and extensive shoring is necessary.

3.3.1 Responsibilities of Customer Response Team or Pumping Station Operator upon Arrival

It is the responsibility of the first Department personnel who arrive at the site of a sewage overflow or pumping station overflow to protect the health and safety of the public by mitigating the impact of the overflow to the highest extent possible. The City shall take responsible actions to protect public health and water quality where deficiencies in management, operation or maintenance, or inadequate main line capacity causes stoppages and backups into buildings, or overflows from private laterals. However, should the cause of the overflow not be the responsibility of the City, e.g., an overflowing private sanitary sewer, but there is imminent danger to public health, public or private property, or to the quality of waters of the United States, then prudent emergency action shall be taken until the responsible party assumes responsibility and provides appropriate action. Upon arrival at an overflow the Customer Response Team or responding Crew Chief shall do the following:

- Determine the cause of the overflow, e.g. sewer line blockage, sewer line break, pump station mechanical or electrical failure, or inadequate capacity, etc.
- Identify and request, if necessary, assistance or additional resources to correct the overflow or to assist in the determination of its cause.
- Determine if private property has been affected.
- Take immediate steps to contain, then stop the overflow, e.g. relieve pipeline blockage, manually operate pump station controls, repair pipe, etc. Extraordinary steps may be considered where overflows from private property threaten public health and safety (e.g., an overflow running off of private property into the public right-of-way). Extra care should be taken in securing the work site immediately adjacent to or around private property.
- Request additional personnel, materials, supplies or equipment that will expedite and minimize the impact of the overflow.
- Record information required by the Hansen System.

3.3.2 Response to Pump Station Failure

The Pumping Station Emergency Procedures SOP details the procedure to be followed by all pumping station personnel whenever a station is found not pumping, either due to a call or while the operator is on rounds. The same procedure is followed to repair a station to prevent a possible spill as well as to stop a spill.

The SOP contains the following steps:

- Switch to backup pump. If the backup will not operate:
- Check electrical power, replace fuses or reset breakers – if still no power:
  Call Georgia Power Critical Customer Number, 1-888-850-4551
- If power is available, but pump does not operate, check and clean floats, if necessary
- Operate pump by manual controls (Note: Caution shall be observed under manual operation so as not to cause an overflow or intensify an ongoing overflow.)
- Call for assistance, going down the call list in Appendix I.
- Contingency Plan – Outlined below
- The Bolton Road and Phillip Lee Pump Stations have two bar screens. Full flow to either facility will pass through one screen until the other can be returned to service.

2) For a pump or power failure, the following Contingency Plan provisions or resources are available:

Pump Station	**Pump Failure**	**Power Failure**
Phillip Lee	Use backup pump	On-site generator
Niskey Lake #2	Use backup pump Gas pump to manhole	Gas pump to manhole
Pump Station	**Pump Failure**	**Power Failure**
Niskey Lake #1	Use backup pump Gas pump to manhole	Gas pump to manhole
Cascade Road	Use back-up compressor or electrical submersible pump at adjacent upstream manhole.	Portable generator
Flint River-influent Flint River-effluent	Use backup pump Use backup pump Emergency storage	On-site generator On-site generator Emergency storage
S. River Industrial	Gas pump to manhole	Gas pump to manhole
Rebel Forest	Use backup pump	Portable generator
Woodward Way	Gas pump to manhole	Gas pump to manhole
Highlands	Use backup pump Gas pump to manhole	Gas pump to manhole
Hanover	Gas pump to manhole	Gas pump to manhole
Rivermeade	Use backup compressor	Portable generator
Paul Avenue	Use back-up compressor	Portable generator
Bolton Road	Use backup pump	On-site generator
Bell South	Use backup pump	Portable generator
Armand Road	Use backup pump	Portable generator
Northside Drive	Portable Pump	Portable generator

3) Initial Measures for Containment

First Responder(s) will initiate measures to contain the overflowing sewage and recover, where possible, sewage which has already spilled, minimizing the impact to public health and the environment.

- Determine the immediate destination of the overflow, e.g. storm drain, surface water, ground surfaces, structure, etc.
- Identify and request the necessary materials and equipment to contain or isolate the overflow, if not readily available.
- Take immediate steps to contain the overflow, e.g., block or bag storm drains, recover through vacuum truck, divert into downstream sanitary/combined sewer manhole, etc.

4) Additional Measures Under Potentially Prolonged Overflow Conditions

In the event of a prolonged sewer line blockage or collapse, or pumping station outage, a determination shall be made in a timely fashion to operate a portable pump-around operation to direct flows around the defective or damaged facility. Personnel shall be trained in proper portable pump capacity selection and the setup of temporary suction and discharge piping to assure safe and reliable emergency operation.

Other methods of bypassing shall be utilized when appropriate such as fluming and berming to contain flows while repairs are made.

- Appropriate measures shall be taken to determine the proper size and number of portable pumps required to effectively handle the sewage bypass pumping operation. Specific actions and resources are included in the Emergency Operations (PS-3.X) procedure in the Short Term Pump Station Operation Plan Standard Operating Procedures, current revision.
- Continuous or periodic monitoring of the bypass pumping operation shall be implemented as required.
- Any regulatory agency issues that arise as a result of a prolonged pumped bypass situation (e.g., need for redundancy of portable pumping) shall be addressed in conjunction with emergency repairs.

5) Cleanup

- Sewer overflow sites including contaminated soil, stream and riverbanks, and shorelines of other types of bodies of water, shall be thoroughly cleaned after an overflow. No readily identifiable residues (e.g., fecal matter, rags, papers, or plastics) shall remain.
- Where practical, the area shall be thoroughly flushed with the wash-down water being contained and properly disposed. Heavy flushing could make containment of washdown water impractical or not possible. Solids and other debris shall be flushed, swept, raked, picked-up and transported to proper disposal area.

- The overflow site shall be secured to prevent contact by the public until the site has been thoroughly cleaned. Posting, if required, shall be undertaken pursuant to Section 5.
- Where appropriate, the overflow site shall be disinfected and deodorized.
- Where sewage has resulted in ponding, the pond shall be pumped, if practical. Solids and other associated debris shall be flushed, raked, picked-up, and removed from the site and properly disposed. The contaminated soil shall be treated with lime broadcasted over the area at a rate equivalent to 100 pounds per 1,000 square feet.
- If a ponded area contains sewage, that cannot be pumped dry, it shall be treated with bleach or dry high-test hypochlorite (HTH). If sewage has entered a body of water that may contain fish or other aquatic life, bleach or other disinfectants shall not be applied. Appendix D contains additional guidance on the use of disinfectants.

6) Spillage to Creek or Spillage to Dry Land Report

A Spillage to Creek Report form or Spillage to Dry Land Report form and Work Return/Work Order form (Figures 1a, 1b, 1c and 1d respectively) shall be completed by the responsible Spill Compliance Inspector or designee and checked by the Bureau of Wastewater Treatment and Collections Division Director or designee. The EPD shall be notified, as specified in Section 6.0, within 24-hours of confirmation of a spill. The hard copy report for a spill to surface waters is forwarded to EPD and EPA when repair work on the sewer is completed but no later than five days of confirmation of a spill. If a dryland spill requires more than 24-hours to correct, a written status report shall be forwarded by certified mail to EPD every five days until correction of the spill is completed. For spills to creek that require more than 24 hours to correct, a written status report shall be forwarded by certified mail to EPA and EPD every five days until correction of the spill is completed.

Information recorded for Sewage Overflows should include the following:

- Indication of whether there was an actual observation of sewage overflow or pumping station overflow running into surface waters, or whether there was only an indication (e.g. sewage residue on the ground surface leading to the surface water) that sewage had possibly flowed to surface waters but was not actually observed.
- Indication that the sewage overflow had not reached surface waters. Guidance in characterizing these overflows as dryland only includes:

    a. Sewage spills to underground storm drains (with no public access) where a maintenance crew verifies, by inspection, that the entire volume is contained in an impoundment and where complete cleanup occurs, leaving no residue.
    b. Spills where observation or on-site evidence clearly indicates all sewage was retained on land and did not reach surface water and where complete cleanup occurs leaving no residue.
    c. Spills that enter or re-enter a combined sewer.

Pre-planned or emergency maintenance on a sewer or pumping station undertaken in conjunction with the use of a temporary earthen channel or trench shall only be effected provided public access is restricted and subsequent complete cleanup occurs. Note

however, such procedures will be treated as a dry land overflow including regulatory reporting.

- A determination of the start time of the sewer overflow using one of the following methods:

  a. Date and time report of an overflow was received by the Call Center Customer Service representative.
  b. Date and time of a visual observation by a Department of Watershed Management employee.
  c. Pumping station flow charts and other recorded data.

- A determination of the stop time of the sewer overflow using the following method:

  a. When the blockage is cleared or flow is controlled or contained
  b. Visual observations.

- An estimation of the rate of sewer overflow or pumping station overflow in gallons per minute (GPM) by direct observation of the overflow.

- A determination of the volume or rate of the sewer overflow or pumping station overflow:

  a. When the rate of sewer overflow or pumping station overflow is known multiply the duration by the rate of flow to determine the volume of the overflow.
  b. When the rate of overflow is not known, investigate the surrounding area for evidence of ponding, obtain dimensions of ponding and calculate volume in gallons. Total volume divided by the appropriate time interval will provide a flow rate.

- Photographs of the event when possible.

- An assessment of any damage to public and private property. Personnel shall not enter private property for purposes of estimating damage to structures, floor and wall coverings, and personal property.

See Appendix E for additional guidance on estimating sewage overflow volumes and flow rates.

7) Customer Satisfaction

The Spill Compliance Inspector or designee confirming the reported sewage overflow shall make follow-up contact with the customer(s) reporting the incident, summarizing the actions taken to resolve the overflow, to clean up the area, and to post and barricade the area if necessary.

4.0 MONITORING/SAMPLING OF SURFACE WATERS AFFECTED BY SEWER SPILLS

4.1 General Procedures

The City will provide an Area-Wide Monitoring Program as specified in Appendix K and sample and monitor surface waters affected by Major sewer spills in accordance with State Rules. Once a spill is confirmed, personnel from the Bureau of Wastewater Treatment and Collections will respond to the location of the spill. These personnel will take the following steps, immediately:

- Initiate efforts to contain, then stop spill and determine volume of spill (i.e. total gallons).
- Determine if spill goes to a stream or receiving water.
- Notify sampling team, if appropriate.
- Post signs for restricting public access.

Any Bureau of Wastewater Treatment and Collections employee(s) involved in or in observance of a supposed Major Spill (as defined below), shall initiate a sampling request by contacting the Bureau of Watershed Protection, Division of Industrial Inspection & Stream Monitoring (II & SM) for sampling. Sampling requests shall be initiated by the Bureau of Wastewater Treatment and Collection Deputy Commissioner (or his/her designee) or the Wastewater Collection System Supervisor (or his/her designee) during normal business hours (Monday to Friday, 7a.m. to 7p.m.). The II & SM switchboard number is (404) 350-4909. Alternative, emergency contact numbers are shown in Appendix I. During after hours, weekends or holidays, the inspectors identified should be contacted by starting with the first name on the list and working down, as necessary, until the needed contact is made. Home telephone and cell numbers should only be called during actual emergency situations - see Appendix I. If a contact is not available, leave a message telling each person your name and that you are proceeding in contacting II & SM and with whom you plan to speak.

The Collection/Pumping Station Superintendent or Pumping Station Supervisor is responsible to see that II & SM is contacted in the case of any spill from a pumping station, where sampling is required. During normal business hours, the spill and sampling request shall be made by contacting the II & SM switchboard at (404) 546-1374. After hours, the call shall be made to the II & SM employees listed in Appendix I-3, in the order listed, until someone is reached and responds.

Additional sampling information and protocols are contained in Appendix F.

4.2 Major Spills

Pursuant to the Rules of the Georgia Department of Natural Resources, Environmental Protection Division, Chapter 391-3-6-.05, Water Quality Control – Emergency Actions (Appendix G), any discharge of raw sewage that is in excess of 10,000 gallons or results in water quality violations in the waters of the State, is defined as a "major" spill and requires that a monitoring program of the waters affected by such a spill be initiated (Appendix G). That

program shall be carried out for one year. II & SM is responsible for conducting the monitoring and sampling program.

Step 1. Complete the Spillage to Creek Report

A Spillage to Creek Report shall be completed by the Spill Compliance Inspector or designee contact and then be delivered via fax to II & SM, which will determine if the spill requires sampling and monitoring. Be sure the estimated gallons of the spill are stated along with the receiving water body and the time of the spill.

Inspection and Monitoring Division Contacts; are as shown in Appendix I.

Step 2. Confirm Receipt of Spillage Reports

After faxing the Spillage to Creek Report to the contact person in II & SM, confirm receipt of the fax via radio, telephone call [(404) 546-1374 or emergency contact shown in Appendix I or pager. If the contact is unavailable, leave a message asking them to contact you to confirm receipt of the Spillage to Creek Report.

Step 3. Transmittal of Sampling Data Reports

Upon the completion of sampling and analysis by II & SM, sampling data for sampled events shall be sent via fax by the Monitoring Supervisor or the Division Chief to the Spill Compliance Inspector or designee. The Monitoring Supervisor shall confirm receipt of the data via telephone. If the contact is unavailable, the monitoring supervisor shall leave a message asking the contact to contact him/her to confirm receipt of the sampling data report. Stream monitoring reports for major spills shall be submitted to EPD by the 15th of the next month after completing the geometric mean calculations for fecal coliform bacteria.

5.0 PUBLIC ADVISORY PROCEDURE

This section describes the actions the Department shall take, in cooperation with the U.S. EPA, Georgia Environmental Protection Division and the Fulton and DeKalb County Health Departments, to protect the public and limit public access to areas potentially impacted by unpermitted discharges to surface water. Actions to limit public access to areas impacted by sewer overflows and pumping station overflows which do not reach surface water but affect ground surfaces, structures or other resources are also addressed. Public notices shall be submitted to EPD by the 15th of the next month following the date of publication.

5.1 POSTING AND SIGNAGE

The Bureau of Wastewater Treatment and Collection has primary responsibility for determining whether signage is necessary for areas affected by sewer overflows and pumping station overflows to ground surfaces, structures or surface waters. The main factor in determining when and where to post signs is the degree of public access to any effects of the overflow that may remain at the site. The posting of signage would not necessarily prohibit use

or access to the area unless posted otherwise, but provide a temporary warning of potential public health risks due to a recent sewage contamination. The Bureau may elect to use such signs, for example, where heavy flushing made it impractical to recover all of the wash-down water commingled with sewage. In cases when posting of signs is not sufficient or not feasible, door hangers may be used instead of, or in addition to, signs. The Spill Response Team or designee in consultation and cooperation with the Fulton or DeKalb County Health Department, as appropriate, shall make this decision.

In accordance with the Rules and Regulations for Water Quality Control (Chapter 391-3-6.05), a spill to State waters and/or a major spill will be immediately posted as close as possible to where the spill occurred **and** where the spill entered State waters (if applicable) for a minimum of seven (7) days after the spill has ceased with the following information provided:

1. Date of spill to State waters or major spill
2. Name of Receiving Waters
3. Location and cause of spill to State waters or major spill
4. Estimated volume discharged and name of receiving waters if applicable
5. Corrective action taken to mitigate or reduce the adverse effects of the spill or major spill

Where spills have entered State waters, signage must be posted along the portions of the waterway affected by the incident. This signage must remain in place for a minimum of seven (7) days.

Table 2 outlines the posting decision process for City personnel. The Fulton or DeKalb County Health Department shall be consulted with during the posting decision process.

5.2 OTHER PUBLIC NOTIFICATION

Should it be determined that the posting of signs indicating that surface waters, ground surfaces or structures have been subject to a sewer overflow are not sufficient, the Deputy Commissioner, Bureau of Wastewater Treatment and Collection shall determine the need for further public notification, in consultation with the Public Information Officer. This additional notification will be accomplished through the use of pre-scripted notices made available to the print or electronic news media for immediate publication or airing, or by other measures (e.g., front door hangers). See Appendix H for notice forms and signage.

Circumstances under which further public notification may be considered include:

- When permanent repairs to resolve an overflow condition will take in excess of 24-48 hours and the reduction in the usage of water in homes and businesses would assist in managing the operation of the locally affected sewer or pumping station;
- When permanent repairs to resolve an overflow condition will take in excess of 24-48 hours and the citizenry need to be advised of repair schedules and possible traffic detours in the vicinity of the repairs and/or sewer or pumping station pump-around operations;

- When permanent repairs to resolve an overflow condition which took in excess of 24-48 hours are completed and the City wishes to recap the episode such as the circumstance(s) contributing to the cause of the overflow, measures taken to repair and cleanup the affected area, time required to effect repairs, total gallonage of the overflow, and any continuing monitoring of surface waters, if applicable; and,
- When posting of waterways and ground surfaces affected by overflows cannot be effectively accomplished to adequately protect public health and safety (e.g., receiving water is bordered by private property).

Table 2 - SEWER OVERFLOW (SO) POSTING DECISION PROCESS

Step	Event/Action
1.	Responding Bureau of Wastewater Treatment and Collection Customer Response Team or Crew Supervisor, or Wastewater Treatment and Collections, Collection/Pumping Station Section Supervisor or operator confirms reported SO.
2.	Bureau of Wastewater Treatment and Collection or Wastewater Treatment and Collection, Collection/Pumping Station Supervisor makes decision on intent to either post or not to post, or intent to use other public notification measures (e.g. front door hangers), depending on the degree of the public's accessibility to the area impacted by the spill. As a minimum, posting of major spills and spills to State waters will include the provisions of Section 5.1.
3.	Spill Compliance Inspector or designee faxes a notice to the appropriate county health on posting decision.
4.	The Deputy Commissioner of Watershed Management, Bureau of Wastewater Treatment and Collection, the Director of Wastewater Collections and the Public Information Officer are advised of the final posting decision, by the Spill Compliance Inspector or designee.
5.	If a Spill Compliance Inspector or designee's decision not to post or use other public notification measures is subsequently reversed by the county health department, the Spill Response Team or designee will be responsible for posting or using other public notification measures.
6.	Bureau of Wastewater Treatment and Collections or Wastewater Treatment and Collection, Collection/Pumping Station Supervisor consults with county health department before any signage or other public notification measures are removed. Locations of spills to waters must be posted for a minimum of seven days.
7.	The Spill Response Team or designee will note in the "comments" portion of the Work Return Form the basis for deciding to post or not post the receiving waters (e.g., limited public accessibility or area impacted by spill, adequate washdown and recovery of washdown water affected). Work Return Form is maintained with the corresponding spill file.

6.0 REGULATORY AGENCY NOTIFICATION PLAN

Agency notifications shall be performed in parallel with other City/Department internal notifications. The procedures for providing notification to the media of a sewer overflow are presented in Section 7.0 - Media Notification Procedure. Internal notification and mobilization of personnel are detailed in Section 3.0 - Overflow Response Procedure.

Using data supplied from the confirmation of reported possible overflows and subsequent updates from response personnel, the Spill Compliance Inspector or Pump Station Supervisor shall prepare initial and updated Spillage to Creek and Spillage to Dry Land Report forms. The Spill Compliance Inspector or Pump Station Supervisor shall notify EPD and the appropriate county health department via fax/email within 24 hours of all spillage to, creeks and other waters (Unpermitted Discharges). Spillage to Dry Land forms are faxed within 24 hours to EPD only.

Written notification to the EPA and EPD by a "hard copy" version of the Spillage to Creek Report (not a fax) shall be made within five (5) days from the time the Department confirms an Unpermitted Discharge. The Bureau of Wastewater Treatment and Collections Director or designee or the Manager of the Collection/Pumping Station Section or designee also shall submit written status reports to EPD (for dryland and creek) and EPA (for creek only) every five days until the overflow is corrected for overflows that require more than 24 hours to correct. Certified mail shall be used to transmit all written reports. When more than one (1) report is included in a single envelope, a manifest listing all reports shall be included in the envelope and placed in the file for <u>each</u> such spill (see Figure 3a).

Submissions of written "hard copy" reports within 5 days to EPA/EPD are not required for Spills to Dryland including dwelling spills. A Spillage to Dryland Report must be completed and maintained for development of the overflow list that is submitted with the Quarterly Report and for use in managing maintenance and improvement to the sewer system.

Figure 3a - Spill Reporting Manifest List

7.0 MEDIA NOTIFICATION PROCEDURES

When an overflow to surface water (Unpermitted Discharge) has been confirmed, the following actions shall be taken if it is necessary to notify the media:

a. Spill Compliance Inspector or Pumping Station Operator who verifies an overflow shall contact the Commissioner of Watershed Management or his/her designee. The Deputy Commissioner or his/her designee shall contact the Public Information Officer (PIO) and provide him/her with pertinent information about the spill and direction for notification to the general public and media.
b. The Public Information Office contacts in Appendix I summarizes the PIO contact names and numbers. The PIO shall be the "first-line" of response to the media for any confirmed overflow.
c. After hours and weekend overflows are reported to the PIO at the number(s) listed for Public Information Office Contacts in Appendix I.
d. Calls received by the Call Center from the media at any time are referred to the Public Information Officer.
e. Only the Commissioner of Watershed Management or his/her designee is authorized to be interviewed by the media. All others are required to have written authorization from the Commissioner authorizing media interviews.

Major Spills

The Public Information Officer shall publish a notice within 7 days in the legal organ of the county where the spill occurred for all major spills defined as follows:

1. Any discharge of raw sewage that (1) is in excess of 10,000 gallons or (2) results in water quality violations in the waters of the State.
2. The discharge of pollutants into the waters of the State by a City that exceeds the weekly average permitted effluent limit for biochemical oxygen demand (5-day) or total suspended solids by 50 percent or greater for any one day.

The Notice at a minimum shall include the following:

1. Date of the major spill
2. Location and cause of the major spill
3. Estimated volume discharged and name of receiving waters
4. Corrective action taken to mitigate or reduce the adverse effects of the major spill

All Non-Major Spills

Where the City is responsible for a non- major spill to creek, a fax is sent to the Public Information Officer within 24 hours of becoming aware of the incident. The original document is filed. The report shall include at a minimum the following:

- Date of the spill.
- Location and cause of the spill.
- Estimated volume discharged and name of receiving water.

- Corrective action taken to mitigate or reduce the adverse effects of the spill.

8.0 DISTRIBUTION AND MAINTENANCE OF ERP

The ERP reflects the procedures established for responding to reports of possible sewer overflows and confirmed overflows from the wastewater collection system and pumping station system so as to:

- Minimize the adverse effects of sewer overflows on public health, water quality and beneficial uses of the receiving waters.
- Minimize the sewer overflow volume which enters surface waters.
- Updates of the ERP shall be made to reflect all changes in City and regulatory policies and procedures as may be required to achieve its objectives.

8.1 Submittal and Availability of ERP

Copies of the ERP and any amendments shall be distributed to the following offices, departments, bureaus, divisions, sections and functional positions:

- Office of the Mayor – Chief Operating Officer; Chief of Staff; Office of Marketing and Communications management staff; and,
- Department of Watershed Management – Commissioner; Deputy Commissioner; Public Information Officer; Bureau of Wastewater Treatment and Collection management and supervisory staff; Wastewater Treatment and Collection, Collection/Pumping Station Division, and Bureau of Management, Inspection and Monitoring Section management, supervisory and inspection staff.

All other Department of Wastewater Services, Bureau of Wastewater Treatment and Collections and Collection/Pumping Station Section staff who may become incidentally involved in responding to collection system and pumping station overflows shall be generally familiar with the contents of the ERP.

8.2 Review and Update of ERP

The ERP shall be reviewed and amended as appropriate. The Department shall:

- Conduct annual reviews of the ERP and update it with the issuance of a revised or new NPDES permit.
- Conduct annual training on the use of the ERP with appropriate personnel.
- Review and update, as needed, the various contact person lists included in the ERP.

8.3 Review of Procedures and Preparedness

Training for preparedness and responsiveness associated with sewer and pumping station overflows will be provided as required to the Bureau of Wastewater Services, Public Information Officer, management and supervisory staff, and Collection/Pumping Station Section and Bureau of Management, Division of Inspection & Monitoring management and supervisory staff. The ERP will be used as the training guide. The session will focus on;

- Defining the goals and purpose of the ERP;
- Review of Overflow Response Procedure;
- Monitoring/Sampling of Surface Waters;
- Public Advisory Procedure;
- Regulatory Notification Procedure;
- Media Notification Procedures; and,
- ERP updates and revisions.

Representation of the following agencies and other City offices will be invited to participate in the training session:

- Office of the Mayor – Chief Operating Officer, Chief of Staff, Office of Marketing and Communications;
- Department of Watershed Management – Commissioner, Deputy Commissioner, Citizen Participation Office;
- United States EPA
- GA EPD
- Fulton and Dekalb Health Departments

Management will conduct periodic workshops with supervisory and other key City staff to review established response activities, and suggestions for new or revised procedures shall be held.

9.0 IMPLEMENTATION SCHEDULE

Following is the implementation schedule for the Emergency Response Plan:

ERP SECTION	DESCRIPTION	IMPLEMENTATION DATE
2.4	**Training of other personnel to prevent future overflows**	Completed
5.1	**Posting and Signage**	
	Design Signs	Completed
	Print Signs	Completed
	Procure barrier materials	Completed
	Implement posting procedures	Completed
5.2	**Other Public Notification**	
	Implement public notification procedures	Completed
6.0	**Regulatory Agency Notification Plan**	Completed
7.0	**Media Notification Procedures**	Completed
8.2	**Review and Update of ERP**	
	Annual review of ERP	By each anniversary of the ERP's original EPA/EPD approval date, or other date as approved by EPA/EPD
	Annual training on use of ERP	Ongoing
8.3	**Review of Procedures and Preparedness**	
	Annual training in preparedness and responsiveness associated with sewer and P/S overflows	Ongoing
	Printed, weather-proof summary cards	Completed
	Periodic workshops to review response activities	Scheduled as required
Appendix B-1	**Sewer Overflow Management**	Completed

"Approval": The originally submitted Emergency Response Plan was approved by EPA/EPD on May 14, 2000.

Appendix B-2	**Investigative Approach**	
	Right-of-way and manhole inspections procedures	Ongoing
	Follow-up inspections following completion of corrective actions	Ongoing
	Determine locations of other sites where similar overflows could occur	
	- using work orders/staff knowledge	Ongoing
	- using GIS	Ongoing
	- using Hansen MMS w/GIS	Ongoing
	- using hydraulic model	Ongoing
	Training to prevent future similar occurrences	Ongoing
	Determine extent of wet weather related overflows:	
	- correlate overflow reports with rain data (1)	Ongoing
	- determine location of wet weather related overflows	Ongoing
	- initiate inspection of wet weather related overflow locations	Ongoing
Appendix E	**Sewer Spill Estimation**	Completed

(1) Conditional upon availability of adequate rain data to establish correlations.

City of Atlanta

Overflow Action Plan

Revised 5/8/08

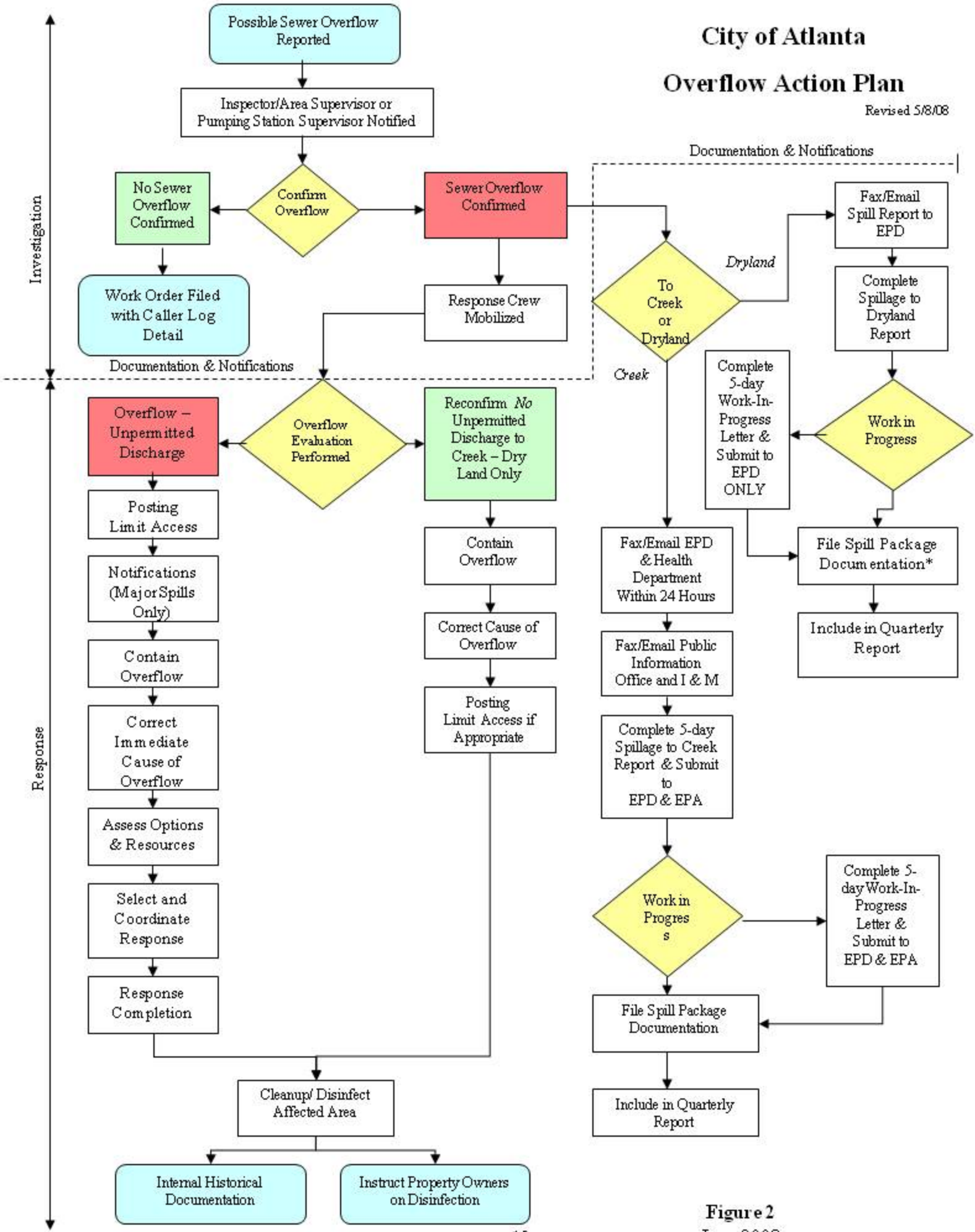


Figure 2
June 2008

Sewer Services Field Inspection Form

JOB INFORMATION			
Date:	**Service Request No./Work Order Number**		
Site Arrival Time:	**Address:**		
Site Depart Time:	**Contact Name:**		
Inspector:	**Contact Ph No.**		**Callback Requested? Yes No**
Quadrant:	**Upstream Manhole ID**	**Downstream Manhole ID**	

PROBLEM CODE (circle)	
WMHD -DAMAGED MANHOLE	**WSMD -DAMAGED SEWER MAIN**
WSTD - DAMAGED STORM SEWER	**WODO -ODOR PROBLEM**
WOILS -OIL SPILL	**WSPI - POSSIBLE SEWAGE SPILL**
WSMB -SEWER BACKUP	**WSTB -STORM SEWER BACKUP**
WPLT - LOOSE OR MISSING PLATE	**WCBB -DAMAGED CATCH BASIN**

Problem Resolved?	YES	NO

If Yes, Circle One

RESOLUTION CODE	
WATER –WATER DEPT PROBLEM	**WCCBI - CLEANED C/B OR INLET**
OP – OWNERS RESPONSBILITY	**GASCO – GAS COMPANY PROBLEM**
OUTCL – OUTSIDE CITY LIMITS	**RDOT – STATE DOT RESPONSIBILITY**
WCPL - WORK COMP - Detail below	**RSTOP – REFER TO STREET OPERATIONS**
CONTR – CONTRACTOR RESP.	**NOPRO – NO PROBLEM FOUND**

SPILL RESPONSE INFORMATION		
Spill Confirmed? YES NO	**Confirmed Time:**	**Contained Time:**
Creek Basin		
Rate of Flow (GPM):	**Volume of Flow (Total Gal):**	**Raining? YES NO**
Spill to Dry Land? YES NO	**Spill to Creek? YES NO**	**Vandalism? YES NO**
Responsible Party: (circle one) City Private Contractor		**Appt. Time**
Pictures Taken? YES NO		**Door Hanger? Y N Personally Informed Homeowner? Y N**
Work Order Required? YES NO		

COMMENTS

If Yes, Circle All Required Actions for Job Completion

ACTIVITY CODES	
CCINSP - CREEK CROSSING INSPECTION	LANDSC - LANDSCAPE RESTORE
WC003 - INSTALL SEWER SERVICE LINE	WC004 - INSTALL SEWER TAP
WC008 - CONSTR TUNNEL	WC009 - INSTALL GABION BANK PROTECTION
WC010 - REPAIR STORM MAIN LINE	WC011 - INSTALL CLEANOUT
WC012 - REPAIR MANHOLE	WC016 - INSTALL BACKFLOW PREVENTER
WC020 - REPLACE MANHOLE LID	WC021 - INSTALL RETAINING WALL
WC022 - REPAIR GABION WALL	WC023 - CLEAN CATCH BASIN
WC032 - REPAIR PIER AT CREEK CROSSING	WC035 - REPLACE MANHOLE
WCCI - INSPECT CREEK CROSSING	WCCTV3 - SEWER MAIN SMOKE TESTING
WCROW - CLEAN RIGHT OF WAY	WCTV04 - CCTV LINE
WCTV09 - LOCATE MANHOLE	WCTV10 - LOCATE SERVICE CONNECT OR LINE
WCTV11 - LOCATE STORM LINE	WCTV13 - INSPECT SERVICE LINE
WCTV17 - INSPECT STORM DRAIN	WCTV22 - LOCATE SERVICE LINE
WCTV23 - INSPECT SEWER MAIN LINE	WFLOW - VISUAL OBS. OF M/L FLOW AT M/H
WFTV30 - FORMB TV INSP., M/L (LATERAL)	WINSP2 - INSP. FOLLOWUP 14 DAY
WINSP3 - INSP. FOLLOWUP 28 DAY	WM002 - REPAIR CATCH BASIN
WM005 - INSPECT CATCH BASIN	WM007 - CLEAN MANHOLE
WM013 – CLEAN SEWER LINE	WM015 - CONTAIN, CLEAN, DISINFECT SPILL
WM016 - CLEAN CB CONNECT	WM020 - CONSTRUCT MANHOLE
WM021 - REPAIR SEWER MAIN	WM022 - REPAIR SERVICE LATERAL
WM024 - REPLACE SERVICE LATERAL	WM026 - INSPECT ROW OR EASEMENT
WM029 - CLEAN CREEK CROSSING	WM030 - CLEAN SERVICE LATERAL
WMHI - INSPECT MANHOLE	WPLT - PLATE SET & REMOVAL

Crew Type Needed: (circle)

Catch Basin	Combo	Excavate
Mason	Pipe – Large	Rodding
Asphalt/Concrete	Bank Restoration	Lateral
Landscape	Jet Rod	Recon
Pipe - Small	CSO	

Permits Needed: (circle)

Traffic	ROW	Utility Request	Others

Site Observations:

_____

_____

_____

_____

_____

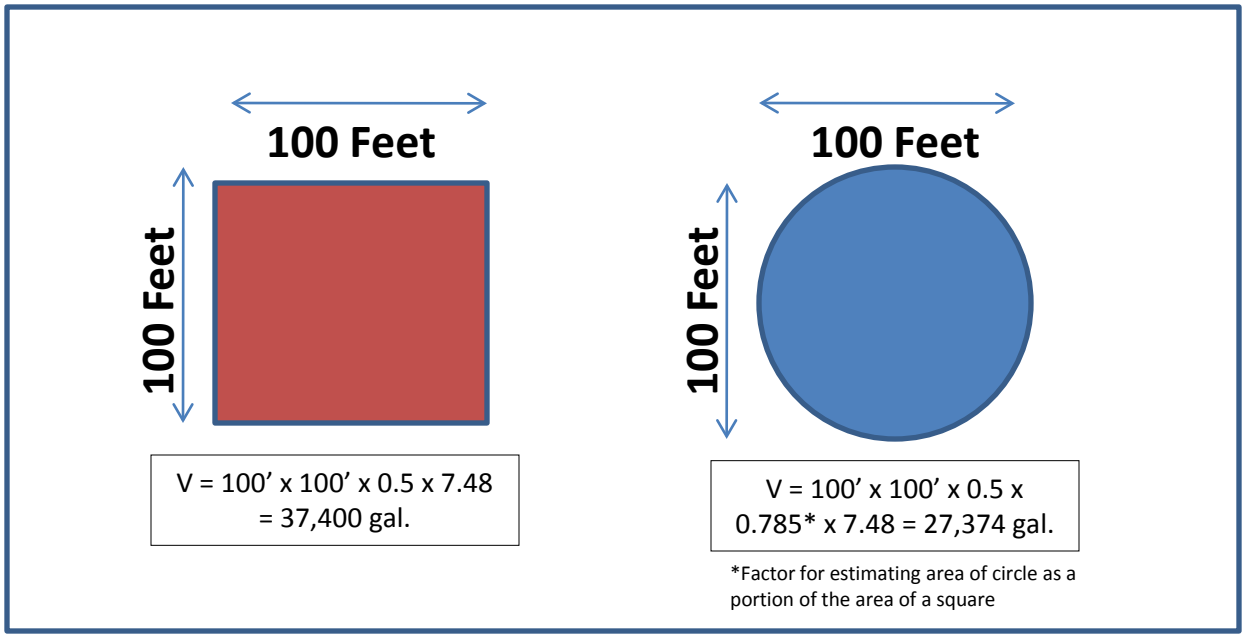
_____

_____

AREA SUPERVISOR ON DUTY _____

INSPECTOR _____

INSPECT DATE _____


100 Feet
100 Feet
V = 100’ x 100’ x 0.5 x 7.48
= 37,400 gal.
100 Feet
100 Feet
V = 100’ x 100’ x 0.5 x
0.785* x 7.48 = 27,374 gal.
*Factor for estimating area of circle as a
portion of the area of a square

Appendix A

GLOSSARY

Adverse Water Quality Impacts – Conditions which do not allow attainment of the designated use or uses of waters of the United States, which do not meet the conditions set forth I the Rules f Georgia Department of Natural Resources, Environmental Protection Division, Chapter 391-3-6m, Water Quality Control, Section 391-3-6.03, paragraphs (5) General Criteria for All Waters, and (6) Specific Criteria for Classified Water Usage, and/or do not protect the chemical, physical and biological integrity of the waters of the United States.

Best Management Practice – An approach which takes advantage of the best practical measures available to guard against a negative impact on the environment.

Chronic Overflows – Overflows that occur with a frequency as determined by the regulatory authority, at the same location; or, overflows that occur on a system-wide basis in a manner that suggests poor operation and maintenance.

Combined Sewer System – A wastewater collection system owned by a state, municipality or private owner, which is designed to convey sanitary wastewater and stormwater through a single-pipe system to a publicly-owned treatment facility.

Combined Sewer Overflow – A designed discharge from a combined sewer system at a point prior to the wastewater treatment facility.

Correction – Maintenance and repair activities restoring a sewer system so it can operate as designed.

Direct Access - Where the general public has direct physical access to an area impacted by a sewage overflow, via roads, highways, walkways, sidewalks or other improved paths located in public rights-of-way and easements.

Discharge – Any wastewater flow, treated or untreated, which reaches waters of the United States.

Immediate Access – Where the general public has instantaneous access to an area impacted by a sewage overflow, such as in school yards and public parks, without impedance by man made or natural barriers such as fencing or thick vegetation.

Inflow – Water other than wastewater that enters a sewer system from sources such as, but not limited to, roof leaders and gutters, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash water or drainage. Inflow does not include, and is distinguished from infiltration.

Infiltration – Water other than wastewater that enters a sewer from the ground through such means as defective pipes, pipe joints, connections or manholes. Infiltration does not include, and is distinguished from, inflow.

Municipality – A city, town, borough, county, parish, district, association or other public body created by or under State law and having jurisdiction over disposal of domestic wastewater, industrial waste or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the federal Clean Water Act. The term municipality may be interchangeably used with "public sector interest".

Notification – Process of informing system personnel, regulatory entities and the general public of a sewer overflow incident.

Posting of Signs – Process of advising the public of potential health risks associate with sewer overflow at a particular site by erecting signs.

Public Waters – Body of water (surface water) such as an ocean, bay, river, lake, stream or creek where there is the potential of contact y a member of the public.

Reporting – Formal process of informing regulatory entities of sewer overflows and response activities through written documentation.

Sanitary Sewer System – A wastewater collection system owned by a State, municipality or private owner which is designed to convey municipal and industrial wastewaters with allowances for groundwater infiltration and unavoidable stormwater that are not admitted intentionally.

Spill – An act or omission by which hazardous substances in harmful quantities are spilled, leaked, pumped, poured, emitted, entered or dumped onto or into the waters or land of the state; also substances that, without removal or control, may drain, seep, runoff, or in some way enter into or onto the waters or land of the state.

Storm Sewer – A pipeline designed to carry only stormwater, surface runoff, street wash waters and drainage.

Surface Waters – All "Waters of the United States" as defined in 40 CFR 122.2 such as navigable waters, rivers, streams (including ephemeral streams), lakes playa lakes, natural ponds, bays, oceans, lagoons, estuaries, manmade canals, ditches, dry arroyos, mudflats, sandflats, wet meadows, wetlands, swamps, marshes, sloughs and water courses. [Note: SSOs to storm drains tributary to "Waters of the United States" (surface waters) shall be reported as discharges to surface waters.]

System Operator – The private sector or public sector (municipality) interest having the responsibility and public trust to properly operate and maintain a sanitary sewer system. The operator may not be the legal owner or named permittee of the system.

Unpermitted Discharge – The discharge of pollutants from a point source into waters of the United States or the State which is not authorized by an NPDES permit.

Watershed – a defined area where surface waters drain to a water body or a portion of a water body (e.g., a river segment). Watershed boundaries are based on hydrologic considerations.

Appendix A

GLOSSARY

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Spill – An act or omission by which hazardous substances in harmful quantities are spilled, leaked, pumped, poured, emitted, entered or dumped onto or into the waters or land of the state; also substances that, without removal or control, may drain, seep, runoff, or in some way enter into or onto the waters or land of the state.

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Watershed – a defined area where surface waters drain to a water body or a portion of a water body (e.g., a river segment). Watershed boundaries are based on hydrologic considerations.

APPENDIX B

SAMPLE REPORTS AVAILABLE FROM THE HANSEN OVERFLOW MANAGEMENT SYSTEM

HANSEN®
People. Government. Solutions.

Hansen is used by the world's leading water and waste management contractors and municipal agencies.

Hansen is an industry-accepted management tool used for controlling the serviceability of potable water, effluent and stormwater assets. With a complete work order management, customer service, field inspection, inventory control, utility billing, activity-based costing, asset valuation and permit processing capability.

The wastewater component facilitates managing a complete network of sanitary, combined and force main sewers, including mainlines, manholes and services.

APPENDIX B

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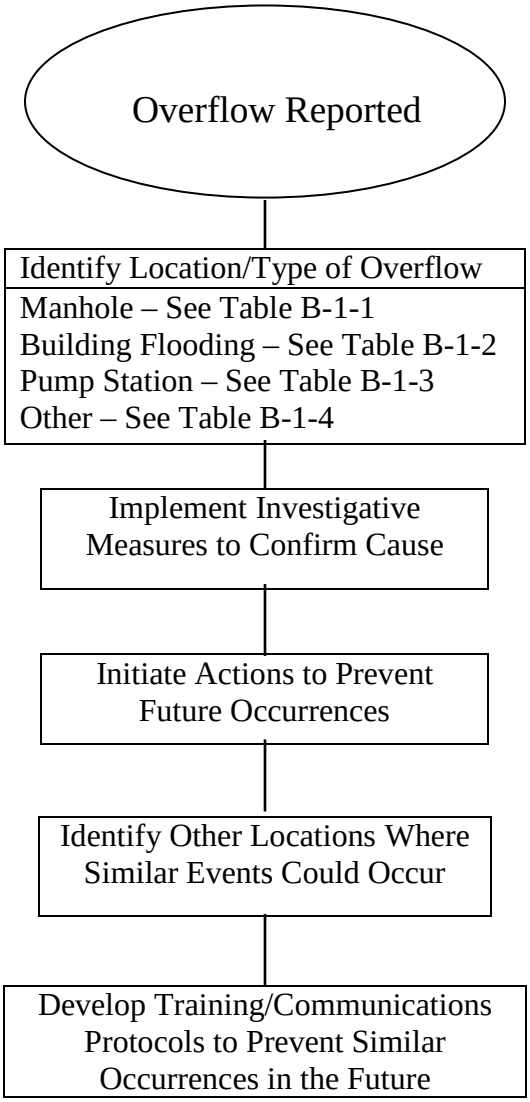
APPENDIX B-1

DIAGNOSTIC TOOLS

Investigative Process to Determine SSO Causes, Corrective Actions and Preventive Measures.



Investigative Chart to Determine SSO Causes, Corrective Actions and Preventive Measures
Table B-1-1
Location/Type of Overflow: **MANHOLE**

Cause	Diagnostic Tools	Actions to Prevent Future Occurrences
Hydraulic Capacity Limit (Dry Weather)	Hydraulic Modeling Engineering Evaluation Support Temporary Flow Monitoring	Clean more frequently until line is relieved; Temporarily escalate wastewater minimization practices through public education/notification practices; Report to engineering.
Rain-dependent Infil. (Pipe Defects)	Engineering Evaluation Support CCTV Inspection Smoke Testing Dyed Water Flood Testing	Clean more frequently prior to capital I/I rehabilitation; Report to Engineering
Inflow (X-connect, Manhole Cover)	Smoke Testing Dyed Water Flood Testing with CCTV Temporary Flow Monitoring Manhole Inspection Inspect Right-of-way/easement	Remove x-connect; Install manhole inflow protectors
Groundwater Infiltration	Smoke Testing Night Time Flow Isolation testing Piezometric Data	Clean more frequently prior to capital I/I rehabilitation
Debris Deposition	CCTV Inspection Manhole Inspection Line Lamping	Clean line; Monitor need for increased cleaning frequency
Partial/total Line Collapse	CCTV Inspection Line Lamping Ground-penetrating Radar	Make point repair

See Notes A and B

Investigative Chart to Determine SSO Causes, Corrective Actions and Preventive Measures
Table B-1-1
Location/Type of Overflow: **MANHOLE** (Cont.)

Cause	Diagnostic Tools	Actions to Prevent Future Occurrences
Sag	CCTV Inspection Line Lamping	Make point repair
Flat/reverse Grade	Line Lamping Ground Survey	Clean more frequently until capital improvement made
Severely Offset Joints	CCTV Inspection Line Lamping	Make point repair
Grease	CCTV Inspection Manhole Inspection	Thoroughly clean the line; Escalate source control efforts
Roots	CCTV Inspection Line Lamping Manhole Inspection	Mechanically or chemically remove roots; Exercise source control
Protruding Tap (Collector Sewer)	CCTV Inspection	Remove protruding tap
Vandalism	CCTV Inspection Manhole Inspection Line Lamping	Bolt down manhole cover to keep foreign material out; Coordinate with police for increased patrolling of area
Adjacent Construction Activities	CCTV Inspection Temporary Flow Monitoring Line Lamping Construction Observation/inspection Insect Right-of-way/easement	Increase city monitoring of 3rd party construction activities; Monitor flows
Downstream Pump Station Failure	Check Pump Station Status	See PUMP STATION/TRANSMISSION SYSTEM

See Notes A and B.

Investigative Chart to Determine SSO Causes, Corrective Actions and Preventive Measures
Table B-1-2
Location/Type of Overflow: BUILDING FLOODING

Cause	Diagnostic Tools	Actions to Prevent Future Occurrences
Collapse, Sag	CCTV Inspection	Engage services of a plumber
Grease, Debris and Roots	CCTY Inspection	Engage services of a plumber of line cleaning service; consider replacement of service if a chronic problem; install additional clean-out(s) as necessary
Infiltration/inflow	CCTV Inspection Smoke Testing Dyed Water Flood testing Ground-penetrating Radar	Remove inflow sources, e.g., sump drains, roof leaders
Defective Service Connection at collector Sewer	CCTV Inspection	Proper reconnection by City
Collector Sewer Backup Into Service Lateral	See MANHOLE	(See MANHOLE, (City responsibility)

See Notes B and C.

Investigative Chart to Determine SSO Causes, Corrective Actions and Preventive Measures
Table B-1-3
Location/Type of Overflow: **P.S./TRANS. SYSTEM**

Cause	Diagnostic Tools	Actions to Prevent Future Occurrences
Primary power failure	Engineering evaluation support Contact Georgia Power	Arrange "2nd source" power from Georgia Power
Standby power failure	Engineering evaluation support Check pump station status	Make repair; periodic load bank testing; exercise equipment weekly; increase preventive maintenance (PM)
Pump/drive failure	Engineering evaluation support Check pump station status	Make repair; increase preventive maintenance; keep portable pumping available nearby; consider unit replacement or rehab
Force main failure	Engineering evaluation support Inspect right-of-way/easement	Make point repair; inspect interior main walls upstream & downstream of repair; consider replacement of line; assess need for corrosion control
Eqpt. controls/switch gear failure		Make repair; increase preventive maintenance
Hydraulic capacity limit	Engineering evaluation support Temporary flow monitoring	Perform pump test; check test curves against design criteria and actual flows; temporarily escalate wastewater minimization practices in tributary area in interim until capital improvements are made; supply potable pump to augment capacity
Vandalism	Check pump station status	Coordinate with police for increased patrolling of area; make less accessible with fencing; fortify vault and door security; alarm and enhance outdoor lighting

See Notes D and E.

Investigative Chart to Determine SSO Causes, Corrective Actions and Preventive Measures

Table B-1-4

Location/Type of Overflow: **SUSPENDED & BURIED PIPELINES, SIPHONS, AIR/VAC RELEASES; VAULTS AND OTHER APPURTENANCES**

Cause	Diagnostic Tools	Actions to Prevent Future Occurrences
Pipeline Collapse & Severe Exfiltration	CCTV Inspection Smoke Testing Dyed Water Flood Testing Manhole Inspection Line Lamping Ground-penetrating Radar Inspect Right-of-way/Easement	Confirm point repair is tied to sound existing pipe material
Washout at Subaqueous Creek/river Crossing	Manhole Inspection Inspect Right-of-way/easement	Protect repaired line with rip rap, gabions, etc.; Stabilize any further bank/invert "down cutting" (erosion) by surface water
Adjacent Construction Activities	Construction Observation/inspection Inspect Right-of-way/easement	Increase city monitoring of 3rd party construction activities
Vandalism	Inspect Right-of-way/easement	Coordinate with police for increased patrolling of area; Make less accessible with fencing & other measures
Air/vac Release "Blowoff"	Inspect Right-of-way/easement	Direct the blowoff to nearest downstream sewer; increase air/vac valve maint.

See Notes F and G.

Investigative Process to Determine SSO Causes, Corrective Actions and Preventive Measures

Notes for Table B-1

Notes:

Note A: Utilize the Work Order Tracking Tool and GIS to produce density graphs of locations of multiple sanitary sewer overflows. This tool can sort by cause or by number and will produce an indication of sites of increased risk of overflow.

Note B: Watershed Management staff shall be adequately trained in methods to rapidly restore service in order to avoid the overflow or minimize its duration. Staff shall also be trained to thoroughly investigate conditions downstream of an obvious stoppage (e.g., grease) to assess how those conditions may have contributed. Such contributing factors shall be discussed with a supervisor and appropriate action taken to correct them in order to avoid or minimize the incidence of future overflows.

Note C: With regard to collector sewer backups into service laterals, until the work order and physical inspection *forms in Hansen* are complete enough to allow convenient electronic queries to help screen for sites of increased overflow risk, Sewer Services staff will be dependent on the individual knowledge of their work area. Where conditions favorable to contributing to service lateral backups are known to exist, they shall be brought to the attention of their supervisors and a proactive course of action developed to avoid or minimize the incidence of future overflows.

Note D: Each of the 16 pumping stations should be visited regularly by Bureau of Wastewater Treatment & Collection, Collection/Pumping Station personnel as specified by their supervisors to assure that the facility is in proper working order and that any developing problems are identified timely.

"Lead" and "lag" position pumps should be switched periodically to allow even wear of pumps and drives; valve operators should be exercised; and check valves checked for proper operation. Periodically, loss of primary power should be simulated so automatic engagement of the standby power source, if applicable, can be observed. Identification of unusual pump noises, vibration, leaking seals, instrumentation and control problems, or other faulty conditions shall be reported immediately to the supervisor.

Note E: Collection/Pumping Station Section operators shall be properly trained in the operations of the various types of pumping equipment. They shall be trained to identify potentially problematic conditions and troubleshoot common problems. They shall be instructed in performing routine preventive maintenance such as topping lubricating fluids, checking belt tensioning, and tightening mounting and fastening hardware to manufacturers' recommendations.

The operators shall be instructed to take precautions when testing equipment so as not to cause overflows in the inlet sewer to the pump station as the result of voluntary interruption of service. Similar precautions are necessary when planned maintenance activities will require pump shutdown.

Other procedures described by manufactures' O & M manuals should be followed.

Note F: Bureau of Wastewater Treatment & Collection staff shall periodically inspect all suspended pipe and subaqueous pipe crossings to identify any threats to the integrity of those lines. During and after intense rainfall, the subaqueous crossings and those lines installed longitudinally in earthen creek and river banks should be inspected for possible erosion and undermining in the pipe zone.

Note G: Bureau of Wastewater Treatment & Collection staff shall be adequately trained in methods to rapidly restore service in order to avoid or minimize duration of an overflow. Identification of bank and invert erosion around pipes in or near watercourses shall be immediately reported to a supervisor.

APPENDIX C

HAZMAT GUIDANCE

Appendix C

Coordination of Bureau of Wastewater Treatment & Collection and Pumping Station Personnel Responding to Sewer Overflows with Hazardous Materials Implications

It is conceivable that in the investigation of a reported sewer overflow, Watershed Management personnel responding to the overflow may encounter hazardous materials. For example, a collapsed sewer line could cause fluids, like gasoline, to be released to the soil from defective fuel storage tanks from an adjacent service station, to commingle with the non-contained overflowing sewage. Special handling of this situation would be required in contrast to a common sewer overflow. Cleaning up a potentially explosive overflow without proper fire/explosion suppression procedures could be catastrophic.

Under such circumstances the following steps shall be taken:

1. Upon arrival at the site of an alleged sewer overflow, the Inspector/Area Supervisor or responding crew should immediately assess the area for unusual odors, liquids or solids not common to a sanitary sewer; in and around the immediate area of overflow impact as he/she goes about his/her overflow investigation.
2. Should unusual odors or substances be observed, he/she should immediately contact his/her supervisor. The Department's Safety Officer shall be contacted by the Inspector/Area Supervisor. He/she should also be in contact with the individual who dispatched him/her to the site to confirm whether or not the individual who originally reported the possible sewer overflow indicated any unusual odors or other observations.
3. The Section Supervisor or Safety Officer immediately responds and visits the overflow area.
4. After his/her investigation, he/she decides on whether or not to call in the Atlanta Fire Department's Hazardous Materials Response Team ("Haz Mat").
5. If the decision is to call in Haz Mat, the Watershed Management Department personnel must "stand down" (withhold any further response actions and retreat to a safe position) as they await Haz Mat to take over the scene and provide further direction.
6. Only after Haz Mat has responded to the emergency condition and returns control of the scene back to Department personnel, can their overflow response continue. That response may now have a special cleanup component to properly handle any contamination residues besides those related to normal sewage. This may require the involvement of a contamination remediation contractor.

APPENDIX D

RESPONSIBLE USAGE OF DISINFECTANTS IN SEWER OVERFLOW CLEANUPS

Appendix D

Responsible Usage of Disinfectants in Sewer Overflow Cleanups

Specific directions for disinfecting area impacted by overflows and for other sanitizing procedures, as appropriate, should be addressed in a Sewer Overflow Response Plan (SORP). In general, provisions may be set forth directing:

- Application of absorbent material;
- Proper excavation and disposal of affected soil and used absorbent;
- Flushing of the overflow site with clean (potable) water'
- Application, containment and recovery of any chlorinated washdown water; and,
- Return of all washdown water to the sewer.

When the use of a disinfectant is necessary, for instance wither a ponded area of sewage cannot be readily returned to an a sanitary sewer, or pumped dry due to difficult access to a vactor truck, or the volume is prohibitively large, it may be treated with bleach or high-test hypochlorite (HTH). A dosing of 10 to 12 ounces of HTH per 100 square feet of pond surface may be appropriate for relatively shallow ponds (several inches deep). Deeper ponds may require significantly higher dosages and the Inspection and Monitoring Section chemist, the Fulton or DeKalb County Health Department, or the GA EPD should be contacted. However, if sewage has discharged into a body of water, under no circumstance should bleach or HTH be applied.

STEPS IN CALCULATING HTH DOSAGE:

Step 1: Measure the length and width in feet of a square or rectangular-shaped pond of sewage using a tape measure or measuring wheel. (Note: Use the method outlined in Appendix E – Sewer Spill Estimation, to estimate the approximate area of a circular shaped spill)

Step 2: Multiply the length times the width of the spill to calculate the surface area in square feet.

Step 3: Divide the surface area of the ponded sewage in square feet by 100 sq. ft. and multiply by 12 ounces (0.75 pounds) HTH to calculate the total dosage in pounds.

APPENDIX E

SEWER SPILL ESTIMATION

Appendix E

Sewer Spill Estimation

Example #1: To calculate the estimated amount of gallons in a ponded sewer spill, you must determine the volume of the spill. If it is a rectangular contained area:

Volume = Length (L) x Width (W) x Depth (D) x 7.48 gallons/cubic foot = Gallons

Example #1 Calculation: A rectangular spill is 100 ft. x 100 ft. x 0.5 ft. x 7.48 = 37,400 gallons

Example #2: If the spill has been running into a storm drain, you must estimate the gallons by the amount of time of the overflow times the number of service connections on the receiving line (assume 240 gallons per household per Day)

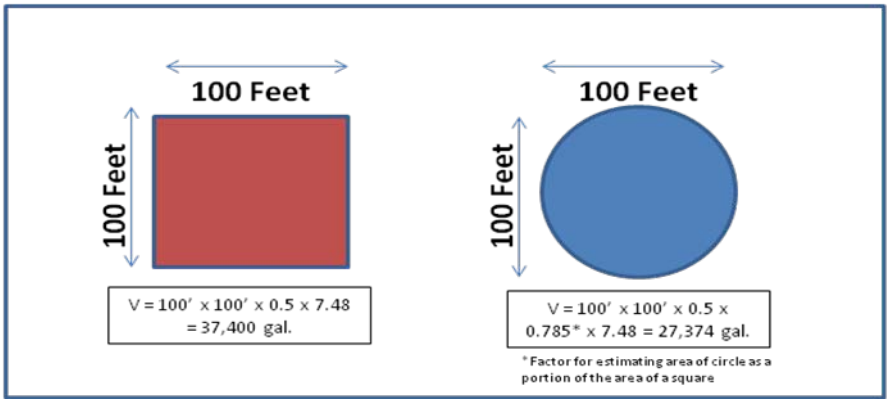
If you have a line with 6 house on it, and it has been overflowing for 24 hours (1 Day):

Example #2 Calculation: 6 houses x 240 gallons/house = 1,440 gallons

Example #3: If the overflow is less than 24 hours in duration, then the calculation must prorate the daily sewage generation rate. If you have 60 house on a line that has been overflowing for 1 hour –

Example #3 Calculation: 60 houses x 240 gallons/day/house x 1 hour x 1day/24 hours = 600 gallons

See illustration below for estimating the volume of a rectangular and circular ponded area.



SPILLS TO CREEK ONLY *SPILLS TO CREEK ONLY*

SPILL REPORTING MANIFEST LIST

NO	DATE	SERVICE REQUEST #	STREET ADDRESS	CERTIFIED MAIL RECEIPT #	
				EPA	EPD
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Note: Insert a copy of this list in the certified mail envelope & place a copy in the file for <u>each</u> spill listed

NAME: _____ DATE: _____

City of Atlanta
Department of Public Works
Wastewater Services
Spillage to Creek Report Form

YEAR: *2006*

SERVICE REQUEST NO: *356098*

NAME OF PERSON NOTIFIED AT GEMA FOR MAJOR SPILLS ONLY: *Nadine Dower / 11/6/06 3:53 PM / SEQ# 1234567891011*

PREPARED BY: *WILLIE SERCHION / GISELLE MELVILLE* *11/03/2006*

LOCATION: **a.** *1160 PEACHTREE BATTLE AV. NW* **b.** *Sandy Creek* (Affected Stream)

SOURCE OF ORIGINAL REPORT:

10/2/2006 (Date)	*11:00 AM* (Time)	*FLETCHER ANN GLASS* (Name)	*ATLANTA, GA* (Address)	*N/A* (Phone)

ACTION TAKEN: (give time,dates, estimated flow and Service Request #)

A crew responded to service request (#356098) of possible sewage spill. The crew arrived at the site at 11:00 AM on 10/02/06 and confirmed a spill to creek at an estimated rate of [illegible] GPM. The crew used hydraulic pressure cleaner to contain the spill at 1:50 PM. The cause of the spill was debris in the main.

		Initials
Water of State Posted (Y/N):	*Yes*	
Water Quality Sampling Started (Y/N):	*Yes*	
Legal Notice Process Initiated, for Major Spills Only (Y/N):	*Yes*	

REPAIR COMPLETED:

ESTIMATE OF SPILLAGE (gallons): *1,700*

REMARKS: (Steps taken to prevent reoccurence. Placed on periodic inspection schedule. Need for upgrading, etc.)

SECOND CORRECTION/UPDATE FORTHE SPILL THAT OCCURRED ON 10/02/06. The correct address should be 1160 Peachtree Battle Avenue, N.W. instead of 1167 Peachtree Battle Avenue, N.W. Also in the action taken section the crew also cleaned and disinfected the area.

CC: Deputy Commissioner
I & M Division
Public Health Departments (Fulton County or Dekalb County)
Director of Wastewater Services
EPD
Law Department
EPA
COA File(s)
PW Commissioners' Office
PW Public Relations Officer

City of Atlanta
Department of Public Works
Wastewater Services
Spillage to Dryland Report Form

YEAR: *2006*

PREPARED BY: *MICHAEL WILLIAMS / JAMES MITCHELL* *9/2/06*

SERVICE REQUEST NO: *350751*

LOCATION: *871 HOBSON ST. SW*

SOURCE OF ORIGINAL REPORT:

9/1/2006 (Date)	*10:29 AM* (Time)	*MS. CONNELIES BROOKS* (Name)	*ATLANTA, GA* (Address)	*(404) 293-0564 x* (Phone)

ACTION TAKEN: (give time,dates, estimated flow and Service Request #)

A crew responded to service request (# 350751) of possible sewage spill. The crew arrived at the site at 11:35 AM on 9/1/06 and confirmed a spill to dry land at an estimated total of 20 gallons. This is not a city problem.

REPAIR COMPLETED: *9/1/2006 11:55AM*

ESTIMATE OF SPILLAGE (gallons): *20*

REMARKS: (Steps taken to prevent reoccurrence, placed on periodic inspection schedule, slated for upgrading, etc.)

Test remarks for report

CC: Deputy Commissioner
I & M Division
Public Health Departments (Fulton County or Dekalb County)
Director of Wastewater Services
PW Public Relations Officer
Law Department
COA File(s)
EPD Permitting, Compliance and Enforcement Program
PW Commissioners' Office

Appendix F - Sanitary Sewer Overflow (SSO) Sampling Plan

PREPARED FOR: Department of Watershed Management, Sewer Operations

REVISED BY: Richard P. Daniel, PE

DATE: May 29, 2007 [original, 5/26/99; rev. 1, 9/13/02; rev.2, 4/13/04, 5/9/06 (rev.3)]

This technical memorandum describes a plan for responding to major spills in conformance with Rules and Regulations for Water Quality Control, Chapter 391-3-6 ("the Rules"). Specifically, this memorandum describes the sampling activities to supplement the tasks prescribed in the City's "Collection System Contingency and Emergency Response Plan" (ERP).

The sampling program described in this memorandum is primarily focused on determining the water quality impact SSO events have upon *surface* waters. Thus, for the purposes of this sampling program, "receiving water bodies" will be limited to the perennial flowing streams within the City and its environs. Furthermore, as discharges from the City's combined storm water and sanitary sewer system are regulated by separate NPDES permits, SSO's entering any portion of combined system will not be considered to have entered surface waters, and therefore will not be sampled.

In addition to describing the procedures to access any water quality impacts to receiving waters from an SSO, this Appendix provides a means of reporting and documenting the following information relating to an SSO event:

- Time and Date of the SSO;
- Location of the SSO;
- Corrective actions taken to mitigate or reduce the adverse effects of the overflow;
- Estimated duration of overflow;
- Location and name of the receiving water body;
- Field procedures for collecting samples of the receiving waters;
- Analytical methods to be performed on sampling of the receiving waters;
- Water quality impact, if any, to receiving waters: and
- Repairs, if any, to the collection and transmission system to prevent a reoccurrence of the SSO.

Additionally, Title 40 of the Code of Federal Regulations, Part 136*: Guidelines for Establishing Test Procedures for the Analysis of Pollutants* (40 CFR 136) was utilized to determine sample collection, preservation techniques, and analyses.

Response to and Assessment of an SSO Event

The attached Figure 1 is a flow chart of the necessary activities to respond to and assess an SSO event with regard to meeting the “major spill” classification. The following paragraphs provide additional detail for these activities.

SSO Event Notification

Section 3 of the ERP describes the procedures for notifying City personnel of a suspected SSO. In addition to the personal identified to be immediately notified upon report of a suspected SSO, those personnel designated as the SSO Sampling Team on duty will also be notified to stand by pending confirmation of suspected overflow.

Confirmation of Sanitary Sewer Overflow

Upon notification of a suspected SSO, field personnel will confirm whether an overflow has occurred. If these personnel determine that no overflow has occurred, the Sampling Team will be notified to stand down. If an overflow is confirmed to have occurred, but to have entered a combined sewer system, then the Sampling Team will be notified to stand down.

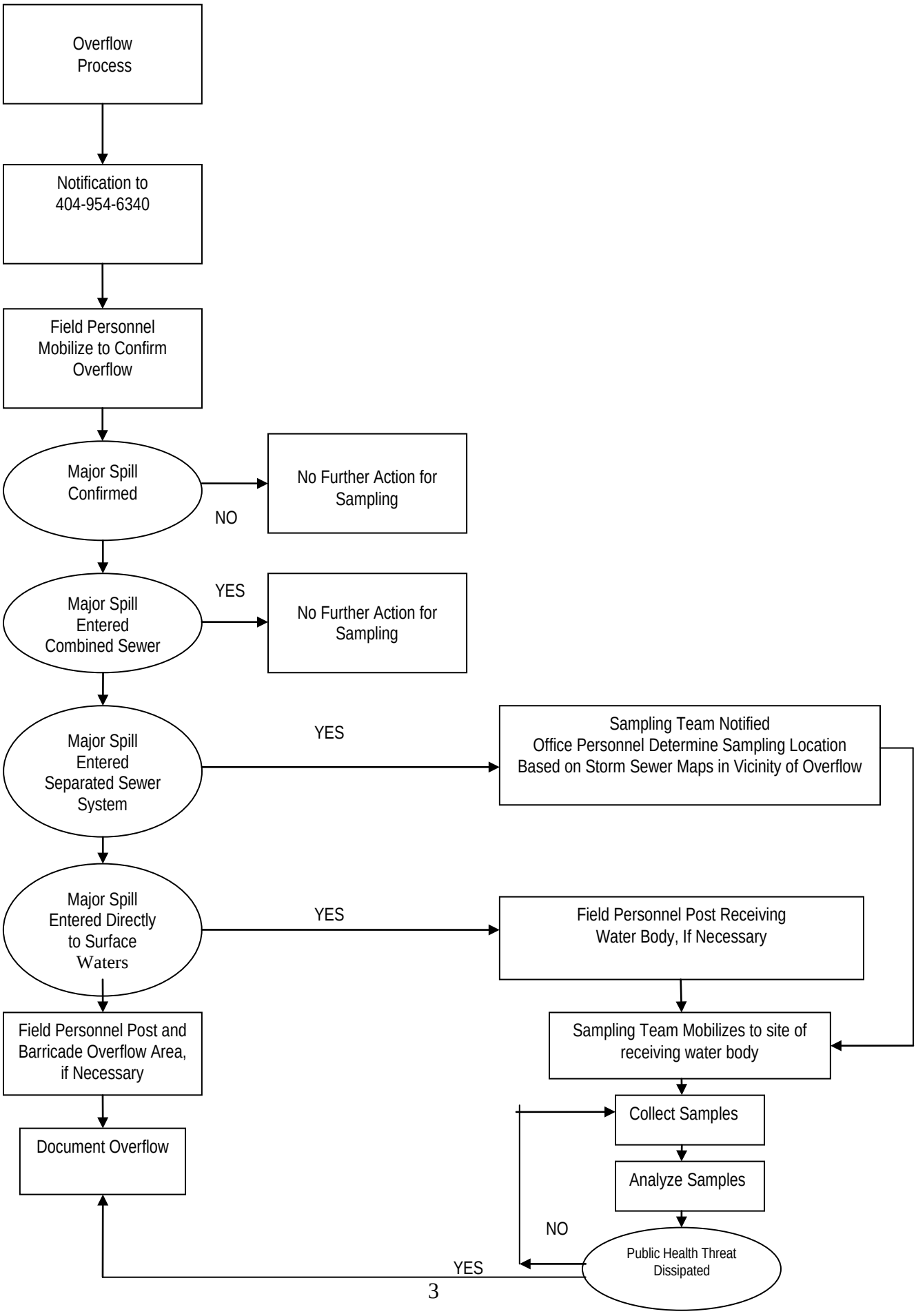
If an overflow is confirmed to have occurred, but not to have entered either a separated storm sewer or directly into a free flowing stream, field personnel will post and barricade the area, and notify the Sampling Team to stand down.

If a major spill is confirmed to have occurred, and to have entered a separated storm sewer, the Sampling Team will be notified to mobilize. Using storm sewer line maps in the vicinity of the SSO, the Sampling Team will first identify a sampling location on a free flowing stream nearest to the outfall of the storm sewer line that the SSO entered. The Sampling Team will then expeditiously proceed to that location, post and barricade the area, and begin sampling activities.

If a major spill is confirmed to have occurred, and to have entered directly into a free flowing stream, field personnel will post and barricade the area in order to control public access, and notify the Sampling team to mobilize. The Sampling Team will sample within 24 hours.

Sampling of Receiving Water Body

Whether the SSO has been discharged directly to a receiving water body, or commingled with storm water and routed to an outfall location, samples are to be collected at an upstream or background location, and at a downstream location selected to reflect a reasonable mixing zone below the entry of the SSO. Samples are to be collected to the extent practicable. During storm events sample collection may need to take place along or in a flowing stream, and appropriate health and safety procedures must be followed at all times. No personnel are to be placed in a situation that could result in injury or death.


Overflow Process
Notification to 404-954-6340
Field Personnel Mobilize to Confirm Overflow
Major Spill Confirmed
NO
No Further Action for Sampling
Major Spill Entered Combined Sewer
YES
No Further Action for Sampling
Major Spill Entered Separated Sewer System
YES
Sampling Team Notified
Office Personnel Determine Sampling Location
Based on Storm Sewer Maps in Vicinity of Overflow
Major Spill Entered Directly to Surface Waters
YES
Field Personnel Post Receiving Water Body, If Necessary
Field Personnel Post and Barricade Overflow Area, if Necessary
Sampling Team Mobilizes to site of receiving water body
Collect Samples
Analyze Samples
Document Overflow
NO
Public Health Threat Dissipated
YES

Following are recommended sampling protocols for sampling of major spills:

- Sampling and associated monitoring shall be in accordance with established State protocol. (once per day for seven days, once per week for a month, and once per month for a year)
- Sampling team will respond to spills within 24 hours of notification.
- Where spills are less than 10,000 gallons, sampling team will determine if sampling and monitoring is necessary (if a water quality violation occurred). Determination will be based upon either observation (evidence of toxic environment) or the results of sampling upstream an downstream for temperature, dissolved oxygen, fecal coliforom, pH and any other parameter as required by GA EPD to determine if water quality standards have been violated.
- Sample upstream and downstream from accessible points to be determined by the sampling team for temperature, dissolved oxygen (DO), fecal coliforms, and pH.
- Sampling team will notify sewer division of initial results.
- If downstream fecal coliform concentration is greater than upstream concentration by a difference greater than an order of magnitude, keep signs posted and resample.
- If downstream fecal coliform concentrations are comparable with upstream concentrations, posted signs may be removed. (note that all signage must be in place for a minimum of seven (7) days)
- If upstream and downstream fecal coliform concentrations are elevated to a degree that indicate a source of fecal contamination, keep area posted and resample.
- If resampling indicates a source of fecal contamination, keep area posted and barricaded; and conduct further investigation to isolate the source of the contamination (if possible).
- Notify the applicable City departments to assist in elimination of the fecal source.

Sample Analysis

Table 1 provides a list of the parameters that will be analyzed for at all sampling locations.

Table 1
Analyze Data for SSO Sampling

Parameter	Method	Preservation	Holding Time
Turbidity	EPA 180.1	None	48 hours
Ph	EPA 170.1	None	15 minutes
Temperature	EPA 150.1	None	15 minutes

Fecal Coliform	SM 9222D	Sodium Thiosulfate	6 hours
Dissolved Oxygen	EPA 360.1	None	15 Minutes

Quantification of turbidity, pH, temperature, and dissolved oxygen will be accomplished *in-situ* through the use of a combined water quality probe capable of analyzing these parameters. Fecal coliform samples will be collected in pre-sterilized containers containing sodium thiosulfate preservation, placed on ice, and released to a laboratory for analysis.

The holding time for fecal coliform samples (6 hours) may require analysis of samples before an SSO event ends. Under these conditions, sampling personnel may need to contact laboratory personnel for on site pick-up and custody transfer, or transport the fecal coliform sample will be kept on ice until analysis occurs.

Chain-of-Custody Procedures

Sampling team personnel must assure that sample chain-of-custody is maintained using appropriate documentation. Attached is a copy of the chain-of-custody form to be used for this purpose. This form provides spaces to record time and date of sample collection, values of in-situ parameter measurements, required analysis, and transfer of samples to laboratory for analysis. The form is divided into separate sections for each hourly sampling interval and provides lines for the respective upstream discharge, and downstream sample locations. The blank suffix in the field sample ID number is intended to be the Sequence Number of the SSO event.

All transfers of sample custody will be on a chain-of-custody form. When practical, custody of samples will be transferred directly from sampling team member to the analytical laboratory.

Equipment Decontamination Procedures

Following each sampling event, the pH/ temperature/turbidity/dissolved oxygen meter will be decontaminated per the manufacture’s recommendation.

Field Quality Assurance/ Quality Control Procedures

Field duplicate samples will be collected to validate data. At a minimum, a duplicate fecal coliform sample will be collected every fifth sample per sampling location. Prior to each sampling event, the pH/temperature/turbidity/dissolved oxygen meter will be calibrated pursuant to manufacture’s instructions. Following a sampling event, the meter will be post calibration checked to document any instrument drift.

Assessment of Public Health Impact

Given the urban setting of the streams within the City, no significant difference is expected between the values for pH, temperature, dissolved oxygen, and turbidity measured upstream and downstream from an SSO discharge. However, there could be a sufficient difference in fecal coliform concentration to warrant continued posting and

barricading of the affected stream reach. In general, a fecal coliform concentration difference greater by an order of magnitude will mandate continued posting and barricading, and continued sampling.

Included with this memorandum is a copy of the Sanitary Sewer Overflow Report that is to be completed, issued, and filed following all SSO events. This form, with the noted inclusion of related chain.

Sanitary Sewer Overflow Sampling Report

Included with this memorandum is a copy of the Sanitary Sewer Overflow Sampling Report that is to be completed, issued, and filed following all sampled SSO events. This form, with the noted inclusion of related chain-of-custody forms and laboratory analytical results will document the salient information pertaining to the sampled SSO event.

Reporting SSO Sampling Activities

A. Following major spill sampling activities, copies of the analytical results and associated chain-of-custody forms, along with the copies of any field notes complied during the sampling effort, will be forwarded to the appropriate Sewer Division contact for inclusion in the documentation related to the SSO.

B. Analytical results will be reported to EPD using EPD Stream Monitoring Program Form for a Major Spill. A sample of the form is at the end of this appendix.

   The EPD form will be mailed to the following address:

   EPD – Georgia Environmental Protection Division
   Permitting, Compliance and Enforcement Program
   4220 International Parkway, Suite 101
   Atlanta, Georgia 30354
   ATTN: Carolyn Hill

   Attachments (3)
   - EPD Stream Monitoring Program Form for a Major Spill
   - Chain-of-Custody Form
   - Sanitary Sewer Overflow Sampling Report

APPENDIX F

TECHNICAL MEMORANDUM – SSO SAMPLING PLAN

Note: The sampling requirements of this section have been modified to be in accordance with the Rules of the Georgia Department of Natural Resources, Environmental Protection Division, Chapter 391-3-6-.05 Water Quality Control-Emergency Actions (See Appendix G) effective February 23, 2006

STREAM MONITORING PROGRAM REPORT FORM FOR A MAJOR SPILL

{Attn: Christine Barber [Permitting, Compliance and Enforcement Program] Fax No. 404-362-2691}

Name of City/County: _____ **Spill Amount:** _____
Date Spill Occurred: _____ **Date Spill Reported to EPD:** _____
Spill Location: _____ **Date of Public Notice (PN):** _____
Name of Receiving Stream Affected: _____
Upstream Sampling Location: _____ **Written Report Submitted to EPD: (Y/N)**
Downstream Sampling Location: _____ **Copy of Public Notice Submitted to EPD: (Y/N)**
Date Spill Received: _____
Time Spill Received: **SPILL REPORT RECEIVED FROM FAX**

		ABOVE						BELOW					
	DATE	DO	p H	AIR T	STR T	TURB	FECAL#	DO	p H	AIR T	STR T	TURB	FECAL#
DAY 1													
DAY 2													
DAY 3													
DAY 4													
DAY 5													
DAY 6													
DAY 7													
Week 1 Geometric Mean:							**#NUM!**						**#NUM!**
WEEK 2													
WEEK 3													
WEEK 4													
Month 1 Geometric Mean: (use all 10 data point)							**#NUM!**						**#NUM!**
MONTH 3													
WEEK 1													
WEEK 2													
WEEK 3													
WEEK 4													
Month 3 Geometric Mean:							**#NUM!**						**#NUM!**
MONTH 12													
WEEK 1													
WEEK 2													
WEEK 3													
WEEK 4													
Month 12 Geometric Mean:							**#NUM!**						**#NUM!**

COMMENT: _____

STREAM MONITORING PROGRAM REPORT FORM FOR SPILL

{Attn: Carolyn Hill [Permitting, Compliance and Enforcement Program] Fax No. 404-362-2691}

Name of City/County: Atlanta **Spill Amount:** Gal

Date Spill Occurred: **Date Spill Reported to EPD:**

Spill Location: **Date of Public Notice (PN):**

Name of Receiving Stream Affected:

Upstream Sampling Location: **Written Report Submitted to EPD: (Y/N)**

Downstream Sampling Location: **Copy of Public Notice Submitted to EPD: (Y/N)**

Date Spill Report Received

Time Spill Report Received **SPILL REPORT RECEIVED FROM FAX MACHINE**

		UPSTREAM						DOWNSTREAM					
	DATE	DO	pH	AIR TEMP (^{0}C)	STR TEMP (^{0}C)	TURBIDITY	FCOLI (#/100mls)	DO	pH	AIR TEMP (^{0}C)	STR TEMP (^{0}C)	TURBIDITY	FCOLI (#/100mls)
DAY 1													
DAY 2													
DAY 3													
DAY 4													
DAY 5													
DAY 6													
DAY 7													
DAY 8													
DAY 9													
DAY 10													
DAY 11													
DAY 12													
DAY 13													
DAY 14													

COMMENT:

391-3-6-.05 Emergency Actions.

(1) Purpose. The purpose of Paragraph 391-3-6-.05 is to provide procedures to handle any emergency which endangers the waters of the State.

(2) Definitions. All terms used in this Paragraph shall be interpreted in accordance with the definitions as set forth in the Act unless otherwise defined in this Paragraph or in any other Paragraph of these Rules.

(a) "Spill" means any discharge of raw sewage by a Publicly Owned Treatment Works (POTW) to the waters of the State.

(b) ''Major Spill'' means:

1. The discharge of pollutants into the waters of the State by a POTW that exceeds the weekly average permitted effluent limit for biochemical oxygen demand (5-day) or total suspended solids by 50 percent or greater for any one day.
2. Any discharge of raw sewage that (1) is in excess of 10,000 gallons or (2) results in water quality violations in the waters of the State.

(c) "Consistently exceeding an effluent limitation" means a POTW exceeding the 30 day average limit for biochemical oxygen demand or total suspended solids for at least five days out of each seven day period during a total period of 180 consecutive days.

(3) Notice Concerning Endangering Waters of the State. Whenever, because of an accident or otherwise, any toxic or taste and color producing substance, or any other substance which would endanger downstream users of the waters of the State or would damage property, is discharged into such waters, or is so placed that it might flow, be washed, or fall into them, it shall be the duty of the person in charge of such substances at the time to forthwith notify the Division in person or by telephone of the location and nature of the danger, and it shall be such person's further duty to immediately take all reasonable and necessary steps to prevent injury to property and downstream users of said water. The following specific requirements shall apply to POTWS:

(a) The owner of a POTW shall immediately notify the Division, in person or by telephone, when a spill or a major spill occurs in the system. Within five (5) days of the incident, the owner of the POTW shall submit a written report to the Division which includes, at a minimum, the information required in (3)(e) below.

(b) The owner of a POTW responsible for a major spill shall publish a notice of the major spill in the legal organ of the County where the incident occurred. The notice shall be published within seven days after the date of the major spill. The notice as a minimum shall include the following:

1. Date of the major spill;
2. Location and cause of major spill;
3. Estimated volume discharged and name of receiving waters;
4. Corrective action taken to mitigate or reduce the adverse effects of the major spill.

(c) The owner of a POTW shall immediately establish a monitoring program of the waters affected by a major spill or by consistently exceeding an effluent limit, with such monitoring being at the expense of the POTW for at least one year. The monitoring program shall include an upstream sampling point as well as sufficient downstream locations to accurately characterize the impact of the major spill or the consistent exceedence of effluent limitations as described in (2)(c) above. As a minimum the following parameters shall be monitored in the receiving stream:

1. Dissolved Oxygen;
2. Fecal Coliform Bacteria;
3. pH;
4. Temperature.

The monitoring and reporting frequency as well as the need to monitor additional parameters, will be determined by the Division. The results of the monitoring will be provided by the POTW owner to the Division and all downstream public agencies using the affected waters as a source of a public water supply.

(d) The Division and the owner of a POTW will provide notice of a major spill within 24-hours of becoming aware of the major spill to every county, municipality or other public agency whose public water supply is within a distance of 20 miles downstream and to any others which could potentially be affected by the major spill.

(e) The owner of a POTW responsible for a spill or a major spill shall report the incident to the local media (television, radio and print media) within 24 hours of becoming aware of the incident. The report shall include at a minimum the following:

1. Date of the spill or major spill;
2. Location and cause of spill or major spill;
3. Estimated volume discharged and name of receiving waters;
4. Corrective action taken to mitigate or reduce the adverse effects of the spill or major spill.

(f) The owner of a POTW responsible for a spill or a major spill shall immediately report the incident to the local health department(s) for the area affected by the incident. The report shall include at a minimum the same information required in (3)(e) above.

(g) The owner of a POTW responsible for a spill or a major spill shall immediately post a notice as close as possible to where the spill or major spill occurred and where the spill or major spill entered State waters. The notice shall include at a minimum the same information required in (3)(e) above. The intent of this requirement is for the POTW to notify citizens, who may come into contact with the affected water, that the spill or the major spill has occurred. The owner shall also post additional notices of the spill or major spill along the portions of the waterway affected by the incident (i.e. at bridge crossings, trails, boat ramps, recreational areas, and other points of public access to the affected waterway). These notices shall remain in place for a minimum of seven days after the spill or major spill has ceased.

(4) Noncompliance Notification. If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitations specified in the permittee's NPDES permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

(a) A description of the noncompliance and its cause; and

(b) The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

(5) Emergency Orders. The Director shall have the authority to issue an emergency order pursuant to Section 20 of the Act, and Section 17(a) of the Executive

Reorganization Act of 1972, as amended.

(6) Effective Date. This Rule shall become effective twenty days after filing with the Secretary of State's Office.

Authority O.C.G.A. Sec. 12-5-20 et seq. **History.** Original Rule entitled "Emergency Actions" adopted. F. June 10, 1974; eff. June 30, 1974. **Amended:** F. Apr. 3, 1990; eff. Apr. 23, 1990. **Amended:** ER. 391-3-6-0.32-.05, adopted. F. May 1, 1996; eff. Apr. 25, 1996, the date of adoption, to be in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended:** Permanent Rule adopted. F. July 10, 1996; eff. July 30, 1996. **Amended:** F. May 31, 2001; eff. June 20, 2001.

APPENDIX H

EXAMPLES OF WRITTEN BULLETINS AND SIGNAGE FOR SEWER OVEFLOW EVENTS

Appendix H

Examples of Bulletins and Posting Procedures For Sewer Overflow Events

Figure H-1

PRE-SCRIPTED BULLETIN – INITIAL NOTIFICATION

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT
(LETTERHEAD)

FOR IMMEDIATE RELEASE

(DATE AND TIME)

(Identified cause of overflow such as pipe collapse, or pumping station failure, such as mechanical breakdown or natural cause [lightning or local flooding]) near the intersection of (street name) and (street name) has caused a sewer overflow into (surface water name) in (area name).

Although Department crews have begun to make temporary repairs (and divert some of the flows to and/or interim bypass pumping has begun), backups may occur in portions of the system. Consequently, residents (reference area or location on map) are urged to reduce water usage inside the home as much as possible and avoid coning into physical contact with standing waters in the street or using (receiving surface water) for any purposes until further notice.

Please note that the drinking water supply is not affected. However, the cooperation of residents to minimize water usage in order to reduce sewage flows is of the utmost importance.

CONTACT:

Public Information Officer
XXX-XXX-XXXX

Figure H-2

PRE-SCRIPTED BULLETIN – REPAIR UPDATE

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT
(LETTERHEAD)

FOR IMMEDIATE RELEASE

(DATE AND TIME)

(Identified cause of overflow such as pipe collapse, or pumping station failure, such as mechanical breakdown or natural cause [lightning or local flooding]) near the intersection of (street name) and (street name) has caused a sewer overflow into (surface water name) in (area name). Repair crews were dispatched to access the extent of damage and to initiate repairs. To date, the following actions have been taken:

[Description of work accomplished]

It is anticipated the repair wok will be completed by (date/time). Additional advisories will be issued if the status of the repairs should change.

Citizens are cautioned to refrain from visiting the area where the repair efforts are being conducted.

CONTACT:

Public Information Officer
XXX-XXX-XXXX

Figure H-3

PRE-SCRIPTED BULLETIN – WATER CONSERVATION

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT
(LETTERHEAD)

FOR IMMEDIATE RELEASE

(DATE AND TIME)

(Identified cause of overflow such as pipe collapse, or pumping station failure, such as mechanical breakdown or natural cause [lightning or local flooding]) near the intersection of (street name) and (street name) has caused a sewer overflow into (surface water name) in (area name). The leak has caused portions of name of surface water to become polluted and necessitates reducing the discharge of sewage to the sewer system.

In order to prevent backups in the sewer system and sewage spills, residents are urged to reduce household water use. Actions residents should take are:

1. Limit clothes washing.

2. Limit use of showers and baths.

3. Limit toilet flushing.

It is necessary to restrict water use only for the period required to fix the leak. Department crews have already begun to make repairs. Advisories will be issued when the repairs are completed so normal water use can resume.

The break does not affect the water supply. The water is safe to drink, but please limit water use to reduce sewage flow as much as possible.

CONTACT:

Public Information Officer
XXX-XXX-XXXX

Figure H-4

PRE-SCRIPTED NEWS BULLETIN – NAME OF AFFECTED SURFACE WATER) ADVISORY

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT
(LETTERHEAD)

FOR IMMEDIATE RELEASE

(DATE AND TIME)

(Identified cause of overflow such as pipe collapse, or pumping station failure, such as mechanical breakdown or natural cause [lightning or local flooding]) near the intersection of (street name) and (street name) has caused a sewer overflow into _____ River. Repair efforts are underway.

Discharge of untreated sewage to _____ River may adversely affect the quality of the surface waters. Citizens are advised to avoid swimming or fishing in the areas where warning signs are posted.

The waters of _____ River in he vicinity of the overflow are being tested and monitored by the Department's Inspection & Monitoring Unit to determine the extent of pollution. Additional advisories will be issued on the status of the water quality and when it is safe to resume normal use of the river's water.

CONTACT:

Public Information Officer
XXX-XXX-XXXX

Figure H-5

PRE-SCRIPTED BULLETIN – CLOSING STATEMENTS

CITY OF ATLANTA
DEPARTMENT OF WATERSHED MANAGEMENT
(LETTERHEAD)

FOR IMMEDIATE RELEASE

(DATE AND TIME)

(Identified cause of overflow such as pipe collapse, or pumping station failure, such as mechanical breakdown or natural cause [lightning or local flooding]) near the intersection of (street name) and (street name) has caused a sewer overflow into (surface water name) in (area name). The system failure, causing the discharge of approximately _____gallons of sewage to (name of surface water), resulting in restricted public access.

Department personnel were rapidly mobilized to take immediate and effective action. The repairs were completed in (hours or days).

The Department worked in cooperation with the Georgia Environmental Protection Division and Fulton County Health Department in monitoring the water quality and environmental effects of the sewage overflow on (name of surface water). As a result, the impacts of the accidental sewage discharge were minimized. The water quality in (name of surface water) is continuing to be monitored to ensure there are no threats to public health and the environment.

CONTACT:

Public Information Officer
XXX-XXX-XXXX

CITY OF ATLANTA

Shirley Franklin, Mayor

City Council
Lisa M. Borders
President

Carla Smith
Ivory Lee Young, Jr.
Natalyn Mosby Archibong
Howard Shook
Felicia A. Moore
Jim Maddox
Mary Norwood
Ceasar Mitchell

Kwanza Hall
Cleta Winslow
Anne Fauver
Clair Muller
Clarence T. Martin
Joyce Sheperd
H. Lamar Willis

Department of Watershed Management
Bureau of Wastewater Treatment and Collection
360 Englewood Avenue, S.E.
Atlanta, Georgia 30315
404-624-0751

Figure H-6

City of Atlanta

Department of Watershed Management

WARNING!!!

Discharge of untreated sewage to _____ River/Creek occurred on _____ and may adversely affect the quality of surface waters in the surrounding areas.

You are advised to avoid swimming or fishing in the River/Creek and to keep children from playing near the area.

The waters of _____ River/Creek in the vicinity of the sewage overflow are being tested and monitored by the Department of Watershed Management to determine the extent of the pollution.

DATE: _____

SPILL LOCATION: _____
_____

CAUSE OF SPILL: _____

DISCHARGED VOLUME: _____Gallons

CORRECTIVE ACTION: _____
_____

For 24 hour information or to Report any further Sewer Problems, please call the
Bureau of Wastewater Treatment and Collection
404-954-6340


CUIDADO
ESTAS AGUAS FUERON IMPACTADAS POR UN DERRAME DE DRENAJE EL
_____, 20_____
NO JUEGE, NADE O PESQUE EN ESTAS AGUAS HASTA QUE ESTE AVISO HAYA SIDO QUITADO
PARA MAS INFORMACION O PREGUNTAS LLAME
404-624-0753


WARNING
This waterway was impacted by a sewage spill on
_____, 20____
Do Not Play, Swim or Fish in this waterway until after this sign has been removed
For more information or questions call
404-624-0753


CUIDADO
PARE
EL AREA ASEGURADA
A SIDO CONTAMINADA
CON DRENEJE
NO ENTRE
POR FAVOR LLAME
404-624-0753
SI TIENE CUALQUIER PREGUNTA


WARNING
STOP
The secured area has been contaminated with sewage
DO NOT ENTER
Please call 404-624-0753 if you should have any questions.

APPENDIX I

CITY OF ATLANTA
SUPERVISORS, MANAGERS AND STAFF TELEPHONE LISTS

City of Atlanta
DEPARTMENT OF WATERSHED MANAGEMENT
WASTEWATER SERVICES DIVISION

REVISED EMERGENCY OPERATING PROCEDURE NO. PS-5.3

PUMP STATION CALL LIST

Verify and edit this call list at least once per month. This list was last updated:
May 5, 2008

SUPERVISOR CALL LIST

Supervisor	Phone	Radio	Pager/Cell	Home Phone
Intrenchment Creek	(404) 241-0116		--	--
Albert Askew	(404)241-0116		(404)569-5351	(478)474-8268
Derrick Lindsey	(404) 799-5159	101	(678) 794-2131	(404) 761-0049
Deborah Troutman	(404) 241-0116		(404) 319-4370	(770) 819-1274
Jeff Page	(404) 241-0116	1A	678-300-4041	770-749-0209
Leonard Warbington	(404) 241-0116	1A	678-300-7408	(770) 883-5485

MAINTENANCE CALL LIST

Name	Phone	Radio	Pager/Cell	Home Phone
Primary call list for South River Drainage areas.				
Mech,RandyHendrix	(404) 350-6120	107	(404) 571-1077	(770) 489-3885
Mech, Rick Gosch	(404 350-6110		(678) 300-7128	
Primary call list for R M Clayton Drainage area.				
Contact WRC Manager				
Primary call list for Utoy Creek Drainage area.				
Mech, Joel Roach	(404) 799-5159	104	(404) 278-4551	(770) 942-7291
Elect, Steven Jones	(404) 215-5641		(404) 650-7484	(404) 758-9260
Maint. Mgr, Johnny Lee	(404) 215-5643		(770) 294-2048	(770) 363-0312

WRC MANAGER CALL LIST

Manager	Phone	Radio	Pager/Cell	Home Phone
Tony Richardson, S River	(404) 350-6116		(404) 569-5982	(770) 914-7792
Rob Bush, RM Clayton	(404) 350-4902		(404) 391-1854	
Mike Shelhamer, Utoy	(404) 215-5637		(404) 650-9757	(404) 489-7990

INSPECTION & MONITORING CALL LIST

INSPECTOR	PHONE	PAGER/CELL	HOME PHONE
I & M Office	404-350-4909		
Marcella Flowers	404-546-1359	404-379-6785	770-774-1140
Renee Williams	404-546-1363	404-925-8319	404-766-3132

George Patterson	404-546-1365	404-886-1595	770-459-0128
Michael Chandler	404-546-1362	404-925-8320	678-945-7173
Patrick Woodall	404-546-1354	404-557-3594	770-947-6077
Denise Skinner-Hurst	404-546-1352	404-557-4347	678-817-0752
Mgr., Tracy Hillick	404-546-1351	404-557-9352	770-928-9079
SUPPORT CONTACTS			
Sewer Services Rep.	404-624-0751	**Fire Dept. Hazmat**	404-658-7175
James McClain	404-787-2004	**Water Department**	404-658-6500
Customer Service	404-954-6340		

DEPARTMENT OF WATERSHED MANAGEMENT
SEWER OPERATIONS DIVISION

Primary Contact: Reginald Wells, Watershed Manager, Senior
Tel: 404-635-2641 FAX: 404-622-2048
Cell: 404-294-3053 Radio:

Primary Contact: Danny Mathis, Wastewater Collection Superintendent
(Construction Emergency) Tel: 404-635-2647 Fax:
Cell: 678-414-4718 Radio: 806

Secondary Contact: Kimbry Peek, Wastewater Collection Superintendent
(Alternate 1) Tele: 404-635-2613 Fax: 404-546-8613
Cell: 770-294-2737 Radio: 534

Secondary Contact: Kelvin Gray, Wastewater Collection Superintendent
(Alternate 2) Tel: 404-635-2617 Fax: 404-658-6288
Cell: 404-787-4481 Radio: 571

Secondary Contact: Bruce Rasheed, Wastewater Collection Superintendent
(Alternate 3) Tel: 404-685-0243 Fax: 404-685-0249
Cell: 404-925-8322 Radio: 124

City of Atlanta
DEPARTMENT OF WATERSHED MANAGEMENT
WASTEWATER SERVICES DIVISION

REVISED EMERGENCY OPERATING PROCEDURE NO. PS-5.4
Wastewater Collections Call List

Verify and edit this call list at least once per month. This list was last updated:
June 16, 2008

SUPERINTENDENT CALL LIST

Supervisor	Phone	Radio	Pager/Cell	Home Phone
Kelvin Gray	(404) 635-2617	571	(404) 787-4481	(404) 212-1444
Kimbry Peek	(404) 635-2613	534	(770) 294-2737	(404) 243-4494
Bruce Rasheed	(404) 685-0243	124	(404) 925-6322	
Danny Mathis	(404) 635-2646	806	(678) 414-4718	(770) 774-0736

SECTION SUPERVISOR CALL LIST

Mashawn Johnson	(404) 685-0243	562	(404) 787-1589	(404) 381-9334
Jim Seufferlein	(404) 635-2612		(770) 294-2045	(770) 795-8599
Giselle Melville	(404) 624-0753		(404) 557-1690	(770) 562-4259
Sammy Glynn	(404) 624-0751	505	(770) 294-3196	(404) 756-0386
Michael Teasley	(404) 685-0232	PM1	(404) 227-6738	(404) 767-6373
Chris Harris	(404) 635-2620	68	(770) 294-3082	(706) 252-1007

OPERATIONS - MAINTENANCE CALL LIST

Name	Phone	Radio	Pager/Cell	Home Phone
All Quadrants				
Richard Wise	(404) 624-0751	576	(770) 294-3236	(770) 909-1314

APPENDIX J

SOP FOR SANITARY SEWER OVERFLOW REPORTING TO GOVENMENTAL AGENCIES

Standard Operating Procedure
Sanitary Sewer Overflow Reporting to Government Agencies

1. PURPOSE

The purpose of this procedure is to establish standard procedures for preparing and submitting overflow reports required by the City's wastewater Consent Decrees to the United States Environmental Protection Agency (EPA) and the Georgia Environmental Protection Division (EPD) and the other government agencies.

2. BACKGROUND

As part of the consent Decrees entered into with EPA and EPD, the City of Atlanta is required to submit various documents and correspondence to the regulatory agencies. Section XX of the Combined Sewer Overflow and First Amended Consent Decrees describes the procedures that the City must follow when making all required submittals. Section XX states that "*...Notification to or communications with EPA, the United States Attorney or the Department of Justice ("DOJ"), the State of Georgia ("Department of Law") and the EPD shall be deemed submitted on the date they are postmarked and sent by certified mail, return receipt requested or deposited with an overnight mail/delivery service.…*".

The City of Atlanta has elected to submit all city overflows to creek reports and Work-In-Progress Letters via certified mail. The following are steps to be followed when submitting reports to EPA and EPD and other government agencies as required.

3. PROCEDURE

Preparation of the Spill Reporting Manifest List Form

For every Consent Decree submittal, a Manifest List Form must be completed. A sample of the form is at the end of this appendix. Begin by entering the date of spill or date of work in progress letter, service request number, address, last four digits of the EPA and EPD tracking number. Write the corresponding Certified Mail tracking numbers for EPA and EPD at the bottom of the Manifest List Form .

Submittal Preparation Activities

Mailing Address Labels

Individual mailing address labels shall be prepared for each recipient. Addresses for the EPA and EPD are as follows: (Additional agencies & addresses for distribution copies are included in Appendix A)

EPA
Chief, Water Programs Enforcement Branch
Water Management Division
U.S. Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303
ATTN: David Phillips

EPD
Georgia Environmental protection Division
Permitting, Compliance and Enforcement
4220 International Parkway, Suite 101
Atlanta, GA 30354
ATTN: Ted Hendrickx

Certified Mail Receipts (PS Form 3800)

U.S. Postal Service Certified Mail Receipt forms (Postal Service Form 3800 or "white forms") shall be prepared. Receipts shall be typewritten or printed neatly using the addresses listed in Section 3.1.1 above. Steps for completing the Certified Mail Receipt include:

1. Enter point of contact name and agency on **"SENT TO"** line.
2. Enter street address and suite number on **"STREET, APT. NO; or PO BOX NO."** line.
3. Enter city, state, and zip code information on **"CITY, STATE, & ZIP+4"** line.
4. The Certified Mail Receipt contains a 20-digit tracking number located just below the barcode. This number is used as a reference number on the Return Receipt card as well as the submittal correspondence and the Consent Decree Submittal Checklist.

Return Receipt Card (PS Form 3811)

Domestic Return Receipt Cards (Postal Service Form 3811 or "green cards") shall be prepared. Receipts shall be typewritten or printed neatly using the addresses listed in Section 3.1.1 above. Steps for completing the Return Receipt Card include:

1. Complete **"PRINT YOUR NAME, ADDRESS, AND ZIP+4 IN THIS BOX"** information with the following address.

   City of Atlanta
   Department of Wastewater Treatment and Collections
   360 Englewood Avenue, SE
   Atlanta, GA 30315
   ATTN: Spill Specialist's Name

2. Turn the card over. Complete Section 1, **"ARTICLE ADDRESSED TO:"** portion of using addresses listed in Section 3.2.1 above.
3. Enter Certified Mail tracking number shown on Certified Mail Receipt (i.e. "white form") in Section 2, **"ARTICLE NUMBER"** portion of green card.
4. Check "Certified Mail" box in Section 3, **"SERVICE TYPE"**, of green card.

Placing Document(s) in Envelope

Place a copy of the document(s)/item(s) to be sent in an appropriately sized envelope. A manifest list of all document(s) shall be included in the envelope.

If multiple envelopes are required, separate Certified Mail Receipt forms and Return Receipt cards must be completed for each envelope.

Attachment of Certified Mail Receipt & Return Receipt Card to Envelope

Original Certified Mail receipt Forms and Return Receipt cards shall be attached to the corresponding envelope or package with the Certified Mail Receipt attached to the right of the return address and the Return Receipt Card on the back of the envelope. Make a copy of all documents and the manifest list before closure of envelope (s).

Pre-Posting the Submittal

If an internal Pitney Bowes postage machine is available, it may be used to calculate and process the postage required for mailing the submittal. The package will still need to be taken to the Post Office for certification of mailing, but no payment will be required.

QA/QC of Documents

Prior to sealing of each envelope, an independent verification of its contents and the attached postal forms shall be made by someone other than the party who initially placed the items into the envelope. Once the QA/QC verification

is received, the envelope may be sealed and taken to the Post Office to be mailed.

Document Distribution

Consent Decree Submittal

A Consent Decree Submittal Log & Chronological File will be kept in the PMT Document Control Manager's office. Procedures for the certified mailing of the submittal are detailed in Section 3.4.

3.3.1.1 A temporary suspense file (including the Manifest List) will be created and maintained to track and have submittals available to immediately attach the Return Receipt Card when it is received. Once the Return Receipt Card is attached to the submittal, the submittal will be filed with original documentation.

Certified Mailing of the Submittal

Regular Business Hours

Packages that are ready for mailing prior to 4:30 P.M. shall be taken to the nearest post office facility.

Presentation to Postal Clerk

Upon arrival at the Post Office, present the package to be mailed, along with the attached Certified Mail Receipt from and Return Receipt card to the Postal Clerk. The Postal Clerk will weigh the package and determine the charges associated with the mailing. Once the appropriate charges have been determined, the postal clerk will complete the **"POSTAGE, CERTIFIED FEE, RETURN RECEIPT FEE, RESTRICTED DELIVERY FEE,** and **TOTAL POSTAGE FEES"** sections of the Receipt for Certified Mail. Next, the Post Office's "postmark" stamp will be applied to the receipt in the **"POSTMARK OR DATE"** section of the Receipt for Certified Mail form.

Certified Mail Receipt

The bottom portion of the Certified Mail Receipt will be presented back to the customer. This portion of the form shall serve as the receipt that the package was submitted on the date stamped on the form. Upon returning from the Post Office, staple each Certified Mail Receipt to the upper right hand corner of the copied manifest list form and place into the temporary file.

Return Receipt Card

When the addressee receives the submittal, the Return Receipt Card is signed, dated, and returned to the sender via U.S. Mail. When the card is returned, it should be attached to the lower right hand corner of the manifest list form and remove from the temporary file and placed in a binder.

Payment (if Required)

Section 3.1.5 includes the procedure for pre-posting the submittal. This is the preferred method of payment for submittals. If this was not done, or if the postage was underestimated, the customer must pay for the remaining postage. Payment shall be made to the postal clerk once total charges are determined for mailing all packages. Payment for certified mailing may be made using cash or via major credit card (AMEX, VISA, MasterCard). If payment is required, the customer should make the payment and be reimbursed according to the policy set by his or her employer.

Postal Service Receipt

Following payment, the postal clerk will present the customer with a postal service receipt. Even if there is no payment required, the customer should still ask for a Postal Service Receipt to document the transaction. This receipt should be retained as part of the submittal documentation. It may be stapled directly to the copy of the receipt made in Section 3.2.4.

Follow-Up/Tracking Activities

Immediate Action Plan for Missing Documents

If EPA and/or EPD notify the City designee that they have not received an overflow report, duplicate copies will be forwarded to one or both agencies. One copy of each missing submittal shall be hand delivered (to the primary point of contact at EPA and/or EPD. This delivery shall take place within one day of notification by EPA and/or EPD that they are not in receipt of a submittal. The copy will also be sent via fax or certified mail whichever is deemed most appropriate.

Submittal File Documents

The documents that should be retained in the submittal file include the following:

- Certified Mail Receipt
- Return Receipt Card
- Postal Service Receipt
- Manifest list

ERP Appendix K

AREA-WIDE MONITORING PROGRAM AND INVESTIGATIVE APPROACH

Purpose

The purpose of the Area-wide Monitoring Program and Investigative Approach is to provide a routine monitoring program for identification of fecal coliform spikes in receiving waters possibly triggering the need for further investigation. This program is supplemental to other reporting and investigative procedures associated with spills from the City's collection system as described specifically in ERP Appendix F and other relevant sections of the ERP.

Geographic Area

Eight locations are monitored representing most of the watersheds identified within the City's jurisdiction. Table K-1 lists these stations. These locations represent a combined tributary area of approximately three-quarters of the total City area (See Figure K-1).

TABLE K-1
Summary of Sampling Station Information

Station ID	Location	Rationale
	Chattahoochee River Basin	
NAN-1	Nancy Creek at W. Wesley Road	Located to evaluate the flows and loads from Nancy Creek prior to confluence with Peachtree Creek; historical SSOs of concern; not supporting designated uses.
NAN-3	Nancy Creek at Rickenbacker Drive	Located to evaluate the contribution into the City from DeKalb County, downstream of the Veteran's Hospital Trunk Improvements; not supporting designated uses.
PEA-2	Peachtree Creek at Northside Drive	Co-located with an existing USGS station, downstream of the inputs from Tanyard Creek and Clear Creek CSOs; not supporting designated use
PRO-1	Proctor Creek at James Jackson Parkway	Located to evaluate the cumulative flows and loads from Proctor Creek before confluence with Chattahoochee River; co-located with a USGS station; not supporting designated uses.
WOO-1	Woodall Creek at DeFoors Ferry Road	Newly added station that showed signs of impact from industrial land uses from the synoptic sampling, partially supporting designated uses.
SAN-1	Sandy Creek at Bolton Road	Evaluate the cumulative flows and loads of the tributary before the confluence with the Chattahoochee River; not supporting designated uses.
UTO-1	Utoy Creek at Great Southwest Parkway	Located to evaluate the cumulative flows and loads from Utoy Creek prior to the confluence with the Chattahoochee River; not supporting designated uses.
	Ocmulgee River Basin	
SOU-1	South River at Forrest Park Road	Located to evaluate the loads and flow leaving the City into DeKalb County; not supporting designated uses.

Frequency

Sampling for fecal coliform will occur every other week throughout the year resulting in a total of 26 samples obtained from each location.

Parameters

Monitored parameters will include those which were most pervasive during the characterization effort performed under the Long-term Watershed Monitoring Program (LTWMP), or may become an issue as the watersheds continue to be developed, including but not limited to fecal coliform, ammonia, total suspended solids, total phosphorus, total organic carbon, nitrites and nitrates. In situ parameters will be measured including dissolved oxygen, temperature, conductivity, pH, and turbidity.

Methodology

The City establishes site specific threshhold, or trigger, levels for fecal coliform bacteria using data acquired under the LTWMP and a frequency of sampling to ensure that spikes indicative of a wastewater discharge from the City's collection system are detected. The objective is to avoid setting a trigger level that result in the City initiating investigations at fecal coliform levels resulting from wet weather non-point sources or background conditions. (See Figure K-2.)

The triggers are developed by evaluating data collected under the LTWMP. The 90th percentile of the distribution of data is determined for each location. For example, in the data set represented on Table K-2, the numbers of events sampled at each location exceeding the 90th percentile could have resulted in field investigations in search of a wastewater source(s) from the City collection system. The concept of fecal coliform trigger ranges and investigative procedures are illustrated in Figures K-2 and K-3, respectively.

TABLE K-2
Summary of Distribution of Sampling Data
Proposed City of Atlanta ERP Revisions

	NAN-1	NAN-3	PEA-2	PRO-1	WOO-1	SAN-1	UTO-1	SOU-1
Total Events Sampled	37	32	33	35	26	36	42	42
90th percentile (col/100 mL)	48,000	11,000	42,000	21,000	53,000	10,000	27,000	96,000
Events Exceeding the 90th percentile	4	3	3	4	3	3	4	4

State Rules and Standard Operating Procedures

Georgia Department of Natural Resources (GADNR). 2004. Draft: Standard Operating Procedures-Freshwater Macroinvertebrate Biological Assessment. Environmental Protection Division.

Georgia Department of Natural Resources (GADNR). 2005. Draft: Standard Operating Procedures for Conducting Biomonitoring on Fish Communities in the Piedmont Ecoregion of Georgia. Wildlife Resources Division, Fisheries Section.

Georgia Department of Natural Resources (GADNR). 2004. Rules and Regulations for Water Quality Control. Chapter 391-3-6. Revised November 2004.

Investigation Standard Operating Procedures

See Figure K-3.

Responsibility for Implementation – Environmental Compliance/Inspection & Monitoring

Division of Sewer Operations

Report and Review

The 90th percentile fecal coliform trigger levels will be re-evaluated every two years with results reported to EPA/EPD. As improvements are made to the City's combined and sanitary sewer systems resulting in decreased volumes and frequencies of treated and untreated wastewater discharges to waterways, the trigger levels may require adjustment to ensure proper sensitivity and efficacy of investigations.

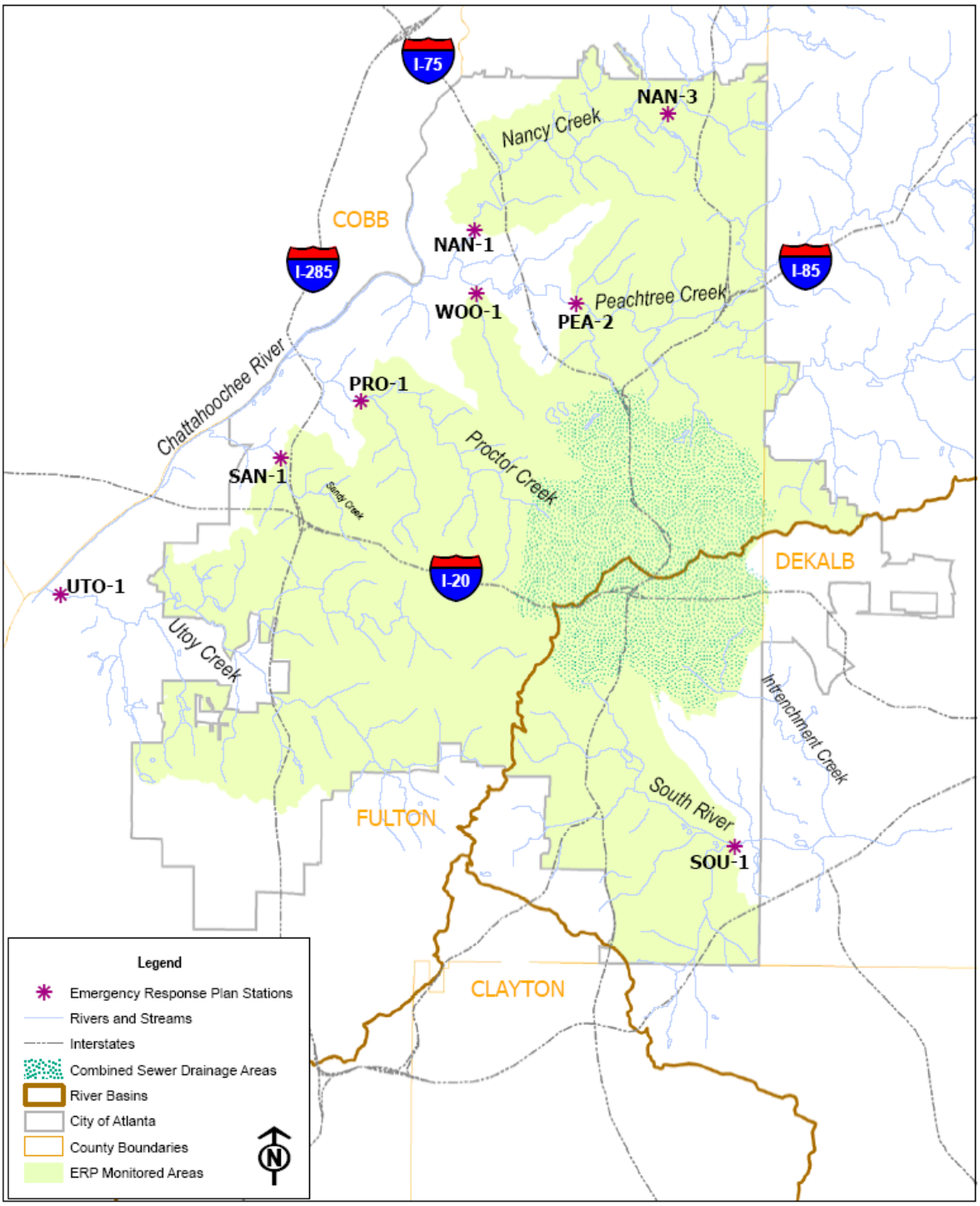


Figure K-1
Location of Monitoring Stations

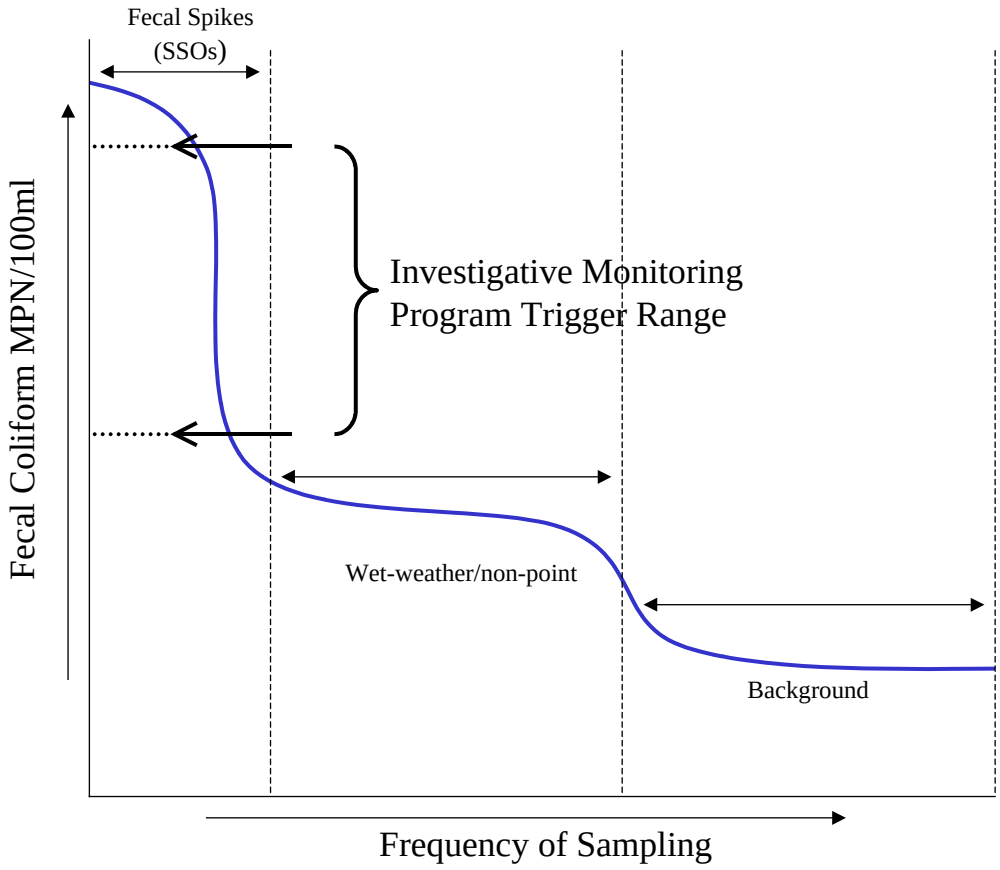

Fecal Spikes
(SSOs)
Fecal Coliform MPN/100ml
Investigative Monitoring
Program Trigger Range
Wet-weather/non-point
Background
Frequency of Sampling

Figure K-2

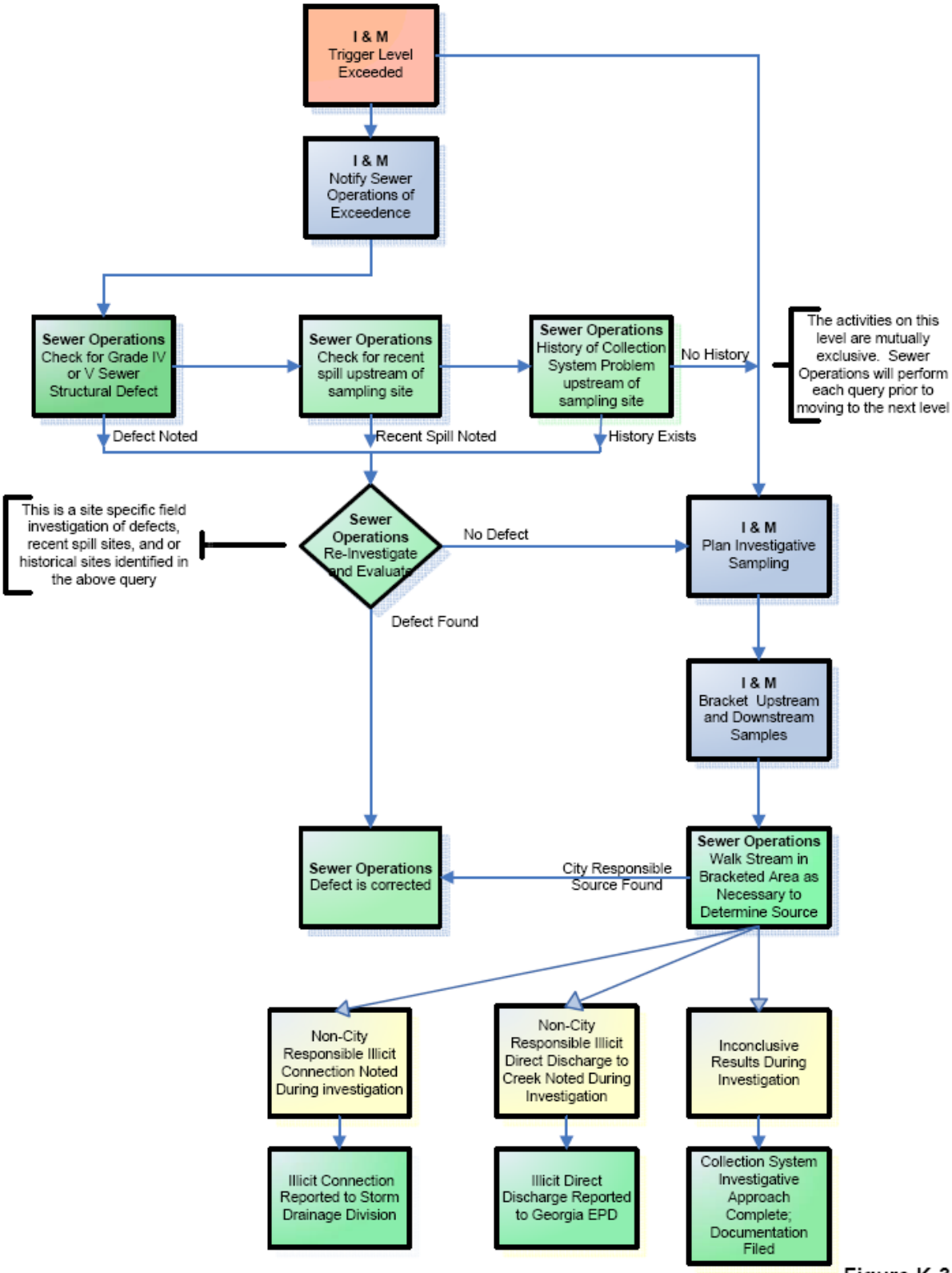


Figure K-3
Flow Chart for Investigative Monitoring Approach
Emergency Response Plan
1/18/06

Public Works Department
Sewer Maintenance and Construction
Work Return Form

Date _____ Travel Time _____ Start Time _____ End Time _____

Service # _____ Work Order # _____

Address _____ Descrip. Of Request: _____

U/S M/H ADDRESS _____ U/S MANHOLE ID _____

D/S M/H ADDRESS _____ D/S MANHOLE ID _____

Location (Identify landmarks if Outfall or Trunk) _____

CHECK MAINLINE BY DOING ONE OF THE FOLLOWING!

_____ WM011 CLEAN, MAIN LINE - JET ROD
_____ WM012 CLEAN, MAIN LINE - MECH ROD
_____ WM013 CLEAN, MAIN LINE - VACTOR

Distance to stoppage _____ Linear Feet
LINEAR FEET CLEANED: _____
If no problem is found in Mainline after cleaning, check PM01 →
*Describe inspection process in Comments:

WAS PROBLEM FOUND IN MAINLINE? ___Y ___N
Public _____ Private _____

_____ STP01 STOPPAGE-GREASE IN LINE
_____ STP02 STOPPAGE-ROOTS IN LINE
_____ STP03 STOPPAGE-COLLAPSED LINE
_____ STP04 STOPPAGE-OBSTRUCTION/DEBRIS
_____ STP05 STOPPAGE-OTHER CAUSES (SEE COMMENTS)
_____ PM01 UNSCHEDULED PREVENTATIVE MAINTENANCE

IS ADDITIONAL WORK REQUIRED ON MAINLINE? ___Y ___N

_____ WM021 REPAIR/REPLACE SEWER MAIN
_____ WM010 MANHOLE - BYPASS PUMPING
_____ WM018 CLEAN, DRAG MAINLINE

WHY IS WORK NEEDED ON MAINLINE?

_____ CVN01 CAVEIN-STREET/SIDEWALK SINKING
_____ CVN02 CAVEIN-SEWER MAIN BREAK/COLLAPSE
_____ MLBO MAIN LINE BREAKDOWN / OUTFALL
_____ MLBT MAIN LINE BREAKDOWN / TRUNKLINE
_____ PM02 SCHEDULED PREVENTATIVE MAINTENANCE

CHECK SERVICE LATERAL BY DOING ONE OF THE FOLLOWING!

_____ WM019 CLEAN, SERVICE LATERAL-MECH ROD
_____ WM020 CLEAN, SERVICE LATERAL-JET ROD

Distance to stoppage _____ Linear Feet
LINEAR FEET CLEANED _____

If no problem is found in Lateral after cleaning, check PM01 →
*Describe inspection process in comments:

WAS PROBLEM IN SERVICE LATERAL? ___Y ___N
PUBLIC _____ PRIVATE _____

_____ STP01 STOPPAGE-GREASE IN LINE
_____ STP02 STOPPAGE-ROOTS IN LINE
_____ STP03 STOPPAGE-COLLAPSED LINE
_____ STP04 STOPPAGE-OBSTRUCTION/DEBRIS
_____ STP05 STOPPAGE-OTHER CAUSES (USE COMMENTS)
_____ PM01 UNSCHEDULED PREVENTATIVE MAINTENANCE

IS WORK REQUIRED ON LATERAL? ___Y ___N

_____ WM022 REPAIR, SERVICE LATERAL
_____ WC003 INSTALL , SERVICE LATERAL
_____ WC011 INSTALL CLEANOUT
_____ WC007 REPAIR, SEWER SERVICE TAP-RESIDENTIAL
_____ WC006 REPAIR, SEWER SERVICE TAP-BUSINESS
_____ WC004 INSTALL, RESIDENTIAL SEWER TAP
_____ WC005 INSTALL, BUSINESS SEWER TAP

WHY IS WORK NEEDED ON LATERAL?

_____ SSLB SEWER SERVICE LATERAL BREAKDOWN
_____ SSLR SEWER SERVICE LATERAL REQUEST
_____ CLNO CLEANOUT NEEDED
_____ TAPR TAP, REPAIR
_____ TAPP TAP, PERMIT
_____ PM02 SCHEDULED PREVENTATIVE MAINTENANCE

Sewage Spill Data

Gallons per minute _____ Confirm Time _____
Estimated total _____ Contained Time _____
Spill reach water body? _____
Water Body name _____
Weather conditions: Before: ☐ ☐ ☐ ☐ ☐
After: ☐ ☐ ☐ ☐ ☐
1 2 3 4 5 See back for codes

Stoppage Data

Distance to stoppage _____ Linear Feet
If caused by roots, is tree in the City's ROW _____Y _____N

Dig up required? _____Y _____N
Pipe Size _____ Linear Feet _____
Pipe Type _____ Depth _____

Is Job complete? _____Y _____N
If not complete, describe requirements needed for completion.

_____
_____
_____
_____

_____ Inspection - Describe findings in comments
_____ Non City related problem

Is additional work required by:
Maintenance? _____Y _____N
Construction? _____Y _____N
Reconnaisance? _____Y _____N
Streets ? _____Y _____N

NOTE: If pipe depth is 8 ft or less, issue Maintenance digup WO to effect repair, otherwise issue WO for Construction Digup. Check additional requirements on back of form if necessary.
Over for additional jobs? ___Y ___N

LABOR

HRS ONSITE

M/L	S/L	OTHER	EMPLOYEE NAME or ID#
			*
			**

*Crew Supervisor
** Equip Operator

ASSIST CREW

Travel Time _____ Start Time _____ End Time _____

HRS	EQUIPMENT # / VEHICLE #

QUAN	PARTS/MATERIAL

	Start	End
Break		
Lunch		

Safety Equipment Check List

Vest_____
Traffic cones and flags_____
Men working signs_____
Hardhats_____
Steel toed boots_____
Gloves_____
Leather/cloth and impervious_____
Tyvec coveralls_____
Half mask disposable respirators_____
Eye protection_____
Ear plugs_____
Flashlights_____
Life vests_____
Safety harness and ropes_____
Disinfectants_____
Eye wash_____
Fire extinguisher_____
First aid kit_____

Public Works Department
Sewer Maintenance and Construction
Work Return Form

If another Work Order is needed on this job -Check below. Be sure to indicate on reverse side that additional work orders are needed

_____	WM005	REMOVE BLOCKAGE, CATCH BASIN	_____	BLK02	BLOCKAGE-DEBRIS IN CATCH BASIN
_____	WM028	REMOVE BLOCKAGE,GRATES	_____	BLK03	BLOCKAGE-DEBRIS IN CREEK/STREA
_____	WM029	REMOVE BLOCKAGE, CREEK	_____	BLK01	BLOCKAGE-DEBRIS ON GRATE
_____	WM004	CLEAN, CATCH BASIN VACTOR	_____	BRKCB	BROKEN CATCH BASIN
_____	WM002	CATCH BASIN REPAIR, MINOR	_____	BLK04	BLOCKAGE, DROP INLET
_____	WM001	CATCH BASIN REPAIR, CURB PIECE			
_____	WM003	CATCH BASIN REPAIR, MAJOR	# Grates cleaned _____		
_____	WM027	CATCH BASIN, TRENCHOUT	# Catch Basins cleaned _____		
_____	WM018	CLEAN, FLUSH CB	# Feet cleaned _____		
	WM017	CLEAN, ROD CB CONNECTION			

_____	WM008	MANHOLE - REPAIR (MINOR)	_____	MH03	MANHOLE DAMAGED
_____	WM007	MANHOLE - CLEAN	_____	MH04	MANHOLE REQUIRED
_____	WM006	MANHOLE - REPLACE CASTING	_____	MH05	MANHOLE, LID MISSSING/OFF.
_____	WM009	MANHOLE, REPAIR (MAJOR)	_____	MH06	MANHOLE, LOW/HIGH
_____	WM026	MANHOLE, CONSTRUCT	_____	WM018	CLEAN, DRAG SEWER
_____	WC012	MANHOLE, REPLACE LID/RESET LID			
	WC013	MANHOLE, RAISE LID			
	WC014	MANHOLE, LOWER LID			

_____	WCCTV1	LOCATE SEWER SERVICE LINE	_____	INS01	UNKNOWN BLOCKAGE
_____	WCCTV2	SEWER MAIN, TV INSPECTION	_____	INS02	INSPECTION, VISUAL
_____	WCCTV3	SEWER MAIN, SMOKE TESTING	_____	INS03	LOCATE
_____	WCCTV4	SEWER MAIN, DYE TEST			
_____	WCCTV5	SEWER MAIN, VISUAL INSPECTION			
_____	WCCTV6	LOCATE, SEWER MAIN LINE			
_____	WCCTV7	LOCATE, SEWER MAIN OUTFALL	Weather Codes		
_____	WCCTV8	LOCATE, SEWER TRUNK LINE			
_____	WCTV09	LOCATE, MANHOLE	W1	Dry	
_____	WCTV10	LOCATE, SERVICE CONNECTION	W2	Heavy Rain	
_____	WCTV11	LOCATE, STORM LINE	W3	Light Rain	
_____	WCTV12	TV INSPECTION, SEWER OUTFALL	W4	Thunder Stm	
_____	WCTV13	TV INSPECTION, SEWER SERVICE LINE	W5	Showers	
_____	WCTV14	TV INSPECTION, TRUNK SEWER			
_____	WCTV15	TV INSPECTION, STORM LINE			
_____	WCTV17	INSPECTION, VISUAL, STORM SEWER			
_____	WCTV18	STORM SEWER DYE TESTING			
	WCTV19	RESEARCH SEWER INFORMATION			

_____	WC008	INSTALL, GABION BANK PROTECTION	_____	STBE	STREAM BANK EROSION
_____	WM014	CLEAN, FLUSH CREEK	_____	CVN03	CAVEIN, STORM LINE
_____	WM013	CLEAN, DISINFECT - SANITIZE LINE/AREA	_____	OTHER	OTHER
_____	WC008	CONSTRUCT TUNNEL			
_____	WC010	REPAIR/REPLACE, STORM LINE			

Downtime - From: To: Reason: _____

Comments _____

CREW SUPERVISOR'S SIGNATURE _____

AREA SUPERVISOR'S SIGNATURE _____

SEWER SERVICES SPECIALIST'S SIGNATURE _____

Figure 1c

Atlanta Watershed Collections
68 Mitchell St SW
Atlanta, GA 30334
(404)330-6240

COMPLETED Sewer Manhole Work Order

Report Date 03/10/2006 08:04 AM **Submitted By**

Work Order #	420946	**Activity**	WM007A	CLEAN MANHOLE

Manhole ID 23230107401
Address 2851 DIANA DR SW
ATLANTA GA 30315-

Qualifier					
Area			**District**		
Sub-area	BINC	BASIN-INTRENCHMENT CREEK	**Location**		
Map #					

Manhole Type		**Frame Type**			
Channel Material		**Ring Material**			
Base Material		**Cone Material**			
Steps Material		**Wall Material**			
Surface Cover		**Bench Material**			
Cover Type		**Cover Diameter**	0.00	**Metered**	No
Depth	0.00	**Barrel Diameter**	0.00	**Drop MH**	No
Dist To Hydrant	0.00	**Parcel**			
Service Status		**As Built**			
X Coord	2221991.49921	**Date Installed**			
Y Coord	1337669.24843	**Ownership**			
Z Coord		**Budget #**			

Initiated By	W323	DAA'IYAH	MUHAMMED	**Initiated Date**	04/25/2002	**Scheduled**	05/01/2002 08:00
Assigned To	W146	ALLEN	MOORE	**Service #**	155943	**Due**	

Authorization				
Budget #				
Crew	WC028	PIPE CREW, UNIT 28		
Maint Type	SA	SCHEDULED ASSIGNMENT		
Priority	1B	SCHEDULE COMPL WITHIN 24 HRS		
Problem	STP04	OBSTRUCTION/DEBRIS		
Project			**Out of Service**	☐
Source	I	INSPECTION GENERATED	**Potential Service Request**	☐
Last Activity	WM007A	CLEAN MANHOLE	**Last Activity Completed**	07/29/2002

Atlanta Watershed Collections
68 Mitchell St SW
Atlanta, GA 30334
(404)330-6240

COMPLETED Sewer Manhole Work Order

Work Order # 420946 **Activity** WM007A CLEAN MANHOLE

Work Order Comments

NEED CREW TO UNSTOP OUT FALL SEWER. SEWAGE COMING OUT M/H GETING INTO SOUTH RIVER CREEK.,,,DEM

TURNED OVER TO CONSTRUCTION FOR REPAIR OF MAIN LINE.

4/30/2002

UNIT 28 CREW WENT TO SITE AND STARTED EXPERDITEING EQUIPMENT TO JOB SITE AND GETTING ROAD READY FOR THEM TO START RELAYING THE PIPE.

JC.

5/1/2002

CREW STARTED TO BUILD ROAD IN ON THE INTERSTATE SIDE OF JOB SITE DOT SHUT US DOWN TILL PERMIT COULD BE OBTAINED. WENT ON STEVE DR SIDE AND STARTED TO BRING ROAD IN FROM THAT SIDE.

JC.

5/2/2002

CREW CONTINUED TO BUILD ROAD INTO JOB SITE TO BE ABLE TO INSTALL PUMP AROUND AND START LAYING NEW LINE.

JC.

5/3/2002

CREW STILL BUILDING ROAD INTO JOB SITE.

JC.

5/5/2002

CREW HAD TO REPAIR ROAD CROSSING THAT WAS WASHED OUT WHEN HEAVY RAIN CAME. AND TO CONTINUE TO BUILD ROAD.

JC.

5/6/2002

CREW CONTINUED TO BUILD ROAD AND SET UP PUMP AROUND.

5/7/2002

JC.

CREW CONTINUED TO BUILD ROAD.

JC.

5/8/2002CREW WENT OUT AND SET UP PUMP AROUND AND DUG OUT AND LAYED ONE JOINT OF 10 INCH DUCTILE PIPE BACK FILLED AND TAMPED JC.

5/30/2002

CREW WAS DELAYED WAITING ON EQUIPMENT DUG OUT AND LAYED ONEJOINT OF 10 INCH DUCTILE PIPE BACK FILLED.JC.

5/31/2002 CREW STARTED DIGGING OUT TO LAY OTHER PIPE WHEN THE EXCAVATER BLEW A HOSE WAITTING ON MOTOR TRANSPORT TO COME OUT TO SITE TO REPAIR. JC.

6/04/2002 crew went to site and waited for machanic TO COME AND INSTALL THE HOSE AND PUT IN FUILD BACK FILLED AND SAFED UP JOB JC.

6/05/2002 CREW DUG OUT AND INSTALLED BED FOR 10INCH DUCTILE PIPE TWO WAS LAYED TODAY JC.

6/6 /2002 THEY DUG DOWN 10 FOOT BED UP DITCH LINE LAID THREE JOINTS OF TEN INCH DUCTILE PIPE JC.

6/07/2002 CREW DUG DOWN AND LAID TWO JOINTS OF DUCTILE TEN INCH PIPE AND BACK FILLED JC.

6/10/2002 CREW DUG OUT AND LAID TWO JOINTS OF DUCTILE 10 INCH PIPE AND BACK FILLED JC.

6/11/2002 CREW DUG OUT AND LAID ONE JOINT OF DUCTILE 10 INCH PIPE TODY BECAUSE OF A HOSE THAT BROKE WAS SHUT DOWN TWO HOURS FOR REPAIR JC.

6/12/2002 CREW CONTINUED TO BUILD ROAD TO GET MATERIAL IN AND TO HAUL IN STONE FOR BEDDING FOR PIPE MACHINE STILL STILL DOWN FOR REPAIR. JC.

6/13/2002 CREW CONTINUED TO BUILD ROAD WHILE WAITTING ON HOSE FOR EXCAVATOR. JC.

6/14/2002 CREW CONTINUED TO BUILD ROAD AT SITE MECHANIC BROUGHT HOSE AT TWO THRITY IN THE AFTERNOON.JC.

/17/2002 JOHN DUG OUT AND BEDDED UP AND LAID THREE JOINTS OF DUCTILE 10 INCH PIPE AND BACK FILLED. JC.

6/18/2002 CREW POURED 8 YARDS OF CONCRETE FOR THE BOTTOM OF MANHOLE AND LAID 36 FOOT OF DUCTILE LINE 10 INCH BACK FILLED AND SAFED UP JOB JC.

6/19/2002 CREW HELPED WITH THE BUILDING OF THE MANHOLE AND LAYED NINETY FEET OF 10 INCH DUCTILE LINE PIPE AND BACK FILLED DITCH LINE. JC.
6/20/2002 CREW DUG OUT AND LAID NINETY FOOT OF 10 INCH DUCTILE LINE PIPE AND BACK FILLED JC.

06/19/02- UNIT 131 BUILT FOUNDATION IN PREPARATION FOR PRE-CAST MANHOLE SECTIONS. GAMCK

06/20/02 UNIT 131 SET TWO 3'RISERS ,ONE 2'PRE-CAST CONE AND ONE MANHOLE CASTING AND LID. JOB IS COMPLETED GAMCK
6/21/2002 CREW LAID THREE JOINTS OF 10 INCH DUCTILE LINE PIPE AND TIED INTO THE OLD MANHOLE BACK FILLED AND LAND SCAPED AREA. JC.
06/24/2002 CREW DUG OUT AND LAID THIRTY SIX FOOT OF DUCTILE LINE PIPE AND BACK FILLED WAS DOWN WAITING ON PIPE TO BE DELIVERD TO JOB SITE FOR ABOUT TWO HOURS. JC.
06/25/2002 CREW DUG OUT AND LAIDED 90 FOOT OF 10 INCH DUCTILE LINE PIPE AND BACK FILLED RAIN CAME IN AND WE LOST ONE AND HALF HOURS. JC.
06/26/2002 CREW WENT TO JOB SITE AND DUG OUT FOR ONE 10 INCH DUCTILE LINE PIPE AND LIAD IT AND BACK FILLED HEAVEY RAIN CAME AND HAD A DELAY TILL AFTER LUNCH PULLED CATCG BASINS IN AREA AND HELPED 96 PUT UP TRAFIC LIGHTS ON HIS JOB. JC.
06/27/2002WENT TO JOB SITE AND DUG OUT AND LAID 90 FOOT OF 10 INCH DUCTILE LINE PIPE AND BACK FILLED. JC.....06/28/02 CONTIUNEING TO LAID MAIN LINE TO MANHOLE,LAID 72FT.OF D/I PIPE TIEING INTO MANHOLE, BACKFILL AREA UP TO M/H J.G.

07/1/02 TWO LOCATION,(1) LOCATION POURED SREVICE LATERAL CUT, STREET AREA, (2) STARTED DISASSEMBLE BYPASS (PUMP) CLEANING UP AROUND AREA ROLLING BYPASS HOLES UP TO BRING TO YARD (800FT)..JG BLOCKAGE HAS BEEN REMOVED, PIPE SEGMENT HAS BEEN RESTORED. NEED TO RESTORE AND LANDSCAPE AREA. EXPECT RESRORATION TO BE COMPLETE BY BEGINING OF AUGUST. A. MOORE
07/11/2002 CREW STARTED LANDSCAPING AREA PUT OUT TWO BAGS OF GRASS SEED AND COVERED IT WITH HAY AND STRAW. JC.
07/15/2002 CREW WENT TO JOB SITE AND LANDSCAPED THE AREA AND ALSO PUT A PIER UNDER EIGHTINCH PIPE THAT WAS OFF GRADE GOING A CROSS THE CREEK AT THE END OF STEVE DRIVE. JC.
07/16/2002 CREW CONTINUED TO LANDSCAPE AREA AND TAKE DOWN PUMP AROUND HOSE. JC.
07/17/2002 CREW CONTINUED TO LAND SCAPE AREA. JC
07/18/2002 CREW CONTINUED TO LANDSCAPE AREA JC.
07/19/2002 CREW CONTINUED TO LANDSCAPE AREA JC.
07/22/2002 CREW CONTINUED TO LANDSCAPE AREA AND HELPED BRICKMASON RAISE MANHOLE.JC
07/23/2002 CREW CONTINUED TO LAND SCAPE AREA HAD ONE EXCAVATOR SENT TO SHOP AND HAULED OFF CASE LOADER ALSO SATBALIZED BANK IN CREEK JC.

0722/02 UNIT 129 RAISED MANHOLE 3' , JOB COMPLETED. GAMCK
07/24/2002 UNIT 28 REMOVED CREEK CROSSING AND CONTINUIED TO LAND SCAPE AREA. JC.
07/25/2002 CREW CONTINUED TO LANDSCAPE AREA. JC
07/26/2002 CREW CONTINUED TO LANDSCAPE AREA. JC
07/29/2002 CREW WENT TO JOB SITE AND COMPLETED JOB JC.

Logs

Log Type	Description	Log Date	To	Entered By	Comments
There are no logs for this work order					

APPENDIX M

CITY OF ATLANTA
GREENWAY ACQUISITION PROJECT

STANDARD OPERATING PROCEDURES FOR THE DESIGN, CONSTRUCTION, AND LAND RESTORATION OF NEW UTILITIES WITHIN THE GREENWAY SYSTEM

Prepared By:

USInfrastructure, Inc.
1000 Mansell Exchange West, Suite 220
Alpharetta, GA 30022

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1.0 INTRODUCTION

The following Standard Operating Procedures (SOPs) shall guide entities proposing to construct sewers and/or other utilities within the Greenway System. The purpose of these SOPs is to ensure that the design and construction of sewers and/or other utilities is consistent with the requirements of the Consent Decree and the Greenway Acquisition Plan.

This document presents SOPs for the following activities:

A. Design and construction alternatives analysis process.

B. Greenway System Encroachment permit.

C. Design of new utilities.

D. Construction of new utilities.

E. Restoration of Greenway Properties disturbed during construction of new utilities.

F. Training of personnel involved in construction of new utilities within the Greenway System.

These SOPs are designed to minimize erosion and sedimentation within Greenway Properties by:

A. Focusing on design options that seek to prevent or minimize erosion and sedimentation.

B. Minimizing the quantity and duration of soil exposure during construction of utilities.

C. Protecting critical areas during construction by reducing the velocity of and/or redirecting runoff.

D. Installing and maintaining erosion and sediment control measures during construction.

E. Restoring disturbed properties by establishing vegetation immediately following completion of construction.

F. Inspecting the utility rights-of-way and maintaining erosion and sediment control measures as necessary until disturbed properties are restored.

These SOPs do not replace existing utility-specific guidelines for design and construction of new utilities, or restoration of utility rights-of-way after construction, but do establish

minimum requirements for such activities on Greenway Properties. These SOPs do not limit the City, or other responsible local government or agency, from imposing additional or more stringent requirements to control erosion and/or sedimentation.

As stated in Section VIII.D.2.m of the Consent Decree, "Any infrastructure for human activity within the Greenway Properties shall be designed and constructed with prevention of non-point source pollution as the primary consideration". This does not mean that prevention of non-point source pollution is the sole consideration. This means that cost or other factors will not outweigh non-point source pollution prevention as the primary concern. Only safety design consideration shall be as important as non-point source pollution prevention.

2.0 DESIGN AND CONSTRUCTION ALTERNATIVES ANALYSIS PROCESS

All entities proposing to construct sewers and/or other utilities that infringe on the Greenway System must evaluate the following alternatives before any construction can begin. The evaluation of alternatives should demonstrate to the City, and other responsible local government or agency, that there is no feasible alternative to placing the utility in the Greenway System and that the requirements of the Consent Decree are met. Impacts to the Greenway System must be minimized to the maximum extent. The analysis shall include consideration of alternative routes, tunneling, and force mains (for sanitary sewers). The analysis shall also consider the sensitivity of the property being impacted such as, presence of wetlands, significant habitats, and Greenway acquisition priority.

The following alternatives are listed in order of priority:

1. Construction outside the Greenway System.

2. Tunneling under the Greenway System.

1. Construction in the Outer Zone (100′-greenway boundary) of the Greenway System.

4. Construction in the Middle Zone (50′-100′) of the Greenway System.

5. Construction in the Inner Zone (0′-50′) of the Greenway System.

6. Construction in the Stream Bed.

The alternative analysis process must implement the Consent Decree provision that the project will be designed with the prevention of non-point source pollution as the primary consideration. This does not mean that prevention of non-point source pollution is the sole consideration. This means that cost or other factors will not outweigh pollution prevention as the primary concern. Only safety design consideration shall be as important as non-point source pollution prevention. If sewers and/or other utilities must be

constructed within the Greenway System, approval must be given by the City and other responsible local government or agency.

If, after the design and construction alternatives have been evaluated, it is determined that there is no feasible alternative to constructing the utility within the Greenway System, an encroachment permit shall be submitted to the City and other responsible local government or agency for review.

3.0 GREENWAY SYSTEM ENCROACHMENT PERMIT

In order to receive approval to construct utilities within the Greenway System, an "Encroachment" permit must be submitted to the City and other responsible local government or agency. The encroachment permit must be approved by the City with recommendations from other responsible local government or agency before any construction can begin. The permit application shall contain the information listed below:

A. Name, address, and telephone number of the applicant.

B. A description of the project and project location including stream segment, section, range, and township.

C. A description of the methods which will be used for erosion and sediment control on the site.

D. A description, including plans and specifications, of how the site will be restored after construction is completed.

E. A description of how stormwater will be handled.

F. A schedule of regular inspections and repair of erosion and sediment control structures.

G. The Encroachment Permit must include a Land-Disturbing Activity Plan. This plan shall include a brief narrative description of the overall project, detailed maps, drawings and sketches, activity schedule for each phase of land-disturbing activity and supportive data. The Land-Disturbing Activity Plan must also describe the best management practices (BMPs) for erosion and sediment control for the project and demonstrate that the BMPs meet the minimum requirements of this section and the latest edition of the Manual for Erosion and Sediment Control in Georgia, and will be effective for the specific stream corridor conditions of the project. In addition, the Land-Disturbing Activity Plan must include the following:

    1. Required construction start and completion dates to minimize construction during the rainy season.

2. A plan for inspections to ensure BMPs are properly maintained and are effective throughout the project.

3. Installation techniques for BMPs such as silt fence, and requirements to remove any BMPs from the stream or Greenway properties that remain after project completion.

For complete requirements of a Land-Disturbing Activity Plan see the latest edition of the Manual for Erosion and Sediment Control in Georgia.

As part of the Encroachment Permit application process, the applicant must agree to notify the City and other responsible local government or agency before construction begins inside the Greenway System, so City and other responsible local government or agency can inspect the construction site to ensure that adequate erosion and sediment control measures are in place prior to construction and maintained until the project is completed and the site restored.

4.0 DESIGN OF NEW UTILITIES

The entity proposing to construct a new utility within the Greenway System shall be responsible for the design and preparation of construction contract documents (plans and specifications). All utilities shall be designed with prevention of non-point source pollution as the primary consideration. The construction contract documents shall include drawings and specifications describing erosion and sediment controls that shall be used during construction including best management practices (BMPs) to be implemented. BMPs shall meet the minimum requirements established in this document.

5.0 CONSTRUCTION OF NEW UTILITIES

5.1 PERMITS, VARIANCES, AND PLANS

It is the responsibility of the entity proposing to construct new utilities within the Greenway System to determine what permits, plans, or variances are required for construction activities. For example, the State of Georgia may have requirements under their General Storm Water Permit Program or Fulton County may require a Stream Buffer Variance and a Land Disturbance Activity Permit. Requirements may vary from one jurisdiction to another. Therefore, it is imperative that the entity proposing to construct new utilities has a clear understanding of local requirements.

5.1.1 State of Georgia General Storm Water Permitting

At the time of the writing of this document, construction projects that are five (5) acres or larger in size require coverage under the State of Georgia NPDES, General Permit GAR100000, for authorization to discharge storm water associated with construction activities. One of the construction activities this permit authorizes is the discharge of storm water associated with construction activities from linear construction that will

result in the disturbance of more than five (5) acres. As stated in the permit "'Linear Construction' or 'Linear Construction Project' means construction activities that are not part of a common development and where the length of the project is at least 25 times longer than the width of the project and the construction activity is being conducted by the Georgia Department of Transportation, by a local government, or by a utility company or utility contractor". It is the responsibility of entity proposing to construct a new utility within the Greenway System to determine if they need to apply for coverage. Application is made by submittal of a Notice of Intent (NOI) and a permit fee to:

Northwest Georgia Regional Office
Georgia Environmental Protection Division
Suite 114
4220 International Parkway, Suite 101
Atlanta, GA 30354
Telephone (404) 675-6240

The NPDES general construction permit requires the use of Best Management Practices (BMPs) to control stormwater runoff for all rainfall events up to and including a 25-year 24-hour rainfall event. BMPs used shall be consistent with, and no less stringent than, those practices contained in the Manual for Erosion and Sediment Control in Georgia published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity is permitted. For some sites, additional BMPs beyond those identified in the Manual may be necessary for erosion and sediment control for all rainfall events up to, and including, a 25-year 24-hour rainfall events.

To ensure compliance with State water quality standards, the general permit requires inspections of the construction site as well as sampling and analysis of stormwater runoff from the site. The permit also requires daily recording of on-site precipitation. Detailed requirements for inspection and sampling are provided in the general permit. The guidelines set forth in this document and the latest edition of the Manual for Erosion and Sediment Control in Georgia will be used in conjunction with the State general permit to ensure that the best possible procedures are used for erosion and sediment control.

5.1.2 Stream Buffer Variance

The State of Georgia Environmental Protection Division (EPD) enforces minimum stream buffer requirements. At the time of the writing of this document the EPD's requirements prohibit construction activities within a 25-foot buffer along the banks of all state waters or within a 50-foot buffer along the banks of any state waters classified as 'trout streams' (the State of Georgia Department of Natural Resources maintains the most current stream classifications). The Director of the EPD may grant a variance that is at least as protective of natural resources and the environment as provisions described in Title 12-7-6 of the Official Code of Georgia Annotated. The Director of the EPD may also grant a variance where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion and sediment control measures are incorporated in the project plans and specifications and are implemented during

construction. The buffer distance is measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action. It is the responsibility of the entity proposing to construct a new utility within the Greenway System to determine if a variance is required from the State of Georgia, the City, or other responsible local government or agency.

5.1.3 Land Disturbance Activity Permits (LDP)

It is the responsibility of the entity proposing to construct a new utility within the Greenway System to determine if a Land Disturbance Activity Permit is required from any authority having jurisdiction. A Land Disturbance Activity Permit may contain the following information:

A. Name, address, and contact telephone number.

B. Narrative description of the maintenance activities to be conducted.

C. Description of BMPs to be used.

D. A site map.

E. An activity schedule.

F. Supportive data.

G. A plan and specifications for restoring the site to a natural state with permanent vegetation.

The entity proposing to construct a new utility within the Greenway System shall contact the City and other responsible local government or agency for specific Land Disturbance Activity Permit requirements.

5.2 SITE CLEARING

The following SOPs shall be followed during the site clearing phase for construction of new utilities:

A. All cut and fill activities occurring within the EPD's mandated 25-foot stream buffer (50-foot buffer for trout streams) shall be stabilized with appropriate erosion control matting and blankets.

B. The area to be cleared shall be clearly delineated to ensure that no clearing occurs beyond the area identified. Except for perpendicular utility crossings, any open cut, grading, clearing, or installation of surface facilities shall be set back from the streambanks to the greatest distance feasible, with a minimum setback of fifty (50) feet. Except for manholes, portals, and the maintenance access to such

facilities, the Greenway System must remain in a natural state even where crossings are perpendicular to the stream. Where feasible utility projects are suggested to have no more than a thirty (30) foot construction width (for projects paralleling the stream) outside the fifty (50) foot buffer.

C. Vegetation to be preserved shall be identified and clearly marked by flagging before clearing begins. Vegetation to be preserved shall include: vegetation vital to streambank stabilization; vegetation providing food and/or habitat to a federally listed endangered species, threatened species, or species of concern; vegetation that is a federally listed endangered species, threatened species, or species of concern; and vegetation that comprises a wetland ecosystem.

D. Stemmed vegetation such as brush, shrubs, and trees shall be removed at or near the ground level, leaving the root systems intact.

E. When pruning is necessary to clear the construction area, pruning cuts shall be made in accordance with the International Society of Arboriculture (ISA) Standards.

F. Trees shall be felled into the cleared construction area or areas to be cleared and not onto vegetation to be preserved.

G. Trees which have fallen into water bodies or beyond the construction area shall be removed immediately.

5.3 EROSION AND SEDIMENT CONTROL

5.3.1 Project Planning and Preliminary Grading

Efforts shall be made during initial planning and whenever possible during construction phases to minimize the amount of area cleared and graded (exposed) as well as the total exposure time. Whenever feasible, preliminary grading operations shall be used to control the flow direction and velocity of runoff water and thereby dissipate energy. Where feasible, swales and diversion berms shall be used to direct runoff water to locations where treatment by sediment barriers can be performed. Where feasible, transverse diversion berms, installed perpendicular to the flow of water down slopes and in drainage channels, shall be used to reduce runoff water velocity. Cleared slopes shall be harrowed with construction equipment to create small diversion channels along the contours of the slope perpendicular to the direction of runoff flow. This action not only reduces flow velocities of runoff water traveling down the slopes, but also reduces flow quantities by increasing the area of exposed soil and thus enhancing percolation of runoff water.

Whenever feasible, small depressions shall be created in appropriate locations during site grading. Graded depressions can reduce flow velocities and can also provide clarification by allowing suspended particles to settle out. They also provide temporary storage of

runoff water, thereby reducing the rate at which water is discharged downgradient. Grading equipment shall cross flowing streams by the means of bridges or culverts, except when such methods are not feasible, provided in any case that such crossings shall be kept to a minimum.

Dust from the disturbed area shall be controlled. Temporary means for controlling dust shall include mulching or vegetative cover with temporary seeding (see the latest edition of the Manual for Erosion and Sediment Control in Georgia). Emergency means for controlling dust shall include tillage or irrigation.

5.3.2 Erosion and Sediment Control Practices

Erosion and Sediment Control Practices must be implemented prior to any land disturbing activities within the Greenway System. Control of factors affecting erosion and sediment can be provided by a number of basic practices. The establishment of a dense strand of vegetation is probably the most effective means of controlling erosion and sediment; however, this control measure is often not practical until the completion of a project. Revegetation can require a substantial amount of time. Prior to and during the construction of utilities within the Greenway System, temporary erosion and sediment control measures shall be implemented and maintained until the construction area is restored as described later in this document.

Soft engineering techniques shall be used for erosion and sediment control. Hard engineering techniques shall only be used after soft techniques have failed and the failure is due to the inability of soft techniques to address the erosion problem. Improper choice of soft engineering techniques or improper design, implementation, and/or maintenance shall not be justification to turn to hard engineering techniques.

Article 8.0 of this appendix presents summaries of techniques, (including their applications) used to control erosion and sedimentation during the construction of utilities within the Greenway System. Erosion and sediment control measures shall be designed and implemented in accordance with the design standards established Article 8.0 and the latest edition of the Manual for Erosion and Sediment Control in Georgia. If a conflict occurs between the design and construction standards presented in Article 8.0 and those presented in the latest edition of the Manual for Erosion and Sediment Control in Georgia, the more stringent design and construction standards shall prevail. The selection of the most appropriate erosion and sediment control measure will be made by the entity proposing to construct a new utility within the Greenway System based on site specific conditions.

5.4 CONSTRUCTION METHODS

After all appropriate erosion and sediment control measures have been installed, the designated construction work can proceed as approved by the City with recommendations from any other responsible local government or agency. All clearing work and construction operations shall be conducted in such a manner as to effectively control soil erosion and prevent non-point source pollution loads from entering streams, ponds,

and/or wetlands. At any time during the construction project, the City with recommendations from any other responsible local government or agency has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, and fill operations and to direct the entity proposing to construct a new utility within the Greenway System to provide immediate permanent or temporary erosion and sediment control measures to prevent contamination of wetlands or water courses on the Greenway property.

Prohibited construction procedures include, but are not limited to, the following:

A. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.

B. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters. During the design of sewers and/or other utilities likely to go through existing wetlands, the City, with recommendations from other responsible local government or agency, will explore other alternatives such as construction outside the wetland and/or tunneling. If other methods are feasible, the City or other utility provider will design and construct the sewer and/or other utilities using the method that avoids construction through the wetland.

C. Pumping of silt-laden water from trenches or excavations into surface waters or wetlands.

D. Damaging vegetation adjacent to or outside of the construction area limits.

E. Disposal of trees, brush, debris, plants, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.

F. Alteration of the flow line of any stream, unless such work is of a temporary nature, has been specifically authorized, and is necessary to divert flow from excavation work so that debris and sediments are not released into streams. Various design and construction alternatives shall be investigated and the cost effective alternative that minimizes the deposition of debris, habitat degradation, and sediments will be utilized.

G. Open burning of debris within Greenway properties.

All conveyance channels, drainage outlets, and erosion and sediment control measures must be constructed to withstand the expected velocity of flow from a five-year frequency storm without erosion.

6.0 RESTORATION OF GREENWAY PROPERTIES DISTURBED DURING CONSTRUCTION OF NEW UTILITIES

Permanent soil stabilization measures shall be applied to disturbed areas within 30 days after all soil disturbing activities have been completed and the final grade has been reached on any portion of the construction project site. Permanent soil stabilization means that for unpaved areas and areas not covered by permanent structures, at least 70 percent of the soil surface is uniformly covered in permanent vegetation or equivalent permanent stabilization measures (such as the use of riprap, gabions, permanent mulches or geotextiles) have been employed. Until these conditions are satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sediment control measures shall not be removed. Efforts shall be made to return the site to its natural condition. Native vegetation shall be used in such efforts. Acceptable plants and grasses are listed in Section 5.0 of this document and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

Temporary soil stabilization measures shall be applied immediately to disturbed areas that are not at final grade but shall remain dormant for longer than 60 days. Areas that have been stabilized by temporary measures must be permanently stabilized once all soil disturbing activities are complete and the area is at final grade. Also, permanent stabilization measures shall be applied immediately to rough graded areas that will require erosion and sediment control for longer than six months.

6.1 PERMANENT VEGETATION

Permanent vegetation is the planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes, on exposed areas for permanent soil stabilization. A crop of perennial vegetation appropriate for the region, which is capable of providing a 70 percent coverage within the growing season, shall be used to achieve permanent soil stabilization.

The purpose of establishing permanent vegetation in disturbed areas is to protect the soil surface from erosion, reduce damage from sediment, reduce runoff to downstream areas, improve wildlife habitat and visual resources, and improve aesthetics. Permanent soil stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, permanent stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. For design and construction specifications for disturbed area stabilization with permanent vegetation see Article 8.0 and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

Sod shall be used to establish a permanent vegetative cover on highly erodible or severely eroded lands. Sod establishes immediate ground cover and thereby reduces runoff, erosion, and dust, which results in improved aesthetics; higher land value; stabilized waterways and critical areas; less sediments, nutrients and bugs; less downstream complaints; reduced likelihood of legal action and work stoppage due to legal action; and increased "good neighbor" benefits.

Sod is appropriate for areas that require immediate vegetative covers such as drop inlets, grass swales, and waterways with intermittent flow. Sod can initially be more costly than seed, but the advantages justify the increased initial costs.

The advantages to sod include the following:

A. Immediate erosion and sediment control, green surface, and quick use.

B. Reduced failure as compared to seed.

C. Lack of weeds.

D. Can be established almost year-round.

Sod is preferable to seed in waterways and swales because of the immediate protection of the channel after application. Sod must be staked in concentrated flow areas. For design and construction specifications for disturbed area stabilization with permanent sod see Article 8.0 and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

6.2 EROSION CONTROL MATTING AND BLANKETS

This stabilization technique provides a protective covering (blanket) or a soil stabilization mat to establish permanent vegetation on steep slopes, channels, or shorelines. The purpose of erosion control matting and blankets is to provide a microclimate that protects young vegetation and promotes its establishment and to reinforce the turf against forces of erosion during storm events.

Matting and blankets shall be applied on steep slopes where the hazard of erosion is high and planting is likely to be too slow in providing adequate protective cover. Concentrated flow areas, slopes steeper than 2.5:1 and with a height of ten feet or greater, and cuts and fills within the stream buffer, shall be stabilized with the appropriate erosion control matting or blanket. On streambanks where moving water is present, matting can be used to prevent new plantings from being washed away. For design and construction specifications for erosion control using matting and blankets see Article 8.0 of this section and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

Benefits of using erosion control blankets include the following:

A. Protection of seed and soil from raindrop impact and subsequent displacement.

B. Thermal consistency and moisture retention for seedbed areas.

C. Stronger and faster germination of grasses and legumes.

D. Planing off excess stormwater runoff.

E. Prevention of sloughing of topsoil added to steeper slopes.

Benefits of using erosion control matting include the following:

A. All benefits gained from using erosion control blankets that are listed above.

B. Collects soil out of stormwater which becomes the growth medium for the development of roots.

C. Assists the vegetative root system in forming an erosion-resistant cover resistant to hydraulic lift and shear forces when embedded in the soil of stormwater channels.

7.0 TRAINING OF PERSONNEL INVOLVED IN CONSTRUCTION OF NEW UTILITIES WITHIN THE GREENWAY SYSTEM

Key Personnel involved in construction of utilities within Greenway Properties shall be trained of the requirements of the Consent Decree, the Greenway Acquisition Plan, and these SOPs. The key personnel shall also be trained on the proper installation, implementation, and inspection of erosion and sediment control measures.

A "pre-construction" meeting shall be held between the City, other responsible local government or agency, and key personnel of the utility or construction agency following training in order to ensure that all parties have a common understanding as to how construction will be performed within the Greenway Properties.

8.0 TECHNIQUES FOR EROSION AND SEDIMENT CONTROL

This section presents summaries of techniques, (including their applications) used to control erosion and sedimentation during the construction of utilities within the Greenway System. Erosion and sediment control measures shall be designed and implemented in accordance with the design standards established in this section and the latest edition of the Manual for Erosion and Sediment Control in Georgia. If a conflict occurs between the design and construction standards presented in this section and those presented in the latest edition of the Manual for Erosion and Sediment Control in Georgia, the more stringent design and construction standards shall prevail. The selection of the most appropriate erosion and sediment control measure will be made by the entity proposing to construct a new utility within the Greenway System based on site specific conditions.

8.1 CHECK DAM

8.1.1 Definition

Small temporary barriers, grade control structures, or dams constructed across a swale, drainage ditch, or areas of concentrated flow.

8.1.2 Purpose

To minimize erosion by reducing the velocity of storm water in areas of concentrated flow.

8.1.3 Conditions Where Practice Applies

This measure is limited to use in small open channels and shall not be used in a live stream. Specific applications include:

A. Temporary or permanent swales or ditches in need of protection during establishment of grass linings.

B. Temporary or permanent swales or ditches which, because of their short length of service or other reason, cannot establish a non-erodible lining but still need some protection against erosion.

C. Other locations where small localized erosion and resulting sedimentation problems exist.

8.1.4 Planning Consideration

Check dams may be constructed of stone or hay bales. The drainage area for a stone check shall not exceed 2 acres. The drainage area for haybales shall not exceed one acre. Most check dams would be constructed of stone, however, stone may not be acceptable in some installations because of aesthetics and hay bales may need to be considered.

Stone checks dams (Figure M-2) are easier to install with backhoes or other suitable equipment. The stone is usually purchased. Stone shall be handled carefully in areas to be mowed. Some stone may be washed downstream and shall be removed before each mowing operation.

Check dams shall be planned to be compatible with the other features such as streets, walks, trails, sediment basins, and rights-of-way or property lines. Check dams may be constructed in series and the dams shall be located at a normal interval from other grade controls such as culverts or sediment basins.

Check dams constructed of hay bales (Figure M-3) have the shortest life of the materials discussed. The maximum design life for hay bale structures is 3 months. Haybale check dams shall not be used where permanent watercourse protection is needed.

8.1.5 Design Criteria for Check Dams

Formal design is not required. The following limiting factors shall be adhered to when designing check dams.

A.	Drainage Area:	Stone -2 acres or less Haybale – 1 acre or less.
B.	Maximum Height:	2 feet when measured to center of check dam.
C.	Side Slopes:	2:1 or flatter.
D.	Max. Spacing Between Dams:	Elevation of toe of upstream dam is at or below elevation of crest of downstream dam (see Figure M-1).
E.	Geotextiles:	Suitable geotextiles shall be placed between the stone and its soil base and abutments.

Top of dam, perpendicular to flow, shall be parabolic. The center of the dam must be at least 9 inches lower than the outer edges (see Figures M-2 and M-3).

8.1.6 Construction Specifications for Check Dams

Check dams shall be constructed to be stable throughout their planned life. The dam shall be constructed well into the abutment so that water cannot run around the dam.

A. Stone check dams shall be constructed of size 2-10 inch stone. Mechanical or hand placement shall be required to insure complete coverage of the entire width of ditch or swale and that the center of the dam is a minimum of 9 inches lower than the outer edges.

B. Haybale check dams may be used as temporary check dams in concentrated flow areas while vegetation is becoming established. Haybale check dams shall not be used where the drainage area exceeds 1 acre. The haybales shall be embedded a minimum of 4 inches on its upslope side.

8.1.7 Maintenance

Periodic inspection of check dams is necessary. Repair shall be made as soon as possible to minimize damage and expense of repair. Sediment shall be removed when it reaches a depth of one-half the original dam height.

Once areas that require mowing are at final grade and have been permanently stabilization the check dams shall be removed. Otherwise, check dams may remain in place permanently.

Whenever check dams are removed, care shall be taken to minimize disturbance to the remainder of the watercourse. The area where the check dam was removed shall be immediately shaped and smoothed to watercourse dimensions, seeded and mulched. If the area is to be mowed where stone check dams have been used, care shall be taken to remove all stone.

8.2 STREAM DIVERSION CHANNEL

8.2.1 Definition

Stream diversion channels are temporary channels constructed to convey flow around a construction site while a permanent structure is being constructed in the stream channel.

8.2.2 Purpose

The purpose of a stream diversion channel is to protect the streambed from erosion and allow work "in the dry".

8.2.3 Conditions Where Practice Applies

Temporary stream diversion channels shall be used only on flowing streams with a contributing drainage area less than one square mile. For streams with larger contributing drainage areas, structures or methodology shall be designed by methods which more accurately define the actual hydrologic and hydraulic parameters which will affect the functioning of the structure.

8.2.4 Planning Consideration

In cases where in-stream work is unavoidable, the amount of encroachment and time spent working in the channel shall be minimized. If construction in the streambed will take an extended period of time, substantial in-stream controls or stream diversion channel shall be considered to prevent excessive damage due to sedimentation. To limit land-disturbance, overland pumping of the stream shall be considered in low-flow conditions. Clearing of the streambed and banks shall be kept to a minimum. Refer to Figures M-14a and M-14b for typical stream diversion channel details.

8.2.5 Design Criteria for Stream Diversion Channels

A. Contributing drainage Area: Temporary stream diversion channels shall not be used on streams with a contributing drainage area greater than one square mile (640 acres).

B. Size: The bottom width of the stream diversion shall be a minimum of six feet or equal to the bottom width of the existing streambed, whichever is greater.

C. Side Slopes: Side slopes of the stream diversion channel shall be no steeper than 2:1.

D. Depth and Grade: The depth and grade may be variable, dependent on site conditions, but shall be sufficient to ensure continuous flow of water in the diversion.

E. Channel Lining: A stream diversion channel shall be lined to prevent erosion of the channel and sedimentation in the stream. The lining is selected based upon the expected velocity of bankfull flow. Refer to Table M-1 for selection of channel lining material and see the latest edition of the Manual for Erosion and Sediment Control in Georgia for specifications.

Table M-1 Stream Diversion Channel Linings		
Lining Materials	**Code**	**Acceptable Velocity Range**
Geotextile, polyethylene film, or sod	Dc-A	0 – 2.5 fps
Geotextile alone	Dc-B	2.5 – 9.0 fps
Class I riprap and geotextile	Dc-C	9.0 – 13.0 fps

Source: the Manual for Erosion and Sediment Control in Georgia, 2000, Georgia Soil and Water Conservation Commission.

F. Geotextile: Geotextiles shall be used as a protective cover for soil, or if the channel is to be lined with riprap, as a separator between graded stone and the soil base. The geotextile will prevent erosion of the channel and the migration of soil particles from the subgrade into the graded stone. The geotextile shall be specified in accordance with AASHTO M288-96 Section 7.5, *Permanent Erosion Control Recommendations*. The geotextile shall be placed immediately adjacent to the subgrade without any voids.

8.2.6 Construction Specifications for Stream Diversion Channels

A. The channel shall be excavated, constructing plugs at both ends. Plugs can be constructed of compacted soil, riprap, sandbags or sheet plastic.

B. A Silt fence or berm shall be placed along the sides of the channel to prevent unfiltered runoff from entering the stream. The berm can be constructed using the material excavated for the stream diversion.

C. The channel surface shall be smooth (to prevent tearing of the liner) and lined with the material specified in the plans. The outer edges of the geotextile shall be secured at the top of the channel with compacted soil.

D. The plugs shall be removed when the liner installation is complete, removing the downstream plug first.

E. As soon as construction in the streambed is complete, diversions shall be replugged and backfilled. The liner shall be inspected for damage and salvaged if possible.

F. Upon removal of the lining, the stream shall immediately be restored and properly stabilized.

8.2.7 Maintenance

To ensure that the work area stays dry and that no construction materials float downstream, the stream diversion channel shall be inspected at the end of each day to make sure that the construction materials are positioned securely. All repairs shall be made immediately.

8.3 DIVERSION

8.3.1 Definition

A ridge of compacted soil, constructed above, across or below a slope.

8.3.2 Purpose

To reduce the erosion of steep, or otherwise highly erodible areas by reducing slope lengths, intercepting stormwater runoff and safely diverting it to stabilized outlets at non-erosive velocities.

8.3.3 Conditions Where Practice Applies

A. Where runoff from higher areas may damage property, cause erosion, contribute to pollution, flooding, or interfere with the establishment of vegetation on lower areas.

B. Where surface and/or shallow subsurface flow is damaging sloping upland, manmade improvements, or unstabilized areas.

C. Where the slope length needs to be reduced to minimize soil loss.

8.3.4 Planning Considerations

Diversions can be a useful tool for managing surface water flows and preventing soil erosion. On moderately sloping areas, they may be placed at intervals to trap and divert sheet flow before it has a chance to concentrate and cause rill and gully erosion.

Diversions may be placed at the top of cut or fill slopes to keep runoff from upland drainage areas off the slope. Diversions are also typically built at the base of steeper slopes to protect flatter developed areas, which cannot withstand runoff water from outside areas. They can also be used to protect structures, parking lots, adjacent properties, and other special areas from flooding.

Diversions are preferable to other types of man-made stormwater conveyance systems because they more closely simulate natural flow patterns and characteristics. Flow velocities are generally kept to a minimum. When properly coordinated into the landscape design of a site, diversions can be visually pleasing as well as functional.

As with any earthen structure, it is very important to establish adequate vegetation as soon as possible after installation. It is usually important to stabilize the drainage area above the diversion so that sediment will not enter and accumulate in the diversion channel.

8.3.5 Design Criteria

A. Location: Diversion location shall be determined by considering outlet conditions, topography, land use, soil type, length of slope, seepage (where seepage is a problem), and the development layout. Outlets must be stable after diversions empties stormwater flow into them, therefore, care shall be exercised in the location selection of the diversion and its outlet.

B. Ridge Design: The supporting ridge cross-section shall meet the following criteria.

1. The compacted ridge shall be designed to have stable side slopes, which shall be no steeper than 2:1.

2. The width of the ridge at the design water elevation shall be a minimum of 4 feet.

3. The minimum freeboard shall be 0.3 foot.

4. The design shall include a 10 percent settlement factor.

C. Channel Design: Diversions shall be tailored to fit the conditions of a particular site and local soil type(s). Land slope must be taken into consideration when choosing channel dimensions. Narrow and deep channels may be required on steeper slopes, while broad, shallow channels usually are more appropriate on gentle slopes. The wide, shallow section will be easier to maintain. Since sediment deposition is often a problem in diversions, the designed flow velocity shall be kept as high as the channel lining will permit.

Table M-2 shall be used to select the storm frequency required for the design of the diversion and to determine the required channel capacity, Q (peak rate of runoff).

Table M-2 Diversion Design Criteria				
Diversion Type	**Land or Improvement Protected**	**24-hour Storm Frequency**	**Freeboard (feet)**	**Minimum Top Width (feet)**
Temporary	Construction areas Building Sites	10 years[1]	0.3	4
Permanent	Landscaped, recreation and similar areas	25 years	0.3	4
	Dwellings, schools, commercial buildings, and similar installation	50 years	0.5	4

[1] Use 10 year or the storm frequency specified in Title 12 of the Official Code of Georgia Annotated.
Source: the Manual for Erosion and Sediment Control in Georgia, 2000, Georgia Soil and Water Conservation Commission.

The channel portion of the diversion shall be designed according to specifications outlined in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

D. Outlet: Each diversion shall have an adequate outlet, which will discharge concentrated runoff without erosion. The outlet may be a constructed or natural waterway, a stabilized vegetated area or a stabilized open channel. Protected outlets shall be constructed and stabilized prior to construction of the diversion.

E. Road and Utility Rights-of-Way: Diversions installed to divert water off a road or right-of-way shall consist of a series of compacted ridges of soil running diagonally across the road at a 30° angle. Ridges are constructed by excavating a channel upstream for this type of diversion (see Figure M-5). Stable outlets shall be provided for each diversion.

A detailed design is not required for this type of diversion. The compacted ridge height shall be 8-12 inches above the original road surface; the channel depth shall be 8-12 inches below the original road surface. Channel bottoms and ridge tops shall be smooth enough to be crossed by vehicular traffic. The maximum spacing between diversions shall be as follows:

Road Grade (%)	**Distance Between Diversions (feet)**
1	400
2	250
5	125
10	80
15	60
20	50

8.3.6 Construction Specifications

A. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the diversion.

B. The diversion shall be excavated or shaped to line, grade, and cross-section as required to meet the criteria specified herein and free of irregularities which will impede normal flow.

C. All fills shall be machine compacted as needed to prevent unequal settlement that would cause damage in the completed diversion.

D. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the diversion.

E. Diversion channels shall be stabilized in accordance with Channel Stabilization specifications in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

8.3.7 Maintenance

Before the construction site is restored, the diversion shall be inspected after every rainfall. Sediment and debris shall be removed from the ditch line and repairs made as necessary. Seeded areas that fail to establish a vegetative cover shall be reseeded as necessary.

After stabilization, the diversion shall be inspected for erosion following each significant flow. Damaged areas shall be patched with compacted soil and re-vegetated to prevent further erosion. The vegetation shall be fertilized on an annual basis to keep the grass vigorous and protective. The vegetation shall be re-established whenever it does not cover the ground and does not provide protection against erosion damage.

8.4 TEMPORARY DOWNDRAIN STRUCTURE

8.4.1 Definition

A temporary downdrain structure is a pipe used to temporary convey a concentration of storm water down the face of cut or fill slopes without causing slope erosion.

8.4.2 Purpose

The purpose of a temporary downdrain is to safely move storm runoff from one elevation to another without causing slope erosion and allowing the establishment of vegetation on the slope. Refer to Figure M-6 for typical temporary downdrain structure details.

8.4.3 Conditions Where Practice Applies

Temporary downdrains shall be used on slopes where concentrated storm water could cause erosion damage. Once a permanent water disposal system has been installed these structures shall be removed.

8.4.4 Design Criteria

Formal design shall not be required. A temporary downdrain structure shall be placed on undisturbed soil or well-compacted fill. The pipe diameter shall have sufficient capacity to convey the maximum runoff expected during the life of the drain. Refer to Table M-3 for selecting pipe sizes.

Table M-3 Pipe Diameter for Temporary Downdrain Structure

Maximum Drainage Area per Pipe (acre)	Pipe Diameter (inches)
0.3	10
0.5	12
1.0	18

Source: Manual for Erosion and Sediment Control in Georgia, 2000, Georgia Soil and Water Conservation Commission.

The pipe material shall be heavy-duty, flexible material such as non-perforated, corrugated plastic pipe or specially designed flexible tubing. The pipe shall be anchored with hold-down grommets or stakes at intervals not to exceed 10 feet. The outlet of the pipe shall be securely anchored in place. The pipe shall extend beyond the toe of the slope.

Diversions shall be used to route runoff to the downdrain's Tee or "L" inlet at the top of the slope. The entrance shall be sloped ½ inch per foot toward the outlet. To prevent the pipe from being washed out by seepage or piping, the soil around the inlet shall be thoroughly compacted. A stone filter ring or check dam may be placed at the inlet for added sediment filtering capacity.

Riprap shall be placed at the outlet for energy dissipation. For additional protection at the outlet a flared end section, Tee outlet, or other suitable device shall be used in conjunction with the riprap.

8.4.5 Construction Specifications

Slope drains often fail due to water saturating the soil and seeping along the pipe. Firm contact between the pipe and the soil at all points will help to eliminate this type of failure. To ensure proper pipe-soil contact, back-filling around and under the pipe shall be performed with stable soil material, hand compacting in 6-inch lifts.

A. Slope drains shall be placed on undisturbed soil or well-compacted fill as indicated on the plans.

B. The section of pipe under the dike toward the outlet shall be slightly sloped.

C. The soil under and around the entrance section shall be hand tamped in lifts not to exceed 6 inches.

D. The fill over the drain at the top of the slope shall have minimum dimensions of 1.5-foot depth, 4 feet top width and 3:1 side slopes.

E. All slope drain connections shall be watertight.

F. All fill material shall be well-compacted and the exposed sections of the drain shall be securely fasten with grommets or stakes spaced no more than 10 feet apart.

G. The drain shall be placed slightly diagonally across the slope and extend beyond the toe of the slope. The outlet shall be curved uphill and adequately protected from erosion.

H. If the drain is conveying sediment-laden runoff, the flow shall be directed into a sediment trap or sediment basin.

I. The settled, compacted dike ridge shall be no less than 1 foot above the top of the pipe at every point.

J. All disturbed areas shall be stabilized immediately following construction.

8.4.6 Maintenance

The slope drain and supporting diversions shall be inspected after every rainfall. Any necessary repairs shall be made promptly. Once the disturbed area has been permanently stabilized the slope drains shall be removed. The slope drain material shall be disposed of properly and all disturbed areas shall be stabilized appropriately.

8.5 ROCK FILTER DAM

8.5.1 Definition

A rock filter dam is a permanent or temporary stone filter dam installed across a small stream or draingeway.

8.5.2 Purpose

This structure serves as a sediment filtering device in drainageways and in come cases, it may also reduce the velocity of stormwater flow through a channel. A rock filter dam is

not intended to substantially impound water. All appropriate agencies and local officials shall be contacted before installing any structure in a flowing stream.

8.5.3 Conditions Where Practice Applies

When used in conjunction with other appropriate sediment control measures, rock filter dams may reduce the amount of sediment reaching a water body. A rock filter dam may be used in small channels that drain 50 acres or less.

Rock filter dams shall be used as an additional sediment control measure below construction projects such as culvert installations, dam construction, or any project that may involve grading activity directly in a stream. Rock filter dams may also be used at the upstream end of ponds or lakes to trap incoming sediment loads.

8.5.4 Design Criteria

Although formal design is not required, a qualified engineer shall be consulted before a structure of any kind is installed in a flowing stream.

A. Drainage Area - The drainage area contributing to a rock filter dam shall not exceed 50 acres

B. Height - The height of a rock filter dam shall not be higher than the channel banks or exceed the elevation of the upstream property line. The center of the dam shall be at least 6 inches lower than the outer edge of the dam (see Figure M-7).

C. Side slopes - Side slopes shall be 2:1 or flatter.

D. Location - A rock filter dam shall be located as close to the source of sediment as possible and so that it will not cause water to back up on upstream adjacent property.

E. Stone Size - The stone size for a rock filter dam shall be determined by the design criteria set forth in the latest edition of the Manual for Erosion and Sediment Control in Georgia. For additional filtering effect, the dam shall be faced with the smaller stones on the upstream side. However, this may make the dam more prone to clogging.

F. Top Width - The top of a rock filter dam shall be no less than 6 feet wide.

G. Geotextile – To prevent the migration of soil particles from the subgrade into the graded stone, geotextiles shall be used as a separator between the graded stone, the soil base, and the abutments. The geotextile shall be specified in accordance with AASHTO M288-96 Section 7.5, *Permanent Erosion Control Recommendations*. The geotextile shall be placed immediately adjacent to the subgrade without any voids. To prevent scour the geotextile shall extend five feet beyond the downstream toe of the dam.

8.5.5 Construction Specifications

The rock filter dam shall extend completely across the channel and securely ties into both channel banks. Rocks shall be placed by mechanical methods or by hand placement. The center of the dam shall be at least 6 inches lower than the outer edge of the dam (see Figure M-7). Gabions that have been sized and installed according to specification outlined in the latest edition of the Manual for Erosion and Sediment Control in Georgia may serve as a rock filter dam.

8.5.6 Maintenance

Periodic inspection and required maintenance shall be provided. Sediment shall be removed when it reaches a depth of one-half of the original height of the dam. Rock filter dams shall be removed once the disturbed areas have been stabilized.

8.6 SEDIMENT BARRIER/FENCE

8.6.1 Definition

A sediment barrier/fence is a temporary structure typically constructed of a silt fabric supported by steel or wooden posts. Other barrier materials may include sandbags, straw bales, brush piles, or other filtering mediums.

8.6.2 Purpose

To prevent sediment carried by sheet flow from leaving the site and entering natural drainage ways or storm drainage systems by slowing storm water runoff and causing the deposition of sediment at the structure.

8.6.3 Conditions Where Practice Applies

Sediment barriers shall be installed where runoff can be stored behind the barrier without damaging the fence or the submerged area behind the fence. Silt fence shall not be installed across streams, ditches, waterways, or other concentrated flow area.

8.6.4 Planning Consideration

Silt fences are usually preferable to hay bales because silt fences can trap a much higher percentage of suspended solids. The success of silt fences depends on a proper installation so as to develop maximum efficiency of trapping. Silt fences as well as hay bales shall be carefully installed to meet the intended purpose

Sediment barriers shall be used on all construction development sites. They shall be installed on the contour so that flow will not concentrate and cause bypassing, overtopping and/or failure. Sediment barriers shall remain in plane and maintained until the disturbed areas have been permanently stabilized.

The primary sediment barrier is a silt fence. A silt fence is specifically designed to allow water to pass through while retaining sediment on the site. Silt fences shall be installed to be stable under the flows expected from the site. Silt fences are composed of woven filter fabric supported between steel or wooden posts. Silt fences are commercially available with geotextile attached to the post and can be rolled out and installed by driving the post into the ground. This type of silt fence is simple to install, but more expensive than some other installations. Silt fences must be trenched in at the bottom to prevent rills from developing under the fence (see Figures M-8a and M-8b).

Hay bale barriers are the next most common sediment barrier. Hay bales are laid end to end along the contour and anchored in place by driving wooden stakes through the bales into the soil. To prevent water from going under the barrier, the bales shall be embedded into the soil four inches (see Figure M-9). Sediment barriers shall be of sufficient length to eliminate end flow whenever it is constructed across a swale or ditch line. The plan configuration shall resemble an arc or horseshoe with ends oriented upstream (see Figure M-3).

8.6.5 Design Criteria

A. Silt fences may be premanufactured or built on site with post, wire and fabric. Silt fence fabric shall be selected from the approved fabrics listed in the Georgia Department of Transportation Qualified Products List #36 (QPL-36).

B. Where all runoff is to be stored behind the fence (where no stormwater disposal system is present), the maximum slope length behind a silt fence shall not exceed those shone in Table M-4 and the latest edition of the Manual for Erosion and Sediment Control in Georgia. The drainage area shall not exceed ¼ acre for every 100 feet of silt fence.

Table M-4 Criteria for Silt Fence Placement

Land Slope (%)	Maximum Slope Length Above Fence (feet)
<2	100
2 to 5	75
5 to 10	50
10 to 20	25
>20*	15

*In areas where the slope is greater than 20%, a flat area length of 10 feet between the toe of the slope to the fence shall be provided.

Source: Manual for Erosion and Sediment Control in Georgia, 2000, Georgia Soil and Water Conservation Commission.

C. Types of Silt Fence

1. Type A silt fence has filter fabric that is 36 inches wide. A type A silt fence shall be used on developments where the life of the project is expected to be greater than or equal to six months.

2. Type B silt fence has filter fabric that is 22 inches wide. Type B silt fence shall be limited to use on minor projects, such as residential home sites or small commercial developments where permanent stabilization will be achieved in less than six months.

3. Type C silt fence has wire reinforced filter fabric that is 36 inches wide. This type fabric allows almost three times the flow rate as Type A silt fence. Type C silt fence shall be used where runoff flows or velocities are particularly high or where slopes exceed a vertical height of 10 feet.

D. A riprap splash pad or other outlet protection device shall be provided for any point where the flow may top the sediment fence, such as natural depressions or swales. At protected reinforced outlets the maximum height of the fence shall not exceed 1 foot and the fence support post spacing shall not exceed 4 feet.

8.6.6 Construction Specifications

A. Sandbags: Shall be approved by local issuing authorities. Sandbags shall be installed such that flow under and between the bags is minimal. If the structure height exceeds two bags, it shall be anchored in place with steel rods.

B. Hay or Straw Bales: Shall be approved by local issuing authorities. Bales shall be placed lengthwise on the contour in a single row and embedded in the soil a minimum depth of 4 inches. Bales shall be securely anchored in place by stakes, bars or other acceptable means (see Figure M-9). Stakes for hay bale barriers shall be nominal 2 inch by 2 inch wood. The wood shall be sound with a minimum length shall be 3 feet. The stakes shall be driven into the ground 18 to 24 inches. Equivalent metal rods or steel bars may be used.

C. Brush Barrier: Shall be used only during timber clearing operations. Brush obtained from clearing and grubbing operation may be piled in a row along the perimeter of disturbance. Brush barriers shall not be used in developed areas or where aesthetics are a concern.

Brush shall be wind-rowed on the contour as nearly as possible. If compaction is necessary, construction equipment may be used for compaction operations. The brush barrier shall have a base width between 5 and 10 feet, and a height between 3 and 5 feet. To achieve greater filtering capacity, filter fabric shall be placed on the side of the brush barrier receiving sediment–laden runoff. The lower edge of the fabric shall be buried in a 6-inch deep trench immediately uphill form the barrier. The upper edge of the fabric shall be stapled, tied or otherwise fastened to the brush barrier. Edges of adjacent fabric pieces shall overlap each other.

D. Silt Fence

1. The filter fabric shall have an approved color mark yarn woven into the fabric or the manufacturer label and fabric name printed on the fabric every 100 feet.

2. The temporary silt fence shall be installed according to these specifications, as shown on construction plans or as directed by an engineer. For fabric installation specifications see Figures M-8a and M-8b and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

3. Post installation shall start at the center of the low-point (if applicable) with the remaining posts spaced 6 feet apart for Type A and B silt fences and 4 feet apart for Type C silt fence. Wood and steel post may be used with Type A and Type B silt fences. Only steel post shall be used with Type C silt fence. For post size requirement see Figures M-8a and M-8b and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

4. The filter fabric shall be securely fastened to the fencing with staples or nails or other fasteners made for this purpose (see Figure M-8a for fastener specifications). The bottom of the filter fabric shall be installed in a trench. The trench shall then be filled with the soil and compacted.

5. Along stream buffers and other sensitive areas, two rows of Type C silt fence or one row of Type C silt fence backed by haybales shall be used.

8.6.7 Maintenance

Sediment barriers shall be inspected immediately after each rainfall and at least weekly during normal construction activities and daily during prolonged rainfall. Any needed repairs shall be made immediately. Fabric shall be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six months).

Sediment deposits shall be removed when the deposits reach one-half the original height of the barrier. Any sediment deposits remaining after the sediment barrier is no longer required shall be smoothed to conform to the natural topography and the area restored as described earlier in Article 6.0.

8.7 INLET SEDIMENT TRAP

8.7.1 Definition

An inlet sediment trap is a temporary protective device formed around a storm drain drop inlet to trap sediment.

8.7.2 Purpose

Inlet sediment traps shall be used until the disturbed areas are permanently stabilized to prevent sediment from leaving the site, or from entering storm drainage systems.

8.7.3 Conditions Where Practice Applies

Inlet sediment traps shall be installed at or around all storm drain drop inlets that receive runoff from disturbed areas.

8.7.4 Design Criteria

The drainage area contributing to an inlet sediment trap shall be no greater than one acre. A variety of sediment filtering devices that can serve as temporary sediment traps are shown in Figures M-10a through M-10e. Sediment traps shall be self-draining unless they are otherwise protected in an approved manner that will not present a safety hazard.

A temporary dike shall be constructed on the down slope side of a sediment trap where runoff may bypass the protected inlet. Stone filter rings may be used on the up slope side of the inlet to slow runoff and filter larger soil particles. Refer to the latest edition of the Manual for Erosion and Sediment Control in Georgia for stone filter ring specifications.

Where additional sediment storage is required, an excavation shall be created around the inlet sediment trap. The excavated area shall be sized to provide a minimum storage capacity calculated at 67 cubic yards per acre of drainage area. All excavated sediment traps shall provide a minimum of 1.5 feet of sediment storage and shall not have side slopes steeper than 2:1.

8.7.5 Construction Specifications

Sediment traps shall be constructed on natural ground surface, on an excavated surface, or on machine compacted fill provided they have a non-erodible outlet.

A. Fabric Frame Inlet Sediment Traps: Filter fabric fitted around a supporting frame shall be used for inlet protection where the inlet drains a relatively flat area (slope no greater than 5 percent) and the inlets do not receive concentrated flows. The frame shall be constructed from Type C filter fabric supported by steel posts (see Figure M-10a). Stakes shall be spaced evenly around the perimeter of the inlet a maximum of 3 feet apart and securely driven into the ground approximately 18 inches deep. The fabric shall be entrenched 12 inches and backfilled with crushed stone or compacted soil. Fabric shall be securely fastened to the posts, and fabric ends shall be overlapped a minimum of 18 inches or wrapped together around a post.

B. Baffle Box: A baffle box inlet sediment trap shall be used for inlets receiving runoff with a higher volume or velocity. The baffle box shall be constructed of 2”

x 4" boards spaced a maximum of 1 inch apart or of plywood with weep holes. The weep holes shall be 2 inches in diameter spaced approximately 6 inches on center vertically and horizontally. The entire box shall be wrapped in Type C filter fabric. The filter fabric shall be entrenched 12 inches and backfilled. Gravel shall be placed outside the box, all around the inlet, to a depth of 2 to 4 inches (see Figure M-10b).

C. Block and Gravel Drop Inlet Sediment Traps: Block and gravel drop inlets shall be used where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the structure. On each side of the structure one block, in the bottom row, shall be placed on its side to allow the pool to drain (see Figure M-10c). The foundation shall be excavated at least 2 inches below the crest of the storm drain. The bottom row of blocks shall be placed against the edge of the storm drain for lateral support and to avoid washouts when overflow occurs. When needed, lateral support shall be provided to subsequent rows by placing 2" x 4" wood studs through the block openings. To hold gravel in place, hardware cloth or comparable wire mesh with ½ inch openings shall be carefully fitted over all block openings. Clean gravel shall be placed to a height of 2 inches below the top of the block on a 2:1 slope or flatter and smoothed to an even grade. Georgia DOT #57 washed stone is recommended.

D. Gravel Drop Inlet Sediment Traps: Gravel drop inlet protection shall be used where heavy concentrated flows are expected. The slope toward the inlet shall be no steeper than 3:1. To prevent gravel from entering the inlet, an area of level stone, that is a minimum of 1 foot wide, shall be placed between the structure and around the inlet. Stone that is 3 inches or larger in diameter shall be used on the slope toward the inlet. On the slope away from the inlet, #57 (½" to ¾" diameter) washed stone shall be placed in a layer at least one foot (1') thick (see Figure M-10d).

E. Sod Inlet Protection: Sod inlet protection shall be used at the time of permanent seeding to protect inlets from sediment and mulch material until the permanent vegetation becomes established. The sod shall be placed to form a turf mat covering the soil for a distance of 4 feet from each side of the inlet structure. Sod strips shall be staggered so that adjacent strip ends are not aligned. Refer to Figure M-10e for sod inlet protection details.

8.7.6 Maintenance

Sediment traps shall be inspected daily and after each rain. Repairs shall be made as needed. Sediment shall be removed when the sediment has accumulated to one-half the height of the trap. For excavated inlet sediment traps, sediment shall be removed when one-half the storage capacity has been lost due to sediment accumulation. Sediment that is removed from sediment traps shall be properly disposed of and stabilized so that it will not enter the inlet or any waters bodies. Sediment shall not be washed into the inlet. Sod inlet protection shall be maintained as specified in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

Sediment traps shall be removed when the contributing drainage area has been adequately stabilized. All materials and any unstable soil shall be salvaged or properly disposed of. The disturbed area shall be brought back to proper grade then smoothed and compacted. All bare areas around the inlet shall be permanently stabilized.

8.8 TEMPORARY SEDIMENT BASIN

8.8.1 Definition

A temporary sediment basin is created by the construction of a barrier or dam across a concentrated flow area, by excavating a basin, or by a combination of both. Temporary sediment basins usually consist of a dam, a pipe outlet, and an emergency spillway. The size of the structure depends on the location, size of contributing drainage area, soil type, and rainfall pattern.

8.8.2 Purpose

The purpose of a temporary sediment basin is to protect properties and drainage ways from damage caused by excessive sedimentation and debris from erodible areas. The water is temporarily stored and the bulk of the sediment carried by the water drops out and is retained in the basin before the water is automatically released.

8.8.3 Conditions Where Practice Applies

This practice applies to critical areas where physical site conditions, construction schedules, or other restrictions preclude the installation or establishment of erosion and sediment control practices to satisfactorily reduce runoff, erosion, and sedimentation. The structure may be used in combination with other practices and shall remain in effect until the sediment-producing area is permanently stabilized.

This standard applies to the installation of temporary (to be removed within 18 months) sediment basins on sites where: (1) failure of the structure would not result in loss of life or interruption of use or service of public utilities, and (2) the contributing drainage area does not exceed 150 acres.

8.8.4 Design Criteria

A. Compliance with Laws and Regulations: Design and construction shall comply with federal, state, and local laws, ordinances, rules and regulations.

B. Location: The sediment basin shall be located to obtain the maximum storage benefit from the terrain and for ease of cleanout of the trapped sediment. It shall also be located to minimize interference with construction activities and construction of utilities. Sediment basins shall be located so that storm drains discharge into the basin. They shall never be placed in live streams.

C. Volume of Basin: The sediment storage volume of the basin, as measured to the crest elevation of the principal spillway, shall be at least 67 cubic yards per acre of disturbed area draining to the basin (67 cubic yards is equivalent to ½ inch of sediment per acre of drainage area). The entire contributing drainage area shall be used for this computation, rather than the disturbed area alone. The sediment shall be removed once approximately one-third of the storage volume of the basin has been lost to sediment accumulation

D. Surface Area: Studies (Barfield and Clar, 1985) indicate that the following relationship between surface area and peak inflow rate gives a trapping efficiency from greater than 75 percent for clay loam to 96 percent for loamy sandy soils.

$$\mathbf{A = 0.01q}$$

where A is the basin surface area in acres and q is the peak inflow rate in cfs. The area is measured at the crest of the principal spillway riser. The minimum peak inflow rate shall be determined from a 2-year, 24-hour storm.

E. Shape of the Basin: To maximize detention time within the basin the designer shall incorporate features as listed below:

1. The length to width ratio shall be greater than 2:1 where length is the distance between the inlet and the outlet. Computation methods are described in the *Procedure for Determining or Altering Sediment Basin Shape* in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

2. A wedge shaped basin with the inlet located at the narrow end.

3. Baffles or diversions.

F. Spillways: Runoff shall be computed by the method outlined in the latest edition of the Manual for Erosion and Sediment Control in Georgia. Other approved equivalent methods may also be used. Runoff computations shall be based upon the worst soil-cover conditions expected to prevail in the contributing drainage area during the anticipated effective life of the structure. The combined capacities of the principal and emergency spillway shall be sufficient to pass the pear rate of runoff from a 25-year, 24-hour frequency storm. An emergency spillway shall be included in the design, even if the principal spillway is designed to convey the peak rate of runoff from a 25-year, 24-hour storm,

1. Principal Spillway: A spillway consisting of a vertical pipe or box type riser joined (watertight connection) to a pipe that extends through the embankment and outlet beyond the downstream toe of the fill shall be provided. The metal gauge thickness of the principal spillway shall comply with Georgia DOT or NRCS specification. The discharge shall be

based on a 2-year, 24-hour storm for the total drainage area without causing flow through the emergency spillway. The appropriate disturbed soil cover condition shall be used. The minimum pipe size shall be 8 inches in diameter. Refer to the *Pipe Flow Chart for Corrugated Metal Pipe Drop Inlet Principal Spillway Conduit* table and the *Weir Flow (Q) Over Riser Crest for Circular Risers with Trash Rack* table, in the latest edition of the Manual for Erosion and Sediment Control in Georgia, to determine the proper sizing of the principal spillway, the riser, and the trash rack.

a. Crest Elevation: The crest elevation of the riser shall be a minimum of one foot below the elevation of the control section of the emergency spillway (see Figure M-11a).

b. Watertight barrel assembly: The riser and all pipe connections shall be completely watertight except for the inlet opening at the top or dewatering openings, and shall not have any other holes, leaks, rips or perforations.

c. Dewatering the basin: Retention time within the basin is an important factor in effective sedimentation retention. The method used to dewater the sediment basin shall be selected form the following;

   1. Perforated Riser Pipe: The lower half of the riser shall be perforated with ½ inch holes spaced approximately 3 inches apart. The riser pipe shall then be covered with two feet of 3 to 4 inch stone (see Figure M-11a).

   2. Skimmer Outlet: The skimmer-type dewatering device operates at the surface of the ponded water and will not withdraw sediment from the submerged volume of the basin. Skimmers discharge 45 percent less sediment mass than conventional perforated risers. However, skimmers are mechanically more complex and shall require frequent inspection and maintenance in order to operate as designed.

d. Trash rack and anti-vortex device: A trash rack and anti-vortex device shall be securely installed on top of the riser as detailed in the latest edition of Manual for Erosion and Sediment Control in Georgia.

e. Base: The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. A concrete base 18” thick with the riser embedded 9” in the base is recommended. The minimum factor of safety shall be

1.20 (downward forces = 1.20 x upward forces). Refer to Table M-5 for volume of concrete required for risers and Figure M-11b for concrete riser base details.

Table M-5 Concrete Volume Required to Prevent Flotation of Riser

Riser Pipe Diameter (inches)	Buoyant Force (lbs./Vertical Foot of Riser Height)[1]	Volume of concrete per Vertical Foot of Riser Height (c.f./V.F.) Needed to Prevent Flotation[2]
12	49.0	0.69
18	110.3	1.54
21	150.1	2.10
24	196.0	2.75
30	306.3	4.29
36	441.1	6.18
48	784.1	10.98
54	992.4	13.90
60	1225.2	17.16

[1]The weight of the riser pipe is negligible.
[2] Includes a factor of safety of 1.2.
Source: Manual for Erosion and Sediment Control in Georgia, 2000, Georgia Soil and Water Conservation Commission.

f. Anti-Seep Collars: One anti-seep collar shall be installed around the pipe, near the center of the dam, when any of the following conditions exist:

1. The settled height of the dam is greater than 15 feet.

2. The conduit is smooth pipe larger than 8" in diameter.

3. The conduit is corrugated metal pipe larger than 12" in diameter.

Use an anti-seep collar with an 18-inch projection for heads (H) less than or equal to 10 feet and a 24-inch projection for heads (H) greater than 10 feet. The anti-seep collar and its connection shall be watertight.

g. Outlet: An outlet shall be provided, including a means of conveying the discharge in an erosion-free manner to an existing stable area. Where discharge occurs at the property line, drainage

easements shall be obtained in accordance with local ordinances. Adequate notes and references shall be shown on the erosion and sediment control plan. Protection against scour at the discharge end of the pipe spillway shall be provided. Measures may include excavated plunge pools, riprap, impact basins, revetments, or other approved methods. For storm drain outlet protection specifications refer to the latest edition of the Manual of Erosion and Sediment Control in Georgia.

2. Emergency Spillway: The entire flow area of the emergency spillway shall be constructed in undisturbed ground (not fill). The emergency spillway cross-section shall be trapezoidal with a minimum bottom width of eight feet. This spillway channel shall have a straight control section of at least 20 feet in length and a straight outlet section for a minimum distance equal to 25 feet.

   a. Capacity: The minimum capacity of the emergency spillway shall be that required to pass the peak rate of runoff from the 25-year, 24-hour frequency storm, less any reduction due to flow in the principal spillway. The appropriate disturbed soil cover condition shall be used. Emergency spillway dimensions shall be determined by using the method described in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

   b. Velocities: The velocity of flow in the exit channel shall not exceed 5 feet per second for vegetated channels. For channels with erosion protection other than vegetation, velocities shall be within the non-erosive range for the type of protection used. Vegetation, riprap or concrete shall be provided to prevent erosion. For channel stabilization specifications refer to the latest edition of the Manual for Erosion and Sediment Control in Georgia.

   c. Freeboard: Freeboard is the difference between the design high water elevation in the emergency spillway and the top of the settled embankment. The freeboard shall be at least one foot.

G. Entrance of Runoff Into the Basin: The points of entrance of surface runoff into excavated sediment basins shall be protected to prevent erosion and sediment generation (for specifications refer to the latest edition of the Manuel for Erosion and Sediment Control in Gerogia). Dikes, swales or other water control devices shall be installed as necessary to direct runoff into the basin. To maximize travel time, the points of runoff entry shall be located as far away from the riser as possible.

8.8.5 Construction Specifications

A. Site Preparation: The areas under the embankment and under structural works shall be cleared, grubbed, and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed and disposed of by approved methods. In order to facilitate clean-out or restoration, the pool area (measured at the top of the pipe spillway) shall be cleared of all brush and trees.

B. Cut-off Trench: A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be 2 feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be 4 feet, but wide enough to permit operation of compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for the embankment. The trench shall be drained during the backfilling and compaction operations.

C. Embankment: The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW & SP) shall be placed in the downstream section of the embankment. Areas on which fills are to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed in six-inch to eight-inch thick continuous layers over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of the fill is traversed by at least one wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 5 percent higher than the design height to allow for settlement.

D. Principal Spillway: The riser shall be securely attached to the pipe or pipe stub by welding the full circumference making a watertight structural connection. The pipe stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be watertight. All connections between pipe sections must be achieved by approved watertight band assemblies. The pipe and riser shall be placed on a firm, smooth foundation of impervious soil as the embankment is constructed. Breaching the embankment is unacceptable. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep collar. The fill material around the pipe spillway shall be placed in four-inch layers and compacted under and around the pipe to at least the same density as the adjacent embankment. Care must be taken not to raise the pipe from firm contact with its foundation when compacting under the pipe hunches. A minimum depth of two feet of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.

E. Emergency Spillway: The emergency spillway shall be installed on undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel slopes are critical to the successful operation of the emergency spillway and shall be constructed within a tolerance of ± 0.2 feet. If the emergency spillway requires erosion protection other than vegetation, the lining shall not compromise the capacity of the emergency spillway.

F. Vegetative Treatment: The embankment and all other disturbed areas shall be stabilized in accordance with the appropriate permanent vegetative measure immediately following construction. In no case shall the embankment remain unstabilized for more than seven (7) days. For disturbed area stabilization techniques refer to Articles 8.10 through 8.14 and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

G. Erosion and Pollution Control: Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. State and local law concerning pollution abatement shall be complied with.

H. Safety: State and local requirements shall be met concerning fencing and signs warning the public of hazards of soft sediment and floodwater.

8.8.6 Maintenance

All damages caused by soil erosion or construction equipment shall be repaired at or before the end of each working day. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser. This sediment shall be placed and stabilized in such a manner that it will not erode from the site. Sediment shall not enter adjacent streams or drainageways during sediment removal or disposal. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or floodplain.

8.8.7 Final Disposal

When temporary structures have served their intended purpose and the contributing drainage area has been properly permanently stabilized, the embankment and resulting sediment deposits shall be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the embankment and trapped sediment shall be removed, safely disposed of, and backfilled with a structural fill. When the basin area is to remain open space, the pond shall be pumped dry, graded and backfilled.

8.8.8 Plan Information to be Submitted

Sediment basin designs and construction plans shall be submitted for review to the City,

the Soil and Water Conservation District and/or other agencies. The erosion and sediment control plan shall include the following:

1. The specific location of the basin showing existing and proposed contours.

2. Maintenance equipment access points.

3. Figures detailing the cross-section of the dam, principal spillway and emergency spillway, and the profile of the emergency spillway.

4. Details of the trash rack, concrete riser base, and outlet structure assembly.

The following shall be submitted on 8 ½" x 11" attachments;

1. A hydrological study, including information regarding state/storage relationship.

2. A temporary sediment basin design sheet

3. Figures detailing the cross-section of the dam, principal spillway and emergency spillway, and the profile of the emergency spillway.

8.8.9 Procedure for Determining or Altering Sediment Basin Shape

As specified in the latest edition of the Manual for Erosion and Sediment Control in Georgia, the pool area at the elevation of the principal spillway crest shall have a length to width ratio of at least 2:1. The purpose of this requirement is to minimize the "short-circuiting" effect of the sediment laden inflow to the riser and thereby increasing the effectiveness of the sediment basin. This procedure provides alternative parameters and methods of determining and modifying the shape of the basin.

The length of the flow path (L) is the distance from the point of inflow to the riser (outflow point). The point of inflow is the point that the stream enters the normal pool (level at the riser crest elevation). The pool area (A) is the area of the normal pool. The effective width (W_e) equals the area (A) divided by the length (L). The length to width ratio (L:W) is found by the equation:

$$L : W = L / W_e \text{ where, } W_e = A / L.$$

In the event there is more than one inflow point, any inflow point which conveys more than 30 percent of the total peak inflow shall meet the length-width ration criteria.

The required basin shape may be obtained by proper site selection, by excavation, or by constructing a baffle in the basin. The purpose of the baffle is to increase the effective flow length from the inflow point to the riser. Baffles shall be placed mid-way between the inflow point and the riser. The baffle length shall be as required to provide the minimum 2:1 length-width ratio. The effective length (L_e) shall be the shortest distance

the water must flow from the inflow point around the end of the baffle to the outflow point. Then:

$$L : W = L_e / W_e \text{ where, } W_e = A / L_e$$

See Figure M-11c for examples of sediment basin baffles. Note that the special case shown in Example C is allowable only when the two flow paths are equal.

The dimensions necessary to obtain the required basin volume and surface area shall be clearly shown on the plans to facilitate plan review, construction, and inspection.

8.9 TEMPORARY SEDIMENT TRAPS

8.9.1 Definition

A small, temporary ponding basin formed by constructing an earthen embankment with a control outlet, generally constructed of rock or gravel.

8.9.2 Purposes

To detain sediment-laden runoff from small disturbed areas long enough to allow the majority of the sediment to settle out.

8.9.3 Conditions Where Practice Applies

A. Sediment trap shall be used no longer than 18 months.

B. The sediment trap shall be constructed either independently or in conjunction with a temporary diversion dike.

C. Sediment traps shall be used only for small drainage areas. If the contributing drainage area is greater than 5 acres refer to Article 8.8 and the latest edition of the Manual for Erosion and Sediment Control in Georgia, for temporary sediment basins design and construction specifications.

D. Sediment shall be periodically removed from the trap. Plans shall detail how this sediment is to be disposed of, such as by use in fill areas on site or removal to an approved off-site dump

E. Sediment traps, along with other perimeter controls, shall be installed before any land disturbance takes place in the drainage area.

8.9.4 Design Criteria

A. Drainage area for a sedimentation trap shall not exceed 5 acres.

B. Storage capacity: The sediment trap shall have an initial storage volume of 67

yd^3/acre of disturbed area, measured from the low point of the ground to the crest of the gravel outlet. Sediment shall be removed from the basin when the volume is reduced by one-half.

For a natural basin, the volume may be approximated as follows:

$V = 0.4 \times A \times D$.

Where:

V = the storage volume, ft^3
A = the surface area of the flooded area at the crest of the outlet, ft^2
D = the maximum depth, measured from the low point in the trap to the crest of the outlet, ft.

C. Excavation: If excavation is necessary to attain the required storage volume, side slopes shall be no steeper than 2:1.

D. Outlet: The outlet for the sediment trap generally consists of a crushed stone section of the embankment located at the low point in the basin. The minimum length of the outlet crest shall be 6 feet times the acreage of the drainage area. The crest of the outlet shall be at least 1.0 foot below the top of the embankment, to insure that the flow will travel over the stone and not the embankment.

E. Embankment Cross-Section: The maximum height of the sediment trap embankment shall be 5 feet as measured from the low point. The minimum top widths (W) and outlet heights (H_o) for various embankment heights (H) are shown in Table M-6. The side slopes of the embankment shall be 2:1 or flatter (see Figure M-12).

Table M-6 Minimum Top Width and Outlet Height Requirements for Temporary Sediment Traps

Embankment Height (H)	Outlet Height (H_o)	Minimum Embankment Top Width (W)
1.5	0.5	2.0
2.0	1.0	2.0
2.5	1.5	2.5
3.0	2.0	2.5
3.5	2.5	3.0
4.0	3.0	3.0
4.5	3.5	4.0
5.0	4.0	4.5

Source: City of Atlanta, Georgia – Stormwater Design Manual, 1996.

8.9.5 Construction Specifications

A. The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and root mat. To facilitate cleanout, the pool area shall be cleared.

B. Fill material for the embankment shall be free of roots or other woody vegetation, organic material, large stones, and other objectionable material. The embankment shall be compacted in 8-inch layers by traversing with construction equipment.

C. The earthen embankment shall be seeded with temporary or permanent vegetation within 7 days of construction.

D. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.

E. All cut and fill slopes shall be 2:1 or flatter.

8.9.6 Maintenance

Temporary sediment traps shall be inspected after each period of significant rainfall. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one-half the design depth of the trap. The sediment removed shall be placed in the designated disposal area. The contaminated part of the gravel facing shall be replaced.

The structure shall be checked for damage from erosion or piping. The depth of the spillway shall be checked periodically to ensure it is a minimum of 1.0 ft below the low point of the embankment. Any observed settlement of the embankment shall be filled immediately to slightly above design grade. Any riprap displaced from the spillway shall be replaced immediately.

After all sediment-producing areas have been permanently stabilized, the structure and all unstable sediment shall be removed. The area shall be smoothed to blend with the adjoining areas and restored as described later in this document.

8.10 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)

8.10.1 Definition

Application of a protective layer of plant residues or other suitable materials produced on the site if possible, to the soil surface.

8.10.2 Purpose

Applying mulch to disturbed areas may reduce runoff and erosion, conserve moisture, prevent surface compaction or crusting, control undesirable vegetation, modify soil temperature, and increase biological activity in the soil.

8.10.3 Requirement for Regulatory Compliance

Mulch or temporary grassing shall be applied to all exposed areas within 14 day of disturbance. Mulch can be used as a singular erosion and sediment control device for up to six months, but shall be applied at the appropriate depth, anchored, and have a continuous cover over at least 90 percent of the soil surface. Maintenance shall be required to maintain appropriate depth and 90 percent coverage. If the area will require erosion and sediment control for less than six months, temporary vegetation may be used instead of mulch. If an area will require erosion and sediment control for more than six months, permanent vegetative techniques shall be used. For temporary and permanent vegetation specification see Articles 8.11 through 8.13 and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

8.10.4 Specifications

Mulching Without Seeding: This standard applies to grades or cleared areas where seedlings may not have a suitable growing season to produce an erosion retardant cover, but which can be stabilized with a mulch cover.

A. Site Preparation

1. Necessary grading shall be performed to permit the use of equipment for applying and anchoring mulch.

2. Erosion and sediment control measures such as dikes, diversion, berms, terraces and sediment barriers shall be installed as needed.

3. Compacted soil shall be loosened to a minimum depth of 3 inches.

B. Mulching Materials

1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing the soil is completely covered.

2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Where feasible, organic material from the clearing stage of development shall remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion and sediment control costs.

3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

C. Applying Mulch

1. Dry straw or hay mulch and wood chips shall be uniformly applied by hand or by mechanical equipment.

2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.

3. Apply polyethylene film on exposed areas.

D. Anchoring Mulch

1. Straw or hay mulch may be pressed into the soil using a disk harrow with the disk set straight or with a special "packer disk." The disks shall be smooth or serrated and shall be 20 inches or more in diameter and spaced 8 to 12 inches apart. The edges of the disks shall be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

2. Appropriately sized netting shall be used to anchor wood waste. The openings of the netting shall not be larger than the average size of the wood waste chips.

3. Polyethylene film shall be anchored by trenching at the top and incrementally as necessary.

8.10.5 Maintenance

All mulches shall be inspected periodically, and after rainstorms to check for rill erosion, dislocation, or failure. Where erosion is observed, additional mulch shall be applied. If washout occurs, the slope grade shall be repaired, reseeded, and the mulch reinstalled. Inspections shall continue until the permanent vegetation has been firmly established.

8.11 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

8.11.1 Definition

Planting rapid growing seeds to provide initial, temporary cover for erosion and sediment control on disturbed and denuded areas.

8.11.2 Purpose

The purpose of temporary seeding is to reduce erosion, sediment and runoff damages to downstream resources until permanent vegetation or other erosion and sediment control measures can be established. In addition, it provides residue for soil protection and seedbed preparation and reduces problems of mud and dust production from bare soil surfaces during construction. Other purposes may include improvement of wildlife habitat, aesthetics, tilth, infiltration, and aeration.

8.11.3 Requirement for Regulatory Compliance

Mulch and temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area will require erosion and sediment control for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion and sediment control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous cover over at least 90 percent of the soil surface. For mulch specifications refer Article 8.10 and to the latest edition of the Manual for Erosion and Sediment Control in Georgia.

8.11.4 Conditions Where Practice Applies

On any cleared, bare, or sparsely vegetated soil surfaces where vegetative cover is needed for up to six months, or until establishment of finished grade or a permanent vegetative cover. Applications of this practice include diversions, dams, temporary sediment basins, temporary road banks, and soil stockpiles. Temporary vegetative measures shall be coordinated with permanent measures to assure economical and effective stabilization. Some species of temporary vegetation are not appropriate as companion crop for permanent vegetation because of their potential to out-compete the permanent species. Contact the NRCS of the local SWCD for more information.

8.11.5 Specifications

A. Grading and Shaping: Slopes that can be stabilized by hand-seeded vegetation or with hydraulic seeding equipment may not require shaping or grading. Erosion and sediment control practices such as closed drains, ditches, dikes, diversions, sediment basins and others shall be installed for areas where excessive water run-off needs to be controlled.

B. Seedbed Preparation: Good seedbed preparation is essential to successful plant establishment. A good seedbed is well pulverized, loose, and smooth. Sealed or crusted surfaces shall be loosened just prior to seeding to provide a place for seeds to lodge and germinate. Soil that is sealed or crusted shall be pitted, trenched or otherwise scarified by disking, raking, harrowing, or other suitable methods.

   When hydroseeding methods are use, seedbed preparation shall not be required. When using conventional or hand seeding is used and the soil material is loose and not sealed by rainfall, seedbed preparation is not be required.

C. Lime and Fertilizer: Soils shall be tested to determine if fertilizer is needed. Fertilizer shall not be required on reasonably fertile soils or soil material. For soils with very low fertility, 500 to 700 pounds of 10-10-10 fertilizer or the equivalent shall be applied per acre. To better incorporate the fertilizer into the soil, the fertilizer shall be applied before land preparation procedures occur.

Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate of one ton per acre. Graded areas require lime application.

D. Seeding: A grass or grass-legume mixture suitable to the area and season of the year shall be selected from the Plants, Planting Rates, and Planting Dates for Temporary Cover or Companion Crops Table, in the latest edition of the Manual for Erosion and Sediment Control in Georgia. Seed shall be uniformly applied by hand, cyclone seeder, drill, cultipacker-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker-seeders shall normally place seed one-quarter to one-half to one inch deep. Appropriate depth of planting is ten times the seed diameter. Soil shall be "raked" lightly to cover the seed with soil if seeded by hand.

E. Mulching: In most cases temporary vegetation can be established without the use of mulch. Mulch without seeding may be considered for short-term protection. For disturbed area stabilization with mulch see Article 8.10 and the latest edition of the Manual of Erosion and Sediment Control in Georgia.

F. Irrigation: During times of drought, water shall be applied at a rate that will not cause runoff and erosion. The soil shall be thoroughly wet to a depth that will insure germination of the seed. Subsequent applications shall be made when needed.

8.12 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

8.12.1 Definition

Planting perennial vegetation such as trees, shrubs, vines, grasses, or legumes, on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

8.12.2 Purpose

The purpose of establishing permanent vegetation in disturbed areas is to protect the soil surface from erosion, reduce damage from sediment and runoff to downstream areas, improve wildlife habitat and visual resources and improve aesthetics.

8.12.3 Requirement for Regulatory Compliance

This practice or sod shall be applied immediately to rough graded areas that will require erosion and sediment control for longer than six months or to all areas at final grade. For disturbed area stabilization using sod refer to Article 8.13 and the latest edition of the Manual for Erosion and Sediment Control in Georgia. Final stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures, at least 70 percent of the soil surface is

uniformly covered in permanent vegetation or equivalent permanent stabilization measures (such as the use of riprap, gabions, permanent mulches or geotextiles) have been employed.

Permanent vegetation is the planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes, on exposed areas for permanent soil stabilization. A crop of perennial vegetation appropriate for the region which is capable of providing a 70 percent coverage within the growing season shall be used to achieve permanent soil stabilization. Acceptable plants and grasses are listed in Section 5.0 of this document and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

8.12.4 Conditions Where Practice Applies

Permanent perennial vegetation shall be used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

8.12.5 Planning Considerations

A. Conventional planting methods shall be used where possible.

B. To aid in the establishment of permanent cover, companion crops shall be used. This technique is especially helpful during marginal planting periods.

C. Following a summer or winter annual cover crop, no-till planting shall be used. An excellent procedure is to use no-till planting of sericea lespedeza into stands of rye.

D. Block sod provides immediate cover and shall be used to control erosion adjacent to concrete flumes and other structures. For disturbed area stabilization using sod specifications refer Article 8.13 and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

E. Irrigation shall be used when the soil is dry or when summer plantings are done.

F. To ensure long-lasting erosion and sediment control, low maintenance native plants shall be used.

G. Mowing shall not be performed during the quail nesting season, (September to April).

H. In critical area plantings wildlife plantings shall be included.

Wildlife Plantings – Commercially available plants beneficial to wildlife species include the following:

Mast Bearing Trees – Beech, Black Cherry, Blackgum, Chestnut, Chinkapin, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak and Sweetgum. All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear.

Shrubs and Small Trees – Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry. Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza which produces seeds used by quail and songbirds.

Grasses, Legumes, Vines, and Temporary Cover – Bahiagrass, Bermudagrass, Grass-Legume mixture, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover) and Native grapes. Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers and lespedezas may be mixed with grass, but they may die out after a few years.

8.12.6 Construction Specifications

A. Grading and Shaping: Slopes that can be stabilized by hand-seeded vegetation or with hydraulic seeding equipment may not require shaping or grading. Vertical banks shall be sloped to ensure plant establishments.

When using conventional seeding and fertilizing the slope shall be graded and shaped, where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching, and maintenance of the vegetation.

Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Erosion and sediment control practices shall conform to the appropriate standards and specifications contained in this section and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

B. Lime and Fertilizer

1. Rates and Analysis: In areas where permanent vegetation is to be established, agricultural lime shall be applied as indicated by soil test or at a rate of one to two tons per acre. Graded areas require lime application. Agricultural lime shall not be required in areas to be planted with only trees. If lime is applied within six months of planting permanent perennial vegetation, additional lime shall not be required. Agricultural lime shall be within the specifications of the Georgia Department of Agriculture.

Lime spread by conventional equipment shall be "ground limestone." Ground limestone is calcitic or dolomitic limestone that has been ground so that 90 percent of the material will pass through a 10-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve, and not less than 25 percent will pass through a 100-mesh sieve.

Agricultural lime spread by hydraulic seeding equipment shall be "finely ground limestone." Finely ground limestone is calcitic or dolomitic limestone ground so that 98 percent of the material will pass through a 20-mesh sieve and not less than 70 percent will pass through a 100-mesh sieve.

Refer to the Fertilizer Requirements table in the latest edition of the Manual for Erosion and Sediment Control in Georgia for initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for a particular species or combination of species.

2. Application: When hydraulic seeding equipment is used the initial fertilizer shall be applied in a mixed slurry of seed, inoculant (if needed), and wood cellulose or wood pulp fiber mulch. The slurry mixture shall be kept thoroughly mixed throughout the application and shall be uniformly spread over the area within one hour after being placed in the hydroseeder.

   Finely ground limestone will be mixed with water and applied immediately after mulching is completed or in combination with the top dressing.

   When conventional planting is used the lime and fertilizer shall be applied uniformly in one of the following ways:

   a. Apply before land preparations so that it will be mixed into the soil during seedbed preparation

   b. Mix with the soil to be used to fill the holes or distribute in furrows

   c. Broadcast after steep surfaces are scarified, pitted or trenched

   d. A fertilizer pellet shall be placed at root depth beside each pine tree seeding.

C. Plant Selection: For approved species refer to Section 5.0 and the Plants, Planting Rates, and Planting Dates for Permanent Cover, Durable Shrubs and Ground Covers for Permanent Cover, and Trees for Erosion Control tables in the latest edition of the Manual for Erosion and Sediment Control in Georgia. Before using any species not listed, it shall be approved by the State Resource Conservation of the Natural Resources Conservation Service.

Plants shall be selected on the basis of species characteristics; site and soil conditions; planned use and maintenance of the area; time of year of planting; method of planting and the needs and desires of the land user.

Some perennial species are easily established and can be planted alone. Other perennials are slow to become established and shall be placed with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species becomes established.

Plant selections may also include annual companion crops. Annual companion crops shall be used only when the perennial species are not planted during their optimum planting period. Care shall be taken in selection of companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients and growing space. Ryegrass shall not be used in any seeding mixtures containing perennial species due to its ability to out-compete desired species chosen for permanent perennial cover.

Seed Quality - The term "pure live seed" is used to express the quality of seed. Pure live seed, PLS, is expressed as a percentage of the seeds that are pure and will germinate. The percent of PLS helps to determine the amount of seed needed. For further information and an example of calculating PLS refer to the Disturbed Area Stabilization (with Permanent Vegetation) section in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

D. Seedbed Preparation: Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used. When using conventional seeding, seedbed shall be prepared as follows:

E. Broadcast plantings: Minimum tillage shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used. Tillage shall be performed with any suitable equipment. Where feasible, tillage shall be done on the contour. Where slopes are too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used

F. Individual plants: In areas where individual plants are to be set, the soil shall be well prepared by excavating holes, opening furrows, or dibble planting. When using nursery stock plants, holes shall be large enough to accommodate roots without crowding.

Four to six months prior to planting pine seedlings, the area shall be subsoiled 36 inches deep on the contour. Subsoiling shall be done when the soil is dry, preferably in August or September.

G. Inoculants: All legume seed shall be inoculated with appropriate nitrogen-fixing bacteria. The inoculant shall be a pure culture prepared specifically for the seed species and used before the expiration date. A mixing medium recommended by the manufacture shall be used to bond the inoculant to the seed. All inoculated seed shall be protected from the sun and high temperatures and shall be planted the same day inoculated.

For conventional seeding, two times the amount of inoculant recommended by the manufacturer shall be used. For hydraulic seeding, four times the amount of inoculant recommended by the manufacture shall be used. No inoculated seed shall remain in the hydroseeder longer than one hour.

H. Planting

Hydraulic seeding: A slurry consisting of seed, inoculant, fertilizer, wood cellulose or wood pulp fiber mulch, and water shall be uniformly applied to the area to be treated. Apply within one hour after the mixture is made.

Conventional seeding: Seeding shall be done on a freshly prepared and firmed seedbed. To insure uniform distribution of the seed during broadcast planting, a cultipacker-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding shall be used. The seed shall be covered lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

No-till seeding: This application is permissible into annual cover crops when planting is done following maturity of the cover crop or if a temporary cover stand is sparse enough to allow adequate growth of the permanent species. Seed shall be uniformly distributed and planted at the proper depth. No-till seeding shall be performed with appropriate no-till seeding equipment.

Individual plants: Shrubs, vines and sprigs shall be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Nursery stock plants shall be planted at the same depth or slightly deeper that they grew at the nursery. The tips of vines and sprigs shall be at or slightly above the ground surface. Where individual holes are dug, fertilizer shall be placed in the bottom of the holes, followed by the addition of two inches of soil and setting of the plant. All plants shall be set in a manner that will avoid crowding of the roots.

I. Mulching: Mulch shall be used on all permanent vegetation application. Mulch applied to seeded areas shall achieve 75 percent soil cover.

Mulching material and rate of application shall consist of <u>one</u> of the following:

1. Dry straw or dry hay : Straw or hay that is dry, of good quality and free of weed seeds shall be used. Straw shall be applied at the rate of 2 tons per acre. Hay shall be used at a rate of 2 1/2 tons per acre.

2. Wood cellulose mulch or wood pulp fiber: Wood cellulose or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated in item 1 above) after hydraulic seeding.

3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.

4. Sericea lespedeza hay containing mature seed shall be used at a rate of three tons per acre.

5. Pine straw or pine bark – Shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. Pine straw or pine bark shall not be used on seeded areas.

6. When using temporary erosion control blankets or block sod, mulch is not required.

7. Bituminous treated roving may be applied on planted areas on slopes, in ditches or dry waterways to prevent erosion. Bituminous treated rowing shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

J. Applying Mulch: Straw or hay mulch shall be spread uniformly using blower-type spreading equipment, other spreading equipment or by hand within 24 hours after seeding and/or planting. Approximately 75 percent of the soil surface shall be covered. Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

K. Anchoring Mulch: Straw or hay mulch shall be anchored immediately after application by one of the following methods:

1. Hay and straw: The hay or straw mulch shall be pressed into the soil immediately after it is spread. Special “packer disks” or disk harrows that are 20 inches or more in diameter, set straight, 8 to 12 inches apart, and with smooth or serrated edges shall be used. The edges of the blade shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.

2. Synthetic tackifier or binder: Synthetic tackifier or binders approved by GDOT shall be mixed according to the manufacturer's specifications and applied in conjunction with or immediately after the mulch is spread. For tackifiers and binders specifications refer to the latest edition of the Manual for Erosion and Sediment Control in Georgia.

3. Rye or wheat: To stabilize the mulch, rye or wheat can be included with the Fall and Winter plantings. They shall be applied at a rate of one-half to one-quarter bushel per acre.

4. Plastic mesh or netting: Plastic mesh or netting may be needed to anchor straw or hay mulch on unstable soils and areas receiving concentrated flow. The mesh or net openings shall be no larger than one inch by one inch. These materials shall be installed and anchored according to manufacturer's specification.

L. Bedding Material: Mulch shall be used as a bedding material to conserve moisture and control weeds in ornamental beds, around shrubs, and on bare areas on lawns.

M. Irrigation: Irrigation shall be applied at a rate that will not cause runoff and erosion.

N. Topdressing: Topdressing shall be applies on all temporary and permanent (perennial) species planted alone or in mixtures with other species. For recommended rates of application see the Fertilizer Requirements table in latest edition of the Manual for Erosion and Sediment Control in Georgia.

O. Second Year and Maintenance Fertilization: For recommended second year fertilizer rates and maintenance fertilizer see the Plants, Planting Rates, and Planting Dates for Permanent Cover table in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

P. Lime Maintenance Application: One ton of agricultural lime shall be applied every 4 to 6 years or as indicated by soil tests.

8.12.7 Use and Management

Mowing shall not take place during quail nesting season, between May and September. Sericea lespedeza shall be mowed only after the seeds have become mature. Mowing shall occur only after frost, between November and March. Bermudagrass, Bahiagrass and Tall Fescue shall be mowed as desired. At least 6 inches of top growth shall be maintained under any use and management. Moderate use of top growth is beneficial after establishment.

8.13 DISTURBED AREA STABILIZATION (WITH SOD)

8.13.1 Definition

A permanent vegetative cover using sods on highly erodible or critically eroded lands.

8.13.2 Purpose

The purpose of using sod is to establish immediate ground cover, reduce runoff and erosion, improve aesthetics and land value, reduce dust and sediments, stabilize waterways and critical areas, filter sediments, nutrients and bugs, reduce downstream complaints, reduce the likelihood of legal action, reduce the likelihood of work stoppage due to legal action, and increase "good neighbor" benefits.

8.13.3 Conditions Where Practice Applies

This application is appropriate for areas which require immediate vegetative covers, drop inlets, grass swales and waterways with intermittent flow.

8.13.4 Planning Considerations

Sod can initially be more costly than seeding, but the advantages justify the increased initial costs.

Advantages are:

A. Immediate erosion and sediment control, green surface, and quick use.

B. Reduced failure as compared to seed as well as the lack of weeds.

C. Can be established nearly year-round.

Sod is preferable to seed in waterways and swales because of the immediate protection of the channel after application. Sod must be staked in concentrated flow areas (see Figure M-13).

8.13.5 Construction Specifications

A. Soil Preparations: The soil surface shall be brought to final grade. The soil surface shall be cleared of trash, woody debris, stones and clods larger than 1". The sod shall be applied to soil surface only and not frozen surfaces, or gravel type soils. Topsoil, which has not recently been treated with herbicides or soil sterilants, may be applied to help guarantee a good stand.

   Fertilizer shall be mixed into the soil surface at a rate indicated by soil tests. Agricultural lime shall be applied based on soil tests or at a rate of 1 or 2 tons per acre.

B. Installation: The sod shall be laid with tight joints and in straight lines. The joints shall be staggered and not overlapping. On slopes steeper than 3:1 the sod shall be anchored with pins or other approved methods (See Figure M-13).

After installation, the sod shall be rolled or tamped to insure good contact between sod and soil. The sod and underlying soil shall be irrigated to a depth of 4 inches immediately after installation. Irrigation shall also be used to supplement rainfall for a minimum of 2-3 weeks.

8.13.6 Materials

Sod shall be certified and selected from a source that is grown in the general area of the project.

A. Sod shall be machine cut and contain ¾" (+ or – ¼") of soil.

B. Sod shall be cut to the desired size within + or - 5%. Torn or uneven pads shall be rejected.

C. Sod shall be cut and installed within 36 hours of digging.

D. Planting shall be avoided when there is a threat of frost or hot weather if irrigation is not available.

E. The sod type shall be shown on the plans and installed according to the Sod Planting Requirements table in the latest edition of the Manual for Erosion and Sediment Control in Georgia.

8.13.7 Maintenance

Areas where adequate stands of sod are not obtained shall be re-sodded. New sod shall be mowed sparingly. The grass height shall not be cut less than 2"-3". Fertilizer shall be applied at a rate indicated by soil tests. Agricultural lime shall be applied based on soil tests or at a rate of one ton per acre every 4 to 6 years.

8.14 EROSION CONTROL MATTING AND BLANKETS

8.14.1 Definition

A protective covering (blanket) or soil stabilization mat used to establish permanent vegetation on steep slopes, channels or shorelines.

8.14.2 Purpose

The purpose of erosion control matting and blankets is to provide a microclimate which protects young vegetation and promotes it establishment and to reinforce the turf to resist

forces of erosion during storm events.

8.14.3 Conditions Where Practice Applies

Matting and blankest shall be applied on steep slopes where the hazard of erosion is high and planting is likely to be too slow in providing adequate protection cover. In concentrated flow areas, all slopes steeper than 2.5:1 and with a height of ten feet or greater, and cuts and fills within the stream buffer, shall be stabilized with the appropriate erosion control matting or blanket. On streambanks where moving water is present, matting can prevent new plantings from being washed away.

8.14.4 Planning Considerations

A. Temporary Erosion Control Blankets: includes temporary "combination" blankets (rolled erosion control blankets – RECB) consisting of a plastic netting which covers and is intertwined with a natural organic or manmade mulch; or a jute mesh which is typically homogeneous in design and can act alone as a soil stabilization blanket.

Temporary blankets as a minimum shall be used to stabilize concentrated flow areas with a velocity less than 5 ft/sec and slopes 2.5:1 or steeper with a height of 10 feet or greater. Temporary blankets will deteriorate in a short period of time and provide no enduring erosion protection.
Benefits of using erosion control blankets include the following:

1. Protection of seed and soil from raindrop impact and subsequent displacement

2. Thermal consistency and moisture retention for seedbed areas.

3. Stronger and faster germination of grasses and legumes.

4. Planing off excess stormwater runoff.

5. Prevention of sloughing of topsoil added to steeper slopes.

B. Permanent Erosion Control Matting: consists of permanent non-degradable, three-dimensional plastic structures, which can be filled with soil prior to planting. These mats are also known as permanent soil reinforcing mats (turf reinforcement matting). Roots penetrate and become entangled in the matrix, forming a continuous anchorage for surface growth and promoting enhanced energy dissipation. Matting shall be used when a vegetative lining is desired in stormwater conveyance channels where the velocity is between five and ten feet per second.

Benefits of using erosion control blankets include the following:

1. All benefits gained from using erosion control blankets.

2. Causes soil to drop out of stormwater and fill the matrix with fine soils which become the growth medium for the development of roots.

3. Acts with the vegetative root system to form an erosion resistant cover which resist hydraulic lift and shear forces when embedded in the soil within stormwater channels.

8.14.5 Materials

All blankets and matting materials shall be on the GDOT Qualified Products List (QPL #62 for blankets, QPL #49 for matting). All blankets shall be nontoxic to vegetation and to the germination of seed and shall not be injurious to the unprotected skin of humans. At a minimum, the plastic netting shall be intertwined with the mulching material/fiber to maximize strength and provide for ease of handling.

Temporary Blankets: Machine produced temporary combination blankets shall have a consistent thickness with the organic material evenly distributed over the entire blanket area. All combination blankets shall have a minimum width of 48 inches. Machine produced combination blankets include straw blankets, excelsior blankets, coconut fiber blankets, wood fiber blankets and jute mesh.

Permanent Matting: Permanent matting shall consist of a lofty web of mechanical or melt bonded polymer nettings, monofilaments, or fibers which are entangled to form a strong and dimensionally stable matrix. Polymer welding, thermal or polymer fusion, or the placement of fibers between two high strength, biaxilly oriented nets bound securely together by parallel lock stitching with polyolefin, nylon or polyester threads are all appropriate bonding methods. Mats shall maintain their shapes before, during and after installation, under dry or water saturated conditions. Mats must be stabilized against ultraviolet degradation and shall be inert to chemicals normally encountered in a natural soil environment.

8.14.6 Site Preparation

After the site has been shaped and graded to the approved design, prepare a friable seedbed relatively free from clods and rocks more than one inch in diameter, and any foreign material that will prevent contact of the soil stabilization mat with the soil surface. Surface must be smooth to ensure proper contact of blankets or matting to the soil surface. If necessary, redirect any runoff from the ditch or slope during installation.

8.14.7 Staples

The following are considered appropriate stapling and staking materials.

A. Temporary Blankets: This includes straw, excelsior, coconut fiber, and wood fiber blankets. Staples shall be used to anchor temporary blankets. U-shaped wire (11 gauge or greater) staples with legs at least 6 inches in length and a crown of one inch or appropriate biodegradable staples can be used. Staples shall be of sufficient thickness for soil penetration without undue distortion.

B. Permanent Matting: Sound wood stakes, 1 x 3 inches stock sawn in a triangular shape, shall be used. Depending on the compaction of the soil, select stakes with a length from 12 to 18 inches. U-shaped staples shall be 11 gauge steel or greater, with legs at a minimum of 8 inches in length and a 2 inch crown.

8.14.8 Planting

Lime, fertilizer, and seed shall be applied in accordance with seeding or other type of planting plan completed prior to installation of temporary combination blankets or jute mesh. For permanent mats, the area must be brought to final grade, plowed, limed, and fertilized. After the permanent mat has been installed and backfilled, the entire area shall be grassed.

8.14.9 Maintenance

All erosion control blankets and matting shall be inspected periodically following installation, particularly after rainstorms to check for erosion and undermining. Any dislocation or failure shall be repaired immediately. If washouts or breakage occurs, reinstall the material after repairing damage to the slope or ditch. Continue to monitor these areas until they become permanently stabilized.

8.15 SPECIFIC EROSION AND SEDIMENT CONTROL MEASURES

8.15.1 Overland Control Structures

8.15.1.1 Longitudinal Slopes

A. Diversions shall be installed as indicated in Figure M-4a. Where required, temporary diversions shall be installed as soon as possible following the clearing operation.

B. Silt fences or hay bales shall be installed at the outlet end of diversions as indicated in Figure M-8a, Figure M-8b and Figure M-9 where vegetation is not sufficient to provide adequate filtration.

C. Silt fences shall be installed as required at the bases of slopes adjacent to road and stream crossings.

8.15.1.2 Side Hill Runoff Control Measures

A. Excavation operations shall be used to create swales/berms on the downhill side of the construction disturbance limits whenever necessary in conjunction with silt fences or hay bales in order to intercept runoff.

B. Discharge points shall be protected with silt fences and/or hay bales.

C. Silt fences and/or hay bales shall be installed at the downstream side of the right-of-way directly across (perpendicular to flow) small swales servicing small drainage basins.

D. Silt fences and/or hay bales shall be installed along swales and intermittent stream bank (parallel with flow) when the stream is serviced by a larger drainage basin.

E. Silt fences or hay bales shall be installed along the downgradient side of the disturbed area upslope of any stream, lake, or pond which is adjacent to or parallel to the construction right-of-way. As much width as possible of natural vegetation shall be maintained (as a filter strip) between the edge of clearing and the edge of the water body. Silt fences and/or hay bales shall be required in all cases where the limits of the disturbed area extend to within the following distances of streams, ponds, or other areas to be protected:

% Slope	Length of Vegetative Filter Strip
< 15%	50 ft.
15 – 30%	75 ft.
>30%	100 ft.

8.15.2 Temporary Stream Crossings

8.15.2.1 Staging Areas

A. Staging areas shall be located at least 50 feet back from the stream bank, where topographic conditions permit.

B. The size of the staging areas shall be limited to the minimum needed for storage and prefabrication of construction material/equipment for stream crossings.

C. Chemicals, fuels, lubrication oils, or refuel construction equipment shall not be stored within 100 feet of the stream bank.

8.15.2.2 Spoil Pile Placement/Control

A. Trench spoil shall be placed beyond the limits of stream banks at all stream crossings.

B. Spoil piles located beyond the limits of stream banks shall be protected with silt fences and/or hay bales.

C. Spoil material shall not be stored along stream banks where it could be washed away by high stream flows.

D. Where possible, spoil material or other soils on site shall be used to create small embankments/berms or other measures which control the direction and velocity of overland flow.

8.15.2.3 Crossing Procedures

All stream crossings shall provide means for passage of aquatic life forms. Either shoal type (overflow) crossings or bridge or culvert crossings (dry traffic surface with the flow passage opening beneath) are acceptable. In no event will the City approve a crossing (for example, of porous limerock base) which relies on seepage as a method for passing stream flow (seepage is not capable of providing acceptable passage for aquatic biota).

A. Crossings shall be constructed as nearly perpendicular to the axis of the stream channel as engineering and routing conditions permit. The City shall be provided a set of drawings in advance of construction and a monthly notification during construction indicating the location (stationing) where construction, including stream crossings, is projected to occur in the coming monthly period.

B. The pipe size shall be large enough to convey the full bank flow of the stream without appreciably altering the stream flow characteristics (see Table M-7). The structure shall be designed to withstand flows from a 10-year, 24-hour frequency storm or other storm specified in Title 12-7-1 of the Official Code of Georgia Annotated. Structures shall be protected from washouts by elevating the bridges above adjacent floodplain lands, crowning of the fill over the pipes or by use of diversions, dikes or island type structures.

Table M-7 Pipe Diameters (inches) for Stream Crossings[a]				
Contributing Drainage Area (acres)	**Average Slope of Watershed**			
	1%	**4%**	**8%**	**16%**
1 – 25	24	24	30	30
26 – 50	24	30	36	36
51- 100	30	36	42	48
101 – 150	30	42	48	48
151 – 200	36	42	48	54
201 – 250	36	48	54	54
251 – 300	36	48	54	60
301 – 350	42	48	60	60
351 – 400	42	54	60	60
401 – 450	42	54	60	72
451 – 500	42	54	60	72
501 – 550	48	60	60	72
551 – 600	48	60	60	72
601 – 640	48	60	72	72

[a] Assumptions for determining the table: USDA-NRCS Peak Discharge Method CN=65; rainfall depth (average for Georgia) = 3.7" for 2-year frequency.
Source: Manual for Erosion and Sediment Control in Georgia, 2000, Georgia Soil and Water Conservation Commission.

C. Minor streams: <15 feet wide or <2 feet average depth.

1. Timber rip-rap (covered with geotextile fabric and soil) providing vehicle access across stream shall be used.

2. In-stream equipment shall be limited to that needed to construct the crossing.

3. In-stream trenching and backfill work shall be completed within 72 hours whenever feasible.

D. Major streams: >15 feet wide but <100 feet wide

1. Optional methods to be used in providing vehicle access across streams include:

    a. Equipment and/or timber pads and culvert.

    b. Clean rockfill shoal crossing.

    c. Flexi-float or portable bridge.

2. In-stream equipment shall be limited to that needed to construct the crossing.

3. In-stream trenching and backfill work shall be completed within 72 hours whenever feasible.

E. Rivers: >100 feet wide

1. Size criteria based on:

a. Inability to cross using culvert bridge.

b. Inability to store trench spoil on riverbank.

2. Site-specific construction procedures shall be submitted to the City for review and approval prior to initiation of any construction at crossing.

F. All culvert, bridges, rock, and timber riprap shall be removed from streams and rivers during final clean up and restoration.

8.15.3 Trench Dewatering

A. Trenches shall be dewatered into upland areas in such a manner that no silt laden water flows directly into any surface waters.

B. Silt laden water shall be discharged through a functional siltation barrier (hay bales or silt fencing) or a minimum of 100 linear feet of vegetated area before entering streams or other surface waters.

8.15.4 Wetland Crossings

8.15.4.1 Staging Areas

A. Staging areas shall be located at least 50 feet from wetland edge, where topographic conditions permit.

B. The size of staging areas shall be limited to the minimum needed for wetland crossing.

C. Chemicals, fuel, lubrication oils, or refuel construction equipment shall not be stored within 100 feet of the stream bank. Appropriate spill prevention and control measures shall be implemented.

8.15.4.2 Spoil Pile Placement/Control

A. Spoil material shall be placed beyond the edge of a wetland.

B. Spoil piles shall be protected with silt fences and/or hay bales.

C. Spoil material shall not be stored near the edge of a wetland where it could be washed away into the wetland.

8.15.4.3 Crossing Procedures

A. If a wetland cannot be avoided and must be crossed, the utility shall be routed in a manner that minimizes the length of wetland crossing and disturbances.

B. Tree stumps, or brush rip-rap shall not be used to stabilize the utility right-of-way.

C. Clearing of right-of-way shall be limited to 30 feet wherever possible.

D. Vegetation shall be cut off only at ground level, leaving existing root systems intact. Cut vegetation shall be removed from wetlands for disposal.

E. Pulling of tree stumps and grading activities shall be limited to directly over trenches; stumps or root systems shall not be removed from non-trenched portions of the right-of-way in wetlands.

F. Construction equipment operating in wetland shall be limited to that needed to dig trench, install pipe, backfill trench, and restore the right-of-way.

G. Construction equipment shall be operated off of timber or wooden equipment pads if standing water or saturated soils are present.

H. All timber or wooden equipment pads shall be removed upon completion of construction.

I. "Push-pull" or "float" technique shall be used to place pipe in trench whenever water and other site conditions allow.

8.16 TUNNELING

All sewers or utilities that can be tunneled under the stream or the Greenway System must meet the following requirements:

A. At stream crossings, the crown of the pipe must be at least 3 feet below the stream or waterbody bed.

B. For sanitary sewers the pipe material must be ductile iron or reinforced concrete.

C. For water mains the pipe material must be ductile iron.

D. Excavation pits shall be located outside the Greenway System.

Each tunnel crossing must be evaluated individually. The designer must take into account stream width, flow conditions, soil conditions, and other factors in designing a proper tunnel. The design plans for tunneling under the Greenway System must be submitted to the City for approval before construction can begin.

9.0 SELECTED REFERENCES

A. Atlanta, Georgia. Stormwater Management Design Manual. Atlanta, 1996.

B. Atlanta, Georgia. Atlanta Sewer Group (Montgomery Watson). "Collection and Transmissions Systems Maintenance Management Plan (MMP)." Atlanta, 2000.

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D. Georgia Power Company. "General Operating Procedures of Georgia Power Forestry and R/W Services."

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H. Rosgen, Dave. Applied River Morphology. Pagosa Springs:Wildwood Hydrology, 1996.

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APPENDIX N

CITY OF ATLANTA
GREENWAY ACQUISITION PROJECT

STANDARD OPERATING PROCEDURES FOR MAINTENANCE OF EXISTING UTILITIES WITHIN THE GREENWAY SYSTEM

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1.0 INTRODUCTION

The following Standard Operating Procedures (SOPs) shall guide entities proposing to perform emergency or scheduled maintenance to existing utilities within the Greenway System. The purpose of these SOPs is to ensure that emergency and scheduled maintenance activities are performed in a manner consistent with the requirements of the Consent Decree and the Greenway Acquisition Plan.

This document presents SOPs for the following activities:

A. Emergency maintenance to existing utilities within the Greenway System.

B. Scheduled maintenance to existing utilities within the Greenway System.

C. Restoration of Greenway Properties disturbed during emergency or scheduled maintenance to existing utilities.

D. Scheduled maintenance of vegetation growing within existing utility easements within the Greenway System.

These SOPs are designed to minimize erosion and sedimentation within Greenway Properties by:

A. Minimizing the quantity and duration of soil exposure during emergency or scheduled maintenance of existing utility systems

B. Requiring the installation of and maintenance of erosion and sediment control measures during emergency or scheduled maintenance construction activities.

C. Restoring disturbed properties by establishing vegetation immediately following completion of emergency or scheduled maintenance construction activities.

These SOPs do not replace existing utility-specific guidelines for emergency and scheduled maintenance of existing utilities or restoration of utility easements after maintenance activities, but do establish minimum requirements for such activities on Greenway Properties. These SOPs do not limit the City, or other responsible local government or agency, from imposing additional or more stringent requirements to control erosion and/or sediment.

As stated in Section VIII.D.2.m of the Consent Decree, “Any infrastructure for human activity within the Greenway Properties shall be designed and constructed with prevention of non-point source pollution as the primary consideration”. This does not mean that prevention of non-point source pollution is the sole consideration. This means that cost or other factors will not outweigh non-point source pollution prevention as the primary concern. Only safety design consideration shall be as important as non-point source pollution prevention.

2.0 EMERGENCY MAINTENANCE TO EXISITING UTILITIES WITHIN THE GREENWAY SYSTEM

It is anticipated that circumstances may arise when emergency maintenance will need to be performed on an existing utility within the Greenway System. In emergency situations there is little time to plan, permit, or install erosion and sediment control measures before construction activities begin. However, if more than 24-hours are needed to complete the emergency maintenance activities, a permit or variance may be required. It is the responsibility of the entity performing the emergency maintenance to determine when and if a permit and/or variance is required. In the event that more than 24-hours are needed to complete the emergency maintenance activities, erosion and sediment control measures shall be installed as soon as possible, but no later than 24-hours from the beginning of the emergency maintenance activities. Best management practices (BMPs) for erosion and sediment control shall meet the minimum requirements established in Appendix M (Standard Operating Procedures for Construction of New Utilities) and the latest edition of the Manual for Erosion and Sediment Control in Georgia. Emergency maintenance activities are applicable in situations such as when repairs are needed for a sewer or water line break or a downed power line. Ultimately it is the responsibility of the entity performing the maintenance to determine what constitutes an emergency.

3.0 SCHEDULED MAINTENANCE TO EXISTING UTILITIES WITHIN THE GREENWAY SYSTEM

The entity proposing to perform scheduled maintenance to an existing utility within the Greenway System shall be responsible for the preparation of a land disturbance plan which must include, at a minimum, an erosion and sediment control plan. The erosion and sediment control plan shall include specifications describing how erosion and sediment control will be maintained during the scheduled maintenance activities, including the BMPs to be implemented. BMPs for erosion and sediment control shall meet the minimum requirements established in Appendix M (Standard Operating Procedures for Construction of New Utilities) and the latest edition of the Manual for Erosion and Sediment Control in Georgia. A copy of the erosion and sediment control plan shall be kept on site at all times.

The City and other responsible local government or agency shall be notified before scheduled maintenance activities begin inside the Greenway System. The City and other responsible local government or agency may inspect the site to ensure that adequate erosion and sediment control measures are in place prior to construction, that adequate erosion and sediment control measures are maintained until the project is completed, and that the site has been restored to as close to its original condition as feasible once maintenance activities have been completed.

3.1 PERMITS, VARIANCES, AND PLANS

It is the responsibility of the entity performing maintenance within the Greenway System to determine what permits, plans, or variances are required for maintenance activities. For

example, the State of Georgia may have requirements under their General Storm Water Permit Program or Fulton County may require a Stream Buffer Variance and a Land Disturbance Activity Permit. Requirements may vary from one jurisdiction to another. Therefore, it is imperative that the entity performing the maintenance has a clear understanding of local requirements.

3.1.1 State of Georgia General Storm Water Permitting

At the time of the writing of this document, construction projects that are five (5) acres or larger in size require coverage under the State of Georgia NPDES, General Permit GAR100000, for authorization to discharge storm water associated with construction activities. One of the construction activities this permit authorizes is the discharge of storm water associated with construction activities from linear construction that will result in the disturbance of more than five (5) acres. As stated in the permit "'Linear Construction' or 'Linear Construction Project' means construction activities that are not part of a common development and where the length of the project is at least 25 times longer than the width of the project and the construction activity is being conducted by the Georgia Department of Transportation, by a local government, or by a utility company or utility contractor". It is the responsibility of the entity performing the maintenance to determine if they need to apply for coverage. Application is made by submittal of a Notice of Intent (NOI) and a permit fee to:

Northwest Georgia Regional Office
Georgia Environmental Protection Division
Suite 114
4220 International Parkway, Suite 101
Atlanta, GA 30354
Telephone (404) 675-6240

The NPDES general construction permit requires the use of Best Management Practices (BMPs) to control stormwater runoff for all rainfall events up to and including a 25-year 24-hour rainfall event. BMPs used shall be consistent with, and no less stringent than, those practices contained in the Manual for Erosion and Sediment Control in Georgia published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity is permitted. For some sites, additional BMPs beyond those identified in the Manual may be necessary for erosion and sediment control for all rainfall events up to, and including, a 25-year 24-hour rainfall events.

To ensure compliance with State water quality standards, the general permit requires inspections of the construction site as well as sampling and analysis of stormwater runoff from the site. The permit also requires daily recording of on-site precipitation. Detailed requirements for inspection and sampling are provided in the general permit. The guidelines set forth in this document and the latest edition of the Manual for Erosion and Sediment Control in Georgia will be used in conjunction with the State general permit to ensure that the best possible procedures are used for erosion and sediment control.

3.1.2 Stream Buffer Variance

The State of Georgia Environmental Protection Division (EPD) enforces minimum stream buffer requirements. At the time of the writing of this document the EPD's requirements prohibit construction activities within a 25-foot buffer along the banks of all state waters or within a 50-foot buffer along the banks of any state waters classified as 'trout streams' (the State of Georgia Department of Natural Resources maintains the most current stream classifications). The Director of the EPD may grant a variance that is at least as protective of natural resources and the environment as provisions described in Title 12-7-6 of the Official Code of Georgia Annotated. The Director of the EPD may also grant a variance where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion and sediment control measures are incorporated in the project plans and specifications and are implemented during construction. The buffer distance is measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action. It is the responsibility of the entity performing the maintenance to determine if a variance is required from the State of Georgia, the City, or other responsible local government or agency.

3.1.3 Land Disturbance Activity Permits (LDP)

It is the responsibility of the entity performing the maintenance within the Greenway System to determine if a Land Disturbance Activity Permit is required from any authority having jurisdiction. A Land Disturbance Activity Permit may contain the following information:

A. Name, address, and contact telephone number.

B. Narrative description of the maintenance activities to be conducted.

C. Description of BMPs to be used.

D. A site map.

E. An activity schedule.

F. Supportive data.

G. Plans and specifications for restoring the site to a natural state with permanent vegetation.

The entity performing the maintenance shall contact the City and other responsible local government or agency for specific Land Disturbance Activity Permit requirements.

3.2 SITE CLEARING

The following SOPs shall be followed during the site clearing phase for scheduled maintenance projects within the Greenway System:

A. All cut and fill activities occurring within the EPD's mandated 25-foot stream buffer (50-foot buffer for trout streams) shall be stabilized with appropriate erosion control matting and blankets.

B. The area to be cleared shall be clearly delineated to ensure that no disturbance occurs beyond the area identified. Except for perpendicular utility crossings, any open cut, grading, or clearing shall be set back from the streambanks to the greatest distance feasible. Except for manholes, portals, and the maintenance access to such facilities, the Greenway System must remain in a natural state even where crossings are perpendicular to the stream. Where feasible, scheduled utility maintenance projects are recommended to have no more than a thirty-foot (30') construction width (for projects paralleling the stream).

C. Vegetation to be preserved shall be identified and clearly marked by flagging before clearing begins. Vegetation to be preserved shall include: vegetation vital to streambank stabilization; vegetation providing food and/or habitat to a federally listed endangered species, threatened species, or species of concern; vegetation that is a federally listed endangered species, threatened species, or species of concern; and vegetation that comprises a wetland ecosystem.

D. Stemmed vegetation such as brush, shrubs, and trees shall be removed at or near the ground level, leaving the root systems intact.

E. When pruning is necessary to clear the scheduled maintenance construction area, pruning cuts shall be made in accordance with the International Society of Arboriculture (ISA) Standards.

F. Trees shall be felled into the cleared construction area or areas to be cleared and not onto vegetation to be preserved.

G. Trees, which have fallen into water bodies or beyond the construction area, shall be removed immediately.

3.3 EROSION AND SEDIMENT CONTROL

3.3.1 Maintenance Project Planning and Preliminary Grading

Efforts shall be made during initial planning and whenever possible during scheduled maintenance phases, to minimize the amount of area cleared and graded (exposed) as well as the total exposure time. Plans must consider topography and soil type, so as to create the lowest practicable erosion potential. Whenever feasible, preliminary grading

operations shall be used to control the flow direction and velocity of runoff water and thereby dissipate energy. Where feasible, swales and diversion berms shall be used to direct runoff water to locations where treatment by sediment barriers can be performed. Where feasible, transverse diversion berms, installed perpendicular to the flow of water down slopes and in drainage channels, shall be used to reduce runoff water velocity. Cleared slopes shall be harrowed with construction equipment to create small diversion channels along the contours of the slope perpendicular to the direction of runoff flow. This action not only reduces flow velocities of runoff water traveling down the slopes, but also reduces flow quantities by increasing the area of exposed soil and thus enhancing percolation of runoff water. Grading equipment shall cross flowing streams by the means of bridges or culverts, except when such methods are not feasible, provided in any case that such crossings shall be kept to a minimum.

Dust from the disturbed area shall be controlled. Temporary means for controlling dust shall include mulching or vegetative cover with temporary seeding (see the latest edition of the Manual for Erosion and Sediment Control in Georgia). Emergency means for controlling dust shall include tillage or irrigation.

3.3.2 Erosion and Sediment Control Practices

Erosion and sediment control practices must be implemented prior to any land disturbing activities resulting from scheduled maintenance within the Greenway System. Control of factors affecting erosion and sediment can be provided by a number of basic practices. The establishment of a dense stand of vegetation is probably the most effective means of controlling erosion and sediment; however, this control measure is often not practical until the completion of a project. Prior to and during the scheduled maintenance of utilities within the Greenway System, temporary erosion and sediment control measures shall be implemented and maintained until the construction area is restored as described later in this document.

Soft engineering techniques shall be used for erosion and sediment control. Hard engineering techniques shall only be used after soft techniques have failed and the failure is due to the inability of soft techniques to address the erosion problem. Improper choice of soft engineering techniques or improper design, implementation, and/or maintenance shall not be justification to turn to hard engineering techniques.

Appendix M presents summaries of techniques, (including their applications) used to control erosion and sedimentation. Erosion and sediment control measures shall be designed and implemented in accordance with the design standards established in Appendix M and the latest edition of the Manual for Erosion and Sediment Control in Georgia. If a conflict occurs between the design and construction standards presented in this document and those presented in the latest edition of the Manual for Erosion and Sediment Control in Georgia, the more stringent design and construction standards shall prevail. The selection of the most appropriate erosion and sediment control measure will be made by the entity performing scheduled maintenance to a utility on Greenway Property based on site specific conditions.

3.4 CONSTRUCTION METHODS

After all appropriate erosion and sediment control measures have been installed, the designated scheduled maintenance project can proceed as approved by the City with recommendations from any other responsible local government or agency. All clearing work and construction operations shall be conducted in such a manner as to effectively control soil erosion and prevent non-point source pollution loads from entering streams, ponds, and/or wetlands. At any time during the scheduled maintenance project, the City, with recommendations from any other responsible local government or agency, has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, and fill operations and to direct the entity performing work on Greenway Properties to provide immediate permanent or temporary erosion and sediment control measures to prevent adverse impacts to wetlands or water courses on the Greenway Property.

Prohibited construction procedures include, but are not limited to, the following:

A. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.

B. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.

C. Pumping of silt-laden water from trenches or excavations into surface waters or wetlands.

D. Damaging vegetation adjacent to or outside of the construction area limits.

E. Disposal of trees, brush, debris, plants, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.

F. Alteration of the flow line of any stream, unless such work is of a temporary nature, has been specifically authorized by the authority having jurisdiction, and is necessary to divert flow from excavation work so that debris and sediments are not released into streams.

G. Open burning of debris within Greenway properties.

All conveyance channels, drainage outlets, and erosion and sediment control measures must be constructed to withstand the expected velocity of flow from a 25-year frequency storm without erosion.

4.0 RESTORATION OF THE GREENWAY PROPERTIES AFTER EMERGENCY OR SCHEDULED MAINTENANCE TO EXISTING UTILITIES

Permanent soil stabilization measures shall be applied to disturbed areas within 30 days after all soil disturbing activities have been completed and the final grade has been reached on any portion of the construction project site. Permanent soil stabilization means that for unpaved areas and areas not covered by permanent structures, at least 70% of the soil surface is uniformly covered in permanent vegetation or equivalent permanent stabilization measures (such as the use of riprap, gabions, permanent mulches, or geotextiles) have been employed. Until these conditions are satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sediment control measures shall not be removed. Efforts shall be made to return the site to its natural condition. Native vegetation shall be used in such efforts. Acceptable plants and grasses are listed in Section 5.0 of this document and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

Temporary soil stabilization measures shall be applied immediately to disturbed areas that are not at final grade but shall remain dormant for longer than 60 days. Areas that have been stabilized by temporary measures must be permanently stabilized once all soil disturbing activities are complete and the area is at final grade. Also, permanent stabilization measures shall be applied immediately to rough graded areas that will require erosion and sediment control for longer than six months.

4.1 PERMANENT VEGETATION

Permanent vegetation is the planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes, on exposed areas for permanent soil stabilization. A crop of perennial vegetation appropriate for the region which is capable of providing a 70% coverage within the growing season shall be used to achieve permanent soil stabilization.

The purpose of establishing permanent vegetation in disturbed areas is to protect the soil surface from erosion, reduce damage from sediment, reduce runoff to downstream areas, improve wildlife habitat and visual resources, and improve aesthetics. Permanent soil stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, permanent stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. For design and construction specifications for disturbed area stabilization with permanent vegetation see Appendix M and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

Sod shall be used to establish a permanent vegetative cover on highly erodible or severely eroded lands. Sod establishes immediate ground cover and thereby reduces runoff, erosion, and dust, which results in improved aesthetics; higher land values; stabilized waterways and critical areas; less sediments, nutrients and bugs; less downstream complaints; reduced likelihood of legal action and work stoppage due to legal action; and increased “good neighbor” benefits.

Sod is appropriate for areas that require immediate vegetative covers such as drop inlets, grass swales, and waterways with intermittent flow. Sod can initially be more costly than seed, but the advantages justify the increased initial costs.

The advantages to sod include the following:

A. Immediate erosion and sediment control, green surface, and quick use.

B. Reduced failure as compared to seed.

C. Lack of weeds.

D. Can be established almost year-round.

Sod is preferable to seed in waterways and swales because of the immediate protection of the channel after application. Sod must be staked in concentrated flow areas. For design and construction specifications for disturbed area stabilization with permanent sod see Appendix M and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

4.2 EROSION CONTROL MATTING AND BLANKETS

This stabilization technique provides a protective covering (blanket) or a soil stabilization mat to establish permanent vegetation on steep slopes, channels, or shorelines. The purpose of erosion control matting and blankets is to provide a microclimate that protects young vegetation and promotes its establishment and to reinforce the turf against forces of erosion during storm events.

Matting and blankets shall be applied on steep slopes where the hazard of erosion is high and planting is likely to be too slow in providing adequate protective cover. Concentrated flow areas, slopes steeper than 2.5:1 and with a height of ten feet or greater, and cuts and fills within the stream buffer, shall be stabilized with the appropriate erosion control matting or blanket. On streambanks where moving water is present, matting can be used to prevent new plantings from being washed away. For design and construction specifications for erosion control using matting and blankets see Appendix M and the latest edition of the Manual for Erosion and Sediment Control in Georgia.

Benefits of using erosion control blankets include the following:

A. Protection of seed and soil from raindrop impact and subsequent displacement.

B. Thermal consistency and moisture retention for seedbed areas.

C. Stronger and faster germination of grasses and legumes.

D. Planing off excess stormwater runoff.

E. Prevention of sloughing of topsoil added to steeper slopes.

Benefits of using erosion control matting include the following:

A. All benefits gained from using erosion control blankets that are listed above.

B. Collects soil out of stormwater which becomes the growth medium for the development of roots.

C. Assists the vegetative root system in forming an erosion-resistant cover resistant to hydraulic lift and shear forces when embedded in the soil of stormwater channels.

5.0 SCHEDULED VEGETATIVE MAINTENANCE ON EXISTING UTILITY EASEMENTS WITHIN THE GREENWAY SYSTEM

It is the responsibility of the entity owning a utility easement on Greenway Property to determine if a permit is required to trim vegetation from the easement. Vegetation shall be trimmed in a manner to insure that at least six (6) inches of top growth shall be maintained under any use and management. The following SOPs shall be followed during scheduled vegetative maintenance of existing utility easements within the Greenway System:

A. The area to be trimmed shall be clearly delineated to ensure that no disturbance occurs beyond the area identified. Trimming of vegetation along the existing utility easement is suggested to have no more than a twenty-foot (20') width (for utilities paralleling the stream).

B. Vegetation that does not require trimming shall be identified and clearly marked by flagging before vegetative maintenance begins. Every effort shall be made to preserve the following: vegetation vital to streambank stabilization; vegetation providing food and/or habitat to a federally listed endangered species, threatened species, or species of concern; vegetation that is a federally listed endangered species, threatened species, or species of concern; and vegetation that comprises a wetland ecosystem.

C. Stemmed vegetation such as brush and shrubs shall be trimmed leaving at least six (6) inches of growth. When removal of a tree cannot be avoided, it shall be removed at ground level, leaving the root system intact.

D. When pruning is necessary during vegetative maintenance procedures, pruning cuts shall be made in accordance with International Society of Arboriculture (ISA) Standards.

E. Trees, tree limbs, and other vegetative debris which have fallen into water bodies or beyond the utility easement area, shall be removed immediately.

F. Mowing shall not take place during quail nesting season, between May and September. Sericea lespedeza shall be mowed only after the seeds have become mature. Mowing shall occur only after frost, between November and March. Bermudagrass, Bahiagrass and Tall Fescue shall be mowed as desired.

6.0 TRAINING OF PERSONNEL INVOLVED IN EMERGENCY AND SCHEDULED MAINTENANCE OF EXISTING UTILITIES WITHIN THE GREENWAY SYSTEM

Key personnel involved in emergency and scheduled maintenance of existing utilities within Greenway Properties shall be trained in the requirements of the Consent Decree, the Greenway Acquisition Plan, and these SOPs. The key personnel shall also be trained on the proper installation, implementation, and inspection of erosion and sediment control measures.

A "pre-construction" meeting may be held between the City, other responsible local government or agency, and key personnel of the utility or construction agency following training in order to ensure that all parties have a common understanding as to how scheduled maintenance will be performed within the Greenway System.

7.0 SELECTED REFERENCES

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