Appendix D Model Post-Construction Stormwater Management Ordinance

This model ordinance addresses the management of post-construction stormwater runoff on development sites. It establishes a set of post-construction stormwater management and site planning and design criteria and permitting procedures and requirements that can be applied to new development and redevelopment activities occurring within the Coastal Nonpoint Source Management Area and Area of Special Interest. It also establishes guidelines for the inspection and maintenance of green infrastructure and stormwater management practices installed on development sites.

This model post-construction stormwater management ordinance is intended to complement and support the information presented in the Coastal Stormwater Supplement (CSS). Communities may adapt the model ordinance "as-is" or may review and modify it to meet more specific local natural resource protection and stormwater management goals and objectives. Additional guidance on using the model post-construction stormwater management ordinance is provided below:

- Summary boxes can be found at the very beginning of each section of the model ordinance. These summary boxes provide a descriptive overview of and additional information about the content that follows.

- Italicized language can be found throughout the model ordinance. This language may be adopted "as-is" or may be modified or removed to suit the specific needs of a community.

- The model ordinance also includes italicized language that is contained in parenthesis to indicate where a community should input more specific information. One example is *(administrator)*, which, at the local level, is the person or department responsible for operating the local post-construction stormwater management program.

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1.0 General Provisions

1.1 Findings of Fact

It is hereby determined that:

(1) The land development process significantly alters the hydrologic response of development sites, increasing stormwater runoff rates, volumes and pollutant loads, and increases flooding, channel erosion and pollutant transport and deposition in rivers and streams;

(2) The land development process significantly alters the hydrologic response of development sites, increasing stormwater runoff rates, volumes and pollutant loads, and alters water levels and fluctuations and increases pollutant transport and deposition in wetlands;

(3) The land development process significantly alters the hydrologic response of development sites, increasing stormwater runoff rates, volumes and pollutant loads, and alters salinity concentrations and fluctuations and increases primary productivity and pollutant transport and deposition in estuaries;

(4) The land development process significantly alters the hydrologic response of development sites, increasing stormwater runoff rates, volumes and pollutant loads, and increases bacteria transport and deposition in near coastal waters, which leads to beach contamination and poses a serious threat to human health;

(5) The land development process significantly alters the hydrologic response of development sites, increasing stormwater runoff rates and volumes, and decreases the amount of rainfall that is available to recharge shallow groundwater aquifers;

(6) The negative impacts of the land development process on local aquatic resources can adversely affect the health, safety and general welfare of the general public;

(7) The negative impacts of the land development process can be controlled and minimized through the management of stormwater runoff rates, volumes and pollutant loads;

(8) Communities located within Georgia's Coastal Nonpoint Source Management Area and Area of Special Interest are required to comply with a number of state and federal regulations that require the adverse impacts of the land development process to be controlled and minimized;

(9) Therefore, the *(local jurisdiction)* has determined that it is in the public interest to control and minimize the adverse impacts of the land development process and has established this set of local stormwater management regulations to control post-construction stormwater runoff rates, volumes and pollutant loads on development and redevelopment sites.

1.2 Purpose and Intent

Purpose and Intent
- Most post-construction stormwater management ordinances have a Purpose and Intent section that establishes the reasons that the local jurisdiction is regulating stormwater runoff.
- This section is usually tied to the protection of public health and safety and may also refer to state and/or federal regulatory requirements (e.g., NPDES MS4 permit requirements).

The purpose of this ordinance is to protect and maintain the integrity of local aquatic resources and, consequently, the health, safety and welfare of the general public, by establishing local stormwater management regulations that control and minimize the adverse impacts of the land development process. The ordinance seeks to achieve these goals by:

(1) Establishing decision-making processes that can be applied during the site planning and design process to help protect the integrity of local aquatic resources;

(2) Establishing post-construction stormwater management and site planning and design criteria to help protect natural resources from the direct impacts of the land development process and preserve existing hydrologic conditions on development sites;

(3) Establishing post-construction stormwater management and site planning and design criteria to help reduce flooding, channel erosion and pollutant transport and deposition in local aquatic resources;

(4) Establishing design guidelines for green infrastructure and stormwater management practices that can be used to meet the post-construction stormwater management and site planning and design criteria;

(5) Encouraging that green infrastructure practices, which include better site planning techniques, better site design techniques and low impact development practices, be used to the maximum extent practical on development sites;

(6) Establishing provisions for the long-term inspection and maintenance of green infrastructure and stormwater management practices to ensure that they continue to function as designed and pose no threat to public safety; and,

(7) Establishing administrative procedures for the submittal, review, approval and disapproval of stormwater management plans and for the inspection of approved development projects.

1.3 Applicability and Exemptions

Applicability and Exemptions

- The Applicability and Exemptions section establishes the "mesh size" for the ordinance; that is, the site size or site characteristics that trigger application of the ordinance and its provisions.
- Applicability can be based on site impervious cover, a land disturbance threshold, overall site size, number of lots and/or the type of development (e.g., stormwater hotspots).
- The most common threshold is one acre of land disturbance. The advantage of this threshold is that it is consistent with the NPDES threshold for construction sites. However, impervious cover is often a more precise trigger for the regulations contained in a post-construction stormwater management ordinance.
- Some local post-construction stormwater management ordinances will have a variable trigger for new development and redevelopment activities, especially if redevelopment is a critical component of an overall land use policy that encourages infill and redevelopment projects.
- The most important consideration regarding exemptions is to identify only those development projects that should not be regulated. Since exemptions categorically exclude activities from the provisions of the ordinance, ordinance language must be clearly written to avoid having well-intentioned exemptions turn into loopholes.

(1) This ordinance shall be applied to all land disturbing activities, unless exempt pursuant to Section 1.3.2 below. The stormwater management regulations presented within shall be applied to any new development or redevelopment activity that meets one or more of the following criteria:

(a) New development that involves the creation of *(5,000 square feet or more)* of impervious cover or that involves other land disturbing activities of *(one acre or more)*;

(b) Redevelopment that involves the creation, addition or replacement of *(5,000 square feet or more)* of impervious cover or that involves other land disturbing activities of *(one acre or more)*.

(c) New development or redevelopment, regardless of size, that is part of a larger common plan of development, even though multiple, separate and distinct land disturbing activities may take place at different times and on different schedules.

(d) New development or redevelopment, regardless of size, that involves the creation or modification of a stormwater hotspot, as defined by the *(administrator)*.

(2) The following activities are exempt from this ordinance:

(a) New development or redevelopment that involves the creation, addition or replacement of *(less than 5,000 square feet)* of impervious cover and that involves *(less than one acre)* of other land disturbing activities.

(b) New development or redevelopment activities on individual residential lots that are not part of a larger common plan of development and do not meet any of the applicability criteria listed above.

(c) Additions or modifications to existing single-family homes and duplex residential units that do not meet any of the applicability criteria listed above.

(d) Development projects that are undertaken exclusively for agricultural or silvicultural purposes within areas zoned for agricultural or silvicultural land use;

(e) Maintenance and repairs of any green infrastructure or stormwater management practices deemed necessary by the (*administrator*);

(f) Any part of a land development project that was approved by the (*administrator*) prior to the adoption of this ordinance; and,

(g) Redevelopment activities that involve the replacement of impervious cover when the original impervious cover was wholly or partially lost due to natural disaster or other acts of God occurring after (*date of adoption*).

1.4 Designation of Ordinance Administrator

Designation of Ordinance Administrator, Compatibility with Other Regulations, Severability, Stormwater Guidance Manual

- These sections appear in some, but not all, post-construction stormwater management ordinances for various legal reasons.
- Consult with legal staff to determine the applicability of these sections within your local jurisdiction.

The (*administrator*) is hereby appointed to administer and implement the provisions of this ordinance.

1.5 Compatibility with Other Regulations

This ordinance is not intended to interfere with, modify or repeal any other ordinance, rule, regulation or other provision of law. The requirements of this ordinance should be considered minimum requirements, and where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule, regulation or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control.

1.6 Severability

If the provisions of any section, subsection, paragraph, subdivision or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such judgment shall not affect or invalidate the remainder of any section, subsection, paragraph, subdivision or clause of this ordinance.

1.7 Stormwater Guidance Manual

The *(local jurisdiction)* will utilize the information presented in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, and any relevant local addenda, to assist in the proper implementation of this ordinance. These references may be updated and expanded periodically, based on additional information obtained through scientific research, performance monitoring and local experience.

2.0 Definitions

Definitions
- The Definitions section ensures that terms are defined consistently across other related guidance and regulatory documents.

"Applicant" means a property owner or agent of a property owner who has submitted an application for a post-construction stormwater management permit.

"Aquatic Buffer" means an area of land located around or near a stream, wetland, or waterbody that has intrinsic value due to the ecological services it provides, including pollutant removal, erosion control and conveyance and temporary storage of flood flows.

"Aquatic Resource Protection" means measures taken to protect aquatic resources from several negative impacts of the land development process, including complete loss or destruction, stream channel enlargement and increased salinity fluctuations.

"Better Site Design Techniques" means site design techniques that can be used during the site planning and design process to minimize land disturbance and the creation of new impervious and disturbed pervious cover. Better site design techniques include reducing clearing and grading limits, reducing roadway lengths and widths and reducing parking lot and building footprints.

"Better Site Planning Techniques" means site planning techniques that can be used during the site planning and design process to protect valuable aquatic and terrestrial resources from the direct impacts of the land development process. Better site planning techniques include protecting primary and secondary conservation areas.

"Building" means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal or property and occupying more than 100 square feet of area.

"Channel" means a natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

"Conservation Areas" means permanently protected areas of a site that are preserved, in perpetuity, in an undisturbed, natural state.

"Conservation Easement" means a legal agreement between a land owner and a local, state or federal government agency or land trust that permanently protects conservation areas on the owner's land by limiting the amount and type of development that can take place within them but continues to leave the conservation areas in private ownership.

"Dedication" means the deliberate appropriation of property by its owner for general public use.

"Detention" means the temporary storage of stormwater runoff in a stormwater management practice for the purpose of controlling the peak discharge rates and providing gravitational settling of pollutants.

"Developer" means a person who undertakes a land development project.

"Development Project" means a new development or redevelopment project.

"Development Site" means a parcel of land where land disturbing activities have been or will be initiated to complete a land development project.

"Drainage Easement" means a legal right granted by a land owner to a grantee allowing the grantee to convey, treat or manage stormwater runoff on the private land subject to the drainage easement.

"Easement" means a legal right granted by a land owner to a grantee allowing the use of private land for conveyance, treatment and management of stormwater runoff and access to green infrastructure and stormwater practices.

"Erosion and Sediment Control Plan" means a plan that is designed to minimize and control the accelerated erosion and increased sediment loads that occur at a site during land disturbing activities.

"Evapotranspiration" means the loss of water to the atmosphere through both evaporation and transpiration, which is the evaporation of water from the aerial parts of plants.

"Extended Detention" means the temporary storage of stormwater runoff in a stormwater management practice for an extended period of time, typically 24 hours or greater.

"Extreme Flood Protection" means measures taken to protect downstream properties from dangerous extreme flooding events and help maintain the boundaries of the existing 100-year floodplain.

"Fee in Lieu Contribution" means a payment of money in place of meeting all or part of the stormwater management criteria required by a post-construction stormwater management ordinance.

"Flooding" means a volume of stormwater runoff that is too great to be confined within the banks of a stream, river or other aquatic resource or walls of a stormwater conveyance feature and that overflows onto adjacent lands.

"Green Infrastructure Practices" means the combination of three complementary, but distinct, groups of natural resource protection and stormwater management practices and techniques, including better site planning and design techniques and low impact development practices, that are used to protect valuable terrestrial and aquatic resources from the direct impacts of the land development process, maintain pre-development site hydrology and reduce post-construction stormwater runoff rates, volumes and pollutant loads.

"Hydrologic Soil Group (HSG)" means a Natural Resource Conservation Service classification system in which soils are categorized into four runoff potential groups. The groups range from group A soils, with high permeability and little runoff produced, to group D soils, which have low permeability rates and produce much more runoff.

"Impaired Waters" means those streams, rivers, lakes, estuaries and other water bodies that currently do not meet their designated use classification and associated water quality standards under the Clean Water Act.

"Impervious Cover" means a surface composed of any material that greatly impedes or prevents the natural infiltration of water into the underlying native soils. Impervious surfaces include, but are not limited to, rooftops, buildings, sidewalks, driveways, streets and roads.

"Industrial Stormwater Permit" means a National Pollutant Discharge Elimination System (NPDES) permit issued to an industry or group of industries that regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

"Infill Development" means land development that occurs within designated areas based on local land use, watershed and/or utility plans where the surrounding area is generally developed, and where the site or area is either vacant or has previously been used for another purpose.

"Infiltration" means the process of allowing stormwater runoff to percolate into the underlying native soils.

"Infiltration Practice" means a green infrastructure or stormwater management practice designed to provide infiltration of stormwater runoff into the underlying native soils. These stormwater management practices may be above or below grade.

"Inspection and Maintenance Agreement and Plan" means a written agreement and plan providing for the long-term inspection and maintenance of all green infrastructure practices, stormwater management practices, stormwater conveyance features and stormwater drain infrastructure on a development site.

"Jurisdictional Wetland" means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

"Land Development" means any project undertaken to change or improve a site that involves one or more land disturbing activities.

"Land Disturbing Activity" means any activity that changes stormwater runoff rates, volumes and pollutant loads on a site. These activities include, but are not limited to, the grading, digging, cutting, scraping, or excavating of soil, the placement of fill materials, paving, construction, substantial removal of vegetation and any activity that bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.

"Land Owner" means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

"Low Impact Development Practice" means small-scale stormwater management practices that are used to disconnect impervious and disturbed pervious surfaces from the storm drain system and reduce post-construction stormwater runoff rates, volumes and pollutant loads. Low impact development practices include soil restoration, site reforestation/revegetation, green roofs, vegetated filter strips and rain gardens.

"National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit" means a permit issued by the EPA, or by a State under authority delegated pursuant to 33 USC § 1342(b), that authorizes the discharge of pollutants to waters of the State, whether the permit is applicable on an individual, group, or general area-wide basis.

"New Development" means a land development project undertaken on a previously undeveloped or unimproved site.

"Nonpoint Source Pollution" means pollution from any source other than from a discernible, confined and discrete conveyance, such as a wastewater treatment plant or industrial discharge. Sources of nonpoint source pollution include, but are not limited to, agricultural, silvicultural, mining and construction activities, subsurface disposal and urban stormwater runoff.

"Nonstructural Stormwater Management Practice" means any natural resource protection or stormwater management practice or technique that uses natural processes and natural systems to intercept, convey, treat and/or manage stormwater runoff. Nonstructural stormwater management practices include, but are not limited to, protecting primary and secondary conservation areas, reducing clearing and grading limits, reducing roadway lengths and widths, reducing parking lot and building footprints, soil restoration, site reforestation/revegetation, green roofs, vegetated filter strips and rain gardens.

"Off-Site Stormwater Management Practice" means a green infrastructure or stormwater management practice located outside the boundaries of a development site.

"On-Site Stormwater Management Practice" means a green infrastructure or stormwater management practice located within the boundaries of a development site.

"Overbank Flood Protection" means measures taken to protect downstream properties from damaging overbank flooding events.

"Owner" means the legal or beneficial owner of a piece of land, including, but not limited to, a mortgagee or vendee in possession, receiver, executor, trustee, lessee or other person, firm, or corporation in control of the site.

"Permanent Stormwater Management Practice" means a green infrastructure or stormwater management practice that will be operational after the land disturbing activities are complete and that is designed to become a permanent part of the site for the purposes of managing post-construction stormwater runoff.

"Permit" means the permit issued by a local development review authority to an applicant, which is required for undertaking any land development project or land disturbing activities.

"Person" means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, city, county or other political subdivision, any interstate body, or any other legal entity.

"Post-Development Hydrology" refers to the set of hydrologic conditions that may reasonably be expected to exist on a development site, after the completion of all land disturbing and construction activities.

"Pre-Development Hydrology" refers to the set of hydrologic conditions that exist on a development site prior to the commencement of any land disturbing activities and at the time that plans for the land development project are approved by the local development review authority.

"Receiving Stream" or **"Receiving Aquatic Resource"** means the body of water or conveyance into which stormwater runoff is discharged.

"Recharge" means the replenishment of groundwater aquifers.

"Redevelopment" means a change to previously existing, improved property, including but not limited to the demolition or building of structures, filling, grading, paving, or excavating, but excluding ordinary maintenance activities, remodeling of buildings on the existing footprint, resurfacing of paved areas and exterior changes or improvements that do not materially increase or concentrate stormwater runoff or cause additional nonpoint source pollution.

"Regional Stormwater Management Practice" means a stormwater management practice designed to control stormwater runoff from multiple properties, where the owners or developers of the individual properties may participate in providing land, financing, design services, construction services and/or maintenance services for the practice.

"Responsible Party" means any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity, or any other legal entity; or their legal representatives, agents, or assigns that is named on a stormwater inspection and maintenance agreement and plan as responsible for the long-term operation and maintenance of one or more green infrastructure or stormwater management practices.

"Site" means development site.

"Stop Work Order" means an order issued that requires that all land disturbing activity on a site be stopped.

"Stormwater Hotspot" means an area where land use or pollution generating activities have the potential to generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater runoff. Stormwater hotspots include, but are not limited to, fueling stations (including temporary fueling stations during construction), golf courses, public works yards and marinas.

"Stormwater Management" means the interception, conveyance, treatment and management of stormwater runoff in a manner that is intended to prevent increased flood damage, channel erosion, habitat degradation and water quality degradation and to enhance and promote the public health, safety and general welfare.

"Stormwater Management Plan" means a written document that details how stormwater runoff will be managed on a development site and that shows how the stormwater management criteria that apply to the development project have been met.

"Stormwater Management Practice" means a practice or technique, either structural or nonstructural, that is used to intercept stormwater runoff and change the characteristics of that runoff. Stormwater management practices are used to control post-construction stormwater runoff rates, volumes and pollutant loads to prevent increased flood damage, channel erosion, habitat degradation and water quality degradation.

"Stormwater Management System" means the entire suite of green infrastructure and stormwater management practices and stormwater conveyance features that are used to intercept, convey, treat and manage stormwater runoff on a development site.

"Stormwater Retrofit" means a green infrastructure or stormwater management practice designed for an existing development site that previously had no green infrastructure or

stormwater management practice in place or had a practice that was not meeting local stormwater management criteria.

"Stormwater Runoff" means surface water resulting from precipitation.

"Stormwater Runoff Reduction" means providing for the interception, evapotranspiration, infiltration, or capture and reuse of stormwater runoff to help maintain pre-development site hydrology and help protect aquatic resources from several indirect impacts of the land development process, including decreased groundwater recharge, decreased baseflow and degraded water quality.

"Subdivision" means the division of a parcel of land to create one or more new lots or development sites for the purpose, whether immediately or in the future, of sale, transfer of ownership, or land development, and includes divisions of land resulting from or made in connection with the layout or construction of a new street or roadway or a change in the layout of an existing street or roadway.

"Watercourse" means a permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

"Watershed Management Plan" or **"Subwatershed Management Plan"** means a document, usually developed cooperatively by government agencies and other stakeholders, to protect, restore and/or otherwise manage the water resources found within a particular watershed or subwatershed. Watershed or subwatershed management plans commonly identify threats, sources of impairment, institutional issues and technical and programmatic solutions or projects to protect and/or restore water resources.

"Water Quality Protection" means adequately treating stormwater runoff before it is discharged from a development site to help protect downstream aquatic resources from water quality degradation.

"Wetland Hydroperiod" means the pattern of fluctuating water levels within a wetland caused by the complex interaction of surface water, groundwater, topography, soils and geology within a wetland.

3.0 Permit Procedures and Requirements

Permit Procedures and Requirements

- The Permit Procedures and Requirements section outlines the requirements for development plan submittal and the general conditions for plan approval.
- Plan approval can be a local jurisdiction's last chance to influence several important issues, such as ensuring long-term access to green infrastructure and stormwater management practices and assigning ongoing maintenance responsibility.
- The ordinance should establish the plan review and approval process as a mechanism to secure an inspection and maintenance agreement and plan that will ensure the long-term viability of green infrastructure and stormwater management practices.

3.1 Permit Application Requirements

No owner or developer shall undertake any development activity without first meeting the requirements of this ordinance and receiving a permit for the proposed development activity from the *(local jurisdiction)*. Unless specifically exempted by this ordinance, any owner or developer proposing a development project shall submit to the *(local jurisdiction)* a permit application on a form provided by the *(local jurisdiction)*. Unless otherwise exempted by this ordinance, the following items shall accompany a permit application:

(1) Stormwater management concept plan prepared in accordance with Section 3.2;

(2) Record of a consultation meeting held in accordance with Section 3.3;

(3) Stormwater management design plan prepared in accordance with Section 3.4;

(4) Stormwater management system inspection and maintenance agreement and plan prepared in accordance with Section 3.5;

(5) Permit application and plan review fees prepared in accordance with Sections 3.6 and 3.7; and,

(6) Performance bond prepared in accordance with Section 3.8.

3.2 Stormwater Management Concept Plan

Prior to the preparation and submittal of a stormwater management design plan and permit application, the owner or developer shall submit to the *(local jurisdiction)* for review and approval, a stormwater management concept plan illustrating the layout of the proposed development project and showing, in general, how post-construction stormwater runoff will be managed on the development site.

The stormwater management concept plan shall include the following information:

(1) Project Narrative: The project narrative shall include a vicinity map, the common address of the development site and a legal description of the development site.

(2) Site Fingerprint: The site fingerprint shall illustrate the results of the natural resources inventory (Section 4.1), which is used to identify and map the natural resources found on the development site, as they exist prior to the start of any land disturbing activities.

(3) Existing Conditions Map: The existing conditions map shall include all of the information shown on the site fingerprint and shall illustrate:

(a) Existing roads, buildings, parking areas and other impervious surfaces;

(b) Existing utilities (e.g., water, sewer, gas, electric) and utility easements;

(c) Existing primary and secondary conservation areas;

(d) Existing low impact development and stormwater management practices;

(e) Existing storm drain infrastructure (e.g., inlets, manholes, storm drains); and,

(f) Existing channel modifications (e.g., bridge or culvert installations).

(4) Proposed Conditions Map: The proposed conditions map shall illustrate:

(a) Proposed topography (minimum two-foot contours recommended);

(b) Proposed drainage divides and patterns;

(c) Proposed roads, buildings, parking areas and other impervious surfaces;

(d) Proposed utilities (e.g., water, sewer, gas, electric) and utility easements;

(e) Proposed limits of clearing and grading;

(f) Proposed primary and secondary conservation areas;

(g) Proposed low impact development and stormwater management practices;

(h) Proposed storm drain infrastructure (e.g., inlets, manholes, storm drains); and,

(i) Proposed channel modifications (e.g., bridge or culvert installations).

(5) Post-Construction Stormwater Management System Narrative: The post-construction stormwater management system narrative shall include information about how post-construction stormwater runoff will be managed on the development site, including a list of the low impact development and stormwater management practices that will be used. It shall also include calculations showing how initial estimates of the post-construction stormwater management criteria that apply to the development project were obtained, including information about the existing and proposed conditions of each of the drainage areas found on the development site (e.g., size, soil types, land cover characteristics).

In accordance with Section 4.2, green infrastructure practices (i.e., better site planning techniques, better site design techniques, low impact development practices) shall be used to the maximum extent practical during the creation of a stormwater management concept plan. Green infrastructure practices include, but are not limited to, protecting primary and secondary conservation areas, reducing clearing and grading limits, reducing roadway lengths and widths, reducing parking lot and building footprints, soil restoration, site reforestation/revegetation, green roofs, vegetated filter strips and rain gardens.

3.3 Consultation Meeting

All applicants are encouraged to hold a consultation meeting with the *(local jurisdiction)* to discuss the proposed development project, the stormwater management concept plan and the approach that was used to satisfy the post-construction stormwater management and site planning and design criteria that apply to the development site. This consultation meeting shall take place *on-site* after submittal, but prior to approval, of the stormwater management concept plan, for the purposes of verifying site conditions and the feasibility of the stormwater management concept plan.

3.4 Stormwater Management Design Plan

Subsequent to approval of the stormwater management concept plan, the owner or developer shall submit to the *(local jurisdiction)* for review and approval, a stormwater management design plan that details how post-development stormwater runoff will be controlled or managed on the development site. The stormwater management design plan shall detail how the proposed development project will meet the post-construction stormwater management and site planning and design criteria that apply to the development site.

The stormwater management design plan shall include all of the information contained in the stormwater management concept plan, plus:

(1) Existing Conditions Hydrologic Analysis: The existing conditions hydrologic analysis shall include:

   (a) Existing conditions map (Section 3.2.3);

   (b) Information about the existing conditions of each of the drainage areas found on the development site (e.g., size, soil types, land cover characteristics);

   (c) Information about the existing conditions of any off-site drainage areas that contribute stormwater runoff to the development site (e.g., size, soil types, land cover characteristics);

   (d) Information about the stormwater runoff rates and volumes generated, under existing conditions, in each of the drainage areas found on the development site;

   (e) Information about the stormwater runoff rates and volumes generated, under existing conditions, in each of the off-site drainage areas that contribute stormwater runoff to the development site; and

   (f) Documentation (e.g., model diagram) and calculations showing how the existing conditions hydrologic analysis was completed.

(2) Proposed Conditions Hydrologic Analysis: The proposed conditions hydrologic analysis shall include:

   (a) Proposed conditions map (Section 3.2.4);

   (b) Information about the proposed conditions of each of the drainage areas found on the development site (e.g., size, soil types, land cover characteristics);

(c) Information about the proposed conditions of any off-site drainage areas that contribute stormwater runoff to the development site (e.g., size, soil types, land cover characteristics);

(d) Information about the stormwater runoff rates and volumes generated, under proposed conditions, in each of the drainage areas found on the development site;

(e) Information about the stormwater runoff rates and volumes generated, under proposed conditions, in each of the off-site drainage areas that contribute stormwater runoff to the development site; and

(f) Documentation (e.g., model diagram) and calculations showing how the proposed conditions hydrologic analysis was completed.

(3) Post-Construction Stormwater Management System Plan: The post-construction stormwater management system plan shall illustrate:

(a) Proposed topography;

(b) Proposed drainage divides and patterns;

(c) Existing and proposed roads, buildings, parking areas and other impervious surfaces;

(d) Existing and proposed primary and secondary conservation areas;

(e) Plan view of existing and proposed low impact development and stormwater management practices;

(f) Cross-section and profile views of existing and proposed low impact development and stormwater management practices, including information about water surface elevations, storage volumes and inlet and outlet structures (e.g., orifice sizes);

(g) Plan view of existing and proposed storm drain infrastructure (e.g., inlets, manholes, storm drains);

(h) Cross-section and profile views of existing and proposed storm drain infrastructure (e.g., inlets, manholes, storm drains), including information about invert and water surface elevations; and

(i) Existing and proposed channel modifications (e.g., bridge or culvert installations).

(4) Post-Construction Stormwater Management System Narrative: The post-construction stormwater management system narrative shall include information about how post-construction stormwater runoff will be managed on the development site, including a list of the low impact development and stormwater management practices that will be used. It shall also include documentation and calculations that demonstrate how the selected low impact development and stormwater management practices satisfy the post-construction stormwater management criteria that apply to the development site, including information about the existing and proposed conditions of each of the

drainage areas found on the development site (e.g., size, soil types, land cover characteristics).

(5) Certification by Plan Preparer: The stormwater management design plan shall be prepared by a certified design professional, such as a landscape architect, professional surveyor or professional engineer, who must certify that the design of the stormwater management system meets the requirements of this ordinance and the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, and any relevant local addenda.

(6) Certification by Owner: The owner shall certify that all land disturbing and development activities will be completed in accordance with the approved stormwater management design plan.

A copy of the stormwater management concept plan (Section 3.2) shall be included with the submittal of the stormwater management design plan. The stormwater management design plan should be consistent with the stormwater management concept plan. If any significant changes were made to the plan of development, the *(administrator)* may ask for a written statement providing rationale for any of the changes that were made.

3.5 Stormwater Management System Inspection and Maintenance Agreement and Plan

Stormwater Management System Inspection and Maintenance Agreement and Plan

- The Stormwater Management System Inspection and Maintenance Agreement and Plan section is intended to ensure the long-term maintenance of green infrastructure and stormwater management practices installed on a development site. This section should be used to:
  - Ensure that maintenance agreements are recorded.
  - Ensure that easements for maintenance and access are platted.
  - Establish maintenance inspection and reporting requirements.

(1) Prior to the issuance of a permit for any new development or redevelopment activity that requires one, the applicant or owner of the development site, if different, must execute an inspection and maintenance agreement and plan that shall be binding on all subsequent owners of the site, unless the stormwater management system is dedicated to and accepted by the *(local jurisdiction)*.

(2) The inspection and maintenance agreement and plan shall include the following information:

(a) Identification by name or official title the person(s) responsible for carrying out the inspection and maintenance;

(b) A statement confirming that responsibility for the operation and maintenance of the stormwater management system, unless assumed by the *(local jurisdiction)*, shall remain with the property owner and shall pass to any successive owner;

(c) A provision stating that, if portions of the development site are sold or otherwise transferred, legally binding arrangements shall be made to pass responsibility for the operation and maintenance of the stormwater management system to the appropriate successors in title; these arrangements shall designate, for each

portion of the stormwater management system, the person(s) to be permanently responsible for its inspection and maintenance;

(d) A maintenance schedule stating when and how often routine inspection and maintenance will occur to ensure proper function of the stormwater management system; and,

(e) Plans for annual inspections to ensure proper performance of the stormwater management system between scheduled maintenance activities.

(3) The inspection and maintenance agreement and plan shall be approved by the *(local jurisdiction)* prior to approval of the stormwater management design plan and recorded with the deed upon approval of the stormwater management design plan.

(4) In addition to enforcing the terms of the inspection and maintenance agreement and plan, the *(local jurisdiction)* may also enforce all of the provisions for ongoing inspection and maintenance contained in Section 6.0 of this ordinance.

(5) The terms of the stormwater management system inspection and maintenance agreement and plan shall provide for the *(local jurisdiction)* to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. These terms include the right to enter a property when the *(local jurisdiction)* has a reason to believe that a violation of an approved stormwater management system inspection and maintenance agreement and plan has occurred and when necessary for abatement of a public nuisance or correction of a violation of this ordinance or an approved stormwater management system inspection and maintenance agreement and plan.

3.6 Permit Application Procedure

(1) Applications for permits shall be filed with the *(local jurisdiction)* on a permit application on a form provided by the *(local jurisdiction)*.

(2) Permit applications shall include the items set forth in Section 3.1. *Two copies of the stormwater management design plan and stormwater management system inspection and maintenance agreement and plan shall be included with the permit application.*

(3) The *(local jurisdiction)* shall inform the applicant whether the application, stormwater management design plan and inspection and maintenance agreement and plan are approved or disapproved.

(4) If the permit application, stormwater management design plan or inspection and maintenance agreement and plan are disapproved, the *(local jurisdiction)* shall notify the applicant of that fact in writing. The applicant may then revise any item not meeting the requirements of this ordinance and resubmit the application, in which event Section 3.5.3 shall apply to such re-submittal.

(5) Upon a finding by the *(local jurisdiction)* that the permit application, stormwater management design plan and inspection and maintenance agreement and plan, if applicable, meet the requirements of this ordinance, the *(local jurisdiction)* may issue a permit for the development project, provided that all other legal requirements for the issuance of such permit have been met.

(6) Notwithstanding the issuance of the permit, in undertaking the new development or redevelopment activity, the applicant or other responsible person shall be subject to the following requirements:

(a) The applicant shall comply with all applicable requirements of the approved stormwater management design plan and the provisions of this ordinance and shall certify that all land disturbing and development activities will be completed in accordance with the approved stormwater management design plan;

(b) The development project shall be conducted only within the area specified in the approved stormwater management design plan;

(c) The *(local jurisdiction)* shall be allowed to conduct periodic inspections of the development project in accordance with Sections 5.0 and 6.0;

(d) No changes may be made to an approved stormwater management design plan without review and written approval by the *(local jurisdiction)*; and,

(e) Upon completion of the development project, the applicant or other responsible person shall submit a statement certifying that the project has been completed in accordance with the approved stormwater management design plan. The applicant or other responsible person shall also submit as built plans for the stormwater management system, as required under Section 5.3.

3.7 Application Review Fees

Application Review Fees
- The local jurisdiction should insert an appropriate fee schedule into this section of the post-construction stormwater management ordinance.
- If a local jurisdiction does not currently charge fees for plan review, waivers and inspections, then it should consider fees as a possible revenue source for its post-construction stormwater management program.

A non-refundable permit fee *(shall/may)* be collected at the time the permit application is submitted to the *(local jurisdiction)*. Any permit fees that are collected shall be used to support the administration and management of the plan review and approval process and the inspection of all development projects subject to the requirements of this ordinance. The *(local jurisdiction) (shall/may)* develop a fee schedule based on the area of land disturbed by the project and may amend the fee schedule from time to time.

3.8 Performance Bonds

The (local jurisdiction) shall require, from the applicant, a surety or cash bond, irrevocable letter of credit or other means of security acceptable to the (local jurisdiction) prior to the issuance of a permit for any new development or redevelopment activity. The amount of the security shall not be less than the total estimated construction cost of the post-construction stormwater management system to be installed on the development site. The bond shall include provisions relative to forfeiture for failure to complete the work specified in the approved stormwater management design plan, compliance with the provisions of this ordinance, other applicable laws and regulations and any time limitations. The bond shall not be fully released without a final inspection of the completed work by the (local jurisdiction), submittal of as built plans, a

recorded inspection and maintenance agreement and plan and certification by the applicant that the stormwater management system complies with the approved stormwater management design plan and the requirements of this ordinance. A procedure may be used to release parts of the bond held by the (local jurisdiction) after various stages of construction have been completed and accepted by the (local jurisdiction). The procedures used for partially releasing performance bonds must be specified by the (local jurisdiction) in writing prior to the approval of a stormwater management design plan.

3.9 Compliance Through Off-Site Stormwater Management Practices

All stormwater management design plans shall include on-site green infrastructure and stormwater management practices, unless arrangements are made with the *(local jurisdiction)* to manage post-construction stormwater runoff in an off-site or regional stormwater management practice. The off-site or regional stormwater management practice must be located on property legally dedicated to that purpose, be designed and sized to meet the post-construction stormwater management criteria presented in Section 4.0 of this ordinance, provide a level of stormwater quality and quantity control that is equal to or greater than that which would be provided by on-site green infrastructure and stormwater management practices and have an associated inspection and maintenance agreement and plan (Section 3.5). In addition, appropriate stormwater management practices shall be installed, where necessary, to protect properties and drainage channels that are located between the development site and the location of the off-site or regional stormwater management practice.

To be eligible for compliance through the use of off-site stormwater management practices, the applicant must submit a stormwater management design plan to the *(local jurisdiction)* that shows the adequacy of the off-site or regional stormwater management practice and demonstrates, to the satisfaction of the *(local jurisdiction)*, that the off-site or regional stormwater management practice will not result in the following impacts:

(1) Increased threat of flood damage or endangerment to public health or safety;

(2) Deterioration of existing culverts, bridges, dams and other structures;

(3) Accelerated streambank or streambed erosion or siltation;

(4) Degradation of in-stream biological functions or habitat; or,

(5) Water quality impairment in violation of state water quality standards and/or violation of any other state or federal regulations.

4.0 Post-Construction Stormwater Management and Site Planning and Design Criteria

Post-Construction Stormwater Management and Site Planning and Design Criteria

- Criteria are the core of a post-construction stormwater management ordinance. They establish the design objectives for green infrastructure and stormwater management practices, and will influence the types of practices that are used on a development site.
- Criteria in the ordinance should remain fairly simple, with technical detail relegated to the stormwater guidance manual, which, in this case, is the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

The following post-construction stormwater management and site planning and design criteria shall be applied to all new development and redevelopment activities that are subject to the provisions of this ordinance. The criteria have been designed to protect valuable local natural resources from the negative impacts of the land development process.

If local natural resource protection and stormwater management goals and objectives warrant greater protection than that provided by the post-construction stormwater management and site planning and design criteria outlined below, the *(local jurisdiction)* may impose additional requirements on new development and redevelopment activities that it has determined are necessary to protect local aquatic and terrestrial resources from the negative impacts of the land development process.

4.1 Natural Resources Inventory

Prior to the start of any land disturbing activities, including any clearing and grading activities, acceptable site reconnaissance and surveying techniques should be used to complete a thorough assessment of the natural resources, both terrestrial and aquatic, found on a development site. The natural resources inventory shall be completed in accordance with the information presented within the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

The preservation and/or restoration of the natural resources found on a development site, through the use of green infrastructure practices, may, at the discretion of the *(local jurisdiction)*, be assigned quantifiable stormwater management "credits" that can be used when calculating the stormwater runoff volumes associated with the post-construction stormwater management criteria outlined in Sections 4.3 through 4.7 of this ordinance. The green infrastructure practices that qualify for these "credits," and information about how they can be used to help satisfy the post-construction stormwater management criteria outlined in Sections 4.3 through 4.7 of this ordinance, is provided in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

4.2 Use of Green Infrastructure Practices

Green infrastructure practices shall be used to the maximum extent practical during the creation of a stormwater management concept plan (Section 3.2) for a proposed development project. Green infrastructure practices can be used to not only help protect local terrestrial and aquatic resources from the direct impacts of the land development process, but also to help maintain pre-development site hydrology and reduce post-construction stormwater runoff rates, volumes and pollutant loads.

4.3 Stormwater Runoff Reduction

The stormwater runoff volume generated by the runoff reduction storm event, as defined in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, shall be reduced on-site in order to help maintain pre-development site hydrology and help protect local aquatic resources from several indirect impacts of the land development process, including decreased groundwater recharge, decreased baseflow and degraded water quality. A stormwater management system is presumed to comply with this criteria if:

(1) It includes green infrastructure practices that provide for the interception, evapotranspiration, infiltration or capture and reuse of stormwater runoff, that have been selected, designed, constructed and maintained in accordance with the information presented in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual* and any relevant local addenda; and,

(2) It is designed to provide the amount of stormwater runoff reduction specified in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

The *(administrator)* may reduce the amount of stormwater runoff reduction needed to satisfy this criteria on development sites that are considered to be stormwater hotspots or that have site characteristics or constraints, such as high groundwater, impermeable soils, contaminated soils or confined groundwater aquifer recharge areas, that prevent the use of green infrastructure practices that provide for the interception, evapotranspiration, infiltration or capture and reuse of stormwater runoff. When seeking a reduction in the amount of stormwater runoff reduction that needs to be provided in order to satisfy this criteria, applicants shall:

(1) Use green infrastructure practices that provide for the interception, evapotranspiration, infiltration or capture and reuse of stormwater runoff, to provide the minimum amount of stormwater runoff reduction specified in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual* and any relevant local addenda; and,

(2) Provide adequate documentation to the *(local jurisdiction)* to show that no additional runoff reducing green infrastructure practices can be used on the development site.

In accordance with Section 4.4 of this ordinance, any of the stormwater runoff volume generated by the runoff reduction storm event that is not reduced on the development site shall be intercepted and treated in one or more stormwater management practices that provide at least an 80 percent reduction in total suspended solids loads and that reduce nitrogen and bacteria loads to the maximum extent practical.

4.4 Water Quality Protection

In order to protect local aquatic resources from water quality degradation, post-construction stormwater runoff shall be adequately treated before it is discharged from a development site. Applicants can satisfy this criteria by satisfying the stormwater runoff reduction criteria (Section 4.3). However, if any of the stormwater runoff volume generated by the runoff reduction storm event, as defined in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, cannot be reduced on the development site, due to site characteristics or constraints, it shall be intercepted and treated in one or more stormwater management practices that provide at least an 80 percent reduction in total suspended solids

loads and that reduce nitrogen and bacteria loads to the maximum extent practical. When seeking to satisfy this criteria through the use of one or more stormwater management practices, applicants shall:

(1) Intercept and treat stormwater runoff in stormwater management practices that have been selected, designed, constructed and maintained in accordance with the information presented in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual* and any relevant local addenda; and,

(2) Provide adequate documentation to the *(local jurisdiction)* to show that total suspended solids, nitrogen and bacteria removal were considered during the selection of the stormwater management practices that will be used to intercept and treat stormwater runoff on the development site.

4.5 Aquatic Resource Protection

In order to protect local aquatic resources from several other negative impacts of the land development process, including complete loss or destruction, stream channel enlargement and increased salinity fluctuations, applicants shall provide aquatic resource protection in accordance with the with the information provided in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

4.6 Overbank Flood Protection

Overbank Flood Protection

- Most local jurisdictions establish an overbank flood protection criteria that is matched with the design storm used to design open channels, culverts, bridges and storm drain systems. Consequently, many local jurisdictions require that the peak discharge generated by the 10-year and/or 25-year, 24-hour storm event under post-development conditions be controlled in a manner that ensures that it does not exceed the peak discharge generated by the same storm event(s) under pre-development conditions.

All stormwater management systems shall be designed to control the peak discharge generated by the overbank flood protection storm event, as defined in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, to prevent an increase in the duration, frequency and magnitude of downstream overbank flooding. A stormwater management system is presumed to comply with this criteria if it is designed to provide overbank flood protection in accordance with the information provided in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

The *(administrator)* may modify or waive this criteria on development sites where both the on-site and downstream stormwater conveyance systems are designed to safely convey the peak discharge generated by the overbank flood protection storm event to a receiving stream, tidal creek or other aquatic resource without causing additional downstream flooding or other environmental impacts, such as stream channel enlargement or degradation of habitat.

4.7. Extreme Flood Protection

Extreme Flood Protection
- Some local jurisdictions establish an extreme flood protection criteria to maintain the boundaries of existing floodplains, reduce the threat of flooding and protect public health and safety. Even if an extreme flood protection criteria is not established, local jurisdictions should require that all green infrastructure and stormwater management practices that impound stormwater runoff can safely pass the 100-year storm without overtopping or creating damaging or dangerous downstream conditions.

All stormwater management systems shall be designed to control the peak discharge generated by the extreme flood protection storm event, as defined in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, to prevent an increase in the duration, frequency and magnitude of downstream extreme flooding and protect public health and safety. A stormwater management system is presumed to comply with this criteria if it is designed to provide extreme flood protection in accordance with the information provided in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

The *(administrator)* may modify or waive this criteria on development sites where both the on-site and downstream stormwater conveyance systems are designed to safely convey the peak discharge generated by the extreme flood protection storm event to a receiving stream, tidal creek or other aquatic resource without causing additional downstream flooding or other environmental impacts, such as stream channel enlargement or degradation of habitat.

4.8 Redevelopment Criteria

Redevelopment Criteria
- Include a separate Redevelopment Criteria section when the local jurisdiction wants to encourage redevelopment as part of a greater land use planning or Smart Growth strategy.
- With these criteria, post-construction stormwater management requirements are tailored to the unique conditions of redevelopment projects. These criteria may include less rigorous post-construction stormwater management requirements or provisions for off-site mitigation in lieu of full on-site compliance.
- In some local jurisdictions, redevelopment projects may be required to meet more rigorous stormwater management criteria if downstream flooding and/or water quality are important local issues.

Development activities that are considered to be redevelopment activities shall meet at least one of the following criteria:

(1) ***Reduce Impervious Cover****: Reduce existing site impervious cover by at least 20%.*

(2) ***Provide Stormwater Management****: Manage the stormwater runoff from at least 20% of the site's existing impervious cover and any new impervious cover in accordance with the post-construction stormwater management criteria outlined in Sections 4.3 through 4.7 of this ordinance. The green infrastructure and stormwater management practices used to comply with these criteria shall be selected, designed, constructed and maintained in accordance with the information presented in the latest edition of the*

Coastal Stormwater Supplement to the Georgia Stormwater Management Manual and any relevant local addenda.

(3) ***Provide Off-Site Stormwater Management****: Provide, through the use of off-site stormwater management practices, a level of stormwater quality and quantity control that is equal to or greater than that which would be provided by satisfying the post-construction stormwater management criteria outlined in Sections 4.3 through 4.7 of this ordinance on the development site.*

(4) ***Combination of Measures****: Any combination of (1) through (3) above that is acceptable to the (local jurisdiction).*

4.9 Green Infrastructure and Stormwater Management Practices

All green infrastructure and stormwater management practices shall be selected, designed, constructed and maintained in accordance with the information presented in the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual* and any relevant local addenda. Applicants are referred to the latest edition of the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, and any relevant local addenda, for guidance on selecting green infrastructure and stormwater management practices that can be used to satisfy the post-construction stormwater management criteria outlined in Sections 4.3 through 4.7 of this ordinance.

For green infrastructure or stormwater management practices that are not included in the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*, or for which pollutant removal and runoff reduction rates have not been provided, the effectiveness of the green infrastructure or stormwater management practice must be documented through prior studies, literature reviews or other means, and receive approval from the *(local jurisdiction)* before being included in a stormwater management system.

4.10 Stormwater Conveyance Practices

Stormwater conveyance practices, which may include, but are not limited to, storm drain pipes, culverts, catch basins, drop inlets, junction boxes, headwalls, gutters, ditches, open channels, swales and energy dissipaters, shall be provided when necessary to convey post-construction stormwater runoff and protect private properties adjoining development sites and/or public rights-of-way. Stormwater conveyance practices that are used to convey post-construction stormwater runoff on development sites shall meet the following requirements:

(1) Methods used to calculate stormwater runoff rates and volumes shall be in accordance with the information presented in the latest edition of the *Georgia Stormwater Management Manual* and any relevant local addenda;

(2) All culverts, pipe systems and open channel flow systems shall be sized in accordance with the information presented in the latest edition of the *Georgia Stormwater Management Manual* and any relevant local addenda; and,

(3) Planning and design of stormwater conveyance practices shall be completed in accordance with the information presented in the latest edition of the *Georgia Stormwater Management Manual* and any relevant local addenda.

5.0 Construction Inspection of Stormwater Management Systems

Construction Inspection of Stormwater Management Systems

- The Construction Inspection section of a post-construction stormwater management ordinance outlines the regulatory requirements for inspecting and reporting on permanent green infrastructure and stormwater management practices during construction.
- The ordinance should be clear about who is responsible for conducting inspections (the responsible party, a local government department, or some combination of the two), and the type and frequency of reporting that must be submitted.

5.1 Notice of Construction Commencement

The applicant must notify the *(local jurisdiction)* prior to the commencement of construction on a development site. In addition, the applicant must notify the *(local jurisdiction)* in advance of the installation of critical components of the stormwater management system shown on the approved stormwater management design plan. The *(local jurisdiction)* may, at its discretion, issue verbal or written authorization to proceed with the installation of critical components of the stormwater management system, such as permanent green infrastructure and stormwater management practices, based on the stabilization of contributing drainage areas and other factors.

5.2 Inspections During Construction

Periodic inspections of the green infrastructure and stormwater management practices shown on the approved stormwater management design plan shall be conducted by staff or representatives of the *(local jurisdiction)* during construction. Construction inspections shall utilize the approved stormwater management design plan for establishing compliance with the provisions of this ordinance. All inspections shall be documented in written reports that contain the following information:

(1) The date and location of the inspection;

(2) The name of the inspector;

(3) Whether construction is in compliance with the approved stormwater management design plan;

(4) Violations of the approved stormwater management design plan; and,

(5) Any other variations from the approved stormwater management plan.

If any violations are found, the applicant shall be notified in writing about the nature of the violation and the remedial measures that are required to bring the action or inaction into compliance with the approved stormwater management design plan, as described in Section 7.1 of this ordinance. In the event that the remedial measures described in such notice have not been completed by the date set forth in the notice, any one or more of the enforcement actions outlined in Section 7.2 of this ordinance may be taken against the applicant.

5.3 Final Inspection and As Built Plans

Subsequent to the final installation and stabilization of all green infrastructure and stormwater management practices shown on the approved stormwater management design plan, and before the issuance of a certificate of occupancy, the applicant is responsible for certifying that the project has been completed in accordance with the approved stormwater management design plan and submitting as built plans for all green infrastructure and stormwater management practices shown on the approved stormwater management design plan. The as built plans must show the final design specifications for all green infrastructure and stormwater management practices and must be certified by a licensed design professional such as a landscape architect, professional surveyor or professional engineer. A final inspection shall be conduced by the staff or representatives of the (local jurisdiction) to confirm the accuracy of the as built plans. A final inspection is required before any performance bond or other guarantee can be released.

6.0 Ongoing Inspection and Maintenance of Stormwater Management Systems

6.1 Maintenance Responsibility

The responsible party named in the recorded stormwater management system inspection and maintenance agreement and plan (Section 3.4), shall maintain in good condition and promptly repair and restore all green infrastructure and stormwater management practices, maintenance access routes and appurtenances, including, but not limited to surfaces, walls, drains, dams, structures, vegetation, erosion and sediment control practices and other protective devices. Such repairs and restoration and maintenance activities shall be performed in accordance with an approved inspection and maintenance agreement and plan.

If the responsible party named in the recorded inspection and maintenance agreement and plan is a homeowner's association or other owner's association, such as a unit owner's association, the responsible party shall submit to the *(local jurisdiction)* a copy of a recorded declaration that provides:

(1) That green infrastructure and stormwater management practices are part of the common elements of the development site and shall be subject to the requirements of the stormwater management system inspection and maintenance agreement and plan;

(2) That membership in the association shall be mandatory and automatic for all homeowners or unit owners of the development site and their successors;

(3) That the association shall have lien authority to ensure the collection of dues from all members;

(4) That the requirements of the inspection and maintenance agreement and plan shall receive the highest priority for expenditures by the association except for any other expenditures that are required by law to have a higher priority;

(5) That a separate fund shall be maintained by the association for the routine maintenance, reconstruction and repair of the green infrastructure and stormwater management practices, and kept in an account insured by the Federal Deposit Insurance Corporation (FDIC) or by another entity acceptable to the *(local jurisdiction)*;

(6) That the routine maintenance, reconstruction and repair fund shall contain at all times the dollar amount reasonably determined from time to time by the *(local jurisdiction)* to be adequate to pay for the probable reconstruction and repair cost (but not routine maintenance cost) of the stormwater management system for a three-year period; and,

(7) That, to the extent permitted by law, the association shall not enter into voluntary dissolution unless responsibility for the green infrastructure and stormwater management practices is transferred to an appropriate successor.

The *(local jurisdiction)*, in lieu of an inspection and maintenance agreement and plan, may accept the dedication of any existing or future green infrastructure or stormwater management practice for maintenance, provided that such practice meets all of the requirements of this ordinance, is in proper working order at the time of dedication and includes adequate and perpetual access and sufficient area for inspection and regular maintenance. Such adequate and perpetual access shall be accomplished by granting of an easement to the *(local jurisdiction)* or through a fee simple dedication to the *(local jurisdiction)*.

6.2 Maintenance Inspections

Periodic inspections of the green infrastructure and stormwater management practices shown on an approved stormwater management design plan, and subject to the terms and conditions of an approved inspection and maintenance agreement and plan, shall be conducted by staff or representatives of the *(local jurisdiction)* to document repair and maintenance needs and ensure compliance with the requirements of the approved inspection and maintenance agreement and plan and provisions of this ordinance. All inspections should be documented in written reports that contain the following information:

(1) The date and location of the inspection;

(2) The name of the inspector;

(3) The condition of:

- (a) Vegetation and filter media;
- (b) Fences and other safety devices;
- (c) Spillways, valves and other hydraulic control structures;
- (d) Embankments, slopes and safety benches;
- (e) Reservoirs and permanent pools;
- (f) Inlet and outlet channels and structures;
- (g) Underground drainage structures;
- (h) Sediment and debris accumulation in storage and forebay areas;
- (i) Any other item that could affect the proper function of the stormwater management system; and,

(4) A description of repair, restoration and maintenance needs.

If any repair, restoration or maintenance needs are found, the responsible party named in the recorded stormwater management system inspection and maintenance agreement and plan shall be notified in writing about the repair, restoration or maintenance needs and the remedial measures that are required to bring the stormwater management system into compliance with the approved stormwater management system inspection and maintenance agreement and plan, as described in Section 7.1 of this ordinance. In the event that the remedial measures described in such notice have not been completed by the date set forth in the notice, any one or more of the enforcement actions outlined in Section 7.2 of this ordinance may be taken against the responsible party named in the approved stormwater management system inspection and maintenance agreement and plan.

6.3 Records of Maintenance Activities

The responsible party shall make and maintain records of all inspections, maintenance and repairs, and shall retain the records for a minimum of five years. These records shall be made available to the *(local jurisdiction)* during inspections and at other reasonable times upon request of the *(local jurisdiction)*.

6.4 Failure to Maintain

If the responsible party fails or refuses to meet the terms and conditions of an approved stormwater management system inspection and maintenance agreement and plan and/or the requirements of this ordinance, the *(local jurisdiction)*, after thirty (30) days written notice (except, that in the event the violation constitutes an immediate danger to public health or safety, 24 hours notice shall be sufficient), may correct a violation by performing the work necessary to place the green infrastructure or stormwater management practice in proper working condition. The *(local jurisdiction)* may assess the responsible party for the cost of the repair work, which shall be a lien on the property, and may be placed on the ad valorum tax bill for such property and collected in the ordinary manner for such taxes by the *(local jurisdiction)*.

7.0 Violations, Enforcement and Penalties

Any action or inaction that violates the provisions of this ordinance or the requirements of an approved stormwater management design plan, permit or inspection and maintenance agreement and plan, may be subject to the enforcement actions outlined in this section. Any such action or inaction that is continuous with respect to time may be deemed to be a public nuisance and may be abated by injunctive or other equitable relief. The imposition of any of the penalties described below shall not prevent such equitable relief.

7.1 Notice of Violation

If the *(local jurisdiction)* determines that an owner, applicant or other responsible person has failed to comply with the provisions of this ordinance, or the terms and conditions of an approved stormwater management design plan, permit or inspection and maintenance agreement and plan, it shall issue a written notice of violation to said owner, applicant or other responsible person. Where a person is engaged in a new development or redevelopment activity covered by this ordinance without having first secured a stormwater management permit, the notice of violation shall be served on the owner or the person in charge of the new development or redevelopment activity being conducted on the development site.

The notice of violation shall contain the following information:

(1) The name and address of the owner, applicant or other responsible person;

(2) The address or other description of the site upon which the violation is occurring;

(3) A statement specifying the nature of the violation;

(4) A description of the remedial measures necessary to bring the action or inaction into compliance with the provisions of this ordinance, or the terms and conditions of the approved stormwater management design plan, permit or inspection and maintenance agreement and plan, and the date for the completion of such remedial measures;

(5) A statement of the penalty or penalties that may be assessed against the person to whom the notice of violation is issued; and,

(6) A statement that the determination of violation may be appealed to the *(local jurisdiction)* by filing a written notice of appeal within thirty (30) days after the notice of violation (except, that in the event the violation constitutes an immediate danger to public health or safety, a written notice of appeal must be filed within 24 hours after the notice of violation).

7.2 Penalties

Penalties
- Many local post-construction stormwater management ordinances do not have a schedule of civil penalties as laid out below**.** The advantage of having such a schedule is that it makes the civil penalties easier for the local jurisdiction to apply and administer. The violations that are tied to each penalty and the penalty amounts themselves can be modified.
- It is important to check with legal staff before including a schedule of civil penalties within a local post-construction stormwater management ordinance. Other state or local codes may specify how civil penalties can be applied.

In the event that the remedial measures described in the notice of violation have not been completed by the date set forth for completion in the notice of violation, any one or more of the following actions or penalties may be taken or assessed against the person to whom the notice of violation was issued.

Before taking any of the following actions or imposing any of the following penalties, the *(local jurisdiction)* shall first notify the owner, applicant or other responsible person in writing of its intended action and shall provide a reasonable opportunity of not less than ten days (except, that in the event the violation constitutes an immediate danger to public health or safety, 24 hours notice shall be sufficient) to correct the violation. In the event the owner, applicant or other responsible person fails to correct the violation by the date set forth in said notice, the *(local jurisdiction)* may take any one or more of the following actions or impose any one or more of the following penalties.

(1) **Stop Work Order**: The *(local jurisdiction)* may issue a stop work order that shall be served on the owner, applicant or other responsible person. The stop work order shall remain in effect until the owner, applicant or other responsible person has taken the remedial

measures set forth in the notice of violation or has otherwise corrected the violation or violations described therein. The stop work order may temporarily be withdrawn or modified by the *(local jurisdiction)* to enable the applicant or other responsible person to take the remedial measures necessary to correct such violation or violations.

(2) **Withhold Certificate of Occupancy**: The *(local jurisdiction)* may refuse to issue a certificate of occupancy for the building or other structure constructed or being constructed on the development site until the owner, applicant or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise corrected the violation or violations described therein.

(3) **Suspension, Revocation, or Modification of Permit**: The *(local jurisdiction)* may suspend, revoke or modify the permit authorizing the development project. A suspended, revoked or modified permit may be reinstated after the owner, applicant or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise corrected the violation or violations described therein. The permit may be modified by the *(local jurisdiction)* to enable the owner, applicant or other responsible person to take the remedial measures necessary to correct such violation or violations.

(4) **Civil Penalties**: In the event the owner, applicant or other responsible person fails to take the remedial measures set forth in the notice of violation or otherwise fails to correct the violation or violations described therein, by the date set forth in the notice of violation, the *(local jurisdiction)* may impose a penalty not to exceed $1,000 (depending on the severity of the violation) for each day the violation remains unremedied after the date set forth in the notice of violation.

(5) **Criminal Penalties**: For intentional and flagrant violations of this ordinance, the *(local jurisdiction)* may issue a citation to the owner, applicant or other responsible person, requiring said person to appear in *(appropriate municipal court)* court to answer to criminal charges for such violation. Upon conviction, such person shall be punished by a fine not to exceed $1,000, imprisonment for up to 60 days or both. Each act of violation and each day upon which any violation shall occur shall constitute a separate offense.

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