

FINAL PROJECT ACCEPTANCE & BOND RELEASE CHECKLIST

	REQUIREMENT	DESCRIPTION	VOL & CHAPTER	PAGE
1	Residential or Commercial Agreement to Maintain	Agreement to maintain stormwater facilities and implement a pollution source control plan shall be recorded prior to final project acceptance.	Vol. I - 2.4.11 Appendix I-E	2-24
2	Property Owner's Association	For a subdivision, proponent shall form a Property Owner's Association to include, by reference, the maintenance plan and provide for sanctions and power to assess fees and include maintenance covenant. Document establishing POA shall be recorded with the Thurston County Auditor.	Vol. I - 2.4.11 & Vol. I - 2.6.2	2-24 to 2-26 & 2-31
3	Financial Guarantee Release	Financial guarantee to remain in place until drainage facilities fully established and functioning per design. For subdivisions the applicant shall present evidence of the Property Owner's Association being established and active.	Vol. I - 2.4.12	2-27
4	Deeds and Easements	Prior to final project acceptance, all easements, dedicated tracts and buffers associated with stormwater facilities shall be shown on the face of the plat and written legal documents recorded against all parcels to which the easement or dedication applies. Easements shall be delineated with permanent markers.	Vol. I - 2.5	2-29
5	Private Ownership – Other Projects	For projects other than a subdivision, the applicant will describe the organization responsible for maintenance and provide evidence that maintenance activities will be performed and are adequately financed.	Vol. I - 2.6.3	2-31
6	Final Project Acceptance	List of items that must be completed prior to County accepting plats, granting occupancy, or releasing financial securities. Includes: 1. Final Drainage and Erosion Control Plan 2. Maintenance Plan 3. Construction Inspection Report 4. As-built drawings 5. POA articles of incorporation and CC&R's 6. Maintenance Agreements 7. Easements and agreements 8. Site permanently stabilized and restored and temporary erosion control measures removed.	Vol. I - 3.2.6	3-9, 3-10
7	As-built Abbreviated Plan Recorded	An 8.5 x 11" version of as-built abbreviated plan shall be recorded with Thurston County Auditor prior to final project acceptance	Vol. I - 3.2.6 & Vol. I - 3.5.1	3-10, 3-17
8	Project Engineer's Certification	All plans, specifications, calculations, certifications, as-built drawings and other submittals which will become a part of the permanent record of the project must be dated and bear the project engineer's official seal and signature.	Vol. I - 3.8.1	3-20
9	Facility Summary Form	Facility Summary Form(s) shall be included in the Drainage Report & Maintenance Plan.	Vol. I - 3.8.1 & Appendix I-D	3-20

	REQUIREMENT	DESCRIPTION	VOL & CHAPTER	PAGE
10	Well & Septic System Abandonment	Proof of existing well and/or septic system abandonment shall be supplied at or prior to final project acceptance.	Vol. I - 3.8.1	3-25
11	Final Maintenance Plan Required	Acceptance of the Maintenance Plan by Thurston County is required prior to final project acceptance.	Vol. I - 3.8.4	3-34
12	Maintenance Plan Contents	Maintenance Plan shall be prepared as a stand alone document to include: 1. Statement of where plan will be kept. 2. Executed Maintenance Agreement (copy) 3. Maintenance Activity Log 4. Facility Summary Forms 5. Written description of facilities 6. Drainage Site Plan with key to checklists. 7. Applicable Maintenance Checklists. 8. Vegetation Management Plan 9. Required recordkeeping & reports. 10. Estimate of annual maintenance cost. 11. Pollution Source Control Plan	Vol. I - 3.8.4 & Appendix V-C (Checklists)	3-34 to 3-36
13	Vegetation Management Plan	A vegetation management plan shall be included in the Maintenance Plan.	Vol. I - 3.8.4	3-35
14	Pollution Source Control	The Maintenance Plan shall contain language regarding pollution source control specifically developed for the type of site covered by the plan.	Vol. I - 3.8.4 & Volume IV	3-36 & Volume IV
15	Inspection Report	Applicant must retain a licensed civil engineer to inspect or oversee inspection of the project. The Engineer must file a construction inspection report before the project is made final.	Vol. I - 3.8.5 & Appendix I-C	3-36, 3-37 & C-1
16	As-Built Submittal	The Project Engineer shall submit as-built drawings bearing the Project Engineer's seal and showing all final locations and elevations, etc. Final elevations, locations, slopes, grades, roadway alignments shall be based on a field survey conducted by a licensed surveyor and shall be stamped by the surveyor as a record of the final construction.	Vol. I - 3.8.5	3-37
17	Informational Sign	Applicant shall provide an informational sign for all above ground stormwater facilities located within the development tract. The sign for storm ponds shall be constructed and worded as specified in Appendix V-E. Other stormwater facilities including swales, rain gardens, dispersion areas, etc. shall also include signage and fencing to identify the area as a stormwater facility and not to disturb.	Vol. I - 3.9.4 & Appendix V-E	3-38 & Appendix V-E Pg E-2
18	Easements for Natural Channels and Stormwater Facilities	All man-made drainage facilities, conveyances, and all natural channels shall be located within easements.	Vol. I - 3.9.6	3-39
19	Easements for Access	A minimum 15-foot wide access easement shall be provided to drainage facilities from a public street or right-of-way and shall provide a 12-foot minimum width drivable surface. Easement shall include easement boundary markers.	Vol. I - 3.9.6	3-39

	REQUIREMENT	DESCRIPTION	VOL & CHAPTER	PAGE
20	Final Size Stabilization	All disturbed areas not otherwise vegetated or stabilized shall be seeded and mulched. For sites where grass has been planted through hydroseeding, the performance bond will not be released until the grass has been thoroughly established (90% establishment).	Vol. I Appendix I-G & Vol. II - 3.1.8 BMP C120	G-3 & Vol. II 3-18
21	Seeded Area Maintenance	Any seeded areas that fail to establish at least 80% cover (100% for areas that receive sheet or concentrated flows) shall be reseeded. If reseeding is ineffective, an alternate method such as sodding, mulching or nets / blankets shall be used.	Vol. II- 3.1.8 BMP C120	3-24
22	Conveyance Easements & Tracts	New conveyance system alignments that are not in dedicated tracts or right-of-way shall be located in drainage easements that are adjacent and parallel to property lines. The width of the permanent easement will be completely within a single parcel or tract and shall include measures to ensure that the easement will not be encroached upon by adjacent lot owners such as fence, gate, or signage.	Vol. III - 3.5 & Vol. III - 3.6	3-5, 3-7
23	Trash Racks	Access barriers are required on all pipe 18 inches and larger exiting a closed pipe system and all pipes entering a pipe system.	Vol. III - 3.7.6	3-12
24	Dump No Waste Message	All catch basins, inlets, etc. shall be marked as shown in Volume IV, Figure 4.24 (Dump No Waste Medallion).	Vol. III - 3.7.7 & Vol. IV, Figure 4.24	3-15 & Volume IV 4-125
25	Drainage Stub Outs	If drainage stub-outs are provided in a plat they shall be located at lowest elevation on lot so as to service future roof downspouts, footing drains, driveways, yard drains, etc. and shall be marked with 5-ft, 2x4 stake marked "storm" or "drain"	Vol. III-3.11.2	3-34
26	Native Vegetation Preservation	Areas designated to be preserved as native vegetation for stormwater dispersion shall be designated as separate tracts and shall be protected by easement. The areas shall be protected from disturbance by signage and/or fencing. A signage and fencing plan shall be prepared and included in drainage report.	Vol. V - 2.1.1 BMP LID.01	2-4
27	Native Vegetation Restoration	For disturbed areas restored to native vegetation, plantings must be well established on at least 80% of converted area after 2 years in order to be considered native vegetated surface.	Vol. V - 2.1.1 BMP LID.01	2-9, 2-10
28	Post-Construction Soils Restoration	Soils restoration shall be per the approved Soil Management Plan (SMP). Soils shall meet the requirements of the SMP including minimum top soil depth (8-inches) and planting bed mulch (2-inches).	Vol. V - 2.1.2 BMP LID.02	2-15, 2-16
29	Dispersion Areas	Areas used for dispersion of concentrated flows shall be identified on plans and plat maps and easements, tracts or other means established to ensure their perpetual protection. Signage shall be provided. (Note: Several individual LID BMPs include this type provision).	Vol. V - 2.2.4 (Concentrated Flow Dispersion) 2.2.8 (Full Dispersion) 2.2.9 (Rural Road Natural Dispersion) 2.2.10 (Rural Road Engineered Dispersion)	2-43, 2-70, 2- 80, 2-81, 2- 93, 2-103

	REQUIREMENT	DESCRIPTION	VOL & CHAPTER	PAGE
30	Alternative Paving Surfaces Acceptance Test	Test permeable paving surfaces by throwing a bucket of water on the surface. If anything runs off additional testing is necessary prior to acceptance. Minimum infiltration rate is 10 inches per hour. Test documentation shall be submitted with engineer's inspection report.	Vol. V - 2.2.6 BMP LID.09	2-70
31	Verification of performance for infiltration facilities.	Verification testing of completed infiltration facility is required during first 1-2 years of operation and prior to release of financial assurance instruments.	Vol. V - 3.1.5	3-4
32	Infiltration Facility Contingency Planning	All projects using infiltration facilities shall provide a contingency plan for under performance.	Vol. V - 3.1.6	3-5
33	Biofiltration Swale Construction & Maintenance	Eight inches of topsoil shall be tilled into the top 8 inches of native soil. Sod shall be installed in the bottom and to a minimum of 1-foot vertical depth above the swale bottom. Biofiltration swales within residential subdivisions shall include signage that no filling, grading, fertilizing or other disturbance is allowed. One sign shall be located along the frontage of each lot and not greater than 200 feet. Signs shall be embedded in concrete or otherwise secured to prevent removal.	Vol. V - 5.1.1	5-17
34	Stormwater Treatment Wetlands Vegetation Survival	Wetland consultant shall monitor performance for a minimum of 2 years. Minimum survival of shrubs shall be 80%. All plants lost shall be replaced between October and April. Minimum percent vegetated of bottom area of wetland at 2-years shall be 50% by non invasive species.	Vol. V - 6.1.1	6-10

EXCERPTS RE: FINAL PROJECT ACCEPTANCE FROM 2009 DRAINAGE DESIGN & EROSION CONTROL MANUAL

Volume I

Chapter 2 – Minimum Requirements for New Development and Redevelopment

2.4 Minimum Requirements

2.4.11 Minimum Requirement #10: Operation and Maintenance (pg 2-24)

For private facilities, a project-specific agreement to maintain stormwater facilities and implement a pollution source control plan consistent with the provisions in Appendix I-E, for a single family residence, residential subdivision or commercial/industrial project, shall be executed by the party (or parties) responsible for maintenance of stormwater facilities and BMPs. The agreement shall normally be signed by the property owner and recorded with the Thurston County Auditor's Office prior to final project acceptance by Thurston County. A draft copy of the agreement shall be included with the submittal of the Maintenance Plan for County review and acceptance. The maintenance agreement shall run with the land and be transferred automatically to all subsequent owners. Publicly owned facilities are not required to execute an agreement.

If the project is a subdivision, the Proponent shall form a Property Owners' Association. The document creating the Property Owners' Association shall, at a minimum, make provision for the following:

- Members of the Property Owners' Association shall be responsible for maintenance of storm drainage facilities as described in the Maintenance Plan
- Inclusion by reference of the Maintenance Plan prepared by the Project Engineer in accordance with Chapter 4 of this volume
- Power to assess fees to maintain storm drainage facilities
- Sanctions in the event that Thurston County has to take action to maintain facilities. The following or substantially similar words shall appear in the document creating the Property Owner's Association: (pg 2-25)

In the event Project Proponent (or successors or the Property Owners' Association), in the judgment of Thurston County, fails to maintain drainage facilities within the plat, or if the Proponent or successors willfully or accidentally reduces the capacity of the drainage system or renders any part of the drainage system unusable, the Proponent or successors agree to the following remedy: After 30 days notice by registered mail to the Proponent or successors, Thurston County may correct the problem or maintain facilities as necessary to restore the full design capacity of the drainage system. Thurston County will bill the Proponent or successors for all costs associated with the engineering and construction of the remedial work. Thurston County may charge interest as allowed by law from the date of completion of construction. Thurston County will place a lien on the property and/or on lots in the Property Owners' Association for payments in arrears. Costs or fees incurred by Thurston County, should legal action be required to collect such payments, shall be borne by the Proponent or successors.

A Maintenance Covenant stating the Property Owners' Association's specific maintenance responsibilities shall be recorded on the plat and recorded against each lot in the subdivision. The covenant shall include the following or substantially similar language: (pg 2-26)

MAINTENANCE COVENANT

Easements are hereby granted for the installation, inspection, and maintenance of utilities and drainage facilities as delineated on the plat for subdivision_____ including unrestricted access for Thurston County staff to any and all stormwater system features for the purpose of routine inspections and/or performing maintenance, repair and/or retrofit as may become necessary. No encroachment will be placed within the easements shown on the plat which may damage or interfere with the installation, inspection, and maintenance of utilities. Maintenance and expense thereof of the utilities and drainage facilities shall be the responsibility of the Property Owners' Association as established by covenant recorded under Auditor's file number_____.

Sanctions for Failure to Maintain (pg 2-26)

Inadequate maintenance is a common cause of failure for stormwater control facilities. Volume V, Appendix C, provides detailed maintenance guidelines and standards for each BMP presented in this manual. The applicable checklists from Volume V shall be included in the Maintenance Plan for the project.

At private facilities, a copy of the Maintenance Plan shall be retained onsite or be reasonably accessible from the site, and shall be transferred with the property to the new owner. For public facilities, a copy of the Maintenance Plan shall be retained in the appropriate department. A log of maintenance activity shall be kept and be available for inspection by the County. An annual report on maintenance activities during the previous year is required to be submitted annually no later than August 31st Chapter 3 describes Maintenance Plan submittal requirements, which are included as part of the Drainage and Erosion Control Plan for the project.

2.4.12 Minimum Requirement #11: Financial Liability (pg 2-26)

Financial Guarantees (pg 2-27)

In accordance with Thurston County Code Title 15.05.040, the project proponent/owner shall provide financial guarantees to insure that:

- The project will operate according to the design approved by the project engineer, and
- Operation of erosion control facilities will provide protection against siltation of surface water, erosion, and damage to adjacent properties.

The project proponent/owner shall provide a financial guarantee to the Administrator to ensure satisfactory maintenance of drainage facilities for a minimum of 2 years from final plat acceptance or acceptance of the project, whichever is later, in accordance with the Maintenance Plan submitted as part of the Drainage and Erosion Control Plan. The financial guarantee shall continue in effect until the drainage facilities are fully established, functioning per design and determined not to have substantial maintenance problems, or, if for a residential subdivision project, until no less than 80 percent of the lots have been developed and received certificates of occupancy (build-out). Upon acceptance of the project by Thurston County and after minimum time requirements and other conditions have been met, including minimum build-out for residential subdivisions, the project proponent shall request in writing that the financial guarantee be released. Said request shall document that the requirements for financial guarantee release have been met.

If the stormwater system is dependent on a property owners' association (POA) for maintenance, then the applicant shall present evidence of a POA being established and active before the financial guarantee is released. The holder of the financial guarantee shall establish a mechanism prior to sale of all or part of the project that ensures that the financial agreement holder has the legal right and ability to perform required stormwater system maintenance while the financial guarantee is in effect. Proof of same shall be provided to the Administrator prior to acceptance of the financial guarantee.

The mechanism may include a replacement of the financial guarantee by an identical guarantee from a third party (such as a POA) who takes responsibility for stormwater system maintenance. The original financial guarantee shall not be released until the replacement guarantee is accepted by the Administrator and legally recorded. The amount of the guarantee shall be 25 percent of the construction cost of the drainage facilities. The applicant shall submit an itemized work sheet for the cost of facilities, acceptable to the Administrator before the financial guarantee amount is fixed. The bond quantities worksheet provided in Appendix I-D shall be used to prepare the cost estimate.

With County acceptance, and to the extent allowed by law, all project guarantees may be replaced by a single guarantee, provided that the total amount guaranteed shall at no time be less than the sum of the separate guarantees replaced. Furthermore, such guarantees shall clearly delineate those separate guarantees which they are intended to replace.

Subject to County acceptance, financial guarantees may be any of the following:

- Cash deposit escrow account
- Assignment of interest in a bank account
- Irrevocable letter of credit from a financial institution
- A bond.

All financial guarantees shall run continuously until released by the County.

2.5 Deeds and Easements (Pg 2-29)

Prior to final project acceptance by Thurston County, all easements, dedicated tracts, buffers, or similar features associated with the stormwater facilities of a development, including a subdivision, shall be shown on the face of the plat or project site plan. In addition, written legal documents shall be prepared and recorded against all parcels to which the easement or dedication applies. Easements or tracts providing access to stormwater facilities shall be delineated in the field with permanent markers to prevent encroachment.

2.6 Acceptance of New Stormwater Facilities (pg 2-30)

2.6.2 Private Ownership – Subdivision Projects (pg 2-31)

If the project is a subdivision or short subdivision, the project proponent/owner shall form a property owners' association. The document creating the association shall provide for the following, at a minimum:

- The Property Owners' Association shall be responsible for maintenance of storm drainage facilities
- Inclusion by reference of the Maintenance Plan prepared by the project engineer in accordance with this manual
- Power to assess fees to maintain storm drainage facilities
- Responsibility for payment of financial sanctions/repayments should the County have to conduct repairs due to hazardous conditions.

The maintenance covenant and statement of sanctions described under Minimum Requirement #10, Section 2.4.11 will be included in the document establishing the Property Owners' Association and shall be recorded with the Thurston County Auditor for the plat and recorded against each lot within the subdivision or short division.

2.6.3 Private Ownership – Other Projects (pg 2-31)

If the project is other than a subdivision, short subdivision, or large lot division, the applicant will describe the organization or persons that will own and maintain the facility and provide evidence that maintenance activity will be performed and is adequately financed.

Chapter 3 – Stormwater Submittal Requirements

3.2 Submittal Review and Acceptance Process

3.2.6 Final Project Acceptance (3-9 to 3-10)

The following must be completed before the County will accept plats, grant certificates of occupancy, release financial securities related to drainage and erosion control, or accept final construction.

For those filing Drainage and Erosion Control Plans: (pg 3-9)

- Drainage and Erosion Control Plan accepted by the County
- Stormwater Facilities Maintenance Plan accepted by County
- Construction Inspection Report and as-built drawings in electronic format (PDF or CAD)
- Special requirements on the cover sheet of a plat, such as BMP volumes or other design criteria, and a general easement for protection and maintenance
- Filing of covenants on lots, the Property Owners' Association articles of incorporation and CC&R's, maintenance agreements, easements, agreements with adjacent property owners, conservation easements, and similar documents as required in the Drainage and Erosion Control Plan and Thurston County Code.
- Conditions of acceptance fulfilled
- Site permanently stabilized and restored, and temporary erosion control measures removed.

For Abbreviated Drainage Plan or Engineered Abbreviated Drainage Plan projects: (pg 3-10)

- All conditions of the Abbreviated or Engineered Abbreviated Drainage Plan must be met, except that replanting may be delayed with the concurrence of the County.
- An 8½ x 11" version of the Abbreviated or Engineered Abbreviated Drainage Plan showing the location of drainage structures, conveyances, drywells, and dispersion areas shall be created and recorded with the Thurston County Auditor for the subject property. Abbreviated Drainage Plans must be submitted with the application for permit or preliminary project acceptance.

3.5 Abbreviated Drainage Plan

3.5.1 Plot Plan

Pg 3-17

All changes from the original plot plan shall be recorded and a record drawing (as-built) prepared showing the final constructed improvements. This as-built shall be submitted to Thurston County prior to final project acceptance.

3.8 Drainage and Erosion Control Plan

3.8.1 Drainage Report

Pg 3-20

- **Project Engineer's Certification:** The Drainage Report must be developed by a professional engineer licensed to practice in the State of Washington. For projects where a PE is required, all plans and specifications, calculations, certifications, "as-built" drawings, and all other submittals which will become part of the permanent record of the project must be dated and bear the project engineer's official seal and signature.

Contents of Drainage Report

- **Facility Summary Form** (see example in Appendix I-D)
- **Bond Quantities Worksheet** (use Thurston County's format, Appendix I-B)

Drainage Report Section 4 – Wells and Septic Systems (Volume I, Pg 3-25)

The proper abandonment of wells is a matter regulated by state law (WAC 173-160). If a well on the site has not been properly sealed, the applicant shall be responsible for contacting Thurston County Environmental Health and Ecology. Ecology's procedure shall be followed for sealing the well. Proof of proper abandonment (e.g., copies of the well log and invoice from a firm qualified to perform such work) shall be supplied to the County at or prior to final project acceptance. Indicate if no wells or septic systems were found.

Drainage Report Section 9 – Covenants, Dedications, Easements (pg 3-29)

Describe legal instruments needed to guarantee preservation of drainage system and access for maintenance purposes. (Attach copies.) Describe the organization which will be responsible for operation and maintenance of storm drainage facilities.

Drainage Report Section 10-Property Owners Association Articles of Incorporation (pg 3-29)

Attach a copy of the Articles of Incorporation, if applicable.

3.8.4 Maintenance Plan (pg 3-34)

The Maintenance Plan will be prepared as a standalone document, including all necessary figures, maps and drawings. The Maintenance Plan should be bound separately and submitted for review and acceptance by Thurston County at the time of submittal of the Final Drainage and Erosion Control Plan for the project. Acceptance of the Maintenance Plan by Thurston County is required prior to final project acceptance.

Contents of Plan (pg 3-34)

The Project Engineer will prepare a Maintenance Plan including the following:

- A statement of where the Maintenance Plan will be kept and that it must be made available for inspection by Thurston County upon request
- A copy of the Maintenance Agreement (Commercial/Industrial or Residential) executed by the property owner and accepted as to form by Thurston County
- A maintenance activity log in a format that includes sufficient space to list maintenance activities completed as a result of inspections
- Facility Summary Forms prepared for each stormwater facility as part of final permitting
- A written description of each flow control and treatment facility and an over view of the stormwater system for the site explaining the principles of operations and general maintenance requirements and providing such information from the Drainage Report as might be necessary to the future maintenance of the stormwater facilities. This might include the design capacity of conveyance facilities, slope of pipes and swales, size and dimensions of infiltration and/or detention facilities and calculated release rates for various storm events.
- A drawing showing all stormwater facilities, drainage easements, access easements, etc., with a key referencing the applicable maintenance checklists required to be used in performing routine inspection and maintenance for the facility
- Engineering drawings of the stormwater facilities including details and specifications shall be included. Drawings may be 11" x 17" or 22" x 34" and included in a map pocket.
- All applicable maintenance checklists for facilities included in the project. The applicant shall only include those checklists that apply to the project.
- Vegetation Management Plan
- Identification of the responsible maintenance organization
- A description of the required maintenance frequency for each facility
- A description of required recordkeeping and reports and frequency of submittal of reports to Thurston County
- An estimate of the average annual cost of maintenance will be included. The annual cost shall include the annualized cost of major maintenance items such as sediment removal from ponds, etc.
- A pollution source control plan per Volume IV.

See Appendix V-C and Appendix I-E for additional guidance.

Identify Organization Responsible for Maintenance (pg 3-35)

It is Thurston County's policy that the property owner(s) shall maintain storm drainage facilities, or in the case of a subdivision, the Property Owners' Association shall maintain drainage facilities. The Maintenance Plan shall be prepared to Thurston County's specifications and held by the property owner or for a subdivision, included by reference in the articles of incorporation of the Property Owners Association.

Vegetation Management Plan (pg 3-35)

A vegetation management plan shall be included in the Stormwater Facilities Maintenance Plan for the project and shall include recommended plantings for each stormwater facility and specifications for maintenance and

replacement plantings. The effectiveness of many stormwater facilities will depend on the species planted in them and their proper maintenance. Consult Appendix V-E regarding proper species for the design condition and for their requirements for maintenance.

Pollution Source Control (pg 3-36)

Pollution source control is the application of pollution prevention practices on a developed site to reduce contamination of stormwater runoff **at its source**. Best management practices (BMPs) and resource management systems are designed to reduce the amount of contaminants used or discharged to the environment. The Maintenance Plan shall contain language regarding pollution source control that is specifically developed for the type of site covered by the plan. The pollution source control section of the plan shall incorporate the relevant information found in Volume IV of this manual, unless otherwise accepted by the Administrator or designee.

Pg 3-36 & 3-37

3.8.5 Project Completion Criteria

Inspection Report – Drainage and Erosion Control Plans

For Drainage and Erosion Control Plans, in addition to inspection performed by Thurston County, the applicant must retain a licensed Civil Engineer to inspect or oversee inspection of the project as directed by the Drainage and Erosion Control Plan and/or the Administrator or designee. (See inspection reporting requirements, Appendix I-C.)

The Engineer must file with Thurston County a construction inspection report as shown in Appendix I-C before the project is made final. The report will consist of a completed form and sufficient additional text to describe all factors relating to the construction and operation of the system to meet treatment, erosion control, detention/retention, flow control, and conveyance requirements.

The Engineer or his/her designee shall keep records of inspections of drainage and erosion control facilities. Records of inspection shall be submitted to the County upon request at any time during the course of the project.

As-Built Submittal – Drainage and Erosion Control Plans

For Drainage and Erosion Control Plans, the Project Engineer shall submit as-built drawings bearing the Project Engineer's seal showing all final locations and elevations, materials, and changes substantially different from the design. Final elevations, locations, slopes, grades, roadway alignments, etc. shall be based on a field survey conducted by a licensed professional surveyor and shall be stamped by the surveyor as a record of the final constructed location and elevation of facilities shown. The volume of any ponds, vaults, tanks, etc. included in the design shall be calculated based on the as-built survey and this information shall be noted on the as-built drawing. Changes from the approved plans shall be clearly identified using clouding, bold text or other methods to clearly identify those items that were changed during construction. Note that changes from the accepted plan will be reviewed by the County and may be subject to action by the Administrator or designee.

3.9 Additional Submittal Information (pg 3-37)

3.9.4 Aesthetic Considerations (pg 3-38)

Drainage facilities shall be made attractive features of the urban environment. Engineers are encouraged to be creative in shaping and landscaping facilities and to consider aesthetics when choosing design alternatives (e.g., parking lot paving, conveyance systems, detention facilities, weirs, check structures). See Volume V and Appendix V-E for aesthetic and landscaping criteria. The applicant shall provide an informational sign for all aboveground stormwater facilities located within the development tract. The sign for storm ponds shall be constructed and worded as specified in Appendix V-E. Other stormwater facilities including swales, rain gardens, dispersion areas, etc. shall also include signage and fencing identifying the area as a stormwater facility and not to disturb. Individual BMPs also include requirements for signage and fencing.

3.9.6 Easements and Access (pg 3-39)

Easements for Natural Channels and Stormwater Facilities

All man-made drainage facilities, conveyances, and all natural channels (including swales, stream channels, lake shores, wetlands, potholes, estuaries, gullies, ravines, etc.) shall be located within easements. Easements shall contain the natural features and facilities and shall allow jurisdiction access to them for purposes of inspection, maintenance, flood control, water quality monitoring, and other activities permitted by law.

Easements for Access

Specific access requirements for ponds are included in Volume V, Appendix V-E. Generally a minimum 15-foot wide access easement shall be provided to drainage facilities from a public street or right-of-way and shall provide a 12-foot minimum width drivable path surfaced with lattice block pavement, crushed rock, or other acceptable surface to allow year round equipment access to the facility. The easement shall include easement boundary markers which shall be fiberglass utility markers with a reflective easement tag, located at each corner of the easement, at angle points and at least every 100 feet along the length of the easement. Contact Thurston County Water Resources for additional information on easement marker requirements.

Easements for Conveyance Systems

Easement requirements for conveyance systems are described in Volume III, Section 3.6.2.

Appendix I-C: Engineers Construction Inspection Report Form

Appendix I-D: Facility Summary Form

Complete one (1) for each facility on the project site including flow control and water quality treatment facilities (BMPs) such as, but not limited to: detention ponds, vaults, or tanks; infiltration ponds, trenches, swales, or vaults; bioretention facilities (rain gardens, bioretention swales/slopes); biofiltration BMPs (filter strip, biofiltration swale); oil/water separators; wet ponds; constructed wetlands; dispersion areas & flow spreaders; StormFilters™ & other proprietary devices; sand filters; etc. Attach 8 1/2 x 11 sketch showing location of facility. Applicant may prepare one copy of pages 1 to 4 for the project and then attach multiple copies of pages 5 & 6 for each separate facility.

Appendix I-E: Maintenance Agreement Forms

Appendix I-G Standard Stormwater Notes

(pg G-3)

15. All disturbed areas shall be seeded and mulched or similarly stabilized to the satisfaction of Thurston County. For sites where grass has been planted through hydroseeding, the performance bond will not be released until the grass has been thoroughly established (90% establishment), unless otherwise approved by the County.

Volume II

Chapter 2 – Developing and Implementing a Construction Stormwater Pollution Prevention Plan

2.3 Step-By-Step Procedure

2.3.3 Step 3 – Development and Implementation of the Construction SWPPP

(pg 2-22)

In addition, for complex projects where a Drainage Control Plan is required or where the SWPPP involves engineering calculations, the applicant shall have a professional engineer file with the County an Engineer's Inspection Report Form as shown in Appendix I-C before the project is accepted by the County as complete. The report will consist of a completed form and sufficient additional text to describe all factors relating to the construction and operation of the system to meet treatment, erosion control, detention/retention, flow control, and conveyance requirements.

Chapter 3 – Standards and Specifications for Best Management Practices

3.1 Source Control BMPs

3.1.8 BMP C120: Temporary and Permanent Seeding (pg 3-18)

Conditions of Use

At final site stabilization, all disturbed areas not otherwise vegetated or stabilized shall be seeded and mulched. Final stabilization means the completion of all soil disturbing activities at the site and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as pavement, riprap, gabions or geotextiles) which will prevent erosion.

Maintenance Standards (pg 3-24)

- Any seeded areas that fail to establish at least 80 percent cover (100 percent cover for areas that receive sheet or concentrated flows) shall be reseeded. If reseeded is ineffective, an alternate method, such as sodding, mulching, or nets/blankets shall be used. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the County when sensitive areas would otherwise be protected.
- After adequate cover is achieved, any areas that experience erosion shall be reseeded and protected by mulch. If the erosion problem is drainage related, the problem shall be fixed and the eroded area reseeded and protected by mulch.

Volume III

Chapter 3 – Conveyance Systems and Hydraulic Structures

3.5 Conveyance System Route Design and Off-Site Drainage (pg 3-5)

All pipe shall be located under the pavement flow line or lie outside of the pavement. Perpendicular crossings and cul-de-sacs are exempted from this requirement. New conveyance system alignments that are not in dedicated tracts or right-of-way shall be located in drainage easements that are adjacent and parallel to property lines. The width of the permanent easement will be completely within a single parcel or tract. Topography and existing conditions are the only conditions under which a drainage easement that is not adjacent and parallel to a property line may be placed. Requirements for conveyance system tracts and easements are discussed in Section 3.6 below.

3.6 Easement, Access, and Dedicated Tracts

3.6.2 Access to Conveyance Systems (pg 3-7)

All publicly and privately maintained conveyance systems shall be located in dedicated tracts, drainage easements, or public rights-of-way in accordance with this manual. Exception: Roof downspout, minor yard, and footing drains unless they serve other adjacent properties.

Any easement for access to a conveyance system shall include measures to ensure that the easement will not be encroached upon by adjacent lot owners such as delineation by a gate, fencing, signage or some other measure to indicate to adjacent property owners that an easement exists.

3.7 Pipe System Design Criteria

3.7.6 Pipe System Layout Criteria (pg 3-12)

Access barriers are required on all pipes 18 inches and larger exiting a closed pipe system. Debris barriers (trash racks) are required on all pipes entering a pipe system.

3.7.7 Pipe Structure Criteria (pg 3-15)

Table 3.6 presents the allowable structures and pipe sizes allowed by size of structure. All catch basins, inlets, etc., shall be marked as shown in Volume IV, Figure 4.24. (Volume IV, PG 4-124)

3.11 Private Drainage Systems

3.11.2 Drainage Stub-outs (pg 3-34)

If drainage outlets (stub outs) are to be provided for each individual lot, the stub outs shall conform to the following requirements:

- Each outlet shall be suitably located at the lowest elevation on the lot, so as to service all future roof downspouts and footing drains, driveways, yard drains, and any other surface or subsurface drains necessary to render the lots suitable for their intended use. Each outlet shall have free-flowing, positive drainage to an approved storm water conveyance system or to an approved outfall location.
- Outlets on each lot shall be located with a 5-foot-high, 2" x 4" stake marked "storm" or "drain." For stub-outs to a surface drainage, the stub-out shall visibly extend above surface level and be secured to the stake.
- The developer and/or contractor is responsible for coordinating the locations of all stub-out conveyance lines with respect to the utilities (e.g., power, gas, telephone, television).
- All individual stub-outs shall be privately owned and maintained by the lot home owner including from the property line to the riser on the main line.

Volume IV

Chapter 4 – Best Management Practices for Commercial and Industrial Activities

Section A7 Other Activities

A7.14 Maintenance of Stormwater Drainage and Treatment Facilities Required BMPs (pg 4-124)

Maintain stormwater treatment facilities according to the O&M procedures presented in Volume V, Appendix V-C, in addition to the following BMPs:

- Install monuments on storm drain inlet rims that state: "Dump No Waste - Drains to Groundwater," "Streams," "Lakes," *where possible* (Figure 4.24). (pg 4-125)

Volume V

Chapter 2 – Low Impact Development (LID)

2.1 LID Site Design BMPs

2.1.1 BMP LID .01 Native Vegetation Protection, Reforestation and Maintenance. Submittals and Approval (pg 2-4)

Clearing limits and areas for vegetation restoration shall be shown on the drainage plans for the project. Clearing limits shall be marked in the field and verified by Thurston County prior to clearing. Protective fencing shall be installed to protect native areas to be preserved; examples include orange construction fencing, temporary chain link fence, or equivalent. For revegetation areas, a plants list shall be provided indicating the type of plant, quantity, any planting requirements and location of plantings. **Areas designated to be preserved as native vegetation for stormwater dispersion shall be designated as separate tracts or shall be protected by easement. The areas shall be protected from disturbance by signage and/or fencing.** A signage and fencing plan shall be prepared and included in the drainage report submittal. **Permanent signs shall explain the purpose of the area, the importance of vegetation and soils for managing stormwater and that the removal of trees or vegetation and compaction of soil is prohibited.**

Conversion of Previously Developed Surfaces to Native Vegetation

(pg 2-9)

6. Plantings must be watered consistently once per week during the dry season for the first 3 years.

7. The plantings must be well established on at least 80 percent of the converted area after 2 years in order to be considered a native vegetated surface.

Construction and Maintenance (pg 2-10)

Maintenance of native vegetation restoration areas shall include monitoring the survival of planted species, weed control and soil amendment as necessary to ensure the establishment of the native vegetation. A minimum 80 percent survival of all planted vegetation at the end of 2 years is required. Ongoing maintenance shall include weeding and watering for a minimum of 3 years from installation.

If during the 2-year period survival of planted vegetation falls below 80 percent, additional vegetation shall be installed as necessary to achieve the required survival percentage. The likely cause of the high rate of plant mortality shall also be determined and corrective actions taken to ensure plant survival. If it is determined that the original plant choices are not well suited to site conditions, these plants shall be replaced with plant species that are better suited to the site.

2.2 LID Stormwater Management BMPs

2.2.1 LID.04 Downspout Infiltration Systems

Design Criteria for Downspout Infiltration Systems

Site Design Elements (pg 2-32)

Where individual lot drywells are to be installed in a residential subdivision, the project engineer shall determine the required size of each drywell for each lot or group of lots with similar soils. The project engineer shall then record these sizes as necessary to ensure that they become restrictions for future building applications (e.g., record written conditions for lots and/or dictate drywell size on the face of the final plat mylar, etc.).

2.2.4 LID.07 Concentrated Flow Dispersion

Submittals and Approval (pg 2-43)

Native vegetation areas or landscape areas designed to meet BMP LID.02 (Post-Construction Soil Quality and Depth) which are used for dispersion of concentrated flows shall be identified on plans and plat maps and easements, tracts, or other means established to ensure their perpetual protection and maintenance of the dispersion area. Signage shall be provided to identify the extent of the area and the purpose of the area as a stormwater facility.

2.2.5 LID.08 Bioretention Facilities

Design Criteria

Site Design Elements

Signage and Fencing (pg 2-61)

Bioretention facilities (Rain Gardens) are stormwater management facilities and shall be identified as such with signage and fencing. Signs shall be installed identifying the facility and its purpose and not to disturb. Fencing should be considered to reduce public access through the facility, especially if located within a parking area or other area easily accessible to the public.

2.2.6 LID.09 Alternative Paving Surfaces

Construction and Maintenance

Acceptance Test (pg 2-70)

Test all permeable surfaces by throwing a bucket of water on the surface. If anything runs off the surface or puddles, additional testing is necessary prior to accepting the construction. As directed by the Administrator or designee, test with a 6-inch ring infiltrometer or sprinkle infiltrometer. Wet the road surface continuously for 10 minutes. Test to determine compliance with the 10 inches per hour minimum infiltration rate. For facilities designed

to infiltrate, the bucket test shall be completed annually. Test documentation shall be retained with maintenance records and submitted with the engineer's inspection report at project completion.

2.2.8 LID.11 Full Dispersion Limitations (pgs 2-80 & 2-81)

Native vegetation areas must be protected from future development. Protection must be provided through legal documents on record with the local government. Examples of adequate documentation include a conservation easement, conservation parcel, and deed restriction.

All trees within the preserved area at the time of permit application shall be retained, aside from approved timber harvest activities and the removal of dangerous or diseased trees. Removal of dangerous or diseased trees will require acceptance of Thurston County and may require an arborist to make a written assessment of the trees condition.

2.2.9 LID.12 Rural Road Natural Dispersion Design Criteria

Site Design Elements

Signage (pg 2-93)

- The limits of natural dispersion area shall be marked as a stormwater management facility and also shall be physically marked in the field during and after construction. Signage ensures the natural dispersion area is protected from construction activity disturbance and is adequately protected by measures shown in the temporary erosion and sedimentation control (TESC) plan.
- Signage helps ensure the natural dispersion area is not cleared or disturbed after the construction project.
- Signage shall be posted at a minimum on all four sides of the dispersion area and at intervals not exceeding 75 feet.
- See Appendix V-E for sign specifications.

2.2.10 LID.13 Rural Road Engineered Dispersion Design Criteria

Site Design Elements

Signage (pg 2-103)

- The limits of engineered dispersion area shall be marked as a stormwater management facility and also shall be physically marked in the field during and after construction. Signage ensures the dispersion area is protected from construction activity disturbance and is adequately protected by measures shown in the temporary erosion and sedimentation control (TESC) plan.
- Signage helps ensure the engineered dispersion area is not cleared or disturbed after the construction project.
- Signage shall be posted at a minimum on all four sides of the dispersion area and at intervals not exceeding 75 feet.
- See Appendix V-E for sign specifications.

Chapter 3 – Infiltration BMPs

3.1 General Considerations

3.1.5 Verification of Performance (Pg 3-4)

Verification testing of the completed full-scale infiltration facility (BMPs IN.01, IN.02, or IN.03) is required during the first 1 to 2 years of operation and prior to release of any financial assurance instruments (bonds, letters of credit, assignment of funds). Verification testing is required to ensure that the completed full-scale infiltration facility operates as designed including confirmation of estimated design infiltration rates.

The applicant shall submit a facility monitoring and evaluation report to document the results of the verification testing. A licensed civil engineer shall prepare and seal the report. The report shall document work and assess stormwater infiltration facility performance versus design.

All field work shall be done under the engineer's direction and supervision. Testing shall consist of automated continuous water level monitoring over a sufficient number of storms to provide an accurate "long-term" infiltration rate. Testing shall either have a minimum of 30 days' test results with two or more events exceeding 30 percent of facility volume, or one full wet season's data (November 1 to March 30).

An alternative, with Administrator or designee acceptance, is to simulate storm events using hydrant or trucked water. The report shall specify any actions needed to restore performance, such as sediment removal or facility expansion.

A program for monitoring of groundwater quality may be required and if so it shall be prepared by the site professional. Instances in which groundwater monitoring may be required include shallow groundwater, infiltration facilities at commercial or industrial sites, and infiltration facilities located within critical, sensitive or sole-source aquifer areas as designated by Thurston County. For those facilities required to conduct groundwater monitoring, the ground water monitoring wells installed during site characterization may be used for this purpose. At a minimum at least one up-gradient and one down-gradient groundwater sample will be collected per year and analyzed for pollutants such as metals, nitrogen, phosphorous and dissolved solids.

Long-term (more than 2 years) in-situ drawdown and confirmatory monitoring of the infiltration facility is also strongly recommended, along with a maintenance program that results in achieving expected performance levels. Long term monitoring and groundwater monitoring shall be included in the Maintenance plan for the facility including methods of testing, frequency and reporting requirements.

3.1.6 Contingency Planning (pg 3-5)

The methods used to estimate infiltration rates described in Volume III are expected to yield relatively accurate estimates of ultimate infiltration rates. However, soils, shallow geology, and groundwater conditions can be extremely complex and highly variable, which may cause inaccuracies. Therefore, it is necessary to have a plan for fixing under performance discovered after facilities are installed (see Section 3.1.2, Verification of Performance).

All projects using infiltration facilities shall provide a contingency plan for under performance. The plan shall include a reasonable "worst-case" projection of long-term infiltration performance and describe methods and costs for improving/restoring performance and/or expanding facility size. These costs shall provide one basis for required performance/operation and maintenance bonding (see Volume I).

Chapter 5 – Biofiltration BMPs

5.1 Biofiltration BMPs

5.1.1 BF.01 Basic Biofiltration Swale

Construction and Maintenance (Pg 5-17)

Eight inches of top soil meeting soil criteria above shall be tilled into the top 8 inches of native soil. Sod of a type meeting the requirements of Table 5.3 shall be installed in the bottom and to a minimum of 1-foot vertical depth above the swale bottom. (Establishing a stand of grass from seed able to hold up to the flows in the swale usually takes too long to establish.) Top soil shall be placed to provide a smooth transition from the sod area to the upper swale area to be seeded.

Biofiltration swales located within a residential subdivision shall include signage of a type approved by Thurston County indicating that the biofiltration swale is a water quality treatment facility, that no filling, grading, fertilizing or other disturbance of the swale is allowed without prior acceptance of Thurston County. One sign shall be located at a minimum along the frontage of each lot and not greater than 200 feet for lot frontages greater than 200 feet. The signs shall be embedded in concrete or otherwise secured to prevent removal.

Chapter 6 – Wet Pool BMPs

6.1 Wet Pool BMPs

6.1.1 WP.01 Stormwater Treatment Wetlands

Design Criteria

Materials

Vegetation (pg 6-10)

The wetland consultant shall monitor performance of the stormwater treatment wetland vegetation for a minimum of 2 years. Monitoring shall occur at least yearly during the summer months. Measures of success are as follows:

1. Minimum survival of shrubs shall be 80 percent. Lesser survivals may be allowed if original planting density exceeded minimums. All plants lost shall be replaced between the months of October and April by like species unless recommended otherwise by the wetland consultant and accepted by the Administrator or designee.

2. Minimum percent vegetated cover of stormwater treatment wetland bottom area, excluding exotic and invasive species, at two years shall be 50 percent. If stormwater treatment wetland cover is less than 50 percent, removal of exotic/invasive species and additional plantings may be required. A bond or other financial guarantee to ensure the above measures of success are attained may be required.

Appendix V-E – Site Design Elements

Signage

Applicability (pg E-2)

Detention ponds, infiltration ponds, wet ponds, and combined ponds shall have a sign with educational information and emergency contact information (Figure E-1). Applicant shall submit sign design and proposed location for Administrator acceptance.