Phase II Permit Requirements
for
New and Re-Development &
Construction Sites
Purpose & Agenda

Purpose
- Clarify the Permit Requirements
- Provide Background
- Make State’s Expectations Clear
- Respond to Questions

Agenda
- Focus on S5.C.4 (page 17 of 50) & Appendix 1
Special Condition S5.C.4

Minimum Performance Measures

a. Local Regulatory Requirements
b. Plan Review, Inspection, Enforcement
c. Operation and Maintenance
d. Recordkeeping
e. Notice of Intent Availability
f. Staff Trained
S5.C.4.a.i.

Appendix 1

- Minimum Requirements
- Thresholds
- Definitions
- Adjustments & Variances

OR,

Basin-specific plans, if equal protection
Site Planning Processes

BMP selection and design criteria
  - More judgment calls/variations

OR, Document how local requirements
  - Protect WQ
  - Achieve MEP
  - Achieve AKART
S5.C.4.a.iii – v
Additional Authorities

- Legal Authority to Inspect

- Allow Non-structural Controls – Low Impact Development
  - PSAT / PS Partnership Grants for Ordinances
    (Ecology website)

- Erosivity Waiver Enforcement
S5.C.4.b.

Implementation Capability for sites ≥ 1 acre
30 months – August 2009

(i) Review design plans of all proposed projects
(ii) Inspect construction sites
   Hi potential sites (App. 7) – prior to
   All sites – during
   All sites – completed
   95% inspection - applies to active sites as of 8/09
(vi) Enforcement strategy
(vii) Not including sites with “Erosivity Waiver”
S5.C.4.c

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Verify Long-term O&M
August 2009

- (i) Adopt Ordinance or other
  - Responsible party, inspections, enforcement

- (ii) Establish Maintenance Standards
  - ‘05 manual – ID’s conditions needing maint. action
  - Meet maintenance time limits – when std exceeded
  - Inspection frequency – start out semi-annually (iv); then annually unless records or signed statements (iii)
Other Performance Measures

- **Recordkeeping**
  - Maintenance activities
  - Inspections
  - Enforcement

- **NOI distribution**
  - Continue to enforce local ordinances even if a state-issued permit for a site

- **Training for all staff – by August 2009**
  - Keep records of training
Training

- **Inspectors**
  - Ecy approved classes for Construction Erosion and Sediment Control Leads

- **Plan Reviewers**
  - WWHM training
  - KCRTS training

- **Ecology Workshops**
  - Fall ’08 - smaller scale?
Appendix 1

1. Exemptions
2. Definitions
3. Applicability of Minimum Requirements (Thresholds)
4. Minimum Requirements
5. Adjustments
6. Exceptions/Variances
7. Basin/Watershed Planning
Mandatory/Enforceable Documents

- **Local Ordinances**
  - Thresholds, Min. Requirements, Adjustments; Variances

- **Local Rules**
  - Site Planning Process

- **Manual**
  - Treatment Selection
  - Design Criteria
General Questions
Minimum Requirements

- For Your NPDES compliance: Apply these requirements to sites that disturb 1 acre or more, and to smaller sites that are part of a larger common plan (that is ≥ 1 acre).
Minimum Requirements #1 - #5
New and Replaced Impervious $\geq$ 2,000 sq. ft.,
or
Land disturbing activity $\geq$ 7,000 sq. ft

- #1 Preparation of Stormwater Site Plans
- #2 Construction Stormwater Pollution Prevention
- #3 Source Control of Pollution
- #4 Preservation of Natural Drainage Systems and Outfalls
- #5 Onsite Stormwater Management
Minimum Requirements #6 - #9

New Impervious $\geq 5,000$ sq ft, or
$\frac{3}{4}$ acres lawn/landscape, or 2.5 acres pasture

- #6 Runoff Treatment
- #7 Flow Control
- #8 Wetlands Protection
- #9 Operation and Maintenance
Minimum Requirement #1
Stormwater Site Plan Preparation

Stormwater Site Plan

- Prepare a Permanent Stormwater Quality Control Plan
- Prepare a Construction Stormwater Pollution Prevention Plan
Minimum Requirement #2
Construction Stormwater Pollution Prevention Plan (SWPPP)

- Require Construction SWPPP - reviewed by local government
- Narrative and drawings
- BMP’s consistent with those in Ecology manual or otherwise approved by Ecology
Minimum Requirement #2

Construction Stormwater Pollution Prevention

Very Small projects < 2,000/7,000

- Ordinance must require compliance with erosion and sediment control if site is part of a common plan of development or sale ≥ 1 acre

- No SWPPP submittal to you

Suggested Implementation

- Instructions with Building, Grading, or other Permit

- Ecology suggests local ordinance require E&SC of all projects regardless of size
Minimum Requirement #2
Construction Stormwater Pollution Prevention

- Local Code/Rules must have seasonal work limitations
  - Can use the 3 listed criteria, or more specific
  - Can alter the 10/1 – 4/30 window based on local weather, or site-by-site

- Flexibility here
  - We want you to start
The 12 Construction SWPPP Elements

- Mark Clearing Limits
- Establish Construction Access
- Control Flow Rates
- Install Sediment Controls
- Stabilize Soils
- Protect Slopes
- Protect Drain Inlets
- Stabilize Channels And Outlets
- Control Pollutants
- Control De-Watering
- Maintain BMPs
- Manage the Project
Erosivity Waiver

- Local requirements can incorporate the waiver provision
- Applies to sites less than 5 acres
- Must require the conditions noted (see pages 19 – 20)
Minimum Requirement #3
Source Control

Page 20

- Prevention is still best strategy

- Requires Source Control BMPs described in Volume IV of the manual. Specifically, look at the BMP’s described in Section 2.2 of Chapter 2 of Volume IV

- Applies primarily to Commercial/Industrial Sites

- Design review should look for compliance with “structural source controls”
Minimum Requirement #4
Preservation of Natural Drainage Systems and Outfalls

Page 20

- Maintain natural drainage patterns
- Discharge at the natural location, to the maximum extent practicable.
- No significant adverse impact to receiving waters and properties.
  - See Supplemental Guidelines in the manual
- All outfalls require energy dissipation.
Minimum Requirement #5
On-Site Stormwater Management

Intent: reduce hydrologic change

Apply on-site BMPs to infiltrate, disperse, and retain runoff

Applies primarily to Residential Areas
Minimum Requirement #5
On-Site Stormwater Management

- Roof Downspout Dispersion or Infiltration
  Ch. 3 of Volume III

- Dispersion of driveway or other impervious surfaces
  Ch. 5 of Volume V

- Soil Quality and Depth
  - Ch. 5 of Volume V
  - See “Guidelines and Resources For Implementing Soil Quality and Depth BMP T5.13.”
#6 - #9 Minimum Requirements

New Impervious ≥ 5,000 sq ft, or

¾ acres lawn/landscape, or 2.5 acres pasture

- #6 Runoff Treatment
- #7 Flow Control
- #8 Wetlands Protection
- #9 Operation and Maintenance
Minimum Requirement #6
Runoff Treatment

- Project Thresholds
- Treatment-type Thresholds
- Facility Sizing
- Selection
- Design
- Maintenance
Table 2.1  Treatment Requirements by Threshold Discharge Area

<table>
<thead>
<tr>
<th>Treatment Facilities</th>
<th>&lt; ¾ acres of PGPS</th>
<th>≥ ¾ acres PGPS</th>
<th>&lt; 5,000 sf PGIS</th>
<th>≥ 5,000 sf PGIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onsite Stormwater BMPs</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

PGPS = pollution-generating pervious surfaces
PGIS = pollution-generating impervious surfaces
sf = square feet
Treatment-type Thresholds

Intent: Meet federal & state laws

Basic & Oil Control Treatment = default technology-based
  - AKART: State Law

Phosphorus/Enhanced = default water quality-based

Adjustment of defaults through case-by-case analysis
Example of a Project Site with Multiple Natural Discharges and Multiple Threshold Discharge Areas

Natural Discharge Area 1

Threshold Discharge Area 1 (Shaded)

Natural Discharge Area 2

Threshold Discharge Area 2

Natural Discharge Locations
Water Quality Design Storm

- 6-month, 24-hour event, Or
  - New Estimate: 72% of 2-year, 24-hour

- 91st percentile, 24-hr volume in WWHM

- Applies to WetPool Facilities
  - Ponds, Vaults, Wetlands, Combined Detention/Wetpool

King County method OK
Water Quality Design Flow Rate

- Preceding Detention
  - Flow Rate at or below which 91% of the runoff volume will be treated
  - On-line or off-line?
  - Need continuous runoff model

- Downstream of Detention
  - The 2-year release rate from detention

- King Co. method OK
Use a Selection Process Similar to Volume I, Ch. 4
- Similar BMP Options for similar situations

Use Similar Design Criteria – Volume V
- Must result in approx. equal sized facilities or equivalent pollutant removal capability

Use Equivalent Maintenance Requirements, Volume V
Additional Requirements
page 24

- No untreated discharges to ground, except through approved On-site BMP’s.

- At least Basic Treatment prior to soils not meeting suitability criteria.

- At least pre-settling prior to soils meeting suitability criteria.
  - Type 2 catch basins not an approved pre-settling device.

- Details in Volume III of manual.
Minimum Requirement #7
Flow Control

Purpose: To prevent or correct increases in stream erosion rates and channel instability by maintaining or restoring the channel’s natural erosion rate

Presumptive Water Quality-Based Requirement
- Local hydrogeologic basis
Where does the precipitation go?

- Evapotranspiration
- Surface Water
- Groundwater
- Interflow

Forest: 100%
Pasture: 80%
Lawn: 60%
Rural/Forest: 40%
Rural/Pasture: 20%
Suburban: 0%
Multi-family: 0%
Commercial: 0%
Impervious: 0%
Easter Lk. Outlet, Federal Way, WA

Photo by Derek Booth, U of W
Channel Erosion caused by Stormwater
Flow Control
Flow Control Standard

Standard Requirement:

- **Flow Durations.** Match Pre-developed discharge rates from 50% of 2-year to 50-year peak flows
- Assume forested pre-developed condition unless evidence otherwise
- Assume existing land cover in “highly urbanized basins”

Local Government Option:

- **Peak Flows.** Don’t exceed 2-, 10-, and 50-year Pre-developed Peak Discharge rate
Basins Potentially Meeting
40% TIA/20 year Criterion
Flow Control Standard
Applicability – pages 25 - 27

➢ Direct Discharge Exemption
  • See Appendix I-E.
    http://www.wsdot.wa.gov/environment/wqec/flowcontrol.htm
  • Local government petitions/hydrologic basis, e.g. Sammamish River, Longview Ditches, Mercer Slough

➢ Select, Design, Maintain
  • Facilities in accordance with Volume III
Flow Control Thresholds

<table>
<thead>
<tr>
<th>Threshold Discharge Area</th>
<th>Flow Control Facilities</th>
<th>On-site Stormwater Management BMPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3/4 ac. Conversion to lawn/landscape, or &lt; 2.5 ac. to pasture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ ¾ ac. Conversion to lawn/landscape, or ≥ 2.5 ac. conversion to pasture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 10,000 sq ft of effective impervious area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 10,000 sq ft of effective impervious area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 0.1 cfs increase in the 100-year flood frequency</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Alternative Requirement

Watershed modeling and field observations

Must be consistent with preserving the beneficial uses that existed as of 1975

Example reasons for a different standard

- Not a gravel embedded stream
- Channel has changed significantly – however …
- Land use restrictions (max impervious area and land clearing with full dispersion) in watershed allow use of a lesser standard
  - Restricting a watershed to 10% TIA is not adequate
Method for Compliance

- Approved Continuous Simulation & Pond Sizing Models
  - WWHM
  - KCRTS
  - MGS Flood
Minimum Requirement #8
Wetlands Protection
Page 27

- Thresholds same as M.R. #6 and #7
- Apply treatment BMP’s
- Maintain hydrologic conditions, vegetation, substrate – requires continuous runoff model
- Use Puget Sound Wetlands Research Program as amended in Appendix I-D of the manual
- Facilities not in natural buffer
Minimum Requirement #9
Operation and Maintenance

- O&M manual for all proposed facilities
- Responsible parties identified
- Local government must adopt equivalent O&M standards (also in subsection c)
  - Volume V, Section 4.6
- Manual readily available
- Log of maintenance activity
General Questions
Section 5 - Adjustments

Written Finding of Fact

- Equivalent Protection
- Sound Engineering
- Objectives are met
  - Safety
  - Function
  - Environmental protection
  - Facility maintenance
Public Notice
- Application
- Decision

Written Finding of Fact

Keep records

Jurisdiction-wide variances require Ecology prior approval
- e.g., stop-loss provision re application of stormwater requirements to replaced surfaces on redevelopment
Exceptions/Variances
Qualifying Criteria

- Severe and unexpected economic hardship
  - 6 considerations – written findings

- Not increase risk to public health and welfare; not injurious to other properties and quality of state waters

- Least possible exception
Necessary to support any proposed basin-specific alternative treatment, flow control, & wetland protection requirements

Necessary conditions for modifying requirements:

- Reviewed and approved by Ecology
- Adopted by all jurisdictions
- Ordinances & rules must be in effect
Section 1: Exemptions

- Forest Practices
- Commercial agriculture
- Oil and Gas Field Activities or Operations
- Road Maintenance
- Underground Utility Projects
Section 2: Definitions

- Effective Surface
- Impervious Surface
- Pollution-Generating Impervious Surface (PGIS)
- Pollution-Generating Pervious Surface (PGPS)
- Land Disturbing Activity
- Threshold Discharge Area
Section 3: Applicability of the Minimum Requirements

a.k.a. Project Thresholds

- Who needs to do what?
- Depends upon size of the project
  - Amount of impervious surface
  - Extent of land disturbed
Section 3.1 and Figure 3.1
(Note Correction!)

For permit compliance, you must regulate sites that discharge to your MS4, AND meet one of the following criteria:

1. Meet or exceed the “Regulatory Threshold”
   - Disturb 1 acre or more, or
   - Disturb less than 1 acre, but are part of a “common plan of development or sale that exceeds 1 acre,” or

2. Are smaller sites that were regulated by you at the time of permit issuance.
Discharges Not Using the MS4

- Ecology does not require you to regulate development sites that do not drain to your MS4.

- Ecology encourages you to regulate those sites in the same manner as you do sites that use your MS4.

- Local government regulation is an efficient and equitable solution; also necessary to prevent damaging cumulative impacts.
1 acre or Part of a Common Plan of Development

- 1 acre - minimum threshold set by USEPA.

- Ecology decided not to extend NPDES authority to smaller sites this permit term.

- USEPA definition
  - Subdivisions and Master Planned Developments
  - Individual lots within them are part of the common plan.
If one of the “regulatory thresholds” is exceeded, Projects must use thresholds in figures 3.2 & 3.3; and text of Sections 3.2 – 3.4.

No local requirements below 1 acre may create inequitable regulatory environment

- 1 acre commercial vs 0.9 acre commercial
- 1 acre ball field vs 0.9 acre building and parking lot
- Same type project inside/outside of a common plan (3/4 – 1 acre lot)
Figure 3.1
Previous Local Regulatory Thresholds

- The permit requires that you continue to regulate smaller sites if you did so at the time of permit issuance – no implementation delay

- You must apply the local requirements that existed at that time, or the minimum requirements of Appendix 1

- Different standards for smaller sites creates inequities and confusion
Permit Requirement

- Adopt the thresholds indicated in Figures 3.2 & 3.3 and Sections 3.2 and 3.3

Recommendation

- If a “regulatory threshold” used, make it smaller than 1 acre

NOTE:

- The Permit restricts Ecology’s oversight to projects triggered by the thresholds in Figure 3.1
Min. Req. #2 - Erosion control
- all projects

Min. Requirements #1 - #5:
- ≥ 2,000 sq. ft. impervious area, or 7,000 sq. ft. land disturbance

Min. Requirements #1 - #10:
- ≥ 5,000 sq. ft. new impervious area, or
- ≥ 3/4 acre native vegetation to lawn/landscape, or
- ≥ 2.5 acres native vegetation to pasture
Redevelopment Threshold Summary
Figure 3.3 & Section 3.3

- **Top ½ of Flow Chart**
  - Same as “New Development” – Figure 3.2

- **Bottom ½ of Flow Chart**
  - Addresses replaced impervious surfaces
  - Treatment and Flow Control (MR 6&7), only if
    - New + replaced impervious ≥ 5,000 sq. ft., and Proposed improvements value > 50% of existing improvements value
    - For roads, new impervious ≥ 5,000 sq. ft., and ≥ 50% of existing impervious area
Redevelopment Scope

- Existing Surfaces Not Replaced:
  - not addressed unless runoff not separated from new or replaced surfaces needing management

- Treatment facilities must be sized for flows that they receive
- Flow Control facilities have a limit on offsite inflow that can be accepted
Redevelopment Exemptions

- If Plan & Schedule for Regional Facilities, replaced impervious surfaces exempted or a stop-loss provision

- New Impervious surfaces not exempted.
  - Regional facilities should be on-line or imminent.

- Variance re flow control on replaced impervious surfaces if a severe economic hardship
Alternative Mitigation for Redevelopment Sites

See Supplemental Guidelines in Manual

- Equivalent Area within Site
- For Roads, Equivalent Area must drain to same receiving water
- Fee-in-lieu
Appendix 1

- Minimum Requirements
- Definitions
- Thresholds
- Adjustments & Variances

OR,

Basin-specific plans, if equal protection
General Questions
Site Planning Processes
BMP selection and design criteria
OR, Document how local requirements
- Protect WQ
- Achieve MEP
- Achieve AKART
Stormwater Site Plan Preparation
Chapter 3, Volume I

- Collect and Analyze Existing Conditions Information
- Prepare Preliminary Layout
- Perform Off-site Analysis (option)
- Determine Applicable Minimum Requirements
Stormwater Site Plans (continued)

- Prepare a Permanent Stormwater Quality Control Plan
- Prepare a Construction Stormwater Pollution Prevention Plan
- Complete the Stormwater Site Plan
- Check Compliance
Chapter 4 - Permanent Stormwater Quality Control Plans

- Determine Applicable Minimum Requirements
- Select Source Control BMPs
- Determine Threshold Discharge Areas, Flow Control & Treatment Requirements
Permanent Stormwater Quality Control Plans (cont.)

- Select Flow Control BMPs and Facilities
  - Infiltrate?
  - Size Detention Facility and Orifices – Approved Hydrology Model
- Select Treatment Facilities
  - Figure 4.1, page 4-6
- Review Selections
- Complete PSQCP
VOLUME II

Construction Stormwater Pollution Prevention
Volume II – Construction SWPPP

- Ch. 3 – How to develop a Construction SWPPP
- Ch. 4 – BMP’s
Chapter 3 – Planning

- Step-by-Step Procedure (S.5.C.4.a.ii)
  - Data Collection
  - Data Analysis
  - Construction SWPPP Development & Implementation
    - Lists Elements & BMP’s to achieve
    - Construction SWPPP Checklists
    - For Narrative & Drawings
Chapter 4 – BMP’s

- Local Government must list & describe BMP’s and their criteria
- BMP’s should be capable of protecting water quality, achieve MEP, and AKART
- Do not have to use all of Ecology’s; can differ somewhat
Volume III
Hydrologic Analysis/Flow Control

- Ecology-approved continuous runoff model
- Similar Credits for Low Impact Development
- Similar Design Criteria for Flow Control Facilities
- Similar On-site Stormwater Management Controls
For new development and redevelopment

Adopt similar requirements to Section 2.2 for each of the identified sites or activities.

“Applicable operational BMP’s” and “applicable structural source control BMP’s” are the minimum compliance target.

Suggest you list the “recommended” BMP’s also and give yourself regulatory discretion to require
Chapter 2
Treatment Facility Selection

- Step 1 – Receiving Waters & Pollutants
- Step 2 – Oil Control Necessary?
- Step 3 – Infiltration Treatment Possible?
- Step 4 – Phosphorus Control Necessary?
- Step 5 – Enhanced Treatment Necessary?
- Step 6 – Basic Treatment Backstop
Treatment Facility Selection

Figure 1.1 Treatment Facility Selection Flow Chart

**Step 1: Determine Receiving Waters and Pollutants of Concern**
- Perform Off-site Analysis

**Step 2: Determine if an Oil Control Facility is Required**
- Apply an Oil Control Facility
  - API Separator
  - CP Separator
  - Linear Sand Filter
  - Catch Basin Insert

**Step 3: Determine if Infiltration for Pollutant Removal is Practicable**
- Apply Pretreatment
  - Presettling Basin or
  - Any Basic Treatment BMP

**Step 4: Determine if Phosphorus Control is Required**
- Apply Phosphorus Control Facility
  - Large Sand Filter
  - Amended Sand Filter
  - Large Wetpond
  - Media Filter
  - Two Facility Treatment Train

**Step 5: Determine if Enhanced Treatment is Required**
- Apply Infiltration
  - Infiltration Basin
  - Infiltration Trench
  - Bioinfiltration Swale

**Step 6: Apply a Basic Treatment Facility**
- Apply an Enhanced Treatment Facility
  - Large Sand Filter
  - Amended Sand Filter
  - Treatment Wetland
  - Two Facility Treatment Train

- Sand Filters
- Biofiltration Swales
- Filter Strips
- Basic Wetpond
- Wetvaulf
- Treatment Wetland
- Combined Detention/Wetpool
- Sand Filters
Chapter 3
Treatment Facility Menus

- Oil Control
- Phosphorus
- Enhanced
- Basic
Chapter 4
General Requirements

- Design Volume & Flow
- Sequencing
- Setbacks, Slopes & Embankments
- Facility Liners
- Hydraulic Structures
- Maintenance Standards
Chapter 5
On-site Stormwater Management

- Dispersion and Soil Quality BMP’s
  - Downspout Dispersion
  - Concentrated Flow Dispersion
  - Sheet Flow Dispersion
  - Post-Construction Soil Quality and Depth

- Downspout Infiltration (Vol. III, Chapter 2)
  - (for Non-Pollution Generating Surfaces)
Treatment BMP Design Criteria

- Chapters 6 – 11

- See Website for additional approved BMP’s
  - General Use
  - Conditional Use
  - Pilot Use (2 – 3 sites statewide)

Changes to the Manual

- Ecology publishes addenda, errata, and approvals of new technologies at its stormwater website.

- We encourage you to incorporate those changes into your adopted ordinances, rules, and manuals.

- Addenda and errata published after the permit issuance date; we cannot require you to use them.

- Use of new technologies within the limits allowed by the approvals is at your discretion. Most published before permit issuance.
General Questions