Washington State Department of Transportation

Instructional Letter

Number: IL 4020.02

/s/ Donald K. Nelson
Director, Environmental and Engineering Programs

Effective: February 25, 2002
Expires: ~~August 23, 2003~~
August 23, 2004

Endangered Species Act (ESA) Stormwater Effects Guidance

I. Introduction

A. Purpose

The purpose of this Instructional Letter (IL) is to provide interim guidance on making stormwater-related *effect determinations* for biological assessments that are prepared for the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS). It is not the purpose of this IL to create stormwater treatment design criteria, but it does create design expectations in the context of ESA effect determinations.

This document does not cover all the possible project elements that must be analyzed by the project biologist before a final effect determination is made. An effect determination is based upon all the project's activities, of which stormwater is only one element.

Eastern/Western Washington guidance differentiation is made in Appendix 1. Use of the Highway Runoff Manual is required in:

1. The Puget Sound Basin;
2. The WSDOT Olympic Region (by Region policy);
3. NPDES municipal stormwater permit coverage areas;
4. Evolutionary Significant Units (ESU) or Distinct Population Segments (DPS) when a listed fish or its habitat is found within the ESU or DPS; and
5. Sensitive areas designated by local jurisdictions, for which the designation requires stormwater treatment guidelines be followed.

Washington State Department of Transportation

Memorandum

February 25, 2002

Via e-mail TO:

Harold Peterfeso	Bart Gernhart
Claton Belmont	Dan Sarles
Ken Stone	George Hilsinger
Kojo Fordjour	Keith Metcalf
Brian Hasselbach	Ken Lockwood
Martin Palmer	Mike Frucci
Becky Michaliszyn	Pasco Bakotich III
Jim Prudente	Richard Mitchell
Elizabeth Phinney	Rick Keniston
Gary Beeman	Ron Landon
Doug Pierce	

FROM: Don Nelson

RE: Instructional Letter IL 4020.02 - Revised

The attached revised Instructional Letter represents the best available guidance for design and scoping of the stormwater treatment components of projects. This is a revision of IL 4020.01, issued on August 24, 2001. The stormwater scoping instructions, circulated as an attachment to IL 4020.01, have been updated and are now Appendix 6 of IL 4020.02. This document has been prepared following discussion with the Stormwater Rapid Response Team, comprised of Harold Peterfeso, Cliff Mansfield, Pasco Bakotich, Shari Schaftlein, Al King, Amir Rasaie, Jim Prudente and Dan Sarles. Technical support was provided by environmental staff and hydraulic and design engineers.

Stormwater regulations continue to evolve and insufficient guidance is available in writing from the natural resource agencies at this time. The Washington State Department of Ecology (ECY) *Stormwater Management Manual for Western Washington* was released in September 2001, and an Eastern Washington manual is planned. While publication of the Ecology manual has removed uncertainty over what Ecology will require for stormwater treatment generally, how these requirements apply specifically to WSDOT still needs to be resolved through revision of the *Highway Runoff Manual* (HRM). The attached IL provides transitional criteria between the HRM and 2001 Ecology Stormwater Manual.

Discussions with the National Marine Fisheries Service and U. S. Fish and Wildlife Service continue, but we have not yet reached agreement on stormwater effect determinations. The Washington State Department of Fish and Wildlife has stated that they accept the new

Ecology manual as representing the state standard for stormwater regulation, for Western Washington, and do not expect to use any different technical standards.

Despite the uncertainty which has been only partially resolved, stormwater treatment expectations are increasing in order to improve compliance with the Clean Water Act and the Endangered Species Act. The revised Instructional Letter provides the best clarification we can give you of these expectations. These instructions are the basis of negotiations with the Natural Resource agencies. It is, therefore, essential that you use this document as you scope and design stormwater treatment projects. Creativity and resourcefulness will be needed at the project and programmatic level to achieve least cost treatment.

The goal over time is to reduce the extensive project-by-project negotiations on stormwater. For the near future, however, attempts at arriving at an optimum solution continue to necessitate a team approach between Environmental, Hydraulics, Project Engineers, and the resource agencies.

A technical team of WSDOT hydraulic and design engineers and environmental specialists, is being formed to guide the revision of the HRM. The Stormwater Rapid Response Team (SRRT) will continue to meet as substantive policy and financing issues, relative to HRM revision as well as other stormwater issues, become ripe. If you have questions regarding the revised Instructional Letter, please send them to Ken Stone, stonek@wsdot.wa.gov, or Leni Oman, omanl@wsdot.wa.gov. Leni will collate and distribute information to the SRRT or technical team, as appropriate. In addition, staff are available to provide a training session on use of IL 4020.02, either as a stand-alone session or as part of a regularly scheduled meeting or forum. Please contact Alix Berg, Environmental Affairs Office, berga@wsdot.wa.gov, if you desire this training.

DN:lsh
Attachment

cc: SRRT Members
Jerry Alb
Leni Oman
Greg Selstead
File

Washington State Department of Transportation

Instructional Letter

Number: IL 4020.02

/s/ Donald K. Nelson
Director, Environmental and Engineering Programs

Effective: February 25, 2002
Expires: August 23, 2003

Endangered Species Act (ESA) Stormwater Effects Guidance

I. Introduction

A. Purpose

The purpose of this Instructional Letter (IL) is to provide interim guidance on making stormwater-related *effect determinations* for biological assessments that are prepared for the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS). It is not the purpose of this IL to create stormwater treatment design criteria, but it does create design expectations in the context of ESA effect determinations.

This document does not cover all the possible project elements that must be analyzed by the project biologist before a final effect determination is made. An effect determination is based upon all the project's activities, of which stormwater is only one element.

Eastern/Western Washington guidance differentiation is made in Appendix 1. Use of the Highway Runoff Manual is required in:

1. The Puget Sound Basin;
2. The WSDOT Olympic Region (by Region policy);
3. NPDES municipal stormwater permit coverage areas;
4. Evolutionary Significant Units (ESU) or Distinct Population Segments (DPS) when a listed fish or its habitat is found within the ESU or DPS; and
5. Sensitive areas designated by local jurisdictions, for which the designation requires stormwater treatment guidelines be followed.

B. Supersession

This supersedes and replaces *Endangered Species Act 7(d) Project List and Stormwater Effects Guidance* Instructional Letter IL 4020.01 dated August 24, 2001.

C. Background

The references listed at II, below, are the regulations that govern regulatory processes the Washington State Department of Transportation (WSDOT) addresses in order to protect threatened and endangered aquatic species while still delivering a successful highway construction program. The stormwater effects guidance, presented in Section V of this document, and has been developed through cooperative negotiations among WSDOT, the Federal Highway Administration (FHWA), NMFS, and USFWS. NMFS and USFWS have not yet provided written concurrence with this revision. Therefore, this document represents the best currently available information and is provided as interim guidance pending continuing negotiations and revisions to the WSDOT *Highway Runoff Manual*.

D. Scope and Term of this Instructional Letter

This guidance is for transportation improvement projects that occur in areas with ESA-listed aquatic species and:

(1) Increase net impervious surface area;
(2) Includes ground disturbing activities, i.e., clears, grades, grubs or fills;
(3) Have spill potential requirements; or
(4) Have stormwater discharge(s) into a river(s) or stream(s) with a low-flow designation.

This guidance, or modifications made thereto, will be added to the *Highway Runoff Manual* M 31-16 before the expiration date of this Instructional Letter.

Appendix 1 provides design guidance and the schedule for phasing in design procedures to comply with the latest stormwater regulations.

Delivery of a successful highway construction project, from the standpoint of ESA, means, among other things, addressing the above activities when applicable. The key deliverables for a particular project are:

1. The ESA - Stormwater Design and Erosion Questionnaire, (Appendix 2).

2. A summary of the stormwater design and treatment details for projects occurring in areas containing an Evolutionarily Significant Unit (ESU) and/or Distinct Population Segment (DPS). This information is needed by environmental staff to develop the project's Biological Assessment (BA).

Stormwater designs and information needs are changing very quickly. Before providing stormwater design information, design project office staff should talk with the appropriate Region's environmental and hydraulics office to determine what new or additional project-specific information is needed. Add the information that is needed and appropriate for ESA to the Stormwater Design and Erosion Questionnaire, attached as Appendix 2.

II. References

A. Federal

16 USC §1531 *Endangered Species Act of 1973*, as amended
33 USC §1251 et. seq. *Clean Water Act of 1977*, as amended
50 CFR 402 Interagency Cooperation Regulations

B. State

Gold and Fish Rule, WAC 220-110-206
Highway Runoff Manual, M 31-16, WSDOT

III. Acronyms

BA Biological Assessment - written documentation of a BE prepared for consultation with other agencies.

BE Biological Evaluation - an evaluation done by a project biologist to determine the effects of the project on listed species. The BE might lead to a biological assessment if necessary.

BMP Best Management Practice

COE Corps of Engineers

DOE Washington State Department of Ecology

DPS Distinct Population Segment (the USFWS designation for bull trout listings)

ESA Endangered Species Act

ESU Evolutionarily Significant Unit (the NMFS designation for salmon listings)

FHWA	Federal Highway Administration
HPA	Hydraulic Project Approval
HRM	*Highway Runoff Manual*
LWD	Large Woody Debris
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
SPCC	Spill Prevention, Control and Countermeasures Plan
SSP	Stormwater Site Plan
TESC	Temporary Erosion and Sedimentation Control Plan
USFWS	United States Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

IV. ESA §7(d) Project List

Effect determinations are used in Endangered Species Act Section 7 consultations to describe and assess the effects of a project on listed species. FHWA and the Seattle District COE have recognized WSDOT as their nonfederal representative for ESA informal consultation. Section 7(d) of the Act provides a consultation process that does not result in decisions that constitute an irreversible or irretrievable commitment of resources, that would preclude the use of any reasonable and prudent alternatives that avoid or minimize harm to listed species.

The ESA §7(d) process has allowed certain projects to proceed to ad and award even if the consultation has not yet produced final concurrence on the biological assessment. A list of projects utilizing the §7(d) process continues to be amended by WSDOT Environmental Affairs Office staff. Projects that are eligible to be on the list are those with a submitted BA and an effect determination of "may affect, not likely to adversely affect."

If a project is on the ESA §7(d) list and is likely to result in *take*[1], an *Incidental Take Authorization Permit* is required as part of the project's consultation before construction of the project can proceed. Projects with potential for take on salmonids include in-water work, channel relocation, and impacts to riparian

[1] *Take* is defined under ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct," including modification to a species habitat. Point of take is the place or the area where take occurs. A point could be:

1) Discharge point such as a stormwater culvert or a bridge pier or footing.
2) A project.
3) A specific habitat where take is likely to occur.

The habitat area could be a spawning bed, a rearing area, or changes in the hydraulic characteristics of a stream system.

habitat. Activities that might constitute take include: constructing barriers that eliminate or impede access to habitat; removing or contaminating plants, fish, or biota; discharging pollutants into a listed species' habitat; removing or changing physical structures; removing or changing water flow; constructing on unstable hill slopes; and using toxic substances where releases are likely to significantly degrade aquatic habitat(s). Consult a Regional biologist if there are project-specific questions.

The ESA §7(d) list is available from Paul Wagner of the Environmental Affairs Office (EAO) at (360) 705-7406 or wagnerp@wsdot.wa.gov. It is not attached to this IL because it can be amended at any time.

V. ESA Stormwater Effects Instructions for Projects

A. General

Until changes are made to the *Highway Runoff Manual (HRM)*, scheduled to take place through 2002 and 2003, use the instructions in this IL and the HRM, and Ecology's *Stormwater Management Manual for Western Washington,* to design the stormwater conveyance and treatment system(s). This document covers specific project activities only. This document does not cover all the possible project elements that must be analyzed by the project biologist before a final effect determination, based upon all the project's activities described in the BA, is made. Effect determinations must be project-specific and this guidance might not be applicable in every case. The final effect determination for the project is based on all of the effects documented in the Biological Assessment (BA).

B. Procedures

In order to decide which of the three following effect determinations is correct, project managers need to evaluate each project for:

(1) Location;
(2) Effects due to stormwater runoff from increased impervious areas; and clearing, grading, and filling;
(3) Effects of all project elements on the base line aquatic indicators (before making a final project-specific *effect determination*); and
(4) Planned avoidance, minimization, conservation, treatment, or mitigation measures that may offset stormwater effects or improve water quality and/or flow regime baselines.

1. No Effect

Projects located within a Water Resource Inventory Area with no listed fish species, or no habitat or potential habitat for listed fish species, will have no effect on listed fish species and require no further evaluation.

Stormwater from new impervious surface areas has no effect when:

a. All runoff is infiltrated after water quality treatment for all new impervious surface areas.

   or

b. Stormwater water quality effects are mitigated (treated) within the following range:

   Minimum—Provide water quality treatment for runoff from an area equal to 140% of the new impervious surface area within the project limits.

   Maximum—Provide water quality treatment for runoff from an area equal to 100% of the new impervious surface area plus an area equal to 100% of the existing impervious surface area within the project limits.

   For water quantity, peak flow rates of *all affected drainages* should be maintained within the constraints given by Section 2-6 of the *Highway Runoff Manual*.

   This is based on the assumption that post-project net pollutant loading to the environment will be equal or less than the pre-project loadings. Because stormwater BMPs are not 100% efficient (see Appendix 3), some amount of preexisting impervious surface will have to be treated to avoid a net-increase in pollutant loading. The treatment level has been established at 140% of the new impervious surface area to make up for the fact that the BMP's are not 100% efficient. It is imperative to note, however, that the 140% threshold is not a design standard, and designers should not stop at 140% when determining how much existing impervious surface should be treated. The amount of treatment should be determined by the project's site-specific and budgetary constraints. Treating to 140% does not ensure a favorable effect determination for the entire project, as a number of other environmental factors also need to be evaluated in the BA.

Example:

A project adds 10 acres of new impervious surface area that will be 100% treated. How much impervious surface area stormwater will the project have to treat in order to attain 140% of new?

Answer: 140% x (10 acres) = 14.0 acres, which is the 10 new acres plus 4 acres of existing impervious.

Clearing, grading, and filling has no effect when:

The project is within an area containing an ESU/DPS and clears, grades, and grubs more than 300 ft from any water body (including water bodies or drainages that support or drain into a listed fish supporting water body), provided that the following conditions are met:

- TESC and SSP are fully implemented (including spill controls).
- "Environmental base line" is not degraded, including spawning areas (determined by the BE), LWD, riparian habitat, etc.
- All other factors evaluated for the project by the project biologist result in a no effect determination.

2. May Affect, Not Likely to Adversely Affect

Stormwater from new impervious surface area
Stormwater from new impervious surface areas may affect but is not likely to adversely affect (NLTAA) listed fish species and their habitat when the stormwater is treated for quality for less than 140% but equal to or more than 100% of the new impervious surface area within the project limits. For water quantity, peak flow rates of *all affected drainages* shall be maintained within the constraints given by Section 2-6 of the *Highway Runoff Manual*.

Clearing, grading, and filling
The project is NLTAA when it is within ESU/DPS areas and clears, grades, and grubs within 300 ft of any water body (which supports or drains into a listed fish supporting water body) but includes no in-water work, provided that all of the following conditions are met:

- Temporary Erosion and Sediment Control (TESC) or Stormwater Site Plan (SSP), whichever is applicable, is fully implemented (including spill controls).

- The "Environmental base line" is not degraded by stormwater effects on water quality or stream hydrology, including spawning areas (determined by the BE & BA), large woody debris, riparian habitat, etc. All other factors evaluated for the project by the project biologist must result in a no effect or may affect, not likely to adversely affect determination.

Not all projects will be able to meet the effect determinations identified above. Some might fall into the "may affect, likely to adversely affect" determination. In these instances, additional conservation measures can be added to the project's activities to potentially upgrade the effects call to avoid formal consultations with NMFS and/or USFWS.

Projects that work within water

Projects that include in-water work may affect but are not likely to adversely affect listed fish species if all of the following conditions are met:

- Work must be conducted within defined fish windows (WAC 220-110-206 list or according to an HPA).
- Work must not occur in spawning or rearing areas (as determined by the project biologist in conjunction with a WDFW Habitat Biologist or Tribal Biologist). Rearing areas include pools, eddies, structures, etc. but do not include glides.
- There must be no listed fish species present.
- The project does not degrade the environmental baseline.
- All other factors evaluated for the project by the project biologist result in a no effect or may affect, not likely to adversely affect determination.

3. May Affect, Likely to Adversely Affect

Projects that work within water

When a project includes in-water work, and the project does not meet the "not likely to adversely affect" conditions for in-water work, it "may affect, is likely to adversely affect" listed fish. This effect determination triggers formal consultation that requires working closely with NMFS and/or USFWS.

Stormwater from new impervious surface area
When the project is within a subbasin that provides habitat or potential habitat for a listed fish species, stormwater from new

impervious surface areas may affect and is likely to adversely affect listed fish species and their habitat when the stormwater is treated for quality for less than 100% of the new impervious surface area within the project limits, or water quantity peak flow rates of all affected drainages are less than the constraints given by Section 2-6 of the Highway Runoff Manual.

Clearing, grading, and filling

A project may affect and is likely to adversely affect listed fish species and their habitat when it is within ESU/DPS areas and does not fully implement TESC or SSP (including spill controls), and is within a subbasin that provides potential habitat for listed fish species.

4. Beneficial Effects

A project has the potential for a net beneficial effect on listed fish species and their habitat if the stormwater is treated for quality for more than 140% of the new impervious surface area within the project limits. This "over-treatment" has the potential to result in reduced baseline pollution levels and hydrology that is restored closer to predevelopment levels.

5. Detention Facilities Safety Factor

On an interim basis, the factor of safety for sizing detention ponds and vaults shall be increased by 10% in ESU and DPS areas. Appendix 4 represents the formula for both within and outside of ESU and DPS areas. This factor has the potential to benefit fish and control erosion for improved water quality.

6. Reevaluation of the Exempted Rivers List

Revisions to the exempted rivers list (see Section 2-6 of the HRM) for project-specific waivers on flow control requirements have been made and the revised list is included as Appendix 7. This revised list is considered interim and further work on it will occur during revisions to the *Highway Runoff Manual*.

7. Practicability of Retrofitting Existing Roadways

WSDOT requirements, as reflected in Section 2.5 of the *Highway Runoff Manual*, mandate the current stormwater design objective for transportation improvement projects that add new impervious area: "BMPs for existing impervious runoff will be implemented whenever the investigation demonstrates that it would be more feasible to construct BMPs during the current project instead of waiting until a future date to fully retrofit the entire roadway section." Practicability analysis to determine the feasibility of

constructing stormwater BMPs in site-specific situations has been developed by a consultant and will be beta tested by WSDOT project planners in 2002. It is anticipated that the practicability analysis will be made available for general use on improvement projects in early 2002 after beta testing is complete.

VI. Appendices

1. Stormwater Treatment Design Levels

2. ESA - Stormwater Design and Erosion Questionnaire

3. Best Management Practice Effectiveness Rates

4. Safety Factors for Detention
   *Supersedes Figure 2-6.2 in the *Highway Runoff Manual.*

5. Listed Salmon Species in Washington

6. Stormwater Scoping Instructions

7. Rivers Exempted from Minimum Requirement 5

Alternate Formats: Persons with disabilities may request this information be prepared and supplied in alternate formats by calling the WSDOT ADA Accommodation Hotline collect 206-389-2839. Persons with hearing impairments may access WA State Telecommunications Relay Service at TT 1-800-833-6388, Tele-Braille 1-800-833-6385, or Voice 1-800-833-6384, and ask for connection to 360-705-7097.

Stormwater Treatment Design Levels

A. These are the stormwater design levels during the phasing in of additional stormwater treatment requirements.

For the purposes of this Instructional Letter, the following three levels shall describe design guidance for stormwater treatment. Please note that while levels A and B are applicable statewide for WSDOT projects, level C instructions are for Western Washington WSDOT projects only. Effect determinations have not been made for Level C treatment at this time. For Local Agency projects, please see Section C of this appendix.

1. Level A consists of the design criteria contained in the 1995 Highway Runoff Manual.
2. Level B consists of the design criteria contained in the January 2001 Draft Highway Runoff Manual.
3. Level C consists of the following criteria:

   Level C is interim design criteria intended to be as consistent as feasible and practicable with the *Stormwater Management Manual for Western Washington* (SMMWW– Department of Ecology, Publication Nos. 99-11 through 99-15, August 2001). The key revisions to the SMMWW from its predecessor manual include: new thresholds for selection of best management practices; increasing flow control requirements to address flow duration as well as peak flows, and require use of continuous runoff modeling; and new requirements for enhanced treatment, phosphorus treatment, and oil control.

   The intent of using Enhanced Treatment is to provide a higher rate of removal of dissolved metals than Basic Treatment. The SMMWW Enhanced Treatment Menu will lead to use of infiltration, sand filters, a media filter, or a stormwater treatment wetland. Use of sand filters and media filters is problematic for WSDOT for several reasons, including the lack of performance data for these treatment facilities, as well as the lack of agency resources to maintain them.

   The following sequence should be used for selecting Level C, water quality (runoff) treatment:
   - When sufficient site conditions exist or can be achieved, use infiltration preceded by Basic Treatment.

- If infiltration cannot be used, and the design year ADT of the highway is 50,000 or greater, use the Enhanced Treatment menu in Section 3.4 Volume V, of the SMMWW. Be sure to consult with hydraulics and maintenance staff if use of a filtration medium or media treatment facility is being considered. This consultation should involve obtaining assistance on BMP selection, and determining the availability of resources to comply with the maintenance criteria for enhanced treatment facilities.
- If infiltration cannot be used, and the design year ADT of the highway is less than 50,000, use the Basic Treatment Menu found in Section 3.5, Volume V of the SMMWW.

Use of the above sequence is conditioned only upon a finding that stormwater treatment, in particular enhanced stormwater treatment, is practicable; after evaluation of project constraints through application of WSDOT's stormwater practicability checklist.

Projects within watersheds that have been determined to be sensitive to phosphorus, and that are being managed to control phosphorus inputs from stormwater, shall also be designed for Phosphorous Treatment (see Volume V, Chapter 3.3 of the SMMWW). Projects that include road intersections considered "high use sites" shall also be designed with Oil Control facilities (see Volume V, Chapter 3.2 of the SMMWW).

Water Quantity (flow control) BMP's shall be designed as determined by a continuous flow model or modified Santa Barbara Urban Hydrograph (SBUH) procedures from the SMMWW. The WSDOT-developed continuous flow model, currently named MGSFLOOD, is being beta-tested and should be usable for most applications in the near future.

Outfalls within the project limits, which increase flows by less than 0.1 cubic feet per second for the 100-year storm event are exempt from flow control measures.

B. Stormwater Treatment Design Implementation Schedule

1. Projects going to Ad in the 03/05 biennium that add 5,000 ft^2 or more of new impervious surfaces shall be designed to Level C. When projects address significant deficiencies associated with hydraulics and stormwater infrastructure, the practicability of achieving Level C treatment for runoff from existing and replaced surfaces should be applied.

   During the programmatic process, the practicability of treating and controlling stormwater on site (i.e., in right of way) versus off site must be addressed along with a cost/benefit analysis for the project. The Environmental Affairs Office (EAO) is developing a checklist and a stormwater benefit/cost analysis tool for this purpose. This analytic tool is now being reviewed and tested and will be available for use early in 2002. Contact Ed Molash for the checklist and George Xu for the B/C tool.

2. This design guidance will be replaced with the updated *Highway Runoff Manual* once revisions are made and DOE approves it as an equivalent manual. It is anticipated that the updated HRM will be available by August 2003. All projects scoped for inclusion in the 05/07 capital improvement program shall be designed in accordance with the updated *Highway Runoff Manual*.

3. Projects going to Ad in the 01/03 biennium shall be designed in accordance with Level B or greater, to the practicable level. Any stormwater deficiencies that exist in projects constructed in 01/03 because they were not designed to Level C will be inventoried, ranked, and prioritized for retrofit in the normal course of the I-4 stormwater retrofit program.

4. For all projects, regardless of their applicable design level, where feasible and practicable, treat as much stormwater as possible in accordance with the programming instructions for the Highway Construction Program (see also Appendix 6, *Stormwater Scoping Instructions)*. Where funding is not permitted in that program, the region should pursue the acquisition of I-4 Stormwater Retrofit funding or request funding from the Advanced Environmental Mitigation Revolving Account (AEMRA). This will help earn WSDOT negotiating "credits" that can facilitate future negotiations on streamlining tools such as programmatic permits.

5. Level A is reserved for those projects that had a pre-construction phase start **previous** to 01/03, are on the shelf awaiting construction funding, **and** would require a lot of re-work to bring them to a higher level. There is no assurance a project that received a "no effect" or "not

likely to adversely affect" determination based on a stormwater treatment design completed pre-01/03, will receive the same effect determination when the shelf project goes to construction in the 01/03 biennium. There is considerable risk involved in deciding to use Level A treatment for a shelf project going to construction in 01/03, which could have negative impacts on the project's delivery. Before deciding to use Level A on a project going to construction in 01/03, the following steps should be taken:

- Reassess the project's stormwater treatment design and consider bringing it to a higher level, in consultation with the region environmental and hydraulics office. Include in this reassessment the status of the environmental review (NEPA/SEPA) document;
- Apply the Practicability Checklist as appropriate; and
- Reach concurrence between the design project office and region environmental and hydraulics office on whether or not the design can be upgraded.

If the stormwater design cannot be upgraded from Level A as a result of this reassessment, a future commitment must be made by programming a subprogram I4 retrofit project.

C. Amendments to IL 4020.02 FOR LOCAL AGENCY USE ONLY

1. Applicability: the design levels and guidance below are for local agencies for projects that are receiving federal funding through WSDOT, and are using the *Highway Runoff Manual* to design stormwater treatment and obtain stormwater-related effect determinations pursuant to Section 7 of the Endangered Species Act.
2. Stormwater Treatment Design Guidance

   For the purposes of this Instructional Letter, three levels shall describe design guidance for stormwater treatment as follows:

a) Level A. Level A is the design criteria in the 1995 Highway Runoff Manual.

b) Level B. Level B is the design criteria in the January 2001 Draft Highway Runoff Manual.

c) Level C. Level C is the future design criteria in the approved, updated Highway Runoff Manual equivalent to the SMMWW.

3. Design Guidance for Project Prospectus

a) All projects starting construction (award) on or before October 15, 2002 shall be designed *at a minimum* in accordance with Level A, and this Instructional Letter (IL 4020). Where practicable, designers are encouraged to treat new impervious surface areas to higher percentages.

b) All projects starting construction (award) between October 16, 2002 and October 15, 2005 shall be designed *at a minimum* in accordance with Level B. Where practicable, designers are encouraged to treat new impervious surface areas to higher percentages, including full stormwater system retrofits, than that listed in this IL.

c) Level C shall become the standard once the updated Highway Runoff Manual is approved as equivalent by the Department of Ecology. It is anticipated that Level C guidance will be available August 2003. All projects scoped for construction after October 16, 2005 shall be designed in accordance with Level C.

ESA - Stormwater Design and Erosion Questionnaire

Project design guidance and information that is needed to complete a Biological Assessment (BA)

(Please read each question thoroughly before answering.
When completed, forward to Region Environmental Office)

Date of Submission: _____
Work Order #: _____ Ad Date: _____
Construction Start Date: _____ Construction End Date (and # of working days): _____
Full Project Title: _____
Federal Funds (yes/no): _____ Federal Permits (yes/no, type): _____
Purpose and need statement, and a detailed project description - include all work to be done (clearing, grading, paving, striping, drainage, signals, detours, etc.) Use the last page if necessary:

Note: Link to Word Download Here

General Information: **Circle, bold, or fill in response**

1. Will work occur outside of existing pavement or gravel shoulders? Yes No

   If yes, please describe the nature and extent of work: _____

   _____

2. Will any clearing, grading, or filling occur within 300 feet of any water body, including riparian wetlands? Describe both temporary and permanent clearing. Yes No

   If yes, please describe the water body, and the nature and extent of work: _____

   _____

3. What is the amount of cut? _____ fill? _____

4. Will the project require any work in or over the water? Yes No

   If yes, please describe the water body, and the nature and extent of work: _____

   _____

5. Will the project discharge any materials (sweepings, wash water, pavement grindings, etc.) off of the roadway during construction? Yes No

   If yes, what and why? _____

   _____

6. List the temporary erosion and sediment control BMPs or attach the Temporary Erosion and Sediment Control (TESC) Plan that will be used during construction: _____

   _____

   _____

Stormwater Design - New Impervious (Proposed Project):

7. Will the project add any new impervious surfacing? Yes No

   ***Note**: Impervious surface means: A hard surface area that either prevents or retards the entry of water into the soil. Common impervious surfaces include asphalt and cement concrete pavement, other concrete surfaces such as sidewalks, hardened gravel roads and shoulders, packed earthen materials, and oiled surfaces. For purposes of this Instructional Letter, new impervious surface means the project adds new traffic lanes or paved shoulders to the roadway prism, and it may also mean the project adds other impervious surfaces such as sidewalks and parking lots for which it is determined on a project by project basis that stormwater treatment should be included.*

Quality

8. How much **net** new impervious area is the project creating? _____

9. Will the project treat and detain runoff from the new impervious surface? Yes No

10. What is the total impervious area to receive **quality** treatment (new + existing)? _____

    Use this equation to express the percentage of new impervious area (IA) to receive quality treatment:

    (Total IA to the treated / New IA added) x 100 = n%

11. List the permanent BMPs proposed for treatment: _____

    _____

    _____

Quantity/Flow Control

12. What design manual was used? (Highway Runoff Manual, DOE Manual, King Co. Surface Water Design Manual, etc.)_____

13. What design method was used? (SBUH/Waterworks, HSPF/KCTRS, Rational or other Continuous Model)

_____

14. Predeveloped condition used for determining runoff volumes: (forested, pasture, other) _____

15. Using IL 4021.01, Appendix 4, Volume Correction Factor, what safety factor was required? _____

    What safety factor was used? _____

16. List the permanent BMPs proposed for detention and/or control: _____

_____

_____

Quality and Quantity

17. List the receiving body(ies) for each stormwater outfall: _____

_____

_____

Note: *Stormwater outfall means any point where stormwater enters waters of the state.*

Stormwater Design - Existing Impervious (Predesign Conditions):

18. What is the amount of **existing** impervious area within the project limits? _____

Quality

19. Are there currently BMPs for treatment of existing stormwater runoff? Yes No

    Note: *Runoff is water originating from rainfall, other precipitation, and ground water that is found in drainage facilities.*

20. List the BMPs currently treating stormwater runoff: _____

_____

Quantity/Flow Control

21. Are there currently BMPs for detention of existing stormwater runoff? Yes No

22. List the BMPs currently detaining stormwater runoff: _____

_____

Quality and Quantity

23. List the receiving body(ies) for each stormwater outfall: _____

_____

24. Does the project currently treat or detain any off-site water in our facilities? Yes No

25. Will the completed project treat or control stormwater runoff from any existing impervious surface (retrofit)? Yes No

    If yes, what is the percent or amount of retrofit of existing stormwater runoff for:

- Water quality treatment: _____
- Detention/flow control: _____

Note: *For more information on existing facilities and treatment and control of highway runoff (retrofitting), please see* Section 5(a) and (b) of WAC 173-270-060:

Vegetation - will any non-wetland (upland) vegetation be impacted?

26. How much vegetation will be removed (provide quantities for both temporary and permanent)? If possible, identify subtotals by vegetation types: forested, scrub/shrub, pasture. _____

_____

27. What is the amount of proposed revegetation? If possible, identify subtotals by vegetation types: forested, scrub/shrub, pasture. _____

28. Is a future revegetation contract scheduled for this project? If yes, identify proposed ad date.

Erosion and Sediment Control

29. Has a Temporary Erosion and Sediment Control plan been prepared? Yes No

30. If yes has the GSP for Erosion and Sediment Control been specified in the contract? Yes No

Spill Prevention, Control, and Countermeasures

31. Has a spill Prevention, Control, and Countermeasures plan been prepared? Yes No

32. If yes has the GSP for Spill Prevention, Control, and Countermeasures been specified in the contract? Yes No

Additional Information:

Please add comments or notes on any unique hydraulic issues that influenced your stormwater treatment and detention design throughout the project area, and/or by basin.

_____

_____

_____

Prepared by: _____ Phone: _____ Date: _____

Prepared by: _____ Phone: _____ Date: _____

Project Engineer: _____ Office Location: _____

WSDOT Highway Runoff Manual
Best Management Practice Effectiveness Rates

		MEDIAN REMOVAL RATE (%)				
BMP	Information Source	**Total Suspended Solids**	N	P	Lead	Zinc
Biofiltration Swale	FHWA	**70**	25	30	70	70
	WPT	**81**	38	29	67	71
	NTIS	**60**	10	20	70	60
	King Co. SWM	**77**	25	33	66	---
Wet Pond	FHWA	**90**	48	65	---	---
	WPT	**67**	24	48	73	51
	NTIS	**60**	35	45	75	60
Vegetated Filter Strip	FHWA	**70**	30	40	70	70
	WPT	**81**	38	29	67	71
	NTIS	**85**	---	90	---	85
	WSDOT	**83**	---	---	---	---
Extended (nutrient control) wet pond	FHWA	**79**	34	46	66	66
	WPT	**60**	42	58	73	51
Wet vaults/tanks	FHWA	**30**	<10	<10	<10	<10
	NTIS	**15**	5	5	15	5

Averaging all the pollutant removal effectiveness data for wet ponds and biofiltration swales, which constitute ~90% of HRM BMPs constructed by WSDOT, yields a mean 72% (5/7) effectiveness ratio. Assuming that pollutant loadings from new and preexisting impervious surface areas are identical, the area of preexisting impervious surface area for which to provide treatment to yield no-net-increase in pollutant loading becomes (1 minus 5/7) divided by 5/7 = 2/5 = 0.4.

References:

FHWA - *Evaluation and Management of Highway Runoff Water Quality*, FHWA Publication No. FHWA-PD-96-032, June 1996.

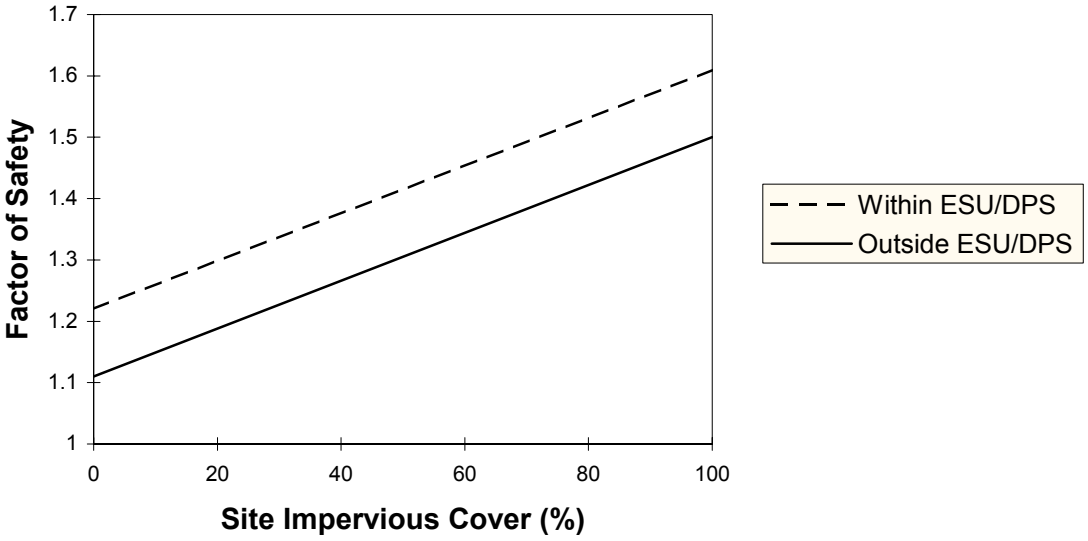
NTIS - *Evaluation of Highway Runoff Pollution Control Devices*, U. S. Department of Commerce/National Technical Information Service, Publication Number PB97-138481, December 1996.

King County Surface Water Management - *Evaluation of Water Quality Ponds and Swales in the Issaquah/East Lake Sammamish Basins*, Final Report for Task 5 of Centennial Grant Agreement No. TAX90096, October 1995.

WPT - *Comparative Pollutant Removal Capability of Urban BMPs: A Reanalysis*, Watershed Protection Techniques, Vol. 2, No. 4, June 1997.

WSDOT - *Performance Evaluation of Vegetative Filter Strips and Safety Slopes as Water Quality BMPs*, unpublished ongoing research conducted by Dr. David Yonge, Washington State University - College of Civil and Environmental Engineering.

Safety Factors for Detention



Within the ESU/DPS area:
Factor of Safety is 1.22 plus (0.0039 times the Site Impervious Cover in %).

Outside the ESU/DPS area:
Factor of Safety is 1.11 plus (0.0039 times the Site Impervious Cover in %).

Listed Salmon Species in Washington State

Species	(E=endangered, T=threatened, Date is for Federal Register publication)		
	Listed	Proposed	Candidate
Coho (Oncorhynchus kisutch)	None	None	1) Puget Snd/St. of Georgia (7/95) 2) SW WA/L. Col. R. (7/95)
Steelhead (O. mykiss)	1) Upper Col. R. (E - 8/97) 2) Snake R. (T - 8/97) 3) Lower Col. R. (T - 3/98) 4) Middle Col. R. (T - 3/99)	None	None
Chum (O. keta)	1) Hood Canal Summer (T - 3/99) 2) Columbia River (T - 3/99)	None	None
Chinook (O. tshawytscha)	1) Snake R. fall (T - 4/92) 2) Snake R. spg/smmr (T - 4/92) 3) Upper Col. R. Spring (E - 3/99) 4) Puget Sound (T - 3/99) 5) Lower Col. R. (T - 3/99)	None	None
Sockeye (O. nerka)	1) Snake R. (E - 11/91) 2) Ozette Lake (T - 3/99)	None	None
Pink (O. gorbuscha)	None	None	None
Sea-run Cutthroat (O. clarki clarki)	None	1) SW Wash/Col River (T - 4/99)	None

NOTE: Listing rules announced on May 24-25, 1999 will become effective 60 days after Federal Register publishing.

Stormwater Scoping Instructions

November 2001

The headquarters Capital Program Management Office is providing the following programming guidance to Regional staff in order to facilitate implementation of the department's new instructions for ESA stormwater treatment and effect determinations, as contained in Instructional Letter IL 4020.02.

IL 4020.02 Appendix 1 describes three levels of storm water treatment (Level A, B, & C). Treatment Level C applies to the western part of the state and Level B applies to the eastern part of the state. Level A applies to storm water design work already completed and included in projects on the shelf awaiting funding for construction.

The regions shall apply those instructions in Appendix 1 for scoping stormwater treatment on projects in the department's 03-05 biennial program. For the purpose of determining which projects will be affected, Capital Program Management has established the following criteria:

a) Any project with new impervious surface <u>and</u> either

b) A pre-construction phase new start in the 03-05 biennium;

c) A pre-construction phase new start in the 01-03 biennium; or

d) A pre-construction phase start in a previous biennium (before 01-03) in which the region could still adjust the scope without delaying the "Ad Date" or redoing a lot of work already complete. For those projects which have exceeded this point, the regions need to ensure that stormwater deficiencies that exist in these projects are included in the stormwater outfall inventory that is an element of the I-4 Stormwater Retrofit category. These deficiencies will be prioritized along with the other stormwater retrofit deficiencies already identified. (See also Appendix 1 Section B.5)

In preparing its programming guidance to accompany Instructional Letter 4020.02, Capital Program Management became aware that offices inside and outside of the department share different interpretations of what "new impervious surface" means. In order to eliminate any potential for confusion, Capital Program Management has selected the following interpretation:

- *New impervious surface means the project adds new traffic lanes or paved shoulders to the roadway prism.*

In general, most preservation projects do not add any new impervious surface and therefore we expect these guidelines will have minimal impact on them. If a stormwater outfall/deficiency is located within the limits of a preservation project, the regions may develop a companion project proposal for the I-4 Stormwater Retrofit category if the deficiency is considered a priority, generally considered as being in the 6-year program. These retrofit projects will be prioritized along with the other stormwater retrofit needs already identified.

As the regions scope or revise the scope of the affected projects, they will need to consider the following: "Is now the appropriate time to retrofit the existing impervious surface?" In making this decision, the department needs to follow an approach, which ensures that we do not circumvent the Transportation Commission or Legislature's authority to determine where to invest financial resources. At the same time, the department wants to retrofit the existing impervious surfaces where a significant amount of redevelopment occurs. For the purpose of these instructions, "redevelopment" means removing the roadway surface down to the subgrade and "significant" means a large percentage of the impervious surface.

The Commission has adopted a departmental budget structure with a specific category for the retrofitting of existing impervious surfaces in order to meet one of the requirements of WAC 173-270-060. The Commission allows the department to include the work from one project category into another if it does not add significant dollars to the project. In accordance with this guidance Capital Program Management has established the following limitations for adding the stormwater treatment of existing impervious surfaces into new improvement and preservation projects:

a) Mobility Projects (I1 subprogram) can include the retrofitting of existing impervious surfaces.
b) Safety Projects (I2 subprogram) can include the retrofitting of existing impervious surfaces only if the cost to retrofit all existing impervious surfaces does not exceed an additional 20% to the cost of treating new impervious surfaces. The region may request a variance from this limit if they believe there are extenuating circumstances.
c) Economic Initiatives (I3 subprogram *except for* Four Lane Trunk projects) can include the retrofitting of existing impervious surfaces only if the cost to retrofit all existing impervious surfaces does not exceed an additional 20% to the cost of treating new impervious surfaces. The region may request a variance from this limit if they believe there are extenuating circumstances.
d) Four Lane Trunk projects in the I3 subprogram can include the retrofitting of existing impervious surfaces.
e) Environmental Retrofit Projects (I4 subprogram, *except for* the stormwater retrofit category) do not add new impervious surfaces and cannot retrofit existing impervious surfaces. The region may request a variance from this limit if they believe there are extenuating circumstances.

f) For those safety and economic initiative projects which exceed the 20% limit and Capital Program Management and the region concur, the region can submit a request for funding from the I-4 Stormwater Retrofit category. These requests will be prioritized along with the other stormwater retrofit needs already identified for funding by the Legislature.
g) Paving projects (P1 subprogram) cannot include the retrofitting of existing impervious surfaces. An exception to this guidance applies to paving projects in which the region replaces the existing concrete lanes. They need to scope a companion project to retrofit the existing impervious surfaces for funding from the I-4 subprogram. On projects that only replace the existing asphalt shoulder with concrete, retrofitting is not required.

We expect that these guidelines will result in some scope and cost changes for 01-03 project commitments that will require either Executive Screening Board or Capital Program Management action. Greg Selstead will inform Don Nelson, chair of the board, of these upcoming changes and develop a process for their timely review and concurrence.

If you have questions on any items related to this programming guidance, contact Pat Morin at 360-705-7141 or by e-mail at morinp@wsdot.wa.gov.

Rivers Exempted From Minimum Requirement 5

Highway Runoff Manual Figure 2-6.1 (Revised)

Rivers	Upstream Point/Reach for Exemption
Bogachiel	Bear Creek
Calawah	Sitkum River
Chehalis	Bunker Creek
Columbia	Canada Border
Cowlitz	Mayfield Dam to Cowlitz Falls Dam
Elwha	Elwha Dam to Glines Dam
Grande Ronde	Oregon Border
Hoh	South Fork Hoh River
Humptulips	West & East Fork Confluence
Kettle	Canada Border
Klickitat	Little Klickitat River
Lewis	Swift Reservoir
Naches	Nile Creek
Nisqually	La Grande Dam to Alder Dam
Nooksack	Glacier Creek
South Fork Nooksack	Hutchinson Creek
Palouse	Idaho Border
Pend Oreille	Box Canyon Dam to Boundary Dam
Queets	Clearwater River
Puyallup	Carbon River
Quillayute	Bogachiel River
Sauk	Clear Creek
Satsop	Middle & East Fork Confluence
Skagit	Gorge High Dam to Ross Dam
Skokomish	Vance Creek
Skykomish	Beckler River
Snake	Idaho/Oregon Border
Snohomish	Snoqualmie River
Snoqualmie	Middle & North Fork Confluence
Sol Duc	Beaver Creek
Spokane	Little Falls Spillway Dam to Upriver Station Control Works
Stillaguamish	North & South Fork Confluence
North Fork Stillaguamish	Boulder River
South Fork Stillaguamish	Canyon Creek
Toutle	North & South Fork Confluence
North Fork Toutle	Green River
White	Greenwater River
Wynoochee	Wishkah River Road Bridge
Yakima	Roza Diversion Dam to Keechelus Dam