DRAFT 2.0

Salmon-Safe Communities:

Certification Standards for Residential Development

Prepared for

Salmon-Safe Inc.

July 2008 Draft

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With Special Thanks to

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July 16, 2008 Draft

EXECUTIVE SUMMARY

This document - *the Salmon Safe Certification Standards for Residential Development* - has been developed to guide site developers, site designers, and land managers with an interest in the development of residential communities in a manner that protects watersheds and imperiled salmon. These residential development standards, a follow-up to the 2005 Salmon-Safe Certification program for colleges and corporate campuses, are the most recent effort by Salmon-Safe to promote development that emphasizes landscape-level conservation and protection of biological diversity.

Salmon-Safe is an independent, nonprofit organization devoted to restoring agricultural and urban watersheds so that salmon can spawn and thrive. Founded as a project of the Pacific Rivers Council, Salmon-Safe became an independent organization in 2002 and is based in Portland, Oregon.

Based on a decade of work with more than 300 urban and agricultural landowners across the Pacific Northwest, Salmon-Safe brings a new project-specific, peer-reviewed approach to residential certification that is unique among certification programs. It also offers several advantages.

For project certification candidates, an interdisciplinary evaluation team of qualified experts is assigned to the project to work with the development team during each stage of the design development process. This team is "on-call" for the life of the project to work with the client in navigating the standards and performance requirements during project development. The interdisciplinary team can evaluate project decisions and provide consultation at key points throughout the development process, thereby minimizing project design costs by providing recommendations before project decisions have been finalized. To complete the certification process, the interdisciplinary team conducts an onsite inspection of the final residential development project itself prior to final certification approval

Salmon-Safe views the evaluation and certification process as a collaborative effort between themselves and the development team. All standards and performance requirements required for certification are performance-based and avoid prescriptive requirements. This gives the development team (and their assigned interdisciplinary evaluation team) the freedom to generate design outcomes that work best for the developer, the development site, and overall project budget.

Even after a project is certified, Salmon-Safe ensures the long-term environmental performance of certified sites through an annual verification process. This process reviews landscape management practices, habitat

restoration progress, facility performance, and other program elements to make sure the project is functioning as designed.

The Certification Standards are presented by the five general development stages of a residential development project:

- Project inventory and assessment
- Site planning
- Site design
- Site construction
- Site maintenance and monitoring.

Within each of these development stages, the Certification Standards describe the performance requirements or desired outcomes for the standard six Salmon-Safe management categories:

- Instream habitat protection and restoration
- Riparian, wetland, and locally significant vegetation protection and restoration
- Stormwater management
- Water use management (irrigation activities)
- Erosion prevention and sediment control
- Chemical and nutrient containment.

This document also provides an overview of the evaluation process that will be used to evaluate candidate residential developments. The Salmon-Safe evaluation teams you will be working with when certifying your candidate project are comprised of qualified, independent, and credible experts. The teams will conduct pre-development field evaluations, review design and planning documents, and assess the constructed project to confirm compliance with the Salmon-Safe Certification Standards.

In addition to the formal reviews conducted by the evaluation team, the evaluation team is also available to assist the certification candidate throughout

the certification process to help them align their projects with the goals of Salmon-Safe.

The certification process evaluates all phases of project development and is therefore primarily focused on construction of new residential developments. However, some standards are applicable to existing developments, and provisions have also been made for the certification process to be applied to existing residential developments.

Salmon-Safe has prepared these Certification Standards for a diverse audience of stakeholders. In particular, the standards are intended for use by site developers, site designers, land use planners, interested citizens, and anyone with an interest in the protection of our native salmonids. Because these different stakeholder groups fulfill different roles in the community, not all portions of the Certification Standards document are necessarily relevant to all users of the manual. In particular:

- Site developers, land use planners, and general stakeholders may want to review sections of the document titled *Introduction and Evaluation Process for Certification.*

- Site designers and property managers may be most interested in the *Certification Standards* section, which provides the detailed standards and performance requirements that need to be met for certification.

- Appendix materials provide supplemental information, including information necessary for certification of existing developments.

The *Salmon Safe Certification Standards for Residential Development* are intended to assist the development community in building residential developments that demonstrate environmental stewardship by minimizing the impacts of development on sensitive aquatic and natural resources, and enhancing salmon habitat to the greatest extent technically feasible.

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I N T R O D U C T I O N

Salmon-Safe's residential development certification program is a collaborative effort to further engage our region's development community in environmental stewardship. While this project is the nation's first certification initiative specifically linking residential development, land management, and the protection of water quality and imperiled species, the program is one in a series of Salmon-Safe urban certification programs. This Certification Standards document is intended for use by candidates requesting certification of residential development projects under the Salmon-Safe program, including developers, site designers, and land use planners.

Since 1996, Salmon-Safe has successfully defined and promoted ecologically sustainable land management that protects water quality and aquatic biodiversity throughout the Pacific Northwest. Beginning with the 2004 certification of the 10,000-acre Portland Park system, Salmon-Safe has successfully completed urban projects including certification of the Nike World Headquarters campus, Toyota's distribution center at the Port of Portland, Port of Seattle's park system, Portland State University, Kettle Foods, Oregon Museum of Science & Industry (OMSI), Oregon Convention Center, Epson Portland, Washington State Department of Ecology's headquarters campus, University of Washington Bothell, and other corporate and university sites in Oregon and Washington.

This document presents draft Certification Standards for residential development, as well as an overview description of the evaluation process that will be used to evaluate candidate residential developments. Salmon-Safe's residential development standards constitute a set of best management practices (or BMPs) that can be applied across a variety of residential development landscapes.

The Salmon-Safe certification program focuses on salmonid species (i.e., salmon and trout) and their habitat requirements. Salmonid species are key indicator species in the Pacific Northwest, and their conservation is entwined with the health of ecosystems that include a variety of aquatic and upland wildlife species. Therefore, this evaluation focuses on the following biological components of the ecosystem and the ways these components can be protected: (1) water quality, (2) water quantity, (3) instream habitat, (4) riparian habitat, and (5) fish passage.

While the contents of this document focus on new residential development projects, the Certification Standards may also be used for existing developments. Details on how to work with these standards to certify existing developments are provided in Appendix B.

The residential development standards are based on Salmon-Safe's corporate & university campus guidelines, which have received formal peer review by more

than 20 scientists, technical experts, representatives of environmental organizations, and other interested parties.

Organization and Methodological Basis for Standards

Following this *Introduction* section, the residential Certification Standards are presented in two main sections, with supporting documentation provided in the appendix material. The first section describes how projects undergoing the overall certification process will be evaluated and, eventually, certified by Salmon-Safe. This section (*Evaluation Process for Certification*) is intended for use primarily by developers, planners, and land managers.

The second main section includes the actual Certification Standards, presenting the specific standards and related performance requirements that must be met for the project to be considered for Salmon-Safe certification. This section is intended for use primarily by site designers, including engineers, landscape architects, architects, applied scientists and resource managers. The Certification Standards are organized according to the typical design–development process for residential development projects. Performance requirements are organized and presented to correspond with the following five general stages of a typical residential development project:

i) Development Stage I – Inventory and Assessment

Collection of site-specific and other data to inform the condition of the site, its context within the watershed, existing natural resources and habitat, and opportunities and constraints for addressing habitat and resource-based concerns. Information gleaned during this development stage will be useful to both the project design team and the Salmon-Safe evaluation team in determining existing site assets.

ii) Development Stage II – Site Planning

Development of conceptual site plans, master plans, subdivision maps, condominium plans, or other products that provide an orientation of overall site features. Applicable permit documents would also be developed during this stage.

iii) Development Stage III – Site Design

Design development of “hard” site elements including site utilities, infrastructure, buildings, roadways, or other necessary site improvements. Design development of habitat elements, landscaped areas, open space, and other “soft” natural resource features. These include native vegetative communities, landscaped areas (native or otherwise), water features, and habitat buffers. Construction documents, specifications, cost estimates, and easements would be developed during the design stage.

iv) Development Stage IV – Site Construction

Site mobilization, protection of natural resources, and physical installation of approved plan elements onto a project site.

v) Development Stage V – Site Maintenance and Monitoring

Long-term care, performance recording, and adaptive management elements to be completed after the site is completely installed.

The Certification Standards identified within each of these five stages of development are specifically designed to limit or avoid impacts to habitat quality. Each standard includes related performance requirements established to provide more specific guidance as well as express the desired outcome for habitat conditions. Within each stage of development, the certification standards and their associated performance requirements are organized under one of the following six habitat-related management categories:

i) Instream habitat protection and restoration

This management category applies to certain stream types that occur within the boundary of the development. The focus of this management category is on assessing the condition of the actual channel, including the streambed and bank. Physical as well as biological conditions contributing to habitat quality are considered for these standards.

ii) Riparian, wetland, and locally significant vegetation protection and restoration

The focus of this management category is on measures taken to protect areas closest to surface water bodies–riparian vegetation zones and wetlands. It also applies to areas with locally significant vegetation, as identified during the site inventory. The performance requirements may vary according to stream type.

iii) Stormwater management

This management category focuses on the management of stormwater runoff within a residential development. High levels of impervious surface and drainage systems from roads, parking lots, and buildings can contribute to flooding and increase the magnitude and frequency of peak flows in streams, which can degrade stream habitat. Stormwater from developed landscapes can also contain contaminants such as oils, heavy metals, pesticides, and fertilizers that degrade water quality. This

management category introduces standards that minimize the amount of stormwater generated on site and improve the quality of stormwater runoff.

iv) Water use management (irrigation activities)

The focus of this management category is the use of water for irrigating vegetation. Water withdrawals have the potential to adversely affect salmonid habitat, primarily by reducing instream flows. Impacts can be minimized by selecting alternative water sources that do not reduce instream flows, by reducing the use of water (for example, through efficient irrigation or use of drought-tolerant landscaping), and harvesting water for irrigation from rainfall or building gray water.

v) Erosion prevention and sediment control

Sediment delivery into fish-bearing streams is a major cause of habitat degradation, particularly for salmonid spawning areas. Stream bank erosion and upland surface soil erosion are the principal sources of sediment. This management category evaluates upland sources of erosion, as bank erosion is addressed in the instream channel management category above. Effective erosion control design and maintenance practices should adequately protect soils from movement.

vi) Chemical and nutrient containment

Salmon survival depends on clean water, free from harmful levels of fertilizers (nutrients), pesticides (herbicides and insecticides, fungicides, and other biocides), stormwater runoff pollutants, and organic waste. These contaminants can travel long distances in stormwater runoff from a development to receiving streams. The principal methods to avoid contamination of salmon-bearing waters are to minimize overall inputs of these contaminants, restrict the type of inputs, and develop an acceptable method of application through a comprehensive management program, such as an integrated pest management (IPM) plan.

The Certification Standards relating to the six management categories are presented by stage of development for easy reference during the development process for new residential projects.

EVALUATION PROCESS FOR CERTIFICATION

Scope of the Evaluation Process

The evaluation process for Salmon-Safe residential development certification features an in-depth assessment of the overall site inventory, planning, design, construction, and long-term land maintenance practices that directly and indirectly affect water quality and fish habitat. This system-wide evaluation is based on field-level assessment and review of specific documents relating to the development. Both policy and field-level assessment are conducted using a set of standards (the Certification Standards) to evaluate whether the planning, design, and management of the candidate development are consistent with BMPs for avoiding harm to stream ecosystems. Restoration and enhancement projects on residential development lands are also assessed in the field to determine if significant progress is occurring to address identified impacts.

The performance requirements developed for this document are intended to provide safeguards that protect, restore, and rehabilitate salmon habitat and habitat for other species in the Pacific Northwest. Should local regulations hold projects to a higher standard of protection, restoration, or rehabilitation of these habitats, the higher standard would apply to projects seeking Salmon-Safe certification.

Certification Standards and their related performance requirements can vary depending on the size of the project. Residential developments meeting the following thresholds and criteria are referred to as Large Developments and can trigger additional inventorying and reporting requirements for certification:

- Developments exceeding 40 acres in size
- Developments exceeding 50 single-family residential units
- Developments exceeding 100 multifamily residential units
- Developments that contain a mix of unit types with the potential to result in a building footprint comparable to those listed above.

To determine whether a development triggers additional sized-based certification requirements, the size of a given development is measured by total size of the entire development project at full build-out (all phases). Individual phases of a larger multiphase development cannot be individually certified under this certification process; the entire multiphase development must be eligible for

certification. To meet this requirement, later phases yet-to-be-built may be conditionally certified by the evaluation team based on the design development information available to date. Public infrastructure and property managed for the public good (e.g., roads and parks), as well as private parcels to be sold, are required to meet the Certification Standards for a project to be certified as Salmon-Safe.

While these Certification Standards are primarily designed to certify new residential development projects, they may also be applied to the certification of existing developments. This document focuses on the standards and performance requirements associated with new residential development, with information related to existing residential developments provided as appropriate. A more detailed description of requirements associated with existing residential developments is presented in the appendix material.

A description of the specific requirements, processes, and submittals for certifying residential projects is provided in the sections below. The sections also describe general strategies for certifying residential developments and ensuring that performance requirements are implemented and maintained over the life of the project.

The Evaluation Team

Residential development assessments are conducted by a team of two or three qualified, independent, and experts hired by Salmon-Safe. The evaluation team is well versed in aquatic ecological science, development planning and design, as well as landscape management. Salmon-Safe makes the final decision on the composition of the team, but the selection process includes input from the certification candidate.[1]

To conduct the certification evaluation for Salmon-Safe, the evaluation team conducts a detailed assessment of the residential development's overall design and planning documentation related to habitat and water quality protection. The team also conducts a field review of the residential development design and habitat conditions to evaluate whether such management is consistent with Salmon-Safe's site-specific Certification Standards for avoiding harm to stream ecosystems.

[1] The interdisciplinary evaluation team has specific expertise in salmonid and riparian habitat and restoration, integrated pest management (IPM), and stormwater treatment. In building an evaluation team, the goal is to maximize the credibility of the evaluation process by employing individuals with recognized regional expertise in relevant disciplines who are capable of rendering independent, objective judgments.

Certification of New Residential Developments

Salmon-Safe recognizes that proposed improvements associated with residential development, including buildings, streets and parking lots, utility infrastructure, and landscaped open space, have the capacity to degrade water quality and limit fish habitat quality. In most cases, thoughtful site planning, implementation of low-impact design solutions and materials, and careful maintenance practices can limit these impacts. To be certified by Salmon-Safe, a proposed residential development must demonstrate thoughtful design stewardship and a commitment to long-term progress in addressing the impacts of the proposed development on sensitive aquatic and natural resources.

The evaluation team assesses project plans, designs, and maintenance practices against a defined set of evaluation standards that represent best site planning and design practices. The team also evaluates the extent to which the proposed residential development design and infrastructure elements protect and restore both aquatic and terrestrial components of the ecosystems, within the context of residential development criteria for human use and enjoyment. The evaluation team uses the standards and performance requirements in this document to evaluate whether the residential development as a whole will be awarded certification.

Salmon-Safe's project-specific, peer-reviewed approach to certification provides a key benefit in that the evaluation team is available to evaluate project decisions during all stages of the development process and can make recommendations before project decisions have been finalized.

In particular, at the election of the certification candidate, Salmon-Safe offers three opportunities for collaboration throughout the project planning and construction process, as defined by the following review phases:

- Review Phase 1: Site Assessment and Planning Review

  This phase of review typically occurs after site inventory and assessment activities are complete and site planning activities are underway. During this review, the Salmon-Safe evaluation team will conduct a site visit, review site inventory and assessment summaries, and review project conceptual plans, if available. This content will be reviewed against the Certification Standards and related performance requirements defined in Section R.1 *(Site Inventory and Assessment)* and Section R.2 *(Site Planning)*. Following review, Salmon-Safe will issue a Phase 1 recommendations summary with conditions, if any, necessary for certification. This summary provides documentation that, if the project is developed as proposed, and Certification Standards and related performance requirements in Section R.2 *(Site Planning)* and Section R.3

(Site Design) are followed, it will likely be awarded Salmon-Safe certification.

- Review Phase 2: Review of Approved Plan Submittal

  In general, this phase of review will occur shortly before or after the project has obtained the necessary permits, approvals, and entitlements. During this phase, the Salmon-Safe evaluation team will review project documents including subdivision maps, condominium plans, master plans, permit documents, and/or other planning drawings that clarify the intent of the project. The evaluation team will review these plans against: (1) the recommendations summary provided in Phase 1; and (2) the Certification Standards and related performance requirements defined in Section R.2 *(Site Planning),* Section R.3 (*Site Design), and* Section R.4 *(Site Construction)*. Following review, Salmon-Safe will issue a Phase 2 recommendations summary with additional project conditions, if any, that will be required for the project to be certified.

- Review Phase 3: Salmon-Safe Certification of Constructed Residential Development

  This review phase is conducted during project construction and when the development has been completely built or is close to completion. The evaluation team will review final plans or as-built construction documentation, conduct a site visit on the newly constructed property, and review any other documentation necessary to certify the project. In general, the evaluation team will verify whether: (1) the recommendations provided in Review Phases 1 and 2 have been followed, and (2) whether performance requirements, as defined in Section R.4 *(Site Construction)* and Section R.5 *(Site Maintenance and Management)*, have been met. The evaluation team will also review post-construction inspection and maintenance plans defined in Section R.5 *(Site Maintenance and Management)*, homeowners association documentation or other binding documentation showing adopted covenants, conditions, and restrictions (CC&R) designations, adopted rules or guidance relative to the project, community educational programs, and/or community volunteer programs related to the project. Following review, Salmon-Safe will issue a Phase 3 recommendations summary with additional conditions, if any, necessary for certification.

A review list of required submittals by review phase is included in Appendix A (*Required Documentation for New Residential Development Certification*).

Decision Rule for Certification

Certification is awarded when the evaluation team and Salmon-Safe are satisfied that the development meets all relevant Certification Standards and associated performance requirements. In the event that the candidate residential development does not fully meet the Certification Standards and performance requirements, the evaluation team will stipulate one or more conditions for certification that must be completed to the satisfaction of the evaluation team during the 5-year certification period. The team also may stipulate one or more pre-conditions that must be completed prior to formalizing certification.

Maintaining Certification

Salmon-Safe residential development certification is valid for 5 years, subject to annual verification of satisfactory progress in meeting any conditions to the certification. Appendix A provides a list of ongoing requirements and summary reporting necessary to maintain certification, following initial certification by Salmon-Safe.

Use of CC&Rs, Binding Documentation, or Alternative Guarantees During the Certification Process

Salmon-Safe has every interest in ensuring that long-term management, maintenance, and monitoring of certified residential developments are carried out according to the Certification Standards and associated performance requirements. For new residential developments, an important option is include incorporation of management, maintenance, and monitoring plans into CC&Rs, charters, policy language, or other binding documents prior to sale of properties. This provides some clarity that the performance requirements (for example, elimination of the use of pesticides with high risk to salmon) will be implemented and enforced over the life of the development.[2] [3]

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[2] The CC&Rs define not only the management and maintenance obligations of the managing authority (e.g., a homeowners association) responsible for properties held in the public trust, but are also part of the transfer deeds for homes purchased within the development. They are therefore binding to private landowners who purchase property within the new residential development.

[3] CC&Rs or other similar documentation describe the rights and obligations of the managing authority and each owner, and can include owner usage restrictions, material restrictions (e.g., allowed landscape plantings), maintenance methods, responsibilities of the managing authority and the individual owners, and allocation of operating and maintenance costs among landowners.

CC&Rs can be used to require that the Certification Standards and associated performance requirements be implemented and maintained on both private and publicly managed property over the long term.[4]

Although incorporation of Salmon-Safe performance requirements into binding documents or guidance is the clear preference for guaranteeing the successful implementation of the standards, Salmon-Safe may negotiate other alternatives with certification applicants when necessary. Such options could potentially include incentive programs, educational programs for homeowners, volunteer organizations, or other innovative alternatives.

For existing residential developments, some or all of these standards may need to be adopted by the development's board of directors, be voted into the existing CC&Rs, or be accepted by the managing authority as standard practice for their implementation to be guaranteed (for more information on existing residential developments, see Appendix B).

[4] Maintenance fees paid to residential developments by member-landowners are typically used to fund ongoing management, maintenance, monitoring, and any future improvements within project developments and have the potential to support the requirements for certification under Salmon-Safe.

C E R T I F I C A T I O N S T A N D A R D S

These Certification Standards are intended for use by site designers for residential development projects as part of the Salmon-Safe certification process. The Certification Standards and associated performance requirements are organized according to the five general development stages. Each standard falls under one of six management categories that cover a set of considerations important for conserving salmonid habitat. The standards are designated with the alphanumeric prefix "R.1" through R.5"; the "R" designation is used to denote standards and performance requirements associated with residential development, in contrast to the numbered standards used in previous Salmon-Safe documents (e.g., Salmon-Safe 2005). As described below, symbols next to a particular performance requirement indicate specific requirements for a specific development type.

i) New residential developments (and existing residential developments built in or after 2004) that qualify as Large Developments must comply with *all* Certification Standards and associated performance requirements, *including* those marked with an **(L)** (as well as those marked with an **(E)**, as explained below).

ii) New residential developments (and existing residential developments built in or after 2004) that do not qualify as Large Developments must comply with all listed Certification Standards and associated performance requirements, *less* those marked with an **(L)** (as well as those marked with an **(E)**, as explained below).

iii) Standards and performance requirements required for existing developments are marked with an **(E)**. Unless otherwise indicated, new residential developments are also required to meet these standards and performance requirements. Further information about certification of existing developments is provided in the appendix material

Instream habitat, wetland, and riparian restoration standards only apply to residential developments where these features are located within the boundaries of the residential development.

All of the Certification Standards are summarized and listed in the attached matrix, titled *Summary of Certification Standards for Salmon-Safe Residential Development Projects*.

R.1 Site Inventory and Assessment (Development Stage I)

R.1.1 Instream Habitat Protection and Restoration

***Standard R.1.1.1*:** A physical instream inventory has been completed that adequately characterizes factors contributing to habitat quality conditions for salmonids and other sensitive species.

Performance Requirements:

i) **(E)** To understand the project's potential impacts and benefits to salmonids, the position of the site within the watershed is documented and has been mapped.

ii) Physical and biotic watershed conditions have been investigated using available data, existing information sources, and/or expert interviews. Physical and chemical impairments to water quality within the system have been noted, if known, including 303(d) lists or designated total maximum daily loads (TMDLs). Biological impairments such as non-native fish have been noted, if known.

iii) **(L)** Onsite stream channel deficiencies have been identified. Bank stability and channel incision have been characterized across the site. Onsite floodplain and channel migration zones have been mapped.

iv) **(E)** Onsite stream crossings have been inventoried and evaluated to determine priorities for fish passage and flood conveyance.

***Standard R.1.1.2*:** *A biological instream inventory* has been completed that characterizes riparian and aquatic habitat conditions on site.

Performance Requirements:

i) **(E)** Data on current or potential fish presence within the watershed system have been reviewed (if available). Based on available data, stream types in the system have been classified as either: (1) fish bearing, (2) potentially fish bearing, (3) nonfish bearing with a defined channel connected to a fish-bearing or potential fish-bearing stream, or (4) none of the above. If no fish are currently present, historic fish presence/absence in the system has been estimated using available data and information sources.

ii) **(L)** Presence of fish on site has been either directly documented using available data, or presence is likely based on expert interviews.

iii) **(L)** For onsite streams and rivers classified in R.1.1.2 as either (1) fish bearing, (2) potentially fish bearing, or (3) nonfish bearing with a defined channel connected to a fish-bearing or potential fish-bearing stream, significant aquatic habitat features (riffles, pools, runs, large wood, etc.) are identified and mapped within the parcel.

R.1.2 Riparian/Wetland/Vegetation Protection and Restoration

***Standard R.1.2.1*:** A riparian inventory has been conducted that adequately characterizes riparian habitat conditions on site.

Performance Requirements:

i) **(L)** Local and watershed riparian habitat quality and conditions have been characterized by species composition and estimated percent cover in the tree canopy, shrub layer, and herbaceous layer), especially in areas adjacent to, immediately upstream, or immediately downstream of the site.

ii) **(E)** All onsite riparian areas are identified, mapped, and described by width of existing buffer and stream length of riparian vegetation free from intrusions from roads, utilities, and other clearings (i.e., riparian continuity). Particular note has been made of presence and extent of invasive plant populations. Damaged, exposed, or at-risk areas, as well as locations of invasive species, have been identified and mapped to identify riparian areas in need of restoration.

iii) Typical local terrestrial riparian species (vegetation, birds, mammals, reptiles, and amphibians) have been characterized.

iv) **(L)** A site inventory of common local terrestrial riparian species (vegetation, birds, mammals, reptiles, and amphibians) and their sign has been conducted at least once during the breeding or growing season to determine or estimate presence/absence of species on site.

***Standard R.1.2.2*: A wetland inventory** has been conducted that adequately characterizes wetland habitat conditions on site and in the local geographical area. Existing onsite wetlands are identified, classified, and mapped. Classification of existing wetlands includes types of impacts and whether the wetland historically or currently provides fish habitat.

Performance Requirements:

i) **(L)** Local and watershed wetland habitats have been characterized by type, quality, and condition, especially in those areas adjacent, immediately upstream, or immediately downstream of the site,

ii) **(E)** All onsite wetland areas are identified, mapped, and described by wetland type, condition, and width of existing buffer.

iii) **(L)** Wetland hydroperiods have been estimated, and hydrologic pathways have been determined to the greatest extent technically feasible. Existing wetland functions and deficits have been characterized. Damaged, exposed, or at-risk areas have been identified and mapped to identify wetland areas in need of restoration.

iv) Typical local wetland species (vegetation, birds, mammals, reptiles, and amphibians) have been characterized.

v) **(L)** A site inventory and/or survey has been conducted at least once during the breeding or growing season to characterize the presence/absence of common wetland species (vegetation, birds, mammals, reptiles, and amphibians) or their sign.

Standard R.1.2.3: Patches of locally significant vegetation or habitats that are not associated with riparian and wetland areas have been inventoried and mapped. Tree species, age distribution, canopy cover, understory conditions, and limits of contiguous canopy cover are noted.[5]

R.1.3 Stormwater Management

***Standard R.1.3.1*:** Existing site improvements related to stormwater management have been inventoried.

Performance Requirements:

i) **(E)** Information on existing stormwater infrastructure, if any, has been collected from record drawings, site mapping, or field visits.

ii) **(E)** Existing improvements contributing to stormwater runoff, including existing impervious surfaces, are mapped.

iii) **(E)** Site topography has been mapped and a drainage area assessment conducted. This information shows major stormwater catchments and locations of receiving stormwater drains or streams, if present.[6]

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[5] Work with a qualified biologist or a local or state fish and wildlife agency to identify locally significant vegetation or habitat types.

[6] An existing site stormwater management plan, if updated and available, is generally sufficient to meet performance requirements R.1.3.1(i), R.1.3.1(ii), and R.1.3.1(iii), and can be provided to the evaluation team as a substitute for these requirements.

***Standard R.1.3.2*:** An offsite drainage analysis has been conducted.

Performance Requirements:

i) Any known or potential offsite drainage or stormwater resources entering the site from an adjacent property have been identified based on drainage or topographic maps or site visits. Offsite areas contributing to onsite hydrology have been characterized in terms of impervious and pervious area, any water quality concerns they may pose, and any proposed changes in offsite conditions that may affect stormwater flow or water quality on site.

R.1.4 Water Use Management

***Standard R.1.4.1*:** An existing site water infrastructure inventory as it relates to water use and disposal has been completed.

Performance Requirements:

i) **(E)** Availability of public water sources has been investigated to aid in avoiding the use of surface water rights, to the greatest extent technically feasible. Information on existing sanitary/wastewater infrastructure, if any, has been collected from record drawings, site mapping, or field visits.

ii) **(E)** Local jurisdictional code as it relates to reuse of gray water and black water has been reviewed and documented, for reference during later stages of planning and design.

R.1.5 Erosion Prevention and Sediment Control

***Standard R.1.5.1*:** Soil characteristics have been mapped.

i) **(L)** Soil characteristics to be mapped include but are not limited to soil types, presence of hydric soils, infiltration rates, and erosion factors.[7]

ii) Unstable or highly erodible areas have been identified and mapped. These include existing slumps or failures, steep slopes, and unstable soils.

iii) **(L)** Onsite soil tests or bores have been made and are available early in the process.

[7] This information is available in county soil inventories prepared by the Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service [SCS]).

R.1.6 Chemical and Nutrient Containment

***Standard R.1.6.1*:** High risk areas, where chemical use and storage should be avoided, have been identified and mapped (e.g., areas with surface water connection to stream, wetland, or other sensitive water body; areas on steep or unstable soils). Potential locations for temporary storage of chemicals during construction have been identified.

R.2 Site Planning (Development Stage II)

R.2.1 Instream Habitat Protection and Restoration

***Standard R.2.1.1*: (E)** The site plan details locations for instream enhancement, restoration, or rehabilitation based on the results of the site inventory (per Performance Requirement R.1.1.1.

***Standard R.2.1.2*:** The site plan avoids sensitive instream areas identified in the inventory to the greatest extent technically feasible during development.

Performance Requirements:

i) Buildings and other site improvements are placed outside the floodplain and channel migration zone.

ii) Utility lines on stream crossings are placed on bridge crossings in serviceable locations, rather than buried.

***Standard R.2.1.3*:** When avoidance is not possible, the site plan minimizes impacts on instream habitat.

Performance Requirements:

i) **(E)** At a minimum, the site plan protects existing channels from new impacts such as filling and excavation, straightening, unnecessary additional stream crossings, unnecessary removal of wood, or disconnection of off-channel wetlands and ponds.

ii) The number of stream crossings has been reduced (where existing crossings are present) or minimized (when new crossings are needed). Placement of crossings contributes to the rehabilitation of riparian habitat and reduction of water quality impacts where applicable.

***Standard R.2.1.4*: (E)** Where impacts on streams are unavoidable, to the greatest extent technically feasible, impacts are mitigated by site improvements that offset physical and biological impacts on streams.

R.2.2 Riparian/Wetland/Vegetation Protection and Restoration

***Standard R.2.2.1*:** Riparian habitat across the site and into adjoining parcels is maintained, restored, and unimpeded by structures or improvements.

Performance Requirements:

i) **(E)** Development near riparian areas is avoided to the greatest extent technically feasible. Specifically, impacts on riparian functions affecting water quality, water quantity, food web, microclimate, floodplains, riparian canopy connectivity, and habitat shall be minimized within 200 feet of a stream, or within the riparian protection areas cited in adopted local or state plans, whichever distance is larger. If 100 percent avoidance is not possible, the effect on riparian buffers is minimized and mitigated to offset functional impacts.

ii) **(L)** Where riparian buffers are inadequate under existing conditions, buffers are restored by revegetation or removal of existing structures or impervious surfaces.

iii) Connectivity between riparian, wetland, upland habitats is maximized to the greatest extent technically feasible. Life histories of identified local species are maintained by connecting riparian, wetland, and upland habitats in a manner that supports habitat needs. Impediments to habitat connectivity, including fencing, buildings, or other barriers, are avoided.[8]

iv) 100-year floodplain areas are avoided and not filled, to the greatest extent technically feasible. If impacts are unavoidable, floodplain volume mitigation requirements are met, and considerations are made for providing additional floodplain storage should there be room available on site.

***Standard R.2.2.2*:** Wetlands are created, restored, avoided, and protected to improve stream habitat by providing off-channel salmonid habitat, improved water quality, and/or additional floodplain storage.

Performance Requirements:

i) Degraded wetlands identified during Standard R.1.2.2 are restored, or new wetlands created to improve floodplain habitat, off-channel habitat, and/or other wetland functions (e.g., habitat quality or water storage and infiltration), to the greatest extent technically feasible.

[8] Work with a qualified biologist or a local or state fish and wildlife agency to identify significant local species and habitats.

ii) **(E)** Existing wetlands are avoided and protected from development or site improvements, to the greatest extent technically feasible. If 100 percent avoidance is impossible, wetland loss is mitigated on site to the greatest extent technically feasible in a way that contributes to overall site ecological and hydrological functions.

iii) **(E)** Development near wetlands is avoided to the greatest extent technically feasible. Specifically, impacts on wetland functions affecting water quality, water quantity, food web, microclimate, floodplains, canopy connectivity, and habitat shall be minimized within 100 feet of a wetland, or within the buffer protection areas cited in adopted local or state plans, whichever distance is larger. If 100 percent avoidance is not possible, the effect on wetlands and wetland buffers is minimized and mitigated to offset functional impacts.

iv) Where wetland buffers are inadequate under existing conditions, buffers are restored by revegetation or removal of existing detrimental structures or impervious surfaces. Buffers are managed to respond to needs of known local wetland fauna that require accessible adjacent or nearby upland habitat during their life histories.

v) Wetland habitats and their buffers are spatially connected by locally appropriate, contiguous native vegetation, to the greatest extent technically feasible. These areas are also connected to other natural areas as part of a landscape-scale, conservation framework for a functioning landscape, when technically feasible.

R.2.3 Stormwater Management

***Standard R.2.3.1*:** Site layout responds to site conditions in a way that conserves contiguous vegetation, minimizes impervious or semipervious areas, and minimizes stormwater runoff.

Performance Requirements:

i) Noninvasive vegetation and soils are left undisturbed to the greatest extent technically feasible. Locally significant patches of onsite native vegetation identified during the site inventory are left undisturbed. To the greatest extent technically feasible, these patches of existing vegetation are spatially connected to other habitat elements via appropriate, native vegetation as a functioning conservation framework.

ii) An effort has been made to cluster plats and buildings, resulting in conservation of open space and infiltration of precipitation.[9]

iii) Roadway alignment maximizes contiguous open space and limits encroachment on natural resources. Parking areas are deliberately aggregated and are limited to the minimum number of required spaces to minimize footprint.

***Standard R.2.3.2*:** Stormwater management planning results in clear benefits to water quality and flow control.

Performance Requirements:

i) The project strives to treat and infiltrate stormwater on site, with no stormwater runoff. This is accomplished by low impact development design, using infiltration, and reusing stormwater for nonpotable uses (e.g., irrigation) to the greatest extent technically feasible.

ii) The project meets the predevelopment hydrology conditions (e.g., for peak flows and duration), to the greatest extent technically feasible.[10]

iii) Existing drainage patterns (e.g., depressions, natural swales) are maintained to the greatest extent technically feasible unless there are existing problems, such as flooding, channelization, or improperly functioning stormwater infrastructure.

iv) The project design minimizes contaminant loading of downstream receiving waters, especially for dissolved metals, sediment, and nutrients.

v) Adequate provision during site planning has been made for low impact development techniques that intercept stormwater near the point of origin to minimize the need for centralized stormwater management facilities to the greatest extent technically feasible.

R.2.4 Water Use Management

***Standard R.2.4.1*: (E)** Surface water withdrawals are avoided and alternative water resources used, to the greatest extent technically feasible,

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[9] The Puget Sound Action Team (PSAT) manual, *Low Impact Development: Technical* Guidance *Manual for Puget Sound* (PSAT and WSU 2005), describes the techniques that can be incorporated into site design, depending on the density of the proposed development, to cluster impervious surfaces and conserve open space.

[10] Predevelopment conditions can be defined as a naturally vegetated state, free from human disturbance. Predevelopment plant communities can be interpreted from historic records and other documentation.

Standard R.2.4.2: **(E)** Opportunities for stormwater harvest, water reuse, and wastewater reclamation under municipal code have been investigated during the site inventory and assessment and are employed to the greatest extent technically feasible.

Standard R.2.4.3**: (E)** Sanitary systems connect to public infrastructure rather than onsite treatment to the greatest extent technically feasible. Where onsite treatment is necessary, sanitary systems are sited outside of wetland and riparian buffers, in such a way to avoid contaminant risk to surface water and groundwater resources.

R.2.5 Erosion Prevention and Sediment Control

Standard R.2.5.1**:** Site development responds to site conditions in a way that minimizes erosion and sediment transport.

Performance Requirements:

i) Site development responds to existing terrain to minimize excavation, grading, and soil disturbance.

ii) Development on slopes, if any, is on soils and grades that are stable, and will not pose long-term erosion or stability issues.

iii) Utilities, including telephone lines, cable, water, and sewage, are grouped to the greatest extent technically feasible to minimize ground disturbance.

iv) Trail systems are sited sufficiently distant from riparian areas, wetlands, and steep slopes such that they are not an obvious source of sediment, chemical pollution, or bank instability.

R.2.6 Chemical and Nutrient Containment

Standard R.2.6.1**:** Landscape plans require minimal chemical and nutrient use, if any. Areas that may require chemical use are planted outside of wetland and riparian buffer zones and are placed in such a way to minimize risk of chemicals leaving the site.

Standard R.2.6.2**:** Designated dog run or livestock areas are outside of required wetland and riparian buffers. Animal areas are located sufficiently away from aquatic zones. The site layout locates these areas to minimize the risk of animal waste leaving the site. Public education programs, signage, and pickup stations promote proper waste disposal.

R.3 Site Design (Development Stage III)

R.3.1 Instream Habitat Protection and Restoration

***Standard R.3.1.1*:** Overall, stream bank conditions are acceptable on site. Key deficiencies identified in Performance Requirement R.1.1.1(iii) have been addressed and resolved.

Performance Requirements:

i) **(L)** Incised or eroded stream banks have been stabilized using bioengineering methods to the greatest extent technically feasible.

ii) Where geomorphologically appropriate, stream banks are stabilized by native vegetation where suitable and beneficial.

iii) **(E)** Channel manipulation for reasons other than habitat restoration, is avoided to the greatest extent technically feasible. If channel manipulation is absolutely required and all other feasible alternatives have been exhausted, bioengineered solutions for bank stabilization/habitat enhancement are chosen over "harder" solutions such as retaining walls, riprap, or gabion revetments.

***Standard R.3.1.2*:** Overall, channel and instream habitat is functioning on the property. Key deficiencies identified in Performance Requirement R.1.1.1(iii) have been addressed and resolved.

Performance Requirements:

i) The stream has an intact natural channel and floodplain, existing off-channel habitats remain connected, and no large wood has been unnecessarily removed.

ii) Large wood and/or beaver dams provide channel structure and habitat, where appropriate and to the greatest extent technically feasible.

iii) Habitat improvement projects specify the use of large woody debris that has been salvaged from the site or has been harvested sustainably from an offsite location.

***Standard R.3.1.3*:** Key issues with regard to barriers and man-made features identified in Performance Requirement R.1.1.1 have been addressed and resolved.

Performance Requirements:

i) **(E)** Unnatural barriers to fish and wildlife, water, sediment, and large woody debris have been removed or plans are in place for removal.

ii) **(E)** Existing levees have been removed/moved and floodplains restored to the greatest extent technically feasible, and no new levees are proposed.

iii) Artificial ponds located on stream channels are removed and channels restored. Ponds that remain are reconstructed if needed to provide adequate fish passage, habitat, and maintain stream temperatures and oxygen levels within applicable state water quality standards.

iv) Stream crossings avoid obstructions and encumbrances to fish, wildlife, woody debris, and sediment passage to the greatest extent technically feasible[11]

R.3.2 Riparian/Wetland/Vegetation Protection and Restoration

***Standard R.3.2.1*:** Riparian zones and their buffers specified in Performance Requirement R.2.2.1(i) are operating in a properly functioning condition.

Performance Requirements:

i) **(E)** Riparian zones are dominated by native vegetation that provides riparian functions of bank stability and shade. Invasive vegetation within the riparian area has been removed and replaced with native plantings.

ii) Riparian buffers adequately infiltrate site sheet flow runoff, in consideration of steepness, substrate, and degree of vegetation.

iii) **(L)** Riparian buffers are protected in perpetuity by conservation easements through an existing local agency or land trust.

***Standard R.3.2.2*:** Wetlands and their buffers specified in Performance Requirement R.2.2.2(iii) are operating in a properly functioning condition.

Performance Requirements:

i) **(L)** Wetland habitats are dominated by native vegetation that provides wetland functions of bank stability, infiltration, nutrient absorption, and habitat value for wildlife. Wetland types, whether emergent, scrub-shrub, or forested, are characteristic of existing local wetland types identified and consistent with habitat needs of known local wetland species identified in Standard R.1.2.2. Invasive vegetation within the wetland area has been managed and replaced with native plantings.

ii) **(E)** Wetland buffers are designed to adequately infiltrate site sheet flow, based on steepness, substrate, and degree of vegetation coverage. Buffer types

[11](WDFW 2003).

and vegetation are consistent with the habitat needs of known local wetland species identified in Standard R.1.2.2.

iii) **(L)** Wetlands, their buffers, and connecting habitats are protected in perpetuity by conservation easements through an existing local agency or land trust.

R.3.3 Stormwater Management

***Standard R.3.3.1*:** Parking and roadway design deliberately minimizes the footprint of impervious area and associated stormwater runoff.

Performance Requirements:

i) Site designs minimize impervious surfaces where allowed by code and public safety is not compromised. Examples include reduction of parking space width, reduction of roadway widths, use of vegetated medians, and specifying sidewalks on only one side of the street.

ii) Designs utilize permeable paving materials to the greatest extent technically feasible.

iii) Roadbeds and utility lines are designed to avoid or limit impact on subsurface water flow disturbance, as applicable.

iv) Stormwater runoff is managed per Standard R.3.3.3.

***Standard R.3.3.2*:** Building design deliberately minimizes the footprint of impervious area and associated stormwater runoff.

Performance Requirements:

i) Impervious rooftop areas and building footprints are minimized to the greatest extent technically feasible. To the greatest extent technically feasible, large volumes of rooftop runoff are dispersed rather than concentrated during treatment. “Green roofs” are considered as rooftop options to the greatest extent technically feasible.

ii) Building materials are selected to minimize pollutants in runoff. Uncoated galvanized metal roofs and/or downspouts may release metals that pose risks to fish and are expressly avoided.

iii) Stormwater runoff is managed per Standard R.3.3.3.

***Standard R.3.3.3*:** Stormwater facility design results in water quality and flow control benefits that meet predevelopment hydrology planning goals.

Performance Requirements:

i) To avoid the risk of catastrophic failure during high flow events, stormwater facilities are designed with adequate bypass/overflow measures.[12]

ii) Stormwater management systems for roadway, parking lot, and building runoff treat stormwater close to the source, and use dispersion and infiltration rather than flow concentration and retention. Examples of system components include rain gardens, vegetated swales; vegetated filter strips; infiltration trenches, roof rainwater collection cisterns, and vegetated rooftops.

iii) To the extent that low-impact site design cannot prevent the generation of stormwater runoff containing pollutants, effective measures are used to reduce contaminants in stormwater coming from all drainage areas on the site by methods such as conventional infiltration, constructed wetlands, wet ponds, extended-detention basins, biofiltration swales and filter strips, and filtration by sand or other media.

iv) To the extent that low-impact site design alternatives cannot prevent the generation of peak flow rates and volumes of stormwater runoff greater than in an undeveloped condition, the project implements effective measures to slow runoff originating from all primary drainage areas on the project site through conventional infiltration, detention, or other means.

Standard R.3.3.4: Stormwater facilities and infiltration features are fully integrated with habitat-based site features.

Performance Requirements:

i) Stormwater facilities are planted with native vegetation adapted to the fluctuating water conditions characteristic of stormwater facilities. Large retention/detention areas that may surface drain into stream systems are shaded from solar access and associated potential for thermal gain.

ii) Stormwater facilities pose no fish trap hazard during normal or high flow conditions. Stormwater facilities are outfitted with screens to prevent fish from entering stormwater management facilities.

iii) Where consistent with the needs of local species, stormwater facilities incorporate habitat feature improvements, integrate with the existing natural areas matrix, and support connectivity between habitats.

[12] Note: general guidance for effective stormwater facility design may be found in the Stormwater Management Manual for Western Washington, or other similar documentation (Ecology 2005).

iv) Significant open space that has been designed to manage stormwater is protected under a perpetual conservation easement. This includes existing locally significant patches of native vegetation identified in Performance Requirement R.2.3.1(i).

R.3.4 Water Use Management

***Standard R.3.4.1*:** Landscape vegetation has been selected and located appropriate to site conditions.

Performance Requirements:

i) Drought-tolerant plants that require minimal (if any) irrigation are used in landscaping. Plants with high water demands have been avoided. Where suitable, drought-tolerant native vegetation is selected over nonnative plants, especially near habitat buffers. No invasive species, as defined by local and state agency weed lists, are used at all.

ii) Open lawn is minimized to the greatest extent technically feasible, or is composed of drought-tolerant alternative seed mixes.

iii) Construction details specify the use of compost and mulch during installation to reduce irrigation requirements.

***Standard R.3.4.2*:** Water conservation practices are used during site maintenance.

Performance Requirements:

i) Modern drip irrigation, automated soil moisture sensors, and other water-conserving techniques are part of the irrigation plan. Irrigation delivers water based on specific vegetation requirements, rate of infiltration, evapotranspiration, and other factors.

ii) Stormwater reuse and gray water reuse systems, if compatible with code and regulatory requirements and investigated in Standard R.2.4.2, are used. Water may be reused within building water systems, irrigation, or any water use that reduces overconsumption.

R.3.5 Erosion Prevention and Sediment Control

***Standard R.3.5.1*:** Soil is protected from erosion and generation of sediment that could enter surface water bodies.

Performance Requirements:

i) **(E)** Bare or exposed soils are temporary features only, to be vegetated with plant types consistent with Standard R.3.4.1. Erosion control seed mixes are composed of native species or other suitable species that contribute to soil stability and soil quality.

ii) Site improvements, including buildings, roads, bridges, or other features, are protected by BMPs as necessary to prevent erosion. Earthen trails, especially those in designated buffers, are protected by mulch, water bars, closures, or other BMPs as necessary to prevent erosion.

iii) Permanent erosion control features, in the form of site grading, flow control, and landscaping, are strategically placed to prevent turbid stormwater from leaving the site.

R.3.6 Chemical and Nutrient Containment

***Standard R.3.6.1*: (E)** Sanitary and wastewater sources are treated with centralized treatment systems over septic to the greatest extent technically feasible. Effluent is fully treated and infiltrated prior to discharge to water bodies, it at all.

Standard R.3.6.2: Landscape vegetation includes either native plants or hardy nonnative plants requiring minimal chemical application, if any. Plants with known susceptibility to disease, or those that require high nutrient inputs to survive in existing soils, are avoided. No plants shall be used that require application of any chemical on *Salmon-Safe's High Risk Pesticide List* (Appendix D) unless written documentation is provided in advance to Salmon-Safe that demonstrates a clear need for use of the pesticide, that no safer alternatives exist, and that the method of application (such as timing, location, and amount used) does not represent a risk to water quality and fish habitat.

R.4 Site Construction (Development Stage IV)

R.4.1 Instream Habitat Protection and Restoration

***Standard R.4.1.1*:** Fish and wildlife exclusion/protection measures are in place during construction near water bodies. For work below the ordinary high water line where fish may be harmed or entrapped during construction, work area isolation barriers such as cofferdams, silt curtains, or other devices are used at all times. During in-water construction, a fisheries biologist or other qualified specialist is available on site in the event of accidental fish entrapment.

R.4.2 Riparian/Wetland/Vegetation Protection and Restoration

***Standard R.4.2.1*:** Sensitive natural resources are protected during construction.

Performance Requirements:

i) Intensive construction activities with the potential to disturb wildlife occur outside the height of the terrestrial breeding season (typically May–July). This applies in particular to construction in or nearby locally significant habitats, known nesting locations, and designated surface water buffer zones.

ii) A tree protection plan has been developed with the aid of a certified arborist for use during construction. In addition to site-specific tree protection provisions, this plan should adhere to the following requirements:

- Project work limits are clearly defined by a temporary construction fence, to protect tree drip lines and vegetation not-to-be disturbed.
- Riparian areas, wetland areas, identified locally significant vegetation, and their corresponding buffers are marked and protected from construction encroachment through the use of construction fence and signage.
- Where necessary, disturbed native plants, woody substrate, and soils are salvaged and reused on site to the greatest extent technically feasible.

R.4.3 Stormwater Management

Standard R.4.3.1: Construction practices eliminate stormwater runoff into surface waters during construction. A construction-phase stormwater management plan is used on site. See Appendix E (*Model Construction-Phase Stormwater Management Program*) for plan guidance.

R.4.4 Water Use Management

***Standard R.4.4.1*:** Equipment cleaning occurs off site or sufficiently away from riparian and wetland resources or their buffers to avoid accidental runoff, contamination, or other impacts on water and natural resources.

***Standard R.4.4.2*:** No surface water withdrawals are made in association with site construction activities.

R.4.5 Erosion Prevention and Sediment Control

***Standard R.4.5.1*:** Construction practices limit soil erosion and potential sediment inputs into surface waters. A construction-phase erosion control and sediment management plan is used on site. All new plans meet or exceed current state requirements for site pollution control.

R.4.6 Chemical and Nutrient Containment

***Standard R.4.6.1*:** The staging area for the project is located outside of any designated riparian, wetland, or other buffer for storage and maintenance of equipment, vehicles, chemicals, or other materials that could reasonable pose a risk to sensitive aquatic habitats.

***Standard R.4.6.2*:** An equipment and vehicle cleaning and maintenance plan is used during construction to limit the import and export of invasive plant seeds, petroleum, or other toxic substances to and from the site.

***Standard R.4.6.3*:** Use of herbicides, pesticides, or other chemicals is expressly avoided to the greatest extent technically feasible, especially within riparian and wetland buffer areas.

i) Mechanical removal of invasive plants is chosen over chemical treatment to the greatest extent technically feasible.

ii) No herbicides or pesticides listed in the *Salmon-Safe High Risk Pesticide List* (Appendix D) are used under any circumstance.

R.5 Site Maintenance and Management (Development Stage V)

R.5.1 Instream Habitat Protection and Restoration

***Standard R.5.1.1*:** If instream habitat features have been installed, the appropriate managing authority within the development has adopted a postconstruction inspection and maintenance plan to ensure that instream habitat features are working as designed.

Performance Requirements:

i) **(E)** The plan lists activities to perform, provides a schedule for completion, and identifies responsible parties. Adaptive management triggers actions that respond to changes in performance.

ii) **(E)** This plan as a whole, or its elements therein, have been adopted into the development's CC&Rs or other guiding documentation that formalizes the appropriate managing authority's responsibility to implement and enforce

all aspects of the plan on both private property or common property managed for the public good.

R.5.2 Riparian/Wetland/Vegetation Protection and Restoration

***Standard R.5.2.1*:** The appropriate managing authority within the development has adopted a postconstruction inspection and maintenance plan to ensure that riparian and wetland features are in a properly functioning condition and invasive species are controlled.

Performance Requirements:

i) **(E)** The plan lists activities to perform, provides a schedule for completion, and identifies responsible parties. Adaptive management triggers actions that respond to changes in performance.

ii) **(E)** The plan as a whole, or its elements therein, have been adopted into the development's CC&Rs or other guiding documentation that formalizes the appropriate managing authority's responsibility to implement and enforce all aspects of the plan on both private property or common property managed for the public good.

R.5.3 Stormwater Management

***Standard R.5.3.1*:** The appropriate managing authority within the development has adopted a long-term stormwater management plan as a short written document to formalize the existing conservation practices.

i) **(E)** The plan provides a post-construction maintenance plan to ensure that installed stormwater control features are working as designed. The plan lists activities to perform, provides a schedule for completion, and identifies responsible parties. Adaptive management triggers actions that respond to changes in performance.

ii) **(E)** The plan guides the design and construction of any future improvements, infill development, or new phases of development so that that they comply with the Salmon-Safe Certification Standards defined in this document.

iii) **(E)** The plan as a whole, or its elements therein, have been adopted into the development's CC&Rs or other guiding documentation that formalizes the appropriate managing authority's responsibility to implement and enforce all aspects of the plan on both private property or common property managed for the public good.

R.5.4 Water Use Management

***Standard R.5.4.1*:** The appropriate managing authority within the development has adopted a water conservation plan as a short written document and formalizes the existing conservation practices, as detailed in Appendix F (*Water Conservation Plan Guidanc*e).

Performance Requirements:

i) **(E)** The plan lists activities to perform, provides a schedule for completion, and identifies responsible parties. Adaptive management triggers actions that respond to changes in performance. The water conservation plan shall include a drought management plan that details how significant reductions will be achieved during a drought.

ii) **(E)** This plan as a whole, or its elements therein, have been adopted into the development's CC&Rs or other guiding documentation that formalizes the appropriate managing authority's responsibility to implement and enforce all aspects of the plan on both private property or common property managed for the public good.

R.5.5 Erosion Prevention and Sediment Control

Long-term erosion and sediment control provisions should be addressed in the plans required in Section R.5.2 (*Riparian/Wetland/Vegetation Protection and Restoration)*, and in Section R.5.3 (*Stormwater Management*) by providing standards that protect soil from erosion and prevent transport of sediment into streams or offsite stormwater.

R.5.6 Chemical and Nutrient Containment

***Standard R.5.6.*1:** The appropriate managing authority for the residential development shall prepare and implement an integrated pest management (IPM) plan and nutrient management plan consistent with Salmon-Safe standards as detailed in Appendix C(*IPM, Nutrient, and Chemical Management Plan Guidance*).

Performance Requirements:

i) **(E)** The plans are prepared with the assistance of professionals with extensive expertise in preparing IPM plans and in managing landscapes using IPM practices.

ii) **(E)** The plans as a whole, or their elements therein, have been adopted into the development's CC&Rs or other guiding documentation that formalizes the appropriate managing authority's responsibility to implement and

enforce all aspects of the plans on both private property or common property managed for the public good.

iii) **(E)** Contractor landscaping on publicly managed property, as well as any landscaping practices on privately managed property, shall be consistent with the IPM and nutrient management plans. Contractors must provide records and documentation to the homeowners association or other appropriate managing authority that their activities are consistent with the plans. The IPM record-keeping system shall include notes on pest monitoring, all IPM methods used, and evaluation of effectiveness. The managing authority shall ensure that property owner and contractor use of herbicides, pesticides, or fertilizers is consistent with Salmon-Safe standards as defined in the plans.

R E F E R E N C E S

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Salmon-Safe. 2007. Report of the evaluation team regarding Salmon-Safe Assessment of the South Waterfront Central District, Portland, Oregon. Salmon-Safe Inc.

WDFW. 2003. Design of Road Culverts for Fish Passage. Washington Department of Fish and Wildlife. Available for download from agency website: <http://wdfw.wa.gov/hab/engineer/cm/>.

G L O S S A R Y

303(d) List. Under the Clean Water Act (CWA), the 303(d) list is the list of waters (streams and lakes) identified as impaired for one or more pollutants and that do not meet one or more water quality standards. The CWA is administered by the U.S. Environmental Protection Agency, with authority often designated to a state agency for local implementation. In Oregon, the 303(d) list is maintained by the Oregon Department of Environmental Quality (Oregon DEQ).

Best management practices, or BMPs. Schedules of activities, prohibitions of practices, maintenance procedures, and structural or management measures that prevent or reduce the release of pollutants and other adverse impacts on the environment.

Certification Standards. A set of specific guidelines or BMPs developed by Salmon-Safe for site developers, site designers, and land managers with an interest in the development of residential communities in a manner that protects imperiled salmonid species, and other associated aquatic and terrestrial habitat elements.

Development Stage. In the context of these Certification Standards, five stages have been defined corresponding to the typical stages of the design and construction of a residential development project: (1) Project inventory and assessment; (2) Site planning; (3) Site design; (4) Site construction; and (5) Site maintenance and monitoring.

Evaluation Team. Residential development assessments are conducted by a team of two or three qualified, independent experts hired by Salmon-Safe. The evaluation team is well versed in aquatic ecological science, development planning and design, as well as landscape management.

Existing Developments. Existing Developments are those developments that have been already been constructed prior to evaluation for certification as a Salmon-Safe Certified residential development.

Large Developments. In the context of these Certification Standards, developments that meet one of the following criteria: (2) Developments exceeding 40 acres in size; (2) Developments exceeding 50 single-family residential units; (3) Developments exceeding 100 multifamily residential units; or (4) Developments that contain a mix of unit types with the potential to result in a building footprint comparable to those listed above.

Large woody debris (LWD). Wood that is naturally occurring or artificially placed in streams. LWD is essential to a healthy stream because it provides habitat diversity and protects against flooding. Many streams negatively affected by human use lack a necessary amount of LWD.

Management Category. In the context of these Certification Standards, six primary management categories have been defined to express the desired outcome of habitat conditions in a given project area: (1) Instream habitat protection and restoration; (2) Riparian, wetland, and locally significant vegetation protection and restoration; (3) Stormwater management; (4) Water use management (irrigation activities); (5) Erosion prevention and sediment control; and (6) Chemical and nutrient containment.

National Wetlands Inventory (NWI). A nationwide inventory and mapping database of wetland habitat, as maintained by the U.S. Fish and Wildlife Service.

New Development. In the context of these Certification Standards, new development refers to newly planned and unbuilt residential communities that are anticipated but that have not been constructed.

Performance Requirement. Specific, measurable criteria that represent the desired outcome for habitat conditions associated with a project. Performance requirements are a subset of their broader Certification Standards.

Review Phase. Salmon-Safe offers three opportunities for collaboration throughout the project planning and construction process, as defined by the following review phases: (1) Review Phase 1: Site Assessment and Planning Review; (2) Review Phase 2: Review of Approved Plan Submittal; and (3) Review Phase 3: Salmon-Safe Certification of Constructed Residential Development.

Riparian habitat. Characterized by vegetated areas along bodies of surface water, including streams, wetlands and lakes. Typically, riparian habitats are distinct from upland areas, demonstrating an obvious difference in vegetation types, densities, and structure.

Salmon-Safe. Salmon-Safe is an independent, nonprofit organization devoted to restoring agricultural and urban watersheds so that salmon can spawn and thrive. Founded as a project of the Pacific Rivers Council, Salmon-Safe became an independent organization in 2002 and is based in Portland, Oregon

TMDL (Total Maximum Daily Load). A calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

Wetlands. Areas that are inundated or saturated by ground or surface water at a frequency and duration sufficient to support hydric soils and vegetation typically adapted for life in hydric soil conditions. Wetlands are regulated at the federal, state, and local levels.