

CITY OF SEATAC
FINAL STAFF EVALUATION FOR ENVIRONMENTAL CHECKLIST
FILE NO: SEP02 - 00006

PROJECT: Des Moines Creek Basin Restoration Projects

APPLICANT: Des Moines Creek Basin Committee (City of SeaTac, City of Des Moines, Port of Seattle, King County, Washington State Department of Transportation)

CONTACT: **City of SeaTac:** Michael Scarey, Senior Planner at (206) 241-1893/TDD (206) 241-0091. [E-mail: mikes@seatac.wa.gov]
City of Des Moines: Corbitt Loch, Planning Manager for the City of Des Moines at (206) 870-7576
Basin Committee: David Masters, Project Coordinator at (206) 354-9749

LOCATION: Des Moines Creek Corridor, and Wetlands South of Sea-Tac Airport Runways, East of Des Moines Memorial Drive, (see attached map).

PROPOSAL: The proposal involves the construction of several coordinated surface water management facilities to improve existing water quality conditions and to reduce existing flooding conditions within the Des Moines Creek basin. The improvements were identified in the Des Moines Creek Basin Plan which was published in 1997. More specifically, the proposal includes improvement of in-stream conditions by reduction of high flows, reduction in stream erosion, improvement of water quality, and improvement of in-stream fish habitat. The proposal includes numerous mitigation measures recommended by state, regional and local agencies to prevent and/or minimize potential adverse impacts. Projects include a new detention facility near the headwaters of Des Moines Creek, a high flow bypass pipe along Des Moines Creek, improving fish habitat conditions within Des Moines Creek, and low-flow augmentation to maintain fish-friendly water flows during dry summer months. These improvements are inter-related and operate in a coordinated fashion to reduce existing impacts to Des Moines Creek. The projects are intended to provide long-term stream health and to correct problems in the basin caused by past development, and are not mitigation for any future construction. These Basin Plan improvements will work in concert with the Marine View Drive Culvert Replacement.

COMPREHENSIVE PLAN DESIGNATIONS: The project area is not a single site, but takes place at the western headwaters of Des Moines Creek (the Northwest Ponds), and at various locations along the stream corridor. The Comprehensive Plan Land Use designations for the property in the City of SeaTac are Industrial, Airport, and Park; the Comprehensive Plan Land Use designations for the property in the City of Des Moines are Parks/Open Space, and Public Facility.

A. BACKGROUND

The Des Moines Creek Basin Committee, comprised of the City of SeaTac, the City of Des Moines, the Port of Seattle, and King County, developed the Des Moines Creek Basin Plan ("Plan"), in coordination with other agencies, including the Washington Department of

Transportation, and the Midway Sewer District. The Plan has analyzed alternatives for restoring the creek for wildlife habitat. Des Moines Creek experiences scouring during heavy rain events, and uneven flows in periods of dry weather, resulting in portions of the creek becoming dry. Both of these conditions are detrimental to fish spawning habitat. The Basin Plan has identified a preferred alternative that will significantly reduce the possibility of scouring, and significantly reduce the possibility of dangerously reduced flows during dry weather periods. The subject of this SEPA Review, the Des Moines Creek Restoration Projects, will implement the Des Moines Creek Basin Plan.

Pursuant to WAC 197-11-340(2), The City of SeaTac is required to send this determination to DOE and other agencies with jurisdiction, affected tribes, and other interested parties.

B. ENVIRONMENTAL ELEMENTS

This action was proposed in the City of SeaTac Comprehensive Plan. The environmental impacts of this action have been thoroughly analyzed in the completed Draft and Final EIS on the Comprehensive Plan.

1. **Earth:** Concur with Checklist. See additional mitigation conditions in SEPA Determination for file # SEP02-00006
2. **Air:** Concur with Checklist
3. **Water:** Concur with Checklist. See additional mitigation conditions in SEPA Determination for file # SEP02-00006
4. **Plants:** Concur with Checklist. See additional mitigation conditions in SEPA Determination for file # SEP02-00006
5. **Animals:** Concur with Checklist
6. **Energy and Natural Resources:** Concur with Checklist
7. **Environmental Health:** Concur with Checklist. See additional mitigation conditions in SEPA Determination for file # SEP02-00006
8. **Land and Shoreline Use:** Concur with Checklist
9. **Housing:** Concur with Checklist
10. **Aesthetics:** Concur with Checklist
11. **Light and Glare:** Concur with Checklist

12. Recreation: Concur with Checklist. See additional mitigation conditions in SEPA Determination for file # SEP02-00006

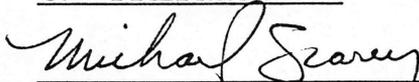
13. Historic and Cultural Preservation: Concur with Checklist

14. Transportation: Concur with Checklist. See additional mitigation conditions in SEPA Determination for file # SEP02-00006

15. Public Services: Concur with Checklist. See additional mitigation conditions in SEPA Determination for file # SEP02-00006

16. Utilities: Concur with Checklist

C. PREPARED BY

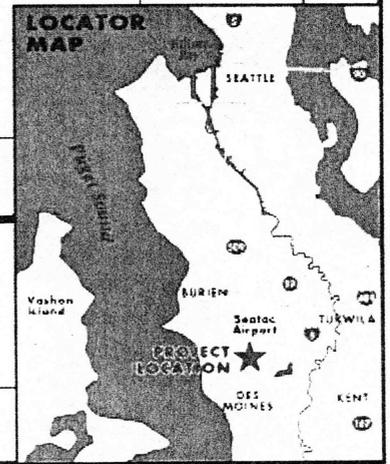
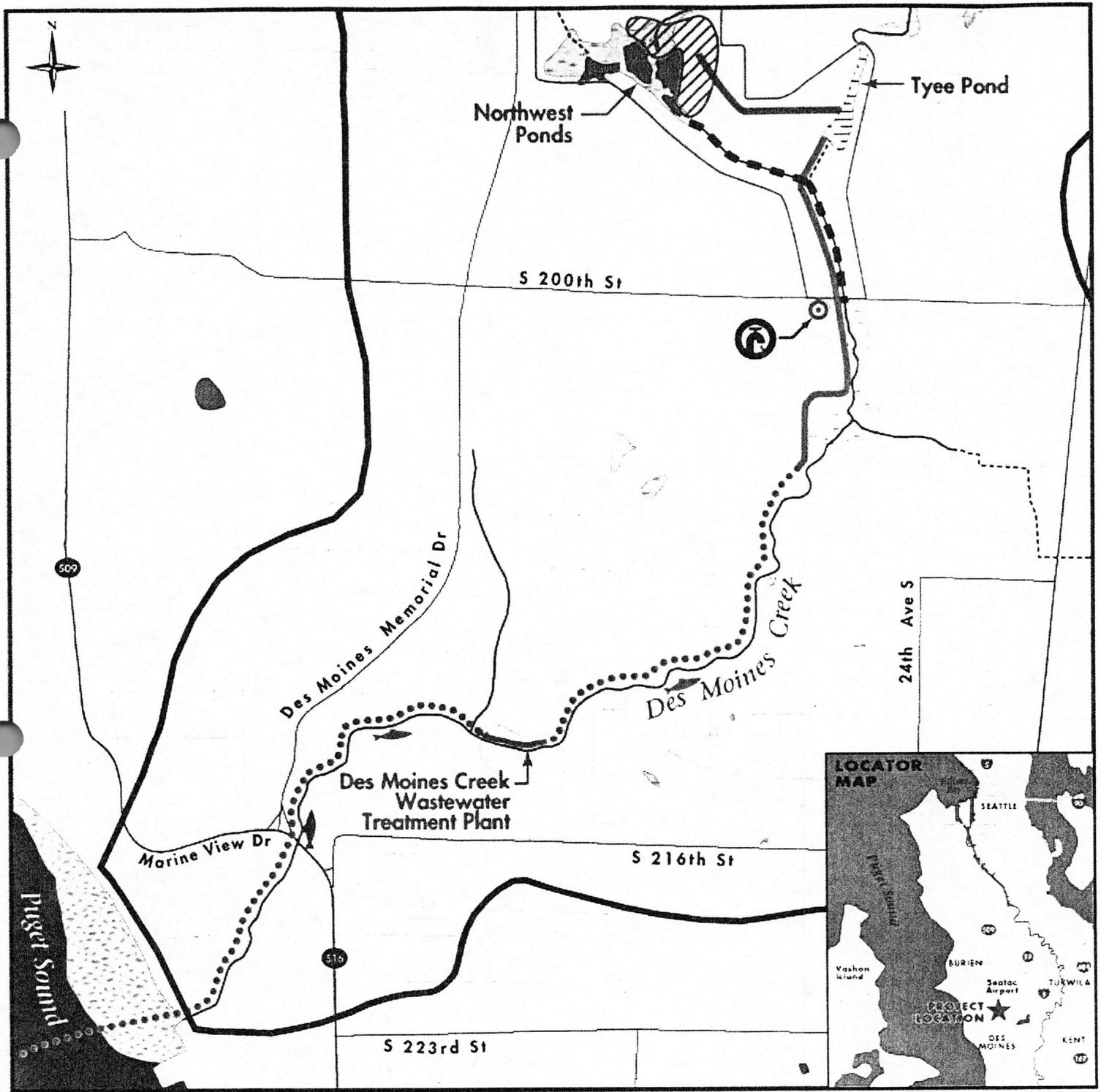


Michael Scarey, AICP, Senior Planner

II STAFF DETERMINATION

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment, and an environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c), only if certain conditions are met. Therefore, an environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist, the City of SeaTac Comprehensive Plan and EIS, and other information on file with the lead agency. This information is available to the public on request by contacting **Michael Scarey at 241-1893/241-0091TDD.**

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DES MOINES CREEK BASIN

Capital Improvement Project Sites

0 1/4 Mile

June 2002

- | | | | | | |
|--|--------------------|--|--|--|---|
| | Basin Boundary | | Project Site | | Fish Passage Improvement at Marine View Drive |
| | Stream | | Pond Excavation Area | | Fish Habitat Improvement Zones 1 and 2 |
| | Piped Stream | | Flow Bypass Pipe: New Pipe | | |
| | Lake or Open Water | | Flow Bypass Pipe: Reused Pipe | | |
| | Wetland | | Stream Channel Reconstruction Reach Zone 3 | | |
| | R/D Facility | | Low Flow Augmentation Facility | | |
| | Shoreline | | | | |

King County
 Department of Natural Resources and Parks
 Water and Land Resources Division

To: Michael Scaley, Senior Planner

From: Hansen, Jon

From: Hansen, Jon
Sent: Friday, November 09, 2001 1:23 PM
To: 'cloch@cityofdesmoines.com'; 'mikes@seatac.wa.gov'
Cc: Masters, David; Khan, Zahid; 'Don Monaghan'; 'Tim Heydon'
Subject: SEPA Checklist for Des Moines Creek Basin Plan Projects



Corbitt and Micheal,

A few months ago we met to discuss the Des Moines Creek Basin plan projects and the SEPA process that would be followed.

As you may recall, the projects proposed under the basin plan include a regional detention facility, a high flow bypass pipeline, a low flow augmentation system and fish habitat enhancement throughout the stream. These projects are being proposed and funded by the cities of Des Moines and SeaTac as well as the Port of Seattle, Washington State Department of Transportation and King County.

Since that meeting, we have prepared a draft checklist for your review and comment. Please note that this is not intended as an official submission of the checklist, but rather an "internal" review on behalf of your respective cities. Because the checklist includes some color figures, a hard copy will be delivered to you sometime early next week. For ease of review, however, an electronic copy of the file is attached. Please let me know right away if you are unable to open the document.

Although we are fast approaching Thanksgiving, we do still hope to publish the determination before the end of the year. Toward that end, we are asking for a relatively quick turn around on your review. To discuss your comments and coordinate the effort, I am proposing a meeting the week of November 26. Please get back to me with dates of your availability that week as soon as possible.

If you see any fatal flaws in the checklist prior to that meeting or have any questions regarding the checklist, please give me a call at (206) 296-1966. For questions about the role or level of involvement by your respective cities, please contact Tim Heydon or Loren Reinhold at the City of Des Moines or Don Monaghan at the City of SeaTac.

Thank you in advance for your assistance.

Jon Hansen
Senior Ecologist
King County Dept of Natural Resources
(206) 296-1966
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Des Moines
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KING COUNTY ENVIRONMENTAL CHECKLIST

Des Moines Creek Basin Restoration Projects

Purpose of the Checklist:

The State Environmental Policy Act (SEPA), Chapter 43.21 RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write “do not know” or “does not apply.” Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be a significant adverse impact.

Use of Checklist for Nonproject Proposals:

Complete this checklist for nonproject proposals, even though questions may be answered “does not apply.” In addition, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (PART D).

For nonproject actions, the references in the checklist to the words “project,” “applicant,” and “property or site” should be read as “proposal,” “proposer,” and “affected geographic area,” respectively.

A. BACKGROUND

1. *Name of the proposed project, if applicable:*

Des Moines Creek Basin Restoration Projects

2. *Name of Applicant:*

The Des Moines Creek Basin Committee
(City of SeaTac and City of Des Moines, Port of Seattle, King County, and Washington State Department of Transportation)

3. *Address and phone number of applicant and contact person:*

David Masters (Contact)
King County Department of Natural Resources
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
Phone: (206) 296-1981
Fax: (206) 296-0192

4. *Date checklist prepared:*

November 2001

5. *Agency requesting checklist:*

Cities of SeaTac and Des Moines

6. *Proposed timing or schedule (include phasing, if applicable):*

The proposed projects would be constructed in phases, beginning in the summer of 2003 and continuing through 2006.

7. *Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.*

In the future, an additional bypass pipe, currently used to convey wastewater to the Midway Sewage Treatment Plant, may be added to increase the bypass capabilities of the system.

8. *List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.*

In recent years, numerous reports and special studies have been completed, documenting the conditions within Des Moines Creek and the basin as a whole. Below is a list of those most relevant to the current proposal:

- Adolphson Associates. Revised May 2001. *Marine View Drive Bridge—Phase I Supplemental Biological Assessment, prepared for the City of Des Moines.* Seattle, Washington.
- Adolphson Associates. May 2001. *Marine View Drive Bridge—Phase II Supplemental Biological Assessment, prepared for the City of Des Moines.* Seattle, Washington.
- King County Department of Natural Resources. November 1997. *Des Moines Creek Basin Plan.* Des Moines Creek Basin Committee (City of Des Moines, City of SeaTac, Port of Seattle, King County).
- King County Department of Natural Resources. November 1999. *Des Moines Creek Regional Capital Improvement Project Preliminary Design Report—Alternative Analysis.* Seattle, Washington.
- King County Department of Natural Resources. November 1999. *Des Moines Creek Regional Capital Improvement Project Preliminary Design Report—Alternative Analysis Addendum.* Seattle, Washington.
- King County Department of Natural Resources. March 1999. *Quality and Processes Affecting Aquatic Habitat at Des Moines Creek.* Seattle, Washington.
- King County Department of Natural Resources. March 1999. *Wetland Delineation Report for the Des Moines Creek Regional Detention Pond.* Seattle, Washington.
- Larson, M. and D. Booth. April 1999. *Des Moines Creek—Fluvial Geomorphic Evaluation of Bed Movement.* University of Washington Center for Urban Water Resources. Seattle, Washington.
- Sitka Corporation. January 1999. *Geotechnical Report of Preliminary Investigations—Des Moines Creek Regional Detention Facility.* Kirkland, Washington.
- URS Consultants, Inc. March 1996. *Des Moines Creek Trunk and Outfall Pipelines—Final Environmental Impact Statement—Midway Sewer District.* Seattle, Washington.

9. *Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.*

Yes. The City of Des Moines, the Washington State Department of Transportation (WSDOT), the Midway Sewer District, and the Port of Seattle all have permits pending for projects that are located on or adjacent to the properties on which the facilities proposed here will be constructed. The City of Des Moines is currently seeking permits to replace the culvert under Marine View Drive Southwest with a bridge. In addition, the Midway Sewer District is seeking permits for a new outfall to Puget Sound (allowing the Des Moines Creek projects to use the abandoned pipeline and existing outfall).

The Port of Seattle is seeking permits to expand the airport facilities at the Seattle-Tacoma (Sea-Tac) International Airport. These expansions include the third runway located to the north as well as the creation of a new South Airport Support Area, which will in part be constructed on and/or adjacent to the site (Tyee Golf Course) where critical elements of the Basin Committee's projects are proposed. Wetland mitigation areas related to the airport expansion will also be completed on the Tyee Golf Course site downstream of the regional detention facility.

The WSDOT is in the process of designing the extension of State Route 509, which is proposed to be constructed in close proximity to the proposed regional detention facility. No permit applications have been submitted to-date for that project.

10. *List any government approvals or permits that will be needed for your proposal, if known:*
- U.S. Army Corps of Engineers Individual Section 404 Permit
 - National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Consultation
 - U.S. Fish and Wildlife Service ESA Section 7 Consultation
 - Washington State Department of Ecology
 - Section 401 Water Quality Certification
 - Dam Safety Permit
 - National Pollutant Discharge Elimination System (NPDES) Permit (for construction)
 - Washington Department of Fish and Wildlife Hydraulic Project Approval
 - Washington State Department of Natural Resources Aquatic Lease Permit
 - City of SeaTac Clearing and Grading Permit
 - Port of Seattle Building/Grading Permit
 - City of SeaTac Public Agency and Utility Exception
 - City of Des Moines Clearing and Grading Permit
 - City of Des Moines Shoreline Management Substantial Development Permit
11. *Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on the project description.)*

The Des Moines Creek Basin Committee is proposing a suite of projects intended to help protect and restore Des Moines Creek, a 3.5-mile-long stream system located in southwest King County (see Figure 1). These projects, conceptually proposed in the *1997 Des Moines Creek Basin Plan*, include a regional detention facility, a high flow bypass system, low flow augmentation, and fish habitat enhancements throughout the length of the stream. The projects are being jointly planned and implemented by members of the Basin Committee, which includes the City of Des Moines, the City of SeaTac, the Port of Seattle, the Washington State Department of Transportation, and King County. These projects begin in the upper end of the Des Moines Creek Basin on the Tyee Golf Course and extend all the way downstream to Puget Sound. Working collectively, the members of the Des Moines Creek Basin Committee are proposing these projects to stabilize the flow regime and reduce channel erosion in Des Moines Creek.

Background and Purpose

The purpose of the proposed projects is to stabilize the flow regime, reduce the channel erosion rate, and restore and enhance habitat within Des Moines Creek. Des Moines Creek originates on a low-gradient plateau within the City of SeaTac and descends approximately 350 feet vertically through a steep ravine shortly before it empties into Puget Sound. It drains a largely urbanized basin of approximately 5.8 square miles located within the Cities of SeaTac and Des Moines.

The basin is heavily urbanized, containing a large part of the Sea-Tac International Airport as well as extensive commercial and high-density residential development. The highly developed character of the drainage basin contributes to an unnaturally "flashy" flow regime, meaning that the volume of water flowing in the stream rises and falls quickly during storm events. This flashy flow regime has significantly degraded Des Moines Creek by increasing channel erosion and downcutting, washing away spawning gravel and large woody debris, and decreasing the number and quality of pools available within the stream. The loss of these habitat elements significantly reduces the ability of the system to support salmon and resident trout as well other fish and aquatic organisms. Unless controlled, this flow regime will continue to contribute to declining fish populations, both directly by creating inhospitable flow velocities during rainy periods and indirectly through the morphological changes discussed above. Flashy flow regimes also tend to be associated with low summer baseflows, which is the case in Des Moines Creek. It is this flow regime (both high and low) and the lack of channel complexity it creates that have been identified as the principal factors limiting the salmon and trout populations in the stream.

Basin Planning and Interjurisdictional Cooperation

Recognizing these problems and the difficulty with resolving them independently, the Cities of Des Moines and SeaTac and the Port of Seattle and King County decided to work collectively toward resolving their common problems in Des Moines Creek, one of the few remaining urban salmon streams in King County. The Washington State Department of Transportation (WSDOT) subsequently joined the Basin Committee in 1999. These parties, collectively referred to as the Des Moines Creek Basin Committee, have worked together cooperatively since 1995 to develop a mutually acceptable plan that will offset the impacts of past and the unmitigated portion of future development in the 5.8-square-mile watershed. These impacts, primarily from stormwater runoff, have been detrimental to stream stability, water quality, and fish habitat.

The specific goals of the Basin Committee include:

- Develop a flexible and resilient forum for addressing interjurisdictional stream issues.
- Develop a shared plan for addressing water quality and quantity issues.
- Develop and implement prioritized Capital Improvement Project recommendations.
- Facilitate cooperative funding for interjurisdictional projects.
- Improve the quality of human interactions with Des Moines Creek.

In November 1997, the Basin Committee published the *Des Moines Creek Basin Plan* (hereafter referred to as "Basin Plan"), which provides an overview of the basin's environmental conditions and problems. The Basin Plan also presented and evaluated a number of alternatives to address existing and anticipated future problems.

Alternatives Considered in the Basin Plan

As part of the basin planning process, the Basin Committee considered both the level of stream protection to target as well as the methods available to attain them. Ranging in scale from taking no action, and allowing the channel to degrade unchecked, to attempting to restore a stable flow regime that would allow the system to recover without the need for ongoing stabilization efforts, the alternatives covered a broad spectrum of levels of protection. Specific consideration was given to changing stormwater regulations, changing zoning and land use

patterns, constructing a large flow bypass facility, constructing a large detention facility, and taking no action. Factoring in both costs and feasibility, and largely because of the potential efficiency of operating a combined bypass and regional detention facility, it was determined that the goal of achieving a stable flow was attainable.

In addition to the regional detention pond and high flow bypass concepts, the Basin Plan evaluated traditional methods, such as changes to land use regulations and stormwater detention standards. Although both land use regulations and detention standards are critical factors in effective stormwater management, those options can most effectively deal with future development, but they are very poor at addressing longstanding problems created by inadequate standards applied to past development. Because of the magnitude of the existing storm flows, the stream would continue to degrade and be largely inhospitable to aquatic life, even with no additional development. The Basin Plan therefore concluded that some action must be taken to manage the existing flows within Des Moines Creek, whether additional development occurs or not.

Basin Plan Alternatives Selected

To address the existing conditions and promote restoration of the stream as a whole, the jurisdictions represented on the Basin Committee chose to pursue a more comprehensive and effective approach that combines the regional detention facility and the bypass system. Additional information about these alternatives is covered in Section 4.2 of the Basin Plan.

The Basin Plan also investigated all technically feasible alternative sites within the basin for major regional storage. The Northwest Ponds were selected as the most logical place, for a variety of reasons, including:

1. They are uniquely located at the confluence of the two major branches of Des Moines Creek.
2. They are upstream of the higher quality habitat reaches most in need of protection from high flows.
3. Of the numerous sites investigated, the Northwest Ponds came closest to achieving/producing a stable stream system.
4. The location allows easy integration of the proposed flow bypass.
5. There were much fewer land use conflicts with this site, and no displacement of existing residences or businesses were required.

Other sites at the Tyee Golf Course also fit these five conditions. However, these sites were dismissed as viable options for safety reasons. Creating additional standing water on the golf course was determined to increase the danger of attracting aircraft-threatening birds.

A more detailed discussion of the criteria used for siting the facility, as well as an analysis of the alternative sites investigated, is located in Sections 4.2.3 and 5.1 of the Basin Plan.

The combination of watershed improvements proposed by the Basin Plan includes the following projects (see Figure 2):

- A Regional Retention/Retention Facility at the Tyee Golf Course.
- A Surface Water Flow Bypass System to Puget Sound.

- Low Flow Augmentation by well water withdrawal.
- Habitat Restoration by in-channel improvements.
- Culvert Improvement with fish passage at Marine View Drive.

This checklist is intended to cover the first four of those elements. The Marine View Drive fish passage project is being addressed separately by the City of Des Moines.

Further Study

In addition to the more general alternatives considered within the Basin Plan report, the Basin Committee commissioned an analysis of different design alternatives for the regional detention facility. That study, entitled *Des Moines Creek Regional Capital Improvement Project Preliminary Design Report* (published in November 1999), presented three alternative designs for implementing the Basin Plan recommendations. The three basic alternatives differed, based on the number and location of berms to detain stormwater and the location of the bypass pipe connection. Alternatives 1 and 2 both had the same number and location of berms, but had the bypass pipe connected to the West Fork and the East Fork of Des Moines Creek, respectively. All three alternatives would have used the existing sewer line as the bypass pipe to convey water from the stream system and discharge it directly to Puget Sound. Of these three alternatives, Alternative 2 ranked highest, based on a set of selection criteria that included its ability to reduce erosion, minimize both direct and indirect wetland impacts, and cost. Alternative 2 is also the plan that is most adaptable to future infrastructure and flow changes in the basin. It is this second alternative that is being proposed and reviewed in this checklist.

Proposed Projects

- ***Regional Detention Pond***

The regional detention facility is essentially a large storage area near the upper end of the basin, where stormwater running quickly out of the highly urbanized upper basin can be captured and released more slowly back into the stream. Several potential sites for this facility were evaluated as part of the basin planning process, but for a variety of reasons outlined above, the Northwest Ponds site was selected. To accommodate the storage necessary to provide meaningful stream protection, substantial areas in the immediate vicinity of Northwest Ponds will need to be modified. This would include the construction of two berms to impound water and the excavation and regrading of approximately 11 acres of wetland (Cells 1 and 2 in Figure 3). Of this area, roughly 5 acres are degraded wetland that lie within the golf course and are dominated by turf grasses, while another 3 acres are degraded wetland dominated by invasive species, including blackberry and reed canarygrass. The remaining 2 acres include wetland dominated by native species, such as willow and black cottonwood. Although these modifications will disturb some existing plant communities, the disturbed areas will remain wetland and be revegetated with native wetland plant communities, with the exception of the area filled for the berms. Because the area slated for excavation includes upland that will be converted to wetland and revegetated, however, the overall size of the wetland will actually increase as a result of the project.

To minimize the disturbance of high-quality wetland areas, excavation will be limited to the highly disturbed areas within the existing golf course and to the area north of the existing open-water ponds. Throughout these areas, approximately 3 to 7 feet of soil will be

removed to create additional storage area behind the first proposed berm (Berm A on Figure 3). Although final contours in these areas will vary slightly, the concept is to create a gradually sloping bench across these cells ranging in elevation from 244 to 245 feet. Normal water surface elevations within the existing open water areas will be set at 244 feet so that the bench will only be flooded during storm events. Theoretically, this will provide active storage above 244.5 feet, yet provide an area that will be suitable for planting a scrub-shrub community.

Construction of the detention facility and berms will be completed using heavy equipment, including excavators, trackhoes, bulldozers, and for some of the wettest areas a drag line. Construction within the wetland will be strictly controlled to prevent mobilization of sediment downstream. During construction, water will be diverted around the worksite and water within the worksite pumped out and treated prior to release. Dewatering of the project area may also be necessary to facilitate construction. This may be accomplished using pumps attached to shallow wells immediately adjacent to the work area. Every effort will be made to keep the water withdrawn from the worksite clean, but depending on the volume and the level of turbidity, the water will be treated using either temporary settling basins and/or existing vegetation to filter the sediment out of the water. If all other methods fail, chemical flocculation may be used to ensure that the water returning to the stream meets state water quality standards.

- ***Flow Bypass System***

The flow bypass system is designed to divert high flow out of the stream above the ravine reach to reduce the volume of water that flows through the channel during moderate to high flow conditions. The bypass system will use a soon-to-be-abandoned sanitary sewer pipeline that is already in place from the southern end of the Tye Golf Course to Puget Sound. With a few minor modifications, the 24-inch pipeline will carry excess stream flows from the East Fork of Des Moines Creek at Tye Pond directly to Puget Sound. The pipe will outlet approximately 200 feet offshore at a depth of approximately 75 feet via an existing wastewater outfall, which is also scheduled to be removed from service. A section of the outfall, referred to as a diffuser, may be removed or modified to improve stormwater conveyance capacity of the pipe. The purpose of the bypass is to reduce the erosive energy of high flows to minimize channel erosion and create a fish-friendly flow regime. By using the bypass, the volume of water taken out of the stream increases dramatically, and hence the effective reduction in erosive energy is reduced significantly, without the necessity of storing additional large volumes of water within the regional detention facility. Given the sensitivity of wetland areas to water level fluctuation, the bypass pipe helps to minimize adverse effects on both the stream and wetland.

- ***Low Flow Augmentation***

The low flow augmentation project is designed to provide groundwater input into the stream to help ensure the health of aquatic life when flows become dangerously low. The project is intended to offset the negative impacts of basinwide changes that have resulted in the reduction of groundwater recharge, particularly in the upper basin. Because of the loss of vegetation cover and the large percentage of impervious surfaces, rainwater that otherwise would have infiltrated into the ground, and later provide the baseflow for the stream during the summer months, runs off into the stream immediately following a storm. The objective of this project is to provide a maximum of 1.0 cubic foot per second of groundwater to

augment the baseflow of Des Moines Creek during critical low flow periods. Water quality tests have shown the groundwater to be of excellent quality, although, like most groundwater, it has low levels of dissolved oxygen. The groundwater withdrawn would be aerated to improve dissolved oxygen content prior to flowing into the creek. With minimal improvements, an existing irrigation well on the Tye Golf Course could meet this objective. If, for some reason, this well is not available, the Basin Committee has identified alternate sources of groundwater for this project.

▪ ***Habitat Restoration***

The proposed habitat restoration is primarily instream enhancement to improve fish habitat within the three zones identified on Figure 2. The approach will differ in each of the three reaches targeted, but will focus on improving fish access and increasing habitat diversity within the channel. Design of the proposed channel improvements from the Northwest Ponds downstream to South 200th Street (Zone 3) has begun because this work was required for the design and evaluation of the regional detention facility. Conceptual design of the lower two zones (Zones 1 and 2) includes the placement of large woody debris, gravel, cobble, and large rounded boulders within the existing channel to create more diverse habitat conditions. Because the specific design of these elements will vary based on stream flow, and the final predicted flows will be subject to the outcome of permitting for the other elements, final design will be completed after the initial project elements are permitted.

The proposed enhancement work within the golf course reach will be constructed using trackhoes, excavators, bulldozers, and similar equipment. Although the work will be completed during the summer months to avoid critical lifestages of salmon and trout, a temporary bypass will be used to ensure that the project minimizes the potential for sediment transport downstream. Before the stream water is diverted into the temporary pipe, fish will be removed from the work areas using nets and will be placed in an appropriate location downstream.

12. *Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity plan, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.*

The projects covered under this checklist would be constructed in several locations along Des Moines Creek, from the headwaters of the West Fork immediately south of the Sea-Tac International Airport downstream to a point approximately 200 feet into Puget Sound. For simplicity, these will be referred to as (1) the Golf Course/Regional Detention Facility Site, (2) the Ravine/Trail Reach, (3) the Midway Treatment Plant Area, and (4) the Des Moines Creek Beach Park Area.

Golf Course/Regional Detention Facility Site

As shown in Figures 2 and 3, the regional detention facility is proposed along the western edge of the existing Tye Golf Course in the northeast quarter of Section 5 and the northwest quarter of Section 4, Township 22 North, Range 04 East. In this same area, the bypass pipe would be

installed from the existing Tyee Pond to the existing 24-inch sanitary sewer line that runs under the golf course. The flow augmentation facility (including the well, pump, and discharge to the stream) would also be located in this area.

Ravine/Trail Reach

Below South 200th Street, two sections of new pipe will need to be installed to complete the high flow bypass system, which runs from Tyee Pond on the golf course to the outlet into Puget Sound. The first is a 1,600-foot section of new pipe beginning approximately 1,000 feet south of South 200th Street in the Des Moines Creek Park. This new section would run parallel to the existing recreational trail, first on the south and then on the east side, as the trail meanders through the park. The distance of the trail will vary as necessary to avoid existing utilities, but will typically be within 10 feet of the currently paved surface. This work lies in the southwest quarter of Section 4, Township 22 North, Range 04 East.

Midway Treatment Plant Area

The second section of new bypass pipe will be located on the Midway Sewage Treatment Plant property in the northwest quarter of Section 8, Township 22 North, Range 04 East. This new pipe is needed to route the stormwater around the sewage treatment plant. The new pipe section would then be reconnected to the existing piped system, allowing the stormwater to flow out into Puget Sound via an existing wastewater outfall that is soon to be abandoned.

The proposed habitat enhancement work would be completed in the West Fork of Des Moines Creek on the golf course and in several locations on the mainstem of Des Moines Creek from South 200th Street downstream to the mouth.

Des Moines Creek Beach Park/Puget Sound

Downstream of Marine View Drive, in the southwest quarter of Section 8, Township 22 North, Range 04 East, the project will include stream habitat enhancement involving the placement of large woody debris and rounded boulders. Bank stabilization and buffer revegetation within this area may also be pursued. Within Puget Sound, north of the Des Moines Marina, the existing sewer outfall may be modified by removing a diffuser to increase the volume of water that can be carried by the pipe.

B. ENVIRONMENTAL ELEMENTS

1. Earth

- a. *General description of the site (underline one): flat, rolling, hilly, steep slopes, mountainous, other.*

The proposed work encompasses a variety of settings throughout the Des Moines Creek Basin. These range from a very flat plateau at the upper end, a rather steep-sided ravine in the middle reach, and finally to a relatively flat-gradient channel that enters Puget Sound.

- b. *What is the steepest slope on the site (approximate percent slope)?*

The steepest portion of the project area is located within the ravine reach of Des Moines Creek where side slopes of the ravine range from 25 to 40 percent. All excavation and

earthmoving is scheduled to occur on flat portions of the project area, with slopes no greater than 10 percent.

- c. *What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.*

The soil types throughout the basin vary widely depending on the landscape position, ranging from organic material near the headwaters to cobble beach at the edge of Puget Sound.

Golf Course/Regional Detention Facility Site

The King County Soil Survey (U.S. Department of Agriculture, Soil Conservation Service, 1973) maps the soils in the vicinity of the regional detention facility as a combination of Urban soils (including fill and highly modified native soils), Bellingham silt loam (located immediately north and west of the Northwest Ponds), and Norma silt loam. Soil pits in this area, however, revealed an extensive amount of organic material (primarily peat) adjacent to the ponds and within the broad valley, which runs across the golf course. Indianola fine loamy sand (4 to 15 percent slopes) is mapped in the wooded, modestly sloped areas south of the ponds.

Ravine/Trail Reach

South of South 200th Street, where a new section of bypass pipe will be added, Norma silt loam and Bellingham silt loam are identified. Where the channel picks up gradient, however, the soils change to Indianola fine loamy sandy and then to Alderwood gravelly sandy loam (15 to 30 percent).

Midway Treatment Plant and Des Moines Creek Beach Park

Indianola and Alderwood soils extend down the ravine, where they transition into a combination of Alderwood-Kitsap soils near the treatment plant and Urban soils within the Des Moines Beach Park. The soils along the edge of Puget Sound are mapped as Coastal beach and consist of sand and gravel.

- d. *Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.*

Sections of Des Moines Creek run through a steep ravine, which has a history of small slope failures. If left unchecked, the heavy stream flows that occur during storm events will continue to erode the bed and banks of the stream and could trigger larger slope failures within the ravine reach.

- e. *Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate the source of fill.*

The proposed projects will involve extensive grading, primarily within the upper end of the basin where the proposed regional detention facility would be constructed. Although final grading plans are not yet complete, preliminary estimates suggest that 137,000 cubic yards of material will be excavated from the golf course and the area directly north of the existing ponds. Another 15,000 cubic yards of material will be imported to the site for

constructing the two berms located on the golf course that will be used to contain the stormwater. Fill would likely consist of a mixture of materials, ranging from fine grained silts to small gravel, obtained from local mine sites. In addition, approximately 500 cubic yards of streambed gravel, approximately 600 rounded boulders, and 75 pieces of large woody debris will be imported to reconstruct the stream channel on the golf course.

In addition, grading to install the Tyee diversion pipe and the three new sections of bypass pipe in the golf course, the ravine/trail reach, and the Midway Treatment Plant area will involve the excavation of approximately 15,000 cubic yards of material. Approximately 9,000 cubic yards of this material will be used to backfill the trenches, along with an estimated 6,000 cubic yards of crushed rock and gravel.

Material excavated from the site will be disposed of off-site, at an approved site or sites, in accordance with all federal, state, and local permits. Given the high quality and organic content of some of the soil to be excavated from within the golf course, some of this material may be salvaged.

- f. *Could erosion occur as a result of clearing, construction, or use? If so, generally describe.*

Construction of the various phases of this project will involve earthwork in and adjacent to wetland and stream areas. Soil erosion is always a possibility during construction, particularly around wetlands and streams. To minimize the potential for erosion, aggressive erosion control measures need to be employed. As part of the permit applications for local, state, and federal permits, including the National Pollutant Discharge Elimination System (NPDES) permit, a comprehensive temporary sediment and erosion control plan, a spill control plan, a hazardous materials management plan, and a stormwater monitoring plan will be developed and submitted for review. A partial list of specific erosion control measures to be employed is included below in the response to item 1(h).

- g. *About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?*

The project will create approximately 6,200 square feet of new impervious surface resulting from the surfacing of the earthen berms and a small well house.

- h. *Proposed measures to reduce or control erosion or other impacts to the earth, if any:*

Protecting the stream and downstream areas from erosion is the central focus of the projects. To minimize the potential for impacts resulting from project construction, a comprehensive sediment and erosion control plan will be implemented. This will include, at minimum, the following measures:

- Prior to construction, clearing limits will be marked in a highly visible manner and remain so marked until construction is complete.
- Work in wetlands and streams will only be completed during the dry summer months, when the chance of precipitation is very low.

- All in-water work will be completed within the “fish window” established by state and federal permit agencies.
- Clearing of groundcover vegetation will be completed in stages so that clearing will only occur in those areas slated for immediate excavation.
- Prior to construction and as necessary, silt fencing will be installed as appropriate to prevent sediment from entering portions of the stream and wetland that are not being modified.
- Where feasible, the existing golf course fairways will be used for the biofiltration of sediment-laden water.
- If necessary, temporary sediment ponds will be constructed elsewhere on the golf course property to provide additional treatment of turbid water.
- Stream flows will be bypassed with a pipe or by pump to prevent surface water from entering the worksite.
- Where instream work is unavoidable and a bypass of flows or dewatering is not possible, a silt fence with a weighted toe will be used to prevent sediment-laden water in the work area from mixing with clean water in the wetland or stream.
- Excavated materials will be stockpiled outside of areas that might be subject to inundation or flowing water.
- Bare soil left unworked for more than two weeks during the dry season and two days during the wet season will be seeded and/or covered with straw, wood mulch, compost, or plastic sheeting.
- To minimize the inflow of groundwater into the work area, the outlet of the pond and the bed of the stream will be lowered prior to excavation of Cells 1 and 2.
- Clearing within work and staging areas will be minimized to maintain vegetative cover, minimize erosion, and preserve riparian vegetation and cover.

A more comprehensive list and description of the measures that will be taken to minimize potential impacts of construction will be outlined in the temporary sediment and erosion control plan, a spill control plan, a hazardous materials management plan, and a storm-water monitoring plan prepared for the project.

2. Air

- a. *What types of emissions to the air would result from the proposal (for example, dust, automobile, odors, industrial, wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities, if known.*

During construction, exhaust from construction equipment and vehicles delivering or removing materials to or from the construction areas will be the primary source of emissions to the air. This includes emissions from trucks, excavators, bulldozers, backhoes, trackhoes, and similar equipment. The exhaust will consist mainly of carbon monoxide, various hydrocarbons, and related substances.

The only emissions to the air resulting from the completed project would be from vehicles used by maintenance or monitoring personnel. These emissions are expected to be negligible.

- b. *Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.*

No. Although there are emissions from the surrounding urbanized areas, including the airport located immediately to the north, these emissions are not expected to affect the construction or operation of the completed project.

- c. *Describe proposed measures to reduce or control emissions or other impacts to the air, if any.*

Short-term construction-related impacts to the air could be reduced or controlled by several means:

- Avoiding prolonged periods of vehicle idling.
- Using vehicles and machinery in good operating condition.
- Cleaning truck and machinery tires before leaving the staging areas to keep dirt and dust from entering the air and from being tracked onto paved streets. If necessary, local streets will be cleaned to remove dust, dirt, and/or mud.
- Controlling dust by using watering trucks as necessary during construction.

3. Water

- a. *Surface:*

- 1) *Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, and wetlands)? If yes, describe the type and provide names. If appropriate, state what stream or river it flows into.*

The majority of the proposed work will occur in or adjacent to Des Moines Creek or associated wetlands. The regional detention facility described above will be constructed by modifying a portion of a large wetland, commonly referred to as the Northwest Ponds, located at the upper end of the West Fork of Des Moines Creek. This wetland contains a man-made, open-water component that will be modified to increase the storage capacity of the pond and nearby areas. Water emerging from the wetland flows downstream through Des Moines Creek, which discharges directly into Puget Sound.

Although the proposed bypass system will use a soon-to-be-abandoned sanitary sewer line, new sections of pipe will need to be installed just south of South 200th Street and around the Midway Sewage Treatment Plant (see Figure 2). In both locations, the work would be completed within areas already disturbed and for the most part maintained. This work will be located outside of the stream, but will be located in

some places as close as 20 feet from the existing channel or associated wetlands. The bypass system will ultimately discharge into Puget Sound via an existing wastewater outfall to be abandoned by the Midway Sewer District. The existing sewer line will be sanitized prior to use, and will be a closed system that carries only excess stream flows. Materials removed from the pipe during cleaning will be sent to the Midway Sewage Treatment Plant for treatment prior to release.

- 2) *Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.*

Yes. In order to effectively capture and control flows within the basin, a 1,200-foot reach of Des Moines Creek and approximately 11 acres of the Northwest Ponds wetland will be modified. Both areas are highly disturbed already, and will be restored with native vegetation following construction. Neither alteration will result in a loss of wetland or stream habitat. A more detailed description of these activities is included below. A plan set showing the proposed alterations is also attached.

Wetland Modifications

The area referred to as the Northwest Ponds is in fact part of a large wetland system that includes the ponds themselves, portions of the existing golf course, and extensive areas both northeast and southwest of the ponds (see Figure 3). To accommodate the storage necessary to provide meaningful stream protection, a substantial portion of this wetland will need to be modified. This would require the construction of two berms to impound water and the excavation and regrading of approximately 11 acres of the wetland, of which 8 acres are already highly disturbed. Of this area, roughly 5 acres lie within the golf course and are dominated by turf grasses, while another 3 acres are dominated by invasive scrub-shrub species (see Figure 3). Although these modifications will disturb some existing plant communities, the disturbed areas will be restored and, with the exception of the area filled for the berms, will remain wetland. The net change in the wetland will be the conversion of 5 acres of turf grass to native scrub-shrub vegetation, conversion of 3 acres of invasive scrub-shrub into native scrub-shrub vegetation, and the grading and replanting of 3 acres of scrub-shrub vegetation. The wetland will also be expanded by approximately 1 acre, making the wetland larger once the project is complete.

To increase storage capacity and protect the high-quality forested portions of the wetland, the water surface elevation within the existing open-water areas will be lowered by approximately 3 feet. This will allow the storage of an additional 3 feet of water before stormwater spills over into plant communities that are more sensitive to water level fluctuations. Combined with the excavated areas to the north and east, approximately 140 acre-feet of storage is possible without regularly flooding those forested areas. Flooding will still occur in those forested areas as it currently does, at a frequency and duration that will maintain the forest plant communities and not adversely affect plant species diversity. For a more detailed discussion of the hydrologic models used and their results, see the discussion beginning on page 39 of the *Preliminary Design Report* (King County, 1999) and Appendix A of that report.

The berms described above would be constructed along the alignment of an existing golf-cart path, located just east of the Northwest Ponds, and at the Approach Light

Road, respectively (see Figure 3). Approximately 0.6 acre of wetland within the existing golf course currently planted with turf grass or used as cart paths would be filled for berm construction. Temporary construction impacts associated with installation of the conveyance pipes to connect the East Fork to the Northwest Ponds are also expected.

Wetland Water Level Fluctuations

In addition to the direct alterations to the wetland outlined above, the use of the Northwest Ponds as part of a regional detention facility will change the volume and timing of water that enters and exits the wetland. Although the response of wetlands to the input of stormwater is not completely understood, the most comprehensive study conducted to-date in this area is the Puget Sound Wetland and Stormwater Management Research Program (PSWSMRP). That study concluded that (other than direct wetland alteration) it is the change in wetland hydrology that has the most profound effect on wetland communities as adjacent land use changes occur. Changes in wetland hydrology, typically measured by the increase in depth, frequency, and duration of flooding within wetland communities, tend to adversely affect plant species diversity. The resulting changes in the plant community in turn have an adverse effect on wetland function and wildlife species dependent on those areas. To protect existing communities, the PSWSMRP makes a series of recommendations regarding allowable changes to water level fluctuations.

Modeling completed for the *Preliminary Design Report* demonstrates that the frequency and duration of flooding in the high-quality forested community to the south and east of the existing ponds will be consistent with the recommendations of the PSWSMRP. Instead of being flooded out, those areas will in fact see fewer flooding events for shorter periods of time as a result of the project. Although construction of the berms would make it possible to store water well above current levels, this would occur so infrequently and for such short durations that it would have no measurable impact on these forested communities. The impacts on this portion of the wetland would therefore be a function of drawdown and loss of flood frequency. This drawdown effect is expected to be limited to a narrow fringe area surrounding the ponds. Because the majority of this forested wetland lies above this frequently flooded fringe, it is reasonable to assume that this change will not adversely affect its function. Pre- and post-construction monitoring of the groundwater within the fringe, however, is being proposed to more accurately track and mitigate for changes that do occur.

Within the newly configured wetland to the north and east of the existing ponds, the model shows that the goal of establishing a scrub-shrub community is attainable. While flooding in this area is predicted to be frequent and last for several days at a time, these areas will be revegetated following excavation with willow and other native species tolerant of high water level fluctuations. The scrub-shrub community will also discourage waterfowl, particularly Canada geese, from using the regional detention facility by eliminating the open areas adjacent to the existing ponds.

More detailed information about the modeling and predicted water level fluctuations can be found beginning on page 46 of the *Preliminary Design Report* (King County,

1999). During final design, however, the model will be refined with regard to seasonal fluctuations to more reliably select the suitable species.

Stream Modifications

To effectively lower the water surface elevation of the ponds, the outlet channel (West Fork of Des Moines Creek) must also be lowered. This will require the reconstruction of approximately 1,200 linear feet of the existing channel and the removal of two artificial weirs located within that reach. To accommodate the additional depth and improve conveyance, the banks will also be modified. In its current configuration, the channel gradient (slope) is very flat (less than 0.5 percent) through much of the golf course and then steepens to approximately 2 percent as it approaches South 200th Street. The flat reach has limited flow capacity because of its low gradient and the abundance of vegetation growing within the channel. Within this reach, water quality, particularly through the summer months, has been poor, characterized by high temperatures and low dissolved oxygen levels. In order to more effectively convey water, the overall slope of the channel would be made more consistent across the golf course (approximately 1 percent), and the channel will be reconfigured to maintain a more free-flowing, gravel-bedded environment. By increasing the channel gradient, adding channel roughness, and providing a vegetative buffer, the project is expected to improve both habitat and water quality within this reach of the stream.

Restoration and enhancement of this channel will include both instream habitat features, such as large woody debris and gravel, cobbles and boulders, as well as buffer revegetation. As currently proposed, there will be no permanent loss of stream function or length as a result of conveyance improvements to the stream for either construction or operation of the regional detention facility.

Habitat Enhancement

As part of the habitat enhancement efforts within the lower two zones (see Figure 2), large woody debris, gravel, cobbles, and boulders will be placed within the stream. These will likely be added in select reaches from South 200th Street to the mouth to increase habitat diversity and improve fish passage. These materials will be added from the existing trail, where possible, or from previously improved areas such as within the Midway Sewage Treatment Plant property. Materials used will be placed with trackhoes operating outside the wetted perimeter of the stream.

- 3) *Estimate the amount of fill and dredge material that could be placed in or removed from surface water or wetlands and indicate the area of the site that will be affected. Indicate the source of fill material.*

Based on preliminary grading plans, an estimated 137,000 cubic yards of material will be excavated from the wetland and stream areas, as outlined above.

Construction of the berms will require approximately 15,000 cubic yards of material, with roughly one-half of this being placed within the 0.6 acre of wetland. The remainder will be placed in adjacent upland locations. An estimated 500 cubic yards of streambed gravel, 600 rounded boulders, and 75 pieces of large woody debris will be placed within the reconfigured stream.

- 4) *Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities, if known.*

Yes. Surface water will be diverted from the East Fork of Des Moines Creek directly to Puget Sound through a bypass pipe. This will greatly reduce the volume of water flowing through the channel during storm events and therefore significantly reduce erosion. A second diversion is also planned that would route surface water from the East Fork of Des Moines Creek to the regional detention facility located in the West Fork subbasin. This would occur during storm events that are greater than the predicted 2-year event. This water would then be released slowly back into Des Moines Creek, again substantially reducing the erosive power of the stream.

- 5) *Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.*

Yes. Two reaches of Des Moines Creek have been identified as being located within the 100-year floodplain, as mapped on Flood Insurance Rate Map No. 53033C0962 F, dated May 16, 1995. The first reach, located from the mouth to Marine View Drive, is mapped as Zone AE. The second, which extends from Marine View Drive to South 212th Street (if extended), is mapped as being in Zone A. No reduction in floodplain storage volume or alteration of out-of-bank flows would occur. By routing a portion of high flows through the bypass system rather than the stream, the floodplain in the vicinity of the Des Moines Creek Beach Park should be reduced.

Based on available information, it appears that a section of new pipe needed to complete the high flow bypass around the Midway Sewage Treatment Plant would be constructed within the second floodplain area.

Although not mapped as such, portions of the Tye Golf Course flood regularly during the winter months. Depending on the weather, these areas can remain inundated for much of the winter. A minor reduction in floodplain storage from berm creation is more than offset by excavation in this area.

- 6) *Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.*

No. Although the proposed bypass system will use an abandoned sanitary sewer pipe, the pipe will be sanitized prior to use and will only carry excess stream water taken directly from the East Fork of Des Moines Creek. The bypass system will be entirely isolated from wastewater sources; therefore, the water discharged into Puget Sound will not contain any waste materials.

b. *Ground:*

- 1) *Will groundwater be withdrawn, or will water be discharged to groundwater? Give general description, purpose, and approximate quantities, if known.*

As part of this proposal, groundwater would be withdrawn above South 200th Street and released directly into Des Moines Creek during periods of extremely low flow.

This is being proposed to help ensure the survival of fish and other aquatic life within the stream when flows fall below a certain minimum amount. Currently, the target release rate would be a maximum of 1 cubic foot of water per second, which equates to 448.8 gallons per minute. The duration of this activity will be dependent on actual stream flow conditions, but is expected to be needed for less than two weeks during the typical summer period.

Using groundwater to supplement stream baseflow is sometimes a controversial concept. Depending on the depth of the groundwater being withdrawn, it is possible that water taken out in one location reduces the amount of water that would otherwise make its way to the stream via groundwater transport in another. In this case, however, the well proposed for use draws water from well below the streambed (approximately 300 feet below) and does not appear to contribute any flow to the stream.

- 2) *Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example, domestic sewage, industrial chemicals, agricultural, etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.*

No waste materials will be discharged into the ground.

c. *Water Runoff (including stormwater):*

- 1) *Describe the source of runoff (including stormwater) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.*

This project is specifically designed to alleviate erosive energy of peak flows in Des Moines Creek that have resulted from inadequate stormwater controls required in the past. As designed, the project will employ both (1) a regional detention facility intended to store and more slowly release stormwater, and (2) a bypass pipe system that will reroute erosive stream flows directly to Puget Sound. Water stored within the facility will be released back into Des Moines Creek, but at a slower rate to decrease erosion and habitat degradation within the stream. Water carried through the bypass pipe will be discharged directly into Puget Sound, approximately 200 feet offshore via a soon-to-be-abandoned wastewater outfall.

- 2) *Could waste materials enter ground or surface waters? If so, generally describe.*

No. This project is designed to collect and manage existing surface water from both the East and West Forks of Des Moines Creek. No wastewater or effluent of any kind will be conveyed by this system.

d. *Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:*

Mitigation for this proposal was not an afterthought but an integral part of the project design. With the stated goal of restoring Des Moines Creek as its primary purpose, the

implementation of the *Des Moines Creek Basin Plan* itself is in effect mitigation for the lack of effective stormwater control in the past. Controlling the erosive flows to protect and restore the stream, however, will have an impact on the wetland area referred to as the Northwest Ponds. With the proper design and management of the facility and appropriate mitigation, however, the detrimental effects will be minimized. Over time, the resulting modifications will provide greater function to the basin overall.

To mitigate for the impacts associated with the regional detention facility, the following design and/or project components have been incorporated:

- Creation of approximately 1 acre of additional wetland within the regional detention facility by excavating existing upland areas within the golf course.
- Revegetation of the excavated areas with native wetland plant species and conversion of approximately 8 acres from invasive, non-native species to a native wetland community.
- Dampening of wetland water level fluctuation within the forested portions of the wetland. The reconfigured outlet channel and the connection of the flow bypass system will allow the water surface elevation of the ponds to return rapidly to normal following a storm event. This significantly reduces the effects of prolonged inundation resulting from the use of the wetland for stormwater management.
- Reduction of the erosive flows within Des Moines Creek. Although regulatory agencies generally are reluctant to grant mitigation credit for "out-of-kind" mitigation, the goal of the project to restore and enhance the aquatic environment is beneficial to the basin as a whole.

4. Plants

a. *Check or underline types of vegetation found on the site:*

- Deciduous trees: alder, maple, aspen, willow, cottonwood, other
- Evergreen trees: fir, cedar, pine, other
- Shrubs: salmonberry, vine maple, hazelnut, Indian plum, blackberry
- Grass: turf grasses (found on the golf course), reed canarygrass
- Pasture
- Crop or grain
- Wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
- Water plants: water lily, eelgrass, milfoil, waterpepper, other
- Other types of vegetation

The majority of the project elements are located in open-space areas associated with the Tyee Golf Course, the Northwest Ponds, or the Des Moines Creek Park, which follows Des Moines Creek from South 200th Street to Puget Sound. The golf course is maintained turf grasses, with a small number of ornamental trees (that is, lombardy poplars) and willows along the cart paths or stream. The Northwest Ponds wetland includes a large forested and scrub-shrub area dominated by black cottonwood, red alder, dogwood, Indian plum, and salmonberry. Himalayan and Evergreen blackberry, reed canarygrass, and other invasive species are prolific in much of this area, except where they are shaded out

completely by mature cottonwoods. The wetland also contains open-water components and emergent areas containing cattail, waterpepper, and buttercup.

The area along the Des Moines Creek trail includes a largely deciduous forest with hemlock, cedar, and fir in smaller numbers. Along the trail, big-leafed maple, alder, and cottonwood are common, with salmonberry, Indian plum, beaked hazelnut, and sword fern common in the understory. As in other areas, Himalayan blackberry is prolific along the edge of the forested areas and where disturbance has opened the canopy.

b. *What kind and amount of vegetation will be removed or altered?*

Construction of this project will require the removal of the following:

- Approximately 5 acres of emergent vegetation (that is, lawn grasses) on the golf course.
- Approximately 3 acres of scrub-shrub area dominated by reed canarygrass and Himalayan and Evergreen blackberries.
- One acre of forested area consisting of mature cottonwoods with salmonberry understory.
- One acre of shrub area dominated by native willow species.
- Approximately 1.5 acres of upland dominated by red alder, salmonberry, and blackberry will be removed to install a new section of bypass pipe.

c. *List threatened or endangered species known to be on or near the site:*

There are no known threatened or endangered plant species known to be present within the project area.

d. *Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:*

Following construction, all disturbed areas with wetlands, streams, or their required buffers will be revegetated with appropriate native plant species. This includes the 8 acres of highly disturbed wetland area within and adjacent to the golf course that will be converted from invasive, non-native species to scrub-shrub areas dominated by native willows. In addition, all areas disturbed during construction, with the exception of the paved surface of the recreational path through the Des Moines Creek Park and the tops of the berms, will be revegetated using native plants.

5. Animals

a. *Check or underline any birds or animals that have been observed on or near the site, or are known to be on or near the site:*

- Birds: hawk, heron, eagle, songbirds, other
- Mammals: deer, bear, elk, beaver, other: fox
- Fish: bass, salmon, trout, herring, shellfish, other

Fish species known to occur in Des Moines Creek include coho and chum salmon, searun cutthroat trout, a limited number of steelhead, and an occasional pink salmon. Resident cutthroat, although not numerous, are found throughout the stream from the Northwest Ponds to just above the mouth. Warmwater species such as pumpkinseed sunfish, large mouth bass, sculpins, and sticklebacks are also present. The culvert under Marine View Drive currently creates a fish-passage barrier, effectively limiting the distribution of salmon to the reach between Marine View Drive and the mouth. The City of Des Moines is currently seeking permits to replace that culvert with a bridge on behalf of the Basin Committee.

The mixed-forested community within the Des Moines Creek Park, adjacent to the Northwest Ponds, provides habitat for many species of birds and mammals. Bird species observed within the project vicinity include the American robin, cedar waxwing, black-capped chickadee, common bushtit, downy woodpecker, European starling, American goldfinch, red-shafted flicker, song sparrow, Steller's jay, rufous-sided towhee, belted kingfisher, rufous hummingbird, mallard ducks, common crow, glaucous-winged gulls, dark-eyed junco, Canada goose, red-tailed hawk, Virginia rail, and great blue heron. Bald eagles have been sighted in the vicinity, with the closest nest being located near Angle Lake. Roost trees used by eagles have also been reported near the mouth of Des Moines Creek by local residents.

Mammals reported to be present in the project area include western gray squirrel, raccoon, opossum, rabbit, coyote, deer, deer mouse, voles, and Pacific Coast mole. Red fox has also been sighted near the Midway Sewage Treatment Plant. Bullfrogs and three-spined sticklebacks have been found within the open-water portions of the Northwest Ponds.

b. List any threatened or endangered species known to be on or near the site:

Lists obtained from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service indicate that the marbled murrelet, resident and wintering bald eagles, bull trout, and chinook salmon may be located within the vicinity of the project. Recent Section 7 consultations for another project on Des Moines Creek indicated no use of the stream or the surrounding area by these species. Both chinook salmon and bull trout, however, may use the nearshore environment near the mouth of Des Moines Creek. Section 7 consultations for this project are anticipated.

c. Is the site part of a migration route? If so, explain.

Yes, the site is located on the Pacific Flyway and therefore may provide some refuge for migratory birds. The lower reaches of Des Moines Creek are also used by salmon and trout at various lifestages, including upstream and downstream migration. Although access is currently limited, the replacement of the Marine View Drive culvert with a bridge will greatly expand the habitat available for salmon and trout species.

d. Proposed measures to preserve or enhance wildlife, if any:

The primary goal of these projects is to restore and enhance Des Moines Creek and the fish species that use that system. In addition to stabilizing the channel, reducing erosion, and removing physical barriers to upstream migration, the project will add large woody debris

and natural streambed materials to degraded reaches of the stream to help recreate channel complexity for the benefit of salmon, trout, and other aquatic life. By increasing stability, removing barriers, and improving habitat conditions, an additional mile of suitable habitat should become available to salmon species. The proposed low flow augmentation should likewise make the stream more habitable for resident fish and aquatic organisms, as well as increase the likelihood of survival for juvenile coho salmon that rear in their natal streams for an entire year. Regrading low-gradient portions of the stream will eliminate the seasonal low-dissolved oxygen area on the golf course, which is believed to be lethal to fish. Buffer restoration in this same reach will reduce heating caused by lack of vegetation and solar insolation.

By removing extensive areas of invasive non-native species and revegetating with appropriate native plant species, the project will have a positive effect on wildlife as well. Aside from the fish, terrestrial species dependant on the stream will likewise benefit directly and indirectly by having a healthier stream.

In the area immediately south of the Sea-Tac International Airport surrounding the proposed regional detention facility, however, wildlife use will not be encouraged. Much of the proposed construction there is located directly under the flight path of both inbound and outbound flights. The Federal Aviation Administration (FAA) has deemed wildlife in these areas, particularly large-bodied birds and flocks of smaller birds, to be a hazard to the flying public. To minimize the risk, the FAA has promoted the control and, where possible, the elimination of hazard wildlife species in and adjacent to airport properties. It has also instituted an official policy, outlined in FAA Advisory Circular 150, that wildlife attracting land uses within 10,000 feet of airports should be strongly discouraged. In keeping with this policy, this project will not intentionally create any new permanent open-water areas and will use vegetation. If necessary, netting or other mechanical means will be used to discourage waterfowl from using the areas where additional short-term storage will occur. Areas that are currently flooded for weeks or months on the golf course will, after construction of the pond, no longer be so attractive to waterfowl due to reduction in flooding frequency and conversion of turf grasses to a scrub-shrub vegetative cover. As planned, the threat of bird strikes should decrease.

6. Energy and Natural Resources

- a. *What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.*

The completed project will use a limited amount of electricity to operate the well pump, installed to supplement the stream during extreme low flow conditions. The project will otherwise not use any energy.

- b. *Would your project affect the potential use of solar energy by adjacent properties? If so, explain.*

No. The project will have no effect on solar energy availability.

- c. *What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:*

The pump selected for the flow augmentation well will be operated only when necessary to supplement low flow conditions within the stream. The amount of electricity used should be limited, but can be further reduced by using an automated switch that turns the pump on and off, based on flow rate and/or depth of water within the stream channel.

7. Environmental Health

- a. *Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.*

As designed, the regional detention facility will, at maximum capacity, retain a large volume of water behind its berms. While remote, it is possible that these berms could fail, releasing water downstream. To minimize the risk of this occurrence, the berms will be designed to meet or exceed state dam safety requirements and be operated in accordance with a comprehensive dam safety plan developed specifically for these dams. To further ensure the safe design, construction, and operation of the facility, the Washington State Department of Ecology will review the facilities for safety and require monitoring and periodic inspections of the berms.

- 1) *Describe special emergency services that might be required.*

In the event of berm failure, South 200th Street would likely need to be closed. Downstream areas, particularly the senior center buildings located in the Des Moines Beach Park, would also need to be advised and the occupants evacuated to ensure that no one would be injured.

- 2) *Proposed measures to reduce or control environmental health hazards, if any:*

The berms are being designed to exceed state dam safety standards and will be operated in accordance with a dam safety plan.

- b. *Noise:*

- 1) *What types of noise exist in the area that may affect your project (for example, traffic, equipment operation, other)?*

A large portion of the proposed project lies immediately beneath the flight path of the Sea-Tac International Airport. Aircraft noise in this area is quite frequent and loud, and at times makes it difficult to hear other background noises. In addition, traffic along the streets in the project vicinity will contribute a small amount of background noise to the project area. These sources of noise will have no effect on the performance of the completed project, but may create a periodic disruption of verbal communication between construction crews during project construction.

- 2) *What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example, traffic construction, equipment operation, other)? Indicate what hours noise would come from the site.*

Construction of the regional detention facility and the new sections of bypass line will create some short-term noise impacts. The most intensive noise levels will occur at the construction sites where the noise levels will typically range from 75 to 95 dBA (decibels).

- 3) *Proposed measures to reduce or control noise impacts, if any:*

Construction noise will comply with the provisions of applicable noise ordinances. Equipment operation will be limited to the hours from 7 a.m. to 7 p.m., Monday through Friday. Work on Saturday will be limited to the hours from 9 a.m. to 5 p.m.

8. Land and Shoreline Use

- a. *What is the current use of the site and adjacent properties?*

The basin as a whole is largely developed with commercial uses, including the airport, warehouses, hotels, multifamily residential areas, and local businesses dominating the upper basin. The central portion of the basin has a higher percentage of single-family residential uses, but also supports commercial and local businesses. The lower basin includes portions of the City of Des Moines that have a mix of commercial and residential structures. Land uses in the vicinity of the proposed regional detention facility include recreational property. The locations within the basin that will be affected most by this project are largely recreational areas, including the Tyee Golf Course and the Des Moines Creek Park. Both areas are primarily open space. Upon project completion, no visible disturbance or change of use will occur in the Des Moines Creek Park. Changes to the Tyee Golf Course will eliminate use of Fairway 13, but would otherwise allow continued use as a recreational site. However, the Tyee Golf Course is scheduled for closure due to disruptions anticipated from construction of other projects in the area.

- b. *Has the site been used for agriculture? If so, describe.*

The site of the proposed regional detention pond was once used for agriculture. Aerial photographs from 1936 to present show an evolution from agricultural use to peat extraction and eventually to golf course development. The remainder of the proposed work is located along the stream and within the ravine associated with it; they do not appear to have been used extensively for agriculture.

- c. *Describe any structures on the site.*

The Tyee Golf Course property has a number of structures located on it, including the clubhouse, a golf-cart storage garage, a maintenance garage, and a small snack shack. In addition, there are a series of approach light towers on the site that extend south from one of the runways to South 200th Street. The structures related to the operation of the golf course may be removed if and when the golf course closes.

One of the new sections of bypass pipe will be constructed across the Midway Sewage Treatment Plant site. There are several medium-sized buildings and enclosed treatment facilities on that site.

Downstream of Marine View Drive, the Des Moines Beach Park contains the community center and several other small buildings.

d. *Will any structures be demolished? If so, what?*

None of these structures will be removed or modified as part of this proposal.

e. *What is the current zoning classification of the site?*

SeaTac: Aviation Operations and Park.
Des Moines: Urban Estates – Residential.

f. *What is the current comprehensive plan designation of the site?*

SeaTac: Airport, Industrial, and Park.
Des Moines: Parks/Open Space and Public Facility (Midway Sewage Treatment Plant).

g. *If applicable, what is the current shoreline master program designation of the site?*

Des Moines Creek itself is a small stream (less than 20 cubic feet per second of average annual flow) that does not meet the requirements for shorelines jurisdiction. Where Des Moines Creek flows into Puget Sound, however, the shoreline is classified as Urban.

h. *Has any part of the site been classified as an “environmentally sensitive” area? If so, specify.*

Yes. Des Moines Creek and the Northwest Ponds wetland are identified as sensitive areas under the applicable city and state classifications. In addition, a second wetland located south of South 200th Street would also be considered a sensitive area. Within the ravine reach, it is likely that much of the area is considered steep slopes and would be at risk for erosion. At the downstream end of the project, Puget Sound is considered a shoreline of the state and should be managed to protect aquatic species using that area.

i. *Approximately how many people would reside or work in the completed project?*

None. The completed project will not create housing or an employment center.

j. *Approximately how many people would the completed project displace?*

None. The project will not displace any businesses or residences.

k. *Proposed measures to avoid or reduce displacement impacts, if any:.*

Not applicable.

- l. *Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:*

The proposed projects covered by this checklist are recommendations of the *Des Moines Creek Basin Plan* and are therefore consistent with that document. Active involvement of the jurisdictions with land use authority ensure consistency with their applicable land use plans. Although not specifically identified in other planning documents, the projects are also consistent with the goals of the applicable zoning codes and stormwater management guidelines, which are intended to protect sensitive areas and provide meaningful stormwater management. The projects accomplish both by stabilizing the flow regime within Des Moines Creek and enhancing and protecting the higher quality portions of the wetland at the Northwest Ponds. With more manageable flows, existing fish habitat become more stable, and more meaningful fish habitat enhancement can be made.

Although the underlying zoning for the regional detention facility site is Industrial, the portion of the property proposed for this use is a part of the Northwest Ponds wetland. As such, it would not likely be developed regardless of the zoning.

9. Housing

- a. *Approximately how many units would be provided, if any? Indicate whether high-, middle-, or low-income housing.*

None. This project will not create any housing.

- b. *Approximately how many units, if any, would be eliminated? Indicate whether high-, middle-, or low-income housing.*

Not applicable.

- c. *Proposed measures to reduce or control housing impacts, if any:*

Not applicable.

10. Aesthetics

- a. *What is the tallest height of any proposed structure(s), not including antennas? What principal exterior building material(s) are proposed?*

The tallest proposed structures are the earthen berms, which are expected to be less than 10 feet high. All the other project elements are below ground.

- b. *What views in the immediate vicinity would be altered or obstructed?*

The berms proposed on the golf course will have a very low profile (approximately 10 feet above the existing elevations) and will not obstruct views.

- c. *Proposed measures to reduce or control aesthetic impacts, if any:*

The detention facility will be vegetated to create a native plant community in the areas where additional water will be stored. The presence of vegetation will help the facility blend in with the adjacent native areas and conceal the berms.

11. Light and Glare

- a. *What type of light or glare will the proposal produce? During what time of day would it mainly occur?*

The project will not produce any light or generate any glare.

- b. *Could light or glare from the finished project be a safety hazard or interfere with views?*

No. The reflection of light off the water stored in the detention pond was evaluated as a potential source of glare affecting pilots approaching or departing from the Sea-Tac International Airport. Given the elevation and position of the ponds and the angle of approaching and outgoing flights, it was determined that the facility would not generate any reflection that could interfere with incoming or departing flights. In addition, the facility will be entirely vegetated, thereby substantially reducing the amount of light that could potentially be reflected.

- c. *What existing off-site sources of light or glare may affect your proposal?*

None.

- d. *Describe proposed measures to reduce or control light and glare impacts, if any.*

Vegetation planted throughout the detention facility will help limit the amount of solar radiation reaching the flooded areas of the pond and help diffuse the reflections of that light.

12. Recreation

- a. *What designated and informal recreational opportunities are in the immediate vicinity?*

The Tyee Golf Course and the Des Moines Creek trail provide recreational opportunities near the upper end of the project in the vicinity of the regional detention facility. The trail continues south and would be in proximity to some of the proposed stream enhancement as well as pipeline repair that will be required. At the downstream end of the project, the Des Moines Beach Park, Des Moines Community Center, and Des Moines Marina provide a variety of recreational opportunities.

- b. *Would the proposed project displace any existing recreational uses? If so, describe.*

The regional detention facility is located on the western edge of the Tyee Golf Course. Construction of the detention facility would eliminate the thirteenth hole and fairway entirely. If the course were to remain open, the remaining holes would need to be

reconfigured as a result of this project. Other portions of the golf course, however, have been slated for development as part of the Port of Seattle's Master Plan projects. Anticipated impacts from the proposed extension of State Route 509 would also heavily impact the Tyee Golf Course. If plans for those projects move forward, the golf course would not have sufficient area to continue and would have to relocate or close.

- c. *Proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant, if any:*

By stabilizing the stream, reducing erosion, and enhancing the fish habitat available within it, the project should have a positive effect on recreational opportunities for trail users by creating a more complex habitat supporting a greater diversity of native plant and animal species. Construction of the Marine View Drive bridge will allow extension of the existing Des Moines Creek trail, providing additional trail mileage and facilitating linkage to existing trail networks.

13. Historical and Cultural Preservation

- a. *Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.*

None have been identified as being present. Written verification will be requested from the Washington State Office of Archaeology and Historic Preservation and the King County Office of Cultural Resources.

- b. *Generally describe any landmarks or evidence of historical, archaeological, scientific, or cultural importance known to be on or next to the site.*

No historical landmarks or archaeological, scientific, or cultural resource sites are known to be located on or near the project sites.

- c. *Describe proposed measures to reduce or control impacts, if any.*

Because the project is not expected to impact any listed or proposed archaeological or historical resources, no mitigation is being proposed. However, if cultural or archaeological resources are uncovered or encountered during project construction, work will cease immediately, and appropriate steps necessary to protect those resources will be taken prior to resumption of construction. If resources are discovered, the Washington State Office of Archaeology and Historic Preservation, the King County Office of Cultural Resources, the appropriate cities, and any affected tribal groups will be notified immediately, and an on-site inspection will be conducted by a state-certified archaeologist and other qualified resource professionals. A mitigation plan will be prepared prior to resuming construction at the site.

In addition, the measures and the possibility of uncovering materials of archaeological or historical significance near inland waters will be discussed during a preconstruction conference with the construction crew/contractor prior to performing the work on-site. A certified archaeologist will also review the checklist during the comment period.

14. Transportation

- a. *Identify public streets and highways serving the site and describe proposed access to the existing street system. Show on-site plans, if any.*

The regional detention site will be accessed from the south via South 200th Street and 18th Avenue South, which both run along the edge of the existing Tyee Golf Course. The upper portion of bypass line and stream enhancement work will cross South 200th Street and then follow the Des Moines Creek trail. Stream enhancement in the lower reaches of the stream and the section of bypass pipe around the wastewater treatment facility will likely use South 216th Street to gain access to the Midway Sewage Treatment Plant site. From there, the service road can be used to move up or downstream. Once construction is completed, the service road will be resurfaced to extend the trail.

- b. *Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?*

Not applicable.

- c. *How many parking spaces would the completed project have? How many would the project eliminate?*

No parking spaces will be created or required.

- d. *Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).*

No. The completed project will not require the creation of any new streets or roads. Access during construction will be from existing roads, but will not necessitate their improvement.

- e. *Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.*

Although the project will not use air, rail, or water transportation, the regional detention facility and the upper end of the bypass pipe are located immediately south of the Sea-Tac International Airport.

- f. *How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.*

The completed project will not generate any regular vehicular trips. Access to the sites for regular maintenance and monitoring activities will occur once or twice a month on average, but should not make any notable change in the base traffic counts. During construction, a large number of trucks will enter and exit the Tyee Golf Course site to remove excavated material and to bring in fill for the berms and the various construction equipment and supplies.

- g. *Proposed measures to reduce or control transportation impacts, if any:*

Traffic impacts are expected to occur primarily during the summer months in each of the four years the project is under construction. During the first two years, however, the level of truck activity is expected to be the highest as excavation of the regional detention facility and berm construction are underway. In subsequent years, the amount of traffic generated should be lower and more dispersed. To minimize impacts, trucks to and from the site will be scheduled, whenever possible, during non-peak traffic hours. Speed limits for trucks will be strictly enforced.

15. Public Services

- a. *Would the project result in an increased need for public services (for example, fire protection, police protection, health care, schools, other)? If so, generally describe.*

No. The project will not increase the need for public services.

- b. *Proposed measures to reduce or control direct impacts on public services, if any:*

Not applicable.

16. Utilities

- a. *Underline utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.*

- b. *Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity that might be needed.*

The completed project will require limited electrical connections, but will not otherwise require any additional utility services. Electrical service is already available at the site from Puget Sound Energy.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Title: _____

Date Submitted: _____

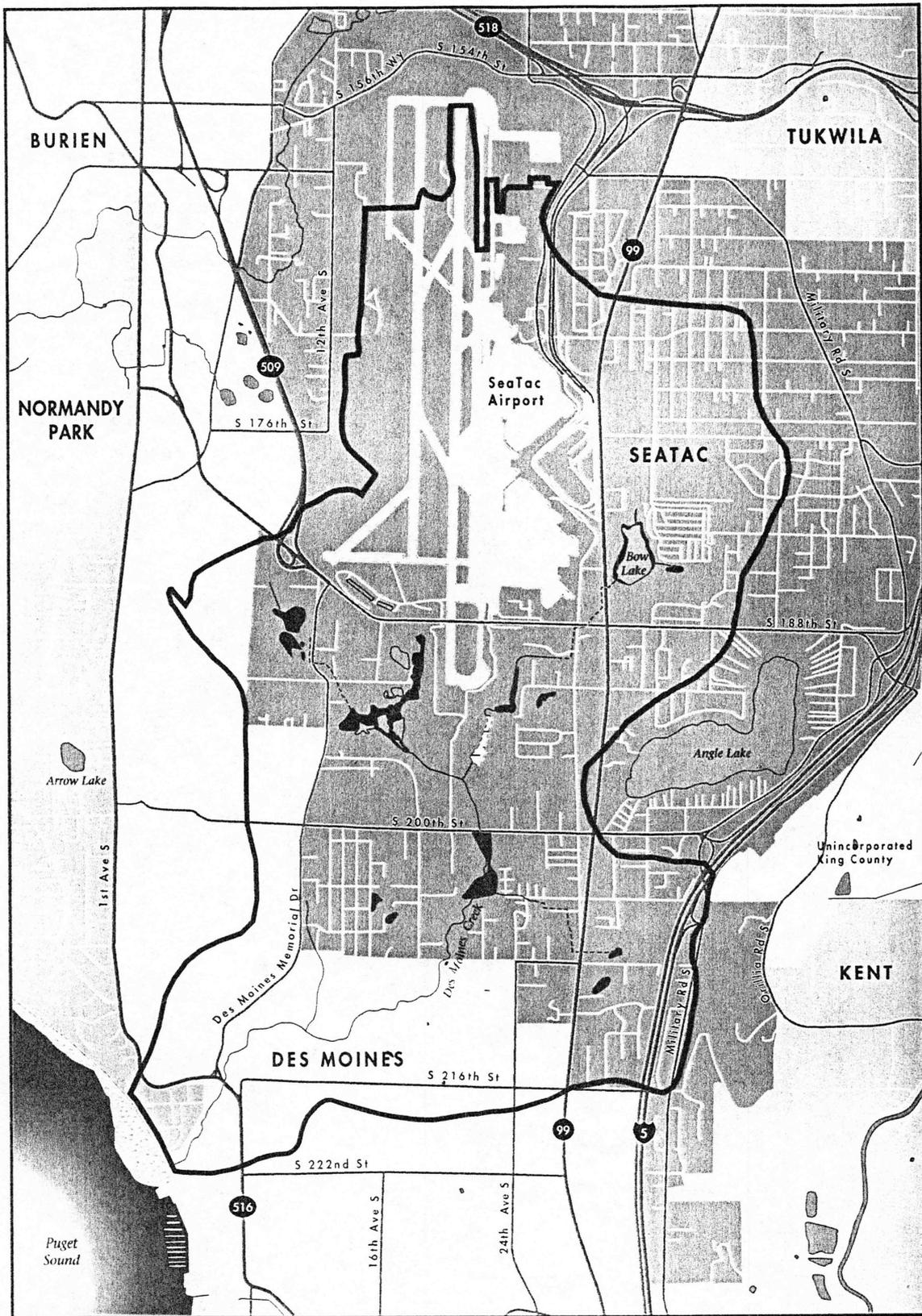
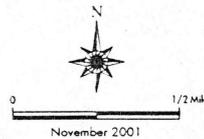


Figure 1
DES MOINES CREEK BASIN

- Basin Boundary
- Stream
- Piped Stream
- Lake
- Wetland
- R/D Facility



Map produced by:
GIS and Visual Communications Unit
Department of Natural Resources
0111D/MOINESjurisdictions.ai WGC

Base Map Notes:
All patches require 1000' PDS
Wetland Sources:
King County Wetland Map No. 1999
Map No. 1999 includes wetlands #1-2
Stream and Pipe Location Sources:
King County Wetland Map No. 1999
King County Wetland Map No. 1999
Roadway Sources:
King County Wetland Map No. 1999
King County Wetland Map No. 1999
Industrial Wastewater System Source:
King County Wetland Map No. 1999
King County Wetland Map No. 1999
Canal Lines Source:
King County Wetland Map No. 1999
Incorporated Areas Source:
King County Wetland Map No. 1999



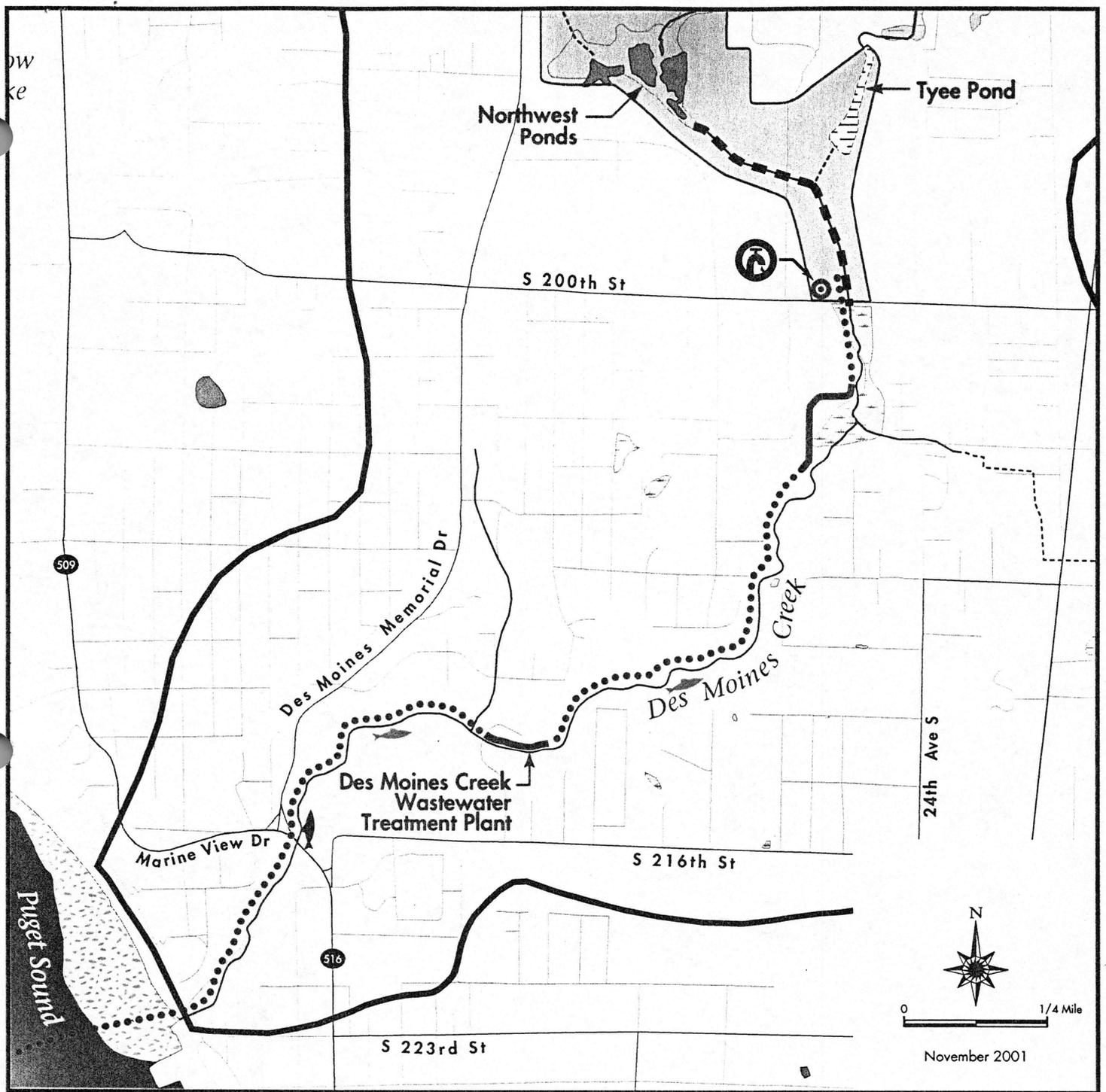


Figure 2
DES MOINES CREEK BASIN
 Capital Improvement Project Sites

-  Basin Boundary
-  Stream
-  Piped Stream
-  Lake
-  Wetland
-  R/D Facility
-  Shoreline
-  Regional Detention Facility Site
-  Flow Bypass Pipe: New Pipe
-  Flow Bypass Pipe: Reused Pipe
-  Fish Passage Improvement at Marine View Drive
-  Low Flow Augmentation Facility
-  Fish Habitat Improvement Zones 1 and 2
-  Stream Channel Reconstruction Reach Zone 3

 **KING COUNTY**