DRAINAGE MAINTENANCE PLAN – BMP'S

ARTIFICIAL WATERCOURSES (Yellow)

GENERAL

1. Equipment will be operated from the top of the channel bank.

2. Equipment will only cross the channel during periods of low flow.

3. Existing vegetation will be retained on the sidewalls of the channel to the maximum extent possible.

4. Disturbed soils along the shoreline at risk of entering the watercourse will be protected from erosion using vegetation and/or other means.

5. Dredged, excavated or mowed materials will be deposited landward of the top of the channel bank.

6. Dredged, excavated or mowed materials will not be stockpiled below the top of the channel bank.

7. Project activities will be conducted to minimize the introduction of silt-laden water into the watercourse.

8. Piling or lumber treated with creosote or pentchlorophenol will not be used for project construction.

9. Fresh concrete will be prevented from entering the watercourse and will be sufficiently cured prior to contact with water to avoid leaching. Forms and impervious materials will remain in place until the concrete is cured.

10. All debris or deleterious material resulting from drainage maintenance activities will be removed from the watercourse and prevented from re-entering the channel.

11. No petroleum products or other deleterious materials will be allowed to enter the surface waters in the channel.

12. If a fish kill occurs or fish are observed in distress, in-water drainage maintenance activities will immediately cease and the Area Habitat Biologist listed below shall be immediately contacted.

DRAINAGE MAINTENANCE PLAN – BMP'S

ARTIFICIAL WATERCOURSES (Yellow)

GENERAL (*continued*)

13. Removal of trash and plant debris blocking culverts, bridges, trash racks, pump facilities, and floodgates not be subject to a timing limitation.

MAINTENANCE DREDGING

1. Timing Limitations: When water is present in the channel, dredging below the waterline and within 300 feet of the confluence with a marine water body, natural watercourse or a managed watercourse with headwaters will occur from August 1 through November 30 of any year for the protection of migrating juvenile salmon.

2. The channel banks will be sloped such that the resulting channel banks are stable.

CULVERT MAINTENANCE, REPAIR AND REPLACEMENT

1. Timing Limitations: When water is present in the channel, culvert replacement below the waterline and within 300 feet of the confluence with a marine water body, natural watercourse or a managed watercourse with headwaters will occur from August 1 through November 30 of any year for the protection of migrating juvenile salmon.

2. The damaged culvert and associated fill will be removed from the watercourse and deposited upland so that it cannot re-enter the watercourse.

3. The culvert will be installed to pass the 100-year peak flow with consideration of the debris likely to be encountered.

4. Fill associated with the culvert installation and approach material will be structurally stable and be composed of material that, if eroded into a marine water body or managed watercourse with headwaters, will not be detrimental to fish life.

5. Fill associated with the culvert installation and approach material will be protected from erosion to the 100-year peak flow.

6. If an existing culvert is replaced by a bridge structure, then the existing culvert and associated fill will be completely removed from the watercourse and the new bridge will be subject to the bridge provisions of this HPA.

DRAINAGE MAINTENANCE PLAN – BMP'S

ARTIFICIAL WATERCOURSES (Yellow)

BRIDGE MAINTENANCE, REPAIR AND REPLACEMENT

1. Timing Limitations: When water is present in the channel, bridge maintenance below the waterline and within 300 feet of the confluence with a marine water body, natural watercourse or a managed watercourse with headwaters will occur from August 1 through November 30 of any year for the protection of migrating juvenile.

2. The damaged bridge elements will be removed from within the banks of the watercourse and deposited upland so that they cannot re-enter the watercourse.

3. The bridge will be constructed to pass the 100-year peak flow with consideration for debris likely to be encountered.

4. Fill associated with the bridge or water crossing structure installation will be protected from erosion to the 100-year peak flow.

5. Approach material for the bridge will be structurally stable and be composed of material that, if eroded into a marine water body, natural or managed watercourse with headwaters, will not be detrimental to fish life.

TRASH RACK MAINTENANCE, REPAIR AND REPLACEMENT

1. Timing Limitations: When water is present in the channel, trash rack maintenance below the water line and within 300 feet of the confluence with a marine water body, natural watercourse or a managed watercourse with headwaters will occur from August 1 through November 30 of any year for the protection of migrating juvenile.

2. The damaged elements of the trash rack will be removed from the watercourse and deposited upland so that it cannot re-enter the watercourse.

PUMP FACILITY MAINTENANCE, REPAIR AND REPLACEMENT

1. Timing Limitations: When water is present in the channel, pump facility maintenance below the waterline and within 300 feet of a tide gate or floodgate confluence with a marine water body, natural watercourse or managed watercourse with headwaters, maintenance of the pump facility below the water line will occur from August 1 through November 30 of any year for the protection of migrating juvenile salmon.

DRAINAGE MAINTENANCE PLAN – BMP'S

ARTIFICIAL WATERCOURSES (Yellow)

PUMP FACILITY MAINTENANCE, REPAIR AND REPLACEMENT (continued)

2. The damaged elements of the pump facility will be removed from the watercourse and deposited upland so that it cannot re-enter the watercourse.

3. The intake for a pump facility within 300 feet of a functioning tide gate or floodgate confluence with a marine water body, natural watercourse or managed watercourse with headwaters will be enclosed with screen material where the narrow dimension of the rectangular slots or mesh does not exceed .25 inch to prevent juvenile fish from entering the pump system and will have enough screen surface area to ensure that the velocity through the screen is less than 0.4 feet per second. The screen will remain in place whenever water is withdrawn from the watercourse through the pump intake unless otherwise approved by WDFW per the following provision: In the event established screen criteria cannot be met, the Drainage Maintenance Plan shall identify an alternative technology that meets or exceeds these criteria and will identify a mutually acceptable strategy and timeline for implementation.

FLOODGATE MAINTENANCE, REPAIR AND REPLACEMENT

1. Timing Limitations: When water is present in the channel, floodgate maintenance below the water line and within 300 feet of the confluence with a marine water body, natural watercourse or a managed watercourse with headwaters will occur from August 1 through November 30 of any year for the protection of migrating juvenile salmon.

2. The damaged elements of the floodgate will be removed from the watercourse and deposited upland so that it cannot re-enter the watercourse.

4. The floodgate will be constructed to pass the 100-year peak flow with consideration of the debris likely to be encountered.

5. Fill associated with the floodgate will be protected from erosion to the 100-year peak flow.

6. Backfill material for the floodgate will be structurally stable and be composed of material that, if eroded into a marine water body or managed watercourse with headwaters, will not be detrimental to fish life.

DRAINAGE MAINTENANCE PLAN – BMP'S

ARTIFICIAL WATERCOURSES (Yellow)

FLOODGATE MAINTENANCE, REPAIR AND REPLACEMENT *(continued)*

7. Rock used to armor the shoreline in the immediate vicinity of the floodgate will be composed of clean, angular material of a sufficient durability and size to prevent its being broken up or washed away by high water.

MAINTENANCE CHANNEL IN-WATER BUCKET MOWING

1. Timing Limitations: When water is present in the channel, maintenance channel in-water bucket mowing below the water line and within 300 feet of the confluence with a marine water body, natural watercourse or an managed watercourse with headwaters will occur from August 1 through November 30 of any year for the protection of migrating juvenile salmon.

2. Maintenance channel in-water bucket mowing will be conducted with the bucket mowing equipment identified in the District's Drainage Maintenance Plan.

MAINTENANCE CHANNEL OUT-OF-WATER MOWING

1. Channel out of water mowing of woody stem riparian vegetation will be limited to the banks of the watercourse necessary for equipment access to the channel as identified in the District's Drainage Maintenance Plan.