



October 10th, 2025

Sent by electronic mail

U.S. Army Corps of Engineers, Regulatory Branch
Attention: Shannon Flannigan
4735 E. Marginal Way S, Bldg 1202
Seattle, Washington 98134-2388
Shannon.C.Flannigan@usace.army.mil

RE: Comments on Lars Anderson & Associates, Inc., NWS-2005-502

Dear Shannon:

Please find below issues and concerns with the proposed Clean Water Act Section 404 permit being considered for Lars Anderson and Associates, NWS-2005-502, hereafter “Home Depot Development Project.” These comments are being submitted on behalf of Center for Sustainable Economy (CSE) and the Kitsap Environmental Coalition (KEC). As detailed below, this commercial development project is likely to adversely affect ecological integrity and water quality in Blackjack Creek, a watershed of significant cultural and recreational importance to Port Orchard and surrounding communities, including the Suquamish Tribe.

We respectfully request denial of this permit until adequate mitigation measures for habitat loss and stormwater pollution are adopted as part of the project plan and until an individual environmental assessment or impact statement is completed since the project does not qualify for permit issuance under any of the Army Corps nationwide permits. Furthermore, because this project is likely to adversely affect several aquatic species listed as threatened or endangered under the Endangered Species Act (ESA) formal consultation with NOAA Fisheries and the US Fish and Wildlife Service is required. We expect that as a result of this consultation process reasonable and prudent measures will be identified and incorporated into the permit issuance as mitigation if the project proceeds.

CSE is a non-profit organization with many members who use and enjoy the recreational and aesthetic values of Blackjack Creek and the connected wetlands that will be disturbed by this project. Our members also engage in recreational and commercial fisheries for salmonids and other fish that inhabit Blackjack Creek and will be harmed by loss of abundance as well as the accumulation of toxic chemicals in fish consumed.

The Kitsap Environmental Coalition (KEC) is a non-profit organization with about 100 members and over 800 subscribers to its newsletter. The KEC works to Keep Kitsap Green through education and advocacy. We champion the protection and restoration of the Kitsap County interconnected environment for the health and well-being of all life. Our environment should include clean water, clean air and productive soils, biodiverse and healthy habitats, wildlife corridors, and a balance of natural, rural, and urban spaces. A key purpose of the Coalition is to promote Net Ecological Gain, meaning that our work both prevents environmental contamination, loss of habitat or loss of trees and creates positive gains for nature.

Please consider the following factors as you make your public interest determination for this project:

Blackjack Creek and its associated wetlands are natural assets of great importance to Port Orchard, surrounding communities and the Suquamish Tribe.

The Blackjack Creek watershed covers an area of 12.3 square miles in eastern Kitsap County and is considered one of the largest and most productive salmon watersheds in the south Kitsap subregion.¹ The watershed supports two genetically distinct runs of chum salmon as well as Chinook and coho salmon, steelhead, and cutthroat trout. Blackjack Creek is valued not only for its ecological importance as refugia for native fish but for its role in providing outdoor recreation opportunities for the Port Orchard community. The creek and its watershed are central to ongoing restoration and conservation efforts.

The Suquamish Tribe has deep cultural, historical, and environmental values tied to Blackjack Creek, seeing the waterway as critical for salmon habitat and a traditional food source. Blackjack Creek is within their traditional territory. An ancient fish camp known as Ci?atkubed or Tsiya?tclbEd was located at the mouth of the creek and was used for catching salmon and smelt and digging for clams as recently as the early 1900s. Blackjack Creek is recognized as a significant salmon-bearing stream. Under treaty rights, the Suquamish Tribe has a legally protected interest in co-managing and protecting the fisheries resources in the creek.

The proposed project will result in significant and irreversible damage to the Blackjack Creek watershed through loss of wetland habitat and increased stormwater runoff.

As indicated in your September 17th public notice, the Home Depot Development Project will entail conversion of over 1.7 acres of wetlands and ditches to impervious surface that will experience heavy use by both passenger and commercial vehicles. According to calculations by nearby King County, an acre of impervious surface can be expected to

¹ May, C.W., and G. Peterson. 2003. Kitsap Salmonid Refugia Report. Prepared for Kitsap County. October 2003.

generate about 27,000 gallons of stormwater runoff for every inch of rain.² Port Orchard's average annual rainfall is about 47 inches, which means that the Home Depot Development project can be expected to generate nearly 2.2 million gallons a year. According to the city of Port Orchard, this stormwater will be minimally treated (managed primarily for flow only) and channeled into the Bethel Road drainage system that will convey the untreated stormwater into Blackjack Creek.³

The combination of habitat loss, habitat fragmentation, and increased stormwater pollution will worsen ecological and watershed conditions in Blackjack Creek, adding to cumulative impacts that are already documented as being severe. As noted by the Blackjack Creek watershed assessment:

Like many watersheds in Puget Sound, historic and current land uses in the Blackjack Creek watershed have substantially altered the ecological and watershed processes that drive habitat structure and ecosystem functions. Human activities have been the major cause of ecosystem destruction, degradation, and impairment through habitat conversion, pollution, and alteration of watercourses and flow patterns.⁴

The assessment goes on to identify a set of stressors that affect critical ecosystem components. These are detailed in Table 3 from the assessment, copied below. The Home Depot Development Project will amplify at least seven of these key stressors: land conversion, terrestrial habitat fragmentation, freshwater species disturbance, altered peak flows and low flows from land cover change, toxic chemicals in aquatic ecosystems, conventional water pollutants, and water temperature changes.

We ask that you carefully consider these direct, indirect, and cumulative impacts in your public interest determination and environmental impact statement, if the project proceeds.

² King County, WA: Stormwater runoff pollution and how to reduce it. Available online at: <https://kingcounty.gov/en/dept/dnrp/nature-recreation/environment-ecology-conservation/stormwater-surface-water-management/stormwater-services/stormwater-runoff>.

³ Personal communication via electronic mail with Stephanie Andrews, Senior Planner, City of Port Orchard, 9-25-25.

⁴ Logan I., Lawson, P., Hersom, C., 2017. Blackjack Creek Watershed Assessment and Protection and Restoration Plan. Prepared for the Suquamish Tribe by ESA. Olympia, WA: Washington State Department of Ecology.

Blackjack Creek Pressure Categories and Stressors on Ecosystem Components

Pressure Category	Stressor (PSPA Identification)
Habitat Loss and Conversion	• Land conversion (A1, A2, A3) • Terrestrial habitat fragmentation (B) • Shoreline hardening and stabilization (C) • Terrestrial and freshwater species disturbance in human dominated areas and in natural landscapes (G1 and G2) • Displacement by non-native species (R2)
Fish Migration Barriers and Barriers to Longitudinal Habitat Connectivity	• Culverts as fish passage barriers (E2) • In-channel structural barriers to water, sediment, debris flows (M1)
Alteration in Hydrologic Regime	• Altered peak flows and low flows from land cover change (J1 and K1) • Altered peak flows and low flows from climate change (J2 and K2) • Altered low flows from withdrawals (K3) • Changing precipitation amounts and patterns (AA)
Water Quality	• Non-point source, persistent and non-persistent toxic chemicals in aquatic systems (U2 and V2) • Nonpoint source conventional water pollutants (X2) • Changes in water temperature from local causes (X3)

Source: Blackjack Creek Watershed Assessment and Protection and Restoration Plan, Table 3, page 11-12. The stressors and pressure categories are aligned with the Puget Sound Pressures Assessment (PSPA), which is adapted from the region's Chinook Recovery Framework.

6PPD-quinone in stormwater runoff is likely to adversely affect several ESA listed species and so formal consultation is required.

For the past two decades, researchers in the Pacific Northwest have been studying urban runoff mortality syndrome (URMS) in coho salmon (*Oncorhynchus kisutch*). In 2020, researchers identified a specific chemical in stormwater that was directly linked to URMS. The chemical, 6PPD-quinone, forms from an antiozonant, 6PPD, which has been used in tires to extend their lifespan since the 1960s.

6PPD-q is acutely toxic to coho and, to a lesser degree, steelhead and chinook. Mortality occurs most often during the early fall, when spawning fish encounter a flush of pollution caused by buildup of tire wear particles over the long dry summer months. These flushes also occur after any extended dry period throughout the year.

Landscape modeling has shown that the severity of spawner mortality scales with the extent of imperviousness within a watershed and, more specifically, the density of motor vehicle traffic near spawning habitats. Other factors include whether the stormwater runoff

into receiving waters is mostly treated or untreated, traffic volume, heavier vehicles, more lanes, higher speeds, more turning and stopping, more impervious surface and absence of natural infiltration processes.

The Home Depot Development Project will create new sources of 6PPD-q by creating over 1.7 acres of impervious surface that will be heavily used by commercial and passenger traffic, including frequent stopping and turning by heavy vehicles. High rates of 6PPD-q deposition on this impervious surface is nearly certain. In King County, all three Home Depot developments are located in areas with high rates of 6PPD-q deposition (Exhibit A).

As noted above, the project is likely to generate nearly 2.2 million gallons of untreated or minimally treated stormwater runoff into Blackjack Creek that will contain this toxin. As 6PPD-q from existing and new impervious surface enters and accumulates in Blackjack Creek, a number of adverse effects on species listed as threatened or endangered under the Endangered Species Act (ESA) can be expected.

These species include:

- Puget Sound/Georgia Basin distinct population segment (DPS) of bocaccio (*Sebastes paucispinis*) – endangered.
- Puget Sound Chinook (*Oncorhynchus tshawytscha*) – threatened.
- East Kitsap steelhead distinct individual population (*Oncorhynchus mykiss*) – threatened.
- The Puget Sound/Georgia Basin distinct population segment of yelloweye rockfish (*Sebastes ruberrimus*) – threatened.
- The southern resident distinct population segment of orcas (*Sebastes ruberrimus*) – endangered.

Steelhead and Chinook both face acute toxicity risks from 6PPD-q, albeit at higher concentrations than coho.⁵ Furthermore, embryonic exposure to 6PPD-Q inhibits development and growth of alevins in the absence of mortality.⁶

In terms of lethal concentrations, the adult 24-hour lethal concentration associated with 50% mortality (LC₅₀) for juvenile coho salmon is 0.095 micrograms per liter (µg/L), whereas the 3-week post-swim up stage for coho salmon has an LC₅₀ of 0.041 µg/L. Rainbow

⁵ Lo, P., Marlatt, V.L., Liao, Xiangjun, Regar, SI, Gallilee, C., Ross, Andrew R.S., Brown, T.M. 2023. Acute toxicity of 6PPD-quinone to early life stage juvenile chinook (*Oncorhynchus tshawytscha*) and coho (*Oncorhynchus kisutch*) salmon. *Environmental Toxicology* 42(4): 815-822. <https://doi.org/10.1002/etc.5568>. See also Brinkmann, M., Montgomery, D., Selinger, S., Miller, J. G. P., Stock, E., Alcaraz, A. J., Challis, J. K., Weber, L., Janz, D., Hecker, M., & Wiseman, S. (2022). Acute toxicity of the tire rubber-derived chemical 6PPD-quinone to four fishes of commercial, cultural, and ecological importance. *Environmental Science & Technology letters*, 9(4), 333–338. <https://doi.org/10.1021/acs.estlett.2c000>.

⁶ Greer, J.B., Dalsky, E.M., Lane, R.F., Hansen, J.D. 2023. *Environmental Science & Technology* 2023 57 (30), 10940-10950 DOI: 10.1021/acs.est.3c01040.

trout/steelhead are also sensitive but at higher concentrations with an LC₅₀ ranging from 1.0 to 2.3 µg/L during 72- and 24-h exposures, respectively. LC₅₀ values for Chinook are significantly higher at 67.31 µg/L.

While LC₅₀ is an important threshold for scientific inquiries, it is not appropriate for regulatory standards under the ESA, which should be based on avoiding mortality or other adverse effects altogether. As such, the presence of this toxin in untreated or minimally treated stormwater runoff generated as a result of the Home Depot Development Project clearly presents a risk of take since mortality from 6PPD-q exposure has been well documented for both species.

In addition, Blackjack Creek is designated critical habitat for both species. The Home Depot Development Project will exacerbate the accumulation of 6PPD and 6PPD-q in sediments and aquatic organisms and thus adversely modify this critical habitat in combination with untreated or minimally treated stormwater runoff from all existing and planned impervious surfaces in the watershed.

Offshore species exposed to stormwater runoff including bocaccio and yelloweye rockfish, especially juveniles that inhabit nearshore environments. Critical habitat for both species has been identified near the mouth of Blackjack Creek in Sinclair Inlet. For yelloweye, their longevity and position in the food web make them particularly vulnerable to chronic exposure.

For southern resident orcas, 6PPD-q is a serious threat through its impact on their food supply and increased risks of starvation. Blackjack Creek is a productive Chinook fishery, which are orcas' primary food source during spring and summer months, and which are susceptible to acute and chronic toxicity and mortality from 6PPD-q poisoning. Orcas also feed on coho when they disperse in the fall and winter, a species that faces extreme mortality risks from 6PPD-q. Blackjack Creek also supports significant runs of coho. By increasing the amount of 6PPD-q pollution into Blackjack Creek the Home Depot Development Project will thus increase starvation risks to the southern resident orca population through additional reductions of its prey base.

Because of the likelihood of adverse effects to these listed species and their critical habitat, the Army Corp should initiate formal consultations with NOAA Fisheries and/or the US Fish and Wildlife Service under Section 7 of the ESA before any further action is taken to advance the Home Depot Development Project.

6PPD and 6PPD-quinone present significant public health risks.

The accumulation of 6PPD-q in water and on land also presents significant health risks to humans. The Washington State Department of Health maintains a useful webpage devoted

to human health concerns and exposure pathways for both 6PPD and 6PPD-q.⁷ Exposure to this toxic chemical in humans may be related to a number of pathologies, including skin allergies, reproductive and developmental effects, liver effects, cancer, nervous system effects, and intestinal effects. 6PPD-q may also be related to reduced BMI influenza, and diarrhea in children.⁸ Key exposure pathways include inhalation of tire particles along high traffic roadways and parking lots, especially during dry windy periods, consumption of contaminated fish or other marine species that accumulate the toxin in their fatty tissues⁹, and contaminated crops. The Home Depot Development Project will increase human exposure risk primarily through the former two pathways.

Mitigation measures proposed will not adequately address habitat loss nor will they do anything to reduce 6PPD-q and its deleterious effects to listed species.

The public notice makes reference to one mitigation measure being proposed for this project –onsite wetland creation of 1.75 acres to compensate for impacts to aquatic resources. There is no documentation to connect the type of wetland creation envisioned to preservation of aquatic resources at risk in the Blackjack Creek watershed. The loss of aquatic resources will be immediate and persist in perpetuity while the benefits of proposed wetland creation is speculative. More importantly, the 1.75 acres of created wetlands will not be used to filter stormwater runoff, so it will not mitigate 6PPD-q pollution into the air, surrounding lands, and Blackjack Creek at all.

Mitigation measures that can reduce or eliminate 6PPD-q contamination are widely known and can easily be incorporated into permitting decisions.

Research and monitoring projects have conclusively determined that three broad categories of best management practices (BMPs) are effective at reducing 6PPD-q pollution: media filters, biofiltration, and porous asphalt. CalTrans has completed effectiveness monitoring at several sites in California for each (Exhibit B). King County has tested 6PPD-q concentrations in untreated vs. treated stormwater and found that “[u]ntreated stormwater influent was acutely toxic to exposed coho during all three storms. Coho survival was 0–5 % in untreated stormwater influent compared to 100% survival across all treated effluents” (Exhibit C). Treatment BMPs considered included a 60% sand, 40% compost bioretention soil mix and three types of high performance bioretention soil mix BMPs.

⁷ Washington State Department of Health, “6PPD and 6PPD-quinone,” available online at: <https://doh.wa.gov/community-and-environment/contaminants/6ppd-and-6ppd-quinone>.

⁸ Zhuxia Zhang, Xijin Xu, Ziyi Qian, Qi Zhong, Qihua Wang, Machteld N. Hylkema, Harold Snieder, Xia Huo, 2024. Association between 6PPD-quinone exposure and BMI, influenza, and diarrhea in children, *Environmental Research*, Volume 247, 2024, 118201, ISSN 0013-9351, <https://doi.org/10.1016/j.envres.2024.118201>.

⁹ Washington State Department of Health identifies juvenile Chinook, mussels, fillets of salmon, and English sole as examples of aquatic species that have tested positive for 6PPD-q in tissue.

Each of these BMPs should be investigated by the Army Corp and Port Orchard Public Works as mandatory mitigation measures adopted as part of this project if it proceeds. The specific type and placement of these BMPs should be addressed in the ESA Section 7 consultation and incorporated into both the federal and state-level environmental assessments/environmental impact statements prepared by the Army Corps and Port Orchard Public Works pursuant to the National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA)

An individual permit and environmental assessment or EIS is necessary.

Given the severity of watershed, water quality, and human health impacts associated with the Home Depot Development Project an individual permit and environmental assessment or environmental impact statement is clearly required. We are unaware of any nationwide permits used in Washington State that would be applicable in this situation. Use of nationwide permits are relegated to activities that cause "no more than minimal individual and cumulative adverse environmental effects."

If approved, this project, both individually and cumulatively, far surpasses the minimal impact threshold, for example, by generating nearly 2.2 million gallons of untreated or minimally treated stormwater effluent that contains the highly toxic 6PPD-q pollution and by worsening watershed conditions already severely compromised by past development activities. As further evidence of cumulative impacts, please consider the City of Port Orchard's Stormwater and Watersheds Comprehensive Plan, which flags Lower Blackjack Creek as moderately to highly degraded by existing stormwater runoff (Exhibit D).

Thank you for your time and consideration of the issues we've raised. Please promptly notify CSE and KEC about your decisions with respect to Section 7 consultation with NOAA Fisheries and/or US Fish and Wildlife Service, NEPA compliance, and nationwide vs. individual permit.

Sincerely,

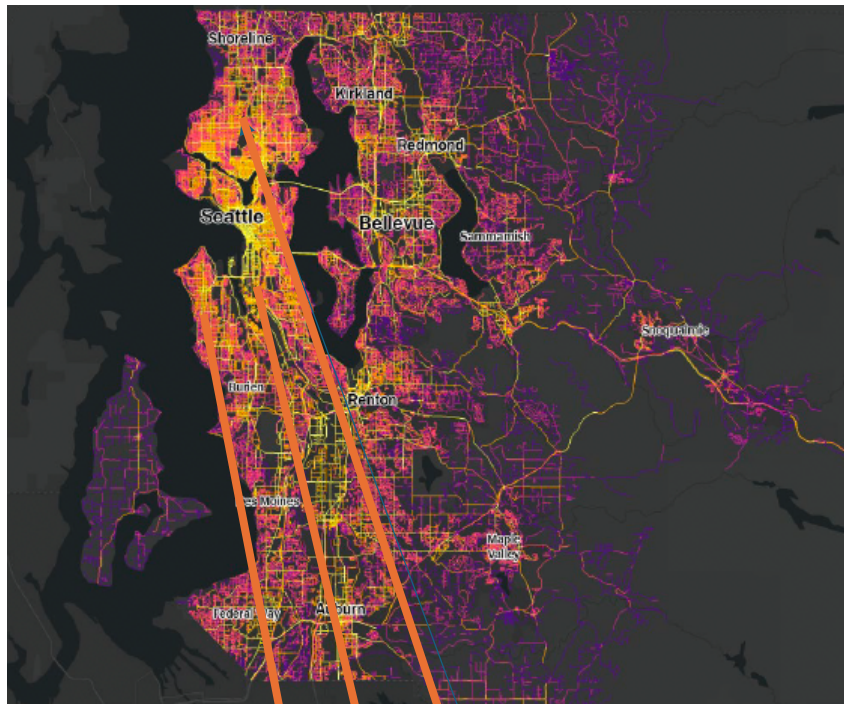


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Exhibit A: King County 6PPD-Q Screening Study and Home Depot Locations

Heat map shows concentrations of 6PPD-q deposition - brightest colors are the areas with the highest concentrations.



Source: Herrera Environmental Consultants, Inc. (Herrera). 2025. 6PPDQ Screening Model. Prepared for King County. Seattle, WA: King County Road Services and King County Water and Land Resources Division.

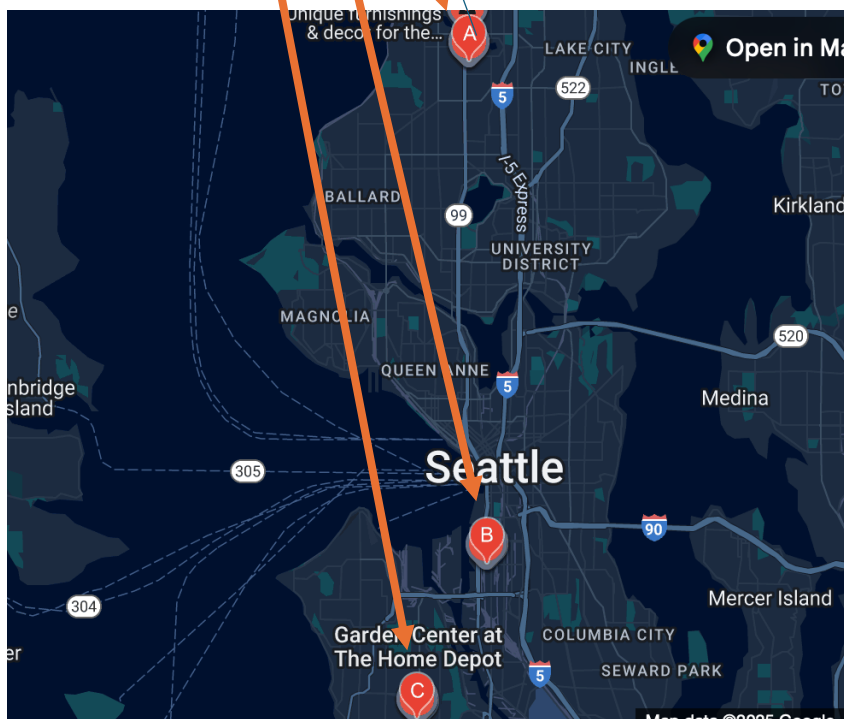
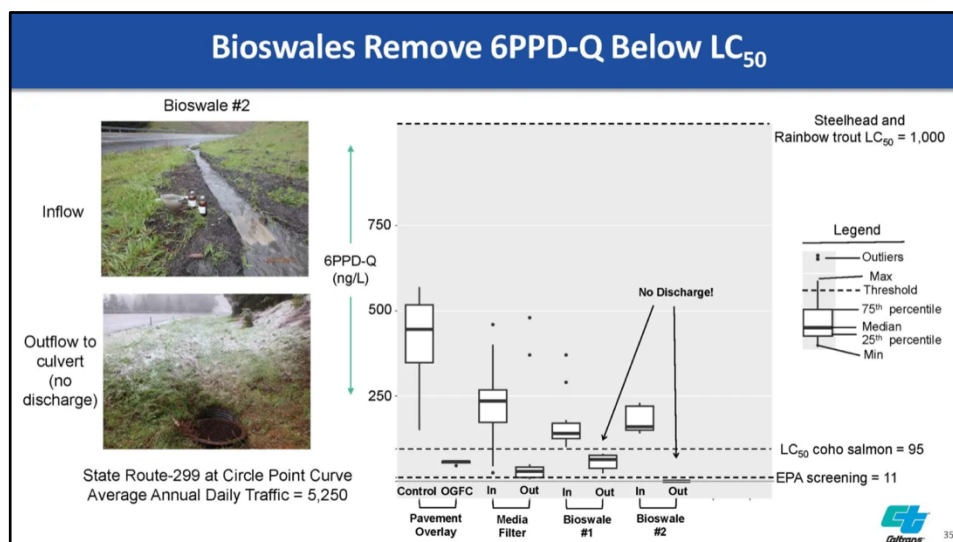
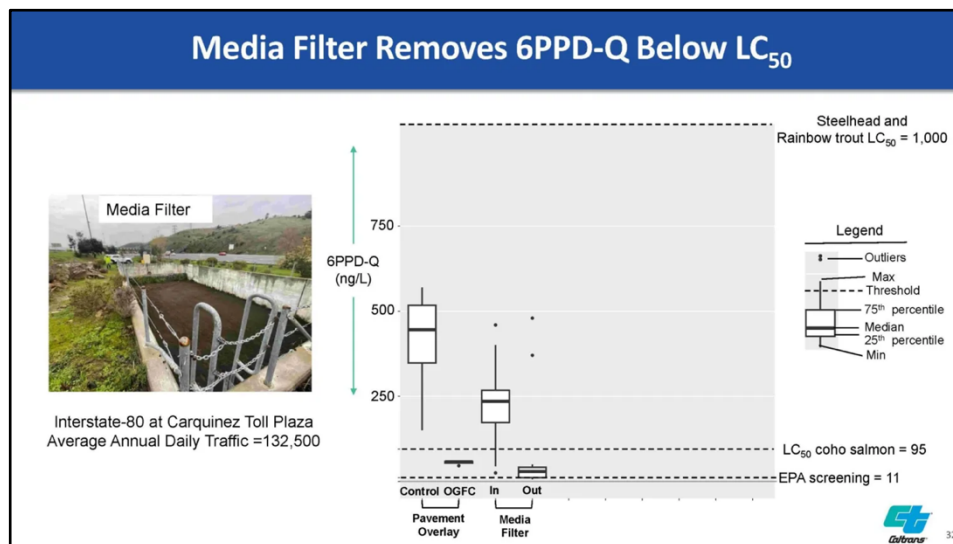
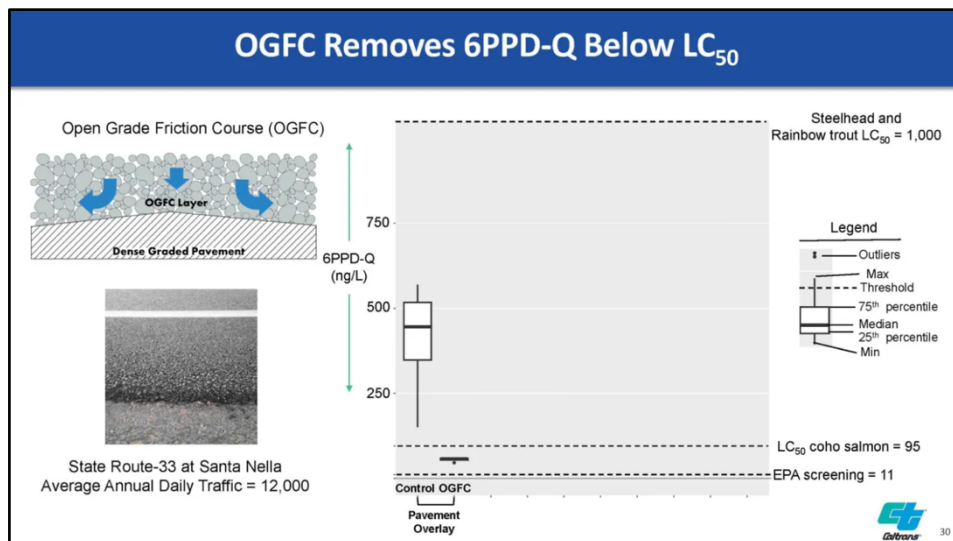


Exhibit B: CalTrans Mitigation Measures Documented to Reduce 6PPD-Q Pollution



Source: For an overview of the CalTrans monitoring project, see NOTEBOOK FEATURE: From roads to rivers: How state agencies are tackling salmon-killing tire pollution. Maven's Notebook – California Water News Central. Available online at ; <https://mavensnotebook.com/2025/01/07/notebook-feature-from-roads-to-rivers-how-state-agencies-are-tackling-salmon-killing-tire-pollution/>.

Exhibit C: King County Laboratory Results – Treated vs. Untreated Stormwater

Table 5. Coho survival and 6PPD-Q concentrations in coho exposure waters for toxicity tests.

Exposure Treatment n = 20	Coho Survival (%)			6PPD-Q Concentration (µg/L)		
	Storm 1	Storm 2	Storm 3	Storm 1	Storm 2	Storm 3
Well water control	100	100	100	< MDL	<MDL	<MDL
Untreated stormwater influent	5	0	5	0.754	0.225	0.6402
60:40 BSM (composite)	100	100	100	0.0044	0.003	0.0268
HPBSM Type 1 (composite)	100	100	100	0.0025	<MDL	0.0078
HPBSM Type 3 (composite)	100	100	100	<MDL	<MDL	0.0047

60:40 BSM - refers to the 60% sand, 40% compost bioretention soil mix (BSM)

HPBSM – High performance bioretention soil mix

Source: King County Water and Land Resources Division (KCWLD). 2024. Testing Removal of 6PPD-Q and Coho Salmon Lethality by High-performance Bioretention Media Blends: Final Data Report. Seattle, WA: King County Department of Natural Resources and Parks.

Exhibit D – Level of Existing Stormwater Impact by Watershed, City of Port Orchard

Table 1. Watershed Stormwater Impact Rating					
Watershed Name	Level of City Stormwater Impact	Percent City Lands within the Watershed	Percent Watershed Impervious Area	City Outfalls to Watershed Stream	City Outfalls to Sinclair Inlet
Downtown County Campus	Very High	100%	50%	0	10
Annapolis Creek	High	55%	30%	1	4
Johnson Creek	High	100%	29%	2	2
Lower Blackjack Creek	Moderate/High	68%	22%	10	12
Ross Creek	Moderate/High	65%	13%	10	13
Melcher Creek	Moderate	100%	12%	0	3
Caseco Creek	Moderate	100%	12%	1	1
Anderson Creek	Moderate	60%	9%	4	5
Ruby Creek	Moderate	54%	5%	6	NA
Karcher Creek	Moderate	11%	28%	3	0
Sacco Creek	Moderate	22%	18%	0	0
Square Creek	Low	7%	4%	1	NA
Stream 270	Low	45%	3%	0	NA
Gorst Creek	Low	5%	4%	1	NA
Rocky Creek	Low	1%	2%	0	NA
Coulter Creek	Low	1%	<1%	0	NA

Source: City of Port Orchard, 2023. Stormwater and Watersheds Comprehensive Plan. Prepared by Herrera Environmental Consultations.