

TECHNICAL MEMORANDUM

DATE: March 31, 2023
TO: Laura Hinds, Administrative Assistant to Public Works Operations
FROM: Jeffrey Coop, PE, CFM
SUBJECT: SMAP Phase 3
CC: JC Hungerford
PROJECT NUMBER: 216-1711-024
PROJECT NAME: Stormwater Management Action Plan

INTRODUCTION

Section S5.C.1.d of the National Pollutant Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit (NPDES Permit effective date August 2, 2019) (Ecology 2019a) issued by the Washington State Department of Ecology (Ecology) requires permittees to prepare a Stormwater Management Action Plan (SMAP). The first phase of the SMAP process required by Section S5.C.1.d.i of the NPDES Permit is to assess receiving waters and document the results. A technical memorandum (Parametrix 2022a) was prepared to support the City of Orting (City) with Section S5.C.1.d.i to address the Phase 1 receiving water assessment requirement.

The second phase of the SMAP is based on Section S5.C.1.d.ii of the NPDES Permit, which requires a prioritization process to be completed for the receiving waters identified in SMAP Phase 1. To facilitate the schedule for City review and public input, SMAP Phase 2 was completed based on the steps listed below. The following steps are based on Stormwater Management Action Planning Guidance (Ecology 2019b). SMAP Phase 2 has been completed and the results documented in the technical memorandums indicated:

- Step 1 – This step was to identify retrofits and land management actions for the receiving waters identified in SMAP Phase 1. Step 1 was the subject of a technical memorandum that was submitted to the City April 22, 2022 (Parametrix 2022b). Step 1 included considerations such as:
 - Conservation, protection, or restoration of receiving waters through stormwater and land management strategies that act as water quality management tools.
 - Reduction of pollutant loading.
 - Addressing hydrologic impacts from existing and proposed future development.
- Step 2 – This step was to develop a ranking process that would be used to identify the highest-priority catchment area. The results were summarized in a technical memorandum (Parametrix 2022c).

- Step 3 – Develop a draft report to summarize the results of Steps 1 and 2 and input received through public outreach. Step 3 identified the selected receiving water that was included in the SMAP document that was prepared under NPDES Permit Section S5.c.1.d.iii (Parametrix 2022d).

Excerpts from the NPDES Phase II Permit regarding SMAP Phase 3 are included in Attachment A. Technical memoranda prepared for SMAP Phases 1 and 2 are included as Attachments B through E. In addition to items identified in the NPDES Phase II Permit, flow control approaches were evaluated to determine how stormwater management requirements could potentially be met as sites tributary to the selected receiving water develop or redevelop.

OVERVIEW

The following summarizes the results of SMAP Phases 1 and 2, which were then used to support SMAP Phase 3:

- Two waterbodies were identified for further consideration for SMAP planning: the Carbon River Unnamed Tributary North and the Carbon River Unnamed Tributary South.
- The Carbon River Unnamed Tributary South tributary area has a greater potential for change than the area tributary to the Carbon River Unnamed Tributary North.
- A ranking process was developed that considered the 150-foot native vegetation buffer from the ordinary high water.
- The ranking process was developed that considered the areas directly tributary to the Carbon River Unnamed Tributary North or Carbon River Unnamed Tributary South as a subarea of the overall area tributary to the Carbon River through existing outfalls.
- The ranking process was developed so that the receiving water with a higher score indicated the greater need to consider as the high priority receiving water.
- The Carbon River Unnamed Tributary South received a ranking score over three times higher than the ranking score for the Carbon River Unnamed Tributary North.
- The SMAP Phase 2 Step 3 Technical Memorandum was reviewed by the City and made available to the public for discussion at the June 15, 2022, City Council Study Session. There were no comments received from the City or the public that caused any changes to the ranking process or the recommendation that the Carbon River Unnamed Tributary South be selected as the high priority receiving water.

This technical memorandum summarizes the results of the final phase of the SMAP.

LAND USE REQUIREMENTS

The area delineated for the Carbon River Unnamed Tributary South during SMAP Phases 1 and 2 includes areas that have storm drain connections and outfalls directly into the Carbon River and areas that do not have a direct discharge to the Carbon River.

Areas that are tributary to the Carbon River Unnamed Tributary South that do not have a direct discharge to the Carbon River include the following land use classifications:

- Residential Urban
- Residential Conservation
- Mixed-Use Town Center North
- Public facilities

Critical area mapping is maintained by the City in a Map Folio in accordance with OMC 11-1-6.A. Critical areas likely applicable to areas tributary to Carbon River Unnamed Tributary South could potentially include the following:

- Shoreline Master Plan 150-foot Native Vegetation Zone
- Regulated floodplain
- Floodways
- Wetlands
- Lahar

The following provisions of the Orting Municipal Code (OMC) will need to be reviewed regarding land use, development, and stormwater requirements for sites that discharge into the undefined flow areas of Carbon River Unnamed Tributary South:

- Title 11 – Critical Areas and Shoreline Management
- Title 13 – Development Regulations: Chapter 3, Zone Classifications
- Title 13 – Development Regulations: Chapter 5,
- Title 14 – Flood Control

Properties that discharge to the undefined flow rates of Carbon River Unnamed Tributary South may also be subject to the Shoreline Master Program (SMP). The following provisions of the SMP would need to be reviewed for applicability to a specific project on a specific site:

- Areas within 200 feet of the ordinary High Water Mark (OHWM) are included in shoreland areas, shorelands, and shoreline jurisdiction. Floodways associated with the Carbon River, wetlands associated with the Carbon River, and critical area buffers are also included in shoreland areas, shorelands, and shoreline jurisdiction.
- Sections 5.4.3.B and 5.4.3.E identify regulations regarding stormwater management.
- Section 5.4.3.C includes regulations regarding clearing and grading limits.
- Sections 5.7.A.2.2 and 5.7.A.2.3 identify policies regarding wetland buffers.
- Section 5.7.A.3.C requires a wetland analysis by a qualified professional for projects within 300 feet of a shoreline jurisdictional wetland.
- Section 5.7.A.3.D includes regulations regarding land uses in wetlands and buffers.
- Section 5.7.A.3.E.3 allows for stormwater management swales within the outer 25 feet of the buffer of Category III or V wetlands.
- Sections 5.7.A.3.F through 5.7.A.3.J include regulations regarding buffers.
- Section 5.7.A.3.M and 5.7.A.3.O include regulations regarding wetland buffer signs and fencing, respectively.
- Section 5.7.B.3.C establishes the requirement for a 150-foot native vegetation buffer from the OHWM.
- Section 5.11.3.G establishes requirements regarding tree and vegetation trimming provided that the trimming is not within wetlands or wetland buffers.
- Section 5.11.3.J establishes requirements for developments that are water-dependent or for public access that are within the 150-foot native vegetation buffer.
- Section 6.7.3.6 includes policies for shoreline subdivisions and planned unit developments including erosion control and water quality protection.
- 6.10.3.Q identifies regulations for stormwater conveyance facilities.
- Section 8.11 defines nonconforming development and associated requirements.

NPDES PERMIT SECTION S5

Section S5.C.1.d.iii of the NPDES Permit includes the following to be considered for SMAP Phase 3. See Attachment F for NPDES Permit excerpts with the following sections.

- S5.C.2: Public education and outreach behavior change programs. Section S5.C.2.a establishes the requirement to develop an education and outreach program. Section S5.C.2.a.ii establishes the requirement for a behavior change campaign. Section S5.C.2.a.ii.(c)3 establishes the requirement to “develop a strategy and schedule for a new target audience and BMP behavior change campaign.” For the Carbon River Unnamed Tributary South, the City will inform the public through its current public education process regarding the Carbon River Unnamed Tributary South being the designated receiving water from the SMAP. Additional public education approaches, if needed for areas tributary to the Carbon River Unnamed Tributary South, could be identified in the future based on specific needs. Such additional public education could include a social media campaign to educational links, editorials in local publications, videos through the City’s website, or other methods that would be determined in the future.
- S5.C.5: Illicit discharge detection and elimination field screening. There is also a training and record keeping component associated with field screening. See Sections S5.C.5.a, d, f, and g. For the Carbon River Unnamed Tributary South, there have been no conditions encountered or observed in the field that would indicate the need for increased Illicit Discharge Detection and Elimination (IDDE) field screening. IDDE field screening within the Carbon River Unnamed Tributary South will continue in accordance with current City procedures unless something is found in the future that would necessitate a change.
- S5.C.7: O&M inspections or enhanced maintenance. Section S5.C.7.a includes the requirement to implement maintenance standards that are at least as protective of facility function as standards in Ecology’s Stormwater Management Manual for Western Washington (SWMMWW). The City has adopted Ecology’s SWMMWW. Section S5.C.7.b and c establish the maintenance requirements for facilities regulated by or owned by the City, respectively. Section S5.C.7.e establishes the requirement for ongoing training for O&M standards and record keeping of the training provided. The NPDES Permit does not specify requirements for enhanced maintenance. For the Carbon River Unnamed Tributary South, there have been no O&M results that would indicate the need for increased O&M of existing stormwater systems or stormwater management (SWM) facilities. O&M within the Carbon River Unnamed Tributary South will continue in accordance with current City procedures unless something is found in the future that would necessitate a change.

There is an existing SWM facility providing mitigation for the existing Rainier Meadows development. There is the potential for new development adjacent to and/or south of the existing Rainier Meadows and its associated SWM facility. Stormwater from new development would need its own stormwater facility since it is not likely the existing SWM facility could be modified to provide applicable treatment and/or flow control. If the existing facility was modified, it would need to be modified to provide treatment and flow control based on current design requirements for any new development as well as for the existing Rainier Meadows. In lieu of a SWM facility constructed as part of a new development, the City may consider other approaches:

- Capital projects;
- Land acquisition;
- Land use or zoning code adjustments; and/or,
- Protected or restored riparian buffers.

- S5.C.8: Prioritization of source control inspections. Section S5.C.8.a.ii establishes the requirement for source control inspections on both public- and privately owned sites. Sections S5.C.8.b.ii and iii establish the requirements to develop a source control inventory list and inspection program for sites on the source control list. Section S5.C.8.b.iii(b) establishes the requirement that 20% of the sites identified in the source control inventory be inspected each year. There is flexibility on how to count the inspections; see this section for further details. The City is not required to inspect 100% of the sites within the permit cycle. Section S5.C.8.b.iii(c) requires 100% of sites be inspected if there are credible complaints.

Section S5.C.8.b.iii(b) states that “sites may be prioritized for inspection based on their land use category, potential for pollution generation, proximity to receiving waters, or to address an identified pollution problem within a specific geographic area or sub-basin.” For the Carbon River Unnamed Tributary South, there have been no observed issues identified through source control inspections in the Carbon River Unnamed Tributary South or issues observed with the existing SWM facility for Rainer Meadows. Source control inspections will continue for public- and privately owned institutions, and commercial and industrial sites. Enforcement, where needed, will be implemented in accordance with the City’s municipal code. The City will continue the practice to reduce runoff from the application of pesticides, herbicides, and fertilizers from the sites identified in the City’s inventory.

LONG-RANGE PLAN UPDATES

Coordination with City staff was performed during preparation of this SMAP to determine if there are any City or interagency long-range plans that might impact the areas tributary to the Carbon River Unnamed Tributary South. Such long-range plans include the City’s Growth Management Act Comprehensive Plan, the City’s Stormwater Comprehensive Plan, and Pierce County’s Flood Hazard Mitigation Plan. City departments will continue to coordinate to integrate stormwater-related elements of the GMA comprehensive plan and the Stormwater Comprehensive Plan. The City will continue to coordinate with Pierce County regarding the Flood Hazard Mitigation Plan.

SMAP FUTURE UPDATES

The SMAP can be updated in the future based on input from City staff or the public based on the results of on-going activities performed under:

- S5.C.2, Public education and outreach behavior change program.
- S5.C.5, Illicit discharge detection and elimination field screening.
- S5.C.7, O&M inspections or enhanced maintenance.
- S5.C.8, Prioritization of source control inspections.

The results of the Annual Reports and annual Stormwater Management Plan (SWMP) updates required by the NPDES stormwater permit can also be used to determine if stormwater management changes are needed for the area tributary to the Carbon River Unnamed Tributary South.

Currently, the City Council meets on the second and last Wednesdays of every month. Schedule information can be found on the following website:

<https://www.cityoforting.org/government/city-council#:~:text=The%20Council%20meets%20on%20the,month%20at%207%3A00%20pm>

Information regarding public participation, such as providing comments on the SMAP or other stormwater management documents, at Council meetings can be found in Section 4.1.4 of the City Council Rules of Procedures found on the above-linked website.

The City's 2021 Annual Report and 2021 SWMP can be found through the following websites:

<https://www.cityoforting.org/home/showpublisheddocument/3743/637856168451670000>

<https://www.cityoforting.org/home/showpublisheddocument/2921/637595424674870000>

FLOW CONTROL

The Carbon River Unnamed Tributary South is not a fish-bearing stream but a series of flow paths that allow stormwater to accumulate and flow along the landward side of the levee. The Carbon River Unnamed Tributary South is located within the Carbon River Channel Migration Zone (CMZ) as mapped by Pierce County; see Attachment G. The Carbon River Unnamed Tributary South is also located in areas where wetlands may be present as mapped by the United States Fish and Wildlife Service in its GIS-based National Wetlands Inventory mapping; see Attachment H. Based on these considerations:

- The Stream Protection Duration standard typically required for flow control is not applicable. The Stream Protection Duration standard typically requires flow rates for post-project conditions to match durations of 50% of the 2-year flow frequency event through the 50-year event of predeveloped conditions. The Wetland Input Volumes standard as identified in Ecology's SWMMWW is likely a more appropriate flow control standard.
- Proper operation and maintenance of the levee is necessary to provide on-going protection of the Carbon River Unnamed Tributary South, any associated wetlands, adjacent properties, and stormwater infrastructure within the CMZ.
- Using low-cost stormwater management Best Management Practices (BMPs) are recommended, where technically feasible, to reduce the financial investment in stormwater infrastructure that could be damaged or lost if the levee were to fail due to lack of proper operation and maintenance or shifting of the Carbon River within the CMZ.

Providing stormwater mitigation based on the Wetland Input Volumes standard in lieu of the Stream Protection Duration standard might impact how a site is developed and what types of BMPs may be practicable. Stormwater management for future projects tributary to Carbon River Unnamed Tributary South will need to be determined based on:

- The City will need to clarify with project proponents land use requirements associated with:
 - Wetlands or buffers that may be located on or near properties tributary to the Carbon River Unnamed Tributary South. Wetlands are generally regulated under OMC Title 11, Critical Areas and Shoreline Management;
 - The Carbon River CMZ, which is generally regulated under OMC Title 14, Flood Control;
 - The 150-foot native vegetation buffer setback as identified in Sections 5.7.B.3.C and 5.11.3.I of the City's Shoreline Master Program.
- The use of Low Impact Development BMPs should be considered where technically feasible. However, BMPs that rely on infiltration may not be reliable long-term BMPs due to the likelihood of relatively high

groundwater elevations and the potential for inundation if located too closely to wetlands or other low-lying areas along the Carbon River Unnamed Tributary South.

- Preserving existing forested areas outside of wetlands or buffers, creation of additional forested areas, preserving or creating pervious land cover equivalent to pasture conditions, preserving existing buffers and routing stormwater to such areas for dispersion could allow for a low-cost stormwater management approach while still allowing for a portion of the site to develop.
- Volume V Chapter 3 of Ecology’s SWMMWW establishes the prescriptive requirements for BMP T5.30, Full Dispersion. Full dispersion is desirable, where technically feasible, because it can in certain conditions eliminate the need for a flow control BMP, such as a pond or a vault. BMP T5.30 limits the amount of impervious area within a threshold discharge area (TDA) to 10% of the area for residential projects and stipulates that the dispersion area be at least 6.5 times the amount of impervious area. This is sometimes referred to as the “65/10 rule.” If these and other prescriptive requirements of BMP T5.30 are met, then the areas would likely be exempt from a flow control BMP or hydrologic modeling. However, limiting the area to 10% might not meet the requirements for the Wetland Input Volume standard and might limit the amount of potential development unless hydrologic modeling is performed. Consequently, project proponents may propose somewhat more land cover, when justifiable through hydrologic modeling, than land cover allowed under the “65/10 rule.”
- Ecology’s SWMMWW presents two methods for evaluating hydrologic impacts to wetlands. See Attachment I. Method 1 is not likely to be practicable for use by a single property owner due to the potential for wetlands to be connected on downstream properties. The use of Method 1 would likely require the City to implement a regional wetland study for the Carbon River Unnamed Tributary South and then develop a model that reflects development of all the tributary parcels and associated BMPs and land cover restrictions to mitigate for potential future development. Method 2 results in a significantly lower cost to the City and property owners because the key factor from a stormwater management approach is delineation of the on-site buffers. Method 2 would be the likely modeling approach for future projects since it is likely that only part of a wetland would be on an owner’s property, so the detailed data for Method 1 would not be readily available.

SMAP PHASE 3 – NEXT STEPS

The City should prepare to discuss with project proponents that areas tributary to Carbon River Unnamed Tributary South may be different than flow control BMPs in other parts of the City.

The City should review the Orting Municipal Code regarding the use of wetland buffers in conjunction with on-site stormwater management BMPs as discussed in Attachment H.

REFERENCES

Ecology (Washington State Department of Ecology). 2019a. Western Washington Phase 2 Municipal Stormwater Permit. August 2019.

Ecology. 2019b. Stormwater Management Action Planning Guidance. August 2019.

Parametrix. 2022a. SMAP Phase 1 Technical Memorandum. Prepared March 16, 2022, by Parametrix, Puyallup, WA.

Parametrix, 2022b. SMAP Phase 2 Technical Memorandum. Prepared April 22, 2022, by Parametrix, Puyallup, WA.

Parametrix, 2022c. SMAP Phase 2 – Step 2 Technical Memorandum. Prepared May 4, 2022, by Parametrix, Puyallup, WA.

Parametrix 2022d. SMAP Phase 2 – Step 3 Technical Memorandum. Prepared June 30, 2022, by Parametrix, Puyallup, WA.

ATTACHMENTS

- A NPDES Phase II Permit Excerpts – S5.C.1
- B SMAP Phase 1 Technical Memorandum
- C SMAP Phase 2 Technical Memorandum
- D SMAP Phase 2 – Step 2 Technical Memorandum
- E SMAP Phase 2 – Step 3 Technical Memorandum
- F NPDES Phase II Permit Excerpts – S5.C.2., .5, .7, .8
- G Pierce County GIS Channel Migration Zone Exhibits
- H Wetland Mapping
- I SWMMWW Wetland Hydroperiod Modeling

For the full document, please contact Orting Public Works Office.