

2022 Stormwater Sampling Plan – Missoula County

General Conditions

Monitoring will be conducted semi-annually, between the dates of January 1st-June 30th and again between July 1st-December 30th during a storm event with a measurable amount of discharge.

Monitoring Records shall include:

- Date, exact place, and time of sampling
- Estimated duration (in hours) of storm event sampled
- Total rainfall measurements or estimates (in inches) of the storm event which generated sample runoff
- Name(s) of individuals which performed the sampling or measurements
- Analytical laboratory test result data:
 - Date(s) analyses were performed
 - Time analyses were initiated
 - The initials or name(s) of individual(s) who performed the analyses
 - Reference and written procedures for analytical techniques or methods used
 - The results of such analyses, including bench sheets, instrument readouts, computer disks or tapes, etc. used to determine these results

Monitoring results will be submitted to the DEQ with each annual report with an evaluation including:

- Comparisons between monitoring locations
- Determination for trends and outliers in monitoring results compared to the calculated long-term median, and results outside pH range of 6.0-9.0 standard units
- A schedule and rationale for BMPs planned to improve water quality of storm water discharges based on Monitoring results

Standard Monitoring

The county proposed using Monitoring Option 2 as described in section IV.(A)3(b) of the General Permit for the first year monitoring plan (2017). This option requires at least 4 locations that include at least one commercial, one residential, and one upstream location outside the MS4 boundary to evaluate water quality entering the MS4. The County has contracted with the Missoula Valley Water Quality District to collect and ship samples to Energy laboratory in Billings, MT and will monitor for all parameters included in Table 1 (Part IV.A.2) in addition to any pollutants of concern for outfalls that discharge to an impaired waterway as required for TMDL-Related Monitoring. Because the pollutants for our selected impaired waterway are captured by the parameters listed in Table 1, these are the monitoring parameters for all 4 sampling sites:

Table 1. Small MS4 Monitoring (adapted from General Permit MTR040000 Part IV.A.2.)

Parameter
Total Suspended Solids (TSS), mg/L
Chemical Oxygen Demand (COD), mg/L
Total Phosphorus, mg/L
Total Nitrogen, mg/L
pH, standard units
Copper, mg/L
Lead, mg/L
Zinc, mg/L
Estimated Flow, gpm
Oil and Grease, mg/L

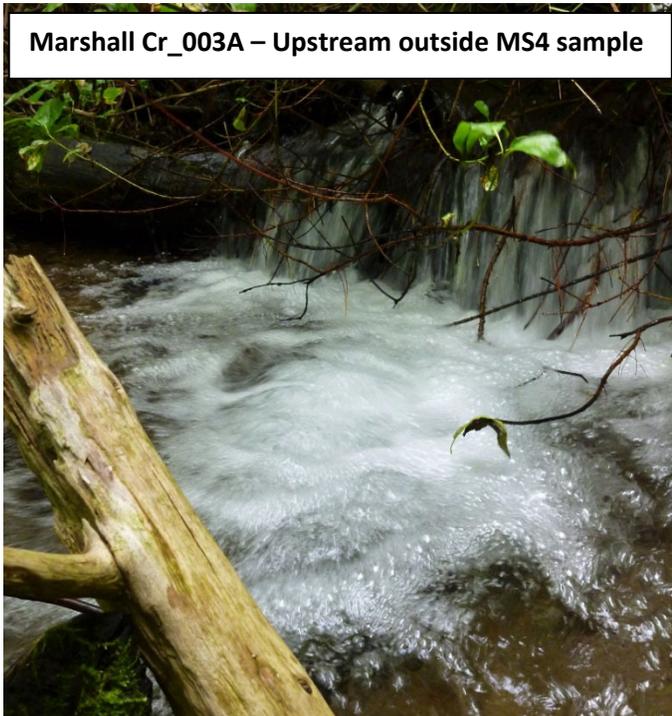
Dev Park-001 (renamed to Dev Park-001A) was used in 2018 as the industrial sampling location. That area was annexed by the City of Missoula in December of 2018. Therefore, the county proposed to change that monitoring location to **Hwy10_001A**. This area west of town **represents industrial and commercial use**. It is located in an industrial part of the county with various potential contributors including trucking/freight companies, construction yards, and impervious surfaces. The sampling site serves to characterize stormwater as if flows to a vegetated swale underneath Highway 10. This storm swale has the potential to hold accumulated sediment and contaminants for long periods and resuspending and transporting these contaminants during large storm events. During our sampling event in 2019 this site exhibited adequate flows and will continue to be used.



The county proposes to continue sampling location Wye_001 (renamed Wye_002A) which will represent a primarily **residential area**. This is a conveyance that drains a residential subdivision (Williams Addition) and this area is characterized by onsite wastewater systems and increased development. The monitoring point will be where

the box culvert daylights just east of the National Guard Armory.

The third sampling site will represent the upstream site outside the MS4. This site (**Marshall Cr_003A**) was chosen along a stretch of public land along Marshall Creek (below intersection of USFS Rd 2122, approximately 1.2 miles from Highway 200). This waterbody enters the MS4 downstream of the former Milltown Superfund site and drains National Forest land consisting of gravel/dirt roads and some residential development. No TMDLs have been established for this waterbody and long-term tracking of it's potential pollutant contribution to the MS4 will be valuable. Because the permit allows the same



Marshall Cr_003A – Upstream outside MS4 sample

samples sites to be used for Self-Monitoring and TMDL Monitoring, the fourth and final sampling site is described below.

TMDL Monitoring

In order to comply with regular monitoring requirements and in addition to the TMDL monitoring requirements listed in sections IV.(A)3(b) and III(B) “Monitoring Option 2” respectively for permit year 2, the District proposed to add instream monitoring on the Clark Fork at two locations: one along the upstream portion of the MS4 (but below confluence with Blackfoot River and still within the MS4 boundary) and one at the lower reach of the Clark Fork section of the MS4 prior to entering City of Missoula Limits. The Clark For River

(MT76M001_030 Blackfoot to Rattlesnake) is impaired for As, Cd, Cu, Fe, Pb, Zn and eutrophication. Mill tailings, industrial discharge and the presence of the former Milltown dam serve as sources of this impairment.

We have chosen to **discontinue monitoring this section** of the Clark Fork river for MS4 contributions to TMDL WLA for the following reasons: The site selection is limited and instream sites were chosen simply because no discharge points exist along this stretch of impaired river. Additionally, the Special Conditions of Part III require monitoring and controlling pollutants of concern to make progress toward meeting the TMDLs of the impaired waterbody. We question the utility of continued monitoring at this site since the probable sources of impairment are mill tailings. There may be no stormwater BMPs that would overcome the potential contributions of the former Clark Fork River/Milltown Reservoir Superfund Site.

Part III of the General Permit requires the MS4 to supplement Self-Monitoring with monitoring that evaluates MS4 loading to impaired waterbodies. The county MS4 faces several challenges for choosing

an impaired water body. The permit requires the MS4 to identify how it's going to control the pollutants of concern listed in Appendix A (TMDLs with WLAs assigned to MS4s approved by the department). However, the Missoula County MS4 is not in that list. Using the City of Missoula MS4 as a proxy results in the options of the Clark Fork River (MT76M001_030), Clark Fork River (MT76M01_020), the Bitterroot River, and Grant Creek. The Clark Fork River (MT76M001_030) is confounded by the explanation above. Along the other section of the Clark Fork (MT76M01_020) there are no outfalls to test. Additionally, most of this section of impaired river (~4 miles) is located within the City of Missoula MS4 which complicates identification and treatment of pollutant sources.

The Bitterroot has an approved impairment WLA for Pb and has outfalls within the county MS4 but they are not publicly accessible.



Appendix A lists a WLA for total nitrogen (TN) and sediment on Grant Creek (MT76M002_130 (0.0 lbs/day and 7.8 tons/yr respectively)). In 2019 we abandoned a set of instream monitoring locations on Grant Creek which bracketed residential portions of the MS4 because neither sets of samples showed a significant water quality impact. However, an outfall was located that may better represent impacts to this waterbody. A sampling site outfall at the junction of Snowbowl Rd with Grant Creek exists at the SW corner of the Snowbowl Rd bridge. This site is approximately 0.1 mile from where the road

transitions from asphalt to gravel/dirt. Sediment from the hillside and road-accumulated sand from winter maintenance may access the creek through this outfall. We added this outfall (designated **Snowbowl Rd Bridge_004A**) to meet the requirements of Part III of the permit. This outfall has been added to our MS4 map (MS4 Dashboard).

Of all the monitoring site, the Snowbowl Rd Bridge_004A site is the most challenging to assess. This site is approximately 0.1 mile from where the road transitions from asphalt to gravel/dirt. This outfall is located in a heavily wooded area that protects the roadway from accumulation of precipitation and does not flow consistently even when significant precipitation is received. When precipitation is sufficient however, sediment from the hillside and road-accumulated sand from winter maintenance may access the creek as water drips off of the bridge. Monitoring in 2021 revealed exceedances in spring sampling for various constituents and in the fall all parameters were below the General Permit median concentrations.

Monitoring Option 2 (Part III(B) of the General Permit) allows for a strategy to track and evaluate effectiveness of BMPs on the impaired waterbody. Road sanding, road building, nutrient loading from fertilizer or septic system discharge, and other post-construction and illicit discharges could contribute to this WLA. The sampling data and field observations collected thus far (two years) indicates that contaminant exceedances are related to spring conditions. The sediment and organic matter collection that occurs along the bridge following snow melt suggests that post-winter season maintenance of roads will be the most appropriate for addressing the contributions to the impaired waterbody from the MS4. The county has instituted BMPs (specifics included in SWMP and as part of MCM 6 Pollution Prevention and Good Housekeeping) to address the contributions of the MS4 to this waterbody.