

Permit Application Stormwater Management Example Tables and Guidance

These tables and guidance are provided to assist with the application process but do not represent all the details required to determine whether a project meets CCWD rules in their entirety. See the [2023 CCWD Rules pdf \(cooncreekwd.org\)](#) for full detailed requirements for project submittals.

The numbers provided in the tables below are for example purposes to show how each table should be filled out.

Rate Control

Point of Discharge	2-year (cfs)		10-year (cfs)		25-year (cfs)		100-year (cfs)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
<i>DP-1</i>	<i>0.15</i>	<i>0.15</i>	<i>0.26</i>	<i>0.25</i>	<i>0.33</i>	<i>0.32</i>	<i>0.42</i>	<i>0.41</i>
<i>DP-2</i>	<i>1.08</i>	<i>0.87</i>	<i>2.51</i>	<i>1.98</i>	<i>3.54</i>	<i>3.30</i>	<i>4.88</i>	<i>4.84</i>
<i>Etc.</i>								

- Projects that have multiple discharge points from the project will need to provide rate control at each point.
- Point of discharge should match a HydroCAD (or equivalent H&H model) node.
- 25-Year rates are only needed if the project is required to review rates for drainage sensitive land use.

Volume Control

Drainage Area(s)	Impervious area required to be treated (ft ²)	Proposed SMP ID	TP Removal Factor	Volume Required (ft ³)	Volume Provided (ft ³)
<i>S1</i>	<i>6,566</i>	<i>Infiltration 1</i>	<i>1</i>	<i>602</i>	<i>3,271</i>
<i>S2</i>	<i>4,113</i>	<i>Filtration 2</i>	<i>0.5</i>	<i>754</i>	<i>1,648</i>
<i>Etc.</i>					
Totals	<i>10,679</i>			<i>1,356</i>	<i>4,919</i>

- The impervious area required to be treated should be the amount of impervious surface regulated under Rule 3.3.3.1 within the drainage area(s).
- Impervious area total in this table should match the project total provided in the application; including areas that are not treated or treated via overland flow. All drainage areas with regulated impervious surface need to be listed in this table.
- Drainage Area(s) should match naming convention used by HydroCAD (or equivalent H & H model). Multiple drainage areas may be routed to a single SMP (stormwater management practice).
- If the SMP is a constructed system, ID should match the naming convention on construction plans and HydroCAD model.
- TP removal factor can be found in Appendix C.
- If the volume provided does not meet the volume required, provide explanation with supporting evidence in your stormwater narrative.

Water Quality

Discharge Point	TSS Removal Provided (%)
<i>DP-1</i>	<i>80%</i>
<i>DP-2</i>	<i>84%</i>
<i>Etc.</i>	

- A water quality model must be provided that can be used to verify the numbers provided in the

table.

- For discharge points with an SMP that utilizes a TP factor of one (1), no water quality model is required and TSS removal is assumed to be at least 80%.
- For discharge points with wet basins, no water quality model is required if the design meets MPCA Level 2 or 3. However, evidence of how it meets MPCA Design Level 2 or 3 must be provided.
- The required TSS percent removal per discharge point is 80%. If deviation exists, provide a justification that TSS is being removed to the maximum extent practicable with supporting evidence in the stormwater narrative.

Pretreatment

SMP ID	Pretreatment Device/Method	Percent TSS Removal
<i>CBMH-100</i>	<i>Sump</i>	<i>87%</i>
<i>CBMH-101</i>	<i>Sump with SAFL Baffle</i>	<i>92%</i>
<i>Etc.</i>		

- Pretreatment designed to remove at least 80% TSS is required at each inflow point to infiltration and filtration systems. If deviation exists, provide explanation with supporting evidence in narrative.
- If the SMP is a constructed system, ID should match naming convention on construction plans and H & H model.
- SHSAM (or equivalent methods) calculations with inputs and outputs must be provided to verify percent removal for devices such as sumps and hydrodynamic separators. OK110 particle size needs to be used for analysis.

Discharges to Wetlands

Wetland ID	<i>WL1</i>	<i>WL2</i>	<i>Etc.</i>
Wetland Type	<i>Moderately Susceptible</i>	<i>Slightly Susceptible</i>	
Change of Bounce 2-yr (ft)	<i>+0.3 ft</i>	<i>+0.72 ft</i>	
Change of Bounce 10-yr (ft)	<i>+0.45 ft</i>	<i>+0.89 ft</i>	
Change of Inflow Velocity (fps)	<i>0</i>	<i>0</i>	
Change of Inundation on 2-yr (hrs)	<i>+5 hours</i>	<i>+27 hours</i>	
Change of Inundation on 10-yr (hrs)	<i>+56 hours</i>	<i>+85 hours</i>	
Change of Run out Control (ft)	<i>0</i>	<i>0</i>	

- Wetland ID should match model ID in the H & H model and the name on the construction plans.
- Wetland Type is either highly, moderately, slightly, or least susceptible. Reference Appendix D in CCWD Rules for susceptibility by wetland type.
- Review section 3.3.5 in CCWD Rules for allowable changes between existing and proposed conditions based on wetland type.
- Change of Bounce can be determined by the change water surface elevation between existing and proposed conditions models.
- Change in Inundation can be determined by the length of time (hrs) the wetland exceeds the outlet elevation between existing and proposed conditions models.
- If no outlet is present, alternative analysis of change in volume into wetlands shall be provided.
- Change in run out control is only applicable if the outlet from the wetlands will be impacted.
- Change in inflow velocity rate can be determined by looking at the velocity between existing and proposed conditions, for each discharge point into a wetland.