PROJECT SHEET ***BASE DESIGN STANDARDS***

SITE INFORMATION

Project Name:	
Project Location:	
Submitted Date:	Submitted By:
COT Review Date:	COT Reviewed By:
Does project overlap multiple MS4 Jurisdictions? ☐ Yes ☐ No (if no, fill out section below)	
If project overlaps jurisdictions, provide written agreement to COT Project Manager designating responsibility for CM requirements, review, inspections:	
☐ This project is NOT an Applicable Development Site *(ie under 1 acre of disturbance, not part of a larger common development happening right now, and does not utilize an existing water quality feature required by the MS4 permit/post 2008).* Explanation:	

Instructions:

This form shall be completed by a responsible party to specify how Water Quality requirements will be met using various Standards for a given site. The entire site shall be broken down in the Summary Table below to calculate the Remaining Applicable Development subject to the Water Quality requirements. Depending on which Standards are used, each section should be filled out accordingly; all sections do not need to be filled out if not used. Finally, included in the Appendix should be a **Water Quality Exhibit** color coding how each part/basin of the site will be treated based on Standards and Exceptions used. Areas denoted on the Water Quality Exhibit should correspond with the previous table as well as basin descriptions in the FDR/DCL.

Definitions and Exclusions:

Design Standards

Base Design Standards are the minimum design standards for Water Quality and are required on *"Applicable new and re-development"*, alone or in combination as needed. The Base Design Standards for Water Quality can be met using one or more of the available Permanent Control Measures whose design is based on pollutant removal, flood attenuation and long-term maintenance. CMs must be designed in accordance with the most current version of USDCM vol. 3, Chapter 4 "Treatment BMPs" and meet the specific requirements for each Design Standard used.

Applicable Development Sites

Applicable Development Sites are those that result in land disturbance of greater than or equal to one acre, including sites less than one acre that are part of a larger common plan of development or sale, unless excluded below. Applicable development sites include all new development and redevelopment sites for which permanent water quality control measures were required in accordance with an MS4 permit. "New Development" means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision for a site that does not meet the definition of redevelopment. "Redevelopment" includes a site that is already substantially developed with 35% or more of existing imperviousness; with the creation or addition of impervious area (including removal and/or replacement), to include the expansion of a building footprint or addition or replacement of a structure; structural development including construction, replacement of impervious area that is not part of a routine maintenance activity; and land disturbing activities. At a minimum, applicable development sites include all those meeting the criteria of the previous MS4.

Construction activity

Construction Activity refers to ground surface disturbing and associated activities (land disturbance), which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Activities to conduct repairs that are not part of regular maintenance or for replacement are construction activities and are not routine maintenance. Repaving activities where underlying and/or surrounding soil is cleared, graded, or excavated as part of the repaving operation are considered construction activities unless they meet an exclusion.

Exclusions

Exclusions may be applied to the site as a whole or in part or used in combination where applicable. However, all exclusions used must include an explanation or justification where necessary. Below is a list of potential exclusions.

A. Pavement Management Sites: Sites, or portions of sites, for the rehabilitation, maintenance, and reconstruction of roadway pavement, which includes roadway resurfacing, mill and overlay, white topping, black topping, curb and gutter replacement, concrete panel replacement, and pothole repair. The purpose of the site must be to provide additional years of service life and optimize service and safety. The site also must be limited to the repair and replacement of pavement in a manner that does not result in an increased impervious area and the infrastructure must not substantially change. The types of sites covered under this exclusion include day-to-day maintenance activities, rehabilitation, and reconstruction of pavement. “Roadways” include roads and bridges that are improved, designed or ordinarily used for vehicular travel and contiguous areas improved, designed or ordinarily used for pedestrian or bicycle traffic, drainage for the roadway, and/or parking along the roadway. Areas primarily used for parking or access to parking are not roadways.

B. Excluded Roadway Redevelopment: Redevelopment sites for existing roadways, when one of the following criteria is met: 1) The site adds less than 1 acre of paved area per mile of roadway to an existing roadway, or 2) The site does not add more than 8.25 feet of paved width at any location to the existing roadway.

C. Excluded Existing Roadway Areas: For redevelopment sites for existing roadways, only the area of the existing roadway is excluded from the requirements of an applicable development site when the site does not increase the width by two times or more, on average, of the original roadway area. The entire site is not excluded from being considered an applicable development site for this exclusion. The area of the site that is part of the added new roadway area is still an applicable development site.

D. Aboveground and Underground Utilities: Activities for installation or maintenance of underground utilities or infrastructure that does not permanently alter the terrain, ground cover, or drainage patterns from those present prior to the construction activity. This exclusion includes, but is not limited to, activities to install, replace, or maintain utilities under roadways or other paved areas that return the surface to the same condition.

E. Large Lot Single Family Sites: A single-family residential lot, or agricultural zoned lands, greater than or equal to 2.5 acres in size per dwelling and having a total lot impervious area of less than 10 percent. A total lot imperviousness greater than 10 percent is allowed when a study specific to the watershed and/or MS4 shows that expected soil and vegetation conditions are suitable for infiltration/filtration of the WQCV for a typical site, and the permittee accepts such study as applicable within its MS4 boundaries. The maximum total lot impervious covered under this exclusion shall be 20 percent.

F. Non-Residential and Non-Commercial Infiltration Conditions: This exclusion does not apply to residential or commercial sites for buildings. This exclusion applies to applicable development sites for which post-development surface conditions do not result in concentrated stormwater flow during the 80th percentile stormwater runoff event. In addition, post-development surface conditions must not be projected to result in a surface water discharge from the 80th percentile stormwater runoff events. Specifically, the 80th percentile event must be infiltrated and not discharged as concentrated flow. For this exclusion to apply, a study specific to the site, watershed and/or MS4 must be conducted. The study must show rainfall and soil conditions present within the permitted area, must include allowable slopes, surface conditions, and ratios of impervious area to pervious area, and the permittee must accept such study as applicable within its MS4 boundaries.

G. Sites with Land Disturbance to Undeveloped Land that will Remain Undeveloped: Permittees may exclude sites with land disturbance to undeveloped land (land with no human-made structures such as buildings or pavement) that will remain undeveloped after the site.

H. Stream Stabilization Sites: Permittees may exclude stream stabilization sites.

I. Trails: Permittees may exclude bike and pedestrian trails. Bike lanes for roadways are not included in this exclusion unless attached to a roadway that qualifies under another exclusion in this section.

J. Oil and Gas Exploration: Permittees may exclude facilities associated with oil and gas exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be an applicable construction activity.

K. County Growth Areas: Permittees that are counties may exclude the following when they occur within a county growth areas:

    a. Construction activities on sites that began as part of a plan of development prior to July 1, 2019, which is the deadline per section I.H of the COR90000 permit to implement a construction sites program in the county growth areas.
    b. Agricultural facilities and structures on agricultural zoned lands (e.g., barn, stables).
    c. Residential development site or larger common plans of development for which associated construction activities results in a land disturbance of less than or equal to 10 acres and have a proposed density of less than 1,000 people per square mile.
    d. Commercial or industrial development site or larger common plans of development for which associated construction activities results in a land disturbance of less than or equal to 10 acres.

SUMMARY OF SITE DESIGN STANDARDS AND EXCLUSIONS

A. Gross Total Acres of Development	
B. % and Acres of Development Utilizing an Exclusion(s)	%: Acres: Exclusion(s): Justification:
	%: Acres: Exclusion(s): Justification:
C. % and Acres of Development that are in the Limits of Construction but do not meet the definition of Construction Activity (ex. interior work on existing structures, siding, parking lot mill and overlay which does not disturb the underlying ground, etc).	%: Acres: Explanation: Justification:
	%: Acres: Exclusion(s): Justification:
D. **Remaining Applicable Development** subject to Water Quality Standards	**A – (B + C):**

*If **D. Remaining Applicable Development** is less than 1 acre please notify the Stormwater Compliance team.

WQCV STANDARD Criteria

The control measure(s) is designed to provide treatment and/or infiltration of the WQCV and:

1) 100% of the applicable development site is captured, except the permittee may exclude up to 20 percent, not to exceed 1 acre, of the applicable development site area when the permittee has determined that it is not practicable to capture runoff from portions of the site that will not drain towards control measures. In addition, the permittee must also determine that the implementation of a separate control measure for that portion of the site is not practicable (e.g., driveway access that drains directly to street).
2) Evaluation of the minimum drain time shall be based on the pollutant removal mechanism and functionality of the control measure implemented. Consideration of drain time shall include maintaining vegetation necessary for operation of the control measure (e.g., wetland vegetation).

Control Measure(s) used to meet this standard:
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard %: Acres:
Requirements
Control measure(s) provide treatment and/or infiltration of the WQCV for 100% of **Reference Area**? ☐ Yes (skip sections below) ☐ No (fill out sections below)
% and Acres of **Reference Area** which is infeasible for treatment by control measures (not to exceed 20% or 1 acre) **If Reference Area is part of a Larger Common Development happening now, must provide proof there is remaining available allotment of areas using the 20%/1 acre exclusion:* *Update Water Quality Exhibit in Appendix marking these areas as 'WQCV Standard – Infeasible'.
Explanation for infeasibility to treat portion of **Reference Area** not treated by control measures: **If this reduction results in the remaining **Reference Area** to fall below 1 acre, please notify the Stormwater Compliance Team.*

POLLUTANT REMOVAL STANDARD Criteria

The control measure(s) is designed to treat at a minimum the 80th percentile storm event. The control measure(s) shall be designed to treat stormwater runoff in a manner expected to reduce the event mean concentration of total suspended solids (TSS) to a median value of 30 mg/L or less.

1) 100% of the applicable development site is captured, except the permittee may exclude up to 20 percent not to exceed 1 acre of the applicable development site area when the permittee has determined that it is not practicable to capture runoff from portions of the site that will not drain towards control measures. In addition, the permittee must also determine that the implementation of a separate control measure for that portion of the site is not practicable (e.g., driveway access that drains directly to street). Substantiating data must meet criteria in USDCM vol.3, T-11 and be included in the submittal.

Control Measure(s) used to meet this standard:	
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard %: Acres:	
Requirements	
Control measure(s) provide treatment of the 80th percentile storm event. The control measure(s) treat stormwater runoff in a manner expected to reduce the event mean concentration of total suspended solids (TSS) to a median value of 30mg/L or less for 100% of the **Reference Area**? ☐ Yes (if Yes, fill out Sections A and B) ☐ No (if No, fill out Sections A-F)	
A.	Storm Event:
B.	TSS mg/L reduction:
C.	% and Acres of **Reference Area** which is infeasible for treatment by control measures (not to exceed 20% or 1 acre) **If Reference Area is part of a Larger Common Development happening now, must provide proof there is remaining available allotment of areas using the 20%/1 acre exclusion:* *Update Water Quality Exhibit in the Appendix marking these areas as 'WQCV Standard – Infeasible'.

E.	Explanation for infeasibility to treat portion of **Reference Area** not treated by control measures: **If this reduction results in the remaining **Reference Area** to fall below 1 acre, please notify the Stormwater Compliance Team.*

RUNOFF REDUCTION STANDARD Criteria

The control measure(s) is designed to infiltrate into the ground where site geology permits, evaporate, or evapotranspire a quantity of water equal to 60% of what the calculated WQCV would be if all impervious area for the applicable development site discharged without infiltration. This base design standard can be met through practices such as green infrastructure. “Green infrastructure” generally refers to control measures that use vegetation, soils, and natural processes or mimic natural processes to manage stormwater. Green infrastructure can be used in place of or in addition to low impact development principles.

Refer to Mile High Flood District Vol 3, Ch 4 for Runoff Reduction calculations

***In addition to the Water Quality Exhibit included in the Appendix please also submit a Runoff Reduction Exhibit showing Unconnected Impervious Areas and Receiving Pervious Areas. ***

Control Measure(s) used to meet this standard:
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard %: Acres:
Requirements
Percentage of **Reference Area** (disturbance) that the WQCV is infiltrated, evaporated or evapotranspirated (at least 60%) %:

REGIONAL WQCV CONTROL MEASURE STANDARD Criteria

Control Measure(s) must be designed to accept the drainage from the applicable development site. Stormwater from the site **must not** discharge to a water of the state before being discharged to the Regional WQCV Control Measure. The Regional WQCV Control Measure must be designed to provide treatment and/or infiltration of the WQCV for the applicable development site.

Control Measure(s) used to meet this standard:
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard: %: Acres:
Requirements
% and Acres of **Reference Area** which is infeasible for treatment by control measures (not to exceed 20% or 1 acre) **If Reference Area is part of a Larger Common Development happening now, must provide proof there is remaining available allotment of areas using the 20%/1 acre exclusion:* *Update Water Quality Exhibit in the Appendix marking these areas as 'WQCV Standard – Infeasible'.
Explanation for infeasibility to treat portion of **Reference Area** not treated by control measures: **If this reduction results in the remaining **Reference Area** to fall below 1 acre, please notify the Stormwater Compliance Team.*
Control Measure(s) are designed to accept the drainage from the site? ☐ Yes ☐ No
Stormwater from the site does not discharge to a water of the state before being discharged to the Regional WQCV Control Measure? ☐ Yes ☐ No
The Regional WQCV Control Measure is designed to provide treatment and/or infiltration of the WQCV for the site? ☐ Yes ☐ No

REGIONAL WQCV FACILITY STANDARD Criteria

Control Measure(s) must be designed to accept drainage from the applicable development site. Stormwater from the site **may** discharge to a water of the state before being discharged to the Regional WQCV facility. Before discharging to a water of the state, at least 20 percent of the upstream imperviousness of the site must be disconnected from the storm drainage system and drain through a receiving pervious area control measure comprising a footprint of at least 10 percent of the upstream disconnected impervious area of the applicable development site. In addition, the stream channel between the discharge point of the applicable development site and the Regional WQCV facility must be stabilized.

Control Measure(s) used to meet this standard:
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard: %: Acres:
Requirements
The Regional WQCV Facility is designed and maintained for 100% WQCV for its entire drainage area? ☐ Yes ☐ No
The Regional WQCV Facility is designed and built to comply with all assumptions for the development planned within the drainage area and site? ☐ Yes ☐ No
Evaluation of the minimum drain time is based on the pollutant removal mechanism and functionality of the facility? ☐ Yes ☐ No
The Regional WQCV Facility is designed and constructed with flood control and water quality as the primary use? (Recreational ponds and reservoirs or Classified State Waters cannot be used as Regional WQCV Facilities) ☐ Yes ☐ No
Disconnected Area Calculation **A.** % of composite upstream imperviousness in the **Reference Area** disconnected from storm drainage system (at least 20%): **B.** Area of composite upstream imperviousness in the **Reference Area** disconnected from storm drainage system (sq ft):

REGIONAL WQCV FACILITY STANDARD Criteria continued from previous page

Sizing of Pervious Area Control Measure Calculation

% of composite upstream imperviousness in the **Reference Area** disconnected from storm drainage system draining to a Receiving Pervious Area control measure (at least 10% or more of **A**):

Area of Receiving Pervious Area control measure (10% or more of **B**) (sq ft):

Above area should match the size of the Receiving Pervious Area control measures in the plan documents

Type of Receiving Pervious Area control measure (Receiving Pervious Area Controls will reduce the volume of runoff reaching the Regional WQCV Facility through infiltration across the given area. They typically include Grass Buffers and Grass Swales, but other Controls may be evaluated on a case-by -case basis):

Stream channel stabilized between discharge point of development site and regional WQCV facility:

☐ Yes

☐ No

Method of stream channel stabilization:

Constrained WQCV Standard Criteria

APPLICABILITY

Constrained Redevelopment Sites are sites where the impervious area is greater than 75%. **The Constrained Site Standard can only be used if it is determined that it is not practicable to meet any of the Base Design Standards; WQCV Standard, Pollutant Removal Standard or Runoff Reduction Standard.** It is incumbent on the design engineer to demonstrate adherence to Base Design Standards has been thoroughly evaluated and found to be infeasible before a Constrained Site Standard is proposed.

The minimum treatment levels are included below and treatment should be maximized to the extent feasible under constrained site conditions.

CONSTRAINED WQCV STANDARD Criteria

Control measure(s) must be designed to provide, at a minimum, treatment and/or infiltration of the WQCV for 50% of the impervious area of the applicable redevelopment site. Evaluation of the minimum drain time shall be based on the pollutant removal mechanism and functionality of the control measure implemented.

Control Measure(s) used to meet this standard:
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard: %: Acres:
Requirements
Control measure(s) provide treatment and/or infiltration of the WQCV for 50% of the **Reference Area**? ☐ Yes ☐ No
Provide an evaluation of the infeasibility of Base Design Standards and justification for use of Constrained Site Standard:

Constrained Pollutant Removal Standard Criteria

APPLICABILITY

Constrained Redevelopment Sites are sites where the impervious area is greater than 75%. **The Constrained Site Standard can only be used if it is determined that it is not practicable to meet any of the Base Design Standards; WQCV Standard, Pollutant Removal Standard or Runoff Reduction Standard.** It is incumbent on the design engineer to demonstrate adherence to Base Design Standards has been thoroughly evaluated and found to be infeasible before a Constrained Site Standard is proposed.

The minimum treatment levels are included below and treatment should be maximized to the extent feasible under constrained site conditions.

CONSTRAINED POLLUTANT REMOVAL STANDARD Criteria

Control measure(s) must be designed to provide treatment of the 80th percentile storm event. The control measure(s) shall be designed to treat stormwater runoff in a manner expected to reduce the event mean concentration of total suspended solids (TSS), at a minimum, to a median value of 30mg/L or less for 50% of the development area including 50% or more of the impervious area.

Control Measure(s) used to meet this standard:
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard: %: Acres:
Requirements
Control measure(s) provide treatment of the 80th percentile storm event. The control measure(s) treat stormwater runoff in a manner expected to reduce the event mean concentration of total suspended solids (TSS) to a median value of 30mg/L or less for 50% of the **Reference Area**? ☐ Yes ☐ No
Storm Event:
TSS mg/L reduction:
Provide an evaluation of the infeasibility of Base Design Standards and justification for use of Constrained Site Standard:

Constrained Runoff Reduction Standard Criteria

APPLICABILITY

Constrained Redevelopment Sites are sites where the impervious area is greater than 75%. **The Constrained Site Standard can only be used if it is determined that it is not practicable to meet any of the Base Design Standards; WQCV Standard, Pollutant Removal Standard or Runoff Reduction Standard.** It is incumbent on the design engineer to demonstrate adherence to Base Design Standards has been thoroughly evaluated and found to be infeasible before a Constrained Site Standard is proposed.

The minimum treatment levels are included below and treatment should be maximized to the extent feasible under constrained site conditions.

CONSTRAINED RUNOFF REDUCTION STANDARD Criteria

Control measure(s) must be designed to infiltrate, evaporate or evapotranspire, at a minimum, a quantity of water equal to 30% of what the calculated WQCV would be if all impervious area discharged without infiltration. This Standard can be met through practices such as Green Infrastructure and Low Impact Development practices.

Control Measure(s) used to meet this standard:
Reference Area: % and acres of **Remaining Applicable Development** treated by this Standard %: Acres:
Requirements
Control measure infiltrates, evaporates or evapotranspirates at least 30% of WQCV in **Reference Area**? ☐ Yes ☐ No
Provide an evaluation of the infeasibility of Base Design Standards and justification for use of Constrained Site Standard:

Appendix

Water Quality/Runoff Reduction Combined Example: