

Fort Collins Stormwater Criteria Manual - updated September 2018

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Chapter	Section	Info (Included or New)
1: Drainage Principles and Policies	2.3.2 Detention Basins	Included 1000 sf threshold for detention requirements; included drain time criteria CRS §37-92-602(8)
	2.3.4 Municipal Separate Storm Sewer System (MS4) Permit	Included more thorough explanation of what the MS4 permit is, which sections apply to developers and includes definitions of some of the terms included in this manual.
	2.3.5 Water Quality Treatment	New: changed land disturbing activities threshold from 0.5 acre disturbance to 1.0 acre disturbance to be consistent with the MS4 permit requirements
	2.3.11 Erosion and Sediment Control	Included narrative on how soil erosion and sediment transportation can impact waterways and that planning helps to reduce those impact from construction activities.
2: Development Submittal Requirements	1.0-7.0	This chapter includes/outlines the specific submittal requirements for each step of the development review process through the City. This includes submittal information and requirements for: Conceptual Reviews (CRs) and Preliminary Design Reviews (PDRs), Overall Development Plans (ODP) and Reports, Project Development Plans (PDPs) and Reports, Final Plan (FPs) and Reports, Development Agreements, and Erosion Control Plan and Report requirements. The new manual provides lists of requirements for each step and is less prescriptive about the formatting of the reports.
	6.0 Erosion Control Material Requirements	New clarification that an acceptance of Erosion Control Materials by the City does not constitute a fulfillment for any State and Federal Requirements.
	6.0 Erosion Control Material Requirements	New language to clarify that at all times the most restrictive language will need to be followed.
	6.0 Erosion Control Material Requirements	Included that Erosion Control will no longer be required during be PDP, rather it will be required during the FDP review which is a more logical submittal timeline with the rest of the current standard development review process.
	6.0 Erosion Control Material Requirements	Included those non-standard review processes (MA, MJA, BDR, Capital Projects, etc.) that are not a clear as the Development Review Process and established a New estimated submittal time line that mirrors the submittal of same expected erosion control materials.
	6.1 Standards and Submittal Requirements	New assumption that all projects are expected to require Erosion Control Materials unless proof is submitted to the contrary.
	6.1 Standards and Submittal Requirements	Included the requirements to include; excavation, development construction, and stockpile permits to the previous terminology of building permits as they were not the only permit that result in site disturbances that could result in water quality impacts.
	6.1 Standards and Submittal Requirements	New chart that was added as a tool to simplify what materials would be needed for any particular type of project.
	6.1 Standards and Submittal Requirements	New: Erosion Control Reports are no longer going to be asked of projects that are under an acre and not part of a larger common development. This was an effort to remove some of the undue hardships on smaller projects typically renovation builders, and small demolitions. Erosion Control Plans and Escrows will still need to be collected.
	6.1 Standards and Submittal Requirements	New clarification about emergency work is only exempt when activities are under an acre.
	6.1 Standards and Submittal Requirements	New clarification about how a larger common development is applied on those projects less than an acre (in alignment with State Permits)
	6.1 Standards and Submittal Requirements	Sequencing was part of prior Criteria, new is the requirement of a sequence chart for under 3 acres and Sequence sheets for over 3 acres
	6.1 Standards and Submittal Requirements	Phasing has been a prior Criteria, new is that phasing plans are required of sites larger than 5 acres.
	6.1.1 Projects that do not need erosion control materials	New clarification about emergency work is only exempt when activities are under an acre.
	6.1.1 Projects that do not need erosion control materials	New clarification about how a larger common development is applied on those projects less than an acre (in alignment with State Permits)
	6.1.1 Projects that do not need erosion control materials	Include clarification about City and Developer together verify that a project is under the given threshold.
	6.1.1 Projects that do not need erosion control materials	Include clarification that demolitions, a form of building permit, are not excluded from providing erosion control materials when and where the demo activity is part of a future construction or when it is over 10,000 SF.
	6.1.2 Request for Project Clarification Regarding the Applicability of Requirements	Included description of how to submit proof that a project is under the requirement since there are times projects are questionable and in the past have turned out to have actually needed to supply erosion control materials when none were submitted.
	6.1.3 Elements of an Erosion Control Plan	Include a weblink for developers to vet materials against a Check List (This will updated once the Criteria is passed)
	6.1.3 Elements of an Erosion Control Plan	Include information of where Erosion Control Plans information will need to be located in the submittal materials.
6.1.3 Elements of an Erosion Control Plan	New a table of calculations that show key erosion control information about the site characteristics to speed reviews along (most of this information had already been required in the erosion control report prior)	

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Chapter	Section	Info (Included or New)
	6.1.3 Elements of an Erosion Control Plan	Include clear expectation of what will be looked for in the erosion control plan in alignment with State Construction Permits and clarity around what was expected of Plans before but was not necessarily in black and white or what was only included in prior guidance documents.
	6.1.3 Elements of an Erosion Control Plan	New the Standard Notes were updated (Appendix F) and give the direction not to be amended to allow consistency with following the criteria and enforcement.
	6.1.4 Elements of an Erosion Control Report	Include clear expectation of what will be looked for in the erosion control reports in alignment with State Construction Permits and clarity around what was expected of Report before but was not necessarily in black and white or what was only included in prior guidance documents.
	6.1.4.1 Project Title Page....	New the Owner, Developer, Contractor, Design Engineer, and Erosion Control Administrator for the site will need to sign an agreement to accept that they have read and understand the erosion control report and accept responsibility to prevent the potential pollutant sources associated with the project from leaving their project and if identified they will further agree to work with the City to get those discharges clean up and corrected.
	6.1.4.4 Potential Pollutant Sources	New added Bulk Storage of Materials and Saw Cutting & Grinding as pollutant sources typical of a construction site. Included clarification of aligning significant dust and particulate generation with the existing Fugitive Dust Ordinance.
	6.1.4.4 Potential Pollutant Sources	New pollutant sources of "Other non stormwater discharges" and "other areas where spill can occur" were added as catch all's in alignment with MS4 requirements and State Construction Permits.
	6.1.4.5 Construction Control Measures	Includes that each control measure called out for, will need a description and/or call for a Detail to follow.
	6.1.4.5 Construction Control Measures	Includes that all control measures called out for in the plans, will need to be included in the report.
	6.1.4.7 Project Phasing	Includes that any phasing requires some discussion in the erosion control report.
	6.1.4.8 Maintenance and Inspection Requirements	Includes that all control measures will have recommended maintenance that will need to be followed.
	6.1.4.9 Final Vegetation and Stabilization	Includes clearer description of what constitutes stabilization and what this section of the report will need to include.
	6.1.4.9 Final Vegetation and Stabilization	Includes removal of sediment from all pipes as part of this report. (This was always in the Stormwater Standard notes but should be included here as well.)
	6.1.5 Erosion Control Escrow (this section updated since last Water Board review)	Includes language about when and how to break erosion control escrows up into smaller phases of the overall project (All based upon prior project issues). Includes a requirement to include a phasing map when erosion control escrows are broken into smaller phases. Includes clearer expectations as to when the erosion control escrow will be returned and who it can be returned to. Includes who is responsible for changing over erosion control escrow when property changes hands. Includes info on how the erosion control escrow will be called upon when erosion protection is being neglected.
	6.1.5 Erosion Control Escrow	New: allows the City the option to recalculate and escrow and can allow individual residential lots to default to the minimum escrow value without a calculation. New form will need to be filled out when an erosion control escrow is being collected (When no Development Agreement is associated with the project).
	6.2 Submittals, Review and Acceptance of Preconstruction Designs	Include a further explanation of all the various types of holds that could occur as a result of not satisfying the criteria.
	6.2.1 Submittal Check lists of Erosion Control Requirements	New reference link to an online accessible checklist of the submittal requirements.
	6.3.1 State Permit: Stormwater Discharges Associated with Construction Activities	New regulatory compliance about how this criteria does not affect other permit requirements by other entities.
	6.3.2 Qualifying Local Program	Included explanation of what a qualifying local program is and how Fort Collins is not one of those municipalities, prior was a simple sentence saying we were not one without understanding. This was also changed to help clarify that permits issued by Fort Collins does not mean a project pulled a State Permit.
	6.3.3 Rainfall Erosivity Waivers	Included explanation of what a rainfall erosivity waiver is and how Fort Collins still requires erosion control criteria be met even when a site is exempt from a State Permit.
	6.3.4 Oil and Gas Operations & Exploration	Included clarification that oil and gas construction operations are not exempt from the requirements of this manual and that other City Code Sections apply to these type of construction activities.
	6.3.5 Chemical Removal of Sediment Laden Water from Construction	New clarification in the Manual, Included stance erosion control has been following as best practice when it comes to not allow Chemical Treatments to stormwater from construction sites.
	6.4 Erosion Control in the Development Review Process Map	New process flow maps have been added to help clarify various processes that are taken to get through the erosion control process.
	8.0 Variance Request Process	This is a new section in the manual that has been provided as a mechanism to request variances to the requirements of the manual and the parameters in which the request must be made.

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3: During & Post-Construction Requirements	1.0 Overview	New overview for the new Chapter
	2.0 Erosion Control Inspections and Field Requirements	New paragraphs introducing the erosion control inspections and field requirements to this new Chapter.
	2.1 Construction Activity and Escrow	Includes the City not just reserves the right to enters upon the land to make corrective actions, but clarifies the City's option to pursue other legal actions and code violations.
	2.2 Developer Inspections	Includes required inspections to only projects that have a State Permit, recommended inspections for projects that are not required to have a State Permit in alignment with State Requirements.
	2.2.1 Frequency	New addition of reduced self inspections by the Developer after construction is completed and awaiting seeding in alignment with the State Permit.
	2.2.1 Frequency	Includes clarification and numerical limits for when inspection may be suspend during snow conditions
	2.2.1 Frequency	Includes how the Developer is required to correct deficiencies and conduct a follow up inspection ASAP to document correction.
	2.2.2 Inspection Records	New outlining of what should be included in an inspection report (in alignment with industry standards when it comes to these inspection items)
	2.2.2 Inspection Records	Includes requirements about keeping the inspection records in order.
	2.2.3 Erosion Control Administrator	New outlines who and what an Erosion Control Administrator is and what they are accountable for as they should be the primary site contact for the City's erosion control inspectors
	2.2.4 Developer Inspector Qualifications	Includes recommendations that the Developer's inspector have training and awareness of City, State and Federal regulations around erosion control.
	2.3 Initial Inspection Requests	New step by step list on how to fulfill erosion control requirements through the various permitting processes.
	2.3 Initial Inspection Requests	Includes directions on how to go about requesting an initial erosion control inspection.
	2.4 Maintenance	Includes Developer's requirements to maintain control measures.
	2.4 Maintenance	Includes State verbiage and requirements to have things corrected immediately
	2.5 Removal and Disposal of Temporary Measures	Includes clarification of proper disposal of control measures once removed and then returning permanent erosion control structures back to design specs.
	2.6 Final Stabilization and Established Vegetation Criteria	Includes a clearer explanation of what does and does not constitutes final stabilization.
	2.6 Final Stabilization and Established Vegetation Criteria	New clarifier of ensuring all construction pollutants are no longer on the site to constitute final stabilization.
	2.6 Final Stabilization and Established Vegetation Criteria	Includes information around seeding and requirements around a two step hydroseeding/hydro mulching process.
	2.6 Final Stabilization and Established Vegetation Criteria	Includes clarification that permanent non erosive cover is considered a stabilized surface in alignment with State guidance documents.
	2.9 Municipal Inspections	Includes that the City will conduct inspections to verify compliance with the MS4 permit and further clarifies that these City inspections are <u>not</u> fulfilling of the Developer's Construction Permit Inspections.
	2.9.1 Initial Municipal Inspections	Includes what an initial municipal inspection is and consist of.
	2.9.2 Routine Municipal Inspections	Includes what a routine municipal inspection is and consist of.
	2.9.3 Complaint-Driven Inspection	Includes what a complaint driven municipal inspection is and consist of.
	2.10 Enforcement	Includes how preventing potential pollutants from leaving a site is mandatory in alignment with City Code
	2.10 Enforcement	New addition of enforcement tools to include Letter of warning, proof of correction, submitting future inspection records, require training, corrective action plans and notices of violation.
	2.10 Enforcement	Includes rational for why the City does not give a corrective action deadline as it pertains to State's right under the NPDES Permit.
3.0 Drainage Certification	Included links to the "Overall Site and Drainage Certification", the "During Construction Inspection" and the "Certification of Lot Grading" checklists	
4.0 Escrow Procedure for Drainage Certifications (this section updated since last Water Board review)	Included the escrow procedure for drainage certifications	
5.0 Close-Out Process	Included a more specific description of the initial and final close out processes	
4: Construction Control Measures	1.0 Introduction	New additional rewriting of intro paragraph.
	2.0 Scope of Applicability	Includes language around clarifying cases where projects are required to apply these criteria as there are some circumstances that the City is not the MS4 and the entity is not required to fulfill the Criteria. These are primarily around school, state institutions, and federal buildings.
	2.1 Exemptions to the Scope of Erosion Control Requirements	New emergency work under one acre will be exempt from erosion control requirements where as before over an acre was also included in this exemption. This is in response to State MS4 Permit guidance.

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	2.1 Exemptions to the Scope of Erosion Control Requirements	Includes language that though projects may be exempt from supplying erosion control materials they are still responsible for preventing pollution discharge from their activities.
	3.1 Erosion	Includes section added to inform the connection of soil and the various qualities of soil have direct connections to erosion potential.
	3.4 Fundamental Erosion and Sediment Control Principles	Includes section to inform how erosion and sediment controls function best
	4.0 Overview of Construction Control Measures	New information about how the Chapter was further laid out.
	4.2 Sediment Control Measures	Includes emphasis that the City does not recommend the use of chemical treatment with construction activity.
	5.0 Control Measure Selection and Planning	Includes requirements that erosion control materials must select control measures before going to construction.
	5.0 Control Measure Selection and Planning	New control measures now shall be selected, designed, installed, maintained, and removed based upon good engineering, hydraulic and pollutant prevention practices.
	5.0 Control Measure Selection and Planning	Includes language around phasing and sequencing need to be taken into account and as the site changes so to will the need for control measures to change.
	5.0 Control Measure Selection and Planning	Includes recommendations that the Developer may want to look into contracts to get sub-contractors in alignment with the erosion control.
	5.0 Control Measure Selection and Planning	Includes information around unique project require some unique control measure applications.
	5.1 Documenting Alternative Methods of Control	New process for alternative control measures should follow the variance process.
	5.1 Documenting Alternative Methods of Control	Includes information that should be provided when following the variance process.
	5.1 Documenting Alternative Methods of Control	Includes how the use of the control measure is at the risk of the Developer not the City.
	6.0 Detailed Construction Control Measures	Includes direct requirements that the Developer will need to follow the control measure as outlined here.
	6.0 Detailed Construction Control Measures	Includes direct language to prevent potential pollutant sources from impacting the river.
	6.1 Erosion Control Detail/Fact Sheets	New language to ensure that if buffer strips are used that they must be in tandem with an additional control measure. In alignment with State materials around vegetative buffers.
	8.0 Standard Erosion Control Notes	New requirement that the Standard Erosion Control Notes not be changed to ensure consistency for enforcement between projects.
	8.0 Standard Erosion Control Notes	New link to where the Standard Erosion Control Notes can be found.
5: Hydrology Standards	2.0 Runoff Methodologies	Included clarified acreage requirements for Rational Method vs SWMM runoff analysis; rational analysis requirements were stated two different ways in the old manual - 90 acres and 20 acres
	3.2 Runoff Coefficients	Included simplified zoning classification runoff coefficients
	3.3 Time of Concentration	Included all time of concentration calculation information (inadvertently left out of the 2011 manual)
	3.3.3 Channelized Flow Time	Included Manning's equation to calculate channelized flow time instead of older industry standard of nomography to determine velocity
	4.0 SWMM	Not included: SWMM theory and methodology discussions have been removed from the manual. The user is now directed to use the SWMM users manual.
	4.1.3 Basin Width (SWMM)	Included: this section has been expanded to specify that the designer may utilize other ways to determine basin widths
6: Detention	1.2 Drain Time Criteria	Included drain time criteria per CRS §37-92-602(8)
	2.2 SWMM	Not included: SWMM theory and methodology discussions have been removed from the manual. The user is now directed to use the SWMM users manual. New: OLD manual included information on operations and maintenance of detention basins. Specific information regarding maintenance procedures have generally been removed from the manual as maintenance personnel are not likely going to look in a design criteria manual for direction on maintenance. Maintenance procedures are now covered in the SOPs (no a part of the manual).
	2.5 Alternative to Quantity Detention ("Beat the Peak")	Included: an analysis procedure allowing design engineers to analyze the timing of the hydrograph of the site relative to the hydrograph of adjacent waterways. This "alternative" is only allowed for development sites that are directly adjacent to waterway outfall locations.
	3.3.2 Water Quality Orifice Plate	This section specifies that water quality orifice plate design should be based upon the Urban Drainage design procedure from 12/2004.

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	4.1 Underground Detention Facilities	New: The requirements have been completely updated from the OLD manual. Underground facilities are no longer discouraged and a significant amount of design guidance has been added. Included here are the underground storage provisions outlined in Ordinance XX.
7: Water Quality	1.0 Overview	Included clarification that stormwater quality provisions are required for the entire area of redeveloped sites; standard water quality must be provided where LID is not.
	6.0 Low Impact Development	Including LID Ordinance language and further defining some terms in that language such as what constitutes an "impervious surface" and "added", "modified" and "paved"; defining LID threshold and general requirements of the standard; conglomerating best management practices and industry design standards for common LID systems such as permeable pavers, bioretention, sand filters, underground systems, vegetated buffers, etc.
	6.9 Drainage Easements for LID	Including clarification for which LID systems require drainage easements
8: Grading	2.1 Single Family Lot Grading	Including schematics of single-family lot grading based on industry standards
	2.3 Channel/Swale Grading	Including parameters for swale surface types based on slope; included detail of "soft pan"
	3.0 Detention Basin Grading Design	New: detention basin invert must be a minimum of 24"
9: Streets, Inlets & Conveyance	3.0 Inlets	New: Type R inlets are discouraged from being placed along Local streets or residential areas for safety purposes because the throat depths are deeper than combination inlets
	4.3 Design Process, Considerations and Constraints	New: Storm pipes need to be sized to convey at least the minor storm and must also be sized to convey the amount of water conveyed to them from inlets. The HGL and EGL within the pipe system must be below the roadway surface.
		New: OLD manual included information on natural channel design and open floodway design and environmental permitting issues that have now been removed from the updated manual because these technical design components are beyond what the vast majority of development projects are going to require for stormwater design parameters.
		New: OLD manual included the Hydraulic Structures Chapter and the Culverts Chapter from the UD manual. The new manual does not include these chapters because these technical design components are beyond what the vast majority of development projects are going to require for stormwater design parameters.
Appendix A: Development Submittal Checklists		New: Checklists for Drainage Memo, ODP Drainage Report, ODP Drawings, PDP and FP Drainage Report, PDP and FP Drawings
Appendix B: Landscape Design Standards and Guidelines for Stormwater and Detention Facilities		Included: This previously adopted guideline document is now included within the overall manual for grading and landscaping guidance in detention basin areas.
Appendix C: LID Implementation Manual		New: This manual provides examples of how the LID criteria can be met and typical applications for development sites.
Appendix D	Section 1.0 - 6.0	New the whole Appendix D sections 1-6 provides all kinds of examples of ways the erosion control materials could be supplied that would be acceptable to fulfill the requirements set forth in the earlier chapters.
Appendix E	7.0 Control Measure Selection and Planning	New/Includes means and guidance on how to select control measures selection and pollution prevention planning. This consists of major sections rewritten from urban drainage that was prior included as part of the Criteria.
Appendix F	Appendix F	New notes that reflect new conditions through out the criteria and Includes notes that have been clarified to make the requirements straight forward and remove many of the questions that arise about what should and should not happen. Made for quick reference for Erosion Control Staff and Developers in the field.