



# ARAPAHOE COUNTY CHECKLIST FOR DRAINAGE REPORT – PHASE I

Revised July 2018

Yes	No	N/A	Report Requirements
<b>I. COVER SHEET</b>			
			A. Name of Project/Site Name
			B. Address
			C. Owner Contact Information (Name, Address, Phone)
			D. Developer Contact Info (Name, Company, Address, Phone)
			E. Engineer Contact Info (Name, Company, Address, Phone)
			F. Submittal date and revision date(s) as applicable
			G. Case Number(s)
			Table of Contents
			Certification Statement* - Engineer
			** see Stormwater Manual for Certification verbiage
<b>II. GENERAL LOCATION AND DESCRIPTION</b>			
			A. Site Location
			1. Site Vicinity Map
			2. Legal Description
			3. Township, Range, Section, and ¼ Section
			4. Existing and proposed streets, roadways, and highways adjacent to and within the proposed development, or within the area served by the proposed drainage improvements
			5. Names of surrounding or adjacent developments, including land use or zoning information
			B. Description of Property
			1. Total Site/Project Area in Acres
			2. Current and Proposed Zoning
			3. Existing Site Conditions Ground cover, vegetation, site topography and slopes
			4. Existing irrigation canals or ditches
			5. Significant geologic features
			6. NRCS Soils Classification Map and discussion
			7. Proposed Land Use, site activities and operations
			8. Estimated Proposed Impervious Area – existing and proposed. Include removed, replaced, and new impervious area (square feet and acres) and total change in impervious area
			9. Total Disturbed Area
<b>III. FLOODPLAIN</b>			
			A. Major Drainageway – Designated Floodplain
			1. Identify site Floodplain Zone



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			Source of Floodplain Delineation. FEMA Flood Insurance Rate
			2. Map(s) including panel date and number and/or UDFCD Flood Hazard Area Delineation (FHAD) study
			3. Floodplain Modifications required, including justification to why it is necessary
			4. Floodplain Modification Studies required, including Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) requirements
			<b>B. Major Drainageway – Undesignated Floodplain (non-FEMA&gt;130ac)</b>
			1. Discuss floodplain issues and resources and strategy for floodplain delineation
			2. Discuss general implication/modification to the floodplain

## IV. DRAINAGE BASINS

			<b>A. Existing Drainage Basins</b>
			1. Existing drainage basin characteristics and flow patterns and paths adjacent to and within the proposed development
			2. Existing and proposed land uses and impervious values within the basins
			3. Discussion of all drainageway master planning or studies that affect the major drainageways, such as UDFCD Major Drainageway Plan (MDP) and Outfall Systems Planning (OSP) studies
			4. Discuss site restrictions imposed by Master Plans, including design imperviousness
			5. Condition of the drainage channel within or adjacent to the development, including existing condition, need for improvements, and impact on proposed development
			6. Impacts of proposed development to basin flow patterns and paths, under fully developed conditions

## V. EXISTING STORMWATER CONVEYANCE OR STORAGE FACILITIES

			<b>A. Existing Stormwater Storage Facilities</b>
			1. Accessibility to existing regional or sub-regional detention facility
			2. Discuss limitations and restrictions from Master development or drainageway plan, mentioning capacity and water quality. Include relevant source pages in Appendix
			3. Does existing facility meet current Standards and Regulations?
			4. Discuss existing storage facility modifications needed, including rebuild or abandonment
			<b>B. Existing Stormwater Conveyance Facilities</b>



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			1. Existing Conveyance Facilities and how it will be incorporated into proposed development design
			2. Discuss limitations and restrictions from Master development or drainageway plan, including capacity. Include relevant source pages in Appendix
			3. Existing Conveyance Facility Modifications, including rebuild or abandonment
			4. Discuss any known issues with existing conveyance system

## VI. DRAINAGE DESIGN CRITERIA

Yes	No	N/A	Report Requirements
			A. Regulations
			1. County Criteria and optional provisions selected, as applicable
			2. UDFCD criteria and optional provisions selected, as applicable
			3. Cherry Creek Basin Control Regulation No. 72
			B. Hydrologic Design Criteria
			1. Methods used to determine runoff calculations
			2. Design storm recurrence intervals, including water quality, minor and major storms
			3. Design rainfall

## VII. PROPOSED STORMWATER CONVEYANCE OR STORAGE FACILITIES

Yes	No	N/A	Report Requirements
			A. Proposed Stormwater Storage Facilities
			1. Detention and water quality facility(s) conceptual location and design
			2. Discuss anticipated storage problems and potential solutions
			B. Proposed Stormwater Conveyance Facilities
			1. Conceptual drainage patterns and change from historic patterns
			2. Conveyance of off-site runoff from and through project
			3. Discussion of anticipated conveyance problems and potential solutions

## X. CONCLUSIONS

Yes	No	N/A	Report Requirements
			A. Compliance with Standards
			1. Arapahoe County Criteria
			2. UDFCD Criteria
			3. Master Plans and UDFCD Outfall Systems Plans
			4. Cherry Creek Basin Control Regulation No. 72
			B. Variances
			1. Identify provisions by section number for which a variance will be requested, or has been approved by county (final version of Drainage Report)
			2. Provide justification for each variance requested



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			<b>C. Drainage Concept</b> 1. Discuss overall effectiveness of stormwater management design to properly convey, store and treat stormwater
<b>XI. DESIGN ASSUMPTIONS</b>			
			<b>A.</b> Summarize any design assumptions used (i.e. the maximum % imperviousness value, slope of the basin).
			<b>B.</b> List any conditions of approval for the Phase II or Phase III Drainage Report. (i.e. completion Master Drainage Plan or FHAD , etc.)
<b>XI. REFERENCES</b>			
			<b>A.</b> Reference all criteria, master plans, reports, or other technical information used in development of the concepts discussed in the drainage report
<b>XII. APPENDICES</b>			
			<b>A. Reference Material</b>
			1. Vicinity Map. North Arrow, Scale, label adjacent arterial roadways and drainageways. No copyrighted material
			2. FEMA FIRM panel, with site location shown
			3. NRCS Custom Soil Resource Report (all pages)
			4. Relevant portions of the FHAD/OSP/MDP
			5. Relevant portions of the previous drainage study for the project
			<b>B. Hydrologic Computations</b>
			1. Design Rainfall Values, ACSWMM Table 6-1 or NOAA Atlas 14
			2. Land Use Assumptions, C values, for both existing and proposed developed conditions
			3. Determination of runoff coefficients, times of concentration, and runoff calculations, existing and developed conditions
			4. Peak flow rate calculations for the minor and major storms
			8. Hydrograph data, if applicable
			5. Floodplain hydrology
			<b>D. Drainage Plan</b>
<b>DRAINAGE PLAN</b>			
			1. 24" x 36" in size, 22" x 34" also acceptable when half size sets will be produced
			2. Title block and legend
			3. Scale 1" = 20' to 1" = 100', as required to show sufficient detail
			4. Show boundaries of entire development or project and any off-site areas which flow to/through the development or project



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			5. Existing topographic contours with labels with a 5-foot maximum contour interval extending a minimum of 100-feet beyond property lines
			6. Show and label all existing stormwater conveyance or storage facilities
			7. Conceptual location and outline of detention and water quality facilities
			8. Drainage basin and sub-basin boundaries
			9. Show and label existing utilities and structures
			10. All property lines and existing drainage easements
			11. Streets and roadways with ROW
			12. General drainage patterns and flow paths, including those entering and leaving the site
			13. Location and elevation of all existing 100-year floodplain boundaries, including the source of designation. All floodplain designations that exist for the site should be included, i.e. FEMA FIS, FHAD, and others.
			14. Adjacent developments or ownerships
			15. Case Number(s) in the lower left-hand corner