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**EL PASO COUNTY PLANNING AND
 COMMUNITY DEVELOPMENT
 DEPARTMENT**

FINAL DRAINAGE REPORT (FDR) CHECKLIST

Revised: January 2022

Final Drainage Report		
The purpose of the Final Drainage Report is to finalize concepts and to present the final design details for the drainage facilities presented in the PDR, including any changes to the preliminary design. The FDR shall contain all components of the PDR checklist plus additional necessary information relating to the final design of specific facilities associated with the development.		
	Applicant	PCD
Please confirm each item below has been included by placing a check mark in the "Applicant" column. See right for an example. The "PCD" column is for office use only.		✓ Office use only
Report Contents		
1	Table of contents, pages numbered	
2	Existing/Historic and Developed Conditions Plans at the end of the report	
General Location		
1	City and County, and local streets within and adjacent to the subdivision	
2	Township, Range, Section, 1/4 section	
3	Major drainage ways and existing facilities	
4	Names of surrounding platted developments	
Description of Property		
1	Area in acres	
2	Ground cover, (type of trees, shrubs, vegetation)	
3	General topography	
4	General soil conditions	
5	Major drainageways	
6	Irrigation facilities	
7	Utilities and other encumbrances	
Major Basin Descriptions		
1	Reference should be made to major drainageway planning studies; Such as Drainage Basin Planning Studies; Flood Hazard delineation reports, and flood insurance studies or maps if available.	
2	A floodplain statement shall be provided indicating whether any portion of the development is in a designated floodplain as delineated on the current FEMA mapping.	
3	Major basin drainage characteristics	
4	Identification of all nearby irrigation facilities and other obstructions which could influence or be influenced by local drainage.	
Sub-Basin Descriptions		
1	Discussion of historic drainage patterns of the property in question	
2	Discussion of offsite drainage flow patterns and their impact on the development	
Drainage Design Criteria		
1	Reference all criteria, master plans, and technical information used for report preparation and design; any deviation from such material must be discussed and justified.	
2	Discussion of previous drainage studies (i.e. PDR, drainage basin planning studies, master plans, flood insurance studies) for the site in question that influence or are influenced by the drainage design and how the studies affect drainage design for the site	
Four Step Process		
1	Runoff reduction proposed	
2	Stabilization of drainage ways proposed/discussed	
3	Proposed Stormwater Quality Capture Volume (WQCV) proposed	
4	Identify Best Management Practices (BMP's) to be used to control industrial and commercial pollutants	



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Hydrologic Criteria		
1	Identify design rainfall	
2	Identify runoff calculation method	
3	Identify design storm recurrence intervals	
4	Identify detention discharge and storage calculation method	
5	Note ECM Appendix I Full Spectrum Detention (FSD) requirement	
Drainage Facility Design - General Concept		
1	Discussion of compliance with offsite runoff considerations	
2	Discussion of anticipated and proposed drainage patterns	
3	Discussion of the content of tables, charts, figures, plates or drawings presented in the report	
Drainage Facility Design - Specific Details		
1	Presentation of existing and proposed hydrologic conditions including approximate flow rates entering and exiting the subdivision with all necessary calculations.	
2	Presentation of approach to accommodate drainage impacts on existing or proposed improvements and facilities.	
3	Presentation of proposed facilities with respect to alignment, material and structure type.	
4	Discussion of drainage impact of site constraints such as streets, utilities, existing and proposed structures.	
5	Environmental features and issues shall be presented if applicable.	
6	Discussion of maintenance access and aspects of the design.	
7	Discussion and analysis of existing and proposed downstream drainage facilities and their ability to convey developed runoff from the proposed development.	
8	Presentation of detention storage and outlet design (including reservoir routings) when applicable. Note that the Engineering Criteria Manual Appendix I requires Full Spectrum Detention.	
9	Presentations of all hydrologic and hydraulic calculations including hydraulic grade line computations as appropriate. Recommended use of Mile High Flood District (MHFD / UDFCD) spreadsheets and calculations to properly meet this requirement, however other commonly used software may be acceptable.	
10	Presentation of an accurate, complete current estimate of cost of proposed facilities.	
11	Presentation of all drainage basin fees and bridge fees for the property in question as applicable.	
Other Government agency requirements		
1	Federal Emergency Management Agency (FEMA)	
2	Army Corps of Engineers (COE)	
3	Colorado State Engineer	
4	Colorado Water Conservation Board (CWCB)	
5	Others	



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Drawing Contents, two maps/plans are required, existing conditions & the proposed plans		
1	General Location Map: A map shall be provided in sufficient detail to identify drainage flows entering and leaving the development and general drainage patterns. The map should be at a scale of 1"=50' to 1"=2000'. The map shall identify any major construction (i.e. development, irrigation ditches, existing detention facilities, culverts, storm sewers, etc.) that shall influence or be influenced by the subdivision.	
2	Drainage Plan: Map(s) of the proposed development at a scale of 1"=20' to 1"=200' shall be included to identify existing and proposed conditions on or adjacent to the site in question. It shall include a minimum of:	
	Existing and proposed contours at 2 feet maximum intervals. For subdivisions involving rural lots greater than 1.0 acre, the maximum interval may be 5 feet where approved. In terrain greater than 10% the intervals should be 10 foot intervals.	
	Property lines and existing or proposed easements with purposes noted.	
	All Streets	
	Existing drainage facilities and structures, including irrigation ditches roadside ditches, drainageways, gutters and culverts, all indicating flow direction. All pertinent information such as material, size, shape, slope and locations shall also be included.	
	Overall drainage area boundary and drainage sub-area boundaries relating to the subdivision.	
	Proposed type of street sections (i.e., vertical or ramp curb and gutters, roadside ditch, gutter flow and/or cross pans).	
	Proposed storm sewers and open drainageways, including inlets, manholes, culverts, and other appurtenances.	
	Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties.	
	Routing and summary of initial and major flow rates at various design points for all storm runoff associated with the property.	
	Path (s) chosen for computation of time of concentration.	
	Details of and design computations for detention storage facilities including outlet.	
	Location and elevations of all defined 100-year floodplains affecting the property.	
	Location of all existing and proposed utilities affected by or affecting the drainage design.	