

Design Checklists

November 28, 2007

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Design Checklists

- Arapahoe County and Centennial Public Works contracted with Muller Engineering to complete design checklists as part of the Stormwater Management Manual update project in 2007
- Contract was discontinued upon formation of SEMSWA.
- Original contract - \$24,500 - \$3,500 billed against original contract
- Remaining \$21,000 – work still needed

Design Checklists

- Engineering Submittals

Applicants are required to submit completed checklists with project design to ensure that design is completed in accordance with requirements and standards

- SEMSWA Design Review

SEMSWA staff uses checklists to review applications and project design submittals to ensure that they are complete and meet requirements

- Auto-Cad

Minor Auto-cad work to finalized standard detail drawings

CHECKLIST FOR STREETS, INLETS, AND STORM SEWER DESIGN

Yes No N/A Design Requirements

I. STREET CLASSIFICATION AND DESIGN CRITERIA

			A. Determine drainage classification for the roadway section using Table 7-1 or Table 7-2.
			B. Determine the allowable flow depth and roadway encroachment for the minor storm using Table 7-3.
			C. Determine the allowable flow depth and roadway encroachment for the major storm using Table 7-4.
			D. Determine the allowable cross-street flow due to spread over the street crown for the minor and major storm using Table 7-5.

II. HYDRAULIC EVALUATION OF STREET CAPACITY

			A. Minor Storm Capacity Evaluation
			1. Determine/verify capacity of street section in minor storm using Figures 7-1 through 7-19. All County standard street parameters must apply in order to use these figures.
			2. If the County standard street parameters do NOT apply, use the UD-Inlet spreadsheet to determine/verify the capacity of the street section in the minor storm.
			B. Major Storm Capacity Evaluation
			1. Determine/verify capacity of street section in major storm using Figures 7-1 through 7-19. All County standard street parameters must apply in order to use these figures. Criteria listed in Section 7.5.4 must also apply in order to use the 12-inch depth curve for the major storm event.
			2. If the County standard street parameters or the criteria listed in Section 7.5.4 do NOT apply, use the UD-Inlet spreadsheet to determine/verify the capacity of the street section in the major storm.
			C. Flow
			1. Verify that the maximum allowable cross-street flow is not exceeded per Table 7-5.
			2. If cross-street flow is occurring, inlets and storm sewers on the upstream side of the street shall be designed to fully convey design flows, assuming no cross-street flow; inlets and storm sewers on the downstream side of the street shall be increased in capacity by 1.5 times the estimated cross-flow.
			3. If crossspans are being used, calculations shall be completed to evaluate the capacity of the roadway and any side streets impacted by the crossspan.
			D. Rural Roadside Ditches
			1. Verify capacity of roadside ditch for minor and major storm event based on Criteria in Tables 7-3 and 7-4.
			2. Spread of flow shall not extend outside of the street right-of-way.

CHECKLIST FOR PHASE I DRAINAGE REPORT

Yes	No	N/A	Report Requirements
I. COVER SHEET			
			A. Name of Project
			B. Address
			C. Owner
			D. Developer
			E. Engineer
			F. Submittal date and revision dates as applicable
II. GENERAL LOCATION AND DESCRIPTION			
			A. Site Location
			1. Site Vicinity Map
			2. Township, Range, Section, and ¼ Section
			3. Streets, Roadways, and Highways adjacent to the proposed development, or within the area served by the proposed drainage improvements
			4. Names of surrounding or adjacent developments
			B. Description of Property
			1. Area in Acres
			2. Ground Cover, vegetation, site topography and slopes
			3. NRCS Soils Classification Map and discussion
			4. Major and minor drainageways
			5. Floodplains delineated by UDFCD FHAD Studies or on FEMA FIRM Maps
			6. Existing irrigation canals or ditches
			7. Significant geologic features
			8. Proposed land use & site activities
			9. Groundwater investigations
III. DRAINAGE BASINS AND SUB-BASINS			
			A. Major Drainage Basins
			1. On-site and Off-site major drainage basin characteristics and flow patterns and paths
			2. Existing and proposed land uses within the basins
			3. Reference all drainageway planning or floodplain delineation studies that affect the major drainageways, such as UDFCD FHAD Studies and Outfall System Planning Studies
			4. Discussion of the impacts of the off-site flow patterns and paths, under fully developed conditions
			B. Minor Drainage Basins
			1. On-site and Off-site minor drainage basin characteristics and flow patterns and paths
			2. Existing and proposed land uses within the basins
			3. Discussion of the impacts of the off-site flow patterns and paths, under fully developed conditions

Design Checklists

- Scope of work and fee provided by Muller Engineering to complete work for SEMSWA
- Fee is not to exceed \$20,723
- Funds budgeted in 2007 Water Quality program for this work
- Staff requests SEMSWA Board to approve a Resolution to authorize a Professional Services contract with Muller Engineering to complete the design checklists.