



October 5, 2026

El Paso County

Department of Public Works
2880 International Circle, Suite 110
Colorado Springs, CO 80910

Attn: Glenn Reese, PE, CFM
Principal Engineer - Stormwater

Re: Townhomes at Western (ASB2620)
Stormwater Permanent Control Measures (PCM) – Engineer's Letter
M.V.E. Project No. 61203

Dear Mr. Reese:

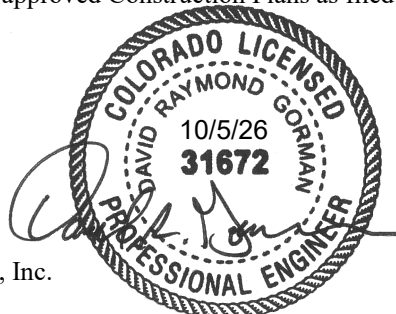
The stormwater Permanent Control Measures (PCMs) for the Townhomes at Western project consists of one Full Spectrum Extended Basin located in Tract A, Townhomes at Western. The PCM includes the runoff storage impoundment area and earth embankments, concrete outlet structure with integrated micro-pool, two concrete forebays, concrete trickle channel, concrete and riprap emergency spillway, 18" diameter HDPE outlet pipe with HDPE flared end section, gravel access drive and riprap stilling basins with concrete level spreader. Based upon the information gathered in the field during periodic visits to the site, our final observation of the PCM on September 11, 2026, and review of the as-built survey data, M.V.E., Inc. is of the opinion that the Permanent Control Measures (PCMs) for the Townhomes at Western project have been constructed in general compliance with the approved Construction Plans and Grading and Erosion Control Plan prepared by M.V.E., Inc., as filed with the County.

The stage-storage values of the as-built PCM vary slightly from the MHFD Detention worksheet values contained in the approved Final Drainage Report. However, the as-built pond volume is within 0.8% of the design volume and the resulting adjusted MHFD pond routing calculations indicate satisfactory results. The updated MHFD calculations for the Extended Detention Basin storm flow routing based on the as-built survey data are attached.

Statement Of Engineer In Responsible Charge:

I, David R. Gorman, a registered Professional Engineer in the State of Colorado, in accordance with Sections 5.2 and 5.3 of the Bylaws and Rules of the State Board of Registration for Professional Engineers and Professional Land Surveyors, do hereby state and declare that I or a person under my responsible charge observed the constructed facilities of the above mentioned project. Based on the on-site field observations and review of pertinent documentation, it is my professional opinion that the Permanent Control Measures have been installed and are in general compliance with the approved Construction Plans as filed with the El Paso County.

David R. Gorman, P.E.
Colorado No. 31672
For and on Behalf of M.V.E., Inc.



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Engineers • Surveyors
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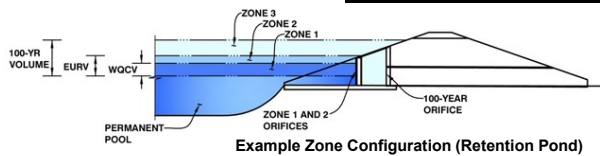
MHFD-Detention, Version 4.06 (July 2022)

Basin ID: FS-EDB Pond 1 - AsBuilt

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: Townhomes at Western
Basin ID: FS-EDB Pond 1 - AsBuilt



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	2.53	0.105	Orifice Plate
Zone 2 (EURV)	3.87	0.244	Orifice Plate
Zone 3 (100-year)	4.84	0.221	Weir&Pipe (Restrict)
Total (all zones)		0.569	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = ft (distance below the filtration media surface)
Underdrain Orifice Diameter = inches

Calculated Parameters for Underdrain
Underdrain Orifice Area = ft²
Underdrain Orifice Centroid = feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing = inches
Orifice Plate: Orifice Area per Row = sq. inches

Calculated Parameters for Plate
WQ Orifice Area per Row = ft²
Elliptical Half-Width = feet
Elliptical Slot Centroid = feet
Elliptical Slot Area = ft²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.25	2.50					
Orifice Area (sq. inches)	0.50	0.50	2.07					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

Invert of Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter = inches

Calculated Parameters for Vertical Orifice
Not Selected Not Selected ft²
Vertical Orifice Area = ft²
Vertical Orifice Centroid = feet

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

Overflow Weir Front Edge Height, H_o = ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length = feet
Overflow Weir Grate Slope = H:V
Horiz. Length of Weir Sides = feet
Overflow Grate Type =
Debris Clogging % = %

Calculated Parameters for Overflow Weir
Zone 3 Weir Not Selected feet
Height of Grate Upper Edge, H_u = feet
Overflow Weir Slope Length = feet
Grate Open Area / 100-yr Orifice Area =
Overflow Grate Open Area w/o Debris = ft²
Overflow Grate Open Area w/ Debris = ft²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

Depth to Invert of Outlet Pipe = ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter = inches
Restrictor Plate Height Above Pipe Invert = inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate
Zone 3 Restrictor Not Selected ft²
Outlet Orifice Area = ft²
Outlet Orifice Centroid = feet
Half-Central Angle of Restrictor Plate on Pipe = radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage = ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length = feet
Spillway End Slopes = H:V
Freeboard above Max Water Surface = feet

Calculated Parameters for Spillway
Spillway Design Flow Depth = feet
Stage at Top of Freeboard = feet
Basin Area at Top of Freeboard = acres
Basin Volume at Top of Freeboard = acre-ft

Routed Hydrograph Results

The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.25
One-Hour Rainfall Depth (in) =	0.105	0.348	0.308	0.424	0.523	0.647	0.753	0.883	1.201
CUHP Runoff Volume (acre-ft) =	N/A	N/A	0.308	0.424	0.523	0.647	0.753	0.883	1.201
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.6	1.7	2.6	4.6	5.7	7.1	10.5
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A							
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.12	0.33	0.49	0.87	1.09	1.37	2.01
Peak Inflow Q (cfs) =	N/A	N/A	5.6	7.7	9.2	11.6	13.5	16.1	21.6
Peak Outflow Q (cfs) =	0.1	0.1	0.1	0.7	1.8	4.3	6.1	6.5	7.0
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.4	0.7	0.9	1.1	0.9	0.7
Structure Controlling Flow =	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	0.1	0.2	0.6	0.8	0.9	1.0
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	35	58	56	61	60	58	57	55	52
Time to Drain 99% of Inflow Volume (hours) =	37	63	60	66	65	65	64	63	61
Maximum Ponding Depth (ft) =	2.53	3.87	3.58	3.99	4.09	4.24	4.34	4.59	5.35
Area at Maximum Ponding Depth (acres) =	0.13	0.21	0.20	0.22	0.22	0.23	0.23	0.24	0.26
Maximum Volume Stored (acre-ft) =	0.105	0.349	0.287	0.375	0.395	0.430	0.450	0.509	0.698