



El Paso County MS4 Post Construction Detention / Water Quality Facility Documentation Form

This document **must be completed and submitted** with required attachments to the County for projects requiring a detention and/or a water quality facility. A separate completed form must be submitted for each facility.

Project name: Lorson Ranch East – Pond E1 (detention only, no upstream developed areas)

Owner name: Lorson Ranch Metropolitan District

Location Address: 212 N. Wahsatch Avenue, Suite 301

Latitude and Longitude:

Latitude: 38°43'56.38"N, Longitude: 104°37'31.32"W

Pond C1 is not included,
please include it

Assessor's Parcel #: 5500000282

Section: 24

Township: 15 South

Range: 65 West

Expected Completion date: December, 2019

Project acreage: 58.471 acres

Design Ponding Acres: 1.10acres

Design Storm: 100-year

Design Engineer Email Address: rich@ceg1.com

To ensure compliance with C.R.S. 37-92-602(8), the completed Stormwater

Detention and Infiltration Design Data Sheet **must be attached**. The form can be found here:

<https://maperture.digitaldataservices.com/gvh/?viewer=cswdif#> (click on Download SDI Design Data Sheet)

List all permanent water quality control measure(s) (EDBs, rain gardens, etc):

Pond E1 is an Extended Detention Basin with only existing undeveloped overland flows entering the pond. An outlet structure for Water quality capture volume will be added when upstream development occurs. The detention pond has been sized in accordance with future full spectrum designs requirements for fully developed tributary areas. Interim flows have been modeled for this pond. The interim outlet structure is a 24" RCP storm sewer.

For all projects for which the constrained redevelopment sites standard is applied, provide an explanation of why it is not practicable to meet the full design standards. Answer: full design standards will be achieved when tributary area is developed and a full spectrum outlet structure is constructed.

Attach Operations and Maintenance (O&M) Plan describing the operation and maintenance procedures that ensure the long-term observation, maintenance, and operation of control measure(s), including routine inspection frequencies and maintenance activities. If multiple, different water quality control measures are used at the same location, a separate O & M Plan must be provided for each facility.

Attach Private Detention Basin / Stormwater Quality Best Management Practice Maintenance Agreement and Easement addressing maintenance of BMPs that shall be binding on all subsequent owners of the permanent BMPs.

Attachments:

Stormwater Detention and Infiltration Design Data Sheet

O & M Plan

Maintenance and Access Agreement

Review Engineer

EPC Project File No.

SF-19-008



El Paso County MS4 Post Construction Detention / Water Quality Facility Documentation Form

This document **must be completed and submitted** with required attachments to the County for projects requiring a detention and/or a water quality facility. A separate completed form must be submitted for each facility.

Project name: Lorson Ranch East – Pond E2 (full spectrum pond for 21.2ac)

Owner name: Lorson Ranch Metropolitan District

Location Address: 212 N. Wahsatch Avenue, Suite 301

Latitude and Longitude:

Latitude: 38°43'56.40"N, Longitude: 104°37'52.40"W

Assessor's Parcel #: 5500000411 Section: 13 Township: 15 South Range: 65 West

Expected Completion date: December, 2019

Project acreage: 58.471 acres Design Ponding Acres: 1.10acres Design Storm: 100-year

Design Engineer Email Address: rich@ceg1.com

To ensure compliance with C.R.S. 37-92-602(8), the completed Stormwater Detention and Infiltration Design Data Sheet **must be attached**. The form can be found here: <https://maperture.digitaldataservices.com/gvh/?viewer=cswdif#> (click on Download SDI Design Data Sheet)

List all permanent water quality control measure(s) (EDBs, rain gardens, etc):

Pond E2 is an Full Spectrum Extended Detention Basin with WQCV. This pond will serve 21.2 acres of Lorson Ranch East Filing No. 4 and is also designed to be upsized easily when additional areas are developed. The detention pond has been sized in accordance with full spectrum designs requirements for developed tributary areas.

For all projects for which the constrained redevelopment sites standard is applied, provide an explanation of why it is not practicable to meet the full design standards. Answer: full design standards are achieved and a full spectrum outlet structure is included.

Attach Operations and Maintenance (O&M) Plan describing the operation and maintenance procedures that ensure the long-term observation, maintenance, and operation of control measure(s), including routine inspection frequencies and maintenance activities. If multiple, different water quality control measures are used at the same location, a separate O & M Plan must be provided for each facility.

Attach Private Detention Basin / Stormwater Quality Best Management Practice Maintenance Agreement and Easement addressing maintenance of BMPs that shall be binding on all subsequent owners of the permanent BMPs.

Attachments:

Stormwater Detention and Infiltration Design Data Sheet

O & M Plan

Maintenance and Access Agreement

Review Engineer

EPC Project File No.

SF-19-008

Stormwater Detention and Infiltration Design Data Sheet

Worksheet Protected

User Input: Watershed Characteristics

0.038

ft

56.50

percent

percent

percent

70.0%

Location for 1-hr Rainfall Depths (use dropdown):

User Input

N/A

[illegible]

After completing and printing this worksheet to a pdf, go to:

<https://maperture.digitaldataservices.com/gvh/?viewer=cswdif>

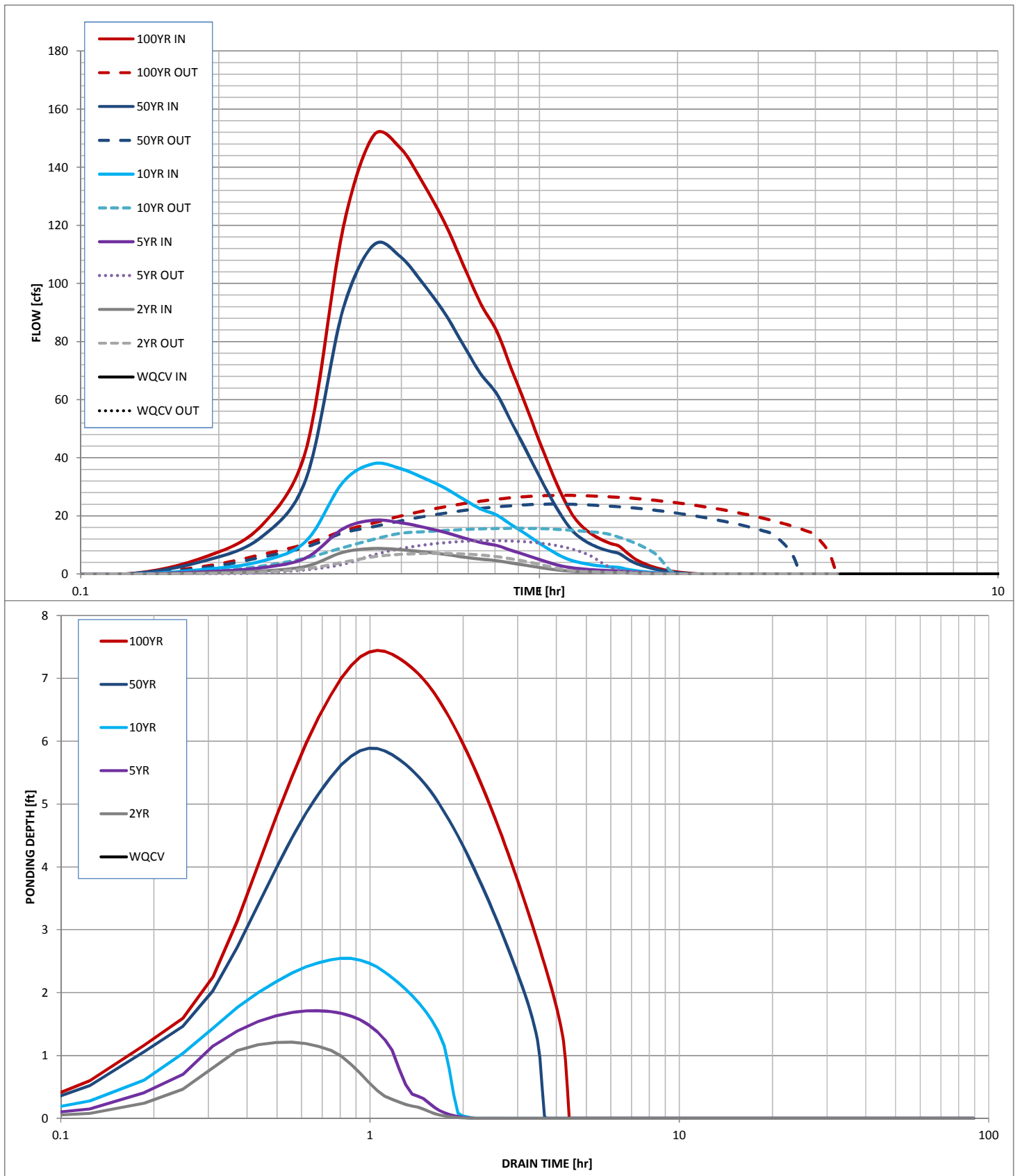
create a new stormwater facility, and

attach the pdf of this worksheet to that record.

Routed Hydrograph Results

Design Storm Return Period =	WQCV	2 Year	5 Year	10 Year	50 Year	100 Year	
One-Hour Rainfall Depth =	0.53	1.19	1.50	1.75	2.25	2.52	in
Calculated Runoff Volume =		0.394	0.835	1.724	5.235	7.031	acre-ft
OPTIONAL Override Runoff Volume =							acre-ft
Inflow Hydrograph Volume =		0.394	0.835	1.724	5.231	7.022	acre-ft
Time to Drain 97% of Inflow Volume =		1.0	1.2	1.7	3.4	4.0	hours
Time to Drain 99% of Inflow Volume =		1.1	1.3	1.8	3.5	4.2	hours
Maximum Ponding Depth =		1.21	1.71	2.55	5.89	7.45	ft
Maximum Poned Area =		0.16	0.43	0.66	0.89	0.99	acres
Maximum Volume Stored =		0.048	0.199	0.690	3.327	4.785	acre-ft

Stormwater Detention and Infiltration Design Data Sheet



Stormwater Detention and Infiltration Design Data Sheet

Worksheet Protected

User Input: Watershed Characteristics

0.035

1500 ft

21.20	acres
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50.0%	percent
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percent

40.0% percent

60.0% percent

Location for 1-hr Rainfall Depths (use dropdown):

User Input

Extended Detention [illegible]

After completing and printing this worksheet to a pdf, go to:

<https://maperture.digitaldataservices.com/gvh/?viewer=cswdif>

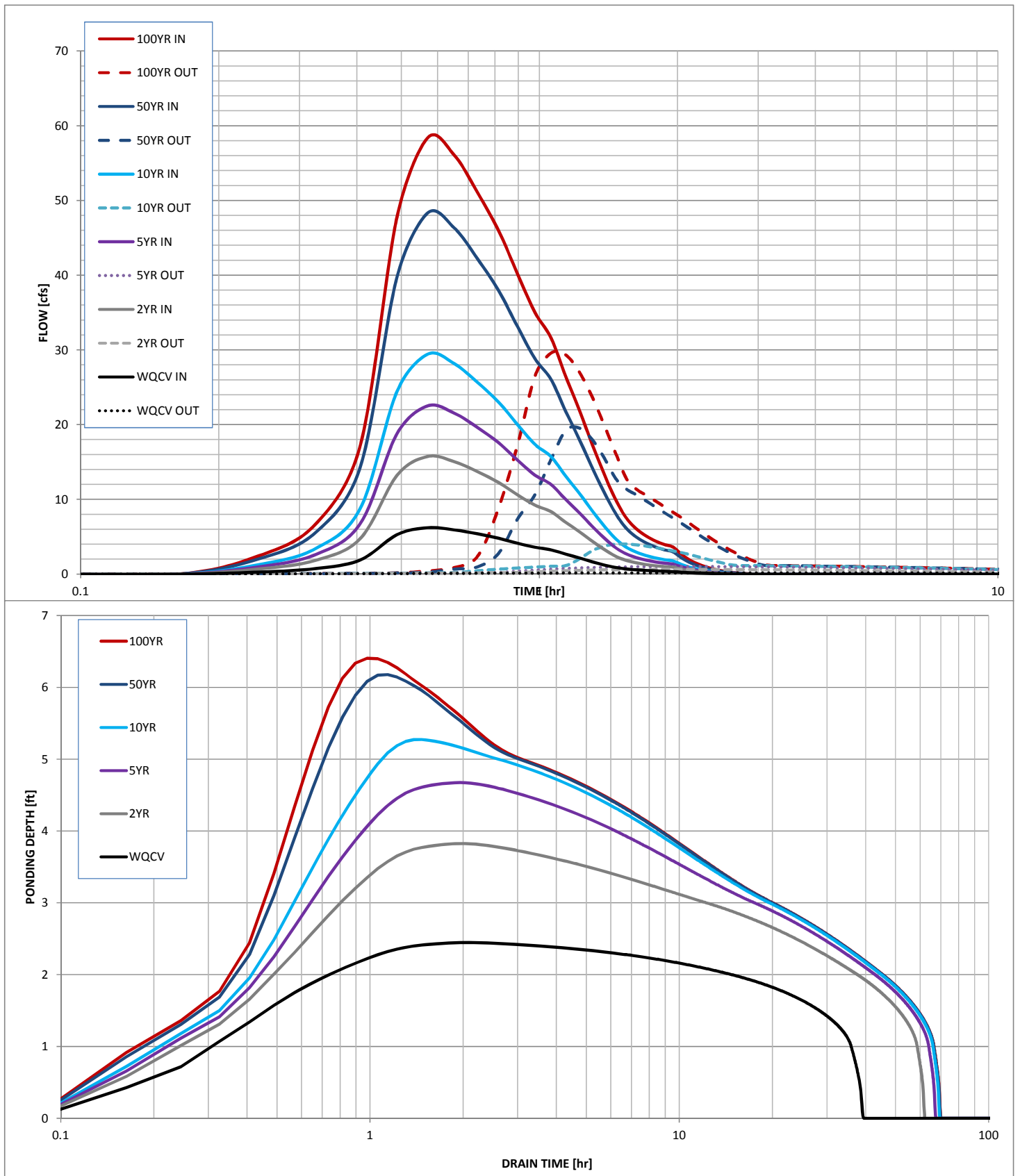
create a new stormwater facility, and

attach the pdf of this worksheet to that record.

Routed Hydrograph Results

Design Storm Return Period =	WQCV	2 Year	5 Year	10 Year	50 Year	100 Year	
One-Hour Rainfall Depth =	0.53	1.19	1.50	1.75	2.25	2.52	in
Calculated Runoff Volume =	0.364	0.932	1.339	1.755	2.900	3.515	acre-ft
OPTIONAL Override Runoff Volume =							acre-ft
Inflow Hydrograph Volume =	0.364	0.931	1.338	1.754	2.900	3.514	acre-ft
Time to Drain 97% of Inflow Volume =	35.9	55.7	59.3	59.6	55.7	53.7	hours
Time to Drain 99% of Inflow Volume =	37.6	59.0	63.5	64.8	63.3	62.5	hours
Maximum Ponding Depth =	2.45	3.83	4.67	5.27	6.18	6.40	ft
Maximum Poned Area =	0.35	0.41	0.44	0.47	0.51	0.51	acres
Maximum Volume Stored =	0.337	0.859	1.218	1.492	1.937	2.055	acre-ft

Stormwater Detention and Infiltration Design Data Sheet



Markup Summary

Steve Kuehster (3)

<div><div>File No. <div>SF-19-008</div></div><div>August 21</div></div>	<div><div>Subject: text box</div><div>Page Label: 1</div><div>Author: Steve Kuehster</div><div>Date: 4/24/2019 10:13:55 AM</div><div>Color: <div></div></div></div>	<div>SF-19-008</div>
<div><div>No. <div>SF-19-008</div></div><div>AUGUST 2019</div></div>	<div><div>Subject: text box</div><div>Page Label: 2</div><div>Author: Steve Kuehster</div><div>Date: 4/24/2019 10:14:04 AM</div><div>Color: <div></div></div></div>	<div>SF-19-008</div>
<div><div>completed form must be submitted for each f n only, no upstream developed areas)</div><div>1 <div>Pond C1 is not included, please include it</div></div><div>Township: 15 South Range: 65 West</div></div>	<div><div>Subject: text box</div><div>Page Label: 1</div><div>Author: Steve Kuehster</div><div>Date: 4/24/2019 12:27:16 PM</div><div>Color: <div></div></div></div>	<div>Pond C1 is not included, please include it</div>