No comments on this form itself, but for future submittals provide submissions confirmation or correspondence demonstrating this form was submitted to the State.

COLORADO
Division of Water Resources
Department of Natural Resources
dwr.colorado.gov P 303.866.3581

NON-JURISDICTIONAL WATER IMPOUNDMENT STRUCTURE[1]

This notice is required per Section 37-87-125, C.R.S. (1998) and
must be submitted to the Division Engineer's Office a minimum of 45 days prior to construction.

OWNER INFORMATION

Name: TRI-STATE GENERATION & TRANSMISSION ASSOC., INC. Telephone/E-Mail: (____)_____/_____

Address: 1100 West 116th Avenue (Street / P.O. Box/ Rural Route) Westminster, (City) CO (State) 80234 (Zip Code)

Responsible Person: _____ Telephone/E-Mail: (____)_____/_____

Address: _____
Street / P.O. Box/ Rural Route City State Zip Code

Contractor: _____ Telephone/E-Mail: (____)_____/_____

STRUCTURE INFORMATION

Name of Dam: EDB-1 (extended detention basin 1) Water Division: 2 Water District: 10

Location: *(Provide Section, Township, Range, **and** GPS Point taken at crest of dam above streamline/outlet)*

- Section: NE1/4, Township: 15 S., Range: 65 WEST, 6TH P.M.

- Northing 4,290,738.343 meters, Easting 533,217.775 meters (*Datum should be UTM, NAD 83)*

***Site Coordinates (Lat/Long): 38.76473, -104.61765**

Dam Dimensions:

- Vertical Height[2]: 4 ft., Length: 610 ft., Crest Width: 12 ft., Slopes: U/S: 4 (H:1V), D/S 4 (H:1V)

Reservoir:

- Surface Area[1]: 0.58 acres, Capacity[1]: 2.1 acre-feet, Drainage Area*: 5.12 acres
**(If drainage area is unknown leave blank and a spillway size will be assigned):*

Emergency Spillway: *(See Table 1, Spillway Sizing Guidelines)*

- Bottom Width: 15 ft., Side Slopes: 4 H:1V, Freeboard[3]: 1 ft

Outlet Conduit Type: REINFORCED CONCRETE PIPE, Size: 18 inches, Location: SOUTH END OF EDB-1

Stream Name or Water Source[4]: N/A Proposed Water Use: N/A

Water Court Case ***or*** WDID : N/A
(Water District Identification Number)

_____
Signature of Owner Date

Office Use Only

DIVISION ENGINEER'S REQUIREMENTS: _____

_____

_____

_____
Dam I.D._____ Signature of Division Engineer Date

[1] A "Non-Jurisdictional Structure" is a dam creating a reservoir with a capacity of 100 acre-feet or less *and* a surface area of 20 acres or less *and* a vertical height (footnote 2) of 10 feet or less. Non-jurisdictional size dams are regulated and subject to the authority of the State Engineer consistent with sections 37-87-102 and 37-87-105 C.R.S.

[2] "Vertical Height" is measured from the elevation of the lowest point of the natural surface of the ground or the invert of the outlet conduit (whichever is lower) where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway of the dam.

[3] "Freeboard" is the vertical distance from the bottom of spillway to the crest of the dam. Minimum Freeboard is 3 feet.

[4] If construction in reservoir intercepts groundwater, a well permit is required. (Well permit applications can be found at dwr.colorado.gov)

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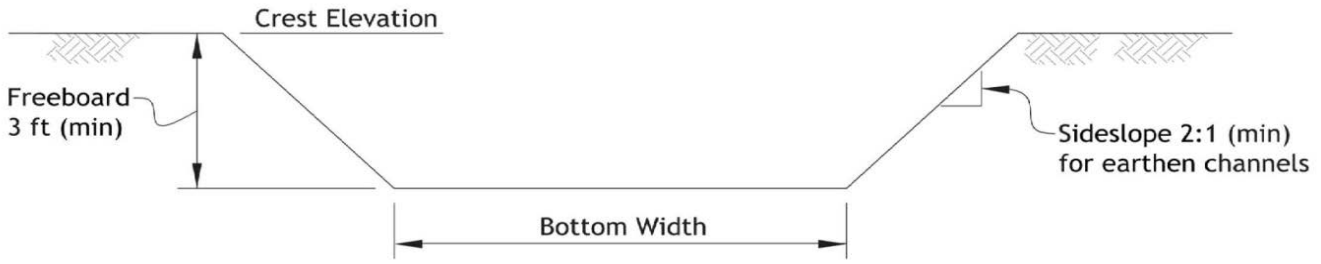
Division of Water Resources
Department of Natural Resources

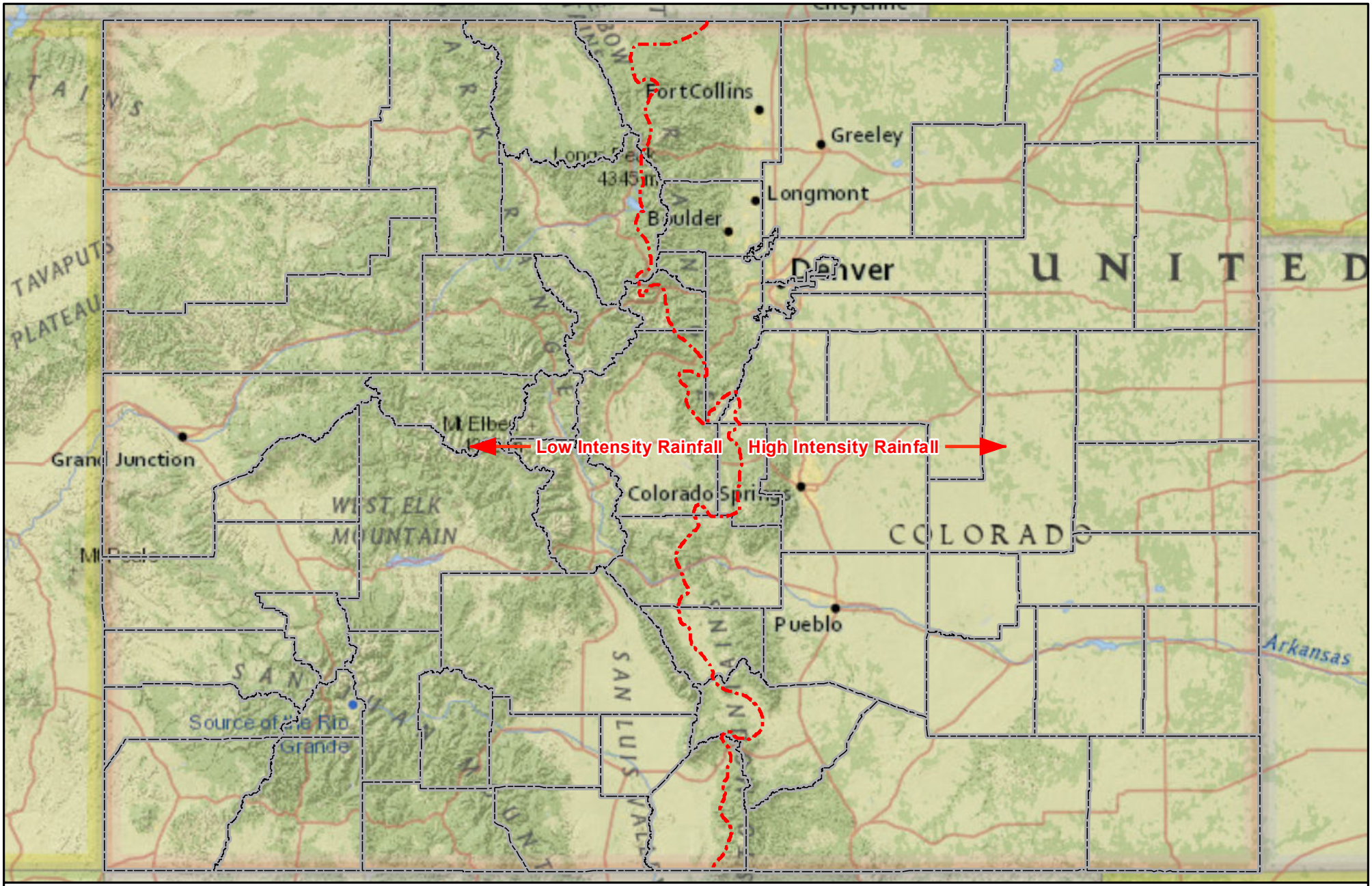
Table 1 DAM SAFETY BRANCH Spillway Sizing Guidelines for Non-Jurisdictional Dams

Drainage Area (Acres)	Minimum Recommended Bottom Width[1] (Feet) Low Intensity Rainfall Zone	Minimum Recommended Bottom Width[1] (Feet) High Intensity Rainfall Zone
175	8	8
225	8	10
275	8	12
325	8	15
375	10	17
425	11	19
475	12	21
525	13	24
575	15	26
625	16	28
675	17	30
725	19	33
775	20	35
825	21	37
875	22	39
925	24	42
975	25	44
1025	26	46
1075	28	48
1125	29	51
1175	30	53
1225	31	55
1275	33	57
1325	34	59
1375	35	62
1425	37	64
1475	38	66

[1]Minimum recommended bottom width for drainage areas less than 175 acres is 8 feet



Spillway Section



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Rainfall Intensity Zones for Non-Jurisdictional Dam Spillway Sizing

COLORADO
Division of Water Resources
Department of Natural Resources

DAM SAFETY BRANCH Specifications for Construction of Non-Jurisdictional Dams

- Site Selection:
  - Foundation soils should be firm to provide adequate support for the embankment and should have low permeability to allow for water retention. Site selection should consider potential downstream property damage in the event of a dam failure. Construction of dams in boggy areas, areas with non-uniform fractured rock, or sands/gravels is not recommended and an engineer should be hired to evaluate the site conditions. Any part of the reservoir basin excavated below grade cannot expose groundwater.

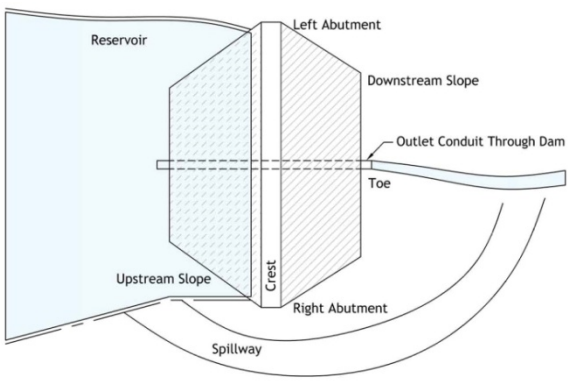
- Embankment Design:
  - Backfill material to be used for construction of the cutoff trench and embankment should be a suitable clay material and contain no material larger than 6 inches in diameter.
  - The upstream slope should be constructed with a slope no steeper than 3:1, and the downstream slope should be no steeper than 2:1 (see cross section below). The dam crest should have a minimum width of 10 feet and the surface should be graded with positive drainage toward the reservoir basin.
  - It is recommended that rock rip rap or other suitable material be placed on the upstream slope of the embankment to protect it from wave action. A suitable gravel or geosynthetic material should be placed under the rip rap to prevent fine material from washing out from behind the larger rock.
  - The embankment should be fenced to restrict livestock from accessing the dam since they damage the protective vegetation and increase erosion.

- Embankment Construction
  - The topsoil and all organic material should be removed from the foundation of the proposed dam site. Organic soil should only be reused for placement on the completed embankment to promote the re-growth of vegetation.
  - A cutoff trench should be excavated under the full length of the centerline of the dam with sloping sides (1:1 min.), a minimum bottom width of 3 feet and a depth of 3 feet.
  - The foundation of the dam should be scarified/ripped to a depth of 6-inches to provide proper contact between the native foundation and embankment. This surface should then be moisture treated before placement of fill.
  - Fill material should be placed in layers not exceeding 12 inches in thickness prior to compaction. Suitable backfill material should have enough clay and moisture content to roll a small ball by hand. If this cannot be done, the soil is likely too dry or does not have adequate clay content.
  - Each lift should be thoroughly compacted using a sheeps foot compactor. Care should be taken not to allow the top layers of the soil to dry out between placement of lifts.
  - Fill should be placed in uniform lifts that cover the entire embankment length and width.

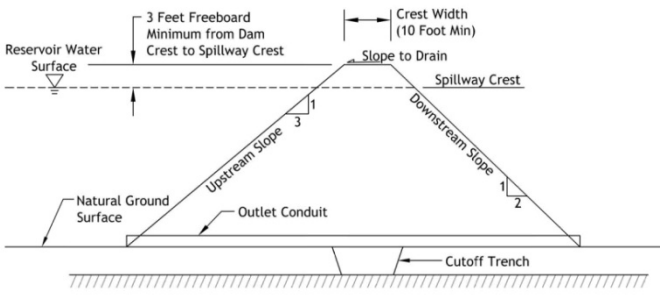
- Outlet
  - Unless a waiver is granted in writing by the Division Engineer, all non-jurisdictional dams require an outlet conduit positioned at the natural low point of the reservoir basin. A minimum diameter of 12 inches is recommended and should be controlled at the upstream end by a valve and trash rack.

- Emergency Spillway
  - The spillway should have sufficient width to provide capacity to route the runoff from the drainage basin above the dam during rainfall/runoff events.
  - The emergency spillway should be located on natural ground far enough away to prevent erosion of the dam embankment. A spillway over the dam embankment is not acceptable.
  - A minimum of 3 feet of freeboard is required from the bottom of the emergency spillway to the top of the dam.
  - To determine the minimum spillway width, see the attached table for your area and drainage basin size.

- Example Plan View and Cross Section



Plan View



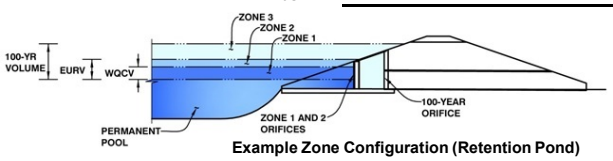
Cross Section Through Dam at Outlet

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.07 (June 2025)

Project: ROLLING MEADOWS SUBSTATION

Basin ID: EDB-1



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.60	0.082	Orifice Plate
Zone 2 (EURV)	2.20	0.170	Orifice Plate
Zone 3 (100-year)	2.67	0.192	Weir&Pipe (Restrict)
Total (all zones)		0.443	

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

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

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

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	N/A	ft^2
Depth at top of Zone using Orifice Plate =	2.33	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	N/A	sq. inches	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

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	0.75	1.25	1.50	1.75			
Orifice Area (sq. inches)	0.31	0.31	0.79	0.79	0.79			

	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)

	Not Selected	Not Selected			Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	N/A	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A	N/A	feet
Vertical Orifice Diameter =	N/A	N/A	inches				

Calculated Parameters for Vertical Orifice

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

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	2.33	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	2.83	N/A	feet
Overflow Weir Front Edge Length =	4.00	N/A	feet	Overflow Weir Slope Length =	2.55	N/A	feet
Overflow Weir Grate Slope =	5.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	13.77	N/A	
Horiz. Length of Weir Sides =	2.50	N/A	feet	Overflow Grate Open Area w/o Debris =	7.10	N/A	ft^2
Overflow Grate Type =	Type C Grate	N/A		Overflow Grate Open Area w/ Debris =	3.55	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

Calculated Parameters for Overflow Weir

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

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.58	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	0.52	N/A	ft^2
Outlet Pipe Diameter =	18.00	N/A	inches	Outlet Orifice Centroid =	0.29	N/A	feet
Restrictor Plate Height Above Pipe Invert =	6.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.23	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	2.83	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.49	feet
Spillway Crest Length =	15.00	feet	Stage at Top of Freeboard =	4.32	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.57	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	1.30	acre-ft

Calculated Parameters for Spillway

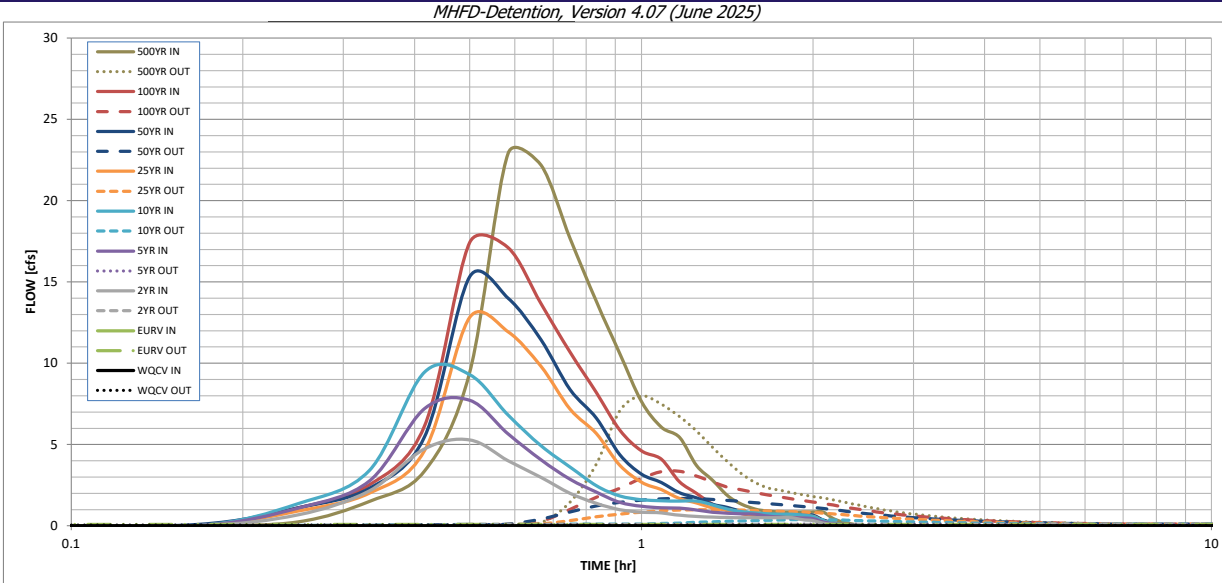
Routed Hydrograph Results

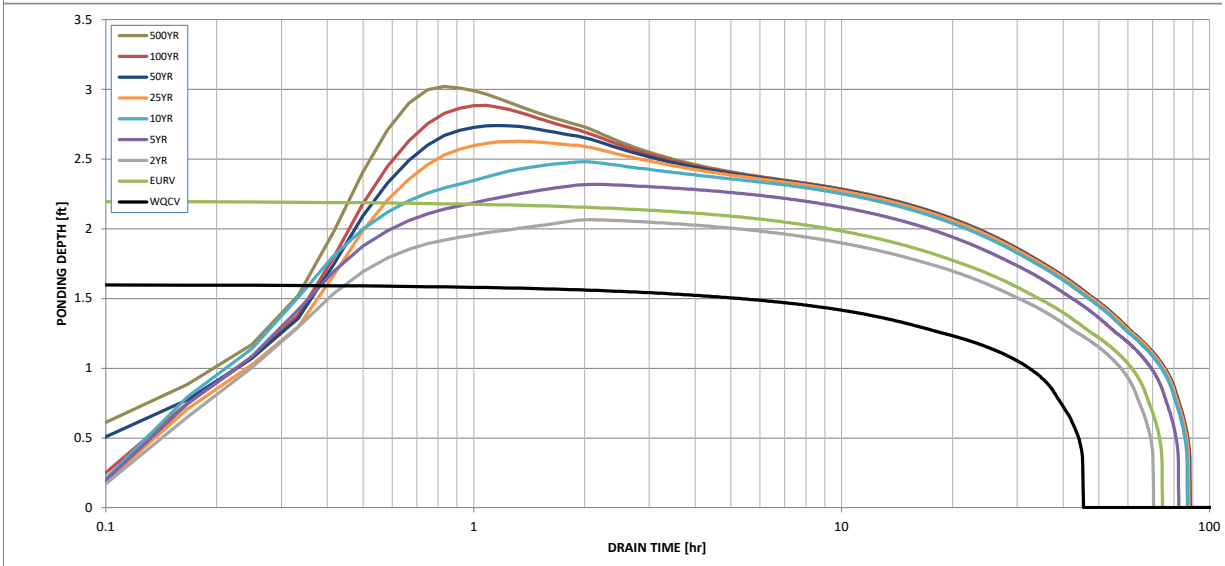
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

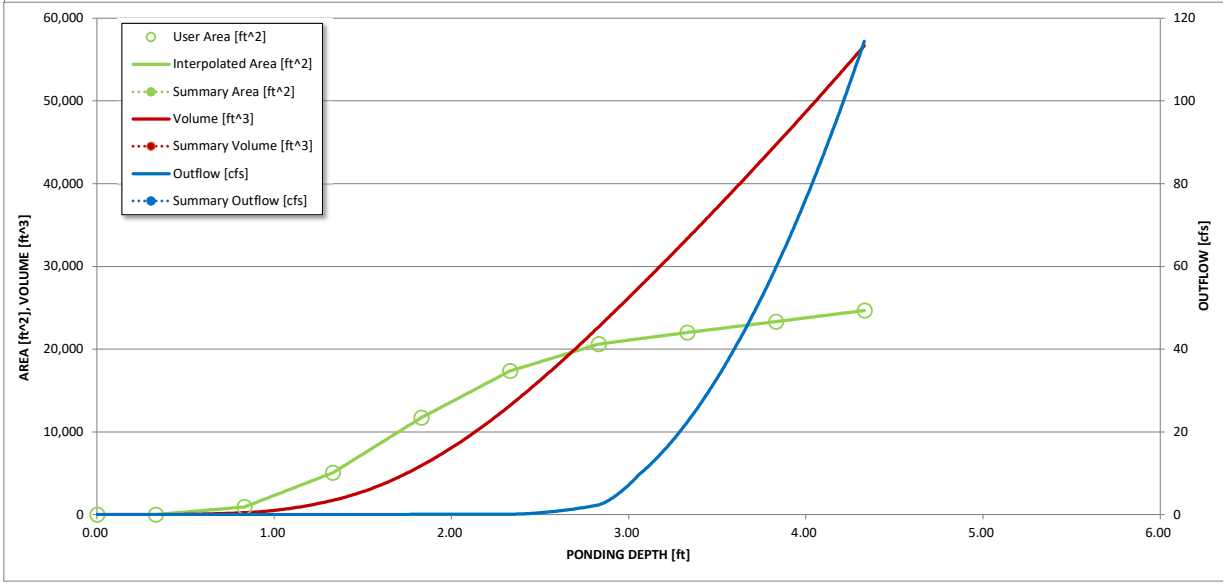
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.14
CUHP Runoff Volume (acre-ft) =	0.082	0.252	0.218	0.312	0.395	0.508	0.598	0.714	0.947
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.218	0.312	0.395	0.508	0.598	0.714	0.947
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	1.1	2.8	4.1	6.6	8.3	10.4	14.4
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.23	0.59	0.86	1.37	1.72	2.17	3.00
Peak Inflow Q (cfs) =	N/A	N/A	5.3	7.7	9.5	12.8	15.3	17.4	22.9
Peak Outflow Q (cfs) =	0.0	0.1	0.1	0.1	0.4	1.0	1.7	3.4	8.0
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.0	0.1	0.2	0.2	0.3	0.6
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Spillway	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.0	0.1	0.2	0.4	0.6
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) =	41	65	62	71	74	72	71	69	64
Time to Drain 99% of Inflow Volume (hours) =	**44**	70	67	78	81	81	80	79	78
Maximum Ponding Depth (ft) =	1.60	2.20	2.06	2.32	2.48	2.63	2.74	2.88	3.02
Area at Maximum Ponding Depth (acres) =	0.20	0.36	0.33	0.39	0.42	0.44	0.46	0.48	0.48
Maximum Volume Stored (acre-ft) =	0.082	0.253	0.205	0.295	0.360	0.425	0.479	0.544	0.607

DETENTION BASIN OUTLET STRUCTURE DESIGN

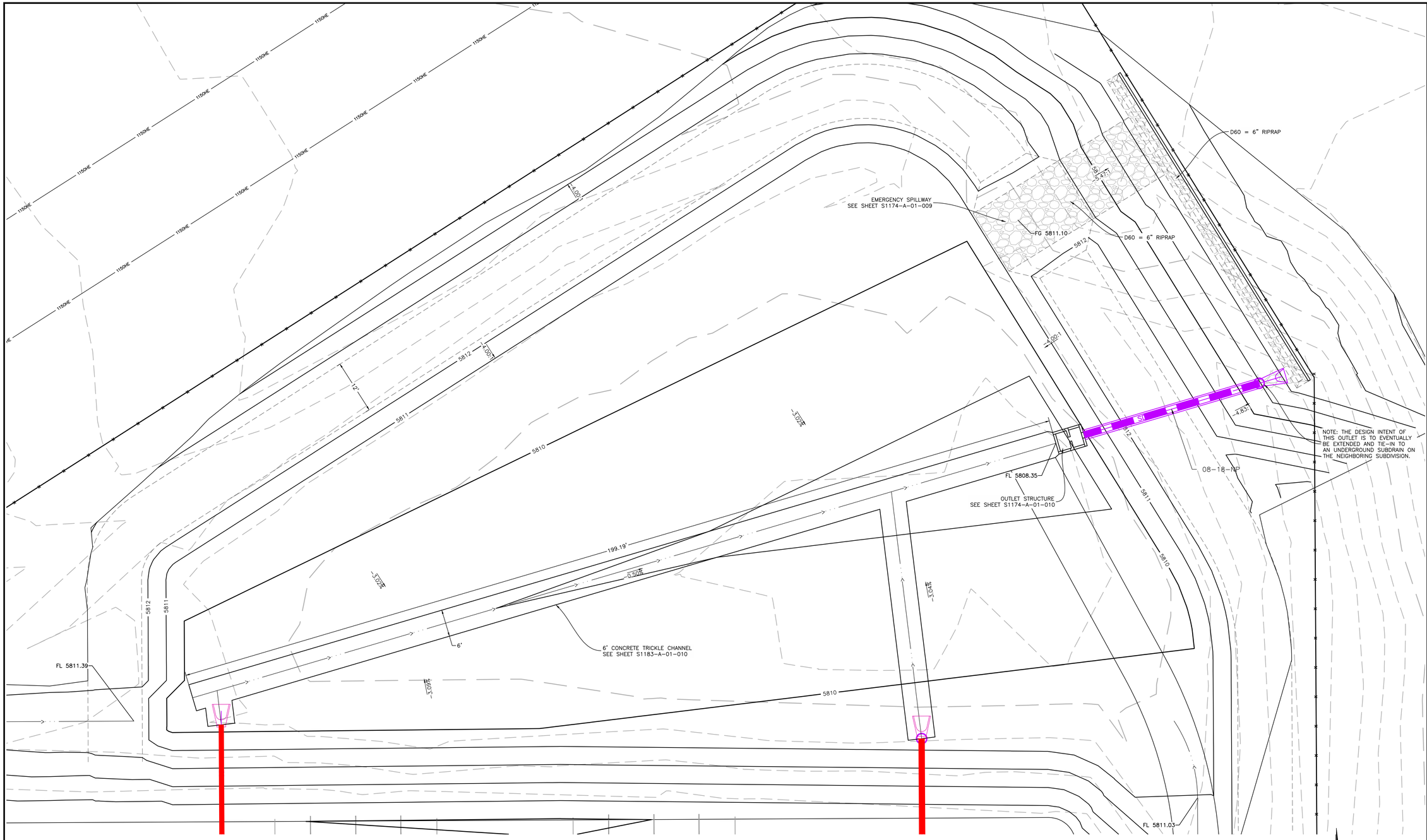
MHFD-Detention, Version 4.07 (June 2025)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			



LEGEND

- 5800 — EXISTING INDEX CONTOUR
- 5796 — EXISTING INTERMEDIATE CONTOUR
- ohe — EXISTING OVERHEAD POWER LINE
- EXISTING FENCE
- BASELINE
- 5800 — PROPOSED INDEX CONTOUR
- 5796 — PROPOSED INTERMEDIATE CONTOUR
- SD — PROPOSED SUBDRAIN
- PROPOSED GRADE BRAKE LINE
- PROPOSED SUBSTATION FENCE
- PROPOSED DRAINAGE FLOWLINE
- PROPOSED RIPRAP
- PROPOSED SUBDRAIN CLEANOUT

NOTE:

1. THE HORIZONTAL LOCATION FOR THE CONTROL POINT AT THE INTERSECTION OF THE TWO BASELINES IS FIXED. LOCATIONS FOR OTHER CONTROL POINTS MAY BE ADJUSTED ALONG THE BASELINE AS NECESSARY TO PROVIDE FOR CLEAR LINES OF SIGHT AROUND EXISTING VEGETATION TO REMAIN.
2. SURVEYOR SHALL SET THE CONTROL POINTS OUTSIDE THE SUBSTATION SECURITY FENCE IN-THE-FIELD, AND REPORT THE COORDINATES AND ELEVATIONS TO THE OWNER'S AUTHORIZED TECHNICAL REPRESENTATIVE (OATR).
3. COORDINATE SYSTEM: COLORADO STATE PLANE CENTRAL ZONE
   SCALE FACTOR = 1.0003223877
   VERTICAL DATUM = NAVD88
   HORIZONTAL DATUM = NAD 83

TRUE NORTH
L=76.5°
PLAN NORTH

1" = 10'

Scale in feet
10' 0 10' 20'

No.	Date	Dwn.
1		
2		
3		
4		
5		
6		
7		

Revision | Apprd. | M.F.

Drawing Title
Mfgr. Reference Drawings
Dwg. No.

ROLLING MEADOWS SUBSTATION
115/12.47kV
EDB-1 GRADING

TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INCORPORATED

UPDATED BY: WLIDGATE 6/19/2026 9:37 AM | Contract: 4713

PATH: \\DMS1A\Projects\Active Projects\2024\24028-TSGT Rolling Meadows Substation\Facility\Civil\Sheets\S1183-A-01-SHEETS.dwg

TRI-STATE
Generation and Transmission Association, Inc.
A Touchstone Energy® Cooperative
1100 W. 116th Ave.
P.O. Box 33695
Denver, Colorado 80233
303-452-6111

Dwn:	Date:
TMC	06/22/26
Apprd:	Date:
DWS	06/22/26

S1183-A-01-007