JPS ENGINEERING
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July 27, 2026

El Paso County Planning and Community Development Department
2880 International Circle
Colorado Springs, CO 80910

SUBJECT: New Breed Ranch Filing Three (SF247)
Engineer's Certification Letter – Permanent Control Measures

Ladies and Gentlemen:

Drainage Permanent Control Measures (PCM's) for this project include one private Rain Garden (RG-I-9.1). The PCM(s) provide the required storage volume and meet the required release rates, storage areas, elevations, and outlet dimensions, as documented by the attached revised MHFD-Detention spreadsheet that shows the as-built conditions. The As-Built drawings accurately depict the installation of the PCM improvements and verify that adequate detention volume has been provided.

Based upon information gathered from periodic site visits to the project, JPS Engineering, Inc. is of the opinion that the Permanent Control Measures have been constructed in general compliance with the approved design plans as filed with El Paso County.

The site and adjacent properties (as affected by work performed under the County permit) appear to be stable with respect to settlement and subsidence, sloughing of cut and fill slopes, revegetation or other ground cover, and the improvements (public improvements, common development improvements, site grading and paving) meet or exceed the minimum design requirements.

Sincerely,
JPS Engineering, Inc.

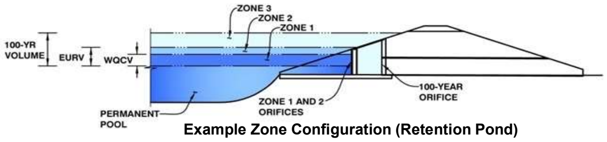
John P. Schwab, P.E.
Colorado P.E. No. 29891

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: New Breed Ranch Filing Three

Basin ID: Rain Garden I-9.1 - As-Built



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**RG**	
Watershed Area =	13.90	acres
Watershed Length =	1,470	ft
Watershed Length to Centroid =	735	ft
Watershed Slope =	0.060	ft/ft
Watershed Imperviousness =	7.00%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	100.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	12.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	0.045	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	0.089	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	0.154	acre-feet	1.19	inches
5-yr Runoff Volume (P1 = 1.5 in.) =	0.369	acre-feet	1.50	inches
10-yr Runoff Volume (P1 = 1.75 in.) =	0.588	acre-feet	1.75	inches
25-yr Runoff Volume (P1 = 2 in.) =	0.991	acre-feet	2.00	inches
50-yr Runoff Volume (P1 = 2.25 in.) =	1.260	acre-feet	2.25	inches
100-yr Runoff Volume (P1 = 2.52 in.) =	1.653	acre-feet	2.52	inches
500-yr Runoff Volume (P1 = 3.14 in.) =	2.361	acre-feet	3.14	inches
Approximate 2-yr Detention Volume =	0.055	acre-feet		
Approximate 5-yr Detention Volume =	0.088	acre-feet		
Approximate 10-yr Detention Volume =	0.218	acre-feet		
Approximate 25-yr Detention Volume =	0.320	acre-feet		
Approximate 50-yr Detention Volume =	0.331	acre-feet		
Approximate 100-yr Detention Volume =	0.436	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	0.045	acre-feet
Zone 2 Volume (User Defined - Zone 1) =	0.000	acre-feet
Select Zone 3 Storage Volume (Optional) =		acre-feet
Total Detention Basin Volume =	0.045	acre-feet

~~**Total detention volume is less than 100-year volume.**~~

Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Media Surface	--	0.00	--	--	--	1,779	0.041		
RG WSL=6996.0	--	1.00	--	--	--	2,628	0.060	2,203	0.051
Top EL=6997.0	--	2.00	--	--	--	3,537	0.081	5,286	0.121
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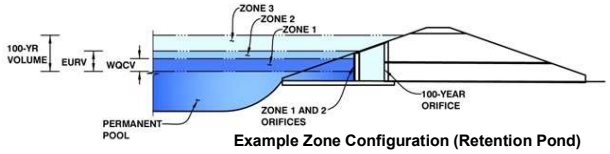
DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: New Breed Ranch Filing Three

Basin ID: Rain Garden I-9.1 - As-Built



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.92	0.045	Filtration Media
Zone 2 (User)	0.92	0.000	Weir&Pipe (Restrict)
Zone 3			
Total (all zones)		0.045	

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

Underdrain Orifice Invert Depth =	2.00	ft (distance below the filtration media surface)	Underdrain Orifice Area =	0.0	ft^2
Underdrain Orifice Diameter =	1.05	inches	Underdrain Orifice Centroid =	0.04	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 BMP)

Centroid of Lowest Orifice =	N/A	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 =	N/A	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 (optional)	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)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	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)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected			Not Selected	Not Selected	
Invert of Vertical Orifice =	2.00		ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	1.77		ft^2
Depth at top of Zone using Vertical Orifice =	3.00		ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	0.75		feet
Vertical Orifice Diameter =	18.00		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 2 Weir	Not Selected			Zone 2 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	1.00		ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	1.00		feet
Overflow Weir Front Edge Length =	4.00		feet	Overflow Weir Slope Length =	2.50		feet
Overflow Weir Grate Slope =	0.00		H:V	Grate Open Area / 100-yr Orifice Area =	23.80		
Horiz. Length of Weir Sides =	2.50		feet	Overflow Grate Open Area w/o Debris =	6.96		ft^2
Overflow Grate Type =	Type C Grate			Overflow Grate Open Area w/ Debris =	3.48		ft^2
Debris Clogging % =	50%		%				

Calculated Parameters for Overflow Weir

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

	Zone 2 Restrictor	Not Selected			Zone 2 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.00		ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	0.29		ft^2
Outlet Pipe Diameter =	18.00		inches	Outlet Orifice Centroid =	0.20		feet
Restrictor Plate Height Above Pipe Invert =	4.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	0.98	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	1.10	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.86 feet
Spillway Crest Length =	5.00	feet	Stage at Top of Freeboard =	1.96 feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.08 acres
Freeboard above Max Water Surface =	0.00	feet	Basin Volume at Top of Freeboard =	0.12 acre-ft

Calculated Parameters for Spillway

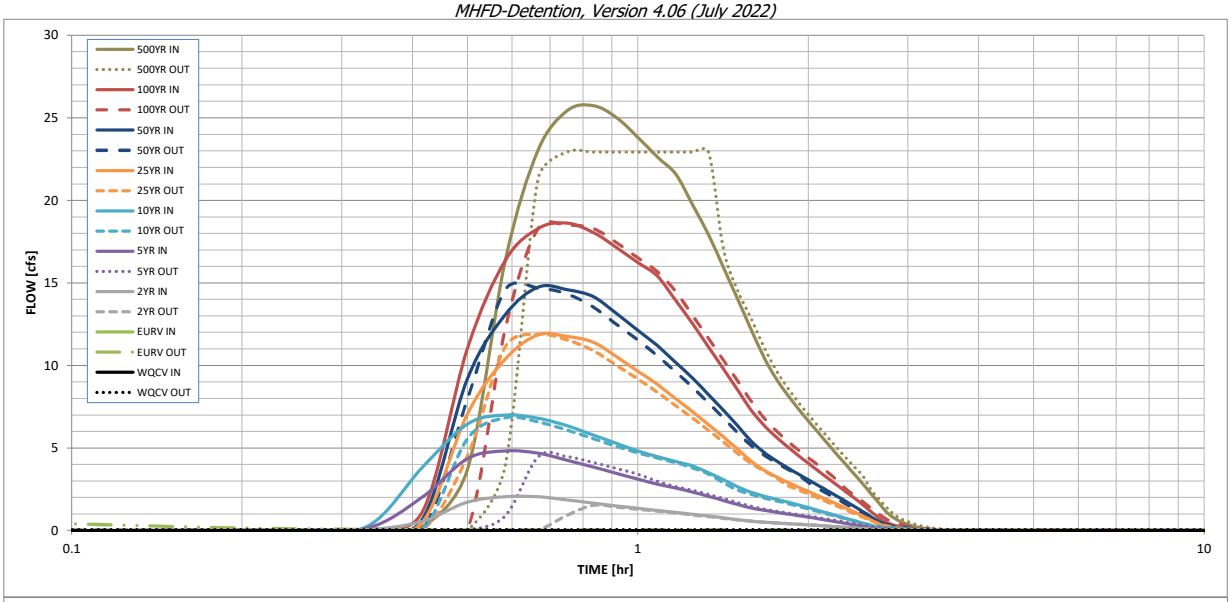
Routed Hydrograph Results

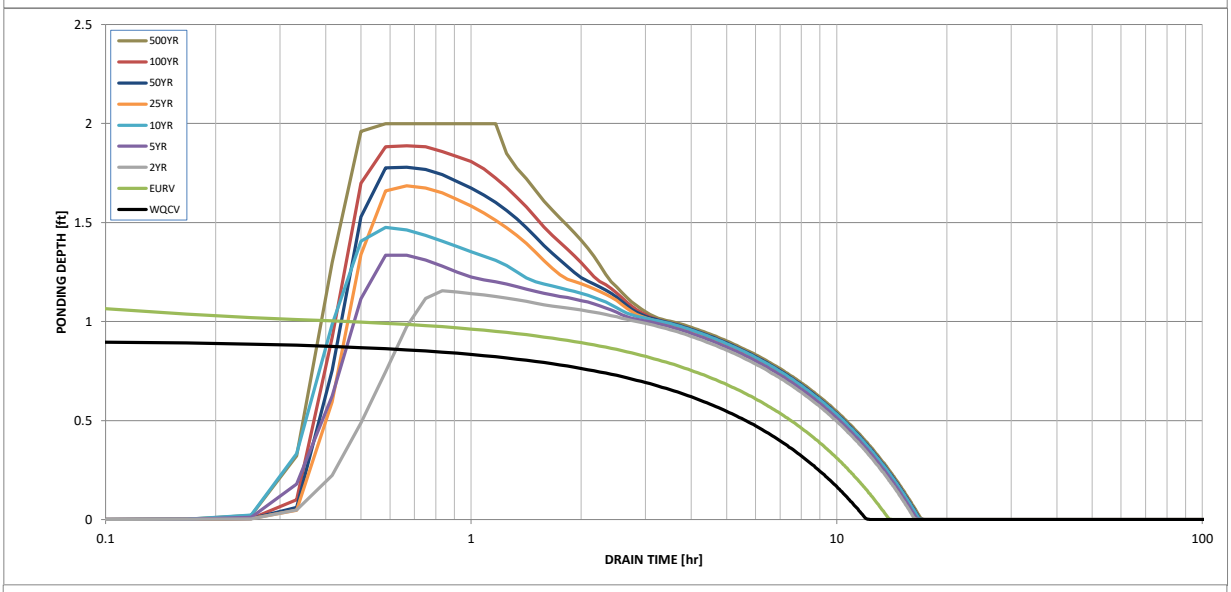
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

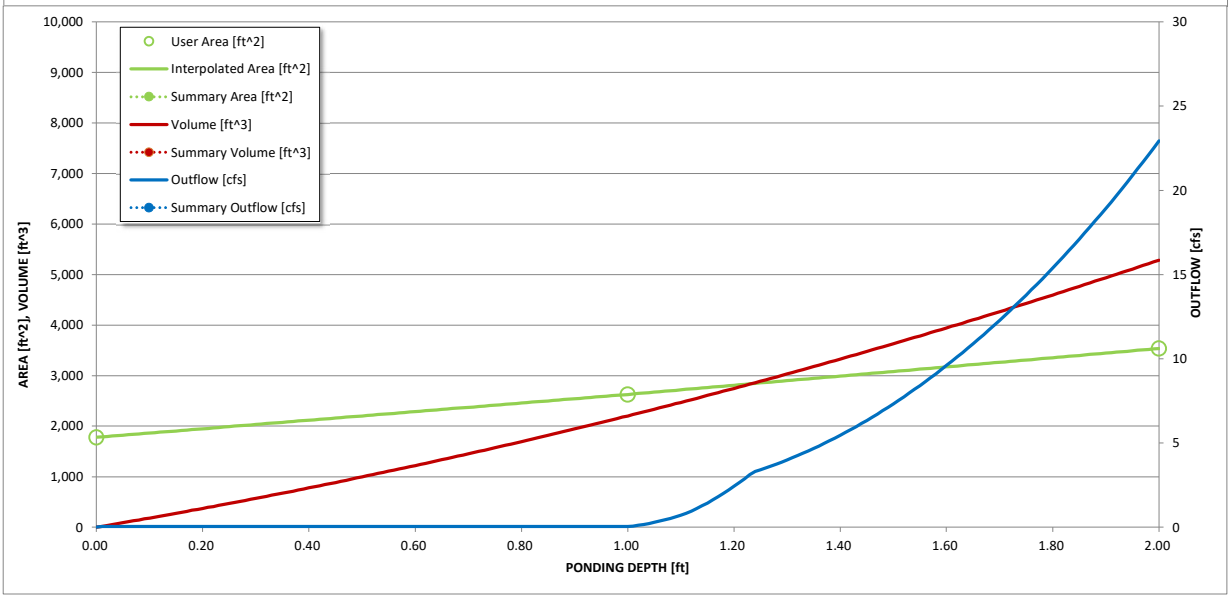
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.14
CUHP Runoff Volume (acre-ft) =	0.045	0.089	0.154	0.369	0.588	0.991	1.260	1.653	2.361
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.154	0.369	0.588	0.991	1.260	1.653	2.361
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	1.5	4.2	6.3	11.2	14.1	18.0	25.1
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.11	0.30	0.46	0.81	1.01	1.30	1.81
Peak Inflow Q (cfs) =	N/A	N/A	2.0	4.8	7.0	11.9	14.7	18.6	25.7
Peak Outflow Q (cfs) =	0.0	4.7	1.5	4.5	6.8	11.9	14.7	18.5	22.9
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.1	1.1	1.1	1.0	1.0	0.9
Structure Controlling Flow =	Filtration Media	Spillway	Spillway	Spillway	Spillway	Spillway	Spillway	Spillway	N/A
Max Velocity through Grate 1 (fps) =	N/A	0.36	0.17	0.4	0.4	0.4	0.4	0.4	0.4
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) =	12	13	15	13	12	9	7	4	2
Time to Drain 99% of Inflow Volume (hours) =	**12**	14	16	16	15	14	13	12	10
Maximum Ponding Depth (ft) =	0.91	1.58	1.15	1.34	1.48	1.69	1.78	1.89	2.00
Area at Maximum Ponding Depth (acres) =	0.06	0.07	0.06	0.07	0.07	0.07	0.08	0.08	0.08
Maximum Volume Stored (acre-ft) =	0.045	0.089	0.060	0.072	0.081	0.096	0.103	0.112	0.121

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







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

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename:

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:15:00	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.03
	0:20:00	0.00	0.00	0.04	0.14	0.26	0.04	0.05	0.06	0.25
	0:25:00	0.00	0.00	0.56	2.03	3.83	0.52	0.69	1.14	3.70
	0:30:00	0.00	0.00	1.72	4.36	6.45	7.07	9.20	11.04	16.36
	0:35:00	0.00	0.00	2.04	4.81	6.98	10.38	13.07	16.35	23.06
	0:40:00	0.00	0.00	2.04	4.69	6.80	11.85	14.75	18.30	25.43
	0:45:00	0.00	0.00	1.85	4.25	6.34	11.75	14.60	18.61	25.74
	0:50:00	0.00	0.00	1.66	3.85	5.78	11.42	14.17	18.06	25.02
	0:55:00	0.00	0.00	1.49	3.46	5.27	10.53	13.15	17.15	23.82
	1:00:00	0.00	0.00	1.34	3.10	4.82	9.64	12.12	16.23	22.62
	1:05:00	0.00	0.00	1.22	2.81	4.47	8.84	11.19	15.41	21.58
	1:10:00	0.00	0.00	1.10	2.57	4.18	7.98	10.16	13.93	19.71
	1:15:00	0.00	0.00	0.98	2.33	3.90	7.19	9.22	12.52	17.92
	1:20:00	0.00	0.00	0.87	2.07	3.51	6.41	8.23	11.11	15.93
	1:25:00	0.00	0.00	0.76	1.82	3.08	5.67	7.28	9.79	14.03
	1:30:00	0.00	0.00	0.66	1.57	2.65	4.93	6.34	8.52	12.22
	1:35:00	0.00	0.00	0.56	1.37	2.32	4.22	5.43	7.32	10.55
	1:40:00	0.00	0.00	0.50	1.23	2.09	3.68	4.76	6.41	9.27
	1:45:00	0.00	0.00	0.46	1.11	1.90	3.28	4.25	5.71	8.28
	1:50:00	0.00	0.00	0.42	1.01	1.73	2.94	3.82	5.11	7.42
	1:55:00	0.00	0.00	0.38	0.91	1.56	2.64	3.43	4.57	6.64
	2:00:00	0.00	0.00	0.34	0.81	1.39	2.37	3.08	4.08	5.93
	2:05:00	0.00	0.00	0.30	0.71	1.22	2.10	2.73	3.61	5.24
	2:10:00	0.00	0.00	0.26	0.61	1.05	1.84	2.40	3.16	4.59
	2:15:00	0.00	0.00	0.22	0.52	0.89	1.60	2.07	2.75	3.98
	2:20:00	0.00	0.00	0.18	0.42	0.73	1.35	1.76	2.34	3.39
	2:25:00	0.00	0.00	0.14	0.33	0.59	1.11	1.45	1.94	2.80
	2:30:00	0.00	0.00	0.11	0.24	0.44	0.87	1.14	1.54	2.23
	2:35:00	0.00	0.00	0.07	0.15	0.30	0.63	0.83	1.14	1.65
	2:40:00	0.00	0.00	0.04	0.09	0.20	0.40	0.53	0.75	1.12
	2:45:00	0.00	0.00	0.02	0.05	0.14	0.24	0.34	0.49	0.76
	2:50:00	0.00	0.00	0.01	0.04	0.11	0.15	0.22	0.32	0.53
	2:55:00	0.00	0.00	0.01	0.03	0.09	0.09	0.15	0.21	0.36
	3:00:00	0.00	0.00	0.01	0.02	0.07	0.06	0.10	0.13	0.24
	3:05:00	0.00	0.00	0.01	0.02	0.05	0.04	0.07	0.08	0.15
	3:10:00	0.00	0.00	0.00	0.01	0.04	0.02	0.04	0.04	0.09
	3:15:00	0.00	0.00	0.00	0.01	0.03	0.01	0.03	0.02	0.05
	3:20:00	0.00	0.00	0.00	0.01	0.02	0.01	0.02	0.01	0.03
	3:25:00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02
	3:30:00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02
	3:35:00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00