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**Hunt Brothers Pizza / Seedtime &  
Harvest**  
**2018 New Facility**

***Watershed B***

***REVISED 07-06-18***

***Proposed Conditions***

John W. Hunt, PE, PLS

MLH Civil Engineers, PLLC  
3320 Clays Mill Road, Suite #208  
PO Box 910379  
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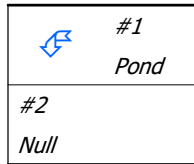
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	10 yr - 1 hr
Rainfall Depth:	2.000 inches

### Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.080	0.265	POND
Null	#2	==>	End	0.000	0.000	BASIN BYPASS



***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	1.600	1.600	2.34	0.09
	Out			0.35	0.09
#2		10.228	11.828	10.16	0.43

## ***Structure Detail:***

### ***Structure #1 (Pond)***

#### ***POND***

Pond Inputs:

Initial Pool Elev:	883.81 ft
Initial Pool:	0.00 ac-ft

#### Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	12.00	0.50	0.0120	883.81	0.50	0.00

#### Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
885.50	8.00	10.00:1	10.00:1	20.00

Pond Results:

Peak Elevation:	885.11 ft
Dewater Time:	0.16 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
883.80	0.001	0.000	0.000	
883.81	0.001	0.000	0.000	Spillway #1
884.05	0.010	0.001	0.086	0.45
884.30	0.027	0.006	0.151	0.50
884.55	0.053	0.016	0.212	0.65
884.80	0.087	0.033	0.272	0.85
885.00	0.120	0.053	0.321	0.85
885.05	0.125	0.060	0.333	0.25
885.11	0.131	0.068	0.348	0.30 Peak Stage
885.30	0.150	0.094	0.394	
885.50	0.172	0.126	0.442	Spillway #2

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
885.55	0.177	0.135	1.192	
885.80	0.207	0.183	4.940	
886.00	0.232	0.227	7.939	

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
883.80	0.000	0.000	0.000
883.81	0.000	0.000	0.000
884.05	(1)>0.086	0.000	0.086
884.30	(2)>0.151	0.000	0.151
884.55	(2)>0.212	0.000	0.212
884.80	(3)>0.272	0.000	0.272
885.00	(3)>0.321	0.000	0.321
885.05	(3)>0.333	0.000	0.333
885.30	(4)>0.394	0.000	0.394
885.50	(4)>0.442	0.000	0.442
885.55	(5)>0.454	0.737	1.192
885.80	(5)>0.515	4.426	4.940
886.00	(6)>0.563	7.376	7.939

Structure #2 (Null)

*BASIN BYPASS*

***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.542	0.064	0.000	0.000	98.000	M	1.81	0.079
	2	0.148	0.064	0.000	0.000	74.000	M	0.18	0.004
	3	0.890	0.064	0.000	0.000	61.000	M	0.28	0.005
	4	0.020	0.064	0.000	0.000	98.000	M	0.07	0.003
	<b>Σ</b>	<b>1.600</b>						<b>2.34</b>	<b>0.091</b>
#2	1	1.838	0.100	0.000	0.000	98.000	M	6.15	0.267
	2	7.220	0.100	0.000	0.000	61.000	M	2.27	0.040
	3	1.170	0.100	0.000	0.000	74.000	M	1.45	0.033
	<b>Σ</b>	<b>11.828</b>						<b>10.16</b>	<b>0.431</b>

***Subwatershed Time of Concentration Details:***

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	6. Grassed waterway	1.67	7.50	450.00	1.930	0.064
<b>#1</b>	<b>1</b>	<b>Time of Concentration:</b>					<b>0.064</b>

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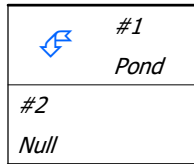
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.000 inches

### Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.080	0.265	POND
Null	#2	==>	End	0.000	0.000	BASIN BYPASS



***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In			3.92	0.34
	Out	1.600	1.600	0.96	0.34
#2		10.228	11.828	21.76	2.13

## ***Structure Detail:***

### ***Structure #1 (Pond)***

#### ***POND***

Pond Inputs:

Initial Pool Elev:	883.81 ft
Initial Pool:	0.00 ac-ft

#### Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	12.00	0.50	0.0120	883.81	0.50	0.00

#### Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
885.50	8.00	10.00:1	10.00:1	20.00

Pond Results:

Peak Elevation:	885.53 ft
Dewater Time:	0.51 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
883.80	0.001	0.000	0.000		
883.81	0.001	0.000	0.000		Spillway #1
884.05	0.010	0.001	0.086	2.40	
884.30	0.027	0.006	0.151	1.15	
884.55	0.053	0.016	0.212	1.05	
884.80	0.087	0.033	0.272	1.30	
885.00	0.120	0.053	0.321	1.25	
885.05	0.125	0.060	0.333	0.35	
885.30	0.150	0.094	0.394	1.90	
885.50	0.172	0.126	0.442	2.20	Spillway #2
885.53	0.176	0.132	0.956	0.75	Peak Stage

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
885.55	0.177	0.135	1.192	
885.80	0.207	0.183	4.940	
886.00	0.232	0.227	7.939	

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
883.80	0.000	0.000	0.000
883.81	0.000	0.000	0.000
884.05	(1)>0.086	0.000	0.086
884.30	(2)>0.151	0.000	0.151
884.55	(2)>0.212	0.000	0.212
884.80	(3)>0.272	0.000	0.272
885.00	(3)>0.321	0.000	0.321
885.05	(3)>0.333	0.000	0.333
885.30	(4)>0.394	0.000	0.394
885.50	(4)>0.442	0.000	0.442
885.55	(5)>0.454	0.737	1.192
885.80	(5)>0.515	4.426	4.940
886.00	(6)>0.563	7.376	7.939

*Structure #2 (Null)*

*BASIN BYPASS*

***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.542	0.064	0.000	0.000	98.000	M	2.07	0.215
	2	0.148	0.064	0.000	0.000	74.000	M	0.37	0.025
	3	0.890	0.064	0.000	0.000	61.000	M	1.40	0.101
	4	0.020	0.064	0.000	0.000	98.000	M	0.08	0.004
	<b>Σ</b>	<b>1.600</b>						<b>3.92</b>	<b>0.345</b>
#2	1	1.838	0.100	0.000	0.000	98.000	M	7.01	0.729
	2	7.220	0.100	0.000	0.000	61.000	M	11.38	0.823
	3	1.170	0.100	0.000	0.000	74.000	M	2.96	0.230
	<b>Σ</b>	<b>11.828</b>						<b>21.76</b>	<b>2.126</b>

***Subwatershed Time of Concentration Details:***

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	6. Grassed waterway	1.67	7.50	450.00	1.930	0.064
<b>#1</b>	<b>1</b>	<b>Time of Concentration:</b>					<b>0.064</b>

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## ***General Information***

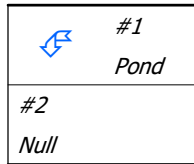
### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	100 yr - 1 hr
Rainfall Depth:	2.800 inches



### Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.080	0.265	POND
Null	#2	==>	End	0.000	0.000	BASIN BYPASS



***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In			4.04	0.15
	Out	1.600	1.600	0.43	0.15
#2		10.228	11.828	20.23	0.78

## ***Structure Detail:***

### *Structure #1 (Pond)*

*POND*

Pond Inputs:

Initial Pool Elev:	883.81 ft
Initial Pool:	0.00 ac-ft

#### Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	12.00	0.50	0.0120	883.81	0.50	0.00

#### Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
885.50	8.00	10.00:1	10.00:1	20.00

Pond Results:

Peak Elevation:	885.46 ft
Dewater Time:	0.23 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
883.80	0.001	0.000	0.000	
883.81	0.001	0.000	0.000	Spillway #1
884.05	0.010	0.001	0.086	0.50
884.30	0.027	0.006	0.151	0.45
884.55	0.053	0.016	0.212	0.70
884.80	0.087	0.033	0.272	0.85
885.00	0.120	0.053	0.321	0.85
885.05	0.125	0.060	0.333	0.20
885.30	0.150	0.094	0.394	1.15
885.46	0.168	0.120	0.433	0.80 Peak Stage
885.50	0.172	0.126	0.442	Spillway #2

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
885.55	0.177	0.135	1.192	
885.80	0.207	0.183	4.940	
886.00	0.232	0.227	7.939	

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
883.80	0.000	0.000	0.000
883.81	0.000	0.000	0.000
884.05	(1)>0.086	0.000	0.086
884.30	(2)>0.151	0.000	0.151
884.55	(2)>0.212	0.000	0.212
884.80	(3)>0.272	0.000	0.272
885.00	(3)>0.321	0.000	0.321
885.05	(3)>0.333	0.000	0.333
885.30	(4)>0.394	0.000	0.394
885.50	(4)>0.442	0.000	0.442
885.55	(5)>0.454	0.737	1.192
885.80	(5)>0.515	4.426	4.940
886.00	(6)>0.563	7.376	7.939

Structure #2 (Null)

*BASIN BYPASS*

***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.542	0.064	0.000	0.000	98.000	M	2.55	0.114
	2	0.148	0.064	0.000	0.000	74.000	M	0.36	0.009
	3	0.890	0.064	0.000	0.000	61.000	M	1.03	0.021
	4	0.020	0.064	0.000	0.000	98.000	M	0.09	0.004
	<b>Σ</b>	<b>1.600</b>						<b>4.04</b>	<b>0.148</b>
#2	1	1.838	0.100	0.000	0.000	98.000	M	8.66	0.387
	2	7.220	0.100	0.000	0.000	61.000	M	8.34	0.167
	3	1.170	0.100	0.000	0.000	74.000	M	2.86	0.074
	<b>Σ</b>	<b>11.828</b>						<b>20.23</b>	<b>0.775</b>

***Subwatershed Time of Concentration Details:***

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	6. Grassed waterway	1.67	7.50	450.00	1.930	0.064
<b>#1</b>	<b>1</b>	<b>Time of Concentration:</b>					<b>0.064</b>

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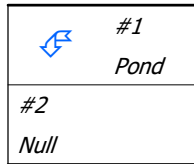
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	6.000 inches

### *Structure Networking:*

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.080	0.265	POND
Null	#2	==>	End	0.000	0.000	BASIN BYPASS





***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In			5.08	0.45
	Out	1.600	1.600	2.94	0.45
#2		10.228	11.828	30.29	2.85

## ***Structure Detail:***

### ***Structure #1 (Pond)***

#### ***POND***

Pond Inputs:

Initial Pool Elev:	883.81 ft
Initial Pool:	0.00 ac-ft

#### **Straight Pipe**

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	12.00	0.50	0.0120	883.81	0.50	0.00

#### **Emergency Spillway**

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
885.50	8.00	10.00:1	10.00:1	20.00

Pond Results:

Peak Elevation:	885.67 ft
Dewater Time:	0.52 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### **Elevation-Capacity-Discharge Table**

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
883.80	0.001	0.000	0.000	
883.81	0.001	0.000	0.000	Spillway #1
884.05	0.010	0.001	0.086	0.45
884.30	0.027	0.006	0.151	1.95
884.55	0.053	0.016	0.212	1.20
884.80	0.087	0.033	0.272	1.40
885.00	0.120	0.053	0.321	1.40
885.05	0.125	0.060	0.333	0.35
885.30	0.150	0.094	0.394	2.10
885.50	0.172	0.126	0.442	2.45 Spillway #2
885.55	0.177	0.135	1.192	0.75

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
885.67	0.191	0.157	2.943	0.35 Peak Stage
885.80	0.207	0.183	4.940	
886.00	0.232	0.227	7.939	

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
883.80	0.000	0.000	0.000
883.81	0.000	0.000	0.000
884.05	(1)>0.086	0.000	0.086
884.30	(2)>0.151	0.000	0.151
884.55	(2)>0.212	0.000	0.212
884.80	(3)>0.272	0.000	0.272
885.00	(3)>0.321	0.000	0.321
885.05	(3)>0.333	0.000	0.333
885.30	(4)>0.394	0.000	0.394
885.50	(4)>0.442	0.000	0.442
885.55	(5)>0.454	0.737	1.192
885.80	(5)>0.515	4.426	4.940
886.00	(6)>0.563	7.376	7.939

*Structure #2 (Null)*

*BASIN BYPASS*

### ***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.542	0.064	0.000	0.000	98.000	M	2.48	0.260
	2	0.148	0.064	0.000	0.000	74.000	M	0.49	0.035
	3	0.890	0.064	0.000	0.000	61.000	M	2.02	0.148
	4	0.020	0.064	0.000	0.000	98.000	M	0.09	0.005
	<b>Σ</b>	<b>1.600</b>						<b>5.08</b>	<b>0.449</b>
#2	1	1.838	0.100	0.000	0.000	98.000	M	8.43	0.882
	2	7.220	0.100	0.000	0.000	61.000	M	16.36	1.205
	3	1.170	0.100	0.000	0.000	74.000	M	3.89	0.310
	<b>Σ</b>	<b>11.828</b>						<b>30.29</b>	<b>2.846</b>

### ***Subwatershed Time of Concentration Details:***

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	6. Grassed waterway	1.67	7.50	450.00	1.930	0.064
<b>#1</b>	<b>1</b>	<b>Time of Concentration:</b>					<b>0.064</b>