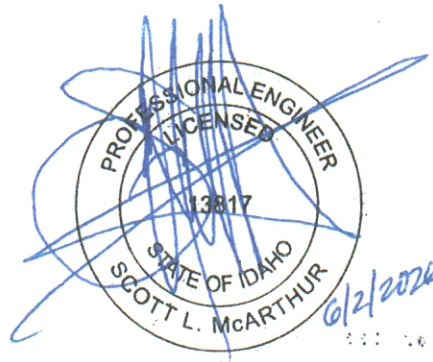




STORMWATER ASSESSMENT OLDING DREAM GARAGE

LEW'S INDUSTRIAL PARK, LOT 6, BLOCK 1



Basin: Historical Drainage to City System

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Rational Method

*Reference 13.10 - Rational Method, Page 674, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

IMPERVIOUS AREA

	<i>SF</i>	<i>Acres</i>
Asphalt,Curb,Sidewalk,Approach (Roadway):	0	0.000
Private Driveway (on Lot):	0	0.000
Private Structure (on Lot):	0	0.000

BASIN AREA

	<i>SF</i>	<i>Acres</i>
Total Impervious Area (IA):	0	0.000
Total Permeable Area (PA):	11,779	0.270
Total Basin Area:	11,779	0.270

RUNOFF COEFFICIENT (C)

Impervious Area (C_{IA}) =	0.90
Permeable Area (C_{PA}) =	0.40

*Reference Table 13.5, Page 677, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

COMPOSITE RUNOFF COEFFICIENT (C)

	<i>unitless</i>
$C = IA (C_{IA}) + PA (C_{PA}) / \text{Total Basin Area} =$	0.40

RAINFALL INTENSITY (i)

	<i>in/hr</i>
100-year event at T_c =	4.38

*Reference Spokane County method for deriving T_c

Basin: Basin B

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Bowstring Method

*Reference Bowstring Method, Page 5-23, Spokane Regional Stormwater Manual, April 2008

BOWSTRING METHOD NOTES FOR SPREADSHEET DEVELOPMENT

1. Rainfall Intensity Coefficients , m and n, for Spokane County, derived by NOAA, under Atlas 2

Where $i = m/T_c^n$

m = 12.33

n = 0.643

*Reference NOAA Atlas 2 for 100-year Event Coefficients for the Spokane County Area

2. Hydrograph Volume (V_t) is derived through the use of the following equations:

When $t \leq T_c$ use $T_c = 1.34 \times Q \times t$

and

When $t > T_c$, use $T_c = (Q \times t) + (0.34 \times Q \times T_c)$

3. Outflow Volume (V_{out}) was derived by multiplying the outflow rate by the event duration in seconds

4. $Q_{out} = 0.01$ TYPE III CATCH BASIN

t	t	i	Q	V_t	Q_{out}	V_{out}	Required Storage
(min)	(sec)	in/hr	cfs	CF	cfs	CF	CF
5	300	4.38	0.535	215.25	0.0065	2	213.30
10	600	2.81	0.343	275.69	0.0065	4	271.77
15	900	2.16	0.264	318.63	0.0065	6	312.75
20	1200	1.80	0.220	353.09	0.0065	8	345.26
25	1500	1.56	0.190	382.37	0.0065	10	372.58
30	1800	1.38	0.169	408.08	0.0065	12	396.33
35	2100	1.25	0.153	431.17	0.0065	14	417.46
40	2400	1.15	0.141	452.22	0.0065	16	436.56
45	2700	1.07	0.130	471.64	0.0065	18	454.02
50	3000	1.00	0.122	489.72	0.0065	20	470.14
55	3300	0.94	0.115	506.67	0.0065	22	485.13
60	3600	0.89	0.108	522.66	0.0065	24	499.16
65	3900	0.84	0.103	537.81	0.0065	25	512.35
70	4200	0.80	0.098	552.23	0.0065	27	524.81
75	4500	0.77	0.094	566.00	0.0065	29	536.62

80	4800	0.74	0.090	579.19	0.0065	31	547.86
85	5100	0.71	0.087	591.86	0.0065	33	558.57
90	5400	0.68	0.083	604.06	0.0065	35	568.81
95	5700	0.66	0.081	615.84	0.0065	37	578.63
100	6000	0.64	0.078	627.22	0.0065	39	588.05
105	6300	0.62	0.076	638.24	0.0065	41	597.11
110	6600	0.60	0.073	648.93	0.0065	43	605.84
115	6900	0.58	0.071	659.31	0.0065	45	614.26
120	7200	0.57	0.069	669.40	0.0065	47	622.40
125	7500	0.55	0.068	679.23	0.0065	49	630.27
130	7800	0.54	0.066	688.80	0.0065	51	637.89
135	8100	0.53	0.064	698.15	0.0065	53	645.27
140	8400	0.51	0.063	707.27	0.0065	55	652.44
145	8700	0.50	0.061	716.19	0.0065	57	659.40
150	9000	0.49	0.060	724.91	0.0065	59	666.16
155	9300	0.48	0.059	733.44	0.0065	61	672.74
160	9600	0.47	0.058	741.80	0.0065	63	679.14
165	9900	0.46	0.057	750.00	0.0065	65	685.37
170	10200	0.45	0.055	758.03	0.0065	67	691.45
175	10500	0.45	0.054	765.92	0.0065	69	697.38
180	10800	0.44	0.053	773.66	0.0065	71	703.16
360	21600	0.28	0.034	990.87	0.0065	141	849.87
720	43200	0.18	0.022	1269.07	0.0065	282	987.07
1440	86400	0.11	0.014	1625.38	0.0065	564	1061.38

Basin: Basin B

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Design Summary

TREATMENT AREA

Required
Bottom Area: 226 SF

Average Ditch Depth: 1 feet*, or 12 inches*

Provided
Bottom Area: 376 SF Swale with 127' long and 1.5' wide ditch bottom

TREATMENT AREA IS ADEQUATE

STORAGE VOLUME

Required Swale
Storage Volume: 1,061 CF (Maximum required storage from bowstring method)

Provided Swale
Storage Volume: 376 CF

**685 CF OF OVERFLOW TO DRAIN TO HISTORICAL FLOW INTO
RIGHT-OF-WAY CATCH BASIN**

Basin: Basin C

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Rational Method

*Reference 13.10 - Rational Method, Page 674, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

IMPERVIOUS AREA

	<i>SF</i>	<i>Acres</i>
Asphalt,Curb,Sidewalk,Approach (Roadway):	0	0.000
Private Driveway (on Lot):	394	0.009
Private Structure (on Lot):	4,882	0.112

BASIN AREA

	<i>SF</i>	<i>Acres</i>
Total Impervious Area (IA):	5,276	0.121
Total Permeable Area (PA):	4,601	0.106
Total Basin Area:	9,877	0.227

RUNOFF COEFFICIENT (C)

Impervious Area (C_{IA}) =	0.90
Permeable Area (C_{PA}) =	0.40

*Reference Table 13.5, Page 677, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

COMPOSITE RUNOFF COEFFICIENT (C)

	<i>unitless</i>
$C = IA (C_{IA}) + PA (C_{PA}) / \text{Total Basin Area} =$	0.67

RAINFALL INTENSITY (i)

	<i>in/hr</i>
100-year event at T_c =	4.38

*Reference Spokane County method for deriving T_c

TIME OF CONCENTRATION (T_C)

<i>minutes</i>				
T_C	=	5.0	(5 minute minimum)	
	$T_C = L/K\sqrt{S}$:	0.7	(Ch 5 - SRSM)	
	L:	86.84	ft	
	K:	1200	See Table	
	S:	0.012	ft/ft	

*Reference NRCS Equation 13.09, for first 300' of flow, and NRCS Equation 13.10, for remaining flow length in drainage, Page 681, Hydrology and Hydraulic Systems, 2nd Addition - Gupta, and equations

13.09: $T_1 = 0.42(nL)0.8/P_2^{0.5}S^{0.4}$ and 13.10: $T_1 = L/V$

STORMWATER PEAK FLOW RATE (Q)

<i>cfs</i>		
$Q = C i A$	=	0.66

Basin: Basin C

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Bowstring Method

*Reference Bowstring Method, Page 5-23, Spokane Regional Stormwater Manual, April 2008

BOWSTRING METHOD NOTES FOR SPREADSHEET DEVELOPMENT

1. Rainfall Intensity Coefficients , m and n, for Spokane County, derived by NOAA, under Atlas 2

Where $i = m/T_c^n$

m = 12.33

n = 0.643

*Reference NOAA Atlas 2 for 100-year Event Coefficients for the Spokane County Area

2. Hydrograph Volume (V_t) is derived through the use of the following equations:

When $t \leq T_c$ use $T_c = 1.34 \times Q \times t$ and When $t > T_c$, use $T_c = (Q \times t) + (0.34 \times Q \times T_c)$

3. Outflow Volume (V_{out}) was derived by multiplying the outflow rate by the event duration in seconds

4. $Q_{out} = 0.01$ Treatment Swale

t	t	i	Q	V_t	Q_{out}	V_{out}	Required Storage
(min)	(sec)	in/hr	cfs	CF	cfs	CF	CF
5	300	4.38	0.663	266.36	0.0116	3	262.88
10	600	2.81	0.424	341.14	0.0116	7	334.18
15	900	2.16	0.327	394.28	0.0116	10	383.82
20	1200	1.80	0.272	436.92	0.0116	14	422.99
25	1500	1.56	0.235	473.15	0.0116	17	455.73
30	1800	1.38	0.209	504.97	0.0116	21	484.07
35	2100	1.25	0.190	533.54	0.0116	24	509.15
40	2400	1.15	0.174	559.59	0.0116	28	531.72
45	2700	1.07	0.161	583.63	0.0116	31	552.27
50	3000	1.00	0.151	606.00	0.0116	35	571.15
55	3300	0.94	0.142	626.97	0.0116	38	588.64
60	3600	0.89	0.134	646.75	0.0116	42	604.94
65	3900	0.84	0.127	665.50	0.0116	45	620.20
70	4200	0.80	0.121	683.34	0.0116	49	634.56
75	4500	0.77	0.116	700.38	0.0116	52	648.12

80	4800	0.74	0.111	716.71	0.0116	56	660.96
85	5100	0.71	0.107	732.39	0.0116	59	673.15
90	5400	0.68	0.103	747.48	0.0116	63	684.77
95	5700	0.66	0.100	762.05	0.0116	66	695.85
100	6000	0.64	0.097	776.14	0.0116	70	706.45
105	6300	0.62	0.094	789.77	0.0116	73	716.60
110	6600	0.60	0.091	803.00	0.0116	77	726.34
115	6900	0.58	0.088	815.84	0.0116	80	735.70
120	7200	0.57	0.086	828.33	0.0116	84	744.71
125	7500	0.55	0.084	840.49	0.0116	87	753.38
130	7800	0.54	0.082	852.34	0.0116	91	761.75
135	8100	0.53	0.080	863.91	0.0116	94	769.83
140	8400	0.51	0.078	875.20	0.0116	98	777.63
145	8700	0.50	0.076	886.23	0.0116	101	785.18
150	9000	0.49	0.074	897.02	0.0116	105	792.49
155	9300	0.48	0.073	907.58	0.0116	108	799.57
160	9600	0.47	0.071	917.93	0.0116	112	806.43
165	9900	0.46	0.070	928.07	0.0116	115	813.08
170	10200	0.45	0.069	938.01	0.0116	118	819.54
175	10500	0.45	0.067	947.77	0.0116	122	825.82
180	10800	0.44	0.066	957.35	0.0116	125	831.91
360	21600	0.28	0.042	1226.13	0.0116	251	975.26
720	43200	0.18	0.027	1570.38	0.0116	502	1068.63
1440	86400	0.11	0.017	2011.28	0.0116	1004	1007.78

Basin: Basin C

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Design Summary

TREATMENT AREA

Required
Bottom Area: 137 SF

Average Ditch Depth: 1.6 feet*, or 19 inches*

Provided
Bottom Area: 669 SF Swale with 200' long and 1.5' wide ditch bottom

TREATMENT AREA IS ADEQUATE

STORAGE VOLUME

Required Swale
Storage Volume: 1,069 CF (Maximum required storage from bowstring method)

Provided Swale
Storage Volume: 1,070 CF

SWALE TREATMENT VOLUME IS ADEQUATE

TIME OF CONCENTRATION (T_C)

<i>minutes</i>			
T_C	=	5.0	(5 minute minimum)
$T_C = L/K\sqrt{S}$:		0.7	(Ch 5 - SRSM)
L:		86.84	ft
K:		1200	See Table
S:		0.012	ft/ft

*Reference NRCS Equation 13.09, for first 300' of flow, and NRCS Equation 13.10, for remaining flow length in drainage, Page 681, Hydrology and Hydraulic Systems, 2nd Addition - Gupta, and equations

13.09: $T_t = 0.42(nL)0.8/P_2^{0.5}S^{0.4}$ and 13.10: $T_t = L/V$

STORMWATER PEAK FLOW RATE (Q)

<i>cfs</i>		
$Q = C i A$	=	0.47

Basin: Historical Drainage to City System**Project: Olding Dream Garage****Location: Ponderay, Idaho****Date: June 2, 2026**

Bowstring Method

*Reference Bowstring Method, Page 5-23, Spokane Regional Stormwater Manual, April 2008

BOWSTRING METHOD NOTES FOR SPREADSHEET DEVELOPMENT

1. Rainfall Intensity Coefficients , m and n, for Spokane County, derived by NOAA, under Atlas 2

$$\text{Where } i = m/T_c^n \qquad m = 12.33 \qquad n = 0.643$$

*Reference NOAA Atlas 2 for 100-year Event Coefficients for the Spokane County Area

2. Hydrograph Volume (V_t) is derived through the use of the following equations:

$$\text{When } t \leq T_c \text{ use } T_c = 1.34 \times Q \times t \quad \text{and} \quad \text{When } t > T_c, \text{ use } T_c = (Q \times t) + (0.34 \times Q \times T_c)$$

3. Outflow Volume (V_{out}) was derived by multiplying the outflow rate by the event duration in seconds

4. $Q_{out} =$ 0.00 TYPE III CATCH BASIN

t	t	i	Q	V_t	Q_{out}	V_{out}	Required Storage
(min)	(sec)	in/hr	cfs	CF	cfs	CF	CF
5	300	4.38	0.474	190.47	0	0	190.47
10	600	2.81	0.303	243.95	0	0	243.95
15	900	2.16	0.234	281.94	0	0	281.94
20	1200	1.80	0.194	312.44	0	0	312.44
25	1500	1.56	0.168	338.35	0	0	338.35
30	1800	1.38	0.150	361.10	0	0	361.10
35	2100	1.25	0.136	381.53	0	0	381.53
40	2400	1.15	0.124	400.16	0	0	400.16
45	2700	1.07	0.115	417.35	0	0	417.35
50	3000	1.00	0.108	433.34	0	0	433.34
55	3300	0.94	0.101	448.34	0	0	448.34
60	3600	0.89	0.096	462.49	0	0	462.49
65	3900	0.84	0.091	475.89	0	0	475.89
70	4200	0.80	0.087	488.65	0	0	488.65
75	4500	0.77	0.083	500.84	0	0	500.84

80	4800	0.74	0.080	512.51	0	0	512.51
85	5100	0.71	0.077	523.72	0	0	523.72
90	5400	0.68	0.074	534.52	0	0	534.52
95	5700	0.66	0.071	544.94	0	0	544.94
100	6000	0.64	0.069	555.01	0	0	555.01
105	6300	0.62	0.067	564.76	0	0	564.76
110	6600	0.60	0.065	574.22	0	0	574.22
115	6900	0.58	0.063	583.40	0	0	583.40
120	7200	0.57	0.061	592.33	0	0	592.33
125	7500	0.55	0.060	601.03	0	0	601.03
130	7800	0.54	0.058	609.51	0	0	609.51
135	8100	0.53	0.057	617.77	0	0	617.77
140	8400	0.51	0.056	625.85	0	0	625.85
145	8700	0.50	0.054	633.74	0	0	633.74
150	9000	0.49	0.053	641.45	0	0	641.45
155	9300	0.48	0.052	649.01	0	0	649.01
160	9600	0.47	0.051	656.40	0	0	656.40
165	9900	0.46	0.050	663.65	0	0	663.65
170	10200	0.45	0.049	670.76	0	0	670.76
175	10500	0.45	0.048	677.74	0	0	677.74
180	10800	0.44	0.047	684.59	0	0	684.59
360	21600	0.28	0.030	876.80	0	0	876.80
720	43200	0.18	0.019	1122.97	0	0	1122.97
1440	86400	0.11	0.012	1438.25	0	0	1438.25

Basin: Historical Drainage to City System

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Design Summary

TREATMENT AREA

STORAGE VOLUME

Required Swale Storage Volume: 1,438 CF (Maximum required storage from bowstring method)

Provided Swale Storage Volume: 0 CF

HISTORICAL ONSITE FLOW OUTLETS TO RIGHT-OF-WAY CATCH BASIN
--

Basin: Basin A

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Rational Method

*Reference 13.10 - Rational Method, Page 674, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

IMPERVIOUS AREA

	<i>SF</i>	<i>Acres</i>
Asphalt,Curb,Sidewalk,Approach (Roadway):	0	0.000
Private Driveway (on Lot):	603	0.014
Private Structure (on Lot):	3,145	0.072

BASIN AREA

	<i>SF</i>	<i>Acres</i>
Total Impervious Area (IA):	3,748	0.086
Total Permeable Area (PA):	1,200	0.028
Total Basin Area:	4,948	0.114

RUNOFF COEFFICIENT (C)

Impervious Area (C_{IA}) =	0.90
Permeable Area (C_{PA}) =	0.40

*Reference Table 13.5, Page 677, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

COMPOSITE RUNOFF COEFFICIENT (C)

	<i>unitless</i>
$C = IA (C_{IA}) + PA (C_{PA}) / \text{Total Basin Area} =$	0.78

RAINFALL INTENSITY (i)

	<i>in/hr</i>
100-year event at T_c =	4.38

*Reference Spokane County method for deriving T_c

TIME OF CONCENTRATION (T_C)

<i>minutes</i>				
T_C	=	5.0	(5 minute minimum)	
	$T_C = L/K\sqrt{S}$:	0.7	(Ch 5 - SRSM)	
	L:	86.84	ft	
	K:	1200	See Table	
	S:	0.012	ft/ft	

*Reference NRCS Equation 13.09, for first 300' of flow, and NRCS Equation 13.10, for remaining flow length in drainage, Page 681, Hydrology and Hydraulic Systems, 2nd Addition - Gupta, and equations

13.09: $T_1 = 0.42(nL)0.8/P_2^{0.5}S^{0.4}$ and 13.10: $T_1 = L/V$

STORMWATER PEAK FLOW RATE (Q)

<i>cfs</i>				
$Q = C i A$	=	0.39		

Basin: Basin A

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Bowstring Method

*Reference Bowstring Method, Page 5-23, Spokane Regional Stormwater Manual, April 2008

BOWSTRING METHOD NOTES FOR SPREADSHEET DEVELOPMENT

1. Rainfall Intensity Coefficients , m and n, for Spokane County, derived by NOAA, under Atlas 2

Where $i = m/T_c^n$

m = 12.33

n = 0.643

*Reference NOAA Atlas 2 for 100-year Event Coefficients for the Spokane County Area

2. Hydrograph Volume (V_t) is derived through the use of the following equations:

When $t \leq T_c$ use $T_c = 1.34 \times Q \times t$

and

When $t > T_c$, use $T_c = (Q \times t) + (0.34 \times Q \times T_c)$

3. Outflow Volume (V_{out}) was derived by multiplying the outflow rate by the event duration in seconds

4. $Q_{out} =$ 0.00 Treatment Swale, overflow to go to existing City System

t	t	i	Q	V_t	Q_{out}	V_{out}	Required Storage
(min)	(sec)	in/hr	cfs	CF	cfs	CF	CF
5	300	4.38	0.387	155.77	0.0032	1	154.82
10	600	2.81	0.248	199.50	0.0032	2	197.61
15	900	2.16	0.191	230.58	0.0032	3	227.73
20	1200	1.80	0.159	255.52	0.0032	4	251.73
25	1500	1.56	0.138	276.71	0.0032	5	271.97
30	1800	1.38	0.122	295.31	0.0032	6	289.63
35	2100	1.25	0.111	312.02	0.0032	7	305.39
40	2400	1.15	0.102	327.26	0.0032	8	319.67
45	2700	1.07	0.094	341.31	0.0032	9	332.78
50	3000	1.00	0.088	354.39	0.0032	9	344.91
55	3300	0.94	0.083	366.66	0.0032	10	356.23
60	3600	0.89	0.078	378.23	0.0032	11	366.85
65	3900	0.84	0.074	389.19	0.0032	12	376.87
70	4200	0.80	0.071	399.63	0.0032	13	386.35
75	4500	0.77	0.068	409.59	0.0032	14	395.37

80	4800	0.74	0.065	419.14	0.0032	15	403.97
85	5100	0.71	0.063	428.31	0.0032	16	412.19
90	5400	0.68	0.060	437.14	0.0032	17	420.07
95	5700	0.66	0.058	445.66	0.0032	18	427.65
100	6000	0.64	0.056	453.89	0.0032	19	434.93
105	6300	0.62	0.055	461.87	0.0032	20	441.96
110	6600	0.60	0.053	469.60	0.0032	21	448.75
115	6900	0.58	0.052	477.11	0.0032	22	455.31
120	7200	0.57	0.050	484.42	0.0032	23	461.67
125	7500	0.55	0.049	491.53	0.0032	24	467.83
130	7800	0.54	0.048	498.46	0.0032	25	473.81
135	8100	0.53	0.047	505.22	0.0032	26	479.63
140	8400	0.51	0.045	511.82	0.0032	27	485.28
145	8700	0.50	0.044	518.28	0.0032	27	490.79
150	9000	0.49	0.043	524.59	0.0032	28	496.15
155	9300	0.48	0.043	530.76	0.0032	29	501.38
160	9600	0.47	0.042	536.81	0.0032	30	506.48
165	9900	0.46	0.041	542.74	0.0032	31	511.46
170	10200	0.45	0.040	548.56	0.0032	32	516.33
175	10500	0.45	0.039	554.26	0.0032	33	521.09
180	10800	0.44	0.039	559.87	0.0032	34	525.74
360	21600	0.28	0.025	717.06	0.0032	68	648.81
720	43200	0.18	0.016	918.38	0.0032	137	781.88
1440	86400	0.11	0.010	1176.22	0.0032	273	903.22

Basin: Basin A

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Design Summary

TREATMENT AREA

Required
Bottom Area: 156 SF

Average Ditch Depth: 1 feet*, or 12 inches*

Provided
Bottom Area: 182 SF Swale with 63' long and 1.5' wide ditch bottom

TREATMENT AREA IS ADEQUATE

STORAGE VOLUME

Required Swale
Storage Volume: 903 CF (Maximum required storage from bowstring method)

Provided Swale
Storage Volume: 182 CF

**721 CF OF OVERFLOW TO DRAIN TO HISTORICAL FLOW INTO
RIGHT-OF-WAY CATCH BASIN**

Basin: Basin B

Project: Olding Dream Garage

Location: Ponderay, Idaho

Date: June 2, 2026

Rational Method

*Reference 13.10 - Rational Method, Page 674, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

IMPERVIOUS AREA

	<i>SF</i>	<i>Acres</i>
Asphalt,Curb,Sidewalk,Approach (Roadway):	0	0.000
Private Driveway (on Lot):	5,426	0.125
Private Structure (on Lot):	0	0.000

BASIN AREA

	<i>SF</i>	<i>Acres</i>
Total Impervious Area (IA):	5,426	0.125
Total Permeable Area (PA):	1,103	0.025
Total Basin Area:	6,529	0.150

RUNOFF COEFFICIENT (C)

Impervious Area (C_{IA}) =	0.90
Permeable Area (C_{PA}) =	0.40

*Reference Table 13.5, Page 677, Hydrology and Hydraulic Systems, 2nd Addition - Gupta

COMPOSITE RUNOFF COEFFICIENT (C)

	<i>unitless</i>
$C = IA (C_{IA}) + PA (C_{PA}) / \text{Total Basin Area} =$	0.82

RAINFALL INTENSITY (i)

	<i>in/hr</i>
100-year event at T_c =	4.38

*Reference Spokane County method for deriving T_c

TIME OF CONCENTRATION (T_C)

<i>minutes</i>			
T_C	=	5.0	(5 minute minimum)
	$T_C = L/K\sqrt{S}$:	0.7	(Ch 5 - SRSM)
	L:	86.84	ft
	K:	1200	See Table
	S:	0.012	ft/ft

*Reference NRCS Equation 13.09, for first 300' of flow, and NRCS Equation 13.10, for remaining flow length in drainage, Page 681, Hydrology and Hydraulic Systems, 2nd Addition - Gupta, and equations
13.09: $T_t = 0.42(nL)/P_2^{0.8}S^{0.4}$ and 13.10: $T_t = L/V$

STORMWATER PEAK FLOW RATE (Q)

<i>cfs</i>		
$Q = C i A$	=	0.54