

**The Reserve at Crimson Ridge - Phase 2 & 3**  
Ogden Valley, Weber County, Utah

PIPE	CONTRIBUTING BASINS	CONTRIBUTING Area (AC)	REQUIRED 10 YR FLOW (cfs)	PIPE SIZE (in)	SLOPE (ft/ft)	Min. Pipe Slope %
1	2A	1.93	5.51	18	0.003649	0.365
2	2B	0.72	2.04	12	0.031722	3.172
3	3A	1.34	1.63	15	0.00965	0.965
4	1 (Ex.), 3A	5.93	5.58	18	0.003649	0.365
5	3B	1.29	1.62	12	0.031722	3.172
6	3C	1.88	2.59	15	0.00965	0.965
7	3B, 3C	3.18	4.21	18	0.003649	0.365

**The Reserve at Crimson Ridge**  
1250 North 5200 East  
Ogden Valley, Weber County, Utah  
(Upper Pond - Phase 3B-3C 11 detainable homes)

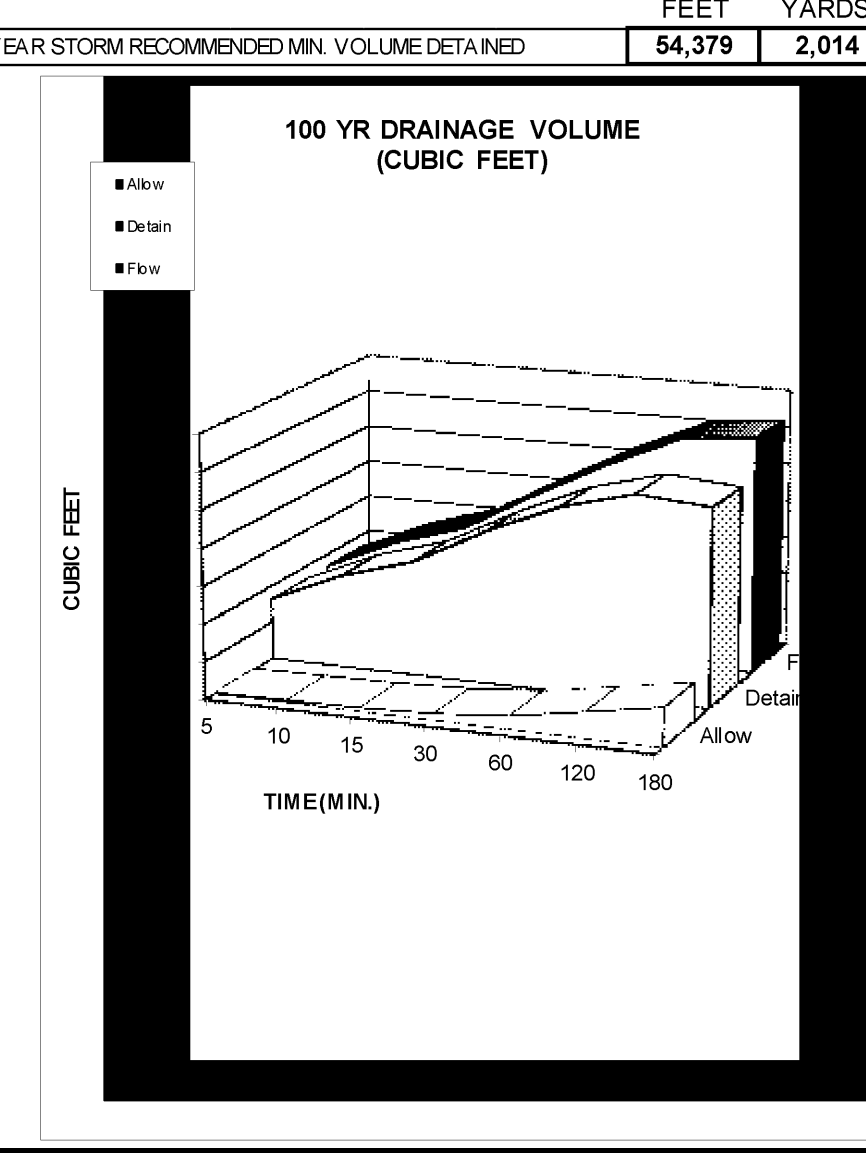
Areas	Sq. Ft.	Acres	C
Asphalt Hard Surface	200,043	4.5923	0.90
Gravel Areas	0	0.0000	0.50
Landscape	49,433	1.1348	0.10
Detention Ponds	58,697	1.3475	0.10
Building & Concrete	143,000	3.2828	0.90
<b>Total/Weighted</b>	<b>451,173</b>	<b>10.3575</b>	<b>0.71</b>

Allow Release Rate (cfs/acre)	Q Allowable (cfs)
0.092 cfs/acre	0.96
Undetained Release	0.00 cfs
<b>Total Allowed Release</b>	<b>0.96 cfs</b>

Runoff Vol (cf)	*Inch / Hr	Total Vol (cf)	Detain Vol (cf)
287	7.57	16,660	16,373
574	5.76	25,353	24,779
861	4.76	31,427	30,566
1,723	3.21	42,387	40,664
3,445	1.99	52,554	49,109
6,891	1.16	61,269	54,379
10,336	0.797	63,144	52,808
20,672	0.452	71,622	50,950
41,344	0.286	90,636	49,292
82,687	0.166	105,214	22,528

**Orifice Calculation**

H = 4 Maximum water height (ft)  
 Q = 0.48 Flowrate out of orifice (cfs)  
 Cc = 0.62 Coefficient of Contraction  
 Cv = 0.98 Coefficient of Velocity  
 Area = 0.049 Orifice Area (ft<sup>2</sup>)  
 II = 3.14  
 g = 32.17 Gravitational Constant  
 d = 3.00 Orifice Diameter (in)  
 d = 3 Orifice



**The Reserve at Crimson Ridge**  
1250 North 5200 East  
Ogden Valley, Weber County, Utah  
(Phase 2 and Phase 3A 21 LOTS)

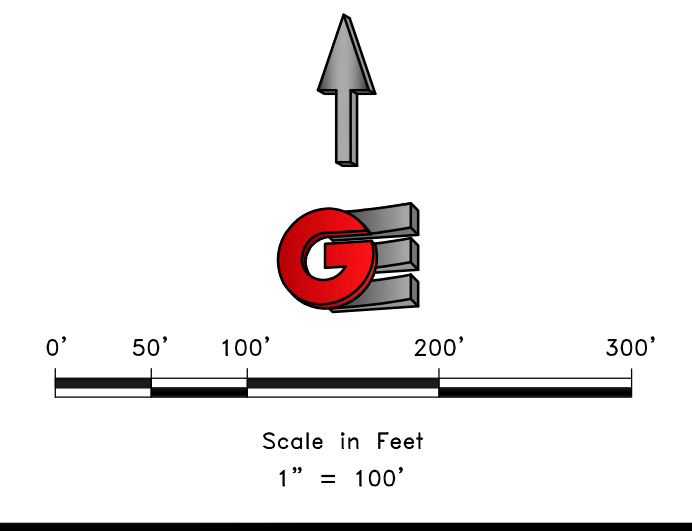
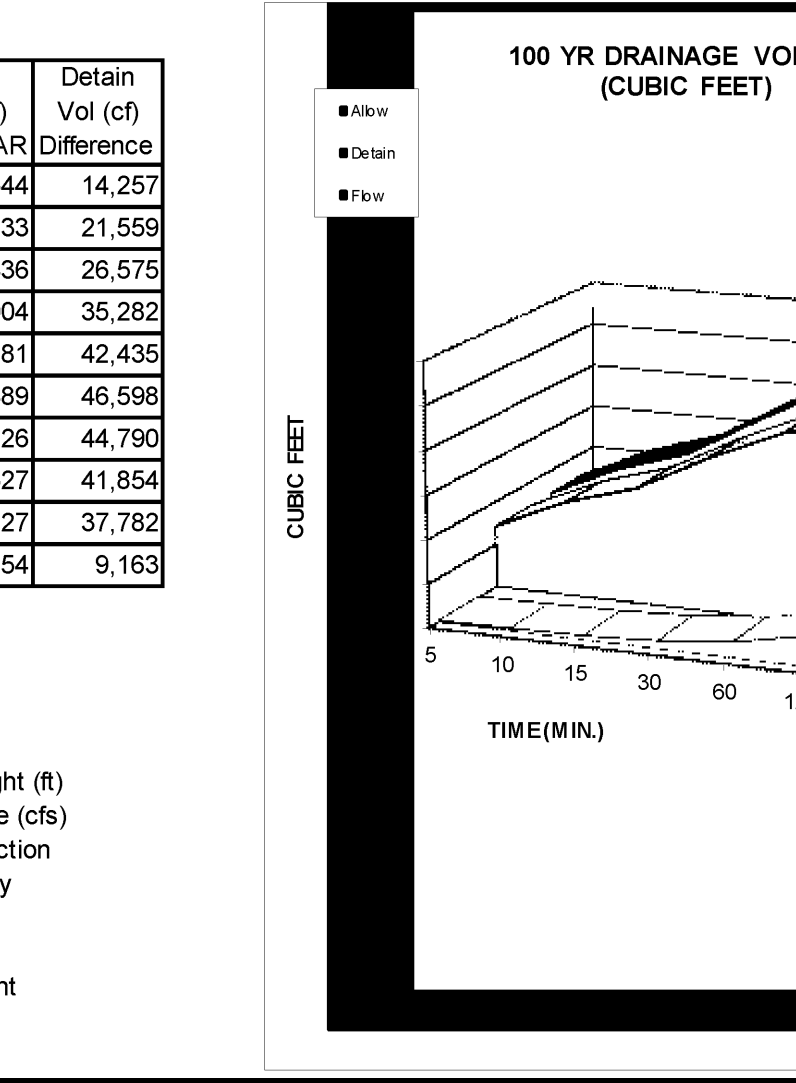
Areas	Sq. Ft.	Acres	C
Asphalt Hard Surface	108,484	2.4904	0.90
Gravel Areas	0	0.0000	0.50
Landscape	104,577	2.4007	0.10
Detention Ponds	68,576	1.5743	0.10
Building & Concrete	182,249	4.1838	0.90
<b>Total/Weighted</b>	<b>463,886</b>	<b>10.6493</b>	<b>0.60</b>

Allow Release Rate (cfs/acre)	Q Allowable (cfs)
0.090 cfs/acre	0.96
Undetained Release	0.00 cfs
<b>Total Allowed Release</b>	<b>0.96 cfs</b>

Runoff Vol (cf)	*Inch / Hr	Total Vol (cf)	Detain Vol (cf)
287	7.57	14,544	14,257
574	5.76	22,133	21,559
861	4.76	27,436	26,575
1,723	3.21	37,004	35,282
3,445	1.99	45,881	42,435
6,891	1.16	53,489	46,598
10,336	0.797	55,126	44,790
20,673	0.452	62,527	41,854
41,346	0.286	79,127	37,782
82,691	0.166	91,854	9,163

**Orifice Calculation**

H = 4 Maximum water height (ft)  
 Q = 0.48 Flowrate out of orifice (cfs)  
 Cc = 0.62 Coefficient of Contraction  
 Cv = 0.98 Coefficient of Velocity  
 Area = 0.049 Orifice Area (ft<sup>2</sup>)  
 II = 3.14  
 g = 32.17 Gravitational Constant  
 d = 3.00 Orifice Diameter (in)  
 d = 3 Orifice



SCALE: 1" = 100'

DATE: 7/13/2020

DESIGN: BBD/WJS

DRAWN: BBD/WJS

CHECKED: TAN

DWG: R-0258 - BAH INVESTMENT, CRIMSON RIDGE, DESIGN, CIVIL, CRIMSON RIDGE - CDS.DWG

REVISIONS	DATE	DESCRIPTION

PROFESSIONAL STRUCTURAL ENGINEER  
 11/13/2020  
 No. 4859845  
 TYLER M. NIELSON  
 LICENSED  
 STATE OF UTAH

**DRAINAGE CALCS**

**THE RESERVE AT CRIMSON RIDGE CLUSTER SUBD. PH 2+3**

**1250 NORTH 5200 EAST**

**OGDEN VALLEY, WEBER COUNTY, UTAH**

**GARDNER ENGINEERING**

CIVIL • LAND PLANNING  
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C5