

**Storm Runoff Calculations**

**Allen Horseplay Cluster Subdivision - Basin #1**

8/13/2012  
The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Warren, UT area taken from data compiled by NOAA Atlas 14, using a 100 year storm.

Runoff storm water has been calculated for two different sets of conditions, one being the existing undeveloped land and the other with land fully improved. The difference between the two quantities will be detained in a holding pond. All water that runs off and over the property at present will be diverted into the holding pond and released at a reduced rate into the existing drainage system.

The calculations are as follows:  
1. Runoff from the undeveloped existing land.  
Runoff Coefficient C = 0.2  
Rainfall Intensity i = 4.91 IN./HR.  
Runoff Quantity Q = CIA  
Acreage A = 3.67 ACRES  
Q(out) = C<sup>2</sup>iA = 0.73 CFS  
(Calc. Release of 0.2 cfs/acre)

2. Runoff from developed land  
Runoff Coefficients  
Paved Area 19,288 C = 0.9  
Landscaped Area 142,421 C = 0.2  
Roof 35,000 C = 0.8  
Weighted Runoff Coefficient C = 0.38

Rainfall Intensity i = varies with time  
Runoff Quantity Q = CIA

3. Detention Basin  
Volume in Q \* t  
Volume out 0.73 \* t

The capacity of the detention basin is calculated as the maximum difference between the volume flowing in and the volume flowing out.

The outflow from the detention basin is limited to outflow if undeveloped.  
Use 0.73 cfs for Q outflow

The required volume of the detention basin is 5,787 cubic feet

USE A 4.0 INCH DIAMETER ORIFICE AT OUTLET

**Storm Runoff Calculations**

**Allen Horseplay Cluster Subdivision - Basin #2**

8/13/2012  
The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Warren, UT area taken from data compiled by NOAA Atlas 14, using a 100 year storm.

Runoff storm water has been calculated for two different sets of conditions, one being the existing undeveloped land and the other with land fully improved. The difference between the two quantities will be detained in a holding pond. All water that runs off and over the property at present will be diverted into the holding pond and released at a reduced rate into the existing drainage system.

The calculations are as follows:  
1. Runoff from the undeveloped existing land.  
Runoff Coefficient C = 0.2  
Rainfall Intensity i = 4.91 IN./HR.  
Runoff Quantity Q = CIA  
Acreage A = 2.80 ACRES  
Q(out) = C<sup>2</sup>iA = 0.56 CFS  
(Calc. Release of 0.2 cfs/acre)

2. Runoff from developed land  
Runoff Coefficients  
Paved Area 27,379 C = 0.9  
Landscaped Area 147,830 C = 0.2  
Roof 22,900 C = 0.8  
Weighted Runoff Coefficient C = 0.37

Rainfall Intensity i = varies with time  
Runoff Quantity Q = CIA

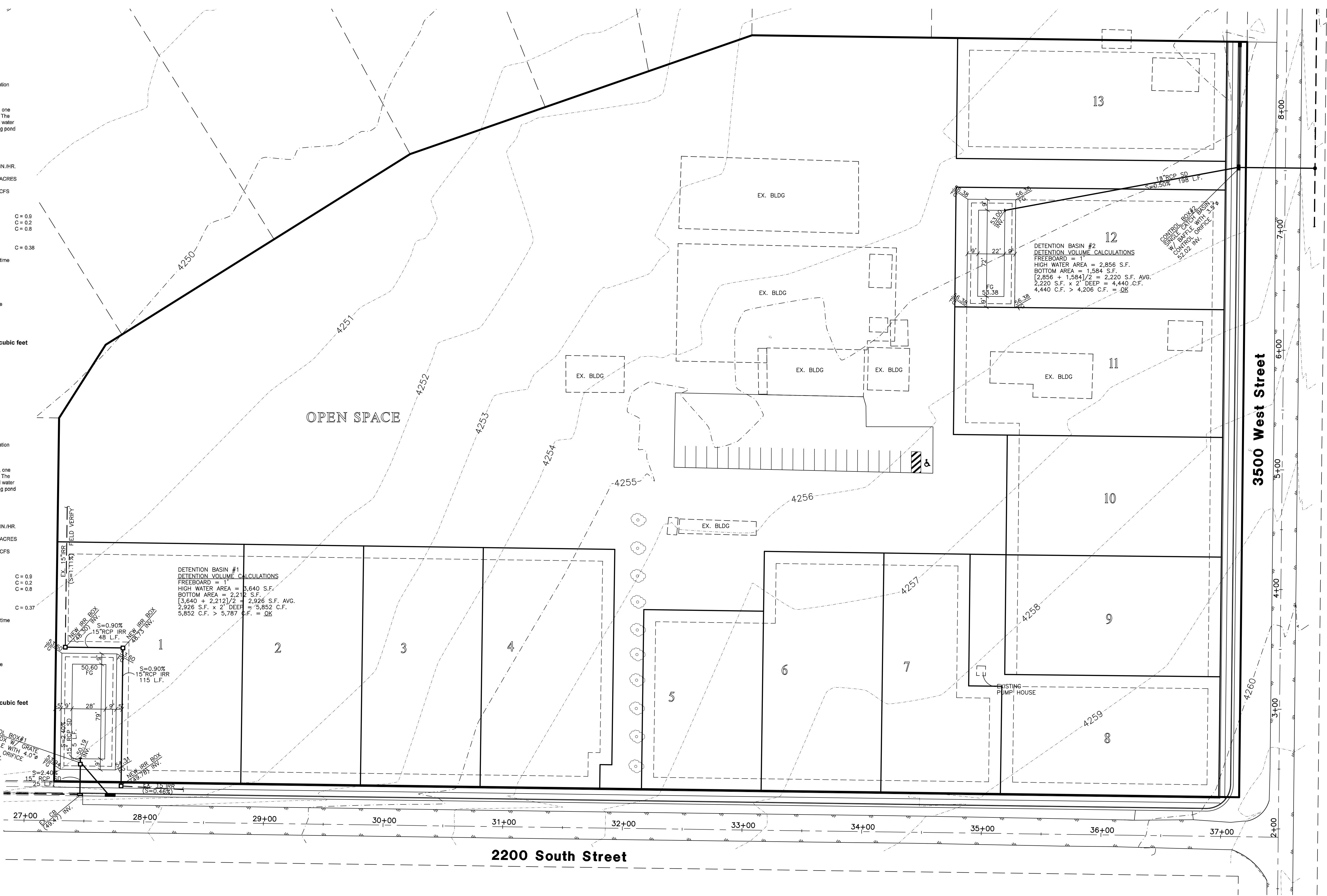
3. Detention Basin  
Volume in Q \* t  
Volume out 0.56 \* t

The capacity of the detention basin is calculated as the maximum difference between the volume flowing in and the volume flowing out.

The outflow from the detention basin is limited to outflow if undeveloped.  
Use 0.56 cfs for Q outflow

The required volume of the detention basin is 4,206 cubic feet

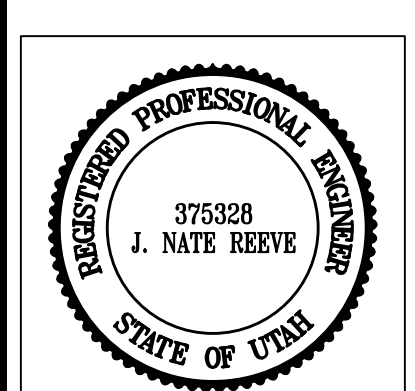
USE A 3.5 INCH DIAMETER ORIFICE AT OUTLET



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REVISIONS	DESCRIPTION
DATE	

**Allen Horseplay Cluster Subdivision**  
WEBER COUNTY, UTAH  
**Detention Basins**



**Project Info.**  
Engineer: J. NATE REEVE, P.E.  
Drafted: R. HANSEN  
Begin Date: AUGUST 10, 2012  
Name: ALLEN HORSEPLAY CLUSTER SUBDIVISION  
Number: 5125-02