

DETECTION VOLUME CALCULATIONS
 HIGH WATER AREA (4238.05) = 5,559 S.F.
 BOTTOM AREA (4234.90) = 1,578 S.F.
 $(5,559 + 1,578) / 2 = 3,569$ S.F. AVG.
 $3,569$ S.F. x $3.15'$ DEEP = $11,241$ C.F.
 $11,241$ C.F. > $11,040$ C.F. (REQ'D.) = **OK**

Storm Runoff Calculations
Blue Acres Subdivision - Phase 4
 8/19/2015 skt

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Weber County, 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:

- Runoff from the undeveloped existing land.

| | | |
|--------------------|-----|--------------|
| Runoff Coefficient | C = | 0.200 |
| Rainfall Intensity | i = | 2.81 IN./HR. |
| Runoff Quantity | Q = | 0.1 per acre |
| Acreage | A = | 6.40 ACRES |

$Q(out) = A \cdot 0.1 = 0.64$ CFS
- Runoff from developed land

| | | | |
|-----------------------------|---------|-----|------|
| Runoff Coefficients | | | |
| Paved Area | 30,671 | C = | 0.9 |
| Landscaped Area | 222,225 | C = | 0.2 |
| Roof | 25,931 | C = | 0.8 |
| Weighted Runoff Coefficient | | C = | 0.33 |

Rainfall Intensity $i =$ varies with time
 Runoff Quantity $Q = CIA$
- Detention Basin

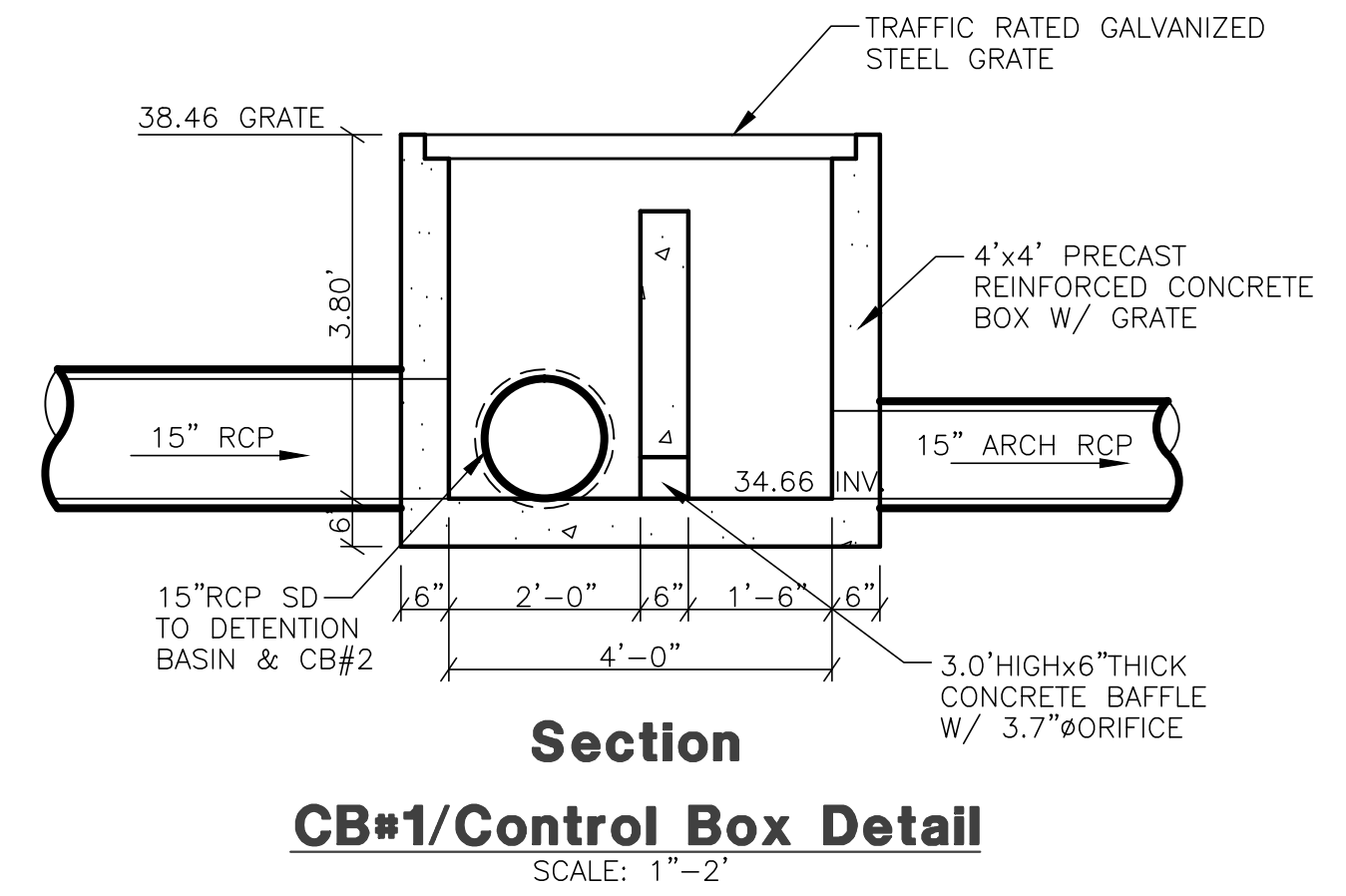
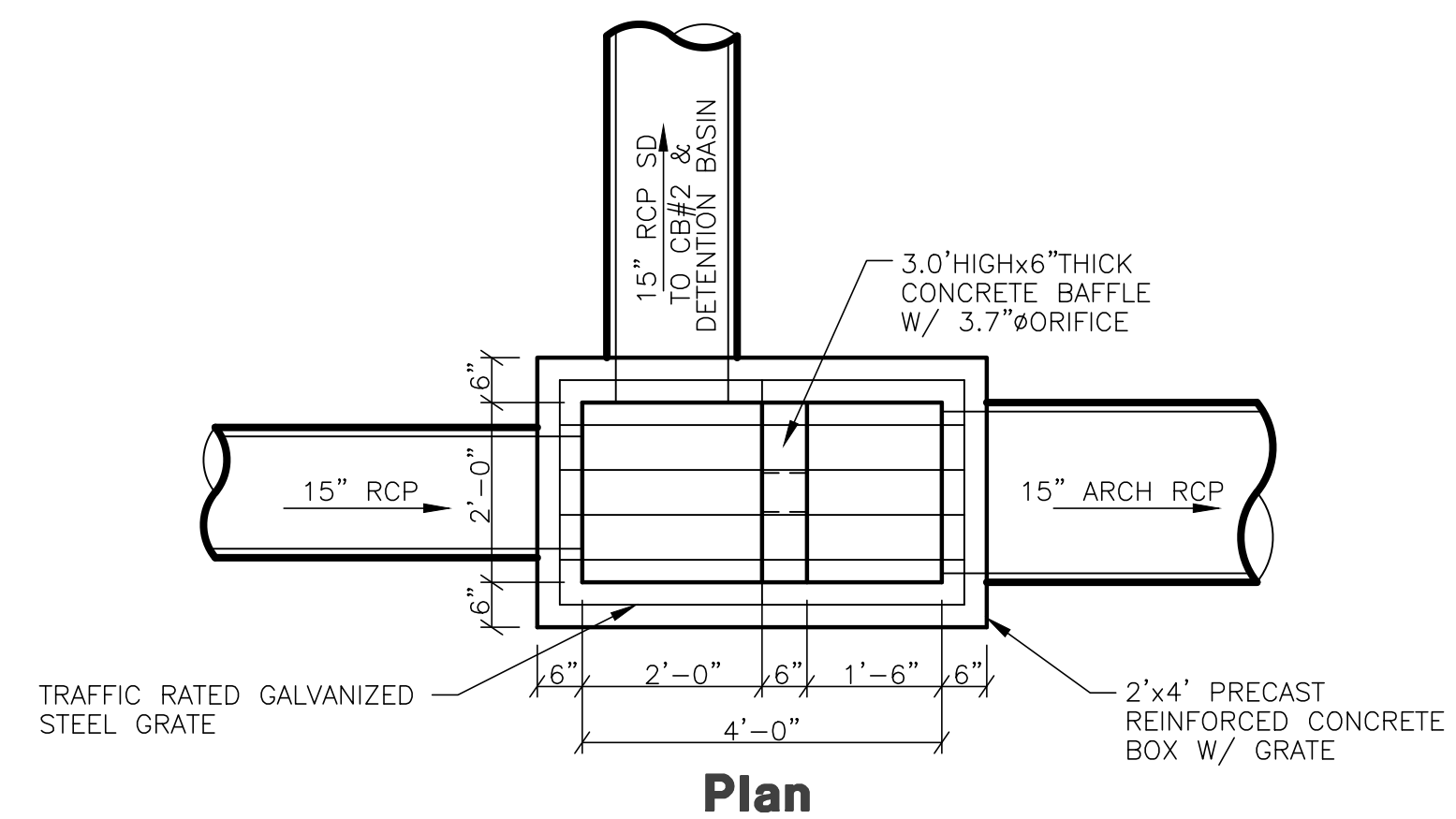
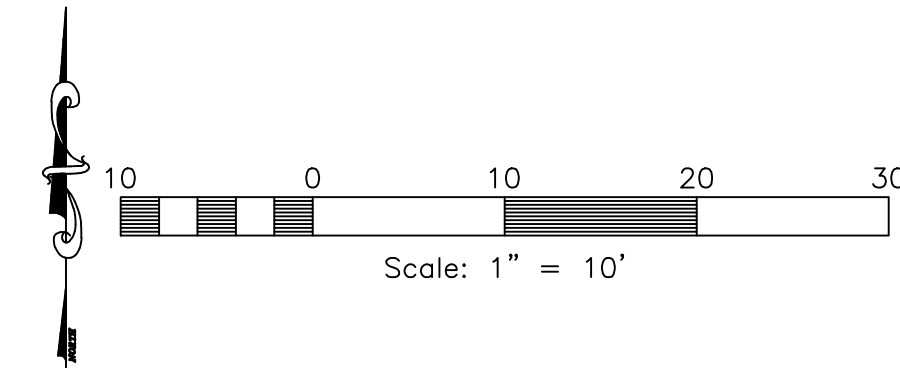
| | |
|------------|----------|
| Volume in | Q * t |
| Volume out | 0.64 * t |

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 0.64 cfs for Q outflow

The required volume of the detention basin is 11,040 cubic feet

USE A 3.7 INCH DIAMETER ORIFICE AT OUTLET



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REVISIONS

| DATE | DESCRIPTION |
|----------|--------------------|
| 2-11-15 | RH Client Changes |
| 3-17-15 | TP County Comments |
| 3-27-15 | TP County Comments |
| 6-25-15 | RH County Comments |
| 7-22-15 | RH County Comments |
| 9-17-15 | RH County Comments |
| 11-12-15 | RH County Comments |

Blue Acres Subdivision Phase-4
 WEBER COUNTY, UTAH
Detention Basin

Revised: 11-12-15

Project Info.
 Engineer: J. NATE REEVE, P.E.
 Drafter: R. HANSEN
 Begin Date: JUNE 10, 2014
 Name: BLUE ACRES SUBDIVISION PHASE-4
 Number: 5036-01

Blue Stakes Location Center
Call: Toll Free 1-800-662-4111
 Two Working Days Before You Dig