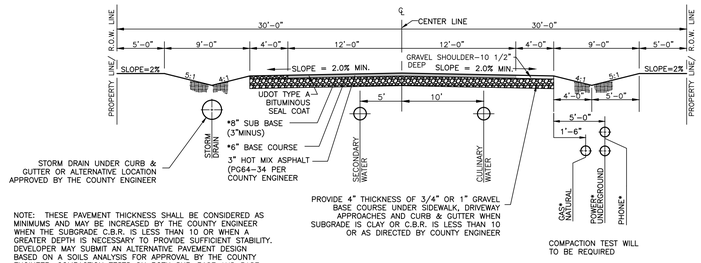
Reeve & Associates, Inc. - Solutions You Can Build On

VICINITY MAP
NOT TO SCALE



NOTE: THESE PAVEMENT THICKNESS SHALL BE CONSIDERED AS MINIMUMS AND MAY BE INCREASED BY THE COUNTY ENGINEER WHEN THE SUBGRADE C.B.R. IS LESS THAN 10 OR WHEN A GREATER DEPTH IS NECESSARY TO PROVIDE SUFFICIENT STABILITY. DEVELOPER MAY SUBMIT AN ALTERNATIVE PAVEMENT DESIGN BASED ON A SOILS ANALYSIS FOR APPROVAL BY THE COUNTY ENGINEER. COMPACTION TESTS ON BOTH SUB-BASE AND BASE COURSES WILL BE REQUIRED.

NOTE: ALL EXCAVATIONS, COMPACTIONS AND SECTIONS SHALL FOLLOW THE RECOMMENDATION OF THE GEOTECHNICAL STUDY

STREET SECTION (60' R.O.W.)
SCALE: NONE

*VERIFY LOCATION WITH PHONE, GAS AND POWER COMPANIES.

Storm Runoff Calculations
Fenster Farm Phase 2 & Remainder
11/12/2018 KHH

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Weber County area taken from the NOAA Atlas 14 database, using a 100 year storm for detention. Storm water runoff has been calculated for a fully developed site and limited to a release rate of 0.2 cfs/acre.

The calculations are as follows:

Drainage Area:

Total Area =	27.30 acre or	1,189,114 ft^2	
Runoff Coefficients			
Paved Area		99,886	C = 0.9
Landscaped Area		1,021,728	C = 0.2
Roof		67,500	C = 0.9
Weighted Runoff Coefficient			C = 0.30

Time of Concentration:
Using Storm Water Run-Off "Overland Flow Time"
To from Project Site = 30 minutes

Volume of Run-off for 100-year Storm Event:
C = 0.30
I = See Below in/hr
A = 1189114.27 ft^2
Q(out) = 2.73 ft^3/s (0.1 cfs allowed per acre)

time (min)	time (sec)	I (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	6.48	53.25	15975	819	15156
10	600	4.93	40.51	24307	1638	22669
15	900	4.07	33.44	30100	2457	27644
30	1800	2.74	22.52	40528	4914	35615
60	3600	1.70	13.97	50291	9827	40463
120	7200	0.92	7.58	54551	19655	34896
180	10800	0.63	5.19	56000	29482	26518
360	21600	0.35	2.88	62124	58964	3159
720	43200	0.21	1.74	75259	117929	-42670
1440	86400	0.12	0.95	82358	235857	-153499

Total Required Detention Volume **40,463 ft^3**

Orifice Sizing
Given: Q = 2.73 cfs
2g = 64.4 ft/s^2
H = 3.50 ft
Cd = 0.62 for circular openings
R = SQRT((2g/d)0.7*(64.4*H)*0.5))
R = 0.31 feet
3.87 inches
D = 7.33 inches
A = 42.25 inches *2 0.2934 ft *2

SUMMARY:
The required storage volume is **40,463 cubic feet**
Orifice size is **7.33 inches**

LEGEND

- = SECTION CORNER
- = BOUNDARY LINE
- = LOT LINE
- = ADJOINING PROPERTY
- = 10' PUBLIC UTILITY EASEMENT
- = SECTION TIE LINE
- W = PROPOSED CULINARY WATER LINE (SIZE VARIES)
- EX.W = EXISTING CULINARY WATER LINE
- SD = PROPOSED STORM DRAIN (SIZE VARIES)
- EX.SD = EXISTING STORM DRAIN
- SW = PROPOSED IRRIGATION LINE
- EX.SW = EXISTING IRRIGATION LINE
- = EXISTING FENCE LINE
- = SWALE
- PIT# = EXPLORATION TEST PIT
- EX.FH = EX. FIRE HYDRANT
- FH = FIRE HYDRANT
- = PLUG W/ 2" BLOW-OFF
- = PROPOSED FIRE HYDRANT
- = EXISTING FIRE HYDRANT
- = EXISTING GATE VALVE
- = EXISTING STORM DRAIN MANHOLE
- = PROPOSED STORM DRAIN MANHOLE
- = EXISTING 3'X3' CATCH BASIN
- = PROPOSED 3'X3' CATCH BASIN
- = FEMA FLOOD ZONE
- = PROPOSED PAVEMENT

LINE TABLE

LINE	BEARING	DISTANCE
L1	S81°06'05"W	59.93'
L2	S04°50'42"E	30.08'
L3	S04°50'42"E	30.08'

CURVE TABLE

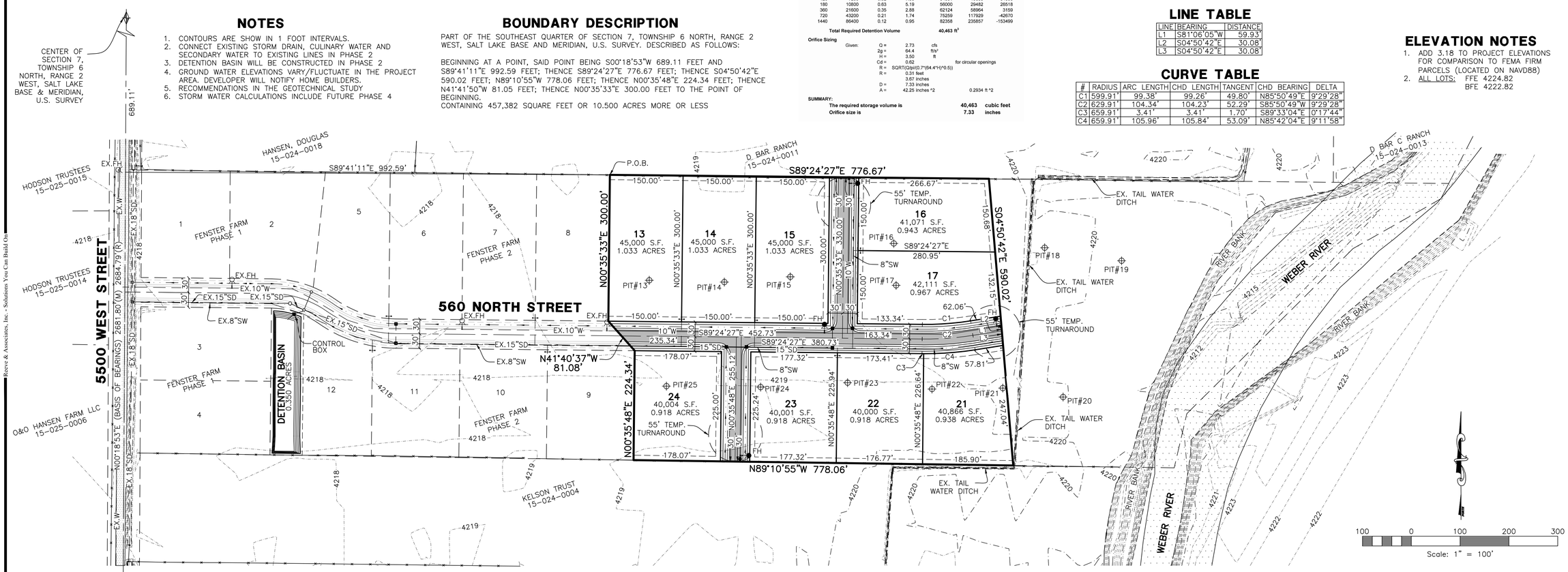
#	RADIUS	ARC LENGTH	CHD LENGTH	TANGENT	CHD BEARING	DELTA
C1	599.91'	99.38'	99.26'	49.80'	N85°50'49"E	9°29'28"
C2	629.91'	104.34'	104.23'	52.29'	S85°50'49"W	9°29'28"
C3	659.91'	3.41'	3.41'	1.70'	S89°33'04"E	0°17'44"
C4	659.91'	105.96'	105.84'	53.09'	N85°42'04"E	9°11'58"

ELEVATION NOTES
1. ADD 3.18 TO PROJECT ELEVATIONS FOR COMPARISON TO FEMA FIRM PARCELS (LOCATED ON NAVD88)
2. ALL LOTS: FFE 4224.82
   BFE 4222.82

NOTES
1. CONTOURS ARE SHOW IN 1 FOOT INTERVALS.
2. CONNECT EXISTING STORM DRAIN, CULINARY WATER AND SECONDARY WATER TO EXISTING LINES IN PHASE 2
3. DETENTION BASIN WILL BE CONSTRUCTED IN PHASE 2
4. GROUND WATER ELEVATIONS VARY/FLUCTUATE IN THE PROJECT AREA. DEVELOPER WILL NOTIFY HOME BUILDERS.
5. RECOMMENDATIONS IN THE GEOTECHNICAL STUDY
6. STORM WATER CALCULATIONS INCLUDE FUTURE PHASE 4

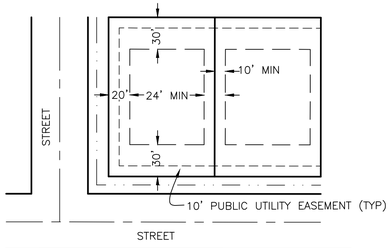
BOUNDARY DESCRIPTION
PART OF THE SOUTHEAST QUARTER OF SECTION 7, TOWNSHIP 6 NORTH, RANGE 2 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY. DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, SAID POINT BEING S00°18'53"W 689.11 FEET AND S89°41'11"E 992.59 FEET; THENCE S89°24'27"E 776.67 FEET; THENCE S04°50'42"E 590.02 FEET; N89°10'55"W 778.06 FEET; THENCE N00°35'48"E 224.34 FEET; THENCE N41°41'50"W 81.05 FEET; THENCE N00°35'33"E 300.00 FEET TO THE POINT OF BEGINNING.
CONTAINING 457,382 SQUARE FEET OR 10.500 ACRES MORE OR LESS



1992.69'

SOUTH QUARTER CORNER OF SECTION 7, TOWNSHIP 6 NORTH, RANGE 2 WEST, SALT LAKE BASE & MERIDIAN, U.S. SURVEY



TYPICAL LOT UTILITY & SETBACK EASEMENT
SCALE: NONE

EXPLORATION TEST PIT INFO.

EXPLORATION PIT #13 (UTM ZONE 12 NAD 83 (12T) 0407102E 4569238N)
0-10" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
10-64" SANDY CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)= 240 MPI
64-100" SANDY CLAY LOAM, MASSIVE STRUCTURE, (E)(H)

EXPLORATION PIT #14 (UTM ZONE 12 NAD 83 (12T) 0407149 E 4569236 N)
0-8" FINE SANDY LOAM, GRANULAR STRUCTURE, 0.5 GPD/SQ FT
8-24" FINE SANDY CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)= 60 MPI
24-48" FINE SANDY CLAY LOAM, MASSIVE STRUCTURE, (E)(H) = 60 MPI
48-86" LOAMY SAND, SINGLE GRAIN STRUCTURE, 09 (E)
GROUND WATER OBSERVED AT 86 INCHES.

EXPLORATION PIT #15 (UTM ZONE 12 NAD 83 (12T) 0407190E 4569239N)
0-10" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
10-32" SANDY CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)= 48 MPI
32-96" SANDY CLAY LOAM, MASSIVE STRUCTURE, (E)(H)=106 MPI
GROUND WATER OBSERVED AT 96 INCHES.

EXPLORATION PIT #16 (UTM ZONE 12 NAD 83 (12T) 0407255 E 4569259 N)
0-10" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
10-32" SANDY CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)= 120 MPI
32-120" SILTY CLAY LOAM, MASSIVE STRUCTURE, (E)(H)=64 MPI
GROUND WATER OBSERVED AT 120 INCHES.

EXPLORATION PIT #17 (UTM ZONE 12 NAD 83 (12T) 0407256E 4569233N)
0-20" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
20-70" SANDY LOAM, WEAK MASSIVE STRUCTURE, 0.45 GPD/SQ FT
70-120" SANDY CLAY LOAM, MASSIVE STRUCTURE, (E)(H)
120-131" SANDY LOAM, WEAK MASSIVE STRUCTURE, 0.45 GPD/SQ FT
GROUND WATER OBSERVED AT 67 INCHES.

EXPLORATION PIT #18 (UTM ZONE 12 NAD 83 (12T) 0407349E 4569255N)
0-10" FINE SANDY LOAM, GRANULAR STRUCTURE, 0.5 GPD/SQ FT
10-36" CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)= 80 MPI
36-112" SILTY CLAY LOAM, MASSIVE STRUCTURE, (E)(H) =96 MPI

EXPLORATION PIT #19 (UTM ZONE 12 NAD 83 (12T) 0407397 E 4569253 N)
0-12" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
12-60" SANDY LOAM, WEAKLY MASSIVE STRUCTURE, 0.45 GPD/SQ FT
60-96" LOAMY SAND, SINGLE GRAIN STRUCTURE, 09 GPD/SQ FT (E)

EXPLORATION PIT #20 (UTM ZONE 12 NAD 83 (12T) 0407359 E 4569162 N)
0-10" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
10-72" SANDY LOAM, WEAKLY MASSIVE STRUCTURE, 0.45 GPD/SQ FT
72-110" LOAMY SAND, SINGLE GRAIN STRUCTURE, 0.9 GPD/SQ FT (E)

EXPLORATION PIT #21 (UTM ZONE 12 NAD 83 (12T) 0407322E 4569168N)
0-16" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
16-60" CLAY LOAM, GRANULAR STRUCTURE, 0.4 GPD/SQ FT (E)(H)=120 MPI
60-70" LOAMY SAND, WEAK MASSIVE STRUCTURE, 0.45 GPD/SQ FT
70-128" SANDY CLAY LOAM, GRANULAR STRUCTURE, 0.4 GPD/SQ FT (E)(H)
GROUND WATER OBSERVED AT 67 INCHES.

EXPLORATION PIT #22 (UTM ZONE 12 NAD 83 (12T) 0407274E 4569168N)
0-10" FINE SANDY LOAM, GRANULAR STRUCTURE, 0.5 GPD/SQ FT
10-50" SILTY CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)=120 MPI
50-122" SILTY CLAY LOAM, MASSIVE STRUCTURE, (E)(H)

EXPLORATION PIT #23 (UTM ZONE 12 NAD 83 (12T) 0407225 E 4569173 N)
0-12" LOAM, GRANULAR STRUCTURE, 0.5 GPD/SQ FT
12-20" CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)=60 MPI
20-54" SANDY CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)=53 MPI
54-108" LOAMY SAND, SINGLE GRAIN STRUCTURE, 0.65 GPD/SQ FT
GROUND WATER OBSERVED AT 108 INCHES.

EXPLORATION PIT #24 (UTM ZONE 12 NAD 83 (12T) 0407166E 4569171N)
0-15" FINE SANDY LOAM, GRANULAR STRUCTURE, 0.5 GPD/SQ FT
15-26" CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H)=120 MPI
26-49" SANDY CLAY LOAM, BLOCKY STRUCTURE, 0.4 GPD/SQ FT (E)(H) =68 MPI
49-105" FINE SANDY LOAM, BLOCKY STRUCTURE, 0.5 GPD/SQ FT
GROUND WATER OBSERVED AT 105 INCHES.

EXPLORATION PIT #25 (UTM ZONE 12 NAD 83 (12T) 0407112E 4569172N)
0-18" SANDY LOAM, GRANULAR STRUCTURE, 0.65 GPD/SQ FT
18-45" SANDY LOAM, MASSIVE STRUCTURE, 0.45 GPD/SQ FT=120 MPI
45-80" SANDY CLAY LOAM, MASSIVE STRUCTURE, (E)(H)
80-92" LOAMY SAND, WEAK MASSIVE STRUCTURE, 0.45 GPD/SQ FT
GROUND WATER OBSERVED AT 64 INCHES.

DEVELOPER:
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(801) 564-0909

Fenster Farm Subdivision Phase 3
Weber County, Utah

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GEOTECHNICAL ENGINEERS • STRUCTURAL ENGINEERS • LANDSCAPE ARCHITECTS

REVISIONS
DATE | DESCRIPTION

Fenster Farms Subdivision Phase 3
PART OF THE SE QUARTER OF SECTION 7, T.6N., R.2W., S.L.B & M., U.S. SURVEY
WEBER COUNTY, UTAH

Preliminary Design

Project Info.
Engineer: N. Reeve
Designer: C. Cave
Begin Date: 1-29-18
Name: FENSTER FARM PHASE 3
Number: 1714-26

Sheet 1 of 1 Sheets

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