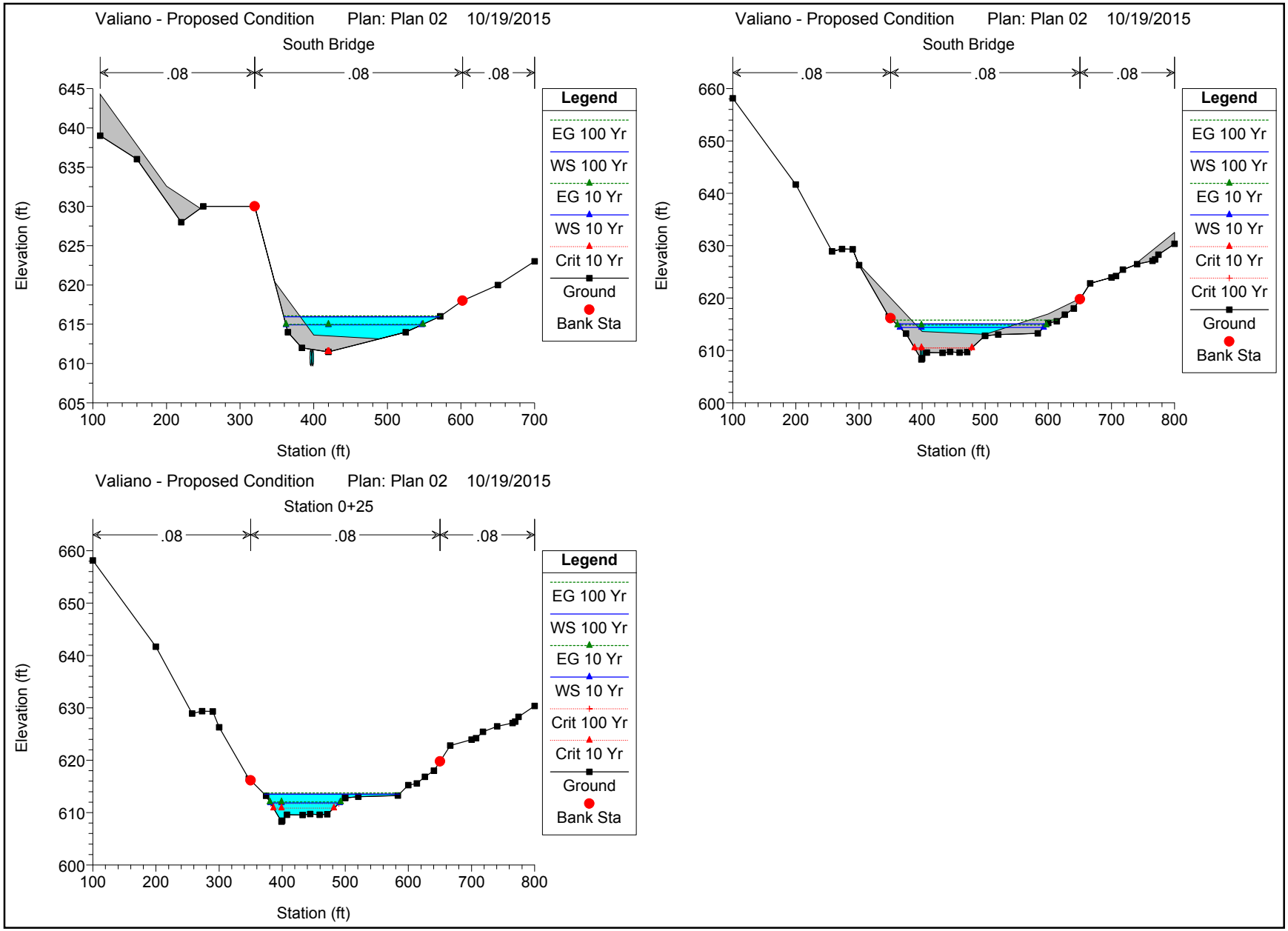
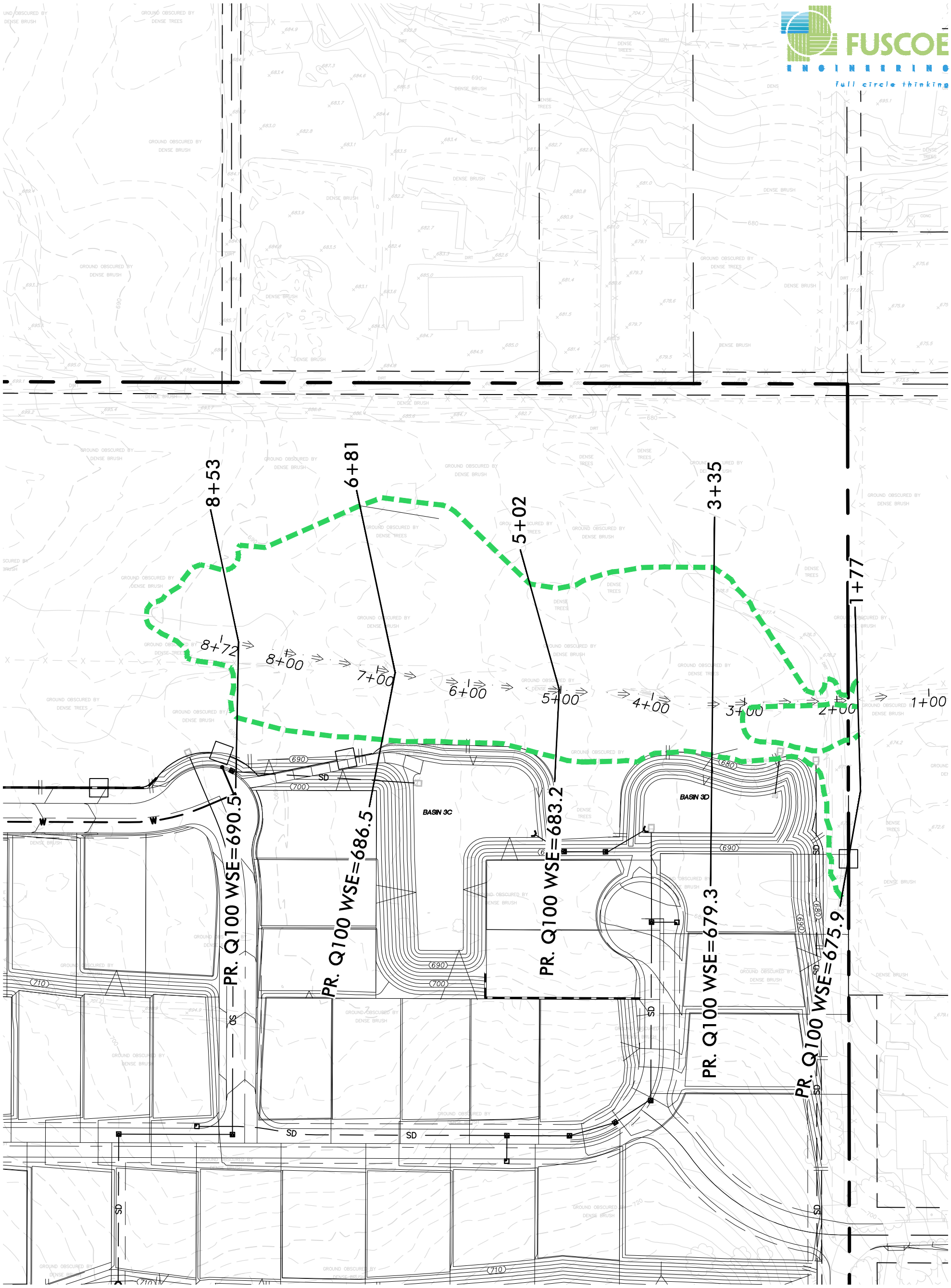

Valiano - Proposed Condition Plan: Plan 02 10/19/2015
South Bridge
.08
.08
.08
Elevation (ft)
Station (ft)
Legend
EG 100 Yr
WS 100 Yr
EG 10 Yr
WS 10 Yr
Crit 10 Yr
Crit 100 Yr
Ground
Bank Sta
Valiano - Proposed Condition Plan: Plan 02 10/19/2015
Station 0+25



LEGEND

CHANNEL FLOW LINE

100 YEAR STORM INUNDATION LIMITS (PROPOSED CHANNEL, N = 0.08)

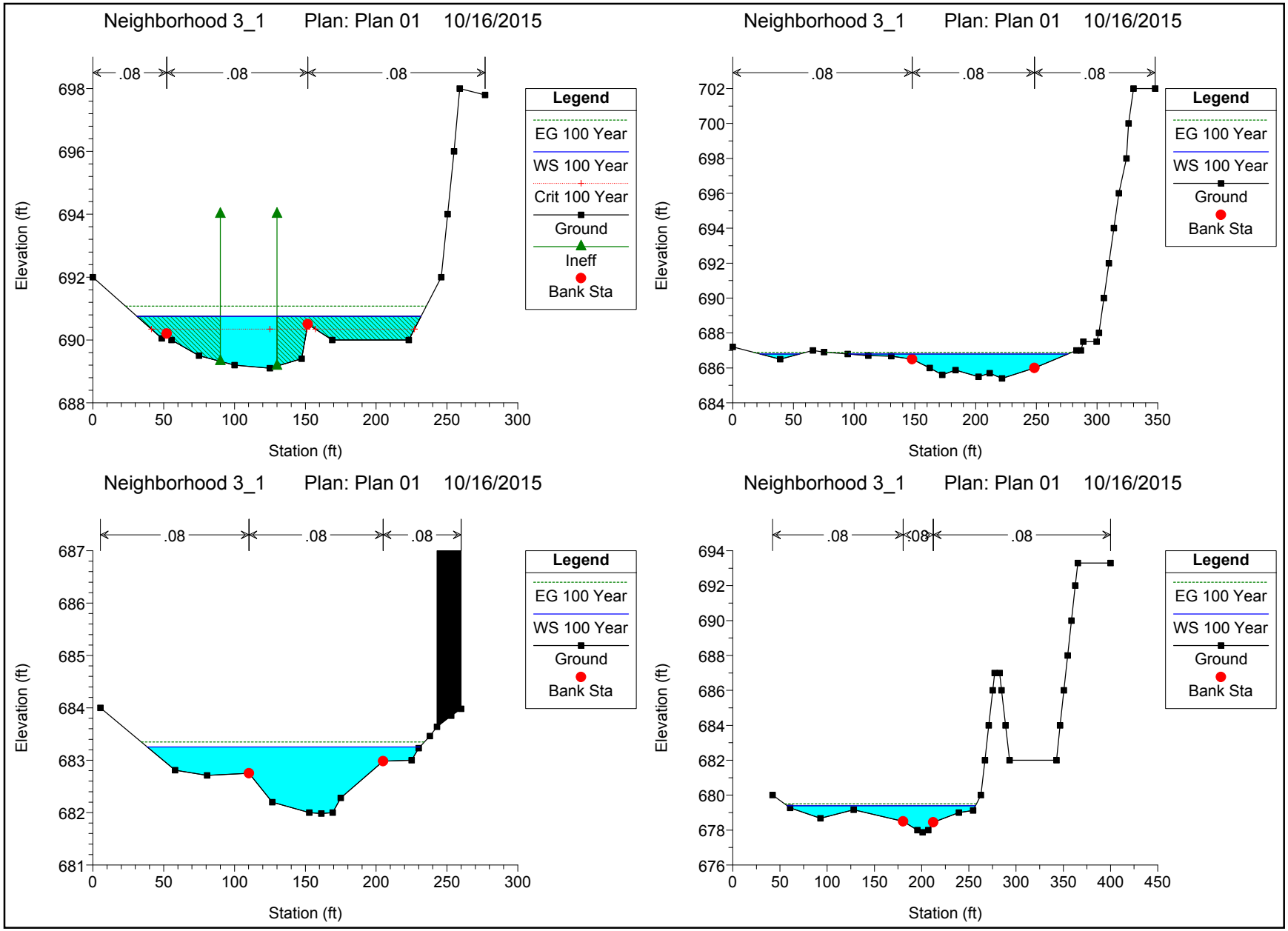
VALIANO NEIGHBORHOOD 3
100-YEAR STORM INUNDATION EXHIBIT
SCALE: 1"=100'

0 50' 100'

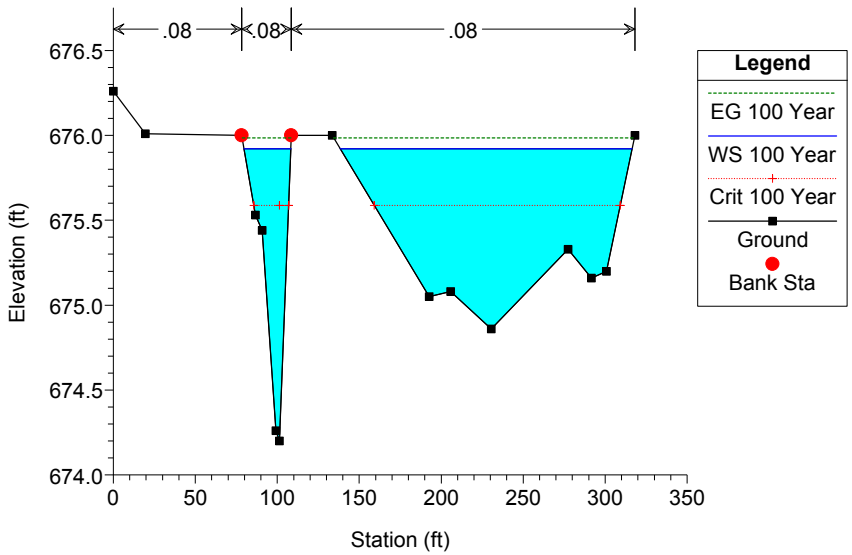
M:\PROJECTS\02690 INTEGRAL COMMUNITIES\007-02 EDEN HILLS ENGINEERING\ENG\STORMWATER\H-H\HEC-RAS\FLOODPLAIN ANALYSIS.DWG (10-19-15 2:42:28PM) Plotted by: kkozlik

HEC-RAS Plan: Plan 01 River: Neighborhood 3 C Reach: Lower N3 Profile: 100 Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Lower N3	853	100 Year	287.00	689.10	690.75	690.34	691.07	0.032626	4.55	63.12	200.58	0.64
Lower N3	681	100 Year	287.00	685.40	686.80		686.89	0.018284	2.56	125.61	213.03	0.44
Lower N3	502	100 Year	287.00	681.98	683.25		683.35	0.021493	2.61	126.12	192.51	0.47
Lower N3	335	100 Year	287.00	677.88	679.39		679.50	0.024778	3.40	122.62	199.30	0.53
Lower N3	177	100 Year	287.00	674.20	675.92	675.59	675.99	0.020037	2.17	140.90	206.61	0.44

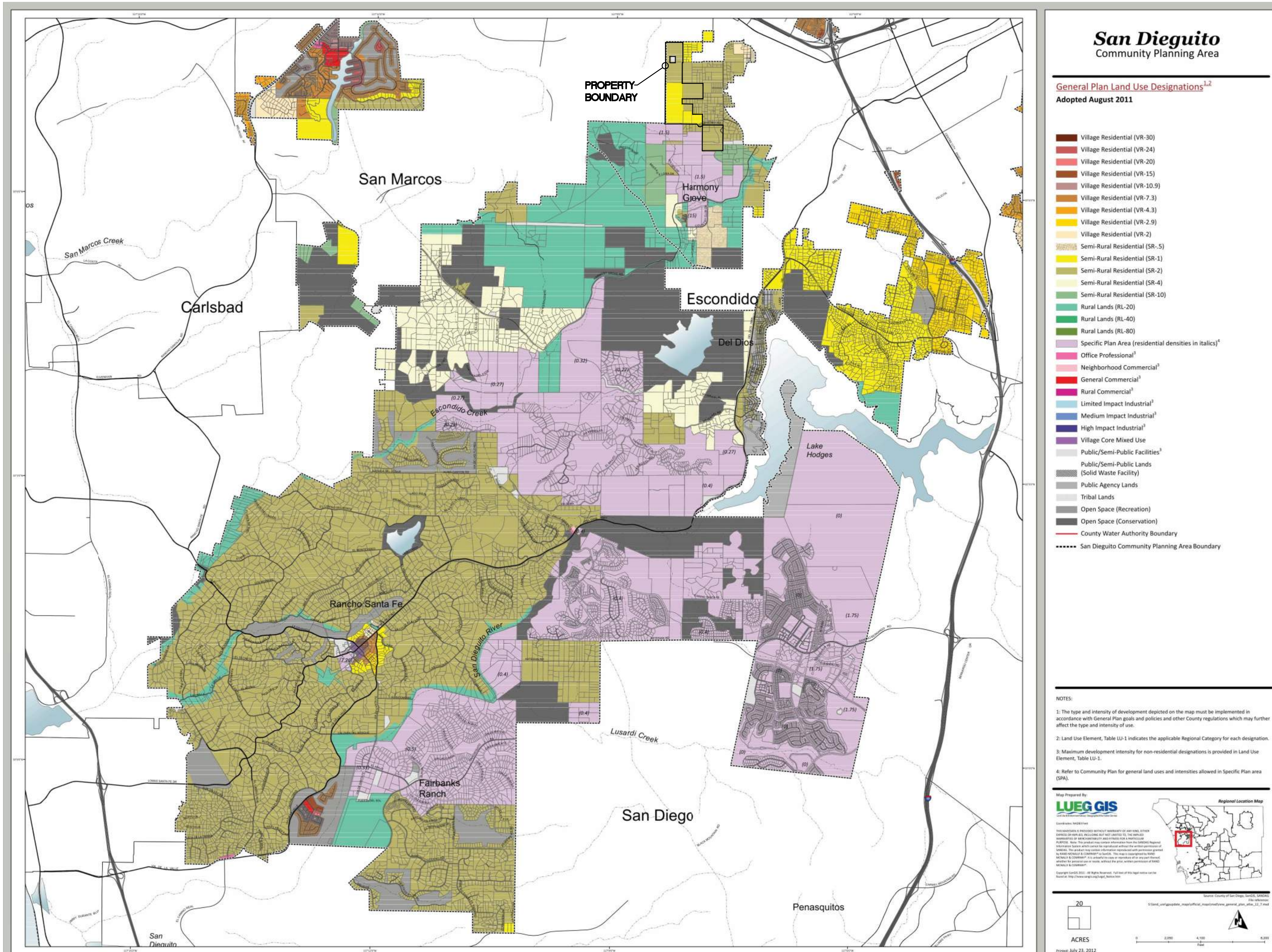

Neighborhood 3_1 Plan: Plan 01 10/16/2015
.08
.08
.08
Elevation (ft)
Station (ft)
Legend
EG 100 Year
WS 100 Year
Crit 100 Year
Ground
Ineff
Bank Sta
Neighborhood 3_1 Plan: Plan 01 10/16/2015
.08
.08
.08
Elevation (ft)
Station (ft)
Legend
EG 100 Year
WS 100 Year
Ground
Bank Sta
Neighborhood 3_1 Plan: Plan 01 10/16/2015
.08
.08
.08
Elevation (ft)
Station (ft)
Legend
EG 100 Year
WS 100 Year
Ground
Bank Sta
Neighborhood 3_1 Plan: Plan 01 10/16/2015
.08
.08
.08
Elevation (ft)
Station (ft)
Legend
EG 100 Year
WS 100 Year
Ground
Bank Sta

Neighborhood 3_1 Plan: Plan 01 10/16/2015



Appendix G

Hill Valley Road Analysis
San Dieguito Community Plan Area – C Value Reference
Hill Valley Road Basin Coding Summary
Hill Valley Road AES Output
Existing Conditions Culvert Analysis
Proposed Conditions Culvert Analysis
Hill Valley Road Crossing Exhibit


San Dieguito
Community Planning Area
General Plan Land Use Designations1,2
Adopted August 2011
Village Residential (VR-30)
Village Residential (VR-24)
Village Residential (VR-20)
Village Residential (VR-15)
Village Residential (VR-10.9)
Village Residential (VR-7.3)
Village Residential (VR-4.3)
Village Residential (VR-2.9)
Village Residential (VR-2)
Semi-Rural Residential (SR-.5)
Semi-Rural Residential (SR-1)
Semi-Rural Residential (SR-2)
Semi-Rural Residential (SR-4)
Semi-Rural Residential (SR-10)
Rural Lands (RL-20)
Rural Lands (RL-40)
Rural Lands (RL-80)
Specific Plan Area (residential densities in italics)4
Office Professional3
Neighborhood Commercial3
General Commercial3
Rural Commercial3
Limited Impact Industrial3
Medium Impact Industrial3
High Impact Industrial3
Village Core Mixed Use
Public/Semi-Public Facilities3
Public/Semi-Public Lands (Solid Waste Facility)
Public Agency Lands
Tribal Lands
Open Space (Recreation)
Open Space (Conservation)
County Water Authority Boundary
San Dieguito Community Planning Area Boundary
PROPERTY BOUNDARY
San Marcos
Carlsbad
Escondido
Harmony Grove
Del Dios
Lake Hodges
Escondido Creek
San Marcos Creek
Rancho Santa Fe
San Dieguito River
Lusardi Creek
Fairbanks Ranch
San Diego
Penasquitos
San Dieguito
NOTES:
1: The type and intensity of development depicted on the map must be implemented in accordance with General Plan goals and policies and other County regulations which may further affect the type and intensity of use.
2: Land Use Element, Table LU-1 indicates the applicable Regional Category for each designation.
3: Maximum development intensity for non-residential designations is provided in Land Use Element, Table LU-1.
4: Refer to Community Plan for general land uses and intensities allowed in Specific Plan area (SPA).
Map Prepared By:
LUEG GIS
Regional Location Map
Source: County of San Diego, SanGIS, SANDAG
20
ACRES
0
2,050
4,100
8,200
Feet
Printed: July 23, 2012

FUSCOE ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 ◦ fax 858.597.0335
www.fuscoe.com

Job Name: Valiano
Hill Valley Road Crossing Hydrology
100 Year Design Storm
Job #: 2690-007-02

Date: Jul 2013
Run Name: HVR

Node to Node		Code	Elev 1 (feet)	Elev 2 (feet)	Length (feet)	C or Fric Co.	Area (ac.)	Comments
1	2	2	808.0	801.0	100.00	0.36	0.39	Soil Type C, 1.0 DU/Ac
2	3	5	801.0	785.0	215.00			
2	3	8				0.36	1.78	
3	4	5	785.0	724.0	812.00			
3	4	8				0.36	13.05	
4	5	5	724.0	702.0	812.00			
4	5	8				0.36	32.92	

```
**************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2010 Advanced Engineering Software (aes)
              Ver. 17.0 Release Date: 07/01/2010  License ID 1355

                              Analysis prepared by:

                                 Fuscoe Engineering, Inc.
                               6390 Greenwich Drive, Suite 170
                                    San Diego, CA 92122


 ************************** DESCRIPTION OF STUDY **************************
* VALIANO                                                                 *
* HILL VALLEY ROAD CROSSING HYDROLOGY                                     *
* JULY 5, 2013                                                            *
 *************************************************************************

  FILE NAME: HVR.DAT
  TIME/DATE OF STUDY: 11:31 07/05/2013
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.000
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3600
  SOIL CLASSIFICATION IS "C"
  S.C.S. CURVE NUMBER (AMC II) =  76
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    808.00
  DOWNSTREAM ELEVATION(FEET) =    801.00
  ELEVATION DIFFERENCE(FEET) =      7.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.964
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.384
```

```
  SUBAREA RUNOFF(CFS) =      0.90
  TOTAL AREA(ACRES) =      0.39   TOTAL RUNOFF(CFS) =      0.90

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    801.00  DOWNSTREAM(FEET) =    785.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   215.00   CHANNEL SLOPE =  0.0744
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .0744 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.90
  FLOW VELOCITY(FEET/SEC) =   1.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.35   Tc(MIN.) =    9.31
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     315.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.294
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3600
  SOIL CLASSIFICATION IS "C"
  S.C.S. CURVE NUMBER (AMC II) =  76
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3600
  SUBAREA AREA(ACRES) =    1.78   SUBAREA RUNOFF(CFS) =    3.39
  TOTAL AREA(ACRES) =       2.2   TOTAL RUNOFF(CFS) =      4.14
  TC(MIN.) =    9.31

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    785.00  DOWNSTREAM(FEET) =    724.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   812.00   CHANNEL SLOPE =  0.0751
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .0751 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =       4.14
  FLOW VELOCITY(FEET/SEC) =   2.46 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   5.50   Tc(MIN.) =   14.81
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    1127.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.924
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3600
  SOIL CLASSIFICATION IS "C"
  S.C.S. CURVE NUMBER (AMC II) =  76
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3600
  SUBAREA AREA(ACRES) =   13.05   SUBAREA RUNOFF(CFS) =   18.44
  TOTAL AREA(ACRES) =       15.2   TOTAL RUNOFF(CFS) =      21.50
  TC(MIN.) =   14.81

****************************************************************************
```

```
 FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    724.00  DOWNSTREAM(FEET) =    702.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   812.00   CHANNEL SLOPE =  0.0271
 CHANNEL FLOW THRU SUBAREA(CFS) =      21.50
 FLOW VELOCITY(FEET/SEC) =   5.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.69   Tc(MIN.) =   17.50
 LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    1939.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.524
 RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3600
 SOIL CLASSIFICATION IS "C"
 S.C.S. CURVE NUMBER (AMC II) =  76
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.3600
 SUBAREA AREA(ACRES) =   32.92   SUBAREA RUNOFF(CFS) =   41.76
 TOTAL AREA(ACRES) =       48.1   TOTAL RUNOFF(CFS) =      61.07
 TC(MIN.) =   17.50
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       48.1  TC(MIN.) =     17.50
 PEAK FLOW RATE(CFS)   =      61.07
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

♀

Existing Condition

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 61 cfs

Design Flow: 61 cfs

Maximum Flow: 61 cfs

Table 1 - Summary of Culvert Flows at Crossing: Existing Conditions

Headwater Elevation (ft)	Total Discharge (cfs)	Existing 24 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
703.75	61.00	24.57	36.41	8
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.75	61.00	24.57	36.41	2
703.50	23.28	23.28	0.00	Overtopping

Rating Curve Plot for Crossing: Existing Conditions

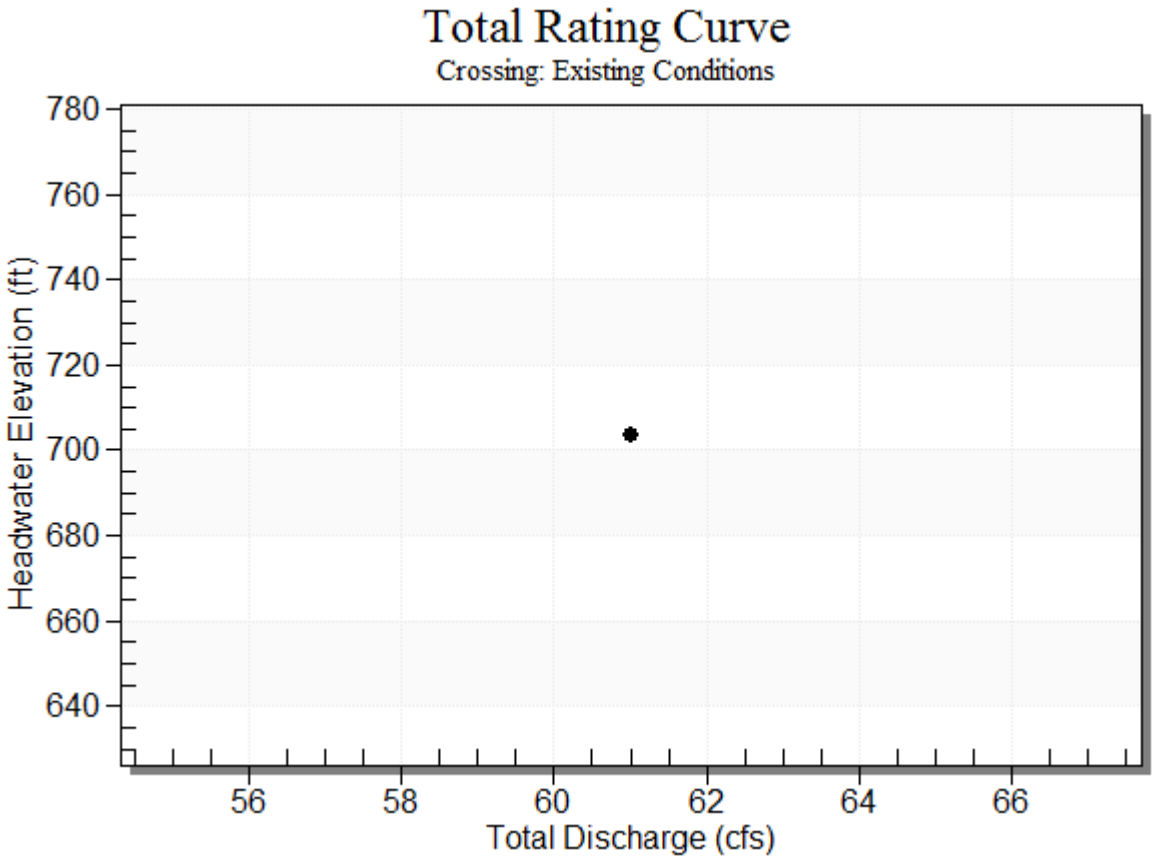


Table 2 - Culvert Summary Table: Existing 24

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725
61.00	24.57	703.75	3.746	3.710	7-M2c	2.000	1.750	1.750	0.604	8.427	3.725

****

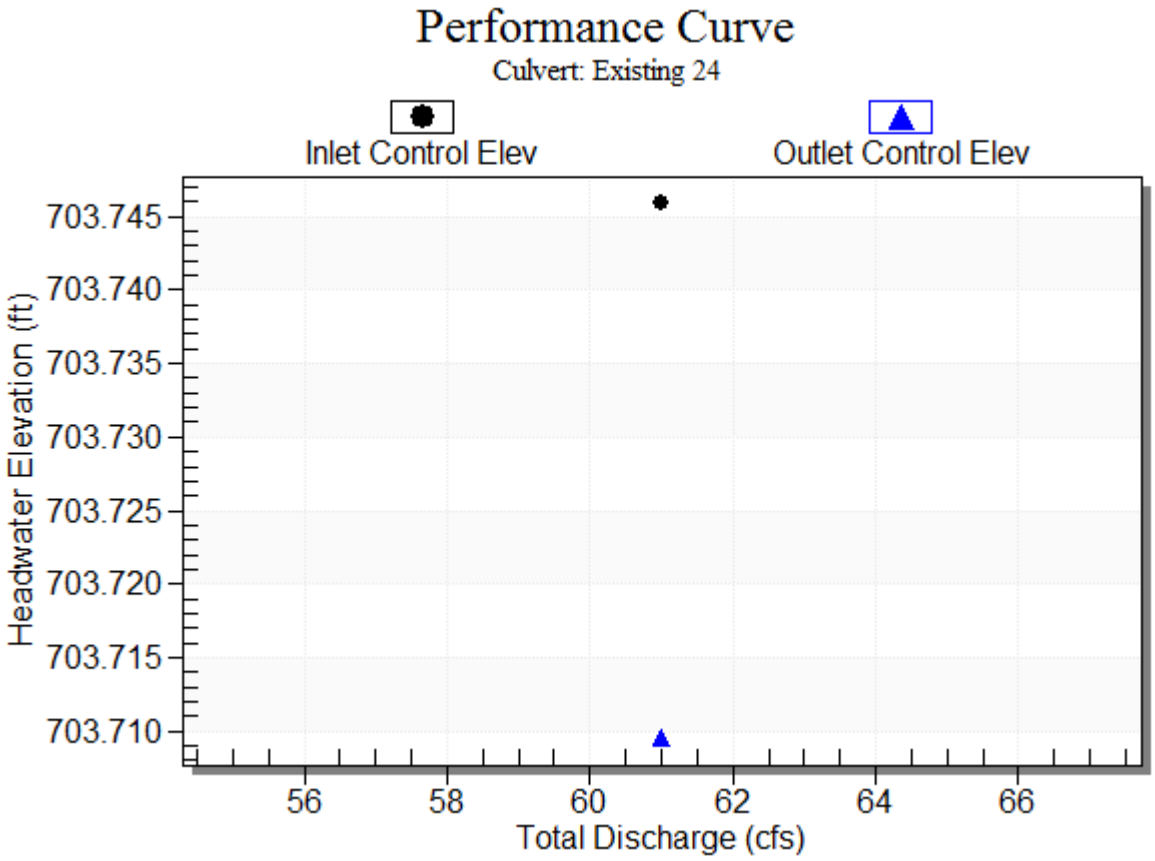
Straight Culvert

Inlet Elevation (invert): 700.00 ft, Outlet Elevation (invert): 699.70 ft

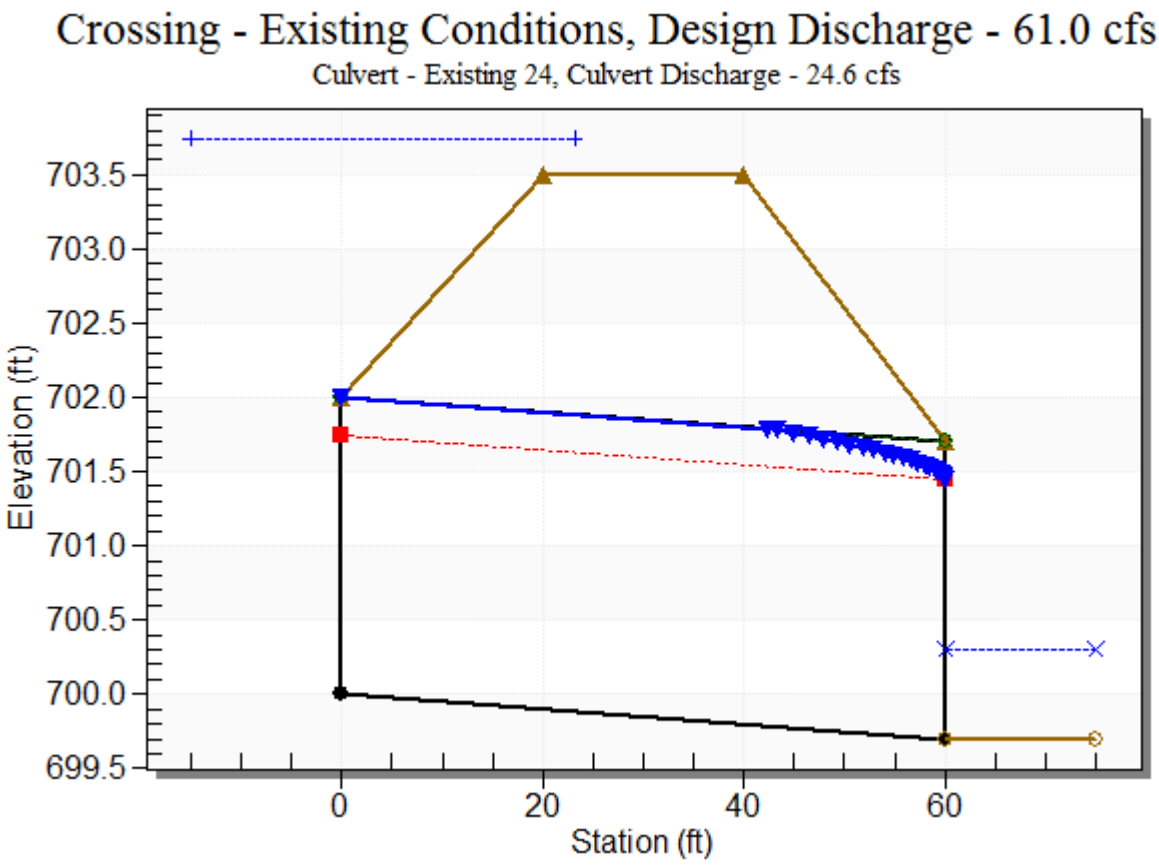
Culvert Length: 60.00 ft, Culvert Slope: 0.0050

****

Culvert Performance Curve Plot: Existing 24



Water Surface Profile Plot for Culvert: Existing 24



Site Data - Existing 24

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 700.00 ft

Outlet Station: 60.00 ft

Outlet Elevation: 699.70 ft

Number of Barrels: 1

Culvert Data Summary - Existing 24

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: Existing Conditions)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05
61.00	700.30	0.60	3.73	0.75	1.05

Tailwater Channel Data - Existing Conditions

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 12.00 ft

Side Slope (H:V): 25.00 (_:1)

Channel Slope: 0.0200

Channel Manning's n: 0.0300

Channel Invert Elevation: 699.70 ft

Roadway Data for Crossing: Existing Conditions

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 703.50 ft

Roadway Surface: Paved

Roadway Top Width: 20.00 ft

Proposed Condition

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 61 cfs

Design Flow: 61 cfs

Maximum Flow: 61 cfs

Table 1 - Summary of Culvert Flows at Crossing: Proposed Conditions

Headwater Elevation (ft)	Total Discharge (cfs)	Proposed Dual 30 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
703.22	61.00	61.00	0.00	1
704.00	75.46	75.46	0.00	Overtopping

Rating Curve Plot for Crossing: Proposed Conditions

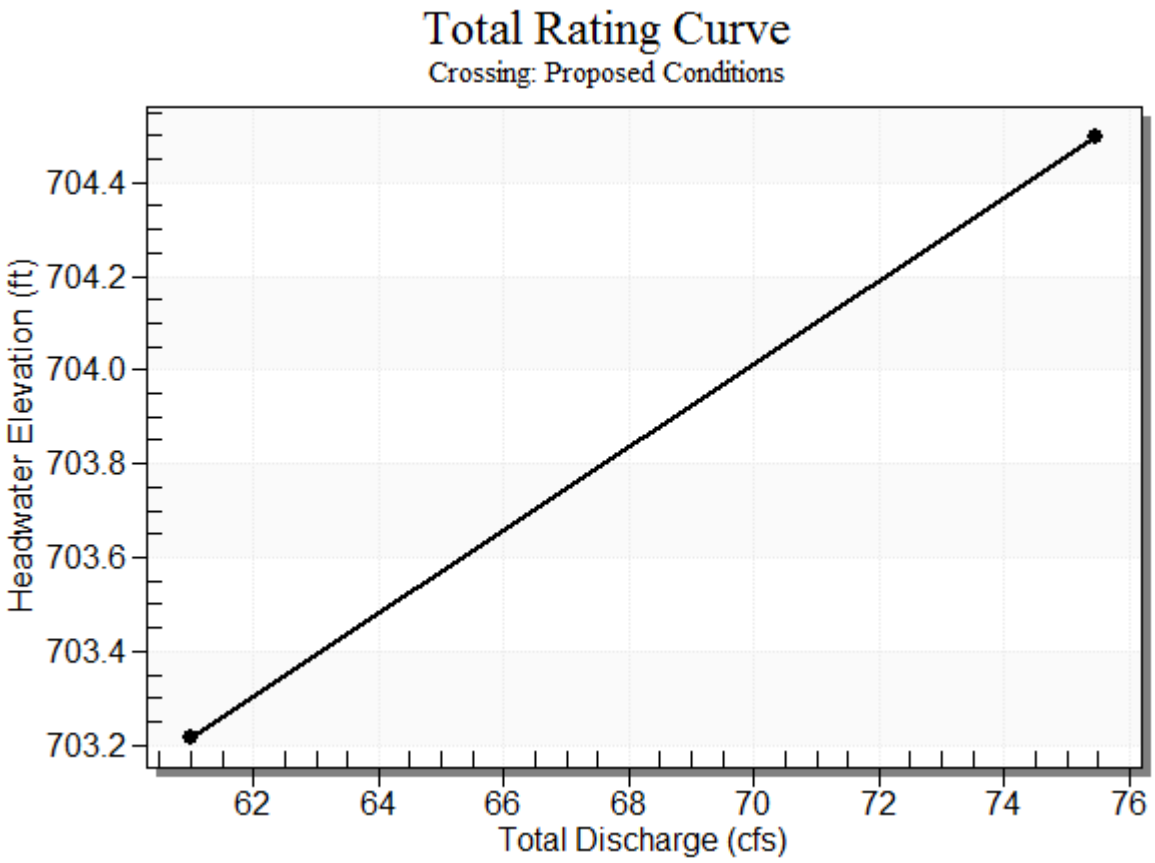


Table 2 - Culvert Summary Table: Proposed Dual 30

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
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61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725
61.00	61.00	703.22	3.209	3.218	7-M2c	2.208	1.880	1.880	0.604	7.703	3.725

****

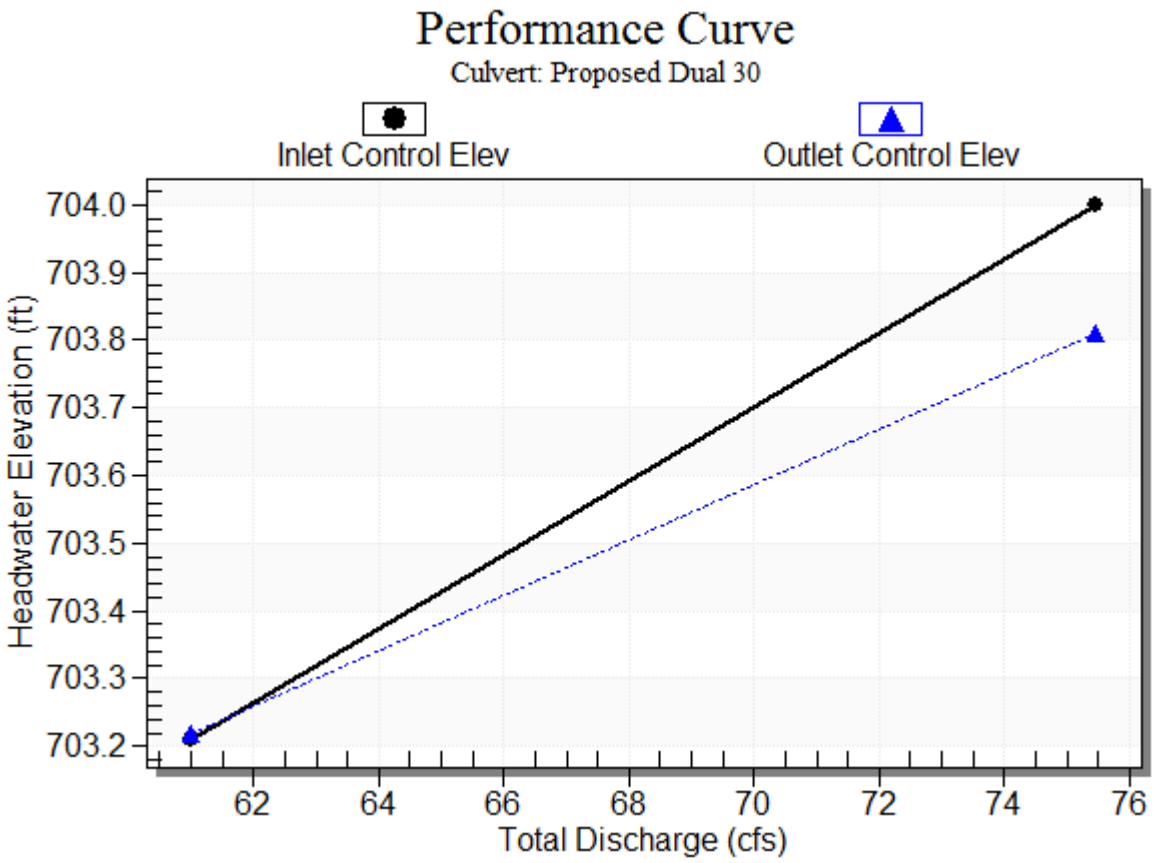
Straight Culvert

Inlet Elevation (invert): 700.00 ft, Outlet Elevation (invert): 699.80 ft

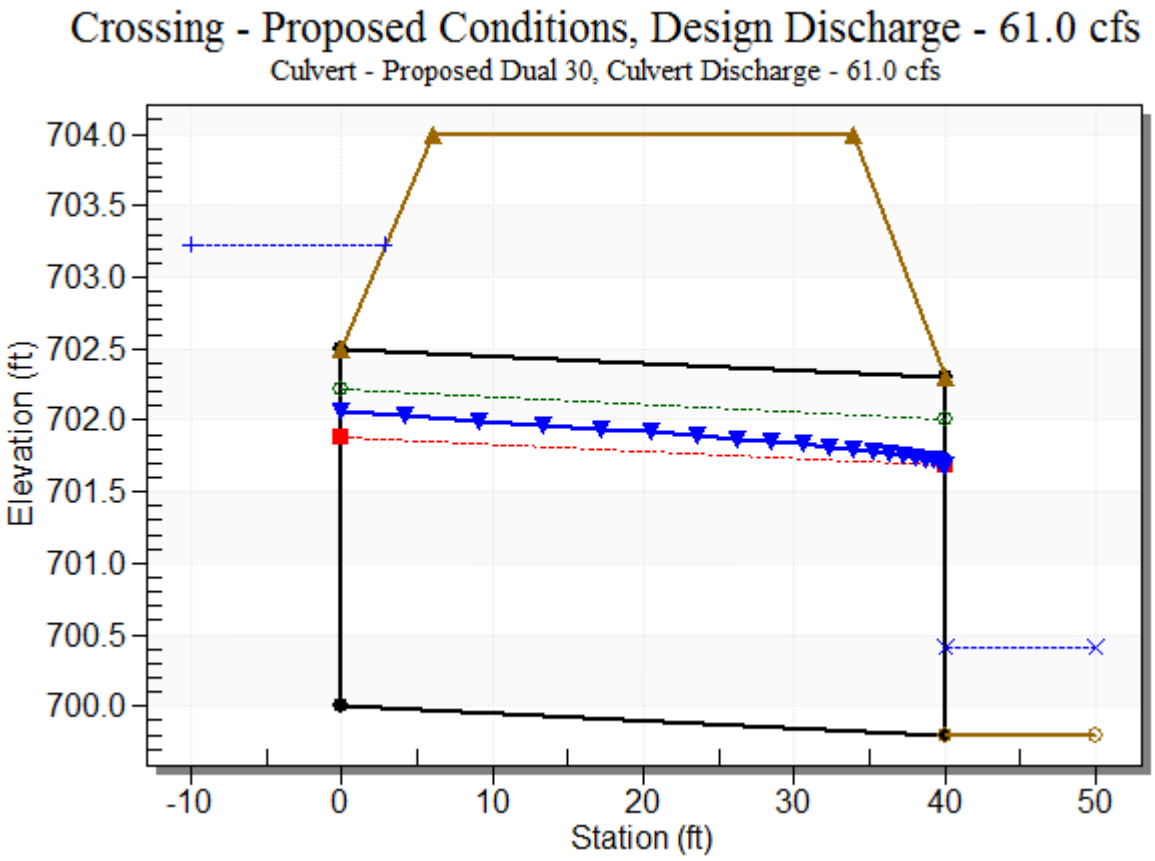
Culvert Length: 40.00 ft, Culvert Slope: 0.0050

****

Culvert Performance Curve Plot: Proposed Dual 30



Water Surface Profile Plot for Culvert: Proposed Dual 30



Site Data - Proposed Dual 30

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 700.00 ft

Outlet Station: 40.00 ft

Outlet Elevation: 699.80 ft

Number of Barrels: 2

Culvert Data Summary - Proposed Dual 30

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: Proposed Conditions)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05
61.00	700.40	0.60	3.73	0.75	1.05

Tailwater Channel Data - Proposed Conditions

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 12.00 ft

Side Slope (H:V): 25.00 (_:1)

Channel Slope: 0.0200

Channel Manning's n: 0.0300

Channel Invert Elevation: 699.80 ft

Roadway Data for Crossing: Proposed Conditions

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 704.00 ft

Roadway Surface: Paved

Roadway Top Width: 28.00 ft


LEGEND
PROPERTY LINE
PROPOSED ACCESS EASEMENT
EXISTING CONTOUR
PROPOSED CONTOUR
BASIN BOUNDARY
SUB-BASIN BOUNDARY
FLOW PATH
1
2
3
4
5
L=100'
808
801
L=215'
785
A=0.39 AC
A=1.78 AC
A=13.05 AC
L=812'
724
A=32.92 AC
702
PROP. HILL VALLEY ROAD
EX. HILL VALLEY ROAD
PROJECT SITE
EX. CROSSING 24" CULVERT TO REMAIN
EX. HEADWATER ELEVATION = 703.75
SCALE: 1"= 80'
80 40 0 80 160 240
GRAPHIC SCALE IN FEET

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VALIANO
HILL VALLEY ROAD CROSSING
MARCH 2015

Appendix H

Map Pocket

Existing Conditions Hydrology Exhibit

Proposed Conditions Hydrology Exhibit

Valiano Neighborhood 5 100 Year Storm Inundation Exhibit

Valiano Neighborhood 3 100 Year Storm Inundation Exhibit


BASIN A
A=26.8 AC
Tc=10.25 MIN
Q=48.06 CFS
NODE 266
A=70.5 AC
Tc=13.79 MIN
Q=116.32 CFS
BASIN B
A=214.8 AC
Tc=18.61 MIN
Q=299.25 CFS
BASIN C
A=173.5 AC
Tc=16.84 MIN
Q=237.91 CFS
BASIN D
A=49.1 AC
Tc=12.11 MIN
Q=81.96 CFS
BASIN E
A=11.00 AC
Tc=8.86 MIN
Q=22.45 CFS
LEGEND
PROJECT BOUNDARY
MAJOR BASIN LIMITS
SUBBASIN LIMITS
FLOW PATH
100 YR INNUNDATION LIMITS
CYCAD DR
SUPREME CT
EXECUTIVE PL
CORPORATE DR
CANYON OAK PL
OAK VIEW WAY
CHATEAU PL
200 100 0 200 400 600
GRAPHIC SCALE IN FEET
SCALE: 1" = 200'
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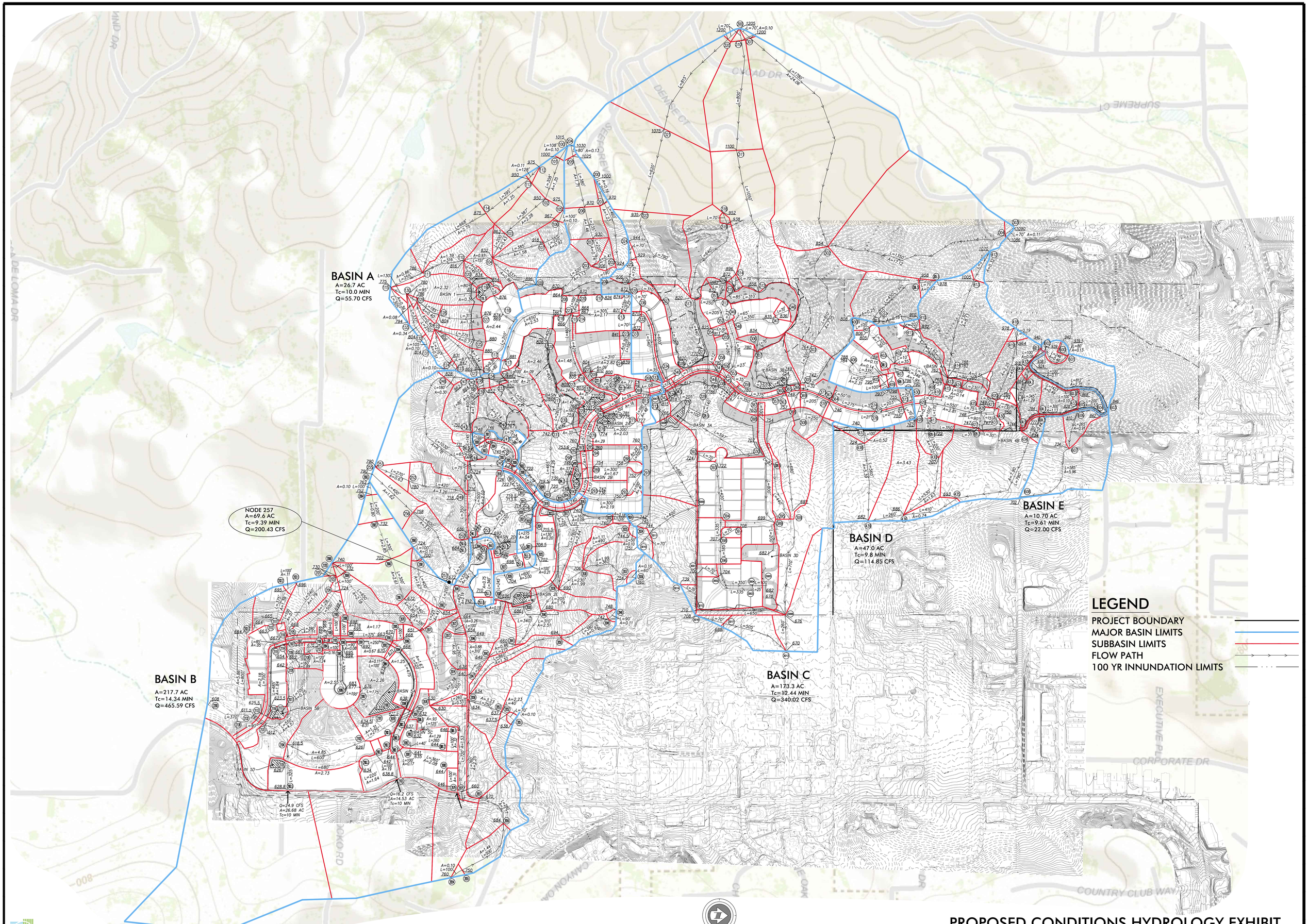
EXISTING CONDITIONS HYDROLOGY EXHIBIT
VALIANO DRAINAGE STUDY
NOVEMBER 2015



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PROPOSED CONDITIONS HYDROLOGY EXHIBIT
VALIANO DRAINAGE STUDY
NOVEMBER 2015

20+75

EX. 100 WSE 640.8
PR. 100 WSE 640.0

TRIPLE 6X12 BOX CULVERT

20+00

19+22

MT. WHITNEY ROAD

EX. 100 WSE 638.2
PR. 100 WSE 638.8

MT. WHITNEY ROAD

EX. 100 WSE 637.9
PR. 100 WSE 637.5

18+85

18+00

EX. 100 WSE 635.3
PR. 100 WSE 636.7

COUNTRY CLUB DRIVE

17+10
15+25

16+00

BASIN 5C

EX. 100 WSE 632.8
PR. 100 WSE 636.3

STREET 5A

13+75

28 SPAN ARCH BRIDGE

EX. 100 WSE 632.6
PR. 100 WSE 632.6

EX. 100 WSE 631.2
PR. 100 WSE 631.5

BASIN 5A

12+00

12+00

EX. 100 WSE 627.1
PR. 100 WSE 627.6

10+00

10+00

8+00

7+00

5+60

4+00

EX. 100 WSE 625.7
PR. 100 WSE 625.4

6+00

EX. 100 WSE 625.0
PR. 100 WSE 624.0

4+00

3+00

BASIN 5B

BASIN 5D

20 SPAN ARCH BRIDGE

EX. 100 WSE 618.8
PR. 100 WSE 624.2

1+50

STREET 5A

EX. 100 WSE 617.6
PR. 100 WSE 624.0

COUNTRY CLUB DRIVE

1+00

EX. 100 WSE 616.3
PR. 100 WSE 616.7

0+60

EX. 100 WSE 616.0
PR. 100 WSE 615.9

0+25

EX. 100 WSE 613.9
PR. 100 WSE 613.6

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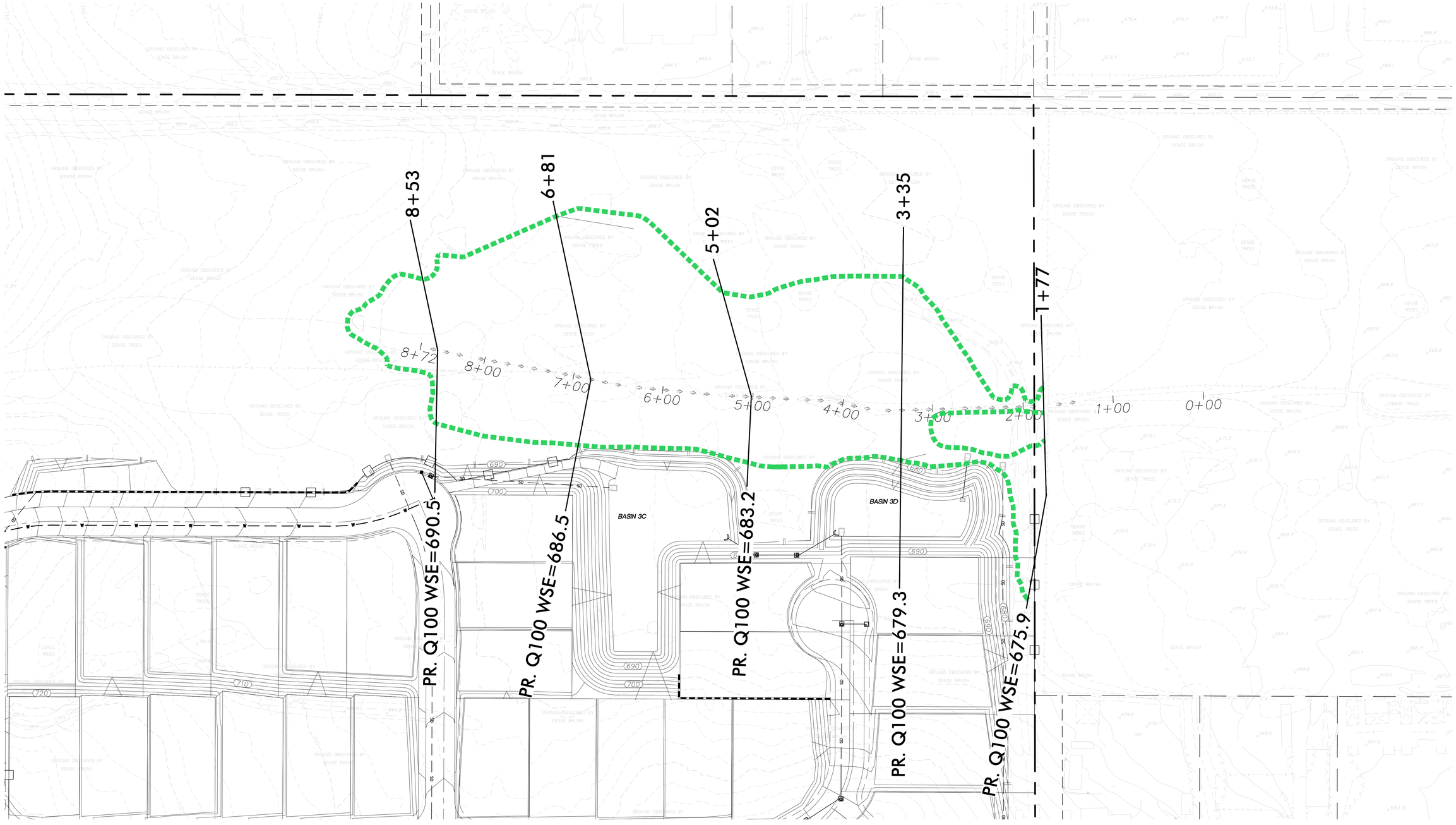
SCALE: 1"= 50'

50 25 0 50 100 150
GRAPHIC SCALE IN FEET

LEGEND

CHANNEL FLOW LINE
100 YEAR STORM INUNDATION LIMITS (EXISTING CHANNEL)
100 YEAR STORM INUNDATION LIMITS (PROPOSED CHANNEL)

VALIANO NEIGHBORHOOD 5
100-YEAR STORM INUNDATION EXHIBIT



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SCALE: 1"= 80'

50 25 0 50 100 150
GRAPHIC SCALE IN FEET

LEGEND

CHANNEL FLOW LINE
100 YEAR STORM INUNDATION LIMITS (PROPOSED CHANNEL, N = 0.08)

VALIANO NEIGHBORHOOD 3
100-YEAR STORM INUNDATION EXHIBIT