

Letter of Map Revision Flood Hazard Mitigation Project Stone Creek Eagle County, Colorado



Flood Bypass Channel enlargement during Construction

This **Floodplain Information Report** of Stone Creek in Eagle County, Colorado was prepared under the supervision and direction of the undersigned Professional Engineer:

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1 Introduction

Stone Creek is a small amenity perennial creek located within a residential development as a community amenity and also serves to provide water for golf course irrigation. The Stone Creek watershed drains an area of approximately 5 square miles (4.72 square miles to the confluence of Stone Creek Bypass with the Eagle River, and 5.1 square miles to the confluence of Golf Club Creek with the Eagle River as reported by the 1986 CWCB Flood Hazard Identification Report). Stone Creek flows in a northerly direction toward the Eagle River, and then splits during a flood to form two confluences through the Eagle-Vail community: a low flow channel called “Golf Club Creek” and a normally dry flood flow easement called “Stone Creek Bypass” (see adjacent exhibit “Reach Names”).

The study area includes two reaches, Stone Creek and Stone Creek Bypass. Stone Creek starts from the confluence with Stone Creek Bypass to 2,440 feet upstream. Stone Creek Bypass starts from the confluence with the Eagle River to 240 feet upstream of the Stone Creek Drive. The approximate length of the floodplain study reach is 4,330 feet following Stone Creek to the Stone Creek Bypass.

Flooding is anticipated to be rapid due to rainfall on snowmelt in the steep mountain drainage basin. It is expected that there will not be time to respond during a flood to mitigate flood damages (i.e., sand bags). Therefore, to protect safety and property, pre-disaster mitigation measures were recommended to reduce the flood hazard.

The effective Flood Insurance Study (FIS) for the Eagle County, Colorado and Incorporated Area was effective on December 4, 2007. However, the effective floodplain mapping for Stone Creek was restudied by Matrix Design Group, Inc. in 2009 with a LOMR Case No. 09-08-0907P. The LOMR was approved and became effective on June 4, 2010 which designated a Zone AE floodplain delineation for Stone Creek, Stone Creek Bypass and Golf Club Creek in Eagle-Vail Community.

The 2009 LOMR identified the floodplain hazard for the existing Eagle-Vail Community, showing approximately 10 residential buildings (13 single family residences comprised of 7 single family homes and 3 residential duplex structures) within the Zone AE floodplain. An additional 65 structures have been identified within the Shaded Zone X area (areas of flooding less than one foot depth).

Eagle County and the Community received a FEMA Flood Mitigation Assistance (FMA) grant in 2010 to reduce flood hazards to residential structures. A Benefit Cost Analysis was completed with a commitment to remove 6 residential buildings from the floodplain. Five work zone areas along Stone Creek were identified to mitigate flood hazards. Not all of the 10 buildings in the Zone AE floodplain and 65 structures in the shaded Zone X can be removed from the flood hazard area by mitigation. 4 buildings will remain in the floodplain after mitigation. The Stone Creek Flood Mitigation Assistance (FMA) was approved for funding by FEMA (FMA-PJ_08-CO2010-001) up to 75% of the mitigation cost, while the local government and community co-shared the residual 25% mitigation cost. **Figure 1** shows the breakdown of the costs. Drainage improvements were designed in 2012 and managed the construction management in 2013.

This LOMR was prepared on behalf of the Eagle County and the Community of Eagle-Vail for as-built hydraulic evaluation and LOMR application for the Stone Creek channel improvements to reduce the flood hazard to the Eagle-Vail community. Matrix prepared the effective model accepted by FEMA and formally

re-mapped the reduced flood hazard. The LOMR ties into the effective Zone AE floodplain upstream and downstream.

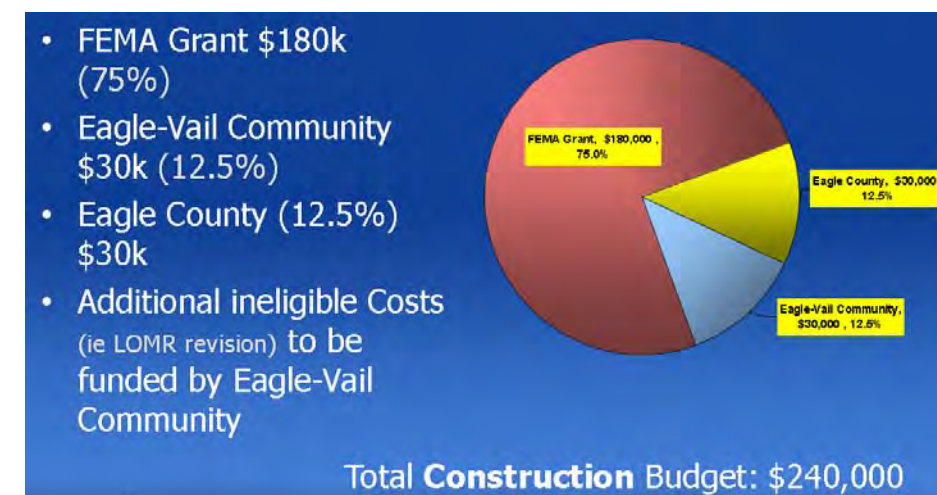
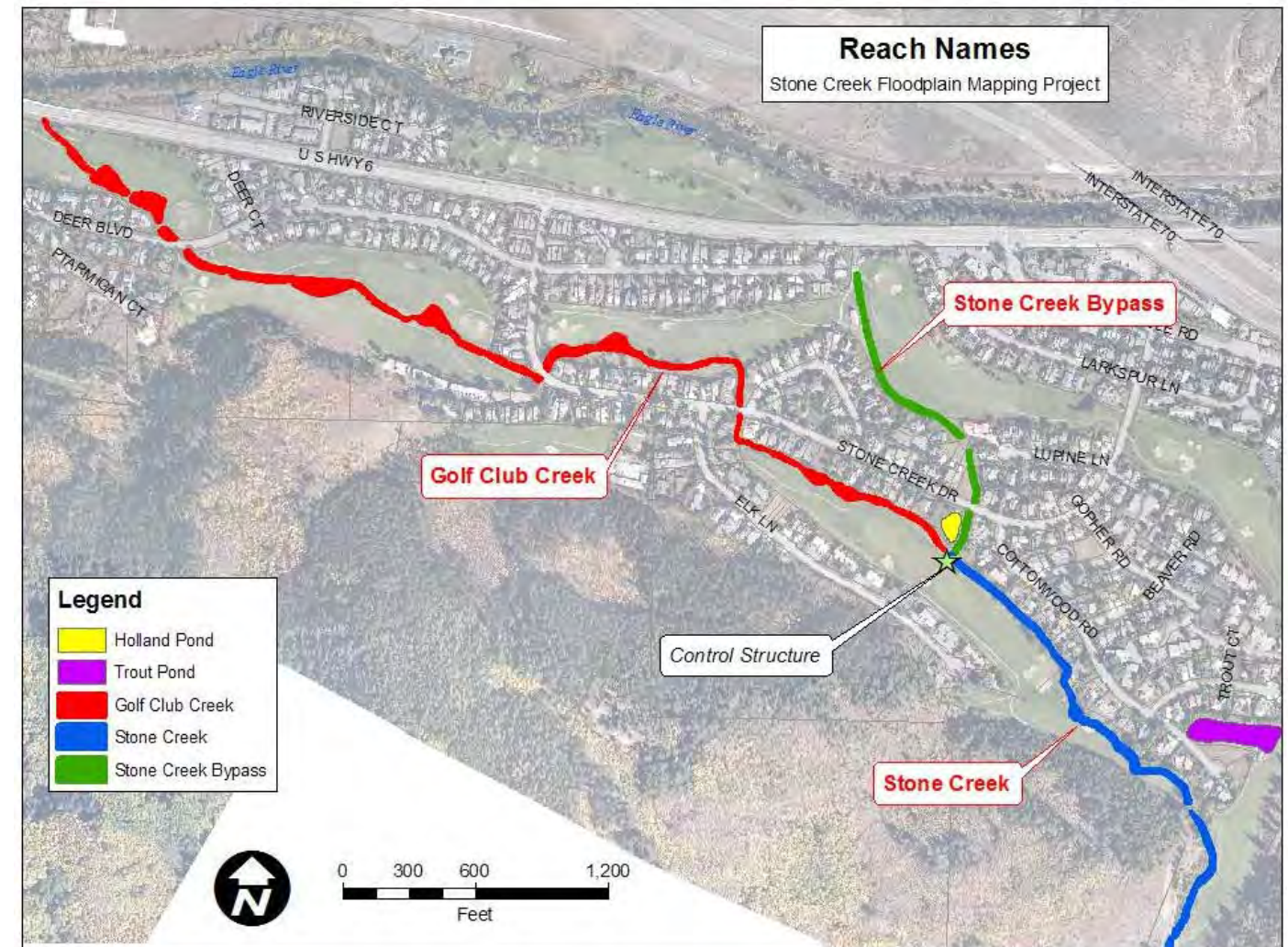
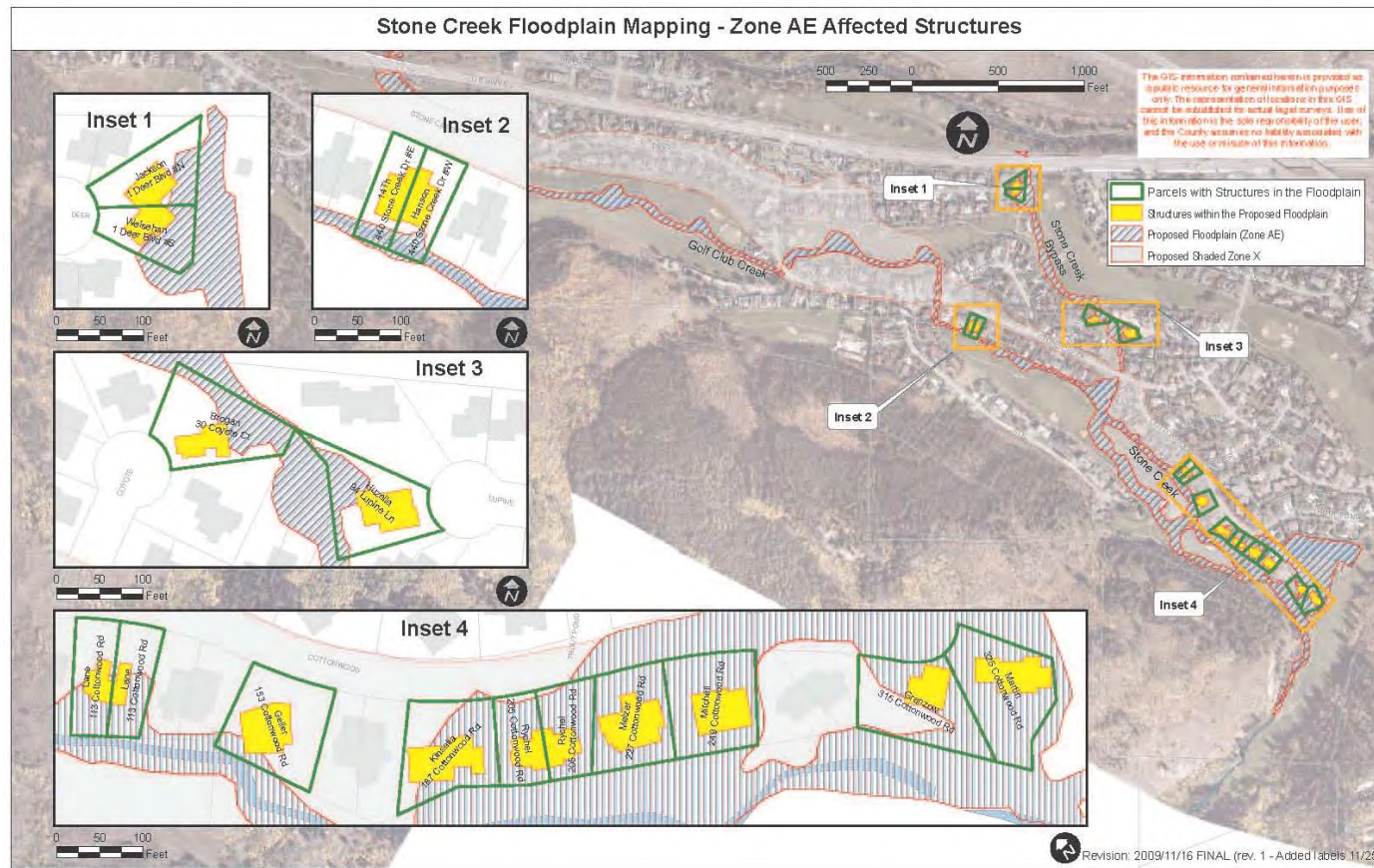
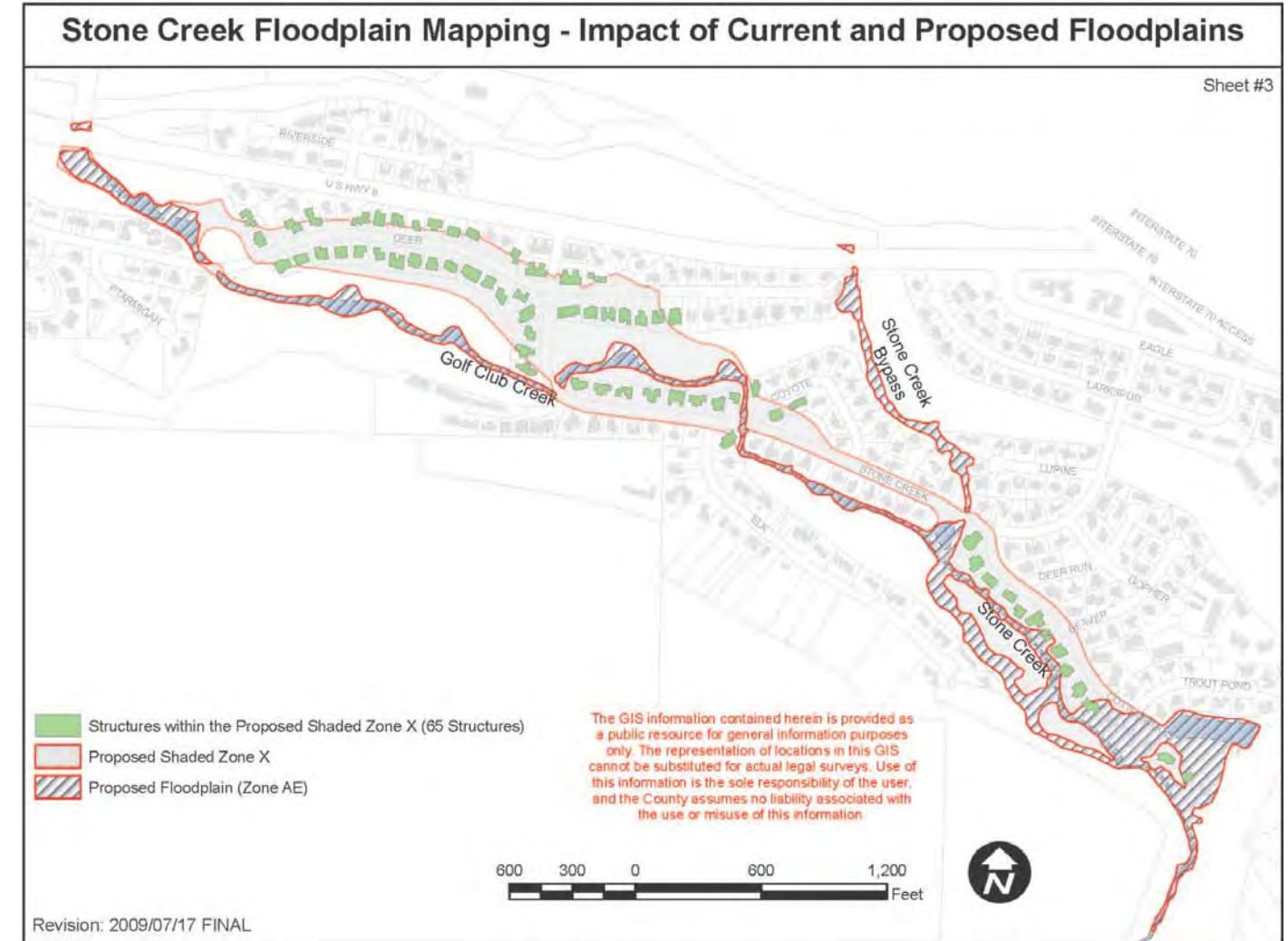


Figure 1 – Total Construction Budget



The attached Floodplain Work Map (see fold-out map) shows the homes that are expected to be removed from the floodplain by the construction per the Benefit Cost Analysis for the FMA grant. A total of 6 structures (7 residential units) are removed from the special flood hazard area. Additionally, 65 homes in the Stone Creek community identified being in the shaded Zone X designation (a “moderate risk” as shown on the FIRM) now have a physical significant flood hazard reduction by the improved flood bypass splitter structure that diverts flood flows into the designated flood bypass channel.

This project did not cause a rise in the floodplain on Stone Creek so no CLOMR was required. However, more water will now flow into the Bypass channel, so the Bypass Channel reach has a rise in water surface elevations of up to 7 inches. The rise requires notification to impacted property owners. The areas intended to be taken out of the floodplain are shown in light blue on the following page “Post Construction 100-Year Floodplain” map. The physical hazard in the shaded Zone X areas downstream of the bypass channel has been reduced, although this project is not intended to remap this advisory residual floodplain (shaded Zone X) downstream of the bypass channel.



The FMA project includes trail modification, channel improvement, diversion structures, and inlet structure designed at five sites along the Stone Creek Bypass and Stone Creek. **Figure 2** shows the locations of the sites and associated improvements. Details of the site description and improvements are discussed included in Section 7: Hydraulic Analysis of this report.

In accordance with Section 72.5 of the NFIP regulations, review and processing fees are not required for this LOMR application, because this Stone Creek Flood Mitigation Assistance project was federally sponsored flood-control project with 75 percent of the project’s costs are federally funded.

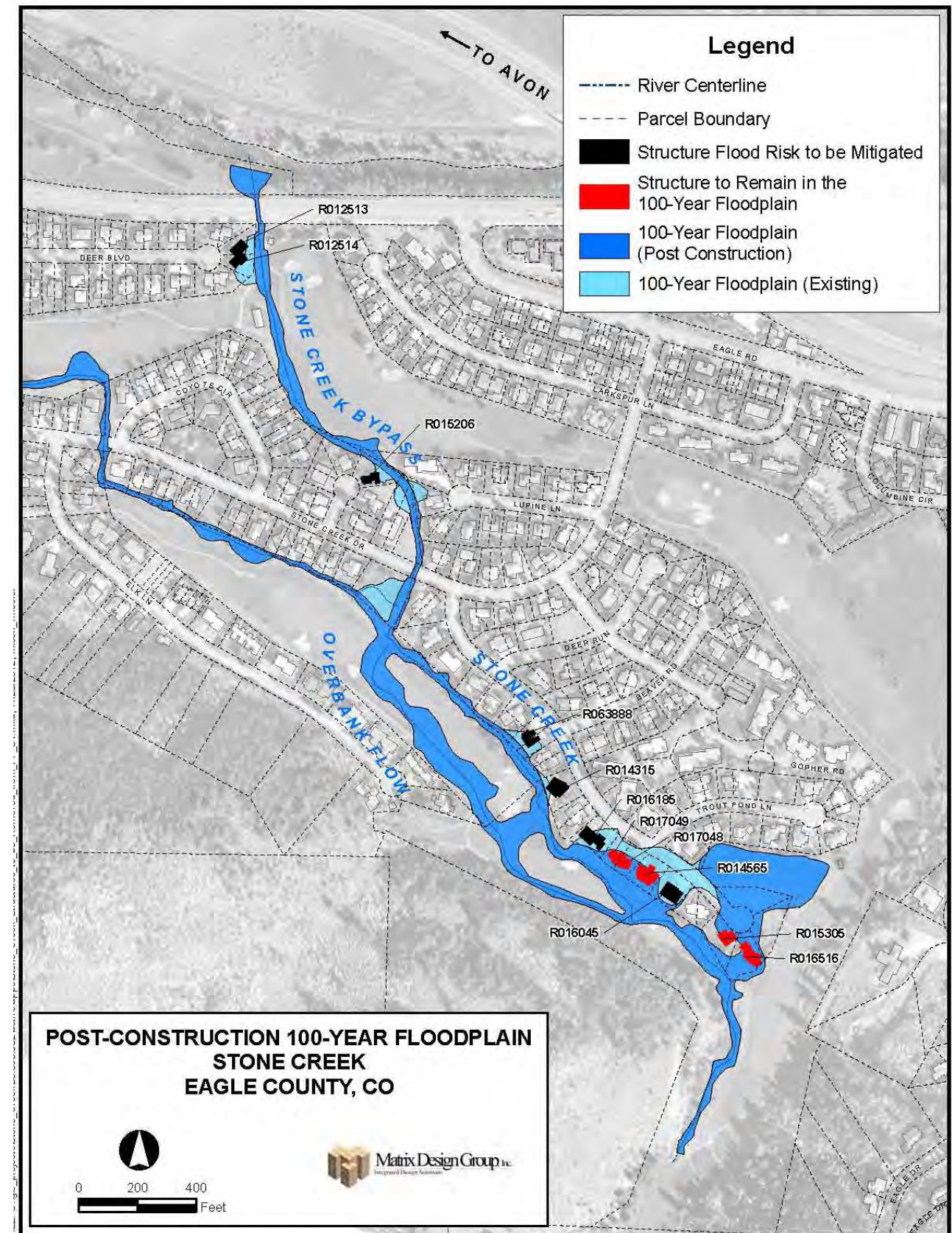
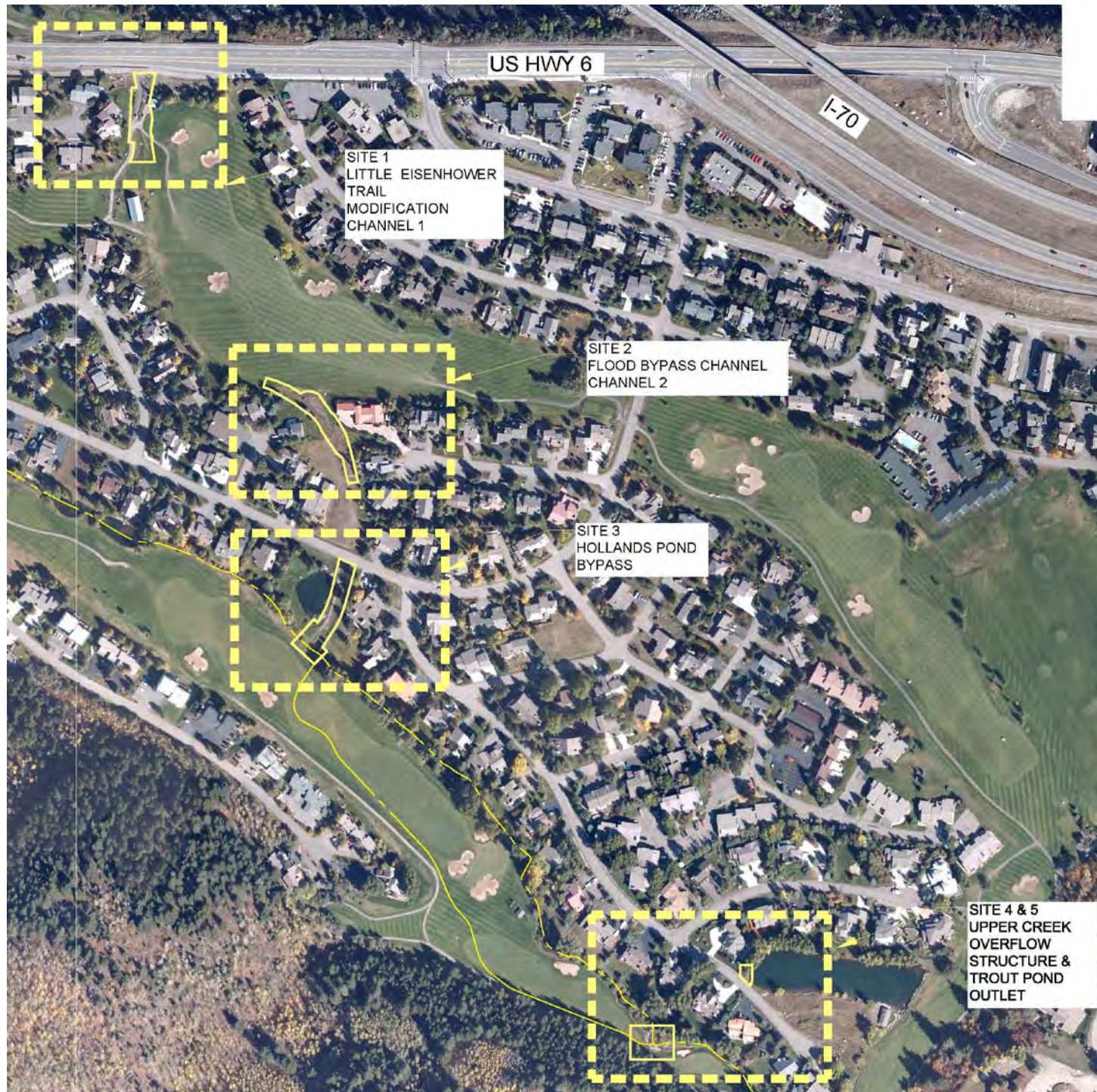


Figure 2 – Vicinity Map and Flood Mitigation Project Sites

2 Related Studies

The Colorado Water Conservation Board (CWCB) prepared both a Hydrologic and Hydraulic Analysis for Stone Creek in Eagle County in September 1986. The study obtained the 100-year peak flow of 250 cfs on Stone Creek through regional discharge versus drainage area curves for similar gaged drainage basins within the Eagle River basin. The regional curve was derived through a statistical analysis of 18 stream flow gages in the Eagle County area.

A Zone AE floodplain mapping of the area was created by Matrix Design Group, Inc. with a Floodplain Information Report and Letter of Map Revision in July 2009. As part of this report, the floodplain for Stone Creek was delineated with the aid of field-surveyed cross-sections and the U.S. Army Corps of Engineers HEC-RAS step-backwater computer program.

3 Topography

Base topographic mapping for this study was provided by Analytical Surveys, Inc. Aerial imagery and mapping was completed October 1998. This mapping was available at scales of 1" = 200' and has a contour interval of 2 feet. Aerial mapping was good except in areas of heavy brush. Critical areas were supplemented with field survey, particularly around the Diversion Control Structure, Holland Pond, and the Stone Creek Bypass. Field surveys were tied into aerial topographic mapping.

Cross section data for the backwater analysis of Stone Creek was obtained from the Eagle County GIS Department data with 2-foot contour intervals. Supplementary survey was provided by Marcin Engineering, LLC, on November 1, 2012. Supplementary survey for existing culverts underneath Stone Creek Drive and downstream existing channel to Site #2 improvement was provided by Inter-Mountain Engineering on December 2014.

Basis of Horizontal Control

Colorado State Plane Coordinate System, Central Zone,
Lambert Conformal Projection,
NAD 83 U.S. Survey Feet

Basis of Vertical Control

NAVD 88 Sea Level Datum

Vertical control points for the cross sections were three-quarter inch rebar pins, which were used as aerial control for the mapping. These points are shown on the mapping and are designed by letters and numbers as shown on the floodplain mapping. The locations of the benchmarks used in the survey are described below:

SURVEY BENCHMARKS AND CONTROL

STATION ID NUMBER	NORTHING (feet)	EASTING (feet)	ELEVATION (feet)
CO DOT LP1-2	1661795.29	2693196.10	7228.5
K 2	1659882.68	2698238.05	7303.00
T 280	1648196.86	2732461.44	7731.29
KL0001	1655259.90	2715996.25	7499.36

A total of 126 cross sections were used to model the Stone Creek floodplain as detailed below:

- 29 cross sections on the Stone Creek Bypass,
- 36 cross sections on the Stone Creek, and
- 12 cross sections on the upper split flow reach.

4 Community Notification

In compliance with the NFIP regulations, the local community has been notified of this floodplain mapping update through individual mailings to impacted property owners. Copies of the notification letters can be found in Appendix A.

5 Flood History

Flooding along Stone Creek has not been documented. It is likely, however, that floods occurred on Stone Creek when the adjacent Beaver Creek flows were particularly high as measured by a gage. Beaver Creek is an adjacent drainage basin, immediately to the west of Stone Creek basin, with a drainage area of approximately 16 square miles. A gage near its mouth recorded relatively high stream flows during 1983, 1978, and 1984 (in order of magnitude) during its record since 1974. All of these peak flows occurred in the month of June. This indicates snowmelt runoff as the probable cause of the largest floods in the Stone Creek drainage basin.

6 Hydrologic Analysis

FEMA has established 100-year flood hydrology of 250 cfs on Stone Creek. No change to the Stone Creek hydrology from the FEMA effective study is requested as a portion of this LOMR study.

The flood flows used in the HEC-RAS hydraulic model are list below:

<u>Flood Source</u>	<u>10-year</u>	<u>50-year</u>	<u>100-year</u>	<u>500-year</u>
Stone Creek	160 cfs	205 cfs	250 cfs	420 cfs

7 Hydraulic Analysis

A Limited Detailed floodplain analysis (defined elevations, but no floodway defined) of the hydraulic characteristics of Stone Creek was performed to provide estimates of the water surface elevations in the drainageway during the 100-year storm event. Water-surface elevations were computed using the U.S. Army Corps of Engineers HEC-RAS computer modeling program, Version 4.1.0.

Contour information was imported into GIS and cross-sections were cut electronically. These prepared cross-sections were imported directly into HEC-GeoRAS for use as the base model. The cross section numbering is based upon stationing from the confluence with the Eagle River. The first reach and cross section numbering is the Stone Creek Bypass up through Stone Creek. Information regarding structures that cross Stone Creek was compiled from field measurements. Locations of the cross sections used in the hydraulic analyses are shown on the Flood Profiles and on the Floodplain Map.

Manning’s “*n*” roughness coefficients used in the hydraulic computations were chosen by engineering judgment and based on field observations of the wash and floodplain areas. The ranges of roughness coefficient values for Stone Creek are as follows:

<u>Stream</u>	<u>Channel</u>	<u>Overbank</u>
Stone Creek	0.018-0.075	0.025-0.050

The model was started with critical depth calculation water surface elevation for the downstream control at the confluence with the Eagle River as it falls steeply down the river bank.

It was assumed that all culverts and channels were free of silt and debris. The hydraulic analysis for this study was based on unobstructed flow (no debris blockage) at all structures. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed of debris, operate properly, and do not fail.

The hydraulic analysis of the study area was based on subcritical depth computations and information obtained from available GIS topographic data and field reconnaissance. The model was prepared assuming that the flow is steady, gradually-varied, and can be modeled in one-dimension. The results of the HEC-RAS hydraulic computer model can be seen in Table 1 – Flood Frequency – Elevation and Discharge Data.

7.1 Effective Model/ Duplicated Effective Model/ Correct Effective Model

The effective HEC-RAS model was derived from the LOMR Case No. 09-08-0907P. Effective water surface elevations were computed using the U.S. Army Corps of Engineers HEC-RAS computer modeling program, Version 3.1.3. The effective model was imported into HEC-RAS program, Version 4.1.0 and there is no discrepancy in the outputs between these two versions of model. Therefore, the effective model rerun using the HEC-RAS program Version 4.1.0 was used as the duplicated effective model and the base model for this study. There is no need for a corrected effective model. For simplicity, the model was trimmed to only include the study area by removing the Golf Club Creek from the duplicated effective model.

7.2 As-built Model

The duplicated effective model was used as the base model and updated to reflect the as-built conditions. The following narratives give the details of each site’s as-built condition and the corresponding hydraulic modeling revisions for determining the impact to the floodplain delineation.

Site #1 – Channel Improvement

Site # 1 is the most downstream site on the Stone Creek Bypass. This site starts from approximately 33 feet upstream of Highway US6 (River Station 2+57) and extends approximately 174 feet upstream through River Station 4+31. The pre-project channel in this site was too shallow to confine the 100-year event floodplain.

The Bypass Channel culvert under Hwy 6 & 24 is a 12-foot wide by 7-foot tall concrete box culvert which has a dual purpose as a grade-separated golf cart path. This culvert has approximately 960 cfs capacity and was designed as discharge points to the Eagle River. The north side of the bypass channel

culvert has a golf course tee box to the northeast of the exit point. The golf course relocated this tee to a point further west of the culvert during the summer of 2011, removing a retaining wall, and regrading the slope to a more natural grade. This work was performed by the Golf Course under a separate contract prior to this project. This work effectively allows flood waters to discharge directly to the Eagle River.

The post-flood mitigation channel was depressed and widened to convey the increased split flow discharge of 150 cfs without negatively impacting the neighborhood properties in a 100-year flood event.

The channel centerline was changed at this site due to the new grading which was updated in the HEC-RAS model to reflect the new alignment through this site. Table 1 provides the HEC-RAS cross section numbering comparison between this LOMR model and the effective model. A total of five HEC-RAS cross sections were used to reflect the as-built grading for floodplain analysis at this site which includes two new cross sections 393 and 440 and three existing FIS cross sections 260, 280, and 346.



Site #1 – Pre-Mitigation

Site #1 – Post-mitigation

Site #2 – Channel Improvement

Site #2 is located in the middle of the Stone Creek Bypass channel. This site starts from approximately 455 feet downstream of the Stone Creek Drive through approximately 175 feet downstream of the Stone Creek Drive. The pre-project channel in this site was too shallow to confine the 100-year event floodplain.

The post-flood mitigation channel was widened and depressed to convey the increased split flow discharge of 150 cfs without negatively impacting the adjacent residential buildings during a 100-year flood event. There were also three abandoned 57-inch x 38-inch CMP pipes that blocked the flow path. These three abandoned CMPs were removed and salvaged for reuse on other sites.

The river centerline was changed at this site due to the new grading which was updated in the HEC-RAS model to reflect the new alignment through this site. Table 1 provides the HEC-RAS cross section numbering comparison between this LOMR model and the effective model. A total of seven HEC-RAS

cross sections were used to reflect the as-built grading for floodplain analysis at this site which includes five new cross sections 1128, 1188, 1287, 1389 and 1449, and two existing FIS cross sections 1239 and 1412.



Site #2 – Pre-Mitigation

Site #2 – Post-Mitigation

Site #3 – Channel Improvement and Diversion Structure

The Bypass Channel was designed in the early 1970's during the development of the subdivision and prior to any floodplain mapping. A 70-foot wide "Stone Creek Easement" was dedicated for the Bypass Channel (see Appendix A for Eagle Vail Filing 1 Plat Map). The concept of the Bypass Channel is good, but it was poorly implemented and required improvements. There is no evidence that the Bypass Channel ever functioned as designed. This project formalized the Bypass Channel as a critical drainage facility for flood hazard mitigation. This approach avoids any work downstream and impacts on the over one-mile reach of Golf Club Creek channel downstream from the lower Holland Pond splitter structure.

The Golf Club Creek downstream road culverts have a capacity of 100 cfs. Beyond that flow, water will break out of the channel and flow uncontrolled down streets and through the neighborhood (shaded Zone X). Upsizing culverts was considered to be more disruptive and more costly than enlarging the capacity of the Bypass Channel. Therefore, this diversion structure was improved to send flood flows into the Bypass Channel.

Site #3 is located at the start (most upstream section) of the Stone Creek Bypass channel. This site starts from the Stone Creek Drive through approximately 240 feet to the confluence with Stone Creek and Golf Club Creek. At the confluence, there was previously a diversion structure with two 42-inch x 29-inch CMPs with smashed inlets to provide as low flow passage to the Golf Club Creek. High flow would presumably spill over the poorly shaped lateral weir into the Stone Creek Bypass channel. The pre-project channel in this site was too shallow to confine the 100-year event split flow and would be overtopped to spill into the Holland Pond.

An improved concrete diversion structure was provided at the confluence to restrict no more than 100 cfs in Golf Club Creek and divert 150 cfs into the Stone Creek Bypass channel during a 100-year event. The existing diversion structure was deepened and enlarged. A salvaged 57-inch x 38-inch arch CMP

was installed at the diversion structure to convey low flow to Golf Club Creek. A formal weir structure was built at the entrance of Stone Creek Bypass and the post-flood mitigation channel was depressed and steepened to a slope of 1.0% to convey the increased split flow discharge of 150 cfs without negatively impacting the neighborhood properties during a 100-year flood event.

The river centerline was not changed at this site due to the new grading, but the station was changed due to the revised alignments at site #1 and site #2. Table 1 provides the HEC-RAS cross section numbering comparison between this LOMR model and the effective model. A total of six HEC-RAS cross sections were used to reflect the as-built grading for floodplain analysis at this site which includes one new cross section 1871, and five existing FIS cross sections 1697, 1778, 1816, 1839 and 1889. Lateral structures were used in the effective model for modeling the diversion structure and overtopping condition along the Holland Pond. The lateral structures were kept in the LOMR model, but were updated to reflect the improved diversion structure with 57-inch x 38-inch CMP and the raised berm along the Holland Pond.



Site #3 – Pre-Mitigation

Site #3 – Post-mitigation

Site #4 – Stone Creek Upper Split Flow Diversion Structure

Site #4 is located upstream on Stone Creek at river station of 32+22, which is approximately 1,570 feet upstream of Stone Creek Drive. The existing flow split into the golf course occurred in high flows, but was poorly defined by scattered boulders along the left bank and a weir defined by stacks of boulders. The previous floodplain delineation identified 85 cfs would spill into the golf course and 165 cfs would remain in Stone Creek during a 100-year event.

This project formalized the flow split to occur when downstream flooding along the Stone Creek would be anticipated. An improved flow split condition was provided at this site to convey the discharge up to 80 cfs through the weir section before spilling onto the golf course. At a full 100-year flow of 250 cfs, the new diversion structure is able to divert 125 cfs onto the golf course into the upper split flow channel and reduces the discharge in Stone Creek to 125 cfs. This splitter improvement reduces flooding adjacent to the residential buildings along Cottonwood Drive by sending half of the 100-year flow overland through the Golf Course.

The river centerline was not changed at this site due to the new grading, but the stationing was changed due to the revised alignments at site #1 and site #2. Table 1 provides the HEC-RAS cross section numbering comparison between this LOMR model and the effective model. The diversion structure was coded in the HEC-RAS cross section 3222. Table 2 shows the split flow rating curve which was developed using Excel spreadsheet and was attached in the Hydraulics Appendix. A total of six FIS cross sections 2993, 3050, 3113, 3133, 3195 and 3273 around the diversion structure were updated using the field survey information by Marcin Engineering, LLC on November 1, 2012 as a portion of this LOMR study.

Table 2 - Rating Curve - Upper Split Flow Diversion Structure

Reoccurrence	10-year	50-year	100-year	500-year
Main Channel Discharge (cfs)	106	116	125	156
Split Flow Channel Discharge (cfs)	54	89	125	264
FIS Discharge (cfs)	160	205	250	420

A formal outlet vault structure with control gate and large overflow weir was installed to minimize the risk of overtopping during a 100-year event. There is no HEC-RAS modeling associated with this Trout Pond Outlet Structure.



Site #5 – Pre-Mitigation

Site #5 – Post-Mitigation



Site #4 – Pre-Mitigation

Site #4 – Post-Mitigation

Site #5 – Trout Pond Outlet Structure

There is the potential for Stone Creek to overtop its banks during a major flood event and flow down into Trout Pond. Previously, this pond did not have an emergency overflow. This project built a large overflow structure to safely direct excess flows back into Stone Creek.

Trout Pond is an off-line pond and is located approximately at projected station 33+47 of the Stone Creek. Trout Pond is fed by diverting water from Stone Creek. This pond is an irrigation water storage pond and an amenity to the community. The Effective LOMR Case No. 09-08-0907P defined a minor split flow could occur on Stone Creek in a 100-year and spill overland into the Trout Pond. There was no formal outlet structure for flood control on Trout Pond. The previous outlet was a 24-inch CMP projected from the grade with a wood stop log plate that was installed in front of the pipe to set the water surface elevation. Trout Pond could overtop during a 100-year event and cause flooding to the downstream houses.

8 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. For Stone Creek, the 100-year floodplain boundary has been delineated using the flood elevations determined at each cross section. The floodplain boundaries were interpolated between the modeled cross sections using the topographic contours with an interval of 2 feet that were obtained from the GIS mapping data provided by Eagle County.

The 100-year floodplain boundary is shown on the attached Floodplain Work Map (see fold-out map). On these maps, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones AE).

A total of 6 structures (7 residential units) are removed from the special flood hazard area. Additionally, 65 homes in the Stone Creek community identified being in the shaded Zone X designation (a “moderate risk” as shown on the FIRM) now have a significant flood hazard reduction by the improved Flood Bypass splitter structure at Holland Pond that will divert flood flows into the designated flood bypass channel.

The post-mitigation floodplain information was compared to the FIS effective floodplain and attached to the Appendices. Please find in the Appendices the annotated FIS Table 1: Summary of Discharges for the final discharges determined for the Stone Creek Bypass, Stone Creek, Upper Split Flow and Golf Club Creek. The annotated flood profiles sheets 166P, 167P and 169P show the downstream and upstream study limits, limits of channel improvement and flood profiles comparison. The annotated FIRM 08037C0651D shows the revised floodplain delineation compared to the effective floodplain boundary.

9 Bibliography and References

1. Eagle County GIS Data, including contours, 1998.
2. Eagle County Aerial Photographs, 2004.
3. Federal Insurance Agency, Federal Emergency Management Agency, LOMR Case No. 09-08-0907P, effective June 4, 2010.
4. Federal Insurance Agency, Federal Emergency Management Agency, Flood Insurance Rate Map for Eagle County, Colorado and Incorporated Areas, Map Number 08037C0651D, Panel 651 of 1125, June 4, 2010.
5. Marcin Engineering LLC, Field Surveys, November 2012.
6. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, Computer Program HEC-HMS 4.1.0, Davis, California, January 2010.

**TABLE 1 FLOOD FREQUENCY - ELEVATION AND DISCHARGE DATA
STONE CREEK FLOODPLAIN INFORMATION AND LETTER OF MAP REVISION, EAGLE COUNTY, COLORADO**

12/30/2014

River / Reach	LOMR HEC-RAS Cross Section Number	Stationing from the confluence with Eagle River (feet)	FIS Effective HEC-RAS Model Cross Section Number	Reference Location	Post-flood Mitigation (As-built) Floodplain Data (100 - Year Flood)						FIS Effective Floodplain Data (100 - Year)			Comparison (As-built minus Effective)		
					Streambed Elevation (feet)	Peak Discharge (cfs)	Top Width (feet)	Flow Area (sq ft)	Average Velocity (ft/sec)	Water Surface Elevation (feet)	Streambed Elevation (feet)	Peak Discharge (cfs)	Water Surface Elevation (feet)	Streambed Elevation (feet)	Peak Discharge (cfs)	Water Surface Elevation (feet)
STONE CREEK BYPASS	119	1+19	119		7556.9	149	76	37	4	7557.89	7556.9	69	7557.67	0.0	80	0.22
	140	1+40	140		7558.0	149	47	22	7	7559.38	7558.0	69	7558.84	0.0	80	0.54
	182	1+82	182	Highway 6 Culvert #1	Culvert	-	-	-	-	-	Culvert	-	-	Culvert	-	-
	225	2+25	224		7558.4	149	13	36	4	7561.06	7558.4	69	7559.99	0.0	80	1.07
	260	2+60	258		7562.8	149	22	25	6	7564.36	7563.0	69	7564.00	-0.2	80	0.36
	280	2+80	279		7563.4	149	19	23	6	7564.87	7565.4	69	7566.32	-2.0	80	-1.45
	346	3+46	344		7565.2	149	36	29	5	7566.27	7567.0	69	7567.48	-1.9	80	-1.21
	393	3+93	-	New cross section added in LOMR study	7566.3	149	39	30	5	7567.38	-	-	-	-	-	-
	440	4+40	-	New cross section added in LOMR study	7567.4	149	46	32	5	7568.39	-	-	-	-	-	-
	521	5+21	518		7568.5	149	40	30	5	7569.60	7568.5	69	7569.45	0.0	80	0.15
	709	7+09	705		7570.5	149	55	46	3	7572.04	7570.5	69	7571.41	0.0	80	0.63
	885	8+85	881		7574.2	149	43	31	5	7575.54	7574.2	69	7575.18	0.0	80	0.36
	986	9+86	982		7576.2	149	34	28	5	7577.74	7576.2	69	7577.29	0.0	80	0.45
	1062	10+62	1058		7577.4	149	43	38	4	7578.80	7577.4	69	7578.39	0.0	80	0.41
	1128	11+28	-	New cross section added in LOMR study	7578.5	149	47	31	5	7579.95	-	-	-	-	-	-
	1188	11+88	-	New cross section added in LOMR study	7579.8	149	26	26	6	7581.01	-	-	-	-	-	-
	1239	12+39	1232		7580.2	149	21	26	6	7581.62	7581.7	69	7582.36	-1.6	80	-0.74
	1287	12+87	-	New cross section added in LOMR study	7581.5	149	17	23	7	7583.25	-	-	-	-	-	-
	1389	13+89	-	New cross section added in LOMR study	7584.5	149	48	34	4	7586.21	-	-	-	-	-	-
	1412	14+12	1410		7585.3	149	18	23	6	7586.95	7587.3	69	7588.00	-2.0	80	-1.05
1449	14+49	-	New cross section added in LOMR study	7586.4	149	27	26	6	7588.02	-	-	-	-	-	-	
1576	15+76	1575		7586.5	149	27	44	3	7589.08	7587.6	69	7589.04	-1.1	80	0.04	
1623	16+23	1622		7586.4	149	23	53	3	7589.25	7588.0	69	7589.20	-1.6	80	0.05	
1648	16+48	1648	Stone Creek DR. Culvert at Holland Pond	Culvert	-	-	-	-	-	Culvert	-	-	Culvert	-	-	
1674	16+74	1673		7588.2	149	22	42	4	7590.86	7588.2	69	7592.92	0.0	80	-2.06	
1697	16+97	1694		7591.4	149	23	25	6	7593.04	7591.2	69	7592.85	0.2	81	0.19	
1778	17+78	1776		7592.0	149	15	23	7	7594.15	7592.8	70	7594.40	-0.8	79	-0.25	
1816	18+16	1814		7592.4	149	16	26	6	7594.80	7593.6	130	7595.72	-1.2	20	-0.92	
1830	18+30	1830	Lateral Flow Split #4	Lat Struct	-	-	-	-	-	Lat Struct	-	-	Lat Struct	-	-	
1839	18+39	1836		7592.7	149	18	30	5	7595.11	7594.0	155	7596.18	-1.3	-6	-1.07	
1871	18+71	-	New cross section added in LOMR study	7592.9	149	25	50	3	7595.49	-	-	-	-	-	-	
1880	18+80	1880	Divers by Control Structure & Lateral Flow Split #3	Lat Struct	-	-	-	-	-	Lat Struct	-	-	Lat Struct	-	-	
1889	18+89	1886		7590.5	250	32	108	2	7595.56	7592.0	250	7596.54	-1.5	0	-0.98	
STONE CREEK	1959	19+59	1956		7596.0	119	23	22	5	7597.79	7596.0	151	7597.97	0.0	-32	-0.18
	2035	20+35	2032		7598.0	119	26	22	5	7599.62	7598.0	151	7599.81	0.0	-32	-0.19
	2119	21+19	2116		7601.6	119	14	18	7	7603.92	7601.6	151	7604.44	0.0	-32	-0.52
	2164	21+64	2161		7603.0	119	18	20	6	7605.34	7603.0	151	7605.55	0.0	-32	-0.21
	2266	22+66	2263		7607.0	119	50	23	5	7608.79	7607.0	151	7608.96	0.0	-32	-0.17
	2339	23+39	2336		7609.0	119	64	22	5	7610.84	7609.0	151	7611.02	0.0	-32	-0.18
	2387	23+87	2384		7611.3	119	24	22	5	7612.75	7611.3	151	7612.94	0.0	-32	-0.19
	2423	24+23	2420		7612.5	119	73	28	4	7614.25	7612.5	151	7614.36	0.0	-32	-0.11
	2513	25+13	2511		7616.4	119	86	22	5	7617.64	7616.4	151	7618.55	0.0	-32	-0.91
	2595	25+95	2592		7622.2	119	72	29	4	7623.39	7622.2	151	7623.51	0.0	-32	-0.12
	2729	27+29	2726		7627.0	123	70	32	4	7628.23	7627.0	161	7628.33	0.0	-38	-0.10
	2890	28+90	2890	Lateral Flow Split #1	Lat Struct	-	-	-	-	-	Lat Struct	-	-	Lat Struct	-	-
2902	29+02	2899		7631.4	125	32	28	4	7632.33	7631.4	165	7632.46	0.0	-40	-0.13	
2993	29+93	2990		7637.0	125	25	23	5	7638.09	7637.3	165	7639.82	-0.3	-40	-1.73	

**TABLE 1 FLOOD FREQUENCY - ELEVATION AND DISCHARGE DATA
STONE CREEK FLOODPLAIN INFORMATION AND LETTER OF MAP REVISION, EAGLE COUNTY, COLORADO**

12/30/2014

River / Reach	LOMR HEC-RAS Cross Section Number	Stationing from the confluence with Eagle River (feet)	FIS Effective HEC-RAS Model Cross Section Number	Reference Location	Post-flood Mitigation (As-built) Floodplain Data (100 - Year Flood)						FIS Effective Floodplain Data (100 - Year)			Comparison (As-built minus Effective)		
					Streambed Elevation (feet)	Peak Discharge (cfs)	Top Width (feet)	Flow Area (sq ft)	Average Velocity (ft/sec)	Water Surface Elevation (feet)	Streambed Elevation (feet)	Peak Discharge (cfs)	Water Surface Elevation (feet)	Streambed Elevation (feet)	Peak Discharge (cfs)	Water Surface Elevation (feet)
STONE CREEK	3050	30+50	3047		7640.0	125	20	22	6	7641.24	7640.3	165	7642.82	-0.3	-40	-1.58
	3113	31+13	3110		7643.5	125	102	23	5	7644.85	7643.7	165	7645.75	-0.3	-40	-0.90
	3133	31+33	3130		7644.4	125	20	22	6	7646.06	7645.6	165	7647.29	-1.2	-40	-1.23
	3195	31+95	3192		7648.5	125	21	22	6	7650.51	7650.7	165	7652.22	-2.2	-40	-1.71
	3222	32+22	3219	Upper split flow diversion control structure	7650.0	250	165	55	5	7654.62	7653.5	250	7655.87	-3.5	0	-1.25
	3273	32+73	3270		7654.7	250	51	46	5	7655.99	7656.6	250	7657.59	-1.9	0	-1.60
	3302	33+02	3299		7657.2	250	104	52	5	7658.90	7657.2	250	7658.90	0.0	0	0.00
	3347	33+47	3344		7660.0	250	547	48	5	7662.19	7660.0	250	7662.19	0.0	0	0.00
	3382	33+82	3379		7663.2	250	355	43	6	7665.29	7663.2	250	7665.29	0.0	0	0.00
	3467	34+67	3464		7671.5	250	144	54	5	7672.90	7671.5	250	7672.90	0.0	0	0.00
	3568	35+68	3565		7681.1	250	150	56	4	7682.35	7681.1	250	7682.35	0.0	0	0.00
	3652	36+52	3649		7686.2	250	149	38	7	7688.29	7686.2	250	7688.29	0.0	0	0.00
	3682	36+82	3679	Concrete Flume	7688.6	250	90	71	4	7691.57	7688.6	250	7691.57	0.0	0	0.00
	3692	36+92	3689		7689.4	250	61	97	3	7692.05	7689.4	250	7692.05	0.0	0	0.00
	3703	37+03	3700		7689.6	250	52	57	4	7692.02	7689.6	250	7692.02	0.0	0	0.00
	3705	37+05	3705	Pedestrian Bridge #2	Bridge	-	-	-	-	-	Bridge	-	-	Bridge	-	-
	3714	37+14	3711		7690.2	250	89	129	2	7694.03	7690.2	250	7694.03	0.0	0	0.00
	3739	37+39	3736		7693.1	250	43	43	6	7695.14	7693.1	250	7695.14	0.0	0	0.00
	3799	37+99	3797		7696.0	250	28	39	6	7698.42	7696.0	250	7698.42	0.0	0	0.00
	CREEK	4021	40+21	4018		7709.6	250	34	41	6	7711.87	7709.6	250	7711.87	0.0	0
4203		42+03	4200		7721.0	250	13	29	9	7725.46	7721.0	250	7725.46	0.0	0	0.00
4242		42+42	4239		7725.6	250	20	34	7	7728.97	7725.6	250	7728.97	0.0	0	0.00
4285		42+85	4282		7732.0	250	22	33	8	7734.83	7732.0	250	7734.83	0.0	0	0.00
4293		42+93	4293	Pedestrian Bridge #1	Bridge	-	-	-	-	-	Bridge	-	-	Bridge	-	-
4306		43+06	4303		7732.5	250	40	100	3	7738.25	7732.5	250	7738.25	0.0	0	0.00
4330		43+30	4327		7735.0	250	19	33	7	7738.18	7735.0	250	7738.18	0.0	0	0.00
UPPER FLOW SPLIT		95	0+95	95		7599.8	131	120	42	3	7600.46	7599.8	99	7600.38	0.0	32
	244	2+44	244		7602.0	131	66	33	4	7602.91	7602.0	99	7602.81	0.0	32	0.10
	349	3+49	349		7606.0	131	76	35	4	7606.75	7606.0	99	7606.66	0.0	32	0.09
	447	4+47	447		7611.1	131	109	41	3	7611.75	7611.1	99	7611.67	0.0	32	0.08
	562	5+62	562		7615.2	131	110	40	3	7615.84	7615.2	99	7615.77	0.0	32	0.07
	664	6+64	664		7618.0	131	83	36	4	7618.60	7618.0	99	7618.51	0.0	32	0.09
	791	7+91	791		7623.3	125	55	30	4	7624.09	7623.3	85	7623.94	0.0	40	0.15
	893	8+93	893		7627.4	125	73	34	4	7628.16	7627.4	85	7628.03	0.0	40	0.13
	955	9+55	955		7630.0	125	52	29	4	7630.60	7630.0	85	7630.46	0.0	40	0.14
	1018	10+18	1018		7631.3	125	21	22	6	7632.89	7631.3	85	7632.62	0.0	40	0.27
	1197	11+97	1197		7640.5	125	28	24	5	7641.72	7640.5	85	7641.49	0.0	40	0.23
	1350	13+50	1350		7653.2	125	30	26	5	7654.42	7653.2	85	7654.19	0.0	40	0.23

APPENDIX A

MT-2 Forms

Notification Letters

Annotated FIRM 08037C0651D_Appendix of Notification Letter

Stone Creek Flood Hazard Mitigation Project As-built Plans (Enclosed in Disc)

Eagle Vail Filing 1 Plat Map (Enclosed in Disc)

Stamped Topographic Map Lot 50, Block 1, Eagle-Vail Filing No. 1 (Enclosed in Disc)

U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
OVERVIEW & CONCURRENCE FORM

*O.M.B No. 1660-0016
 Expires February 28, 2014*

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

- CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).
- LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301	City of Katy	TX	48473C	0005D	02/08/83
480287	Harris County	TX	48201C	0220G	09/28/90
080051	Eagle County Unincorporated areas	CO	08037C	0651D	06/04/10

2. a. Flooding Source: Stone Creek

- b. Types of Flooding: Riverine Coastal Shallow Flooding (e.g., Zones AO and AH)
 Alluvial fan Lakes Other (Attach Description)

3. Project Name/Identifier: Stone Creek Flood Hazard Mitigation Project

4. FEMA zone designations affected: AE (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

- Physical Change Improved Methodology/Data Regulatory Floodway Revision Base Map Changes
 Coastal Analysis Hydraulic Analysis Hydrologic Analysis Corrections
 Weir-Dam Changes Levee Certification Alluvial Fan Analysis Natural Changes
 New Topographic Data Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

Structures: Channelization Levee/Floodwall Bridge/Culvert
 Dam Fill Other (Attach Description)

6. Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

C. REVIEW FEE

Has the review fee for the appropriate request category been included? Yes Fee amount: \$_____

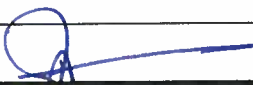
Federally sponsored flood control project, more than 50% in cost funded federally. See Instruction Section in report for details. No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/fm_fees.shtm for Fee Amounts and Exemptions.

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Jeff Layman, Community Manager Company: EagleVail Metropolitan District
Mailing Address: P.O. Box 5660 Avon, CO 81620 Daytime Telephone No.: (970) 949-5400 Fax No.: (970) 949-0520
E-Mail Address: jefflayman@eaglevail.org

Signature of Requester (required):  Date: 2/25/15

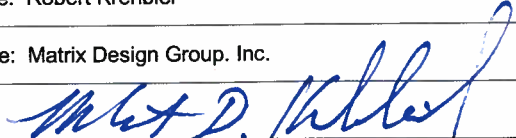
As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: Greg Schroeder, Floodplain Administrator Community Name: Eagle County
Mailing Address: P.O. Box 850, 500 Broadway Eagle, CO 81631 Daytime Telephone No.: 970.328.3560 Fax No.: 970.328.8789
E-Mail Address: greg.schroeder@eaglecounty.us

Community Official's Signature (required):  Date: January 10, 2015

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

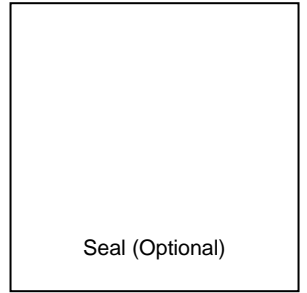
Certifier's Name: Robert Krehbiel License No.: 29113 Expiration Date:
Company Name: Matrix Design Group. Inc. Telephone No.: 303.572.0200 Fax No.: 303.572.0202
Signature:  Date: 02-18-15 E-Mail Address: robertk@matrixdesigngroup.com

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)

Required if ...

- | | |
|---|---|
| <input checked="" type="checkbox"/> Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations |
| <input checked="" type="checkbox"/> Riverine Structures Form (Form 3) | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| <input type="checkbox"/> Coastal Analysis Form (Form 4) | New or revised coastal elevations |
| <input type="checkbox"/> Coastal Structures Form (Form 5) | Addition/revision of coastal structure |
| <input type="checkbox"/> Alluvial Fan Flooding Form (Form 6) | Flood control measures on alluvial fans |



U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE HYDROLOGY & HYDRAULICS FORM

*O.M.B No. 1660-0016
 Expires February 28, 2014*

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

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DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: Stone Creek

Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Not revised (skip to section B) | <input type="checkbox"/> No existing analysis | <input type="checkbox"/> Improved data |
| <input type="checkbox"/> Alternative methodology | <input type="checkbox"/> Proposed Conditions (CLOMR) | <input type="checkbox"/> Changed physical condition of watershed |

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)
----------	-------------------------	---------------------	---------------

3. Methodology for New Hydrologic Analysis (check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Statistical Analysis of Gage Records | <input type="checkbox"/> Precipitation/Runoff Model → Specify Model: _____ |
| <input type="checkbox"/> Regional Regression Equations | <input type="checkbox"/> Other (please attach description) |

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? Yes No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation..

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.)	
			Effective	Proposed/Revised
Downstream Limit*	<u>Downstream of Highway US6</u>	<u>1+19</u>	<u>7557.67</u>	<u>7557.89</u>
Upstream Limit*	<u>Approx. 1730' u/s Stone Creek Dr</u>	<u>33+82</u>	<u>7665.29</u>	<u>7665.29</u>

*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: U.S. Army Corps of Engineers HEC-RAS 4.1.0

3. Pre-Submittal Review of Hydraulic Models*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4.

<u>Models Submitted</u>	<u>Natural Run</u>		<u>Floodway Run</u>		<u>Datum</u>
Duplicate Effective Model*	File Name: <u>Stone_Creek.prj</u>	Plan Name: <u>Stone_Creek.po2</u>	File Name: _____	Plan Name: _____	NAVD 88
Corrected Effective Model*	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____
Existing or Pre-Project Conditions Model	File Name: <u>Stone_Creek.prj</u>	Plan Name: <u>Stone_Creek.po2</u>	File Name: _____	Plan Name: _____	_____
Revised or Post-Project Conditions Model	File Name: <u>Stone_Creek.prj</u>	Plan Name: <u>Stone_Creek.po3</u>	File Name: _____	Plan Name: _____	_____
Other - (attach description)	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____

* For details, refer to the corresponding section of the instructions.

Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

Digital Mapping (GIS/CADD) Data Submitted (preferred)

Topographic Information: Aerial imagery and mapping/ Field Survey

Source: Analytical Surveys, Inc./ Marcin Engineering, Inc. Date: October 1998/ November 2012

Accuracy: 2-foot

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase? Yes No
- a. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:
- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
 - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.
- b. Does this LOMR request cause increase in the BFE and/or SFHA compared with the effective BFEs and/or SFHA? Yes No
If Yes, please attach **proof of property owner notification and acceptance (if available)**. Elements of and examples of property owner notifications can be found in the MT-2 Form 2 Instructions.
2. Does the request involve the placement or proposed placement of fill? Yes No
If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.
3. For LOMR requests, is the regulatory floodway being revised? Yes No
If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being established. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)
4. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA).

For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 7 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program; Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: Stone Creek

Note: Fill out one form for each flooding source studied.

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

- Channelization.....complete Section B
- Bridge/Culvert.....complete Section C
- Dam.....complete Section D
- Levee/Floodwall.....complete Section E
- Sediment Transport.....complete Section F (if required)

Description Of Modeled Structure

1. Name of Structure: Stone Creek Bypass Channel Site #1

Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: Approx 33 feet upstream of Highway US6 and extends approxi. 174 feet upstream

Downstream Limit/Cross Section: River station 2+57/ HEC-RAS cross section 260

Upstream Limit/Cross Section: River station 4+31/ HEC-RAS cross section 440

2. Name of Structure: Stone Creek Bypass Channel Site #2

Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: Approx from 455 feet downstream to 175 feet downstream of Stone Creek Drive

Downstream Limit/Cross Section: River station 11+28/ HEC-RAS cross section 1128

Upstream Limit/Cross Section: River station 14+49/ HEC-RAS cross section 1449

3. Name of Structure: Stone Creek Bypass Channel Site #3

Type (check one) Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: From Stone Creek Drive to approximately 220 feet upstream

Downstream Limit/Cross Section: Stone Creek Drive/ HEC-RAS cross section 1697

Upstream Limit/Cross Section: Confluence with Stone Creek/ HEC-RAS cross section 1871

NOTE: FOR MORE STRUCTURES, ATTACH ADDITIONAL PAGES AS NEEDED.

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 7 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

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DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: Stone Creek

Note: Fill out one form for each flooding source studied.

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

- Channelization.....complete Section B
- Bridge/Culvert.....complete Section C
- Dam.....complete Section D
- Levee/Floodwall.....complete Section E
- Sediment Transport.....complete Section F (if required)

Description Of Modeled Structure

1. Name of Structure: Stone Creek Bypass Diversion Structure

Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: Approx 1.570 feet upstream of Stone Creek Drive

Downstream Limit/Cross Section: River station 32+22/ HEC-RAS cross section 3222

Upstream Limit/Cross Section: River station 32+22/ HEC-RAS cross section 3222

2. Name of Structure: Stone Creek Site #4

Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: pproxi 1.570 feet upstream of Stone Creek Drive

Downstream Limit/Cross Section: River station 32+22/ HEC-RAS cross section 3222

Upstream Limit/Cross Section: River station 32+22/ HEC-RAS cross section 3222

3. Name of Structure: _____

Type (check one) Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: _____

Downstream Limit/Cross Section: _____

Upstream Limit/Cross Section: _____

NOTE: FOR MORE STRUCTURES, ATTACH ADDITIONAL PAGES AS NEEDED.

ENGINEERING DEPARTMENT
(970) 328-3560
FAX: (970) 328-8789
TDD: (970) 328-8797
www.eaglecounty.us



EVA WILSON
County Engineer

ENGINEERING DEPARTMENT
(970) 328-3560
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EVA WILSON
County Engineer

February 10, 2015

RE: Notification of increase/decrease of the 1% (100-year) annual chance floodplain, Stone Creek Flood Hazard Mitigation Project Eagle County, Colorado

Dear Homeowner:

This letter is to inform you of revision of the 1% annual chance floodplain on your community. No insurable structures are negatively impacted due to the revision. The Flood Insurance Rate Map (FIRM) depicts floodplain information for Stone Creek within the Eagle-Vail community including the base 100-year flood. The 100-year floodplain is that area which has been determined to be subject to a 1% (100-year) or greater annual chance of flooding in any given year. The FIRM is used to determine flood insurance rates and to assist the community with floodplain management.

A Letter of Map Revision (LOMR) is being sent from the Federal Emergency Management Agency (DHS-FEMA) on behalf of EagleVail Metropolitan District and Eagle County, Colorado to revise FIRM 08037C0651D for Stone Creek. A revision is requested to the Stone Creek 100-year regulatory floodplain due to the completion of the Flood Hazard Mitigation construction project that occurred in the Fall 2013 at five sites throughout the community.

1. Little Eisenhower along Hwy 6, channel widening and deepening
2. Flood Bypass Channel, channel widening and deepening
3. Holland Pond Flow Split, to formalize the flow split into the Flood Bypass Channel
4. Upper Stone Creek, to formalize the flow split through the golf course
5. Trout Pond Outlet, emergency overflow improvements

The attached Work Map shows the construction location of the channel improvement and impacts to the floodplain on properties. The Work Map illustrates property lines and both current effective and revised 1% annual chance (100-year) floodplain limits. The LOMR map revision will result an increase/ decrease of the regulatory 1% annual chance water-surface elevation for Stone Creek Bypass with a maximum water surface elevation rise of 1.07 feet at a point upstream of Highway US 6 culvert and a maximum water surface elevation decrease of 1.76 at a point upstream of Stone Creek Drive Culvert. The 1% annual chance water-surface elevation for Stone Creek decreases a maximum of 1.73 feet due to diverting flood flows into the Bypass Channel.

A copy of the LOMR is available for inspection at Eagle County's website at http://www.eaglecounty.us/Engineering/Floodplain_Mapping/ under the section at the bottom entitled "Letters of Map Revision (LOMRs) for Public Review."

If you have any question or concerns about the proposed changes to the FIRM or its effect on your property, you may contact me by email at greg.schroeder@eaglecounty.us or phone at (970)328-3560. Additionally, you may also contact Robert Krehbiel by phone at (303)572-0200 or email at Robert_Krehbiel@matrixdesigngroup.com.

Sincerely,
EAGLE COUNTY ENGINEERING DEPARTMENT

Greg Schroeder, P.E.
Senior Staff Engineer

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MINTURN, CO 81645-0310

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AVON, CO 81620-1455

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ANN HATLEY TRUSTEE
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MARINA DEL REY, CA 90292-6242

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CREEK LLC
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ENID, OK 73703-6917

SNOWBIRD ASSOCIATES
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DOLORES S.
PO BOX 1078
AVON, CO 81620

WILLIAMS, ROSS R. & GERI O
BRIEN
377 BUENA VISTA
GOLDEN, CO 80401

Legend

- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 500'

250 0 500 FEET
150 0 150 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0651D

FIRM
FLOOD INSURANCE RATE MAP

EAGLE COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 651 OF 1125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:

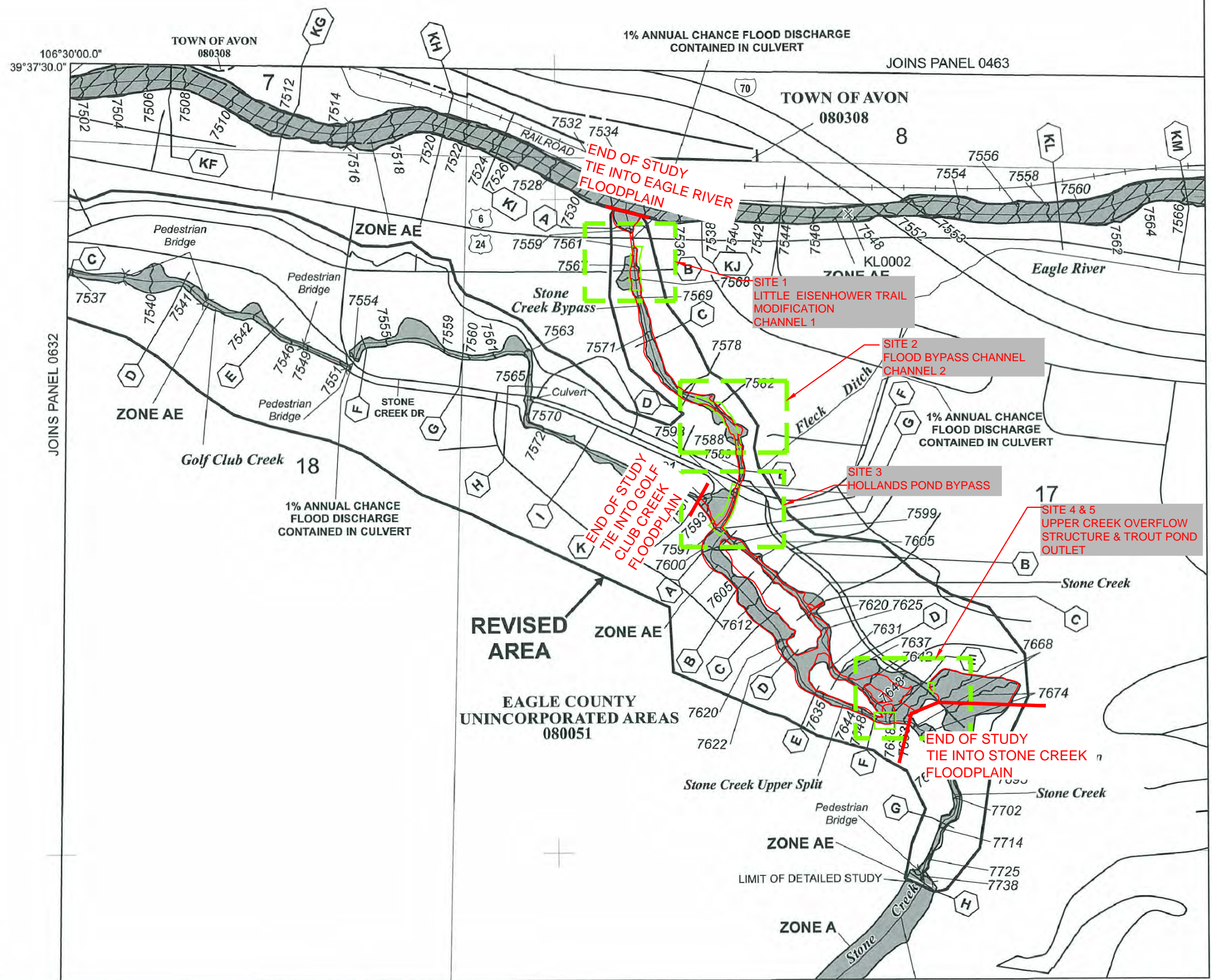
COMMUNITY	NUMBER	PANEL	SUFFIX
EAGLE COUNTY, UNINCORPORATED AREAS	080051	0651	D
AVON, TOWN OF	080308	0651	D

REVISED TO REFLECT LOMR EFFECTIVE: June 4, 2010

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 08037C0651D
EFFECTIVE DATE DECEMBER 4, 2007

Federal Emergency Management Agency



STONE CREEK FLOOD HAZARD MITIGATION PROJECT

SHEET No. 1



Know what's below.
Call before you dig.

APRIL 2013

EAGLE COUNTY, COLORADO

RELEASE FOR BID
AS-BUILT

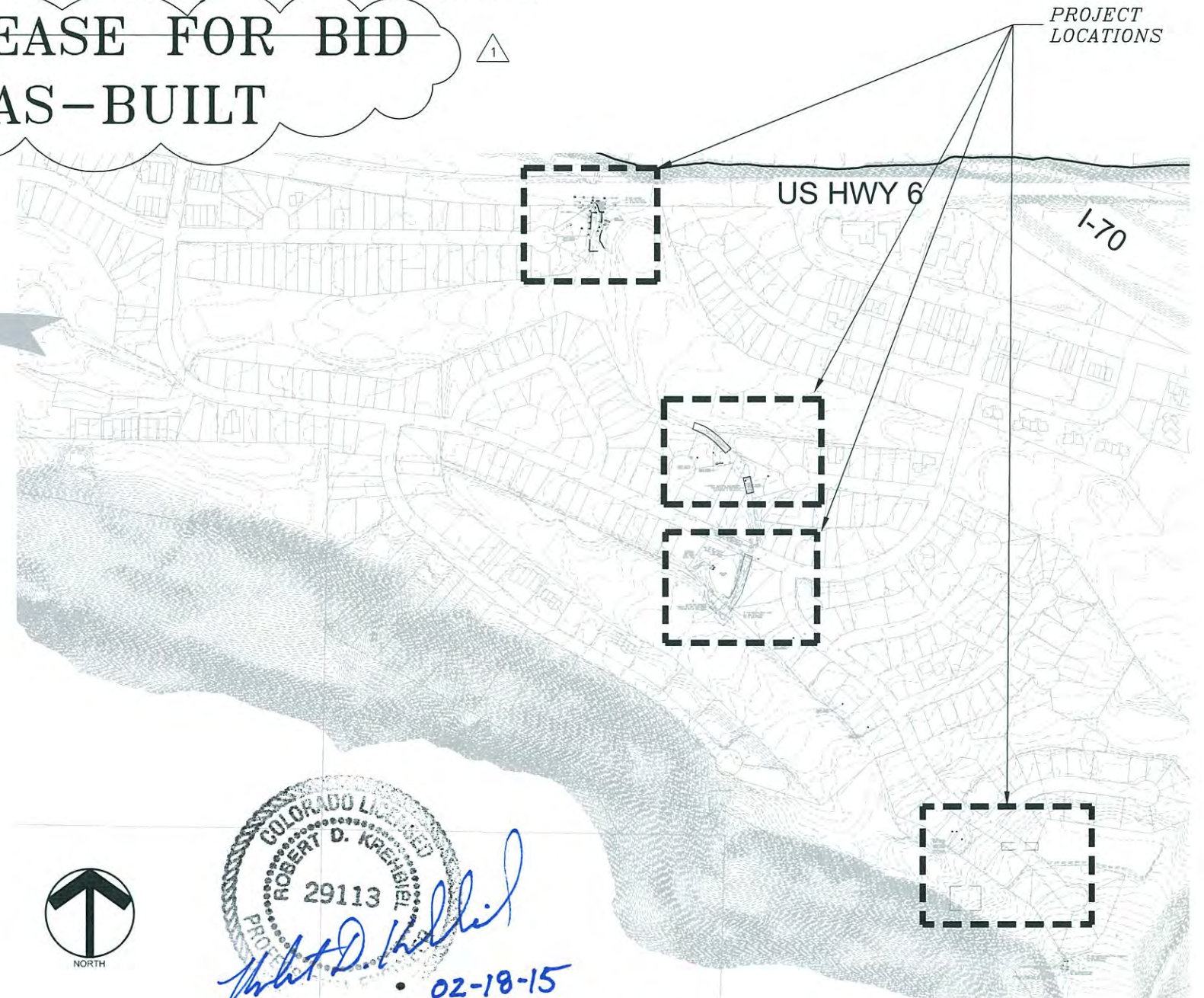
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GRADING PLAN-SITE 1 & 2	8
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VICINITY MAP

SCALE: N.T.S.



LOCATION MAP

SCALE: 1"=250'



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7/23/14	AS-BUILT		HTH
COMPUTER FILE MANAGEMENT				
FILE NAME: 08.093.002 (Stone Creek Floodplain)dwg\Construction\As-Built\Cover Sheet.dwg				
CTB FILE: ---				
PLOT DATE: 08/20/2014 9:30 AM				
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.				



EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

PREPARED BY:



SEAL

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
COVER SHEET			
DESIGNED BY: HTH	SCALE	DATE ISSUED: APRIL, 2013	DRAWING No.
DRAWN BY: LDZ	HORIZ -	SHEET 1 OF 20	1
CHECKED BY: RLK	VERT. -		



Know what's below.
Call before you dig.

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE OWNER. THE OWNER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO STANDARDS AND SPECIFICATIONS PROVIDED IN THE CONTRACT DOCUMENTS.
2. VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO BEGINNING WORK OR FABRICATING MATERIALS. IF FIELD CONDITIONS ARE FOUND TO BE DIFFERENT THAN SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE IMMEDIATELY.
3. DIMENSIONS AND NOTATIONS SUPERSEDE SCALE OF THE DRAWINGS.
4. CONTRACTOR SHALL MAINTAIN AT LEAST ONE COPY OF THE APPROVED PLANS, SPECIFICATIONS AND STANDARDS ON THE JOB SITE AT ALL TIMES.
5. EXCEPT WHERE OTHERWISE PROVIDED FOR IN THESE PLANS AND SPECIFICATIONS, COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, SHALL APPLY.
6. LOCATIONS OF UTILITIES REPRESENT THE BEST-KNOWN LOCATIONS AT THE TIME OF PREPARATION OF DRAWINGS. THE CONTRACTOR SHALL FIELD-LOCATE ALL UTILITIES PRIOR TO COMMENCING WORK. FOR UTILITY LOCATES CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987. CONTACT UTILITY COMPANIES 48 HOURS IN ADVANCE WHEN WORKING ADJACENT TO UTILITY.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TAKE ALL PRECAUTIONS NECESSARY TO PROTECT ALL UTILITIES (INCLUDING IRRIGATION FACILITIES) DURING CONSTRUCTION. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING UTILITIES RESULTING FROM CONSTRUCTION OPERATIONS. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH REPAIR OF DAMAGED UTILITIES.
8. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE TRAFFIC CONTROL THROUGHOUT THE PROJECT, INCLUDING PROPER TRAFFIC CONTROL FOR GOLF COURSE TRAFFIC AND PEDESTRIAN TRAFFIC.
9. CONTRACTOR SHALL REMOVE ALL WASTE MATERIAL, CONCRETE, ASPHALT, SUBGRADE, ETC. FROM THE SITE TO A SUITABLE DISPOSAL SITE APPROVED BY THE OWNER.
10. ALL VEGETATION INCLUDING TREES AND SHRUBS MUST BE PROTECTED FROM CONSTRUCTION ACTIVITIES, UNLESS IDENTIFIED FOR REMOVAL.
11. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL AT HIS OWN EXPENSE SECURE ALL NECESSARY PERMITS AND PAY ALL NECESSARY FEES REQUIRED FOR THE PERFORMANCE OF THE WORK (UNLESS OTHERWISE SPECIFIED). PERMITS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
 - a. THE OWNER WILL OBTAIN A FLOODPLAIN DEVELOPMENT PERMIT AND AN US ARMY CORPS OF ENGINEERS NATIONWIDE 404 PERMIT.
 - b. IF NEEDED, THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION DEWATERING PERMIT FROM THE COLORADO STATE DEPARTMENT OF HEALTH. THE CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS OF THE PERMIT.
 - c. THE CONSTRUCTION DISTURBANCE IS ANTICIPATED TO CUMULATIVELY BE LESS THAN ONE ACRE, THEREFORE A STORMWATER MANAGEMENT PLAN (SWMP) PERMIT IS NOT REQUIRED FROM THE STATE. HOWEVER, THE CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS OF THE PERMIT. SHEETS 15 & 16 REPRESENT THE MINIMUM EROSION PROTECTION REQUIRED.
 - d. THE OWNER SHALL OBTAIN A GRADING PERMIT FROM EAGLE COUNTY. THE CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS OF THE PERMIT.
12. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS AT, AND ADJACENT TO THE JOB SITE, INCLUDING BUT NOT LIMITED TO TRENCH EXCAVATIONS AND SHORING, TRAFFIC CONTROL, SECURITY, AND SAFETY OF ALL PERSONS AND PROPERTY, DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY, AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS. THE DUTY OF THE OWNER TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN OR NEAR THE CONSTRUCTION SITE.
13. THE CONTRACTOR SHALL ADHERE TO THE CONSTRUCTION LIMITS SET FORTH WITHIN THESE PLANS AND AS AGREED UPON BY THE OWNER. UNLESS OTHERWISE DELINEATED AS LIMITS OF CONSTRUCTION, THE CONTRACTOR SHALL NOT DISTURB ANY AREA OUTSIDE THE LIMITS OF GRADING SHOWN WITHIN THESE CONSTRUCTION DRAWINGS.
14. THE CONTRACTOR SHALL CONSTRUCT THE PROJECT DURING NORMAL WORKING HOURS, 7:00 A.M. TO 7:00 P.M., ON MONDAYS THROUGH FRIDAYS. WORK SHALL ONLY OCCUR DURING DAYLIGHT HOURS. ALL EQUIPMENT SHALL BE EQUIPPED WITH PROPER MUFFLERS. THE BID SHALL BE BASED ON THIS TIME PERIOD. WORK OUTSIDE NORMAL HOURS MUST BE APPROVED IN ADVANCE IN WRITING BY THE OWNER.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY CLEANUP OF ANY TRASH OR MUD ON THE SITE OR ADJACENT STREETS & TRAILS AS A RESULT OF CONSTRUCTION.
16. THE CONTRACTOR WILL HIRE INDEPENDENT TESTING SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS AND TESTS WITH THE OWNER.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF ALL SURFACE AND SUBSURFACE FLOWS INCLUDING STORM FLOWS IN AND ENTERING STONE CREEK, OFF-SITE DRAINAGE FLOWS, AND GROUNDWATER FLOWS. THE CONTRACTOR SHALL FURTHER BE RESPONSIBLE FOR DAMAGE TO STRUCTURES, LOSS OF TOPSOIL AND LOSS OF SEED CAUSED BY FLOWS UNTIL THE PROJECT IS ACCEPTED BY THE OWNER. IN ADDITION, THE CONTRACTOR IS RESPONSIBLE FOR STREAM DIVERSION AND DEWATERING AS NECESSARY TO PERFORM WORK IN DRY CONDITIONS. STREAM DIVERSION AND DEWATERING METHODS SHALL BE SHOWN ON A WATER CONTROL PLAN TO BE SUBMITTED BY THE CONTRACTOR FOR REVIEW PRIOR TO CONSTRUCTION.
18. ALL FILL MUST BE APPROVED FOR EMBANKMENT AND COMPACTED TO 95% STANDARD PROCTOR (ASTM D698) AT +/- 2% OF OPTIMUM MOISTURE. THE OPTIMUM MOISTURE CONTENT WILL BE DETERMINED BY THE CONTRACTOR AND SHALL NOT BE PAID FOR SEPARATELY.
19. CONSTRUCTION STAKING SHALL BE COMPLETED BY THE CONTRACTOR AT THE CONTRACTORS EXPENSE.
20. LIMITS OF CONSTRUCTION IN ALL AREAS SHALL BE DESIGNATED WITH ORANGE SAFETY CONSTRUCTION FENCES, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING PUBLIC SAFETY MEASURES ON AND ADJACENT TO THE PROJECT.

21. ALL MACHINERY SHALL USE PLYWOOD PLANKS OR OTHER VEHICLE TRACKING PADS WHEN ACCESSING THE GOLF COURSE AND/OR WORKING ON THE GOLF COURSE PER OWNER'S DIRECTION. COORDINATE ACCESS ROUTES WITH OWNER AND GOLF COURSE PRIOR TO ACCESS.
22. CONTRACTOR SHALL RESTORE SITE(S) TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS.
23. STAGING AREA IS THE DRIVING RANGE PARKING LOT. OTHER STAGING AREAS MAY BE UTILIZED WITH PRIOR APPROVAL BY OWNER.
24. WORK AT SITE 1 SHALL BEGIN UPON NOTICE TO PROCEED TO ASSURE PLACEMENT OF ASPHALT TRAIL PRIOR TO WEATHER RESTRICTIONS.
25. ACCESS TO WORK AT SITE 4 SHALL BE THROUGH SITE 3. THEREFORE, WORK AT SITE 4 SHALL BE COMPLETED PRIOR TO COMPLETION OF WORK AT SITE 3.
26. ALL DISTURBED AREAS SHALL BE SODDED OR SEEDED PER SPECIFICATIONS AND AS OUTLINED BELOW:
 - SITES 1 & 2 - SOD AND/OR BLUE CARPET-BLUEGRASS MIX
 - SITES 3, 4, & 5 - LOW GROW GRASS MIX
27. CONCRETE WASHOUT WILL NOT BE ALLOWED ON-SITE. CONTRACTOR TO MAKE PROVISIONS TO MANAGE WASHOUT OFF-SITE.
28. CONTRACTOR TO ABIDE BY ALL OF THE MITIGATION AND STIPULATIONS LISTED IN THE FINDING OF NO SIGNIFICANT IMPACT, STONE CREEK FLOODPLAIN MITIGATION PROJECT (FMA-PJ-08-CO-2010-001), EAGLE COUNTY, CO, SEPTEMBER 23, 2011 DOCUMENT, AS ENCLOSED IN EXHIBIT E IN THE ATTACHED AGREEMENT BETWEEN THE STATE OF COLORADO LOCAL AFFAIRS AND EAGLE COUNTY.

CONTACT INFORMATION:

- GREG SCHROEDER, OWNER'S REPRESENTATIVE
970-948-1376
greg.schroeder@eaglecounty.us
- STEVE BARBER, GOLF COURSE SUPERINTENDENT
970-390-8976
sbarber@eaglevail.org
- JEFF LAYMAN, EAGLE VAIL COMMUNITY MANAGER
970-376-7004
jefflayman@eaglevail.org

AS-BUILT

REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
X-MDQ22434				
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CTB FILE: ---				
PLOT DATE: 9/23/2014 5:39 PM				
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.				

SHEET KEY

EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

PREPARED BY:

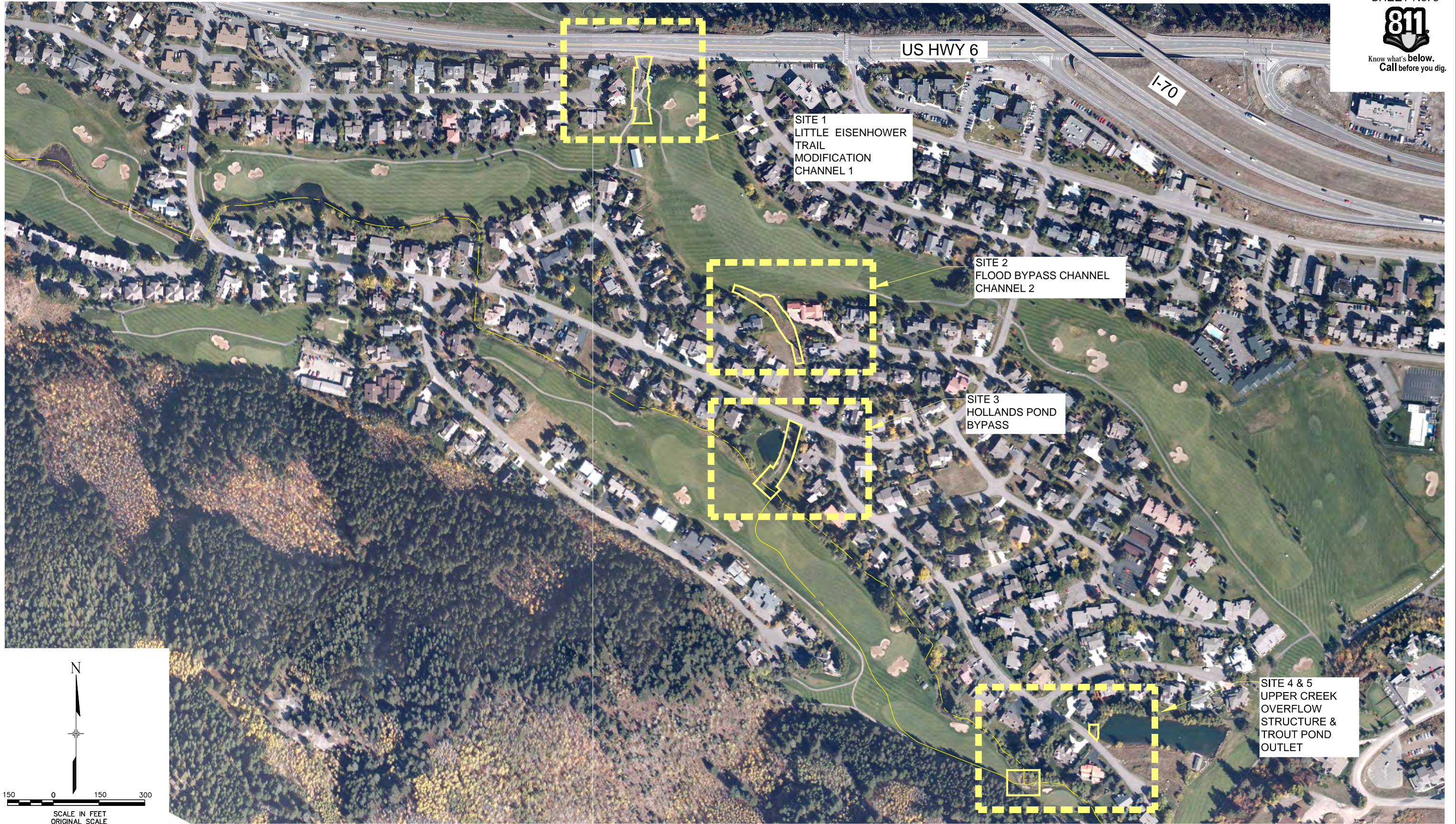
Matrix
DESIGN GROUP

SEAL

STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
GENERAL NOTES			
DESIGNED BY: HTH	SCALE	DATE ISSUED: SEPT., 2012	DRAWING No.
DRAWN BY: LDZ	HORIZ -		
CHECKED BY: RLK	VERT -	SHEET 2 OF 20	2



Know what's below.
Call before you dig.

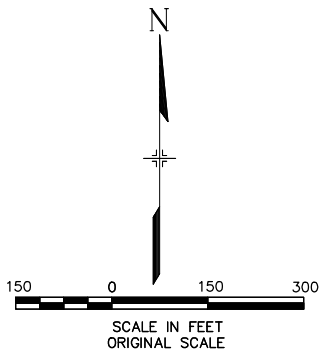


SITE 1
LITTLE EISENHOWER
TRAIL
MODIFICATION
CHANNEL 1

SITE 2
FLOOD BYPASS CHANNEL
CHANNEL 2

SITE 3
HOLLANDS POND
BYPASS

SITE 4 & 5
UPPER CREEK
OVERFLOW
STRUCTURE &
TROUT POND
OUTLET



REFERENCE DRAWINGS	DESCRIPTION	BY	
Combo-Survey-GIS-Topo			
Eagle 100			
River_CL			
K4MDG22-34			
No.	DATE	DESCRIPTION	BY
REVISIONS			
COMPUTER FILE MANAGEMENT			
FILE NAME: 08.093.002 (Stone Creek Floodplain)\dwg\Construction\As-Built\Site Aerial.dwg			
CTB FILE: ---			
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THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.			

SHEET KEY

EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

PREPARED BY:

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK

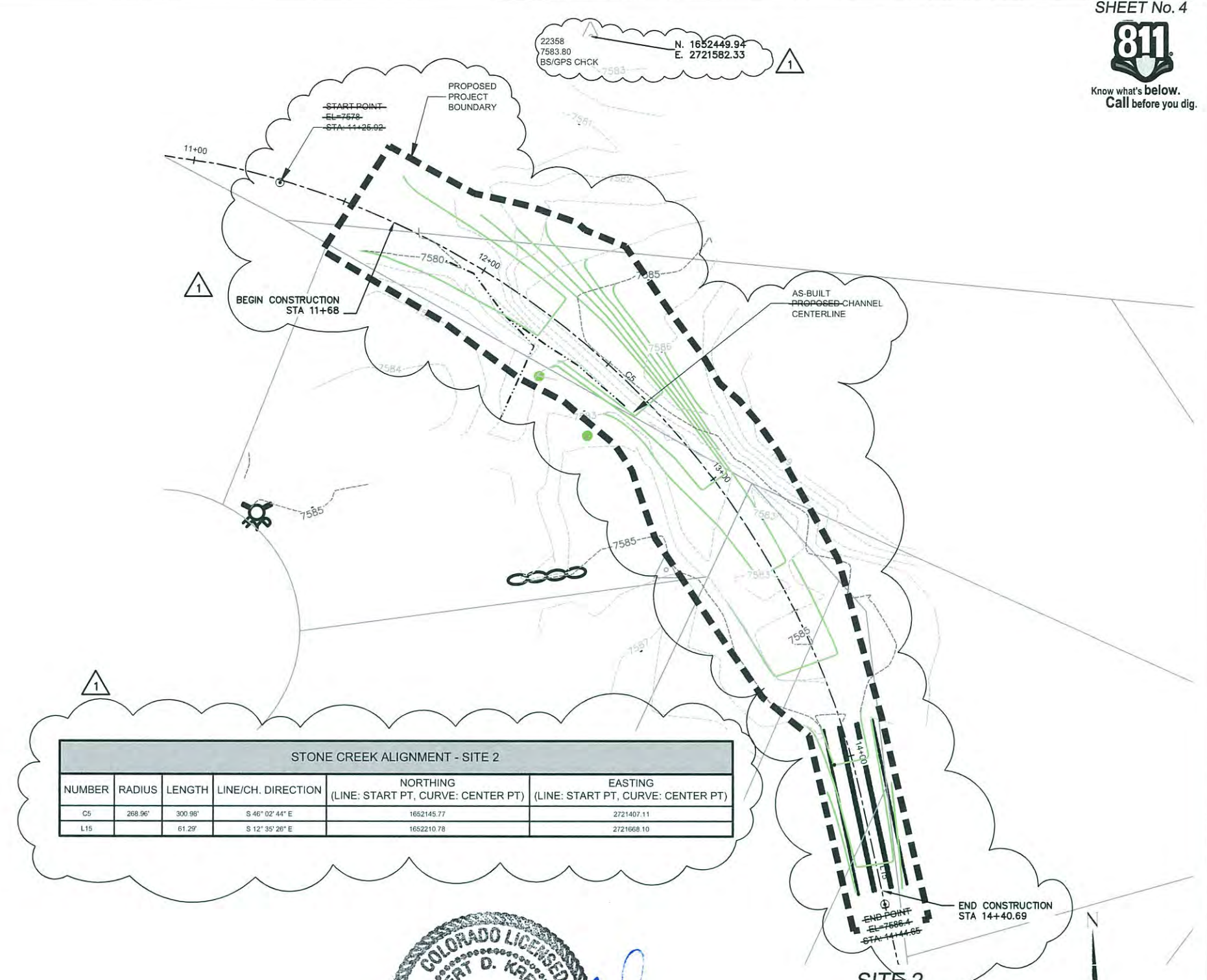
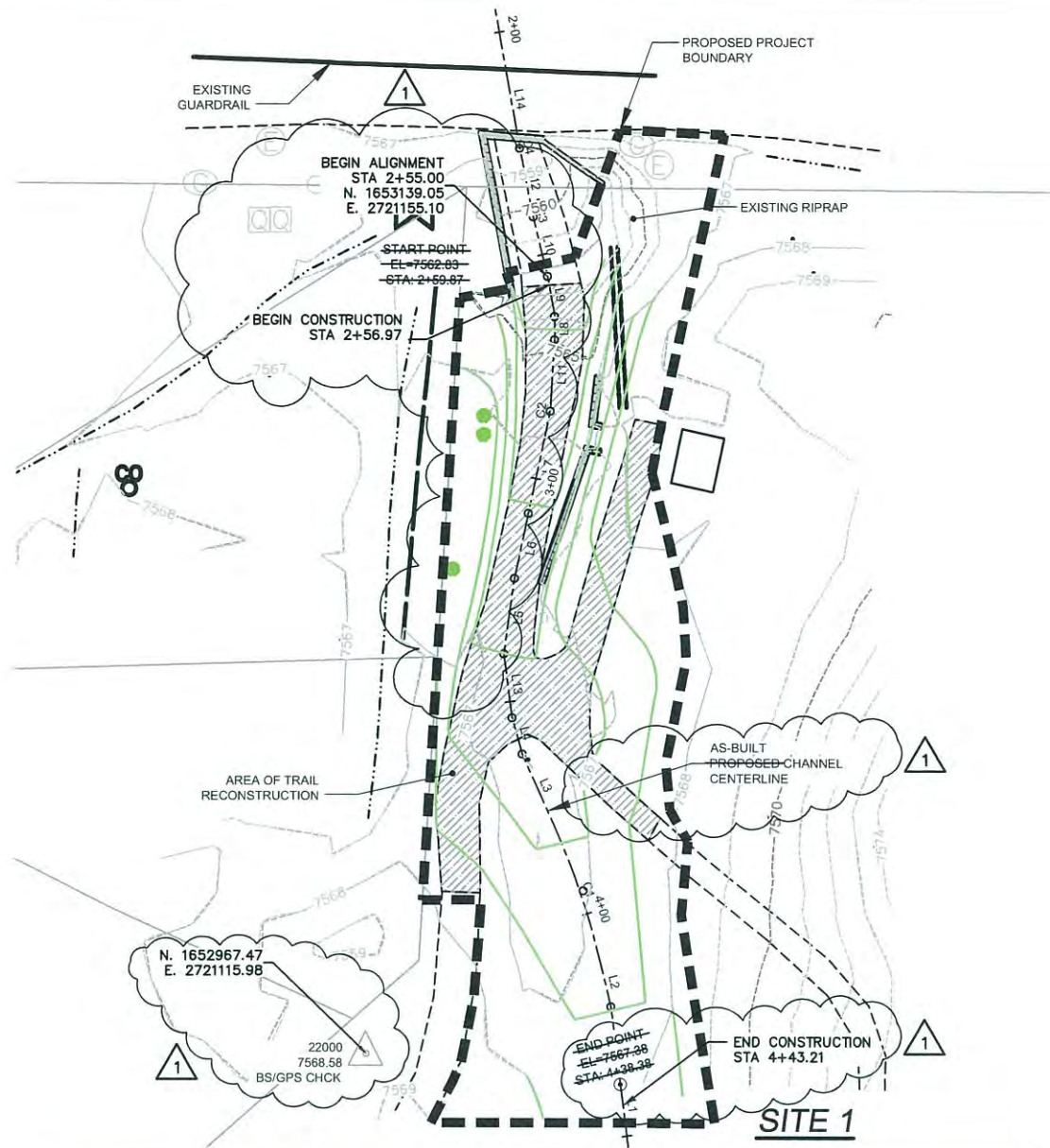
FLOOD HAZARD MITIGATION PROJECT
EAGLE COUNTY, COLORADO

SITE AERIAL AS-BUILT

DESIGNED BY: HTH	SCALE: 1"=150'	DATE ISSUED: SEPT., 2012	DRAWING No.
DRAWN BY: LDZ	HORIZ. 1"=150'	SHEET	3 OF 20
CHECKED BY: RLK	VERT. 1"=150'		3



Know what's below.
Call before you dig.



22358
7583.80
BS/GPS CHCK

N. 1652449.94
E. 2721582.33

N. 1652967.47
E. 2721115.98

END POINT
EL=7567.88
STA=4+38.38

STONE CREEK ALIGNMENT - SITE 2

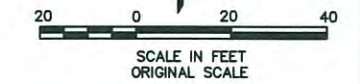
NUMBER	RADIUS	LENGTH	LINE/CH. DIRECTION	NORTHING (LINE: START PT, CURVE: CENTER PT)	EASTING (LINE: START PT, CURVE: CENTER PT)
C5	268.96'	300.98'	S 46° 02' 44" E	1652145.77	2721407.11
L15		61.29'	S 12° 35' 26" E	1652210.78	2721668.10

STONE CREEK ALIGNMENT - SITE 1

NUMBER	RADIUS	LENGTH	LINE/CH. DIRECTION	NORTHING (LINE: START PT, CURVE: CENTER PT)	EASTING (LINE: START PT, CURVE: CENTER PT)
C1	173.92'	32.03'	S 18° 47' 25" E	1652947.23	2720998.05
C2	12.06'	1.76'	S 7° 32' 27" W	1653110.93	2721143.79
C3	19.04'	0.87'	S 12° 35' 14" E	1653156.34	2721170.44
C4	19.04'	0.36'	S 10° 43' 40" E	1653170.84	2721167.55
L1		55.33'	S 7° 05' 32" E	1652977.87	2721169.56
L2		10.28'	S 13° 30' 50" E	1652987.87	2721167.16
L3		16.96'	S 24° 04' 00" E	1653033.66	2721149.93
L4		8.32'	S 15° 35' 00" E	1653041.68	2721147.69
L5		16.82'	S 7° 40' 38" W	1653072.49	2721148.06
L6		14.61'	S 11° 54' 50" W	1653086.78	2721151.08
L7		22.16'	S 11° 45' 53" W	1653108.47	2721155.60
L8		5.18'	S 0° 00' 18" W	1653130.20	2721156.69
L9		8.99'	S 10° 11' 05" E	1653139.05	2721155.10
L10		13.10'	S 13° 53' 54" E	1653151.77	2721151.95
L11		14.82'	S 3° 19' 01" W	1653125.02	2721156.69
L12		14.78'	S 11° 16' 34" E	1653167.11	2721148.87
L13		14.26'	S 7° 33' 22" E	1653055.81	2721145.82
L14		87.45'	S 10° 10' 47" E	1653253.59	2721133.34



AS-BUILT



REFERENCE DRAWINGS	DATE	DESCRIPTION	BY
1	7/23/14	AS-BUILT	HTH

No.	DATE	DESCRIPTION	BY

COMPUTER FILE MANAGEMENT

FILE NAME: 08.093.002 (Stone Creek Floodplain) (dwg) Construction\As-Built\Survey Horizontal Control-Site 1 & 2.dwg

CTB FILE: PLOT DATE: 2/3/2014 10:02 AM

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SHEET KEY

--	--

EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

PREPARED BY:

Matrix DESIGN GROUP

SEAL

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

DESIGNED BY: HTH
DRAWN BY: LDZ
CHECKED BY: RLK

SCALE
HORIZ 1"=20'
VERT 1"=20'

DATE ISSUED: SEPT., 2012

SHEET 4 OF 20

DRAWING No. 4

STONE CREEK
FLOOD HAZARD MITIGATION PROJECT
EAGLE COUNTY, COLORADO

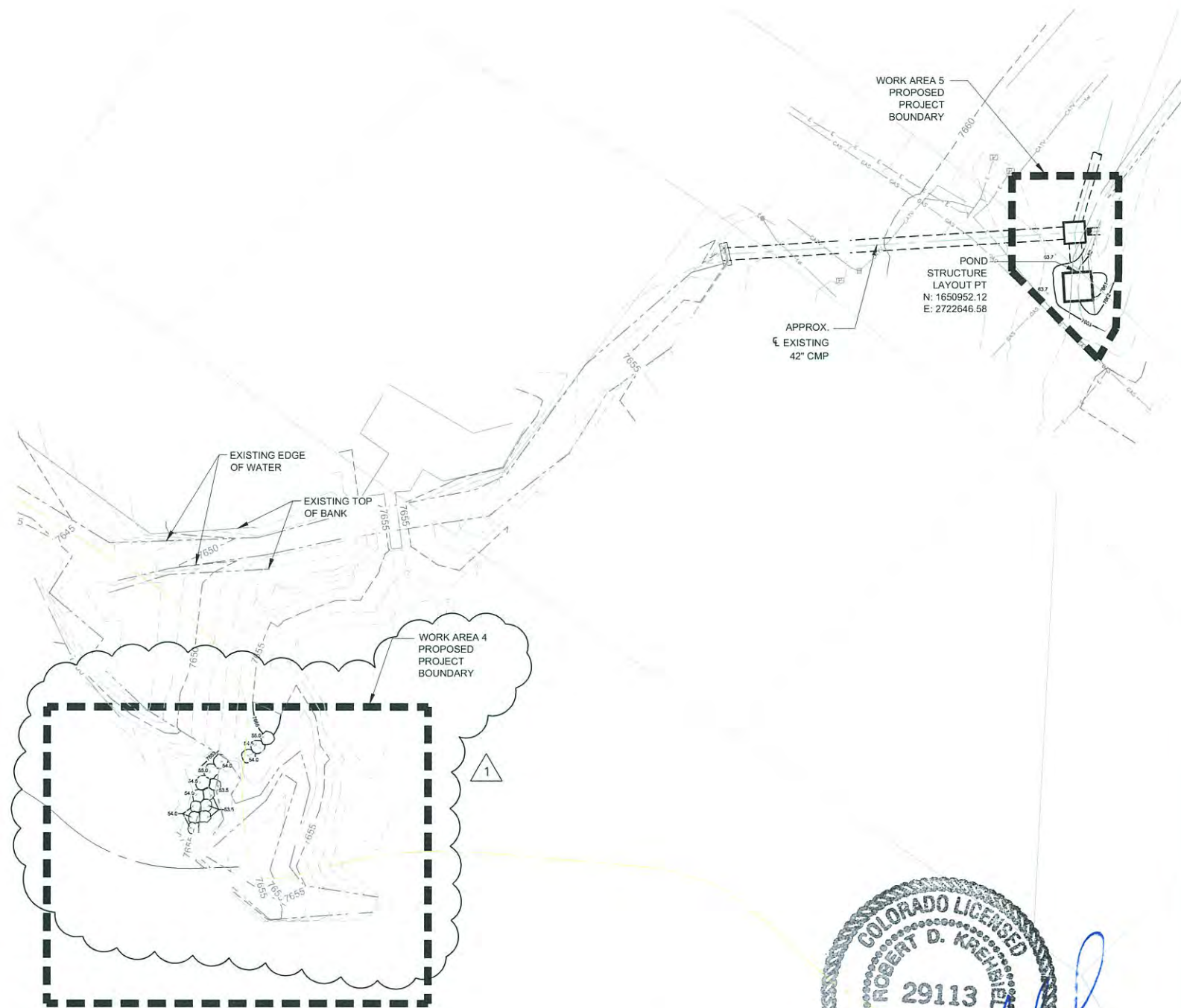
SURVEY/HORIZONTAL CONTROL
SITE 1 & SITE 2



Know what's below.
Call before you dig.



SITE 3

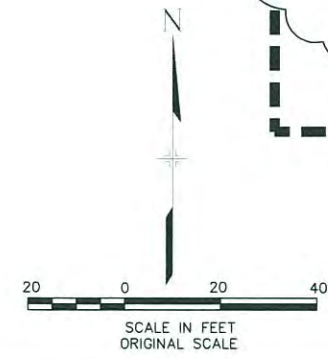


SITE 4 & 5

AS-BUILT



STONE CREEK ALIGNMENT - SITE 3						
NUMBER	RADIUS	LENGTH	LINE/CH. DIRECTION	NORTHING (LINE: START PT, CURVE: CENTER PT)	EASTING (LINE: START PT, CURVE: CENTER PT)	
C14	418.90'	8.72'	S 39° 22' 40" W	1651508.53	2721915.92	
C15	12.06'	2.87'	S 12° 50' 20" W	1651954.86	2721681.59	
L28		39.04'	S 19° 02' 43" W	1651886.13	2721650.83	
L29		17.57'	S 20° 31' 52" W	1651902.58	2721656.99	
L30		10.95'	S 23° 05' 35" W	1651849.23	2721638.09	
L31		17.23'	S 39° 58' 26" W	1651790.86	2721605.97	
L32		29.31'	S 34° 36' 57" W	1651814.98	2721622.62	
L33		26.64'	S 24° 47' 46" W	1651839.16	2721633.80	
L34		30.22'	S 19° 15' 54" W	1651931.11	2721666.96	
L35		25.15'	S 6° 01' 27" W	1651956.13	2721669.60	
L36		46.41'	S 38° 46' 53" W	1651770.91	2721589.37	
L37		22.99'	S 19° 39' 14" W	1651960.57	2721677.97	



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7/23/14	AS-BUILT		HTH

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CTB FILE:	
PLOT DATE:	2/3/2014 11:24 AM
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SHEET KEY	

EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

PREPARED BY:
Matrix
DESIGN GROUP

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK			
FLOOD HAZARD MITIGATION DESIGN EAGLE COUNTY, COLORADO			
SURVEY/HORIZONTAL CONTROL SITE 3, 4 & 5			
DESIGNED BY:	HTH	SCALE:	DATE ISSUED:
DRAWN BY:	LDZ	HORIZ. AS SHOWN	SEPT., 2012
CHECKED BY:	RLK	VERT. AS SHOWN	SHEET
			DRAWING No. 5



Know what's below.
Call before you dig.

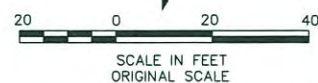


SITE 1



SITE 2

NOTE: PRIOR TO CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH OWNER, GOLF COURSE AND ADJACENT PRIVATE PROPERTY OWNERS REGARDING LOCATION OF EXISTING IRRIGATION SYSTEMS AND REQUIRED MODIFICATIONS DUE TO PROPOSED IMPROVEMENTS.



AS-BUILT

REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7/23/14	AS-BUILT		HTH

COMPUTER FILE MANAGEMENT	
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PLOT DATE:	2/3/2014 9:27 AM
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SHEET KEY	
No.	DATE



EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

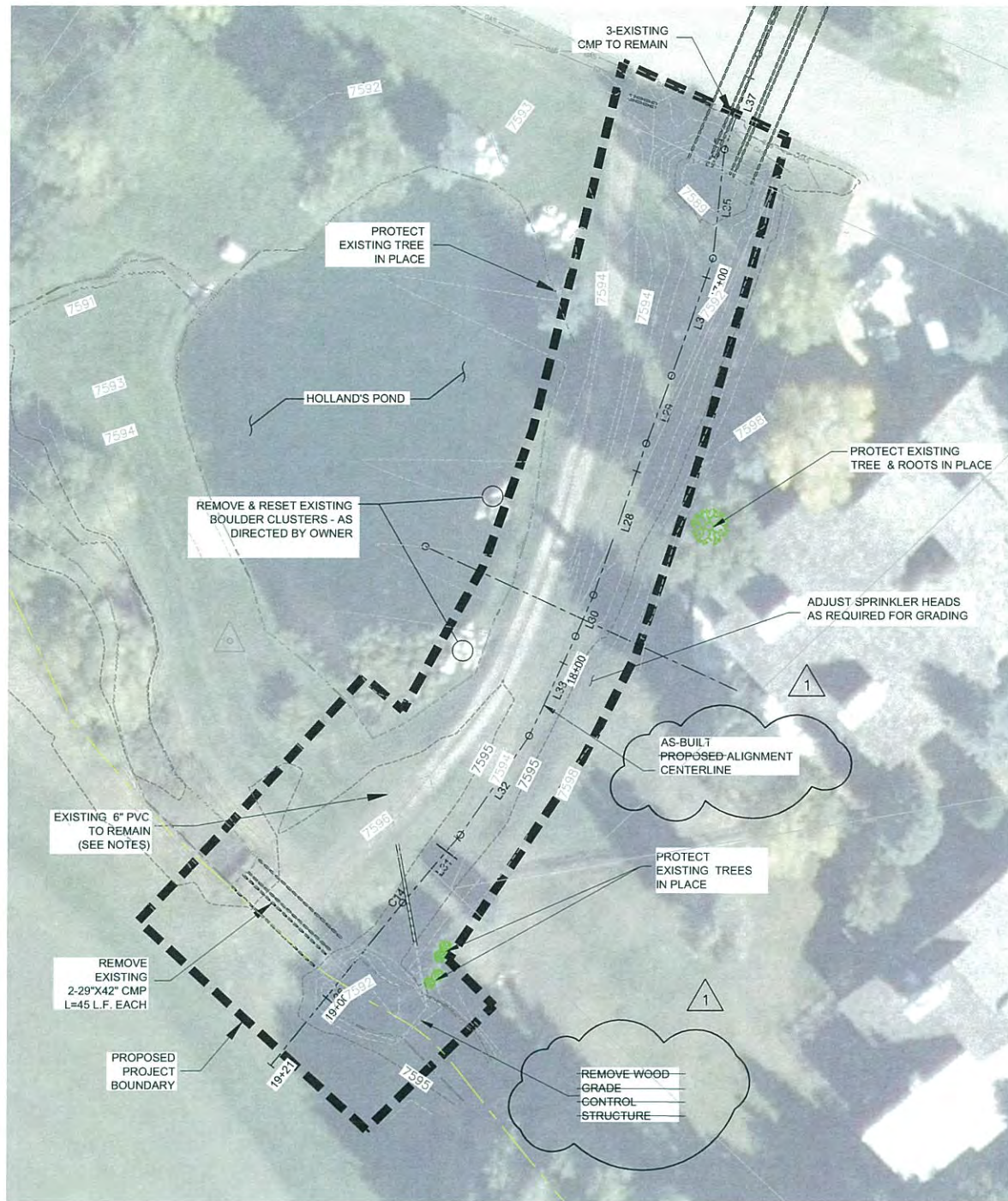


FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK			
FLOOD HAZARD MITIGATION DESIGN EAGLE COUNTY, COLORADO			
DEMOLITION PLAN SITE 1 & SITE 2			
DESIGNED BY:	HTH	SCALE:	DATE ISSUED: SEPT., 2012
DRAWN BY:	LDZ	HORIZ. 1"=20'	DRAWING No. 6
CHECKED BY:	RLK	VERT. 1"=20'	SHEET 6 OF 20



Know what's below.
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SITE 3



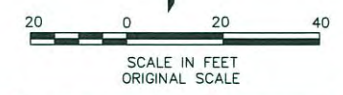
SITE 4 & 5

AS-BUILT



NOTES:

1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH OWNER, GOLF COURSE AND ADJACENT PRIVATE PROPERTY OWNERS REGARDING LOCATION OF EXISTING IRRIGATION SYSTEMS AND REQUIRED MODIFICATIONS DUE TO PROPOSED IMPROVEMENTS.
2. EXISTING DIVERSION PIPE TO HOLLAND'S POND SHALL REMAIN OPERATIONAL DURING AND AFTER CONSTRUCTION. TEMPORARY SHUT DOWN IS ALLOWED WITH PRIOR APPROVAL OF OWNER. CONTRACTOR SHALL ASSURE ADEQUATE FLOW CAPACITY IS MAINTAINED PRIOR TO PROJECT COMPLETION.
3. EXACT LOCATION AND CONFIGURATION OF EXISTING PIPE JUNCTION DOWNSTREAM OF TROUT POND IS UNKNOWN. CONTRACTOR SHALL LOCATE & UNCOVER JUNCTION PRIOR TO BEGINNING CONSTRUCTION OF TROUT POND OUTLET STRUCTURE OR NEW JUNCTION STRUCTURE. OWNER AND/OR ENGINEER SHALL BE NOTIFIED ONCE JUNCTION IS UNCOVERED TO VERIFY.



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7/22/14	AS-BUILT		HTH

COMPUTER FILE MANAGEMENT	
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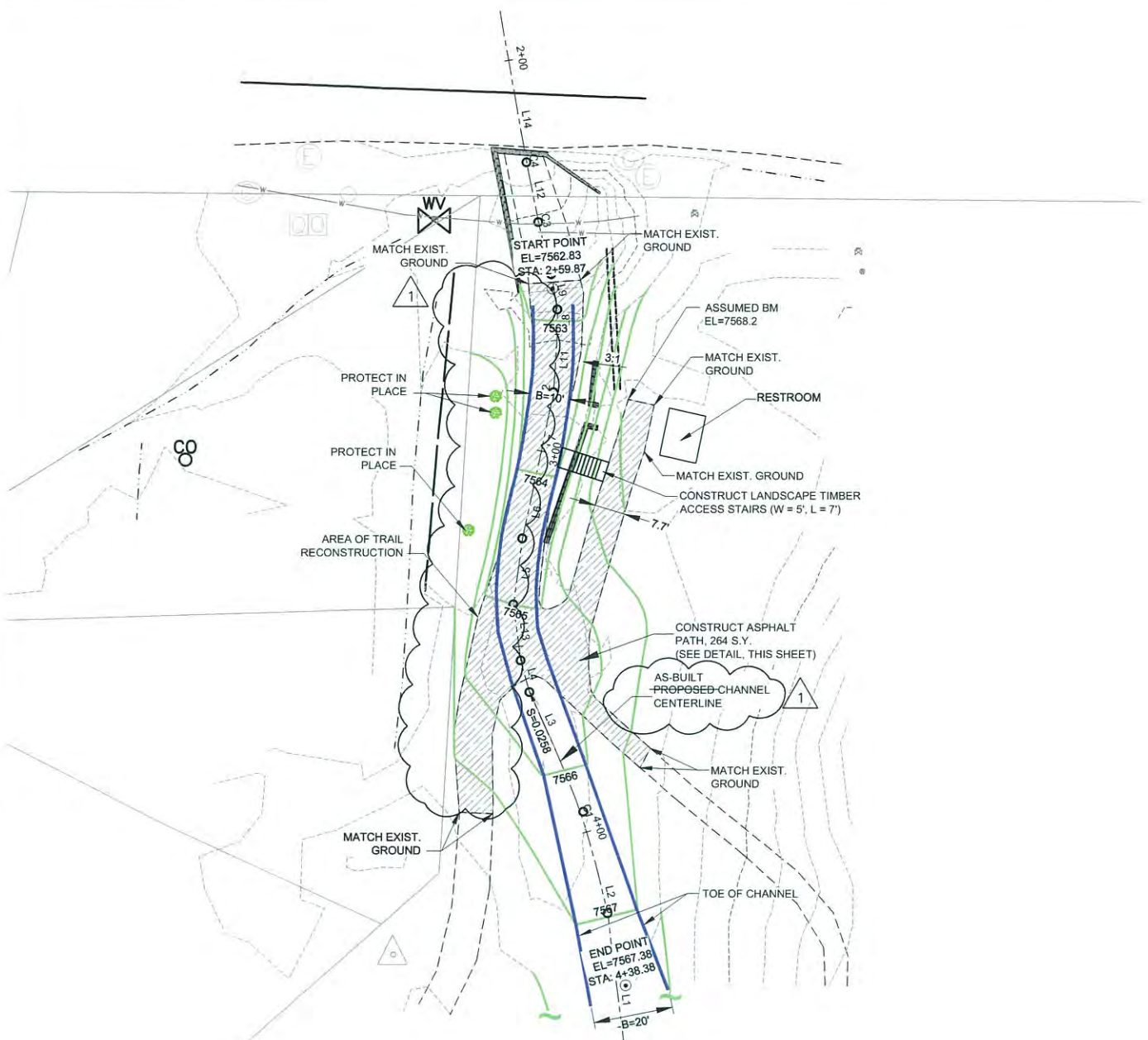
SHEET KEY	



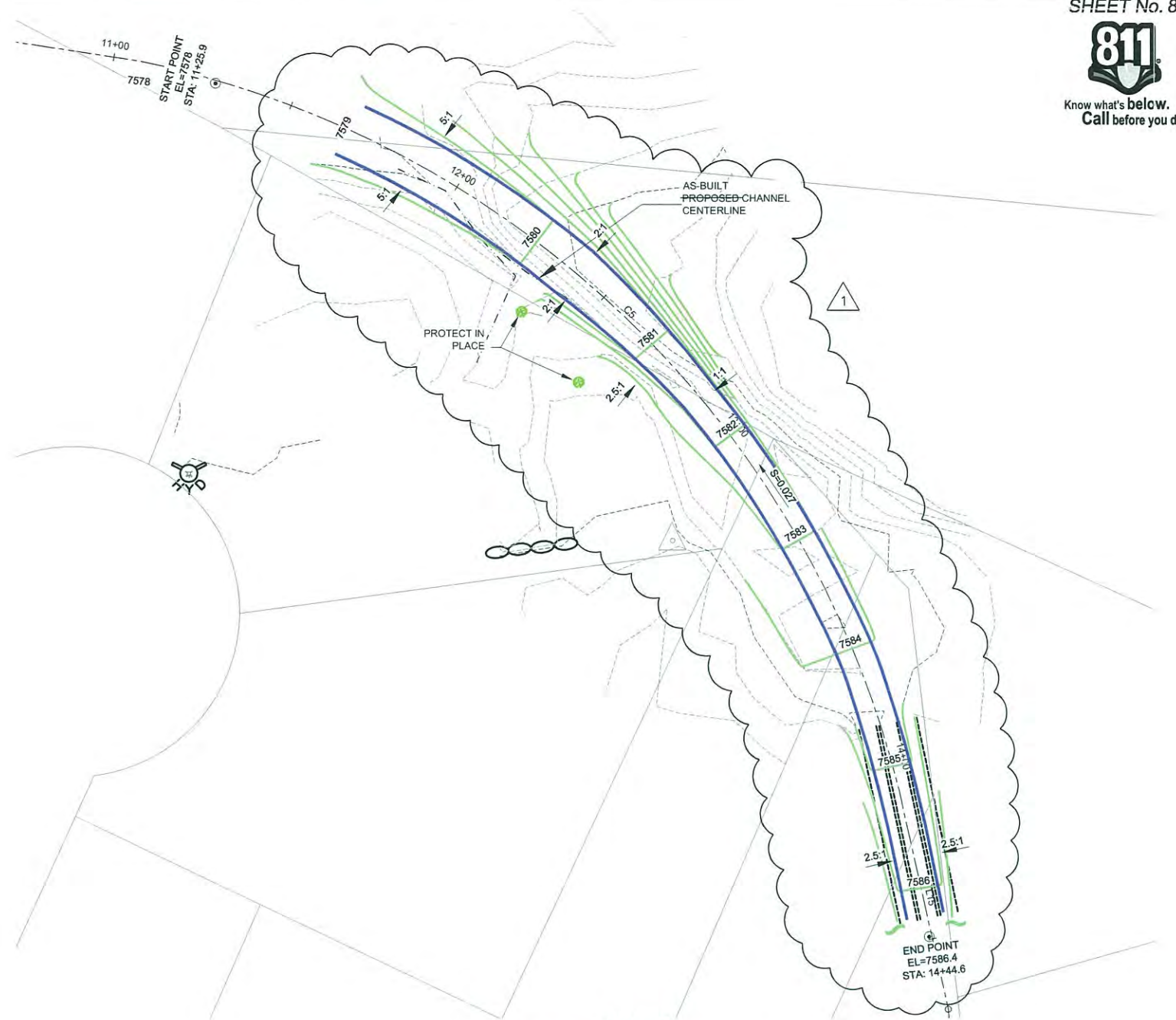
EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631



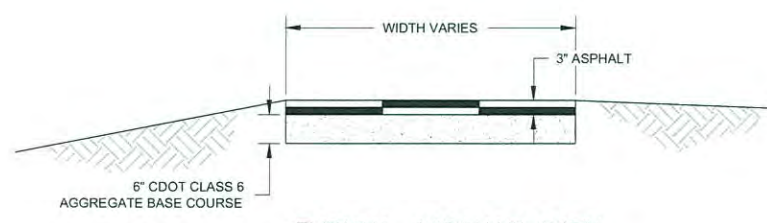
SEAL		STONE CREEK FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO	
		DEMOLITION PLAN SITES 3, 4 & 5	
DESIGNED BY:	HTH	SCALE:	DATE ISSUED: SEPT., 2012
DRAWN BY:	LDZ	HORIZ AS SHOWN	DRAWING No.
CHECKED BY:	RLK	VERT. AS SHOWN	7 OF 20
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 08.093.002		SHEET 7	



SITE 1
LITTLE EISENHOWER TRAIL MODIFICATIONS

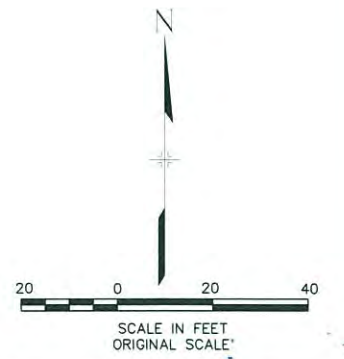


SITE 2
FLOOD BYPASS CHANNEL



TYPICAL ASPHALT PATH
N.T.S.

COLORADO LICENSED
ROBERT D. KREHBIEL
29113
PROFESSIONAL ENGINEER
Robert D. Krehbiel
02-18-15 AS-BUILT



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7/23/14	AS-BUILT		HTH

COMPUTER FILE MANAGEMENT	
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PLOT DATE:	2/23/2014 10:35 AM
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SHEET KEY	



EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

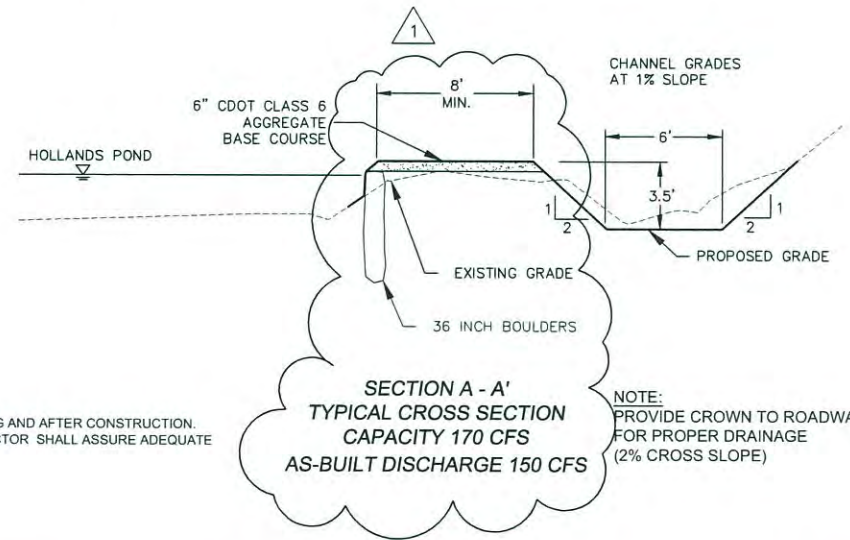
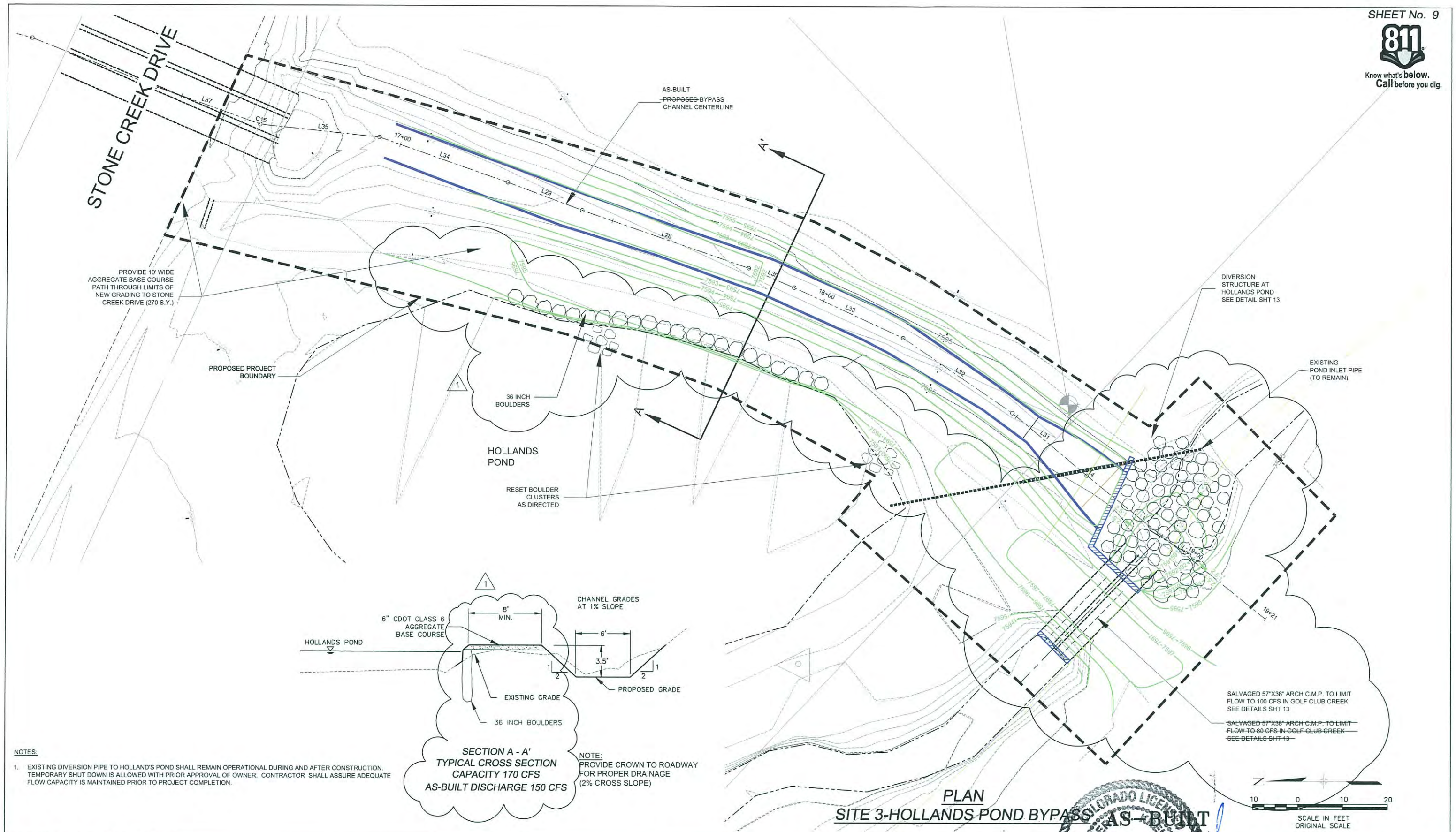


FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
GRADING PLAN SITE 1 & 2			
DESIGNED BY:	HTH	SCALE:	DATE ISSUED: SEPT., 2012
DRAWN BY:	LDZ	HORIZ:	1"=20'
CHECKED BY:	RLK	VERT:	1"=20'
SHEET		8 OF 20	DRAWING No. 8

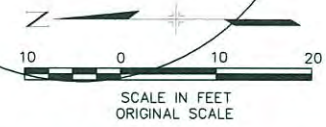


Know what's below.
Call before you dig.



- NOTES:**
- EXISTING DIVERSION PIPE TO HOLLAND'S POND SHALL REMAIN OPERATIONAL DURING AND AFTER CONSTRUCTION. TEMPORARY SHUT DOWN IS ALLOWED WITH PRIOR APPROVAL OF OWNER. CONTRACTOR SHALL ASSURE ADEQUATE FLOW CAPACITY IS MAINTAINED PRIOR TO PROJECT COMPLETION.

PLAN
SITE 3-HOLLANDS POND BYPASS AS-BUILT



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7-23-2014	AS-BUILT		HTH

COMPUTER FILE MANAGEMENT	
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CTB FILE:	
PLOT DATE:	2/3/2014 1:16 PM
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SHEET KEY	
HTH	BY



EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631



PREPARED BY:
Matrix
DESIGN GROUP

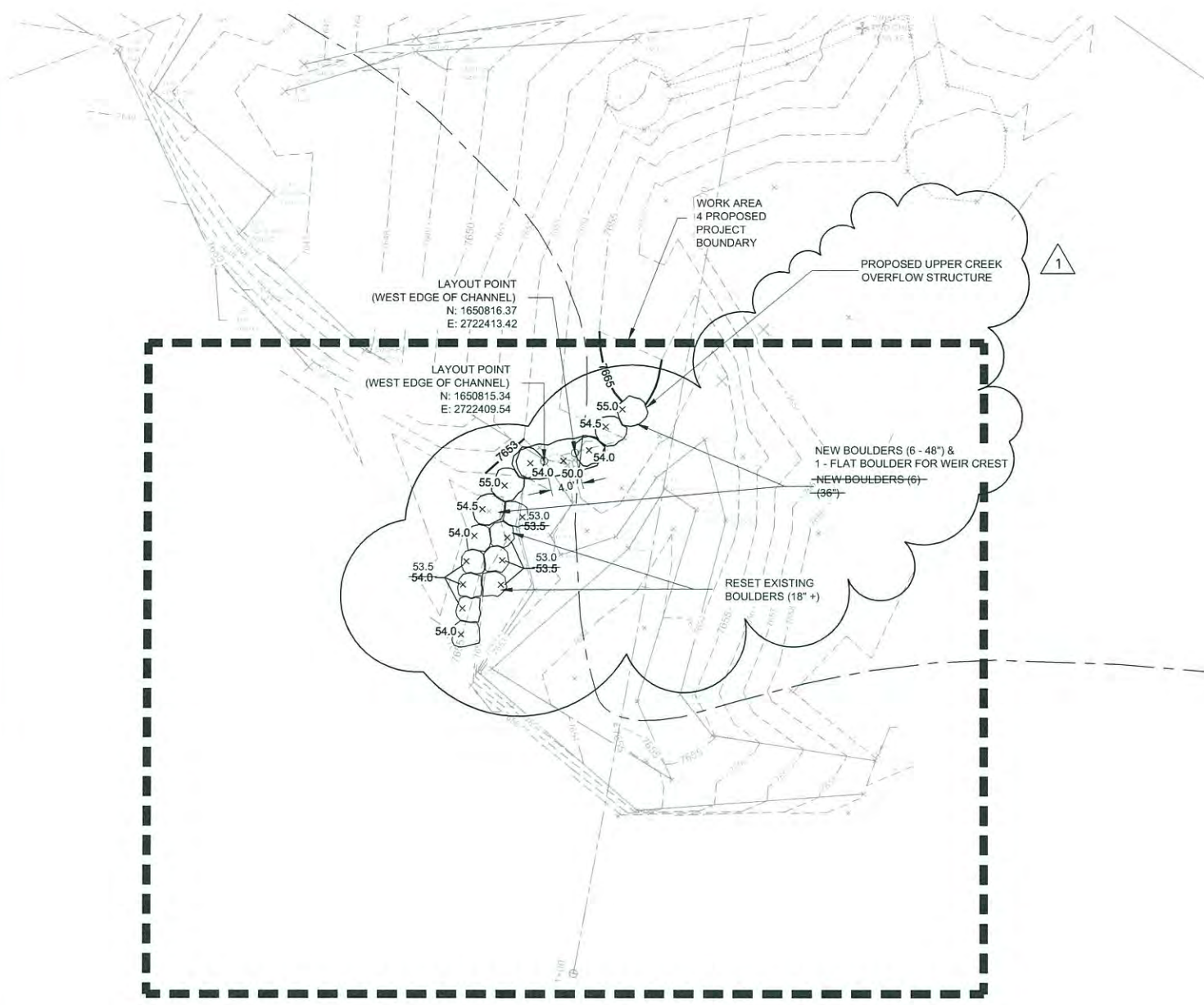
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 08.093.002	DESIGNED BY: HTH DRAWN BY: LDZ CHECKED BY: RLK	SCALE: HORZ 1"=20' VERT 1"=20'	DATE ISSUED: SEPT., 2012	DRAWING No. 9 OF 20
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STONE CREEK
FLOOD HAZARD MITIGATION PROJECT
EAGLE COUNTY, COLORADO

GRADING PLAN
SITE 3

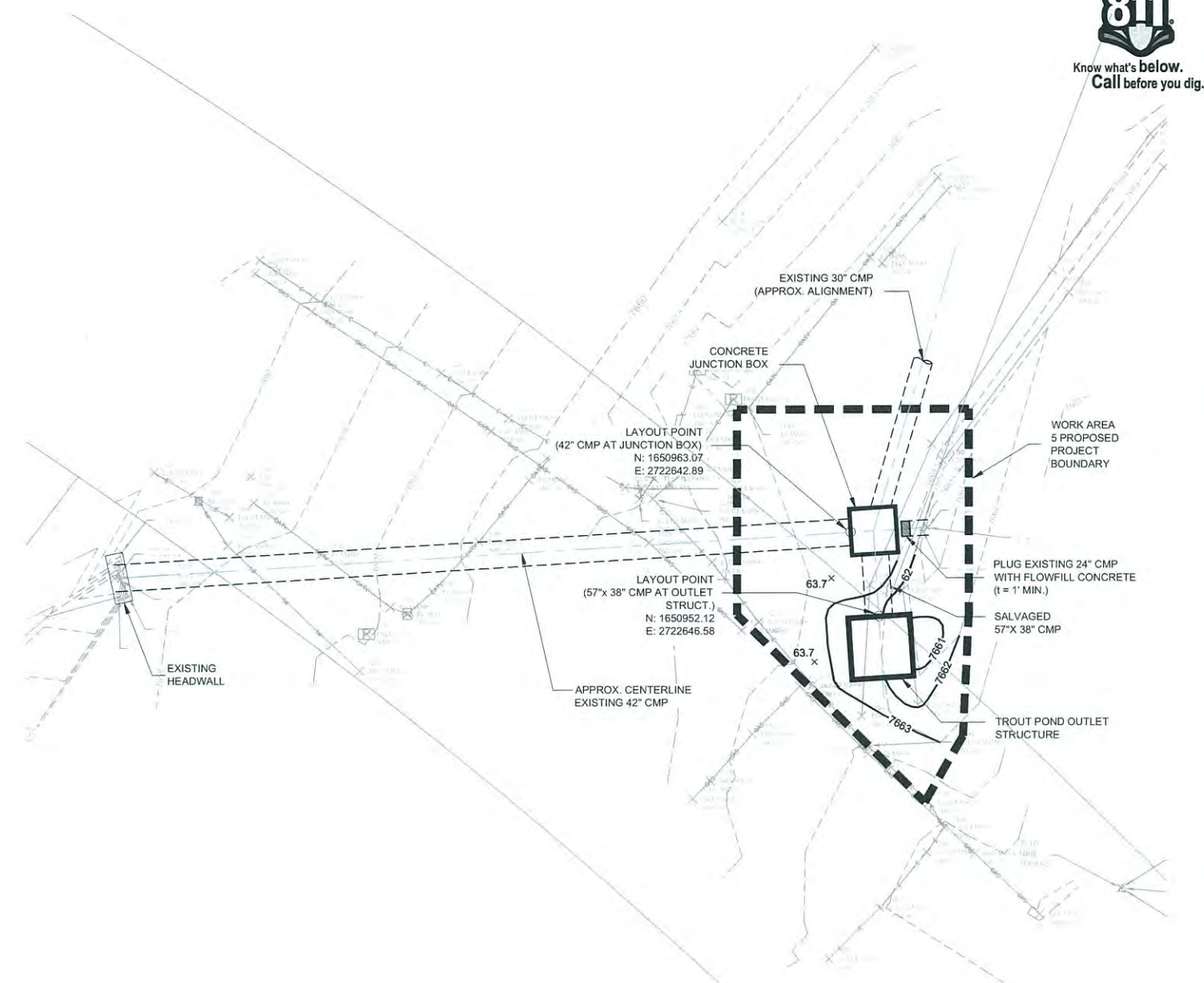


Know what's below.
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SITE 4
UPPER CREEK OVERFLOW STRUCTURE

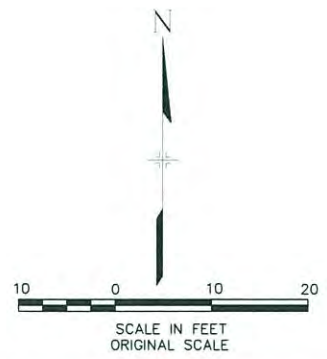
NOTE: CONSTRUCTION OF UPPER CREEK OVERFLOW STRUCTURE WILL REQUIRE FIELD DIRECTION BY OWNER/ENGINEER. CONTRACTOR SHALL ARRANGE A SITE VISIT WITH OWNER/ENGINEER PRIOR TO INITIATING CONSTRUCTION AT SITE 4 TO COORDINATE SCOPE OF WORK AND DESIGN INTENT.



SITE 5
TROUT POND OUTLET STRUCTURE

NOTE: CONSTRUCTION OF TROUT POND OUTLET STRUCTURE WILL REQUIRE FIELD DIRECTION BY OWNER/ENGINEER. CONTRACTOR SHALL ARRANGE A SITE VISIT WITH OWNER/ENGINEER PRIOR TO INITIATING CONSTRUCTION AT SITE 5 TO COORDINATE SCOPE OF WORK AND DESIGN INTENT.

AS-BUILT



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7-23-2014	AS-BUILT		HTH

COMPUTER FILE MANAGEMENT	
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CTB FILE:	---
PLOT DATE:	7/23/2014 4:45 PM
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.	

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EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

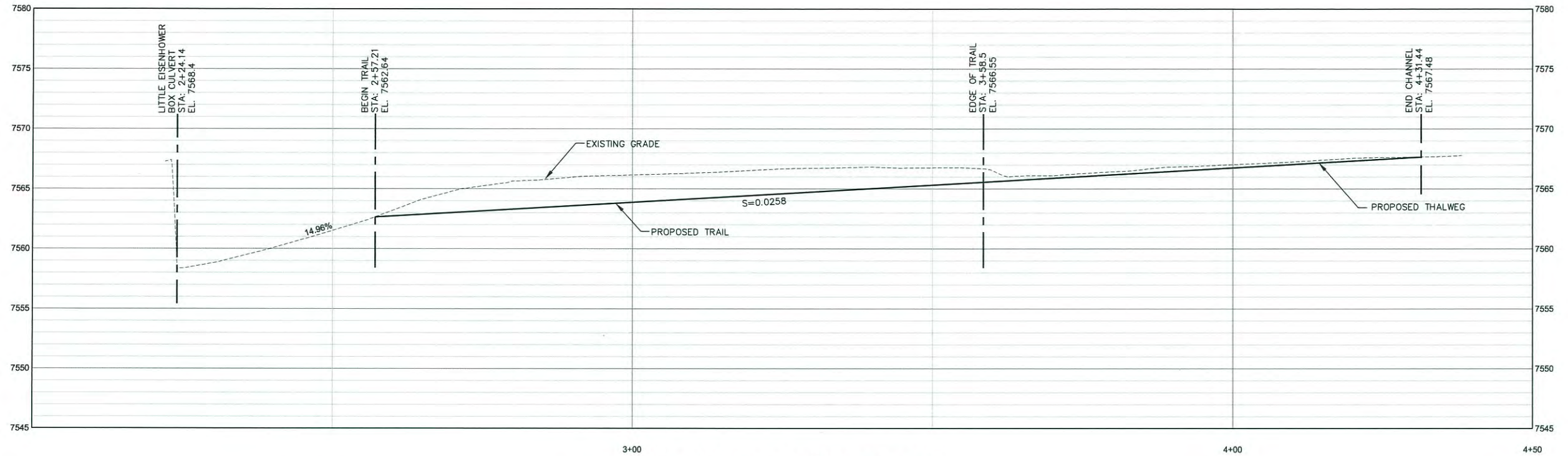
PREPARED BY:

Matrix DESIGN GROUP

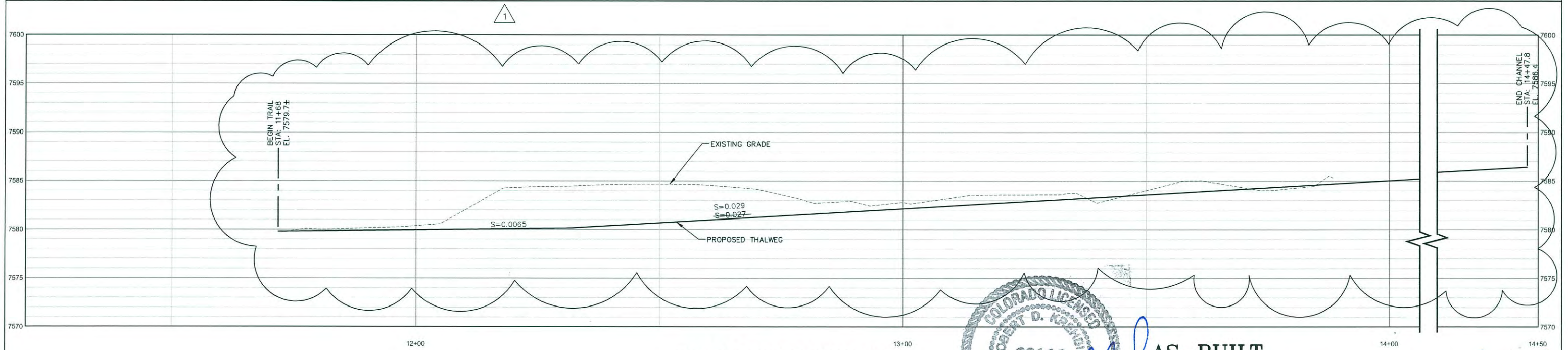
STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
GRADING PLAN SITES 4 & 5			
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 08.093.002	DESIGNED BY: HTH DRAWN BY: LDZ CHECKED BY: RLK	SCALE HORIZ 1"=10' VERT. N/A	DATE ISSUED: AUGUST, 2012 SHEET 10 OF 20



Know what's below.
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PROFILE SITE 1 CHANNEL & TRAIL



PROFILE SITE 2 CHANNEL

AS-BUILT

REFERENCE DRAWINGS	No.	DATE	DESCRIPTION REVISIONS	BY
1	7/23/14	AS-BUILT		

COMPUTER FILE MANAGEMENT	
FILE NAME:	08.093.002 (Stone Creek Floodplain)dwg\Construction\As-Built\Profiles-1.dwg
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SHEET KEY	
HTH	



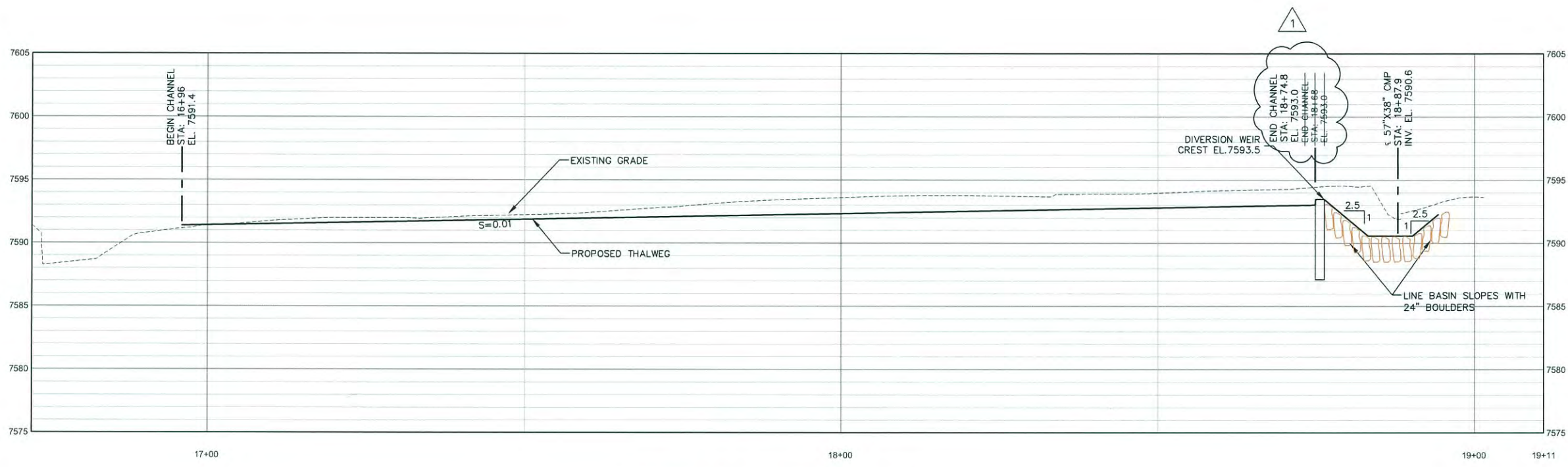
EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631



PREPARED BY: *Robert D. Kramer*
Matrix
DESIGN GROUP

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
PROFILES-1			
DESIGNED BY:	HTH	SCALE:	DATE ISSUED:
DRAWN BY:	LDZ	HORIZ 1"=10'	SEPT., 2012
CHECKED BY:	RLK	VERT. 1"=10'	SHEET 11 OF 20
			DRAWING No. 11



PROFILE SITE 3 CHANNEL



AS-BUILT

REFERENCE DRAWINGS	No.	DATE	DESCRIPTION REVISIONS	BY
1	7/23/14	AS-BUILT		

COMPUTER FILE MANAGEMENT	
FILE NAME:	08.093.002 (Stone Creek Floodplain).dwg\Construction\As-Built\Profiles-2.dwg
CTB FILE:	
PLOT DATE:	2/23/2014 3:24 PM
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.	

SHEET KEY	
HTH	

EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

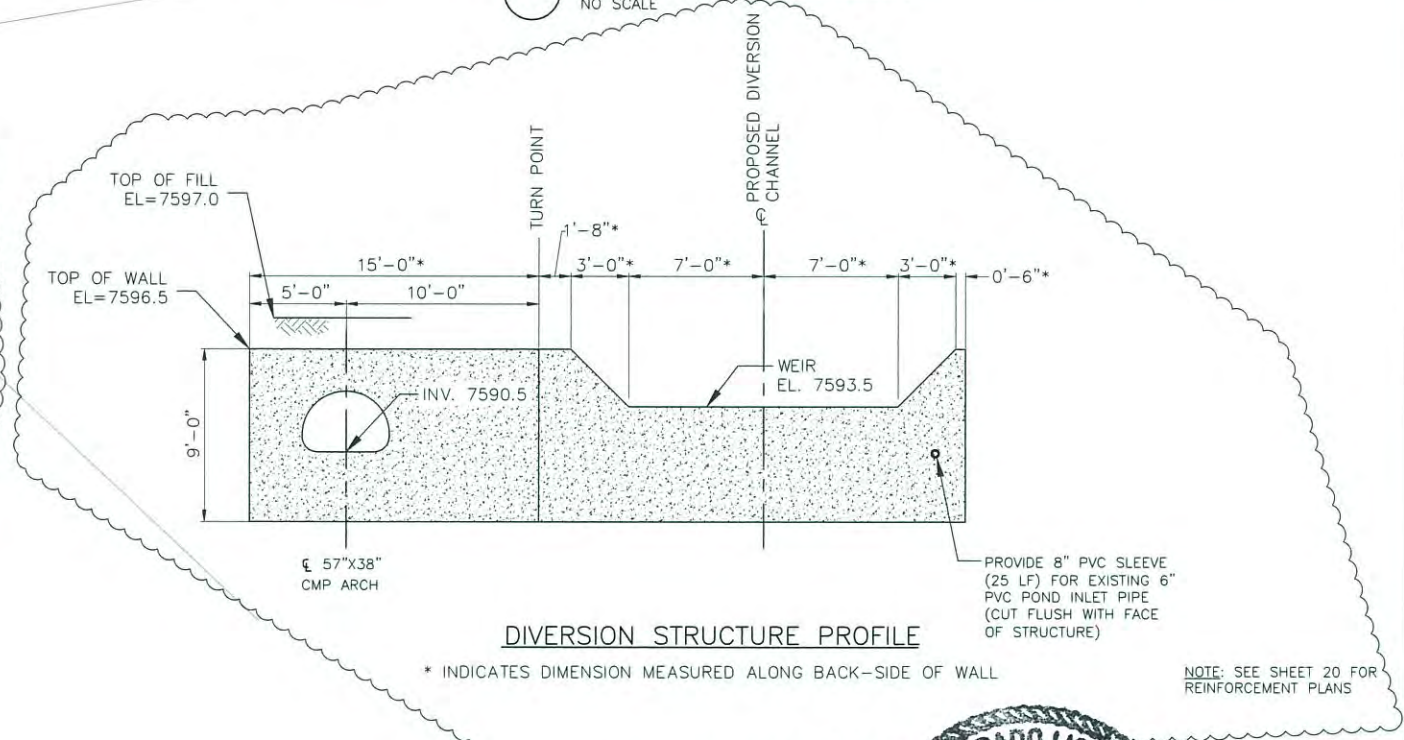
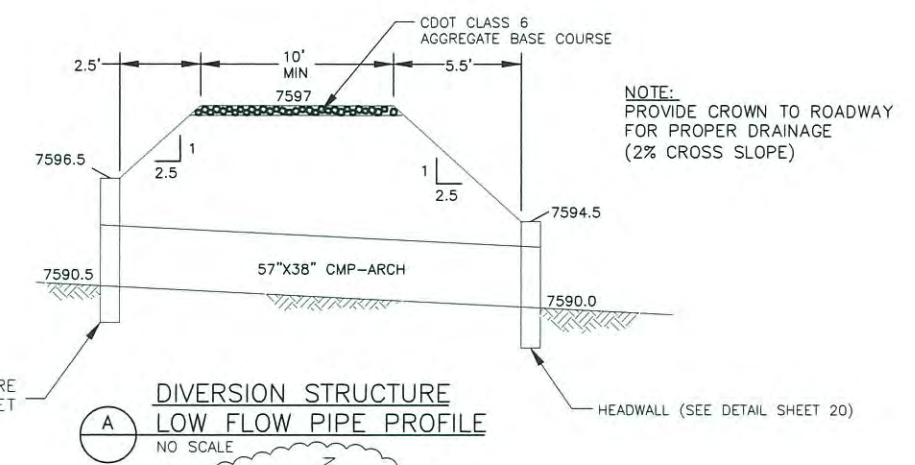
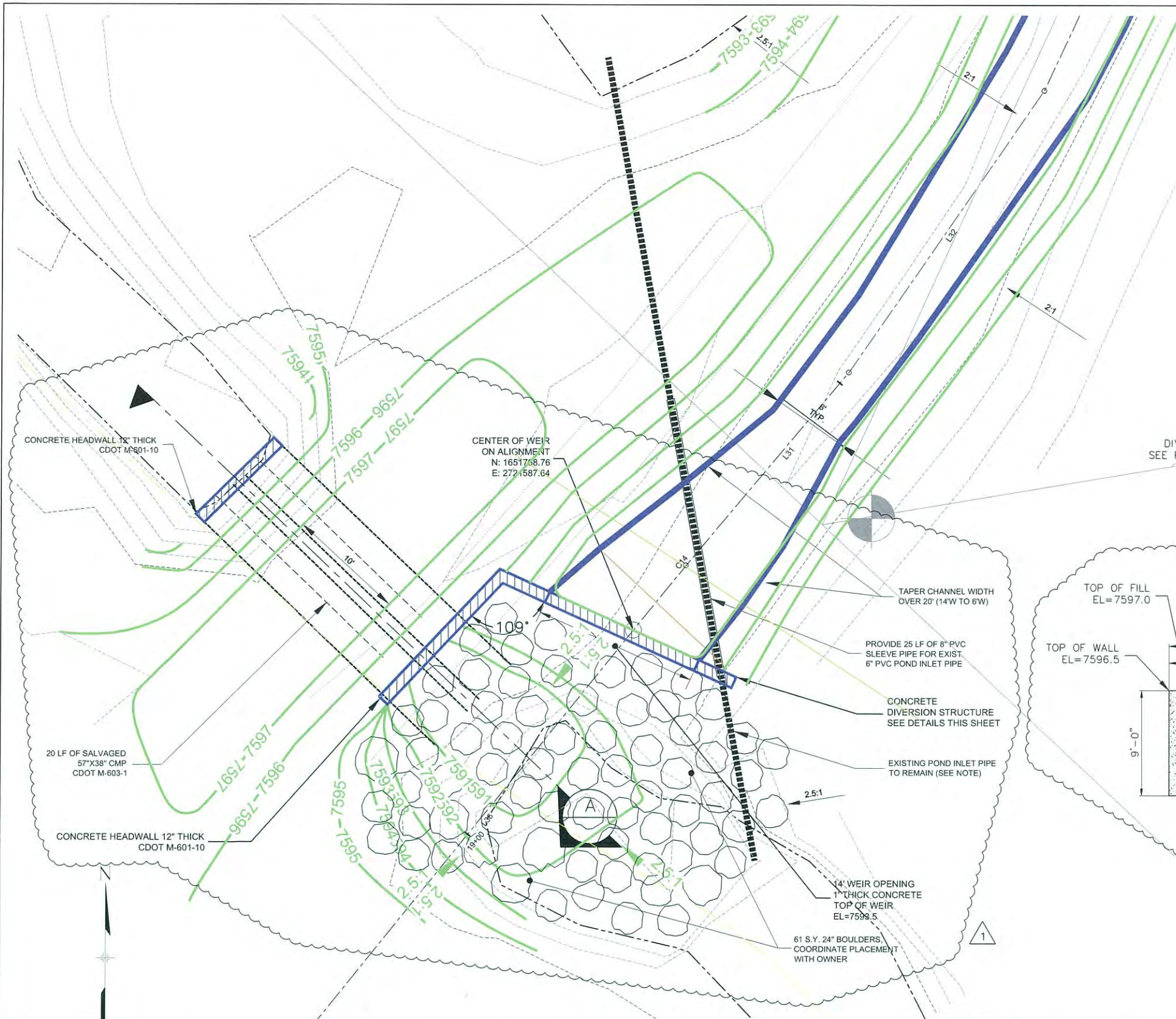
PREPARED BY:
Matrix
DESIGN GROUP

SEAL
FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
PROFILES-2			
DESIGNED BY:	HTH	SCALE:	DATE ISSUED:
DRAWN BY:	LDZ	HORIZ 1"=10'	SEPT., 2012
CHECKED BY:	RLK	VERT. 1"=10'	SHEET 12 OF 20
			DRAWING No. 12

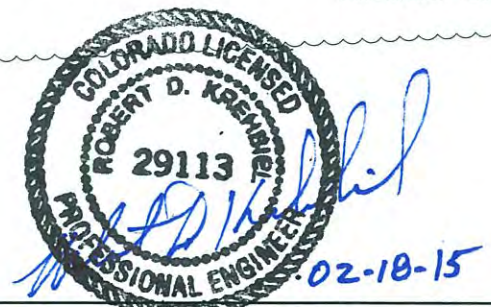


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HOLLANDS POND DIVERSION STRUCTURE

AS-BUILT



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7/23/2014	AS-BUILT		HTH

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SHEET KEY	
1	



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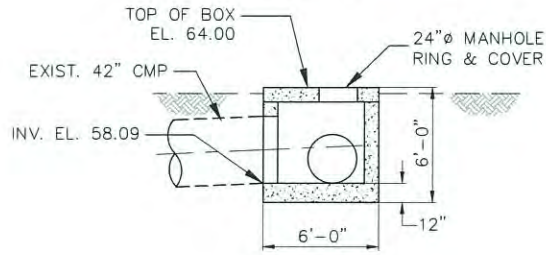
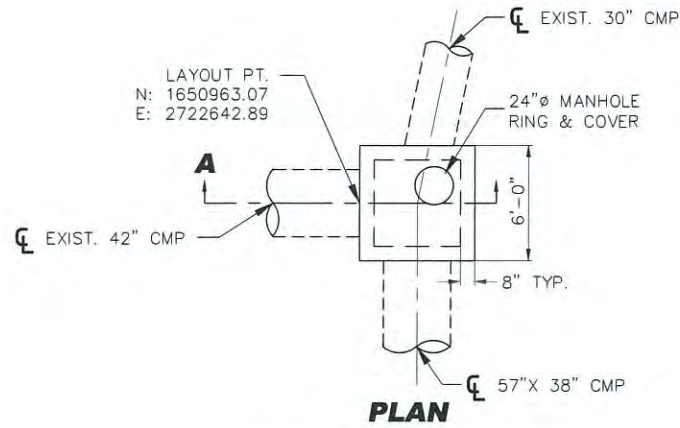


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PROJECT No. 08.093.002

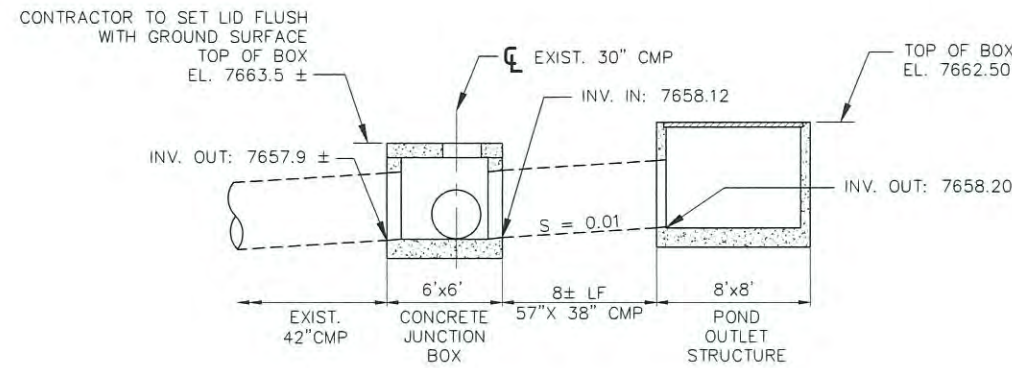
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FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
DIVERSION STRUCTURE-1			
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			DRAWING No. 13



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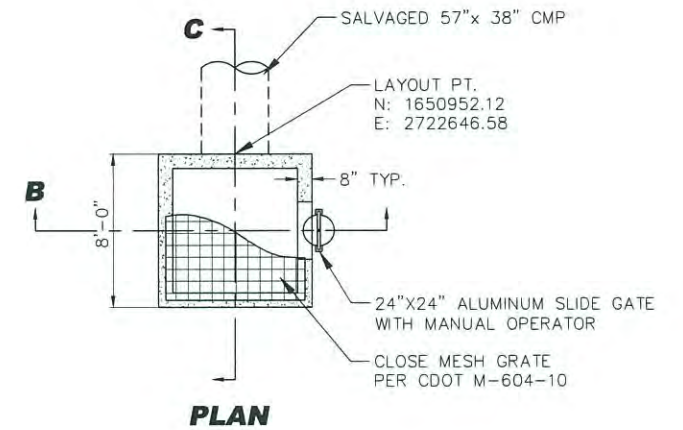
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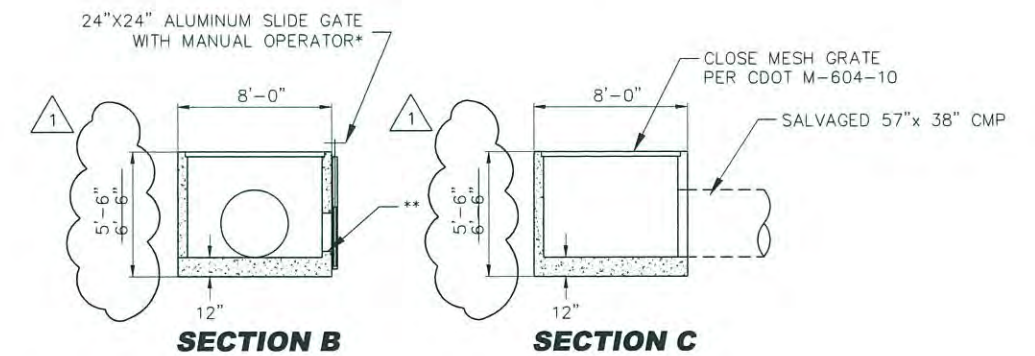
TROUT POND JUNCTION BOX PROFILE

NOTE:
REINFORCEMENT SHALL FOLLOW
CDOT M-604-12.

TROUT POND JUNCTION BOX



PLAN



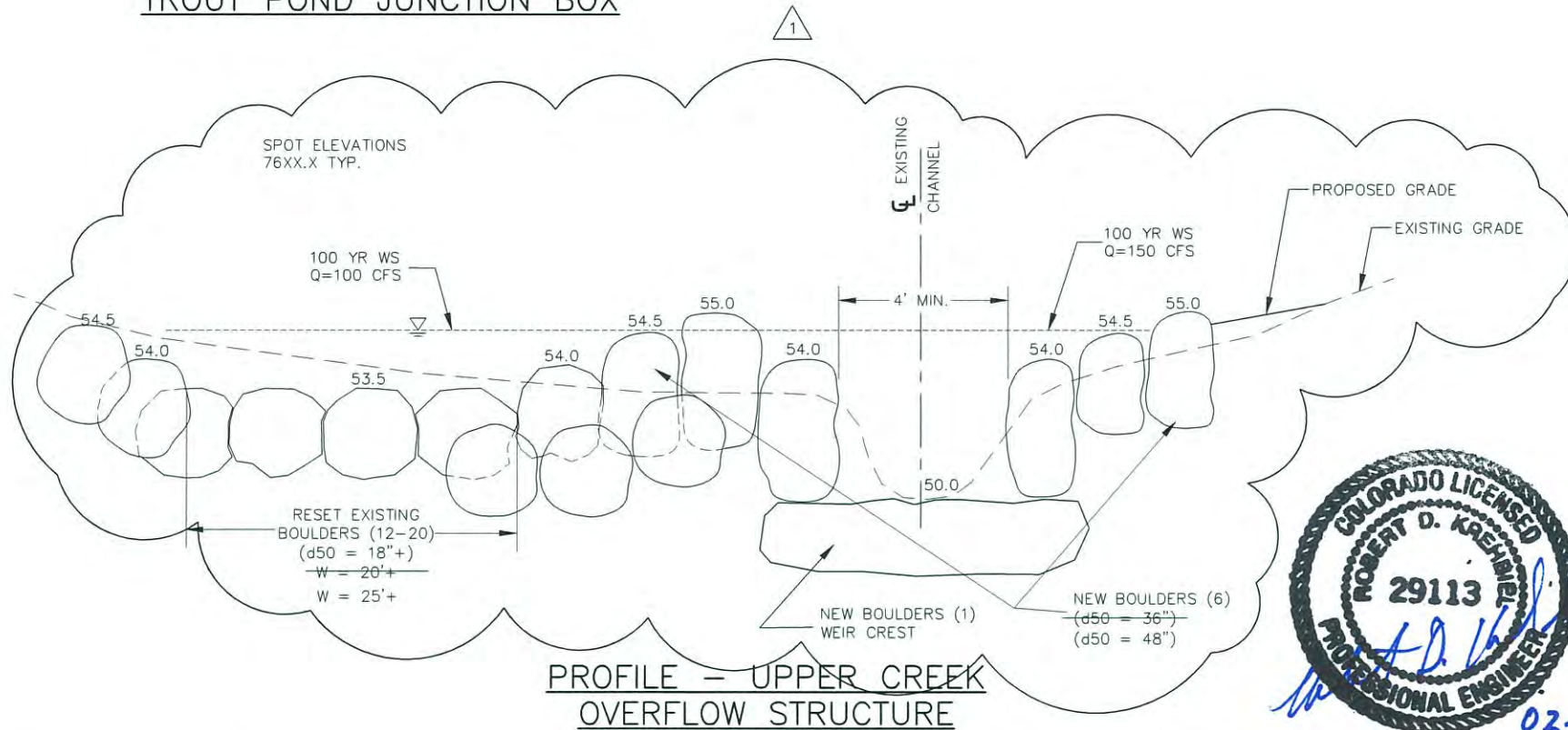
SECTION B

SECTION C

NOTES:
* SLIDE GATE SHALL BE RODNEY HUNT 761 ALUMINUM FLAT FRAME APERTURE MOUNTING WEIR GATE OR EQUIVALENT.
** MATCH EXIST PIPE INVERT ELEV.

TROUT POND OUTLET STRUCTURE

AS-BUILT



PROFILE - UPPER CREEK OVERFLOW STRUCTURE



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION REVISIONS	BY
1	7/23/14	AS-BUILT		

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STONE CREEK	
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO	
DIVERSION STRUCTURE-2 & TROUT POND OUTLET STRUCTURE	
DESIGNED BY: HTH	SCALE: DATE ISSUED: SEPT., 2012
DRAWN BY: LDZ	HORIZ: N/A VERT: N/A SHEET: 14 OF 20
CHECKED BY: RLK	DRAWING No. 14



SITE 1
 20 0 20 40
 SCALE IN FEET ORIGINAL SCALE

LEGEND

- | | | | | | |
|--|-----|-------------------------|--|------|-------------------------|
| | SCL | SEDIMENT CONTROL LOG | | SF | SILT FENCE |
| | VTC | VEHICLE TRACKING PAD | | ECB | EROSION CONTROL BLANKET |
| | CD | ROCK CHECK DAM | | STB | STRAW BALE BARRIER |
| | | EXISTING GRADE CONTOURS | | 5900 | FINISHED GRADE CONTOURS |



SITE 2
 30 0 30 60
 SCALE IN FEET ORIGINAL SCALE

AS-BUILT

REFERENCE DRAWINGS	No.	DATE	DESCRIPTION REVISIONS	BY
1	7/23/14	AS-BUILT		HTH

COMPUTER FILE MANAGEMENT	
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SHEET KEY

EAGLE COUNTY
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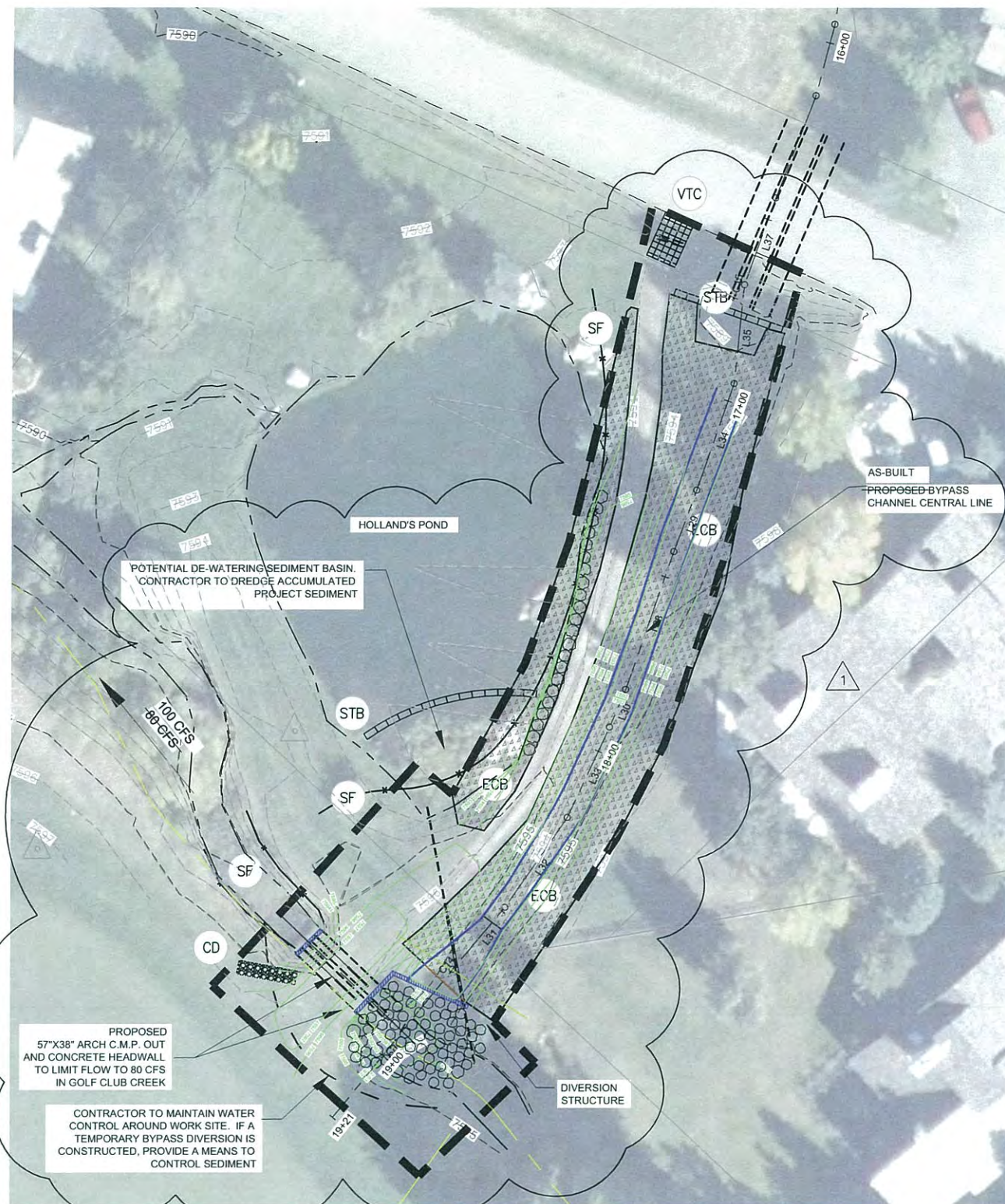
PREPARED BY:

FOR AND ON BEHALF OF
 MATRIX DESIGN GROUP, INC.
 PROJECT No. 08.093.002

STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
EROSION CONTROL PLAN SITE 1 & SITE 2			
DESIGNED BY:	HTH	SCALE:	DATE ISSUED: SEPT., 2012
DRAWN BY:	LDZ	HORIZ. 1"=20'	DRAWING No. 15
CHECKED BY:	RLK	VERT. 1"=20'	SHEET 15 OF 20



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SITE 3

POTENTIAL DE-WATERING SEDIMENT BASIN. CONTRACTOR TO DREDGE ACCUMULATED PROJECT SEDIMENT

PROPOSED 57'X38" ARCH C.M.P. OUT AND CONCRETE HEADWALL TO LIMIT FLOW TO 80 CFS IN GOLF CLUB CREEK

CONTRACTOR TO MAINTAIN WATER CONTROL AROUND WORK SITE. IF A TEMPORARY BYPASS DIVERSION IS CONSTRUCTED, PROVIDE A MEANS TO CONTROL SEDIMENT



SITES 4 & 5

LEGEND

CWA	CONCRETE WASHOUT AREA	SF	SILT FENCE
VTC	VEHICLE TRACKING PAD	ECB	EROSION CONTROL BLANKET
CD	ROCK CHECK DAM	STB	STRAW BALE BARRIER
	EXISTING GRADE CONTOURS		FINISHED GRADE CONTOURS

AS-BUILT

SCALE IN FEET ORIGINAL SCALE

20 0 20 40



REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
1	7/23/14	AS-BUILT		HTH

COMPUTER FILE MANAGEMENT	
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SEAL

STONE CREEK
FLOOD HAZARD MITIGATION PROJECT
EAGLE COUNTY, COLORADO

EROSION CONTROL PLAN
SITE 3, 4 & 5

DESIGNED BY:	HTH	SCALE:	DATE ISSUED:	SEPT., 2012	DRAWING No.
DRAWN BY:	LDZ	HORIZ. AS SHOWN	SHEET	16 OF 20	16
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FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002



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NPDES NOTES

1. THE CONTRACTOR SHALL REMOVE ALL SEDIMENT, MUD, AND CONSTRUCTION DEBRIS THAT MAY ACCUMULATE IN THE FLOWLINES AND PUBLIC RIGHTS OF WAYS AS A RESULT OF THIS CONSTRUCTION PROJECT. SAID REMOVAL SHALL BE CONDUCTED IN A TIMELY MANNER, OR AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, ETC., RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
- 2a. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE DRAINAGE SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT.
3. A LAYER OF SUITABLE MULCH SHALL BE APPLIED TO ALL DISTURBED PORTIONS OF THE SITE WITHIN 14 DAYS OF THE COMPLETION OF GRADING. SAID MULCH SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE AND SHALL BE TACKED OR FASTENED BY AN APPROVED METHOD SUITABLE FOR THE TYPE OF MULCH USED. SEED, COMPRISED OF ANNUAL RYE, SHALL BE APPLIED AT A RATE OF 4-6 LB/1000 FT.
4. THE CONTRACTOR SHALL LOCATE, INSTALL, AND MAINTAIN ALL EROSION CONTROL AND WATER QUALITY "BEST MANAGEMENT PRACTICES" AS INDICATED IN THE APPROVED CONSTRUCTION ACTIVITIES STORMWATER MANAGEMENT PLAN.
5. THE CONTRACTOR SHALL INSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT WITHIN PUBLIC RIGHTS OF WAY.
6. THE USE OF REBAR, STEEL STAKES, OR STEEL FENCE POSTS TO STAKE DOWN STRAW OR HAY BALES; OR TO SUPPORT SILT FENCING USED AS AN EROSION CONTROL MEASURE; IS PROHIBITED.

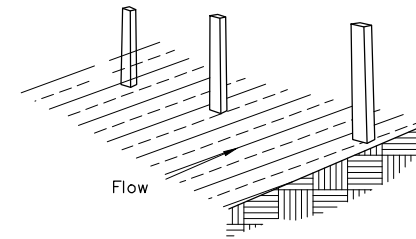
THE USE OF OSHA APPROVED COLORED WARNING CAPS ON REBAR OR FENCE POSTS USED WITH EROSION CONTROL MEASURES IS NOT ACCEPTABLE.
7. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE MULCHED AND SEEDED WITH A TEMPORARY GRASS COVER WITHIN 14 DAYS OF STOCKPILE CONSTRUCTION. IF STOCKPILES ARE LOCATED WITHIN 100 FEET OF A DRAINAGEWAY, ADDITIONAL SEDIMENT CONTROLS SUCH AS TEMPORARY DIKES OR SILT FENCE SHALL BE REQUIRED.
8. APPROVED EROSION AND SEDIMENT CONTROL "BEST MANAGEMENT PRACTICES" SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT.

AT A MINIMUM, THE CONTRACTOR SHALL INSPECT ALL BMP'S WEEKLY AND AFTER SIGNIFICANT PRECIPITATION EVENTS. ALL NECESSARY MAINTENANCE AND REPAIR SHALL BE COMPLETED IN A TIMELY MANNER. ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM A BMP WHEN THE SEDIMENT LEVEL REACHES ONE-HALF THE HEIGHT OF THE BMP, OR, AT ANY TIME THAT SEDIMENT OR DEBRIS ADVERSELY IMPACTS THE FUNCTIONING OF THE BMP.
9. UNLESS CONFINED IN A PREDEFINED, BERMED CONTAINMENT AREA, THE CLEANING OF CONCRETE TRUCK DELIVERY CHUTES IS PROHIBITED AT THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CEMENT TO THE STORM SEWER SYSTEM IS PROHIBITED.
10. THE CONTRACTOR SHALL PROTECT ALL STORM SEWER FACILITIES ADJACENT TO ANY LOCATION WHERE PAVEMENT CUTTING OPERATIONS INVOLVING WHEEL CUTTING, SAW CUTTING OR ABRASIVE WATER JET CUTTING ARE TO TAKE PLACE.

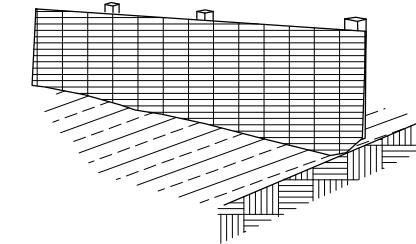
THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL WASTE PRODUCTS GENERATED BY SAID CUTTING OPERATIONS ON A DAILY BASIS.

THE DISCHARGE OF ANY WATER CONTAMINATED BY WASTE PRODUCTS FROM CUTTING OPERATIONS TO THE STORM SEWER SYSTEM IS PROHIBITED.
11. CONTRACTOR RESPONSIBLE FOR FIRE SAFETY.

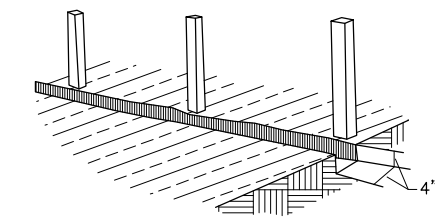
1. Set Posts



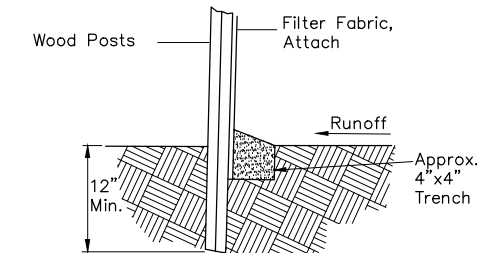
3. Attach Filter Material to posts or insert Sewn Pockets over posts and extend it into the trench.



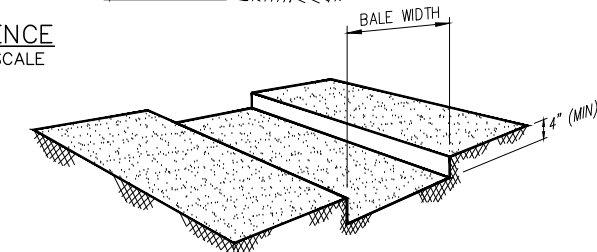
2. Excavate a 4"x4" Trench upslope along the line of uprights.



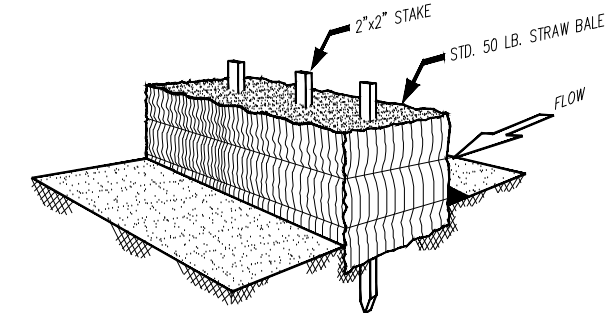
4. Finished Section.



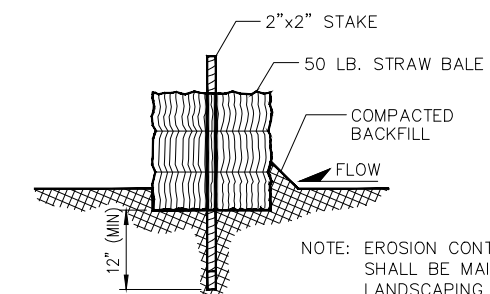
SILT FENCE
NOT TO SCALE



TRENCH EXCAVATION
-NTS-

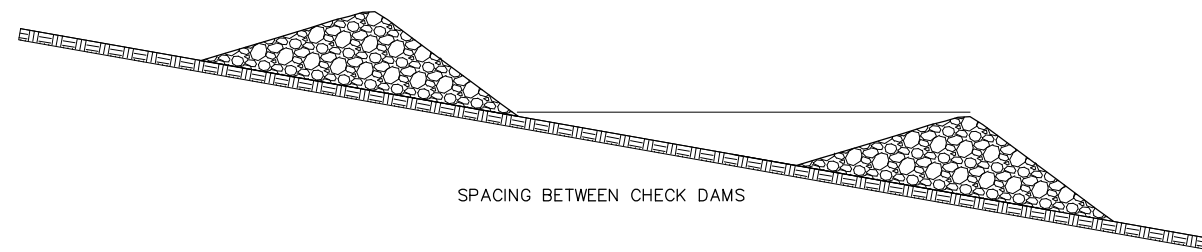
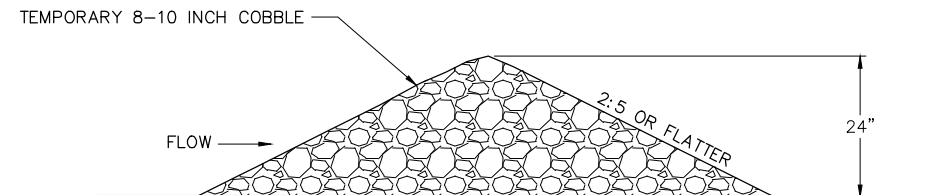
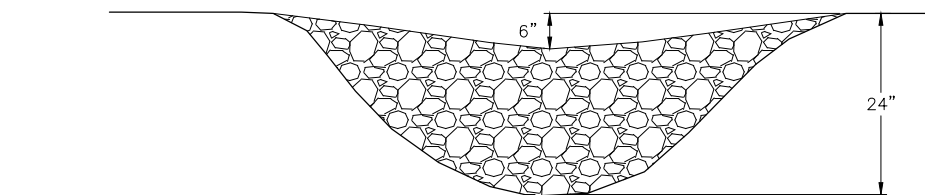


STRAW BALE INSTALLATION
-NTS-



SECTION
-NTS-

STRAW BALE EROSION BARRIER
NOT TO SCALE



ROCK CHECK DAM
NOT TO SCALE

AS-BUILT

REFERENCE DRAWINGS	SHEET KEY	
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No.	DATE	DESCRIPTION
REVISIONS		
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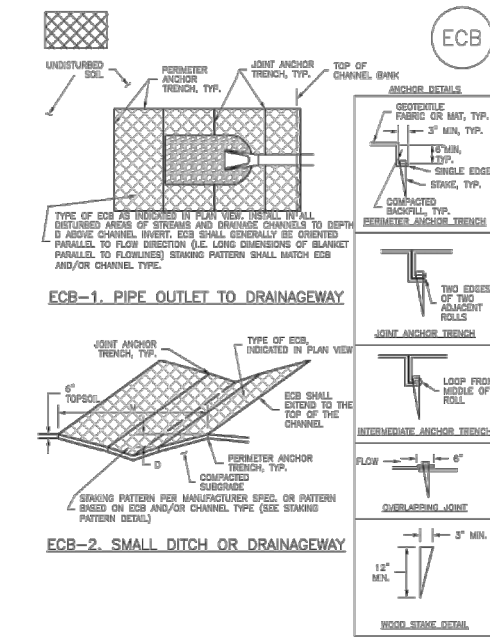
STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
EROSION CONTROL DETAILS I			
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DRAWN BY: LDZ	HORIZ	SHEET	17 OF 20
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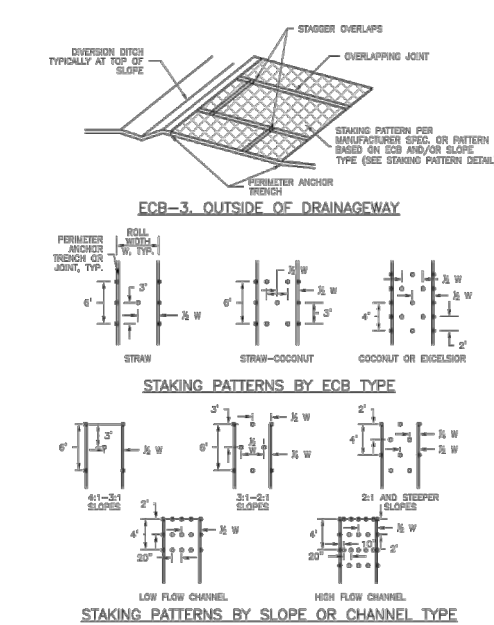
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EC-6 Rolled Erosion Control Products (RECP)



RECP-6 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

Roller Erosion Control Products (RECP) EC-6



RECP-7 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF ECB. TYPE OF ECB (STRAW, STRAW-COCOONUT, COCONUT, OR EXCELSIOR) - AREA A, IN SQUARE FEET OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION AND SEEDING AND MALCHING. SURFACE PREPARATION MUST BE COMPLETED PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MALCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MALCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TYPE	COCOONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCOONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

RECP-8 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

Roller Erosion Control Products (RECP) EC-6

EROSION CONTROL BLANKET MAINTENANCE NOTES

- INSPECT BMPs EACH WEEKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHEN BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
 - ANY ECB FULLY CUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE EXPOSED TO CLAYED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MALCHED AND THE ECB REINSTALLED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USPOD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PAVENHILL, COLORADO, NOT AVAILABLE IN ASHOTO)

RECP-9 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

703.07 Bed Course Material.

(a) Bed course material for sidewalks, curbing, and bikeways shall consist of cinders, sand, slag, gravel, crushed stone, or other approved material of such gradation that all particles shall pass through a sieve having 150 mm (6 inch) square openings.

(b) Bed course material for slope protection, or riprap filter blanket shall be a porous, free draining material consisting of sand, gravel, cinders, slag, crushed stone, or other approved free draining material. This material shall meet the following gradation requirements:

Sieve Size	Mass Percent Passing
150 mm (6 inch)	100
4.75 mm (No. 4)	20-45
75 um (No. 200)	5-20

703.08 Structure Backfill Material.

(a) Class 1 structure backfill shall meet the following gradation requirements:

Sieve Size	Mass Percent Passing
90 mm (3 1/2 inch)	100
4.75 mm (No. 4)	80-100
300 um (No. 50)	30-60
75 um (No. 200)	5-20

In addition this material shall have a liquid limit not exceeding 35 and a plasticity index of not over six when determined in conformity with AASHTO T 89 and T 90 respectively.

(b) Class 2 structure backfill shall be composed of suitable materials developed on the project. To be suitable for use under this classification, backfill shall be free of frozen lumps, wood, or other organic material. If the material contains rock fragments that, in the opinion of the Engineer, will be injurious to the structure, the native material shall not be used for backfilling and the Contractor shall furnish Class 1 structure backfill material at the contract unit price. If contract unit price does not exist for Class 1 structure backfill, it will be paid for in accordance with subsection 104.03.

703.09 Filter Material. Filter material shall consist of free draining sand, gravel, slag, or crushed stone. The grading requirements are set forth in Table 703-7.

GENERAL NOTES

- STEEL PIPES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M36. ALUMINUM PIPES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M196.
- ADEQUATE COVER SHALL BE PROVIDED DURING CONSTRUCTION TO PROTECT THE STRUCTURE FROM DAMAGE.
- PIPE SHALL BE PLACED WITH LONGITUDINAL SEAMS AT THE SIDES OR QUARTER POINTS BUT NOT ALONG TOP OF VERTICAL AXES.
- STRUCTURAL PLATE PIPES OF EQUAL OR GREATER DIAMETER THAT CONFORM TO SECTION 510 MAY BE SUBSTITUTED FOR THE PIPES ON THESE SHEETS AT THE CONTRACTOR'S EXPENSE.
- WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL INSTALLATION SHALL BE USED.
- EXTENSIONS FOR CMP ARCH PIPE SHALL MATCH THE CORRUGATIONS, AND THE SPAN AND RISE DIMENSIONS OF THE PIPE TO BE EXTENDED.
- WHEN INSTALLING A GUARDRAIL OR A SIGN POST DIRECTLY ABOVE A PIPE, THE BOTTOM OF THE POST MUST BE AT LEAST 1 FOOT ABOVE THE TOP OF THE PIPE. THE HOLE FOR THE POST SHALL BE DRILLED INTO THE SOIL.
- PIPE ARCH WITH EQUAL PERIPHERY AND WITH SPAN AND RISE DIMENSIONS APPROXIMATELY EQUAL TO THOSE SPECIFIED ON THE PLANS WILL BE PERMITTED.
- PIPE ARCH IS INTENDED FOR USE WHERE MINIMUM COVER REQUIREMENTS FOR ROUND PIPE CANNOT BE MET. WHEN COVER EXCEEDS 11 FT. USE ROUND PIPE.
- PIPE COVER GREATER THAN 90 FT. SHALL REQUIRE AN INVESTIGATION OF THE FOUNDATION MATERIAL.

LEGEND

H = HEIGHT OF COVER LIMIT, MAXIMUM ALLOWABLE HEIGHT OF FILL OVER THE TOP OF THE PIPE, EXCLUDING PAVEMENT THICKNESS.

H MIN. = THE MINIMUM COVER SHALL BE AS SHOWN ON THESE TABLES OR CONFORM TO AASHTO REQUIREMENTS, WHICHEVER IS GREATER.

THE MINIMUM COVER FOR PIPE IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT: HMA OR PCCP.

THE MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE SUBGRADE FOR CONSTRUCTION LOADS.

L1 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.

L2 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.

THE MINIMUM SPACING BETWEEN THE OUTSIDE WALLS OF MULTIPLE PIPES OR END SECTIONS IS 18" OR 1/2 d, WHICHEVER IS GREATER, BUT NOT TO EXCEED 36".

INSTALLATION OF METAL PIPE

INSTALLATION OF METAL PIPE

METAL PIPE WITH END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

METAL PIPE WITHOUT END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

PIPE SPAN (IN)	MINIMUM COVER (IN.) FOR INDICATED AXLE LOADS, kips				
	18.0 - 50.0	50.0 - 75.0	75.0 - 110.0	110.0 - 150.0	
12.0 - 42.0	24	30	36	36	
48.0 - 72.0	36	36	42	48	
78.0 - 120.0	36	42	48	48	
126.0 - 144.0	42	48	54	54	

GAGE NO.	16	14	12	10	8
ALUMINUM THICKNESS - IN.	0.060	0.075	0.105	0.135	0.164
GALVANIZED STEEL THICKNESS - IN.	0.064	0.079	0.109	0.138	0.168

ALLOWED WALL THICKNESS

Computer File Information

Creation Date: 07/04/06 Initials: DD
Last Modification Date: 02/25/10 Initials: LTA
Full Path: www.dot.state.co.us/DesignSupport/
Drawing File Name: 603010104.dgn
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
02/25/10	Made the PVC pipe a standard.
02/25/10	Added more pipe sizes in tables.
02/25/10	Added new fill height tables.

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9920

Project Development Branch DD/LTA

METAL PIPE

STANDARD PLAN NO. M-603-1

Sheet No. 1 of 4

Issued By: Project Development Branch on July 04, 2006

No.	DATE	DESCRIPTION	BY
COMPUTER FILE MANAGEMENT			
FILE NAME: 08.093.002 (Stone Creek Floodplain)dwg\Construction\As-Built\Erosion Control Details II.dwg			
CTB FILE: ...			
PLOT DATE: 2/3/2014 5:21 PM			
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.			

REFERENCE DRAWINGS: X-MDQ22-04

SHEET KEY

EAGLE COUNTY ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631

PREPARED BY: Matrix DESIGN GROUP

SEAL

STONE CREEK
FLOOD HAZARD MITIGATION PROJECT
EAGLE COUNTY, COLORADO

EROSION CONTROL DETAILS II

FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.
PROJECT NO. 08.093.002

DESIGNED BY: HTH	SCALE	DATE ISSUED: SEPT., 2012	DRAWING No.
DRAWN BY: LDZ	HORIZ.	SHEET	18
CHECKED BY: RLK	VERT.		



Know what's below.
Call before you dig.

SM-4

Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

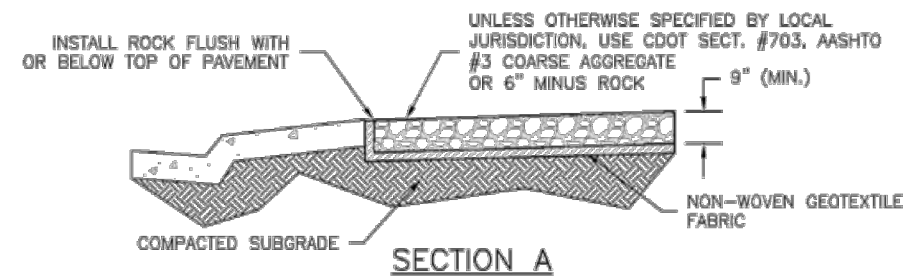
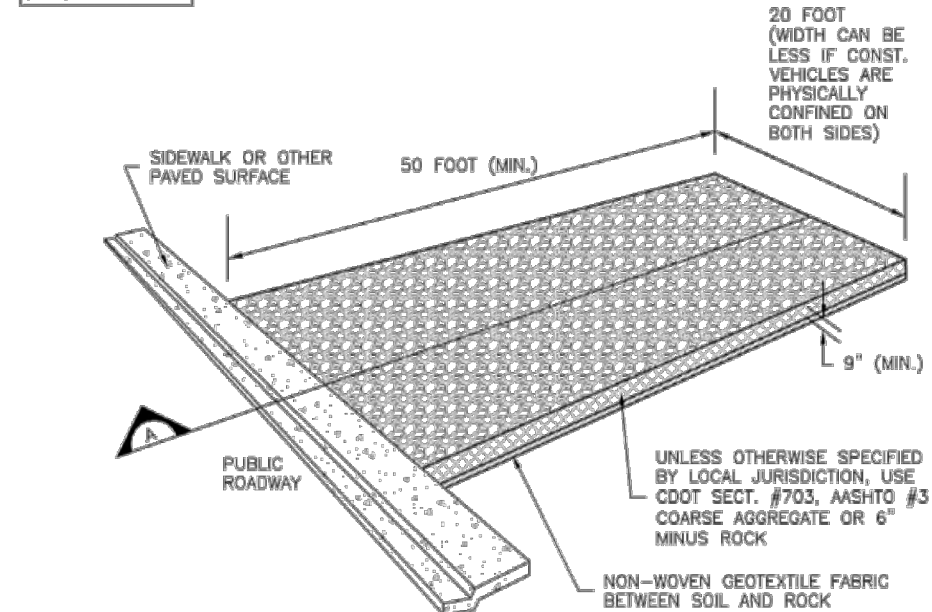
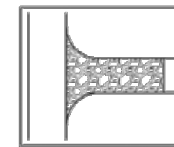
VTC-6

Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3

November 2010

Vehicle Tracking Control (VTC)

SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

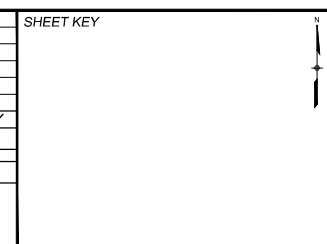
November 2010

Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3

VTC-3

AS-BUILT

REFERENCE DRAWINGS	SHEET KEY		
X-MD02234			
No.	DATE	DESCRIPTION	BY
REVISIONS			
COMPUTER FILE MANAGEMENT			
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CTB FILE: ...			
PLOT DATE: 11/21/2012 2:15 PM			
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.			



EAGLE COUNTY
ENGINEERING DEPARTMENT
P.O. BOX 850
500 BROADWAY
EAGLE, COLORADO 81631



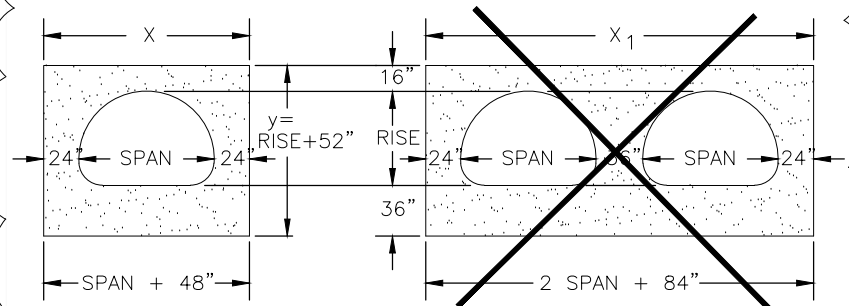
FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 08.093.002

STONE CREEK			
FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO			
EROSION CONTROL DETAILS III			
DESIGNED BY: HTH	SCALE	DATE ISSUED: SEPT., 2012	DRAWING No.
DRAWN BY: LDZ	HORIZ -	SHEET	19 OF 20
CHECKED BY: RLK	VERT. -		19

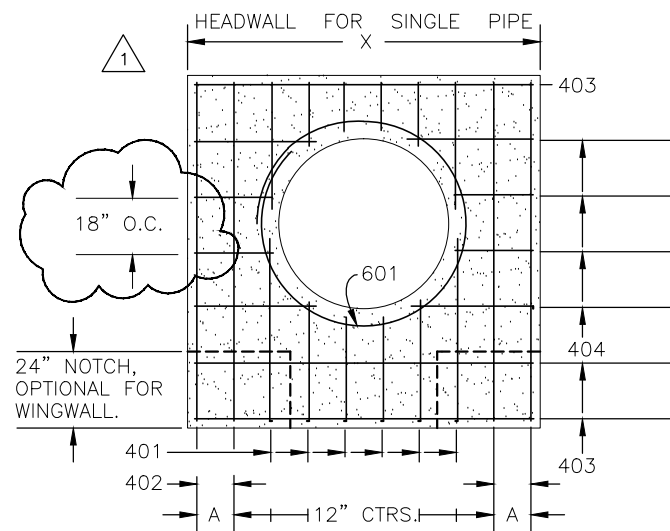
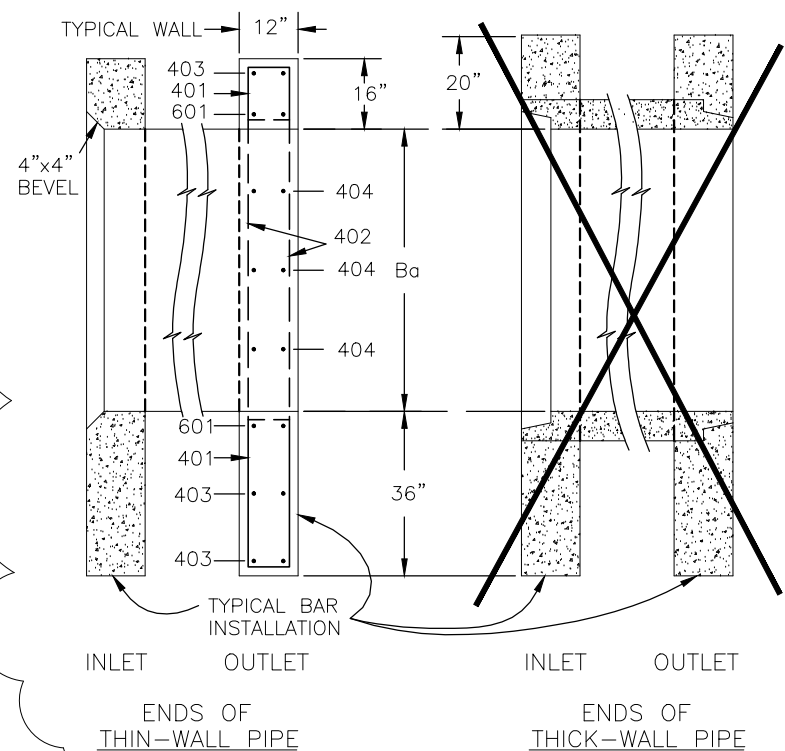


Know what's below.
Call before you dig.

EQUIV. Ba	DIMENSIONS								QUANTITIES			
	SPAN in.	RISE in.	X ft.-in.	A in.	X ₁ ft.-in.	A ₁ in.	y ft.-in.	B in.	SGL cu.yd.	DBL cu.yd.	SGL lbs.	DBL lbs.
72	81	59	10-9	8 1/2	20-6	7	9-3	17 1/2	2.72	5.10	250	467
78	87	63	11-3	11 1/2	21-6	7	9-7	10 1/2	2.85	5.34	275	531
84	93	67	11-9	8 1/2	22-10	9	9-11	12 1/2	3.08	5.79	290	547
90	103	71	12-7	7 1/2	24-2	11	10-3	15	3.30	6.21	321	591
96	112	75	13-1	12	25-8	8	10-7	16 1/2	3.52	6.65	314	606
102	117	79	13-9	8 1/2	26-6	7	10-11	9 1/2	3.63	6.86	356	672
108	128	83	14-8	8	28-4	12	11-5	11 1/2	3.96	7.57	376	699



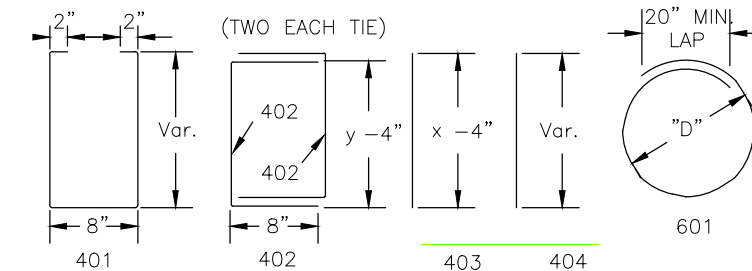
HEADWALL FOR THIN - WALL PIPE ARCH



TYPICAL BAR LAYOUT FOR CONCRETE HEADWALLS

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B.
2. HEADWALL SHALL BE PERPENDICULAR TO THE CULVERT ϕ UNLESS OTHERWISE SHOWN ON THE PLANS. TABULATED DIMENSIONS AND QUANTITIES MUST BE ADJUSTED FOR SKEWED INSTALLATIONS.
3. FOR WINGWALL DETAILS, SEE STANDARD M-601-20.
4. VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED FROM STEEL AND CONCRETE QUANTITIES.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED $\frac{3}{4}$ ".
6. ALL BARS SHALL HAVE A 2" MINIMUM CLEARANCE.
 - ▲ WHEN TWO OR MORE CONDUITS ARE LAID SIDE BY SIDE, THEY SHALL BE PLACED SO THAT THE ADJACENT PIPES WILL BE $\frac{1}{2}$ INSIDE DIAMETER OR $\frac{1}{2}$ INSIDE SPAN OR 3 FEET APART (INCLUDING WALL THICKNESS) WHICHEVER IS LESS.
 - ADD $0.89 \times (X \text{ OR } X_1)$ (LB.) WHEN APRON IS REQUIRED.
7. REFER TO CDOT M-604-10 FOR GRATE DETAILS.
8. REFER TO CDOT M-603-1 FOR CMP INSTALLATION DETAILS.



"D" FOR
 THICK-WALL PIPE, = Bc + 6"
 THIN-WALL PIPE, = Ba + 8"
 THIN-WALL PIPE-ARCH = SPAN + 8"
 STRUCTURAL PLATE-ARCH = RISE + 8"

BAR BENDING

AS-BUILT

REFERENCE DRAWINGS	1	7/23/14	AS-BUILT	HTH	SHEET KEY
COMPUTER FILE MANAGEMENT					
FILE NAME: 08.093.002 (Stone Creek Floodplain)dwg\Construction\As-BuiltDetails.dwg					
CTB FILE: ---					
PLOT DATE: 2/3/2014 5:34 PM					
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.					



SEAL	STONE CREEK		
	FLOOD HAZARD MITIGATION PROJECT EAGLE COUNTY, COLORADO		
	DETAILS		
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 08.093.002	DESIGNED BY: HTH DRAWN BY: LDZ CHECKED BY: RLK	SCALE: - HORIZ: - VERT: -	DATE ISSUED: SEPT., 2012 SHEET: 19 OF 20 DRAWING No. 20

FINAL PLAT EAGLE-VAIL SUBDIVISION FILING NO. 1 EAGLE COUNTY, COLORADO

(SHEET 1 OF 5)

CERTIFICATION OF DEDICATION AND OWNERSHIP

Know all men by these presents that GROUSE MOUNTAIN AT VAIL, LTD., being sole owner in fee simple of all that real property described as follows:

A tract of land located entirely within Section 17, T5S, R81W of the 6th P.M., Beginning at the W1/4 corner of said Section 17, Corner No. 1, the true point of beginning; thence along the west line of said Section 17, N 00°00'59" W 1801.22 feet to Corner No. 2; thence S 84°55'48" E 65.42 feet to Corner No. 3; thence N 83°18'38" E 745.00 feet to Corner No. 4; thence N 48°57'51" E 94.43 feet to Corner No. 5, a point on the centerline of Stone Creek drainage easement; thence continuing along said easement N 02°47'34" E 175.00 feet to Corner No. 6, a point on the south R.O.W. of U.S. Highways 6 and 24; thence along said R.O.W. N 89°52'00" E 1278.19 feet to Corner No. 7, a point on the south R.O.W. of Interstate 70; thence continuing along said R.O.W. S 47°11'30" E 10.25 feet to Corner No. 8; thence continuing along said R.O.W. S 56°07'00" E 379.20 feet to Corner No. 9; thence continuing along said R.O.W. S 57°39'00" E 315.48 feet to Corner No. 10; thence continuing along said R.O.W. 720.49 feet along a curve to the left whose radius is 1623.65 feet and whose long chord bears S 70°21'45" E 714.60 feet to Corner No. 11; thence continuing along said R.O.W. S 83°04'30" E 315.72 feet to Corner No. 12; thence continuing along said R.O.W. S 84°37'00" E 928.10 feet to Corner No. 13; thence continuing along said R.O.W. 231.85 feet along a curve to the right whose radius is 7439.40 feet and whose long chord bears S 83°43'26" E 231.84 feet to Corner No. 14; thence S 01°41'00" E 1404.82 feet to Corner No. 15; thence N 88°19'00" E 500.00 feet to Corner No. 16, the E1/4 corner of said Section 17; thence along east line of said Section 17 S 01°44'26" E 835.00 feet to Corner No. 17; thence N 79°08'49" W 580.00 feet to Corner No. 18; thence S 72°09'18" W 1076.19 feet to Corner No. 19; thence S 82°36'25" W 450.75 feet to Corner No. 20; thence S 56°09'36" W 105.95 feet to Corner No. 21; thence S 22°43'27" W 380.54 feet to Corner No. 22; thence S 77°00'19" W 293.52 feet to Corner No. 23; thence S 49°24'39" W 194.32 feet to Corner No. 24, a point on the east line of the SW1/4 of said Section 17; thence along said line N 00°20'07" W 438.00 feet to Corner No. 25, the SE corner of the NE1/4 of the SW1/4 of said Section 17; thence N 89°30'42" W 1372.84 feet to Corner No. 26, the SW corner of the NE1/4 of the SW1/4 of said Section 17; thence N 00°11'19" W 1299.87 feet to Corner No. 27, the NW corner of the NE1/4 of the SW1/4 of said Section 17; thence N 89°31'18" W 1369.51 feet to the W1/4 corner of said Section 17, Corner No. 1, the true point of beginning, and containing 307.26 acres, have by these presents laid out, platted and subdivided the same into lots and blocks as shown hereon and designate the same as EAGLE-VAIL SUBDIVISION FILING #1, in the County of Eagle, State of Colorado; and do hereby grant to the County of Eagle, Colorado, for public use the streets shown hereon, including avenues, drives, courts, places and alleys for their indicated public use and the utility and drainage easements shown hereon for utility and drainage purposes only; certify that said lands hereby dedicated to public purposes are free and clear of all liens and encumbrances; and do further state that this subdivision shall be subject to the protective covenants filed and recorded for this subdivision in the Office of the Clerk and Recorder of Eagle County, Colorado, as Document No. 121074.

EXECUTED this 28 day of August, A.D. 1972.

Owner: Grouse Mountain at Vail, Ltd.

By: Stone Creek Company, a Colorado corporation

By: Frederick D. Green
Frederick D. Green, President

Jack A. Oleson
Jack A. Oleson

ATTEST: Susan Lubowicz
Susan Lubowicz, Assistant Secretary

STATE OF COLORADO }
COUNTY OF EAGLE } ss.

The foregoing dedication was acknowledged before me this 28 day of August, A.D. 1972 by Frederick D. Green.

My Commission Expires: Jan 5, 1975

WITNESS MY HAND AND SEAL

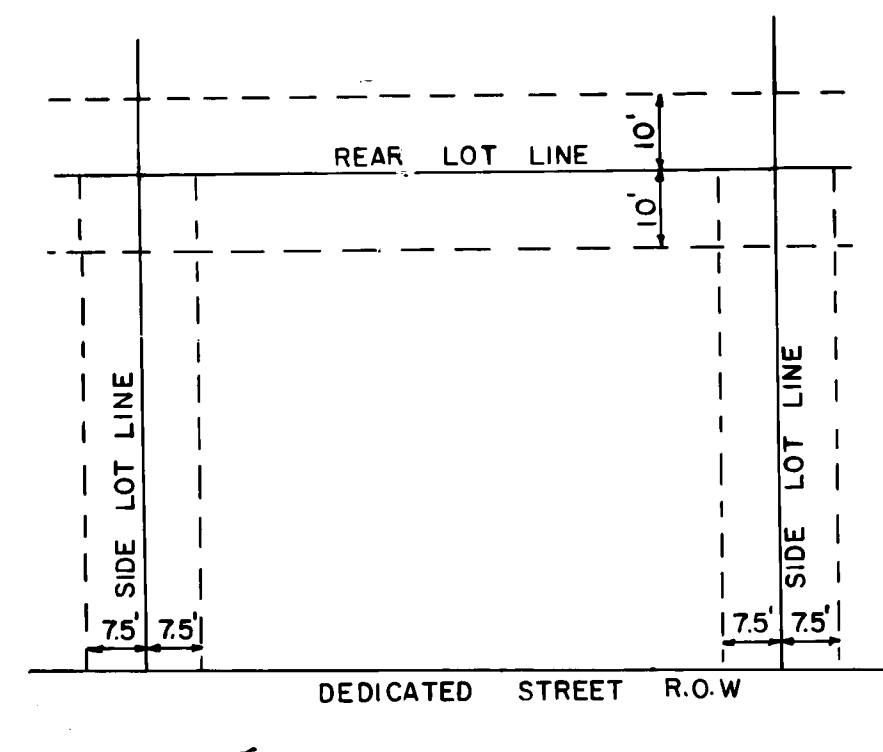
W. H. [Signature]
Notary Public

ATTORNEY'S CERTIFICATE

I, Kenneth Balcomb, an Attorney-at-Law, duly licensed to practice before the Courts of Record of Colorado, do hereby certify that I have examined the title of all the lands platted, herein above dedicated and shown upon the within plat as public ways, and that title to such lands is in the dedicator's free and clear of all liens and encumbrances.

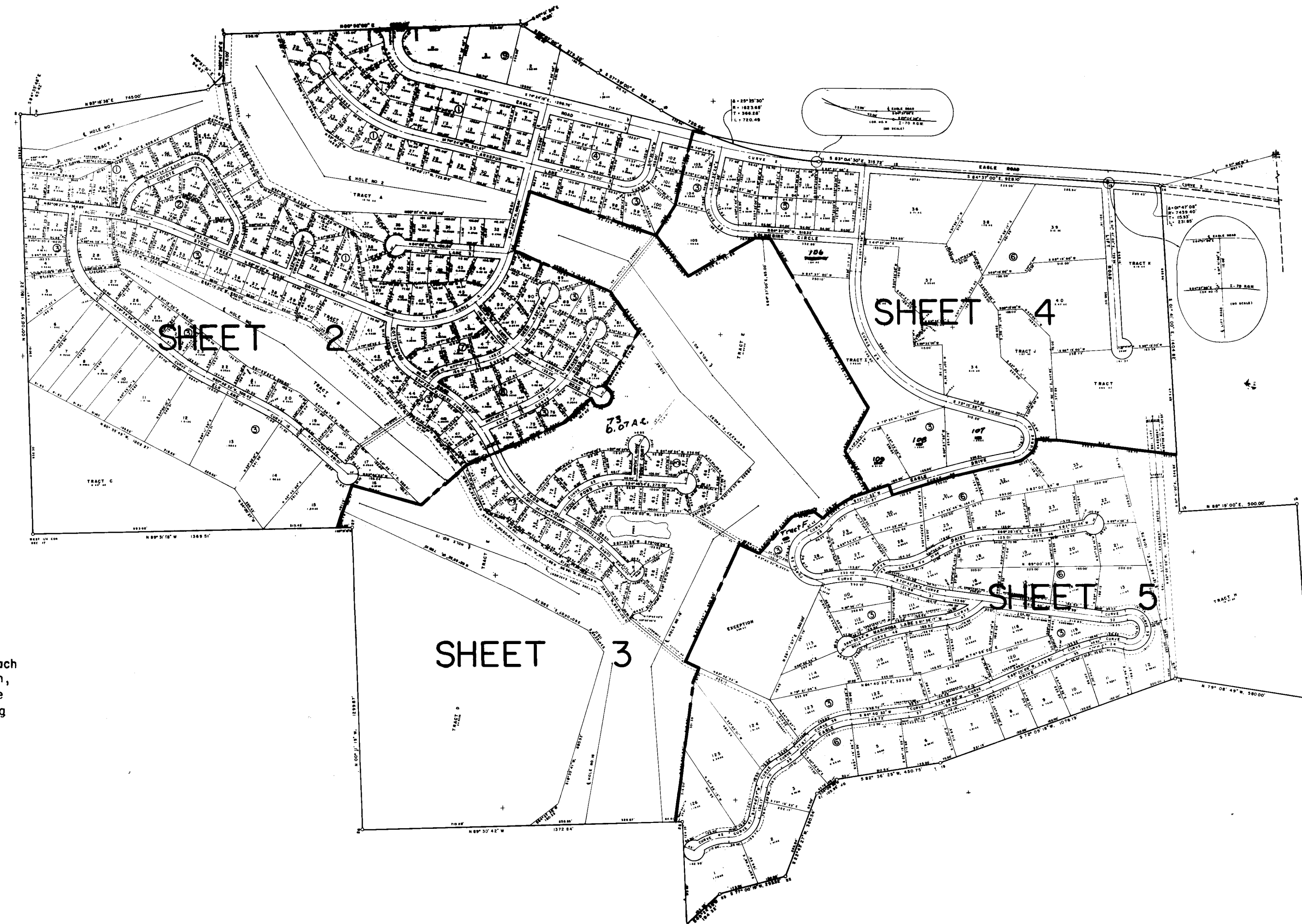
Dated this 28 day of August, A.D., 1972

Kenneth Balcomb



TYPICAL UTILITY & DRAINAGE EASEMENT

Utility and drainage easement ten (10) feet in width are reserved along each side of each rear lot line of every lot line in the subdivision. In addition, utility and drainage easement seven and one-half (7.5) feet in width are reserved along each side of every side lot in the subdivision not fronting on a dedicated street or road; except where note otherwise on the plat.



COUNTY COMMISSIONER'S CERTIFICATE

This plat approved by the Board of Commissioners of Eagle County, Colorado, this 5th day of SEPTEMBER A.D. 1972, for filing with the Clerk and Recorder of Eagle County and for conveyance to the County of the public dedications shown hereon; subject to the provision that approval in no way obligates Eagle County for financing or constructing of improvements on lands, streets or easements dedicated to the public except as specifically agreed to by the Board of Commissioners and further state that said approval shall in no way obligate Eagle County for maintenance of streets dedicated to the public until construction of improvements thereon shall have been completed to the satisfaction of the Board of Commissioners.

Charles F. Howard
Chairman

Witness my hand and seal of the County of Eagle.

Attest: Maxwell R. Berg
County Clerk

FILING NO. 1 SHEET INDEX

SURVEYOR'S CERTIFICATE

I, Leroy E. Tobler, do hereby certify that I am a registered land surveyor licensed under the laws of the State of Colorado, that this plat is a true, correct and complete plat of Eagle-Vail Filing No. 1, as laid out, platted, dedicated and shown hereon, that such plat was made for an accurate survey of said property by me and under my supervision and correctly shows the location and dimensions of the lots, easements and streets of said subdivision as the same are staked upon the ground in compliance with applicable regulations governing the subdivision of land.

In witness whereof I have set my hand and seal this 28th day of August, A.D. 1972.

Leroy E. Tobler
Leroy E. Tobler, P.L.S. # 5447

PLANNING COMMISSION CERTIFICATE

This plat approved by the Eagle County Planning and Zoning Commission this 30th day of

AUGUST, A.D. 1972.

Hubert V. Peterson
Chairman

RECORDER'S CERTIFICATE

This plat was filed for record in the office of the County Clerk and Recorder of Eagle County at 9:00 A.M. on the 6th day of September, A.D. 1972, in case 2, Drawer "E", Reception No. 121075. (If applicable) Protective Covenants are recorded in Book 225 Page 302, Eagle County Records.

Maxwell R. Berg
County Clerk and Recorder

50-10

121075

EAGLE - VAIL FILING NO. 1

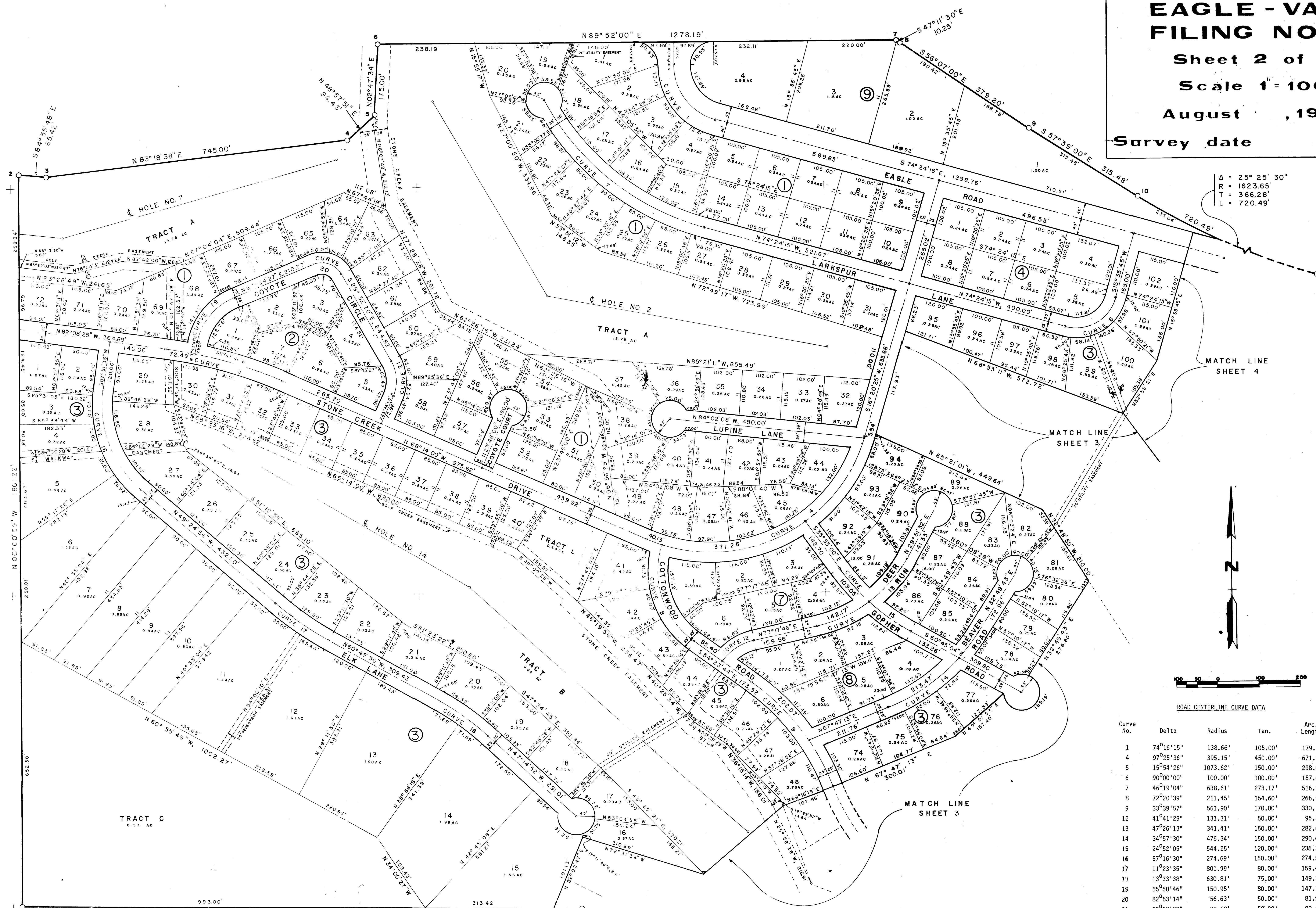
Sheet 2 of 5

Scale 1" = 100'

August , 1972

Survey date

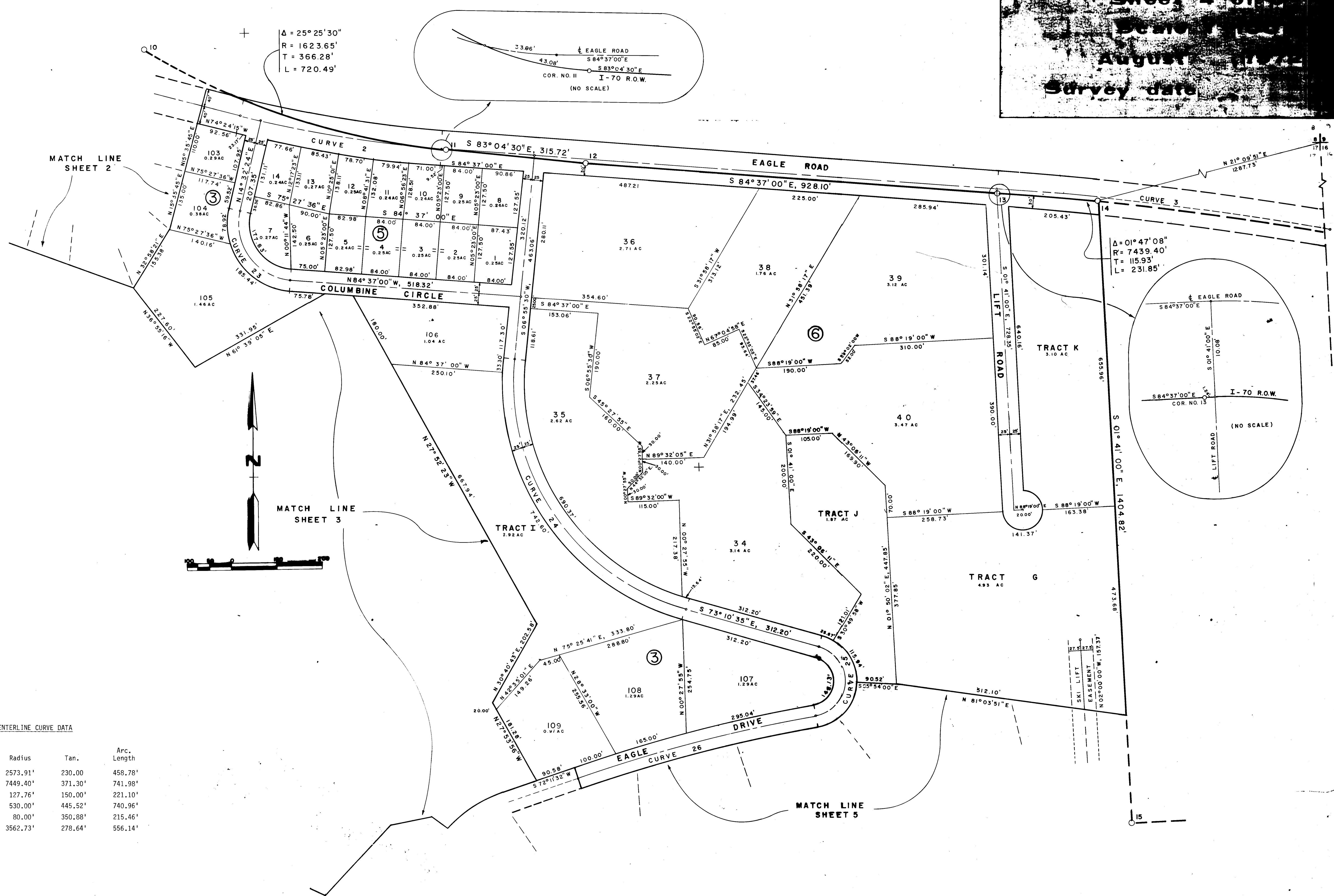
Δ = 25° 25' 30"
R = 1623.65'
T = 366.28'
L = 720.49'



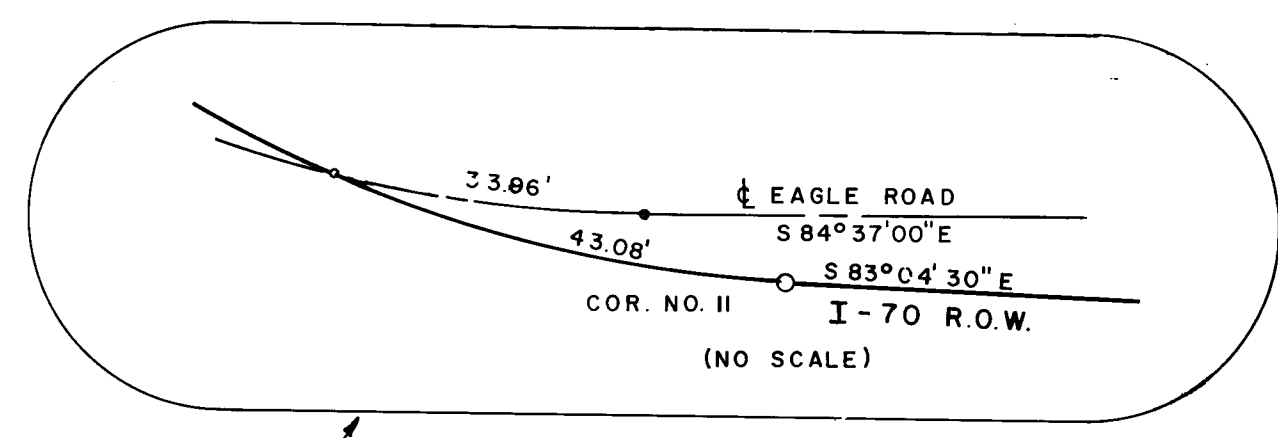
ROAD CENTERLINE CURVE DATA

Curve No.	Delta	Radius	Tan.	Arc. Length
1	74°16'15"	138.66'	105.00'	179.74'
4	97°25'36"	395.15'	450.00'	671.92'
5	15°54'26"	1073.62'	150.00'	298.07'
6	90°00'00"	100.00'	100.00'	157.08'
7	46°19'04"	638.61'	273.17'	516.25'
8	72°20'39"	211.45'	154.60'	266.99'
9	33°39'57"	561.90'	170.00'	330.16'
12	41°41'29"	131.31'	50.00'	95.55'
13	47°26'13"	341.41'	150.00'	282.66'
14	34°57'30"	476.34'	150.00'	290.64'
15	24°52'05"	544.25'	120.00'	236.22'
16	57°16'30"	274.69'	150.00'	274.59'
17	11°23'35"	801.99'	80.00'	159.47'
19	13°33'38"	630.81'	75.00'	149.30'
19	55°50'46"	150.95'	80.00'	147.13'
20	82°53'14"	56.63'	50.00'	81.92'
21	53°18'20"	99.62'	50.00'	92.68'

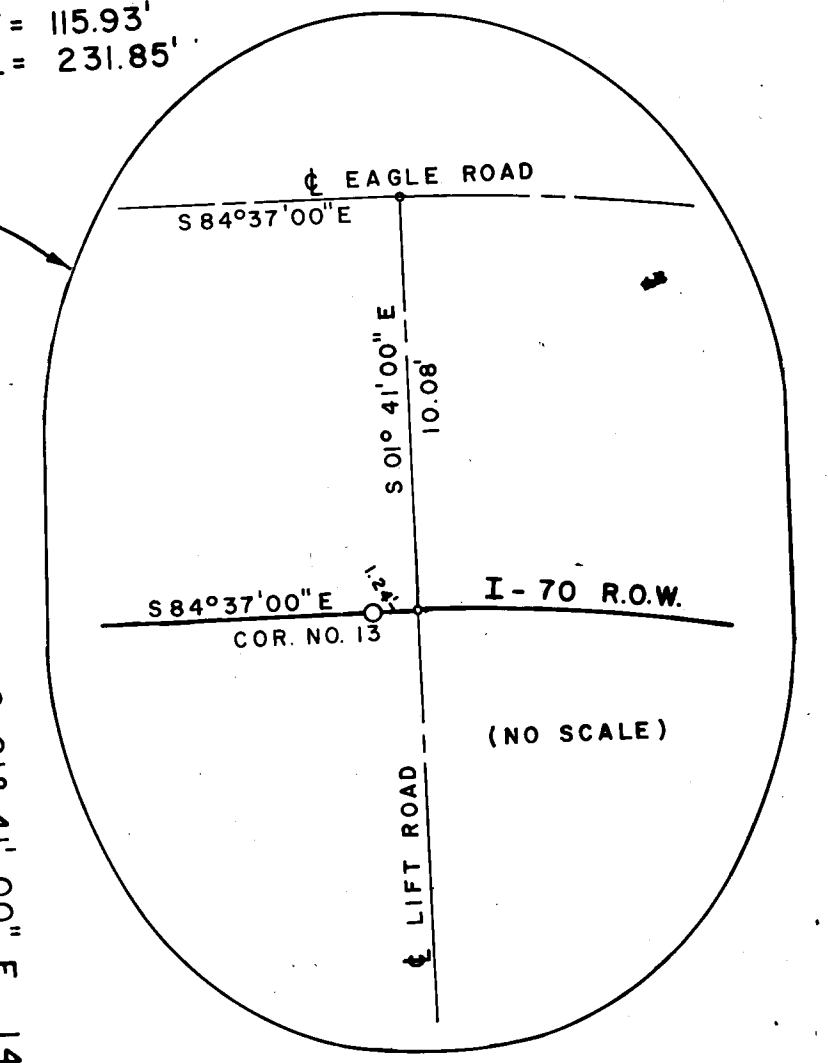
**EAGLE MAN
FRINGE NORTH
SHEET 4 OF 5
DEMONSTRATION
August 1962
Survey date**



$\Delta = 25^{\circ}25'30''$
 $R = 1623.65'$
 $T = 366.28'$
 $L = 720.49'$



$\Delta = 01^{\circ}47'08''$
 $R = 7439.40'$
 $T = 115.93'$
 $L = 231.85'$



ROAD CENTERLINE CURVE DATA

Curve No.	Delta	Radius	Tan.	Arc. Length
2	$10^{\circ}12'45''$	2573.91'	230.00'	458.78'
3	$05^{\circ}42'25''$	7449.40'	371.30'	741.98'
23	$99^{\circ}09'24''$	127.76'	150.00'	221.10'
24	$80^{\circ}06'05''$	530.00'	445.52'	740.96'
25	$154^{\circ}18'45''$	80.00'	350.88'	215.46'
26	$08^{\circ}56'38''$	3562.73'	278.64'	556.14'

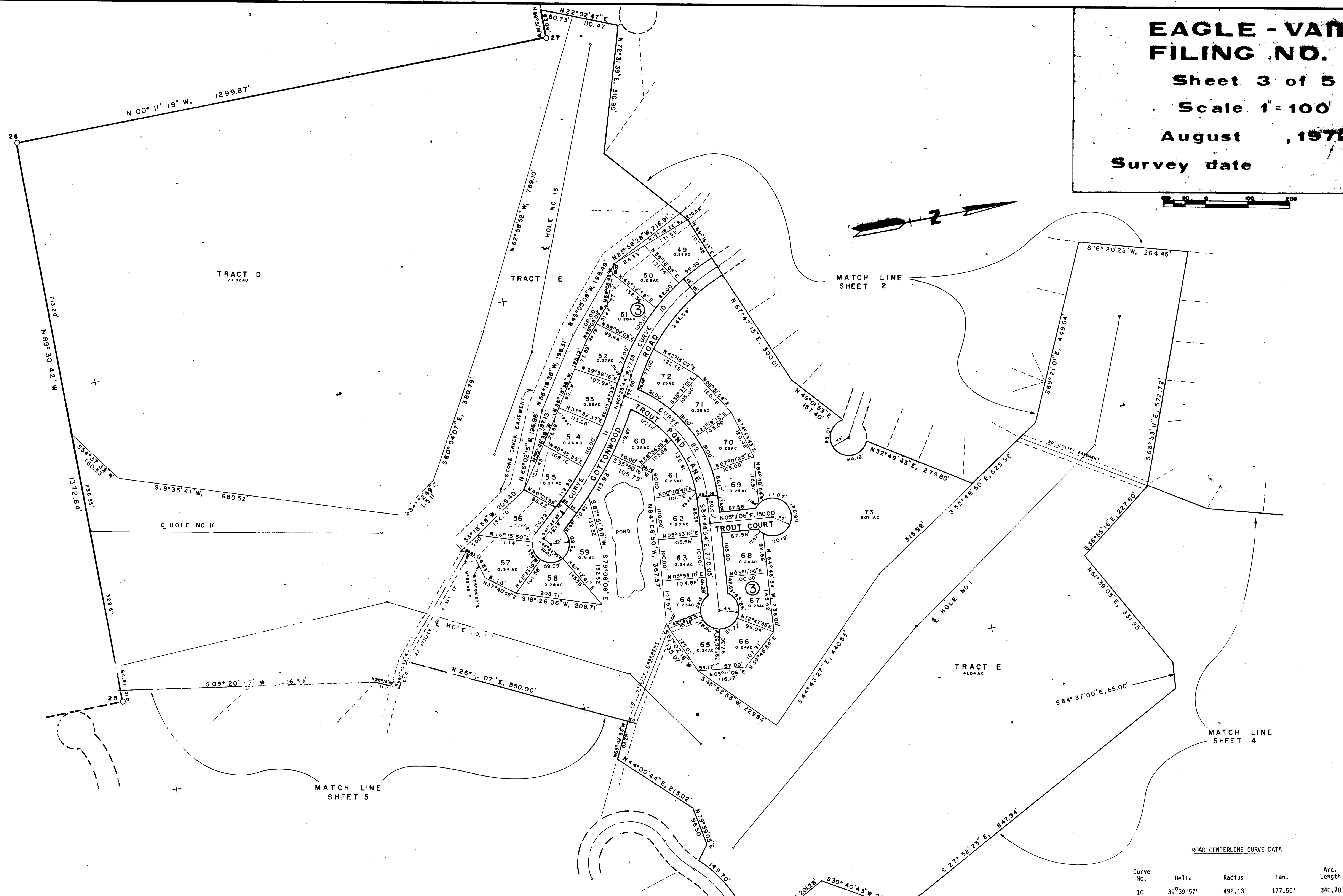
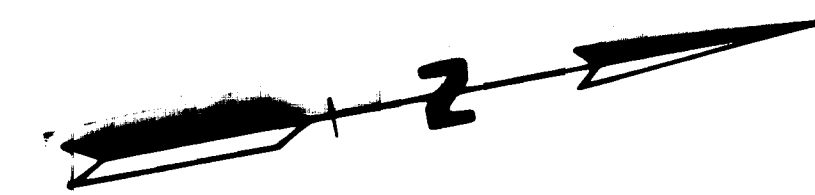
EAGLE - VAL FILING NO. 1

Sheet 3 of 5

Scale 1" = 100'

August, 1972

Survey date



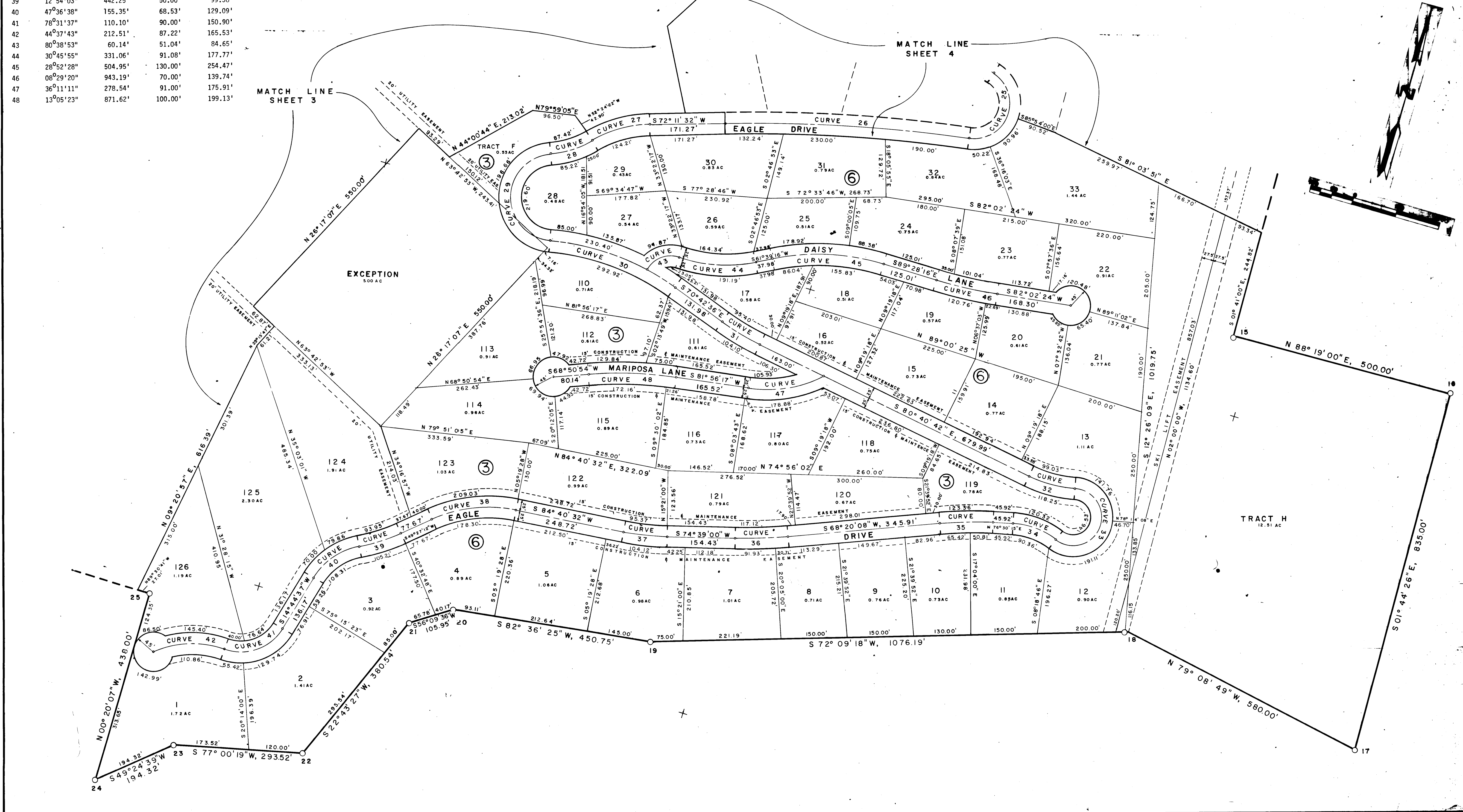
ROAD CENTERLINE CURVE DATA

Curve No.	Delta	Radius	Tan.	Arc Length
10	39°39'57"	492.13'	177.50'	340.70'
11	18°58'19"	897.72'	150.00'	297.25'
22	65°34'50"	294.93'	190.00'	337.58'
27	29°12'49"	268.60'	70.00'	136.95'
28	26°07'08"	216.77'	50.28'	98.82'
29	170°45'59"	98.68'	1221.99'	294.11'

ROAD CENTERLINE CURVE DATA

Curve No.	Delta	Radius	Tan.	Arc. Length
26	08°56'38"	3562.73'	278.64'	556.14'
27	29°12'49"	268.60'	70.00'	136.95'
28	26°07'08"	216.77'	50.28'	98.82'
29	170°45'59"	98.68'	1221.99'	294.11'
30	30°57'32"	567.11'	157.06'	306.43'
31	09°58'06"	573.33'	50.00'	99.75'
32	22°01'21"	282.65'	55.00'	108.64'
33	213°31'48"	64.32'	∞	239.70'
34	34°19'30"	175.83'	54.30'	105.34'
35	08°10'07"	840.27'	60.00'	119.80'
36	06°18'51"	1087.78'	60.00'	119.88'
37	10°01'32"	570.04'	50.00'	99.74'
38	35°13'20"	315.03'	100.00'	193.66'
39	12°54'03"	442.25'	50.00'	99.58'
40	47°36'38"	155.35'	68.53'	129.09'
41	78°31'37"	110.10'	90.00'	150.90'
42	44°37'43"	212.51'	87.22'	165.53'
43	80°38'53"	60.14'	51.04'	84.65'
44	30°45'55"	331.06'	91.08'	177.77'
45	28°52'28"	504.95'	130.00'	254.47'
46	08°29'20"	943.19'	70.00'	139.74'
47	36°11'11"	278.54'	91.00'	175.91'
48	13°05'23"	871.62'	100.00'	199.13'

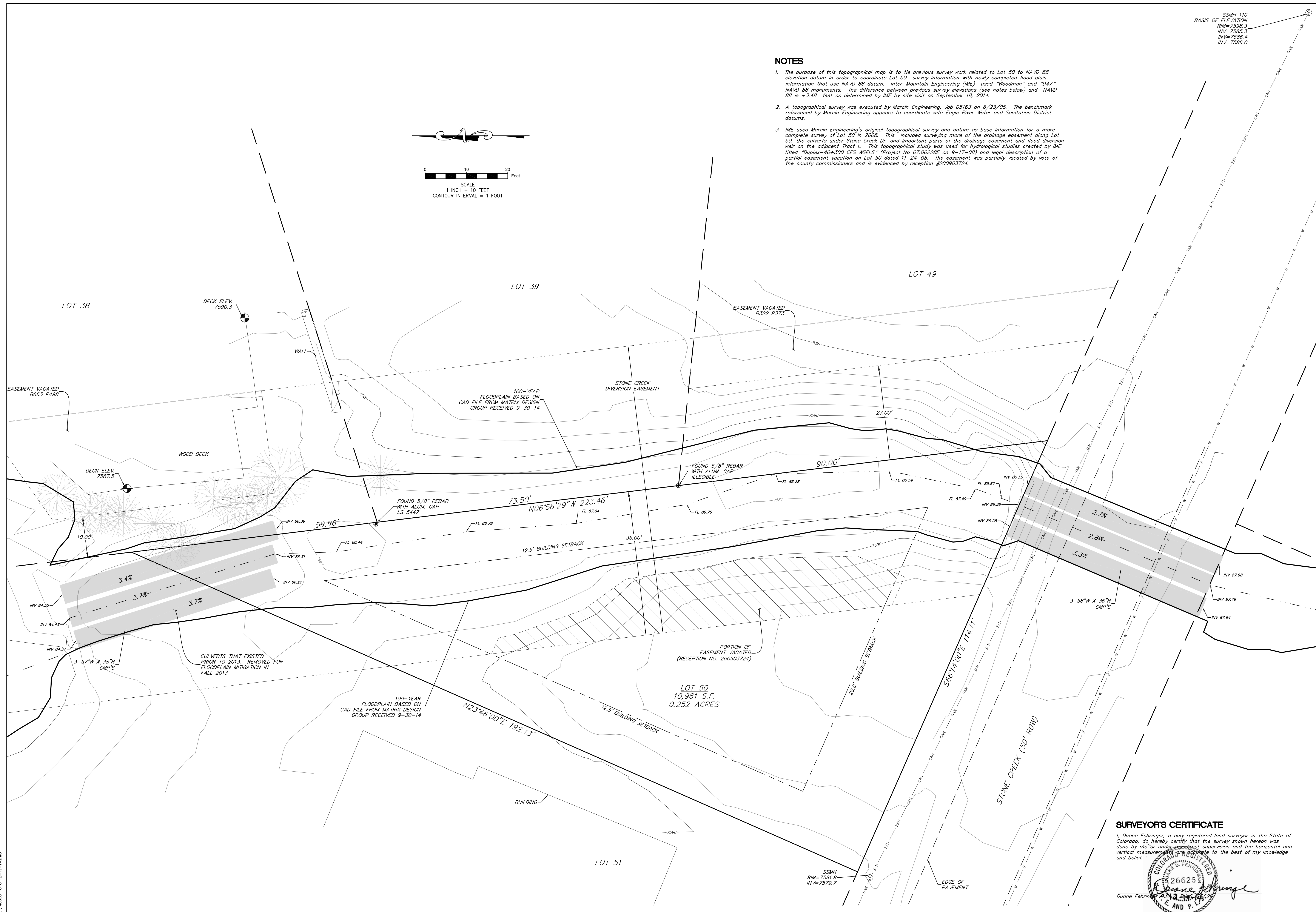
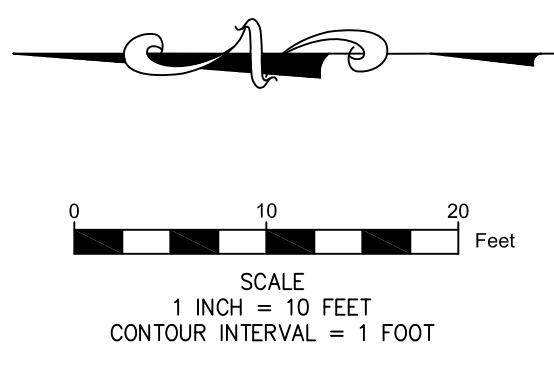
EAGLE - VAIL
FILING NO. 1
 Sheet 5 of 5
 Scale 1" = 100'
 August, 1972
 Survey date



SSMH 110
BASIS OF ELEVATION
RIM=7598.3
INV=7585.3
INV=7586.4
INV=7586.0

NOTES

- The purpose of this topographical map is to tie previous survey work related to Lot 50 to NAVD 88 elevation datum in order to coordinate Lot 50 survey information with newly completed flood plain information that use NAVD 88 datum. Inter-Mountain Engineering (IME) used "Woodman" and "D47" NAVD 88 monuments. The difference between previous survey elevations (see notes below) and NAVD 88 is +3.48 feet as determined by IME by site visit on September 18, 2014.
- A topographical survey was executed by Marcin Engineering, Job 05163 on 6/23/05. The benchmark referenced by Marcin Engineering appears to coordinate with Eagle River Water and Sanitation District datums.
- IME used Marcin Engineering's original topographical survey and datum as base information for a more complete survey of Lot 50 in 2008. This included surveying more of the drainage easement along Lot 50, the culverts under Stone Creek Dr. and important parts of the drainage easement and flood diversion weir on the adjacent Tract L. This topographical study was used for hydrological studies created by IME titled "Duplex-40+300 CFS WSELS" (Project No 07.00228E on 9-17-08) and legal description of a partial easement vacation on Lot 50 dated 11-24-08. The easement was partially vacated by vote of the county commissioners and is evidenced by reception #200903724.



NO.	DATE	REVISION	BY

Inter-Mountain ENGINEERS & Surveyors
Civil Engineers & Surveyors
6081 US 161
6813 REVERE PARKWAY, SUITE 100, CENTENNIAL, CO 80112 (303)484-4230

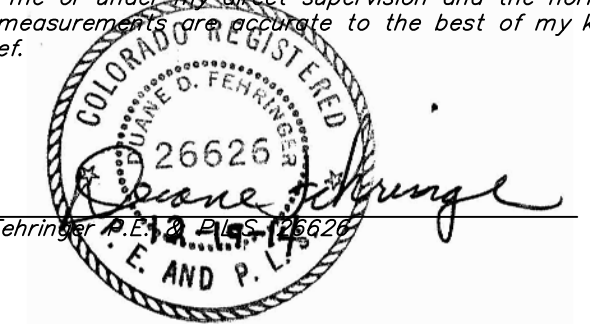
CLIENT: KRUEGER DEVELOPMENT CO. LLC
This document is prepared by the Surveyors for the Client. It is the property of the Surveyors and is not to be distributed, copied, or used in any way without the written consent of the Surveyors. The use of this document or the information contained herein by any other person or entity is not authorized. In the event that any other person or entity does use this document or the information contained herein for any purpose, they must first obtain written authorization from Inter-Mountain Engineering & Surveyors. This document is not to be used within one year of the date hereof. Use after that period is not authorized.

TOPOGRAPHIC MAP
LOT 50, BLOCK 1
EAGLE-VAIL FILING NO. 1
EAGLE COUNTY, COLORADO

DESIGNED BY:	
DRAWN BY:	SPF
CHECKED BY:	DDF
DATE ISSUED:	12-22-14
PROJECT NO.:	14-0058
SHEET NO.:	1 OF 1

SURVEYOR'S CERTIFICATE

I, Duane Fahringer, a duly registered land surveyor in the State of Colorado, do hereby certify that the survey shown hereon was done by me or under my direct supervision and the horizontal and vertical measurements are accurate to the best of my knowledge and belief.



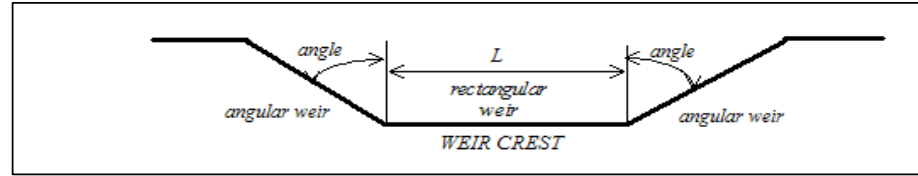
NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of certification shown hereon.

4 Civil 30\N40058\40058 TOPO 12-19-14.DWG

APPENDIX B

Stone Creek Upper Split Flow Calculation
FEMA Effective HEC-RAS 3.1.3 Model Outputs
Post-project/ As-built Condition HEC-RAS 4.1.0 Outputs
Post-project/ As-built Condition HEC-RAS 4.1.0 Cross Section Outputs

Stone Creek Upper Split Flow Calculation



Bottom Length of Weir L = 25.00
 Angle of Side Slope Weir Angle = 71.57
 Elev. for Weir Crest EL. Crest = 7,653.50
 Coef. for Rectangular Weir C_w = 3.00
 Coef. for Trapezoidal Weir C_t = 3.00

H:V = 3.00

Bottom Length of Weir L = 4.00
 Angle of Side Slope Weir Angle = 0.00
 Elev. for Weir Crest EL. Crest = 7,650.00
 Coef. for Rectangular Weir C_w = 3.00
 Coef. for Trapezoidal Weir C_t = 3.00

H:V = 0.00

Split Flow Channel

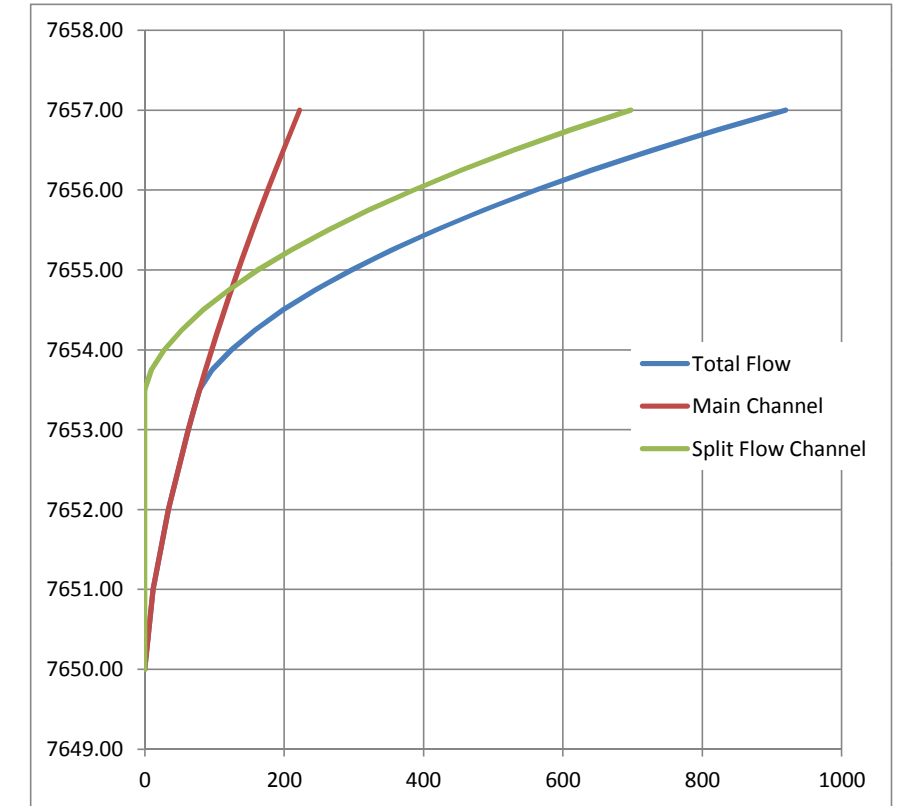
W.S.E.	Rectangular Weir (cfs)	Triangular Weir (cfs)	Total Discharge (cfs)	Depth
7650.00	0	0	0	0.00
7651.00	0	0	0	1.00
7652.00	0	0	0	2.00
7653.00	0	0	0	3.00
7653.50	0	0	0	3.50
7653.75	9	0	10	3.75
7654.00	27	2	28	4.00
7654.25	49	4	53	4.25
7654.50	75	9	84	4.50
7654.75	105	16	121	4.75
7655.00	138	25	163	5.00
7655.25	174	36	210	5.25
7655.50	212	51	263	5.50
7655.75	253	68	321	5.75
7656.00	296	89	385	6.00
7656.25	342	113	455	6.25
7656.50	390	140	530	6.50
7656.75	439	171	611	6.75
7657.00	491	206	697	7.00

Main Channel

Depth	W.S.E.	Rectangular Weir (cfs)
0	7650.00	0
1.00	7651.00	12
2.00	7652.00	34
3.00	7653.00	62
3.50	7653.50	79
3.75	7653.75	87
4.00	7654.00	96
4.25	7654.25	105
4.50	7654.50	115
4.75	7654.75	124
5.00	7655.00	134
5.25	7655.25	144
5.50	7655.50	155
5.75	7655.75	165
6.00	7656.00	176
6.25	7656.25	188
6.50	7656.50	199
6.75	7656.75	210
7.00	7657.00	222

Total Flow

Total Flow (cfs)
0
12
34
62
79
97
124
158
199
245
297
354
418
487
562
642
729
821
920



Final Split Flows _ As-built Condition

Reoccurrence	10-year	50-year	100-year	500-year
Main Channel Discharge (cfs)	106	116	125	156
Split Flow Channel Discharge (cfs)	54	89	125	264
FIS Discharge (cfs)	160	205	250	420

Floodplain Output
Effective Regulatory Model HEC-RAS 3.1.3

HEC-RAS Plan: Stone FP

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Cr Bypass	01	119	54.93	7556.92	7557.63	7557.63	7557.76	0.024236	2.92	18.79	64.55	0.95
Stone Cr Bypass	01	119	62.04	7556.92	7557.64	7557.79	7557.79	0.027143	3.18	19.55	65.26	1.01
Stone Cr Bypass	01	119	69.27	7556.92	7557.67	7557.67	7557.83	0.024900	3.23	21.49	66.91	0.98
Stone Cr Bypass	01	119	92.94	7556.92	7557.74	7557.74	7557.93	0.023021	3.54	26.47	70.11	0.98
Stone Cr Bypass	01	140	54.93	7557.97	7558.71	7558.71	7559.07	0.020576	4.84	11.34	37.95	1.01
Stone Cr Bypass	01	140	62.04	7557.97	7558.78	7558.78	7559.16	0.019437	5.00	12.41	38.60	1.00
Stone Cr Bypass	01	140	69.27	7557.97	7558.84	7558.84	7559.25	0.018533	5.15	13.45	39.31	0.99
Stone Cr Bypass	01	140	92.94	7557.97	7559.02	7559.02	7559.52	0.017383	5.68	16.36	41.50	0.99
Stone Cr Bypass	01	182										
			Culvert									
Stone Cr Bypass	01	224	54.93	7558.38	7559.75	7559.75	7559.89	0.003378	3.04	18.16	13.36	0.46
Stone Cr Bypass	01	224	62.04	7558.38	7559.87	7559.87	7560.02	0.003204	3.14	19.85	13.37	0.45
Stone Cr Bypass	01	224	69.27	7558.38	7559.99	7559.99	7560.15	0.003126	3.25	21.37	13.38	0.45
Stone Cr Bypass	01	224	92.94	7558.38	7560.33	7560.33	7560.53	0.002924	3.59	26.03	13.40	0.45
Stone Cr Bypass	01	258	54.93	7563.03	7563.88	7563.88	7564.20	0.020216	4.56	12.04	17.77	0.98
Stone Cr Bypass	01	258	62.04	7563.03	7563.93	7563.93	7564.29	0.020547	4.79	12.94	17.93	0.99
Stone Cr Bypass	01	258	69.27	7563.03	7564.00	7564.00	7564.37	0.019544	4.91	14.11	18.15	0.98
Stone Cr Bypass	01	258	92.94	7563.03	7564.17	7564.17	7564.62	0.018086	5.37	17.34	18.82	0.97
Stone Cr Bypass	01	279	54.93	7565.35	7566.27	7566.27	7566.42	0.011331	3.34	19.12	56.82	0.74
Stone Cr Bypass	01	279	62.04	7565.35	7566.31	7566.31	7566.46	0.010307	3.33	21.60	58.38	0.71
Stone Cr Bypass	01	279	69.27	7565.35	7566.32	7566.32	7566.49	0.012426	3.67	21.86	58.54	0.78
Stone Cr Bypass	01	279	92.94	7565.35	7566.40	7566.40	7566.60	0.012557	3.97	26.75	61.50	0.80
Stone Cr Bypass	01	344	54.93	7567.03	7567.42	7567.42	7567.56	0.024959	3.13	18.60	81.87	0.98
Stone Cr Bypass	01	344	62.04	7567.03	7567.48	7567.48	7567.59	0.014921	2.72	23.76	85.80	0.78
Stone Cr Bypass	01	344	69.27	7567.03	7567.48	7567.48	7567.61	0.018098	3.01	23.97	85.95	0.86
Stone Cr Bypass	01	344	92.94	7567.03	7567.56	7567.56	7567.70	0.015281	3.12	30.61	90.58	0.81
Stone Cr Bypass	01	518	54.93	7568.49	7569.39	7569.39	7569.49	0.006241	2.46	22.30	35.34	0.55
Stone Cr Bypass	01	518	62.04	7568.49	7569.38	7569.38	7569.51	0.008459	2.84	21.82	35.02	0.63
Stone Cr Bypass	01	518	69.27	7568.49	7569.45	7569.45	7569.58	0.007681	2.83	24.46	36.76	0.61
Stone Cr Bypass	01	518	92.94	7568.49	7569.56	7569.56	7569.73	0.009067	3.26	28.51	39.27	0.67
Stone Cr Bypass	01	705	54.93	7570.54	7571.27	7571.27	7571.49	0.021183	3.81	14.41	29.70	0.96
Stone Cr Bypass	01	705	62.04	7570.54	7571.38	7571.38	7571.57	0.014612	3.44	18.05	32.85	0.82
Stone Cr Bypass	01	705	69.27	7570.54	7571.41	7571.41	7571.62	0.016044	3.66	18.91	33.55	0.86
Stone Cr Bypass	01	705	92.94	7570.54	7571.58	7571.58	7571.79	0.013514	3.72	25.00	38.16	0.81
Stone Cr Bypass	01	881	54.93	7574.19	7575.08	7575.08	7575.32	0.020577	3.88	14.22	30.29	0.96
Stone Cr Bypass	01	881	62.04	7574.19	7575.13	7575.13	7575.38	0.019919	4.03	15.55	31.54	0.96
Stone Cr Bypass	01	881	69.27	7574.19	7575.18	7575.18	7575.44	0.018421	4.11	17.16	33.32	0.93
Stone Cr Bypass	01	881	92.94	7574.19	7575.30	7575.30	7575.60	0.016699	4.44	21.63	36.86	0.92
Stone Cr Bypass	01	982	54.93	7576.20	7577.17	7577.17	7577.46	0.020662	4.32	12.70	21.13	0.98
Stone Cr Bypass	01	982	62.04	7576.20	7577.24	7577.24	7577.54	0.019766	4.39	14.13	22.22	0.97
Stone Cr Bypass	01	982	69.27	7576.20	7577.29	7577.29	7577.61	0.020270	4.56	15.19	23.00	0.99
Stone Cr Bypass	01	982	92.94	7576.20	7577.47	7577.47	7577.81	0.019051	4.73	19.65	26.91	0.98
Stone Cr Bypass	01	1058	54.93	7577.36	7578.30	7578.30	7578.42	0.008241	2.83	19.44	31.53	0.63
Stone Cr Bypass	01	1058	62.04	7577.36	7578.34	7578.34	7578.48	0.008248	2.97	20.96	32.64	0.64
Stone Cr Bypass	01	1058	69.27	7577.36	7578.39	7578.39	7578.54	0.008020	3.07	22.68	33.85	0.63
Stone Cr Bypass	01	1058	92.94	7577.36	7578.53	7578.53	7578.71	0.008078	3.46	27.45	36.88	0.66
Stone Cr Bypass	01	1232	54.93	7581.73	7582.29	7582.29	7582.47	0.024416	3.41	16.09	43.52	0.99
Stone Cr Bypass	01	1232	62.04	7581.73	7582.32	7582.32	7582.52	0.023827	3.56	17.45	43.66	0.99
Stone Cr Bypass	01	1232	69.27	7581.73	7582.36	7582.36	7582.56	0.021998	3.62	19.12	43.83	0.96
Stone Cr Bypass	01	1232	92.94	7581.73	7582.44	7582.44	7582.70	0.021857	4.07	22.88	44.21	0.99
Stone Cr Bypass	01	1410	54.93	7587.30	7587.92	7587.92	7588.09	0.019204	3.38	17.28	59.21	0.90
Stone Cr Bypass	01	1410	62.04	7587.30	7587.96	7587.96	7588.13	0.017218	3.40	19.98	69.65	0.87
Stone Cr Bypass	01	1410	69.27	7587.30	7588.00	7588.00	7588.17	0.016074	3.45	22.65	77.60	0.85
Stone Cr Bypass	01	1410	92.94	7587.30	7588.14	7588.14	7588.26	0.009441	3.10	40.51	142.95	0.68
Stone Cr Bypass	01	1575	54.93	7587.57	7588.93	7588.93	7589.02	0.002680	2.54	22.46	21.54	0.40
Stone Cr Bypass	01	1575	62.04	7587.57	7588.99	7588.99	7589.10	0.002892	2.72	23.76	21.97	0.42
Stone Cr Bypass	01	1575	69.27	7587.57	7589.04	7589.04	7589.17	0.003097	2.89	25.00	22.38	0.44
Stone Cr Bypass	01	1575	92.94	7587.57	7589.12	7589.12	7589.32	0.004559	3.64	26.76	22.94	0.53
Stone Cr Bypass	01	1622	54.93	7588.00	7589.07	7589.07	7589.30	0.008637	3.80	14.54	15.75	0.68
Stone Cr Bypass	01	1622	62.04	7588.00	7589.14	7589.14	7589.39	0.008817	4.01	15.59	16.04	0.69
Stone Cr Bypass	01	1622	69.27	7588.00	7589.20	7589.20	7589.48	0.009015	4.22	16.60	16.30	0.71
Stone Cr Bypass	01	1622	92.94	7588.00	7589.34	7589.34	7589.72	0.010652	4.97	18.97	16.91	0.79
Stone Cr Bypass	01	1648										
			Culvert									

Floodplain Output
Effective Regulatory Model HEC-RAS 3.1.3

HEC-RAS Plan: Stone FP (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Cr Bypass	01	1673	54.93	7588.17	7592.67	7592.67	7592.83	0.000039	0.68	81.07	27.77	0.06
Stone Cr Bypass	01	1673	62.04	7588.17	7592.80	7592.80	7592.81	0.000045	0.74	83.74	28.17	0.06
Stone Cr Bypass	01	1673	69.27	7588.17	7592.92	7592.92	7593.06	0.000050	0.80	86.33	29.13	0.07
Stone Cr Bypass	01	1673	92.94	7588.17	7593.29	7593.29	7593.56	0.000068	0.98	94.26	43.54	0.08
Stone Cr Bypass	01	1694	54.93	7591.18	7592.59	7592.59	7592.78	0.007277	3.51	16.05	19.30	0.63
Stone Cr Bypass	01	1694	61.96	7591.18	7592.72	7592.72	7592.90	0.005867	3.43	18.62	20.14	0.58
Stone Cr Bypass	01	1694	68.56	7591.18	7592.85	7592.85	7593.01	0.004830	3.35	21.22	21.06	0.53
Stone Cr Bypass	01	1694	87.89	7591.18	7593.23	7593.23	7593.37	0.002831	3.08	29.98	23.98	0.43
Stone Cr Bypass	01	1776	55.29	7592.82	7594.30	7594.30	7594.62	0.015150	4.65	12.51	19.14	0.89
Stone Cr Bypass	01	1776	62.74	7592.82	7594.35	7594.35	7594.70	0.015463	4.88	13.50	19.27	0.90
Stone Cr Bypass	01	1776	69.74	7592.82	7594.40	7594.40	7594.77	0.015633	5.08	14.40	19.38	0.92
Stone Cr Bypass	01	1776	90.25	7592.82	7594.53	7594.53	7594.98	0.015424	5.51	17.07	19.71	0.93
Stone Cr Bypass	01	1814	90.20	7593.63	7595.45	7595.45	7595.94	0.013211	5.86	16.46	16.64	0.89
Stone Cr Bypass	01	1814	111.04	7593.63	7595.60	7595.60	7596.16	0.013002	6.24	19.01	16.93	0.89
Stone Cr Bypass	01	1814	129.51	7593.63	7595.72	7595.72	7596.33	0.012905	6.55	21.10	17.17	0.90
Stone Cr Bypass	01	1814	190.31	7593.63	7596.09	7596.09	7596.86	0.012543	7.38	27.48	18.27	0.92
Stone Cr Bypass	01	1830										
			Lat Struct									
Stone Cr Bypass	01	1836	100.33	7594.00	7595.89	7595.89	7596.13	0.004930	4.05	26.14	22.26	0.56
Stone Cr Bypass	01	1836	128.81	7594.00	7596.05	7596.05	7596.36	0.005752	4.64	29.74	24.51	0.62
Stone Cr Bypass	01	1836	154.99	7594.00	7596.18	7596.18	7596.54	0.006183	5.05	33.02	24.97	0.65
Stone Cr Bypass	01	1836	245.69	7594.00	7596.52	7596.52	7597.09	0.007880	6.36	41.64	26.12	0.75
Stone Cr Bypass	01	1880										
			Lat Struct									
Stone Cr Bypass	01	1886	160.00	7592.00	7596.14	7596.14	7596.19	0.000413	1.93	92.06	46.79	

Floodplain Output
Effective Regulatory Model HEC-RAS 3.1.3

HEC-RAS Plan: Stone FP (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Creek	01	2592	108.79	7622.18	7623.36	7623.36	7623.63	0.025555	4.31	26.73	65.48	0.88
Stone Creek	01	2592	129.50	7622.18	7623.43	7623.43	7623.73	0.024968	4.54	30.49	78.65	0.89
Stone Creek	01	2592	150.56	7622.18	7623.51	7623.51	7623.83	0.023943	4.72	34.46	93.82	0.88
Stone Creek	01	2592	208.70	7622.18	7623.68	7623.68	7624.05	0.022136	5.12	44.88	122.12	0.87
Stone Creek	01	2726	112.47	7627.00	7628.22	7628.22	7628.43	0.020270	3.85	31.09	69.97	0.79
Stone Creek	01	2726	135.53	7627.00	7628.27	7628.27	7628.52	0.022093	4.17	34.15	70.84	0.83
Stone Creek	01	2726	160.81	7627.00	7628.33	7628.33	7628.61	0.021289	4.31	38.58	72.09	0.82
Stone Creek	01	2726	236.59	7627.00	7628.48	7628.48	7628.85	0.020843	4.76	49.72	76.77	0.84
Stone Creek	01	2890	Lat Struct									
Stone Creek	01	2899	114.00	7631.38	7632.26	7632.18	7632.56	0.028128	4.43	25.83	31.60	0.85
Stone Creek	01	2899	138.00	7631.38	7632.38	7632.28	7632.72	0.026407	4.68	29.61	32.12	0.84
Stone Creek	01	2899	165.00	7631.38	7632.46	7632.39	7632.87	0.028217	5.13	32.38	32.50	0.88
Stone Creek	01	2899	248.00	7631.38	7632.71	7632.69	7633.30	0.031146	6.19	40.42	33.58	0.96
Stone Creek	01	2990	114.00	7637.30	7639.46	7639.46	7640.03	0.030412	6.12	18.86	79.05	0.87
Stone Creek	01	2990	138.00	7637.30	7639.63	7639.63	7640.26	0.029079	6.42	21.70	95.99	0.86
Stone Creek	01	2990	165.00	7637.30	7639.82	7639.82	7640.49	0.026560	6.58	25.14	113.83	0.84
Stone Creek	01	2990	248.00	7637.30	7639.98	7639.98	7641.19	0.042501	8.78	28.16	133.73	1.08
Stone Creek	01	3047	114.00	7640.30	7642.43	7642.43	7643.02	0.029975	6.23	18.70	110.86	0.85
Stone Creek	01	3047	138.00	7640.30	7642.61	7642.61	7643.25	0.028589	6.52	21.66	117.14	0.85
Stone Creek	01	3047	165.00	7640.30	7642.82	7642.82	7643.48	0.025614	6.63	25.43	124.20	0.82
Stone Creek	01	3047	248.00	7640.30	7643.33	7643.33	7644.05	0.020472	6.88	36.44	148.57	0.76
Stone Creek	01	3110	114.00	7643.70	7645.47	7645.47	7645.92	0.030131	5.60	21.88	105.33	0.86
Stone Creek	01	3110	138.00	7643.70	7645.62	7645.62	7646.09	0.028191	5.81	25.56	108.19	0.84
Stone Creek	01	3110	165.00	7643.70	7645.75	7645.75	7646.27	0.027377	6.07	29.21	110.77	0.85
Stone Creek	01	3110	248.00	7643.70	7646.13	7646.13	7646.74	0.024552	6.61	40.53	119.46	0.83
Stone Creek	01	3130	114.00	7645.60	7647.06	7647.06	7647.44	0.029540	4.98	23.63	30.75	0.81
Stone Creek	01	3130	138.00	7645.60	7647.18	7647.18	7647.59	0.027760	5.15	27.47	32.96	0.80
Stone Creek	01	3130	165.00	7645.60	7647.29	7647.29	7647.75	0.027113	5.38	31.31	35.16	0.80
Stone Creek	01	3130	248.00	7645.60	7647.62	7647.62	7648.16	0.022594	5.66	44.16	68.39	0.76
Stone Creek	01	3192	114.00	7650.70	7652.01	7652.01	7652.35	0.048949	4.73	24.74	37.39	0.97
Stone Creek	01	3192	138.00	7650.70	7652.11	7652.11	7652.48	0.048267	4.97	28.56	39.96	0.97
Stone Creek	01	3192	165.00	7650.70	7652.22	7652.22	7652.61	0.044668	5.17	32.95	42.31	0.95
Stone Creek	01	3192	248.00	7650.70	7652.49	7652.49	7652.97	0.038679	5.72	45.08	47.66	0.93
Stone Creek	01	3219	160.00	7653.51	7655.58	7655.58	7655.94	0.017018	4.48	35.34	51.12	0.58
Stone Creek	01	3219	205.00	7653.51	7655.72	7655.72	7656.14	0.016183	4.58	42.82	55.81	0.57
Stone Creek	01	3219	250.00	7653.51	7655.87	7655.87	7656.30	0.014654	4.57	51.14	60.82	0.55
Stone Creek	01	3219	420.00	7653.51	7656.23	7656.23	7656.72	0.015231	5.17	79.52	89.56	0.57
Stone Creek	01	3270	160.00	7656.57	7657.38	7657.38	7657.68	0.043661	4.19	36.37	60.95	0.90
Stone Creek	01	3270	205.00	7656.57	7657.49	7657.49	7657.84	0.040784	4.50	43.47	63.19	0.89
Stone Creek	01	3270	250.00	7656.57	7657.59	7657.59	7657.99	0.039139	4.77	49.95	65.15	0.89
Stone Creek	01	3270	420.00	7656.57	7657.99	7657.99	7658.44	0.028120	5.17	78.63	88.84	0.80
Stone Creek	01	3299	160.00	7657.20	7658.59	7658.59	7658.96	0.041383	4.98	34.13	68.24	0.83
Stone Creek	01	3299	205.00	7657.20	7658.79	7658.79	7659.15	0.034562	5.06	44.84	94.68	0.78
Stone Creek	01	3299	250.00	7657.20	7658.90	7658.90	7659.29	0.034613	5.35	51.75	104.29	0.79
Stone Creek	01	3299	420.00	7657.20	7659.27	7659.27	7659.76	0.033252	6.11	76.63	141.90	0.81
Stone Creek	01	3344	160.00	7660.00	7661.73	7661.73	7662.19	0.062484	5.44	29.39	90.02	0.99
Stone Creek	01	3344	205.00	7660.00	7661.91	7661.91	7662.44	0.059796	5.84	35.18	100.39	0.99
Stone Creek	01	3344	250.00	7660.00	7662.19	7662.19	7662.62	0.039093	5.34	47.61	547.05	0.83
Stone Creek	01	3344	420.00	7660.00	7662.29	7662.29	7662.34	0.002946	1.52	239.21	562.48	0.23
Stone Creek	01	3379	160.00	7663.18	7664.94	7664.94	7665.38	0.061141	5.32	30.07	340.21	0.98
Stone Creek	01	3379	205.00	7663.18	7665.12	7665.12	7665.62	0.057569	5.66	36.31	348.00	0.97
Stone Creek	01	3379	250.00	7663.18	7665.29	7665.29	7665.83	0.053723	5.90	42.58	355.03	0.96
Stone Creek	01	3379	420.00	7663.18	7665.81	7665.81	7666.45	0.040045	6.44	65.36	376.38	0.88
Stone Creek	01	3464	160.00	7671.52	7672.65	7672.65	7672.97	0.029718	3.76	36.98	79.45	0.69
Stone Creek	01	3464	205.00	7671.52	7672.79	7672.79	7673.14	0.024271	3.74	46.18	100.43	0.64
Stone Creek	01	3464	250.00	7671.52	7672.90	7672.90	7673.28	0.022558	3.85	53.76	144.10	0.62
Stone Creek	01	3464	420.00	7671.52	7673.27	7673.27	7673.71	0.017095	4.01	83.06	216.82	0.57
Stone Creek	01	3565	160.00	7681.11	7682.16	7682.16	7682.41	0.048121	3.65	40.30	128.38	0.82
Stone Creek	01	3565	205.00	7681.11	7682.26	7682.26	7682.55	0.045209	3.89	47.98	138.90	0.81
Stone Creek	01	3565	250.00	7681.11	7682.35	7682.35	7682.68	0.041450	4.05	55.82	149.59	0.79
Stone Creek	01	3565	420.00	7681.11	7682.66	7682.66	7683.08	0.035292	4.62	82.25	185.89	0.77
Stone Creek	01	3649	160.00	7686.15	7687.86	7687.86	7688.41	0.058725	5.93	27.00	126.49	0.98
Stone Creek	01	3649	205.00	7686.15	7688.08	7688.08	7688.70	0.055323	6.32	32.48	139.25	0.98

Floodplain Output
Effective Regulatory Model HEC-RAS 3.1.3

HEC-RAS Plan: Stone FP (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Creek	01	3649	250.00	7686.15	7688.29	7688.29	7688.97	0.050333	6.64	37.92	148.72	0.95
Stone Creek	01	3649	420.00	7686.15	7688.92	7688.92	7689.78	0.040380	7.53	57.48	187.07	0.91
Stone Creek	01	3679	160.00	7688.64	7691.20	7691.20	7691.64	0.005175	6.95	50.67	68.23	0.77
Stone Creek	01	3679	205.00	7688.64	7691.40	7691.40	7691.87	0.005662	7.51	61.29	83.07	0.80
Stone Creek	01	3679	250.00	7688.64	7691.57	7691.57	7692.07	0.005868	7.96	71.07	89.60	0.82
Stone Creek	01	3679	420.00	7688.64	7692.04	7692.04	7692.68	0.006875	9.53	100.41	106.00	0.91
Stone Creek	01	3689	160.00	7689.38	7691.63	7691.63	7691.72	0.003682	2.60	73.11	55.75	0.32
Stone Creek	01	3689	205.00	7689.38	7691.86	7691.86	7691.96	0.003799	2.83	86.04	58.61	0.33
Stone Creek	01	3689	250.00	7689.38	7692.05	7692.05	7692.16	0.003960	3.04	97.24	60.78	0.34
Stone Creek	01	3689	420.00	7689.38	7692.62	7692.62	7692.78	0.004300	3.64	133.42	65.96	0.37
Stone Creek	01	3700	160.00	7689.59	7691.60	7691.60	7691.92	0.021671	4.77	38.10	40.03	0.66
Stone Creek	01	3700	205.00	7689.59	7691.83	7691.83	7692.15	0.020559	4.93	48.00	46.17	0.65
Stone Creek	01	3700	250.00	7689.59	7692.02	7692.02	7692.36	0.019764	5.10	57.18	51.66	0.65
Stone Creek	01	3700	420.00	7689.59	7692.60	7692.60	7692.96	0.015585	5.34	90.87	62.37	0.60
Stone Creek	01	3705	Bridge									
Stone Creek	01	3711	160.00	7690.24	7693.43	7693.43	7693.49	0.002234	2.09	86.88	57.40	0.22
Stone Creek	01	3711	205.00	7690.24	7693.72	7693.72	7693.78	0.002291	2.25	101.57	63.12	0.22
Stone Creek	01	3711	250.00	7690.24	7694.03	7694.03	7694.10	0.002066	2.28	129.07	89.37	0.21
Stone Creek	01	3711	420.00	7690.24	7694.63	7694.63	7694.72	0.002224	2.62	187.37	105.91	0.23
Stone Creek	01	3736	160.00	7693.09	7694.80	7694.80	7695.25	0.054045	5.65	30.13	34.37	0.85
Stone Creek	01	3736	205.00	7693.09	7695.00	7695.00	7695.48	0.048253	5.83	37.08	37.14	0.82
Stone Creek	01	3736	250.00	7693.09	7695.14	7695.14	7695.70	0.049238	6.25	42.73	43.16	0.84
Stone Creek	01	3736	420.00	7693.09	7695.79	7695.79	7696.24	0.027389	5.77	8		

Floodplain Output
Effective Regulatory Model HEC-RAS 3.1.3

HEC-RAS Plan: Stone FP (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Upper Split Flow	01	349	99.44	7606.00	7606.66	7606.66	7606.86	0.011196	3.89	28.49	73.78	0.98
Upper Split Flow	01	349	211.30	7606.00	7606.92	7606.92	7607.23	0.009989	4.88	48.46	81.25	1.00
Upper Split Flow	01	447	51.21	7611.09	7611.54	7611.54	7611.66	0.010554	2.97	20.00	90.41	0.90
Upper Split Flow	01	447	75.50	7611.09	7611.62	7611.62	7611.76	0.009685	3.27	27.40	97.63	0.89
Upper Split Flow	01	447	99.44	7611.09	7611.67	7611.67	7611.84	0.010089	3.62	32.87	102.73	0.93
Upper Split Flow	01	447	211.30	7611.09	7611.89	7611.89	7612.13	0.009593	4.54	57.08	123.01	0.96
Upper Split Flow	01	562	51.21	7615.23	7615.61	7615.61	7615.75	0.014841	3.18	17.37	77.41	1.04
Upper Split Flow	01	562	75.50	7615.23	7615.69	7615.69	7615.86	0.011942	3.41	25.03	93.80	0.97
Upper Split Flow	01	562	99.44	7615.23	7615.77	7615.77	7615.94	0.009909	3.51	32.58	102.54	0.91
Upper Split Flow	01	562	211.30	7615.23	7615.97	7615.97	7616.23	0.010156	4.53	55.24	122.91	0.98
Upper Split Flow	01	664	51.21	7618.03	7618.35	7618.35	7618.50	0.016476	3.16	16.63	69.01	1.08
Upper Split Flow	01	664	75.50	7618.03	7618.44	7618.44	7618.61	0.011845	3.31	23.82	75.34	0.96
Upper Split Flow	01	664	99.44	7618.03	7618.51	7618.51	7618.71	0.011341	3.63	28.97	78.83	0.97
Upper Split Flow	01	664	211.30	7618.03	7618.76	7618.76	7619.06	0.009963	4.59	49.69	88.11	0.98
Upper Split Flow	01	791	46.00	7623.30	7623.78	7623.78	7623.94	0.012968	3.25	14.20	44.21	0.99
Upper Split Flow	01	791	67.00	7623.30	7623.88	7623.88	7624.08	0.011346	3.62	18.80	48.09	0.97
Upper Split Flow	01	791	85.00	7623.30	7623.94	7623.94	7624.18	0.011400	3.97	21.93	50.45	0.99
Upper Split Flow	01	791	172.00	7623.30	7624.23	7624.23	7624.58	0.009182	4.84	37.65	57.91	0.96
Upper Split Flow	01	893	46.00	7627.42	7627.88	7627.88	7628.03	0.013584	3.10	15.03	55.72	1.00
Upper Split Flow	01	893	67.00	7627.42	7627.97	7627.97	7628.14	0.011355	3.39	20.52	63.03	0.95
Upper Split Flow	01	893	85.00	7627.42	7628.03	7628.03	7628.23	0.010562	3.62	24.74	67.03	0.94
Upper Split Flow	01	893	172.00	7627.42	7628.28	7628.28	7628.56	0.008793	4.41	42.76	78.49	0.93
Upper Split Flow	01	955	46.00	7630.00	7630.30	7630.30	7630.46	0.014962	3.27	14.38	49.24	1.05
Upper Split Flow	01	955	67.00	7630.00	7630.40	7630.40	7630.59	0.012666	3.61	19.09	50.22	1.01
Upper Split Flow	01	955	85.00	7630.00	7630.46	7630.46	7630.69	0.012578	3.96	22.17	50.85	1.03
Upper Split Flow	01	955	172.00	7630.00	7630.74	7630.74	7631.08	0.010342	4.92	36.67	53.71	1.01
Upper Split Flow	01	1018	46.00	7631.33	7632.28	7632.28	7632.61	0.011111	4.55	10.12	16.19	1.01
Upper Split Flow	01	1018	67.00	7631.33	7632.48	7632.48	7632.87	0.009986	5.00	13.44	17.90	1.00
Upper Split Flow	01	1018	85.00	7631.33	7632.62	7632.62	7633.06	0.009475	5.36	16.01	18.97	0.99
Upper Split Flow	01	1018	172.00	7631.33	7633.17	7633.17	7633.81	0.007608	6.50	27.60	23.10	0.96
Upper Split Flow	01	1197	46.00	7640.46	7641.22	7641.22	7641.48	0.011734	4.12	11.17	22.11	1.01
Upper Split Flow	01	1197	67.00	7640.46	7641.37	7641.37	7641.70	0.010226	4.59	14.77	24.04	0.99
Upper Split Flow	01	1197	85.00	7640.46	7641.49	7641.49	7641.86	0.009423	4.91	17.69	25.25	0.97
Upper Split Flow	01	1197	172.00	7640.46	7641.96	7641.96	7642.49	0.007570	5.99	30.47	29.70	0.94
Upper Split Flow	01	1350	46.00	7653.19	7653.93	7653.93	7654.19	0.009180	4.25	11.98	24.10	0.93
Upper Split Flow	01	1350	67.00	7653.19	7654.09	7654.09	7654.40	0.008510	4.74	15.99	26.76	0.93
Upper Split Flow	01	1350	85.00	7653.19	7654.19	7654.19	7654.55	0.008733	5.19	18.76	28.61	0.96
Upper Split Flow	01	1350	172.00	7653.19	7654.61	7654.61	7655.12	0.007717	6.29	31.34	30.54	0.96

Floodplain Output
Post-project (As-built) Model HEC-RAS 4.1.0

HEC-RAS Plan: SC_AB

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Cr Bypass	01	119	10-yr	74.71	7566.92	7557.69	7557.69	7557.85	0.023276	3.26	23.00	67.97	0.96
Stone Cr Bypass	01	119	50-yr	111.38	7566.92	7557.79	7557.79	7558.01	0.022660	3.78	29.84	72.01	0.99
Stone Cr Bypass	01	119	100-yr	149.16	7566.92	7557.89	7557.89	7558.14	0.020308	4.09	37.26	76.27	0.97
Stone Cr Bypass	01	119	500-yr	297.35	7566.92	7558.18	7558.18	7558.55	0.017223	5.00	61.01	83.09	0.96
Stone Cr Bypass	01	140	10-yr	74.71	7557.97	7558.89	7558.89	7559.32	0.017604	5.23	14.30	39.79	0.97
Stone Cr Bypass	01	140	50-yr	111.38	7557.97	7559.15	7559.15	7559.72	0.016711	6.04	18.45	43.05	0.99
Stone Cr Bypass	01	140	100-yr	149.16	7557.97	7559.38	7559.38	7560.09	0.016408	6.75	22.11	47.21	1.01
Stone Cr Bypass	01	140	500-yr	297.35	7557.97	7560.21	7560.21	7561.31	0.013720	8.43	35.29	67.93	1.00
Stone Cr Bypass	01	182		Culvert									
Stone Cr Bypass	01	225	10-yr	74.71	7558.38	7560.07	7559.38	7560.24	0.003071	3.34	22.49	13.38	0.45
Stone Cr Bypass	01	225	50-yr	111.38	7558.38	7560.58	7559.65	7560.81	0.002807	3.81	29.40	13.42	0.45
Stone Cr Bypass	01	225	100-yr	149.16	7558.38	7561.06	7559.98	7561.33	0.002632	4.20	35.76	13.47	0.45
Stone Cr Bypass	01	225	500-yr	297.35	7558.38	7562.62	7560.90	7563.06	0.002251	5.28	57.05	13.75	0.45
Stone Cr Bypass	01	260	10-yr	74.71	7562.83	7563.86	7563.86	7564.27	0.006531	5.12	14.59	18.27	1.01
Stone Cr Bypass	01	260	50-yr	111.38	7562.83	7564.13	7564.13	7564.62	0.006079	5.62	19.82	20.43	1.01
Stone Cr Bypass	01	260	100-yr	149.16	7562.83	7564.36	7564.36	7564.93	0.005881	6.04	24.70	22.27	1.01
Stone Cr Bypass	01	260	500-yr	297.35	7562.83	7565.06	7565.06	7565.83	0.005221	7.07	42.10	28.11	1.00
Stone Cr Bypass	01	280	10-yr	74.71	7563.35	7564.36	7564.36	7564.79	0.006377	5.25	14.22	16.68	1.00
Stone Cr Bypass	01	280	50-yr	111.38	7563.35	7564.63	7564.63	7565.17	0.006043	5.87	18.99	18.05	1.01
Stone Cr Bypass	01	280	100-yr	149.16	7563.35	7564.87	7564.87	7565.50	0.005861	6.36	23.46	19.24	1.01
Stone Cr Bypass	01	280	500-yr	297.35	7563.35	7565.66	7565.66	7566.49	0.005215	7.34	40.50	24.46	1.01
Stone Cr Bypass	01	346	10-yr	74.71	7565.15	7565.94	7565.94	7566.22	0.003981	4.30	17.38	30.35	1.00
Stone Cr Bypass	01	346	50-yr	111.38	7565.15	7566.11	7566.11	7566.48	0.003750	4.87	22.95	33.39	1.01
Stone Cr Bypass	01	346	100-yr	149.16	7565.15	7566.27	7566.27	7566.71	0.003424	5.32	28.52	36.03	1.00
Stone Cr Bypass	01	346	500-yr	297.35	7565.15	7566.80	7566.80	7567.43	0.002698	6.46	49.91	44.73	0.96
Stone Cr Bypass	01	393	10-yr	74.71	7566.25	7567.03	7567.03	7567.32	0.011346	4.31	17.35	31.49	1.01
Stone Cr Bypass	01	393	50-yr	111.38	7566.25	7567.21	7567.21	7567.57	0.009742	4.82	23.49	35.63	0.98
Stone Cr Bypass	01	393	100-yr	149.16	7566.25	7567.38	7567.38	7567.79	0.008549	5.18	29.89	39.47	0.95
Stone Cr Bypass	01	393	500-yr	297.35	7566.25	7567.89	7567.89	7568.45	0.006903	6.23	52.57	51.01	0.92
Stone Cr Bypass	01	440	10-yr	74.71	7567.38	7568.07	7568.07	7568.33	0.010300	4.13	18.47	39.52	0.96
Stone Cr Bypass	01	440	50-yr	111.38	7567.38	7568.24	7568.24	7568.56	0.008774	4.56	25.73	43.13	0.93
Stone Cr Bypass	01	440	100-yr	149.16	7567.38	7568.39	7568.39	7568.75	0.008265	4.98	32.13	46.07	0.93
Stone Cr Bypass	01	440	500-yr	297.35	7567.38	7568.84	7568.84	7569.35	0.007102	6.06	55.06	56.37	0.92
Stone Cr Bypass	01	521	10-yr	74.71	7568.49	7569.25	7569.25	7569.54	0.022379	4.25	17.58	32.03	1.01
Stone Cr Bypass	01	521	50-yr	111.38	7568.49	7569.44	7569.44	7569.78	0.020684	4.62	24.10	36.53	1.00
Stone Cr Bypass	01	521	100-yr	149.16	7568.49	7569.60	7569.60	7569.98	0.019868	4.93	30.24	40.30	1.00
Stone Cr Bypass	01	521	500-yr	297.35	7568.49	7570.17	7570.17	7570.51	0.021585	4.71	63.15	98.05	1.02
Stone Cr Bypass	01	709	10-yr	74.71	7570.54	7571.63	7571.63	7571.75	0.007136	2.77	26.93	39.52	0.59
Stone Cr Bypass	01	709	50-yr	111.38	7570.54	7571.83	7571.83	7571.98	0.007480	3.13	35.56	45.05	0.62
Stone Cr Bypass	01	709	100-yr	149.16	7570.54	7572.04	7572.04	7572.20	0.007728	3.28	45.53	55.24	0.64
Stone Cr Bypass	01	709	500-yr	297.35	7570.54	7572.49	7572.49	7572.74	0.007414	4.03	74.68	73.33	0.66
Stone Cr Bypass	01	885	10-yr	74.71	7574.19	7575.20	7575.20	7575.48	0.018890	4.26	17.90	33.90	0.95
Stone Cr Bypass	01	885	50-yr	111.38	7574.19	7575.38	7575.38	7575.72	0.016311	4.71	24.69	39.21	0.92
Stone Cr Bypass	01	885	100-yr	149.16	7574.19	7575.54	7575.54	7575.92	0.014703	5.04	31.29	43.36	0.90
Stone Cr Bypass	01	885	500-yr	297.35	7574.19	7576.02	7576.02	7576.51	0.011907	5.92	55.10	59.51	0.87
Stone Cr Bypass	01	986	10-yr	74.71	7576.20	7577.32	7577.32	7577.66	0.020779	4.69	15.93	23.55	1.01
Stone Cr Bypass	01	986	50-yr	111.38	7576.20	7577.56	7577.56	7577.95	0.020022	4.98	22.34	29.36	1.01
Stone Cr Bypass	01	986	100-yr	149.16	7576.20	7577.74	7577.74	7578.19	0.017672	5.38	28.01	33.83	0.98
Stone Cr Bypass	01	986	500-yr	297.35	7576.20	7578.31	7578.31	7578.87	0.012228	6.15	51.50	48.39	0.88
Stone Cr Bypass	01	1062	10-yr	74.71	7577.36	7578.43	7578.43	7578.58	0.007917	3.16	23.92	34.69	0.64
Stone Cr Bypass	01	1062	50-yr	111.38	7577.36	7578.64	7578.64	7578.84	0.007618	3.64	31.65	39.31	0.65
Stone Cr Bypass	01	1062	100-yr	149.16	7577.36	7578.80	7578.80	7579.05	0.007863	4.09	38.33	42.84	0.68
Stone Cr Bypass	01	1062	500-yr	297.35	7577.36	7579.24	7579.10	7579.68	0.009300	5.53	59.03	52.12	0.78
Stone Cr Bypass	01	1128	10-yr	74.71	7578.53	7579.61	7579.61	7579.88	0.022770	4.15	18.01	34.50	1.01
Stone Cr Bypass	01	1128	50-yr	111.38	7578.53	7579.79	7579.79	7580.11	0.021966	4.49	24.83	41.16	1.02
Stone Cr Bypass	01	1128	100-yr	149.16	7578.53	7579.95	7579.95	7580.29	0.020918	4.74	31.46	46.52	1.01
Stone Cr Bypass	01	1128	500-yr	297.35	7578.53	7580.39	7580.39	7580.85	0.014710	5.51	55.78	63.39	0.92
Stone Cr Bypass	01	1188	10-yr	74.71	7579.84	7580.62	7580.62	7580.94	0.014159	4.56	16.38	23.57	0.96
Stone Cr Bypass	01	1188	50-yr	111.38	7579.84	7580.82	7580.82	7581.25	0.014446	5.28	21.10	24.64	1.01
Stone Cr Bypass	01	1188	100-yr	149.16	7579.84	7581.01	7581.01	7581.52	0.013788	5.75	25.95	25.76	1.01
Stone Cr Bypass	01	1188	500-yr	297.35	7579.84	7581.67	7581.67	7582.35	0.009569	6.68	46.73	37.46	0.91
Stone Cr Bypass	01	1239	10-yr	74.71	7580.15	7581.21	7581.21	7581.47	0.007728	4.12	18.15	19.24	0.75
Stone Cr Bypass	01	1239	50-yr	111.38	7580.15	7581.45	7581.45	7581.82	0.008596	4.88	22.81	20.19	0.81
Stone Cr Bypass	01	1239	100-yr	149.16	7580.15	7581.62	7581.62	7582.12	0.008992	5.64	26.45	20.89	0.88
Stone Cr Bypass	01	1239	500-yr	297.35	7580.15	7582.42	7582.28	7582.76	0.006020	4.71	63.21	62.30	0.82
Stone Cr Bypass	01	1287	10-yr	74.71	7581.52	7582.65	7582.65	7583.12	0.019195	5.52	13.54	14.23	1.00
Stone Cr Bypass	01	1287	50-yr	111.38	7581.52	7582.96	7582.96	7583.54	0.018546	6.14	18.15	15.77	1.01

Floodplain Output
Post-project (As-built) Model HEC-RAS 4.1.0

HEC-RAS Plan: SC_AB (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Cr Bypass	01	1287	100-yr	149.16	7581.52	7583.25	7583.25	7583.90	0.017175	6.51	22.92	17.13	0.99
Stone Cr Bypass	01	1287	500-yr	297.35	7581.52	7584.29	7584.29	7584.91	0.014822	6.37	47.37	49.08	0.94
Stone Cr Bypass	01	1389	10-yr	74.71	7584.54	7585.65	7585.65	7586.11	0.019348	5.48	13.76	16.19	1.01
Stone Cr Bypass	01	1389	50-yr	111.38	7584.54	7586.02	7586.02	7586.40	0.018228	5.18	26.06	39.99	0.82
Stone Cr Bypass	01	1389	100-yr	149.16	7584.54	7586.21	7586.21	7586.61	0.012466	5.46	34.09	47.82	0.82
Stone Cr Bypass	01	1389	500-yr	297.35	7584.54	7586.71	7586.71	7587.24	0.011951	6.61	56.67	69.89	0.88
Stone Cr Bypass	01	1412	10-yr	74.71	7585.30	7586.39	7586.39	7586.84	0.019583	5.42	13.79	15.42	1.01
Stone Cr Bypass	01	1412	50-yr	111.38	7585.30	7586.68	7586.68	7587.24	0.018473	6.01	18.53	16.89	1.01
Stone Cr Bypass	01	1412	100-yr	149.16	7585.30	7586.95	7586.95	7587.59	0.017342	6.42	23.22	18.23	1.00
Stone Cr Bypass	01	1412	500-yr	297.35	7585.30	7588.16	7588.16	7588.50	0.007420	4.86	76.39	145.57	0.68
Stone Cr Bypass	01	1449	10-yr	74.71	7586.40	7587.50	7587.50	7587.91	0.019701	5.13	14.56	17.87	1.00
Stone Cr Bypass	01	1449	50-yr	111.38	7586.40	7587.79	7587.79	7588.25	0.019243	5.45	20.45	22.61	1.01
Stone Cr Bypass	01	1449	100-yr	149.16	7586.40	758							

Floodplain Output
 Post-project (As-built) Model HEC-RAS 4.1.0

HEC-RAS Plan: SC_AB (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Creek	01	2164	10-yr	102.31	7603.00	7605.20	7605.20	7605.72	0.027423	5.84	17.67	16.58	0.96
Stone Creek	01	2164	50-yr	111.06	7603.00	7605.29	7605.29	7605.81	0.026029	5.85	19.14	17.33	0.94
Stone Creek	01	2164	100-yr	118.61	7603.00	7605.34	7605.34	7605.88	0.026169	5.96	20.05	17.77	0.94
Stone Creek	01	2164	500-yr	143.47	7603.00	7605.51	7605.51	7606.11	0.024590	6.26	23.14	19.22	0.93
Stone Creek	01	2266	10-yr	102.31	7607.00	7608.71	7608.71	7609.09	0.020344	5.09	20.96	40.36	0.84
Stone Creek	01	2266	50-yr	111.06	7607.00	7608.76	7608.76	7609.16	0.019663	5.17	22.49	48.40	0.83
Stone Creek	01	2266	100-yr	118.61	7607.00	7608.79	7608.79	7609.21	0.020506	5.35	23.21	50.17	0.85
Stone Creek	01	2266	500-yr	143.47	7607.00	7608.94	7608.94	7609.37	0.018293	5.46	27.67	61.24	0.82
Stone Creek	01	2339	10-yr	102.31	7609.00	7610.72	7610.72	7611.14	0.031372	5.22	19.59	46.56	0.99
Stone Creek	01	2339	50-yr	111.06	7609.00	7610.76	7610.76	7611.22	0.033411	5.45	20.38	56.10	1.03
Stone Creek	01	2339	100-yr	118.61	7609.00	7610.84	7610.84	7611.27	0.030399	5.29	22.44	64.18	0.99
Stone Creek	01	2339	500-yr	143.47	7609.00	7610.99	7610.99	7611.45	0.029489	5.43	26.40	77.40	0.98
Stone Creek	01	2387	10-yr	102.31	7611.32	7612.64	7612.64	7613.08	0.022369	5.49	19.76	22.82	0.89
Stone Creek	01	2387	50-yr	111.06	7611.32	7612.69	7612.69	7613.16	0.022273	5.63	20.97	23.52	0.89
Stone Creek	01	2387	100-yr	118.61	7611.32	7612.75	7612.75	7613.22	0.021259	5.67	22.34	24.28	0.88
Stone Creek	01	2387	500-yr	143.47	7611.32	7612.89	7612.89	7613.40	0.020691	5.99	25.83	26.20	0.88
Stone Creek	01	2423	10-yr	102.31	7612.50	7614.18	7614.18	7614.47	0.015729	4.48	24.80	65.37	0.73
Stone Creek	01	2423	50-yr	111.06	7612.50	7614.23	7614.23	7614.52	0.015063	4.51	26.93	70.70	0.72
Stone Creek	01	2423	100-yr	118.61	7612.50	7614.25	7614.25	7614.56	0.015569	4.64	27.97	72.98	0.73
Stone Creek	01	2423	500-yr	143.47	7612.50	7614.35	7614.35	7614.68	0.015213	4.84	32.53	84.33	0.73
Stone Creek	01	2513	10-yr	102.31	7616.40	7617.55	7617.55	7617.97	0.030089	5.21	19.62	79.25	0.98
Stone Creek	01	2513	50-yr	111.06	7616.40	7617.58	7617.58	7618.04	0.031432	5.43	20.45	81.78	1.00
Stone Creek	01	2513	100-yr	118.61	7616.40	7617.64	7617.64	7618.10	0.030122	5.46	21.72	85.57	0.99
Stone Creek	01	2513	500-yr	143.47	7616.40	7617.77	7617.77	7618.29	0.030093	5.78	24.81	92.47	1.00
Stone Creek	01	2595	10-yr	102.31	7622.18	7623.32	7623.32	7623.60	0.026945	4.29	25.12	57.36	0.90
Stone Creek	01	2595	50-yr	111.06	7622.18	7623.36	7623.36	7623.64	0.025394	4.33	27.18	66.89	0.88
Stone Creek	01	2595	100-yr	118.61	7622.18	7623.39	7623.39	7623.68	0.025132	4.42	28.58	71.78	0.88
Stone Creek	01	2595	500-yr	143.47	7622.18	7623.49	7623.49	7623.80	0.023378	4.60	33.58	90.55	0.87
Stone Creek	01	2729	10-yr	104.92	7627.00	7628.20	7628.20	7628.40	0.020253	3.78	29.69	69.56	0.78
Stone Creek	01	2729	50-yr	114.56	7627.00	7628.21	7628.21	7628.44	0.022333	4.01	30.47	69.79	0.82
Stone Creek	01	2729	100-yr	123.15	7627.00	7628.23	7628.23	7628.47	0.022234	4.08	32.01	70.23	0.83
Stone Creek	01	2729	500-yr	152.38	7627.00	7628.31	7628.31	7628.58	0.021589	4.27	37.11	71.67	0.83
Stone Creek	01	2890		Lat Struct									
Stone Creek	01	2902	10-yr	106.00	7631.38	7632.22	7632.14	7632.51	0.027955	4.29	24.75	31.44	0.84
Stone Creek	01	2902	50-yr	116.00	7631.38	7632.29	7632.29	7632.58	0.025662	4.34	26.85	31.74	0.82
Stone Creek	01	2902	100-yr	125.00	7631.38	7632.33	7632.33	7632.64	0.026085	4.49	27.97	31.89	0.83
Stone Creek	01	2902	500-yr	156.00	7631.38	7632.43	7632.35	7632.82	0.027736	4.99	31.45	32.37	0.87
Stone Creek	01	2993	10-yr	106.00	7637.00	7637.97	7637.97	7638.40	0.049837	5.29	20.05	23.93	1.02
Stone Creek	01	2993	50-yr	116.00	7637.00	7638.03	7638.03	7638.48	0.047995	5.38	21.56	24.33	1.01
Stone Creek	01	2993	100-yr	125.00	7637.00	7638.09	7638.09	7638.55	0.045576	5.42	23.06	24.72	0.99
Stone Creek	01	2993	500-yr	156.00	7637.00	7638.25	7638.25	7638.76	0.043594	5.74	27.16	25.75	0.99
Stone Creek	01	3050	10-yr	106.00	7640.00	7641.09	7641.09	7641.59	0.048547	5.70	18.61	19.38	1.02
Stone Creek	01	3050	50-yr	116.00	7640.00	7641.18	7641.18	7641.68	0.044244	5.69	20.37	19.76	0.99
Stone Creek	01	3050	100-yr	125.00	7640.00	7641.24	7641.24	7641.76	0.043568	5.81	21.52	20.00	0.99
Stone Creek	01	3050	500-yr	156.00	7640.00	7641.42	7641.42	7642.01	0.041727	6.16	25.31	20.79	0.98
Stone Creek	01	3113	10-yr	106.00	7643.45	7644.74	7644.74	7645.17	0.046303	5.25	20.19	99.73	0.99
Stone Creek	01	3113	50-yr	116.00	7643.45	7644.79	7644.79	7645.25	0.047559	5.43	21.37	100.67	1.01
Stone Creek	01	3113	100-yr	125.00	7643.45	7644.85	7644.85	7645.31	0.045394	5.44	22.96	101.89	0.99
Stone Creek	01	3113	500-yr	156.00	7643.45	7645.02	7645.02	7645.53	0.044810	5.76	27.08	104.73	1.00
Stone Creek	01	3133	10-yr	106.00	7644.40	7645.90	7645.90	7646.41	0.050941	5.73	18.49	18.87	1.02
Stone Creek	01	3133	50-yr	116.00	7644.40	7645.97	7645.97	7646.50	0.049994	5.83	19.90	19.51	1.02
Stone Creek	01	3133	100-yr	125.00	7644.40	7646.06	7646.06	7646.58	0.045627	5.79	21.60	20.19	0.98
Stone Creek	01	3133	500-yr	156.00	7644.40	7646.24	7646.24	7646.83	0.042666	6.18	25.35	21.46	0.97
Stone Creek	01	3195	10-yr	106.00	7648.50	7650.38	7650.38	7650.87	0.051309	5.62	18.86	19.78	1.01
Stone Creek	01	3195	50-yr	116.00	7648.50	7650.44	7650.44	7650.95	0.050985	5.73	20.23	20.48	1.02
Stone Creek	01	3195	100-yr	125.00	7648.50	7650.51	7650.51	7651.03	0.049690	5.79	21.60	21.16	1.01
Stone Creek	01	3195	500-yr	156.00	7648.50	7650.70	7650.70	7651.27	0.048260	6.05	25.79	23.11	1.01
Stone Creek	01	3222	10-yr	160.00	7650.00	7654.24	7654.24	7654.64	0.004145	6.02	38.46	137.07	0.52
Stone Creek	01	3222	50-yr	205.00	7650.00	7654.41	7654.41	7654.85	0.004620	6.53	45.36	149.30	0.55
Stone Creek	01	3222	100-yr	250.00	7650.00	7654.62	7654.62	7655.07	0.004643	6.75	54.94	165.01	0.55
Stone Creek	01	3222	500-yr	420.00	7650.00	7655.12	7655.12	7655.67	0.005236	7.68	82.75	193.65	0.60
Stone Creek	01	3273	10-yr	160.00	7654.65	7655.73	7655.73	7656.09	0.019488	4.87	33.56	48.24	0.99
Stone Creek	01	3273	50-yr	205.00	7654.65	7655.86	7655.86	7656.28	0.018342	5.26	39.95	49.40	0.99
Stone Creek	01	3273	100-yr	250.00	7654.65	7655.99	7655.99	7656.45	0.016888	5.54	46.46	50.56	0.97
Stone Creek	01	3273	500-yr	420.00	7654.65	7656.37	7656.37	7657.02	0.015457	6.56	66.13	52.30	0.98
Stone Creek	01	3302	10-yr	160.00	7657.20	7658.56	7658.56	7658.95	0.046267	5.16	32.63	61.92	0.87
Stone Creek	01	3302	50-yr	205.00	7657.20	7658.79	7658.79	7659.15	0.034562	5.06	44.84	94.68	0.78

Floodplain Output
 Post-project (As-built) Model HEC-RAS 4.1.0

HEC-RAS Plan: SC_AB (Continued)

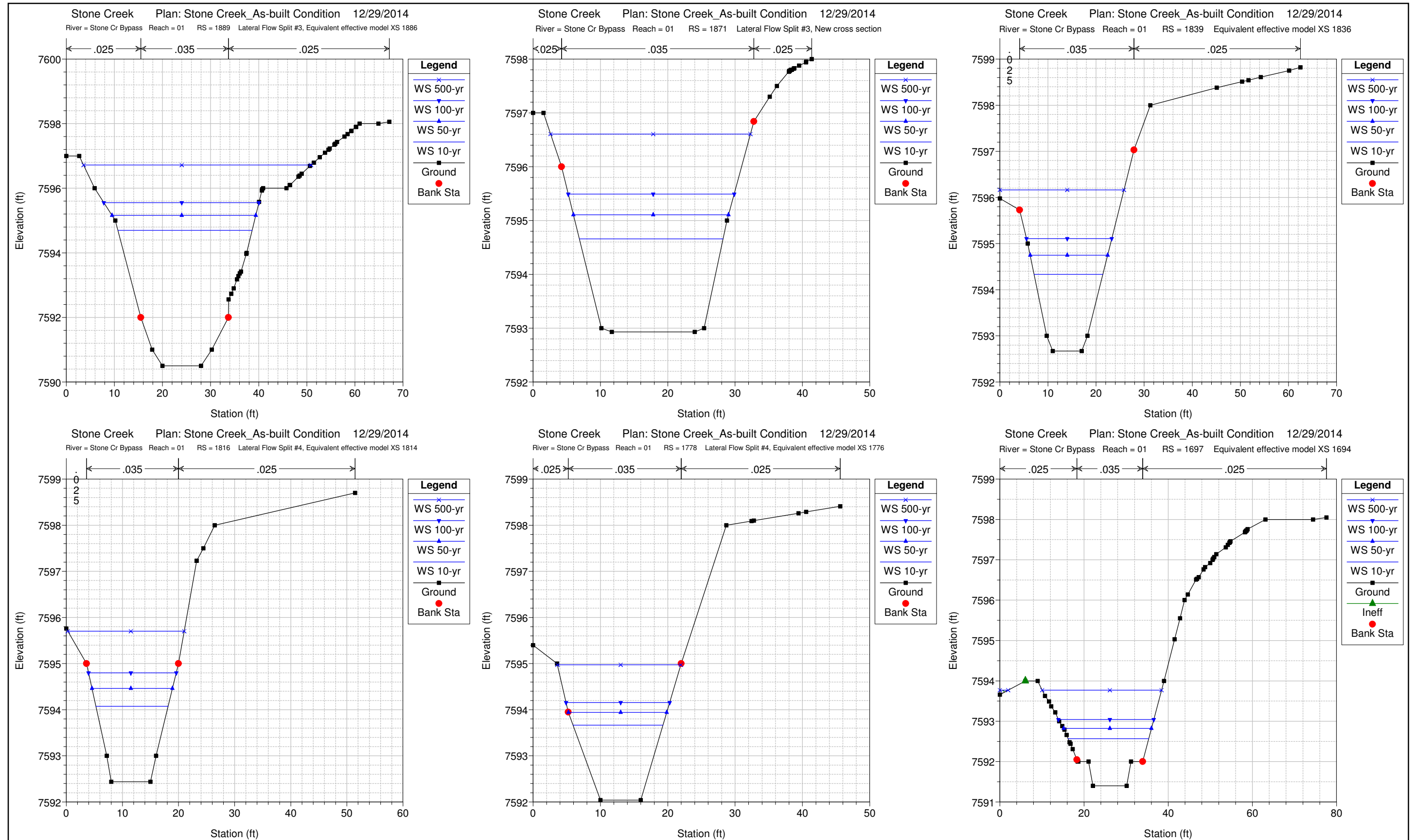
River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Creek	01	3302	100-yr	250.00	7657.20	7658.90	7658.90	7659.29	0.034613	5.35	51.75	104.29	0.79
Stone Creek	01	3302	500-yr	420.00	7657.20	7659.27	7659.27	7659.76	0.033252	6.11	76.63	141.90	0.81
Stone Creek	01	3347	10-yr	160.00	7660.00	7661.73	7661.73	7662.19	0.062484	5.44	29.39	90.02	0.99
Stone Creek	01	3347	50-yr	205.00	7660.00	7661.91	7661.91	7662.44	0.059796	5.84	35.18	100.39	0.99
Stone Creek	01	3347	100-yr	250.00	7660.00	7662.19	7662.19	7662.62	0.039093	5.34	47.61	547.05	0.83
Stone Creek	01	3347	500-yr	420.00	7660.00	7662.29	7662.29	7662.34	0.002946	1.52	239.21	562.48	0.23
Stone Creek	01	3382	10-yr	160.00	7663.18	7664.94	7664.94	7665.38	0.061141	5.32	30.07	340.21	0.98
Stone Creek	01	3382	50-yr	205.00	7663.18	7665.12	7665.12	7665.62	0.057569	5.66	36.31	348.00	0.97
Stone Creek	01	3382	100-yr	250.00	7663.18	7665.29	7665.29	7665.83	0.053723	5.90	42.58	355.03	0.96
Stone Creek	01	3382	500-yr	420.00	7663.18	7665.81	7665.81	7666.45	0.040045	6.44	65.36	376.38	0.88
Stone Creek	01	3467	10-yr	160.00	7671.52	7672.65	7672.65	7672.97	0.029718	3.76	36.98	79.45	0.69
Stone Creek	01	3467	50-yr	205.00	7671.52	7672.79	7672.79	7673.14	0.024271	3.74	46.18	108.43	0.64
Stone Creek	01	3467	100-yr	250.00	7671.52	7672.90	7672.90	7673.28	0.022558	3.85	53.76	14	

Floodplain Output
 Post-project (As-built) Model HEC-RAS 4.1.0

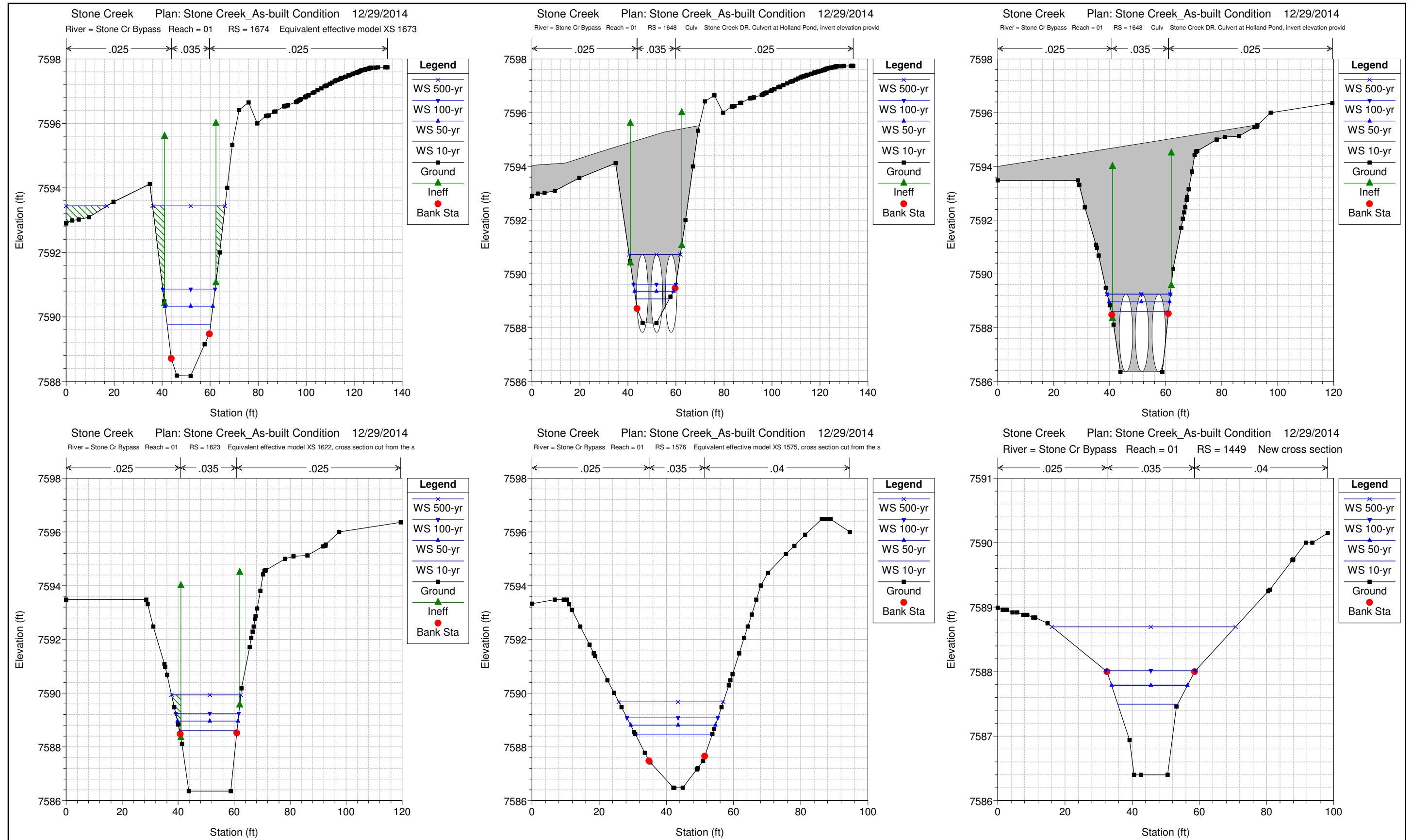
HEC-RAS Plan: SC_AB (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Stone Creek	01	4306	100-yr	250.00	7732.50	7738.25	7735.86	7738.35	0.001720	2.43	99.86	39.71	0.19
Stone Creek	01	4306	500-yr	420.00	7732.50	7739.21	7736.60	7739.36	0.001692	2.71	141.89	46.58	0.20
Stone Creek	01	4330	10-yr	160.00	7735.04	7737.59	7737.59	7738.34	0.057444	7.08	23.23	15.74	0.89
Stone Creek	01	4330	50-yr	205.00	7735.04	7737.91	7737.91	7738.72	0.051193	7.40	28.56	17.52	0.86
Stone Creek	01	4330	100-yr	250.00	7735.04	7738.18	7738.18	7739.05	0.047069	7.64	33.43	19.22	0.84
Stone Creek	01	4330	500-yr	420.00	7735.04	7738.98	7738.98	7740.04	0.035984	8.02	51.28	25.41	0.77
Upper Split Flow	01	95	10-yr	57.69	7599.78	7600.25	7600.25	7600.38	0.010113	3.07	21.78	87.25	0.89
Upper Split Flow	01	95	50-yr	93.94	7599.78	7600.37	7600.37	7600.52	0.009142	3.50	32.72	108.22	0.89
Upper Split Flow	01	95	100-yr	131.39	7599.78	7600.45	7600.45	7600.63	0.009049	3.86	42.05	119.73	0.91
Upper Split Flow	01	95	500-yr	276.53	7599.78	7600.68	7600.68	7600.94	0.008697	4.76	73.14	152.33	0.94
Upper Split Flow	01	244	10-yr	57.69	7602.00	7602.65	7602.65	7602.82	0.011875	3.31	17.45	48.65	0.96
Upper Split Flow	01	244	50-yr	93.94	7602.00	7602.79	7602.79	7603.01	0.010831	3.83	25.00	58.61	0.97
Upper Split Flow	01	244	100-yr	131.39	7602.00	7602.91	7602.91	7603.18	0.009842	4.20	32.55	66.05	0.95
Upper Split Flow	01	244	500-yr	276.53	7602.00	7603.27	7603.27	7603.64	0.007675	5.08	60.04	84.37	0.91
Upper Split Flow	01	349	10-yr	57.69	7606.00	7606.54	7606.54	7606.68	0.011001	3.20	20.03	69.39	0.93
Upper Split Flow	01	349	50-yr	93.94	7606.00	7606.65	7606.65	7606.84	0.010987	3.79	27.63	73.52	0.97
Upper Split Flow	01	349	100-yr	131.39	7606.00	7606.75	7606.75	7606.98	0.010094	4.14	35.33	76.22	0.96
Upper Split Flow	01	349	500-yr	276.53	7606.00	7607.05	7607.05	7607.41	0.009144	5.21	59.62	85.12	0.98
Upper Split Flow	01	447	10-yr	57.69	7611.09	7611.56	7611.56	7611.69	0.010830	3.12	21.65	92.14	0.92
Upper Split Flow	01	447	50-yr	93.94	7611.09	7611.67	7611.67	7611.82	0.009670	3.51	32.02	101.69	0.91
Upper Split Flow	01	447	100-yr	131.39	7611.09	7611.75	7611.75	7611.93	0.009530	3.88	40.79	109.09	0.92
Upper Split Flow	01	447	500-yr	276.53	7611.09	7612.03	7612.03	7612.27	0.007900	4.66	75.38	144.07	0.90
Upper Split Flow	01	562	10-yr	57.69	7615.23	7615.63	7615.63	7615.78	0.013435	3.22	19.61	83.43	1.00
Upper Split Flow	01	562	50-yr	93.94	7615.23	7615.76	7615.76	7615.92	0.009362	3.38	31.93	102.00	0.89
Upper Split Flow	01	562	100-yr	131.39	7615.23	7615.84	7615.84	7616.03	0.009714	3.82	39.99	109.67	0.93
Upper Split Flow	01	562	500-yr	276.53	7615.23	7616.11	7616.11	7616.36	0.007668	4.48	74.38	139.87	0.88
Upper Split Flow	01	664	10-yr	57.69	7618.03	7618.39	7618.39	7618.53	0.012529	3.04	19.62	71.82	0.96
Upper Split Flow	01	664	50-yr	93.94	7618.03	7618.50	7618.50	7618.69	0.011344	3.55	27.89	78.11	0.97
Upper Split Flow	01	664	100-yr	131.39	7618.03	7618.60	7618.60	7618.82	0.010364	3.91	35.87	82.51	0.96
Upper Split Flow	01	664	500-yr	276.53	7618.03	7618.89	7618.89	7619.23	0.008843	4.88	61.78	92.59	0.95
Upper Split Flow	01	791	10-yr	54.00	7623.30	7623.82	7623.82	7624.00	0.012195	3.40	16.00	45.72	0.98
Upper Split Flow	01	791	50-yr	89.00	7623.30	7623.96	7623.96	7624.21	0.011002	4.00	22.87	51.12	0.98
Upper Split Flow	01	791	100-yr	125.00	7623.30	7624.09	7624.09	7624.38	0.009734	4.38	29.85	54.70	0.96
Upper Split Flow	01	791	500-yr	264.00	7623.30	7624.47	7624.47	7624.90	0.008142	5.45	52.29	63.19	0.95
Upper Split Flow	01	893	10-yr	54.00	7627.42	7627.91	7627.91	7628.07	0.013120	3.27	16.90	58.42	1.00
Upper Split Flow	01	893	50-yr	89.00	7627.42	7628.05	7628.05	7628.25	0.010564	3.69	25.53	67.65	0.95
Upper Split Flow	01	893	100-yr	125.00	7627.42	7628.16	7628.16	7628.40	0.009331	4.01	33.65	73.33	0.92
Upper Split Flow	01	893	500-yr	264.00	7627.42	7628.47	7628.47	7628.82	0.008292	5.03	58.68	86.69	0.94
Upper Split Flow	01	955	10-yr	54.00	7630.00	7630.35	7630.35	7630.51	0.013115	3.35	16.53	49.69	1.00
Upper Split Flow	01	955	50-yr	89.00	7630.00	7630.48	7630.48	7630.71	0.011851	3.96	23.24	51.06	1.01
Upper Split Flow	01	955	100-yr	125.00	7630.00	7630.60	7630.60	7630.88	0.011171	4.45	29.27	52.26	1.02
Upper Split Flow	01	955	500-yr	264.00	7630.00	7630.93	7630.93	7631.42	0.010951	5.92	47.28	55.71	1.08
Upper Split Flow	01	1018	10-yr	54.00	7631.33	7632.36	7632.36	7632.71	0.010779	4.73	11.42	16.89	1.01
Upper Split Flow	01	1018	50-yr	89.00	7631.33	7632.65	7632.65	7633.10	0.009300	5.42	16.61	19.25	0.99
Upper Split Flow	01	1018	100-yr	125.00	7631.33	7632.89	7632.89	7633.44	0.008469	5.95	21.54	21.16	0.98
Upper Split Flow	01	1018	500-yr	264.00	7631.33	7633.62	7633.62	7634.41	0.006710	7.32	38.68	26.28	0.94
Upper Split Flow	01	1197	10-yr	54.00	7640.46	7641.28	7641.28	7641.57	0.010801	4.29	12.66	22.98	0.99
Upper Split Flow	01	1197	50-yr	89.00	7640.46	7641.52	7641.52	7641.90	0.009223	4.97	18.36	25.51	0.97
Upper Split Flow	01	1197	100-yr	125.00	7640.46	7641.72	7641.72	7642.18	0.008336	5.48	23.79	27.53	0.96
Upper Split Flow	01	1197	500-yr	264.00	7640.46	7642.36	7642.36	7643.00	0.006544	6.70	43.62	36.60	0.92
Upper Split Flow	01	1350	10-yr	54.00	7653.19	7653.99	7653.99	7654.27	0.009038	4.48	13.45	24.98	0.94
Upper Split Flow	01	1350	50-yr	89.00	7653.19	7654.24	7654.24	7654.58	0.007731	5.07	20.25	29.55	0.91
Upper Split Flow	01	1350	100-yr	125.00	7653.19	7654.42	7654.42	7654.83	0.007473	5.60	25.72	30.19	0.92
Upper Split Flow	01	1350	500-yr	264.00	7653.19	7654.95	7654.95	7655.62	0.007490	7.20	41.72	31.18	0.99

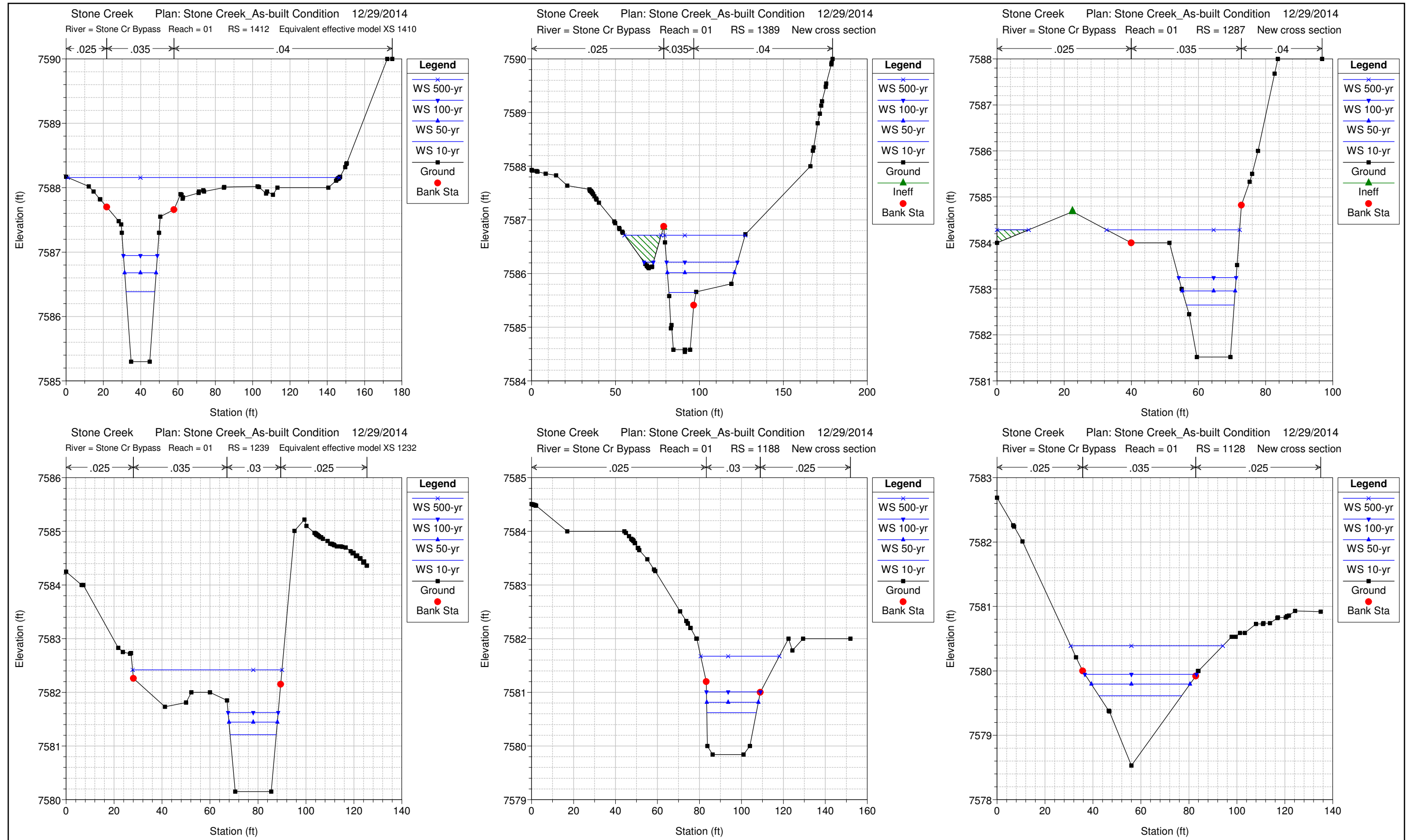
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek Bypass



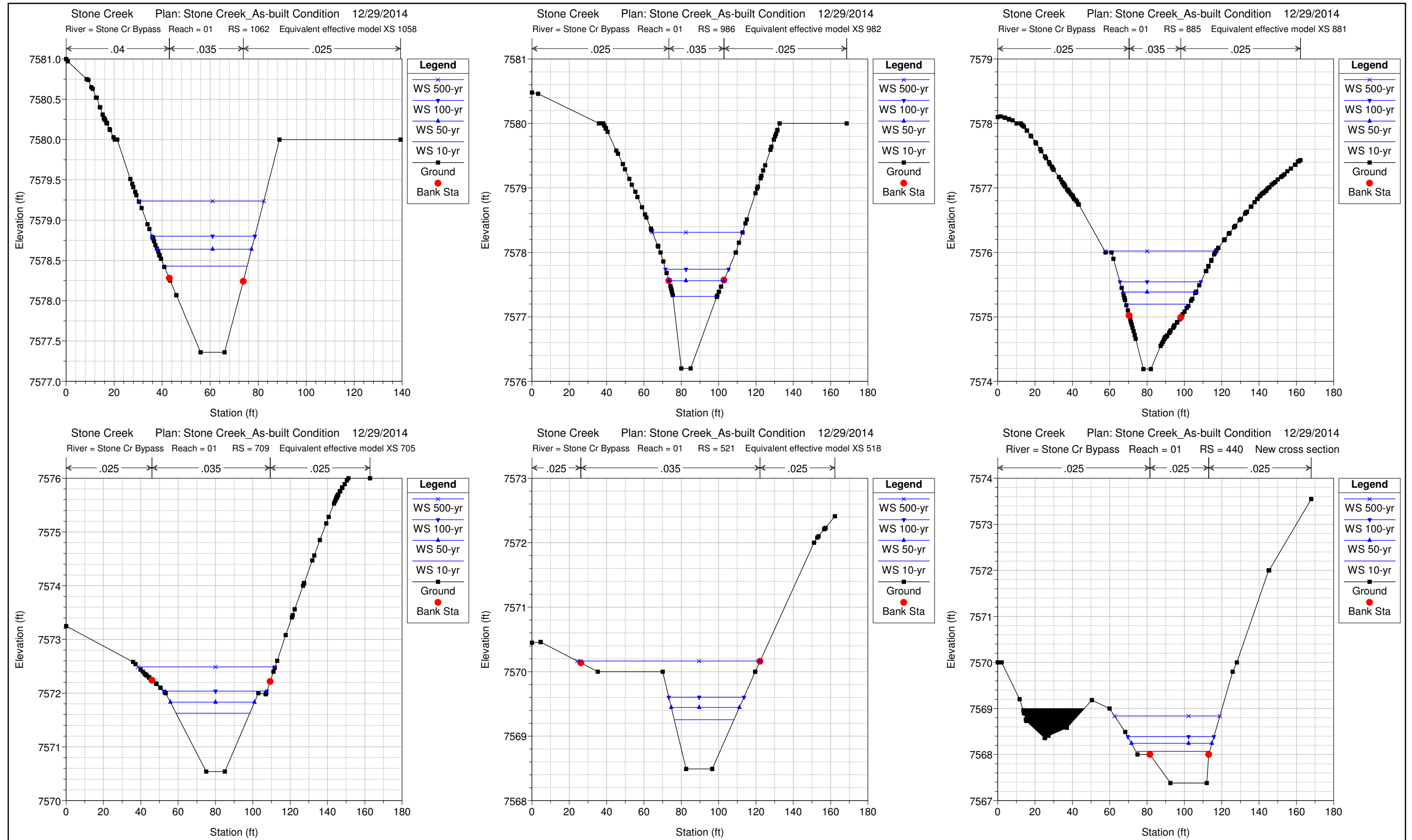
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek Bypass



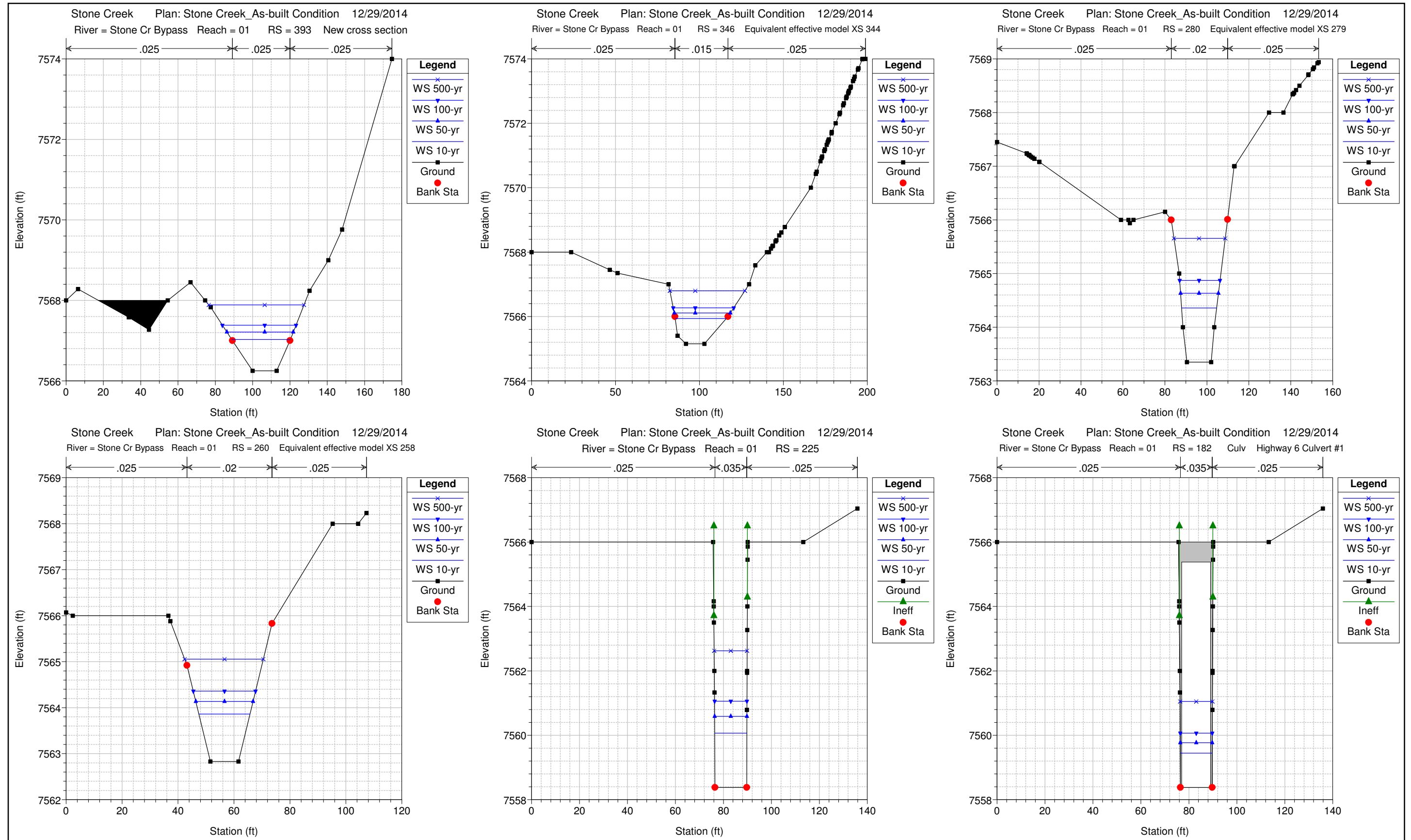
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek Bypass



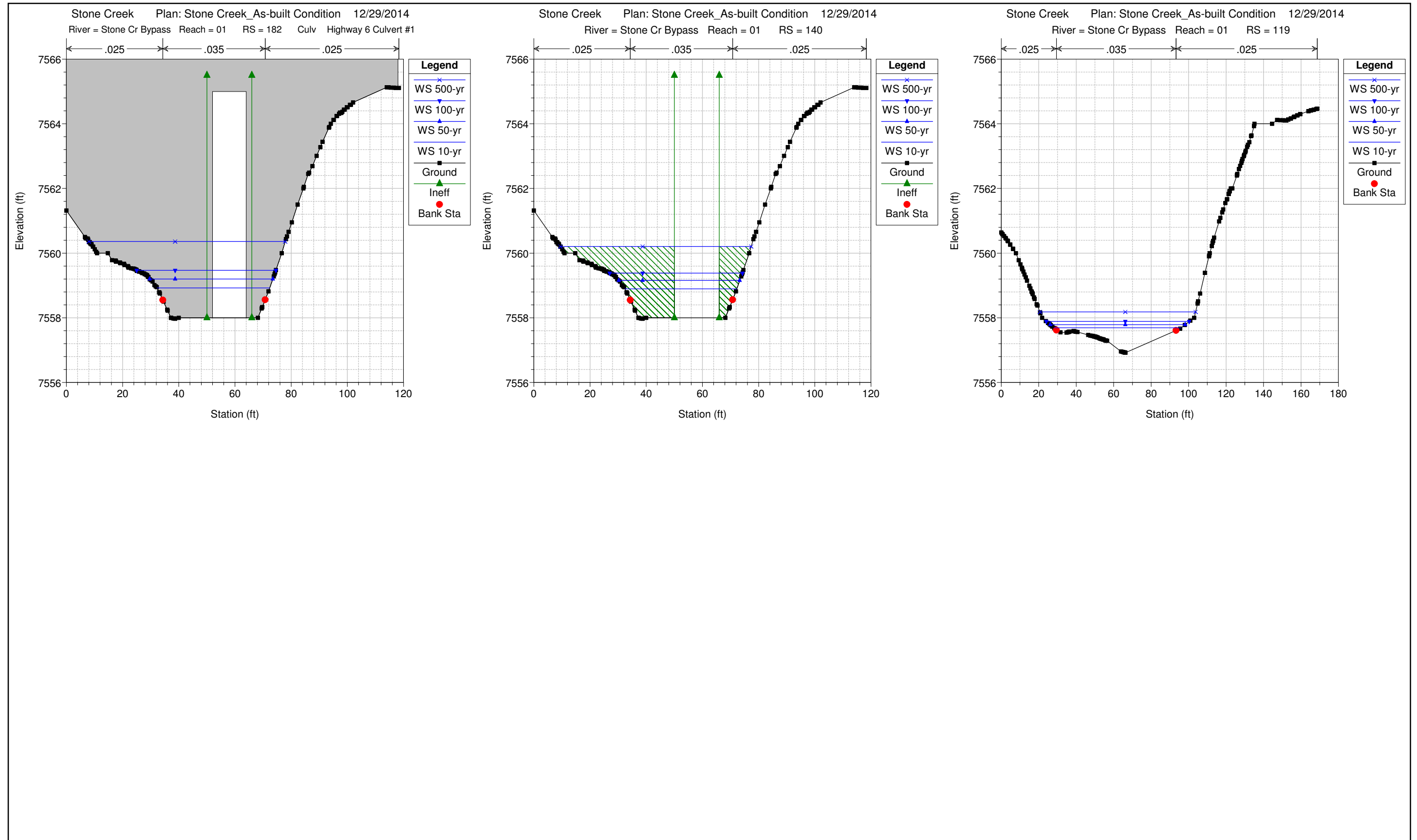
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek Bypass



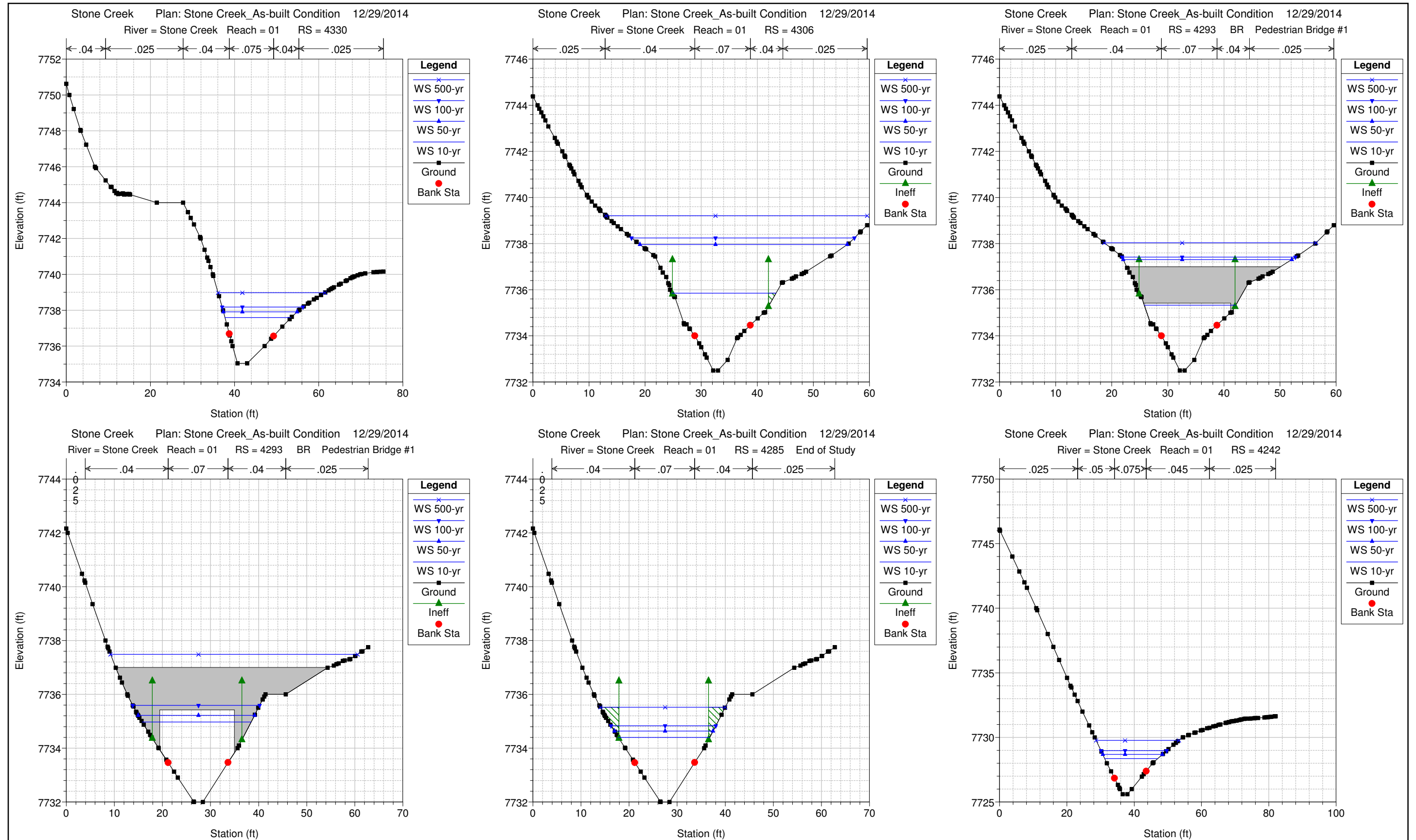
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek Bypass



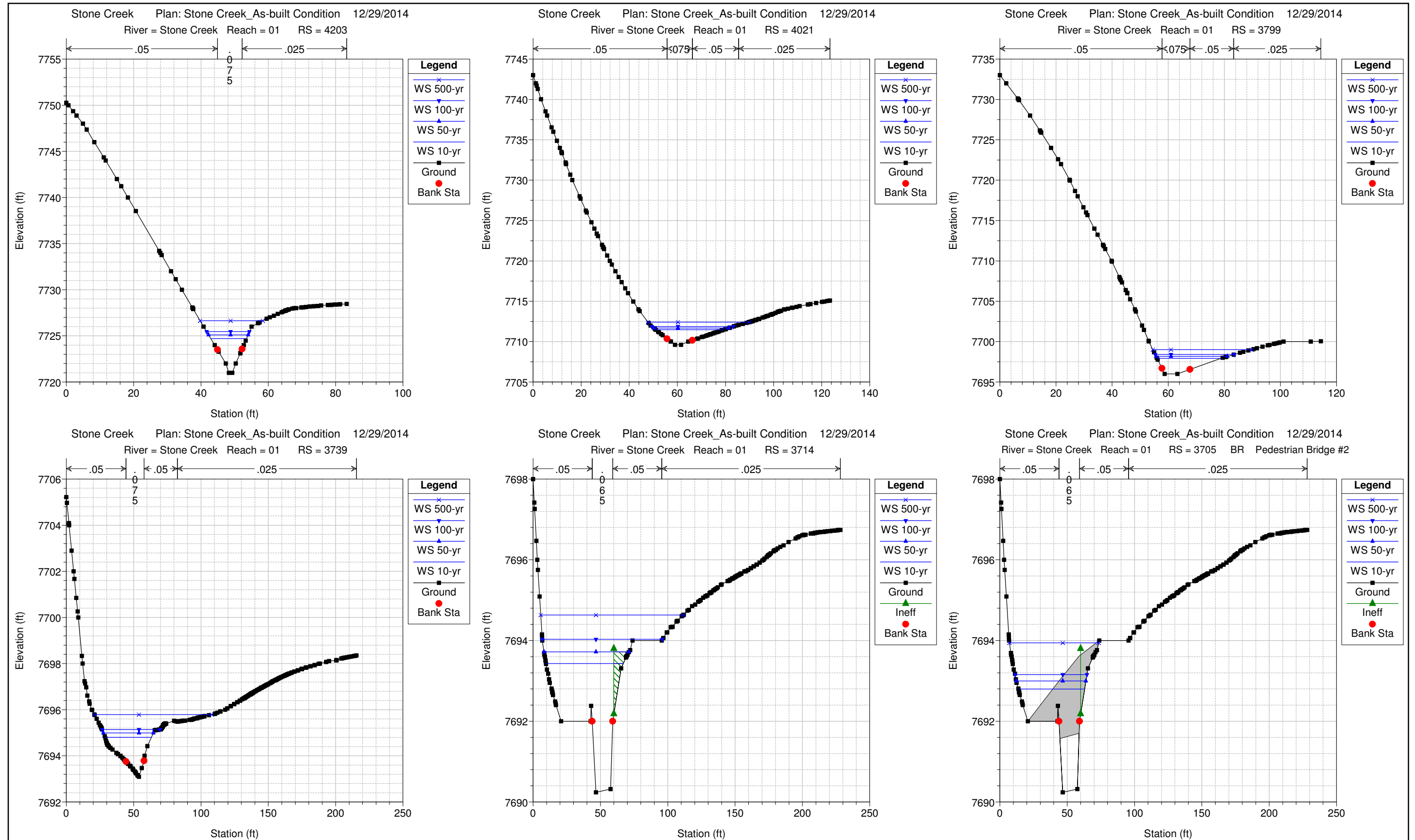
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek Bypass



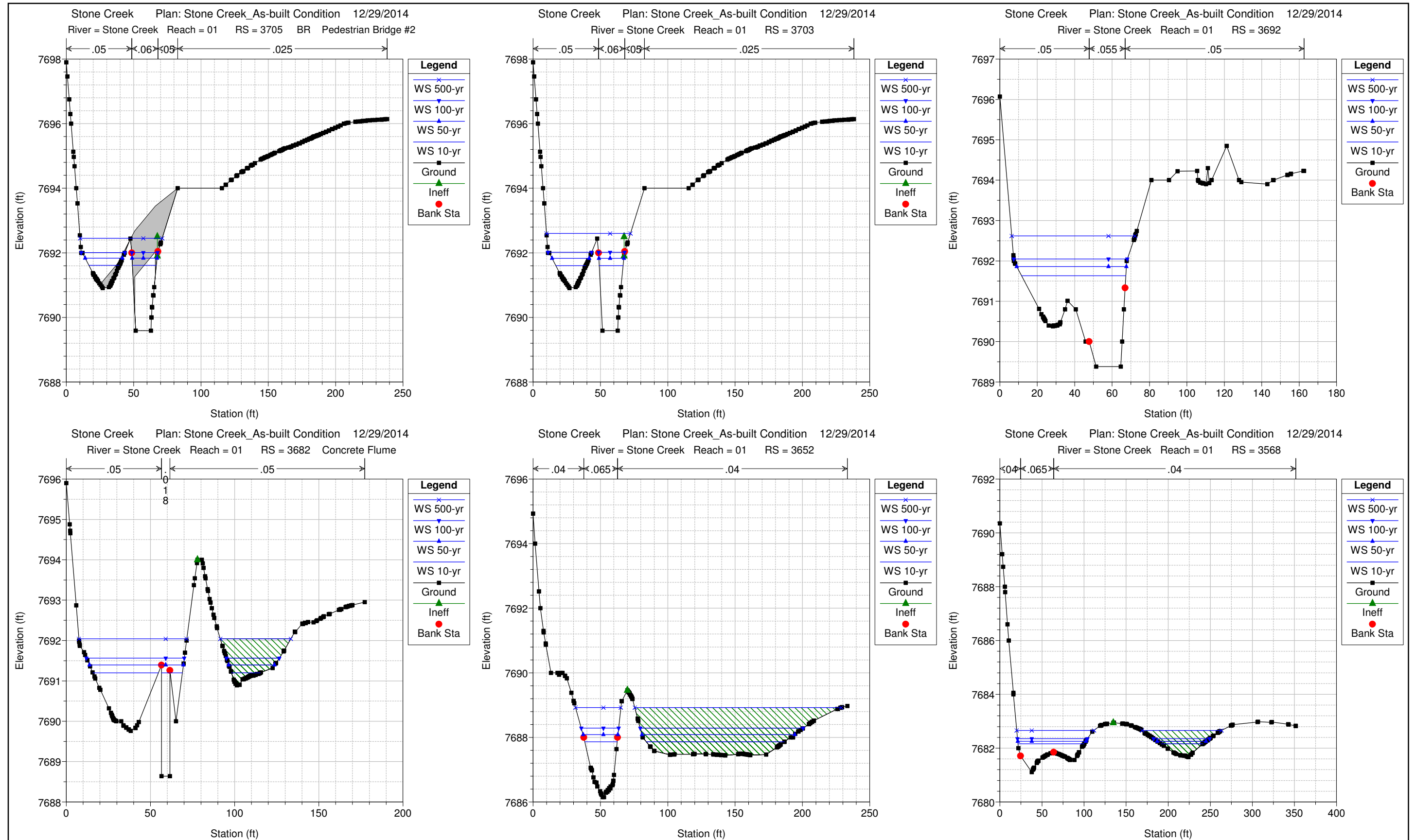
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek



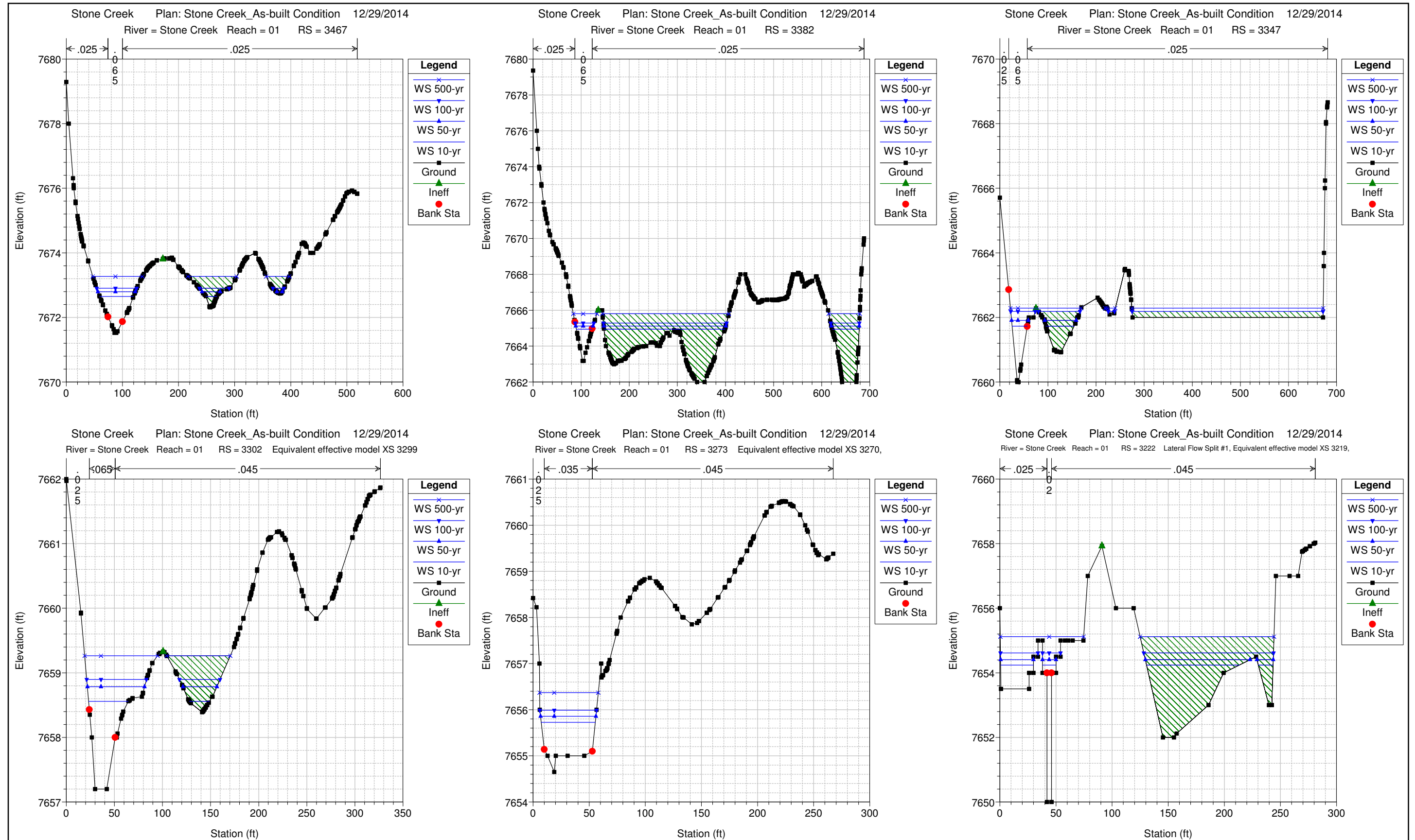
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek



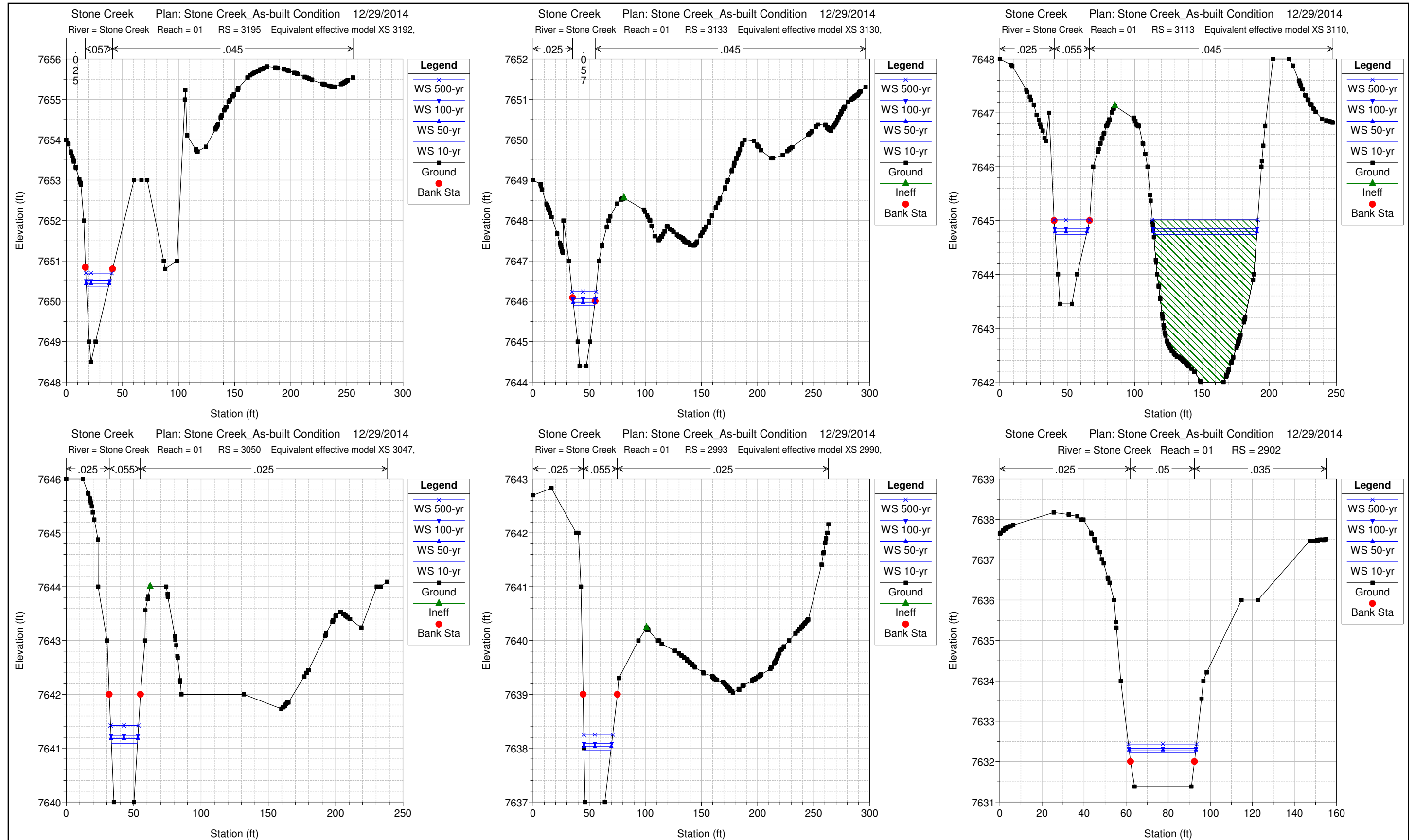
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek



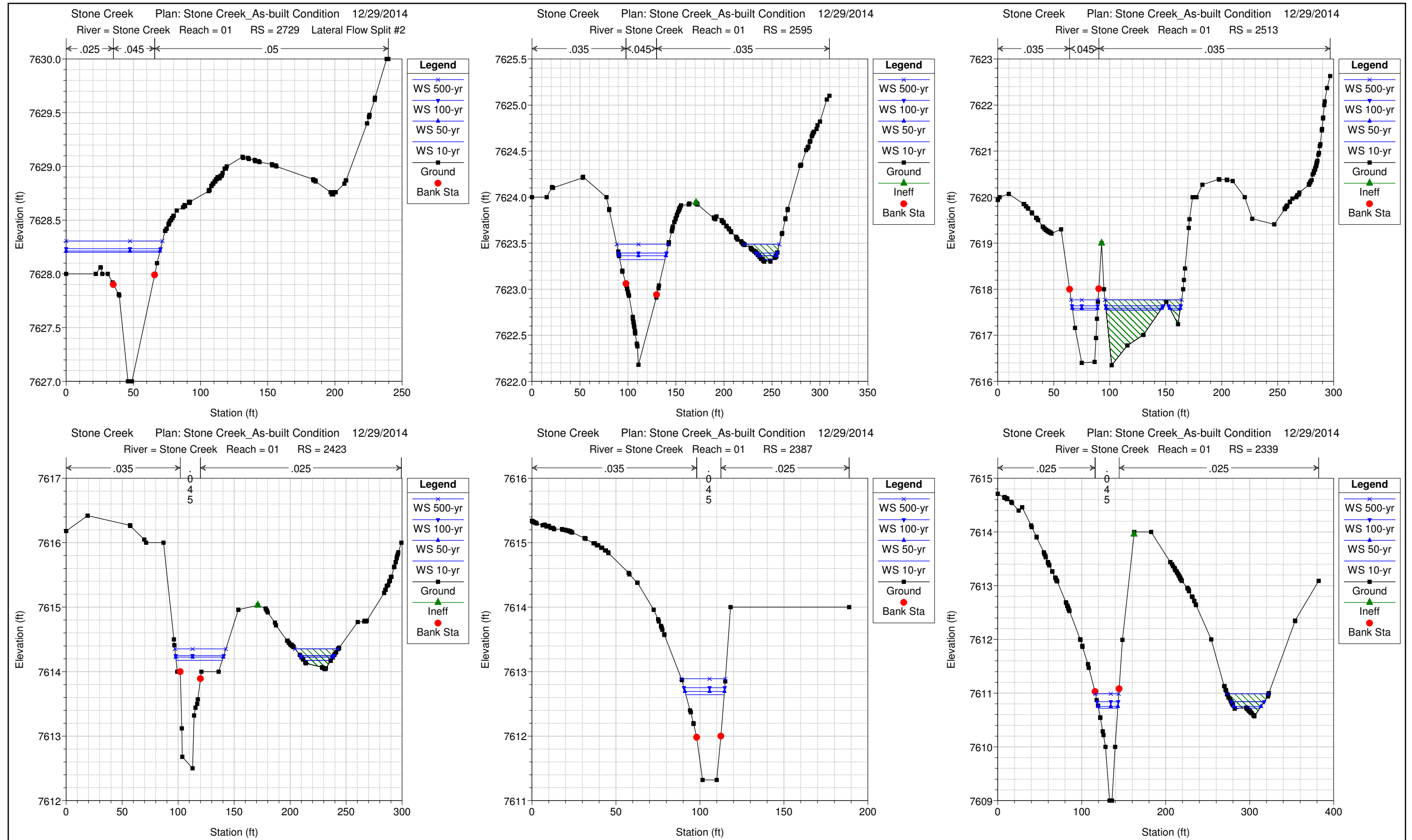
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek



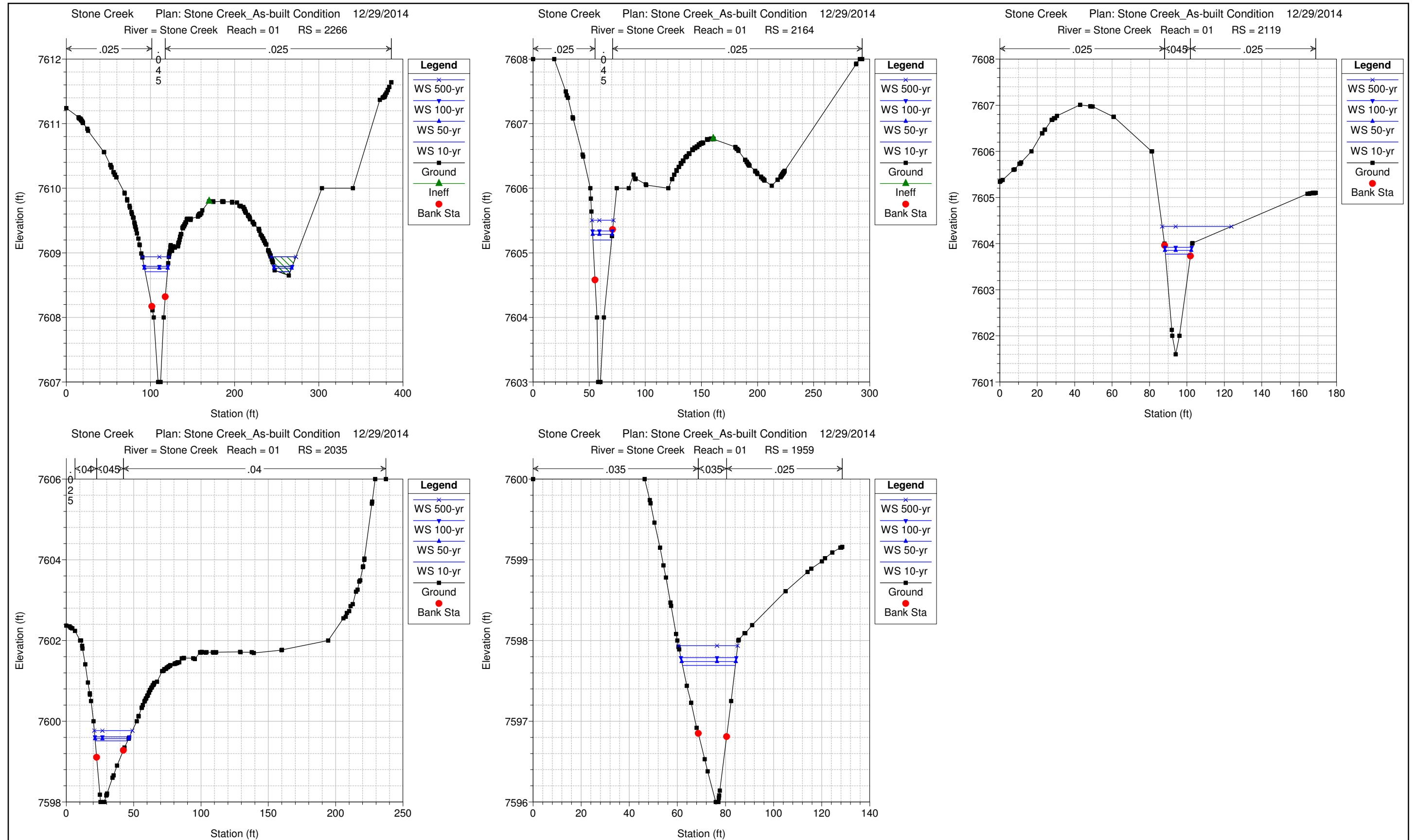
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek



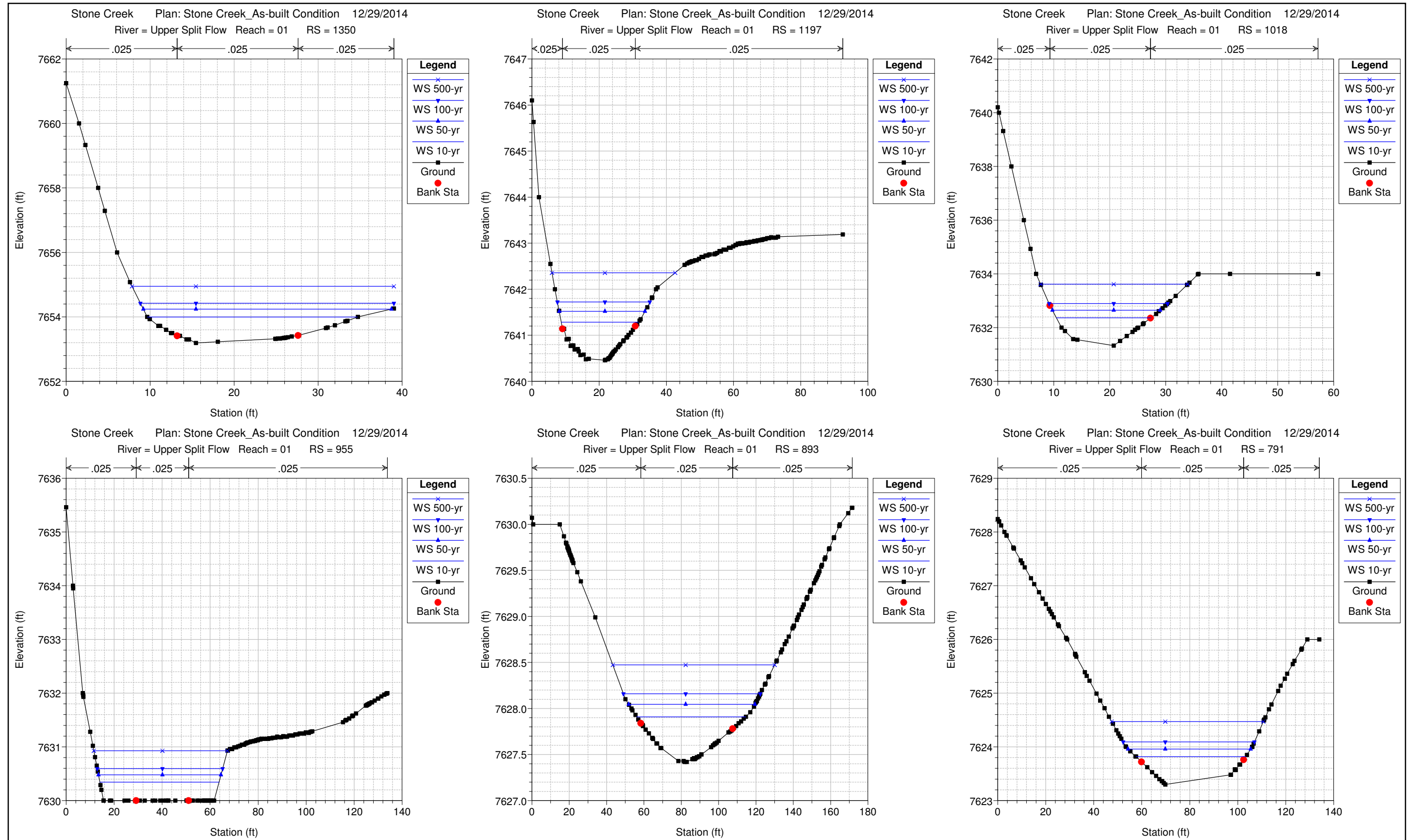
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek



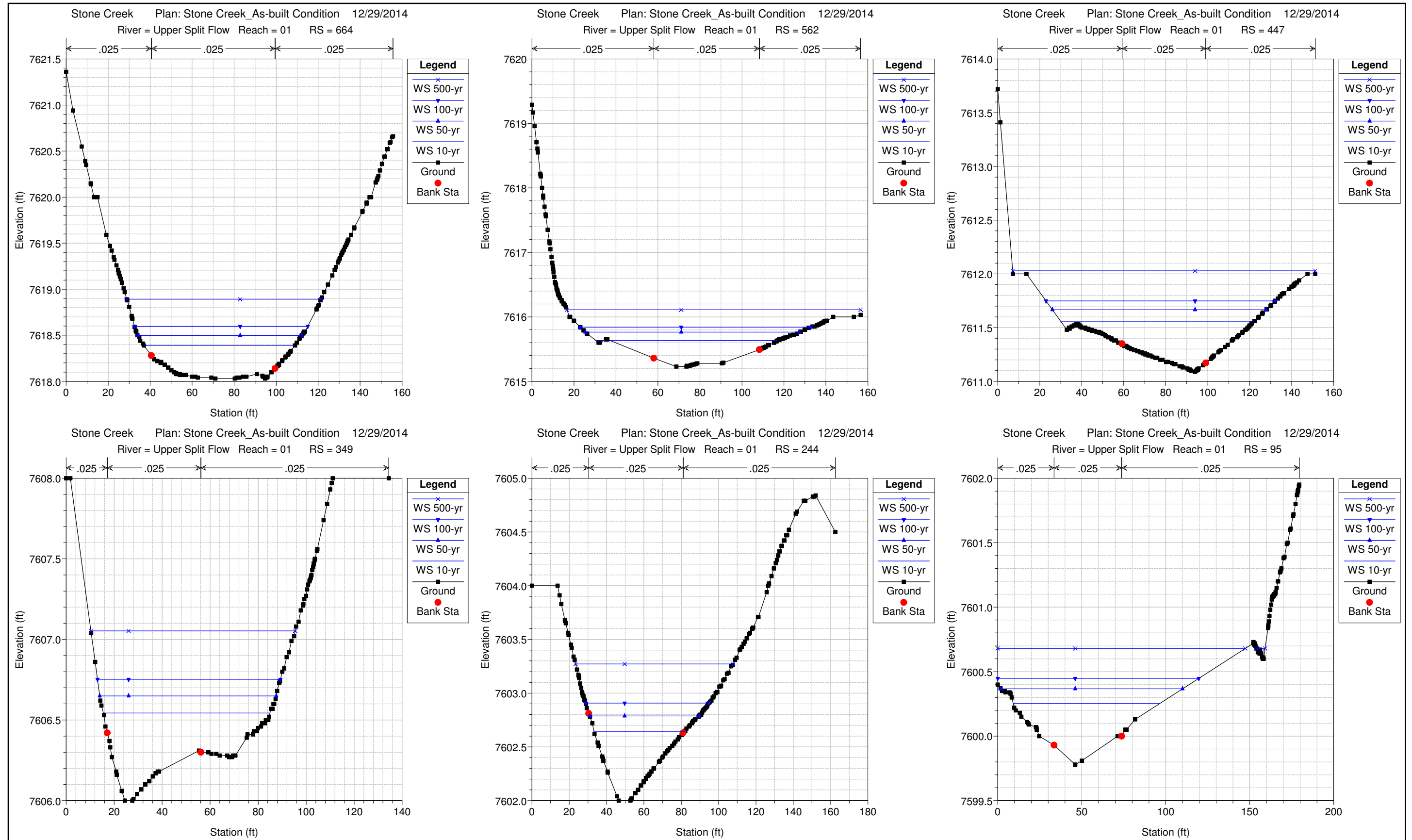
Post-project (As-built) HEC-RAS Cross Section Outputs
Stone Creek



Post-project (As-built) HEC-RAS Cross Section Outputs
Upper Split Flow



Post-project (As-built) HEC-RAS Cross Section Outputs
Upper Split Flow



APPENDIX C

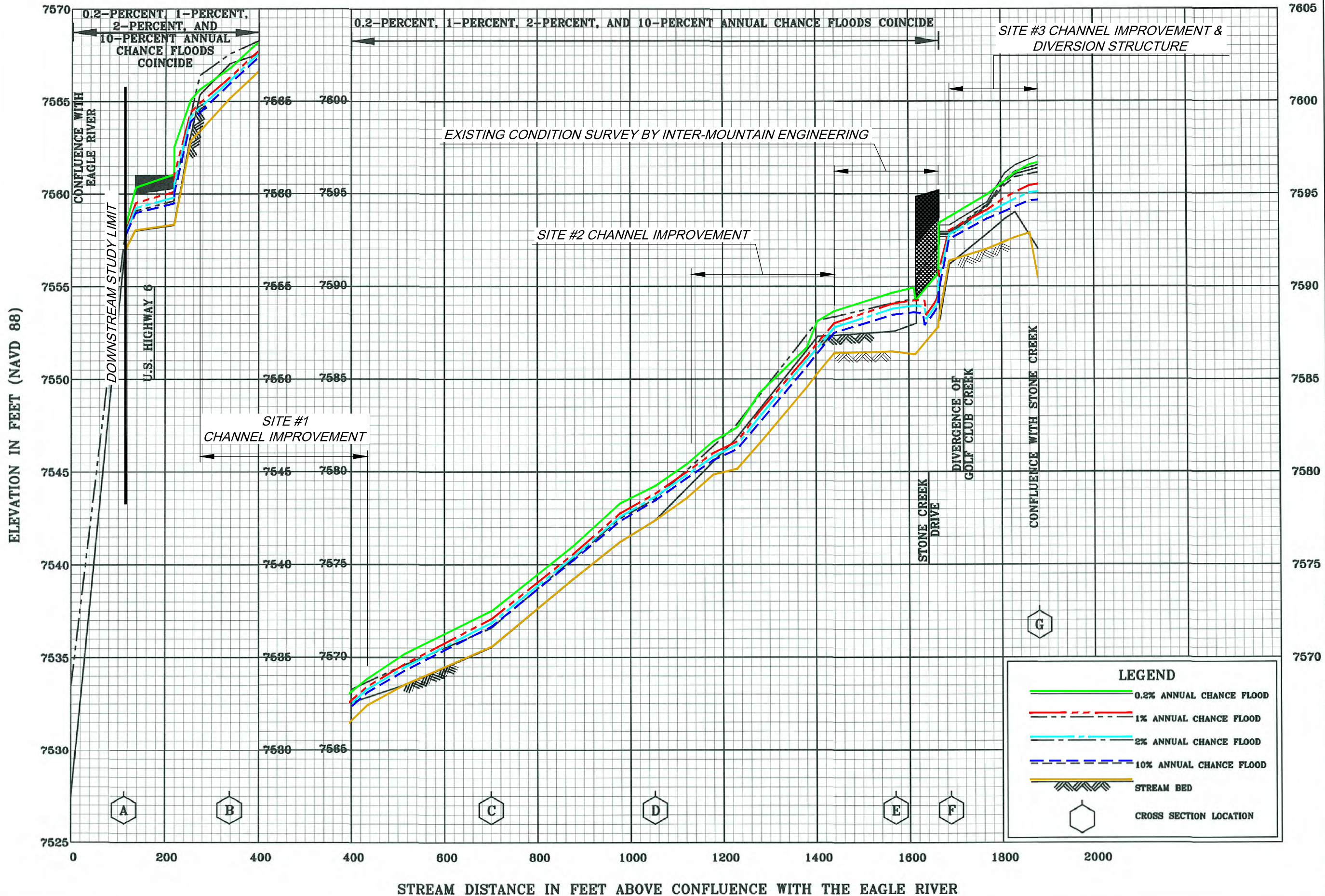
Annotated FIS Table 1 Summary of Discharges
Annotated Flood Profiles 166P, 167P and 169P
Annotated FIRM 08037C651D
Floodplain Work Map

Table 1. Summary of Discharges

Flooding Source and Study Reach	Drainage Area (sq. mi.)	Peak Discharges (cfs) (Annual Chance)				
		10%	2%	1%	0.2%	
Golf Club Creek		85	95	100	130	REVISED DATA
At confluence with Eagle River	5.1	105	145	180	330	
Pitkin Creek near Mouth	5.3	180	260	290	380	
Red Sandstone Creek near Mouth	13.9	330	440	490	590	
Roaring Fork River						
Roaring Fork River, above Garfield County Line	870	7,300	9,800	10,800	14,700	
Roaring Fork River, above Sopris Creek, below Fryingpan River	850	7,100	9,400	10,400	14,300	
Roaring Fork River, above Fryingpan River	510	6,100	8,500	9,400	12,200	
Below Sopris Creek						
Spraddle Creek near Mouth	2.2	95	115	170	370	
Stone Creek		100	110	120	145	REVISED DATA
At Stone Creek Bypass	4.6	110	130	150	210	
Stone Creek Bypass		75	110	150	290	
At confluence with Eagle River	4.7	55	60	70	95	
Stone Creek Upper Split		60	95	130	280	
At confluence with Stone Creek	— ¹	50	75	100	210	
Taylor Creek						
At Downstream Limit of Study	8.8	245	300	325	480	
Turkey Creek at Upstream Limit of Study						
At USGS Gage No. 635	30	525	720	795	955	
Upper Gore Creek						
Just upstream of confluence with Gore Creek	14.4	550	690	740	845	

—¹ Data not available

**REVISED TO
REFLECT LOMR
EFFECTIVE: June 4, 2010**



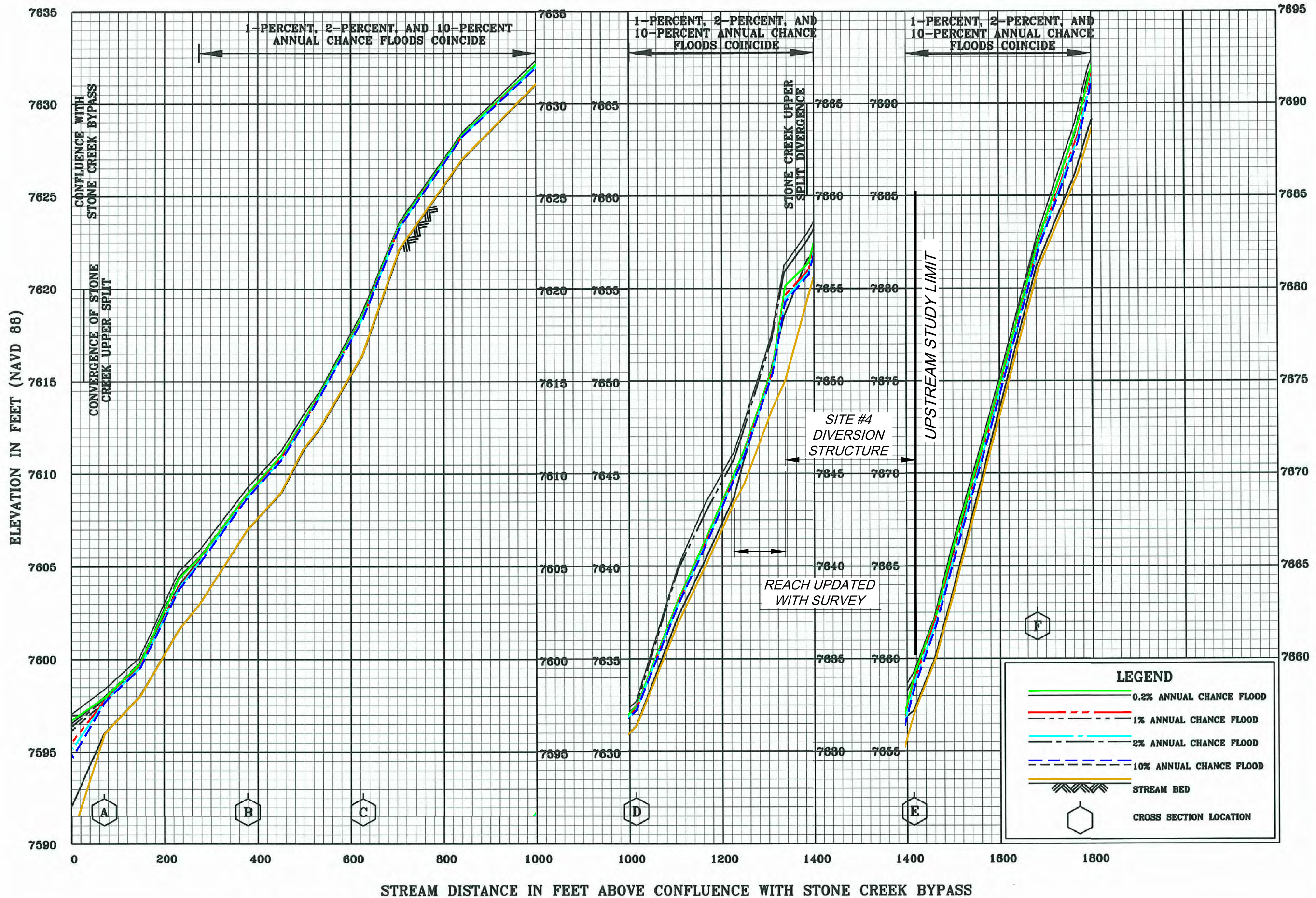
FLOOD PROFILES

REVISED TO
REFLECT LOMR
EFFECTIVE: June 4, 2010

STONE CREEK BYPASS

FEDERAL EMERGENCY MANAGEMENT AGENCY

EAGLE COUNTY, CO
AND INCORPORATED AREAS

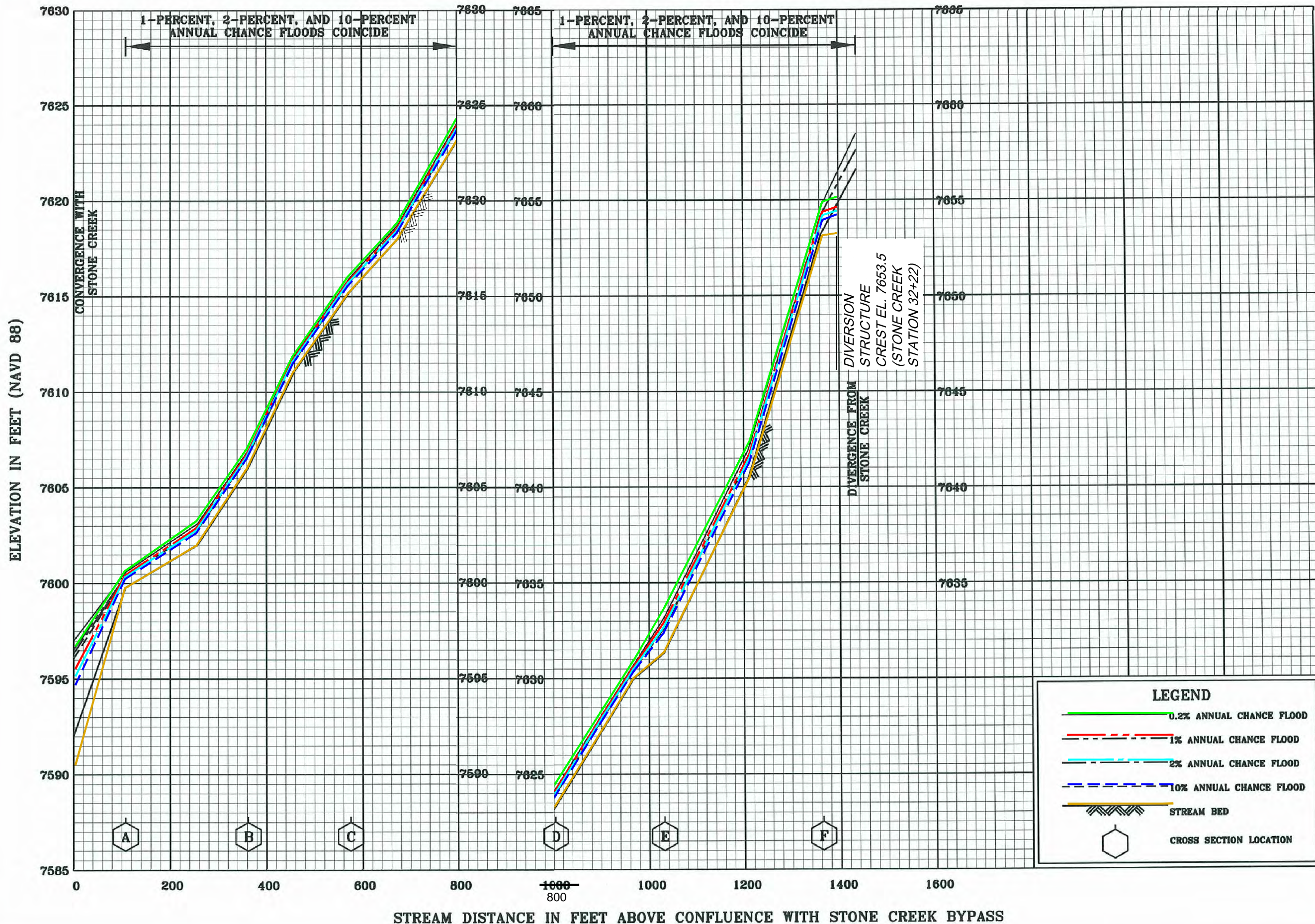


FLOOD PROFILES

REVISED TO
REFLECT LOMR
EFFECTIVE: June 4, 2010

STONE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
EAGLE COUNTY, CO
AND INCORPORATED AREAS



LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- - - 1% ANNUAL CHANCE FLOOD
- · - · 2% ANNUAL CHANCE FLOOD
- - - - 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

REVISED TO
 REFLECT LOMR
 EFFECTIVE: June 4, 2010
 STONE CREEK UPPER SPLIT

FEDERAL EMERGENCY MANAGEMENT AGENCY
 EAGLE COUNTY, CO
 AND INCORPORATED AREAS

Legend

- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 500'

250 0 500 FEET

150 0 150 METERS

NFIP

PANEL 0651D

FIRM
FLOOD INSURANCE RATE MAP

**EAGLE COUNTY,
COLORADO**
AND INCORPORATED AREAS

PANEL 651 OF 1125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EAGLE COUNTY	080051	0651	D
UNINCORPORATED AREAS	080308	0651	D
AVON, TOWN OF			

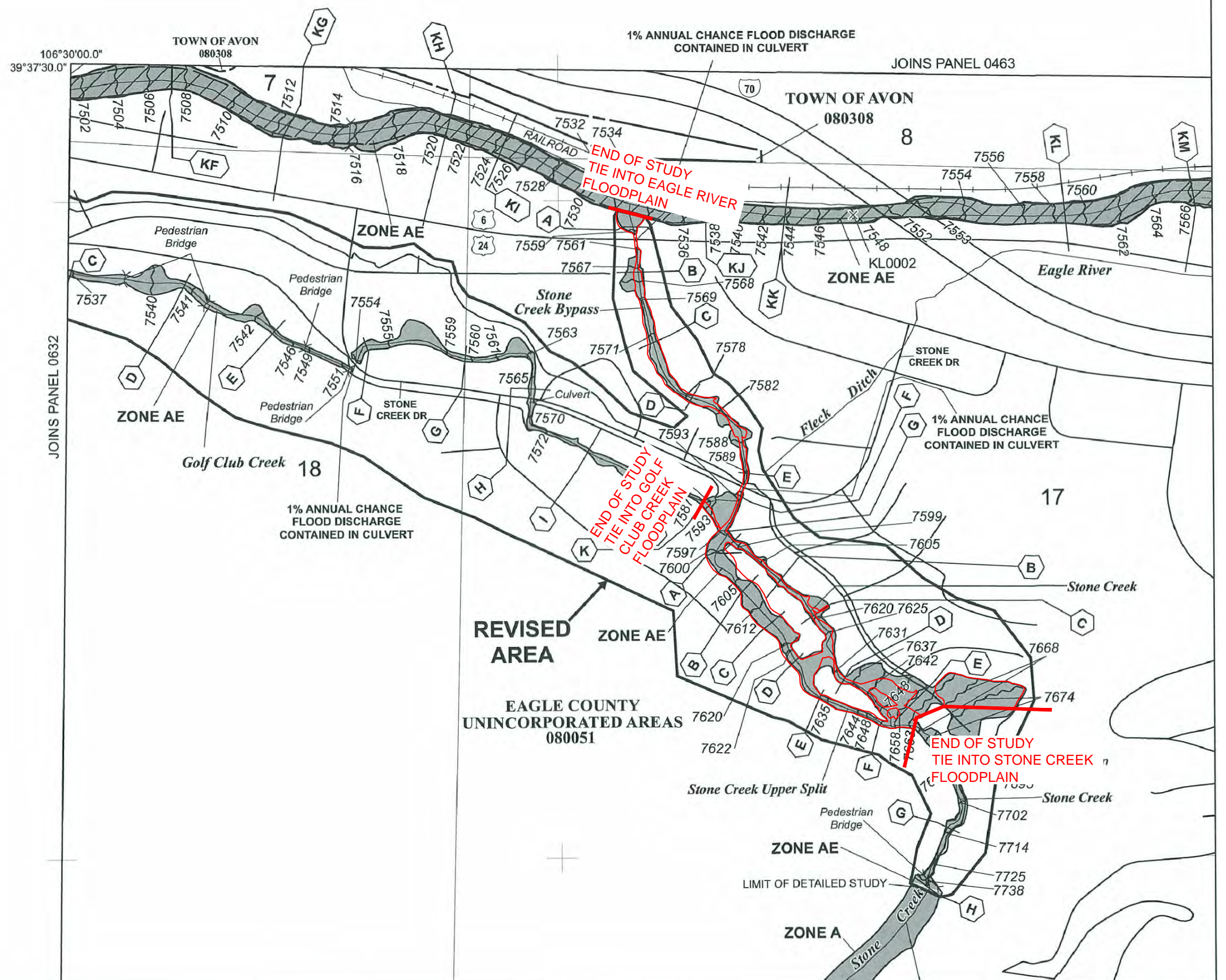
**REVISED TO
REFLECT LOMR
EFFECTIVE: June 4, 2010**

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



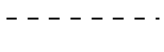





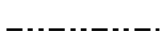


**MAP NUMBER
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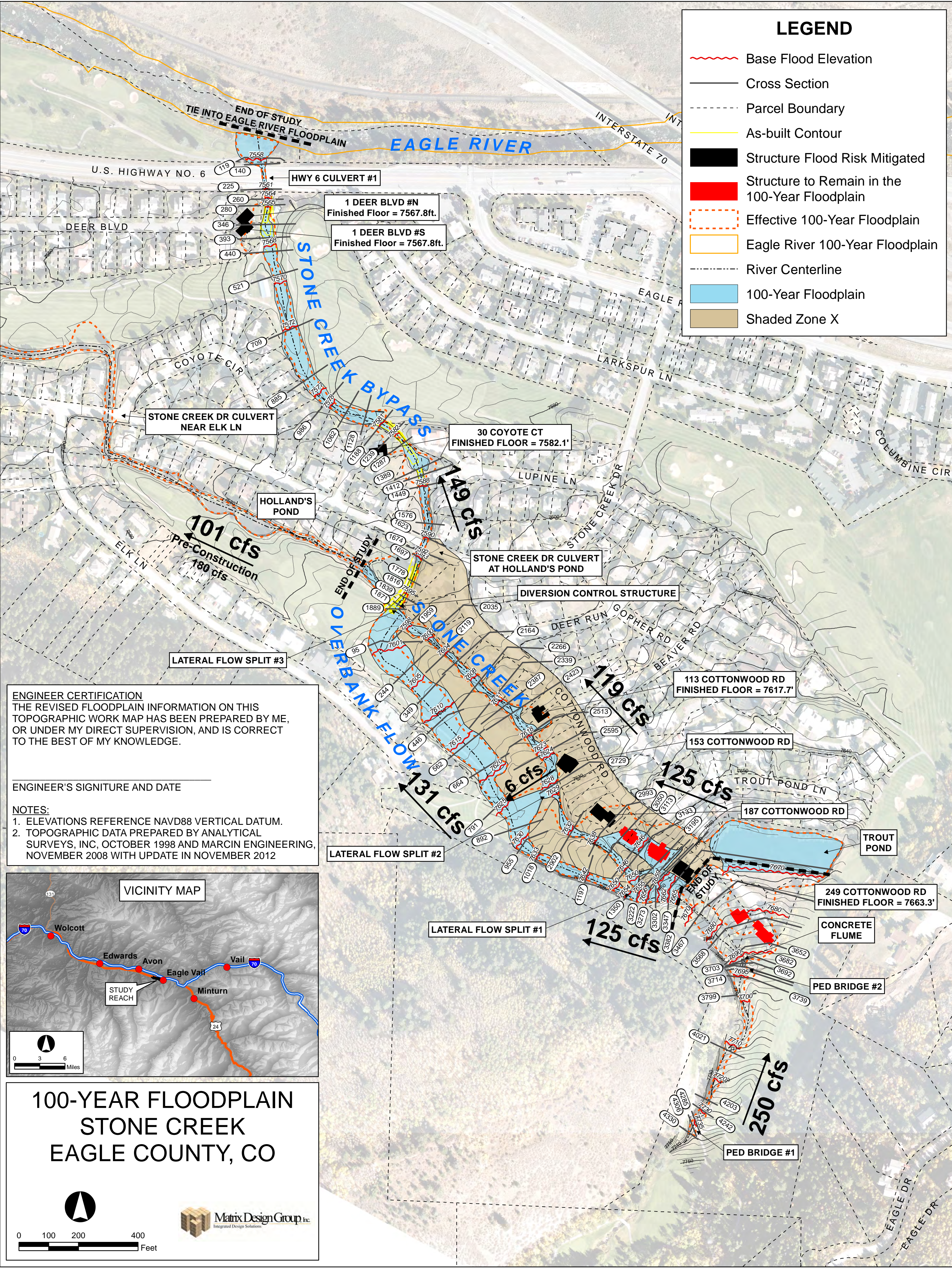
**EFFECTIVE DATE
DECEMBER 4, 2007**

Federal Emergency Management Agency



LEGEND

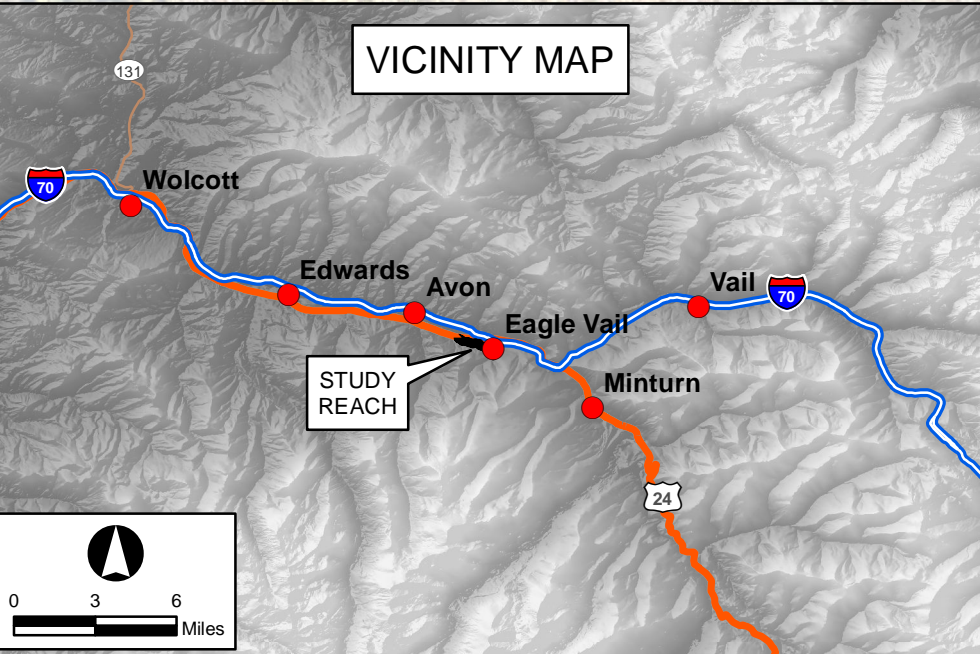
-  Base Flood Elevation
-  Cross Section
-  Parcel Boundary
-  As-built Contour
-  Structure Flood Risk Mitigated
-  Structure to Remain in the 100-Year Floodplain
-  Effective 100-Year Floodplain
-  Eagle River 100-Year Floodplain
-  River Centerline
-  100-Year Floodplain
-  Shaded Zone X




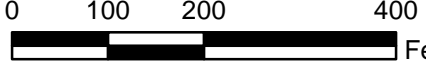

ENGINEER CERTIFICATION
 THE REVISED FLOODPLAIN INFORMATION ON THIS TOPOGRAPHIC WORK MAP HAS BEEN PREPARED BY ME, OR UNDER MY DIRECT SUPERVISION, AND IS CORRECT TO THE BEST OF MY KNOWLEDGE.

ENGINEER'S SIGNATURE AND DATE

NOTES:
 1. ELEVATIONS REFERENCE NAVD88 VERTICAL DATUM.
 2. TOPOGRAPHIC DATA PREPARED BY ANALYTICAL SURVEYS, INC, OCTOBER 1998 AND MARCIN ENGINEERING, NOVEMBER 2008 WITH UPDATE IN NOVEMBER 2012



100-YEAR FLOODPLAIN STONE CREEK EAGLE COUNTY, CO

APPENDIX D

Compact Disc