APPENDIX I

RFE ENGINEERING, INC

Preliminary Drainage Study & Stormwater Quality Plan

FOR

BRADY-VINEYARD SUBDIVISION

Brady Lane and Vineyard Road
Roseville, CA 95747
APNs: 473-020-002, 013

April 2, 2019

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A. PROJECT LOCATION

The proposed project site is located at the northwest corner of the Brady Lane and Vineyard Road intersection on the eastern edge of the Dry Creek/West Placer Community Plan area of Placer County, California 95747. The total site encompasses about 35.08 acres with APNs: 473-020-002, and 013. The approximate coordinates of the project site are latitude 38.746° north and longitude 121.316° west. The project's location is also shown on the Vicinity Map below and in Appendix A.

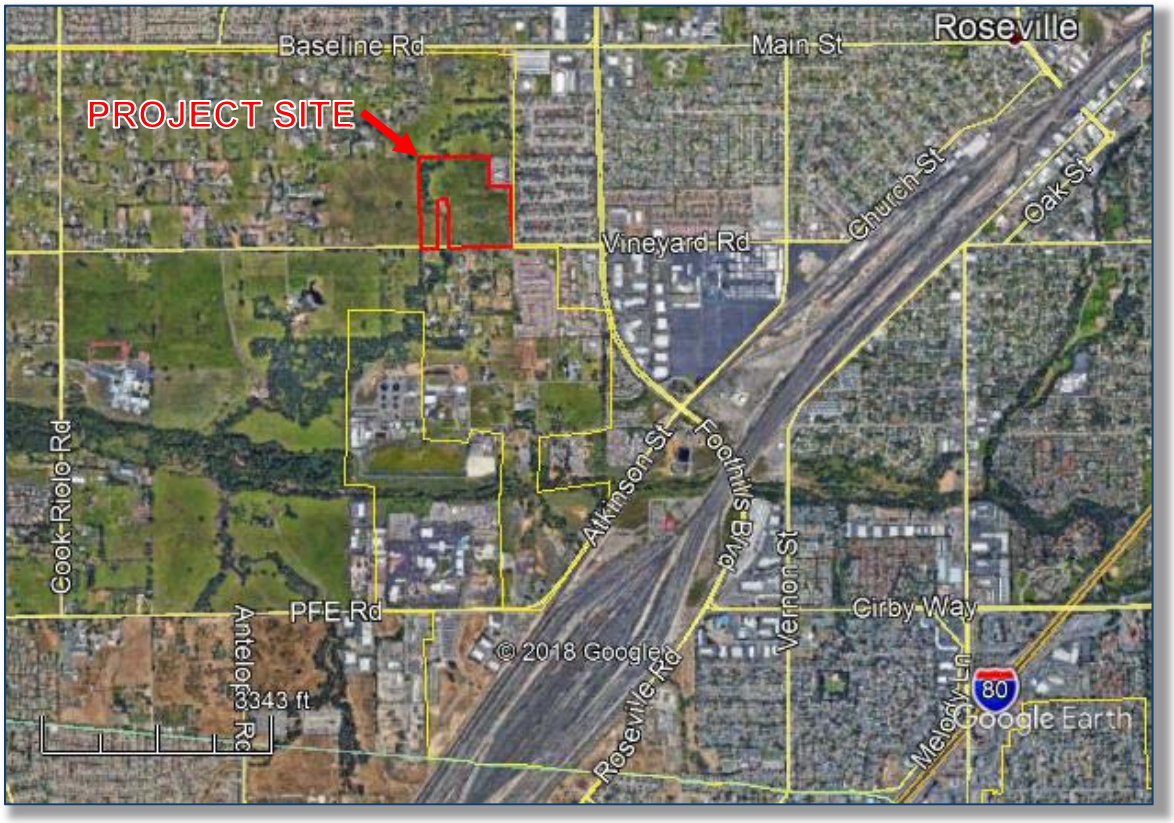


Figure 1: Vicinity Map (not to scale)

B. EXISTING SITE CONDITIONS

In its existing condition, the site is vacant and mainly consists of meadow grasses and weeds. There is a creek that runs north to south along the western property line which contains a 100-yr flood plain mapped by FEMA. This flood plain includes a riparian corridor with dense vegetation including numerous oak trees. In addition to areas within the riparian corridor, there are several other areas on the site which contain small wetlands – both pools and swales. There is also a drainage ditch in the southern portion of the site that conveys urban runoff from the subdivision to the east toward the creek.

The entirety of the site is pervious and there is no underground storm drainage infrastructure on or around the site except for the outfall from the aforementioned subdivision to the east. Existing slopes vary on the site's hilly terrain between less than 1% in the flatter areas and up to 15% in some steeper areas. Though this terrain has several low spots and ponding areas, runoff generally tends to flow toward the creek on the west side of the site. The property is located on the eastern edge of a rural area of western Placer County (within the West Placer Community Plan area) with 2+ acre lots and vacant land surrounding it to the north, west, and south, and small lot residential development (7,000 sf +/-) to the east. Table 1 below specifically summarizes the surrounding properties.

Table 1: Site Description (Surrounding Areas)

North	Vacant property (zoned RS-AG-B-20)
South	Vineyard Road; 2+ acre single-family residential beyond (zoned RS-AG-B-20)
West	Vacant property (zoned F-DR)
East	Brady Lane; small lot single-family residential beyond – City of Roseville jurisdiction (zoned RS/DS)

Figure 2: Existing Conditions of Site

The site geotechnical report performed by ACE Quality Control dated July 25, 2017 found the following geologic conditions at the site:

> *… the subsurface earth material conditions varied slightly throughout the site and with depth. The soil encountered in the exploratory borings was mainly medium dense to very dense, brown and brown with red and gray discolorations, moist, silty SAND with variable gravel (Unified Soil Classification: SM) and well graded SAND (SW) to maximum depths explored of approximately 21-1/2 feet below existing ground surface (egs). Some lenses of dense, brown, moist, SILT (Unified Soil Classification: ML) were encountered at variable depths and thicknesses in some of the explorations.*
>
> *Groundwater:*
>
> *Observations of groundwater conditions were made during the excavation of our exploratory borings at the time of field exploration. Free groundwater was not observed in borings B3 and B7. Free groundwater was encountered in the other borings during our exploration at approximate depths below estimated ground surface ranging from 13 to 21 feet.*

For additional information, see the site Geotechnical study boring logs in Appendix C.

C. PROPOSED PROJECT DESCRIPTION

The project involves the subdivision of the existing 35-acre parcel into 119 residential lots within a gated community. In addition, there will be common area lots which contain private improvements to be maintained by the HOA. These private improvements in common lots include roadways, landscaping and parkways, a decorative gated entrance, multi-purpose trails, recreation areas, and the open space riparian corridor surrounding the creek. The project only proposes to develop to the east of the existing creek. The southwestern corner of the parcel that is southwest of the creek will be split off and will not be a part of this development.

Underground infrastructure improvements for this development will include new public water and sewer mains within the site and along the project's Vineyard Road frontage, as well as on-site storm drain collection systems. The on-site sanitary sewer system will connect to a new regional pump station on the project site. The on-site storm drain system will outfall into the flood plain of the creek near the culvert at Vineyard Road. Off-site road improvements include widening on Brady Lane with a bike lane, curb and gutter, and sidewalk, and widening on Vineyard Road with a bike lane and AC dike. This project will also include construction of new water mains in Vineyard Road and Brady Lane as well as a larger off-site sewer force main expansion.

This project is a "*Regulated Project with Hydromodification*" and is subject to the requirements of the West Placer Storm Water Quality Design Manual. Bioretention planters located along either side of the proposed roads will treat stormwater runoff prior to discharging into the underground storm drain system. Sections E and F of this report further describe the existing and proposed drainage patterns respectively. Section G further describes stormwater runoff quantity and flood plain modeling and Section H further describes stormwater quality design considerations.

The total area disturbed by this project is approximately 30.2 acres including on-site and off-site frontage improvements. The Site Plan in Appendix A provides an overview of proposed project improvements.

D. PURPOSE OF REPORT

The purpose of this report is to present the design of the storm drainage system for the project and to demonstrate that the design complies with Placer County drainage and water quality requirements. This report is structured to present stormwater runoff peak flow calculations in accordance with the Placer County Stormwater Management Manual (PCSWMM) and Placer County Land Development Manual and stormwater quality measures to be implemented as Best Management Practices (BMPs) in accordance with the West Placer Storm Water Quality Design Manual (WPSWQDM), which are the governing design documents for stormwater management for Placer County. In July of 2015, Placer County began requiring the submittal of a Stormwater Quality Plan (SWQP) with improvement plans. The SWQP includes stormwater quality BMP calculations and is intended to aid in project compliance to the Placer County Phase II MS4 General Permit. See Appendix F for the completed SWQP.

The report is divided into four (4) main parts:

A. Description of existing drainage conditions.

B. Description of the proposed storm drainage system and evaluation of proposed stormwater runoff quantity, flood plain elevations, and stormwater quality treatment.

C. Conclusions.

D. Recommendations.

E. EXISTING STORM DRAINAGE CONDITIONS

The existing drainage and field conditions are based on an aerial topographic survey completed by American Aerial Mapping, Inc. dated 5/23/2017 as well as LiDAR surface data obtained from Placer County on 10/12/2017. The project site generally slopes toward the creek that runs southward along the western edge of the property. This creek is located within a FEMA-mapped zone AE floodplain called out on FEMA's maps as "Dry Creek Vineyard Road Tributary" (Note that a Pending FEMA Flood Insurance Study (FIS) and revised floodplain mapping dated 11/2/18 for the Dry Creek Vineyard Road Tributary contains the most current FEMA analysis for this tributary). In order to more accurately model the entirety of this tributary, RFE acquired Placer County's Dry Creek HEC model and extracted the applicable sheds that contribute to this tributary. In all, there are twelve drainage sheds that ultimately drain to this Dry Creek tributary. For analysis purposes, we split three of these drainage sheds into multiple sheds in order to separate the off-site and on-site areas for calculating post-construction peak flows. A summary of the drainage sheds draining

to the Dry Creek Vineyard Road Tributary is below in Table 2 below (sheds are generally arranged upstream to downstream). The Dry Creek Vineyard Road Tributary Drainage Shed Map in Appendix B shows these sheds.

Table 2: Dry Creek Vineyard Road Tributary Drainage Sheds

Drainage Shed ID	Drainage Area (sf)	Drainage Area (sq. mi)
DC25B	388.605	0.6072
DC25E	16.075	0.0251
DC25C	47.798	0.0747
DC25D	35.247	0.0551
DC25F-offsite	12.388	0.0194
DC25F-onsite	5.544	0.0087
DC25G	41.825	0.0654
DC25L-offsite north	7.065	0.0110
DC25L-offsite south	8.722	0.0136
DC25L-onsite	29.253	0.0457
DC25N-onsite	2.820	0.0044
DC25N-offsite	31.386	0.0490
DC25I	110.582	0.1728
DC25H	43.582	0.0681
DC25M	88.585	0.1384
DC25K	195.828	0.3060

At the point where the creek intersects the northern property line of the project site, it has approximately 500 acres of drainage shed tributary to it. In all, the Dry Creek Vineyard Road Tributary carries runoff from more than 1,000 acres of land before it discharges into Dry Creek. Numerous residential parcels contain this creek downstream of the project site, and several residential structures lie within 200 feet of the creek flowline. In addition, the Dry Creek Wastewater Treatment Plant owned and operated by the City of Roseville sits Approximately 1/3 mile south of the project site directly bordering the creek.

As for on-site drainage patterns, the majority of the project site either sheet flows directly to the creek or flows to several small, shallow valleys on the project site that collect stormwater runoff and convey it southwest toward the creek. The southwest corner of the project site is separated from the rest of the site by the creek and runoff generally sheet flows from here to the northeast to the creek.

The valleys within the project site contain several of the sites seasonal wetlands. One of these valleys contains a drainage ditch that conveys runoff from a portion of the existing Vineyard Estates residential subdivision directly across Brady Lane. Runoff from this subdivision is piped underground across Brady Lane and outfalls into the open drainage ditch on the east side of the

project site. A portion of Brady lane adjacent to the project site also conveys runoff via curb and gutter to drainage inlets that drain to the same pipe system that outlets on the project site. Shed *DC25L-offsite south* represents the portion of this subdivision draining onto the project site. There is also a portion of the vacant parcel to the north of the project site which, when combined with "The Father's House" church parcel to the northeast of the project site, make up shed *DC25L-offsite north* that also drains onto the site.

Besides the two DC25L drainage sheds, there does not appear to be any other off-site run-on except that which flows through the creek. Vineyard Road is crowned and drains north and south to roadside ditches that convey runoff toward the creek. Shed *DC25N-onsite* contains the portion of Vineyard Road that drains along these roadside ditches to the creek. Since on-site runoff flows to the creek within the project site, it does not appear that any significant amount of runoff leaves the project site except for within the creek.

At the southern property line of the project site, there is a 6'x15' box culvert that runs underneath Vineyard Road. Other than a bridge upstream at Brady Lane (the beginning of this tributary), the Vineyard Road culvert appears to be the only structure within the creek. Once through the Vineyard Road culvert, runoff flows unobstructed within the Dry Creek Vineyard Road tributary to the point where it meets Dry Creek approximately 1 mile to the southwest of the project. The total flow length of this creek from it's beginning at Brady Lane to its terminus at Dry Creek is approximately 2 miles. The Flood Model Exhibit in Appendix B shows the creek lengths and cross section locations for HEC-RAS modeling in greater detail.

F. POST-CONSTRUCTION STORM DRAINAGE CONDITIONS

This project proposes to disturb approximately 30.2 acres for road construction, pad grading, off-site improvements, and other subdivision amenities. Due to the site's existing pervious condition, there will be a large increase in impervious area in the post-construction condition. RFE assumed the residential lots will be approximately 65% impervious in addition to the impervious roads after construction is completed. This impervious area increase places the project into the category of "*Regulated Project with Hydromodification."* Therefore, this project is required to provide adequate stormwater treatment for the proposed runoff, and to implement water quality related peak flow mitigation measures (hydromodification).

The grading design of the site divides the site into several drainage sheds which convey stormwater runoff overland (from the rear of each lot to its frontage) to the curb and gutter lining all the on-site streets. The curb and gutter system will convey runoff to bio-retention planters located adjacent to the road at the low point of each drainage shed – typically at the intersections. Runoff from larger storms will be conveyed to the underground storm drainage system on the site through overflow drainage inlets within each bioretention planter. The underground storm drain system will convey runoff to the southwest corner of the subdivision where it will discharge into the wetlands which flow to the creek.

Vineyard Road will collect runoff along the proposed AC dike and convey it to a bioretention planter near Lot 'A' (lift station lot). A portion of the runoff from Brady Lane already flows via curb and gutter into an underground pipe system that discharges onto the project site. The curb and gutter will be extended in the post-construction condition to include the rest of Brady Lane to its intersection with Vineyard Road. Runoff from the east side of Brady Lane will continue to be captured in the underground storm drain system that will be rerouted to connect to the proposed underground storm drain system that will run through the project site. Runoff from the west side of Brady lane will be collected in new bioretention planters behind the sidewalk near Vineyard Road and near the project entrance. Stormwater treated by these bioretention planters that does not infiltrate into the native soil or that ponds into the overflow inlet will be conveyed within the underground storm drain system to the outlet near the creek.

See Appendix B for the Post-Construction Shed Map which shows storm drainage patterns and stormwater quality BMP locations in the project's finished condition.

G. STORMWATER RUNOFF QUANTITY

Placer County has identified this project as being in an area that does not require on-site detention for flood control due to its location within the Dry Creek drainage shed. Since the project contributes stormwater runoff directly to a FEMA-mapped waterway (Dry Creek Vineyard Road Tributary), RFE determined it would be important to model the flows in the tributary before and after project construction in order to determine if the project would have any downstream impacts. In addition, per correspondence from the County, we compared our calculated flood plain limits with the limits found in the Pending FEMA Flood Insurance Study (FIS) and revised floodplain mapping dated 11/2/18 to determine which limits were more conservative.

In order to evaluate runoff quantity for the Brady-Vineyard project, RFE utilized a combination of HEC-HMS and HEC-RAS software. We used HEC-HMS to come up with individual drainage shed peak flows for the pre-construction and post-construction conditions. Then, using peak flows for each shed area, we created a HEC-RAS model of the Dry Creek Vineyard Road Tributary and added the HEC-HMS hydrographs to the model as lateral inflows. Some specifics and output for each model are detailed below.

<u>HEC-HMS</u>

The existing Placer County HEC-1 model of the Dry Creek drainage sheds provided the basis for our model. We modified drainage shed areas in order to separate on-site and off-site shed areas for sheds that crossed the project property lines. This allowed for easier direct calculation of the project impacts on each shed. The existing drainage shed parameters were modified accordingly (basin planes were shortened as needed), but the majority of the existing information remained the same for the pre-construction condition.

For the post-construction condition, we did not modify the shed areas as they will remain roughly the same in terms of tributary area and location after the project is constructed. However, we adjusted the impervious area percentages assuming approximately 65% of the developed area will be impervious (including lot and road construction). We based this percentage on similar existing medium-density residential lots in the surrounding area. We also adjusted the area of each plane to reflect the differences in impervious area.

We did not make any adjustments to the shed areas or parameters upstream or downstream of our project site. Table 3 below presents a summary of the pre-construction and post-construction peak flows for the on-site drainage sheds for comparison purposes. See Appendix E for additional HEC-HMS calculation results.

Table 3: On-site Drainage Shed Peak Flows from HEC-HMS

Storm Event	Drainage Shed	10-year peak flow (cfs)	25-year peak flow (cfs)	50-year peak flow (cfs)	100-year peak flow (cfs)	500-year peak flow (cfs)
Pre-Construction	DC25F-onsite	2.1	2.8	3.5	4.0	5.9
	DC25L-onsite	7.2	10.3	12.9	14.8	22.5
	DC25N-onsite	0.8	1.1	1.4	1.8	2.6
Post-Construction	DC25F-onsite	4.6	6.2	7.6	9.0	12.6
	DC25L-onsite	28.6	37.8	44.8	51.8	72.4
	DC25N-onsite	3.1	4.2	5.1	5.9	8.4

HEC-RAS

Since the runoff developed throughout the Dry Creek Vineyard Road Tributary drainage sheds contributes to the flows in that tributary, we created a HEC-RAS model of the tributary to evaluate drainage impacts of our project on downstream and upstream properties. In order to build an accurate model of the entire tributary, we utilized LiDAR data provided by the County to cut cross sections through the tributary approximately every 100-feet. The most downstream cross section represents approximately where the tributary drains into Dry Creek. The tributary was modeled upstream to the beginning of the open channel east of Brady Lane (east of the open channel, there is a double 54" pipe system that conveys runoff from upstream through the existing Elk Hills subdivision).

Once the HEC-RAS model was created, we used the hydrographs developed from the HEC-HMS model to add lateral inflows to the tributary at the closest cross section(s) to the actual discharge point for each drainage shed. We input hydrographs for drainage sheds that discharge into the tributary at a single point as lateral flows at a single cross section, whereas we input hydrographs for drainage sheds that discharge into the tributary across an area (such as sheet flow conditions) as uniform lateral inflow over several cross sections. Drainage Shed DC25B – which represents

over 380-acres to the east of the model – became the upstream boundary condition at the most upstream cross section. We set the downstream boundary condition to normal depth based on a very flat 0.001 slope to represent the existing conditions. Based on comments from the County, we also created duplicate unsteady flow data with the downstream boundary condition set to a constant-elevation stage hydrograph, where the elevation was set to 114-feet to represent the approximate Dry Creek Base Flood Elevation (BFE) at the confluence of the tributary and Dry Creek according to the FEMA FIS.

Using HEC-RAS to model flows through the tributary with lateral inflows allowed for a more accurate analysis of how the runoff peak flows from each shed flow through the tributary at different times. The timing of each shed's peak flow affects the maximum peak flow through the tributary as they combine at different times. Due to this behavior, it is beneficial for peak flow increases from the lower portions of the overall drainage shed to be released to the tributary without any detention in order to prevent those peak flows from adding to the larger peak flows from upstream drainage sheds.

We should note that since RFE did not do a full analysis of the entirety of Dry Creek, the water surface elevations (WSEs) near the confluence of the tributary and Dry Creek may be less accurate because the relationship between the Vineyard Road Tributary peak flow timing and the Dry Creek peak flow timing is not considered in our calculations. However, our analysis which uses the Dry Creek BFE as a constant downstream boundary condition represents a worst-case scenario for the BFE in Dry Creek. Therefore, our downstream WSE results for this boundary condition should be conservative compared to the actual downstream WSEs in the tributary one could expect during a realistic 100-yr storm event.

For the Brady-Vineyard project, we found that project construction will cause approximately 7 cfs increase in the overall peak flow for the Dry Creek Vineyard Road Tributary just downstream of the Vineyard Road Culvert during the 100-yr storm event regardless of the downstream boundary conditions. This peak flow increase jumps to approximately 14 cfs downstream at cross section 5553.77 due to converging peak flows from sheds DC25H and DC25I. Considering the project's on-site peak flow increase in the post-construction condition is over 45 cfs (see Table 3), adding a total of 7 cfs or 14 cfs to the tributary downstream is a relatively small increase due to the timing of the peak flows in the tributary. This relatively small increase shows that the project peak flow leaves the site before the much larger upstream peak flow arrives.

We should note that when examining the entire tributary run, we found that the greatest peak flow increase occurs near the very end of the tributary and varies depending on the downstream boundary condition. For the downstream normal depth boundary condition, we found the maximum peak flow increase was at station 1316.1 at 18.33 cfs for the 100-yr storm event, which is still relatively small considering the large watershed and upstream peak flows (2.7% increase). This 18.33 cfs increase appears to be caused by the convergence of peak flows from the tributary and from drainage shed DC25K reaching that point of the tributary closer in time. For the Dry Creek

BFE downstream boundary condition, we found the maximum peak flow increase was at station 655.85 at 45.08 cfs for the 100-year storm event. This increase is much larger, but we believe this is caused by the tributary channel being much wider at the higher elevation of the Dry Creek BFE. Since the channel is much wider and the WSE is relatively constant in the tributary, very small changes in velocity have much larger changes in peak flow.

Table 4 shows a summary of pre-construction and post-construction peak flow and WSE data for the normal depth downstream boundary condition for select cross sections in the tributary.

Table 4: Selected Flows and WSE from HEC-RAS - Normal Depth Boundary Condition

Tributary Station	100-yr Pre-Construction Peak Flow (cfs)	100-yr Post-Construction Peak Flow (cfs)	100-yr Pre-Construction WSE (ft)	100-yr Post-Construction WSE (ft)
9764.85	428.81	428.78	132.89	132.89
9161.5	436.34	436.12	131.77	131.77
8292.18	439.46	439.94	127.68	127.68
7877.8	464.91	465.93	126.89	126.89
7588.69	464.20	465.02	125.27	125.31
7492.13*	490.22	496.96	124.96	125.00
7446.46**	490.19	496.90	124.04	124.06
7346.34	490.17	496.88	123.92	123.94
6748.04	495.31	502.04	121.18	121.20
5618.96	502.49	508.38	117.65	117.71
5553.77	577.76	591.65	117.52	117.57
4081.21†	585.69	598.89	113.23	113.28
2833.94††	592.64	605.40	109.79	109.83
1316.1	684.5	702.83	106.49	106.54

*Just upstream of Vineyard Road culvert
**Just downstream of Vineyard Road culvert
††North end of Roseville Wastewater Treatment Plant
††Southern end of Roseville Wastewater Treatment Plant

Based on our calculations, the peak flow from just the project's on-site development would occur approximately 15 minutes after the storm peak, whereas the peak flow for the tributary as it passes through the Vineyard Road culvert would occur near the 1-hour mark after the storm peak. Therefore, detaining our peak flow could cause an overall more detrimental condition as our on-site detained flow would further increase the overall tributary peak flow. This analysis shows that not detaining the projects peak flows will better mitigate downstream impacts by not raising the overall peak flow even higher.

More importantly, our model shows the peak flow increase during the 100-yr storm will raise the peak Water Surface Elevation (WSE) by only 0.06 feet immediately downstream of our site. Based

on the topographic data downstream of the site, the 0.06 foot increase in WSE will not subject any downstream structures to flooding (all downstream buildings are more than 1' above the post-construction WSE). Furthermore, we found that the Vineyard Road culvert has capacity to pass even the flows from the 500-yr storm without the WSE reaching the top of the culvert. Therefore, we believe that on-site detention should not be required based on this project's location in an area of the Dry Creek watershed where the County recommends no detention for new development (unless there are "downstream impacts").

Table 5 shows a summary of pre-construction and post-construction peak flow and WSE data for the Dry Creek BFE downstream boundary condition for select cross sections in the tributary.

Table 5: Selected Flows and WSE from HEC-RAS – Dry Creek BFE Boundary Condition

Tributary Station	100-yr Pre-Construction Peak Flow (cfs)	100-yr Post-Construction Peak Flow (cfs)	100-yr Pre-Construction WSE (ft)	100-yr Post-Construction WSE (ft)
9764.85	428.75	428.77	132.89	132.89
9161.5	436.25	436.15	131.77	131.77
8292.18	439.37	439.96	127.68	127.68
7877.8	464.81	465.93	126.89	126.89
7588.69	464.09	465.03	125.27	125.31
7492.13*	490.10	496.99	124.95	125.00
7446.46**	490.07	496.92	124.04	124.06
7346.34	490.05	496.91	123.92	123.94
6748.04	495.19	502.07	121.18	121.20
5618.96	502.29	509.41	117.66	117.72
5553.77	577.56	591.71	117.53	117.58
4081.21†	587.63	601.68	114.44	114.46
2833.94††	585.67	594.15	114.06	114.06
1316.1	655.98	697.52	114.01	114.01

*Just upstream of Vineyard Road culvert
**Just downstream of Vineyard Road culvert
††North end of Roseville Wastewater Treatment Plant
††Southern end of Roseville Wastewater Treatment Plant

In order to verify if the downstream boundary conditions had a drastic effect on the WSEs in the tributary, RFE also compared the post-construction 100-yr WSEs from the normal depth boundary condition to those from the Dry Creek BFE boundary condition. We found that, while the WSEs near the confluence of the tributary and Dry Creek are predictably higher for the Dry Creek BFE boundary condition than for the normal depth boundary condition, upstream of station 6352 there is no difference in post-construction WSE between the two boundary conditions and less than 0.10-feet difference above station 5000. Notably, station 6352 is well downstream of the Vineyard Road

culvert. Therefore, we believe the boundary condition does not affect the WSE increases caused by our project.

Since the greatest peak flow increases occur much closer to the confluence of the tributary and Dry Creek, and because the WSE within the tributary in this downstream stretch is unaffected by the increased peak flows, we do not consider these downstream peak flow increases to indicate that the project will have an impact on the flood plain limits of the tributary. Based on our WSE comparisons throughout the tributary and the potentially increased impacts of detaining on-site flows, we do not believe that the 0.06-foot maximum increase in the WSE warrants a requirement for detention.

One final analysis RFE performed was to compare the worst-case post-construction flood plain limits as calculated by our HEC-RAS model with the flood plain limits from the aforementioned Pending FEMA FIS. In order to accomplish this, we first obtained the shape files available from the FEMA FIS from FEMA's website. Since the topography used in the FEMA FIS was different from what we had available (we believe our topography is probably more accurate), we could not directly use the FEMA flood limits as a comparison. Instead, we used the shapefile from FEMA which represented the centerline of the tributary and which varied in elevation throughout the tributary to represent the FEMA BFEs. We daylighted this centerline perpendicular to the channel to catch the topography from our modeling. Therefore, we essentially transposed the FEMA BFEs onto our available topography.

We found that, except for in a few places, the FEMA BFEs appeared to be slightly higher than our calculated WSEs and therefore the FEMA flood plain limits are slightly larger than our calculated limits. Notably, our model had higher WSEs crossing Brady Lane – presumably because the FEMA study appears to have its upper limit just west of Brady Lane, whereas our calculations considered the flows through the Brady Lane culverts. Due to the difference in flood plain limits, we have mapped the worst-case flood plain limits at each point along the tributary. For the majority of the tributary, the flood plain limits represent the FEMA limits, but for some areas where our HEC-RAS calculations showed higher BFEs, the flood plain limits reflect our calculations.

See Appendix B for the Shed Map showing drainage patterns within the Dry Creek Vineyard Road Tributary drainage shed. Appendix A also includes a Flood Plain Model exhibit showing the extents of the 100-yr flood plain and the cross sections that we analyzed as part of this evaluation. The Flood Plain Model exhibit shows the worst-case flood plain limits from the FEMA FIS and our calculations including the downstream limits from the Dry Creek BFE boundary condition. At select cross sections – which roughly corresponded to the cross sections provided on the FEMA map – we have included numeric WSEs from both our calculations and the FEMA FIS for comparison purposes. See Appendix E for a full tabulation of the tributary's peak flows and WSE data.

Fill in the Floodplain

As part of the County-required public improvements, this project proposes to widen Vineyard Road along its frontage in order to accommodate an ultimate road section that includes 50-feet of paving. The widening on the project's frontage includes adding between 11-14-feet of new pavement on the north side of the roadway. In order to construct this widening per the County's requirements, fill will have to be placed within the regulatory floodway of the floodplain. RFE created two additional plans in the HEC-RAS model to evaluate the impacts to the BFEs in the Dry Creek Tributary based on two scenarios for adding fill in the floodplain: 1) Approximately 500 cy fill added to the west property line shared with APN: 473-020-001 – representing the Vineyard Road widening proposed with this project, and 2) Approximately 700 cy fill added including through the neighboring parcel (APN: 473-020-001), and to the west property line of the N.A.P.O.T.S. portion of the project parcel which is shared with APN: 474-070-015 – representing Vineyard Road's Ultimate Condition. Only one cross section – station 7492.13 – in the HEC-RAS model changed as a result of these two fill conditions.

After running the HEC-RAS analysis for these conditions, our calculations showed that fill from the proposed project widening (Scenario 1) had a negligible effect on the WSE beyond about 100-feet upstream of the culvert (station 7588.69). Downstream of the culvert, the change in WSE varies. There are long sections of the tributary where the WSE appears unaffected by the additional fill from Vineyard, but there are also long stretches where the WSE increases by 0.01-feet from the post-construction 100-yr flow without any fill. Our calculations showed a maximum WSE rise of 0.02-feet compared to the *post*-construction 100-yr flow without any fill approximately 2,050-feet downstream (station 5423.09). We should note that the resulting WSE represents a maximum rise of 0.07-feet from the *pre*-construction 100-yr flow (with Dry Creek BFE boundary condition).

For the ultimate Vineyard widening (scenario 2), our calculations showed slightly more dramatic results. Our calculations showed that, when compared to the WSE from the post-construction 100-yr peak flow, the WSE decreased slightly upstream of the culvert starting at station 7782. This decrease is most pronounced at station 7492.13 which represents the location just before the culvert entrance. Here the WSE drops by 0.24-feet. Downstream of the culvert, the change in WSE varies similar to scenario 1. There are long sections of the tributary where the WSE appears unaffected by the additional fill from Vineyard, but there are also long stretches where the WSE increases by 0.02-feet from the post-construction 100-yr flow without any fill. Our calculations showed a maximum WSE rise of 0.02-feet compared to the *post*-construction 100-yr flow without any fill between approximately 1,680-feet and 2,730-feet downstream (stations 5792.84 to 4744.51). The resulting WSE represents a maximum rise of 0.08-feet from the *pre*-construction 100-yr flow (with Dry Creek BFE boundary condition). Through the section with decreased WSEs upstream of the culvert, the water velocity is notably higher than the post-construction 100-yr peak flow condition. We believe that the restriction of area for water to flow leads to increased velocities and lower WSEs through the culvert.

During the construction document phase, a more detailed model of this area with additional cross sections may improve the model results calculated with these fill scenarios, but that detail is beyond the scope of this preliminary report. The most important result of this analysis is that, because this project will be adding fill to the floodplain, and because our results show a rise in WSE for the post-construction peak flows when compared to the pre-construction peak flows (regardless of the fill scenario or no fill condition), this project will require a Conditional Letter of Map Revision (CLOMR) to be filed with FEMA prior to construction. See Appendix E for exhibits showing the floodplain elevations and limits resulting from fill within the floodplain.

H. STORMWATER QUALITY DESIGN

Since this project is considered a "***Regulated Project with Hydromodification***," the stormwater quality design must be consistent with the West Placer Storm Water Quality Design Manual (April 2016). As part of these requirements, this project is required to treat stormwater runoff as well as mitigate runoff volume (hydromodification) from new and/or replaced impervious surfaces for the 2-year, 24-hour storm. The stormwater BMPs selected for this project will treat stormwater prior to discharging runoff into the on-site storm drain pipe system as well as provide stormwater detention for the 2-year storm event meeting the hydromodification requirements of Placer County.

RFE evaluated the entire on-site drainage shed to the east of the Vineyard Road Tributary for water quality (including areas on Vineyard Road and Brady Lane that will be affected by the project improvements). Areas to the west of the tributary will remain undisturbed by this project. We divided this drainage shed into Drainage Management Areas (DMAs) determined by the proposed grading and BMP locations. We designed each BMP to meet the requirements of the WPSWQDM using the Post-Construction SWQP spreadsheet provided by Placer County. The Stormwater Quality Shed Map in Appendix B shows the limits of these drainage sheds.

<u>Stormwater Treatment</u>

The project will use a combination of downspout disconnection and bio-retention to treat the project impervious surfaces (building roofs, driveways, and roads). The lot grading for this project assumes Type A drainage to the front of the lot without the use of subdrains. Therefore, downspouts from the future houses can be disconnected from the underground system, meaning runoff will flow overland through the lots before reaching street curb and gutters. Runoff from the roads and from the residential lots that does not infiltrate into the ground within the lots will flow into bioretention planters located adjacent to the roadways – in most cases, at the intersections. Stormwater that overflows the bioretention planters will enter the on-site underground storm drainage system.

RFE calculated the effective treated impervious area for downspout disconnection as a site design measure according to Form 3-4 of the SWQP spreadsheet. We estimated approximately 65% of the lot areas will consist of impervious areas, with the remaining 35% consisting of landscaping and other pervious area. We did not count the on-site roads as disconnected impervious areas

since runoff from the roads will flow to the bioretention planters via curb and gutter. Assuming that the lots are 65% impervious, we calculated the runoff reduction for disconnected downspouts using the entire impervious lot area in each DMA since 65% impervious area meets the required ratio of impervious to pervious surface area (2:1) to count as a site design measure per the WPSWQDM.

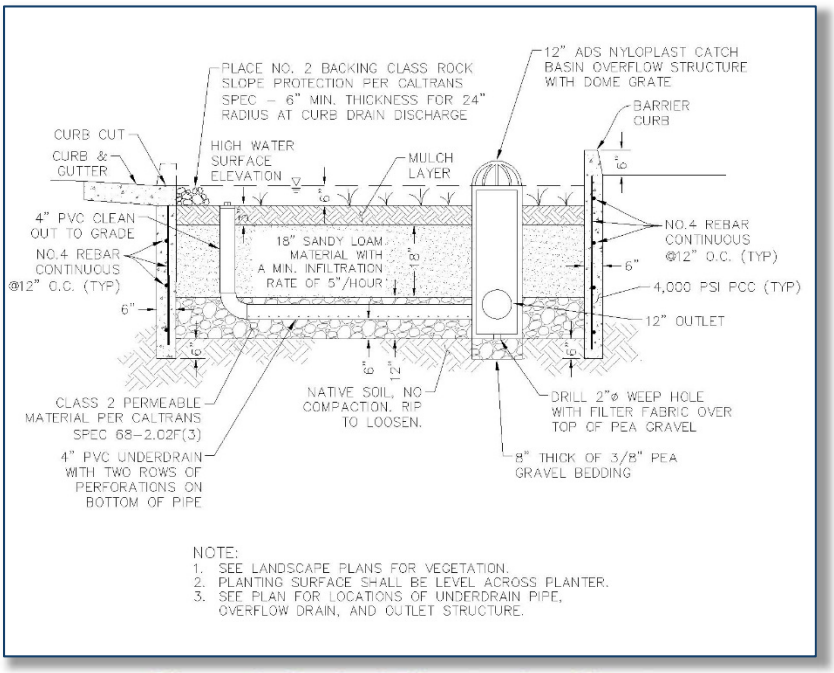


Figure 3: Typical Bioretention Planter

RFE designed volume-based infiltrating bioretention planters to be consistent with Form 3-6 of the SWQP spreadsheet. These areas will be recessed below the outlet to promote infiltration. Runoff that does not infiltrate will pond in the bio-retention areas and overflow via the BMP outlet. An underdrain at the bottom of the system will allow treated stormwater to flow into the storm drain system if the soils below are saturated to the point where infiltration ceases.

Hydromodification

RFE evaluated the hydromodification design of the site based on Forms 4-1, 4-2, and 4-3 of the SWQP spreadsheet. We evaluated the entire drainage shed as a single Drainage Management Area for this calculation with the outlet from the site being the culvert underneath Vineyard Road. According to our evaluation, the bioretention areas and downspout disconnection provide adequate detention volume to meet the requirements of the WPSWQDM.

See Appendix B for the Post-Construction Shed Map showing post-construction stormwater quality BMP locations and surface areas. Appendix F contains the Post-Construction Stormwater Quality Plan Forms from the spreadsheet as well as background materials used to calculate hydromodification.

I. CONCLUSIONS

1. The increase in impervious surface area due to construction of proposed improvements will necessitate drainage infrastructure to convey stormwater runoff safely away from improved areas.

2. The project is not required to detain runoff for flood control due to its location in the Dry Creek drainage shed. The increase in impervious surface area due to proposed improvements will cause post-construction runoff peak flows to be higher than existing conditions. Increased peak flows through the Dry Creek Vineyard Road Tributary in the post-construction condition will cause slight rises in the BFE at some points, with the maximum rise of 0.06-feet immediately downstream of the project site. However, these rises are relatively insignificant and will not impact any downstream structures.

3. Fill will be required in the regulatory floodway of the FEMA floodplain to accommodate the widening of Vineyard Road along the project frontage. This fill will cause an additional rise in WSE for the post-construction 100-yr peak flow of 0.02-feet downstream of the Vineyard Road culvert when compared to the post-construction 100-yr peak flow condition without any fill (with Dry Creek at BFE), which equates to a WSE rise of 0.07-feet compared to the *pre*-construction 100-yr peak flow (with Dry Creek at BFE).

4. Proposed development may cause additional stormwater pollution that must be mitigated for the 2-year, 24-hour storm event before runoff leaves the site per the WPSWQDM.

5. Proposed development will require hydromodification for the 2-year, 24-hour storm event before runoff leaves the site per the WPSWQDM.

6. Proposed buildings should maintain a 1-foot minimum freeboard above the overland release elevation and 1-foot above the adjacent flood plain elevation.

J. RECOMMENDATIONS

1. RFE designed the drainage improvements per the standards of the Placer County SWMM and Land Development Manual with underground storm drain pipes designed to convey peak flows expected during the design (10-year, 24-hour) storm event.

2. RFE evaluated the downstream impacts in the Dry Creek Vineyard Road Tributary from the project peak flows for the 10-year, 25-year, 50-year, 100-year, and 500-year design storm and found that there will not be any significant impacts. If the project were to incorporate on-site stormwater detention, the impacts would likely be worse downstream than as currently proposed due to the timing of peak flows. Therefore, we do not recommend any detention of stormwater runoff.

3. Because of the increase in BFE of the Dry Creek Vineyard Road Tributary in the post-

construction condition compared to the pre-construction condition, a CLOMR will be required to be submitted to FEMA prior to project construction. However, RFE does not believe a 0.07-foot rise in WSE from the pre-construction condition constitutes a significant risk to downstream properties.

4. RFE assumed the new lots would be disconnected from storm drainage infrastructure by pervious areas. We also designed bioretention planters to intercept and treat runoff prior to discharge into the Dry Creek Vineyard Road Tributary. We designed these measures to meet the requirements of the WPSWQDM.

5. The site design measures and treatment BMPs required for stormwater quality mitigation prove to be adequate to meet the hydromodification requirements of the WPSWQDM for the 2-year, 24-hour storm event.

6. RFE designed the subdivision grading to provide a minimum of 1-foot of freeboard for all building pads to each overland release point in each drainage shed as well as to provide a minimum of 1-foot above the flood plain elevation.

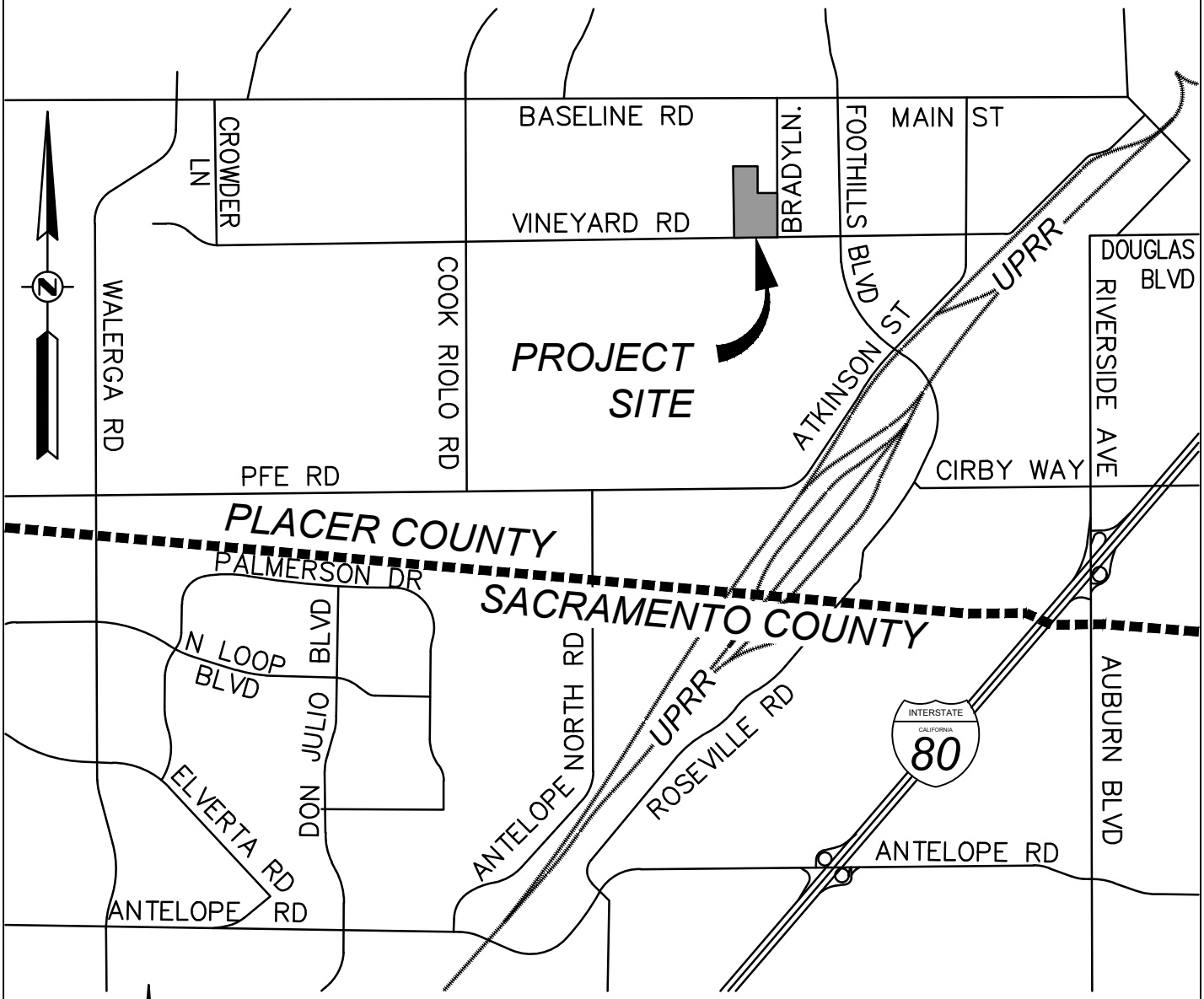
In order to collect and convey the increased runoff from proposed improvements, mitigate impacts to downstream drainage infrastructure, meet Placer County stormwater treatment and hydromodification requirements, and provide adequate overland release for the project site, RFE recommends that the final design and construction for this project include grading, storm drainage, and stormwater quality improvements consistent with the preliminary plans for the Brady Vineyard Project and recommendations outlined in this Preliminary Drainage Study & Stormwater Quality Plan.

K. REFERENCES

- Autodesk Hydraflow Hydrographs Extension for AutoCAD Civil 3D 2018
- HEC-HMS version 4.2
- Placer County Land Development Manual, October 1996
- Placer County Stormwater Management Manual, September 1990
- Preliminary Geotechnical Engineering Study, July 25, 2017, ACE Quality Control
- USDA TR-55 *Urban Hydrology for Small Watersheds,* June 1986
- West Placer Storm Water Quality Design Manual, April 2016.

APPENDIX A

VICINITY MAP AND SITE PLAN EXHIBITS



NOT TO SCALE

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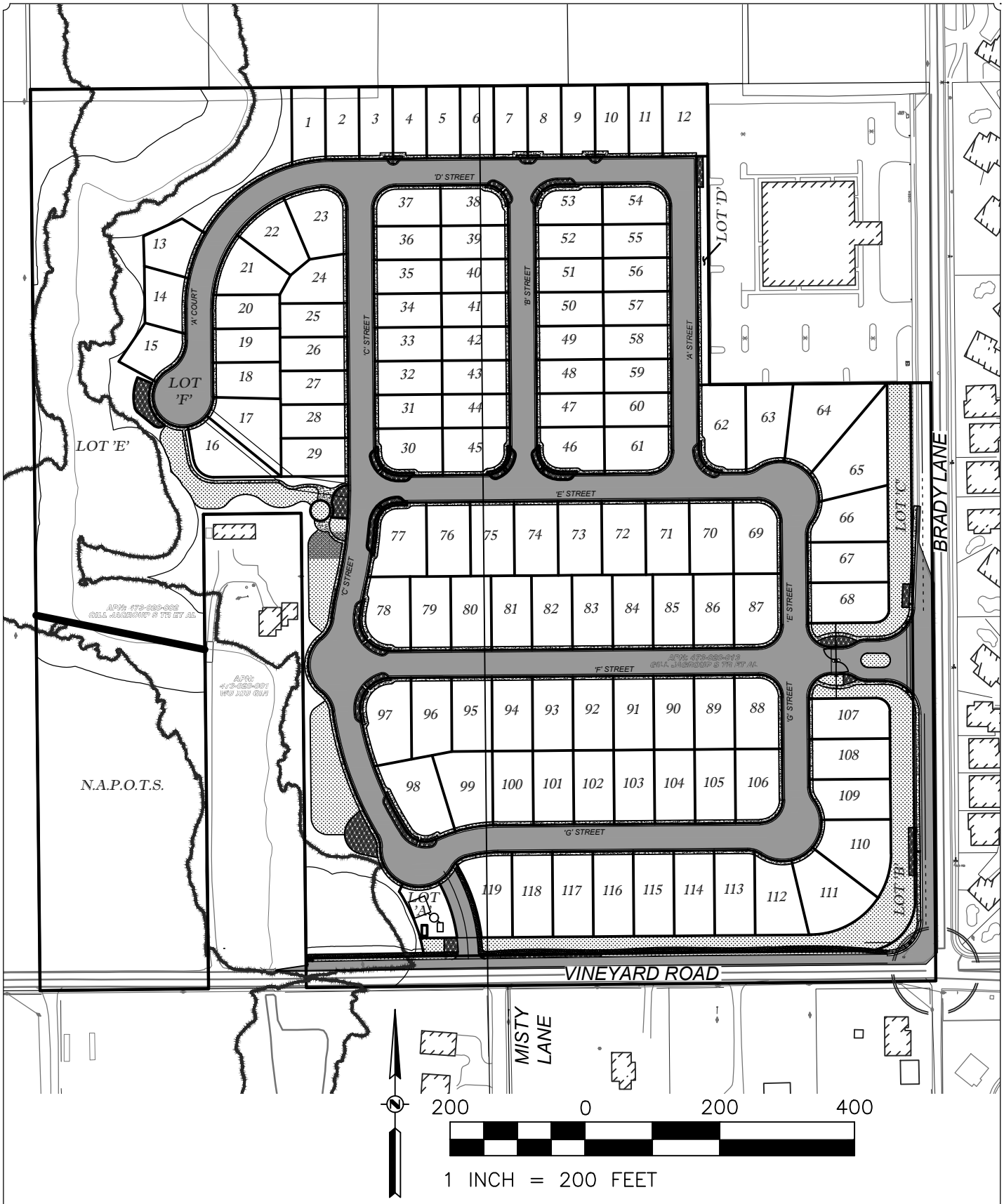
www.RFEengineering.com

VICINITY MAP

PLN XX-XXXXX
BRADY LANE & VINEYARD RD
PLACER COUNTY, CA 95747
APN:473-020-002, 013



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SITE PLAN

BRADY LANE & VINEYARD RD
PLACER COUNTY, CA 95747
APN:473-020-002, 013

APPENDIX B

DRAINAGE SHED MAPS & FLOOD MODEL EXHIBIT

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LEGEND

DRAINAGE SHED DESIGNATIONS AND AREA	DC25B 388.605 ACRES 0.6072 SQ. MILE
DRAINAGE AREA BOUNDARY	
VINEYARD ROAD TRIBUTARY REACH	
HEC-RAS REFERENCE CROSS SECTION	
EXISTING DRAINAGE FLOW	
POST-CONSTRUCTION ON-SITE DRAINAGE FLOW	

400 0 400 800

1 INCH = 400 FEET

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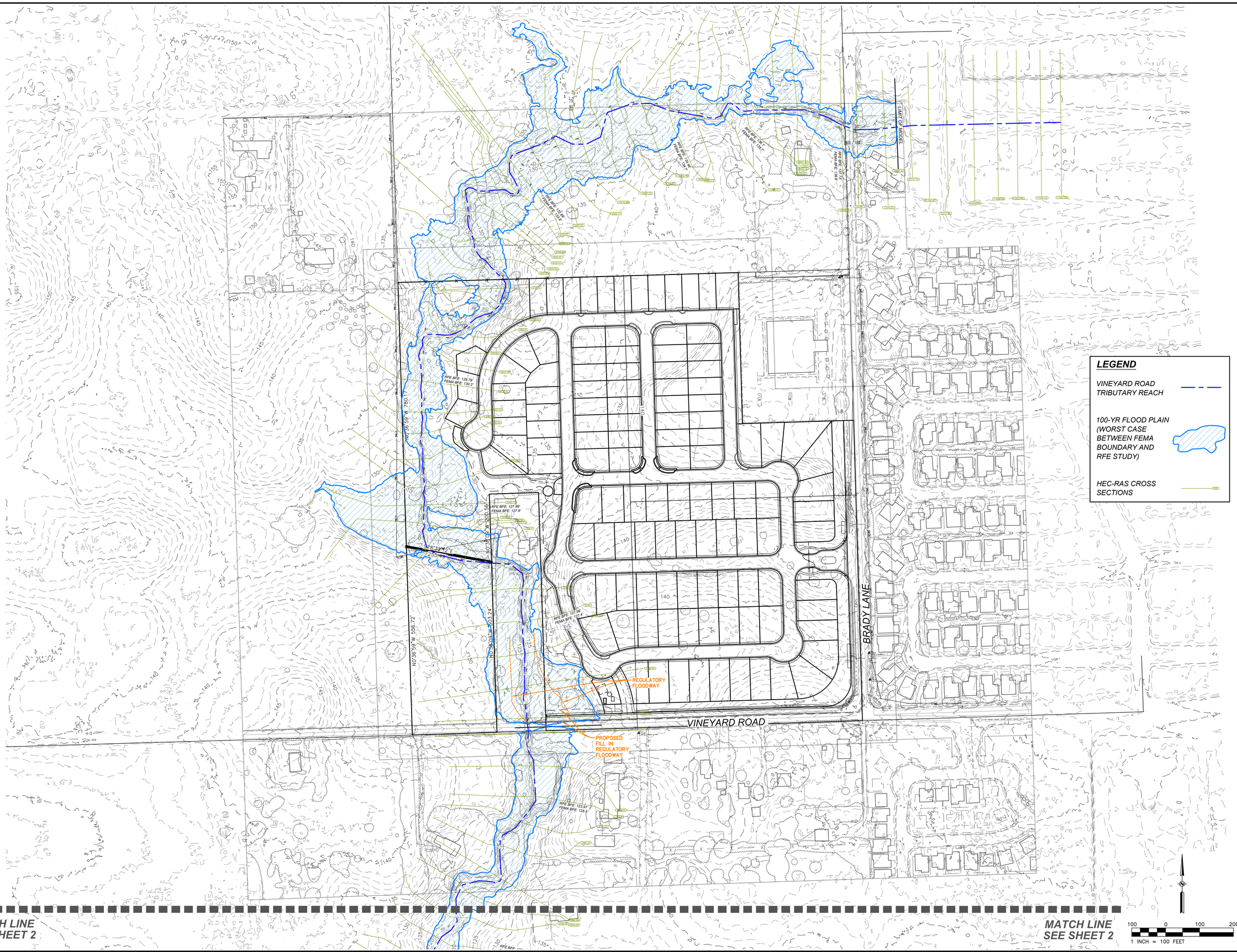
DRY CREEK VINEYARD ROAD TRIBUTARY DRAINAGE SHED MAP



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BRADY VINEYARD SUBDIVISION
BRADY LANE AND VINEYARD ROAD,
PLACER COUNTY, CA
(APNS 475-020-008 & 019)TM18-00234

FLOOD MODEL EXHIBIT

Drawing	Sheet
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RFE PROJECT #17059 – VINEYARD ROAD AND BRADY LANE, PLACER COUNTY, CALIFORNIA

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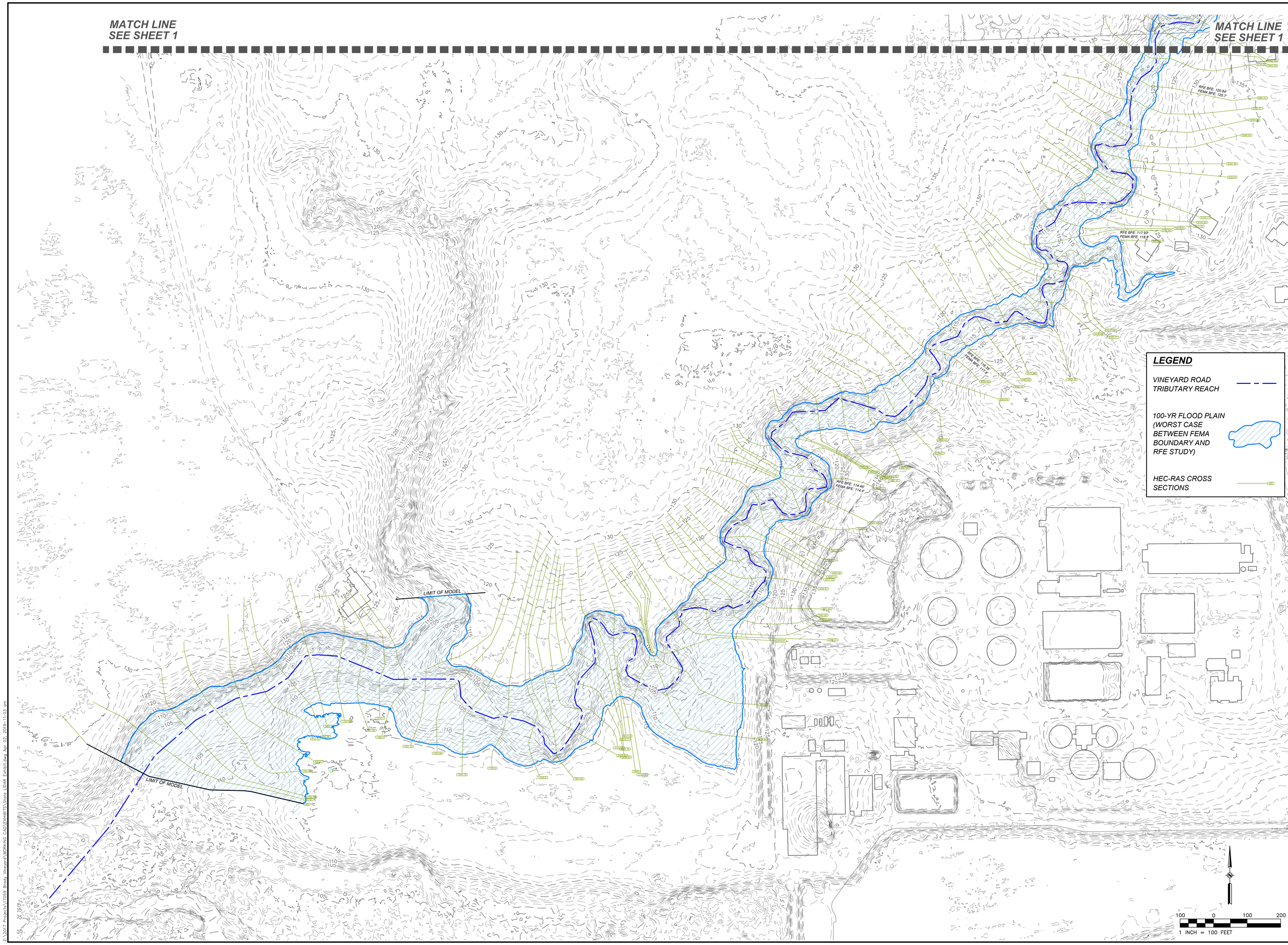

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(APNS 475-020-002 & 013) PLVF-00234

FLOOD MODEL EXHIBIT

Drawing	Sheet
of	2 of Total 2

4/2/2019

RFE PROJECT #17059 – VINEYARD ROAD AND BRADY LANE, PLACER COUNTY, CALIFORNIA

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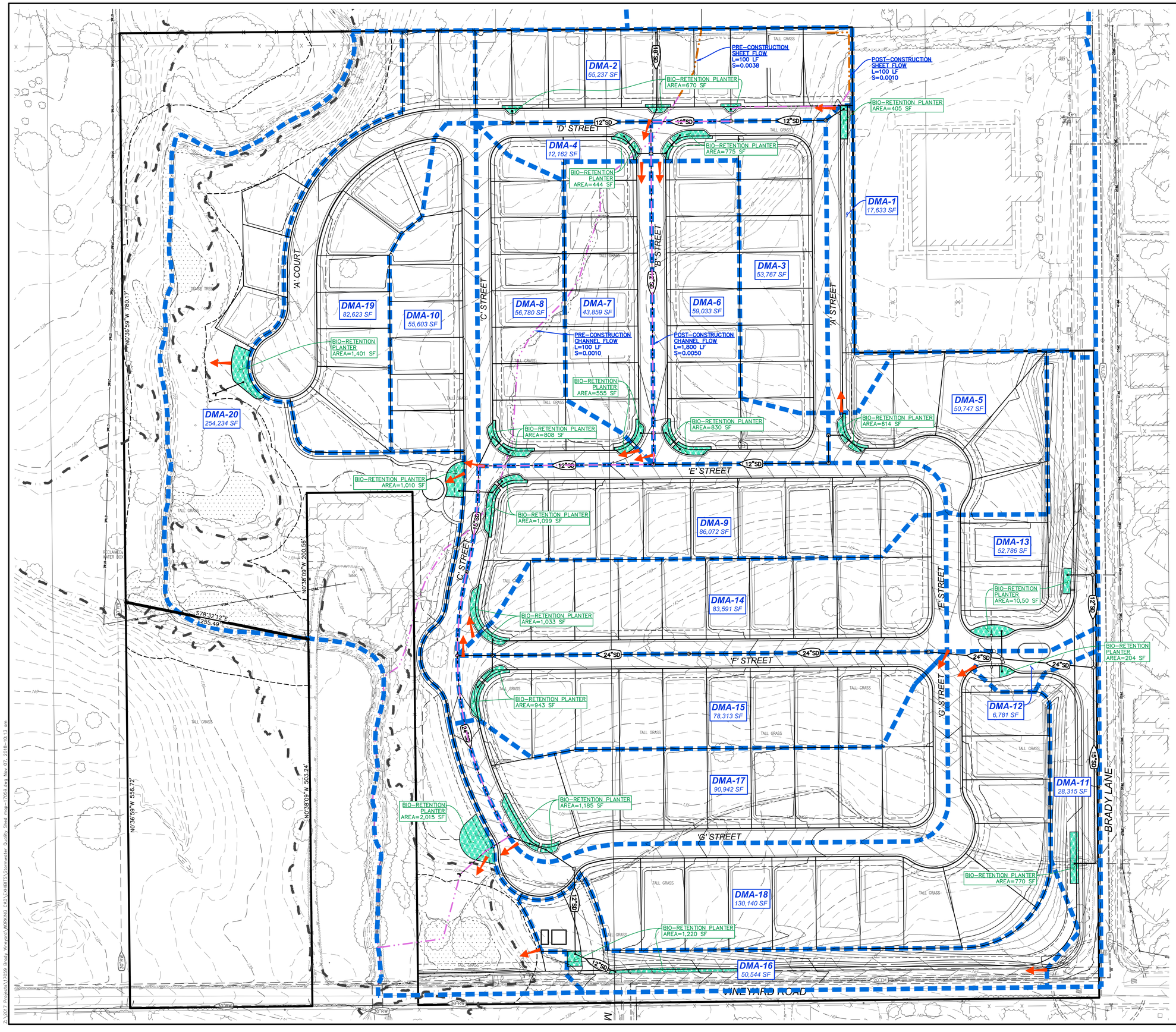

LEGEND

DRAINAGE AREA DESIGNATIONS AND AREA	DMA-3 53,767 SF
DRAINAGE AREA BOUNDARY	
SHEET FLOW	
CHANNEL FLOW	
OVERLAND RELEASE	
FLOW NODE ID	D1
PIPE ID	SD1
POND LIMITS	
BIORETENTION	
WETLAND AREA	

APPRV'D	BY	DATE	REVISION

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DESIGN SBS	RFE
DRAWN SBS	RFE
QUANT.	

0 1 2 ORIGINAL SCALE IS IN INCHES

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STORMWATER QUALITY SHED MAP

Drawing SM1 of Total 1

11/07/2018

RFE PROJECT #17059 – VINEYARD ROAD AND BRADY LANE, PLACER COUNTY, CALIFORNIA

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APPENDIX C

EXCERPT FROM
PROJECT GEOTECHNICAL REPORT

N

N.T.S.

NOTES:

Locations of exploratory borings (shown as ⊗ B1) are approximate. Base map from Google Earth imagery 2/28/2015.

ACE Quality Control
1830 Vernon Street, Suite 7
Roseville, CA 95678
Phone: 916-778-0950

EXPLORATIONS MAP

Proposed Brady Residential Subdivision
Brady Lane and Vineyard Road
Roseville, California

ACE JOB NO.	10-17049G
DATE	07/21/2017
FIGURE	2

APPENDIX B

FIELD EXPLORATION METHODS

LOGS OF SUBSURFACE EXPLORATIONS

LEGEND

FIELD EXPLORATION METHODS

Field exploration included a general geotechnical engineering reconnaissance within the study area, as well as the excavation of subsurface explorations (exploratory borings) at the approximate locations shown on the Explorations Map, Figure 2, Appendix A. Exploration locations were located in the field by estimating from the existing site features shown on an aerial photo. The exploration locations should only be considered accurate to the degree implied by the means and methods used to define them. The explorations were conducted in order to assess the geometry and geotechnical characteristics of subsurface geologic deposits at the site.

The explorations were accomplished and the soil sampling/logging performed by a Staff Engineer under the direct supervision of a Geotechnical Engineer. The borings were advanced with a 4-inch outer-diameter continuous flight helical solid stem augers powered by a CME 45 truck mounted drill rig. Relatively undisturbed soil samples were recovered from the borings at selected intervals by a 1.4-inch inner-diameter "standard penetration" sampler advanced with an automatic hammer driving a 140 lb. hammer freely falling 30 inches (standard 350-foot/lb. striking force). The number of blows of the hammer required to drive the samplers each 6-inch to 18-inch interval of each drive is denoted as the penetration resistance or "blow count" and provides a field estimate of soil consistency/relative density. Blow counts shown on the logs have not been corrected/converted. Selected undisturbed samples were retained in moisture-proof containers for laboratory testing and reference.

Samples of the subsurface soil deposits were obtained from the test borings for use in laboratory testing to determine the engineering properties and geotechnical design parameters to be used for future site improvements. The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. A bulk soil sample was recovered directly from excavation cuttings of anticipated pavement subgrade soil and placed in a plastic sample bag. Soil samples were then transported to ACE’s laboratory for further testing. Field descriptions within the test borings logs have been modified, where appropriate, to reflect laboratory test results. Upon completion of drilling the test borings were backfilled from final test boring depth up to original ground surface with excavated soils.

Soils were logged in the field by a Staff Engineer and were field classified based on the Unified Soil Classification System (ASTM D2487) by color, gradation, texture, type, etc., on the basis of visual observation of samples and auger cuttings. Groundwater observations were made in the borings during and after drilling. Exploration logs prepared for each of the test borings provide soil descriptions and field sample depths. The exploration borings logs are included in this Appendix B which also contains the Explorations Log Legend. These logs include visual classifications of the materials encountered during drilling as well as the field engineer’s interpretation of the subsurface conditions between samples. Final logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

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www.ACEqc.com

EXPLORATION LOG

CLIENT	MR. SUKHBIR BRAR	BORING #	B-1
PROJECT NAME	Brady Residential Subdivision	JOB NO.	10-17049G
PROJECT LOCATION	NWC Brady Lane and Vineyard Road	DRAWN BY	DS
	Roseville, California	APPROVED BY	EH

DRILLING and SAMPLING INFO

Date Started	06/13/17	Hammer Wt. (lbs.)	140 lbs. (automatic)
Date Completed	06/13/17	Hammer Drop (in.)	30"
Driller	Cal Nev Geoexploration	Spoon Sampler ID (in.)	1.4, 2.0
Field Geologist	Stemberger		
Boring Method			

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: egs	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense to dense, brown to gray-brown, dry to moist, silty fine to medium SAND SM	1		1	MC		83		18	103	4				
		5	2	MC		100		42						
		10	3	ST		100		49						
Medium dense, brown with white and gray, moist, medium to coarse SAND with gravel SP	2	15	4	ST		100	9:15 9:40	29						
		20	5	ST		100		26						
Boring completed at approximately 21-1/2' below egs. GW initially at 16', and after drilling at 17-1/2' below egs. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

SuperLog CivilTech Software, USA www.civiltech.com File: Z:\ACE Projects\ACE Projects\Geotechnical Projects\2017\10-17049G Brady Vineyard 36 Acre Development\GRAPHICS\10-17049G LOGS.log Date: 7/24/2017

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www.ACEqc.com

EXPLORATION LOG

CLIENT MR. SUKHBIR BRAR
PROJECT NAME Brady Residential Subdivision
PROJECT LOCATION NWC Brady Lane and Vineyard Road
Roseville, California

BORING # B-2
JOB NO. 10-17049G
DRAWN BY DS
APPROVED BY EH

DRILLING and SAMPLING INFO

Date Started 06/13/17
Date Completed 06/13/17
Driller Cal Nev Geoexploration
Field Geologist Stemberger
Boring Method 4" O.D SSA

Hammer Wt. (140 lbs.) 140 Automatic
Hammer Drop (30") 30"
Spoon Sampler ID (in.) 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense, brown to light brown, dry to moist, silty SAND with gravel and near surface root SM	1		1	MC		50		22						
		5	2	ST		100		26	110	14				
		10	3	ST		100	10:00 15	30	121	13				
Dense, brown, wet,silty SAND with gravel. SM	3	15	4	ST		100		45						
		20	5	ST		100		54						
Boring completed at approximately 21-1/2' below egs. GW initially at 13', and after drilling at 13-1/2' below egs. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

SuperLog CivilTech Software, USA www.civiltech.com File: Z:\ACE Projects\ACE Projects\Geotechnical Projects\2017\10-17049G Brady Vineyard 36 Acre Development\GRAPHICS\10-17049G LOGS.log Date: 7/25/2017

1830 Vernon Street, Suite 7
Roseville, California 95678
Phone: (916) 778-0950
www.ACEqc.com

EXPLORATION LOG

CLIENT: MR. SUKHBIR BRAR
PROJECT NAME: Brady Residential Subdivision
PROJECT LOCATION: NWC Brady Lane and Vineyard Road
Roseville, California

BORING #: B-3
JOB NO.: 10-17049G
DRAWN BY: DS
APPROVED BY: EH

DRILLING and SAMPLING INFO

Date Started: 06/13/17
Date Completed: 06/13/17
Driller: Cal Nev Geoexploration
Field Geologist: Stemberger
Boring Method: 4" O.D SSA

Hammer Wt. (140 lbs.): 140# Automatic
Hammer Drop (30"): 30"
Spoon Sampler ID (in.): 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense, brown with white, dry, silty SAND with gravel, micaceous SM	1		1	MC		100	GWT not encountered	39						
		5	2	ST		100		22	115	7				
Medium dense, brown with white and red, moist, well graded SAND with gravel SW	2	10	3	ST		100		23	110	5				
		15	4	ST		100		34						
Dense, light brown, moist, silty SAND with gravel. SM	3	20	5	ST		100		37						
Boring completed at approximately 21-1/2' below egs. Free GW not observed. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

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EXPLORATION LOG

CLIENT MR. SUKHBIR BRAR
PROJECT NAME Brady Residential Subdivision
PROJECT LOCATION NWC Brady Lane and Vineyard Road
Roseville, California

BORING # B-4
JOB NO. 10-17049G
DRAWN BY DS
APPROVED BY EH

DRILLING and SAMPLING INFO

Date Started 06/13/17
Date Completed 06/13/17
Driller Cal Nev Geoexploration
Field Geologist Stemberger
Boring Method 4" O.D SSA

Hammer Wt. (140 lbs.) 140 Automatic
Hammer Drop (30") 30"
Spoon Sampler ID (in.) 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense to dense, brown with white and red, moist, silty SAND SM	1		1	MC		83		16	95	5				
		5	2	ST		100		15	107	9				
		10	3	ST		100		43						
Dense to medium dense, light brown, moist, silt ML	2	15	4	ST		100	11:50	45						
		20	5	ST		100	11:30	16	125	13				
Boring completed at approximately 21-1/2' below egs. GW initially at 20' below egs; after drilling at 16' below egs. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

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EXPLORATION LOG

CLIENT MR. SUKHBIR BRAR
PROJECT NAME Brady Residential Subdivision
PROJECT LOCATION NWC Brady Lane and Vineyard Road
Roseville, California

BORING # B-5
JOB NO. 10-17049G
DRAWN BY DS
APPROVED BY EH

DRILLING and SAMPLING INFO

Date Started 06/13/17
Date Completed 06/13/17
Driller Cal Nev Geoexploration
Field Geologist Stemberger
Boring Method 4" O.D SSA

Hammer Wt. (140 lbs.) 140 Automatic
Hammer Drop (30") 30"
Spoon Sampler ID (in.) 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Dense, light tan, moist, silty SAND with gravel SM	1		1	MC		100		78						
Dense, brown, moist, SILT ML	2	5	2	ST		100		41			64			
Medium dense to dense, brown, moist, silty fine SAND SM	3	10	3	ST		100		16	112	21				
		15	4	ST		100	12:45	32						
		20	5	ST		100		31						
Boring completed at approximately 21-1/2' below egs. GW initially and after drilling at 16-1/2'. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

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EXPLORATION LOG

CLIENT MR. SUKHBIR BRAR
PROJECT NAME Brady Residential Subdivision
PROJECT LOCATION NWC Brady Lane and Vineyard Road
Roseville, California

BORING # B-6
JOB NO. 10-17049G
DRAWN BY DS
APPROVED BY EH

DRILLING and SAMPLING INFO

Date Started 06/13/17
Date Completed 06/13/17
Driller Cal Nev Geoexploration
Field Geologist Stemberger
Boring Method 4" O.D SSA

Hammer Wt. (140 lbs.) 140 Automatic
Hammer Drop (30") 30"
Spoon Sampler ID (in.) 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense, moist, silty fine SAND SM	1		1	MC		83		41	142	7				
		5	2	ST		100		23						
Dense, brown with black, moist, low plasticity SILT ML	2	10	3	ST		100		34						
Medium dense to dense, brown with white and black, moist to wet, silty SAND SM	3	15	4	ST		100	1:15	45						
		20	5	ST		100		28						
Boring completed at depth of approximately 21-1/2' below egs. GW initially and after drilling at 18' below egs. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

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EXPLORATION LOG

CLIENT MR. SUKHBIR BRAR
PROJECT NAME Brady Residential Subdivision
PROJECT LOCATION NWC Brady Lane and Vineyard Road
Roseville, California

BORING # B-7
JOB NO. 10-17049G
DRAWN BY DS
APPROVED BY EH

DRILLING and SAMPLING INFO

Date Started 06/13/17
Date Completed 06/13/17
Driller Cal Nev Geoexploration
Field Geologist Stemberger
Boring Method 4" O.D SSA

Hammer Wt. (140 lbs.) 140 Automatic
Hammer Drop (30") 30"
Spoon Sampler ID (in.) 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense to dense, brown with gray and white, moist, silty SAND SM	1		1	MC		100	GWT not encountered	24	105	4				
		5	2	ST		100		31	126	14				
		10	3	ST		100		41						
		15	4	ST		100		29	116	18				
		20	5	ST		100		27	132	16				
Boring completed at approximately 21-1/2' below egs. Free groundwater not encountered. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

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EXPLORATION LOG

CLIENT MR. SUKHBIR BRAR
PROJECT NAME Brady Residential Subdivision
PROJECT LOCATION NWC Brady Lane and Vineyard Road
Roseville, California

BORING # B-8
JOB NO. 10-17049G
DRAWN BY DS
APPROVED BY EH

DRILLING and SAMPLING INFO

Date Started 06/13/17
Date Completed 06/13/17
Driller Cal Nev Geoexploration
Field Geologist Stemberger
Boring Method 4" O.D SSA

Hammer Wt. (140 lbs.) 140 Automatic
Hammer Drop (30") 30"
Spoon Sampler ID (in.) 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense to very dense, brown with red and white, moist, silty SAND SM	1		1	MC		100		32	100	2				
		5	2	ST		100		70						
		10	3	ST		100		40						
		15	4	ST		100		31						
		20	5	ST		100	02:30	30						
Boring completed at approximately 21-1/2' below egs. Free groundwater not encountered. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

At Drilling
After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

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EXPLORATION LOG

CLIENT MR. SUKHBIR BRAR
PROJECT NAME Brady Residential Subdivision
PROJECT LOCATION NWC Brady Lane and Vineyard Road
Roseville, California

BORING # B-9
JOB NO. 10-17049G
DRAWN BY DS
APPROVED BY EH

DRILLING and SAMPLING INFO

Date Started 06/13/17
Date Completed 06/13/17
Driller Cal Nev Geoexploration
Field Geologist Stemberger
Boring Method 4" O.D SSA

Hammer Wt. (140 lbs.) 140 Automatic
Hammer Drop (30") 30"
Spoon Sampler ID (in.) 1.4" , 2.0"

TEST DATA

SOIL CLASSIFICATION SURFACE ELEVATION: EGS	Stratum	Depth Scale	Sample No.	Sample Type	Sample Graphics	Recovery (%)	Groundwater	Penetration Test (blows per foot)	Dry Density (pcf)	Moisture Content (%)	Pass No. 200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Remarks
Medium dense, brown, moist, silty SAND SM	1		1	MC		100		24						
		5	2	ST		100		11	110	11				
Dense to very dense, brown with white, moist, silty SAND with gravel SM	2	10	3	ST		50		55	107	8				
		15	4	ST		100		49						
Dense, light tan with gray, moist, fine sandy SILT with gravel ML	3	20	5	ST		100	03:30 ▼ 03:15 ▽	34						
Boring completed at approximately 21-1/2' below egs. GW initially at 20' below egs; after drilling at 19' below egs. Boring backfilled with cuttings.														

Sample Type:

ST - Standard Split Spoon
MC - Mod. Calif. SS (2.5" OD)
GS - Grab Sample
RC - Rock Core
AT - AMS Tube (2" ID)
CT - 3" OD Split Spoon

Depth of Ground Water:

▽ At Drilling
▼ After Drilling

Layer Lines:

Layer lines are approximate and in-situ the transition may be gradual

Boring Method:

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling
CC - Continuous Core

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APPENDIX D

EXCERPT FROM
PLACER COUNTY SWMM

TABLE 5-3

CONSTANT INFILTRATION RATES' FOR HYDROLOGIC SOIL-COVER COMPLEXES

Cover Type	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Bare - Rockland, eroded and newly-graded areas		.10	.02	.O1	.01
Grass,Annual or Perennial	Poor	.16	.09	.06	.04
	Fair	:31	.16	.09	.07
	Good	.41	.22	.12	.09
Meadows - Areas with seasonally high water table, principal vegetation is sod-forming grass	Poor	.20	.11	.06	.05
	Fair	.30	.15	.09	.07
	Good	.50	.24	.17	.14
Chaparral,Broadleaf (Manzanita and scrub oak)	Poor	.28	.15	.09	.06
	Fair	.40	.20	.12	.08
	Good	.49	.25	.14	.10
Open Brush - Softwood shrubs, buckwheat, sage, etc.	Poor	.21	.11	.07	.05
	Fair	.34	.18	.11	.07
	Good	.39	.20	.12	.08
Woodland - Coniferous or broadleaf trees predominate. Canopy density is at least 50%)	Poor	.35	.18	.11	.07
	Fair	.44	.22	.13	.09
	Good	.53	.26	.15	.11
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50%)	Poor	.25	.13	.08	.06
	Fair	.36	.18	.11	.08
	Good	.47	.24	.14	.09
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	.48	.25	.16	.12
Open Space	Poor (grass cover < 50%)	.26	.09	.06	.04
	Fair (grass cover 50-75%)	.31	.16	.09	.07
	Good (grass cover > 75%)	.41	.22	.12	.09

1. Loss rates in inches/hour
2. Use appropriate ground cover designation

roof, lawn, driveway, and street surfaces, with the street gutter serving as collector. It is appropriate to represent these surfaces with two overland elements: a smooth one for directly connected impervious areas, such as roofs, driveways and streets, and a rough one for landscaped and unconnected impervious areas.

Equation 5-3 is used to estimate the overland flow component of response time (7)(8). Solutions for this equation may be obtained graphically in Figure 5-1.

$$t_r = \frac{.355(nL)^{0.6}}{S^{0.3}} \qquad [5\text{-}31]$$

where

t_r = response time, minutes
n = Manning's roughness coefficient (Table 5-5)
L = flow length, feet
s slope of surface, feet/feet

TABLE 5-5
ROUGHNESS PARAMETERS FOR OVERLAND FLOW [1]

Surface	n [2]
Smooth surfaces (concrete asphalt, or bare soil)	0.11
Grass:	
Short grasses	0.15
Dense grasses	0.24
Bermuda grass	0.40
Poor grass cover on moderately rough surface	0.40
Woods with Underbrush	0.40 - 0.80

1. Sources (1) and (8).
2. Both surface roughness and vegetation cover affect runoff; but only the portion less than 0.1 foot high.

i) , Collector Flow **Equ**ation 5-4 below or the Manning equation may be used for estimating velocities of concentrated flow in rivulets, swales, gutters, pipes, and channels. Equation 5-4 applies to an open, triangular channel with no inflow at its upstream end and side inflows uniformly distributed along its length.

This representation is considered adequate for approximating open channels and pipes in most situations. Equation 5-4 may be solved graphically using Figure 5-2.

$$t_r = \frac{.00735Ln^{.75}(1 + Z^2)^{.25}}{s^{.375}(A_cZ)^{.25}} \qquad [5\text{-}4]$$

where

t_r = response time, minutes
n = Manning's roughness coefficient See Table 6-3 or Table 8-1
s = slope, feet horizontal/foot vertical
L = length, feet
Z = side slope, feet horizontal/foot vertical
A_c = contributing area, acres

In natural watersheds, it may be appropriate to use higher values of Manning's n for the initial collector where the flow is shallow.

Manning's equation may be used to estimate the collector response time when it is felt that Equation 5-4 does not apply. A flow of 2 cfs per acre of contributing watershed should be used to evaluate velocities. The velocity computed for open channel flows using Mannings equation shall be increased by an adjustment factor as follows to account for celerity:

Table 5-A-1
Depth-Duration-Frequency Coefficients

150 - 3000 feet elevation
West of Sierra Nevada Crest

Depths in inches at 150 feet

HEC-HMS Inputs

Duration	2yr	5yr	10yr	25yr	50yr	100yr	200yr	500yr
5m	0.13	0.20	0.25	0.32	0.38	0.44	0.49	0.58
10m	0.19	0.29	0.36	0.46	0.54	0.62	0.70	0.82
15m	0.23	0.35	0.43	0.55	0.64	0.73	0.82	0.96
30m	0.32	0.47	0.57	0.72	0.83	0.94	1.04	1.22
1h	0.45	0.64	0.77	0.94	1.07	1.21	1.33	1.53
2h	0.64	0.88	1.04	1.26	1.42	1.59	1.76	2.00
3h	0.77	1.04	1.23	1.47	1.66	1.85	2.03	2.31
6h	1.06	1.40	1.65	1.95	2.22	2.23	2.75	3.10
12h	1.43	1.91	2.24	2.67	3.00	3.30	3.60	4.00
1d	1.90	2.50	2.98	3.46	3.85	4.25	4.60	5.20
2d	2.51	3.40	3.95	4.65	5.15	5.70	6.20	7.00
3d	3.00	4.07	4.65	5.50	6.20	6.80	7.50	8.40
5d	3.61	4.91	5.76	6.85	7.63	8.42	9.20	10.29
10d	4.73	6.44	7.54	8.96	9.97	11.01	11.95	13.45

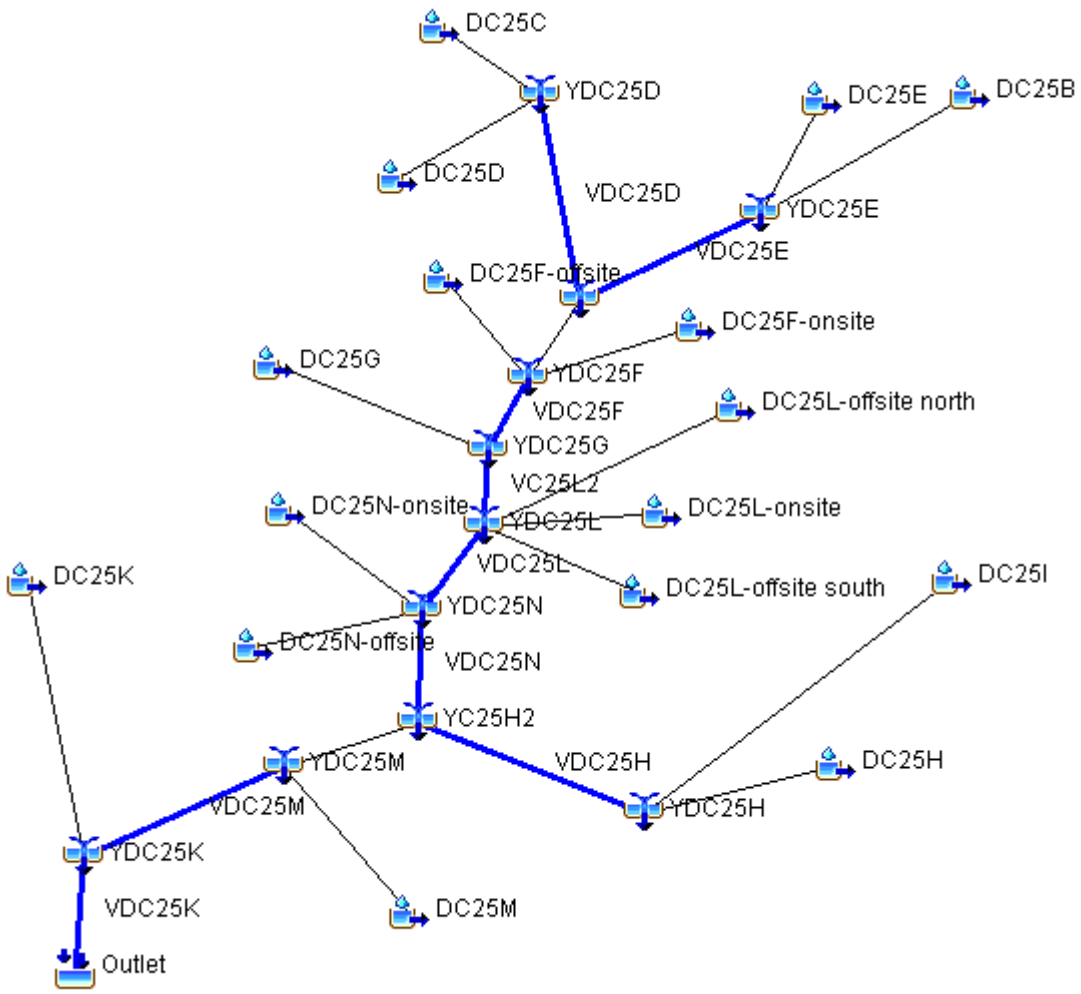
Change in depth, inches per 1000 feet

Duration	2yr	5yr	10yr	25yr	50yr	100yr	200yr	500yr
5m	0.007	0.000	-0.003	-0.007	-0.017	-0.023	-0.027	-0.037
10m	0.007	0.003	0.000	-0.010	-0.020	-0.027	-0.037	-0.050
15m	0.017	0.013	0.013	0.003	0.000	-0.007	-0.013	-0.027
30m	0.030	0.040	0.040	0.040	0.040	0.040	0.040	0.030
1h	0.063	0.087	0.100	0.120	0.133	0.137	0.157	0.173
2h	0.107	0.157	0.193	0.230	0.260	0.287	0.313	0.350
3h	0.143	0.220	0.263	0.327	0.373	0.413	0.457	0.513
6h	0.230	0.357	0.433	0.540	0.593	0.733	0.757	0.850
12h	0.453	0.663	0.820	0.977	1.127	1.250	1.400	1.600
1d	0.700	1.037	1.240	1.547	1.783	1.983	2.200	2.500
2d	1.163	1.667	2.017	2.483	2.850	3.167	3.533	4.000
3d	1.647	2.343	2.850	3.500	3.933	4.383	4.833	5.533
5d	2.287	3.230	3.913	4.717	5.390	5.960	6.600	7.570
10d	3.490	4.920	5.987	7.180	8.177	8.997	10.350	11.683

APPENDIX E

RUNOFF PEAK FLOW & FLOOD PLAIN CALCULATIONS

Brady-Vineyard HEC-HMS Selected Results



Brady-Vineyard HEC-HMS Selected Results

Global Summary Results for Run "Pre Con-100yr"

Project: Brady Vineyard Simulation Run: Pre Con-100yr

Start of Run: 13Feb2008, 00:00 Basin Model: Dry Creek Trib-Pre Con
End of Run: 14Feb2008, 00:55 Meteorologic Model: Dry Creek 100yr
Compute Time: 28Mar2018, 07:59:03 Control Specifications: 24 hr +

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
DC25B	0.6072	369.0	13Feb2008, 12:40	2.62
DC25E	0.0251	15.3	13Feb2008, 12:10	2.58
YDC25E	0.6323	379.7	13Feb2008, 12:40	2.62
VDC25E	0.6323	379.4	13Feb2008, 12:40	2.62
DC25C	0.0747	99.7	13Feb2008, 12:15	2.79
DC25D	0.0551	53.1	13Feb2008, 12:15	2.44
YDC25D	0.1298	152.8	13Feb2008, 12:15	2.64
VDC25D	0.1298	135.4	13Feb2008, 12:20	2.63
YC25D2	0.7621	480.1	13Feb2008, 12:25	2.62
DC25F-offsite	0.0194	23.6	13Feb2008, 12:10	2.20
DC25F-onsite	0.0087	4.0	13Feb2008, 12:55	2.38
YDC25F	0.7902	499.2	13Feb2008, 12:25	2.61
VDC25F	0.7902	496.7	13Feb2008, 12:30	2.61
DC25G	0.0654	37.3	13Feb2008, 12:25	2.35
YDC25G	0.8556	532.9	13Feb2008, 12:30	2.59
VC25L2	0.8556	511.6	13Feb2008, 12:35	2.58
DC25L-offsite north	0.0110	7.0	13Feb2008, 12:25	2.92
DC25L-offsite south	0.0137	13.6	13Feb2008, 12:20	3.20
DC25L-onsite	0.0457	14.8	13Feb2008, 13:05	2.17
YDC25L	0.9260	541.7	13Feb2008, 12:35	2.58
VDC25L	0.9260	540.7	13Feb2008, 12:35	2.58
DC25N-onsite	0.0044	1.8	13Feb2008, 12:25	2.36
DC25N-offsite	0.0490	25.0	13Feb2008, 12:20	2.39
YDC25N	0.9794	560.5	13Feb2008, 12:35	2.57
VDC25N	0.9794	557.3	13Feb2008, 12:40	2.56
DC25I	0.1728	171.0	13Feb2008, 12:20	3.03
DC25H	0.0681	53.4	13Feb2008, 12:10	2.26
YDC25H	0.2409	210.4	13Feb2008, 12:15	2.81
VDC25H	0.2409	189.2	13Feb2008, 12:30	2.80
YC25H2	1.2203	737.0	13Feb2008, 12:35	2.61
DC25M	0.1384	41.5	13Feb2008, 12:30	2.20
YDC25M	1.3587	777.1	13Feb2008, 12:35	2.57
VDC25M	1.3587	767.6	13Feb2008, 12:40	2.56
DC25K	0.3060	157.5	13Feb2008, 12:35	2.08
YDC25K	1.6647	921.7	13Feb2008, 12:40	2.48
VDC25K	1.6647	868.9	13Feb2008, 12:50	2.47
Outlet	1.6647	868.9	13Feb2008, 12:50	2.47

Brady-Vineyard HEC-HMS Selected Results

Global Summary Results for Run "Post Con-100yr"

Project: Brady Vineyard Simulation Run: Post Con-100yr

Start of Run: 13Feb2008, 00:00
End of Run: 14Feb2008, 00:55
Compute Time: DATA CHANGED, RECOMPUTE

Basin Model: Dry Creek Trib-Post Con
Meteorologic Model: Dry Creek 100yr
Control Specifications: 24 hr +

Show Elements: All Elements Volume Units: IN AC-FT Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
DC25B	0.6072	369.0	13Feb2008, 12:40	2.62
DC25E	0.0251	15.3	13Feb2008, 12:10	2.58
YDC25E	0.6323	379.7	13Feb2008, 12:40	2.62
VDC25E	0.6323	379.4	13Feb2008, 12:40	2.62
DC25C	0.0747	99.7	13Feb2008, 12:15	2.79
DC25D	0.0551	53.1	13Feb2008, 12:15	2.44
YDC25D	0.1298	152.8	13Feb2008, 12:15	2.64
VDC25D	0.1298	135.4	13Feb2008, 12:20	2.63
YC25D2	0.7621	480.1	13Feb2008, 12:25	2.62
DC25F-offsite	0.0194	23.4	13Feb2008, 12:10	1.91
DC25F-onsite	0.0087	9.0	13Feb2008, 12:15	2.85
YDC25F	0.7902	502.7	13Feb2008, 12:25	2.61
VDC25F	0.7902	499.5	13Feb2008, 12:30	2.61
DC25G	0.0654	37.3	13Feb2008, 12:25	2.35
YDC25G	0.8556	535.6	13Feb2008, 12:30	2.59
VC25L2	0.8556	515.4	13Feb2008, 12:35	2.58
DC25L-offsite north	0.0110	7.0	13Feb2008, 12:25	2.92
DC25L-offsite south	0.0137	13.6	13Feb2008, 12:20	3.20
DC25L-onsite	0.0457	51.8	13Feb2008, 12:15	3.49
YDC25L	0.9260	564.7	13Feb2008, 12:30	2.64
VDC25L	0.9260	562.3	13Feb2008, 12:35	2.64
DC25N-onsite	0.0044	5.9	13Feb2008, 12:10	3.51
DC25N-offsite	0.0490	25.0	13Feb2008, 12:20	2.39
YDC25N	0.9794	582.6	13Feb2008, 12:35	2.63
VDC25N	0.9794	581.0	13Feb2008, 12:35	2.63
DC25I	0.1728	171.0	13Feb2008, 12:20	3.03
DC25H	0.0681	53.4	13Feb2008, 12:10	2.26
YDC25H	0.2409	210.4	13Feb2008, 12:15	2.81
VDC25H	0.2409	189.2	13Feb2008, 12:30	2.80
YC25H2	1.2203	762.5	13Feb2008, 12:35	2.66
DC25M	0.1384	41.5	13Feb2008, 12:30	2.20
YDC25M	1.3587	802.6	13Feb2008, 12:35	2.61
VDC25M	1.3587	798.0	13Feb2008, 12:40	2.61
DC25K	0.3060	157.5	13Feb2008, 12:35	2.08
YDC25K	1.6647	952.1	13Feb2008, 12:40	2.51
VDC25K	1.6647	897.4	13Feb2008, 12:45	2.51
Outlet	1.6647	897.4	13Feb2008, 12:45	2.51

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	11061.63	Max WS	Pre100	368.52	134.22	138.66		138.68	0.000402	1.12	328.15	125.77	0.12
Dry Creek Trib	11061.63	Max WS	Post100	368.52	134.22	138.66		138.68	0.000402	1.12	328.15	125.77	0.12
Dry Creek Trib	11061.63	Max WS	Pre100-DC-BFE	368.04	134.22	138.66		138.68	0.000400	1.12	328.19	125.77	0.12
Dry Creek Trib	11061.63	Max WS	Post100-DC-BFE	368.52	134.22	138.66		138.68	0.000401	1.12	328.21	125.78	0.12
Dry Creek Trib	11061.63	Max WS	VY Wide PL	368.52	134.22	138.66		138.68	0.000401	1.12	328.21	125.78	0.12
Dry Creek Trib	11061.63	Max WS	VY Wide Ult	368.52	134.22	138.66		138.68	0.000401	1.12	328.21	125.78	0.12
Dry Creek Trib	11016.93	Max WS	Pre100	368.04	133.48	138.65		138.67	0.000209	0.93	399.52	132.67	0.09
Dry Creek Trib	11016.93	Max WS	Post100	368.41	133.48	138.65		138.67	0.000209	0.93	399.52	132.67	0.09
Dry Creek Trib	11016.93	Max WS	Pre100-DC-BFE	368.04	133.48	138.65		138.67	0.000209	0.93	399.56	132.67	0.09
Dry Creek Trib	11016.93	Max WS	Post100-DC-BFE	368.42	133.48	138.65		138.67	0.000209	0.93	399.59	132.68	0.09
Dry Creek Trib	11016.93	Max WS	VY Wide PL	368.42	133.48	138.65		138.67	0.000209	0.93	399.59	132.68	0.09
Dry Creek Trib	11016.93	Max WS	VY Wide Ult	368.42	133.48	138.65		138.67	0.000209	0.93	399.59	132.68	0.09
Dry Creek Trib	10935.1	Max WS	Pre100	368.03	133.65	138.52		138.63	0.001142	2.67	138.19	170.00	0.22
Dry Creek Trib	10935.1	Max WS	Post100	368.03	133.65	138.52		138.63	0.001142	2.67	138.19	170.00	0.22
Dry Creek Trib	10935.1	Max WS	Pre100-DC-BFE	368.02	133.65	138.52		138.63	0.001142	2.67	138.20	170.01	0.22
Dry Creek Trib	10935.1	Max WS	Post100-DC-BFE	368.17	133.65	138.52		138.63	0.001142	2.67	138.21	170.02	0.22
Dry Creek Trib	10935.1	Max WS	VY Wide PL	368.17	133.65	138.52		138.63	0.001142	2.67	138.21	170.02	0.22
Dry Creek Trib	10935.1	Max WS	VY Wide Ult	368.17	133.65	138.52		138.63	0.001142	2.67	138.21	170.02	0.22
Dry Creek Trib	10910.99			Culvert									
Dry Creek Trib	10886.88	Max WS	Pre100	367.57	132.30	137.73		137.82	0.001164	2.46	182.06	108.63	0.22
Dry Creek Trib	10886.88	Max WS	Post100	367.57	132.30	137.73		137.82	0.001164	2.46	182.06	108.63	0.22
Dry Creek Trib	10886.88	Max WS	Pre100-DC-BFE	367.30	132.30	137.73		137.82	0.001162	2.46	182.05	108.63	0.22
Dry Creek Trib	10886.88	Max WS	Post100-DC-BFE	367.32	132.30	137.73		137.82	0.001162	2.46	182.06	108.63	0.22
Dry Creek Trib	10886.88	Max WS	VY Wide PL	367.62	132.30	137.73		137.82	0.001164	2.46	182.06	108.63	0.22
Dry Creek Trib	10886.88	Max WS	VY Wide Ult	367.62	132.30	137.73		137.82	0.001164	2.46	182.06	108.63	0.22
Dry Creek Trib	10817.21	Max WS	Pre100	367.25	131.78	137.56		137.72	0.002173	3.43	134.88	72.77	0.29
Dry Creek Trib	10817.21	Max WS	Post100	367.25	131.78	137.56		137.72	0.002173	3.43	134.88	72.77	0.29
Dry Creek Trib	10817.21	Max WS	Pre100-DC-BFE	367.28	131.78	137.56		137.72	0.002174	3.43	134.87	72.76	0.29
Dry Creek Trib	10817.21	Max WS	Post100-DC-BFE	367.30	131.78	137.56		137.72	0.002174	3.43	134.87	72.76	0.29
Dry Creek Trib	10817.21	Max WS	VY Wide PL	367.30	131.78	137.56		137.72	0.002174	3.43	134.87	72.76	0.29
Dry Creek Trib	10817.21	Max WS	VY Wide Ult	367.30	131.78	137.56		137.72	0.002174	3.43	134.87	72.76	0.29
Dry Creek Trib	10749.58	Max WS	Pre100	367.75	131.83	137.30		137.52	0.003866	3.78	98.31	192.65	0.38
Dry Creek Trib	10749.58	Max WS	Post100	367.75	131.83	137.30		137.52	0.003866	3.78	98.31	192.65	0.38
Dry Creek Trib	10749.58	Max WS	Pre100-DC-BFE	367.78	131.83	137.30		137.52	0.003867	3.78	98.30	192.64	0.38
Dry Creek Trib	10749.58	Max WS	Post100-DC-BFE	367.79	131.83	137.30		137.52	0.003867	3.79	98.30	192.64	0.38
Dry Creek Trib	10749.58	Max WS	VY Wide PL	367.78	131.83	137.30		137.52	0.003867	3.79	98.30	192.64	0.38
Dry Creek Trib	10749.58	Max WS	VY Wide Ult	367.78	131.83	137.30		137.52	0.003867	3.78	98.30	192.64	0.38
Dry Creek Trib	10681.32	Max WS	Pre100	368.47	131.87	136.91		137.21	0.005430	4.48	88.30	180.31	0.44
Dry Creek Trib	10681.32	Max WS	Post100	368.47	131.87	136.91		137.21	0.005430	4.48	88.30	180.31	0.44
Dry Creek Trib	10681.32	Max WS	Pre100-DC-BFE	368.49	131.87	136.91		137.21	0.005431	4.48	88.30	180.30	0.44
Dry Creek Trib	10681.32	Max WS	Post100-DC-BFE	368.49	131.87	136.91		137.21	0.005431	4.48	88.30	180.30	0.44
Dry Creek Trib	10681.32	Max WS	VY Wide PL	368.49	131.87	136.91		137.21	0.005431	4.48	88.30	180.30	0.44
Dry Creek Trib	10681.32	Max WS	VY Wide Ult	368.49	131.87	136.91		137.21	0.005431	4.48	88.30	180.30	0.44
Dry Creek Trib	10599.74	Max WS	Pre100	369.36	132.28	136.10		136.53	0.011506	5.24	70.47	71.15	0.62
Dry Creek Trib	10599.74	Max WS	Post100	369.36	132.28	136.10		136.53	0.011506	5.24	70.47	71.15	0.62
Dry Creek Trib	10599.74	Max WS	Pre100-DC-BFE	369.37	132.28	136.10		136.53	0.011505	5.24	70.48	71.16	0.62
Dry Creek Trib	10599.74	Max WS	Post100-DC-BFE	369.38	132.28	136.10		136.53	0.011505	5.24	70.48	71.16	0.62
Dry Creek Trib	10599.74	Max WS	VY Wide PL	369.38	132.28	136.10		136.53	0.011505	5.24	70.48	71.16	0.62
Dry Creek Trib	10599.74	Max WS	VY Wide Ult	369.37	132.28	136.10		136.53	0.011505	5.24	70.48	71.16	0.62
Dry Creek Trib	10498.01	Max WS	Pre100	370.52	131.93	135.47		135.69	0.005072	3.87	103.84	90.72	0.43
Dry Creek Trib	10498.01	Max WS	Post100	370.52	131.93	135.47		135.69	0.005072	3.87	103.84	90.72	0.43
Dry Creek Trib	10498.01	Max WS	Pre100-DC-BFE	370.53	131.93	135.47		135.69	0.005073	3.87	103.84	90.72	0.43
Dry Creek Trib	10498.01	Max WS	Post100-DC-BFE	370.54	131.93	135.47		135.69	0.005073	3.87	103.84	90.72	0.43
Dry Creek Trib	10498.01	Max WS	VY Wide PL	370.54	131.93	135.47		135.69	0.005073	3.87	103.84	90.72	0.43
Dry Creek Trib	10498.01	Max WS	VY Wide Ult	370.53	131.93	135.47		135.69	0.005073	3.87	103.84	90.72	0.43
Dry Creek Trib	10420.34	Max WS	Pre100	371.38	131.97	134.97		135.24	0.007529	4.82	115.52	106.82	0.53
Dry Creek Trib	10420.34	Max WS	Post100	371.38	131.97	134.97		135.24	0.007529	4.82	115.52	106.82	0.53
Dry Creek Trib	10420.34	Max WS	Pre100-DC-BFE	371.40	131.97	134.97		135.24	0.007528	4.82	115.53	106.82	0.53
Dry Creek Trib	10420.34	Max WS	Post100-DC-BFE	371.40	131.97	134.97		135.24	0.007528	4.82	115.53	106.82	0.53
Dry Creek Trib	10420.34	Max WS	VY Wide PL	371.40	131.97	134.97		135.24	0.007528	4.82	115.53	106.82	0.53
Dry Creek Trib	10420.34	Max WS	VY Wide Ult	371.40	131.97	134.97		135.24	0.007528	4.82	115.53	106.82	0.53
Dry Creek Trib	10337.8	Max WS	Pre100	372.34	132.26	134.46		134.60	0.007136	3.67	140.54	126.82	0.49
Dry Creek Trib	10337.8	Max WS	Post100	372.34	132.26	134.46		134.60	0.007135	3.67	140.55	126.82	0.49
Dry Creek Trib	10337.8	Max WS	Pre100-DC-BFE	372.35	132.26	134.46		134.60	0.007135	3.67	140.55	126.82	0.49
Dry Creek Trib	10337.8	Max WS	Post100-DC-BFE	372.35	132.26	134.46		134.60	0.007135	3.67	140.55	126.82	0.49
Dry Creek Trib	10337.8	Max WS	VY Wide PL	372.35	132.26	134.46		134.60	0.007135	3.67	140.55	126.82	0.49
Dry Creek Trib	10337.8	Max WS	VY Wide Ult	372.35	132.26	134.46		134.60	0.007135	3.67	140.55	126.82	0.49
Dry Creek Trib	10253.75	Max WS	Pre100	373.30	131.94	133.86		133.97	0.008174	3.09	152.27	161.59	0.49
Dry Creek Trib	10253.75	Max WS	Post100	373.30	131.94	133.86		133.97	0.008174	3.09	152.27	161.59	0.49

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	10253.75	Max WS	Pre100-DC-BFE	373.31	131.94	133.86		133.97	0.008175	3.09	152.27	161.59	0.49
Dry Creek Trib	10253.75	Max WS	Post100-DC-BFE	373.32	131.94	133.86		133.97	0.008175	3.09	152.27	161.59	0.49
Dry Creek Trib	10253.75	Max WS	VY Wide PL	373.32	131.94	133.86		133.97	0.008175	3.09	152.27	161.59	0.49
Dry Creek Trib	10253.75	Max WS	VY Wide Ult	373.31	131.94	133.86		133.97	0.008175	3.09	152.27	161.59	0.49
Dry Creek Trib	10186.61	Max WS	Pre100	374.00	131.56	133.49		133.54	0.003699	2.08	216.08	212.96	0.33
Dry Creek Trib	10186.61	Max WS	Post100	374.00	131.56	133.49		133.54	0.003700	2.08	216.06	212.96	0.33
Dry Creek Trib	10186.61	Max WS	Pre100-DC-BFE	374.00	131.56	133.49		133.54	0.003700	2.08	216.06	212.96	0.33
Dry Creek Trib	10186.61	Max WS	Post100-DC-BFE	374.00	131.56	133.49		133.54	0.003700	2.08	216.06	212.96	0.33
Dry Creek Trib	10186.61	Max WS	VY Wide PL	374.00	131.56	133.49		133.54	0.003700	2.08	216.06	212.96	0.33
Dry Creek Trib	10186.61	Max WS	VY Wide Ult	374.00	131.56	133.49		133.54	0.003701	2.08	216.03	212.95	0.33
Dry Creek Trib	10087.22	Max WS	Pre100	177.51	131.60	133.42		133.43	0.000207	0.57	326.97	200.05	0.08
Dry Creek Trib	10087.22	Max WS	Post100	153.41	131.60	133.41		133.41	0.000159	0.50	323.47	199.56	0.07
Dry Creek Trib	10087.22	Max WS	Pre100-DC-BFE	153.40	131.60	133.41		133.41	0.000159	0.50	323.51	199.57	0.07
Dry Creek Trib	10087.22	Max WS	Post100-DC-BFE	153.41	131.60	133.41		133.41	0.000159	0.50	323.47	199.56	0.07
Dry Creek Trib	10087.22	Max WS	VY Wide PL	153.41	131.60	133.41		133.41	0.000159	0.50	323.47	199.56	0.07
Dry Creek Trib	10087.22	Max WS	VY Wide Ult	153.41	131.60	133.41		133.41	0.000159	0.50	323.47	199.56	0.07
Dry Creek Trib	10016.43	Max WS	Pre100	173.69	130.18	133.40		133.41	0.000183	0.75	262.58	149.08	0.08
Dry Creek Trib	10016.43	Max WS	Post100	135.20	130.18	133.39		133.40	0.000112	0.59	261.98	148.92	0.06
Dry Creek Trib	10016.43	Max WS	Pre100-DC-BFE	135.19	130.18	133.39		133.40	0.000112	0.59	262.01	148.92	0.06
Dry Creek Trib	10016.43	Max WS	Post100-DC-BFE	135.20	130.18	133.39		133.40	0.000112	0.59	261.98	148.92	0.06
Dry Creek Trib	10016.43	Max WS	VY Wide PL	135.20	130.18	133.39		133.40	0.000112	0.59	261.98	148.92	0.06
Dry Creek Trib	10016.43	Max WS	VY Wide Ult	135.20	130.18	133.39		133.40	0.000112	0.59	261.98	148.92	0.06
Dry Creek Trib	9935.11	Max WS	Pre100	105.91	129.44	133.39		133.39	0.000023	0.29	559.66	381.54	0.03
Dry Creek Trib	9935.11	Max WS	Post100	105.93	129.44	133.39		133.39	0.000023	0.29	559.58	381.49	0.03
Dry Creek Trib	9935.11	Max WS	Pre100-DC-BFE	105.91	129.44	133.39		133.39	0.000023	0.29	559.66	381.54	0.03
Dry Creek Trib	9935.11	Max WS	Post100-DC-BFE	105.93	129.44	133.39		133.39	0.000023	0.29	559.58	381.49	0.03
Dry Creek Trib	9935.11	Max WS	VY Wide PL	105.93	129.44	133.39		133.39	0.000023	0.29	559.58	381.49	0.03
Dry Creek Trib	9935.11	Max WS	VY Wide Ult	105.93	129.44	133.39		133.39	0.000023	0.29	559.58	381.49	0.03
Dry Creek Trib	9841.26	Max WS	Pre100	428.97	129.40	133.00		133.04	0.001737	1.90	276.28	166.03	0.24
Dry Creek Trib	9841.26	Max WS	Post100	428.94	129.40	133.00		133.04	0.001738	1.90	276.21	166.01	0.24
Dry Creek Trib	9841.26	Max WS	Pre100-DC-BFE	428.92	129.40	133.00		133.04	0.001738	1.90	276.23	166.02	0.24
Dry Creek Trib	9841.26	Max WS	Post100-DC-BFE	428.93	129.40	133.00		133.04	0.001738	1.90	276.21	166.01	0.24
Dry Creek Trib	9841.26	Max WS	VY Wide PL	428.93	129.40	133.00		133.04	0.001738	1.90	276.20	166.01	0.24
Dry Creek Trib	9841.26	Max WS	VY Wide Ult	428.91	129.40	133.00		133.04	0.001738	1.90	276.20	166.01	0.24
Dry Creek Trib	9764.85	Max WS	Pre100	428.81	129.40	132.89		132.94	0.001002	1.78	272.10	131.93	0.19
Dry Creek Trib	9764.85	Max WS	Post100	428.78	129.40	132.89		132.94	0.001003	1.78	272.04	131.92	0.19
Dry Creek Trib	9764.85	Max WS	Pre100-DC-BFE	428.75	129.40	132.89		132.94	0.001002	1.78	272.06	131.92	0.19
Dry Creek Trib	9764.85	Max WS	Post100-DC-BFE	428.77	129.40	132.89		132.94	0.001003	1.78	272.04	131.92	0.19
Dry Creek Trib	9764.85	Max WS	VY Wide PL	428.77	129.40	132.89		132.94	0.001003	1.78	272.04	131.92	0.19
Dry Creek Trib	9764.85	Max WS	VY Wide Ult	428.76	129.40	132.89		132.94	0.001003	1.78	272.03	131.92	0.19
Dry Creek Trib	9660.93	Max WS	Pre100	430.15	126.73	132.83		132.86	0.000532	1.92	352.28	137.05	0.15
Dry Creek Trib	9660.93	Max WS	Post100	430.07	126.73	132.83		132.86	0.000532	1.92	352.21	137.04	0.15
Dry Creek Trib	9660.93	Max WS	Pre100-DC-BFE	430.00	126.73	132.83		132.86	0.000531	1.92	352.24	137.04	0.15
Dry Creek Trib	9660.93	Max WS	Post100-DC-BFE	430.07	126.73	132.83		132.86	0.000532	1.92	352.21	137.04	0.15
Dry Creek Trib	9660.93	Max WS	VY Wide PL	430.06	126.73	132.83		132.86	0.000532	1.92	352.21	137.04	0.15
Dry Creek Trib	9660.93	Max WS	VY Wide Ult	430.05	126.73	132.83		132.86	0.000532	1.92	352.20	137.04	0.15
Dry Creek Trib	9592.92	Max WS	Pre100	431.14	126.42	132.68		132.79	0.001926	3.20	209.27	129.40	0.28
Dry Creek Trib	9592.92	Max WS	Post100	431.04	126.42	132.68		132.79	0.001926	3.20	209.21	129.34	0.28
Dry Creek Trib	9592.92	Max WS	Pre100-DC-BFE	431.07	126.42	132.68		132.79	0.001926	3.20	209.22	129.35	0.28
Dry Creek Trib	9592.92	Max WS	Post100-DC-BFE	431.04	126.42	132.68		132.79	0.001926	3.20	209.21	129.34	0.28
Dry Creek Trib	9592.92	Max WS	VY Wide PL	431.03	126.42	132.68		132.79	0.001927	3.20	209.19	129.33	0.28
Dry Creek Trib	9592.92	Max WS	VY Wide Ult	431.01	126.42	132.68		132.79	0.001926	3.20	209.19	129.33	0.28
Dry Creek Trib	9534.07	Max WS	Pre100	431.89	126.35	132.62		132.69	0.000983	2.31	263.37	135.26	0.20
Dry Creek Trib	9534.07	Max WS	Post100	431.77	126.35	132.62		132.69	0.000983	2.31	263.30	135.24	0.20
Dry Creek Trib	9534.07	Max WS	Pre100-DC-BFE	431.81	126.35	132.62		132.69	0.000983	2.31	263.32	135.25	0.20
Dry Creek Trib	9534.07	Max WS	Post100-DC-BFE	431.76	126.35	132.62		132.69	0.000983	2.31	263.30	135.24	0.20
Dry Creek Trib	9534.07	Max WS	VY Wide PL	431.75	126.35	132.62		132.69	0.000983	2.31	263.29	135.24	0.20
Dry Creek Trib	9534.07	Max WS	VY Wide Ult	431.74	126.35	132.62		132.69	0.000983	2.31	263.29	135.24	0.20
Dry Creek Trib	9429.91	Max WS	Pre100	433.14	125.97	132.36		132.50	0.003260	3.41	178.72	130.95	0.34
Dry Creek Trib	9429.91	Max WS	Post100	432.98	125.97	132.36		132.50	0.003260	3.41	178.66	130.94	0.34
Dry Creek Trib	9429.91	Max WS	Pre100-DC-BFE	433.06	125.97	132.36		132.50	0.003261	3.41	178.67	130.94	0.34
Dry Creek Trib	9429.91	Max WS	Post100-DC-BFE	432.97	125.97	132.36		132.50	0.003260	3.41	178.66	130.94	0.34
Dry Creek Trib	9429.91	Max WS	VY Wide PL	432.97	125.97	132.36		132.50	0.003260	3.41	178.66	130.94	0.34
Dry Creek Trib	9429.91	Max WS	VY Wide Ult	432.95	125.97	132.36		132.50	0.003261	3.41	178.64	130.94	0.34
Dry Creek Trib	9345.09	Max WS	Pre100	434.13	127.59	132.17		132.27	0.002185	2.63	186.52	168.59	0.28
Dry Creek Trib	9345.09	Max WS	Post100	433.96	127.59	132.17		132.27	0.002185	2.63	186.45	168.55	0.28
Dry Creek Trib	9345.09	Max WS	Pre100-DC-BFE	434.05	127.59	132.17		132.27	0.002186	2.63	186.45	168.55	0.28
Dry Creek Trib	9345.09	Max WS	Post100-DC-BFE	433.95	127.59	132.17		132.27	0.002185	2.63	186.45	168.55	0.28
Dry Creek Trib	9345.09	Max WS	VY Wide PL	433.94	127.59	132.17		132.27	0.002185	2.63	186.45	168.55	0.28
Dry Creek Trib	9345.09	Max WS	VY Wide Ult	433.92	127.59	132.17		132.27	0.002185	2.63	186.43	168.54	0.28

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	9257.01	Max WS	Pre100	435.22	126.10	131.93		132.08	0.002457	3.42	158.75	198.05	0.31
Dry Creek Trib	9257.01	Max WS	Post100	435.01	126.10	131.93		132.08	0.002455	3.42	158.74	198.04	0.31
Dry Creek Trib	9257.01	Max WS	Pre100-DC-BFE	435.12	126.10	131.93		132.08	0.002457	3.42	158.74	198.03	0.31
Dry Creek Trib	9257.01	Max WS	Post100-DC-BFE	435.01	126.10	131.93		132.08	0.002455	3.42	158.74	198.04	0.31
Dry Creek Trib	9257.01	Max WS	VY Wide PL	435.00	126.10	131.93		132.08	0.002455	3.42	158.74	198.04	0.31
Dry Creek Trib	9257.01	Max WS	VY Wide Ult	434.98	126.10	131.93		132.08	0.002455	3.42	158.74	198.03	0.31
Dry Creek Trib	9161.5	Max WS	Pre100	436.34	125.74	131.77		131.87	0.001782	2.81	195.43	97.63	0.26
Dry Creek Trib	9161.5	Max WS	Post100	436.12	125.74	131.77		131.87	0.001781	2.80	195.43	97.63	0.26
Dry Creek Trib	9161.5	Max WS	Pre100-DC-BFE	436.25	125.74	131.77		131.87	0.001782	2.81	195.41	97.63	0.26
Dry Creek Trib	9161.5	Max WS	Post100-DC-BFE	436.15	125.74	131.77		131.87	0.001781	2.80	195.43	97.63	0.26
Dry Creek Trib	9161.5	Max WS	VY Wide PL	436.14	125.74	131.77		131.87	0.001781	2.80	195.43	97.63	0.26
Dry Creek Trib	9161.5	Max WS	VY Wide Ult	436.12	125.74	131.77		131.87	0.001781	2.80	195.42	97.63	0.26
Dry Creek Trib	9090.68	Max WS	Pre100	436.65	125.67	131.56		131.72	0.003559	3.41	160.15	99.99	0.36
Dry Creek Trib	9090.68	Max WS	Post100	436.50	125.67	131.56		131.72	0.003556	3.41	160.16	99.99	0.36
Dry Creek Trib	9090.68	Max WS	Pre100-DC-BFE	436.55	125.67	131.56		131.72	0.003558	3.41	160.13	99.98	0.36
Dry Creek Trib	9090.68	Max WS	Post100-DC-BFE	436.50	125.67	131.56		131.72	0.003555	3.41	160.17	100.00	0.36
Dry Creek Trib	9090.68	Max WS	VY Wide PL	436.49	125.67	131.56		131.72	0.003555	3.41	160.17	100.00	0.36
Dry Creek Trib	9090.68	Max WS	VY Wide Ult	436.47	125.67	131.56		131.72	0.003556	3.41	160.16	99.99	0.36
Dry Creek Trib	8980.6	Max WS	Pre100	436.82	125.80	130.94		131.23	0.006393	4.58	112.31	67.50	0.48
Dry Creek Trib	8980.6	Max WS	Post100	436.89	125.80	130.94		131.23	0.006387	4.58	112.37	67.57	0.48
Dry Creek Trib	8980.6	Max WS	Pre100-DC-BFE	436.74	125.80	130.94		131.23	0.006395	4.58	112.28	67.45	0.48
Dry Creek Trib	8980.6	Max WS	Post100-DC-BFE	436.88	125.80	130.94		131.23	0.006387	4.58	112.37	67.57	0.48
Dry Creek Trib	8980.6	Max WS	VY Wide PL	436.88	125.80	130.94		131.23	0.006388	4.58	112.36	67.56	0.48
Dry Creek Trib	8980.6	Max WS	VY Wide Ult	436.86	125.80	130.94		131.23	0.006387	4.58	112.36	67.56	0.48
Dry Creek Trib	8900.41	Max WS	Pre100	437.14	125.50	130.82		130.85	0.000735	2.06	369.17	204.65	0.18
Dry Creek Trib	8900.41	Max WS	Post100	437.26	125.50	130.82		130.85	0.000734	2.06	369.38	204.78	0.18
Dry Creek Trib	8900.41	Max WS	Pre100-DC-BFE	436.99	125.50	130.82		130.85	0.000734	2.06	369.07	204.59	0.18
Dry Creek Trib	8900.41	Max WS	Post100-DC-BFE	437.25	125.50	130.82		130.85	0.000734	2.06	369.36	204.76	0.18
Dry Creek Trib	8900.41	Max WS	VY Wide PL	437.24	125.50	130.82		130.85	0.000734	2.06	369.36	204.76	0.18
Dry Creek Trib	8900.41	Max WS	VY Wide Ult	437.22	125.50	130.82		130.85	0.000734	2.06	369.34	204.75	0.18
Dry Creek Trib	8840.78	Max WS	Pre100	437.44	125.61	130.20		130.66	0.009672	5.49	79.74	61.94	0.59
Dry Creek Trib	8840.78	Max WS	Post100	437.62	125.61	130.20		130.66	0.009671	5.49	79.77	62.00	0.59
Dry Creek Trib	8840.78	Max WS	Pre100-DC-BFE	437.34	125.61	130.19		130.66	0.009671	5.49	79.73	61.91	0.59
Dry Creek Trib	8840.78	Max WS	Post100-DC-BFE	437.61	125.61	130.20		130.66	0.009671	5.49	79.77	62.00	0.59
Dry Creek Trib	8840.78	Max WS	VY Wide PL	437.61	125.61	130.20		130.66	0.009671	5.49	79.77	62.00	0.59
Dry Creek Trib	8840.78	Max WS	VY Wide Ult	437.59	125.61	130.20		130.66	0.009670	5.49	79.77	62.00	0.59
Dry Creek Trib	8719.42	Max WS	Pre100	437.96	125.78	129.79		129.89	0.002129	2.52	189.65	98.02	0.28
Dry Creek Trib	8719.42	Max WS	Post100	438.23	125.78	129.79		129.89	0.002128	2.52	189.76	98.03	0.28
Dry Creek Trib	8719.42	Max WS	Pre100-DC-BFE	437.84	125.78	129.79		129.89	0.002129	2.52	189.62	98.02	0.28
Dry Creek Trib	8719.42	Max WS	Post100-DC-BFE	438.22	125.78	129.79		129.89	0.002128	2.52	189.75	98.03	0.28
Dry Creek Trib	8719.42	Max WS	VY Wide PL	438.22	125.78	129.79		129.89	0.002128	2.52	189.75	98.03	0.28
Dry Creek Trib	8719.42	Max WS	VY Wide Ult	438.20	125.78	129.79		129.89	0.002128	2.52	189.75	98.03	0.28
Dry Creek Trib	8627.33	Max WS	Pre100	438.36	125.41	129.19		129.44	0.008389	4.77	117.44	65.90	0.54
Dry Creek Trib	8627.33	Max WS	Post100	438.70	125.41	129.19		129.45	0.008391	4.77	117.49	65.92	0.54
Dry Creek Trib	8627.33	Max WS	Pre100-DC-BFE	438.25	125.41	129.19		129.44	0.008387	4.77	117.43	65.90	0.54
Dry Creek Trib	8627.33	Max WS	Post100-DC-BFE	438.67	125.41	129.19		129.45	0.008388	4.77	117.50	65.92	0.54
Dry Creek Trib	8627.33	Max WS	VY Wide PL	438.66	125.41	129.19		129.45	0.008389	4.77	117.49	65.92	0.54
Dry Creek Trib	8627.33	Max WS	VY Wide Ult	438.64	125.41	129.19		129.45	0.008389	4.77	117.49	65.92	0.54
Dry Creek Trib	8563.46	Max WS	Pre100	438.60	124.23	128.89		129.06	0.003440	3.64	144.87	70.02	0.36
Dry Creek Trib	8563.46	Max WS	Post100	439.00	124.23	128.89		129.07	0.003444	3.65	144.92	70.03	0.36
Dry Creek Trib	8563.46	Max WS	Pre100-DC-BFE	438.53	124.23	128.89		129.06	0.003440	3.64	144.86	70.02	0.36
Dry Creek Trib	8563.46	Max WS	Post100-DC-BFE	438.94	124.23	128.89		129.07	0.003443	3.64	144.92	70.03	0.36
Dry Creek Trib	8563.46	Max WS	VY Wide PL	438.93	124.23	128.89		129.07	0.003443	3.64	144.92	70.03	0.36
Dry Creek Trib	8563.46	Max WS	VY Wide Ult	438.92	124.23	128.89		129.07	0.003442	3.64	144.92	70.03	0.36
Dry Creek Trib	8488.69	Max WS	Pre100	438.92	123.59	128.21		128.50	0.011812	5.26	118.28	92.26	0.61
Dry Creek Trib	8488.69	Max WS	Post100	439.32	123.59	128.21		128.50	0.011801	5.26	118.40	92.29	0.61
Dry Creek Trib	8488.69	Max WS	Pre100-DC-BFE	438.83	123.59	128.21		128.50	0.011811	5.26	118.27	92.26	0.61
Dry Creek Trib	8488.69	Max WS	Post100-DC-BFE	439.32	123.59	128.21		128.50	0.011800	5.26	118.40	92.29	0.61
Dry Creek Trib	8488.69	Max WS	VY Wide PL	439.36	123.59	128.21		128.50	0.011800	5.26	118.41	92.29	0.61
Dry Creek Trib	8488.69	Max WS	VY Wide Ult	439.29	123.59	128.21		128.50	0.011799	5.26	118.40	92.29	0.61
Dry Creek Trib	8405.54	Max WS	Pre100	285.82	124.66	127.97		127.98	0.000545	1.02	361.34	239.93	0.13
Dry Creek Trib	8405.54	Max WS	Post100	290.39	124.66	128.00		128.01	0.000526	1.01	369.39	240.78	0.13
Dry Creek Trib	8405.54	Max WS	Pre100-DC-BFE	286.07	124.66	127.97		127.98	0.000542	1.02	362.23	240.03	0.13
Dry Creek Trib	8405.54	Max WS	Post100-DC-BFE	290.39	124.66	128.00		128.01	0.000526	1.01	369.39	240.78	0.13
Dry Creek Trib	8405.54	Max WS	VY Wide PL	290.39	124.66	128.00		128.01	0.000526	1.01	369.39	240.78	0.13
Dry Creek Trib	8405.54	Max WS	VY Wide Ult	290.38	124.66	128.00		128.01	0.000525	1.01	369.42	240.78	0.13
Dry Creek Trib	8349.77	Max WS	Pre100	244.99	124.17	127.96		127.96	0.000064	0.43	820.05	518.33	0.05
Dry Creek Trib	8349.77	Max WS	Post100	250.38	124.17	127.99		127.99	0.000063	0.43	837.72	520.64	0.05
Dry Creek Trib	8349.77	Max WS	Pre100-DC-BFE	245.46	124.17	127.96		127.96	0.000064	0.43	822.02	518.59	0.05

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	8349.77	Max WS	Post100-DC-BFE	250.38	124.17	127.99		127.99	0.000063	0.43	837.72	520.64	0.05
Dry Creek Trib	8349.77	Max WS	VY Wide PL	250.38	124.17	127.99		127.99	0.000063	0.43	837.72	520.64	0.05
Dry Creek Trib	8349.77	Max WS	VY Wide Ult	250.42	124.17	127.99		127.99	0.000063	0.43	837.77	520.65	0.05
Dry Creek Trib	8292.18	Max WS	Pre100	439.46	124.38	127.68		127.71	0.001912	1.79	327.51	335.36	0.25
Dry Creek Trib	8292.18	Max WS	Post100	439.94	124.38	127.68		127.71	0.001904	1.79	328.19	336.15	0.24
Dry Creek Trib	8292.18	Max WS	Pre100-DC-BFE	439.37	124.38	127.68		127.71	0.001913	1.79	327.43	335.27	0.25
Dry Creek Trib	8292.18	Max WS	Post100-DC-BFE	439.96	124.38	127.68		127.71	0.001904	1.79	328.19	336.15	0.24
Dry Creek Trib	8292.18	Max WS	VY Wide PL	439.96	124.38	127.68		127.71	0.001903	1.79	328.26	336.24	0.24
Dry Creek Trib	8292.18	Max WS	VY Wide Ult	439.97	124.38	127.68		127.71	0.001904	1.79	328.19	336.15	0.24
Dry Creek Trib	8220.24	Max WS	Pre100	465.73	122.95	127.42		127.63	0.004183	3.85	139.73	181.08	0.40
Dry Creek Trib	8220.24	Max WS	Post100	466.60	122.95	127.43		127.64	0.004177	3.85	140.00	181.26	0.40
Dry Creek Trib	8220.24	Max WS	Pre100-DC-BFE	465.64	122.95	127.42		127.63	0.004183	3.85	139.70	181.06	0.40
Dry Creek Trib	8220.24	Max WS	Post100-DC-BFE	466.60	122.95	127.43		127.64	0.004177	3.85	140.00	181.26	0.40
Dry Creek Trib	8220.24	Max WS	VY Wide PL	466.61	122.95	127.43		127.64	0.004174	3.85	140.04	181.28	0.40
Dry Creek Trib	8220.24	Max WS	VY Wide Ult	466.63	122.95	127.43		127.64	0.004179	3.85	139.98	181.24	0.40
Dry Creek Trib	8102.71	Max WS	Pre100	465.49	122.75	127.26		127.31	0.000952	2.00	278.70	140.39	0.20
Dry Creek Trib	8102.71	Max WS	Post100	466.35	122.75	127.26		127.32	0.000951	2.00	279.29	140.45	0.20
Dry Creek Trib	8102.71	Max WS	Pre100-DC-BFE	465.40	122.75	127.26		127.31	0.000952	2.00	278.64	140.38	0.20
Dry Creek Trib	8102.71	Max WS	Post100-DC-BFE	466.35	122.75	127.26		127.32	0.000951	2.00	279.29	140.45	0.20
Dry Creek Trib	8102.71	Max WS	VY Wide PL	466.38	122.75	127.26		127.32	0.000950	2.00	279.37	140.46	0.19
Dry Creek Trib	8102.71	Max WS	VY Wide Ult	466.41	122.75	127.26		127.32	0.000951	2.00	279.22	140.44	0.20
Dry Creek Trib	7984.4	Max WS	Pre100	465.27	121.55	127.11		127.18	0.001486	2.64	276.89	157.08	0.24
Dry Creek Trib	7984.4	Max WS	Post100	466.13	121.55	127.12		127.19	0.001481	2.64	277.62	157.21	0.24
Dry Creek Trib	7984.4	Max WS	Pre100-DC-BFE	465.17	121.55	127.11		127.18	0.001486	2.64	276.83	157.07	0.24
Dry Creek Trib	7984.4	Max WS	Post100-DC-BFE	466.13	121.55	127.12		127.19	0.001481	2.64	277.62	157.21	0.24
Dry Creek Trib	7984.4	Max WS	VY Wide PL	466.18	121.55	127.12		127.19	0.001480	2.64	277.71	157.22	0.24
Dry Creek Trib	7984.4	Max WS	VY Wide Ult	466.37	121.55	127.12		127.18	0.001484	2.64	277.49	157.18	0.24
Dry Creek Trib	7877.8	Max WS	Pre100	464.91	121.35	126.89		126.99	0.002378	3.10	232.00	163.29	0.30
Dry Creek Trib	7877.8	Max WS	Post100	465.93	121.35	126.89		127.00	0.002364	3.10	233.00	163.44	0.30
Dry Creek Trib	7877.8	Max WS	Pre100-DC-BFE	464.81	121.35	126.89		126.99	0.002379	3.10	231.94	163.28	0.30
Dry Creek Trib	7877.8	Max WS	Post100-DC-BFE	465.93	121.35	126.89		127.00	0.002364	3.10	233.00	163.44	0.30
Dry Creek Trib	7877.8	Max WS	VY Wide PL	466.01	121.35	126.89		127.00	0.002361	3.09	233.15	163.46	0.30
Dry Creek Trib	7877.8	Max WS	VY Wide Ult	466.18	121.35	126.89		127.00	0.002373	3.10	232.75	163.40	0.30
Dry Creek Trib	7782	Max WS	Pre100	464.56	120.78	126.51		126.74	0.003915	4.20	149.69	104.08	0.38
Dry Creek Trib	7782	Max WS	Post100	465.65	120.78	126.52		126.75	0.003881	4.18	150.74	104.49	0.38
Dry Creek Trib	7782	Max WS	Pre100-DC-BFE	464.47	120.78	126.51		126.74	0.003916	4.20	149.65	104.06	0.38
Dry Creek Trib	7782	Max WS	Post100-DC-BFE	465.65	120.78	126.52		126.75	0.003881	4.18	150.74	104.49	0.38
Dry Creek Trib	7782	Max WS	VY Wide PL	465.88	120.78	126.52		126.75	0.003877	4.18	150.88	104.55	0.38
Dry Creek Trib	7782	Max WS	VY Wide Ult	465.96	120.78	126.51		126.75	0.003908	4.20	150.31	104.32	0.38
Dry Creek Trib	7684.81	Max WS	Pre100	464.36	120.67	126.21		126.41	0.003721	4.11	176.22	145.01	0.38
Dry Creek Trib	7684.81	Max WS	Post100	465.62	120.67	126.23		126.42	0.003644	4.08	178.53	145.47	0.37
Dry Creek Trib	7684.81	Max WS	Pre100-DC-BFE	464.26	120.67	126.21		126.41	0.003723	4.11	176.13	144.99	0.38
Dry Creek Trib	7684.81	Max WS	Post100-DC-BFE	465.62	120.67	126.23		126.42	0.003644	4.08	178.53	145.47	0.37
Dry Creek Trib	7684.81	Max WS	VY Wide PL	465.83	120.67	126.23		126.42	0.003634	4.07	178.83	145.53	0.37
Dry Creek Trib	7684.81	Max WS	VY Wide Ult	465.95	120.67	126.22		126.42	0.003700	4.10	177.31	145.22	0.38
Dry Creek Trib	7588.69	Max WS	Pre100	464.20	120.06	125.27		125.83	0.009777	6.02	77.94	218.26	0.60
Dry Creek Trib	7588.69	Max WS	Post100	465.02	120.06	125.31		125.86	0.009371	5.94	79.13	220.44	0.59
Dry Creek Trib	7588.69	Max WS	Pre100-DC-BFE	464.09	120.06	125.27		125.83	0.009779	6.02	77.92	218.22	0.60
Dry Creek Trib	7588.69	Max WS	Post100-DC-BFE	465.03	120.06	125.31		125.86	0.009369	5.94	79.14	220.45	0.59
Dry Creek Trib	7588.69	Max WS	VY Wide PL	464.88	120.06	125.32		125.86	0.009308	5.93	79.29	220.73	0.59
Dry Creek Trib	7588.69	Max WS	VY Wide Ult	463.96	120.06	125.27		125.83	0.009706	6.00	78.10	218.55	0.60
Dry Creek Trib	7492.13	Max WS	Pre100	490.22	119.00	124.96		125.15	0.003082	3.51	139.94	211.34	0.33
Dry Creek Trib	7492.13	Max WS	Post100	496.96	119.00	125.00		125.19	0.003045	3.52	141.65	213.21	0.32
Dry Creek Trib	7492.13	Max WS	Pre100-DC-BFE	490.10	119.00	124.95		125.15	0.003083	3.51	139.91	211.30	0.33
Dry Creek Trib	7492.13	Max WS	Post100-DC-BFE	496.99	119.00	125.00		125.19	0.003045	3.52	141.66	213.22	0.32
Dry Creek Trib	7492.13	Max WS	VY Wide PL	497.88	119.00	125.00		125.20	0.003043	3.52	141.84	67.42	0.32
Dry Creek Trib	7492.13	Max WS	VY Wide Ult	498.42	119.00	124.76		125.09	0.004316	4.63	107.67	19.56	0.35
Dry Creek Trib	7469.295			Culvert									
Dry Creek Trib	7446.46	Max WS	Pre100	490.19	119.00	124.04		124.46	0.006393	5.15	95.13	23.74	0.45
Dry Creek Trib	7446.46	Max WS	Post100	496.90	119.00	124.06		124.48	0.006495	5.20	95.63	23.87	0.46
Dry Creek Trib	7446.46	Max WS	Pre100-DC-BFE	490.07	119.00	124.04		124.45	0.006392	5.15	95.12	23.74	0.45
Dry Creek Trib	7446.46	Max WS	Post100-DC-BFE	496.92	119.00	124.06		124.48	0.006496	5.20	95.63	23.87	0.46
Dry Creek Trib	7446.46	Max WS	VY Wide PL	497.80	119.00	124.07		124.49	0.006509	5.20	95.70	23.88	0.46
Dry Creek Trib	7446.46	Max WS	VY Wide Ult	498.34	119.00	124.07		124.49	0.006517	5.21	95.74	23.89	0.46
Dry Creek Trib	7346.34	Max WS	Pre100	490.17	117.42	123.92		123.93	0.000115	0.90	541.84	111.43	0.07
Dry Creek Trib	7346.34	Max WS	Post100	496.88	117.42	123.94		123.95	0.000117	0.91	543.91	111.55	0.07
Dry Creek Trib	7346.34	Max WS	Pre100-DC-BFE	490.05	117.42	123.92		123.93	0.000115	0.90	541.80	111.42	0.07
Dry Creek Trib	7346.34	Max WS	Post100-DC-BFE	496.91	117.42	123.94		123.95	0.000117	0.91	543.92	111.55	0.07
Dry Creek Trib	7346.34	Max WS	VY Wide PL	497.79	117.42	123.94		123.95	0.000118	0.91	544.20	111.56	0.07

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	7346.34	Max WS	VY Wide Ult	498.33	117.42	123.94		123.95	0.000118	0.92	544.37	111.57	0.07
Dry Creek Trib	7255.4	Max WS	Pre100	490.97	117.51	123.90		123.92	0.000188	1.16	422.20	94.42	0.09
Dry Creek Trib	7255.4	Max WS	Post100	497.69	117.51	123.91		123.94	0.000191	1.17	423.76	94.83	0.09
Dry Creek Trib	7255.4	Max WS	Pre100-DC-BFE	490.84	117.51	123.90		123.92	0.000188	1.16	422.17	94.41	0.09
Dry Creek Trib	7255.4	Max WS	Post100-DC-BFE	497.72	117.51	123.91		123.94	0.000191	1.17	423.77	94.84	0.09
Dry Creek Trib	7255.4	Max WS	VY Wide PL	498.61	117.51	123.92		123.94	0.000192	1.18	423.98	94.89	0.09
Dry Creek Trib	7255.4	Max WS	VY Wide Ult	499.16	117.51	123.92		123.94	0.000192	1.18	424.10	94.93	0.09
Dry Creek Trib	7164.22	Max WS	Pre100	491.74	118.37	123.06		123.61	0.012909	6.01	88.79	59.99	0.67
Dry Creek Trib	7164.22	Max WS	Post100	498.44	118.37	123.08		123.63	0.012896	6.04	89.89	60.24	0.68
Dry Creek Trib	7164.22	Max WS	Pre100-DC-BFE	491.61	118.37	123.06		123.61	0.012910	6.01	88.77	59.98	0.67
Dry Creek Trib	7164.22	Max WS	Post100-DC-BFE	498.47	118.37	123.08		123.63	0.012895	6.04	89.89	60.24	0.68
Dry Creek Trib	7164.22	Max WS	VY Wide PL	499.41	118.37	123.08		123.64	0.012894	6.04	90.04	60.27	0.68
Dry Creek Trib	7164.22	Max WS	VY Wide Ult	499.90	118.37	123.08		123.64	0.012890	6.04	90.13	60.29	0.68
Dry Creek Trib	7067.14	Max WS	Pre100	492.59	117.76	122.60		122.78	0.003709	4.08	165.11	79.30	0.38
Dry Creek Trib	7067.14	Max WS	Post100	499.31	117.76	122.62		122.81	0.003705	4.09	166.86	79.57	0.38
Dry Creek Trib	7067.14	Max WS	Pre100-DC-BFE	492.43	117.76	122.60		122.78	0.003709	4.08	165.07	79.29	0.38
Dry Creek Trib	7067.14	Max WS	Post100-DC-BFE	499.33	117.76	122.62		122.81	0.003705	4.09	166.87	79.57	0.38
Dry Creek Trib	7067.14	Max WS	VY Wide PL	500.24	117.76	122.62		122.81	0.003703	4.09	167.12	79.61	0.38
Dry Creek Trib	7067.14	Max WS	VY Wide Ult	500.78	117.76	122.62		122.81	0.003703	4.09	167.26	79.63	0.38
Dry Creek Trib	6969.96	Max WS	Pre100	493.42	117.10	122.13		122.38	0.004847	4.03	122.60	44.96	0.42
Dry Creek Trib	6969.96	Max WS	Post100	500.14	117.10	122.15		122.40	0.004888	4.06	123.40	45.25	0.43
Dry Creek Trib	6969.96	Max WS	Pre100-DC-BFE	493.29	117.10	122.13		122.38	0.004847	4.03	122.58	44.95	0.42
Dry Creek Trib	6969.96	Max WS	Post100-DC-BFE	500.17	117.10	122.15		122.40	0.004888	4.06	123.41	45.25	0.43
Dry Creek Trib	6969.96	Max WS	VY Wide PL	501.07	117.10	122.15		122.41	0.004894	4.06	123.52	45.29	0.43
Dry Creek Trib	6969.96	Max WS	VY Wide Ult	501.62	117.10	122.15		122.41	0.004897	4.06	123.58	45.32	0.43
Dry Creek Trib	6844.28	Max WS	Pre100	494.53	117.22	121.84		121.96	0.002016	2.95	199.09	93.62	0.29
Dry Creek Trib	6844.28	Max WS	Post100	501.26	117.22	121.86		121.98	0.002030	2.97	200.63	93.82	0.29
Dry Creek Trib	6844.28	Max WS	Pre100-DC-BFE	494.40	117.22	121.84		121.96	0.002016	2.95	199.06	93.61	0.29
Dry Creek Trib	6844.28	Max WS	Post100-DC-BFE	501.29	117.22	121.86		121.98	0.002030	2.97	200.64	93.82	0.29
Dry Creek Trib	6844.28	Max WS	VY Wide PL	502.21	117.22	121.86		121.98	0.002032	2.97	200.85	93.85	0.29
Dry Creek Trib	6844.28	Max WS	VY Wide Ult	502.76	117.22	121.86		121.98	0.002033	2.97	200.98	93.87	0.29
Dry Creek Trib	6748.04	Max WS	Pre100	495.31	117.62	121.18		121.52	0.008412	5.57	124.01	71.96	0.57
Dry Creek Trib	6748.04	Max WS	Post100	502.04	117.62	121.20		121.54	0.008417	5.60	125.27	72.27	0.57
Dry Creek Trib	6748.04	Max WS	Pre100-DC-BFE	495.19	117.62	121.18		121.52	0.008412	5.57	123.99	71.96	0.57
Dry Creek Trib	6748.04	Max WS	Post100-DC-BFE	502.07	117.62	121.20		121.54	0.008417	5.60	125.28	72.28	0.57
Dry Creek Trib	6748.04	Max WS	VY Wide PL	503.03	117.62	121.20		121.55	0.008418	5.60	125.45	72.32	0.57
Dry Creek Trib	6748.04	Max WS	VY Wide Ult	503.52	117.62	121.20		121.55	0.008416	5.60	125.56	72.35	0.57
Dry Creek Trib	6661.51	Max WS	Pre100	496.07	116.27	120.82		120.98	0.003438	3.54	170.02	85.13	0.36
Dry Creek Trib	6661.51	Max WS	Post100	502.81	116.27	120.84		121.00	0.003445	3.56	171.59	85.47	0.36
Dry Creek Trib	6661.51	Max WS	Pre100-DC-BFE	495.94	116.27	120.82		120.98	0.003437	3.54	169.99	85.13	0.36
Dry Creek Trib	6661.51	Max WS	Post100-DC-BFE	502.84	116.27	120.84		121.00	0.003445	3.56	171.61	85.48	0.36
Dry Creek Trib	6661.51	Max WS	VY Wide PL	503.75	116.27	120.84		121.01	0.003445	3.56	171.82	85.52	0.36
Dry Creek Trib	6661.51	Max WS	VY Wide Ult	504.30	116.27	120.84		121.01	0.003446	3.56	171.95	85.55	0.36
Dry Creek Trib	6593.97	Max WS	Pre100	496.84	116.25	120.39		120.64	0.005926	4.70	140.54	73.32	0.48
Dry Creek Trib	6593.97	Max WS	Post100	503.58	116.25	120.41		120.66	0.005938	4.73	141.85	73.58	0.48
Dry Creek Trib	6593.97	Max WS	Pre100-DC-BFE	496.72	116.25	120.39		120.64	0.005926	4.70	140.52	73.32	0.48
Dry Creek Trib	6593.97	Max WS	Post100-DC-BFE	503.61	116.25	120.41		120.67	0.005937	4.73	141.87	73.58	0.48
Dry Creek Trib	6593.97	Max WS	VY Wide PL	504.52	116.25	120.41		120.67	0.005937	4.73	142.05	73.62	0.48
Dry Creek Trib	6593.97	Max WS	VY Wide Ult	505.07	116.25	120.41		120.67	0.005939	4.73	142.15	73.64	0.48
Dry Creek Trib	6509.43	Max WS	Pre100	497.53	115.84	119.93		120.18	0.005509	4.42	146.52	85.47	0.46
Dry Creek Trib	6509.43	Max WS	Post100	504.27	115.84	119.95		120.20	0.005531	4.44	147.81	85.69	0.46
Dry Creek Trib	6509.43	Max WS	Pre100-DC-BFE	497.41	115.84	119.93		120.18	0.005508	4.42	146.51	85.47	0.46
Dry Creek Trib	6509.43	Max WS	Post100-DC-BFE	504.30	115.84	119.95		120.20	0.005530	4.44	147.83	85.70	0.46
Dry Creek Trib	6509.43	Max WS	VY Wide PL	505.20	115.84	119.95		120.20	0.005532	4.44	148.01	85.73	0.46
Dry Creek Trib	6509.43	Max WS	VY Wide Ult	505.75	115.84	119.95		120.20	0.005533	4.45	148.12	85.75	0.46
Dry Creek Trib	6469.45	Max WS	Pre100	497.81	116.52	119.83		119.97	0.004685	3.70	186.31	114.05	0.41
Dry Creek Trib	6469.45	Max WS	Post100	504.55	116.52	119.85		119.98	0.004681	3.71	188.15	114.51	0.41
Dry Creek Trib	6469.45	Max WS	Pre100-DC-BFE	497.69	116.52	119.83		119.97	0.004683	3.70	186.30	114.05	0.41
Dry Creek Trib	6469.45	Max WS	Post100-DC-BFE	504.57	116.52	119.85		119.98	0.004679	3.71	188.19	114.51	0.41
Dry Creek Trib	6469.45	Max WS	VY Wide PL	505.56	116.52	119.85		119.99	0.004679	3.71	188.45	114.58	0.41
Dry Creek Trib	6469.45	Max WS	VY Wide Ult	506.11	116.52	119.85		119.99	0.004679	3.71	188.60	114.62	0.41
Dry Creek Trib	6351.96	Max WS	Pre100	498.75	114.42	119.36		119.49	0.003910	3.60	198.29	116.35	0.37
Dry Creek Trib	6351.96	Max WS	Post100	505.48	114.42	119.38		119.51	0.003887	3.61	200.51	116.52	0.37
Dry Creek Trib	6351.96	Max WS	Pre100-DC-BFE	498.63	114.42	119.36		119.49	0.003906	3.60	198.32	116.35	0.37
Dry Creek Trib	6351.96	Max WS	Post100-DC-BFE	505.51	114.42	119.38		119.51	0.003884	3.61	200.58	116.53	0.37
Dry Creek Trib	6351.96	Max WS	VY Wide PL	506.42	114.42	119.38		119.51	0.003878	3.61	200.93	116.55	0.37
Dry Creek Trib	6351.96	Max WS	VY Wide Ult	506.96	114.42	119.38		119.51	0.003876	3.61	201.12	116.57	0.37
Dry Creek Trib	6224.9	Max WS	Pre100	499.77	114.45	118.97		119.08	0.002667	3.67	227.47	122.98	0.33
Dry Creek Trib	6224.9	Max WS	Post100	506.51	114.45	118.99		119.11	0.002647	3.67	230.31	123.33	0.33

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	6224.9	Max WS	Pre100-DC-BFE	499.65	114.45	118.97		119.08	0.002662	3.67	227.58	122.99	0.33
Dry Creek Trib	6224.9	Max WS	Post100-DC-BFE	506.54	114.45	119.00		119.11	0.002642	3.67	230.47	123.35	0.33
Dry Creek Trib	6224.9	Max WS	VY Wide PL	507.46	114.45	119.00		119.11	0.002636	3.67	230.94	123.41	0.33
Dry Creek Trib	6224.9	Max WS	VY Wide Ult	508.00	114.45	119.00		119.11	0.002635	3.67	231.18	123.44	0.33
Dry Creek Trib	6159.11	Max WS	Pre100	500.33	114.34	118.84		118.92	0.002059	2.77	251.24	129.76	0.28
Dry Creek Trib	6159.11	Max WS	Post100	507.08	114.34	118.87		118.95	0.002039	2.77	254.38	129.96	0.28
Dry Creek Trib	6159.11	Max WS	Pre100-DC-BFE	500.20	114.34	118.84		118.92	0.002054	2.76	251.39	129.77	0.28
Dry Creek Trib	6159.11	Max WS	Post100-DC-BFE	507.11	114.34	118.87		118.95	0.002035	2.77	254.57	129.97	0.28
Dry Creek Trib	6159.11	Max WS	VY Wide PL	508.06	114.34	118.87		118.95	0.002029	2.76	255.12	130.01	0.28
Dry Creek Trib	6159.11	Max WS	VY Wide Ult	508.59	114.34	118.87		118.95	0.002028	2.76	255.38	130.03	0.28
Dry Creek Trib	6102.92	Max WS	Pre100	500.81	114.47	118.69		118.79	0.002986	3.29	225.51	120.16	0.33
Dry Creek Trib	6102.92	Max WS	Post100	507.57	114.47	118.72		118.81	0.002944	3.29	228.59	120.38	0.33
Dry Creek Trib	6102.92	Max WS	Pre100-DC-BFE	500.68	114.47	118.69		118.79	0.002976	3.29	225.70	120.17	0.33
Dry Creek Trib	6102.92	Max WS	Post100-DC-BFE	507.60	114.47	118.72		118.81	0.002935	3.29	228.82	120.40	0.33
Dry Creek Trib	6102.92	Max WS	VY Wide PL	508.54	114.47	118.72		118.82	0.002925	3.28	229.36	120.43	0.33
Dry Creek Trib	6102.92	Max WS	VY Wide Ult	509.09	114.47	118.73		118.82	0.002922	3.28	229.61	120.45	0.33
Dry Creek Trib	6011.93	Max WS	Pre100	501.53	113.85	118.33		118.49	0.003940	3.99	186.42	110.50	0.39
Dry Creek Trib	6011.93	Max WS	Post100	508.28	113.85	118.36		118.52	0.003856	3.97	189.90	111.00	0.39
Dry Creek Trib	6011.93	Max WS	Pre100-DC-BFE	501.39	113.85	118.33		118.50	0.003919	3.98	186.76	110.55	0.39
Dry Creek Trib	6011.93	Max WS	Post100-DC-BFE	508.31	113.85	118.36		118.53	0.003833	3.96	190.34	111.06	0.39
Dry Creek Trib	6011.93	Max WS	VY Wide PL	509.33	113.85	118.37		118.53	0.003807	3.95	191.13	111.18	0.39
Dry Creek Trib	6011.93	Max WS	VY Wide Ult	509.85	113.85	118.37		118.53	0.003798	3.95	191.45	111.22	0.39
Dry Creek Trib	5902.58	Max WS	Pre100	502.31	115.02	118.00		118.11	0.002849	2.67	197.15	104.05	0.32
Dry Creek Trib	5902.58	Max WS	Post100	509.02	115.02	118.04		118.15	0.002739	2.65	201.49	104.56	0.31
Dry Creek Trib	5902.58	Max WS	Pre100-DC-BFE	502.16	115.02	118.01		118.11	0.002821	2.66	197.75	104.13	0.32
Dry Creek Trib	5902.58	Max WS	Post100-DC-BFE	509.07	115.02	118.05		118.15	0.002710	2.64	202.22	104.65	0.31
Dry Creek Trib	5902.58	Max WS	VY Wide PL	509.88	115.02	118.06		118.16	0.002673	2.63	203.35	104.78	0.31
Dry Creek Trib	5902.58	Max WS	VY Wide Ult	510.36	115.02	118.06		118.17	0.002661	2.63	203.78	104.83	0.31
Dry Creek Trib	5792.84	Max WS	Pre100	502.88	112.78	117.87		117.91	0.000868	2.00	343.61	133.68	0.19
Dry Creek Trib	5792.84	Max WS	Post100	509.51	112.78	117.92		117.96	0.000843	1.98	350.02	134.24	0.18
Dry Creek Trib	5792.84	Max WS	Pre100-DC-BFE	502.71	112.78	117.88		117.92	0.000860	1.99	344.57	133.76	0.18
Dry Creek Trib	5792.84	Max WS	Post100-DC-BFE	509.56	112.78	117.93		117.97	0.000835	1.98	351.17	134.33	0.18
Dry Creek Trib	5792.84	Max WS	VY Wide PL	510.30	112.78	117.94		117.98	0.000825	1.97	352.86	134.48	0.18
Dry Creek Trib	5792.84	Max WS	VY Wide Ult	510.75	112.78	117.95		117.99	0.000822	1.97	353.50	134.54	0.18
Dry Creek Trib	5682.44	Max WS	Pre100	503.82	111.63	117.84		117.85	0.000181	1.01	710.91	248.43	0.09
Dry Creek Trib	5682.44	Max WS	Post100	510.44	111.63	117.89		117.90	0.000176	1.00	723.20	248.80	0.09
Dry Creek Trib	5682.44	Max WS	Pre100-DC-BFE	503.63	111.63	117.85		117.86	0.000179	1.01	712.80	248.49	0.09
Dry Creek Trib	5682.44	Max WS	Post100-DC-BFE	510.50	111.63	117.90		117.91	0.000174	1.00	725.41	248.87	0.09
Dry Creek Trib	5682.44	Max WS	VY Wide PL	511.18	111.63	117.91		117.92	0.000173	1.00	728.67	248.97	0.09
Dry Creek Trib	5682.44	Max WS	VY Wide Ult	511.61	111.63	117.92		117.93	0.000172	0.99	729.89	249.01	0.09
Dry Creek Trib	5618.96	Max WS	Pre100	502.49	110.98	117.65		117.84	0.002995	4.08	168.11	64.57	0.34
Dry Creek Trib	5618.96	Max WS	Post100	508.38	110.98	117.71		117.89	0.002895	4.04	171.62	64.84	0.33
Dry Creek Trib	5618.96	Max WS	Pre100-DC-BFE	502.29	110.98	117.66		117.84	0.002963	4.06	168.71	64.61	0.34
Dry Creek Trib	5618.96	Max WS	Post100-DC-BFE	509.41	110.98	117.72		117.90	0.002874	4.04	172.31	64.89	0.33
Dry Creek Trib	5618.96	Max WS	VY Wide PL	509.01	110.98	117.73		117.91	0.002824	4.01	173.29	64.97	0.33
Dry Creek Trib	5618.96	Max WS	VY Wide Ult	509.05	110.98	117.74		117.91	0.002808	4.00	173.66	64.99	0.33
Dry Creek Trib	5553.77	Max WS	Pre100	577.76	112.80	117.52		117.64	0.001551	2.89	224.79	74.66	0.26
Dry Creek Trib	5553.77	Max WS	Post100	591.65	112.80	117.57		117.69	0.001553	2.92	228.54	75.15	0.26
Dry Creek Trib	5553.77	Max WS	Pre100-DC-BFE	577.56	112.80	117.53		117.65	0.001534	2.88	225.60	74.77	0.25
Dry Creek Trib	5553.77	Max WS	Post100-DC-BFE	591.71	112.80	117.58		117.70	0.001536	2.91	229.45	75.27	0.25
Dry Creek Trib	5553.77	Max WS	VY Wide PL	595.50	112.80	117.59		117.71	0.001537	2.92	230.46	75.40	0.26
Dry Creek Trib	5553.77	Max WS	VY Wide Ult	596.71	112.80	117.60		117.72	0.001536	2.92	230.83	75.45	0.26
Dry Creek Trib	5479.88	Max WS	Pre100	578.30	110.81	117.36		117.50	0.002223	3.02	191.67	58.82	0.29
Dry Creek Trib	5479.88	Max WS	Post100	592.20	110.81	117.41		117.55	0.002250	3.04	194.60	59.52	0.30
Dry Creek Trib	5479.88	Max WS	Pre100-DC-BFE	577.93	110.81	117.37		117.51	0.002200	3.00	192.42	59.00	0.29
Dry Creek Trib	5479.88	Max WS	Post100-DC-BFE	592.25	110.81	117.42		117.56	0.002228	3.03	195.43	59.72	0.30
Dry Creek Trib	5479.88	Max WS	VY Wide PL	595.84	110.81	117.43		117.58	0.002234	3.04	196.23	59.90	0.30
Dry Creek Trib	5479.88	Max WS	VY Wide Ult	597.28	110.81	117.44		117.58	0.002237	3.04	196.52	59.97	0.30
Dry Creek Trib	5423.09	Max WS	Pre100	578.57	111.01	117.28		117.39	0.001705	3.44	245.81	88.48	0.27
Dry Creek Trib	5423.09	Max WS	Post100	592.42	111.01	117.33		117.45	0.001715	3.47	250.23	91.87	0.27
Dry Creek Trib	5423.09	Max WS	Pre100-DC-BFE	578.37	111.01	117.29		117.41	0.001684	3.43	247.04	89.44	0.27
Dry Creek Trib	5423.09	Max WS	Post100-DC-BFE	592.48	111.01	117.34		117.46	0.001694	3.46	251.63	92.92	0.27
Dry Creek Trib	5423.09	Max WS	VY Wide PL	596.27	111.01	117.36		117.47	0.001697	3.47	252.85	93.82	0.27
Dry Creek Trib	5423.09	Max WS	VY Wide Ult	597.71	111.01	117.36		117.48	0.001698	3.47	253.31	94.16	0.27
Dry Creek Trib	5275.52	Max WS	Pre100	579.55	110.57	116.69		116.94	0.004951	4.08	143.09	57.84	0.43
Dry Creek Trib	5275.52	Max WS	Post100	593.38	110.57	116.73		116.99	0.004939	4.11	145.72	59.65	0.43
Dry Creek Trib	5275.52	Max WS	Pre100-DC-BFE	579.34	110.57	116.71		116.97	0.004794	4.03	144.75	59.00	0.42
Dry Creek Trib	5275.52	Max WS	Post100-DC-BFE	593.43	110.57	116.76		117.02	0.004776	4.07	147.48	60.81	0.42
Dry Creek Trib	5275.52	Max WS	VY Wide PL	597.22	110.57	116.77		117.03	0.004771	4.07	148.21	61.29	0.42
Dry Creek Trib	5275.52	Max WS	VY Wide Ult	598.45	110.57	116.78		117.03	0.004766	4.08	148.48	61.46	0.42

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	5185.28	Max WS	Pre100	580.08	111.16	116.42		116.62	0.002718	3.72	182.98	72.61	0.34
Dry Creek Trib	5185.28	Max WS	Post100	593.86	111.16	116.47		116.66	0.002722	3.76	186.20	73.12	0.34
Dry Creek Trib	5185.28	Max WS	Pre100-DC-BFE	579.88	111.16	116.46		116.65	0.002612	3.67	185.76	73.05	0.33
Dry Creek Trib	5185.28	Max WS	Post100-DC-BFE	593.92	111.16	116.51		116.70	0.002621	3.71	189.05	73.92	0.33
Dry Creek Trib	5185.28	Max WS	VY Wide PL	597.72	111.16	116.52		116.71	0.002625	3.72	189.92	74.17	0.33
Dry Creek Trib	5185.28	Max WS	VY Wide Ult	599.15	111.16	116.52		116.72	0.002626	3.72	190.23	74.26	0.33
Dry Creek Trib	5105.36	Max WS	Pre100	580.69	110.83	116.26		116.44	0.001818	3.58	200.57	67.33	0.28
Dry Creek Trib	5105.36	Max WS	Post100	594.48	110.83	116.31		116.48	0.001841	3.62	203.38	67.83	0.28
Dry Creek Trib	5105.36	Max WS	Pre100-DC-BFE	580.48	110.83	116.31		116.48	0.001753	3.54	203.50	67.86	0.28
Dry Creek Trib	5105.36	Max WS	Post100-DC-BFE	594.54	110.83	116.35		116.52	0.001774	3.58	206.44	68.38	0.28
Dry Creek Trib	5105.36	Max WS	VY Wide PL	598.33	110.83	116.36		116.54	0.001780	3.59	207.22	68.52	0.28
Dry Creek Trib	5105.36	Max WS	VY Wide Ult	599.57	110.83	116.37		116.54	0.001782	3.59	207.51	68.57	0.28
Dry Creek Trib	5008.64	Max WS	Pre100	581.40	111.00	116.10		116.25	0.002146	3.37	206.57	80.01	0.30
Dry Creek Trib	5008.64	Max WS	Post100	595.20	111.00	116.14		116.29	0.002158	3.40	209.80	80.34	0.30
Dry Creek Trib	5008.64	Max WS	Pre100-DC-BFE	581.20	111.00	116.15		116.30	0.002033	3.31	210.74	80.44	0.29
Dry Creek Trib	5008.64	Max WS	Post100-DC-BFE	595.26	111.00	116.19		116.34	0.002044	3.34	214.09	80.78	0.29
Dry Creek Trib	5008.64	Max WS	VY Wide PL	598.91	111.00	116.20		116.35	0.002046	3.35	214.99	80.87	0.29
Dry Creek Trib	5008.64	Max WS	VY Wide Ult	600.32	111.00	116.20		116.36	0.002048	3.35	215.31	80.90	0.29
Dry Creek Trib	4899.84	Max WS	Pre100	581.20	110.75	115.37		115.79	0.007287	5.35	122.20	55.30	0.52
Dry Creek Trib	4899.84	Max WS	Post100	594.73	110.75	115.42		115.84	0.007270	5.39	124.59	55.80	0.52
Dry Creek Trib	4899.84	Max WS	Pre100-DC-BFE	581.77	110.75	115.56		115.92	0.005943	5.01	132.51	58.30	0.47
Dry Creek Trib	4899.84	Max WS	Post100-DC-BFE	595.75	110.75	115.59		115.96	0.005982	5.06	134.66	59.00	0.48
Dry Creek Trib	4899.84	Max WS	VY Wide PL	599.56	110.75	115.60		115.97	0.005993	5.07	135.24	59.19	0.48
Dry Creek Trib	4899.84	Max WS	VY Wide Ult	600.77	110.75	115.61		115.98	0.005994	5.08	135.46	59.26	0.48
Dry Creek Trib	4824.44	Max WS	Pre100	581.74	110.92	115.25		115.40	0.002215	3.27	209.12	96.40	0.30
Dry Creek Trib	4824.44	Max WS	Post100	594.93	110.92	115.29		115.44	0.002202	3.28	213.53	97.26	0.30
Dry Creek Trib	4824.44	Max WS	Pre100-DC-BFE	582.32	110.92	115.46		115.59	0.001748	3.02	230.42	99.62	0.27
Dry Creek Trib	4824.44	Max WS	Post100-DC-BFE	596.31	110.92	115.50		115.63	0.001757	3.04	234.32	99.99	0.27
Dry Creek Trib	4824.44	Max WS	VY Wide PL	599.92	110.92	115.51		115.64	0.001759	3.05	235.37	100.09	0.27
Dry Creek Trib	4824.44	Max WS	VY Wide Ult	601.34	110.92	115.52		115.65	0.001760	3.05	235.75	100.12	0.27
Dry Creek Trib	4744.51	Max WS	Pre100	582.05	111.08	115.08		115.21	0.002770	3.23	228.50	109.66	0.33
Dry Creek Trib	4744.51	Max WS	Post100	595.52	111.08	115.13		115.26	0.002711	3.23	233.89	110.14	0.33
Dry Creek Trib	4744.51	Max WS	Pre100-DC-BFE	582.78	111.08	115.34		115.44	0.001958	2.88	257.82	112.27	0.28
Dry Creek Trib	4744.51	Max WS	Post100-DC-BFE	596.74	111.08	115.38		115.48	0.001955	2.90	262.18	112.66	0.28
Dry Creek Trib	4744.51	Max WS	VY Wide PL	600.53	111.08	115.39		115.49	0.001954	2.90	263.36	112.76	0.28
Dry Creek Trib	4744.51	Max WS	VY Wide Ult	601.93	111.08	115.40		115.50	0.001954	2.90	263.79	112.80	0.28
Dry Creek Trib	4647.61	Max WS	Pre100	582.51	109.03	114.89		115.01	0.001400	2.89	236.53	88.58	0.25
Dry Creek Trib	4647.61	Max WS	Post100	595.93	109.03	114.94		115.06	0.001398	2.91	241.00	89.11	0.25
Dry Creek Trib	4647.61	Max WS	Pre100-DC-BFE	583.50	109.03	115.20		115.30	0.001057	2.63	264.68	91.94	0.22
Dry Creek Trib	4647.61	Max WS	Post100-DC-BFE	597.48	109.03	115.24		115.34	0.001072	2.67	268.07	92.34	0.22
Dry Creek Trib	4647.61	Max WS	VY Wide PL	601.25	109.03	115.25		115.35	0.001076	2.68	268.98	92.45	0.22
Dry Creek Trib	4647.61	Max WS	VY Wide Ult	602.62	109.03	115.25		115.35	0.001078	2.68	269.32	92.49	0.22
Dry Creek Trib	4565.34	Max WS	Pre100	583.11	109.08	114.83		114.91	0.001015	2.44	289.60	95.60	0.21
Dry Creek Trib	4565.34	Max WS	Post100	596.54	109.08	114.88		114.96	0.001015	2.46	294.46	96.27	0.21
Dry Creek Trib	4565.34	Max WS	Pre100-DC-BFE	584.11	109.08	115.16		115.22	0.000761	2.22	321.60	99.22	0.18
Dry Creek Trib	4565.34	Max WS	Post100-DC-BFE	598.10	109.08	115.20		115.26	0.000773	2.25	325.20	99.58	0.19
Dry Creek Trib	4565.34	Max WS	VY Wide PL	601.85	109.08	115.20		115.27	0.000777	2.26	326.17	99.67	0.19
Dry Creek Trib	4565.34	Max WS	VY Wide Ult	603.17	109.08	115.21		115.27	0.000778	2.26	326.52	99.71	0.19
Dry Creek Trib	4477.87	Max WS	Pre100	583.74	108.81	114.60		114.78	0.002373	3.74	190.75	67.06	0.32
Dry Creek Trib	4477.87	Max WS	Post100	597.17	108.81	114.65		114.84	0.002370	3.77	194.12	67.47	0.32
Dry Creek Trib	4477.87	Max WS	Pre100-DC-BFE	584.76	108.81	114.99		115.13	0.001682	3.34	217.49	70.83	0.27
Dry Creek Trib	4477.87	Max WS	Post100-DC-BFE	598.77	108.81	115.02		115.17	0.001716	3.39	219.76	71.17	0.28
Dry Creek Trib	4477.87	Max WS	VY Wide PL	602.50	108.81	115.03		115.18	0.001724	3.40	220.37	71.27	0.28
Dry Creek Trib	4477.87	Max WS	VY Wide Ult	603.86	108.81	115.03		115.18	0.001728	3.40	220.59	71.30	0.28
Dry Creek Trib	4378.67	Max WS	Pre100	583.98	108.62	113.92		114.29	0.008085	4.91	119.03	50.14	0.54
Dry Creek Trib	4378.67	Max WS	Post100	597.28	108.62	113.97		114.34	0.008061	4.93	121.37	51.68	0.54
Dry Creek Trib	4378.67	Max WS	Pre100-DC-BFE	585.51	108.62	114.68		114.89	0.003432	3.70	166.65	70.12	0.36
Dry Creek Trib	4378.67	Max WS	Post100-DC-BFE	599.53	108.62	114.71		114.92	0.003501	3.76	168.39	70.51	0.37
Dry Creek Trib	4378.67	Max WS	VY Wide PL	603.26	108.62	114.71		114.93	0.003518	3.77	168.86	70.61	0.37
Dry Creek Trib	4378.67	Max WS	VY Wide Ult	604.59	108.62	114.72		114.93	0.003524	3.78	169.03	70.65	0.37
Dry Creek Trib	4277.98	Max WS	Pre100	584.49	106.96	113.56		113.77	0.002515	3.69	167.47	56.44	0.32
Dry Creek Trib	4277.98	Max WS	Post100	597.74	106.96	113.60		113.82	0.002529	3.72	170.03	56.97	0.32
Dry Creek Trib	4277.98	Max WS	Pre100-DC-BFE	586.27	106.96	114.54		114.66	0.001153	2.88	230.21	73.53	0.22
Dry Creek Trib	4277.98	Max WS	Post100-DC-BFE	600.22	106.96	114.56		114.68	0.001189	2.93	231.77	73.75	0.23
Dry Creek Trib	4277.98	Max WS	VY Wide PL	604.03	106.96	114.56		114.69	0.001199	2.94	232.20	73.81	0.23
Dry Creek Trib	4277.98	Max WS	VY Wide Ult	605.36	106.96	114.57		114.69	0.001202	2.95	232.35	73.83	0.23
Dry Creek Trib	4174.26	Max WS	Pre100	585.02	106.84	113.45		113.56	0.001399	3.34	251.12	80.33	0.25
Dry Creek Trib	4174.26	Max WS	Post100	598.21	106.84	113.49		113.61	0.001423	3.39	254.90	83.66	0.25
Dry Creek Trib	4174.26	Max WS	Pre100-DC-BFE	587.06	106.84	114.50		114.56	0.000638	2.53	348.88	98.96	0.18

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	4174.26	Max WS	Post100-DC-BFE	600.99	106.84	114.52		114.58	0.000659	2.58	350.87	99.19	0.18
Dry Creek Trib	4174.26	Max WS	VY Wide PL	604.83	106.84	114.52		114.59	0.000664	2.59	351.43	99.25	0.18
Dry Creek Trib	4174.26	Max WS	VY Wide Ult	606.16	106.84	114.53		114.59	0.000666	2.60	351.63	99.28	0.18
Dry Creek Trib	4081.21	Max WS	Pre100	585.69	106.93	113.23		113.39	0.002682	3.78	227.57	116.24	0.33
Dry Creek Trib	4081.21	Max WS	Post100	598.89	106.93	113.28		113.44	0.002640	3.78	233.13	117.08	0.33
Dry Creek Trib	4081.21	Max WS	Pre100-DC-BFE	587.63	106.93	114.44		114.50	0.000735	2.35	385.45	146.79	0.18
Dry Creek Trib	4081.21	Max WS	Post100-DC-BFE	601.68	106.93	114.46		114.52	0.000756	2.39	388.22	147.13	0.18
Dry Creek Trib	4081.21	Max WS	VY Wide PL	605.55	106.93	114.47		114.52	0.000762	2.40	388.98	147.23	0.18
Dry Creek Trib	4081.21	Max WS	VY Wide Ult	606.86	106.93	114.47		114.52	0.000764	2.40	389.26	147.26	0.18
Dry Creek Trib	3997.08	Max WS	Pre100	586.13	106.77	112.99		113.17	0.002497	3.43	180.55	70.89	0.32
Dry Creek Trib	3997.08	Max WS	Post100	599.30	106.77	113.04		113.22	0.002496	3.46	183.78	71.39	0.32
Dry Creek Trib	3997.08	Max WS	Pre100-DC-BFE	588.25	106.77	114.36		114.44	0.000725	2.28	315.15	119.13	0.18
Dry Creek Trib	3997.08	Max WS	Post100-DC-BFE	602.31	106.77	114.38		114.45	0.000749	2.33	317.07	119.37	0.18
Dry Creek Trib	3997.08	Max WS	VY Wide PL	605.96	106.77	114.38		114.46	0.000756	2.34	317.61	119.44	0.18
Dry Creek Trib	3997.08	Max WS	VY Wide Ult	607.22	106.77	114.38		114.46	0.000758	2.34	317.80	119.46	0.18
Dry Creek Trib	3926.37	Max WS	Pre100	586.49	107.28	112.65		112.95	0.004459	4.65	148.88	66.10	0.42
Dry Creek Trib	3926.37	Max WS	Post100	599.61	107.28	112.69		113.00	0.004448	4.68	151.76	66.74	0.42
Dry Creek Trib	3926.37	Max WS	Pre100-DC-BFE	588.54	107.28	114.29		114.39	0.001002	2.81	295.63	126.37	0.21
Dry Creek Trib	3926.37	Max WS	Post100-DC-BFE	602.55	107.28	114.31		114.41	0.001037	2.87	297.33	126.62	0.22
Dry Creek Trib	3926.37	Max WS	VY Wide PL	606.13	107.28	114.31		114.41	0.001046	2.88	297.81	126.69	0.22
Dry Creek Trib	3926.37	Max WS	VY Wide Ult	607.34	107.28	114.31		114.41	0.001049	2.88	297.97	126.72	0.22
Dry Creek Trib	3862.49	Max WS	Pre100	586.95	106.46	112.47		112.71	0.002868	4.00	163.48	58.11	0.35
Dry Creek Trib	3862.49	Max WS	Post100	600.07	106.46	112.52		112.76	0.002887	4.04	165.93	58.73	0.35
Dry Creek Trib	3862.49	Max WS	Pre100-DC-BFE	588.68	106.46	114.25		114.33	0.000697	2.50	319.21	126.48	0.18
Dry Creek Trib	3862.49	Max WS	Post100-DC-BFE	602.62	106.46	114.26		114.35	0.000723	2.55	320.70	126.79	0.18
Dry Creek Trib	3862.49	Max WS	VY Wide PL	606.12	106.46	114.26		114.35	0.000730	2.56	321.12	126.87	0.19
Dry Creek Trib	3862.49	Max WS	VY Wide Ult	607.84	106.46	114.26		114.35	0.000733	2.57	321.27	126.90	0.19
Dry Creek Trib	3776.24	Max WS	Pre100	587.56	105.17	112.47		112.53	0.000570	2.03	336.33	108.05	0.16
Dry Creek Trib	3776.24	Max WS	Post100	600.68	105.17	112.51		112.57	0.000576	2.05	341.00	108.93	0.16
Dry Creek Trib	3776.24	Max WS	Pre100-DC-BFE	589.68	105.17	114.25		114.28	0.000163	1.33	559.71	138.00	0.09
Dry Creek Trib	3776.24	Max WS	Post100-DC-BFE	603.74	105.17	114.27		114.29	0.000169	1.36	561.35	138.12	0.09
Dry Creek Trib	3776.24	Max WS	VY Wide PL	607.31	105.17	114.27		114.29	0.000171	1.36	561.81	138.15	0.09
Dry Creek Trib	3776.24	Max WS	VY Wide Ult	608.51	105.17	114.27		114.29	0.000171	1.37	561.99	138.17	0.09
Dry Creek Trib	3690.59	Max WS	Pre100	588.05	105.83	112.22		112.42	0.002461	3.59	168.94	55.43	0.32
Dry Creek Trib	3690.59	Max WS	Post100	601.16	105.83	112.26		112.46	0.002488	3.64	171.09	56.89	0.32
Dry Creek Trib	3690.59	Max WS	Pre100-DC-BFE	589.53	105.83	114.20		114.26	0.000486	2.09	356.31	114.95	0.15
Dry Creek Trib	3690.59	Max WS	Post100-DC-BFE	603.37	105.83	114.21		114.27	0.000505	2.13	357.42	115.08	0.15
Dry Creek Trib	3690.59	Max WS	VY Wide PL	606.78	105.83	114.21		114.27	0.000510	2.14	357.73	115.11	0.15
Dry Creek Trib	3690.59	Max WS	VY Wide Ult	607.86	105.83	114.21		114.27	0.000511	2.15	357.85	115.12	0.16
Dry Creek Trib	3620.21	Max WS	Pre100	588.56	105.63	112.09		112.24	0.002673	3.05	192.90	68.43	0.32
Dry Creek Trib	3620.21	Max WS	Post100	601.67	105.63	112.13		112.28	0.002675	3.08	195.49	68.90	0.32
Dry Creek Trib	3620.21	Max WS	Pre100-DC-BFE	590.06	105.63	114.19		114.22	0.000355	1.60	432.75	135.18	0.13
Dry Creek Trib	3620.21	Max WS	Post100-DC-BFE	603.92	105.63	114.20		114.23	0.000369	1.63	433.99	135.33	0.13
Dry Creek Trib	3620.21	Max WS	VY Wide PL	607.34	105.63	114.20		114.24	0.000373	1.64	434.34	135.38	0.13
Dry Creek Trib	3620.21	Max WS	VY Wide Ult	608.41	105.63	114.20		114.24	0.000374	1.64	434.48	135.39	0.13
Dry Creek Trib	3517.19	Max WS	Pre100	589.20	104.82	111.96		112.05	0.001081	2.43	252.57	78.72	0.21
Dry Creek Trib	3517.19	Max WS	Post100	602.27	104.82	111.99		112.09	0.001095	2.47	255.42	79.34	0.21
Dry Creek Trib	3517.19	Max WS	Pre100-DC-BFE	590.30	104.82	114.16		114.19	0.000222	1.47	463.17	115.07	0.10
Dry Creek Trib	3517.19	Max WS	Post100-DC-BFE	604.02	104.82	114.17		114.20	0.000232	1.50	464.11	115.35	0.11
Dry Creek Trib	3517.19	Max WS	VY Wide PL	607.33	104.82	114.17		114.20	0.000234	1.51	464.37	115.43	0.11
Dry Creek Trib	3517.19	Max WS	VY Wide Ult	608.32	104.82	114.17		114.20	0.000235	1.51	464.46	115.45	0.11
Dry Creek Trib	3426.61	Max WS	Pre100	589.85	105.85	111.81		111.92	0.002041	2.59	232.98	110.94	0.28
Dry Creek Trib	3426.61	Max WS	Post100	602.93	105.85	111.85		111.95	0.002040	2.61	236.98	112.58	0.28
Dry Creek Trib	3426.61	Max WS	Pre100-DC-BFE	590.99	105.85	114.15		114.17	0.000201	1.21	569.48	165.78	0.10
Dry Creek Trib	3426.61	Max WS	Post100-DC-BFE	604.73	105.85	114.16		114.18	0.000209	1.24	570.74	165.86	0.10
Dry Creek Trib	3426.61	Max WS	VY Wide PL	608.05	105.85	114.16		114.18	0.000211	1.25	571.11	165.89	0.10
Dry Creek Trib	3426.61	Max WS	VY Wide Ult	609.04	105.85	114.16		114.18	0.000212	1.25	571.24	165.90	0.10
Dry Creek Trib	3351.95	Max WS	Pre100	590.17	106.47	111.21		111.57	0.009236	4.78	123.37	55.66	0.57
Dry Creek Trib	3351.95	Max WS	Post100	603.19	106.47	111.25		111.61	0.009178	4.80	125.71	56.19	0.57
Dry Creek Trib	3351.95	Max WS	Pre100-DC-BFE	590.89	106.47	114.13		114.15	0.000309	1.47	514.20	171.18	0.12
Dry Creek Trib	3351.95	Max WS	Post100-DC-BFE	603.49	106.47	114.13		114.16	0.000321	1.49	515.35	171.33	0.12
Dry Creek Trib	3351.95	Max WS	VY Wide PL	606.53	106.47	114.14		114.16	0.000324	1.50	515.68	171.37	0.12
Dry Creek Trib	3351.95	Max WS	VY Wide Ult	608.56	106.47	114.14		114.16	0.000325	1.50	515.81	171.39	0.12
Dry Creek Trib	3283.95	Max WS	Pre100	590.52	104.94	111.03		111.18	0.001995	3.12	190.61	57.11	0.28
Dry Creek Trib	3283.95	Max WS	Post100	603.68	104.94	111.08		111.23	0.002008	3.15	193.04	58.12	0.29
Dry Creek Trib	3283.95	Max WS	Pre100-DC-BFE	590.65	104.94	114.12		114.14	0.000162	1.33	597.90	172.78	0.09
Dry Creek Trib	3283.95	Max WS	Post100-DC-BFE	602.90	104.94	114.12		114.14	0.000168	1.35	598.97	172.90	0.09
Dry Creek Trib	3283.95	Max WS	VY Wide PL	607.07	104.94	114.12		114.15	0.000170	1.36	599.28	172.94	0.09
Dry Creek Trib	3283.95	Max WS	VY Wide Ult	607.86	104.94	114.12		114.15	0.000171	1.36	599.39	172.95	0.09

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

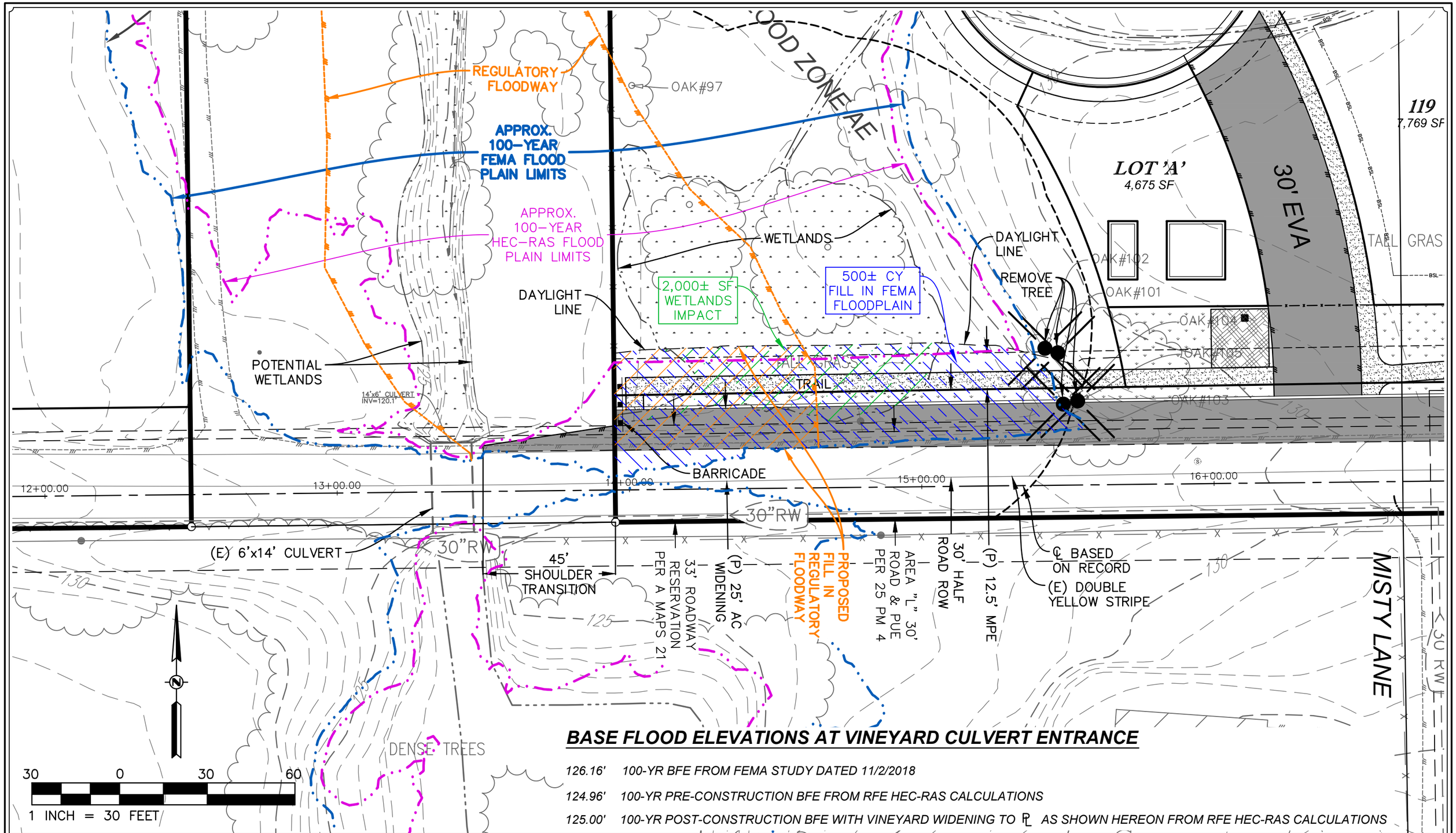
Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	3198.18	Max WS	Pre100	590.98	106.27	110.68		110.89	0.005062	3.68	160.38	68.99	0.43
Dry Creek Trib	3198.18	Max WS	Post100	603.94	106.27	110.72		110.93	0.005056	3.70	163.21	69.71	0.43
Dry Creek Trib	3198.18	Max WS	Pre100-DC-BFE	589.44	106.27	114.10		114.12	0.000227	1.18	511.68	150.21	0.10
Dry Creek Trib	3198.18	Max WS	Post100-DC-BFE	600.87	106.27	114.10		114.13	0.000234	1.20	512.51	152.58	0.10
Dry Creek Trib	3198.18	Max WS	VY Wide PL	603.33	106.27	114.10		114.13	0.000236	1.21	512.75	153.28	0.10
Dry Creek Trib	3198.18	Max WS	VY Wide Ult	605.51	106.27	114.11		114.13	0.000238	1.21	512.84	153.55	0.10
Dry Creek Trib	3093.07	Max WS	Pre100	591.33	104.29	110.12		110.44	0.004032	4.63	138.71	54.61	0.41
Dry Creek Trib	3093.07	Max WS	Post100	604.19	104.29	110.15		110.48	0.004085	4.68	140.56	55.86	0.41
Dry Creek Trib	3093.07	Max WS	Pre100-DC-BFE	580.00	104.29	114.06		114.10	0.000219	1.70	483.53	122.67	0.11
Dry Creek Trib	3093.07	Max WS	Post100-DC-BFE	586.65	104.29	114.07		114.10	0.000223	1.71	484.06	122.76	0.11
Dry Creek Trib	3093.07	Max WS	VY Wide PL	586.77	104.29	114.07		114.10	0.000223	1.71	484.22	122.79	0.11
Dry Creek Trib	3093.07	Max WS	VY Wide Ult	589.14	104.29	114.07		114.11	0.000225	1.72	484.28	122.80	0.11
Dry Creek Trib	2973.97	Max WS	Pre100	591.65	104.33	109.91		110.05	0.002221	3.05	195.84	68.02	0.30
Dry Creek Trib	2973.97	Max WS	Post100	604.41	104.33	109.94		110.09	0.002239	3.09	198.12	68.59	0.30
Dry Creek Trib	2973.97	Max WS	Pre100-DC-BFE	563.33	104.33	114.06		114.07	0.000100	1.12	630.61	159.46	0.07
Dry Creek Trib	2973.97	Max WS	Post100-DC-BFE	584.70	104.33	114.06		114.08	0.000107	1.16	631.23	159.60	0.07
Dry Creek Trib	2973.97	Max WS	VY Wide PL	584.38	104.33	114.06		114.08	0.000107	1.16	631.44	159.65	0.07
Dry Creek Trib	2973.97	Max WS	VY Wide Ult	586.76	104.33	114.06		114.08	0.000108	1.16	631.51	159.66	0.08
Dry Creek Trib	2913.07	Max WS	Pre100	592.10	104.98	109.90		109.95	0.000836	2.25	388.14	157.65	0.19
Dry Creek Trib	2913.07	Max WS	Post100	604.86	104.98	109.93		109.98	0.000840	2.26	393.63	158.26	0.19
Dry Creek Trib	2913.07	Max WS	Pre100-DC-BFE	583.32	104.98	114.06		114.07	0.000035	0.73	1329.43	304.85	0.04
Dry Creek Trib	2913.07	Max WS	Post100-DC-BFE	593.49	104.98	114.07		114.07	0.000036	0.74	1330.65	304.92	0.04
Dry Creek Trib	2913.07	Max WS	VY Wide PL	594.43	104.98	114.07		114.07	0.000036	0.74	1331.05	304.94	0.04
Dry Creek Trib	2913.07	Max WS	VY Wide Ult	596.81	104.98	114.07		114.07	0.000037	0.74	1331.17	304.94	0.05
Dry Creek Trib	2833.94	Max WS	Pre100	592.64	104.72	109.79		109.87	0.001329	2.71	307.06	179.17	0.24
Dry Creek Trib	2833.94	Max WS	Post100	605.40	104.72	109.83		109.91	0.001331	2.73	313.49	183.00	0.24
Dry Creek Trib	2833.94	Max WS	Pre100-DC-BFE	585.67	104.72	114.06		114.06	0.000023	0.58	1694.45	387.53	0.04
Dry Creek Trib	2833.94	Max WS	Post100-DC-BFE	594.15	104.72	114.06		114.07	0.000023	0.58	1695.97	387.58	0.04
Dry Creek Trib	2833.94	Max WS	VY Wide PL	595.09	104.72	114.07		114.07	0.000024	0.59	1696.43	387.60	0.04
Dry Creek Trib	2833.94	Max WS	VY Wide Ult	597.48	104.72	114.07		114.07	0.000024	0.59	1696.62	387.61	0.04
Dry Creek Trib	2749.06	Max WS	Pre100	593.07	104.29	109.57		109.73	0.002300	3.25	195.27	75.34	0.31
Dry Creek Trib	2749.06	Max WS	Post100	605.79	104.29	109.60		109.76	0.002320	3.29	197.76	75.76	0.31
Dry Creek Trib	2749.06	Max WS	Pre100-DC-BFE	550.57	104.29	114.05		114.06	0.000080	1.05	680.57	143.04	0.07
Dry Creek Trib	2749.06	Max WS	Post100-DC-BFE	583.16	104.29	114.05		114.07	0.000089	1.11	681.03	143.11	0.07
Dry Creek Trib	2749.06	Max WS	VY Wide PL	582.36	104.29	114.05		114.07	0.000089	1.11	681.19	143.13	0.07
Dry Creek Trib	2749.06	Max WS	VY Wide Ult	584.75	104.29	114.05		114.07	0.000090	1.11	681.25	143.14	0.07
Dry Creek Trib	2584	Max WS	Pre100	593.59	105.16	109.35		109.44	0.001459	2.51	264.26	100.33	0.24
Dry Creek Trib	2584	Max WS	Post100	606.28	105.16	109.38		109.47	0.001471	2.54	267.53	101.14	0.24
Dry Creek Trib	2584	Max WS	Pre100-DC-BFE	555.37	105.16	114.05		114.05	0.000035	0.70	1081.37	218.46	0.04
Dry Creek Trib	2584	Max WS	Post100-DC-BFE	583.99	105.16	114.05		114.05	0.000039	0.73	1082.07	218.49	0.05
Dry Creek Trib	2584	Max WS	VY Wide PL	586.94	105.16	114.05		114.06	0.000039	0.74	1082.31	218.50	0.05
Dry Creek Trib	2584	Max WS	VY Wide Ult	589.36	105.16	114.05		114.06	0.000039	0.74	1082.38	218.50	0.05
Dry Creek Trib	2510.2	Max WS	Pre100	594.11	103.89	109.23		109.33	0.001506	2.55	257.46	108.23	0.25
Dry Creek Trib	2510.2	Max WS	Post100	606.81	103.89	109.26		109.36	0.001517	2.57	260.85	108.86	0.25
Dry Creek Trib	2510.2	Max WS	Pre100-DC-BFE	552.03	103.89	114.04		114.05	0.000030	0.66	1161.55	242.53	0.04
Dry Creek Trib	2510.2	Max WS	Post100-DC-BFE	584.61	103.89	114.05		114.05	0.000034	0.70	1162.28	242.57	0.04
Dry Creek Trib	2510.2	Max WS	VY Wide PL	587.58	103.89	114.05		114.05	0.000034	0.70	1162.55	242.59	0.04
Dry Creek Trib	2510.2	Max WS	VY Wide Ult	586.21	103.89	114.05		114.05	0.000034	0.70	1162.62	242.59	0.04
Dry Creek Trib	2416.71	Max WS	Pre100	594.65	105.06	108.95		109.10	0.004000	3.52	216.89	131.60	0.38
Dry Creek Trib	2416.71	Max WS	Post100	607.32	105.06	108.98		109.13	0.003947	3.52	221.40	132.40	0.38
Dry Creek Trib	2416.71	Max WS	Pre100-DC-BFE	548.61	105.06	114.04		114.04	0.000030	0.63	1250.48	257.08	0.04
Dry Creek Trib	2416.71	Max WS	Post100-DC-BFE	585.40	105.06	114.04		114.05	0.000035	0.67	1251.23	257.18	0.04
Dry Creek Trib	2416.71	Max WS	VY Wide PL	588.40	105.06	114.04		114.05	0.000035	0.68	1251.49	257.22	0.04
Dry Creek Trib	2416.71	Max WS	VY Wide Ult	587.01	105.06	114.05		114.05	0.000035	0.68	1251.56	257.23	0.04
Dry Creek Trib	2283.78	Max WS	Pre100	595.36	103.67	108.39		108.61	0.003616	3.79	162.94	64.28	0.38
Dry Creek Trib	2283.78	Max WS	Post100	607.98	103.67	108.43		108.65	0.003635	3.83	165.10	65.02	0.38
Dry Creek Trib	2283.78	Max WS	Pre100-DC-BFE	530.29	103.67	114.03		114.04	0.000046	0.84	898.89	199.30	0.05
Dry Creek Trib	2283.78	Max WS	Post100-DC-BFE	571.11	103.67	114.03		114.04	0.000053	0.91	899.23	199.39	0.05
Dry Creek Trib	2283.78	Max WS	VY Wide PL	567.78	103.67	114.03		114.04	0.000052	0.90	899.41	199.44	0.05
Dry Creek Trib	2283.78	Max WS	VY Wide Ult	569.99	103.67	114.03		114.04	0.000053	0.91	899.47	199.46	0.05
Dry Creek Trib	2204.83	Max WS	Pre100	595.92	103.53	108.24		108.38	0.002312	3.10	206.56	80.20	0.30
Dry Creek Trib	2204.83	Max WS	Post100	608.56	103.53	108.27		108.42	0.002322	3.12	209.30	80.64	0.31
Dry Creek Trib	2204.83	Max WS	Pre100-DC-BFE	525.39	103.53	114.03		114.04	0.000035	0.76	911.71	171.85	0.04
Dry Creek Trib	2204.83	Max WS	Post100-DC-BFE	562.72	103.53	114.03		114.04	0.000041	0.82	911.95	171.89	0.05
Dry Creek Trib	2204.83	Max WS	VY Wide PL	563.26	103.53	114.03		114.04	0.000041	0.82	912.10	171.91	0.05
Dry Creek Trib	2204.83	Max WS	VY Wide Ult	565.41	103.53	114.03		114.04	0.000041	0.82	912.14	171.92	0.05
Dry Creek Trib	2121.19	Max WS	Pre100	596.40	103.14	108.12		108.23	0.001484	2.72	243.69	115.68	0.25
Dry Creek Trib	2121.19	Max WS	Post100	609.14	103.14	108.15		108.26	0.001494	2.74	247.61	116.44	0.25
Dry Creek Trib	2121.19	Max WS	Pre100-DC-BFE	537.03	103.14	114.03		114.03	0.000018	0.56	1340.99	229.41	0.03
Dry Creek Trib	2121.19	Max WS	Post100-DC-BFE	572.57	103.14	114.03		114.03	0.000020	0.60	1341.39	229.43	0.03

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	2121.19	Max WS	VY Wide PL	574.19	103.14	114.03		114.04	0.000020	0.60	1341.57	229.45	0.03
Dry Creek Trib	2121.19	Max WS	VY Wide Ult	576.48	103.14	114.03		114.04	0.000020	0.60	1341.61	229.45	0.03
Dry Creek Trib	2047.12	Max WS	Pre100	596.93	102.89	107.83		108.07	0.004250	3.96	160.56	94.10	0.40
Dry Creek Trib	2047.12	Max WS	Post100	609.56	102.89	107.86		108.10	0.004252	3.99	163.83	102.58	0.40
Dry Creek Trib	2047.12	Max WS	Pre100-DC-BFE	537.68	102.89	114.03		114.03	0.000017	0.53	1433.20	254.24	0.03
Dry Creek Trib	2047.12	Max WS	Post100-DC-BFE	573.22	102.89	114.03		114.03	0.000020	0.57	1433.61	254.27	0.03
Dry Creek Trib	2047.12	Max WS	VY Wide PL	574.85	102.89	114.03		114.03	0.000020	0.57	1433.81	254.29	0.03
Dry Creek Trib	2047.12	Max WS	VY Wide Ult	577.14	102.89	114.03		114.03	0.000020	0.57	1433.86	254.29	0.03
Dry Creek Trib	1961.65	Max WS	Pre100	597.45	102.88	107.47		107.71	0.004315	4.07	166.87	90.66	0.41
Dry Creek Trib	1961.65	Max WS	Post100	610.07	102.88	107.51		107.75	0.004273	4.09	170.58	92.65	0.41
Dry Creek Trib	1961.65	Max WS	Pre100-DC-BFE	538.43	102.88	114.03		114.03	0.000014	0.50	1559.54	256.49	0.03
Dry Creek Trib	1961.65	Max WS	Post100-DC-BFE	573.97	102.88	114.03		114.03	0.000016	0.53	1559.93	256.51	0.03
Dry Creek Trib	1961.65	Max WS	VY Wide PL	575.62	102.88	114.03		114.03	0.000016	0.53	1560.13	256.52	0.03
Dry Creek Trib	1961.65	Max WS	VY Wide Ult	572.87	102.88	114.03		114.03	0.000016	0.53	1560.19	256.52	0.03
Dry Creek Trib	1846.6	Max WS	Pre100	598.29	102.72	107.19		107.31	0.002393	2.80	220.87	108.99	0.30
Dry Creek Trib	1846.6	Max WS	Post100	610.91	102.72	107.23		107.35	0.002358	2.81	225.66	111.81	0.30
Dry Creek Trib	1846.6	Max WS	Pre100-DC-BFE	539.45	102.72	114.02		114.03	0.000012	0.46	1541.88	250.68	0.03
Dry Creek Trib	1846.6	Max WS	Post100-DC-BFE	570.53	102.72	114.03		114.03	0.000014	0.49	1542.24	250.70	0.03
Dry Creek Trib	1846.6	Max WS	VY Wide PL	571.67	102.72	114.03		114.03	0.000014	0.49	1542.41	250.71	0.03
Dry Creek Trib	1846.6	Max WS	VY Wide Ult	573.89	102.72	114.03		114.03	0.000014	0.49	1542.46	250.72	0.03
Dry Creek Trib	1760.2	Max WS	Pre100	598.92	102.08	106.99		107.12	0.002112	2.88	210.23	75.09	0.29
Dry Creek Trib	1760.2	Max WS	Post100	611.47	102.08	107.04		107.17	0.002106	2.89	213.54	75.75	0.29
Dry Creek Trib	1760.2	Max WS	Pre100-DC-BFE	523.26	102.08	114.02		114.03	0.000020	0.61	1094.63	183.58	0.03
Dry Creek Trib	1760.2	Max WS	Post100-DC-BFE	561.63	102.08	114.02		114.03	0.000023	0.66	1094.81	183.61	0.04
Dry Creek Trib	1760.2	Max WS	VY Wide PL	561.56	102.08	114.02		114.03	0.000023	0.66	1094.92	183.62	0.04
Dry Creek Trib	1760.2	Max WS	VY Wide Ult	563.64	102.08	114.02		114.03	0.000023	0.66	1094.96	183.62	0.04
Dry Creek Trib	1646.18	Max WS	Pre100	599.65	102.20	106.88		106.94	0.001015	2.03	295.16	93.88	0.20
Dry Creek Trib	1646.18	Max WS	Post100	612.28	102.20	106.93		106.99	0.001011	2.05	299.43	94.12	0.20
Dry Creek Trib	1646.18	Max WS	Pre100-DC-BFE	530.24	102.20	114.02		114.02	0.000010	0.44	1535.84	241.60	0.02
Dry Creek Trib	1646.18	Max WS	Post100-DC-BFE	567.63	102.20	114.02		114.02	0.000011	0.47	1536.09	241.62	0.03
Dry Creek Trib	1646.18	Max WS	VY Wide PL	573.51	102.20	114.02		114.02	0.000011	0.47	1536.23	241.63	0.03
Dry Creek Trib	1646.18	Max WS	VY Wide Ult	570.36	102.20	114.02		114.03	0.000011	0.47	1536.28	241.64	0.03
Dry Creek Trib	1553.96	Max WS	Pre100	599.60	101.85	106.81		106.87	0.000747	2.02	362.12	173.50	0.18
Dry Creek Trib	1553.96	Max WS	Post100	612.26	101.85	106.86		106.92	0.000740	2.03	370.23	174.33	0.18
Dry Creek Trib	1553.96	Max WS	Pre100-DC-BFE	535.89	101.85	114.02		114.02	0.000007	0.38	1919.26	257.79	0.02
Dry Creek Trib	1553.96	Max WS	Post100-DC-BFE	572.34	101.85	114.02		114.02	0.000008	0.41	1919.54	257.81	0.02
Dry Creek Trib	1553.96	Max WS	VY Wide PL	573.50	101.85	114.02		114.02	0.000008	0.41	1919.70	257.81	0.02
Dry Creek Trib	1553.96	Max WS	VY Wide Ult	575.74	101.85	114.02		114.02	0.000008	0.41	1919.72	257.82	0.02
Dry Creek Trib	1451.16	Max WS	Pre100	599.22	101.85	106.67		106.77	0.001360	2.67	271.10	138.51	0.24
Dry Creek Trib	1451.16	Max WS	Post100	611.86	101.85	106.72		106.82	0.001342	2.68	277.99	139.99	0.24
Dry Creek Trib	1451.16	Max WS	Pre100-DC-BFE	535.87	101.85	114.02		114.02	0.000008	0.42	1858.05	276.46	0.02
Dry Creek Trib	1451.16	Max WS	Post100-DC-BFE	567.59	101.85	114.02		114.02	0.000009	0.45	1858.33	276.47	0.02
Dry Creek Trib	1451.16	Max WS	VY Wide PL	573.49	101.85	114.02		114.02	0.000009	0.45	1858.49	276.49	0.02
Dry Creek Trib	1451.16	Max WS	VY Wide Ult	575.72	101.85	114.02		114.02	0.000009	0.45	1858.52	276.49	0.02
Dry Creek Trib	1386.3	Max WS	Pre100	599.20	101.74	106.65		106.70	0.000498	1.73	350.38	89.46	0.15
Dry Creek Trib	1386.3	Max WS	Post100	611.29	101.74	106.70		106.75	0.000499	1.75	354.75	89.85	0.15
Dry Creek Trib	1386.3	Max WS	Pre100-DC-BFE	524.16	101.74	114.02		114.02	0.000010	0.49	1314.25	189.16	0.03
Dry Creek Trib	1386.3	Max WS	Post100-DC-BFE	562.56	101.74	114.02		114.02	0.000012	0.52	1314.40	189.19	0.03
Dry Creek Trib	1386.3	Max WS	VY Wide PL	562.48	101.74	114.02		114.02	0.000012	0.52	1314.50	189.20	0.03
Dry Creek Trib	1386.3	Max WS	VY Wide Ult	564.57	101.74	114.02		114.02	0.000012	0.53	1314.52	189.20	0.03
Dry Creek Trib	1316.1	Max WS	Pre100	684.50	101.72	106.49		106.62	0.001536	2.89	256.07	82.77	0.25
Dry Creek Trib	1316.1	Max WS	Post100	702.83	101.72	106.54		106.67	0.001555	2.93	259.78	83.20	0.26
Dry Creek Trib	1316.1	Max WS	Pre100-DC-BFE	655.98	101.72	114.01		114.02	0.000025	0.74	1169.64	171.12	0.04
Dry Creek Trib	1316.1	Max WS	Post100-DC-BFE	697.52	101.72	114.01		114.02	0.000028	0.79	1169.69	171.12	0.04
Dry Creek Trib	1316.1	Max WS	VY Wide PL	697.18	101.72	114.01		114.02	0.000028	0.79	1169.76	171.13	0.04
Dry Creek Trib	1316.1	Max WS	VY Wide Ult	693.10	101.72	114.01		114.02	0.000028	0.78	1169.77	171.13	0.04
Dry Creek Trib	1251.98	Max WS	Pre100	684.49	102.21	106.37		106.51	0.002007	3.09	239.96	84.36	0.29
Dry Creek Trib	1251.98	Max WS	Post100	702.50	102.21	106.41		106.55	0.002024	3.13	243.60	84.77	0.29
Dry Creek Trib	1251.98	Max WS	Pre100-DC-BFE	643.46	102.21	114.01		114.01	0.000023	0.71	1201.24	184.46	0.04
Dry Creek Trib	1251.98	Max WS	Post100-DC-BFE	687.24	102.21	114.01		114.02	0.000026	0.76	1201.28	184.47	0.04
Dry Creek Trib	1251.98	Max WS	VY Wide PL	697.18	102.21	114.01		114.02	0.000027	0.77	1201.35	184.47	0.04
Dry Creek Trib	1251.98	Max WS	VY Wide Ult	693.07	102.21	114.01		114.02	0.000027	0.77	1201.37	184.48	0.04
Dry Creek Trib	1184.63	Max WS	Pre100	684.46	101.72	106.29		106.39	0.001429	2.59	274.31	91.94	0.24
Dry Creek Trib	1184.63	Max WS	Post100	702.49	101.72	106.33		106.44	0.001443	2.63	278.26	92.46	0.24
Dry Creek Trib	1184.63	Max WS	Pre100-DC-BFE	643.44	101.72	114.01		114.01	0.000018	0.62	1303.68	196.49	0.03
Dry Creek Trib	1184.63	Max WS	Post100-DC-BFE	687.23	101.72	114.01		114.01	0.000020	0.67	1303.72	196.49	0.03
Dry Creek Trib	1184.63	Max WS	VY Wide PL	691.39	101.72	114.01		114.01	0.000020	0.67	1303.78	196.50	0.04
Dry Creek Trib	1184.63	Max WS	VY Wide Ult	693.04	101.72	114.01		114.01	0.000021	0.67	1303.80	196.50	0.04
Dry Creek Trib	1089.34	Max WS	Pre100	684.19	102.51	106.10		106.22	0.002184	2.82	259.28	103.65	0.29

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	1089.34	Max WS	Post100	702.18	102.51	106.15		106.27	0.002182	2.84	263.79	103.96	0.29
Dry Creek Trib	1089.34	Max WS	Pre100-DC-BFE	649.82	102.51	114.01		114.01	0.000017	0.59	1377.11	194.57	0.03
Dry Creek Trib	1089.34	Max WS	Post100-DC-BFE	687.22	102.51	114.01		114.01	0.000019	0.63	1377.12	194.57	0.03
Dry Creek Trib	1089.34	Max WS	VY Wide PL	697.18	102.51	114.01		114.01	0.000019	0.64	1377.16	194.57	0.03
Dry Creek Trib	1089.34	Max WS	VY Wide Ult	693.01	102.51	114.01		114.01	0.000019	0.63	1377.18	194.57	0.03
Dry Creek Trib	995.38	Max WS	Pre100	683.65	101.68	105.80		106.00	0.002691	3.57	196.04	62.84	0.33
Dry Creek Trib	995.38	Max WS	Post100	701.56	101.68	105.84		106.04	0.002733	3.62	198.45	63.22	0.34
Dry Creek Trib	995.38	Max WS	Pre100-DC-BFE	306.33	101.68	114.00		114.00	0.000006	0.37	1077.32	158.24	0.02
Dry Creek Trib	995.38	Max WS	Post100-DC-BFE	315.70	101.68	114.00		114.00	0.000006	0.39	1077.33	158.24	0.02
Dry Creek Trib	995.38	Max WS	VY Wide PL	315.70	101.68	114.00		114.00	0.000006	0.39	1077.33	158.24	0.02
Dry Creek Trib	995.38	Max WS	VY Wide Ult	315.70	101.68	114.00		114.00	0.000006	0.39	1077.33	158.24	0.02
Dry Creek Trib	914.19	Max WS	Pre100	683.62	101.54	105.73		105.84	0.001367	2.74	282.12	96.26	0.24
Dry Creek Trib	914.19	Max WS	Post100	701.55	101.54	105.77		105.88	0.001389	2.78	285.81	96.67	0.24
Dry Creek Trib	914.19	Max WS	Pre100-DC-BFE	306.33	101.54	114.00		114.00	0.000004	0.30	1470.13	222.57	0.01
Dry Creek Trib	914.19	Max WS	Post100-DC-BFE	326.43	101.54	114.00		114.00	0.000004	0.32	1470.15	222.57	0.02
Dry Creek Trib	914.19	Max WS	VY Wide PL	315.70	101.54	114.00		114.00	0.000004	0.31	1470.15	222.57	0.02
Dry Creek Trib	914.19	Max WS	VY Wide Ult	326.44	101.54	114.00		114.00	0.000004	0.32	1470.15	222.57	0.02
Dry Creek Trib	838.37	Max WS	Pre100	683.34	101.53	105.70		105.75	0.000848	1.96	431.95	172.31	0.19
Dry Creek Trib	838.37	Max WS	Post100	701.51	101.53	105.74		105.79	0.000854	1.98	438.61	172.73	0.19
Dry Creek Trib	838.37	Max WS	Pre100-DC-BFE	643.42	101.53	114.00		114.00	0.000007	0.39	2219.54	276.21	0.02
Dry Creek Trib	838.37	Max WS	Post100-DC-BFE	681.77	101.53	114.00		114.00	0.000007	0.42	2219.54	276.21	0.02
Dry Creek Trib	838.37	Max WS	VY Wide PL	691.36	101.53	114.00		114.00	0.000008	0.42	2219.57	276.22	0.02
Dry Creek Trib	838.37	Max WS	VY Wide Ult	693.01	101.53	114.00		114.00	0.000008	0.42	2219.57	276.22	0.02
Dry Creek Trib	755.74	Max WS	Pre100	683.32	101.54	105.64		105.68	0.000776	1.98	447.27	175.37	0.18
Dry Creek Trib	755.74	Max WS	Post100	701.23	101.54	105.67		105.72	0.000783	2.01	453.93	175.91	0.18
Dry Creek Trib	755.74	Max WS	Pre100-DC-BFE	643.41	101.54	114.00		114.00	0.000005	0.34	2850.62	400.41	0.02
Dry Creek Trib	755.74	Max WS	Post100-DC-BFE	687.26	101.54	114.00		114.00	0.000006	0.37	2850.62	400.41	0.02
Dry Creek Trib	755.74	Max WS	VY Wide PL	697.23	101.54	114.00		114.00	0.000006	0.37	2850.66	400.42	0.02
Dry Creek Trib	755.74	Max WS	VY Wide Ult	692.99	101.54	114.00		114.00	0.000006	0.37	2850.66	400.42	0.02
Dry Creek Trib	655.85	Max WS	Pre100	683.28	101.67	105.54		105.60	0.000879	2.10	364.11	128.47	0.19
Dry Creek Trib	655.85	Max WS	Post100	701.21	101.67	105.58		105.64	0.000893	2.13	368.77	129.22	0.19
Dry Creek Trib	655.85	Max WS	Pre100-DC-BFE	636.66	101.67	114.00		114.00	0.000005	0.35	2841.54	483.66	0.02
Dry Creek Trib	655.85	Max WS	Post100-DC-BFE	681.74	101.67	114.00		114.00	0.000006	0.38	2841.54	483.66	0.02
Dry Creek Trib	655.85	Max WS	VY Wide PL	685.24	101.67	114.00		114.00	0.000006	0.38	2841.54	483.66	0.02
Dry Creek Trib	655.85	Max WS	VY Wide Ult	692.98	101.67	114.00		114.00	0.000006	0.39	2841.54	483.66	0.02
Dry Creek Trib	563.63	Max WS	Pre100	683.24	101.75	105.49		105.53	0.000650	1.77	464.90	182.68	0.17
Dry Creek Trib	563.63	Max WS	Post100	701.18	101.75	105.53		105.57	0.000659	1.79	471.47	183.47	0.17
Dry Creek Trib	563.63	Max WS	Pre100-DC-BFE	643.38	101.75	114.00		114.00	0.000004	0.30	3362.42	541.83	0.02
Dry Creek Trib	563.63	Max WS	Post100-DC-BFE	687.25	101.75	114.00		114.00	0.000004	0.32	3362.42	541.83	0.02
Dry Creek Trib	563.63	Max WS	VY Wide PL	697.23	101.75	114.00		114.00	0.000004	0.33	3362.42	541.83	0.02
Dry Creek Trib	563.63	Max WS	VY Wide Ult	699.01	101.75	114.00		114.00	0.000004	0.33	3362.42	541.83	0.02
Dry Creek Trib	466	Max WS	Pre100	683.17	101.78	105.41	103.64	105.45	0.001022	1.99	427.01	194.37	0.20
Dry Creek Trib	466	Max WS	Post100	701.13	101.78	105.44	103.66	105.49	0.001026	2.01	433.96	194.84	0.20
Dry Creek Trib	466	Max WS	Pre100-DC-BFE	16.72	101.78	114.00	102.06	114.00	0.000000	0.01	3336.83	550.90	0.00
Dry Creek Trib	466	Max WS	Post100-DC-BFE	18.17	101.78	114.00	102.07	114.00	0.000000	0.01	3336.83	550.90	0.00
Dry Creek Trib	466	Max WS	VY Wide PL	18.17	101.78	114.00	102.07	114.00	0.000000	0.01	3336.83	550.90	0.00
Dry Creek Trib	466	Max WS	VY Wide Ult	18.17	101.78	114.00	102.07	114.00	0.000000	0.01	3336.83	550.90	0.00



BASE FLOOD ELEVATIONS AT VINEYARD CULVERT ENTRANCE

126.16' 100-YR BFE FROM FEMA STUDY DATED 11/2/2018

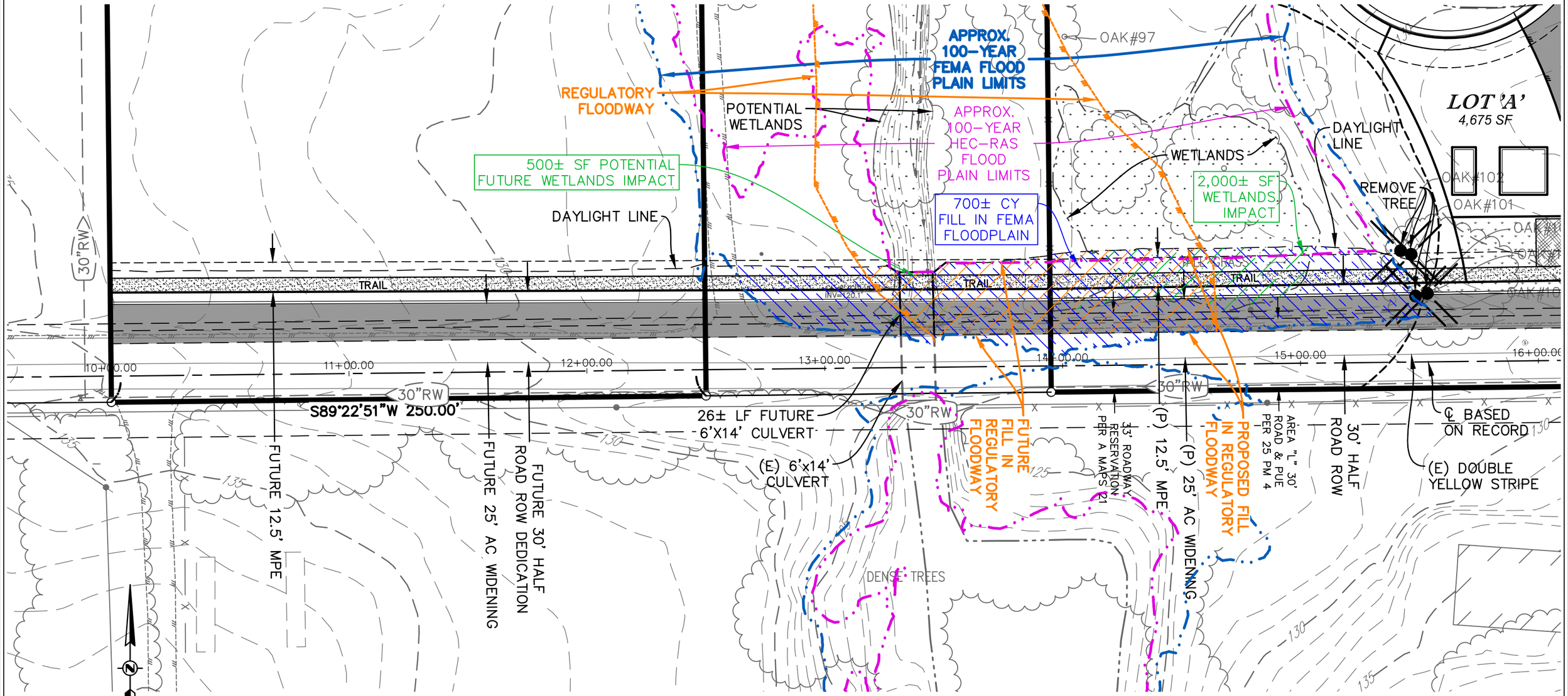
124.96' 100-YR PRE-CONSTRUCTION BFE FROM RFE HEC-RAS CALCULATIONS

125.00' 100-YR POST-CONSTRUCTION BFE WITH VINEYARD WIDENING TO ℙ AS SHOWN HEREON FROM RFE HEC-RAS CALCULATIONS

RFE ENGINEERING, INC
Civil Engineers • Planners • Surveyors
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 Fax: 916-772-7804
www.RFEngineering.com

EXHIBIT 1 - BRADY VINEYARD
VINEYARD ROAD TRANSITION EXHIBIT - FULL WIDTH TO PROPERTY LINE

PLN 17-00019
BRADY VINEYARD SUBDIVISION
PLACER COUNTY, CA
APNs:473-020-002 & 013



40 0 40 80

1 INCH = 40 FEET

BASE FLOOD ELEVATIONS AT VINEYARD CULVERT ENTRANCE

126.16' 100-YR BFE FROM FEMA STUDY DATED 11/2/2018

124.96' 100-YR PRE-CONSTRUCTION BFE FROM RFE HEC-RAS CALCULATIONS

124.76' 100-YR POST-CONSTRUCTION BFE WITH VINEYARD WIDENING TO ADJACENT PARCELS SHOWN HEREON FROM RFE HEC-RAS CALCULATIONS

RFE ENGINEERING, INC
Civil Engineers • Planners • Surveyors
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 Fax: 916-772-7804
www.RFEengineering.com

EXHIBIT 2 - BRADY VINEYARD FUTURE ULTIMATE
VINEYARD ROAD FRONTAGE EXHIBIT - FULL WIDTH TO ADJACENT PARCELS

PLN 17-00019
BRADY VINEYARD SUBDIVISION
PLACER COUNTY, CA
APNs:473-020-002 & 013

APPENDIX F

STORMWATER QUALITY & HYDROMODIFICATION CALCULATIONS

Post-Construction
Storm Water Quality Plan

For:

Brady at Vineyard Subdivision
Placer County

Brady Lane and Vineyard Road
APN473-020-002

Prepared for:

Sukhbir Brar

2351 Sunset Boulevard
Rocklin, CA 95765
(916) 749-0967

Prepared by:

RFE Engineering, Inc.
2260 Douglas Boulevard, Suite 160
Roseville, CA 95661
916-772-7800

Preparation Date: October 24, 2018
Approval Date:_____

Section 1 General Project Information

The undersigned owner of the subject property, is responsible for the implementation of the provisions of this plan, including ongoing operations and maintenance (O&M), consistent with the requirements of the West Placer Storm Water Quality Design Manual and the State of California Phase II Small MS4 General Permit (Order No: 2013-0001-DWQ). If the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement the SWQP.

For all Regulated Projects (As identified in Form 1-2 below), the undersigned owner hereby grants access to all representatives of the Jurisdictional Agency for the sole purpose of performing O&M inspections of the installed treatment system(s) and hydromodification control(s) if any.

A copy of the final signed and fully approved SWQP shall be available on the subject site for the duration of construction and then stored with the project approval documentation and improvement plans in perpetuity.

Form 1-1 Project Identification and Owner's Certification

Project Site Address:	Brady Lane and Vineyard Road	
Owner Name:	Sukhbir Brar	
Title		
Company		
Address	2351 Sunset Boulevard	
City, State, Zip Code	Rocklin, CA 95765	
Email		
Telephone #	(916) 749-0967	
Signature	Date	
Engineer:*	Shawn Somers	PE Stamp* (Required for all Regulated Projects)
Title	Project Engineer	
Company	RFE Engineering, Inc.	
Address	2260 Douglas Boulevard, Suite 160	
City, State, Zip Code	Roseville, CA 95661	
Email	ssomers@rfeengineering.com	
Telephone #	916-772-7800	
Signature		
Brief Description of Project: (Attach additional sheets as necessary)	The project involves the subdivision of the existing 35-acre parcel into 124 residential lots within a gated community. Improvements in common lots include roadways, landscaping and parkways, a decorative gated entrance, multi-purpose trails, recreation areas, and the open space riparian corridor surrounding the creek. The subdivision will be divided into two phases.	

* Not required for Small Projects as determined in Form 1-2 below. Project owners are responsible for ensuring that all storm water facilities are designed by an appropriately licensed and qualified professional.

Form 1-2 Project Category	
Development Category (Select all that apply)	
[1]**Small Project** – All projects, except LUPs, that create and/or replace between 2,500-5,000 ft^2 of impervious surface or detached single family homes that create and/or replace 2,500 ft^2 or more of impervious surface and are not part of a larger plan of development.	
[2]Enter total new and/or replaced impervious surface (ft^2)	
[3]**Regulated Project** – All projects that create and/or replace 5,000 ft^2 or more of impervious surface.	
[4]**Regulated Redevelopment Project** with equal to, or greater than 50 percent increase in impervious area	
[5]**Regulated Redevelopment Project** with less than 50 percent increase in impervious area	
[6]Enter total pre-project impervious surface (ft^2)	
[7]Enter total new and/or replaced impervious surface (ft^2)	
[8]**Regulated Road or linear underground/overhead project (LUP)** creating 5,000 ft^2 or more of newly constructed contiguous impervious surface.	
[9]Enter total new and/or replaced impervious surface (ft^2)	
[10]**Regulated Hydromodification Management Project** – Regulated projects that create and/or replace 1 acre or more of impervious surface. A project that does not increase impervious surface area over the pre-project condition is not a hydromodification management project.	X
[11]Enter total new and/or replaced impervious surface (ft^2)	800,354

Section 3 Regulated Projects

Section 3 forms are to be completed for all Regulated Projects.

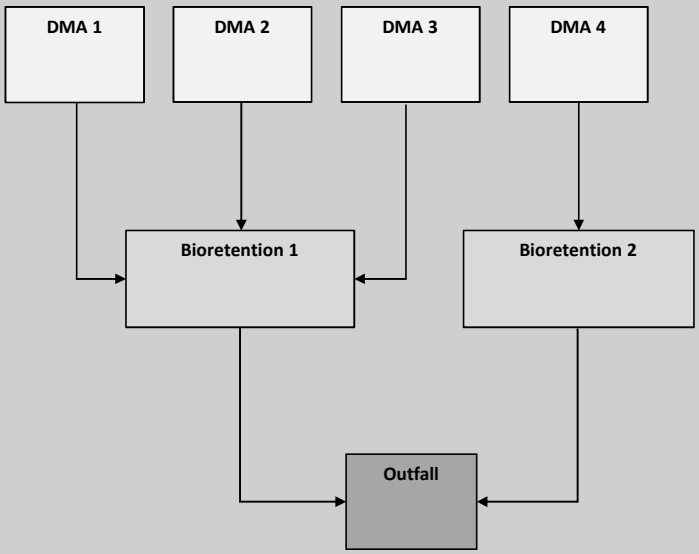
Form 3-1 Site Location and Hydrologic Features

Site coordinates: *Take GPS measurement at approximate center of site*	[1] Latitude	[2] Longitude	[3] Elevation (ft. above sea level)	[4] 85th Percentile, 24 Hour Design Storm Depth (in):
	38.746°	-121.316°	130	0.9

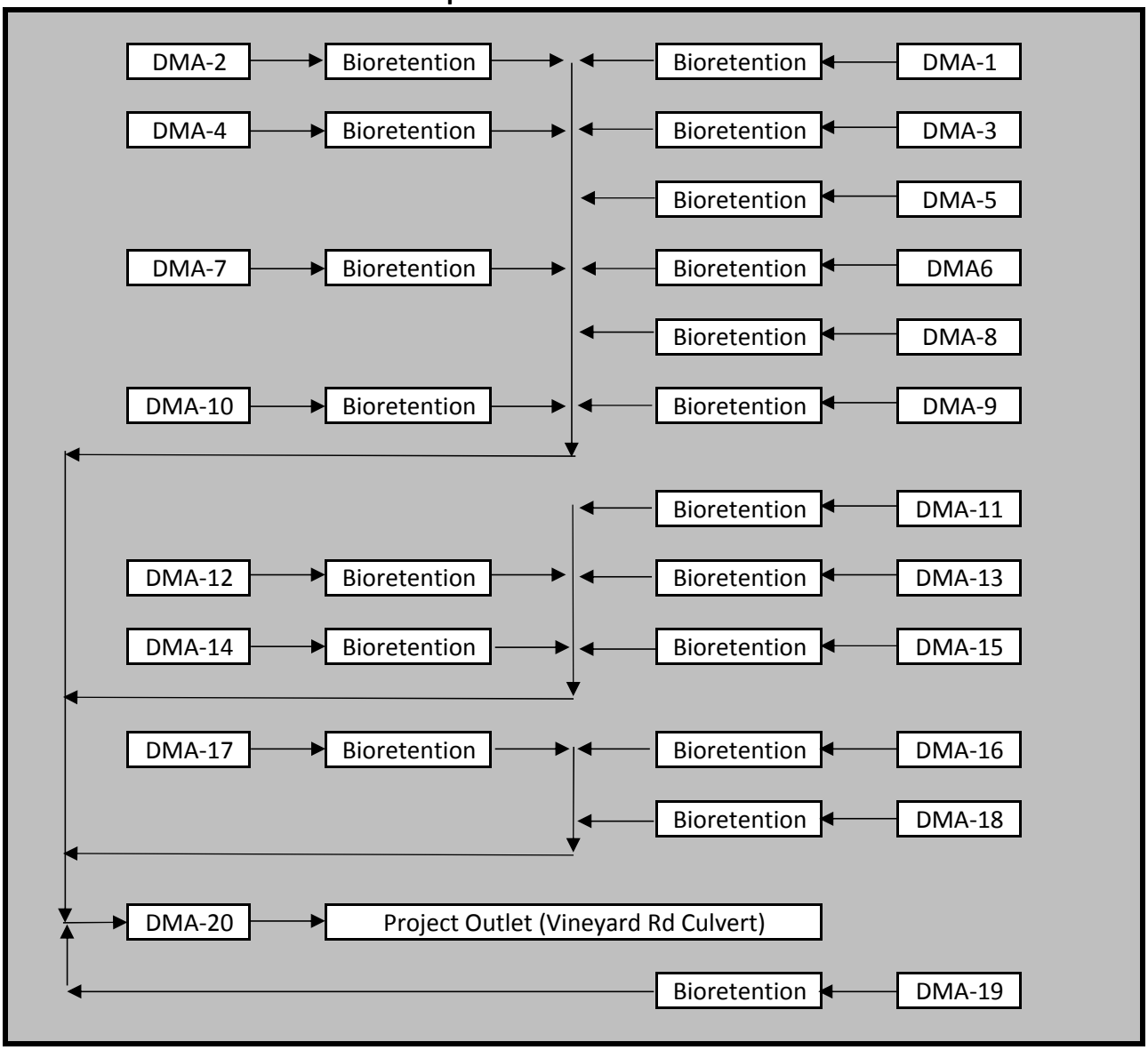
[5] Receiving waters *Name of stream, lake or other downstream waterbody to which the site runoff eventually drains*	Dry Creek
[6] 303(d) listed pollutants of concern *Refer to State Water Resources Control Board website* www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/#impaired	
[7] Is Project going to be phased? *If yes, ensure that the SWQP evaluates each phase with distinct DMAs, requiring LID BMPs to address runoff at time of completion*	Yes

[8] *Use this form to show a conceptual schematic depicting DMAs and conveyance features connecting DMAs to the site outlet(s). An example is provided below that can be modified for the proposed project or a drawing clearly showing DMAs and flow routing may be attached.*

Example only
Modify for project specific SWQP
Use separate sheet if necessary



Conceptual Watershed Schematic



Form 3-2 Site Assessment and Layout Documentation

	Has this Item been considered in the Site Layout and depicted in the Site Plan?	
	Yes	**Not Applicable (Include brief explanation)**
Define the development envelope and protected areas, identifying areas that are most suitable for development areas to be left undisturbed.	X	
Concentrate development on portions of the site with less permeable soils and preserve areas that can promote infiltration.	X	
Limit overall impervious coverage of the site with paving and roofs.	X	
Set back development from creeks, wetlands, and riparian habitats.	X	
Preserve significant trees.	X	
Conform site layout along natural landforms.	X	
Avoid excessive grading and disturbance of vegetation and soils.	X	
Replicate the site's natural drainage patterns.	X	
Detain and retain runoff throughout the site.	X	

Attach a Site Plan that incorporates the applicable considerations above. Ensure that the following items are included in the Site Plan:

Site Boundary
Soil types and areal extents, test pit and infiltration test locations
Topographic data with 1 ft. contours
Existing natural hydrologic features (depressions, watercourses, wetlands, riparian corridors)
Environmentally sensitive areas and areas to be preserved.
Proposed locations and footprints of improvements creating new, or replaced, impervious surfaces
Potential pollutant sources and locations
Entire site divided into separate DMAs with unique identifiers
Existing and proposed site drainage network with flow directions and site run-on and discharge locations
Proposed design features and surface treatments used to minimize imperviousness and reduce runoff
Proposed locations and footprints of treatment and hydromodification management facilities
Design features for managing authorized non-stormwater discharges
Areas of soil and/or groundwater contamination
Existing utilities and easements
Maintenance areas

Form 3-3 Source Control Measures

Potential Pollutant Generating Activity or Source	Check One		Describe the source control measures to be implemented for each potential pollutant generating activity or source present on the project as listed in Appendix C and in the CASQA Fact Sheets. Include any special features, materials, or methods of construction that will be used.
	Present	Not Applicable	
Accidental spills or leaks	☐	☑	
Interior floor drains	☐	☑	
Parking/storage areas and maintenance	☑	☐	CASQA SC-43 - HOA-directed maintenance and cleanup of common areas.
Indoor and structural pest control	☐	☑	
Pools, spas, ponds, decorative fountains, and other water features	☐	☑	
Landscape/outdoor pesticide use	☑	☐	CASQA SD-10 - HOA-directed maintenance and cleanup of common areas.
Restaurants, grocery stores, and other food service operations	☐	☑	
Refuse areas	☐	☑	
Industrial Processes	☐	☑	
Outdoor storage of equipment or materials	☐	☑	
Vehicle and equipment cleaning	☐	☑	
Vehicle and equipment repair and maintenance	☐	☑	
Fuel dispensing areas	☐	☑	
Loading docks	☐	☑	
Fire sprinkler test water	☐	☑	
Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources	☐	☑	
Unauthorized non-storm water discharges	☐	☑	
Building and grounds maintenance	☑	☐	CASQA SD-10 - HOA-directed maintenance and cleanup of common areas.

The source control measures identified in this table shall be designed consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment[1], or from another equivalent manual.

[1] California Stormwater BMP Handbook New Development and Redevelopment. California Stormwater Quality Association (CASQA). January 2003.

Form 3-4 Runoff Reduction Calculator for Site Design Measures on Regulated Projects

		[1]DMA ID No.	1		2		3		4	
Site Design Measure	**Runoff Reduction Parameters**			**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**
[2] Adjacent/On-Site Stream Setbacks and Buffers	A_{imp} (ft^2)	*impervious drainage area*		0		0		0		0
	V_{85} (in)	*runoff volume from 85th percentile, 24-hour storm*	0.8		0.8		0.8		0.8	
[3] Soil Quality Improvement and Maintenance	A_{pond} (ft^2)	*ponding area*		0		0		0		
	D_{pond} (ft)	*ponding depth*								
	A_{sa} (ft^2)	*soil amendment area*								
	D_{sa} (ft)	*depth of amended soil*								
	n	*porosity of amended soil*								
[4] Tree Planting and Preservation	n_e	*number of new evergreen trees*		0		0		0		0
	n_d	*number of new deciduous trees*								
	A_{tc} (ft^2)	*canopy area of existing trees to remain on the property*								
	V_{85} (in)	*runoff volume from 85th percentile, 24-hour storm*	0.8		0.8		0.8		0.8	
[5] Rooftop and Impervious Area Disconnection	A_{imp} (ft^2)	*impervious drainage area*	2,400	162	36,034	2432	26,110	1762	4,232	286
	V_{85} (in)	*runoff volume from 85th percentile, 24-hour storm*	0.8		0.8		0.8		0.8	
[6] Porous Pavement	A_{res} (ft^2)	*area of gravel storage layer*		0		0		0		0
	D_{res} (ft)	*depth of gravel storage layer*								
	n_{agg}	*porosity of aggregate*								
	C	*efficiency factor*								
[7] Vegetated Swales	A_{imp} (ft^2)	*impervious drainage area*	0	0		0		0		0
	V_{85} (in)	*runoff volume from 85th percentile, 24-hour storm*	0.8		0.8		0.8		0.8	
[8] Rain Barrels and Cisterns	N	*number of rain barrels and/or cisterns*		0		0		0		0
	V_a (ft^3)	*volume of each rain barrel and/or cistern*								
[9] Do all Site Design Measures meet the design requirements outlined in the Fact Sheets?					Yes	X	No			
[10] Total Volume Reduction (ft^3)			**162**		**2432**		**1762**		**286**	
[11] Effective Treated Impervious Area (ft^2)			**2160**		**32431**		**23499**		**3808**	

Form 3-4 Runoff Reduction Calculator for Site Design Measures on Regulated Projects

DMA ID No.	5		6		7		8		9		10		11		12	
Runoff Reduction Parameters		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**
impervious drainage area		0		0		0		0		0		0		0		0
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
ponding area		0		0		0		0		0		0		0		0
ponding depth																
soil amendment area																
depth of amended soil																
porosity of amended soil																
number of new evergreen trees		0		0		0		0		0		0		0		0
number of new deciduous trees																
canopy area of existing trees to remain on the property																
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
impervious drainage area	27,265	1840	29,145	1967	23,149	1563	27,874	1881	43,841	2959	23,373	1578	-	0	-	0
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
area of gravel storage layer		0		0		0		0		0		0		0		0
depth of gravel storage layer																
porosity of aggregate																
efficiency factor																
impervious drainage area		0		0		0		0		0		0		0		0
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
number of rain barrels and/or cisterns		0		0		0		0		0		0		0		0
volume of each rain barrel and/or cistern																
Total Volume Reduction	**1840**		**1967**		**1563**		**1881**		**2959**		**1578**		**0**		**0**	
Effective Treated Impervious Area	**24538**		**26230**		**20834**		**25087**		**39456**		**21036**		**0**		**0**	

Form 3-4 Runoff Reduction Calculator for Site Design Measures on Regulated Projects

DMA ID No.	13		14		15		16		17		18		19		20	
Runoff Reduction Parameters		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**		**Runoff Reduction (ft^3)**
impervious drainage area		0		0		0		0		0		0		0		0
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
ponding area		0		0		0		0		0		0		0		0
ponding depth																
soil amendment area																
depth of amended soil																
porosity of amended soil																
number of new evergreen trees		0		0		0		0		0		0		0		0
number of new deciduous trees																
canopy area of existing trees to remain on the property																
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
impervious drainage area	10,190	688	43,198	2916	40,936	2763	-	0	46,204	3119	62,641	4228	36,601	2471	14,760	996
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
area of gravel storage layer		0		0		0		0		0		0		0		0
depth of gravel storage layer																
porosity of aggregate																
efficiency factor																
impervious drainage area		0		0		0		0		0		0		0		0
runoff volume from 85th percentile, 24-hour storm	0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.8	
number of rain barrels and/or cisterns		0		0		0		0		0		0		0		0
volume of each rain barrel and/or cistern																
Total Volume Reduction	**688**		**2916**		**2763**		**0**		**3119**		**4228**		**2471**		**996**	
Effective Treated Impervious Area	**9171**		**38878**		**36842**		**0**		**41584**		**56377**		**32941**		**13284**	

Form 3-5 Computation of Water Quality Design Criteria for Stormw

DMA ID No.	1	2	3	4	5	6	7	8	9
[1]Total impervious area requiring treatment	10,621	45,834	39,708	9,884	36,066	43,339	31,393	41,770	62,465
[2] Impervious area untreated by Site Design Measures (ft^2) *Item 1 – Form 3-4 Item 11*	8461	13403	16209	6075	11527	17108	10559	16683	23008
[3]Additional pervious area draining to BMP (ft^2)	7,012	19,403	14,059	2,279	14,681	15,694	12,466	15,010	23,607
[4] Composite DMA Runoff Coefficient (Rc) *Enter area weighted composite runoff coefficient representing entire DMA*	0.59	0.47	0.58	0.75	0.50	0.57	0.51	0.57	0.54
[5] Water Quality Volume (WQV) (ft^3) *WQV = 1/12 * [Item 2 + Item 3) *Item 4] * Unit WQV*	496	831	954	341	704	1012	639	985	1374
[6] Water Quality Flow (WQF) (cfs) *WQF = 1/43,200 * [0.2* (Item 2 + Item 3) * Item4]*	0.042	0.071	0.082	0.029	0.060	0.086	0.055	0.084	0.117

*w*ater Treatment and Baseline Hydromodification Measures

10	11	12	13	14	15	16	17	18	19	20	21	22
43,022	16,401	4,391	31,007	60,330	56,271	25,302	66,057	98,820	62,916	14,760	0	0
21986	16401	4391	21836	21452	19429	25302	24473	42443	29975	1476	0	0
12,581	11,914	2,390	21,779	23,261	22,042	25,242	24,885	31,321	19,707	239,474	0	0
0.67	0.62	0.68	0.55	0.53	0.52	0.55	0.55	0.62	0.64	0.11	#DIV/0!	#DIV/0!
1259	953	251	1301	1288	1172	1507	1460	2469	1730	1377	#DIV/0!	#DIV/0!
0.108	0.081	0.021	0.111	0.110	0.100	0.129	0.125	0.211	0.148	0.118	#DIV/0!	#DIV/0!

Form 3-6 Volume-Based Infiltrating Bioretention Measures				
[1]**DMA ID No.** *If combining multiple DMAs from Form 3-5, enter a new unique DMA ID No.*	**DMA-1**	**DMA-2**	**DMA-3**	**DMA-4**
[2]WQV (ft^3) *Item 5 in Form 3-5* *If combining multiple DMAs from Form 3-5, enter the sum of their respective WQVs.*	496	831	954	341
[3]Surface Loading Rate *Maximum 5.0 in/hr*	5	5	5	5
[4]BMP Surface Area (ft^2) *Top of BMP*	405	670	775	444
[5]Infiltration rate of underlying soils (in/hr)	0.20	0.20	0.20	0.20
[6]Maximum ponding depth (ft) *BMP specific, see BMP design details*	0.5	0.5	0.5	0.5
[7]Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 5 * 48 hrs) or Item 6*	0.5	0.5	0.5	0.5
[8]Infiltrating surface area, SA_{BMP} (ft^2) *Bottom of BMP*	405	670	775	444
[9]Planting media depth, d_{media} (ft)	1.5	1.5	1.5	1.5
[10]Planting media porosity	0.30	0.30	0.30	0.30
[11]Gravel depth, d_{media} (ft) *Only included in certain BMP types*	1.0	1.0	1.0	1.0
[12]Gravel porosity	0.30	0.30	0.30	0.30
[13]Retention Volume (ft^3) $V_{retention}$ *= Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (1.5* (Item 5 / 12))]*	506.3	837.5	968.8	555.0
[14]Untreated Volume (ft^3) $V_{untreated}$ *= Item 2 – Item 13* *If greater than zero, adjust BMP sizing variables and re-compute retention volume*	0	0	0	0
[15] Treated Flow Rate (ft^3/s) $Q_{treated}$ *= 1/43,200*(Item 3 * Item 4)*	0.0469	0.0775	0.0897	0.0514
[16]Total Treated Flow Rate for Project (ft^3/s) Q_{total} *= Sum of Item 15 for all DMAs*	0.612			
[17]Is WQV for each DMA treated on-site?	**Yes**	**X**	**No**	

Form 3-6 Volume-Based Infiltrating Bioretention Measures				
[1]**DMA ID No.** *If combining multiple DMAs from Form 3-5, enter a new unique DMA ID No.*	**DMA-5**	**DMA-6**	**DMA-7**	**DMA-8**
[2]WQV (ft^3) *Item 5 in Form 3-5* *If combining multiple DMAs from Form 3-5, enter the sum of their respective WQVs.*	704	1012	639	985
[3]Surface Loading Rate *Maximum 5.0 in/hr*	5	5	5	5
[4]BMP Surface Area (ft^2) *Top of BMP*	614	830	555	808
[5]Infiltration rate of underlying soils (in/hr)	0.20	0.20	0.20	0.20
[6]Maximum ponding depth (ft) *BMP specific, see BMP design details*	0.5	0.5	0.5	0.5
[7]Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 5 * 48 hrs) or Item 6*	0.5	0.5	0.5	0.5
[8]Infiltrating surface area, SA_{BMP} (ft^2) *Bottom of BMP*	614	830	555	808
[9]Planting media depth, d_{media} (ft)	1.5	1.5	1.5	1.5
[10]Planting media porosity	0.30	0.30	0.30	0.30
[11]Gravel depth, d_{media} (ft) *Only included in certain BMP types*	1.0	1.0	1.0	1.0
[12]Gravel porosity	0.30	0.30	0.30	0.30
[13]Retention Volume (ft^3) $V_{retention}$ *= Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (1.5* (Item 5 / 12))]*	767.5	1,037.5	693.8	1,010.0
[14]Untreated Volume (ft^3) $V_{untreated}$ *= Item 2 – Item 13* *If greater than zero, adjust BMP sizing variables and re-compute retention volume*	0	0	0	0
[15] Treated Flow Rate (ft^3/s) $Q_{treated}$ *= 1/43,200*(Item 3 * Item 4)*	0.0711	0.0961	0.0642	0.0935

Form 3-6 Volume-Based Infiltrating Bioretention Measures				
[1]**DMA ID No.** *If combining multiple DMAs from Form 3-5, enter a new unique DMA ID No.*	**DMA-9**	**DMA-10**	**DMA-11**	**DMA-12**
[2]WQV (ft^3) *Item 5 in Form 3-5* *If combining multiple DMAs from Form 3-5, enter the sum of their respective WQVs.*	1374	1259	953	251
[3]Surface Loading Rate *Maximum 5.0 in/hr*	5	5	5	5
[4]BMP Surface Area (ft^2) *Top of BMP*	1099	1011	770	204
[5]Infiltration rate of underlying soils (in/hr)	0.20	0.20	0.20	0.20
[6]Maximum ponding depth (ft) *BMP specific, see BMP design details*	0.5	0.5	0.5	0.5
[7]Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 5 * 48 hrs) or Item 6*	0.5	0.5	0.5	0.5
[8]Infiltrating surface area, SA_{BMP} (ft^2) *Bottom of BMP*	1099	1010	770	204
[9]Planting media depth, d_{media} (ft)	1.5	1.5	1.5	1.5
[10]Planting media porosity	0.30	0.30	0.30	0.30
[11]Gravel depth, d_{media} (ft) *Only included in certain BMP types*	1.0	1.0	1.0	1.0
[12]Gravel porosity	0.30	0.30	0.30	0.30
[13]Retention Volume (ft^3) $V_{retention}$ *= Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (1.5* (Item 5 / 12))]*	1,373.8	1,262.5	962.5	255.0
[14]Untreated Volume (ft^3) $V_{untreated}$ *= Item 2 – Item 13* *If greater than zero, adjust BMP sizing variables and re-compute retention volume*	0	0	0	0
[15] Treated Flow Rate (ft^3/s) $Q_{treated}$ *= 1/43,200*(Item 3 * Item 4)*	0.1272	0.1170	0.0891	0.0236

Form 3-6 Volume-Based Infiltrating Bioretention Measures				
[1]**DMA ID No.** *If combining multiple DMAs from Form 3-5, enter a new unique DMA ID No.*	**DMA-13**	**DMA-14**	**DMA-15**	**DMA-16**
[2]WQV (ft^3) *Item 5 in Form 3-5* *If combining multiple DMAs from Form 3-5, enter the sum of their respective WQVs.*	1301	1288	1172	1507
[3]Surface Loading Rate *Maximum 5.0 in/hr*	5	5	5	5
[4]BMP Surface Area (ft^2) *Top of BMP*	1050	1033	943	1219
[5]Infiltration rate of underlying soils (in/hr)	0.20	0.20	0.20	0.20
[6]Maximum ponding depth (ft) *BMP specific, see BMP design details*	0.5	0.5	0.5	0.5
[7]Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 5 * 48 hrs) or Item 6*	0.5	0.5	0.5	0.5
[8]Infiltrating surface area, SA_{BMP} (ft^2) *Bottom of BMP*	1050	1033	943	1220
[9]Planting media depth, d_{media} (ft)	1.5	1.5	1.5	1.5
[10]Planting media porosity	0.30	0.30	0.30	0.30
[11]Gravel depth, d_{media} (ft) *Only included in certain BMP types*	1.0	1.0	1.0	1.0
[12]Gravel porosity	0.30	0.30	0.30	0.30
[13]Retention Volume (ft^3) $V_{retention}$ *= Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (1.5* (Item 5 / 12))]*	1,312.5	1,291.3	1,178.8	1,525.0
[14]Untreated Volume (ft^3) $V_{untreated}$ *= Item 2 – Item 13* *If greater than zero, adjust BMP sizing variables and re-compute retention volume*	0	0	0	0
[15] Treated Flow Rate (ft^3/s) $Q_{treated}$ *= 1/43,200*(Item 3 * Item 4)*	0.1215	0.1196	0.1091	0.1411

Form 3-6 Volume-Based Infiltrating Bioretention Measures				
[1]**DMA ID No.** *If combining multiple DMAs from Form 3-5, enter a new unique DMA ID No.*	**DMA-17**	**DMA-18**	**DMA-19**	**DMA-20**
[2]WQV (ft^3) *Item 5 in Form 3-5* *If combining multiple DMAs from Form 3-5, enter the sum of their respective WQVs.*	1460	2469	1730	1377
[3]Surface Loading Rate *Maximum 5.0 in/hr*	5	5	5	
[4]BMP Surface Area (ft^2) *Top of BMP*	1185	2009	1401	
[5]Infiltration rate of underlying soils (in/hr)	0.20	0.20	0.20	
[6]Maximum ponding depth (ft) *BMP specific, see BMP design details*	0.5	0.5	0.5	
[7]Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 5 * 48 hrs) or Item 6*	0.5	0.5	0.5	-
[8]Infiltrating surface area, SA_{BMP} (ft^2) *Bottom of BMP*	1185	2015	1401	0
[9]Planting media depth, d_{media} (ft)	1.5	1.5	1.5	
[10]Planting media porosity	0.30	0.30	0.30	
[11]Gravel depth, d_{media} (ft) *Only included in certain BMP types*	1.0	1.0	1.0	
[12]Gravel porosity	0.30	0.30	0.30	
[13]Retention Volume (ft^3) $V_{retention}$ *= Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (1.5* (Item 5 / 12))]*	1,481.3	2,518.8	1,751.3	-
[14]Untreated Volume (ft^3) $V_{untreated}$ *= Item 2 – Item 13* *If greater than zero, adjust BMP sizing variables and re-compute retention volume*	0	0	0	1377
[15] Treated Flow Rate (ft^3/s) $Q_{treated}$ *= 1/43,200*(Item 3 * Item 4)*	0.1372	0.2325	0.1622	0.0000

Section 4
Regulated Hydromodification Management Projects

Form 4-1 Peak Runoff Response Time

(Complete Section 4 forms for Regulated Hydromodification Projects only)

Determine total runoff response time for pre- and post-construction conditions at each project outlet.

Variables	Pre-construction DMAs to Project Outlet				Post-construction DMAs to Project Outlet			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**
[1]Length of longest overland flow path *Not to exceed 100 ft*	100				100			
[2]Slope of overland flow path (ft/ft)	0.0038				0.0100			
[3]Manning's roughness coefficient for overland flow surface *See Table 5-5 of the Placer County SWMM*	0.2400				0.2400			
[4]Overland flow response time (min) $(0.355*(\text{Item 1}*\text{Item 3})^{0.6})/(\text{Item 2}^{0.3})$	13	-	-	-	10	-	-	-
[5]Hydrologic Soil Group *Refer to Section 3.1.1. or NRCS Web Soil Survey*	D				D			
[6]Current Land Cover Type(s) *Select from categories shown in Table 5-3 of the SWMM*	Grass				Residential Landscaping			
[7]Pervious Area Condition: *Based on the extent of vegetated cover* *Good >75%; Fair 50-75%; Poor <50%* *Attach photos of site to support rating*	Good				Good			
[8]Infiltration Rate (in/hr) *Refer to Table 5-3 of the SWMM using Items 3, 4, and 5 above or obtain site specific field measurements (See Section 3.1.1)*	0.14				0.12			
[9]Length of collector flow (ft)	1359				1800			
[10]Cross-sectional area of collector flow facility (ft^2)	10.00				7.07			
[11]Wetted perimeter of collector flow facility (ft)	20.00				9.42			
[12]Manning's roughness of collector flow facility	0.0450				0.0130			
[13]Slope of collector flow facility (ft/ft)	0.0082				0.0050			
[14]Channel flow velocity (ft/sec) $V = (1.49 / \text{Item 12}) * (\text{Item 10}/\text{Item 11})^{0.67} * (\text{Item 13})^{0.5}$	1.9	-	-	-	6.7	-	-	-
[15]Collector flow facility response time (min) $T_c = \text{Item 9} / (\text{Item 14} * 60)$	12.0	-	-	-	4.5	-	-	-
[16]Total runoff response time or T_t (min) $T_t = \text{Item 4} + \text{Item 15}$	24.7	-	-	-	14.0	-	-	-

Form 4-2 Hydromodification Target for Peak Runoff

Variables	Pre-construction DMAs to Project Outlet				Post-construction DMAs to Projec		
	1	2	3	4	1	2	3
[1] Drainage Area (ft^2) *Sum of all outlet level DMAs should equal total project area.*	1,359,158				1,359,158		
[2] Impervious Area (ft^2) *Sum of all outlet level DMAs should equal total project impervious area.*	24,475				800,354		
[3] Rainfall depth for 2yr storm with duration equal to response time (in) *See Placer County SWMM Table 5-A-1 for elevation of site and duration equal to response time*	0.32				0.32		
[4] Unit peak runoff (cfs/acre) *q = 60/Form 4-1 Item 16 * Item 3*	0.78	-	-	-	1.37	-	-
[5] Infiltration factor (cfs/acre) *F_i = Form 4-1 Item 8 * (1 + 1 /(1.3 + 0.0005 * Form 3-1 Item 3))*	0.24	-	-	-	0.21	-	-
[6] Peak runoff from DMAs (cfs) *Q_p = Item 1 * Item 4 – Item 5 * (Item 1 - Item 2)*	16.95	-	-	-	40.47	-	-
[7] Total Pre-Project Peak Runof (ft^3/s) *Q_{total} = Sum of Item 6 for all Pre-construction DMAs*	16.95						
[8] Is the total post-project peak runoff equal to or less than the total pre-project peak runoff? *Yes, if Item 7 is greater than or equal to the sum of the Total Treated Flow Rates from Form 3-6 Item 16 and 3-7 Item 12.*	**YES**						

Form 4-3 Detention Volumes for Hydromodification Management

	Post-construction DMAs to Project Outlet			
	1	**2**	**3**	**4**
[1] Land cover and hydrologic condition *See NRCD TR-55 Manual Table 2-2 for types*	Residential 1/8 acre			
[2] Hydrologic Soil Group *Refer to Section 3.1.1. or NRCS Web Soil Survey*	D	-	-	-
[3] Drainage Area (A) (ft^2)	1,359,158	-	-	-
[4] Curve Number (CN) *Use Items 1 and 2 to select curve number from NRCS TR-55 Manual Table 2-2*	92			
[5] Post-development soil storage capacity, S (in): *S = (1000 / Item 4) – 10*	0.9	#DIV/0!	#DIV/0!	#DIV/0!
[6] Precipitation for 2-yr, 24-hr storm (in) *See Placer County SWMM Table 5-A-1 for elevation of site and 24-hr duration depths*	1.90			
[7] Post-developed runoff volume for 2-yr – 24-hour storm, V_{runoff} (ft^3): *V_{runoff} = Item 3 * (1 / 12) * [(Item 6 – 0.2 * Item 5)^2 / (Item 6 + 0.8 * Item 5)]*	130,007	#DIV/0!	#DIV/0!	#DIV/0!
[8] Attenuation Factor, $q_{out/in}$ (ratio of target outflow rate to peak inflow rate): *$q_{out/in}$ = Form 4-2 Item 6 Pre-Construction / Form 4-2 Item 6 Post-Construction*	0.42	#DIV/0!	#DIV/0!	#DIV/0!
[9] Equalization Factor, Vs/Vr (ratio of storage capacity to runoff volume) *Vs/Vr obtained using Item 8 and nomograph in Figure 6-1 of NRCS TR-55 Manual for Rainfall Type IA*	0.20			
[10] Runoff detention capacity to achieve hydromodification management criteria (ft^3) *$D_{hydromod}$ = Item 7 * Item 9*	26001	#DIV/0!	#DIV/0!	#DIV/0!
[11] Site Design Measure (SDM) Volume (ft^3): *Sum of Item 10 in Form 3-4 for all SDMs in this DMA.*	33612			
[12] Bioretention Volume (ft3): *Sum of Item 14 in Form 3-6 for all bioretention measures in this DMA.*	21283			
[13] Flow-Through Detention Volume (ft3): *Sum of Item 10 in Form 3-7 for all flow-through facilities in this DMA.*	0			
[14] Supplemental Detention Volume (ft^3):				
[15] Combined Detention Volume in this DMA (ft^3): *Sum of Items 11 through 14*	54,895	-	-	-
[16] Is detention capacity to achieve hydromodification management criteria achieved at all project outlets? *Yes, if Item 10 is less than or equal to Item 15. If not provide additional storage capacity*	**Yes**	**X**	**No**	

Form 5-1 BMP Inspection and Maintenance		
BMP	**Inspection Point and Frequency**	**Maintenance Activity Required**
Bioretention	Quarterly (or as needed after storm events)	Planters free of trash, debris and sediment
	Quarterly (or as needed after storm events)	Vegetation and soil is well maintained (trimmed, weeded)
	Quarterly, or as needed after storm events	No standing water 48 hours after storm event
	Semi-Annually (beginning and end of rainy season)	No signs of mosquito breeding
	Quarterly, or as needed after storm events	Underdrain not clogged
	Quarterly	Irrigation system functioning properly
	Annually (before the wet season begins)	Vegetation has successful root establishment
	Annually (before the wet season begins)	Planters free of erosion and damage
	Annually (before the wet season begins)	Remove and replant dead plants
	Annually, before the wet season begins	Amend soil with compost or natural soil amendments
	Ongoing	No fertilizers used in swales
	Annually at the end of the rainy season, and/or after large storm events	Planters functioning overall

Form 6-1 Post-Construction Stormwater BMPs

Following is a summary of all BMPs included in the Project design. This checklist must be included on the cover sheet of the Improvement Plans for all Regulated Projects.

BMP		Plan Sheet Number(s)
Structural Source Controls (list BMPs)		
Site Design Measures	Stream Setbacks and Buffers	
	Soil Quality Improvement and Maintenance	
	Tree Planting and Preservation	
	Rooftop and Impervious Area Disconnection	**C3-C4**
	Porous Pavement	
	Vegetated Swales	
	Rain Barrels and Cisterns	
Stormwater Treatment and Baseline Hydromodification Measures	Bioretention with Infiltration	**C8**
	Flow-Through Planters, Tree Box Filters and Media Filters	
Hydromodification Management Measures	Supplemental Detention	

Table 2-2a Runoff curve numbers for urban areas [1]

Cover description: Cover type and hydrologic condition	Average percent impervious area [2]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

SWQP Form 4-3, Item 4

1 Average runoff condition, and $I_a = 0.2S$.
2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.
3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.
4 Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.
5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Input requirements and procedures

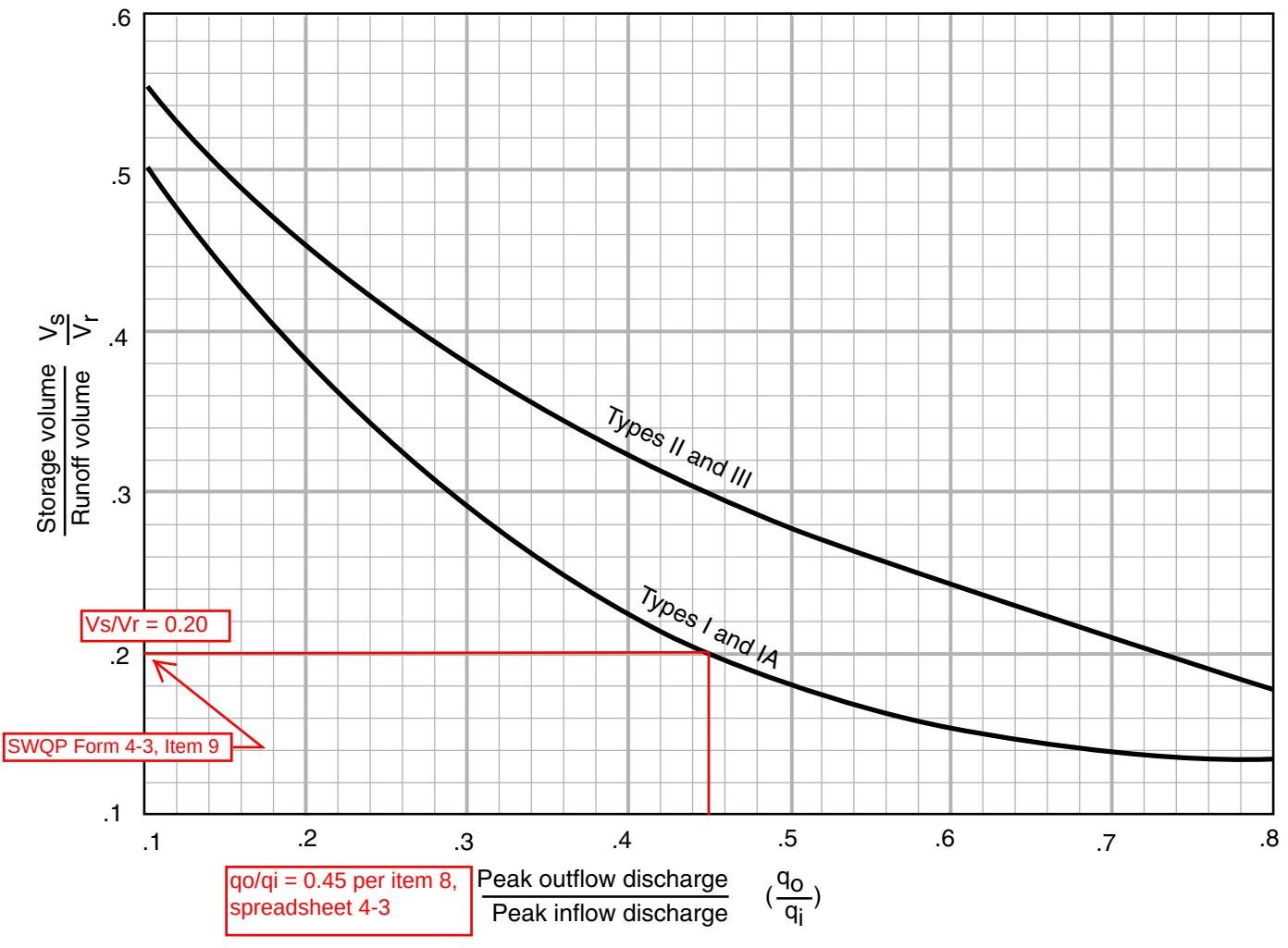
Use figure 6-1 estimate storage volume (V_s) required or peak outflow discharge (q_o). The most frequent application is to estimate V_s, for which the required inputs are runoff volume (V_r), q_o, and peak inflow discharge (q_i). To estimate q_o, the required inputs are V_r, V_s, and q_i.

Estimating V_s

Use worksheet 6a to estimate V_s, storage volume required, by the following procedure.

1. Determine q_o. Many factors may dictate the selection of peak outflow discharge. The most common is to limit downstream discharges to a desired level, such as predevelopment discharge. Another factor may be that the outflow device has already been selected.
2. Estimate q_i by procedures in chapters 4 or 5. Do not use peak discharges developed by other procedure. When using the Tabular Hydrograph method to estimate q_i for a subarea, only use peak discharge associated with $T_t = 0$.

Figure 6-1 Approximate detention basin routing for rainfall types I, IA, II, and III



RFE ENGINEERING, INC

Dry Creek Vineyard Road Tributary Basin Ultimate Development Drainage Study

FOR

BRADY VINEYARD SUBDIVISION

West Placer County

October 11, 2019

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A. PURPOSE OF REPORT

As part of the Environmental Impact Report (EIR) for the Brady-Vineyard Subdivision project, RFE Engineering evaluated potential flow increases in the Dry Creek Vineyard Road Tributary as a result of the ultimate buildout of the tributary subbasins in addition to the Brady-Vineyard project. This report will evaluate the potential development of adjacent tributary subbasins to calculate a probable maximum flow increase and maximum water surface elevation (WSE) increase within the Dry Creek Vineyard Road Tributary for two conditions: one including the Brady-Vineyard project and one excluding the project. It is important to understand that this exercise is somewhat speculative as the specifics of future development are currently unknown. This report is intended to be a supplement to the previous drainage study performed for the Brady Vineyard Subdivision project, "Preliminary Drainage Study & Stormwater Quality Plan for Brady-Vineyard Subdivision". This report will take the HEC-HMS "Post-Construction" model calculated for the previous report and revise specific tributary off-site subbasins from their existing conditions to calculate the ultimate development flows and their resultant impact to the Dry Creek Vineyard Road Tributary.

B. PROJECT LOCATION

The Dry Creek Vineyard Road Tributary basin is located on the eastern edge of the Dry Creek/West Placer Community Plan area of Placer County, California 95747. The total basin encompasses about 1,066 acres (1.665 square miles). The project's location is also shown on the Vicinity Map below and the basin shed map in Appendix A.

Figure 1: Vicinity Map (not to scale)

C. REGIONAL DRAINAGE ANALYSIS

Placer County has previously performed a regional drainage analysis that includes the Dry Creek Vineyard Road Tributary basin which calculated the peak runoff flows using HEC-HMS. The previous RFE report used the HEC-HMS model provided by Placer County to calculate the individual tributary subbasin flows for both the onsite Brady Vineyard Subdivision project and unaffected offsite subbasin flows. These results were then used with HEC-RAS to calculate the change in flow in the Dry Creek Vineyard Road Tributary.

It is not the intent of this report to revisit the assumptions of the previous drainage analysis as they have been reviewed and accepted by Placer County. Instead, this analysis took the applicable subbasins and recalculated the peak flows by adjusting the variables to reflect potential new development based on the current zoning. The updated peak flows were used to evaluate combined peak flows through the Dry Creek Vineyard Road Tributary as well as increases in the WSEs throughout the tributary resulting from the higher subbasin peak flows. The subbasins that were re-analyzed include:

- D25C
- D25D
- D25E
- DC25F-offsite
- DC25G
- DC25H
- DC25K
- DC25L-offsite north
- DC25M
- DC25N-offsite

D. TRIBUTARY SUBBASIN MODIFICATIONS

As mentioned above, the applicable subbasins were modified in HEC-HMS to reflect an ultimate, fully developed condition based on current zoning. Specifically, the variables that were modified in HEC-HMS were the Plane 1 and 2 area percentages and the Loss 1 and 2 values. See Appendix A for the subbasin map and Appendix C for the existing subbasin values and the new ultimate model changes for Area %, % Impervious, and calculated peak flow results for both the 10-yr and 100-yr storm events. These values were updated to reflect the ultimate development potential which would result in a higher level of imperviousness, lower infiltration, and higher runoff flows based upon the following residential densities for the subbasins based on each area's County-specified zoning classification:

- RS-AG-B-20: ½ acre lots
- RA-B-43: 1 acre lots
- RA-B-X: 2 acre lots

D25C
This subbasin is located north of the proposed project and consists of 47.8 acres of mostly developed land. The majority of the subbasin is within the City of Roseville with a small portion (6.1 ac) in unincorporated Placer County zoned RA-B-43. The City portion of the subbasin is already fully developed and the likelihood for increased development appears negligible without a zoning change. The remaining portion of the subbasin zoned RA-B-43 already has residential development. As a result, no changes were made to this subbasin as there does not appear to be significant opportunity for increased development based on current land use and zoning, and existing development patterns.

DC25D
This subbasin is located north of the proposed project and consists of 35.2 acres of land. The subbasin has three different zoning classifications: RA-B-43 (12.0 ac), RS-AG-B-20 (19.8 ac), C1-UP-Dc (3.4 ac).

DC25E
This subbasin is located north of the proposed project and consists of 16.1 acres of land. The subbasin is zoned RS-AG-B-20.

DC25F-offsite
This subbasin is located northwest of the proposed project and consists of 12.4 acres of land. The subbasin has two different zoning classifications: RA-B-43 (10.4 ac), F-DR (2.0 ac).

DC25G
This subbasin is located west of the proposed project and consists of 41.8 acres of land. The subbasin has two different zoning classifications: RA-B-43 (12.3 ac), F-DR (29.5 ac).

DC25H
This subbasin is located south of the proposed project and consists of 43.6 acres of land. The subbasin has two different zoning classifications: RS-AG-B-20 (25.6 ac), RS-B-X (18.0 ac).

DC25K
This subbasin is located southwest of the proposed project and consists of 195.8 acres of land. The subbasin has three different zoning classifications: RA-B-X (71.2 ac), RA-B-43 (19.9 ac), F-DR (104.7 ac).

DC25L-offsite north
This subbasin is located north of the proposed project and consists of 7.1 acres of land. The subbasin is zoned RS-AG-B-20.

DC25M

This subbasin is located south of the proposed project and consists of 88.6 acres of land. The subbasin has three different zoning classifications: F-DR (30.2 ac), IN-UP-Dc (41.8 ac), City of Roseville (16.6 ac). The City land includes a portion of the City Wastewater Treatment Plant.

DC25N-offsite

This subbasin is located southwest of the proposed project and consists of 31.4 acres of land. The subbasin has two different zoning classifications: RS-AG-B-20 (11.0 ac), F-DR (20.4 ac).

E. HEC-HMS RESULTS

For the analysis presented in this report, the Post-Construction HEC-HMS model was modified to reflect the potential additional development in the ultimate buildout conditions for the applicable subbasins listed above. Scenarios were run with and without the Brady-Vineyard project. The Plane and Loss values for each subbasin were modified as shown in the table in Appendix C. This table also shows the new peak flow values for each subbasin for both the 10-yr and 100-yr events along with the increase in flow compared to the existing condition. Table 1 below provides a summary of the peak flow increases across the modified subbasins.

Table 1: HEC-HMS Affected Subbasin Peak Flows

Subbasin	Existing Condition		Ultimate Condition	
	10-year peak flow (cfs)	100-year peak flow (cfs)	10-year peak flow (cfs)	100-year peak flow (cfs)
DC25C	52	99.7	52	99.7
DC25D	29.1	55.5	38.4	74.3
DC25E	9.4	16.5	15	30.1
DC25F-offsite	10.9	23.4	11.3	23.4
DC25G	18.2	37.3	25.8	51.3
DC25H	26.2	53.4	48.9	101.5
DC25K	77.9	157.5	124.1	237.4
DC25L-offsite north	3.5	7	7.6	14.1
DC25M	20.4	41.5	83.6	152.9
DC25N-offsite	11.5	25	32.5	62.2
DC25F-onsite	2.1	4.0	4.6	9.0
DC25L-onsite	7.2	14.8	28.6	51.8
DC25N-onsite	0.8	1.8	3.1	5.9

This analysis represents a worst-case scenario and is somewhat speculative due to the specifics of any future development not being known at this time (excepting the onsite Brady Vineyard project subbasins). It is possible that future development may be more or less dense than the zoning allows. Determining multiple scenarios based on different hypothetical development densities is beyond the scope of this report. In addition, no future stormwater detention or retention was factored into this analysis, so if future projects incorporate these measures, the resulting peak flows would likely differ from those presented in this report.

While the flows shown in the HEC-HMS results offer some level of accuracy on a per-subbasin basis, combined peak flows for multiple subbasins will not be as accurate due to the inaccuracies inherent in the hydraulic routing modeling of the HEC-HMS program. The HEC-RAS analysis performed for the Dry Creek Vineyard Road Tributary more accurately models the stream hydraulics and therefore offers a more accurate representation of the combined flows from multiple subbasins as they are routed through the overall basin. See Section F below for an analysis of the HEC-RAS results.

F. HEC-RAS RESULTS

The HEC-RAS terrain model for the Dry Creek Vineyard Road Tributary was built using LiDAR data provided by the County to cut cross sections through the tributary approximately every 100-feet. The most downstream cross section represents approximately where the tributary drains into Dry Creek. The tributary was modeled upstream to the beginning of the open channel east of Brady Lane (east of the open channel, there is a double 54” pipe system that conveys runoff from upstream through the existing Elk Hills subdivision). Appendix A includes an exhibit of the terrain and cross section locations throughout the Dry Creek Vineyard Road Tributary.

Peak flow hydrographs generated for the existing flows and ultimate buildout flows from the HEC-HMS model were added to the HEC-RAS hydraulic model as lateral inflows at the closest cross section(s) to the actual discharge point for each subbasin. Subbasin DC25B – which represents over 380-acres to the east of the model – became the upstream boundary condition at the most upstream cross section. For 10-yr storm event flows, the downstream boundary condition was set to normal depth based on a very flat 0.001 slope to represent the existing conditions. For 100-yr storm event flows, the downstream boundary condition was set to a constant-elevation stage hydrograph, where the elevation was set to 114-feet to represent the approximate Dry Creek Base Flood Elevation (BFE) at the confluence of the tributary and Dry Creek according to the FEMA FIS.

Using HEC-RAS to model flows through the tributary with lateral inflows allowed for a more accurate analysis of how the runoff peak flows from each subbasin flow through the tributary at different times. The timing of each subbasin’s peak flow affects the maximum peak flow through the tributary as they combine at different times. Due to this behavior, it is beneficial for peak flow increases from the lower portions of the overall drainage basin to be released to the tributary without any detention in order to prevent those peak flows from adding to the larger peak flows from upstream drainage sheds.

Since this report does not include a full analysis of the entirety of Dry Creek, the water surface elevations (WSEs) near the confluence of the tributary and Dry Creek may be less accurate because the relationship between the Vineyard Road Tributary peak flow timing and the Dry Creek peak flow timing is not considered in our calculations. However, our analysis which uses the Dry Creek BFE as a constant downstream boundary condition represents a worst-case scenario for the BFE in Dry Creek. Therefore, our downstream WSE results for this boundary condition should be conservative compared to the expected downstream WSEs in the tributary during an actual 100-yr storm event.

For the ultimate buildout of this basin, peak flows throughout the tributary predictably increased for the 10-yr and 100-yr storm events when compared to existing conditions. 100-yr peak flows in the most upstream portions of the model increased by a modest 7-10 cfs (approx. 2% increase) at river stations 8488.69-9841.26. In contrast, peak flows at the downstream end of the tributary increased by a more notable 93 cfs to 112 cfs (approx. 20% increase) at river stations 1386.3-2416.71. Further downstream, the peak flows are affected by the Dry Creek constant downstream BFE boundary condition creating a backwater condition that skews the peak flow results in the tributary. Specific peak flow increases are shown in Table 2 below.

Table 2: HEC-RAS Flows and WSEs – Existing vs. Ultimate

Tributary Station	100-yr Existing Peak Flow (cfs)	100-yr Ultimate Peak Flow (cfs)	100-yr Existing WSE (ft)	100-yr Ultimate WSE (ft)
10016.43	135.19	126.87	133.39	133.44
9841.26	428.92	436.25	133	133.03
8488.69	438.83	448.67	128.21	128.24
7588.69	464.09	479.24	125.27	125.39
7492.13*	490.1	519.15	124.95	124.87
7446.46**	490.07	519.06	124.04	124.13
6748.04	495.19	523.59	121.18	121.25
5618.96	502.29	525.42	117.66	117.87
5008.64	581.2	635.01	116.15	116.31
4081.21†	587.63	644.53	114.44	114.52
2833.94††	585.67	643.81	114.06	114.08
2416.71	548.61	642.09	114.04	114.06
1760.2	523.26	636.01	114.02	114.03
1386.3	524.16	633.35	114.02	114.02

*Just upstream of Vineyard Road culvert
**Just downstream of Vineyard Road culvert
†North end of Roseville Wastewater Treatment Plant
††Southern end of Roseville Wastewater Treatment Plant

While peak flows are often used as a measure to determine the impacts of given projects on the surrounding areas, in this case a better measure of development impacts comes from the water surface elevation. Though peak flows in the Dry Creek Vineyard Road Tributary increased notably especially in the downstream sections of the model, the increase in WSE between existing conditions and buildout conditions was relatively minor. Upstream of the Vineyard Road culvert, the maximum WSE increase was 0.12-feet (1.5-inches) at station 7588.69 which is the first cross section upstream of the culvert. Downstream of the Vineyard Road culvert, the maximum WSE increase was 0.21-feet (2.5-inches) at station 5618.96 which is just downstream of inflows from another natural drainage channel which is unmapped by FEMA. These WSE increases do not appear to be significant and do not appear to cause any significant impacts to existing features or structures along the Dry Creek Vineyard Road Tributary. Specific WSE increases are shown in Table 2 above. Appendix C contains a more comprehensive table of flows and WSEs.

In addition to the comparison between existing and ultimate conditions, this analysis also evaluated the effect of the Brady Vineyard Project on the ultimate buildout peak flows and WSEs. This evaluation entailed substituting the peak flow hydrograph inputs for the onsite Brady Vineyard Project subbasins to those generated by the existing conditions HEC-HMS model to reflect a case where zero development occurs on the project site. Table 3 below shows the results of the HEC-RAS analysis for the 100-yr flows and WSEs in the ultimate condition *without* the Brady Vineyard Project (BV) and compares them to the ultimate condition with the Brady Vineyard Project.

Table 3: HEC-RAS Flows and WSEs – Ultimate without BV vs. Ultimate with BV

Tributary Station	100-yr Ultimate Peak Flow without BV (cfs)	100-yr Ultimate Peak Flow with BV (cfs)	100-yr Ultimate WSE without BV (ft)	100-yr Ultimate WSE with BV (ft)
10016.43	126.93	126.87	133.44	133.44
9841.26	436.24	436.25	133.03	133.03
8488.69	447.19	448.67	128.23	128.24
7588.69	478.48	479.24	125.31	125.39
7492.13*	506.68	519.15	124.80	124.87
7446.46**	506.61	519.06	124.09	124.13
6748.04	510.97	523.59	121.22	121.25
5618.96	514.32	525.42	117.78	117.87
5008.64	613.16	635.01	116.24	116.31
4081.21†	621.84	644.53	114.49	114.52
2833.94††	618.15	643.81	114.07	114.08
2416.71	612.88	642.09	114.05	114.06
1760.2	596.26	636.01	114.03	114.03
1386.3	592.89	633.35	114.02	114.02

*Just upstream of Vineyard Road culvert
**Just downstream of Vineyard Road culvert

†North end of Roseville Wastewater Treatment Plant
††Southern end of Roseville Wastewater Treatment Plant

When comparing peak flows for the ultimate buildout condition *with* the Brady Vineyard Project and the ultimate buildout condition *without* the Brady Vineyard Project, the model results indicated that the BV project increased the flows in the Tributary by a generally moderate amount. As expected, the model indicated negligible increases to the 100-yr peak flows in the most upstream portions of the model north of the project. In contrast, most peak flows downstream of the Vineyard Road culvert increased by at least 10 cfs, with the maximum increase of 40.46 cfs (approx. 7% increase) occurring at river station 1386.3. Further downstream, the peak flows are affected by the Dry Creek constant downstream BFE boundary condition creating a backwater condition that skews the peak flow results in the tributary.

Upstream of the Vineyard Road culvert, the WSE increase between the ultimate buildout condition *with* the Brady Vineyard Project and the ultimate buildout condition *without* the Brady Vineyard Project was negligible except for the 0.08-feet (1-inch) increase at station 7588.69 which is the first cross section upstream of the culvert. Downstream of the Vineyard Road culvert, the maximum WSE increase was 0.09-feet (1.08-inches) at station 5618.96 which is just downstream of inflows from another natural drainage channel which is unmapped by FEMA. These WSE increases do not appear to be significant and do not appear to cause any significant impacts to existing features or structures along the Dry Creek Vineyard Road Tributary.

G. CONCLUSIONS

Based on the assumptions and modeling inputs outlined in this report and the analysis results described in Section F, the increased 100-yr storm event flows in the Dry Creek Vineyard Road Tributary caused by future buildout within the basin do not appear to lead to significant increases in the water surface elevations (WSEs) within the tributary compared to existing conditions. Upstream of the Vineyard Road culvert, the maximum WSE increase was 0.12-feet (1.5-inches). Downstream of the Vineyard Road culvert, the maximum WSE increase was 0.21-feet (2.5-inches).

Furthermore, comparing the 100-yr storm event flows for ultimate buildout condition *with* the Brady Vineyard Project to the ultimate buildout condition *without* the Brady Vineyard Project showed that Upstream of the Vineyard Road culvert, the maximum WSE increase was 0.08-feet (1-inch). Downstream of the Vineyard Road culvert, the maximum WSE increase was 0.09-feet (1.08-inches).

These WSE increases do not appear to cause any significant impacts to existing features or structures along the Dry Creek Vineyard Road Tributary. If actual future buildout conditions vary from those assumed in this report, an updated study may be required to evaluate impacts that development will have on this tributary.

F. REFERENCES

- HEC-HMS version 4.2
- Placer County Land Development Manual, October 1996
- Placer County Stormwater Management Manual, September 1990
- Preliminary Drainage Study & Stormwater Quality Plan for Brady-Vineyard Subdivision, RFE Engineering, April 2, 2019.
- USDA TR-55 *Urban Hydrology for Small Watersheds,* June 1986

APPENDIX A

BASIN SHED MAP

&

FLOOD MODEL EXHIBIT

Z:\2017 Projects\17059 Brady Vineyard\WORKING CAD\EXHIBITS\Vineyard Tributary-Drainage Sheds.dwg May 25, 2018-04:09 pm

LEGEND

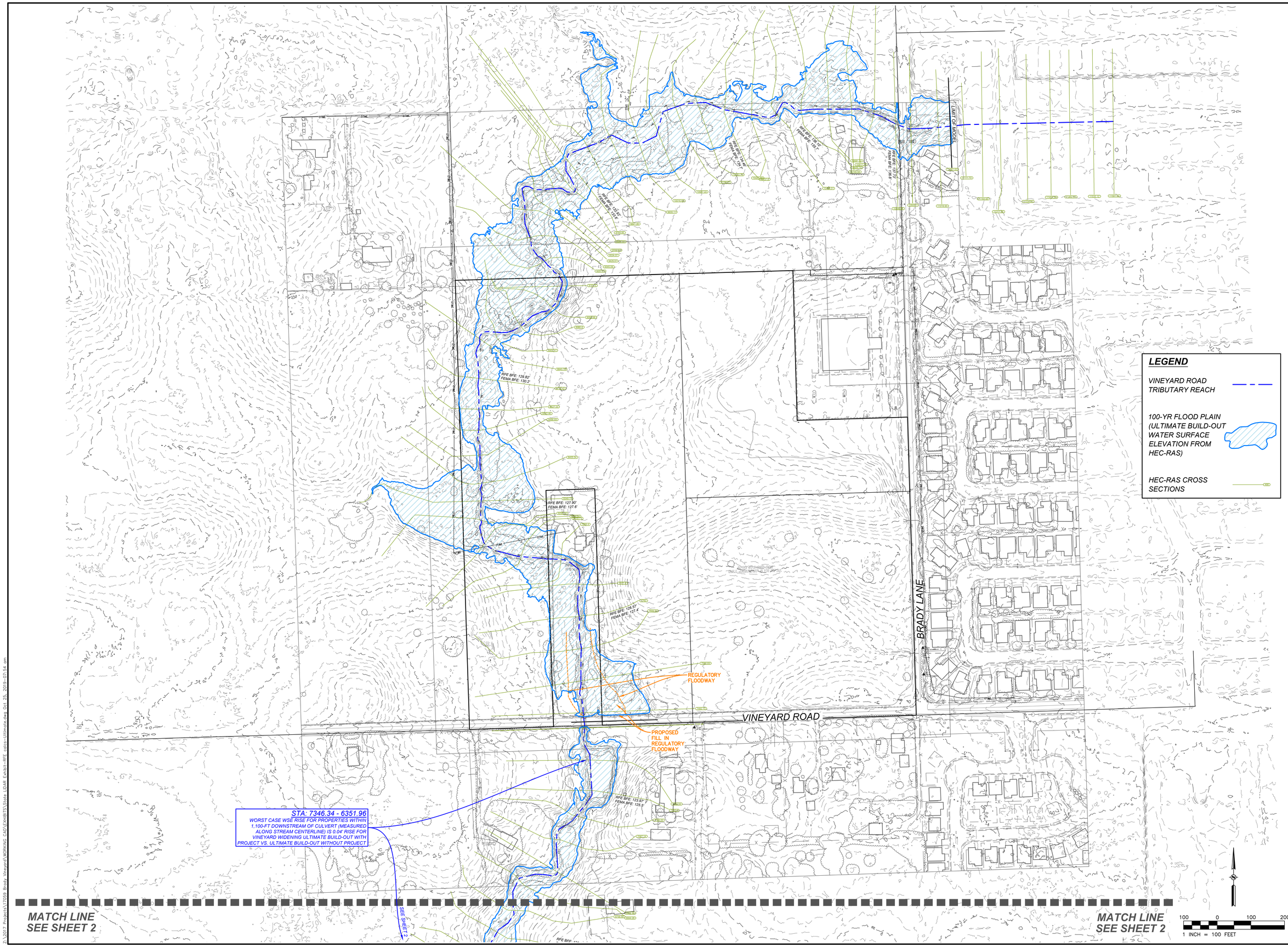
DRAINAGE SHED DESIGNATIONS AND AREA	DC25B 388.605 ACRES 0.6072 SQ. MILE
DRAINAGE AREA BOUNDARY	
VINEYARD ROAD TRIBUTARY REACH	
HEC-RAS REFERENCE CROSS SECTION	
EXISTING DRAINAGE FLOW	
POST-CONSTRUCTION ON-SITE DRAINAGE FLOW	

400 0 400 800

1 INCH = 400 FEET

RFE ENGINEERING, INC
Civil Engineers • Planners • Surveyors
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 Fax: 916-772-7804
www.RFEengineering.com

DRY CREEK VINEYARD ROAD TRIBUTARY DRAINAGE SHED MAP



REVISION	DATE	BY	APPRV'D

BY	CHECK. NO.
DESIGN SBS	RFE
DRAWN SBS	RFE
QUANT.	

ORIGINAL SCALE IS IN INCHES 0 1 2

REGISTERED PROFESSIONAL ENGINEER No. C 80825 CIVIL STATE OF CALIFORNIA

PRELIMINARY NOT FOR CONSTRUCTION

SUKHBIR BRAR
2351 SUNSET BOULEVARD,
ROCKLIN, CA 95765
PH: (916) 749-0967

RFE ENGINEERING, INC
Civil Engineers • Planners • Surveyors
2260 Douglas Blvd. Suite 160, Roseville, CA 95661
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www.RFEengineering.com

BRADY VINEYARD SUBDIVISION
B RADY LANE AND VINEYARD ROAD,
PLACER COUNTY, CA
(APNS: 021-230-004 & 021-230-034)
FLOOD PLAIN ULTIMATE BUILD-OUT

FLOOD MODEL EXHIBIT
ULTIMATE BUILD-OUT

Drawing	Sheet
of	1 of Total 2

10/25/2019

RFE PROJECT #17059 – VINEYARD ROAD AND BRADY LANE, PLACER COUNTY, CALIFORNIA

Z:\2017 Projects\17059 Brady Vineyard\WORKING CAD\EXHIBITS\State Land\FIS Exhibit-RFE setup-Ultimate.dwg Oct 25, 2019-07:54 am

MATCH LINE
SEE SHEET 1

MATCH LINE
SEE SHEET 1

SEE SHEET 1

STA: 7346.34 - 6351.96
WORST CASE WSE RISE FOR PROPERTIES WITHIN 1,100-FT DOWNSTREAM OF CULVERT (MEASURED ALONG STREAM CENTERLINE) IS 0.04' RISE FOR VINEYARD WIDENING ULTIMATE BUILD-OUT WITH PROJECT VS. ULTIMATE BUILD-OUT WITHOUT PROJECT

RFE BFE: 120.89'
FEMA BFE: 120.7'

RFE BFE: 118.07'
FEMA BFE: 118.9'

STA: 5618.96
WORST CASE WSE FOR VINEYARD WIDENING ULTIMATE BUILD-OUT WITH PROJECT VS. ULTIMATE BUILD-OUT WITHOUT PROJECT = 0.09' RISE

RFE BFE: 116.6'
FEMA BFE: 117.9'

RFE BFE: 114.5'
FEMA BFE: 114.4'

LIMIT OF MODEL

LIMIT OF MODEL

LEGEND

VINEYARD ROAD TRIBUTARY REACH

100-YR FLOOD PLAIN (ULTIMATE BUILD-OUT WATER SURFACE ELEVATION FROM HEC-RAS)

HEC-RAS CROSS SECTIONS

100 0 100 200
1 INCH = 100 FEET

DESIGN	SBS	RFE	
DRAWN	SBS	RFE	
QUANT.			

ORIGINAL SCALE IS IN INCHES 0 1 2

			APPRV'D
			BY
			DATE
			REVISION
			CHECK
			NO.

PRELIMINARY NOT FOR CONSTRUCTION

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BRADY VINEYARD SUBDIVISION
B RADY LANE AND VINEYARD ROAD,
PLACER COUNTY, CA
(APNS 021-090-002 & 021-090-034)

FLOOD MODEL EXHIBIT
ULTIMATE BUILD-OUT

Drawing	Sheet
of	2 of Total 2

10/25/2019

RFE PROJECT #17059 – VINEYARD ROAD AND BRADY LANE, PLACER COUNTY, CALIFORNIA

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APPENDIX B

EXCERPT FROM
PLACER COUNTY SWMM

TABLE 5-3

CONSTANT INFILTRATION RATES' FOR HYDROLOGIC SOIL-COVER COMPLEXES

Cover Type	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Bare - Rockland, eroded and newly-graded areas		.10	.02	.O1	.01
Grass,Annual or Perennial	Poor	.16	.09	.06	.04
	Fair	:31	.16	.09	.07
	Good	.41	.22	.12	.09
Meadows - Areas with seasonally high water table, principal vegetation is sod-forming grass	Poor	.20	.11	.06	.05
	Fair	.30	.15	.09	.07
	Good	.50	.24	.17	.14
Chaparral,Broadleaf (Manzanita and scrub oak)	Poor	.28	.15	.09	.06
	Fair	.40	.20	.12	.08
	Good	.49	.25	.14	.10
Open Brush - Softwood shrubs, buckwheat, sage, etc.	Poor	.21	.11	.07	.05
	Fair	.34	.18	.11	.07
	Good	.39	.20	.12	.08
Woodland - Coniferous or broadleaf trees predominate. Canopy density is at least 50%)	Poor	.35	.18	.11	.07
	Fair	.44	.22	.13	.09
	Good	.53	.26	.15	.11
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50%)	Poor	.25	.13	.08	.06
	Fair	.36	.18	.11	.08
	Good	.47	.24	.14	.09
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	.48	.25	.16	.12
Open Space	Poor (grass cover < 50%)	.26	.09	.06	.04
	Fair (grass cover 50-75%)	.31	.16	.09	.07
	Good (grass cover > 75%)	.41	.22	.12	.09

1. Loss rates in inches/hour
2. Use appropriate ground cover designation

roof, lawn, driveway, and street surfaces, with the street gutter serving as collector. It is appropriate to represent these surfaces with two overland elements: a smooth one for directly connected impervious areas, such as roofs, driveways and streets, and a rough one for landscaped and unconnected impervious areas.

Equation 5-3 is used to estimate the overland flow component of response time (7)(8). Solutions for this equation may be obtained graphically in Figure 5-1.

$$t_r = \frac{.355(nL)^{0.6}}{S^{0.3}} \qquad [5\text{-}31]$$

where

t_r = response time, minutes
n = Manning's roughness coefficient (Table 5-5)
L = flow length, feet
s slope of surface, feet/feet

TABLE 5-5
ROUGHNESS PARAMETERS FOR OVERLAND FLOW [1]

Surface	n [2]
Smooth surfaces (concrete asphalt, or bare soil)	0.11
Grass:	
Short grasses	0.15
Dense grasses	0.24
Bermuda grass	0.40
Poor grass cover on moderately rough surface	0.40
Woods with Underbrush	0.40 - 0.80

1. Sources (1) and (8).
2. Both surface roughness and vegetation cover affect runoff; but only the portion less than 0.1 foot high.

i) , Collector Flow **Equ**ation 5-4 below or the Manning equation may be used for estimating velocities of concentrated flow in rivulets, swales, gutters, pipes, and channels. Equation 5-4 applies to an open, triangular channel with no inflow at its upstream end and side inflows uniformly distributed along its length.

This representation is considered adequate for approximating open channels and pipes in most situations. Equation 5-4 may be solved graphically using Figure 5-2.

$$t_r = \frac{.00735Ln^{.75}(1 + Z^2)^{.25}}{s^{.375}(A_cZ)^{.25}} \qquad [5\text{-}4]$$

where

t_r = response time, minutes
n = Manning's roughness coefficient See Table 6-3 or Table 8-1
s = slope, feet horizontal/foot vertical
L = length, feet
Z = side slope, feet horizontal/foot vertical
A_c = contributing area, acres

In natural watersheds, it may be appropriate to use higher values of Manning's n for the initial collector where the flow is shallow.

Manning's equation may be used to estimate the collector response time when it is felt that Equation 5-4 does not apply. A flow of 2 cfs per acre of contributing watershed should be used to evaluate velocities. The velocity computed for open channel flows using Mannings equation shall be increased by an adjustment factor as follows to account for celerity:

Table 5-A-1
Depth-Duration-Frequency Coefficients

150 - 3000 feet elevation
West of Sierra Nevada Crest

Depths in inches at 150 feet

HEC-HMS Inputs

Duration	2yr	5yr	10yr	25yr	50yr	100yr	200yr	500yr
5m	0.13	0.20	0.25	0.32	0.38	0.44	0.49	0.58
10m	0.19	0.29	0.36	0.46	0.54	0.62	0.70	0.82
15m	0.23	0.35	0.43	0.55	0.64	0.73	0.82	0.96
30m	0.32	0.47	0.57	0.72	0.83	0.94	1.04	1.22
1h	0.45	0.64	0.77	0.94	1.07	1.21	1.33	1.53
2h	0.64	0.88	1.04	1.26	1.42	1.59	1.76	2.00
3h	0.77	1.04	1.23	1.47	1.66	1.85	2.03	2.31
6h	1.06	1.40	1.65	1.95	2.22	2.23	2.75	3.10
12h	1.43	1.91	2.24	2.67	3.00	3.30	3.60	4.00
1d	1.90	2.50	2.98	3.46	3.85	4.25	4.60	5.20
2d	2.51	3.40	3.95	4.65	5.15	5.70	6.20	7.00
3d	3.00	4.07	4.65	5.50	6.20	6.80	7.50	8.40
5d	3.61	4.91	5.76	6.85	7.63	8.42	9.20	10.29
10d	4.73	6.44	7.54	8.96	9.97	11.01	11.95	13.45

Change in depth, inches per 1000 feet

Duration	2yr	5yr	10yr	25yr	50yr	100yr	200yr	500yr
5m	0.007	0.000	-0.003	-0.007	-0.017	-0.023	-0.027	-0.037
10m	0.007	0.003	0.000	-0.010	-0.020	-0.027	-0.037	-0.050
15m	0.017	0.013	0.013	0.003	0.000	-0.007	-0.013	-0.027
30m	0.030	0.040	0.040	0.040	0.040	0.040	0.040	0.030
1h	0.063	0.087	0.100	0.120	0.133	0.137	0.157	0.173
2h	0.107	0.157	0.193	0.230	0.260	0.287	0.313	0.350
3h	0.143	0.220	0.263	0.327	0.373	0.413	0.457	0.513
6h	0.230	0.357	0.433	0.540	0.593	0.733	0.757	0.850
12h	0.453	0.663	0.820	0.977	1.127	1.250	1.400	1.600
1d	0.700	1.037	1.240	1.547	1.783	1.983	2.200	2.500
2d	1.163	1.667	2.017	2.483	2.850	3.167	3.533	4.000
3d	1.647	2.343	2.850	3.500	3.933	4.383	4.833	5.533
5d	2.287	3.230	3.913	4.717	5.390	5.960	6.600	7.570
10d	3.490	4.920	5.987	7.180	8.177	8.997	10.350	11.683

APPENDIX C

RUNOFF PEAK FLOW
&
WSE CALCULATION RESULTS

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	11061.63	Max WS	Pre10	204.62	134.22	137.14		137.17	0.001216	1.33	153.46	104.48	0.19
Dry Creek Trib	11061.63	Max WS	Pre100-DC-BFE	368.04	134.22	138.66		138.68	0.000400	1.12	328.19	125.77	0.12
Dry Creek Trib	11061.63	Max WS	DCTrib-ULT-10yr	204.62	134.22	137.14		137.17	0.001216	1.33	153.45	104.47	0.19
Dry Creek Trib	11061.63	Max WS	DCTrib-ULT-100	368.52	134.22	138.66		138.68	0.000401	1.12	328.23	125.78	0.12
Dry Creek Trib	11016.93	Max WS	Pre10	204.58	133.48	137.11		137.13	0.000549	0.99	205.80	119.83	0.13
Dry Creek Trib	11016.93	Max WS	Pre100-DC-BFE	368.04	133.48	138.65		138.67	0.000209	0.93	399.56	132.67	0.09
Dry Creek Trib	11016.93	Max WS	DCTrib-ULT-10yr	204.59	133.48	137.11		137.13	0.000550	0.99	205.80	119.83	0.13
Dry Creek Trib	11016.93	Max WS	DCTrib-ULT-100	368.44	133.48	138.65		138.67	0.000209	0.93	399.60	132.68	0.09
Dry Creek Trib	10935.1	Max WS	Pre10	204.52	133.65	136.98		137.06	0.001341	2.22	92.04	30.38	0.22
Dry Creek Trib	10935.1	Max WS	Pre100-DC-BFE	368.02	133.65	138.52		138.63	0.001142	2.67	138.20	170.01	0.22
Dry Creek Trib	10935.1	Max WS	DCTrib-ULT-10yr	204.55	133.65	136.98		137.06	0.001341	2.22	92.04	30.38	0.22
Dry Creek Trib	10935.1	Max WS	DCTrib-ULT-100	368.24	133.65	138.52		138.63	0.001143	2.67	138.21	170.02	0.22
Dry Creek Trib	10910.99			Culvert									
Dry Creek Trib	10886.88	Max WS	Pre10	204.45	132.30	136.71		136.77	0.001093	1.97	103.97	34.79	0.20
Dry Creek Trib	10886.88	Max WS	Pre100-DC-BFE	367.30	132.30	137.73		137.82	0.001162	2.46	182.05	108.63	0.22
Dry Creek Trib	10886.88	Max WS	DCTrib-ULT-10yr	204.55	132.30	136.71		136.77	0.001094	1.97	103.96	34.78	0.20
Dry Creek Trib	10886.88	Max WS	DCTrib-ULT-100	367.66	132.30	137.73		137.82	0.001165	2.46	181.99	108.62	0.22
Dry Creek Trib	10817.21	Max WS	Pre10	204.44	131.78	136.55		136.67	0.002053	2.79	74.21	27.46	0.27
Dry Creek Trib	10817.21	Max WS	Pre100-DC-BFE	367.28	131.78	137.56		137.72	0.002174	3.43	134.87	72.76	0.29
Dry Creek Trib	10817.21	Max WS	DCTrib-ULT-10yr	204.48	131.78	136.55		136.67	0.002055	2.79	74.20	27.45	0.27
Dry Creek Trib	10817.21	Max WS	DCTrib-ULT-100	367.35	131.78	137.56		137.72	0.002177	3.44	134.81	72.69	0.29
Dry Creek Trib	10749.58	Max WS	Pre10	204.76	131.83	136.35		136.49	0.003321	3.01	68.14	109.69	0.34
Dry Creek Trib	10749.58	Max WS	Pre100-DC-BFE	367.78	131.83	137.30		137.52	0.003867	3.78	98.30	192.64	0.38
Dry Creek Trib	10749.58	Max WS	DCTrib-ULT-10yr	204.84	131.83	136.35		136.49	0.003325	3.01	68.12	109.66	0.34
Dry Creek Trib	10749.58	Max WS	DCTrib-ULT-100	367.75	131.83	137.29		137.52	0.003870	3.79	98.27	192.59	0.38
Dry Creek Trib	10681.32	Max WS	Pre10	205.18	131.87	136.02		136.22	0.004712	3.55	57.78	101.81	0.40
Dry Creek Trib	10681.32	Max WS	Pre100-DC-BFE	368.49	131.87	136.91		137.21	0.005431	4.48	88.30	180.30	0.44
Dry Creek Trib	10681.32	Max WS	DCTrib-ULT-10yr	205.17	131.87	136.02		136.22	0.004714	3.55	57.77	101.77	0.40
Dry Creek Trib	10681.32	Max WS	DCTrib-ULT-100	368.39	131.87	136.91		137.21	0.005436	4.49	88.25	180.14	0.44
Dry Creek Trib	10599.74	Max WS	Pre10	205.69	132.28	135.41		135.67	0.009024	4.13	49.80	32.10	0.54
Dry Creek Trib	10599.74	Max WS	Pre100-DC-BFE	369.37	132.28	136.10		136.53	0.011505	5.24	70.48	71.16	0.62
Dry Creek Trib	10599.74	Max WS	DCTrib-ULT-10yr	205.63	132.28	135.41		135.67	0.009028	4.13	49.78	32.08	0.54
Dry Creek Trib	10599.74	Max WS	DCTrib-ULT-100	369.17	132.28	136.10		136.53	0.011512	5.24	70.43	71.03	0.62
Dry Creek Trib	10498.01	Max WS	Pre10	206.30	131.93	134.89		135.02	0.003990	2.88	72.00	52.12	0.37
Dry Creek Trib	10498.01	Max WS	Pre100-DC-BFE	370.53	131.93	135.47		135.69	0.005073	3.87	103.84	90.72	0.43
Dry Creek Trib	10498.01	Max WS	DCTrib-ULT-10yr	206.20	131.93	134.89		135.02	0.003992	2.88	71.97	52.04	0.37
Dry Creek Trib	10498.01	Max WS	DCTrib-ULT-100	370.18	131.93	135.47		135.69	0.005071	3.87	103.77	90.67	0.43
Dry Creek Trib	10420.34	Max WS	Pre10	206.76	131.97	134.50		134.68	0.005675	3.66	73.44	64.50	0.44
Dry Creek Trib	10420.34	Max WS	Pre100-DC-BFE	371.40	131.97	134.97		135.24	0.007528	4.82	115.53	106.82	0.53
Dry Creek Trib	10420.34	Max WS	DCTrib-ULT-10yr	206.63	131.97	134.50		134.68	0.005684	3.66	73.35	64.44	0.44
Dry Creek Trib	10420.34	Max WS	DCTrib-ULT-100	370.92	131.97	134.97		135.24	0.007536	4.82	115.35	106.79	0.53
Dry Creek Trib	10337.8	Max WS	Pre10	207.18	132.26	134.14		134.22	0.005439	2.80	101.16	116.66	0.41
Dry Creek Trib	10337.8	Max WS	Pre100-DC-BFE	372.35	132.26	134.46		134.60	0.007135	3.67	140.55	126.82	0.49
Dry Creek Trib	10337.8	Max WS	DCTrib-ULT-10yr	206.83	132.26	134.13		134.22	0.005511	2.81	100.54	116.48	0.41
Dry Creek Trib	10337.8	Max WS	DCTrib-ULT-100	371.69	132.26	134.46		134.60	0.007143	3.67	140.31	126.75	0.49
Dry Creek Trib	10253.75	Max WS	Pre10	205.81	131.94	133.59		133.66	0.006856	2.40	109.27	157.91	0.43
Dry Creek Trib	10253.75	Max WS	Pre100-DC-BFE	373.31	131.94	133.86		133.97	0.008175	3.09	152.27	161.59	0.49
Dry Creek Trib	10253.75	Max WS	DCTrib-ULT-10yr	168.75	131.94	133.57		133.62	0.004911	2.01	107.00	157.69	0.36
Dry Creek Trib	10253.75	Max WS	DCTrib-ULT-100	372.47	131.94	133.86		133.97	0.008119	3.08	152.38	161.60	0.49
Dry Creek Trib	10186.61	Max WS	Pre10	6.04	131.56	133.43		133.43	0.000001	0.04	203.56	206.11	0.01
Dry Creek Trib	10186.61	Max WS	Pre100-DC-BFE	374.00	131.56	133.49		133.54	0.003700	2.08	216.06	212.96	0.33
Dry Creek Trib	10186.61	Max WS	DCTrib-ULT-10yr	6.17	131.56	133.43		133.43	0.000001	0.04	203.48	206.04	0.01
Dry Creek Trib	10186.61	Max WS	DCTrib-ULT-100	371.47	131.56	133.50		133.55	0.003579	2.05	217.46	213.35	0.32
Dry Creek Trib	10087.22	Max WS	Pre10	164.01	131.60	133.34		133.34	0.000207	0.55	309.61	197.59	0.08
Dry Creek Trib	10087.22	Max WS	Pre100-DC-BFE	153.40	131.60	133.41		133.41	0.000159	0.50	323.51	199.57	0.07
Dry Creek Trib	10087.22	Max WS	DCTrib-ULT-10yr	153.90	131.60	133.35		133.35	0.000179	0.51	311.65	197.88	0.07
Dry Creek Trib	10087.22	Max WS	DCTrib-ULT-100	145.73	131.60	133.45		133.45	0.000133	0.46	332.14	200.78	0.07
Dry Creek Trib	10016.43	Max WS	Pre10	160.14	130.18	133.32		133.33	0.000176	0.72	250.80	145.77	0.08
Dry Creek Trib	10016.43	Max WS	Pre100-DC-BFE	135.19	130.18	133.39		133.40	0.000112	0.59	262.01	148.92	0.06
Dry Creek Trib	10016.43	Max WS	DCTrib-ULT-10yr	148.47	130.18	133.33		133.34	0.000148	0.67	252.74	146.32	0.07
Dry Creek Trib	10016.43	Max WS	DCTrib-ULT-100	126.87	130.18	133.44		133.44	0.000092	0.54	268.77	150.80	0.06
Dry Creek Trib	9935.11	Max WS	Pre10	154.49	129.44	133.31		133.31	0.000056	0.44	529.89	372.95	0.05
Dry Creek Trib	9935.11	Max WS	Pre100-DC-BFE	105.91	129.44	133.39		133.39	0.000023	0.29	559.66	381.54	0.03
Dry Creek Trib	9935.11	Max WS	DCTrib-ULT-10yr	139.49	129.44	133.33		133.33	0.000044	0.40	535.38	374.18	0.04
Dry Creek Trib	9935.11	Max WS	DCTrib-ULT-100	96.09	129.44	133.44		133.44	0.000017	0.25	577.30	392.95	0.03
Dry Creek Trib	9841.26	Max WS	Pre10	386.40	129.40	132.57	132.63	133.58	0.041631	8.07	47.91	144.61	1.13
Dry Creek Trib	9841.26	Max WS	Pre100-DC-BFE	428.92	129.40	133.00		133.04	0.001738	1.90	276.23	166.02	0.24

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	9841.26	Max WS	DCTrib-ULT-10yr	405.96	129.40	132.59	132.63	133.68	0.044531	8.37	48.50	145.46	1.17
Dry Creek Trib	9841.26	Max WS	DCTrib-ULT-100	436.25	129.40	133.03		133.07	0.001712	1.91	281.04	167.22	0.24
Dry Creek Trib	9764.85	Max WS	Pre10	356.00	129.40	132.39		132.44	0.001499	1.89	208.29	120.35	0.23
Dry Creek Trib	9764.85	Max WS	Pre100-DC-BFE	428.75	129.40	132.89		132.94	0.001002	1.78	272.06	131.92	0.19
Dry Creek Trib	9764.85	Max WS	DCTrib-ULT-10yr	348.56	129.40	132.41		132.46	0.001376	1.82	211.35	120.81	0.22
Dry Creek Trib	9764.85	Max WS	DCTrib-ULT-100	436.21	129.40	132.92		132.97	0.000996	1.79	276.02	132.64	0.19
Dry Creek Trib	9660.93	Max WS	Pre10	333.36	126.73	132.31		132.35	0.000565	1.84	284.55	126.64	0.15
Dry Creek Trib	9660.93	Max WS	Pre100-DC-BFE	430.00	126.73	132.83		132.86	0.000531	1.92	352.24	137.04	0.15
Dry Creek Trib	9660.93	Max WS	DCTrib-ULT-10yr	330.30	126.73	132.34		132.37	0.000539	1.81	287.65	127.17	0.15
Dry Creek Trib	9660.93	Max WS	DCTrib-ULT-100	437.68	126.73	132.86		132.89	0.000534	1.94	356.39	137.88	0.15
Dry Creek Trib	9592.92	Max WS	Pre10	318.78	126.42	132.16		132.27	0.002050	3.02	152.55	99.28	0.28
Dry Creek Trib	9592.92	Max WS	Pre100-DC-BFE	431.07	126.42	132.68		132.79	0.001926	3.20	209.22	129.35	0.28
Dry Creek Trib	9592.92	Max WS	DCTrib-ULT-10yr	318.45	126.42	132.19		132.30	0.001971	2.98	155.14	100.13	0.28
Dry Creek Trib	9592.92	Max WS	DCTrib-ULT-100	439.01	126.42	132.71		132.82	0.001930	3.22	213.04	132.40	0.28
Dry Creek Trib	9534.07	Max WS	Pre10	309.07	126.35	132.11		132.17	0.000951	2.07	199.14	117.17	0.19
Dry Creek Trib	9534.07	Max WS	Pre100-DC-BFE	431.81	126.35	132.62		132.69	0.000983	2.31	263.32	135.25	0.20
Dry Creek Trib	9534.07	Max WS	DCTrib-ULT-10yr	318.51	126.35	132.14		132.20	0.000975	2.11	202.28	118.08	0.20
Dry Creek Trib	9534.07	Max WS	DCTrib-ULT-100	439.94	126.35	132.65		132.72	0.000987	2.32	267.21	136.38	0.20
Dry Creek Trib	9429.91	Max WS	Pre10	302.85	125.97	131.77		131.94	0.004578	3.50	107.44	95.94	0.39
Dry Creek Trib	9429.91	Max WS	Pre100-DC-BFE	433.06	125.97	132.36		132.50	0.003261	3.41	178.67	130.94	0.34
Dry Creek Trib	9429.91	Max WS	DCTrib-ULT-10yr	305.99	125.97	131.79		131.96	0.004477	3.48	110.02	101.57	0.39
Dry Creek Trib	9429.91	Max WS	DCTrib-ULT-100	441.40	125.97	132.39		132.53	0.003213	3.40	182.81	131.85	0.34
Dry Creek Trib	9345.09	Max WS	Pre10	293.11	127.59	131.55		131.64	0.002323	2.37	123.85	57.23	0.28
Dry Creek Trib	9345.09	Max WS	Pre100-DC-BFE	434.05	127.59	132.17		132.27	0.002186	2.63	186.45	168.55	0.28
Dry Creek Trib	9345.09	Max WS	DCTrib-ULT-10yr	296.97	127.59	131.58		131.66	0.002308	2.37	125.38	57.59	0.28
Dry Creek Trib	9345.09	Max WS	DCTrib-ULT-100	442.55	127.59	132.20		132.30	0.002163	2.63	191.86	173.95	0.28
Dry Creek Trib	9257.01	Max WS	Pre10	289.05	126.10	131.33		131.44	0.002174	2.87	118.02	97.36	0.29
Dry Creek Trib	9257.01	Max WS	Pre100-DC-BFE	435.12	126.10	131.93		132.08	0.002457	3.42	158.74	198.03	0.31
Dry Creek Trib	9257.01	Max WS	DCTrib-ULT-10yr	293.72	126.10	131.36		131.47	0.002168	2.88	119.66	99.47	0.29
Dry Creek Trib	9257.01	Max WS	DCTrib-ULT-100	443.75	126.10	131.95		132.12	0.002471	3.45	160.95	199.34	0.31
Dry Creek Trib	9161.5	Max WS	Pre10	289.59	125.74	131.18		131.27	0.001718	2.44	141.38	84.92	0.25
Dry Creek Trib	9161.5	Max WS	Pre100-DC-BFE	436.25	125.74	131.77		131.87	0.001782	2.81	195.41	97.63	0.26
Dry Creek Trib	9161.5	Max WS	DCTrib-ULT-10yr	294.71	125.74	131.21		131.30	0.001710	2.45	143.77	85.66	0.25
Dry Creek Trib	9161.5	Max WS	DCTrib-ULT-100	445.21	125.74	131.80		131.90	0.001793	2.83	198.08	97.93	0.27
Dry Creek Trib	9090.68	Max WS	Pre10	289.24	125.67	130.94		131.08	0.004066	3.09	107.96	72.03	0.37
Dry Creek Trib	9090.68	Max WS	Pre100-DC-BFE	436.55	125.67	131.56		131.72	0.003558	3.41	160.13	99.98	0.36
Dry Creek Trib	9090.68	Max WS	DCTrib-ULT-10yr	294.67	125.67	130.97		131.10	0.004017	3.09	109.93	72.25	0.37
Dry Creek Trib	9090.68	Max WS	DCTrib-ULT-100	445.65	125.67	131.59		131.75	0.003586	3.44	162.73	102.37	0.36
Dry Creek Trib	8980.6	Max WS	Pre10	281.63	125.80	130.20		130.50	0.008211	4.38	68.82	51.52	0.52
Dry Creek Trib	8980.6	Max WS	Pre100-DC-BFE	436.74	125.80	130.94		131.23	0.006395	4.58	112.28	67.45	0.48
Dry Creek Trib	8980.6	Max WS	DCTrib-ULT-10yr	285.61	125.80	130.24		130.53	0.008051	4.36	70.67	52.57	0.52
Dry Creek Trib	8980.6	Max WS	DCTrib-ULT-100	445.84	125.80	130.97		131.27	0.006314	4.59	114.83	71.79	0.48
Dry Creek Trib	8900.41	Max WS	Pre10	278.76	125.50	130.05		130.09	0.000943	2.04	230.34	164.43	0.19
Dry Creek Trib	8900.41	Max WS	Pre100-DC-BFE	436.99	125.50	130.82		130.85	0.000734	2.06	369.07	204.59	0.18
Dry Creek Trib	8900.41	Max WS	DCTrib-ULT-10yr	285.49	125.50	130.08		130.12	0.000924	2.03	236.65	165.71	0.19
Dry Creek Trib	8900.41	Max WS	DCTrib-ULT-100	446.17	125.50	130.86		130.89	0.000732	2.07	377.48	209.55	0.18
Dry Creek Trib	8840.78	Max WS	Pre10	277.32	125.61	129.60		129.90	0.006876	4.36	63.55	35.41	0.49
Dry Creek Trib	8840.78	Max WS	Pre100-DC-BFE	437.34	125.61	130.19		130.66	0.009671	5.49	79.73	61.91	0.59
Dry Creek Trib	8840.78	Max WS	DCTrib-ULT-10yr	284.45	125.61	129.63		129.94	0.007005	4.42	64.37	37.63	0.49
Dry Creek Trib	8840.78	Max WS	DCTrib-ULT-100	446.65	125.61	130.23		130.70	0.009797	5.54	80.66	63.88	0.59
Dry Creek Trib	8719.42	Max WS	Pre10	277.14	125.78	129.27		129.33	0.002006	2.09	139.57	92.10	0.26
Dry Creek Trib	8719.42	Max WS	Pre100-DC-BFE	437.84	125.78	129.79		129.89	0.002129	2.52	189.62	98.02	0.28
Dry Creek Trib	8719.42	Max WS	DCTrib-ULT-10yr	283.67	125.78	129.30		129.37	0.001988	2.10	142.43	92.46	0.26
Dry Creek Trib	8719.42	Max WS	DCTrib-ULT-100	447.37	125.78	129.82		129.92	0.002134	2.54	192.35	98.31	0.28
Dry Creek Trib	8627.33	Max WS	Pre10	273.20	125.41	128.74		128.92	0.007526	3.95	88.82	61.80	0.49
Dry Creek Trib	8627.33	Max WS	Pre100-DC-BFE	438.25	125.41	129.19		129.44	0.008387	4.77	117.43	65.90	0.54
Dry Creek Trib	8627.33	Max WS	DCTrib-ULT-10yr	281.76	125.41	128.78		128.96	0.007441	3.97	91.00	62.11	0.49
Dry Creek Trib	8627.33	Max WS	DCTrib-ULT-100	447.91	125.41	129.21		129.47	0.008462	4.82	118.81	66.34	0.54
Dry Creek Trib	8563.46	Max WS	Pre10	271.13	124.23	128.51		128.61	0.002207	2.68	119.40	64.37	0.28
Dry Creek Trib	8563.46	Max WS	Pre100-DC-BFE	438.53	124.23	128.89		129.06	0.003440	3.64	144.86	70.02	0.36
Dry Creek Trib	8563.46	Max WS	DCTrib-ULT-10yr	280.70	124.23	128.54		128.64	0.002262	2.73	121.43	64.96	0.29
Dry Creek Trib	8563.46	Max WS	DCTrib-ULT-100	448.15	124.23	128.90		129.09	0.003518	3.70	145.99	70.24	0.37
Dry Creek Trib	8488.69	Max WS	Pre10	271.65	123.59	128.18		128.30	0.004858	3.34	115.18	91.40	0.39
Dry Creek Trib	8488.69	Max WS	Pre100-DC-BFE	438.83	123.59	128.21		128.50	0.011811	5.26	118.27	92.26	0.61
Dry Creek Trib	8488.69	Max WS	DCTrib-ULT-10yr	274.48	123.59	128.15		128.27	0.005223	3.43	112.44	89.10	0.41
Dry Creek Trib	8488.69	Max WS	DCTrib-ULT-100	448.67	123.59	128.24		128.53	0.011736	5.28	120.49	92.78	0.61
Dry Creek Trib	8405.54	Max WS	Pre10	258.85	124.66	128.03		128.04	0.000395	0.89	376.15	241.49	0.11

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	8405.54	Max WS	Pre100-DC-BFE	286.07	124.66	127.97		127.98	0.000542	1.02	362.23	240.03	0.13
Dry Creek Trib	8405.54	Max WS	DCTrib-ULT-10yr	259.34	124.66	127.99		127.99	0.000433	0.92	365.45	240.37	0.12
Dry Creek Trib	8405.54	Max WS	DCTrib-ULT-100	279.00	124.66	127.91		127.92	0.000587	1.04	347.42	238.46	0.14
Dry Creek Trib	8349.77	Max WS	Pre10	237.45	124.17	128.02		128.02	0.000054	0.40	853.57	522.71	0.04
Dry Creek Trib	8349.77	Max WS	Pre100-DC-BFE	245.46	124.17	127.96		127.96	0.000064	0.43	822.02	518.59	0.05
Dry Creek Trib	8349.77	Max WS	DCTrib-ULT-10yr	233.88	124.17	127.98		127.98	0.000057	0.41	829.97	519.63	0.04
Dry Creek Trib	8349.77	Max WS	DCTrib-ULT-100	196.95	124.17	127.90		127.90	0.000046	0.36	790.88	514.49	0.04
Dry Creek Trib	8292.18	Max WS	Pre10	447.43	124.38	127.49		127.53	0.003245	2.15	281.10	270.46	0.31
Dry Creek Trib	8292.18	Max WS	Pre100-DC-BFE	439.37	124.38	127.68		127.71	0.001913	1.79	327.43	335.27	0.25
Dry Creek Trib	8292.18	Max WS	DCTrib-ULT-10yr	433.11	124.38	127.46		127.51	0.003290	2.14	274.28	258.94	0.31
Dry Creek Trib	8292.18	Max WS	DCTrib-ULT-100	449.38	124.38	127.72		127.75	0.001801	1.76	338.32	347.96	0.24
Dry Creek Trib	8220.24	Max WS	Pre10	371.71	122.95	126.91		127.14	0.005612	3.91	105.09	111.59	0.45
Dry Creek Trib	8220.24	Max WS	Pre100-DC-BFE	465.64	122.95	127.42		127.63	0.004183	3.85	139.70	181.06	0.40
Dry Creek Trib	8220.24	Max WS	DCTrib-ULT-10yr	311.84	122.95	126.91		127.07	0.003960	3.28	104.98	111.51	0.38
Dry Creek Trib	8220.24	Max WS	DCTrib-ULT-100	482.53	122.95	127.47		127.69	0.004195	3.90	143.37	186.71	0.40
Dry Creek Trib	8102.71	Max WS	Pre10	314.92	122.75	126.72		126.76	0.000900	1.73	208.11	123.53	0.18
Dry Creek Trib	8102.71	Max WS	Pre100-DC-BFE	465.40	122.75	127.26		127.31	0.000952	2.00	278.64	140.38	0.20
Dry Creek Trib	8102.71	Max WS	DCTrib-ULT-10yr	306.24	122.75	126.73		126.77	0.000833	1.67	209.93	124.01	0.18
Dry Creek Trib	8102.71	Max WS	DCTrib-ULT-100	482.09	122.75	127.31		127.36	0.000958	2.03	285.77	141.09	0.20
Dry Creek Trib	7984.4	Max WS	Pre10	305.68	121.55	126.58		126.64	0.001546	2.43	196.11	143.63	0.24
Dry Creek Trib	7984.4	Max WS	Pre100-DC-BFE	465.17	121.55	127.11		127.18	0.001486	2.64	276.83	157.07	0.24
Dry Creek Trib	7984.4	Max WS	DCTrib-ULT-10yr	306.62	121.55	126.58		126.65	0.001539	2.42	196.96	143.81	0.24
Dry Creek Trib	7984.4	Max WS	DCTrib-ULT-100	481.71	121.55	127.16		127.23	0.001480	2.66	284.80	158.44	0.24
Dry Creek Trib	7877.8	Max WS	Pre10	289.62	121.35	126.13		126.36	0.005231	3.87	76.16	144.08	0.43
Dry Creek Trib	7877.8	Max WS	Pre100-DC-BFE	464.81	121.35	126.89		126.99	0.002379	3.10	231.94	163.28	0.30
Dry Creek Trib	7877.8	Max WS	DCTrib-ULT-10yr	294.64	121.35	126.18		126.41	0.005050	3.85	77.99	148.18	0.42
Dry Creek Trib	7877.8	Max WS	DCTrib-ULT-100	481.39	121.35	126.94		127.05	0.002317	3.10	241.26	165.08	0.30
Dry Creek Trib	7782	Max WS	Pre10	283.53	120.78	125.75		125.97	0.004140	3.72	78.23	56.37	0.38
Dry Creek Trib	7782	Max WS	Pre100-DC-BFE	464.47	120.78	126.51		126.74	0.003916	4.20	149.65	104.06	0.38
Dry Creek Trib	7782	Max WS	DCTrib-ULT-10yr	294.20	120.78	125.80		126.02	0.004211	3.79	80.03	71.42	0.38
Dry Creek Trib	7782	Max WS	DCTrib-ULT-100	480.93	120.78	126.57		126.81	0.003831	4.20	156.85	106.80	0.38
Dry Creek Trib	7684.81	Max WS	Pre10	281.98	120.67	125.33		125.57	0.005551	4.17	81.55	67.33	0.44
Dry Creek Trib	7684.81	Max WS	Pre100-DC-BFE	464.26	120.67	126.21		126.41	0.003723	4.11	176.13	144.99	0.38
Dry Creek Trib	7684.81	Max WS	DCTrib-ULT-10yr	292.52	120.67	125.37		125.62	0.005558	4.22	84.71	70.52	0.44
Dry Creek Trib	7684.81	Max WS	DCTrib-ULT-100	480.89	120.67	126.30		126.49	0.003456	4.02	189.00	147.53	0.37
Dry Creek Trib	7588.69	Max WS	Pre10	274.71	120.06	124.06		124.58	0.016197	5.79	47.47	139.20	0.72
Dry Creek Trib	7588.69	Max WS	Pre100-DC-BFE	464.09	120.06	125.27		125.83	0.009779	6.02	77.92	218.22	0.60
Dry Creek Trib	7588.69	Max WS	DCTrib-ULT-10yr	287.75	120.06	124.24		124.72	0.013842	5.55	51.93	151.87	0.67
Dry Creek Trib	7588.69	Max WS	DCTrib-ULT-100	479.24	120.06	125.39		125.94	0.009147	5.97	81.39	224.92	0.58
Dry Creek Trib	7492.13	Max WS	Pre10	284.39	119.00	123.49		123.65	0.002470	3.15	90.38	135.69	0.28
Dry Creek Trib	7492.13	Max WS	Pre100-DC-BFE	490.10	119.00	124.95		125.15	0.003083	3.51	139.91	211.30	0.33
Dry Creek Trib	7492.13	Max WS	DCTrib-ULT-10yr	314.79	119.00	123.63		123.84	0.003288	3.67	85.87	19.22	0.31
Dry Creek Trib	7492.13	Max WS	DCTrib-ULT-100	519.15	119.00	124.87		125.21	0.004430	4.73	109.80	19.59	0.35
Dry Creek Trib	7469.295			Culvert									
Dry Creek Trib	7446.46	Max WS	Pre10	282.21	119.00	123.11		123.33	0.003978	3.78	74.68	20.84	0.35
Dry Creek Trib	7446.46	Max WS	Pre100-DC-BFE	490.07	119.00	124.04		124.45	0.006392	5.15	95.12	23.74	0.45
Dry Creek Trib	7446.46	Max WS	DCTrib-ULT-10yr	313.33	119.00	123.27		123.52	0.004318	4.01	78.08	21.05	0.37
Dry Creek Trib	7446.46	Max WS	DCTrib-ULT-100	519.06	119.00	124.13		124.57	0.006830	5.34	97.28	24.30	0.47
Dry Creek Trib	7346.34	Max WS	Pre10	281.77	117.42	123.01		123.02	0.000066	0.63	445.00	102.31	0.05
Dry Creek Trib	7346.34	Max WS	Pre100-DC-BFE	490.05	117.42	123.92		123.93	0.000115	0.90	541.80	111.42	0.07
Dry Creek Trib	7346.34	Max WS	DCTrib-ULT-10yr	311.20	117.42	123.17		123.18	0.000072	0.67	461.38	103.67	0.06
Dry Creek Trib	7346.34	Max WS	DCTrib-ULT-100	519.03	117.42	124.00		124.01	0.000123	0.94	550.77	111.94	0.07
Dry Creek Trib	7255.4	Max WS	Pre10	281.48	117.51	123.00		123.01	0.000107	0.81	348.28	79.94	0.07
Dry Creek Trib	7255.4	Max WS	Pre100-DC-BFE	490.84	117.51	123.90		123.92	0.000188	1.16	422.17	94.41	0.09
Dry Creek Trib	7255.4	Max WS	DCTrib-ULT-10yr	311.44	117.51	123.16		123.17	0.000119	0.86	360.98	81.01	0.07
Dry Creek Trib	7255.4	Max WS	DCTrib-ULT-100	519.76	117.51	123.97		124.00	0.000202	1.21	428.90	96.20	0.10
Dry Creek Trib	7164.22	Max WS	Pre10	281.10	118.37	122.27		122.68	0.013098	5.10	55.14	28.91	0.65
Dry Creek Trib	7164.22	Max WS	Pre100-DC-BFE	491.61	118.37	123.06		123.61	0.012910	6.01	88.77	59.98	0.67
Dry Creek Trib	7164.22	Max WS	DCTrib-ULT-10yr	311.24	118.37	122.41		122.84	0.013374	5.27	59.03	30.38	0.66
Dry Creek Trib	7164.22	Max WS	DCTrib-ULT-100	520.39	118.37	123.14		123.70	0.012837	6.12	93.48	61.05	0.68
Dry Creek Trib	7067.14	Max WS	Pre10	280.68	117.76	121.70		121.88	0.004591	3.73	99.19	67.88	0.41
Dry Creek Trib	7067.14	Max WS	Pre100-DC-BFE	492.43	117.76	122.60		122.78	0.003709	4.08	165.07	79.29	0.38
Dry Creek Trib	7067.14	Max WS	DCTrib-ULT-10yr	310.78	117.76	121.85		122.02	0.004385	3.78	109.33	69.92	0.40
Dry Creek Trib	7067.14	Max WS	DCTrib-ULT-100	521.18	117.76	122.69		122.88	0.003690	4.14	172.54	80.44	0.38
Dry Creek Trib	6969.96	Max WS	Pre10	280.94	117.10	121.33		121.49	0.003596	3.12	89.94	37.70	0.36
Dry Creek Trib	6969.96	Max WS	Pre100-DC-BFE	493.29	117.10	122.13		122.38	0.004847	4.03	122.58	44.95	0.42
Dry Creek Trib	6969.96	Max WS	DCTrib-ULT-10yr	310.48	117.10	121.46		121.63	0.003836	3.28	94.72	38.76	0.37

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	6969.96	Max WS	DCTrib-ULT-100	521.95	117.10	122.21		122.47	0.005018	4.15	126.01	46.19	0.43
Dry Creek Trib	6844.28	Max WS	Pre10	280.93	117.22	121.08		121.16	0.001774	2.33	133.98	79.44	0.26
Dry Creek Trib	6844.28	Max WS	Pre100-DC-BFE	494.40	117.22	121.84		121.96	0.002016	2.95	199.06	93.61	0.29
Dry Creek Trib	6844.28	Max WS	DCTrib-ULT-10yr	310.93	117.22	121.19		121.28	0.001857	2.45	142.92	81.75	0.26
Dry Creek Trib	6844.28	Max WS	DCTrib-ULT-100	522.91	117.22	121.91		122.04	0.002073	3.03	205.61	94.48	0.29
Dry Creek Trib	6748.04	Max WS	Pre10	281.02	117.62	120.45		120.74	0.009556	4.92	76.13	58.74	0.58
Dry Creek Trib	6748.04	Max WS	Pre100-DC-BFE	495.19	117.62	121.18		121.52	0.008412	5.57	123.99	71.96	0.57
Dry Creek Trib	6748.04	Max WS	DCTrib-ULT-10yr	310.32	117.62	120.56		120.86	0.009401	5.04	82.73	60.49	0.58
Dry Creek Trib	6748.04	Max WS	DCTrib-ULT-100	523.59	117.62	121.25		121.61	0.008440	5.67	129.29	73.36	0.57
Dry Creek Trib	6661.51	Max WS	Pre10	281.36	116.27	120.07		120.19	0.003333	2.93	111.82	70.80	0.34
Dry Creek Trib	6661.51	Max WS	Pre100-DC-BFE	495.94	116.27	120.82		120.98	0.003437	3.54	169.99	85.13	0.36
Dry Creek Trib	6661.51	Max WS	DCTrib-ULT-10yr	310.68	116.27	120.18		120.31	0.003425	3.04	119.88	73.18	0.35
Dry Creek Trib	6661.51	Max WS	DCTrib-ULT-100	524.17	116.27	120.89		121.07	0.003467	3.61	176.55	86.54	0.37
Dry Creek Trib	6593.97	Max WS	Pre10	281.72	116.25	119.74		119.90	0.005068	3.70	97.10	61.08	0.42
Dry Creek Trib	6593.97	Max WS	Pre100-DC-BFE	496.72	116.25	120.39		120.64	0.005926	4.70	140.52	73.32	0.48
Dry Creek Trib	6593.97	Max WS	DCTrib-ULT-10yr	310.66	116.25	119.83		120.01	0.005250	3.87	102.97	62.52	0.43
Dry Creek Trib	6593.97	Max WS	DCTrib-ULT-100	524.79	116.25	120.46		120.73	0.005971	4.80	145.95	74.37	0.48
Dry Creek Trib	6509.43	Max WS	Pre10	282.03	115.84	119.39		119.55	0.004226	3.37	102.64	74.01	0.39
Dry Creek Trib	6509.43	Max WS	Pre100-DC-BFE	497.41	115.84	119.93		120.18	0.005508	4.42	146.51	85.47	0.46
Dry Creek Trib	6509.43	Max WS	DCTrib-ULT-10yr	311.00	115.84	119.47		119.65	0.004620	3.60	108.65	77.56	0.41
Dry Creek Trib	6509.43	Max WS	DCTrib-ULT-100	525.30	115.84	120.00		120.25	0.005596	4.52	151.82	86.39	0.46
Dry Creek Trib	6469.45	Max WS	Pre10	282.17	116.52	119.28		119.37	0.004408	3.03	127.60	99.51	0.38
Dry Creek Trib	6469.45	Max WS	Pre100-DC-BFE	497.69	116.52	119.83		119.97	0.004683	3.70	186.30	114.05	0.41
Dry Creek Trib	6469.45	Max WS	DCTrib-ULT-10yr	310.81	116.52	119.35		119.46	0.004560	3.16	135.05	101.48	0.39
Dry Creek Trib	6469.45	Max WS	DCTrib-ULT-100	525.61	116.52	119.90		120.04	0.004670	3.76	193.87	115.89	0.41
Dry Creek Trib	6351.96	Max WS	Pre10	282.51	114.42	118.71		118.82	0.004336	3.20	126.35	103.59	0.38
Dry Creek Trib	6351.96	Max WS	Pre100-DC-BFE	498.63	114.42	119.36		119.49	0.003906	3.60	198.32	116.35	0.37
Dry Creek Trib	6351.96	Max WS	DCTrib-ULT-10yr	309.66	114.42	118.80		118.91	0.004371	3.29	135.14	106.35	0.38
Dry Creek Trib	6351.96	Max WS	DCTrib-ULT-100	526.31	114.42	119.43		119.56	0.003830	3.63	207.18	117.04	0.37
Dry Creek Trib	6224.9	Max WS	Pre10	282.84	114.45	118.32		118.41	0.002474	3.12	151.61	107.44	0.31
Dry Creek Trib	6224.9	Max WS	Pre100-DC-BFE	499.65	114.45	118.97		119.08	0.002662	3.67	227.58	122.99	0.33
Dry Creek Trib	6224.9	Max WS	DCTrib-ULT-10yr	309.63	114.45	118.40		118.49	0.002553	3.22	160.70	109.46	0.31
Dry Creek Trib	6224.9	Max WS	DCTrib-ULT-100	527.10	114.45	119.06		119.17	0.002597	3.68	238.62	124.35	0.33
Dry Creek Trib	6159.11	Max WS	Pre10	283.08	114.34	118.19		118.25	0.002100	2.38	168.07	123.60	0.27
Dry Creek Trib	6159.11	Max WS	Pre100-DC-BFE	500.20	114.34	118.84		118.92	0.002054	2.76	251.39	129.77	0.28
Dry Creek Trib	6159.11	Max WS	DCTrib-ULT-10yr	309.55	114.34	118.27		118.33	0.002142	2.45	177.90	124.61	0.28
Dry Creek Trib	6159.11	Max WS	DCTrib-ULT-100	527.57	114.34	118.94		119.02	0.001993	2.78	263.44	130.71	0.28
Dry Creek Trib	6102.92	Max WS	Pre10	283.28	114.47	118.02		118.85	0.020651	7.35	39.30	112.34	0.84
Dry Creek Trib	6102.92	Max WS	Pre100-DC-BFE	500.68	114.47	118.69		118.79	0.002976	3.29	225.70	120.17	0.33
Dry Creek Trib	6102.92	Max WS	DCTrib-ULT-10yr	309.75	114.47	118.10		118.18	0.003459	3.07	155.52	114.38	0.34
Dry Creek Trib	6102.92	Max WS	DCTrib-ULT-100	527.97	114.47	118.79		118.88	0.002844	3.28	237.31	121.00	0.32
Dry Creek Trib	6011.93	Max WS	Pre10	283.58	113.85	117.61		117.77	0.004497	3.60	111.51	98.32	0.40
Dry Creek Trib	6011.93	Max WS	Pre100-DC-BFE	501.39	113.85	118.33		118.50	0.003919	3.98	186.76	110.55	0.39
Dry Creek Trib	6011.93	Max WS	DCTrib-ULT-10yr	309.36	113.85	117.68		117.84	0.004679	3.74	118.11	99.59	0.41
Dry Creek Trib	6011.93	Max WS	DCTrib-ULT-100	528.47	113.85	118.46		118.61	0.003604	3.91	200.67	112.54	0.38
Dry Creek Trib	5902.58	Max WS	Pre10	283.64	115.02	117.08		117.19	0.005828	2.66	108.00	90.60	0.42
Dry Creek Trib	5902.58	Max WS	Pre100-DC-BFE	502.16	115.02	118.01		118.11	0.002821	2.66	197.75	104.13	0.32
Dry Creek Trib	5902.58	Max WS	DCTrib-ULT-10yr	307.69	115.02	117.21		117.32	0.004948	2.62	119.77	92.39	0.39
Dry Creek Trib	5902.58	Max WS	DCTrib-ULT-100	528.91	115.02	118.17		118.27	0.002429	2.59	215.01	105.70	0.30
Dry Creek Trib	5792.84	Max WS	Pre10	283.67	112.78	116.79		116.82	0.001341	1.96	203.70	122.32	0.22
Dry Creek Trib	5792.84	Max WS	Pre100-DC-BFE	502.71	112.78	117.88		117.92	0.000860	1.99	344.57	133.76	0.18
Dry Creek Trib	5792.84	Max WS	DCTrib-ULT-10yr	307.63	112.78	116.98		117.01	0.001143	1.89	227.15	125.26	0.20
Dry Creek Trib	5792.84	Max WS	DCTrib-ULT-100	528.98	112.78	118.07		118.10	0.000772	1.95	369.58	135.92	0.18
Dry Creek Trib	5682.44	Max WS	Pre10	283.91	111.63	116.72		116.73	0.000232	0.93	444.14	223.69	0.09
Dry Creek Trib	5682.44	Max WS	Pre100-DC-BFE	503.63	111.63	117.85		117.86	0.000179	1.01	712.80	248.49	0.09
Dry Creek Trib	5682.44	Max WS	DCTrib-ULT-10yr	307.80	111.63	116.92		116.93	0.000206	0.91	489.14	230.54	0.09
Dry Creek Trib	5682.44	Max WS	DCTrib-ULT-100	529.76	111.63	118.04		118.05	0.000162	0.98	760.28	249.93	0.08
Dry Creek Trib	5618.96	Max WS	Pre10	284.09	110.98	116.51		116.70	0.003999	3.89	97.82	57.49	0.37
Dry Creek Trib	5618.96	Max WS	Pre100-DC-BFE	502.29	110.98	117.66		117.84	0.002963	4.06	168.71	64.61	0.34
Dry Creek Trib	5618.96	Max WS	DCTrib-ULT-10yr	307.48	110.98	116.74		116.91	0.003379	3.73	111.37	59.23	0.35
Dry Creek Trib	5618.96	Max WS	DCTrib-ULT-100	525.42	110.98	117.87		118.04	0.002616	3.93	182.20	65.65	0.32
Dry Creek Trib	5553.77	Max WS	Pre10	326.54	112.80	116.37		116.46	0.001721	2.43	144.89	64.36	0.25
Dry Creek Trib	5553.77	Max WS	Pre100-DC-BFE	577.56	112.80	117.53		117.65	0.001534	2.88	225.60	74.77	0.25
Dry Creek Trib	5553.77	Max WS	DCTrib-ULT-10yr	364.21	112.80	116.60		116.69	0.001612	2.48	160.03	66.71	0.25
Dry Creek Trib	5553.77	Max WS	DCTrib-ULT-100	629.70	112.80	117.72		117.85	0.001532	2.97	240.18	76.65	0.26
Dry Creek Trib	5479.88	Max WS	Pre10	326.79	110.81	116.24		116.33	0.001670	2.44	134.00	45.45	0.25
Dry Creek Trib	5479.88	Max WS	Pre100-DC-BFE	577.93	110.81	117.37		117.51	0.002200	3.00	192.42	59.00	0.29

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	5479.88	Max WS	DCTrib-ULT-10yr	364.70	110.81	116.47		116.57	0.001723	2.52	144.57	47.77	0.26
Dry Creek Trib	5479.88	Max WS	DCTrib-ULT-100	630.19	110.81	117.56		117.71	0.002274	3.09	203.94	61.96	0.30
Dry Creek Trib	5423.09	Max WS	Pre10	326.96	111.01	116.17		116.25	0.001557	2.80	162.56	66.70	0.25
Dry Creek Trib	5423.09	Max WS	Pre100-DC-BFE	578.37	111.01	117.29		117.41	0.001684	3.43	247.04	89.44	0.27
Dry Creek Trib	5423.09	Max WS	DCTrib-ULT-10yr	365.05	111.01	116.39		116.48	0.001529	2.88	178.11	69.76	0.25
Dry Creek Trib	5423.09	Max WS	DCTrib-ULT-100	630.86	111.01	117.48		117.61	0.001869	3.70	265.11	99.19	0.28
Dry Creek Trib	5275.52	Max WS	Pre10	327.24	110.57	115.67		115.85	0.003793	3.40	96.27	36.00	0.37
Dry Creek Trib	5275.52	Max WS	Pre100-DC-BFE	579.34	110.57	116.71		116.97	0.004794	4.03	144.75	59.00	0.42
Dry Creek Trib	5275.52	Max WS	DCTrib-ULT-10yr	365.70	110.57	115.87		116.06	0.004298	3.53	103.46	40.27	0.39
Dry Creek Trib	5275.52	Max WS	DCTrib-ULT-100	632.29	110.57	116.89		117.15	0.004675	4.14	155.52	63.51	0.42
Dry Creek Trib	5185.28	Max WS	Pre10	327.35	111.16	115.41		115.55	0.002856	3.11	115.33	61.12	0.33
Dry Creek Trib	5185.28	Max WS	Pre100-DC-BFE	579.88	111.16	116.46		116.65	0.002612	3.67	185.76	73.05	0.33
Dry Creek Trib	5185.28	Max WS	DCTrib-ULT-10yr	366.02	111.16	115.59		115.74	0.002826	3.22	126.35	62.78	0.33
Dry Creek Trib	5185.28	Max WS	DCTrib-ULT-100	633.01	111.16	116.63		116.83	0.002635	3.80	198.56	76.61	0.33
Dry Creek Trib	5105.36	Max WS	Pre10	327.62	110.83	115.28		115.38	0.001383	2.70	140.91	53.71	0.24
Dry Creek Trib	5105.36	Max WS	Pre100-DC-BFE	580.48	110.83	116.31		116.48	0.001753	3.54	203.50	67.86	0.28
Dry Creek Trib	5105.36	Max WS	DCTrib-ULT-10yr	366.50	110.83	115.45		115.57	0.001470	2.86	150.41	56.02	0.25
Dry Creek Trib	5105.36	Max WS	DCTrib-ULT-100	633.93	110.83	116.48		116.66	0.001822	3.69	215.05	69.72	0.28
Dry Creek Trib	5008.64	Max WS	Pre10	327.92	111.00	115.12		115.23	0.002012	2.70	137.27	65.49	0.28
Dry Creek Trib	5008.64	Max WS	Pre100-DC-BFE	581.20	111.00	116.15		116.30	0.002033	3.31	210.74	80.44	0.29
Dry Creek Trib	5008.64	Max WS	DCTrib-ULT-10yr	366.94	111.00	115.29		115.40	0.002041	2.82	148.33	67.10	0.28
Dry Creek Trib	5008.64	Max WS	DCTrib-ULT-100	635.01	111.00	116.31		116.47	0.002063	3.42	223.89	81.77	0.30
Dry Creek Trib	4899.84	Max WS	Pre10	327.96	110.75	114.49		114.79	0.007073	4.37	78.58	43.89	0.50
Dry Creek Trib	4899.84	Max WS	Pre100-DC-BFE	581.77	110.75	115.56		115.92	0.005943	5.01	132.51	58.30	0.47
Dry Creek Trib	4899.84	Max WS	DCTrib-ULT-10yr	366.75	110.75	114.64		114.96	0.007192	4.57	85.27	45.63	0.50
Dry Creek Trib	4899.84	Max WS	DCTrib-ULT-100	635.67	110.75	115.70		116.09	0.006035	5.19	141.28	61.11	0.48
Dry Creek Trib	4824.44	Max WS	Pre10	327.94	110.92	114.32		114.43	0.002179	2.66	130.56	66.91	0.29
Dry Creek Trib	4824.44	Max WS	Pre100-DC-BFE	582.32	110.92	115.46		115.59	0.001748	3.02	230.42	99.62	0.27
Dry Creek Trib	4824.44	Max WS	DCTrib-ULT-10yr	366.78	110.92	114.47		114.59	0.002236	2.79	141.74	78.87	0.29
Dry Creek Trib	4824.44	Max WS	DCTrib-ULT-100	636.50	110.92	115.62		115.75	0.001767	3.11	246.14	101.09	0.28
Dry Creek Trib	4744.51	Max WS	Pre10	327.84	111.08	114.02		114.17	0.005389	3.38	119.75	95.80	0.43
Dry Creek Trib	4744.51	Max WS	Pre100-DC-BFE	582.78	111.08	115.34		115.44	0.001958	2.88	257.82	112.27	0.28
Dry Creek Trib	4744.51	Max WS	DCTrib-ULT-10yr	366.34	111.08	114.21		114.35	0.004516	3.29	138.34	98.01	0.40
Dry Creek Trib	4744.51	Max WS	DCTrib-ULT-100	637.35	111.08	115.50		115.60	0.001932	2.95	275.48	113.82	0.28
Dry Creek Trib	4647.61	Max WS	Pre10	327.76	109.03	113.78		113.87	0.001391	2.36	148.88	63.85	0.23
Dry Creek Trib	4647.61	Max WS	Pre100-DC-BFE	583.50	109.03	115.20		115.30	0.001057	2.63	264.68	91.94	0.22
Dry Creek Trib	4647.61	Max WS	DCTrib-ULT-10yr	366.51	109.03	113.99		114.08	0.001381	2.46	163.48	72.44	0.24
Dry Creek Trib	4647.61	Max WS	DCTrib-ULT-100	638.36	109.03	115.35		115.46	0.001110	2.76	278.51	93.56	0.22
Dry Creek Trib	4565.34	Max WS	Pre10	327.95	109.08	113.71		113.76	0.001057	2.02	189.74	83.91	0.20
Dry Creek Trib	4565.34	Max WS	Pre100-DC-BFE	584.11	109.08	115.16		115.22	0.000761	2.22	321.60	99.22	0.18
Dry Creek Trib	4565.34	Max WS	DCTrib-ULT-10yr	367.00	109.08	113.93		113.98	0.001016	2.07	208.08	85.43	0.20
Dry Creek Trib	4565.34	Max WS	DCTrib-ULT-100	639.21	109.08	115.31		115.37	0.000805	2.33	336.26	100.71	0.19
Dry Creek Trib	4477.87	Max WS	Pre10	327.99	108.81	113.50		113.63	0.002340	3.05	124.49	54.96	0.30
Dry Creek Trib	4477.87	Max WS	Pre100-DC-BFE	584.76	108.81	114.99		115.13	0.001682	3.34	217.49	70.83	0.27
Dry Creek Trib	4477.87	Max WS	DCTrib-ULT-10yr	367.51	108.81	113.72		113.86	0.002270	3.14	136.84	56.98	0.30
Dry Creek Trib	4477.87	Max WS	DCTrib-ULT-100	640.13	108.81	115.12		115.28	0.001804	3.52	226.85	72.24	0.28
Dry Creek Trib	4378.67	Max WS	Pre10	327.81	108.62	112.86		113.15	0.008170	4.31	76.10	36.00	0.52
Dry Creek Trib	4378.67	Max WS	Pre100-DC-BFE	585.51	108.62	114.68		114.89	0.003432	3.70	166.65	70.12	0.36
Dry Creek Trib	4378.67	Max WS	DCTrib-ULT-10yr	367.61	108.62	113.07		113.37	0.007857	4.38	83.94	37.61	0.52
Dry Creek Trib	4378.67	Max WS	DCTrib-ULT-100	641.22	108.62	114.79		115.02	0.003670	3.91	174.04	71.74	0.38
Dry Creek Trib	4277.98	Max WS	Pre10	327.77	106.96	112.52		112.65	0.002049	2.80	117.58	40.89	0.28
Dry Creek Trib	4277.98	Max WS	Pre100-DC-BFE	586.27	106.96	114.54		114.66	0.001153	2.88	230.21	73.53	0.22
Dry Creek Trib	4277.98	Max WS	DCTrib-ULT-10yr	367.51	106.96	112.74		112.87	0.002097	2.94	126.53	43.60	0.28
Dry Creek Trib	4277.98	Max WS	DCTrib-ULT-100	642.34	106.96	114.63		114.77	0.001291	3.08	236.93	74.48	0.24
Dry Creek Trib	4174.26	Max WS	Pre10	328.04	106.84	112.42		112.49	0.001018	2.48	178.62	62.93	0.21
Dry Creek Trib	4174.26	Max WS	Pre100-DC-BFE	587.06	106.84	114.50		114.56	0.000638	2.53	348.88	98.96	0.18
Dry Creek Trib	4174.26	Max WS	DCTrib-ULT-10yr	368.10	106.84	112.64		112.71	0.001062	2.61	192.45	65.84	0.21
Dry Creek Trib	4174.26	Max WS	DCTrib-ULT-100	643.49	106.84	114.59		114.66	0.000721	2.72	357.54	100.43	0.19
Dry Creek Trib	4081.21	Max WS	Pre10	327.99	106.93	112.12		112.31	0.004002	3.74	114.96	86.31	0.38
Dry Creek Trib	4081.21	Max WS	Pre100-DC-BFE	587.63	106.93	114.44		114.50	0.000735	2.35	385.45	146.79	0.18
Dry Creek Trib	4081.21	Max WS	DCTrib-ULT-10yr	368.32	106.93	112.35		112.53	0.003545	3.69	135.14	92.08	0.36
Dry Creek Trib	4081.21	Max WS	DCTrib-ULT-100	644.53	106.93	114.52		114.58	0.000816	2.50	397.52	148.27	0.19
Dry Creek Trib	3997.08	Max WS	Pre10	327.97	106.77	111.92		112.03	0.002444	2.75	119.32	44.58	0.30
Dry Creek Trib	3997.08	Max WS	Pre100-DC-BFE	588.25	106.77	114.36		114.44	0.000725	2.28	315.15	119.13	0.18
Dry Creek Trib	3997.08	Max WS	DCTrib-ULT-10yr	368.53	106.77	112.14		112.26	0.002412	2.85	129.22	46.10	0.30
Dry Creek Trib	3997.08	Max WS	DCTrib-ULT-100	645.03	106.77	114.43		114.52	0.000820	2.45	323.68	120.19	0.19
Dry Creek Trib	3926.37	Max WS	Pre10	327.55	107.28	111.56		111.79	0.005085	3.94	88.84	47.07	0.43

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	3926.37	Max WS	Pre100-DC-BFE	588.54	107.28	114.29		114.39	0.001002	2.81	295.63	126.37	0.21
Dry Creek Trib	3926.37	Max WS	DCTrib-ULT-10yr	368.64	107.28	111.77		112.02	0.004829	4.05	99.15	49.23	0.42
Dry Creek Trib	3926.37	Max WS	DCTrib-ULT-100	645.17	107.28	114.35		114.47	0.001137	3.02	303.31	127.49	0.23
Dry Creek Trib	3862.49	Max WS	Pre10	327.74	106.46	111.40		111.55	0.002630	3.14	109.05	43.86	0.31
Dry Creek Trib	3862.49	Max WS	Pre100-DC-BFE	588.68	106.46	114.25		114.33	0.000697	2.50	319.21	126.48	0.18
Dry Creek Trib	3862.49	Max WS	DCTrib-ULT-10yr	368.66	106.46	111.61		111.78	0.002622	3.28	118.78	46.31	0.32
Dry Creek Trib	3862.49	Max WS	DCTrib-ULT-100	645.90	106.46	114.30		114.40	0.000803	2.70	326.06	127.86	0.19
Dry Creek Trib	3776.24	Max WS	Pre10	327.95	105.17	111.36		111.40	0.000455	1.53	233.15	85.46	0.14
Dry Creek Trib	3776.24	Max WS	Pre100-DC-BFE	589.68	105.17	114.25		114.28	0.000163	1.33	559.71	138.00	0.09
Dry Creek Trib	3776.24	Max WS	DCTrib-ULT-10yr	369.15	105.17	111.59		111.62	0.000468	1.61	252.47	88.77	0.14
Dry Creek Trib	3776.24	Max WS	DCTrib-ULT-100	646.90	105.17	114.31		114.33	0.000189	1.44	567.23	138.54	0.10
Dry Creek Trib	3690.59	Max WS	Pre10	327.95	105.83	111.19		111.31	0.002054	2.73	120.39	40.98	0.28
Dry Creek Trib	3690.59	Max WS	Pre100-DC-BFE	589.53	105.83	114.20		114.26	0.000486	2.09	356.31	114.95	0.15
Dry Creek Trib	3690.59	Max WS	DCTrib-ULT-10yr	369.61	105.83	111.40		111.53	0.002137	2.87	129.04	42.26	0.29
Dry Creek Trib	3690.59	Max WS	DCTrib-ULT-100	646.95	105.83	114.24		114.31	0.000565	2.27	361.47	115.53	0.16
Dry Creek Trib	3620.21	Max WS	Pre10	328.15	105.63	111.04		111.14	0.002621	2.57	127.66	55.90	0.30
Dry Creek Trib	3620.21	Max WS	Pre100-DC-BFE	590.06	105.63	114.19		114.22	0.000355	1.60	432.75	135.18	0.13
Dry Creek Trib	3620.21	Max WS	DCTrib-ULT-10yr	369.75	105.63	111.25		111.36	0.002599	2.65	139.76	58.25	0.30
Dry Creek Trib	3620.21	Max WS	DCTrib-ULT-100	647.78	105.63	114.23		114.27	0.000414	1.73	438.57	135.89	0.14
Dry Creek Trib	3517.19	Max WS	Pre10	328.25	104.82	110.91		110.97	0.000922	1.85	178.88	63.29	0.19
Dry Creek Trib	3517.19	Max WS	Pre100-DC-BFE	590.30	104.82	114.16		114.19	0.000222	1.47	463.17	115.07	0.10
Dry Creek Trib	3517.19	Max WS	DCTrib-ULT-10yr	370.31	104.82	111.13		111.18	0.000934	1.95	192.60	66.27	0.19
Dry Creek Trib	3517.19	Max WS	DCTrib-ULT-100	647.81	104.82	114.20		114.24	0.000262	1.60	467.58	116.38	0.11
Dry Creek Trib	3426.61	Max WS	Pre10	328.52	105.85	110.77		110.85	0.001966	2.23	147.43	65.47	0.26
Dry Creek Trib	3426.61	Max WS	Pre100-DC-BFE	590.99	105.85	114.15		114.17	0.000201	1.21	569.48	165.78	0.10
Dry Creek Trib	3426.61	Max WS	DCTrib-ULT-10yr	370.77	105.85	110.98		111.06	0.002036	2.29	161.58	70.58	0.27
Dry Creek Trib	3426.61	Max WS	DCTrib-ULT-100	648.88	105.85	114.19		114.21	0.000235	1.32	575.53	166.18	0.10
Dry Creek Trib	3351.95	Max WS	Pre10	328.62	106.47	110.18		110.48	0.009186	4.40	74.63	37.78	0.55
Dry Creek Trib	3351.95	Max WS	Pre100-DC-BFE	590.89	106.47	114.13		114.15	0.000309	1.47	514.20	171.18	0.12
Dry Creek Trib	3351.95	Max WS	DCTrib-ULT-10yr	370.91	106.47	110.38		110.70	0.009281	4.49	82.54	40.89	0.56
Dry Creek Trib	3351.95	Max WS	DCTrib-ULT-100	648.31	106.47	114.16		114.19	0.000362	1.59	519.74	171.88	0.13
Dry Creek Trib	3283.95	Max WS	Pre10	328.67	104.94	110.03		110.11	0.001396	2.34	140.54	44.39	0.23
Dry Creek Trib	3283.95	Max WS	Pre100-DC-BFE	590.65	104.94	114.12		114.14	0.000162	1.33	597.90	172.78	0.09
Dry Creek Trib	3283.95	Max WS	DCTrib-ULT-10yr	371.29	104.94	110.22		110.32	0.001532	2.49	149.40	46.20	0.24
Dry Creek Trib	3283.95	Max WS	DCTrib-ULT-100	647.42	104.94	114.15		114.17	0.000191	1.45	603.09	173.38	0.10
Dry Creek Trib	3198.18	Max WS	Pre10	328.76	106.27	109.65		109.83	0.005542	3.34	98.48	52.56	0.43
Dry Creek Trib	3198.18	Max WS	Pre100-DC-BFE	589.44	106.27	114.10		114.12	0.000227	1.18	511.68	150.21	0.10
Dry Creek Trib	3198.18	Max WS	DCTrib-ULT-10yr	371.55	106.27	109.85		110.03	0.005407	3.41	108.94	55.26	0.43
Dry Creek Trib	3198.18	Max WS	DCTrib-ULT-100	646.50	106.27	114.12		114.15	0.000267	1.29	515.84	161.91	0.11
Dry Creek Trib	3093.07	Max WS	Pre10	328.64	104.29	109.21		109.39	0.003042	3.40	98.11	37.57	0.34
Dry Creek Trib	3093.07	Max WS	Pre100-DC-BFE	580.00	104.29	114.06		114.10	0.000219	1.70	483.53	122.67	0.11
Dry Creek Trib	3093.07	Max WS	DCTrib-ULT-10yr	371.59	104.29	109.38		109.59	0.003245	3.63	104.73	40.22	0.35
Dry Creek Trib	3093.07	Max WS	DCTrib-ULT-100	640.44	104.29	114.08		114.13	0.000263	1.87	485.98	123.11	0.12
Dry Creek Trib	2973.97	Max WS	Pre10	328.73	104.33	109.03		109.11	0.001748	2.31	142.25	55.11	0.25
Dry Creek Trib	2973.97	Max WS	Pre100-DC-BFE	563.33	104.33	114.06		114.07	0.000100	1.12	630.61	159.46	0.07
Dry Creek Trib	2973.97	Max WS	DCTrib-ULT-10yr	371.49	104.33	109.19		109.29	0.001891	2.45	151.55	57.01	0.27
Dry Creek Trib	2973.97	Max WS	DCTrib-ULT-100	639.07	104.33	114.07		114.10	0.000127	1.26	633.49	160.09	0.08
Dry Creek Trib	2913.07	Max WS	Pre10	328.88	104.98	109.00		109.03	0.000781	1.85	254.73	132.53	0.18
Dry Creek Trib	2913.07	Max WS	Pre100-DC-BFE	583.32	104.98	114.06		114.07	0.000035	0.73	1329.43	304.85	0.04
Dry Creek Trib	2913.07	Max WS	DCTrib-ULT-10yr	371.81	104.98	109.17		109.21	0.000814	1.95	277.49	142.03	0.18
Dry Creek Trib	2913.07	Max WS	DCTrib-ULT-100	642.82	104.98	114.08		114.09	0.000042	0.80	1335.29	305.17	0.05
Dry Creek Trib	2833.94	Max WS	Pre10	328.90	104.72	108.90		108.96	0.001152	2.14	192.40	85.71	0.21
Dry Creek Trib	2833.94	Max WS	Pre100-DC-BFE	585.67	104.72	114.06		114.06	0.000023	0.58	1694.45	387.53	0.04
Dry Creek Trib	2833.94	Max WS	DCTrib-ULT-10yr	372.18	104.72	109.07		109.13	0.001205	2.26	206.66	89.73	0.22
Dry Creek Trib	2833.94	Max WS	DCTrib-ULT-100	643.81	104.72	114.08		114.08	0.000027	0.63	1701.78	387.81	0.04
Dry Creek Trib	2749.06	Max WS	Pre10	329.15	104.29	108.75		108.84	0.001808	2.41	139.11	61.48	0.26
Dry Creek Trib	2749.06	Max WS	Pre100-DC-BFE	550.57	104.29	114.05		114.06	0.000080	1.05	680.57	143.04	0.07
Dry Creek Trib	2749.06	Max WS	DCTrib-ULT-10yr	372.36	104.29	108.90		109.00	0.001913	2.58	148.68	64.27	0.27
Dry Creek Trib	2749.06	Max WS	DCTrib-ULT-100	638.56	104.29	114.06		114.08	0.000106	1.21	682.81	143.37	0.08
Dry Creek Trib	2584	Max WS	Pre10	329.26	105.16	108.56		108.61	0.001191	1.89	189.27	91.04	0.21
Dry Creek Trib	2584	Max WS	Pre100-DC-BFE	555.37	105.16	114.05		114.05	0.000035	0.70	1081.37	218.46	0.04
Dry Creek Trib	2584	Max WS	DCTrib-ULT-10yr	372.62	105.16	108.70		108.76	0.001246	2.01	202.67	92.35	0.22
Dry Creek Trib	2584	Max WS	DCTrib-ULT-100	643.17	105.16	114.06		114.07	0.000047	0.81	1084.74	218.61	0.05
Dry Creek Trib	2510.2	Max WS	Pre10	329.36	103.89	108.47		108.52	0.001204	1.91	180.60	92.70	0.21
Dry Creek Trib	2510.2	Max WS	Pre100-DC-BFE	552.03	103.89	114.04		114.05	0.000030	0.66	1161.55	242.53	0.04
Dry Creek Trib	2510.2	Max WS	DCTrib-ULT-10yr	373.00	103.89	108.61		108.67	0.001271	2.04	194.06	95.75	0.22
Dry Creek Trib	2510.2	Max WS	DCTrib-ULT-100	640.83	103.89	114.06		114.06	0.000041	0.76	1165.14	242.74	0.05

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	2416.71	Max WS	Pre10	329.52	105.06	108.07		108.23	0.006527	3.42	113.66	96.57	0.46
Dry Creek Trib	2416.71	Max WS	Pre100-DC-BFE	548.61	105.06	114.04		114.04	0.000030	0.63	1250.48	257.08	0.04
Dry Creek Trib	2416.71	Max WS	DCTrib-ULT-10yr	373.31	105.06	108.23		108.39	0.005809	3.43	130.12	101.75	0.44
Dry Creek Trib	2416.71	Max WS	DCTrib-ULT-100	642.09	105.06	114.06		114.06	0.000041	0.74	1254.14	257.58	0.05
Dry Creek Trib	2283.78	Max WS	Pre10	329.67	103.67	107.48		107.62	0.003549	2.99	110.60	52.13	0.35
Dry Creek Trib	2283.78	Max WS	Pre100-DC-BFE	530.29	103.67	114.03		114.04	0.000046	0.84	898.89	199.30	0.05
Dry Creek Trib	2283.78	Max WS	DCTrib-ULT-10yr	373.84	103.67	107.66		107.82	0.003503	3.13	120.34	54.12	0.35
Dry Creek Trib	2283.78	Max WS	DCTrib-ULT-100	636.57	103.67	114.04		114.05	0.000065	1.01	901.05	199.90	0.06
Dry Creek Trib	2204.83	Max WS	Pre10	329.77	103.53	107.30		107.40	0.002358	2.49	136.96	69.42	0.29
Dry Creek Trib	2204.83	Max WS	Pre100-DC-BFE	525.39	103.53	114.03		114.04	0.000035	0.76	911.71	171.85	0.04
Dry Creek Trib	2204.83	Max WS	DCTrib-ULT-10yr	374.11	103.53	107.50		107.60	0.002287	2.59	150.57	71.32	0.29
Dry Creek Trib	2204.83	Max WS	DCTrib-ULT-100	633.79	103.53	114.04		114.05	0.000051	0.92	913.39	172.11	0.05
Dry Creek Trib	2121.19	Max WS	Pre10	330.03	103.14	107.18		107.25	0.001277	2.08	160.44	64.84	0.22
Dry Creek Trib	2121.19	Max WS	Pre100-DC-BFE	537.03	103.14	114.03		114.03	0.000018	0.56	1340.99	229.41	0.03
Dry Creek Trib	2121.19	Max WS	DCTrib-ULT-10yr	374.54	103.14	107.38		107.45	0.001307	2.20	173.43	69.95	0.23
Dry Creek Trib	2121.19	Max WS	DCTrib-ULT-100	638.89	103.14	114.04		114.04	0.000025	0.66	1343.38	229.56	0.04
Dry Creek Trib	2047.12	Max WS	Pre10	330.15	102.89	106.92		107.08	0.004345	3.19	103.62	49.08	0.39
Dry Creek Trib	2047.12	Max WS	Pre100-DC-BFE	537.68	102.89	114.03		114.03	0.000017	0.53	1433.20	254.24	0.03
Dry Creek Trib	2047.12	Max WS	DCTrib-ULT-10yr	374.92	102.89	107.09		107.27	0.004339	3.34	112.35	50.26	0.39
Dry Creek Trib	2047.12	Max WS	DCTrib-ULT-100	639.95	102.89	114.04		114.04	0.000024	0.63	1435.77	254.42	0.04
Dry Creek Trib	1961.65	Max WS	Pre10	330.29	102.88	106.54		106.72	0.004887	3.42	99.11	61.39	0.41
Dry Creek Trib	1961.65	Max WS	Pre100-DC-BFE	538.43	102.88	114.03		114.03	0.000014	0.50	1559.54	256.49	0.03
Dry Creek Trib	1961.65	Max WS	DCTrib-ULT-10yr	375.35	102.88	106.73		106.92	0.004692	3.54	111.07	65.08	0.41
Dry Creek Trib	1961.65	Max WS	DCTrib-ULT-100	637.21	102.88	114.04		114.04	0.000020	0.59	1562.06	256.60	0.03
Dry Creek Trib	1846.6	Max WS	Pre10	330.51	102.72	106.18		106.28	0.002976	2.45	134.65	71.55	0.32
Dry Creek Trib	1846.6	Max WS	Pre100-DC-BFE	539.45	102.72	114.02		114.03	0.000012	0.46	1541.88	250.68	0.03
Dry Creek Trib	1846.6	Max WS	DCTrib-ULT-10yr	375.93	102.72	106.42		106.51	0.002750	2.47	151.97	75.72	0.31
Dry Creek Trib	1846.6	Max WS	DCTrib-ULT-100	638.85	102.72	114.03		114.04	0.000017	0.55	1544.19	250.84	0.03
Dry Creek Trib	1760.2	Max WS	Pre10	330.65	102.08	105.99		106.07	0.001909	2.30	143.51	59.83	0.26
Dry Creek Trib	1760.2	Max WS	Pre100-DC-BFE	523.26	102.08	114.02		114.03	0.000020	0.61	1094.63	183.58	0.03
Dry Creek Trib	1760.2	Max WS	DCTrib-ULT-10yr	376.20	102.08	106.24		106.33	0.001869	2.37	158.77	62.46	0.26
Dry Creek Trib	1760.2	Max WS	DCTrib-ULT-100	636.01	102.08	114.03		114.04	0.000029	0.74	1096.08	183.76	0.04
Dry Creek Trib	1646.18	Max WS	Pre10	330.98	102.20	105.87		105.91	0.000955	1.62	203.99	86.12	0.19
Dry Creek Trib	1646.18	Max WS	Pre100-DC-BFE	530.24	102.20	114.02		114.02	0.000010	0.44	1535.84	241.60	0.02
Dry Creek Trib	1646.18	Max WS	DCTrib-ULT-10yr	376.79	102.20	106.13		106.17	0.000909	1.66	226.49	88.73	0.18
Dry Creek Trib	1646.18	Max WS	DCTrib-ULT-100	637.68	102.20	114.03		114.03	0.000014	0.53	1537.80	241.78	0.03
Dry Creek Trib	1553.96	Max WS	Pre10	330.93	101.85	105.80		105.84	0.000725	1.64	213.48	110.79	0.17
Dry Creek Trib	1553.96	Max WS	Pre100-DC-BFE	535.89	101.85	114.02		114.02	0.000007	0.38	1919.26	257.79	0.02
Dry Creek Trib	1553.96	Max WS	DCTrib-ULT-10yr	376.38	101.85	106.06		106.11	0.000685	1.69	244.68	125.95	0.17
Dry Creek Trib	1553.96	Max WS	DCTrib-ULT-100	637.67	101.85	114.03		114.03	0.000009	0.45	1921.37	257.90	0.02
Dry Creek Trib	1451.16	Max WS	Pre10	330.88	101.85	105.67		105.74	0.001306	2.15	160.81	80.50	0.22
Dry Creek Trib	1451.16	Max WS	Pre100-DC-BFE	535.87	101.85	114.02		114.02	0.000008	0.42	1858.05	276.46	0.02
Dry Creek Trib	1451.16	Max WS	DCTrib-ULT-10yr	375.11	101.85	105.94		106.01	0.001212	2.20	185.90	99.14	0.22
Dry Creek Trib	1451.16	Max WS	DCTrib-ULT-100	633.39	101.85	114.03		114.03	0.000011	0.50	1860.24	276.60	0.03
Dry Creek Trib	1386.3	Max WS	Pre10	330.87	101.74	105.66		105.68	0.000367	1.25	265.25	82.44	0.12
Dry Creek Trib	1386.3	Max WS	Pre100-DC-BFE	524.16	101.74	114.02		114.02	0.000010	0.49	1314.25	189.16	0.03
Dry Creek Trib	1386.3	Max WS	DCTrib-ULT-10yr	375.08	101.74	105.93		105.96	0.000362	1.31	287.78	84.18	0.12
Dry Creek Trib	1386.3	Max WS	DCTrib-ULT-100	633.35	101.74	114.02		114.03	0.000015	0.59	1315.61	189.38	0.03
Dry Creek Trib	1316.1	Max WS	Pre10	376.75	101.72	105.56		105.62	0.001198	2.14	184.15	70.70	0.22
Dry Creek Trib	1316.1	Max WS	Pre100-DC-BFE	655.98	101.72	114.01		114.02	0.000025	0.74	1169.64	171.12	0.04
Dry Creek Trib	1316.1	Max WS	DCTrib-ULT-10yr	449.47	101.72	105.81		105.89	0.001297	2.35	202.20	73.60	0.23
Dry Creek Trib	1316.1	Max WS	DCTrib-ULT-100	851.23	101.72	114.01		114.02	0.000041	0.96	1170.10	171.15	0.05
Dry Creek Trib	1251.98	Max WS	Pre10	376.49	102.21	105.45		105.53	0.001753	2.37	166.74	75.16	0.26
Dry Creek Trib	1251.98	Max WS	Pre100-DC-BFE	643.46	102.21	114.01		114.01	0.000023	0.71	1201.24	184.46	0.04
Dry Creek Trib	1251.98	Max WS	DCTrib-ULT-10yr	449.46	102.21	105.69		105.79	0.001835	2.57	185.19	77.71	0.27
Dry Creek Trib	1251.98	Max WS	DCTrib-ULT-100	509.72	102.21	114.01		114.01	0.000015	0.57	1201.68	184.51	0.03
Dry Creek Trib	1184.63	Max WS	Pre10	376.47	101.72	105.38		105.44	0.001175	1.94	196.65	80.23	0.21
Dry Creek Trib	1184.63	Max WS	Pre100-DC-BFE	643.44	101.72	114.01		114.01	0.000018	0.62	1303.68	196.49	0.03
Dry Creek Trib	1184.63	Max WS	DCTrib-ULT-10yr	449.21	101.72	105.62		105.69	0.001257	2.12	215.99	82.02	0.22
Dry Creek Trib	1184.63	Max WS	DCTrib-ULT-100	622.75	101.72	114.01		114.01	0.000017	0.60	1304.08	196.53	0.03
Dry Creek Trib	1089.34	Max WS	Pre10	375.93	102.51	105.19		105.27	0.002509	2.34	167.44	96.10	0.29
Dry Creek Trib	1089.34	Max WS	Pre100-DC-BFE	649.82	102.51	114.01		114.01	0.000017	0.59	1377.11	194.57	0.03
Dry Creek Trib	1089.34	Max WS	DCTrib-ULT-10yr	448.94	102.51	105.43		105.53	0.002377	2.46	191.45	98.71	0.29
Dry Creek Trib	1089.34	Max WS	DCTrib-ULT-100	493.53	102.51	114.01		114.01	0.000010	0.45	1377.44	194.59	0.02
Dry Creek Trib	995.38	Max WS	Pre10	375.64	101.68	104.96		105.07	0.001990	2.58	146.44	55.60	0.27
Dry Creek Trib	995.38	Max WS	Pre100-DC-BFE	306.33	101.68	114.00		114.00	0.000006	0.37	1077.32	158.24	0.02
Dry Creek Trib	995.38	Max WS	DCTrib-ULT-10yr	448.66	101.68	105.19		105.32	0.002187	2.84	159.31	57.41	0.29
Dry Creek Trib	995.38	Max WS	DCTrib-ULT-100	408.62	101.68	114.00		114.01	0.000011	0.50	1077.55	158.27	0.03

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	914.19	Max WS	Pre10	375.33	101.54	104.89		104.95	0.000991	2.00	205.67	85.72	0.20
Dry Creek Trib	914.19	Max WS	Pre100-DC-BFE	306.33	101.54	114.00		114.00	0.000004	0.30	1470.13	222.57	0.01
Dry Creek Trib	914.19	Max WS	DCTrib-ULT-10yr	448.34	101.54	105.11		105.18	0.001100	2.20	225.04	88.72	0.21
Dry Creek Trib	914.19	Max WS	DCTrib-ULT-100	425.85	101.54	114.00		114.00	0.000007	0.41	1470.40	222.61	0.02
Dry Creek Trib	838.37	Max WS	Pre10	375.29	101.53	104.85		104.88	0.000821	1.60	289.28	162.28	0.18
Dry Creek Trib	838.37	Max WS	Pre100-DC-BFE	643.42	101.53	114.00		114.00	0.000007	0.39	2219.54	276.21	0.02
Dry Creek Trib	838.37	Max WS	DCTrib-ULT-10yr	448.30	101.53	105.07		105.11	0.000834	1.70	325.81	165.50	0.18
Dry Creek Trib	838.37	Max WS	DCTrib-ULT-100	477.02	101.53	114.00		114.00	0.000004	0.29	2219.76	276.25	0.02
Dry Creek Trib	755.74	Max WS	Pre10	375.02	101.54	104.79		104.82	0.000687	1.57	304.92	159.19	0.16
Dry Creek Trib	755.74	Max WS	Pre100-DC-BFE	643.41	101.54	114.00		114.00	0.000005	0.34	2850.62	400.41	0.02
Dry Creek Trib	755.74	Max WS	DCTrib-ULT-10yr	448.02	101.54	105.01		105.04	0.000727	1.70	340.25	165.36	0.17
Dry Creek Trib	755.74	Max WS	DCTrib-ULT-100	509.82	101.54	114.00		114.00	0.000003	0.27	2850.82	400.42	0.01
Dry Creek Trib	655.85	Max WS	Pre10	374.98	101.67	104.72		104.76	0.000652	1.53	265.66	114.21	0.16
Dry Creek Trib	655.85	Max WS	Pre100-DC-BFE	636.66	101.67	114.00		114.00	0.000005	0.35	2841.54	483.66	0.02
Dry Creek Trib	655.85	Max WS	DCTrib-ULT-10yr	448.00	101.67	104.93		104.97	0.000724	1.69	289.80	117.76	0.17
Dry Creek Trib	655.85	Max WS	DCTrib-ULT-100	460.11	101.67	114.00		114.00	0.000003	0.26	2841.73	483.68	0.01
Dry Creek Trib	563.63	Max WS	Pre10	374.93	101.75	104.68		104.71	0.000529	1.34	324.32	160.47	0.14
Dry Creek Trib	563.63	Max WS	Pre100-DC-BFE	643.38	101.75	114.00		114.00	0.000004	0.30	3362.42	541.83	0.02
Dry Creek Trib	563.63	Max WS	DCTrib-ULT-10yr	447.96	101.75	104.89		104.91	0.000578	1.47	358.21	168.89	0.15
Dry Creek Trib	563.63	Max WS	DCTrib-ULT-100	540.87	101.75	114.00		114.00	0.000003	0.25	3362.47	541.83	0.01
Dry Creek Trib	466	Max WS	Pre10	374.84	101.78	104.60	103.15	104.63	0.001093	1.67	274.96	181.00	0.20
Dry Creek Trib	466	Max WS	Pre100-DC-BFE	16.72	101.78	114.00	102.06	114.00	0.000000	0.01	3336.83	550.90	0.00
Dry Creek Trib	466	Max WS	DCTrib-ULT-10yr	447.90	101.78	104.80	103.28	104.84	0.001090	1.77	312.14	184.98	0.20
Dry Creek Trib	466	Max WS	DCTrib-ULT-100	23.24	101.78	114.00	102.10	114.00	0.000000	0.01	3336.83	550.90	0.00

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	11061.63	Max WS	DCTrib-ULT-woBV-10yr	204.62	134.22	137.14		137.17	0.001216	1.33	153.45	104.47	0.19
Dry Creek Trib	11061.63	Max WS	DCTrib-ULT-10yr	204.62	134.22	137.14		137.17	0.001216	1.33	153.45	104.47	0.19
Dry Creek Trib	11061.63	Max WS	DC trib-ULT-woBV-100yr-BFE	368.52	134.22	138.66		138.68	0.000401	1.12	328.21	125.78	0.12
Dry Creek Trib	11061.63	Max WS	DCTrib-ULT-100	368.52	134.22	138.66		138.68	0.000401	1.12	328.23	125.78	0.12
Dry Creek Trib	11016.93	Max WS	DCTrib-ULT-woBV-10yr	204.59	133.48	137.11		137.13	0.000550	0.99	205.79	119.83	0.13
Dry Creek Trib	11016.93	Max WS	DCTrib-ULT-10yr	204.59	133.48	137.11		137.13	0.000550	0.99	205.80	119.83	0.13
Dry Creek Trib	11016.93	Max WS	DC trib-ULT-woBV-100yr-BFE	368.43	133.48	138.65		138.67	0.000209	0.93	399.59	132.68	0.09
Dry Creek Trib	11016.93	Max WS	DCTrib-ULT-100	368.44	133.48	138.65		138.67	0.000209	0.93	399.60	132.68	0.09
Dry Creek Trib	10935.1	Max WS	DCTrib-ULT-woBV-10yr	204.55	133.65	136.98		137.06	0.001342	2.22	92.03	30.38	0.22
Dry Creek Trib	10935.1	Max WS	DCTrib-ULT-10yr	204.55	133.65	136.98		137.06	0.001341	2.22	92.04	30.38	0.22
Dry Creek Trib	10935.1	Max WS	DC trib-ULT-woBV-100yr-BFE	368.23	133.65	138.52		138.63	0.001143	2.67	138.20	170.01	0.22
Dry Creek Trib	10935.1	Max WS	DCTrib-ULT-100	368.24	133.65	138.52		138.63	0.001143	2.67	138.21	170.02	0.22
Dry Creek Trib	10910.99			Culvert									
Dry Creek Trib	10886.88	Max WS	DCTrib-ULT-woBV-10yr	204.55	132.30	136.71		136.77	0.001094	1.97	103.96	34.78	0.20
Dry Creek Trib	10886.88	Max WS	DCTrib-ULT-10yr	204.55	132.30	136.71		136.77	0.001094	1.97	103.96	34.78	0.20
Dry Creek Trib	10886.88	Max WS	DC trib-ULT-woBV-100yr-BFE	367.65	132.30	137.73		137.82	0.001165	2.46	181.99	108.62	0.22
Dry Creek Trib	10886.88	Max WS	DCTrib-ULT-100	367.66	132.30	137.73		137.82	0.001165	2.46	181.99	108.62	0.22
Dry Creek Trib	10817.21	Max WS	DCTrib-ULT-woBV-10yr	204.48	131.78	136.55		136.67	0.002055	2.79	74.20	27.45	0.27
Dry Creek Trib	10817.21	Max WS	DCTrib-ULT-10yr	204.48	131.78	136.55		136.67	0.002055	2.79	74.20	27.45	0.27
Dry Creek Trib	10817.21	Max WS	DC trib-ULT-woBV-100yr-BFE	367.35	131.78	137.56		137.72	0.002177	3.44	134.81	72.69	0.29
Dry Creek Trib	10817.21	Max WS	DCTrib-ULT-100	367.35	131.78	137.56		137.72	0.002177	3.44	134.81	72.69	0.29
Dry Creek Trib	10749.58	Max WS	DCTrib-ULT-woBV-10yr	204.84	131.83	136.35		136.49	0.003325	3.01	68.12	109.66	0.34
Dry Creek Trib	10749.58	Max WS	DCTrib-ULT-10yr	204.84	131.83	136.35		136.49	0.003325	3.01	68.12	109.66	0.34
Dry Creek Trib	10749.58	Max WS	DC trib-ULT-woBV-100yr-BFE	367.75	131.83	137.29		137.52	0.003870	3.79	98.27	192.59	0.38
Dry Creek Trib	10749.58	Max WS	DCTrib-ULT-100	367.75	131.83	137.29		137.52	0.003870	3.79	98.27	192.59	0.38
Dry Creek Trib	10681.32	Max WS	DCTrib-ULT-woBV-10yr	205.17	131.87	136.02		136.22	0.004714	3.55	57.77	101.77	0.40
Dry Creek Trib	10681.32	Max WS	DCTrib-ULT-10yr	205.17	131.87	136.02		136.22	0.004714	3.55	57.77	101.77	0.40
Dry Creek Trib	10681.32	Max WS	DC trib-ULT-woBV-100yr-BFE	368.38	131.87	136.91		137.21	0.005436	4.49	88.25	180.12	0.44
Dry Creek Trib	10681.32	Max WS	DCTrib-ULT-100	368.39	131.87	136.91		137.21	0.005436	4.49	88.25	180.14	0.44
Dry Creek Trib	10599.74	Max WS	DCTrib-ULT-woBV-10yr	205.63	132.28	135.41		135.67	0.009028	4.13	49.78	32.08	0.54
Dry Creek Trib	10599.74	Max WS	DCTrib-ULT-10yr	205.63	132.28	135.41		135.67	0.009028	4.13	49.78	32.08	0.54
Dry Creek Trib	10599.74	Max WS	DC trib-ULT-woBV-100yr-BFE	369.16	132.28	136.10		136.53	0.011512	5.24	70.43	71.03	0.62
Dry Creek Trib	10599.74	Max WS	DCTrib-ULT-100	369.17	132.28	136.10		136.53	0.011512	5.24	70.43	71.03	0.62
Dry Creek Trib	10498.01	Max WS	DCTrib-ULT-woBV-10yr	206.20	131.93	134.89		135.02	0.003992	2.88	71.97	52.04	0.37
Dry Creek Trib	10498.01	Max WS	DCTrib-ULT-10yr	206.20	131.93	134.89		135.02	0.003992	2.88	71.97	52.04	0.37
Dry Creek Trib	10498.01	Max WS	DC trib-ULT-woBV-100yr-BFE	370.17	131.93	135.47		135.69	0.005071	3.87	103.77	90.67	0.43
Dry Creek Trib	10498.01	Max WS	DCTrib-ULT-100	370.18	131.93	135.47		135.69	0.005071	3.87	103.77	90.67	0.43
Dry Creek Trib	10420.34	Max WS	DCTrib-ULT-woBV-10yr	206.62	131.97	134.50		134.68	0.005683	3.66	73.35	64.44	0.44
Dry Creek Trib	10420.34	Max WS	DCTrib-ULT-10yr	206.63	131.97	134.50		134.68	0.005684	3.66	73.35	64.44	0.44
Dry Creek Trib	10420.34	Max WS	DC trib-ULT-woBV-100yr-BFE	370.91	131.97	134.97		135.24	0.007536	4.82	115.35	106.79	0.53
Dry Creek Trib	10420.34	Max WS	DCTrib-ULT-100	370.92	131.97	134.97		135.24	0.007536	4.82	115.35	106.79	0.53
Dry Creek Trib	10337.8	Max WS	DCTrib-ULT-woBV-10yr	206.86	132.26	134.13		134.22	0.005516	2.81	100.52	116.47	0.41
Dry Creek Trib	10337.8	Max WS	DCTrib-ULT-10yr	206.83	132.26	134.13		134.22	0.005511	2.81	100.54	116.48	0.41
Dry Creek Trib	10337.8	Max WS	DC trib-ULT-woBV-100yr-BFE	371.68	132.26	134.46		134.60	0.007143	3.67	140.31	126.75	0.49
Dry Creek Trib	10337.8	Max WS	DCTrib-ULT-100	371.69	132.26	134.46		134.60	0.007143	3.67	140.31	126.75	0.49
Dry Creek Trib	10253.75	Max WS	DCTrib-ULT-woBV-10yr	168.74	131.94	133.57		133.62	0.004907	2.01	107.01	157.69	0.36
Dry Creek Trib	10253.75	Max WS	DCTrib-ULT-10yr	168.75	131.94	133.57		133.62	0.004911	2.01	107.00	157.69	0.36
Dry Creek Trib	10253.75	Max WS	DC trib-ULT-woBV-100yr-BFE	372.46	131.94	133.86		133.97	0.008121	3.08	152.36	161.59	0.49
Dry Creek Trib	10253.75	Max WS	DCTrib-ULT-100	372.47	131.94	133.86		133.97	0.008119	3.08	152.38	161.60	0.49
Dry Creek Trib	10186.61	Max WS	DCTrib-ULT-woBV-10yr	6.17	131.56	133.43		133.43	0.000001	0.04	203.48	206.04	0.01
Dry Creek Trib	10186.61	Max WS	DCTrib-ULT-10yr	6.17	131.56	133.43		133.43	0.000001	0.04	203.48	206.04	0.01
Dry Creek Trib	10186.61	Max WS	DC trib-ULT-woBV-100yr-BFE	371.46	131.56	133.50		133.55	0.003580	2.05	217.44	213.35	0.32
Dry Creek Trib	10186.61	Max WS	DCTrib-ULT-100	371.47	131.56	133.50		133.55	0.003579	2.05	217.46	213.35	0.32
Dry Creek Trib	10087.22	Max WS	DCTrib-ULT-woBV-10yr	153.89	131.60	133.35		133.35	0.000179	0.51	311.65	197.88	0.07
Dry Creek Trib	10087.22	Max WS	DCTrib-ULT-10yr	153.90	131.60	133.35		133.35	0.000179	0.51	311.65	197.88	0.07
Dry Creek Trib	10087.22	Max WS	DC trib-ULT-woBV-100yr-BFE	145.80	131.60	133.45		133.45	0.000133	0.46	332.26	200.80	0.07
Dry Creek Trib	10087.22	Max WS	DCTrib-ULT-100	145.73	131.60	133.45		133.45	0.000133	0.46	332.14	200.78	0.07
Dry Creek Trib	10016.43	Max WS	DCTrib-ULT-woBV-10yr	148.45	130.18	133.33		133.34	0.000148	0.67	252.73	146.32	0.07
Dry Creek Trib	10016.43	Max WS	DCTrib-ULT-10yr	148.47	130.18	133.33		133.34	0.000148	0.67	252.74	146.32	0.07
Dry Creek Trib	10016.43	Max WS	DC trib-ULT-woBV-100yr-BFE	126.93	130.18	133.44		133.44	0.000092	0.54	268.86	150.82	0.06
Dry Creek Trib	10016.43	Max WS	DCTrib-ULT-100	126.87	130.18	133.44		133.44	0.000092	0.54	268.77	150.80	0.06
Dry Creek Trib	9935.11	Max WS	DCTrib-ULT-woBV-10yr	139.47	129.44	133.33		133.33	0.000044	0.40	535.38	374.18	0.04
Dry Creek Trib	9935.11	Max WS	DCTrib-ULT-10yr	139.49	129.44	133.33		133.33	0.000044	0.40	535.38	374.18	0.04
Dry Creek Trib	9935.11	Max WS	DC trib-ULT-woBV-100yr-BFE	96.15	129.44	133.44		133.44	0.000017	0.25	577.54	393.15	0.03
Dry Creek Trib	9935.11	Max WS	DCTrib-ULT-100	96.09	129.44	133.44		133.44	0.000017	0.25	577.30	392.95	0.03
Dry Creek Trib	9841.26	Max WS	DCTrib-ULT-woBV-10yr	405.38	129.40	132.59	132.63	133.68	0.044478	8.36	48.46	145.41	1.17
Dry Creek Trib	9841.26	Max WS	DCTrib-ULT-10yr	405.96	129.40	132.59	132.63	133.68	0.044531	8.37	48.50	145.46	1.17
Dry Creek Trib	9841.26	Max WS	DC trib-ULT-woBV-100yr-BFE	436.24	129.40	133.03		133.07	0.001713	1.91	280.98	167.20	0.24
Dry Creek Trib	9841.26	Max WS	DCTrib-ULT-100	436.25	129.40	133.03		133.07	0.001712	1.91	281.04	167.22	0.24
Dry Creek Trib	9764.85	Max WS	DCTrib-ULT-woBV-10yr	348.15	129.40	132.41		132.46	0.001377	1.82	211.12	120.77	0.22
Dry Creek Trib	9764.85	Max WS	DCTrib-ULT-10yr	348.56	129.40	132.41		132.46	0.001376	1.82	211.35	120.81	0.22

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	9764.85	Max WS	DC trib-ULT-woBV-100yr-BFE	436.20	129.40	132.92		132.97	0.000996	1.79	275.97	132.63	0.19
Dry Creek Trib	9764.85	Max WS	DCTrib-ULT-100	436.21	129.40	132.92		132.97	0.000996	1.79	276.02	132.64	0.19
Dry Creek Trib	9660.93	Max WS	DCTrib-ULT-woBV-10yr	329.97	126.73	132.34		132.37	0.000539	1.81	287.41	127.13	0.15
Dry Creek Trib	9660.93	Max WS	DCTrib-ULT-10yr	330.30	126.73	132.34		132.37	0.000539	1.81	287.65	127.17	0.15
Dry Creek Trib	9660.93	Max WS	DC trib-ULT-woBV-100yr-BFE	437.66	126.73	132.86		132.89	0.000534	1.94	356.32	137.87	0.15
Dry Creek Trib	9660.93	Max WS	DCTrib-ULT-100	437.68	126.73	132.86		132.89	0.000534	1.94	356.39	137.88	0.15
Dry Creek Trib	9592.92	Max WS	DCTrib-ULT-woBV-10yr	318.17	126.42	132.19		132.29	0.001974	2.98	154.94	100.06	0.28
Dry Creek Trib	9592.92	Max WS	DCTrib-ULT-10yr	318.45	126.42	132.19		132.30	0.001971	2.98	155.14	100.13	0.28
Dry Creek Trib	9592.92	Max WS	DC trib-ULT-woBV-100yr-BFE	439.00	126.42	132.71		132.82	0.001931	3.22	212.98	132.34	0.28
Dry Creek Trib	9592.92	Max WS	DCTrib-ULT-100	439.01	126.42	132.71		132.82	0.001930	3.22	213.04	132.40	0.28
Dry Creek Trib	9534.07	Max WS	DCTrib-ULT-woBV-10yr	318.24	126.35	132.14		132.20	0.000976	2.11	202.03	118.01	0.20
Dry Creek Trib	9534.07	Max WS	DCTrib-ULT-10yr	318.51	126.35	132.14		132.20	0.000975	2.11	202.28	118.08	0.20
Dry Creek Trib	9534.07	Max WS	DC trib-ULT-woBV-100yr-BFE	439.92	126.35	132.65		132.72	0.000987	2.32	267.14	136.36	0.20
Dry Creek Trib	9534.07	Max WS	DCTrib-ULT-100	439.94	126.35	132.65		132.72	0.000987	2.32	267.21	136.38	0.20
Dry Creek Trib	9429.91	Max WS	DCTrib-ULT-woBV-10yr	305.73	125.97	131.79		131.96	0.004490	3.49	109.75	100.98	0.39
Dry Creek Trib	9429.91	Max WS	DCTrib-ULT-10yr	305.99	125.97	131.79		131.96	0.004477	3.48	110.02	101.57	0.39
Dry Creek Trib	9429.91	Max WS	DC trib-ULT-woBV-100yr-BFE	441.38	125.97	132.39		132.53	0.003217	3.41	182.70	131.82	0.34
Dry Creek Trib	9429.91	Max WS	DCTrib-ULT-100	441.40	125.97	132.39		132.53	0.003213	3.40	182.81	131.85	0.34
Dry Creek Trib	9345.09	Max WS	DCTrib-ULT-woBV-10yr	296.70	127.59	131.57		131.66	0.002312	2.37	125.22	57.55	0.28
Dry Creek Trib	9345.09	Max WS	DCTrib-ULT-10yr	296.97	127.59	131.58		131.66	0.002308	2.37	125.38	57.59	0.28
Dry Creek Trib	9345.09	Max WS	DC trib-ULT-woBV-100yr-BFE	442.53	127.59	132.20		132.30	0.002166	2.63	191.67	173.70	0.28
Dry Creek Trib	9345.09	Max WS	DCTrib-ULT-100	442.55	127.59	132.20		132.30	0.002163	2.63	191.86	173.95	0.28
Dry Creek Trib	9257.01	Max WS	DCTrib-ULT-woBV-10yr	293.43	126.10	131.35		131.47	0.002172	2.88	119.46	99.22	0.29
Dry Creek Trib	9257.01	Max WS	DCTrib-ULT-10yr	293.72	126.10	131.36		131.47	0.002168	2.88	119.66	99.47	0.29
Dry Creek Trib	9257.01	Max WS	DC trib-ULT-woBV-100yr-BFE	443.73	126.10	131.95		132.11	0.002474	3.45	160.85	199.30	0.31
Dry Creek Trib	9257.01	Max WS	DCTrib-ULT-100	443.75	126.10	131.95		132.12	0.002471	3.45	160.95	199.34	0.31
Dry Creek Trib	9161.5	Max WS	DCTrib-ULT-woBV-10yr	294.38	125.74	131.21		131.29	0.001715	2.45	143.45	85.56	0.25
Dry Creek Trib	9161.5	Max WS	DCTrib-ULT-10yr	294.71	125.74	131.21		131.30	0.001710	2.45	143.77	85.66	0.25
Dry Creek Trib	9161.5	Max WS	DC trib-ULT-woBV-100yr-BFE	445.17	125.74	131.80		131.90	0.001796	2.83	197.93	97.91	0.27
Dry Creek Trib	9161.5	Max WS	DCTrib-ULT-100	445.21	125.74	131.80		131.90	0.001793	2.83	198.08	97.93	0.27
Dry Creek Trib	9090.68	Max WS	DCTrib-ULT-woBV-10yr	294.16	125.67	130.96		131.10	0.004031	3.10	109.65	72.22	0.37
Dry Creek Trib	9090.68	Max WS	DCTrib-ULT-10yr	294.67	125.67	130.97		131.10	0.004017	3.09	109.93	72.25	0.37
Dry Creek Trib	9090.68	Max WS	DC trib-ULT-woBV-100yr-BFE	445.36	125.67	131.59		131.74	0.003589	3.44	162.55	102.15	0.36
Dry Creek Trib	9090.68	Max WS	DCTrib-ULT-100	445.65	125.67	131.59		131.75	0.003586	3.44	162.73	102.37	0.36
Dry Creek Trib	8980.6	Max WS	DCTrib-ULT-woBV-10yr	284.97	125.80	130.23		130.52	0.008084	4.36	70.34	52.38	0.52
Dry Creek Trib	8980.6	Max WS	DCTrib-ULT-10yr	285.61	125.80	130.24		130.53	0.008051	4.36	70.67	52.57	0.52
Dry Creek Trib	8980.6	Max WS	DC trib-ULT-woBV-100yr-BFE	445.27	125.80	130.97		131.26	0.006331	4.60	114.57	70.77	0.48
Dry Creek Trib	8980.6	Max WS	DCTrib-ULT-100	445.84	125.80	130.97		131.27	0.006314	4.59	114.83	71.79	0.48
Dry Creek Trib	8900.41	Max WS	DCTrib-ULT-woBV-10yr	284.56	125.50	130.08		130.12	0.000930	2.04	235.41	165.46	0.19
Dry Creek Trib	8900.41	Max WS	DCTrib-ULT-10yr	285.49	125.50	130.08		130.12	0.000924	2.03	236.65	165.71	0.19
Dry Creek Trib	8900.41	Max WS	DC trib-ULT-woBV-100yr-BFE	445.56	125.50	130.85		130.89	0.000733	2.07	376.60	209.03	0.18
Dry Creek Trib	8900.41	Max WS	DCTrib-ULT-100	446.17	125.50	130.86		130.89	0.000732	2.07	377.48	209.55	0.18
Dry Creek Trib	8840.78	Max WS	DCTrib-ULT-woBV-10yr	283.36	125.61	129.63		129.93	0.006999	4.41	64.19	37.16	0.49
Dry Creek Trib	8840.78	Max WS	DCTrib-ULT-10yr	284.45	125.61	129.63		129.94	0.007005	4.42	64.37	37.63	0.49
Dry Creek Trib	8840.78	Max WS	DC trib-ULT-woBV-100yr-BFE	445.82	125.61	130.22		130.70	0.009795	5.54	80.54	63.64	0.59
Dry Creek Trib	8840.78	Max WS	DCTrib-ULT-100	446.65	125.61	130.23		130.70	0.009797	5.54	80.66	63.88	0.59
Dry Creek Trib	8719.42	Max WS	DCTrib-ULT-woBV-10yr	282.41	125.78	129.29		129.36	0.001997	2.10	141.75	92.38	0.26
Dry Creek Trib	8719.42	Max WS	DCTrib-ULT-10yr	283.67	125.78	129.30		129.37	0.001988	2.10	142.43	92.46	0.26
Dry Creek Trib	8719.42	Max WS	DC trib-ULT-woBV-100yr-BFE	446.30	125.78	129.82		129.91	0.002135	2.54	191.99	98.27	0.28
Dry Creek Trib	8719.42	Max WS	DCTrib-ULT-100	447.37	125.78	129.82		129.92	0.002134	2.54	192.35	98.31	0.28
Dry Creek Trib	8627.33	Max WS	DCTrib-ULT-woBV-10yr	280.19	125.41	128.77		128.95	0.007480	3.97	90.50	62.04	0.49
Dry Creek Trib	8627.33	Max WS	DCTrib-ULT-10yr	281.76	125.41	128.78		128.96	0.007441	3.97	91.00	62.11	0.49
Dry Creek Trib	8627.33	Max WS	DC trib-ULT-woBV-100yr-BFE	446.70	125.41	129.21		129.47	0.008459	4.81	118.61	66.27	0.54
Dry Creek Trib	8627.33	Max WS	DCTrib-ULT-100	447.91	125.41	129.21		129.47	0.008462	4.82	118.81	66.34	0.54
Dry Creek Trib	8563.46	Max WS	DCTrib-ULT-woBV-10yr	278.86	124.23	128.53		128.64	0.002253	2.72	121.00	64.84	0.29
Dry Creek Trib	8563.46	Max WS	DCTrib-ULT-10yr	280.70	124.23	128.54		128.64	0.002262	2.73	121.43	64.96	0.29
Dry Creek Trib	8563.46	Max WS	DC trib-ULT-woBV-100yr-BFE	446.92	124.23	128.90		129.08	0.003510	3.69	145.82	70.21	0.37
Dry Creek Trib	8563.46	Max WS	DCTrib-ULT-100	448.15	124.23	128.90		129.09	0.003518	3.70	145.99	70.24	0.37
Dry Creek Trib	8488.69	Max WS	DCTrib-ULT-woBV-10yr	275.23	123.59	128.16		128.29	0.005119	3.41	113.79	90.24	0.40
Dry Creek Trib	8488.69	Max WS	DCTrib-ULT-10yr	274.48	123.59	128.15		128.27	0.005223	3.43	112.44	89.10	0.41
Dry Creek Trib	8488.69	Max WS	DC trib-ULT-woBV-100yr-BFE	447.19	123.59	128.23		128.52	0.011747	5.27	120.16	92.70	0.61
Dry Creek Trib	8488.69	Max WS	DCTrib-ULT-100	448.67	123.59	128.24		128.53	0.011736	5.28	120.49	92.78	0.61
Dry Creek Trib	8405.54	Max WS	DCTrib-ULT-woBV-10yr	260.73	124.66	128.01		128.01	0.000421	0.91	370.26	240.87	0.12
Dry Creek Trib	8405.54	Max WS	DCTrib-ULT-10yr	259.34	124.66	127.99		127.99	0.000433	0.92	365.45	240.37	0.12
Dry Creek Trib	8405.54	Max WS	DC trib-ULT-woBV-100yr-BFE	287.42	124.66	127.94		127.95	0.000582	1.04	355.09	239.27	0.14
Dry Creek Trib	8405.54	Max WS	DCTrib-ULT-100	279.00	124.66	127.91		127.92	0.000587	1.04	347.42	238.46	0.14
Dry Creek Trib	8349.77	Max WS	DCTrib-ULT-woBV-10yr	236.48	124.17	128.00		128.00	0.000056	0.41	840.53	521.01	0.04
Dry Creek Trib	8349.77	Max WS	DCTrib-ULT-10yr	233.88	124.17	127.98		127.98	0.000057	0.41	829.97	519.63	0.04
Dry Creek Trib	8349.77	Max WS	DC trib-ULT-woBV-100yr-BFE	244.05	124.17	127.93		127.93	0.000067	0.44	806.08	516.49	0.05
Dry Creek Trib	8349.77	Max WS	DCTrib-ULT-100	196.95	124.17	127.90		127.90	0.000046	0.36	790.88	514.49	0.04
Dry Creek Trib	8292.18	Max WS	DCTrib-ULT-woBV-10yr	439.78	124.38	127.49		127.53	0.003139	2.12	281.00	270.22	0.31

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	8292.18	Max WS	DCTrib-ULT-10yr	433.11	124.38	127.46		127.51	0.003290	2.14	274.28	258.94	0.31
Dry Creek Trib	8292.18	Max WS	DC trib-ULT-woBV-100yr-BFE	447.80	124.38	127.71		127.74	0.001817	1.77	336.68	346.05	0.24
Dry Creek Trib	8292.18	Max WS	DCTrib-ULT-100	449.38	124.38	127.72		127.75	0.001801	1.76	338.32	347.96	0.24
Dry Creek Trib	8220.24	Max WS	DCTrib-ULT-woBV-10yr	319.68	122.95	126.92		127.08	0.004111	3.35	105.47	111.85	0.38
Dry Creek Trib	8220.24	Max WS	DCTrib-ULT-10yr	311.84	122.95	126.91		127.07	0.003960	3.28	104.98	111.51	0.38
Dry Creek Trib	8220.24	Max WS	DC trib-ULT-woBV-100yr-BFE	480.57	122.95	127.47		127.68	0.004209	3.90	142.75	185.50	0.40
Dry Creek Trib	8220.24	Max WS	DCTrib-ULT-100	482.53	122.95	127.47		127.69	0.004195	3.90	143.37	186.71	0.40
Dry Creek Trib	8102.71	Max WS	DCTrib-ULT-woBV-10yr	309.59	122.75	126.74		126.78	0.000843	1.68	210.77	124.24	0.18
Dry Creek Trib	8102.71	Max WS	DCTrib-ULT-10yr	306.24	122.75	126.73		126.77	0.000833	1.67	209.93	124.01	0.18
Dry Creek Trib	8102.71	Max WS	DC trib-ULT-woBV-100yr-BFE	480.15	122.75	127.30		127.35	0.000961	2.03	284.48	140.97	0.20
Dry Creek Trib	8102.71	Max WS	DCTrib-ULT-100	482.09	122.75	127.31		127.36	0.000958	2.03	285.77	141.09	0.20
Dry Creek Trib	7984.4	Max WS	DCTrib-ULT-woBV-10yr	310.11	121.55	126.59		126.65	0.001557	2.44	197.85	143.99	0.24
Dry Creek Trib	7984.4	Max WS	DCTrib-ULT-10yr	306.62	121.55	126.58		126.65	0.001539	2.42	196.96	143.81	0.24
Dry Creek Trib	7984.4	Max WS	DC trib-ULT-woBV-100yr-BFE	479.76	121.55	127.15		127.22	0.001489	2.66	283.23	158.17	0.24
Dry Creek Trib	7984.4	Max WS	DCTrib-ULT-100	481.71	121.55	127.16		127.23	0.001480	2.66	284.80	158.44	0.24
Dry Creek Trib	7877.8	Max WS	DCTrib-ULT-woBV-10yr	295.39	121.35	126.18		126.41	0.005091	3.86	77.91	148.00	0.42
Dry Creek Trib	7877.8	Max WS	DCTrib-ULT-10yr	294.64	121.35	126.18		126.41	0.005050	3.85	77.99	148.18	0.42
Dry Creek Trib	7877.8	Max WS	DC trib-ULT-woBV-100yr-BFE	479.16	121.35	126.93		127.04	0.002344	3.11	239.18	164.41	0.30
Dry Creek Trib	7877.8	Max WS	DCTrib-ULT-100	481.39	121.35	126.94		127.05	0.002317	3.10	241.26	165.08	0.30
Dry Creek Trib	7782	Max WS	DCTrib-ULT-woBV-10yr	292.79	120.78	125.80		126.02	0.004174	3.77	80.01	71.20	0.38
Dry Creek Trib	7782	Max WS	DCTrib-ULT-10yr	294.20	120.78	125.80		126.02	0.004211	3.79	80.03	71.42	0.38
Dry Creek Trib	7782	Max WS	DC trib-ULT-woBV-100yr-BFE	478.63	120.78	126.55		126.79	0.003893	4.22	154.81	106.11	0.38
Dry Creek Trib	7782	Max WS	DCTrib-ULT-100	480.93	120.78	126.57		126.81	0.003831	4.20	156.85	106.80	0.38
Dry Creek Trib	7684.81	Max WS	DCTrib-ULT-woBV-10yr	288.71	120.67	125.39		125.63	0.005290	4.13	85.77	71.63	0.43
Dry Creek Trib	7684.81	Max WS	DCTrib-ULT-10yr	292.52	120.67	125.37		125.62	0.005558	4.22	84.71	70.52	0.44
Dry Creek Trib	7684.81	Max WS	DC trib-ULT-woBV-100yr-BFE	478.39	120.67	126.27		126.46	0.003584	4.08	184.80	146.71	0.37
Dry Creek Trib	7684.81	Max WS	DCTrib-ULT-100	480.89	120.67	126.30		126.49	0.003456	4.02	189.00	147.53	0.37
Dry Creek Trib	7588.69	Max WS	DCTrib-ULT-woBV-10yr	284.48	120.06	124.15		124.66	0.015318	5.73	49.68	144.28	0.70
Dry Creek Trib	7588.69	Max WS	DCTrib-ULT-10yr	287.75	120.06	124.24		124.72	0.013842	5.55	51.93	151.87	0.67
Dry Creek Trib	7588.69	Max WS	DC trib-ULT-woBV-100yr-BFE	478.48	120.06	125.31		125.89	0.009965	6.12	79.01	220.23	0.61
Dry Creek Trib	7588.69	Max WS	DCTrib-ULT-100	479.24	120.06	125.39		125.94	0.009147	5.97	81.39	224.92	0.58
Dry Creek Trib	7492.13	Max WS	DCTrib-ULT-woBV-10yr	299.34	119.00	123.52		123.72	0.003195	3.57	83.76	19.19	0.30
Dry Creek Trib	7492.13	Max WS	DCTrib-ULT-10yr	314.79	119.00	123.63		123.84	0.003288	3.67	85.87	19.22	0.31
Dry Creek Trib	7492.13	Max WS	DC trib-ULT-woBV-100yr-BFE	506.68	119.00	124.80		125.14	0.004361	4.67	108.53	19.57	0.35
Dry Creek Trib	7492.13	Max WS	DCTrib-ULT-100	519.15	119.00	124.87		125.21	0.004430	4.73	109.80	19.59	0.35
Dry Creek Trib	7469.295			Culvert									
Dry Creek Trib	7446.46	Max WS	DCTrib-ULT-woBV-10yr	296.38	119.00	123.19		123.42	0.004125	3.88	76.31	20.94	0.36
Dry Creek Trib	7446.46	Max WS	DCTrib-ULT-10yr	313.33	119.00	123.27		123.52	0.004318	4.01	78.08	21.05	0.37
Dry Creek Trib	7446.46	Max WS	DC trib-ULT-woBV-100yr-BFE	506.61	119.00	124.09		124.52	0.006643	5.26	96.34	24.04	0.46
Dry Creek Trib	7446.46	Max WS	DCTrib-ULT-100	519.06	119.00	124.13		124.57	0.006830	5.34	97.28	24.30	0.47
Dry Creek Trib	7346.34	Max WS	DCTrib-ULT-woBV-10yr	295.95	117.42	123.09		123.10	0.000069	0.65	452.81	102.96	0.05
Dry Creek Trib	7346.34	Max WS	DCTrib-ULT-10yr	311.20	117.42	123.17		123.18	0.000072	0.67	461.38	103.67	0.06
Dry Creek Trib	7346.34	Max WS	DC trib-ULT-woBV-100yr-BFE	506.59	117.42	123.96		123.98	0.000120	0.93	546.87	111.71	0.07
Dry Creek Trib	7346.34	Max WS	DCTrib-ULT-100	519.03	117.42	124.00		124.01	0.000123	0.94	550.77	111.94	0.07
Dry Creek Trib	7255.4	Max WS	DCTrib-ULT-woBV-10yr	295.82	117.51	123.08		123.09	0.000113	0.83	354.33	80.46	0.07
Dry Creek Trib	7255.4	Max WS	DCTrib-ULT-10yr	311.44	117.51	123.16		123.17	0.000119	0.86	360.98	81.01	0.07
Dry Creek Trib	7255.4	Max WS	DC trib-ULT-woBV-100yr-BFE	507.28	117.51	123.94		123.96	0.000196	1.19	425.98	95.43	0.09
Dry Creek Trib	7255.4	Max WS	DCTrib-ULT-100	519.76	117.51	123.97		124.00	0.000202	1.21	428.90	96.20	0.10
Dry Creek Trib	7164.22	Max WS	DCTrib-ULT-woBV-10yr	295.10	118.37	122.34		122.75	0.013234	5.18	56.96	29.38	0.66
Dry Creek Trib	7164.22	Max WS	DCTrib-ULT-10yr	311.24	118.37	122.41		122.84	0.013374	5.27	59.03	30.38	0.66
Dry Creek Trib	7164.22	Max WS	DC trib-ULT-woBV-100yr-BFE	507.90	118.37	123.10		123.66	0.012887	6.08	91.39	60.58	0.68
Dry Creek Trib	7164.22	Max WS	DCTrib-ULT-100	520.39	118.37	123.14		123.70	0.012837	6.12	93.48	61.05	0.68
Dry Creek Trib	7067.14	Max WS	DCTrib-ULT-woBV-10yr	294.74	117.76	121.77		121.95	0.004488	3.75	103.98	68.85	0.40
Dry Creek Trib	7067.14	Max WS	DCTrib-ULT-10yr	310.78	117.76	121.85		122.02	0.004385	3.78	109.33	69.92	0.40
Dry Creek Trib	7067.14	Max WS	DC trib-ULT-woBV-100yr-BFE	508.65	117.76	122.65		122.84	0.003702	4.11	169.23	79.94	0.38
Dry Creek Trib	7067.14	Max WS	DCTrib-ULT-100	521.18	117.76	122.69		122.88	0.003690	4.14	172.54	80.44	0.38
Dry Creek Trib	6969.96	Max WS	DCTrib-ULT-woBV-10yr	295.14	117.10	121.39		121.55	0.003718	3.20	92.21	38.20	0.36
Dry Creek Trib	6969.96	Max WS	DCTrib-ULT-10yr	310.48	117.10	121.46		121.63	0.003836	3.28	94.72	38.76	0.37
Dry Creek Trib	6969.96	Max WS	DC trib-ULT-woBV-100yr-BFE	509.33	117.10	122.17		122.43	0.004946	4.09	124.48	45.64	0.43
Dry Creek Trib	6969.96	Max WS	DCTrib-ULT-100	521.95	117.10	122.21		122.47	0.005018	4.15	126.01	46.19	0.43
Dry Creek Trib	6844.28	Max WS	DCTrib-ULT-woBV-10yr	295.17	117.22	121.14		121.22	0.001821	2.39	138.23	81.11	0.26
Dry Creek Trib	6844.28	Max WS	DCTrib-ULT-10yr	310.93	117.22	121.19		121.28	0.001857	2.45	142.92	81.75	0.26
Dry Creek Trib	6844.28	Max WS	DC trib-ULT-woBV-100yr-BFE	510.29	117.22	121.88		122.00	0.002050	3.00	202.67	94.09	0.29
Dry Creek Trib	6844.28	Max WS	DCTrib-ULT-100	522.91	117.22	121.91		122.04	0.002073	3.03	205.61	94.48	0.29
Dry Creek Trib	6748.04	Max WS	DCTrib-ULT-woBV-10yr	294.81	117.62	120.50		120.80	0.009494	4.98	79.22	59.56	0.58
Dry Creek Trib	6748.04	Max WS	DCTrib-ULT-10yr	310.32	117.62	120.56		120.86	0.009401	5.04	82.73	60.49	0.58
Dry Creek Trib	6748.04	Max WS	DC trib-ULT-woBV-100yr-BFE	510.97	117.62	121.22		121.57	0.008434	5.63	126.89	72.69	0.57
Dry Creek Trib	6748.04	Max WS	DCTrib-ULT-100	523.59	117.62	121.25		121.61	0.008440	5.67	129.29	73.36	0.57
Dry Creek Trib	6661.51	Max WS	DCTrib-ULT-woBV-10yr	295.18	116.27	120.13		120.25	0.003382	2.99	115.60	72.03	0.35
Dry Creek Trib	6661.51	Max WS	DCTrib-ULT-10yr	310.68	116.27	120.18		120.31	0.003425	3.04	119.88	73.18	0.35
Dry Creek Trib	6661.51	Max WS	DC trib-ULT-woBV-100yr-BFE	511.54	116.27	120.86		121.03	0.003457	3.58	173.58	85.90	0.37

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	6661.51	Max WS	DCTrib-ULT-100	524.17	116.27	120.89		121.07	0.003467	3.61	176.55	86.54	0.37
Dry Creek Trib	6593.97	Max WS	DCTrib-ULT-woBV-10yr	295.33	116.25	119.78		119.96	0.005159	3.78	99.86	61.75	0.43
Dry Creek Trib	6593.97	Max WS	DCTrib-ULT-10yr	310.66	116.25	119.83		120.01	0.005250	3.87	102.97	62.52	0.43
Dry Creek Trib	6593.97	Max WS	DC trib-ULT-woBV-100yr-BFE	512.22	116.25	120.43		120.69	0.005957	4.76	143.47	73.89	0.48
Dry Creek Trib	6593.97	Max WS	DCTrib-ULT-100	524.79	116.25	120.46		120.73	0.005971	4.80	145.95	74.37	0.48
Dry Creek Trib	6509.43	Max WS	DCTrib-ULT-woBV-10yr	295.70	115.84	119.43		119.60	0.004494	3.51	105.44	76.46	0.40
Dry Creek Trib	6509.43	Max WS	DCTrib-ULT-10yr	311.00	115.84	119.47		119.65	0.004620	3.60	108.65	77.56	0.41
Dry Creek Trib	6509.43	Max WS	DC trib-ULT-woBV-100yr-BFE	512.67	115.84	119.97		120.22	0.005561	4.47	149.38	85.97	0.46
Dry Creek Trib	6509.43	Max WS	DCTrib-ULT-100	525.30	115.84	120.00		120.25	0.005596	4.52	151.82	86.39	0.46
Dry Creek Trib	6469.45	Max WS	DCTrib-ULT-woBV-10yr	295.73	116.52	119.31		119.41	0.004486	3.10	131.07	100.31	0.39
Dry Creek Trib	6469.45	Max WS	DCTrib-ULT-10yr	310.81	116.52	119.35		119.46	0.004560	3.16	135.05	101.48	0.39
Dry Creek Trib	6469.45	Max WS	DC trib-ULT-woBV-100yr-BFE	512.96	116.52	119.87		120.00	0.004681	3.73	190.38	115.05	0.41
Dry Creek Trib	6469.45	Max WS	DCTrib-ULT-100	525.61	116.52	119.90		120.04	0.004670	3.76	193.87	115.89	0.41
Dry Creek Trib	6351.96	Max WS	DCTrib-ULT-woBV-10yr	294.90	114.42	118.75		118.86	0.004351	3.24	130.44	104.96	0.38
Dry Creek Trib	6351.96	Max WS	DCTrib-ULT-10yr	309.66	114.42	118.80		118.91	0.004371	3.29	135.14	106.35	0.38
Dry Creek Trib	6351.96	Max WS	DC trib-ULT-woBV-100yr-BFE	513.68	114.42	119.40		119.53	0.003866	3.62	203.11	116.73	0.37
Dry Creek Trib	6351.96	Max WS	DCTrib-ULT-100	526.31	114.42	119.43		119.56	0.003830	3.63	207.18	117.04	0.37
Dry Creek Trib	6224.9	Max WS	DCTrib-ULT-woBV-10yr	295.23	114.45	118.36		118.45	0.002509	3.17	155.91	108.40	0.31
Dry Creek Trib	6224.9	Max WS	DCTrib-ULT-10yr	309.63	114.45	118.40		118.49	0.002553	3.22	160.70	109.46	0.31
Dry Creek Trib	6224.9	Max WS	DC trib-ULT-woBV-100yr-BFE	514.47	114.45	119.02		119.13	0.002625	3.67	233.60	123.74	0.33
Dry Creek Trib	6224.9	Max WS	DCTrib-ULT-100	527.10	114.45	119.06		119.17	0.002597	3.68	238.62	124.35	0.33
Dry Creek Trib	6159.11	Max WS	DCTrib-ULT-woBV-10yr	295.53	114.34	118.22		118.29	0.002120	2.41	172.75	124.08	0.27
Dry Creek Trib	6159.11	Max WS	DCTrib-ULT-10yr	309.55	114.34	118.27		118.33	0.002142	2.45	177.90	124.61	0.28
Dry Creek Trib	6159.11	Max WS	DC trib-ULT-woBV-100yr-BFE	514.94	114.34	118.89		118.97	0.002017	2.77	258.00	130.24	0.28
Dry Creek Trib	6159.11	Max WS	DCTrib-ULT-100	527.57	114.34	118.94		119.02	0.001993	2.78	263.44	130.71	0.28
Dry Creek Trib	6102.92	Max WS	DCTrib-ULT-woBV-10yr	295.77	114.47	118.06		118.14	0.003445	3.03	150.92	113.98	0.34
Dry Creek Trib	6102.92	Max WS	DCTrib-ULT-10yr	309.75	114.47	118.10		118.18	0.003459	3.07	155.52	114.38	0.34
Dry Creek Trib	6102.92	Max WS	DC trib-ULT-woBV-100yr-BFE	515.34	114.47	118.75		118.84	0.002897	3.28	232.12	120.63	0.33
Dry Creek Trib	6102.92	Max WS	DCTrib-ULT-100	527.97	114.47	118.79		118.88	0.002844	3.28	237.31	121.00	0.32
Dry Creek Trib	6011.93	Max WS	DCTrib-ULT-woBV-10yr	295.99	113.85	117.64		117.80	0.004611	3.68	114.46	98.89	0.41
Dry Creek Trib	6011.93	Max WS	DCTrib-ULT-10yr	309.36	113.85	117.68		117.84	0.004679	3.74	118.11	99.59	0.41
Dry Creek Trib	6011.93	Max WS	DC trib-ULT-woBV-100yr-BFE	515.65	113.85	118.40		118.56	0.003724	3.93	194.54	111.66	0.38
Dry Creek Trib	6011.93	Max WS	DCTrib-ULT-100	528.47	113.85	118.46		118.61	0.003604	3.91	200.67	112.54	0.38
Dry Creek Trib	5902.58	Max WS	DCTrib-ULT-woBV-10yr	294.67	115.02	117.15		117.26	0.005263	2.62	114.27	91.56	0.40
Dry Creek Trib	5902.58	Max WS	DCTrib-ULT-10yr	307.69	115.02	117.21		117.32	0.004948	2.62	119.77	92.39	0.39
Dry Creek Trib	5902.58	Max WS	DC trib-ULT-woBV-100yr-BFE	515.99	115.02	118.10		118.20	0.002567	2.61	207.73	105.19	0.30
Dry Creek Trib	5902.58	Max WS	DCTrib-ULT-100	528.91	115.02	118.17		118.27	0.002429	2.59	215.01	105.70	0.30
Dry Creek Trib	5792.84	Max WS	DCTrib-ULT-woBV-10yr	294.77	112.78	116.90		116.93	0.001200	1.90	217.08	124.01	0.21
Dry Creek Trib	5792.84	Max WS	DCTrib-ULT-10yr	307.63	112.78	116.98		117.01	0.001143	1.89	227.15	125.26	0.20
Dry Creek Trib	5792.84	Max WS	DC trib-ULT-woBV-100yr-BFE	515.99	112.78	117.99		118.03	0.000800	1.96	359.25	135.03	0.18
Dry Creek Trib	5792.84	Max WS	DCTrib-ULT-100	528.98	112.78	118.07		118.10	0.000772	1.95	369.58	135.92	0.18
Dry Creek Trib	5682.44	Max WS	DCTrib-ULT-woBV-10yr	295.11	111.63	116.84		116.85	0.000211	0.91	470.09	226.31	0.09
Dry Creek Trib	5682.44	Max WS	DCTrib-ULT-10yr	307.80	111.63	116.92		116.93	0.000206	0.91	489.14	230.54	0.09
Dry Creek Trib	5682.44	Max WS	DC trib-ULT-woBV-100yr-BFE	516.64	111.63	117.96		117.97	0.000167	0.99	740.81	249.34	0.08
Dry Creek Trib	5682.44	Max WS	DCTrib-ULT-100	529.76	111.63	118.04		118.05	0.000162	0.98	760.28	249.93	0.08
Dry Creek Trib	5618.96	Max WS	DCTrib-ULT-woBV-10yr	295.01	110.98	116.65		116.82	0.003521	3.75	106.07	58.55	0.35
Dry Creek Trib	5618.96	Max WS	DCTrib-ULT-10yr	307.48	110.98	116.74		116.91	0.003379	3.73	111.37	59.23	0.35
Dry Creek Trib	5618.96	Max WS	DC trib-ULT-woBV-100yr-BFE	514.32	110.98	117.78		117.96	0.002726	3.97	176.81	65.24	0.32
Dry Creek Trib	5618.96	Max WS	DCTrib-ULT-100	525.42	110.98	117.87		118.04	0.002616	3.93	182.20	65.65	0.32
Dry Creek Trib	5553.77	Max WS	DCTrib-ULT-woBV-10yr	348.82	112.80	116.51		116.60	0.001650	2.46	154.02	65.94	0.25
Dry Creek Trib	5553.77	Max WS	DCTrib-ULT-10yr	364.21	112.80	116.60		116.69	0.001612	2.48	160.03	66.71	0.25
Dry Creek Trib	5553.77	Max WS	DC trib-ULT-woBV-100yr-BFE	608.21	112.80	117.64		117.77	0.001532	2.93	234.24	75.89	0.26
Dry Creek Trib	5553.77	Max WS	DCTrib-ULT-100	629.70	112.80	117.72		117.85	0.001532	2.97	240.18	76.65	0.26
Dry Creek Trib	5479.88	Max WS	DCTrib-ULT-woBV-10yr	348.97	110.81	116.38		116.47	0.001697	2.49	140.37	46.86	0.25
Dry Creek Trib	5479.88	Max WS	DCTrib-ULT-10yr	364.70	110.81	116.47		116.57	0.001723	2.52	144.57	47.77	0.26
Dry Creek Trib	5479.88	Max WS	DC trib-ULT-woBV-100yr-BFE	608.67	110.81	117.48		117.63	0.002251	3.06	199.23	60.60	0.30
Dry Creek Trib	5479.88	Max WS	DCTrib-ULT-100	630.19	110.81	117.56		117.71	0.002274	3.09	203.94	61.96	0.30
Dry Creek Trib	5423.09	Max WS	DCTrib-ULT-woBV-10yr	349.34	111.01	116.30		116.39	0.001536	2.84	171.91	68.56	0.24
Dry Creek Trib	5423.09	Max WS	DCTrib-ULT-10yr	365.05	111.01	116.39		116.48	0.001529	2.88	178.11	69.76	0.25
Dry Creek Trib	5423.09	Max WS	DC trib-ULT-woBV-100yr-BFE	609.29	111.01	117.41		117.52	0.001700	3.49	257.60	97.26	0.27
Dry Creek Trib	5423.09	Max WS	DCTrib-ULT-100	630.86	111.01	117.48		117.61	0.001869	3.70	265.11	99.19	0.28
Dry Creek Trib	5275.52	Max WS	DCTrib-ULT-woBV-10yr	350.07	110.57	115.79		115.98	0.003941	3.48	100.56	37.39	0.37
Dry Creek Trib	5275.52	Max WS	DCTrib-ULT-10yr	365.70	110.57	115.87		116.06	0.004298	3.53	103.46	40.27	0.39
Dry Creek Trib	5275.52	Max WS	DC trib-ULT-woBV-100yr-BFE	610.62	110.57	116.82		117.08	0.004723	4.10	151.12	62.66	0.42
Dry Creek Trib	5275.52	Max WS	DCTrib-ULT-100	632.29	110.57	116.89		117.15	0.004675	4.14	155.52	63.51	0.42
Dry Creek Trib	5185.28	Max WS	DCTrib-ULT-woBV-10yr	350.42	111.16	115.52		115.67	0.002832	3.17	122.04	62.14	0.33
Dry Creek Trib	5185.28	Max WS	DCTrib-ULT-10yr	366.02	111.16	115.59		115.74	0.002826	3.22	126.35	62.78	0.33
Dry Creek Trib	5185.28	Max WS	DC trib-ULT-woBV-100yr-BFE	611.56	111.16	116.56		116.76	0.002626	3.75	193.38	75.16	0.33
Dry Creek Trib	5185.28	Max WS	DCTrib-ULT-100	633.01	111.16	116.63		116.83	0.002635	3.80	198.56	76.61	0.33
Dry Creek Trib	5105.36	Max WS	DCTrib-ULT-woBV-10yr	350.91	110.83	115.39		115.50	0.001436	2.80	146.65	55.12	0.24
Dry Creek Trib	5105.36	Max WS	DCTrib-ULT-10yr	366.50	110.83	115.45		115.57	0.001470	2.86	150.41	56.02	0.25

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	5105.36	Max WS	DC trib-ULT-woBV-100yr-BFE	612.15	110.83	116.41		116.58	0.001795	3.63	210.39	69.08	0.28
Dry Creek Trib	5105.36	Max WS	DCTrib-ULT-100	633.93	110.83	116.48		116.66	0.001822	3.69	215.05	69.72	0.28
Dry Creek Trib	5008.64	Max WS	DCTrib-ULT-woBV-10yr	351.34	111.00	115.22		115.33	0.002030	2.77	143.97	66.49	0.28
Dry Creek Trib	5008.64	Max WS	DCTrib-ULT-10yr	366.94	111.00	115.29		115.40	0.002041	2.82	148.33	67.10	0.28
Dry Creek Trib	5008.64	Max WS	DC trib-ULT-woBV-100yr-BFE	613.16	111.00	116.24		116.40	0.002051	3.38	218.61	81.24	0.29
Dry Creek Trib	5008.64	Max WS	DCTrib-ULT-100	635.01	111.00	116.31		116.47	0.002063	3.42	223.89	81.77	0.30
Dry Creek Trib	4899.84	Max WS	DCTrib-ULT-woBV-10yr	351.31	110.75	114.59		114.89	0.007132	4.49	82.70	44.97	0.50
Dry Creek Trib	4899.84	Max WS	DCTrib-ULT-10yr	366.75	110.75	114.64		114.96	0.007192	4.57	85.27	45.63	0.50
Dry Creek Trib	4899.84	Max WS	DC trib-ULT-woBV-100yr-BFE	613.84	110.75	115.65		116.02	0.005994	5.11	137.78	60.00	0.48
Dry Creek Trib	4899.84	Max WS	DCTrib-ULT-100	635.67	110.75	115.70		116.09	0.006035	5.19	141.28	61.11	0.48
Dry Creek Trib	4824.44	Max WS	DCTrib-ULT-woBV-10yr	351.43	110.92	114.41		114.53	0.002216	2.74	137.03	71.78	0.29
Dry Creek Trib	4824.44	Max WS	DCTrib-ULT-10yr	366.78	110.92	114.47		114.59	0.002236	2.79	141.74	78.87	0.29
Dry Creek Trib	4824.44	Max WS	DC trib-ULT-woBV-100yr-BFE	614.61	110.92	115.56		115.69	0.001758	3.07	239.93	100.51	0.27
Dry Creek Trib	4824.44	Max WS	DCTrib-ULT-100	636.50	110.92	115.62		115.75	0.001767	3.11	246.14	101.09	0.28
Dry Creek Trib	4744.51	Max WS	DCTrib-ULT-woBV-10yr	351.13	111.08	114.14		114.28	0.004819	3.32	131.08	97.15	0.41
Dry Creek Trib	4744.51	Max WS	DCTrib-ULT-10yr	366.34	111.08	114.21		114.35	0.004516	3.29	138.34	98.01	0.40
Dry Creek Trib	4744.51	Max WS	DC trib-ULT-woBV-100yr-BFE	615.40	111.08	115.44		115.54	0.001940	2.92	268.53	113.22	0.28
Dry Creek Trib	4744.51	Max WS	DCTrib-ULT-100	637.35	111.08	115.50		115.60	0.001932	2.95	275.48	113.82	0.28
Dry Creek Trib	4647.61	Max WS	DCTrib-ULT-woBV-10yr	351.66	109.03	113.91		114.00	0.001391	2.42	157.71	70.86	0.24
Dry Creek Trib	4647.61	Max WS	DCTrib-ULT-10yr	366.51	109.03	113.99		114.08	0.001381	2.46	163.48	72.44	0.24
Dry Creek Trib	4647.61	Max WS	DC trib-ULT-woBV-100yr-BFE	616.35	109.03	115.29		115.40	0.001088	2.71	273.07	92.93	0.22
Dry Creek Trib	4647.61	Max WS	DCTrib-ULT-100	638.36	109.03	115.35		115.46	0.001110	2.76	278.51	93.56	0.22
Dry Creek Trib	4565.34	Max WS	DCTrib-ULT-woBV-10yr	351.82	109.08	113.84		113.90	0.001030	2.05	201.07	84.85	0.20
Dry Creek Trib	4565.34	Max WS	DCTrib-ULT-10yr	367.00	109.08	113.93		113.98	0.001016	2.07	208.08	85.43	0.20
Dry Creek Trib	4565.34	Max WS	DC trib-ULT-woBV-100yr-BFE	617.16	109.08	115.25		115.31	0.000787	2.29	330.51	100.11	0.19
Dry Creek Trib	4565.34	Max WS	DCTrib-ULT-100	639.21	109.08	115.31		115.37	0.000805	2.33	336.26	100.71	0.19
Dry Creek Trib	4477.87	Max WS	DCTrib-ULT-woBV-10yr	352.32	108.81	113.64		113.77	0.002295	3.10	132.12	56.25	0.30
Dry Creek Trib	4477.87	Max WS	DCTrib-ULT-10yr	367.51	108.81	113.72		113.86	0.002270	3.14	136.84	56.98	0.30
Dry Creek Trib	4477.87	Max WS	DC trib-ULT-woBV-100yr-BFE	618.02	108.81	115.07		115.22	0.001755	3.45	223.19	71.69	0.28
Dry Creek Trib	4477.87	Max WS	DCTrib-ULT-100	640.13	108.81	115.12		115.28	0.001804	3.52	226.85	72.24	0.28
Dry Creek Trib	4378.67	Max WS	DCTrib-ULT-woBV-10yr	352.42	108.62	112.99		113.29	0.007964	4.35	80.99	37.01	0.52
Dry Creek Trib	4378.67	Max WS	DCTrib-ULT-10yr	367.61	108.62	113.07		113.37	0.007857	4.38	83.94	37.61	0.52
Dry Creek Trib	4378.67	Max WS	DC trib-ULT-woBV-100yr-BFE	619.04	108.62	114.75		114.97	0.003574	3.83	171.18	71.12	0.37
Dry Creek Trib	4378.67	Max WS	DCTrib-ULT-100	641.22	108.62	114.79		115.02	0.003670	3.91	174.04	71.74	0.38
Dry Creek Trib	4277.98	Max WS	DCTrib-ULT-woBV-10yr	352.29	106.96	112.66		112.79	0.002075	2.89	123.17	42.39	0.28
Dry Creek Trib	4277.98	Max WS	DCTrib-ULT-10yr	367.51	106.96	112.74		112.87	0.002097	2.94	126.53	43.60	0.28
Dry Creek Trib	4277.98	Max WS	DC trib-ULT-woBV-100yr-BFE	620.10	106.96	114.59		114.73	0.001235	3.00	234.35	74.12	0.23
Dry Creek Trib	4277.98	Max WS	DCTrib-ULT-100	642.34	106.96	114.63		114.77	0.001291	3.08	236.93	74.48	0.24
Dry Creek Trib	4174.26	Max WS	DCTrib-ULT-woBV-10yr	352.85	106.84	112.56		112.63	0.001040	2.56	187.32	64.44	0.21
Dry Creek Trib	4174.26	Max WS	DCTrib-ULT-10yr	368.10	106.84	112.64		112.71	0.001062	2.61	192.45	65.84	0.21
Dry Creek Trib	4174.26	Max WS	DC trib-ULT-woBV-100yr-BFE	621.20	106.84	114.55		114.62	0.000687	2.64	354.21	99.71	0.18
Dry Creek Trib	4174.26	Max WS	DCTrib-ULT-100	643.49	106.84	114.59		114.66	0.000721	2.72	357.54	100.43	0.19
Dry Creek Trib	4081.21	Max WS	DCTrib-ULT-woBV-10yr	353.03	106.93	112.27		112.45	0.003691	3.71	127.78	90.34	0.37
Dry Creek Trib	4081.21	Max WS	DCTrib-ULT-10yr	368.32	106.93	112.35		112.53	0.003545	3.69	135.14	92.08	0.36
Dry Creek Trib	4081.21	Max WS	DC trib-ULT-woBV-100yr-BFE	621.84	106.93	114.49		114.55	0.000783	2.44	392.91	147.70	0.19
Dry Creek Trib	4081.21	Max WS	DCTrib-ULT-100	644.53	106.93	114.52		114.58	0.000816	2.50	397.52	148.27	0.19
Dry Creek Trib	3997.08	Max WS	DCTrib-ULT-woBV-10yr	353.20	106.77	112.06		112.18	0.002413	2.81	125.67	45.06	0.30
Dry Creek Trib	3997.08	Max WS	DCTrib-ULT-10yr	368.53	106.77	112.14		112.26	0.002412	2.85	129.22	46.10	0.30
Dry Creek Trib	3997.08	Max WS	DC trib-ULT-woBV-100yr-BFE	622.70	106.77	114.41		114.49	0.000782	2.38	320.44	119.79	0.19
Dry Creek Trib	3997.08	Max WS	DCTrib-ULT-100	645.03	106.77	114.43		114.52	0.000820	2.45	323.68	120.19	0.19
Dry Creek Trib	3926.37	Max WS	DCTrib-ULT-woBV-10yr	353.28	107.28	111.70		111.94	0.004883	4.00	95.58	48.49	0.42
Dry Creek Trib	3926.37	Max WS	DCTrib-ULT-10yr	368.64	107.28	111.77		112.02	0.004829	4.05	99.15	49.23	0.42
Dry Creek Trib	3926.37	Max WS	DC trib-ULT-woBV-100yr-BFE	622.89	107.28	114.33		114.44	0.001083	2.94	300.42	127.07	0.22
Dry Creek Trib	3926.37	Max WS	DCTrib-ULT-100	645.17	107.28	114.35		114.47	0.001137	3.02	303.31	127.49	0.23
Dry Creek Trib	3862.49	Max WS	DCTrib-ULT-woBV-10yr	353.26	106.46	111.54		111.70	0.002603	3.22	115.47	45.44	0.32
Dry Creek Trib	3862.49	Max WS	DCTrib-ULT-10yr	368.66	106.46	111.61		111.78	0.002622	3.28	118.78	46.31	0.32
Dry Creek Trib	3862.49	Max WS	DC trib-ULT-woBV-100yr-BFE	622.83	106.46	114.28		114.37	0.000759	2.62	323.51	127.35	0.19
Dry Creek Trib	3862.49	Max WS	DCTrib-ULT-100	645.90	106.46	114.30		114.40	0.000803	2.70	326.06	127.86	0.19
Dry Creek Trib	3776.24	Max WS	DCTrib-ULT-woBV-10yr	353.72	105.17	111.51		111.55	0.000461	1.58	245.97	87.78	0.14
Dry Creek Trib	3776.24	Max WS	DCTrib-ULT-10yr	369.15	105.17	111.59		111.62	0.000468	1.61	252.47	88.77	0.14
Dry Creek Trib	3776.24	Max WS	DC trib-ULT-woBV-100yr-BFE	623.75	105.17	114.29		114.31	0.000178	1.40	564.42	138.34	0.09
Dry Creek Trib	3776.24	Max WS	DCTrib-ULT-100	646.90	105.17	114.31		114.33	0.000189	1.44	567.23	138.54	0.10
Dry Creek Trib	3690.59	Max WS	DCTrib-ULT-woBV-10yr	354.16	105.83	111.33		111.45	0.002097	2.82	126.08	41.83	0.28
Dry Creek Trib	3690.59	Max WS	DCTrib-ULT-10yr	369.61	105.83	111.40		111.53	0.002137	2.87	129.04	42.26	0.29
Dry Creek Trib	3690.59	Max WS	DC trib-ULT-woBV-100yr-BFE	623.70	105.83	114.23		114.29	0.000532	2.20	359.58	115.32	0.16
Dry Creek Trib	3690.59	Max WS	DCTrib-ULT-100	646.95	105.83	114.24		114.31	0.000565	2.27	361.47	115.53	0.16
Dry Creek Trib	3620.21	Max WS	DCTrib-ULT-woBV-10yr	354.28	105.63	111.18		111.29	0.002597	2.61	135.48	57.43	0.30
Dry Creek Trib	3620.21	Max WS	DCTrib-ULT-10yr	369.75	105.63	111.25		111.36	0.002599	2.65	139.76	58.25	0.30
Dry Creek Trib	3620.21	Max WS	DC trib-ULT-woBV-100yr-BFE	624.48	105.63	114.21		114.25	0.000389	1.68	436.46	135.63	0.13
Dry Creek Trib	3620.21	Max WS	DCTrib-ULT-100	647.78	105.63	114.23		114.27	0.000414	1.73	438.57	135.89	0.14
Dry Creek Trib	3517.19	Max WS	DCTrib-ULT-woBV-10yr	354.80	104.82	111.05		111.11	0.000928	1.91	187.69	65.21	0.19

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	3517.19	Max WS	DCTrib-ULT-10yr	370.31	104.82	111.13		111.18	0.000934	1.95	192.60	66.27	0.19
Dry Creek Trib	3517.19	Max WS	DC trib-ULT-woBV-100yr-BFE	624.43	104.82	114.18		114.22	0.000245	1.55	465.99	115.91	0.11
Dry Creek Trib	3517.19	Max WS	DCTrib-ULT-100	647.81	104.82	114.20		114.24	0.000262	1.60	467.58	116.38	0.11
Dry Creek Trib	3426.61	Max WS	DCTrib-ULT-woBV-10yr	355.23	105.85	110.91		110.99	0.002014	2.27	156.51	68.88	0.27
Dry Creek Trib	3426.61	Max WS	DCTrib-ULT-10yr	370.77	105.85	110.98		111.06	0.002036	2.29	161.58	70.58	0.27
Dry Creek Trib	3426.61	Max WS	DC trib-ULT-woBV-100yr-BFE	625.45	105.85	114.17		114.20	0.000221	1.28	573.35	166.04	0.10
Dry Creek Trib	3426.61	Max WS	DCTrib-ULT-100	648.88	105.85	114.19		114.21	0.000235	1.32	575.53	166.18	0.10
Dry Creek Trib	3351.95	Max WS	DCTrib-ULT-woBV-10yr	355.38	106.47	110.32		110.63	0.009186	4.45	79.91	39.88	0.55
Dry Creek Trib	3351.95	Max WS	DCTrib-ULT-10yr	370.91	106.47	110.38		110.70	0.009281	4.49	82.54	40.89	0.56
Dry Creek Trib	3351.95	Max WS	DC trib-ULT-woBV-100yr-BFE	623.24	106.47	114.15		114.18	0.000338	1.54	517.79	171.63	0.12
Dry Creek Trib	3351.95	Max WS	DCTrib-ULT-100	648.31	106.47	114.16		114.19	0.000362	1.59	519.74	171.88	0.13
Dry Creek Trib	3283.95	Max WS	DCTrib-ULT-woBV-10yr	355.75	104.94	110.16		110.25	0.001474	2.43	146.57	45.63	0.24
Dry Creek Trib	3283.95	Max WS	DCTrib-ULT-10yr	371.29	104.94	110.22		110.32	0.001532	2.49	149.40	46.20	0.24
Dry Creek Trib	3283.95	Max WS	DC trib-ULT-woBV-100yr-BFE	624.02	104.94	114.13		114.16	0.000179	1.40	601.27	173.17	0.09
Dry Creek Trib	3283.95	Max WS	DCTrib-ULT-100	647.42	104.94	114.15		114.17	0.000191	1.45	603.09	173.38	0.10
Dry Creek Trib	3198.18	Max WS	DCTrib-ULT-woBV-10yr	356.00	106.27	109.78		109.96	0.005431	3.38	105.32	54.34	0.43
Dry Creek Trib	3198.18	Max WS	DCTrib-ULT-10yr	371.55	106.27	109.85		110.03	0.005407	3.41	108.94	55.26	0.43
Dry Creek Trib	3198.18	Max WS	DC trib-ULT-woBV-100yr-BFE	623.17	106.27	114.12		114.14	0.000250	1.24	514.39	157.91	0.11
Dry Creek Trib	3198.18	Max WS	DCTrib-ULT-100	646.50	106.27	114.12		114.15	0.000267	1.29	515.84	161.91	0.11
Dry Creek Trib	3093.07	Max WS	DCTrib-ULT-woBV-10yr	356.04	104.29	109.32		109.52	0.003173	3.55	102.34	39.28	0.35
Dry Creek Trib	3093.07	Max WS	DCTrib-ULT-10yr	371.59	104.29	109.38		109.59	0.003245	3.63	104.73	40.22	0.35
Dry Creek Trib	3093.07	Max WS	DC trib-ULT-woBV-100yr-BFE	611.89	104.29	114.08		114.12	0.000241	1.78	485.23	122.98	0.11
Dry Creek Trib	3093.07	Max WS	DCTrib-ULT-100	640.44	104.29	114.08		114.13	0.000263	1.87	485.98	123.11	0.12
Dry Creek Trib	2973.97	Max WS	DCTrib-ULT-woBV-10yr	355.93	104.33	109.13		109.22	0.001840	2.40	148.22	56.34	0.26
Dry Creek Trib	2973.97	Max WS	DCTrib-ULT-10yr	371.49	104.33	109.19		109.29	0.001891	2.45	151.55	57.01	0.27
Dry Creek Trib	2973.97	Max WS	DC trib-ULT-woBV-100yr-BFE	610.20	104.33	114.07		114.09	0.000116	1.21	632.64	159.91	0.08
Dry Creek Trib	2973.97	Max WS	DCTrib-ULT-100	639.07	104.33	114.07		114.10	0.000127	1.26	633.49	160.09	0.08
Dry Creek Trib	2913.07	Max WS	DCTrib-ULT-woBV-10yr	356.24	104.98	109.11		109.14	0.000790	1.90	269.32	135.08	0.18
Dry Creek Trib	2913.07	Max WS	DCTrib-ULT-10yr	371.81	104.98	109.17		109.21	0.000814	1.95	277.49	142.03	0.18
Dry Creek Trib	2913.07	Max WS	DC trib-ULT-woBV-100yr-BFE	617.17	104.98	114.08		114.08	0.000039	0.77	1333.48	305.07	0.05
Dry Creek Trib	2913.07	Max WS	DCTrib-ULT-100	642.82	104.98	114.08		114.09	0.000042	0.80	1335.29	305.17	0.05
Dry Creek Trib	2833.94	Max WS	DCTrib-ULT-woBV-10yr	356.60	104.72	109.01		109.07	0.001188	2.22	201.52	86.95	0.22
Dry Creek Trib	2833.94	Max WS	DCTrib-ULT-10yr	372.18	104.72	109.07		109.13	0.001205	2.26	206.66	89.73	0.22
Dry Creek Trib	2833.94	Max WS	DC trib-ULT-woBV-100yr-BFE	618.15	104.72	114.07		114.08	0.000025	0.61	1699.49	387.72	0.04
Dry Creek Trib	2833.94	Max WS	DCTrib-ULT-100	643.81	104.72	114.08		114.08	0.000027	0.63	1701.78	387.81	0.04
Dry Creek Trib	2749.06	Max WS	DCTrib-ULT-woBV-10yr	356.78	104.29	108.85		108.94	0.001878	2.52	145.20	63.30	0.27
Dry Creek Trib	2749.06	Max WS	DCTrib-ULT-10yr	372.36	104.29	108.90		109.00	0.001913	2.58	148.68	64.27	0.27
Dry Creek Trib	2749.06	Max WS	DC trib-ULT-woBV-100yr-BFE	609.41	104.29	114.06		114.08	0.000097	1.16	682.16	143.27	0.07
Dry Creek Trib	2749.06	Max WS	DCTrib-ULT-100	638.56	104.29	114.06		114.08	0.000106	1.21	682.81	143.37	0.08
Dry Creek Trib	2584	Max WS	DCTrib-ULT-woBV-10yr	357.04	105.16	108.65		108.71	0.001229	1.97	197.82	91.88	0.21
Dry Creek Trib	2584	Max WS	DCTrib-ULT-10yr	372.62	105.16	108.70		108.76	0.001246	2.01	202.67	92.35	0.22
Dry Creek Trib	2584	Max WS	DC trib-ULT-woBV-100yr-BFE	610.68	105.16	114.06		114.06	0.000042	0.77	1083.78	218.56	0.05
Dry Creek Trib	2584	Max WS	DCTrib-ULT-100	643.17	105.16	114.06		114.07	0.000047	0.81	1084.74	218.61	0.05
Dry Creek Trib	2510.2	Max WS	DCTrib-ULT-woBV-10yr	357.40	103.89	108.56		108.62	0.001251	2.00	189.15	94.81	0.22
Dry Creek Trib	2510.2	Max WS	DCTrib-ULT-10yr	373.00	103.89	108.61		108.67	0.001271	2.04	194.06	95.75	0.22
Dry Creek Trib	2510.2	Max WS	DC trib-ULT-woBV-100yr-BFE	611.65	103.89	114.05		114.06	0.000037	0.73	1164.12	242.68	0.05
Dry Creek Trib	2510.2	Max WS	DCTrib-ULT-100	640.83	103.89	114.06		114.06	0.000041	0.76	1165.14	242.74	0.05
Dry Creek Trib	2416.71	Max WS	DCTrib-ULT-woBV-10yr	357.71	105.06	108.17		108.33	0.006054	3.42	124.22	99.10	0.45
Dry Creek Trib	2416.71	Max WS	DCTrib-ULT-10yr	373.31	105.06	108.23		108.39	0.005809	3.43	130.12	101.75	0.44
Dry Creek Trib	2416.71	Max WS	DC trib-ULT-woBV-100yr-BFE	612.88	105.06	114.05		114.06	0.000038	0.71	1253.11	257.44	0.04
Dry Creek Trib	2416.71	Max WS	DCTrib-ULT-100	642.09	105.06	114.06		114.06	0.000041	0.74	1254.14	257.58	0.05
Dry Creek Trib	2283.78	Max WS	DCTrib-ULT-woBV-10yr	358.22	103.67	107.60		107.75	0.003516	3.08	116.94	53.42	0.35
Dry Creek Trib	2283.78	Max WS	DCTrib-ULT-10yr	373.84	103.67	107.66		107.82	0.003503	3.13	120.34	54.12	0.35
Dry Creek Trib	2283.78	Max WS	DC trib-ULT-woBV-100yr-BFE	602.66	103.67	114.04		114.05	0.000059	0.96	900.49	199.74	0.06
Dry Creek Trib	2283.78	Max WS	DCTrib-ULT-100	636.57	103.67	114.04		114.05	0.000065	1.01	901.05	199.90	0.06
Dry Creek Trib	2204.83	Max WS	DCTrib-ULT-woBV-10yr	358.47	103.53	107.43		107.53	0.002307	2.55	145.89	70.67	0.29
Dry Creek Trib	2204.83	Max WS	DCTrib-ULT-10yr	374.11	103.53	107.50		107.60	0.002287	2.59	150.57	71.32	0.29
Dry Creek Trib	2204.83	Max WS	DC trib-ULT-woBV-100yr-BFE	599.35	103.53	114.04		114.05	0.000046	0.87	912.96	172.04	0.05
Dry Creek Trib	2204.83	Max WS	DCTrib-ULT-100	633.79	103.53	114.04		114.05	0.000051	0.92	913.39	172.11	0.05
Dry Creek Trib	2121.19	Max WS	DCTrib-ULT-woBV-10yr	358.88	103.14	107.31		107.38	0.001295	2.16	168.92	67.82	0.22
Dry Creek Trib	2121.19	Max WS	DCTrib-ULT-10yr	374.54	103.14	107.38		107.45	0.001307	2.20	173.43	69.95	0.23
Dry Creek Trib	2121.19	Max WS	DC trib-ULT-woBV-100yr-BFE	604.94	103.14	114.04		114.04	0.000022	0.63	1342.76	229.52	0.04
Dry Creek Trib	2121.19	Max WS	DCTrib-ULT-100	638.89	103.14	114.04		114.04	0.000025	0.66	1343.38	229.56	0.04
Dry Creek Trib	2047.12	Max WS	DCTrib-ULT-woBV-10yr	359.23	102.89	107.04		107.20	0.004330	3.28	109.41	49.47	0.39
Dry Creek Trib	2047.12	Max WS	DCTrib-ULT-10yr	374.92	102.89	107.09		107.27	0.004339	3.34	112.35	50.26	0.39
Dry Creek Trib	2047.12	Max WS	DC trib-ULT-woBV-100yr-BFE	605.98	102.89	114.04		114.04	0.000022	0.60	1435.11	254.38	0.03
Dry Creek Trib	2047.12	Max WS	DCTrib-ULT-100	639.95	102.89	114.04		114.04	0.000024	0.63	1435.77	254.42	0.04
Dry Creek Trib	1961.65	Max WS	DCTrib-ULT-woBV-10yr	359.60	102.88	106.67		106.86	0.004720	3.50	107.22	63.87	0.41
Dry Creek Trib	1961.65	Max WS	DCTrib-ULT-10yr	375.35	102.88	106.73		106.92	0.004692	3.54	111.07	65.08	0.41
Dry Creek Trib	1961.65	Max WS	DC trib-ULT-woBV-100yr-BFE	602.74	102.88	114.03		114.04	0.000018	0.56	1561.42	256.57	0.03
Dry Creek Trib	1961.65	Max WS	DCTrib-ULT-100	637.21	102.88	114.04		114.04	0.000020	0.59	1562.06	256.60	0.03

HEC-RAS River: Dry Creek Trib Reach: Dry Creek Trib Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dry Creek Trib	1846.6	Max WS	DCTrib-ULT-woBV-10yr	360.18	102.72	106.35		106.44	0.002789	2.45	146.74	74.25	0.31
Dry Creek Trib	1846.6	Max WS	DCTrib-ULT-10yr	375.93	102.72	106.42		106.51	0.002750	2.47	151.97	75.72	0.31
Dry Creek Trib	1846.6	Max WS	DC trib-ULT-woBV-100yr-BFE	604.37	102.72	114.03		114.03	0.000015	0.52	1543.64	250.80	0.03
Dry Creek Trib	1846.6	Max WS	DCTrib-ULT-100	638.85	102.72	114.03		114.04	0.000017	0.55	1544.19	250.84	0.03
Dry Creek Trib	1760.2	Max WS	DCTrib-ULT-woBV-10yr	360.52	102.08	106.17		106.25	0.001856	2.34	154.34	61.70	0.26
Dry Creek Trib	1760.2	Max WS	DCTrib-ULT-10yr	376.20	102.08	106.24		106.33	0.001869	2.37	158.77	62.46	0.26
Dry Creek Trib	1760.2	Max WS	DC trib-ULT-woBV-100yr-BFE	596.26	102.08	114.03		114.03	0.000026	0.70	1095.75	183.72	0.04
Dry Creek Trib	1760.2	Max WS	DCTrib-ULT-100	636.01	102.08	114.03		114.04	0.000029	0.74	1096.08	183.76	0.04
Dry Creek Trib	1646.18	Max WS	DCTrib-ULT-woBV-10yr	361.07	102.20	106.06		106.10	0.000907	1.64	220.18	88.00	0.18
Dry Creek Trib	1646.18	Max WS	DCTrib-ULT-10yr	376.79	102.20	106.13		106.17	0.000909	1.66	226.49	88.73	0.18
Dry Creek Trib	1646.18	Max WS	DC trib-ULT-woBV-100yr-BFE	597.90	102.20	114.03		114.03	0.000012	0.49	1537.34	241.73	0.03
Dry Creek Trib	1646.18	Max WS	DCTrib-ULT-100	637.68	102.20	114.03		114.03	0.000014	0.53	1537.80	241.78	0.03
Dry Creek Trib	1553.96	Max WS	DCTrib-ULT-woBV-10yr	360.72	101.85	105.99		106.03	0.000685	1.66	235.80	123.17	0.16
Dry Creek Trib	1553.96	Max WS	DCTrib-ULT-10yr	376.38	101.85	106.06		106.11	0.000685	1.69	244.68	125.95	0.17
Dry Creek Trib	1553.96	Max WS	DC trib-ULT-woBV-100yr-BFE	597.86	101.85	114.03		114.03	0.000008	0.42	1920.88	257.87	0.02
Dry Creek Trib	1553.96	Max WS	DCTrib-ULT-100	637.67	101.85	114.03		114.03	0.000009	0.45	1921.37	257.90	0.02
Dry Creek Trib	1451.16	Max WS	DCTrib-ULT-woBV-10yr	360.17	101.85	105.87		105.94	0.001221	2.17	178.78	97.34	0.22
Dry Creek Trib	1451.16	Max WS	DCTrib-ULT-10yr	375.11	101.85	105.94		106.01	0.001212	2.20	185.90	99.14	0.22
Dry Creek Trib	1451.16	Max WS	DC trib-ULT-woBV-100yr-BFE	597.83	101.85	114.02		114.03	0.000010	0.47	1859.74	276.57	0.02
Dry Creek Trib	1451.16	Max WS	DCTrib-ULT-100	633.39	101.85	114.03		114.03	0.000011	0.50	1860.24	276.60	0.03
Dry Creek Trib	1386.3	Max WS	DCTrib-ULT-woBV-10yr	360.15	101.74	105.86		105.88	0.000358	1.28	281.69	83.77	0.12
Dry Creek Trib	1386.3	Max WS	DCTrib-ULT-10yr	375.08	101.74	105.93		105.96	0.000362	1.31	287.78	84.18	0.12
Dry Creek Trib	1386.3	Max WS	DC trib-ULT-woBV-100yr-BFE	592.89	101.74	114.02		114.03	0.000013	0.55	1315.33	189.34	0.03
Dry Creek Trib	1386.3	Max WS	DCTrib-ULT-100	633.35	101.74	114.02		114.03	0.000015	0.59	1315.61	189.38	0.03
Dry Creek Trib	1316.1	Max WS	DCTrib-ULT-woBV-10yr	429.48	101.72	105.74		105.82	0.001273	2.29	197.24	72.63	0.22
Dry Creek Trib	1316.1	Max WS	DCTrib-ULT-10yr	449.47	101.72	105.81		105.89	0.001297	2.35	202.20	73.60	0.23
Dry Creek Trib	1316.1	Max WS	DC trib-ULT-woBV-100yr-BFE	606.89	101.72	114.01		114.02	0.000021	0.68	1169.98	171.14	0.04
Dry Creek Trib	1316.1	Max WS	DCTrib-ULT-100	851.23	101.72	114.01		114.02	0.000041	0.96	1170.10	171.15	0.05
Dry Creek Trib	1251.98	Max WS	DCTrib-ULT-woBV-10yr	429.23	102.21	105.63		105.72	0.001815	2.52	180.13	77.07	0.26
Dry Creek Trib	1251.98	Max WS	DCTrib-ULT-10yr	449.46	102.21	105.69		105.79	0.001835	2.57	185.19	77.71	0.27
Dry Creek Trib	1251.98	Max WS	DC trib-ULT-woBV-100yr-BFE	482.29	102.21	114.01		114.01	0.000013	0.53	1201.61	184.50	0.03
Dry Creek Trib	1251.98	Max WS	DCTrib-ULT-100	509.72	102.21	114.01		114.01	0.000015	0.57	1201.68	184.51	0.03
Dry Creek Trib	1184.63	Max WS	DCTrib-ULT-woBV-10yr	429.20	101.72	105.55		105.62	0.001237	2.07	210.71	81.54	0.22
Dry Creek Trib	1184.63	Max WS	DCTrib-ULT-10yr	449.21	101.72	105.62		105.69	0.001257	2.12	215.99	82.02	0.22
Dry Creek Trib	1184.63	Max WS	DC trib-ULT-woBV-100yr-BFE	497.99	101.72	114.01		114.01	0.000011	0.48	1304.02	196.52	0.03
Dry Creek Trib	1184.63	Max WS	DCTrib-ULT-100	622.75	101.72	114.01		114.01	0.000017	0.60	1304.08	196.53	0.03
Dry Creek Trib	1089.34	Max WS	DCTrib-ULT-woBV-10yr	428.92	102.51	105.37		105.46	0.002409	2.43	184.97	98.01	0.29
Dry Creek Trib	1089.34	Max WS	DCTrib-ULT-10yr	448.94	102.51	105.43		105.53	0.002377	2.46	191.45	98.71	0.29
Dry Creek Trib	1089.34	Max WS	DC trib-ULT-woBV-100yr-BFE	482.23	102.51	114.01		114.01	0.000009	0.44	1377.38	194.59	0.02
Dry Creek Trib	1089.34	Max WS	DCTrib-ULT-100	493.53	102.51	114.01		114.01	0.000010	0.45	1377.44	194.59	0.02
Dry Creek Trib	995.38	Max WS	DCTrib-ULT-woBV-10yr	428.35	101.68	105.13		105.25	0.002136	2.77	155.87	56.91	0.29
Dry Creek Trib	995.38	Max WS	DCTrib-ULT-10yr	448.66	101.68	105.19		105.32	0.002187	2.84	159.31	57.41	0.29
Dry Creek Trib	995.38	Max WS	DC trib-ULT-woBV-100yr-BFE	399.59	101.68	114.00		114.01	0.000010	0.49	1077.54	158.27	0.03
Dry Creek Trib	995.38	Max WS	DCTrib-ULT-100	408.62	101.68	114.00		114.01	0.000011	0.50	1077.55	158.27	0.03
Dry Creek Trib	914.19	Max WS	DCTrib-ULT-woBV-10yr	428.32	101.54	105.05		105.12	0.001073	2.15	219.76	87.91	0.21
Dry Creek Trib	914.19	Max WS	DCTrib-ULT-10yr	448.34	101.54	105.11		105.18	0.001100	2.20	225.04	88.72	0.21
Dry Creek Trib	914.19	Max WS	DC trib-ULT-woBV-100yr-BFE	416.31	101.54	114.00		114.00	0.000007	0.40	1470.38	222.60	0.02
Dry Creek Trib	914.19	Max WS	DCTrib-ULT-100	425.85	101.54	114.00		114.00	0.000007	0.41	1470.40	222.61	0.02
Dry Creek Trib	838.37	Max WS	DCTrib-ULT-woBV-10yr	427.99	101.53	105.01		105.05	0.000832	1.67	315.74	164.71	0.18
Dry Creek Trib	838.37	Max WS	DCTrib-ULT-10yr	448.30	101.53	105.07		105.11	0.000834	1.70	325.81	165.50	0.18
Dry Creek Trib	838.37	Max WS	DC trib-ULT-woBV-100yr-BFE	482.29	101.53	114.00		114.00	0.000004	0.29	2219.74	276.24	0.02
Dry Creek Trib	838.37	Max WS	DCTrib-ULT-100	477.02	101.53	114.00		114.00	0.000004	0.29	2219.76	276.25	0.02
Dry Creek Trib	755.74	Max WS	DCTrib-ULT-woBV-10yr	427.94	101.54	104.95		104.98	0.000719	1.67	330.38	163.66	0.17
Dry Creek Trib	755.74	Max WS	DCTrib-ULT-10yr	448.02	101.54	105.01		105.04	0.000727	1.70	340.25	165.36	0.17
Dry Creek Trib	755.74	Max WS	DC trib-ULT-woBV-100yr-BFE	498.11	101.54	114.00		114.00	0.000003	0.27	2850.78	400.42	0.01
Dry Creek Trib	755.74	Max WS	DCTrib-ULT-100	509.82	101.54	114.00		114.00	0.000003	0.27	2850.82	400.42	0.01
Dry Creek Trib	655.85	Max WS	DCTrib-ULT-woBV-10yr	427.71	101.67	104.87		104.91	0.000706	1.65	283.05	116.78	0.17
Dry Creek Trib	655.85	Max WS	DCTrib-ULT-10yr	448.00	101.67	104.93		104.97	0.000724	1.69	289.80	117.76	0.17
Dry Creek Trib	655.85	Max WS	DC trib-ULT-woBV-100yr-BFE	466.08	101.67	114.00		114.00	0.000003	0.26	2841.73	483.68	0.01
Dry Creek Trib	655.85	Max WS	DCTrib-ULT-100	460.11	101.67	114.00		114.00	0.000003	0.26	2841.73	483.68	0.01
Dry Creek Trib	563.63	Max WS	DCTrib-ULT-woBV-10yr	427.70	101.75	104.83		104.86	0.000568	1.44	348.69	167.57	0.15
Dry Creek Trib	563.63	Max WS	DCTrib-ULT-10yr	447.96	101.75	104.89		104.91	0.000578	1.47	358.21	168.89	0.15
Dry Creek Trib	563.63	Max WS	DC trib-ULT-woBV-100yr-BFE	482.27	101.75	114.00		114.00	0.000002	0.23	3362.47	541.83	0.01
Dry Creek Trib	563.63	Max WS	DCTrib-ULT-100	540.87	101.75	114.00		114.00	0.000003	0.25	3362.47	541.83	0.01
Dry Creek Trib	466	Max WS	DCTrib-ULT-woBV-10yr	427.68	101.78	104.74	103.24	104.78	0.001094	1.75	301.76	183.88	0.20
Dry Creek Trib	466	Max WS	DCTrib-ULT-10yr	447.90	101.78	104.80	103.28	104.84	0.001090	1.77	312.14	184.98	0.20
Dry Creek Trib	466	Max WS	DC trib-ULT-woBV-100yr-BFE	21.59	101.78	114.00	102.09	114.00	0.000000	0.01	3336.83	550.90	0.00
Dry Creek Trib	466	Max WS	DCTrib-ULT-100	23.24	101.78	114.00	102.10	114.00	0.000000	0.01	3336.83	550.90	0.00

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Memorandum

Date: October 25, 2019

To: Nick Papani
Raney Planning & Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834

From: Shawn Somers, P.E.

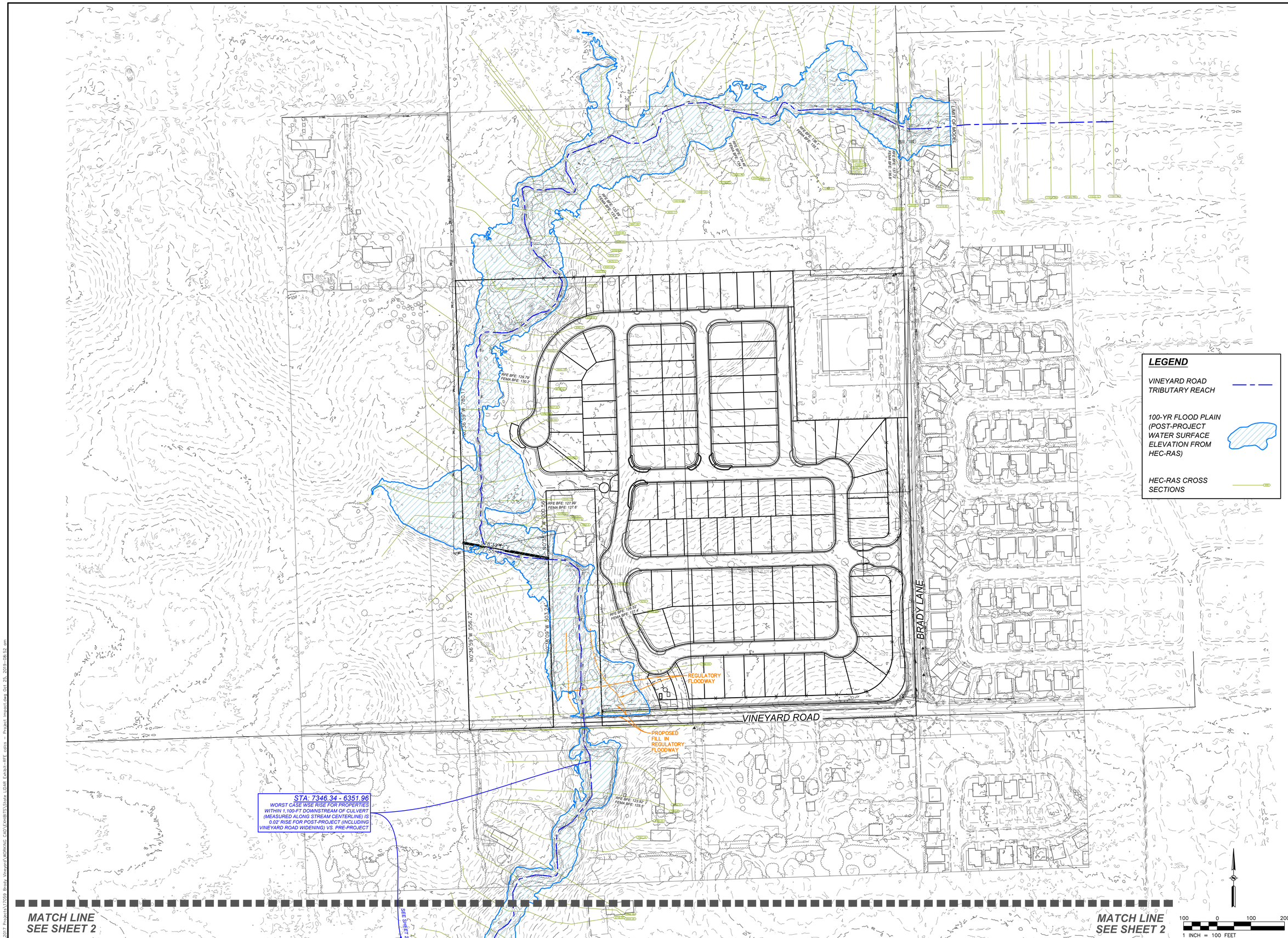
Subject: Brady Vineyard Post-Project vs. Pre-Project Drainage Addendum
RFE Project No. 17059

This memorandum addresses the post-project vs. pre-project 100-year flood boundary for the Brady Vineyard project. The *Preliminary Drainage Study & Stormwater Quality Plan for Brady-Vineyard Subdivision* included an exhibit showing the worst-case 100-year flood boundary for the Dry Creek Vineyard Road Tributary. This exhibit examined both the calculated 100-year water surface elevation (WSE) values from the HEC-RAS model completed by RFE Engineering, Inc. as well as the FEMA mapped water surface elevations and combined them into a worst-case exhibit. Wherever the FEMA WSEs were higher, the exhibit used the FEMA WSEs, and wherever the calculated RFE WSEs were higher, the exhibit showed the calculated RFE WSEs.

In the process of reviewing the EIR for the associated project, we determined that this exhibit was more conservative than required for our analysis, and it would be better for comparison purposes to use only the calculated RFE WSEs. We believe the WSEs calculated using the RFE HEC-RAS model are more accurate than the FEMA WSEs because of the higher accuracy model (including more detailed terrain and more frequent cross-sections along the channel) than what we believe FEMA used. This is reflected in the fact that FEMA WSEs were only published on the FEMA map to the nearest 0.1-foot, whereas we are confident using the nearest 0.01-foot for the calculated WSEs.

The attached exhibit shows the floodplain boundary for the 100-year storm as calculated from the RFE HEC-RAS model in the post-project condition including the improvements to Vineyard Road which will add fill to the floodplain. Importantly, this exhibit shows that the post-project floodplain of the Dry Creek Vineyard Road Tributary will not overtop the culvert in Vineyard Road, nor will it encroach into Vineyard Road at any point.

Attachment: Flood Model Exhibit – Post-Project



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BRADY VINEYARD SUBDIVISION
BRADY LANE AND VINEYARD ROAD,
ROCKLIN, PLACER COUNTY, CA
(APNS: 472-020-002 & 017 & 472-020-034)

FLOOD MODEL EXHIBIT
POST-PROJECT

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RFE PROJECT #17059 – VINEYARD ROAD AND BRADY LANE, PLACER COUNTY, CALIFORNIA

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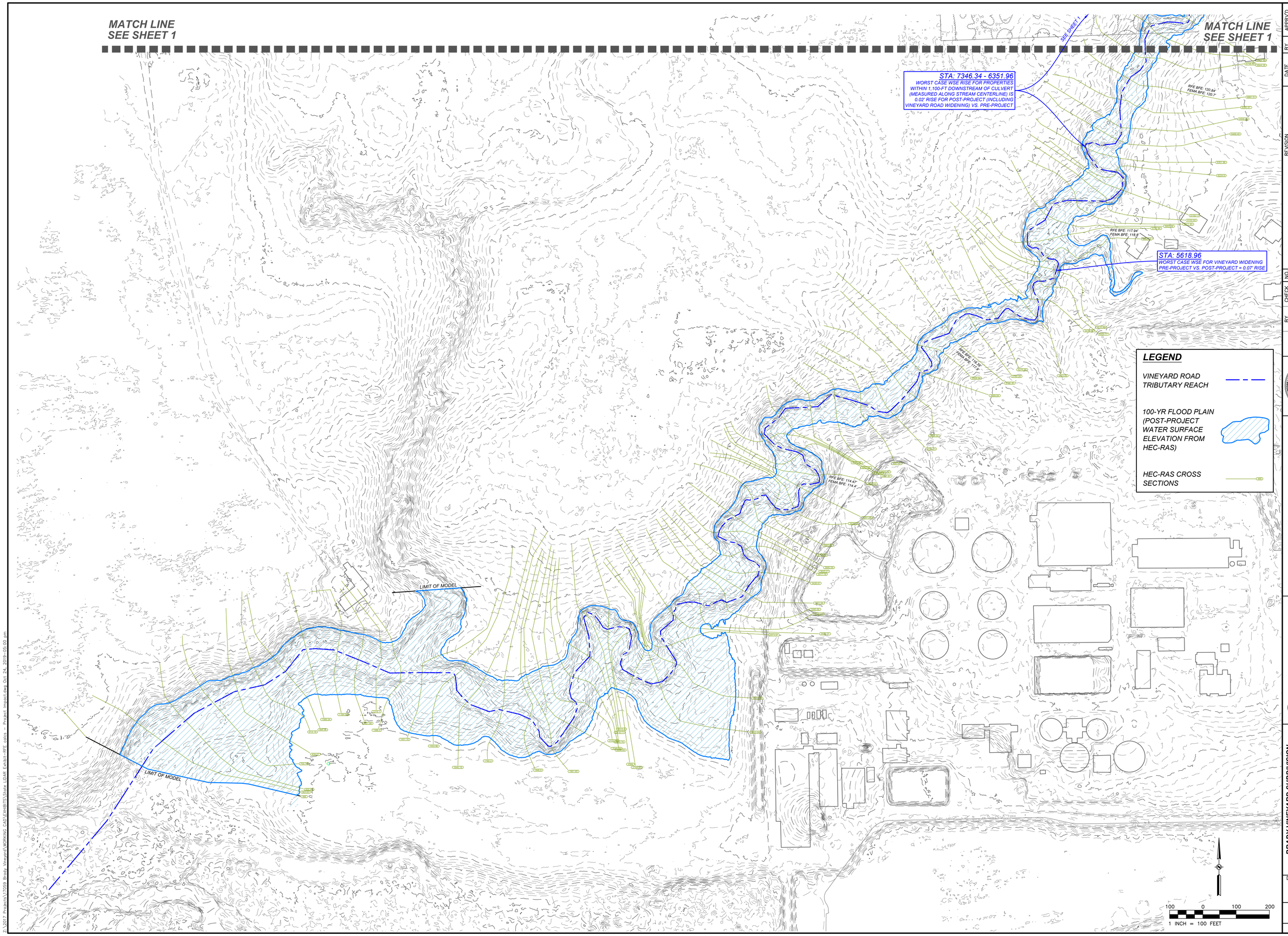

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PLACER COUNTY, CA
(APNS 021-090-006 & 021-090-034)

FLOOD MODEL EXHIBIT
POST-PROJECT

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RFE PROJECT #17059 – VINEYARD ROAD AND BRADY LANE, PLACER COUNTY, CALIFORNIA

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