APPENDIX C

Hydraulic Analysis

HYDRAULIC ANALYSES

FOR

BUENA VISTA CREEK

CHANNEL MAINTENANCE PROJECT

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FOR REVIEW ONLY

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INTRODUCTION

The Buena Vista Channel Maintenance District (District) was formed in 1989 and is administered by the City of Carlsbad. The District boundaries include a portion of the Buena Vista Creek channel from the Jefferson Street bridge upstream or east to the South Vista Way bridge (see Figure 2 after this report text). The purpose of the District is to provide an effective, consistent means of clearing the channel between the bridges. The Vicinity Map in Figure 1 shows both streets and the channel. State Route 78 is north of the channel and the Plaza Camino Real shopping center is south of the channel. The Vicinity Map was created from the Federal Emergency Management Agency's *Flood Insurance Rate Map* (Map No. 06073C0762G dated May 16, 2012). The FEMA 100-year floodplain is shaded in blue on the Vicinity Map.

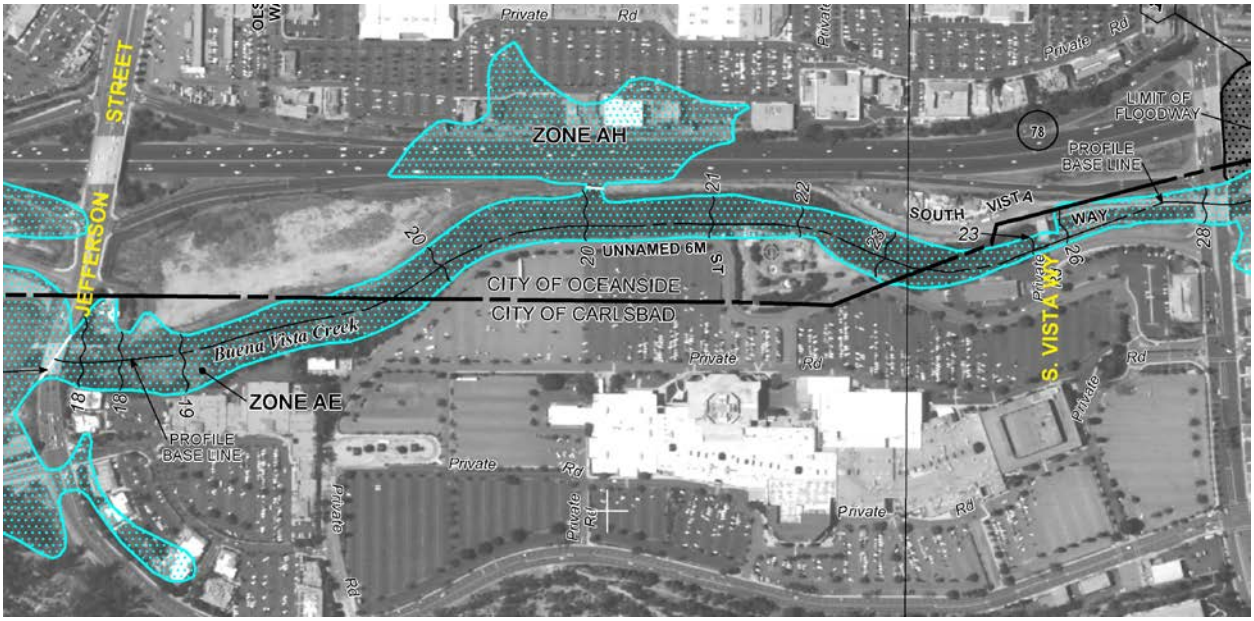

Figure 1. Vicinity Map

The Buena Vista Creek channel within the District boundaries serves as a flood control channel with a trapezoidal cross-section containing a natural bottom and riprap-lined banks. The channel was relocated to its current alignment in 1979 to allow construction of the Plaza Camino Real shopping center parking lot. The channel roughness has increased over time due to vegetative growth in the natural channel areas. The increased roughness gradually increases resistance to water flows and jeopardizes the flood control capacity of the channel. Since the channel was completed, the north half of the channel has been dredged twice to assist in restoring the channel capacity, once in 1993 and again in 1997.

In 2002, the City evaluated the need, frequency, and methods for maintaining the Buena Vista Creek channel within the District boundaries. Hydraulic studies were prepared to analyze the flood control capacity within this portion of the stream channel. The studies determined that during a 100-year storm event, flows would overtop the channel banks and inundate the adjacent parking lots in the District. Therefore, in 2003, the City approved an ongoing maintenance program to reduce flooding within the District properties. In 2004, the City initiated a 5-year

maintenance program that consists of hand removal of vegetation within the northern half of the channel between the South Vista Way bridge and the Coastal Zone boundary. The Coastal Zone boundary is approximately 900 feet east of Jefferson Street (see the HEC-RAS Work Map in Figure 4).

This report contains hydraulic analyses for reevaluation of the need, frequency, and methods for maintaining the Buena Vista Creek channel within the District. Since initiation of the channel maintenance program in 2004, the portion of the District channel within the Coastal Zone, which has not been maintained since the dredging in 1997, has accumulated sediment and experienced increased vegetative growth. The sediment and vegetation impedes the channel outlet and upstream channel capacity. This report analyzes the current conditions, and then alternatives for vegetation removal from the northern half of the channel from the upstream face of the Jefferson Street Bridge, which is within the Coastal Zone, to the downstream face of the South Vista Way Bridge. The goal of the analyses is to analyze vegetation removal alternatives over specific periods of time in order to assess flood protection benefits for the properties in the District while maintaining biological functions and values within the creek.

HYDRAULIC ANALYSES

Several HEC-RAS hydraulic analyses were performed for Buena Vista Creek and used to assess the current conditions as well as maintenance alternatives outlined by Dudek. The following describes the input data.

Each of the HEC-RAS analyses extends from Buena Vista Lagoon immediately downstream of Jefferson Street to the downstream face of El Camino Real. The 100-year analyses were based on the Federal Emergency Management Agency's 100-year flow rate in Buena Vista Creek of 8,500 cubic feet per second (the FEMA 10-, 50-, and 500-year flow rates are 2,000; 5,600; and 19,000 cfs, respectively). The starting water surface elevations were based on normal depth near the lagoon. The HEC-RAS cross-sections were created from 2005 topographic mapping provided by the City of Carlsbad. The mapping is on NAVD 88 vertical datum. The cross-sections were converted to NGVD 29 vertical datum (NGVD 29 = NAVD 88 – 2.23') to be consistent with the FEMA analyses. The mapping and cross-sections are shown on the HEC-RAS Work Map in Figure 4. Jefferson Street and South Vista Way Bridges were modeled based on the topographic mapping, as-built plans, and site observations.

A 100-year hydraulic analysis was performed initially for the current conditions. A site visit was made to assess the current vegetative growth in the study reach. The majority of the study reach contains moderate to dense vegetation although some small portions were concrete-lined with no vegetation. On the other hand, some segments of the concrete-lined channel supported vegetation that established from soil that deposited on the concrete. In order to reflect the channel cover, the roughness coefficients were assigned values ranging from 0.014 (concrete-lined channel) to 0.10 (channel with trees and dense vegetation). The 100-year results are included in Appendix A, which contains the tabulated results and plots of each cross-section. A review of the cross-section plots shows that the 100-year water surface exceeds the channel banks at many locations. Therefore, the channel does not have capacity for the 100-year flow under current conditions and

adjacent areas beyond the channel and within the District will experience flooding. The developed areas that can experience flooding are the shopping center parking lot, retail areas and the sewer treatment plant along the northerly portion of the parking lot, and the existing development north of the channel along South Vista Way.

The current conditions results are summarized Table 2 included after this report text. Table 2 provides each cross-section's top of bank elevations along the left (south) and right (north) channel banks. A portion of the area beyond the north channel bank is undeveloped or along the State Route 78 embankment. North bank cross-sections were not included in Table 2 for these areas because the District boundary either follows the freeway embankment or contains natural areas that are undeveloped. Table 2 also includes the 100-year water surface elevations to allow a comparison of the water surface elevations with the top of bank elevations. The difference between the water surface elevations and top of bank elevations are provided for each cross-section. The red numbers indicate the water surface is below the bank and contained in the channel, while the black numbers indicate were the water surface will overtop the bank. The hydraulics of water overtopping an embankment can be difficult to model particularly when the overtopping can occur at various locations. The HEC-RAS modeling performed for this report use a streamlined approach where the difference values may not represent the actual overtopping depth because the flow spreads once it overtops, but since the same approach is used for each analysis in this report, the results allow a relative comparison of the alternatives. The difference values in Table 2 indicate that overtopping of the channel banks will occur at many locations under existing conditions.

A subsequent analysis was performed assuming the entire channel between Jefferson Street and South Vista Way was maintained at one time. Although the entire channel will not be maintained, this analysis was performed because it provides an indication of the maximum channel capacity. The roughness coefficient was set at 0.035 to reflect the areas with channel maintenance. The results are included in Appendix A and Table 2. The cross-section plots in Appendix A and the difference values in Table 2 indicate that the 100-year flow is contained within the fully-maintained channel at most locations. Some overtopping will occur near Jefferson Street and the Mohnacky Animal Hospital of Carlsbad.

The next analysis assumes that the northerly half of the entire channel between the two bridges was maintained. The 100-year results included in Appendix A and summarized in Table 2 show that flow will be contained within the majority of the south bank. The overtopping that occurs along the south bank will have rather shallow depth. Overtopping can occur along the north bank, but at a much smaller magnitude than under current conditions. Therefore, while 50 percent channel maintenance does not provide the level of flood protection compared with the entire channel being maintained, it provides significant benefits over current conditions.

Three more hydraulic alternatives were analyzed assuming maintenance of the northerly half of the channel between the two bridges. The alternatives are based on maintenance occurring over a 3-, 5-, and 6-year period. Each alternative assumes that maintenance begins near Jefferson Street then progresses east in equal intervals towards South Vista Way in subsequent years. For example, the 5-year maintenance plan divides the north half of the channel into five equal segments between the two bridges. At the onset of maintenance, the westerly 1/5th channel

segment is maintained. After the first year, the next upstream 1/5th is maintained. After the second year, the next upstream (middle) 1/5th is maintained, etc.

The three alternatives consider regrowth of vegetation as each subsequent year passes. For example, under the 5-year plan, the initial westerly 1/5th area will experience some regrowth by the time the second 1/5th area is maintained. The initial and second 1/5th areas will experience some regrowth by the time the third 1/5th area is maintained (the initial area will have greater regrowth than the second area) and so on. The regrowth is modeled in the analyses by adjusting the roughness coefficients to gradually higher values to reflect an increase in vegetation over time.

According to Dudek, the channel vegetation can be classified into two categories (fresh water marsh and southern willow scrub) with differing growth rates. Freshwater marsh (FWM) will reach approximately its mature size after 12 months. In terms of density, FWM would have 50 percent density after one year, 75 percent after two years, and 100 percent after three years. For southern willow scrub (SWS), Dudek estimates that the species grow to an average 5 feet high after one year, 8 feet at two years, 12 feet at three years, 15 feet at four years, and 20 feet at five years. Full mature tree height and trunk diameters will not be met for approximately 10 to 20 years after planting. The percent cover for SWS is estimated to be 25 percent after one year, 40 percent at two years, 60 percent at three years, 75 percent at four years, and 90 percent at five years. These estimates can change based upon variable environmental conditions. From the physical characteristics of these two vegetation types, roughness coefficients were selected as listed in Table 1. Figure 3 delineates the various vegetation types. The Diegan coastal sage scrub is categorized as FWM, while mulefat scrub and ornamental are categorized as SWS. The southern coastal salt marsh, disturbed habitat, and open water will not change roughness with maintenance.

Year	Fresh Water Marsh	Southern Willow Scrub
1 (Initial Removal)	0.035	0.035
2	0.045	0.044
3	0.053	0.051
4	0.060	0.056
5	0.065	0.061

Table 1. Time Variation of Roughness Coefficients

For each alternative, multiple 100-year analyses were performed to determine the annual results for each maintenance scenario. Three analyses were performed representing each year of the 3-year maintenance plan, five analyses were performed representing each year of the 5-year plan, and six analyses were performed representing each year of the 6-year plan. The results are included in Appendix B, C, and D and Tables 3, 4, and 5, respectively. The results indicate that all of the alternatives reduce the flooding potential over current conditions. The 3-year plan provides greater flood protection than the other two alternatives. The results from the 5- and 6-year plans are relatively similar. Under all of the alternatives, overtopping of the channel banks can occur in the reach near South Vista Way, but the water surface elevations will be much lower

than current conditions, which indicates that overtopping will occur during a larger storm event under the alternatives in comparison to current conditions.

Additional analyses were performed to determine the flow rate at which the overtopping will begin to occur at any location along the channel between the two bridges. For all of the analyses, this occurs at the north bank of cross-section 1.597, which is near the Mohnacky Animal Hospital. The overtopping analyses are included in Appendix E and summarized in Table 6. The results indicate the creek flow will begin to overtop the channel under current conditions during a 20-year storm event. Under the maintenance alternative, this can increase to over a 40-year storm event.

CONCLUSION

Hydraulic analyses have been prepared for Buena Vista Creek within the Buena Vista Channel Maintenance District. The analyses show that a fully maintained channel approaches capacity for the 100-year storm flows. On the other hand, under current conditions the 100-year flow will exceed the channel capacity at many locations and the water will begin overtopping the channel during the 20-year flow event. Several maintenance alternatives were analyzed. Each alternative provides a higher level of flood protection than current conditions and initial channel overtopping can be increased to over a 40-year event. Each alternative will minimize the potential for flooding beyond the channel as well as the potential for pollutants from being conveyed from the adjacent parking areas, streets, etc. From a solely hydraulic standpoint, a shorter duration maintenance plan provides more flood protection than a longer term plan. However, channel maintenance must balance hydraulic benefits with environmental goals of preserving vegetation. As a result, a 5-year maintenance plan is being proposed. This will allow vegetation to continuously establish in the channel, while providing significant flood protection benefits.

The analyses in this report are based on FEMA's 100-year flow rates from their May 16, 2012, *Flood Insurance Study*. A June 23, 1994 report by Hunsaker & Associates San Diego, Inc. titled *Hydrologic Study for Buena Vista Creek Basin* was prepared for the City of Oceanside and states that "this report analyzes the Buena Vista Creek Basin in its ultimate condition." For comparison, the FEMA 100-year flow rate upstream of Interstate 5 is 8,500 cfs, while the Hunsaker flow rate is 10,800 cfs. The true 100-year flow rate is likely somewhere between these two values since the watershed is not fully-developed yet. The true flow rate is not particularly relevant for the analyses in this report because the channel is an existing channel that will not be enlarged, and the results show that the 100-year capacity is not met (under either of the flow rates) even under a fully-maintained condition where vegetation is removed bank to bank. The only relevance to identifying a 100-year flow rate is that this indicates that the channel does not meet the standard engineering goal of conveying the 100-year flow rate.

Two recent projects exist in the vicinity upstream of the Channel Maintenance District (District). One project is Hanson Aggregates' South Coast Materials Quarry (Quarry) and the other is the "Sherman Property." The Quarry is located along Buena Vista Creek west of College Boulevard, while the Sherman Property is within and along the floodplain west of the Quarry. Reclamation

grading of the Quarry has been completed in January 2013 and resulted in a broader, hydraulically stable creek channel capable of conveying the 100-year flows. This channel will be within a conservation easement. It is our understanding that the Sherman Property will be preserved as permanent open space and that the only activities within the site will involve biological enhancement. These projects will provide marginal benefits to the District. In particular, the Quarry channelization will reduce the potential for sediment to be eroded from the creek and transported downstream, and the Sherman Property will not be a significant source of invasive vegetation. Neither of these benefits affect the hydraulic modeling performed for this report nor the maintenance discussed. However, these projects are merely a small portion of the larger watershed and creek, so they alone cannot eliminate maintenance within the District boundaries. Maintenance will be required despite the benefits created by these projects. Furthermore, since the Quarry project has just been completed and the Sherman Property is intended to preserve habitat, it is unlikely that these can be altered to provide District benefits.

A couple additional alternatives have been considered, but not analyzed. First, a pilot channel up to 10 feet wide could be created within the vegetated creek. Interpolating from the analyses that have been performed reveal that a 10-foot wide pilot channel would provide a slightly lowering of water surface elevations in some areas. However, it is also likely that a 10-foot wide pilot channel would not be much improvement over the existing pilot channel(s) that naturally exist. A pilot channel of such narrow width could also be more readily subject to clogging during minor flow events. Therefore, this alternative will likely not provide enough benefits to justify the expense.

The second alternative involves removing the existing concrete lining from a portion of Buena Vista Creek. Buena Vista Creek is concrete-lined from South Vista Way to upstream of El Camino Real. Concrete has a low roughness coefficient (low resistance to flow) and, hence, will provide greater capacity than a naturally-lined channel. Concrete is also resistant to erosion. The relatively narrow channel in this reach can experience erosive flow velocities. Local scour can also occur at the existing bridge piers at both road crossings. Left unprotected, the channel could be subject to erosion and the bridges could be subject to failure. Since the concrete removal will increase flooding and the potential for scour, this alternative is not recommended.

REFERENCES

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Chang, H.H., *Hydraulic Study and Fluvial Modeling for Buena Vista Creek near Plaza Camino Real*, November 2002

Federal Emergency Management Agency, *Flood Insurance Rate Map No. 06073C0762G*, May, 16, 2012

Federal Emergency Management Agency, *Flood Insurance Study, San Diego County, California and Incorporated Areas*, July 2, 2002

Hunsaker and Associates, *Hydrologic Study for Buena Vista Creek Basin*, June 23, 1994

River Station	Bank Elevation, ft	Current Conditions, ft.	Difference, ft.	50% Clear, ft.	Difference, ft.	100% Clear, ft.	Difference, ft.
Left (South) Bank Results							
1.024	Jefferson Street Bridge						
1.030	21.8	15.9	5.9	15.1	6.7	15.1	6.7
1.066	16.1	18.3	2.2	16.6	0.5	16.4	0.4
1.100	16.3	18.9	2.6	17.4	1.1	17.2	1.0
1.135	18.3	19.2	0.9	17.7	0.6	17.4	0.8
1.174	20.1	19.3	0.7	17.8	2.3	17.5	2.6
1.214	21.9	19.7	2.2	18.0	3.9	17.7	4.2
1.255	20.1	19.8	0.2	18.2	1.9	17.7	2.3
1.296	22.0	20.0	2.0	18.2	3.8	17.6	4.4
1.336	19.8	20.3	0.6	18.6	1.2	18.0	1.8
1.373	19.8	20.8	1.0	19.0	0.8	18.3	1.4
1.413	19.8	21.2	1.4	19.2	0.6	18.5	1.3
1.454	19.8	21.6	1.8	19.4	0.3	18.6	1.2
1.498	20.6	22.1	1.6	19.6	1.0	18.6	2.0
1.532	18.8	22.8	4.0	20.1	1.3	18.9	0.1
1.564	19.9	23.3	3.5	20.6	0.7	19.3	0.6
1.597	19.9	23.7	3.8	20.8	1.0	19.5	0.4
1.629	20.2	24.2	4.0	21.2	1.0	19.8	0.4
1.661	20.2	24.6	4.4	21.5	1.3	20.0	0.2
1.701	20.8	25.1	4.3	21.3	0.5	19.3	1.5
1.734	23.8	24.5	0.8	21.1	2.7	21.1	2.7
1.739	South Vista Way Bridge						
1.744	23.8	25.6	1.8	22.1	1.7	22.1	1.7
1.777	23.8	25.6	1.8	22.2	1.6	22.2	1.6
1.809	25.8	25.5	0.3	23.8	2.0	23.8	2.0
1.839	28.9	25.8	3.1	24.8	4.1	24.8	4.1
Right (North) Bank Results							
1.024	Jefferson Street Bridge						
1.066	14.8	18.3	3.5	16.6	1.8	16.4	1.7
1.100	15.8	18.9	3.1	17.4	1.6	17.2	1.5
1.564	17.8	23.3	5.6	20.6	2.8	19.3	1.5
1.597	18.2	23.7	5.5	20.8	2.7	19.5	1.3
1.629	20.2	24.2	4.0	21.2	1.0	19.8	0.4
1.661	20.2	24.6	4.4	21.5	1.3	20.0	0.2
1.701	20.8	25.1	4.3	21.3	0.5	19.3	1.5
1.734	23.8	24.5	0.8	21.1	2.7	21.1	2.7
1.739	South Vista Way Bridge						

Note: Red numbers under Difference columns indicate that water surface is lower than bank elevation

Table 2. 100-Year Results for Current Conditions, with North Half of Channel Maintained, and Entire Channel Maintained

River Station	Bank Elevation, ft	Year 1 of 3, ft.	Difference, ft.	Year 2 of 3, ft.	Difference, ft.	Year 3 of 3, ft.	Difference, ft.
Left (South) Bank Results							
1.024	Jefferson Street Bridge						
1.030	21.8	15.1	6.7	15.1	6.7	15.1	6.7
1.066	16.1	16.6	0.5	16.7	0.6	16.7	0.6
1.100	16.3	17.4	1.1	17.5	1.3	17.6	1.3
1.135	18.3	17.7	0.6	17.8	0.5	17.9	0.4
1.174	20.1	17.8	2.3	18.0	2.1	18.1	2.0
1.214	21.9	18.0	3.9	18.3	3.6	18.4	3.4
1.255	20.1	18.2	1.9	18.4	1.6	18.6	1.4
1.296	22.0	18.3	3.7	18.5	3.5	18.8	3.2
1.336	19.8	19.0	0.8	18.8	0.9	19.1	0.6
1.373	19.8	19.6	0.2	19.2	0.6	19.5	0.3
1.413	19.8	20.2	0.4	19.4	0.3	19.8	0.0
1.454	19.8	20.8	1.0	19.6	0.1	20.0	0.3
1.498	20.6	21.4	0.8	19.8	0.8	20.3	0.3
1.532	18.8	22.2	3.4	20.6	1.8	20.7	1.9
1.564	19.9	22.9	3.0	21.6	1.8	21.1	1.3
1.597	19.9	23.3	3.4	22.3	2.4	21.3	1.5
1.629	20.2	23.8	3.6	22.9	2.8	21.6	1.5
1.661	20.2	24.2	4.1	23.5	3.3	21.9	1.7
1.701	20.8	24.8	4.1	24.2	3.5	21.7	0.9
1.734	23.8	24.2	0.4	23.5	0.3	21.1	2.7
1.739	South Vista Way Bridge						
1.744	23.8	25.2	1.4	24.2	0.4	22.1	1.7
1.777	23.8	25.2	1.4	24.3	0.6	22.2	1.6
1.809	25.8	25.2	0.6	24.4	1.4	23.8	2.0
1.839	28.9	25.5	3.4	25.0	3.9	24.8	4.1
Right (North) Bank Results							
1.024	Jefferson Street Bridge						
1.066	14.8	16.6	1.8	16.7	1.9	16.7	1.9
1.100	15.8	17.4	1.6	17.5	1.8	17.6	1.8
1.564	17.8	22.9	5.1	21.6	3.9	21.1	3.4
1.597	18.2	23.3	5.1	22.3	4.1	21.3	3.2
1.629	20.2	23.8	3.6	22.9	2.8	21.6	1.5
1.661	20.2	24.2	4.1	23.5	3.3	21.9	1.7
1.701	20.8	24.8	4.1	24.2	3.5	21.7	0.9
1.734	23.8	24.2	0.4	23.5	0.3	21.1	2.7
1.739	South Vista Way Bridge						

Note: Red numbers under Difference columns indicate that water surface is lower than bank elevation

Table 3. 100-Year Results for 3-Year Maintenance Plan

River Station	Bank Elev., ft	Year 1 of 5, ft.	Diff., ft.	Year 2 of 5, ft.	Diff., ft.	Year 3 of 5, ft.	Diff., ft.	Year 4 of 5, ft.	Diff., ft.	Year 5 of 5, ft.	Diff., ft.
Left (South) Bank Results											
1.024	Jefferson Street Bridge										
1.030	21.8	15.1	6.7	15.1	6.7	15.1	6.7	15.1	6.7	15.1	6.7
1.066	16.1	16.6	0.5	16.7	0.6	16.7	0.6	16.7	0.6	16.7	0.7
1.100	16.3	17.4	1.1	17.5	1.3	17.6	1.3	17.7	1.4	17.7	1.4
1.135	18.3	17.7	0.6	17.8	0.5	17.9	0.4	18.0	0.3	18.0	0.2
1.174	20.1	17.8	2.2	17.9	2.2	18.1	2.0	18.2	1.9	18.3	1.8
1.214	21.9	18.3	3.6	18.2	3.7	18.4	3.5	18.5	3.4	18.6	3.3
1.255	20.1	18.6	1.5	18.3	1.8	18.5	1.5	18.7	1.4	18.8	1.2
1.296	22.0	18.8	3.1	18.3	3.7	18.7	3.3	18.9	3.1	19.0	3.0
1.336	19.8	19.3	0.4	18.9	0.9	19.0	0.8	19.2	0.6	19.4	0.4
1.373	19.8	19.9	0.1	19.6	0.2	19.3	0.5	19.6	0.2	19.8	0.0
1.413	19.8	20.4	0.7	20.1	0.4	19.5	0.3	19.9	0.1	20.1	0.3
1.454	19.8	21.0	1.2	20.7	0.9	19.9	0.1	20.1	0.3	20.4	0.6
1.498	20.6	21.6	1.0	21.4	0.8	20.7	0.1	20.2	0.4	20.6	0.0
1.532	18.8	22.4	3.6	22.2	3.4	21.7	3.0	20.6	1.8	21.0	2.3
1.564	19.9	23.0	3.1	22.9	3.0	22.5	2.6	21.0	1.1	21.5	1.6
1.597	19.9	23.4	3.5	23.3	3.4	23.0	3.1	21.4	1.6	21.7	1.8
1.629	20.2	23.9	3.7	23.8	3.6	23.5	3.3	22.3	2.1	22.0	1.8
1.661	20.2	24.3	4.2	24.2	4.1	24.0	3.8	23.0	2.8	22.2	2.0
1.701	20.8	24.9	4.1	24.8	4.1	24.6	3.9	23.8	3.1	22.0	1.2
1.734	23.8	24.3	0.5	24.2	0.4	23.9	0.2	23.0	0.8	21.1	2.7
1.739	South Vista Way Bridge										
1.744	23.8	25.3	1.5	25.2	1.4	24.9	1.1	23.7	0.1	22.1	1.7
1.777	23.8	25.3	1.5	25.2	1.4	24.9	1.2	23.6	0.1	22.2	1.6
1.809	25.8	25.3	0.5	25.2	0.6	24.9	0.8	24.0	1.8	23.8	2.0
1.839	28.9	25.5	3.3	25.5	3.4	25.3	3.6	24.8	4.1	24.8	4.1
Right (North) Bank Results											
1.024	Jefferson Street Bridge										
1.066	14.8	16.6	1.8	16.7	1.9	16.7	1.9	16.7	2.0	16.7	2.0
1.100	15.8	17.4	1.6	17.5	1.8	17.6	1.8	17.7	1.9	17.7	1.9
1.564	17.8	23.0	5.2	22.9	5.1	22.5	4.7	21.0	3.2	21.5	3.7
1.597	18.2	23.4	5.2	23.3	5.1	23.0	4.8	21.4	3.3	21.7	3.5
1.629	20.2	23.9	3.7	23.8	3.6	23.5	3.3	22.3	2.1	22.0	1.8
1.661	20.2	24.3	4.2	24.2	4.1	24.0	3.8	23.0	2.8	22.2	2.0
1.701	20.8	24.9	4.1	24.8	4.1	24.6	3.9	23.8	3.1	22.0	1.2
1.734	23.8	24.3	0.5	24.2	0.4	23.9	0.2	23.0	0.8	21.1	2.7
1.739	South Vista Way Bridge										

Note: Red numbers under Difference columns indicate that water surface is lower than bank elevation

Table 4. 100-Year Results for 5-Year Maintenance Plan

River Sta	Bank Elev., ft	Year 1 of 6, ft.	Diff., ft.	Year 2 of 6, ft.	Diff., ft.	Year 3 of 6, ft.	Diff., ft.	Year 4 of 6, ft.	Diff., ft.	Year 5 of 6, ft.	Diff., ft.	Year 6 of 6, ft.	Diff., ft.
Left (South) Bank Results													
1.024	Jefferson Street Bridge												
1.030	21.8	15.1	6.7	15.1	6.7	15.1	6.7	15.1	6.7	15.1	6.7	15.1	6.7
1.066	16.1	16.6	0.5	16.7	0.6	16.7	0.6	16.7	0.6	16.7	0.7	16.8	0.7
1.100	16.3	17.4	1.1	17.5	1.3	17.6	1.3	17.7	1.4	17.7	1.4	17.7	1.5
1.135	18.3	17.7	0.6	17.8	0.5	17.9	0.4	18.0	0.3	18.0	0.2	18.1	0.2
1.174	20.1	17.8	2.2	17.9	2.2	18.1	2.0	18.2	1.9	18.3	1.8	18.3	1.8
1.214	21.9	18.3	3.6	18.2	3.7	18.4	3.5	18.5	3.4	18.6	3.3	18.7	3.2
1.255	20.1	18.6	1.5	18.3	1.8	18.5	1.5	18.7	1.4	18.8	1.2	18.9	1.2
1.296	22.0	18.8	3.1	18.5	3.5	18.6	3.4	18.8	3.1	19.0	3.0	19.1	2.9
1.336	19.8	19.3	0.4	19.1	0.7	18.9	0.8	19.2	0.6	19.4	0.4	19.5	0.3
1.373	19.8	19.9	0.1	19.7	0.1	19.3	0.5	19.6	0.2	19.8	0.0	19.9	0.1
1.413	19.8	20.4	0.7	20.3	0.5	19.6	0.1	19.8	0.0	20.0	0.3	20.2	0.4
1.454	19.8	21.0	1.2	20.8	1.0	20.3	0.5	20.0	0.2	20.3	0.5	20.5	0.7
1.498	20.6	21.6	1.0	21.4	0.9	21.0	0.5	20.1	0.5	20.5	0.1	20.8	0.2
1.532	18.8	22.4	3.6	22.3	3.5	21.9	3.2	20.8	2.1	20.9	2.1	21.3	2.5
1.564	19.9	23.0	3.1	22.9	3.0	22.7	2.8	21.8	1.9	21.3	1.4	21.7	1.8
1.597	19.9	23.4	3.5	23.3	3.4	23.1	3.2	22.4	2.5	21.5	1.6	21.9	2.1
1.629	20.2	23.9	3.7	23.8	3.6	23.6	3.5	23.0	2.9	22.0	1.8	22.2	2.0
1.661	20.2	24.3	4.2	24.3	4.1	24.1	3.9	23.6	3.4	22.7	2.6	22.4	2.3
1.701	20.8	24.9	4.1	24.9	4.1	24.7	4.0	24.3	3.5	23.7	2.9	22.2	1.5
1.734	23.8	24.3	0.5	24.2	0.4	24.0	0.3	23.6	0.2	22.8	1.0	21.1	2.7
1.739	South Vista Way Bridge												
1.744	23.8	25.3	1.5	25.2	1.5	25.0	1.3	24.4	0.6	23.4	0.4	22.1	1.7
1.777	23.8	25.3	1.5	25.2	1.5	25.1	1.3	24.4	0.7	23.4	0.4	22.2	1.6
1.809	25.8	25.3	0.5	25.2	0.6	25.0	0.7	24.5	1.3	23.8	2.0	23.8	2.0
1.839	28.9	25.5	3.3	25.5	3.4	25.4	3.5	25.0	3.9	24.8	4.1	24.8	4.1
Right (North) Bank Results													
1.024	Jefferson Street Bridge												
1.066	14.8	16.6	1.8	16.7	1.9	16.7	1.9	16.7	2.0	16.7	2.0	16.8	2.0
1.100	15.8	17.4	1.6	17.5	1.8	17.6	1.8	17.7	1.9	17.7	1.9	17.7	2.0
1.564	17.8	23.0	5.2	22.9	5.1	22.7	4.9	21.8	4.0	21.3	3.5	21.7	3.9
1.597	18.2	23.4	5.2	23.3	5.1	23.1	4.9	22.4	4.2	21.5	3.3	21.9	3.8
1.629	20.2	23.9	3.7	23.8	3.6	23.6	3.5	23.0	2.9	22.0	1.8	22.2	2.0
1.661	20.2	24.3	4.2	24.3	4.1	24.1	3.9	23.6	3.4	22.7	2.6	22.4	2.3
1.701	20.8	24.9	4.1	24.9	4.1	24.7	4.0	24.3	3.5	23.7	2.9	22.2	1.5
1.734	23.8	24.3	0.5	24.2	0.4	24.0	0.3	23.6	0.2	22.8	1.0	21.1	2.7
1.739	South Vista Way Bridge												

Note: Red numbers under Difference columns indicate that water surface is lower than bank elevation

Table 5. 100-Year Results for 6-Year Maintenance Plan

Analysis	Overtopping Flow Rate, cfs	Storm Frequency, event
Current Conditions	3,200	20-year
Year 1 of 3	3,300	21-year
Year 2 of 3	3,900	31-year
Year 3 of 3	4,900	43-year
Year 1 of 5	3,300	21-year
Year 2 of 5	3,400	22-year
Year 3 of 5	3,500	23-year
Year 4 of 5	4,800	42-year
Year 5 of 5	4,600	41-year
Year 1 of 6	3,300	21-year
Year 2 of 6	3,300	21-year
Year 3 of 6	3,400	22-year
Year 4 of 6	3,800	30-year
Year 5 of 6	4,800	42-year
Year 6 of 6	4,400	39-year

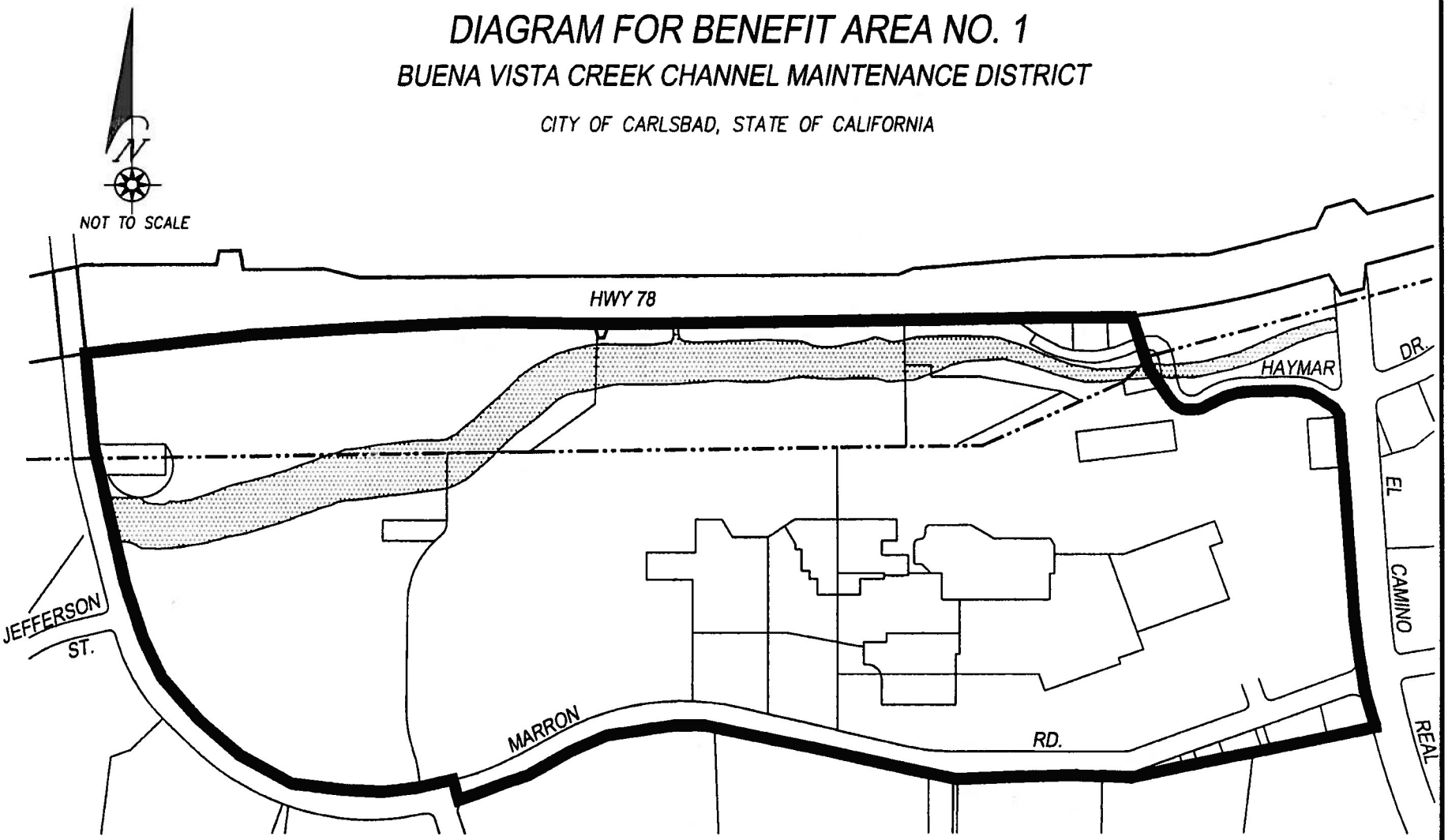
Note: For all analyses, overtopping initially occurs at north bank of Station 1.597

Table 6. Channel Overtopping Flow Rate and Corresponding Storm Frequency

DIAGRAM FOR BENEFIT AREA NO. 1

BUENA VISTA CREEK CHANNEL MAINTENANCE DISTRICT

CITY OF CARLSBAD, STATE OF CALIFORNIA



LEGEND:

- CITY BOUNDARY
- DISTRICT BOUNDARY
- PERIODIC CLEANING OF OVERGROWTH AND SILT WITHIN AREA SHOWN

FIGURE 2

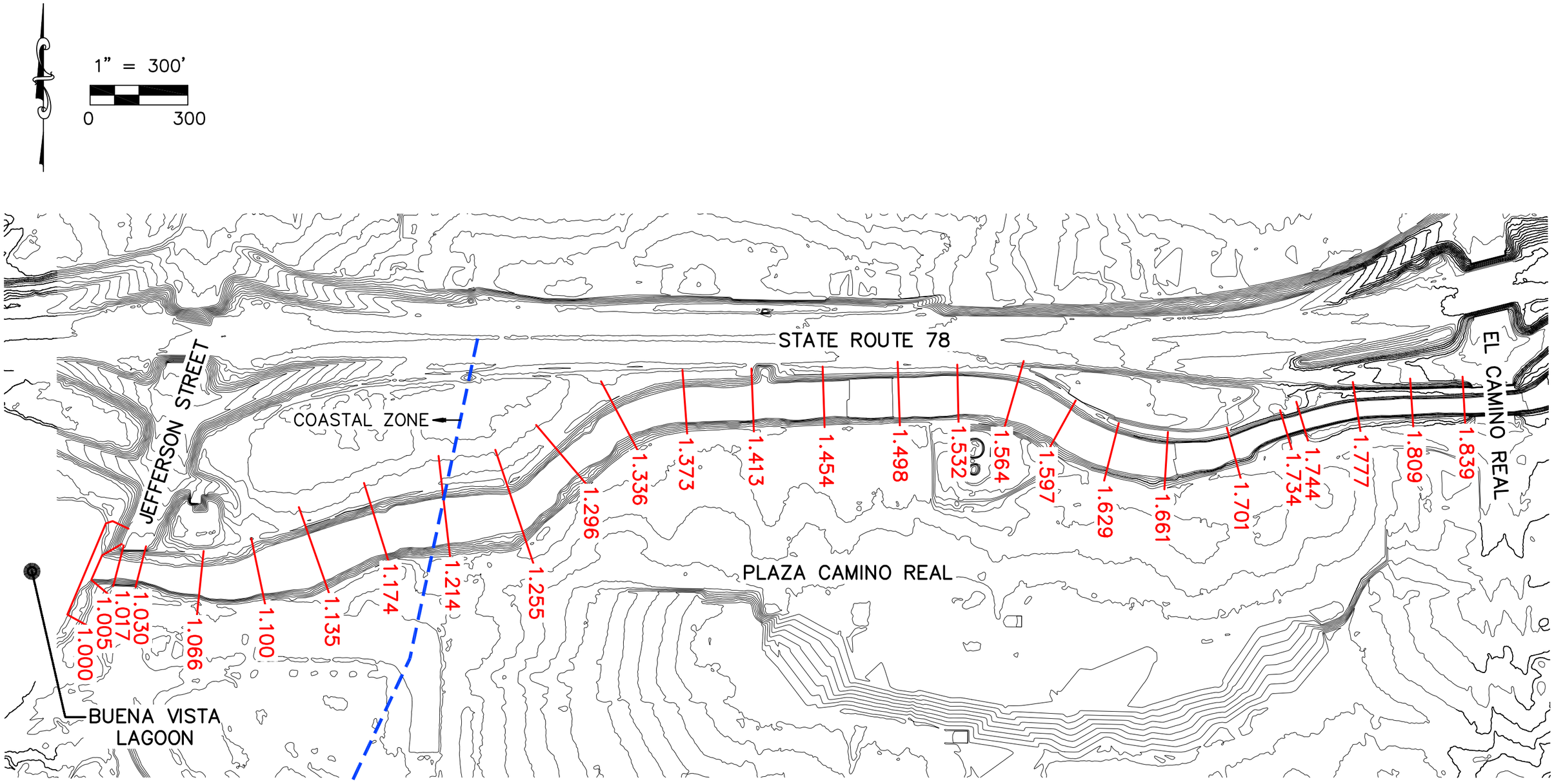
DRAWN BY: SCOTT EVANS, CARLSBAD ENGINEERING DEPT. 12/4/01 C:\CAPITAL\HOWARD\BVC-MAINT2.DWG

DUDEK

7177

SOURCE: Bing Maps

Figure 3
Biological Resources Map



HEC–RAS WORK MAP

BUENA VISTA CREEK CHANNEL

FIGURE 4

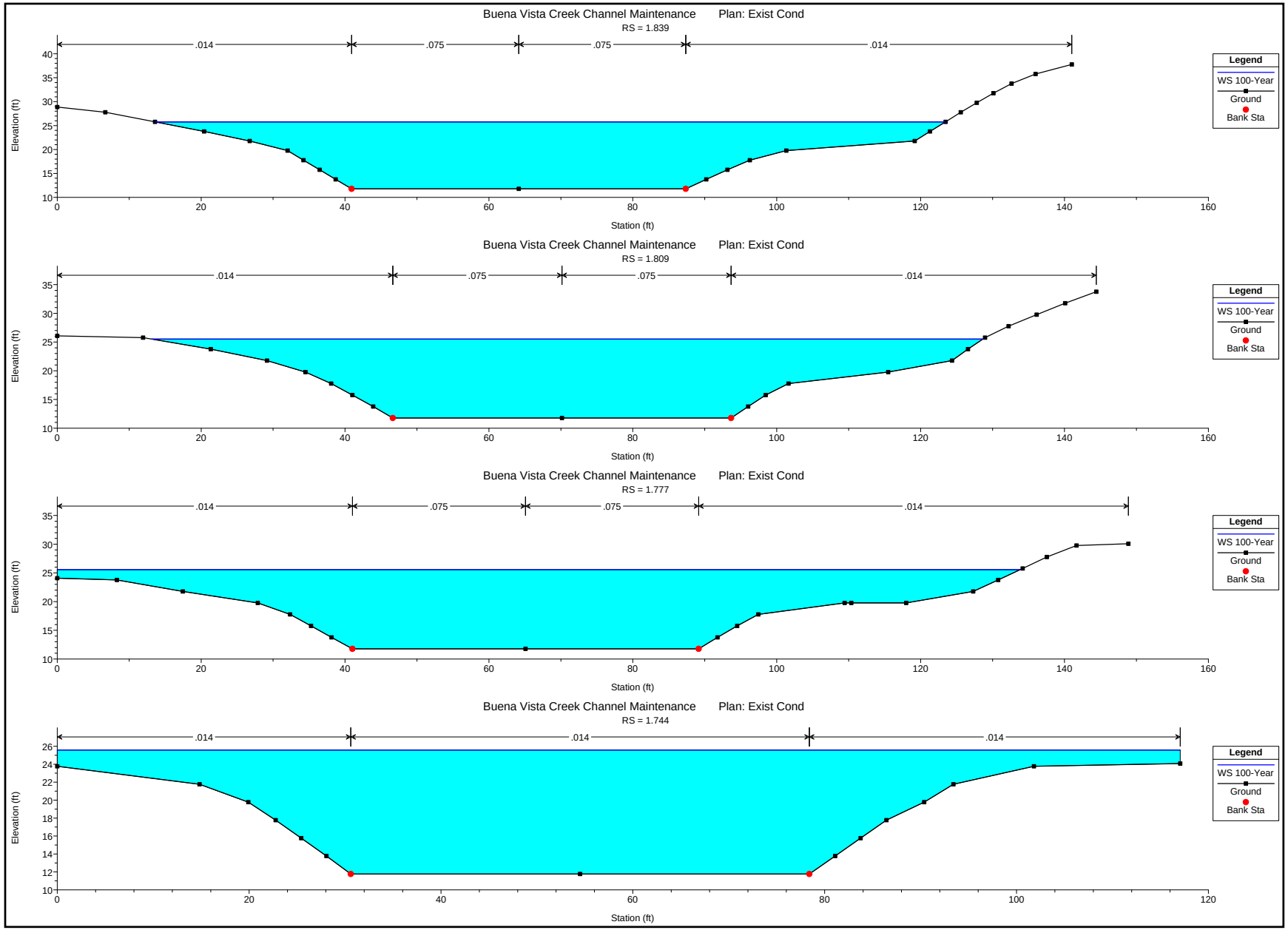
APPENDIX A

100-YEAR HEC-RAS ANALYSES CURRENT CONDITIONS, ENTIRE CHANNEL MAINTAINED, NORTHERLY HALF OF CHANNEL MAINTAINED

CURRENT CONDITIONS

HEC-RAS Plan: Exist Cond River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.44	12.64	16.05	0.001016	13.16	744.62	117.36	0.84
Reach-1	1.017	100-Year	8500.00	5.77	14.12	14.12	18.06	0.001433	16.54	682.56	97.85	1.01
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.87	13.99	18.37	0.000717	13.28	880.26	104.63	0.74
Reach-1	1.066	100-Year	8500.00	5.77	18.29	12.15	18.81	0.002850	6.11	1554.46	179.45	0.30
Reach-1	1.1	100-Year	8500.00	5.77	18.90		19.16	0.001245	4.17	2132.78	190.87	0.20
Reach-1	1.135	100-Year	8500.00	5.77	19.16	10.28	19.36	0.000982	3.75	2392.43	261.36	0.18
Reach-1	1.174	100-Year	8500.00	5.77	19.34	10.78	19.61	0.001241	4.26	2090.48	235.58	0.20
Reach-1	1.214	100-Year	8500.00	5.77	19.65	10.51	19.83	0.000855	3.58	2647.05	288.99	0.17
Reach-1	1.255	100-Year	8500.00	5.77	19.84		20.02	0.000907	3.72	2574.17	280.20	0.18
Reach-1	1.296	100-Year	8500.00	5.77	20.00	12.38	20.32	0.001616	5.01	2002.21	236.35	0.23
Reach-1	1.336	100-Year	8500.00	5.77	20.33	11.98	20.65	0.001506	4.91	2014.10	226.31	0.23
Reach-1	1.373	100-Year	8500.00	5.77	20.75		21.01	0.002115	4.15	2117.11	186.25	0.19
Reach-1	1.413	100-Year	8500.00	5.77	21.17		21.44	0.001949	4.06	2130.64	171.29	0.18
Reach-1	1.454	100-Year	8500.00	5.77	21.61		21.85	0.001856	4.04	2202.36	178.22	0.18
Reach-1	1.498	100-Year	8500.00	9.77	22.12		22.48	0.003697	4.83	1818.54	180.35	0.24
Reach-1	1.532	100-Year	8500.00	9.77	22.77		23.12	0.003358	4.76	1860.12	169.43	0.23
Reach-1	1.564	100-Year	8500.00	9.77	23.34		23.58	0.002142	3.91	2207.05	206.50	0.19
Reach-1	1.597	100-Year	8500.00	9.77	23.70		24.01	0.002626	4.41	1984.66	169.33	0.21
Reach-1	1.629	100-Year	8500.00	9.77	24.15		24.44	0.002481	4.38	2013.02	166.92	0.20
Reach-1	1.661	100-Year	8500.00	9.77	24.56		24.86	0.002438	4.42	2007.08	164.81	0.20
Reach-1	1.701	100-Year	8500.00	11.77	25.10		25.72	0.006140	6.54	1416.10	142.02	0.32
Reach-1	1.734	100-Year	8500.00	11.77	24.53		26.20	0.000375	11.22	921.80	119.08	0.55
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	25.58	21.15	26.98	0.000286	10.34	1007.20	117.06	0.49
Reach-1	1.777	100-Year	8500.00	11.77	25.57		27.12	0.001318	4.14	1154.83	133.85	0.20
Reach-1	1.809	100-Year	8500.00	11.77	25.52		27.51	0.001770	4.78	1043.55	115.53	0.23
Reach-1	1.839	100-Year	8500.00	11.77	25.75		27.83	0.001925	5.04	1020.08	109.80	0.24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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Exist Cond
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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Station (ft)
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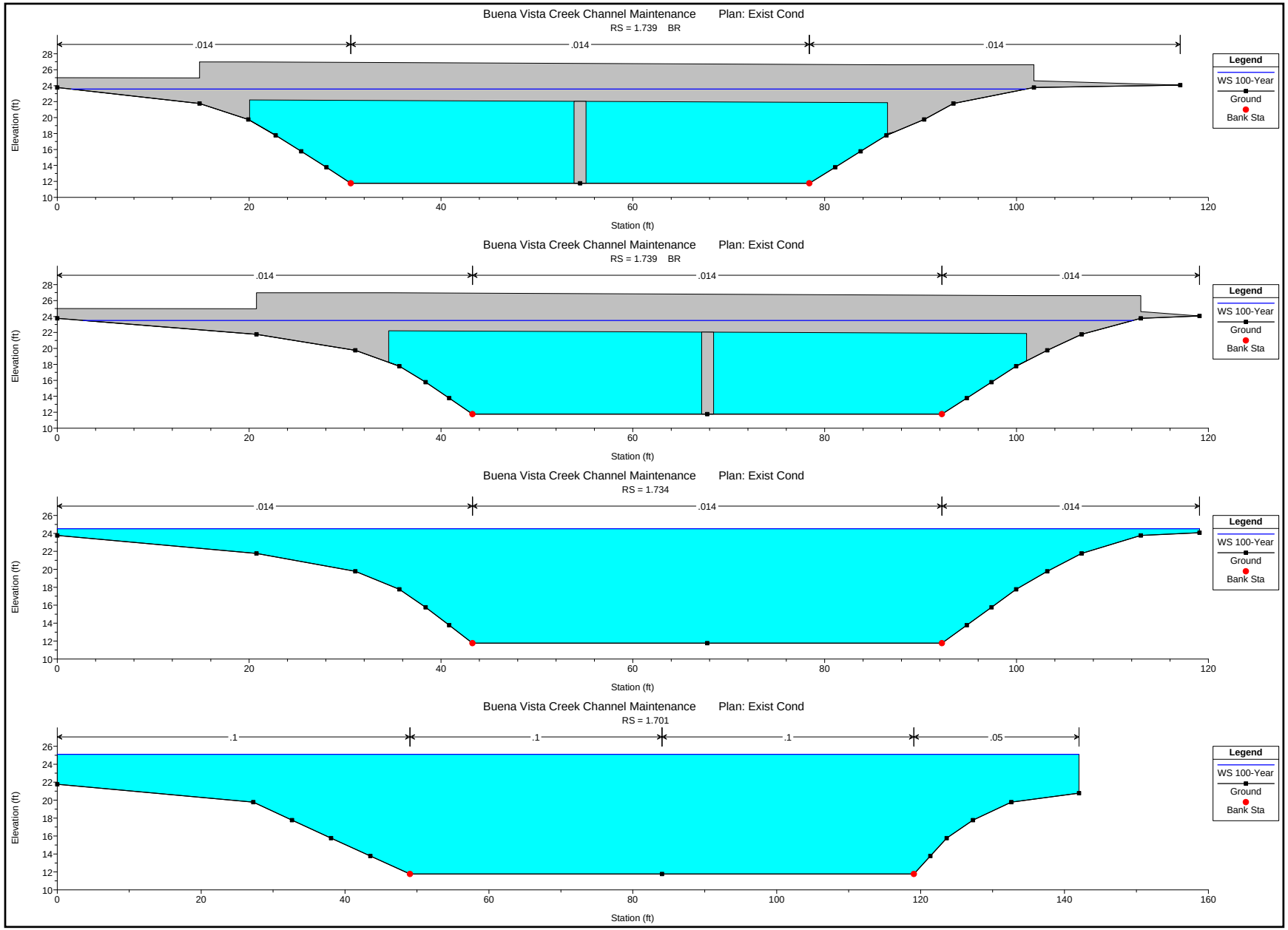
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
Bank Sta
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Station (ft)
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WS 100-Year
Ground
Bank Sta
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Station (ft)
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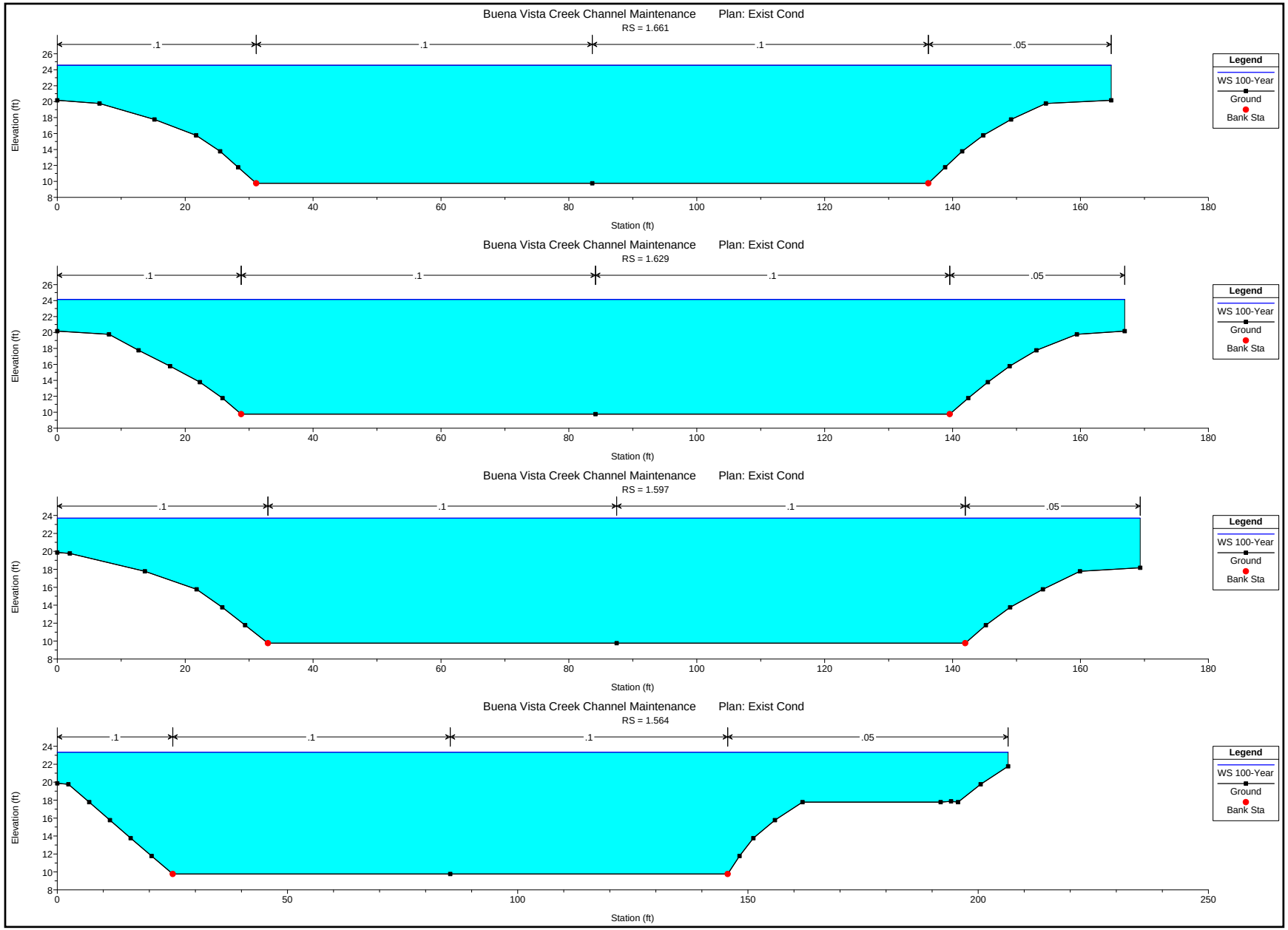
Bank Sta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Station (ft)
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WS 100-Year
Ground
Bank Sta
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Station (ft)
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WS 100-Year
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Bank Sta
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Station (ft)
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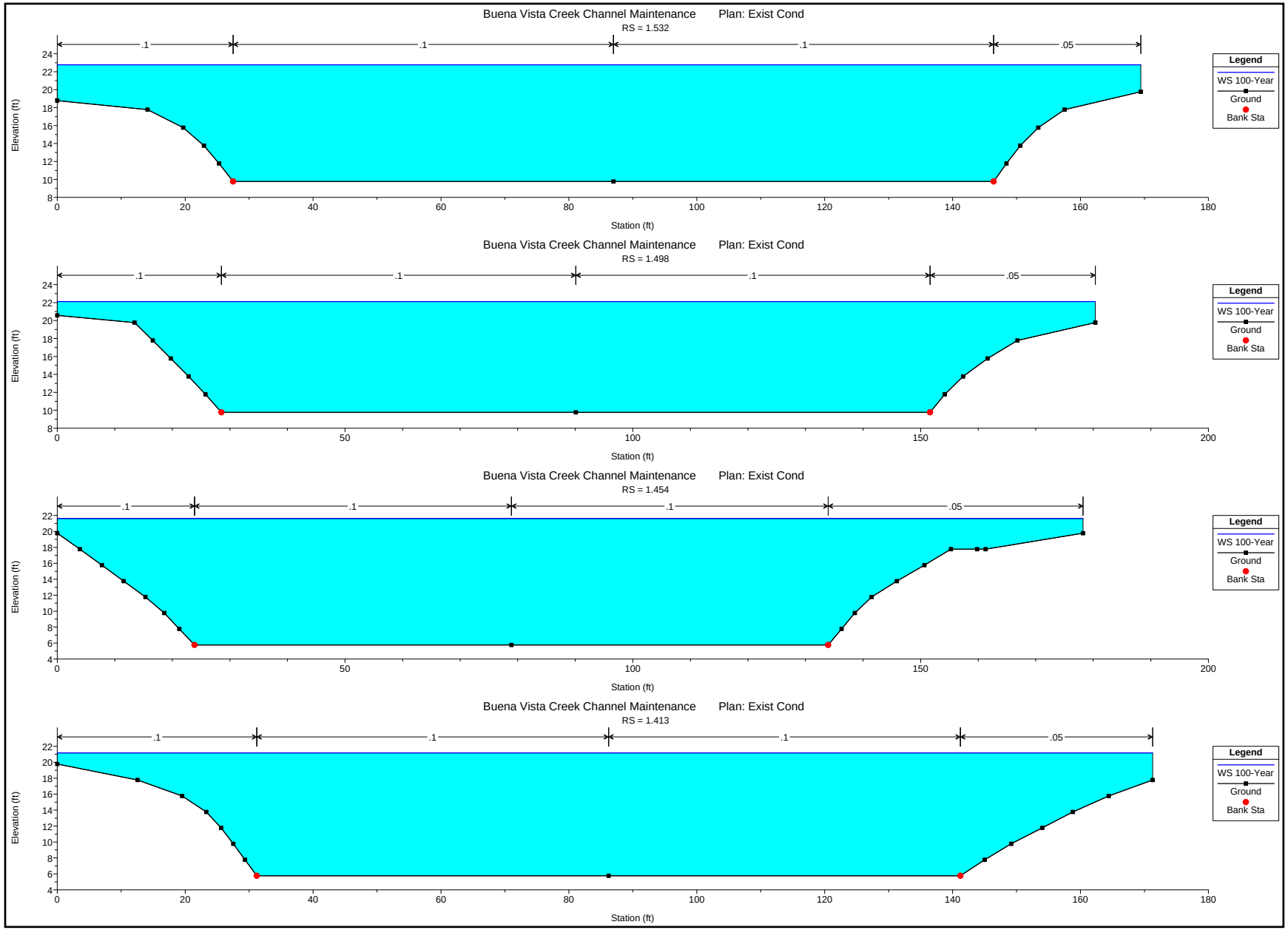
Bank Sta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Elevation (ft)
Station (ft)
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Station (ft)
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WS 100-Year
Ground
Bank Sta
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Bank Sta
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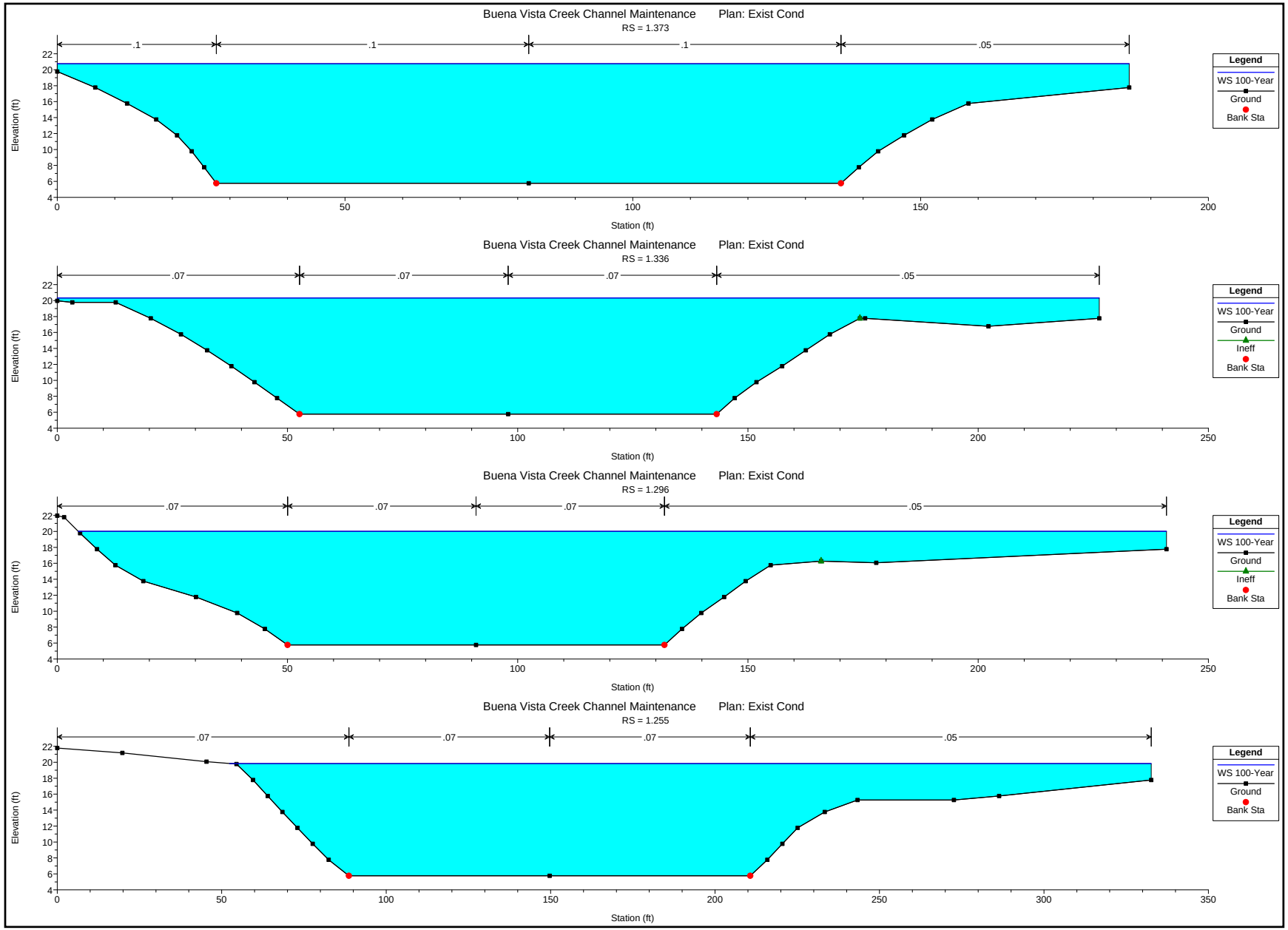
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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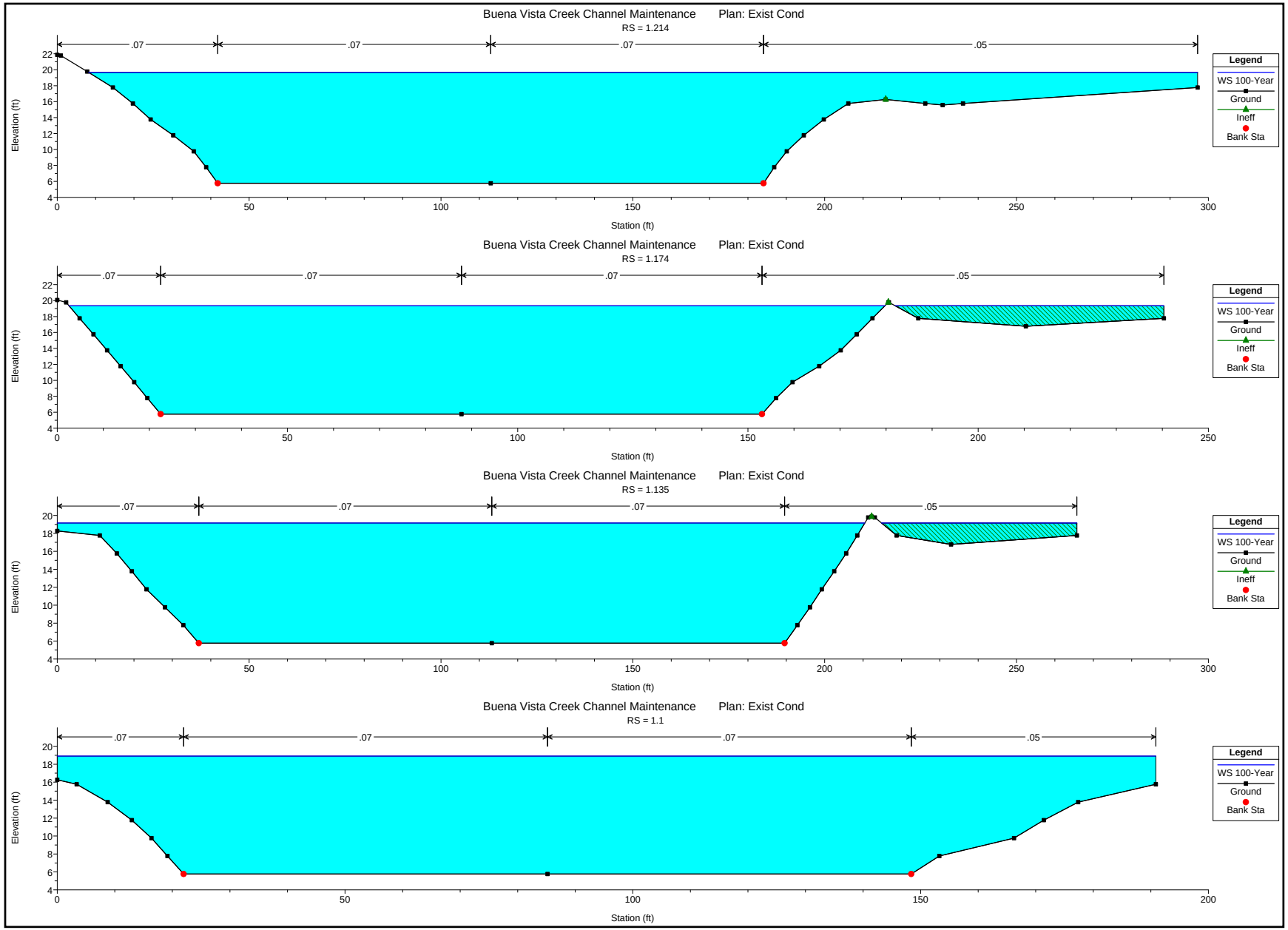
Bank Sta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Bank Sta
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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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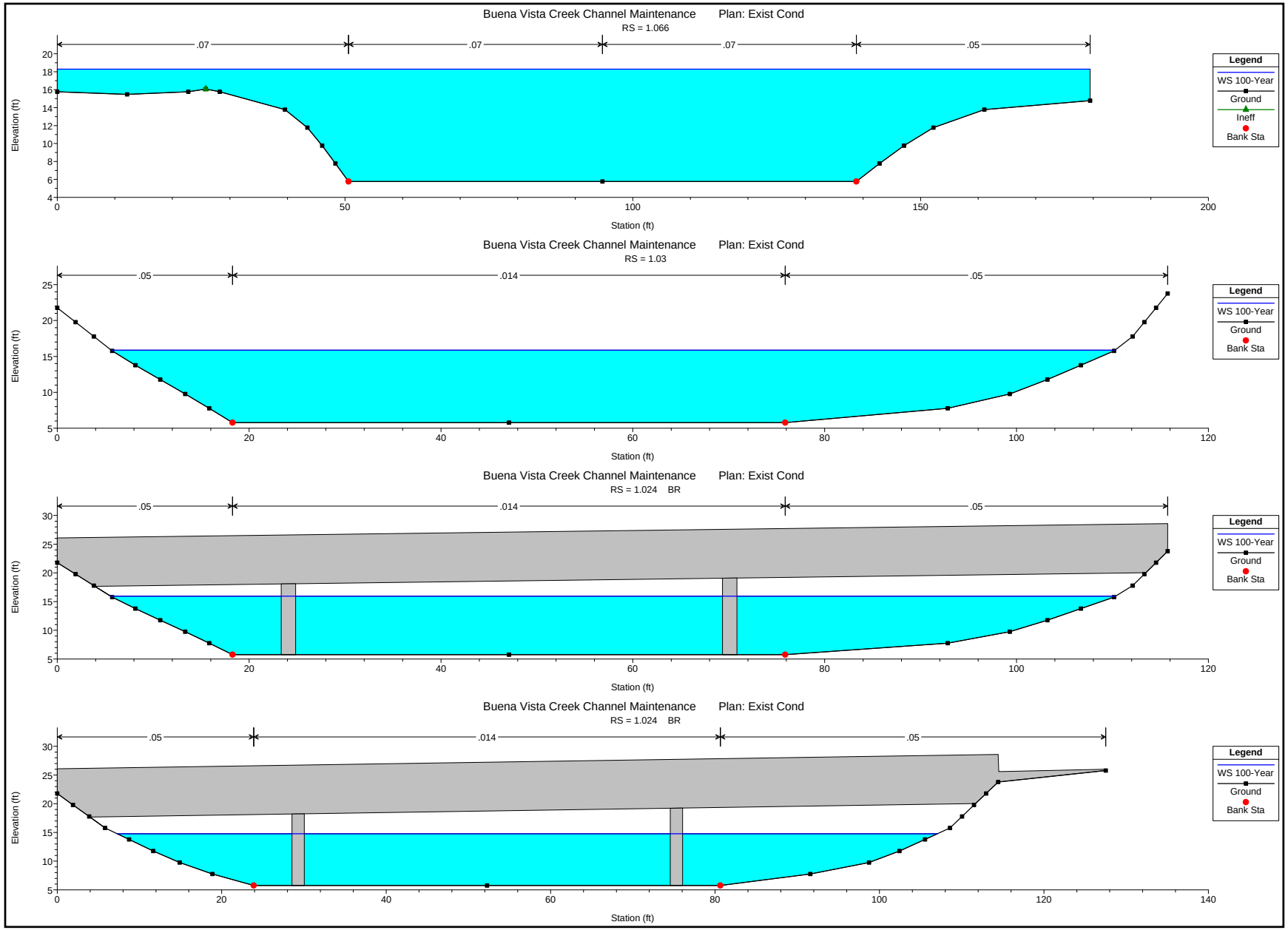
WS 100-Year
Ground
Bank Sta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Ground
Ineff
Bank Sta
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WS 100-Year
Ground
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WS 100-Year
Ground
Bank Sta
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Elevation (ft)
Station (ft)
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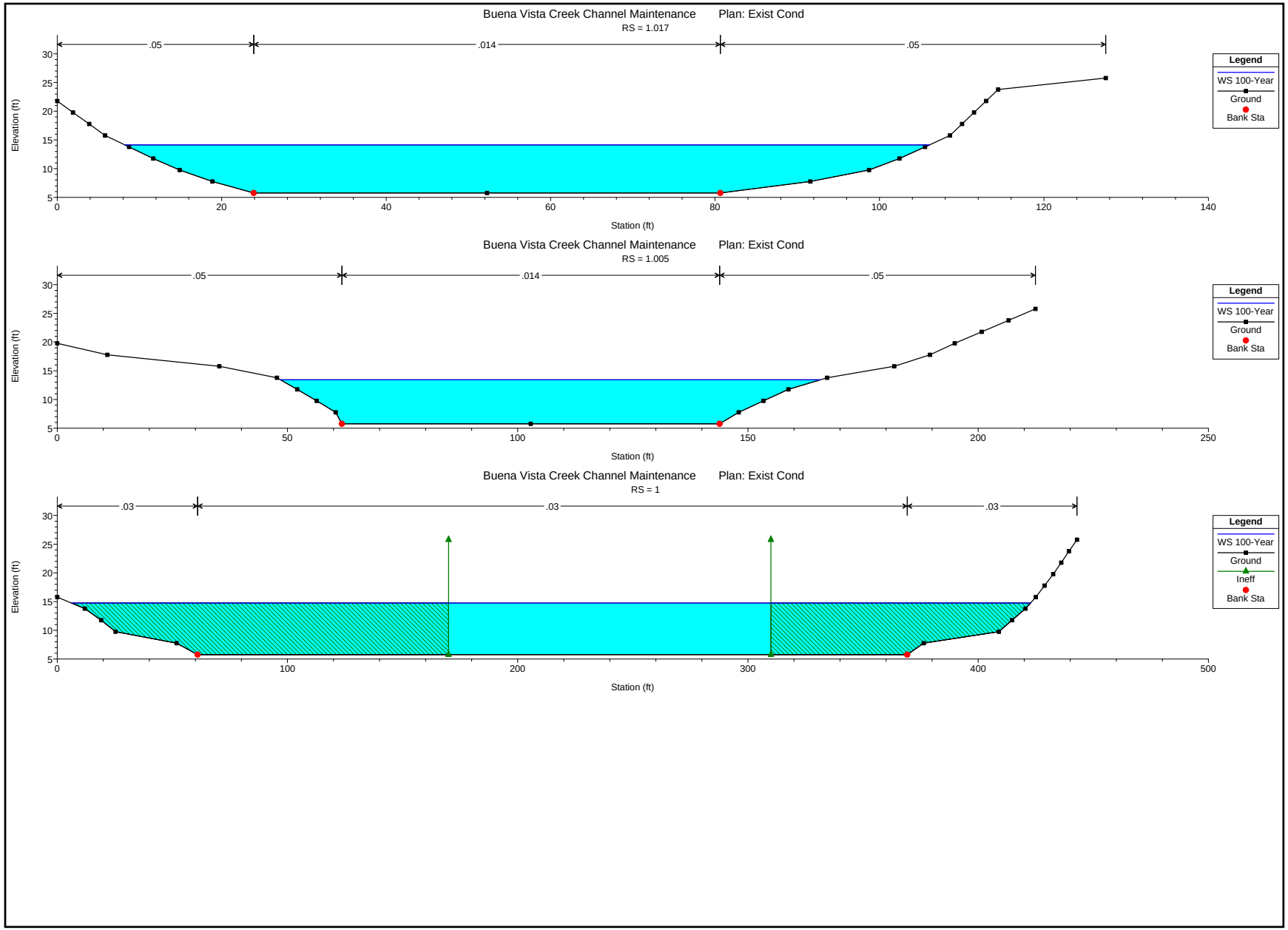
WS 100-Year
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Exist Cond
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Exist Cond
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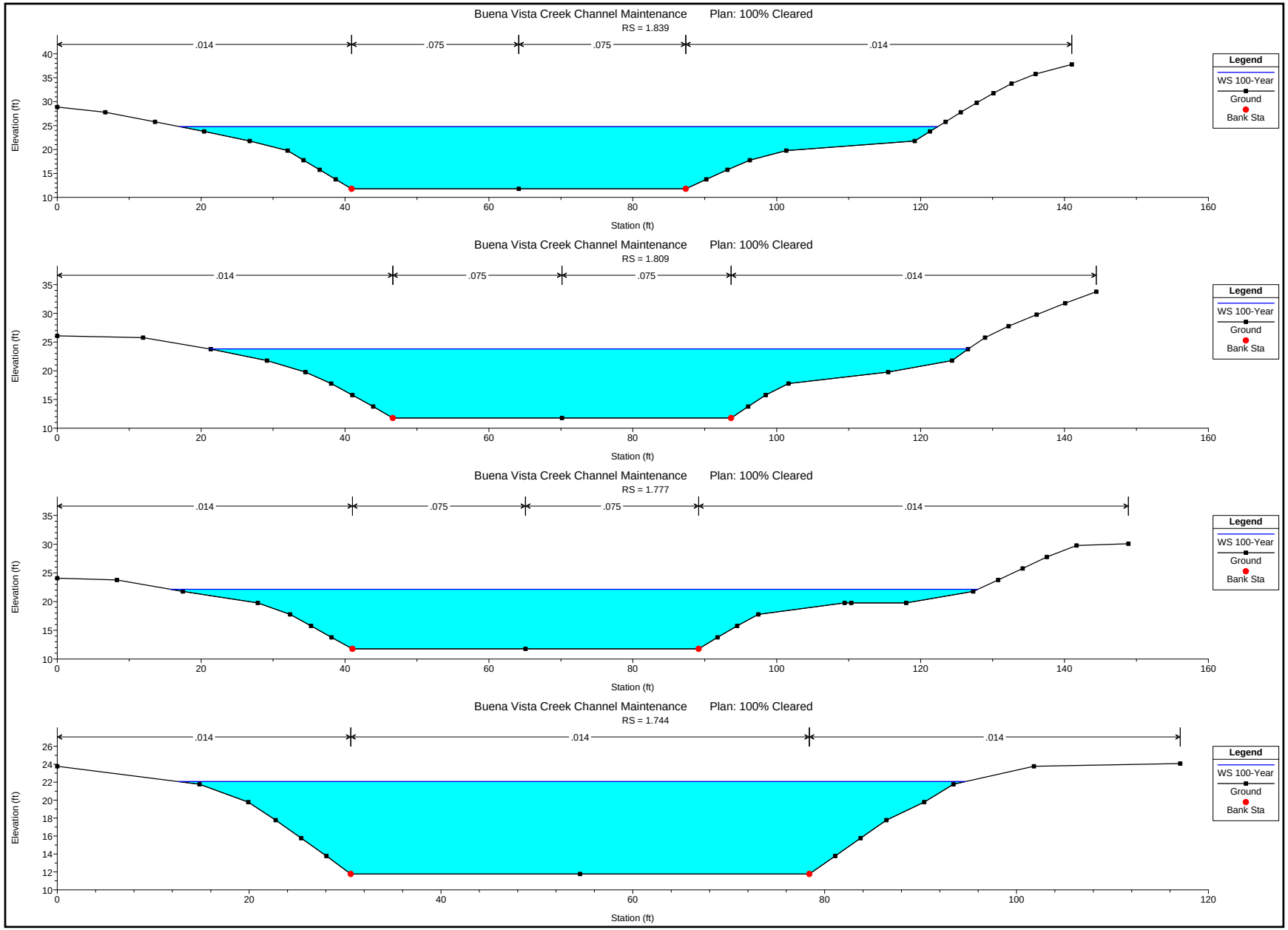
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

ENTIRE CHANNEL MAINTAINED (100% MAINTAINED)

HEC-RAS Plan: 100% Cleared River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.42	12.23	17.41	0.001623	8.28	1220.36	179.45	0.45
Reach-1	1.1	100-Year	8500.00	5.77	17.23		17.64	0.000605	5.31	1814.31	190.87	0.28
Reach-1	1.135	100-Year	8500.00	5.77	17.43	10.31	17.74	0.000432	4.54	2038.38	227.36	0.23
Reach-1	1.174	100-Year	8500.00	5.77	17.46	10.81	17.87	0.000578	5.26	1763.03	208.24	0.27
Reach-1	1.214	100-Year	8500.00	5.77	17.66	10.54	17.99	0.000461	4.75	2076.66	278.94	0.24
Reach-1	1.255	100-Year	8500.00	5.77	17.73		18.12	0.000558	5.25	1991.98	271.99	0.27
Reach-1	1.296	100-Year	8500.00	5.77	17.60	12.52	18.42	0.001230	7.73	1438.59	225.45	0.40
Reach-1	1.336	100-Year	8500.00	5.77	17.97	12.09	18.66	0.000962	6.98	1509.07	206.77	0.35
Reach-1	1.373	100-Year	8500.00	5.77	18.33		18.84	0.000654	5.87	1670.13	181.50	0.29
Reach-1	1.413	100-Year	8500.00	5.77	18.50		18.97	0.000604	5.69	1677.67	163.29	0.28
Reach-1	1.454	100-Year	8500.00	5.77	18.62		19.11	0.000606	5.73	1675.57	166.21	0.28
Reach-1	1.498	100-Year	8500.00	9.77	18.57		19.44	0.001760	7.59	1206.58	156.93	0.45
Reach-1	1.532	100-Year	8500.00	9.77	18.87		19.76	0.001713	7.66	1201.55	164.08	0.45
Reach-1	1.564	100-Year	8500.00	9.77	19.31		20.04	0.001349	7.01	1385.95	195.96	0.40
Reach-1	1.597	100-Year	8500.00	9.77	19.47		20.32	0.001550	7.60	1269.04	165.61	0.43
Reach-1	1.629	100-Year	8500.00	9.77	19.78		20.58	0.001380	7.33	1286.40	151.69	0.41
Reach-1	1.661	100-Year	8500.00	9.77	19.97		20.84	0.001452	7.61	1251.10	156.50	0.42
Reach-1	1.701	100-Year	8500.00	11.77	19.30	19.30	22.72	0.008709	15.22	642.84	102.86	0.98
Reach-1	1.734	100-Year	8500.00	11.77	21.12	21.12	24.95	0.001218	16.44	579.05	81.48	0.95
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	22.07	21.15	25.21	0.000889	14.98	641.20	82.03	0.82
Reach-1	1.777	100-Year	8500.00	11.77	22.15	22.15	25.87	0.007110	7.95	727.57	112.24	0.43
Reach-1	1.809	100-Year	8500.00	11.77	23.81	22.62	26.77	0.003568	6.22	855.00	105.47	0.32
Reach-1	1.839	100-Year	8500.00	11.77	24.76		27.33	0.002878	5.87	912.96	105.32	0.29


Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.839
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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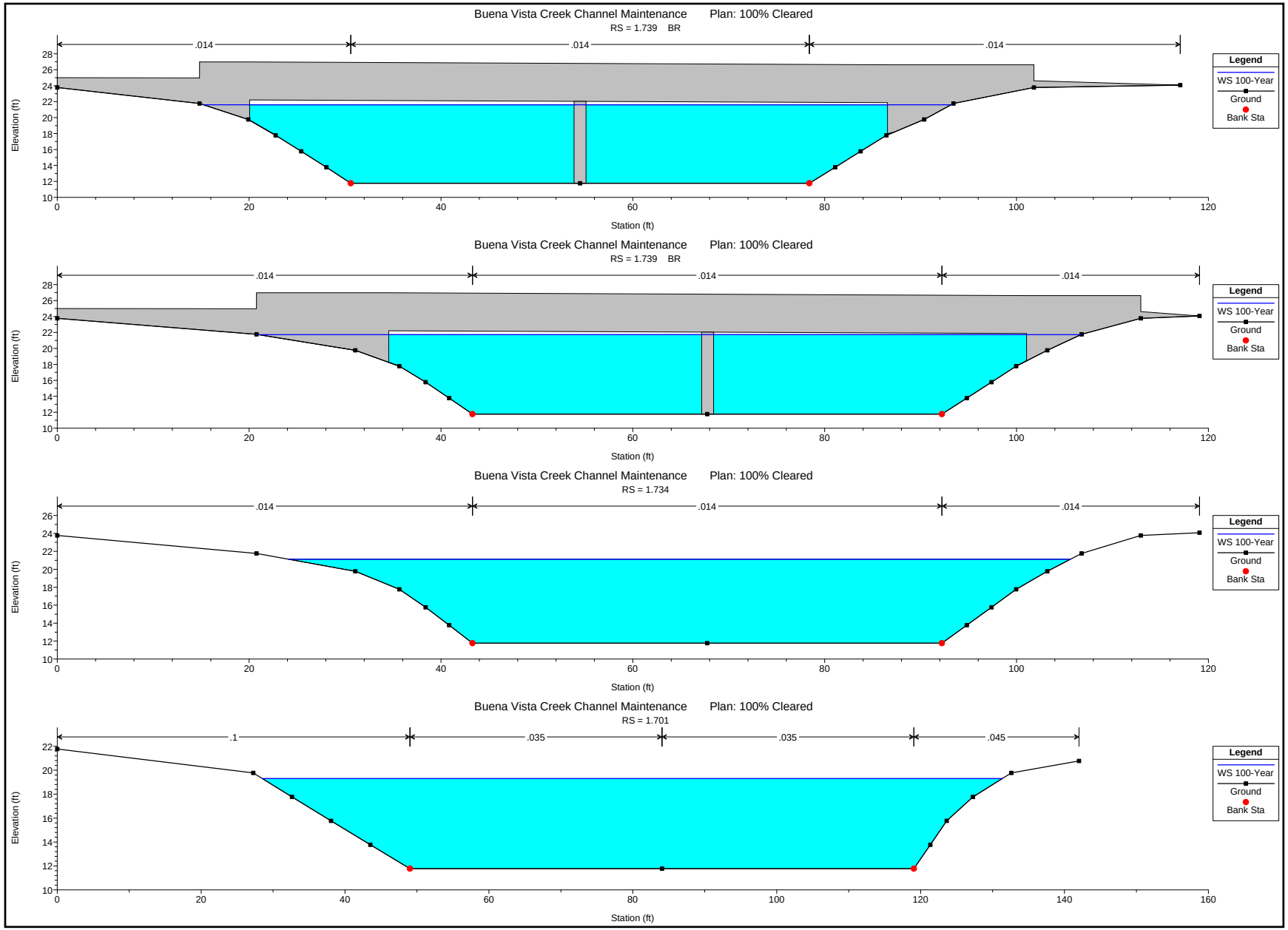
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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RS = 1.739 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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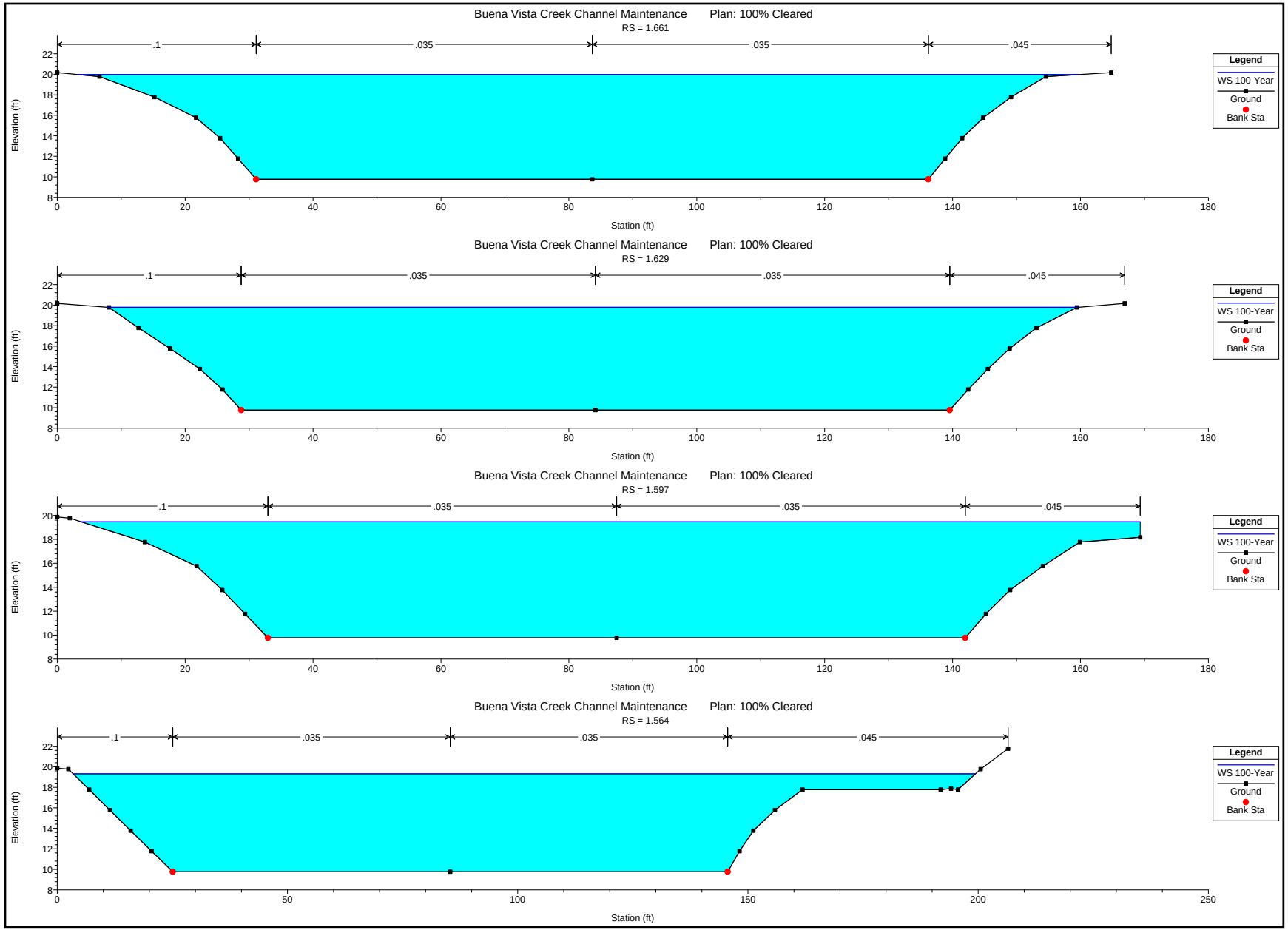
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.629
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.035
.035
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.597
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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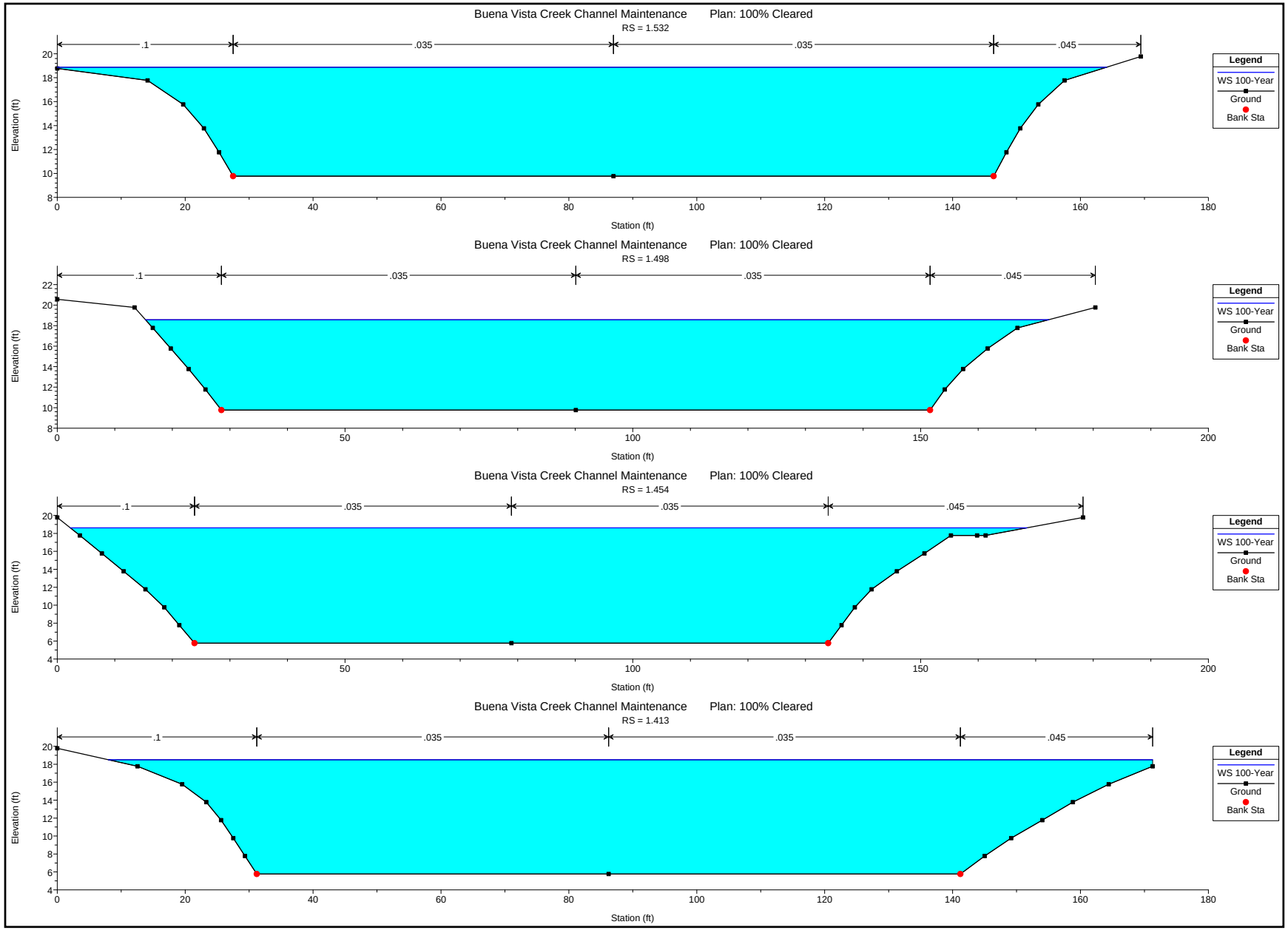
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.498
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.035
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.454
.1
.035
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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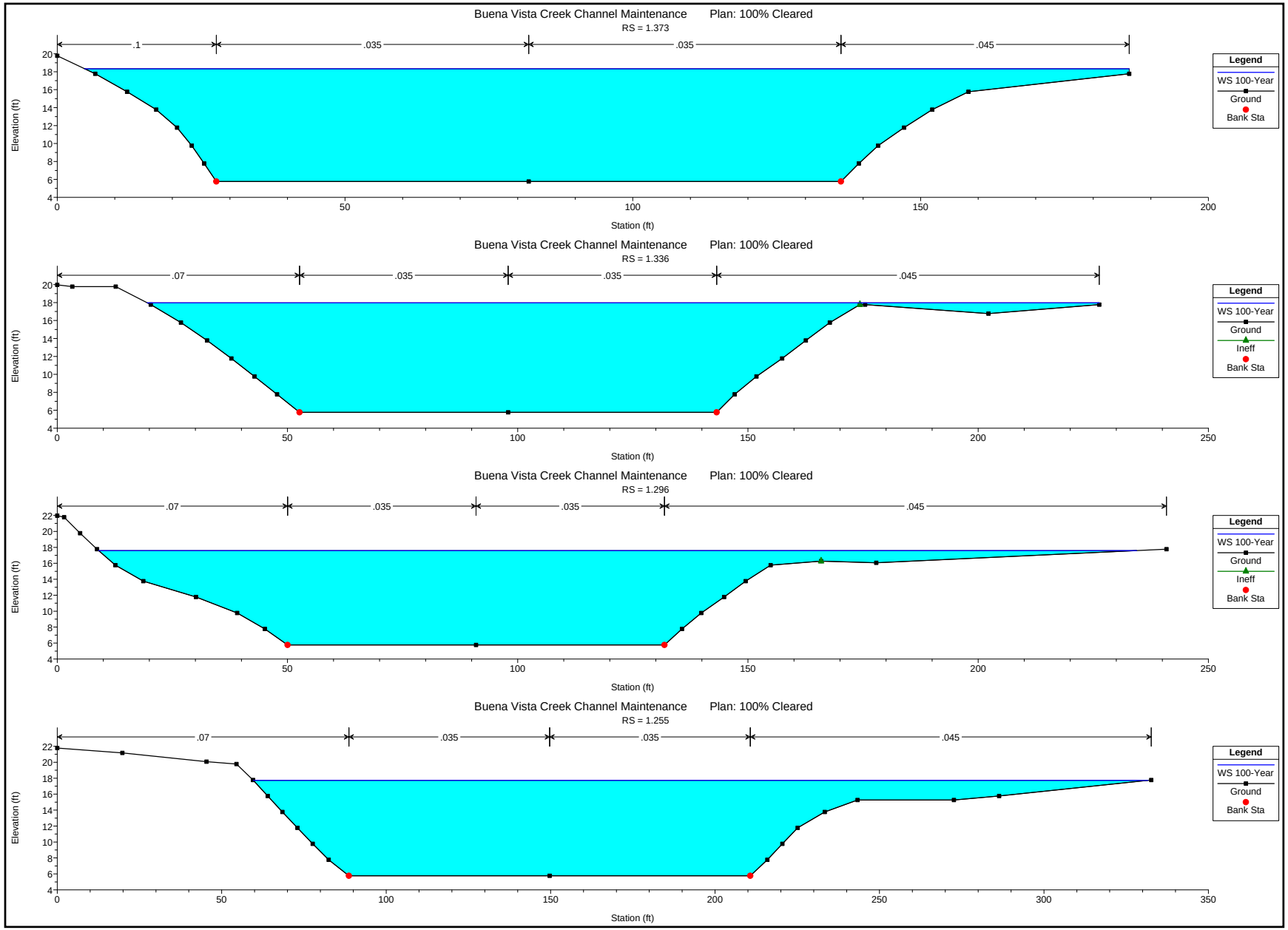
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.336
.07
.035
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.296
.07
.035
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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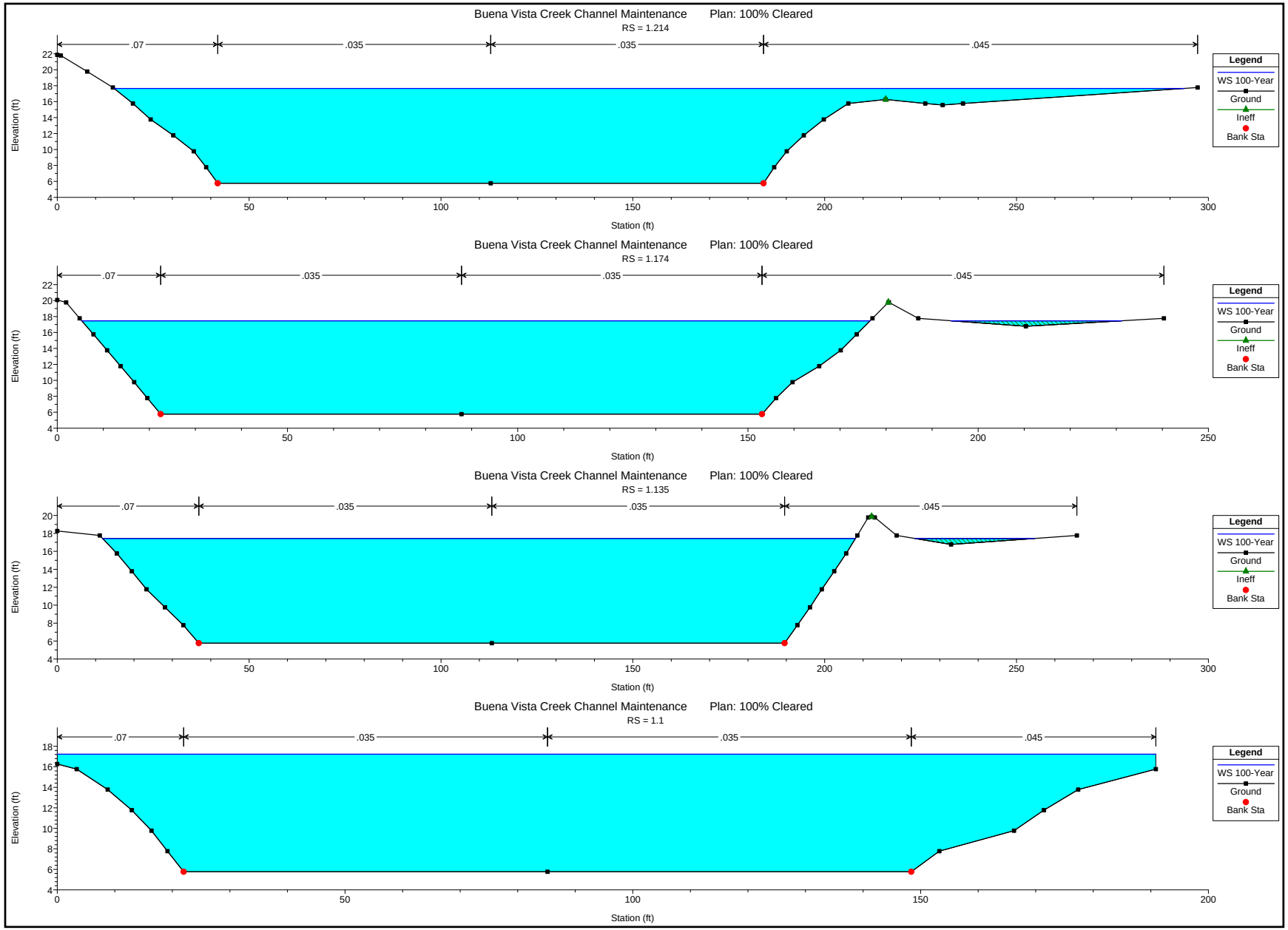
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.174
.07
.035
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.135
.07
.035
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.1
.07
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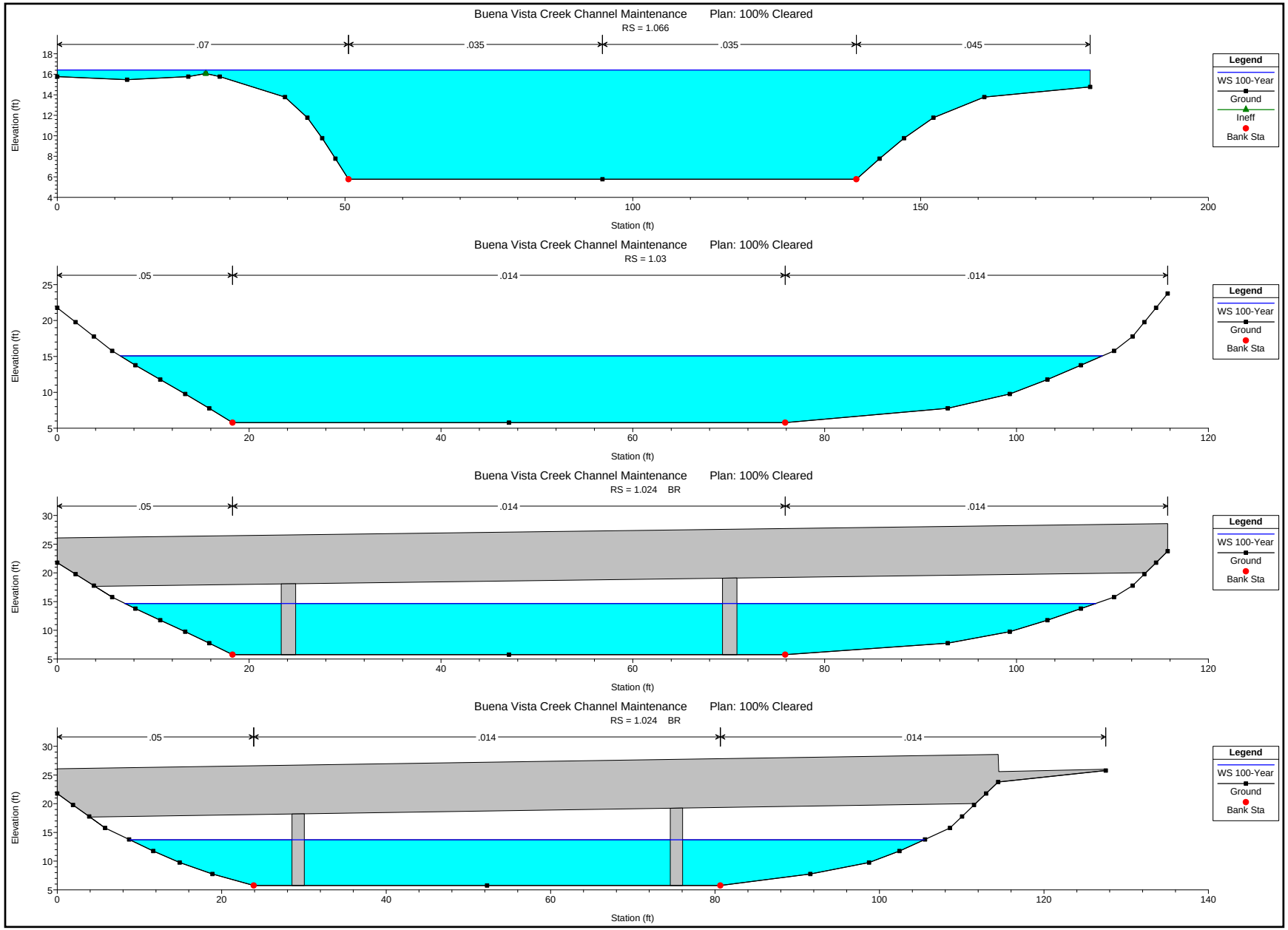
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 100% Cleared
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.024 BR
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.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 100% Cleared
RS = 1.024 BR
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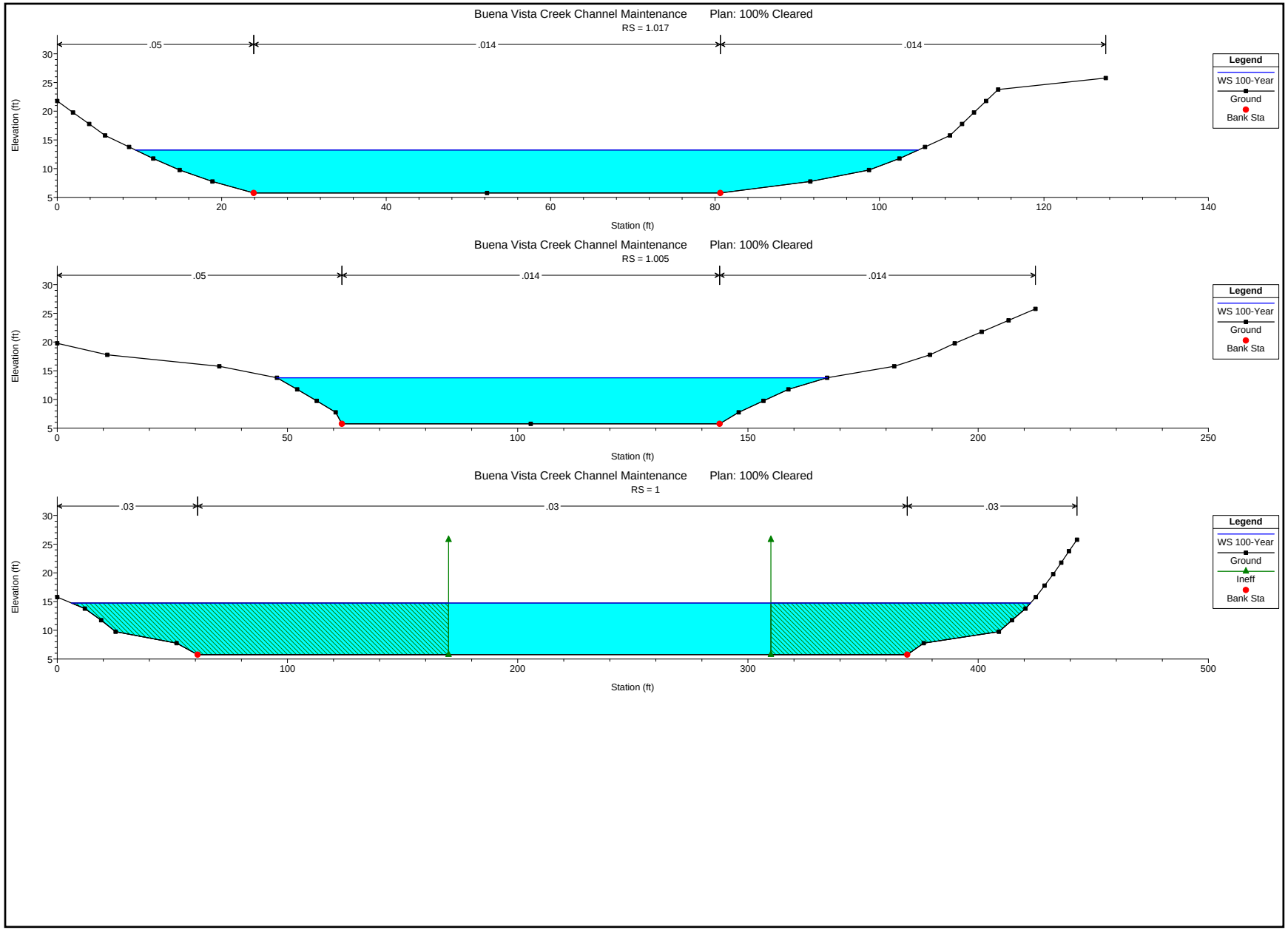
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance
Plan: 100% Cleared
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance
Plan: 100% Cleared
RS = 1.005
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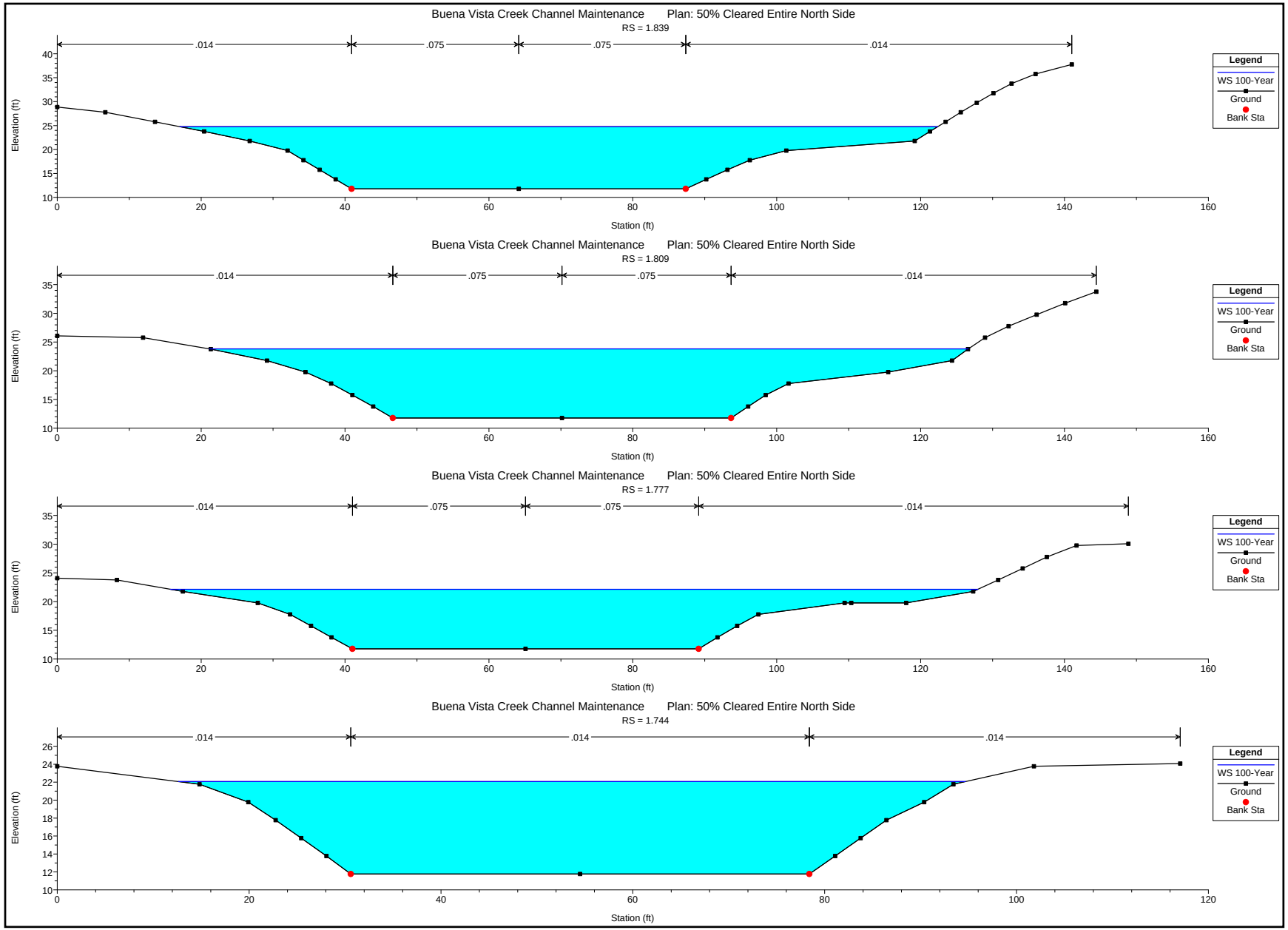
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance
Plan: 100% Cleared
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

NORTHERLY HALF OF CHANNEL MAINTAINED (50% MAINTAINED)

HEC-RAS Plan: Entire North Clr River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.57	12.19	17.46	0.002585	7.91	1246.22	179.45	0.42
Reach-1	1.1	100-Year	8500.00	5.77	17.41		17.77	0.000956	5.06	1847.88	190.87	0.26
Reach-1	1.135	100-Year	8500.00	5.77	17.65	10.30	17.93	0.000698	4.38	2080.51	238.21	0.22
Reach-1	1.174	100-Year	8500.00	5.77	17.75	10.80	18.12	0.000911	5.03	1812.10	224.40	0.26
Reach-1	1.214	100-Year	8500.00	5.77	18.01	10.53	18.30	0.000703	4.48	2175.42	283.48	0.23
Reach-1	1.255	100-Year	8500.00	5.77	18.15		18.47	0.000802	4.83	2107.35	274.04	0.24
Reach-1	1.296	100-Year	8500.00	5.77	18.17	12.46	18.80	0.001635	6.90	1572.69	233.02	0.35
Reach-1	1.336	100-Year	8500.00	5.77	18.57	12.04	19.12	0.001314	6.32	1634.07	209.05	0.31
Reach-1	1.373	100-Year	8500.00	5.77	18.96		19.37	0.001123	5.36	1785.07	183.58	0.26
Reach-1	1.413	100-Year	8500.00	5.77	19.21		19.60	0.001024	5.18	1795.59	167.76	0.25
Reach-1	1.454	100-Year	8500.00	5.77	19.43		19.83	0.001023	5.24	1813.18	174.62	0.25
Reach-1	1.498	100-Year	8500.00	9.77	19.60		20.26	0.002557	6.65	1372.06	165.50	0.37
Reach-1	1.532	100-Year	8500.00	9.77	20.05		20.70	0.002382	6.61	1399.01	169.43	0.36
Reach-1	1.564	100-Year	8500.00	9.77	20.57		21.06	0.001752	5.86	1638.69	202.93	0.31
Reach-1	1.597	100-Year	8500.00	9.77	20.83		21.41	0.001994	6.35	1498.71	169.33	0.34
Reach-1	1.629	100-Year	8500.00	9.77	21.18		21.74	0.001836	6.22	1516.69	166.92	0.32
Reach-1	1.661	100-Year	8500.00	9.77	21.47		22.06	0.001859	6.37	1497.52	164.81	0.33
Reach-1	1.701	100-Year	8500.00	11.77	21.25		23.16	0.008118	11.57	872.02	134.98	0.66
Reach-1	1.734	100-Year	8500.00	11.77	21.12	21.12	24.95	0.001218	16.44	579.05	81.48	0.95
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	22.07	21.15	25.21	0.000889	14.98	641.20	82.03	0.82
Reach-1	1.777	100-Year	8500.00	11.77	22.15	22.15	25.87	0.007110	7.95	727.57	112.24	0.43
Reach-1	1.809	100-Year	8500.00	11.77	23.81	22.62	26.77	0.003568	6.22	855.00	105.47	0.32
Reach-1	1.839	100-Year	8500.00	11.77	24.76		27.33	0.002878	5.87	912.96	105.32	0.29


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.839
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.809
.014
.075
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.777
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
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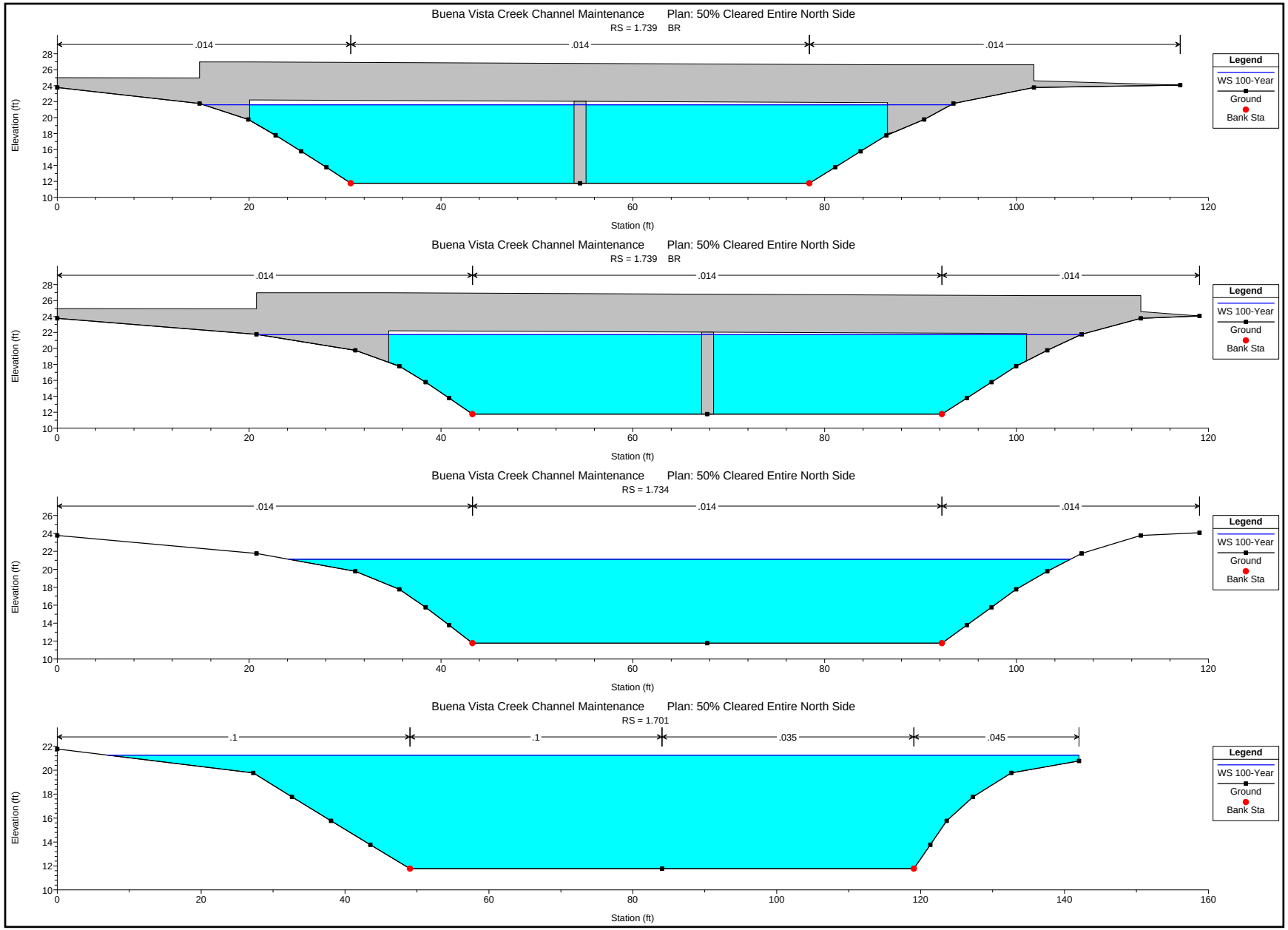
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.739 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.734
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
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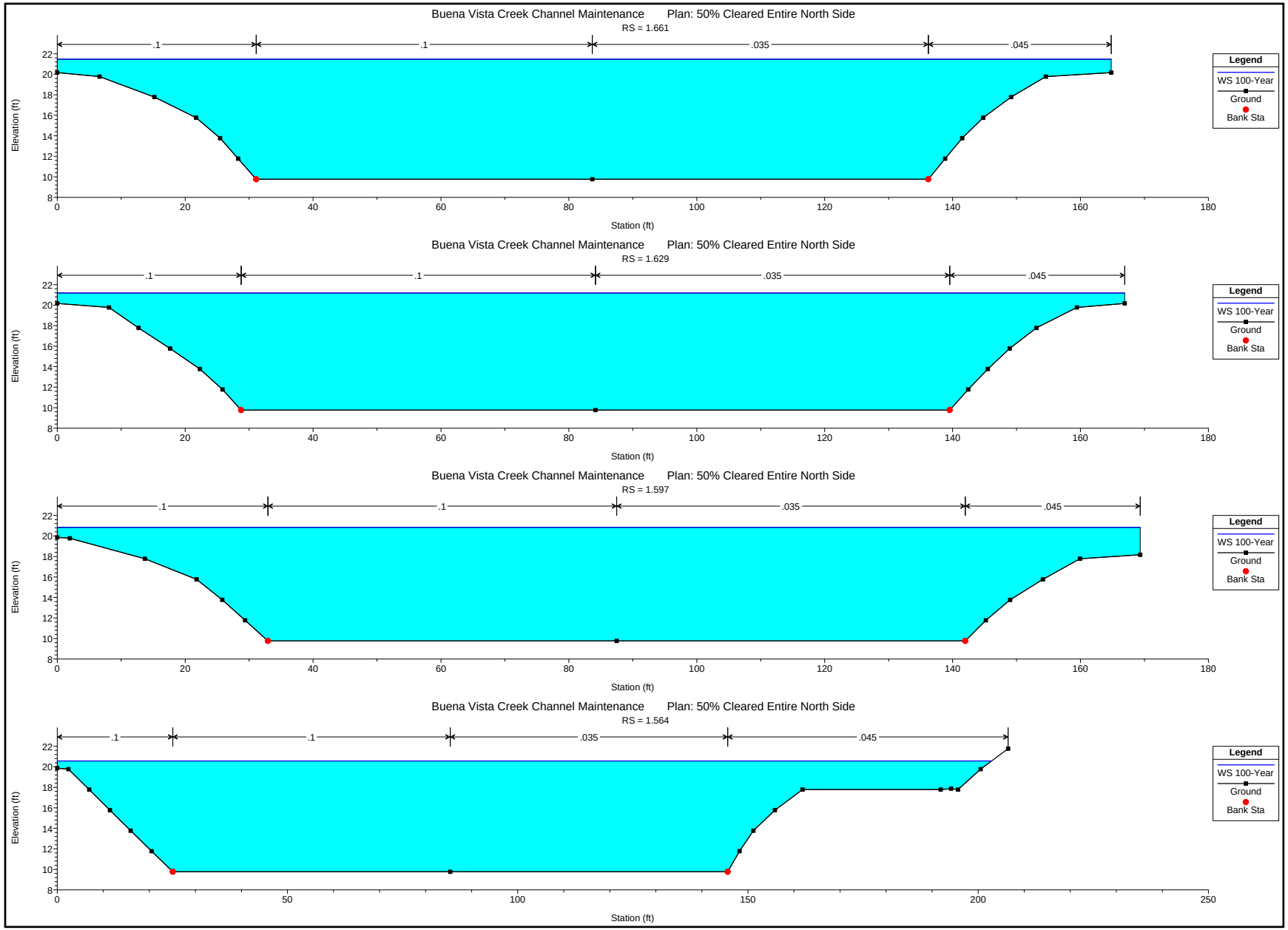
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.629
.1
.1
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.597
.1
.1
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.564
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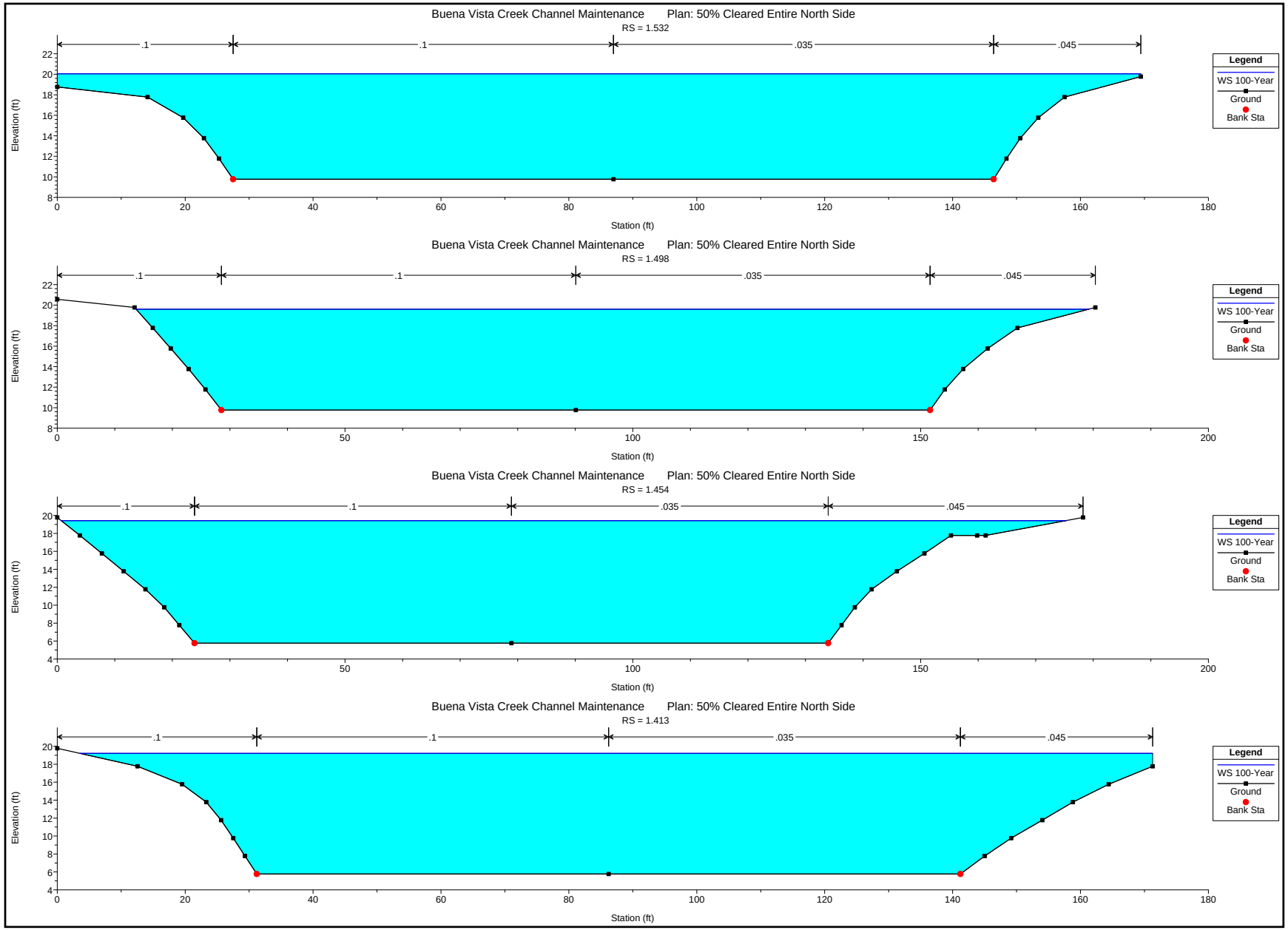
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.498
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.1
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.454
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
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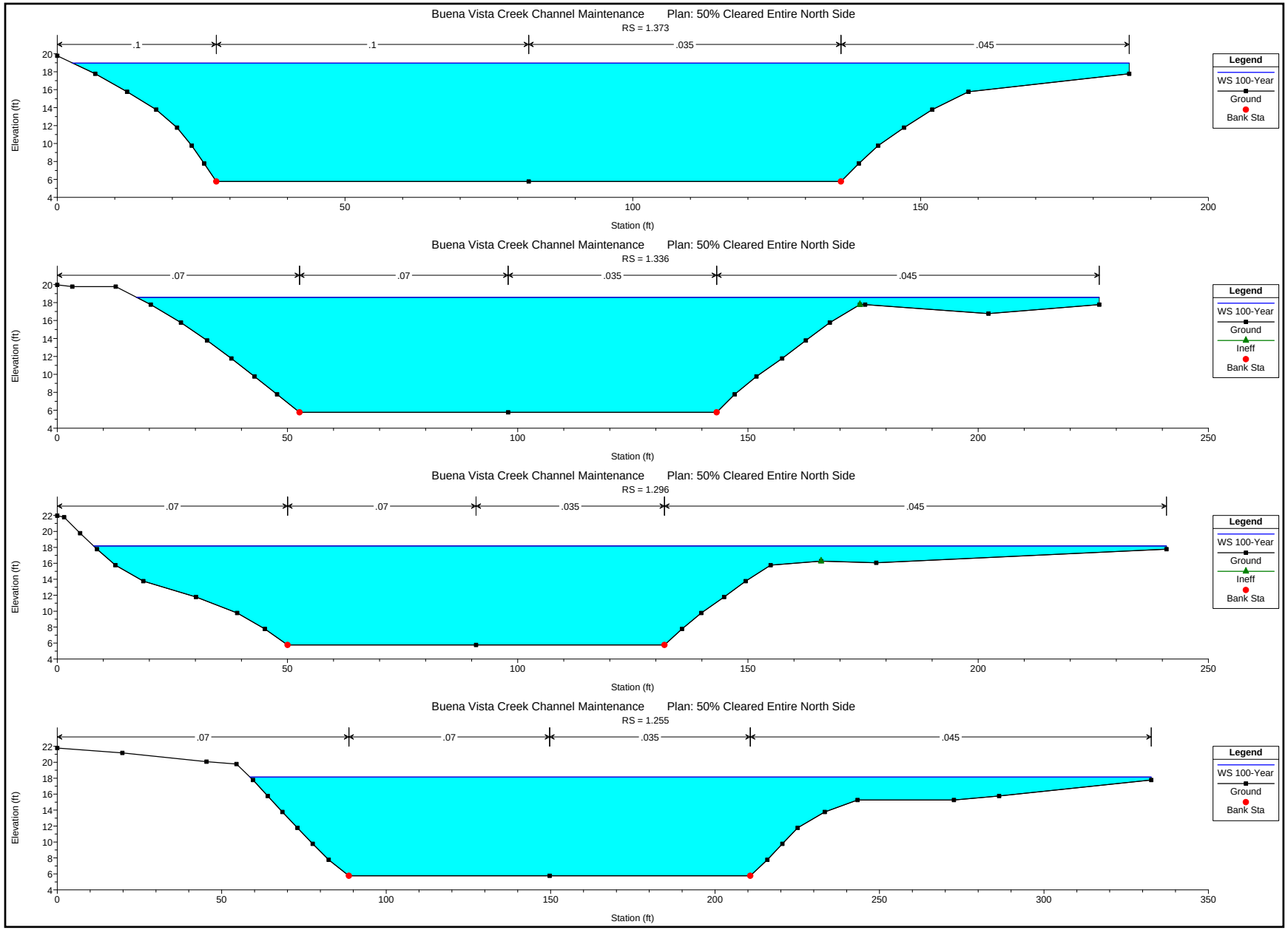
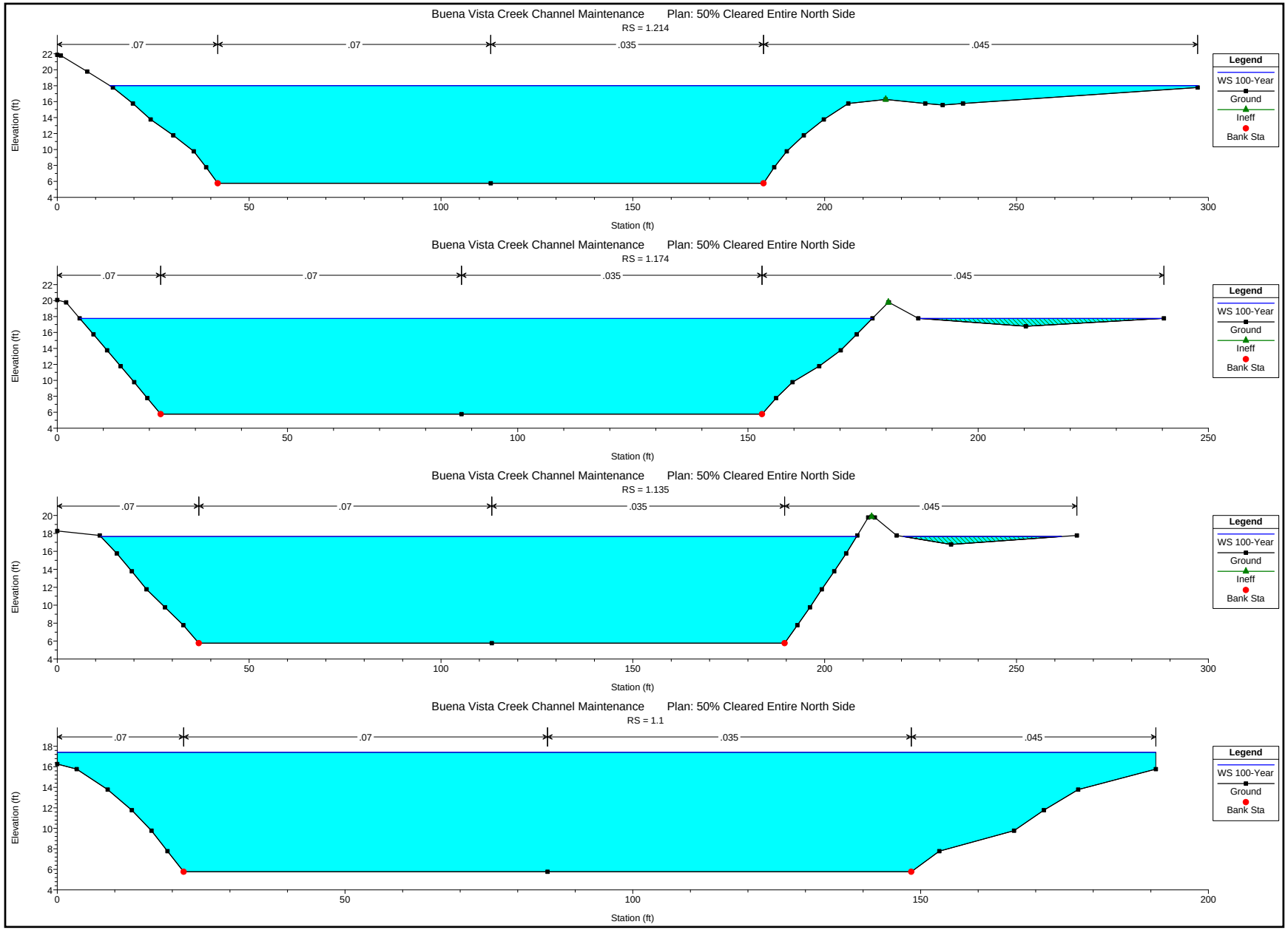
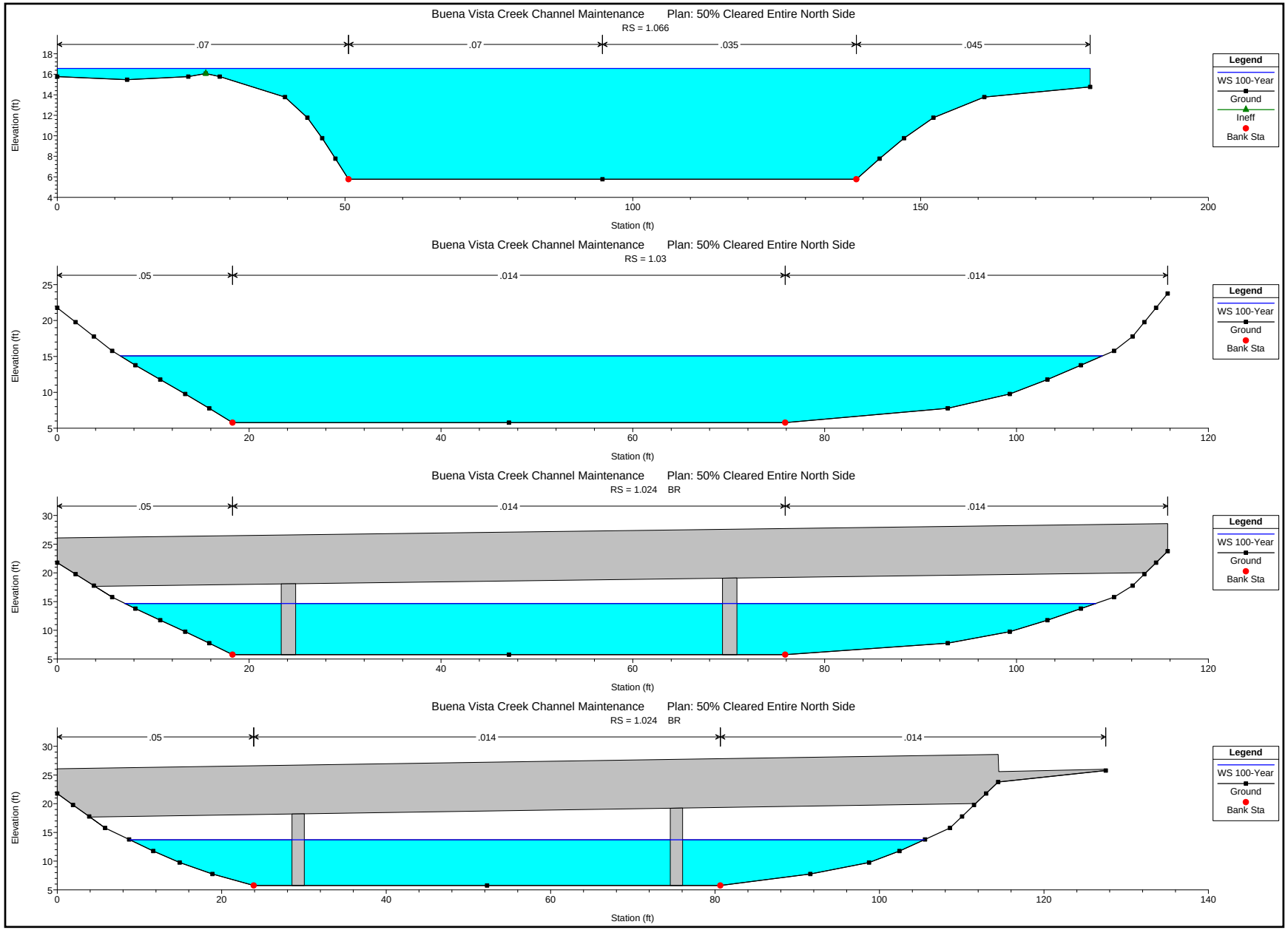
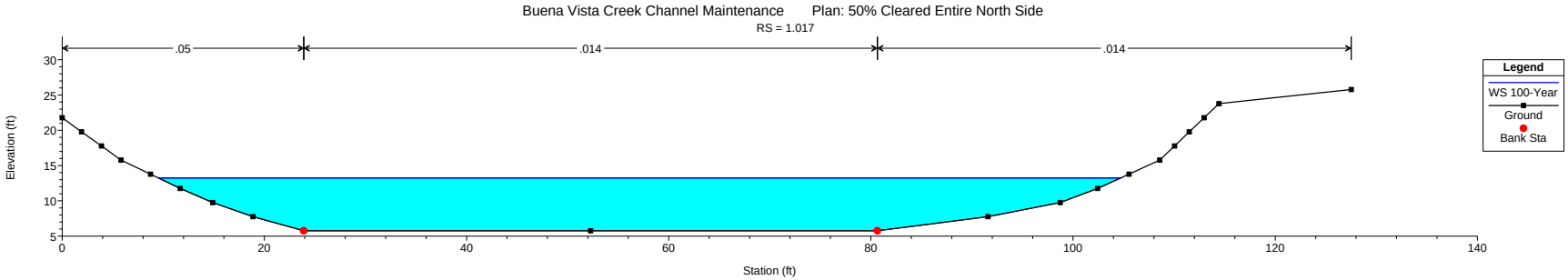
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.373
.1
.1
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.336
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.296
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.255
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.214
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.174
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.135
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.1
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.066
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.017
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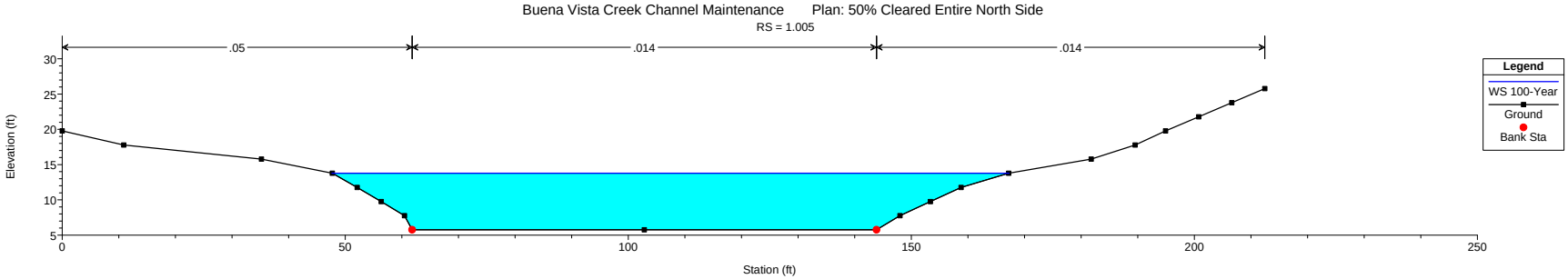
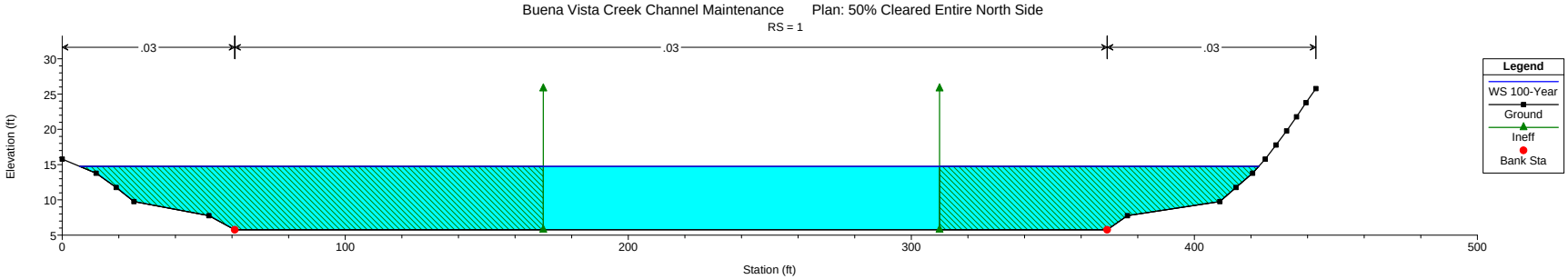
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1.005
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: 50% Cleared Entire North Side
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

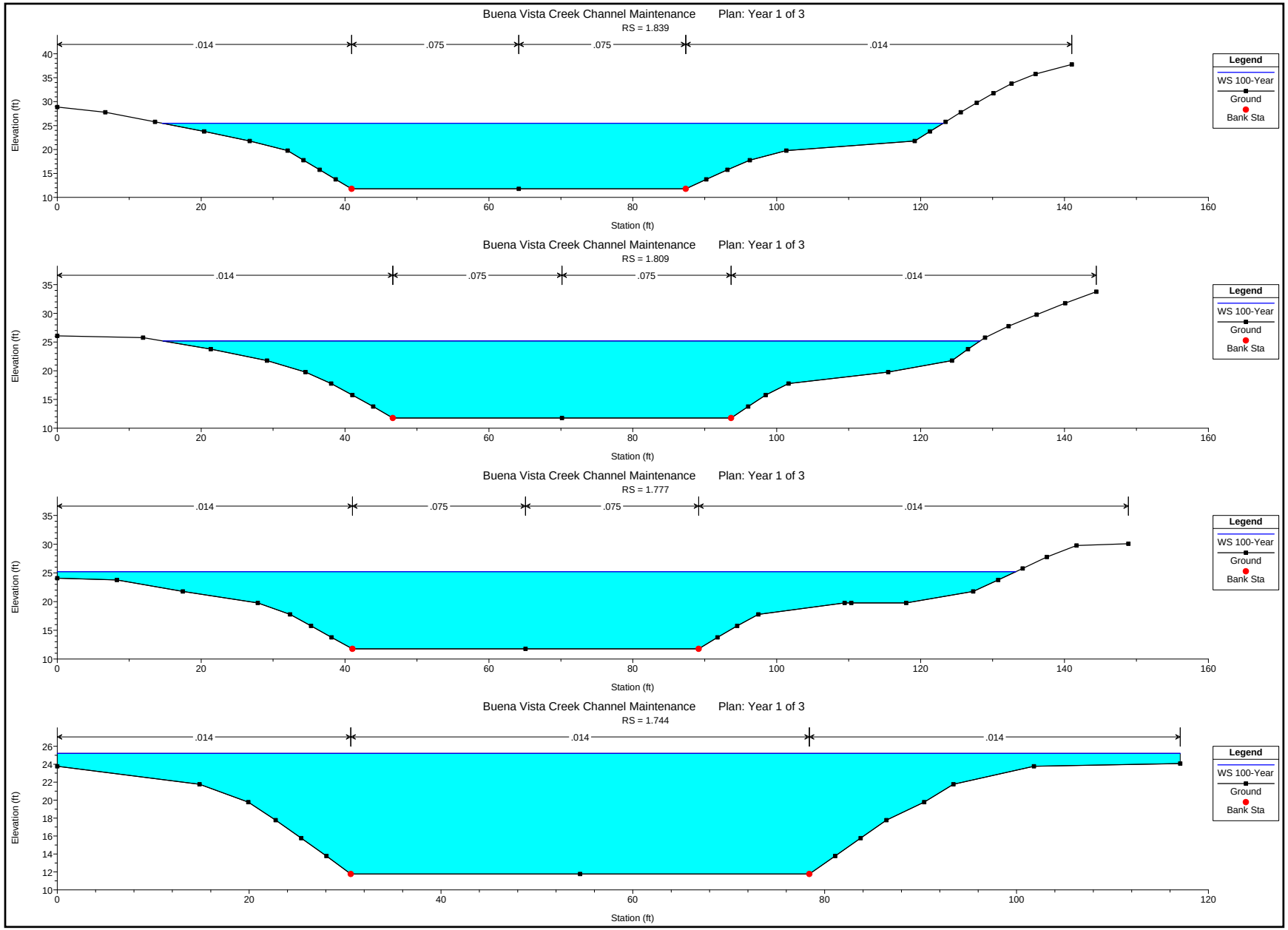
APPENDIX B

100-YEAR HEC-RAS ANALYSES
3-YEAR MAINTENANCE PLAN

YEAR 1 OF 3

HEC-RAS Plan: Year 1 of 3 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.57	12.19	17.46	0.002585	7.91	1246.22	179.45	0.42
Reach-1	1.1	100-Year	8500.00	5.77	17.41		17.77	0.000956	5.06	1847.88	190.87	0.26
Reach-1	1.135	100-Year	8500.00	5.77	17.65	10.30	17.93	0.000698	4.38	2080.51	238.21	0.22
Reach-1	1.174	100-Year	8500.00	5.77	17.75	10.80	18.12	0.000911	5.03	1812.10	224.40	0.26
Reach-1	1.214	100-Year	8500.00	5.77	18.01	10.53	18.30	0.000703	4.48	2175.42	283.48	0.23
Reach-1	1.255	100-Year	8500.00	5.77	18.15		18.47	0.000802	4.83	2107.35	274.04	0.24
Reach-1	1.296	100-Year	8500.00	5.77	18.32	12.38	18.83	0.003008	6.29	1606.02	233.28	0.31
Reach-1	1.336	100-Year	8500.00	5.77	18.95	11.98	19.39	0.002316	5.70	1714.03	210.50	0.28
Reach-1	1.373	100-Year	8500.00	5.77	19.60		19.93	0.002961	4.66	1903.07	185.69	0.22
Reach-1	1.413	100-Year	8500.00	5.77	20.18		20.49	0.002517	4.41	1961.20	171.29	0.20
Reach-1	1.454	100-Year	8500.00	5.77	20.75		21.03	0.002336	4.36	2047.98	178.22	0.20
Reach-1	1.498	100-Year	8500.00	9.77	21.39		21.81	0.004674	5.21	1687.61	180.35	0.27
Reach-1	1.532	100-Year	8500.00	9.77	22.21		22.59	0.003968	5.03	1764.51	169.43	0.25
Reach-1	1.564	100-Year	8500.00	9.77	22.87		23.13	0.002482	4.11	2109.90	206.50	0.20
Reach-1	1.597	100-Year	8500.00	9.77	23.29		23.61	0.002943	4.57	1914.65	169.33	0.22
Reach-1	1.629	100-Year	8500.00	9.77	23.79		24.10	0.002733	4.52	1952.84	166.92	0.21
Reach-1	1.661	100-Year	8500.00	9.77	24.24		24.56	0.002652	4.54	1954.39	164.81	0.21
Reach-1	1.701	100-Year	8500.00	11.77	24.83		25.49	0.006673	6.73	1378.23	142.02	0.33
Reach-1	1.734	100-Year	8500.00	11.77	24.19		26.03	0.000422	11.69	881.93	119.08	0.58
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	25.21	21.15	26.75	0.000323	10.78	963.60	117.06	0.52
Reach-1	1.777	100-Year	8500.00	11.77	25.21		26.89	0.001547	4.41	1107.19	133.24	0.21
Reach-1	1.809	100-Year	8500.00	11.77	25.18		27.33	0.002016	5.02	1005.46	113.57	0.24
Reach-1	1.839	100-Year	8500.00	11.77	25.47		27.68	0.002146	5.26	989.78	108.55	0.25


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.839
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.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.809
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.777
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.744
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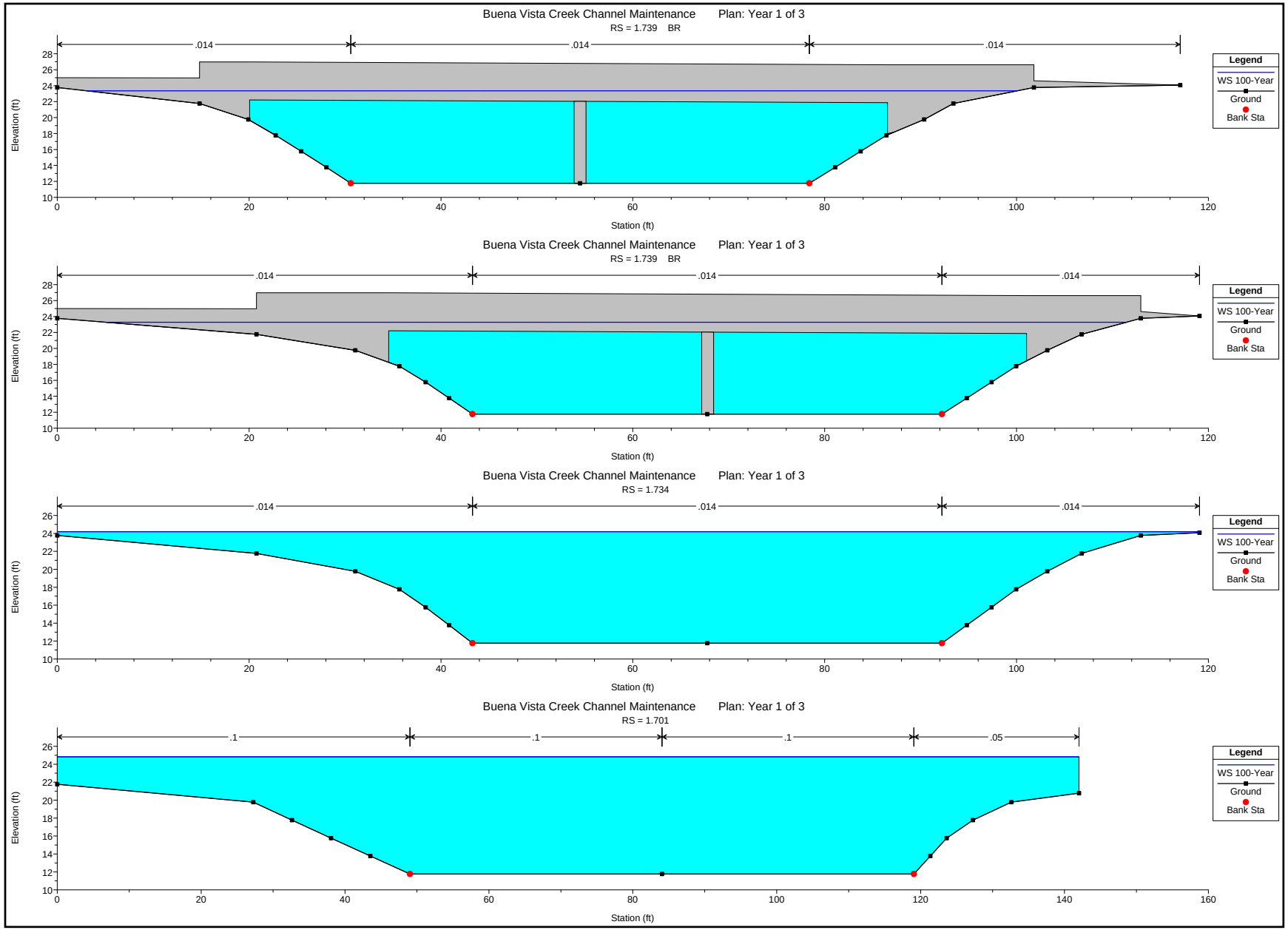
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.739 BR
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.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.734
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.701
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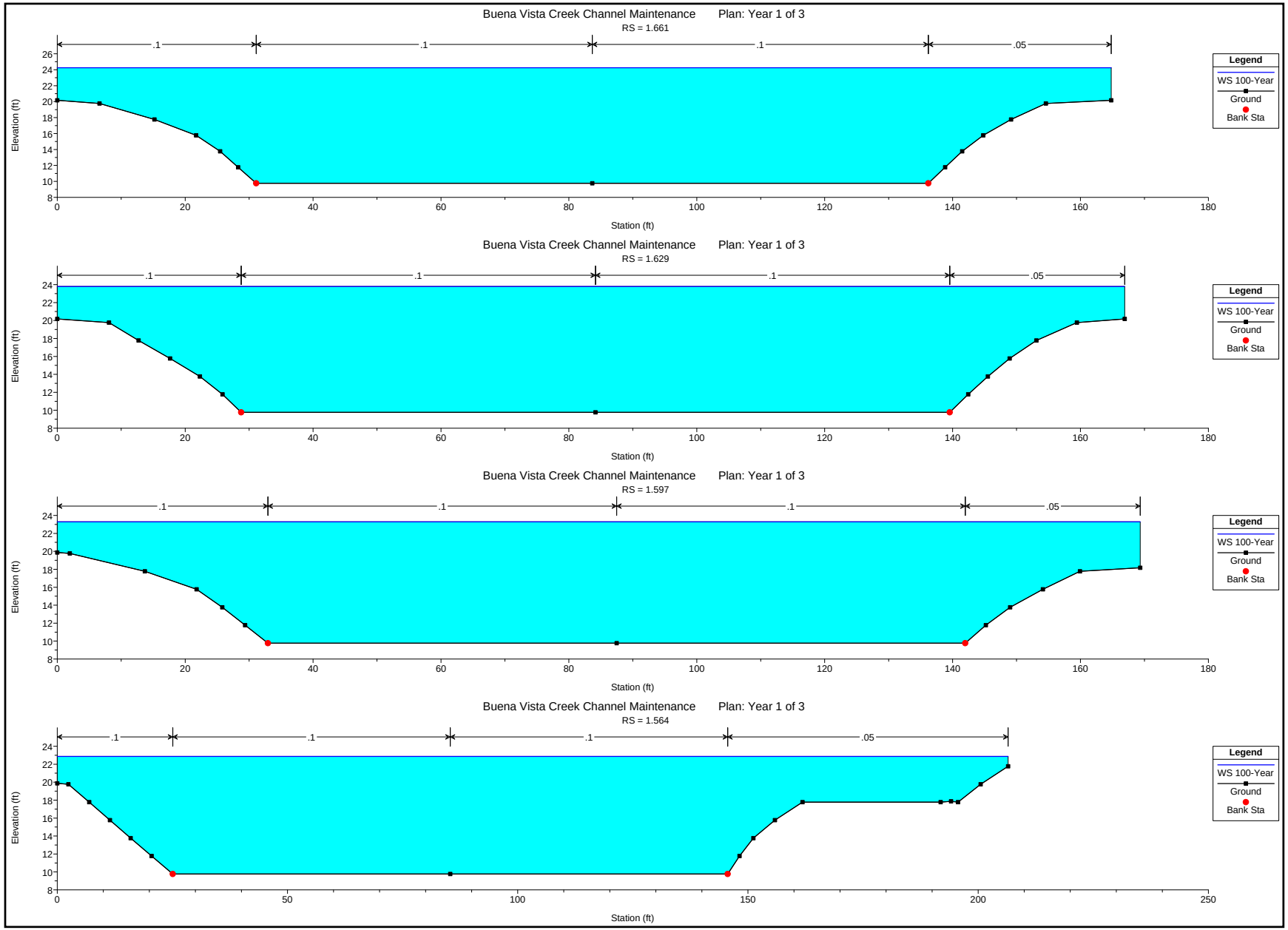
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
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.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.629
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.597
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.564
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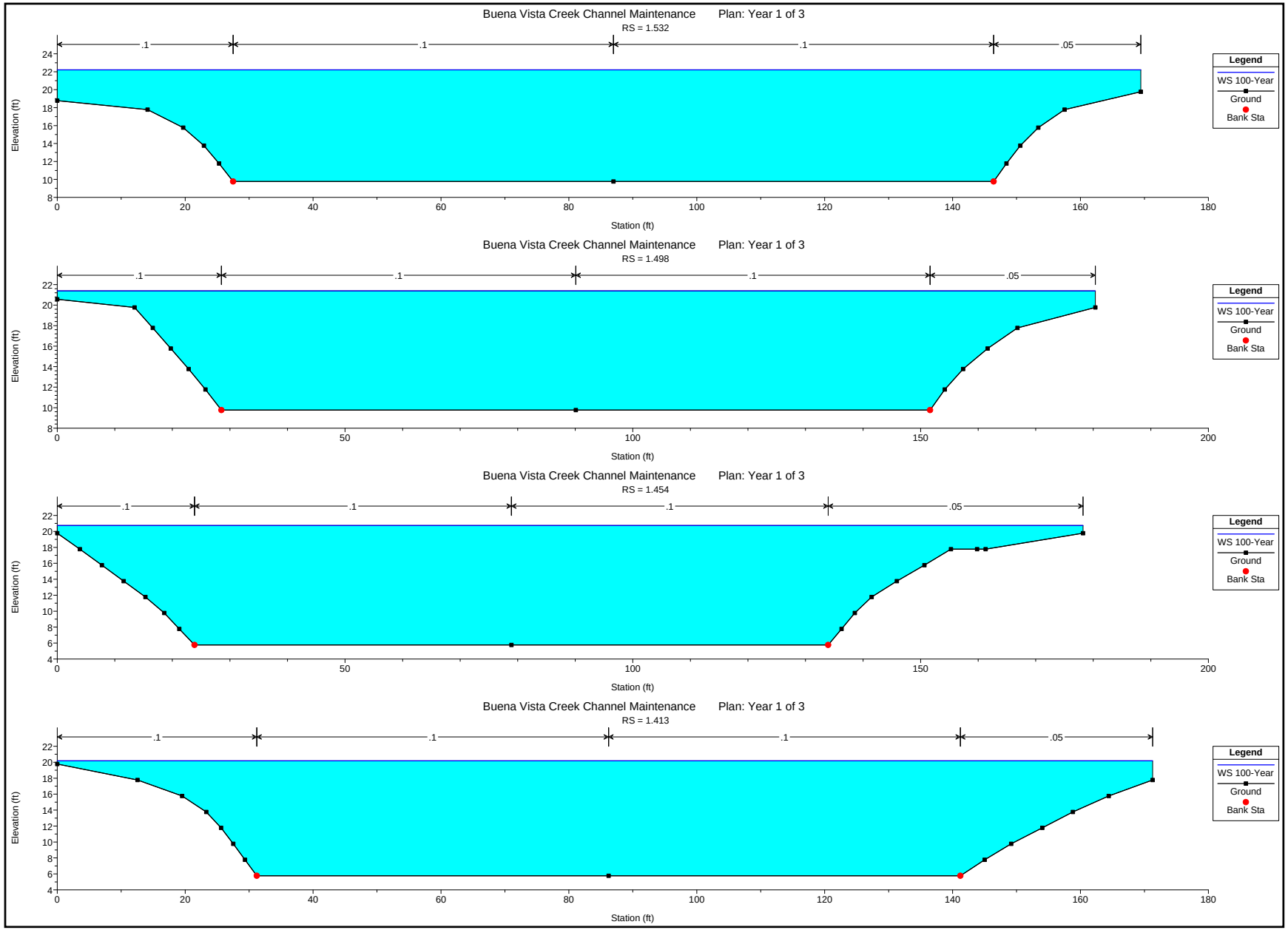
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.532
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.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.498
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.454
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.413
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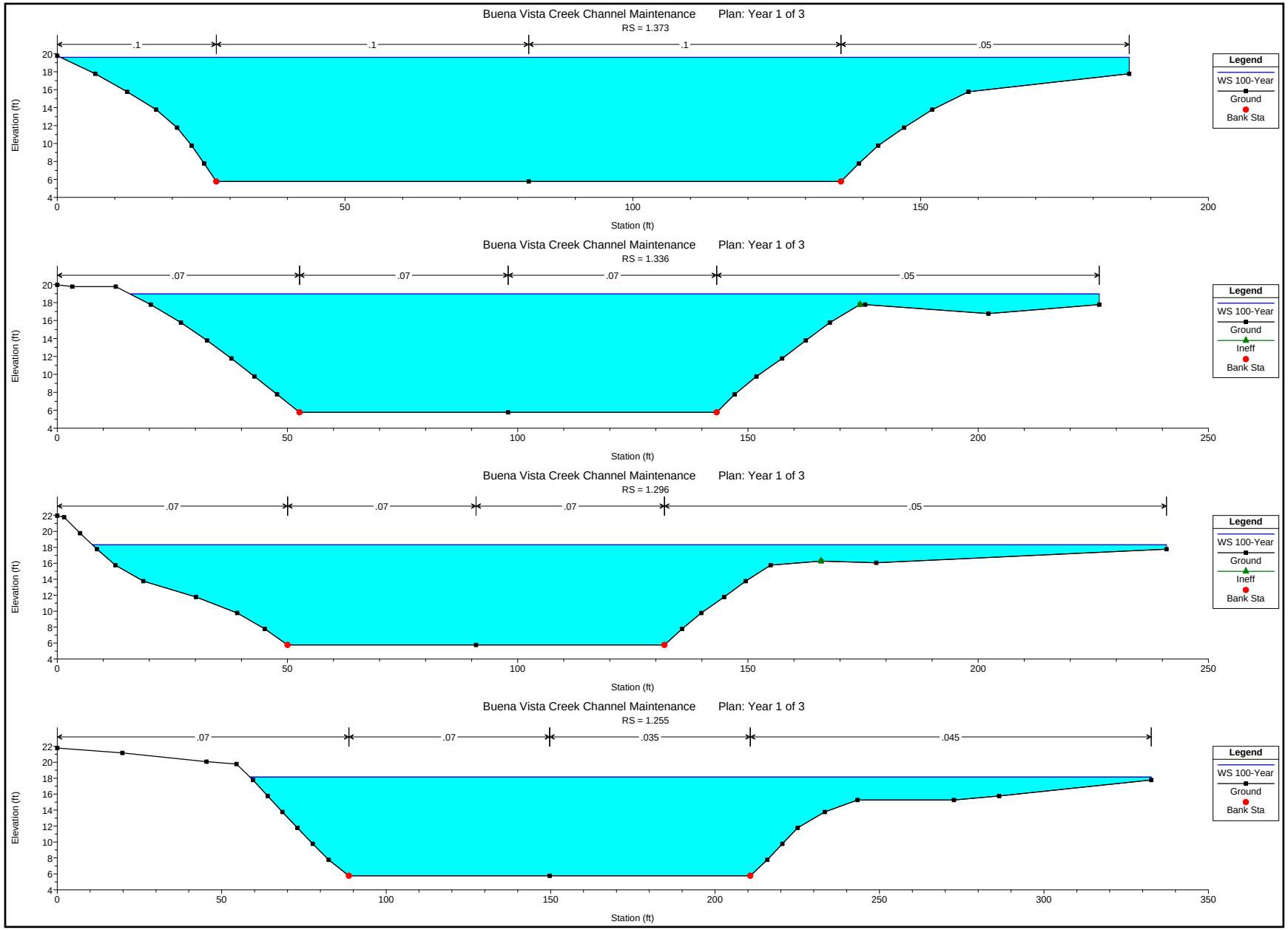
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.373
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.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.336
.07
.07
.07
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.296
.07
.07
.07
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.255
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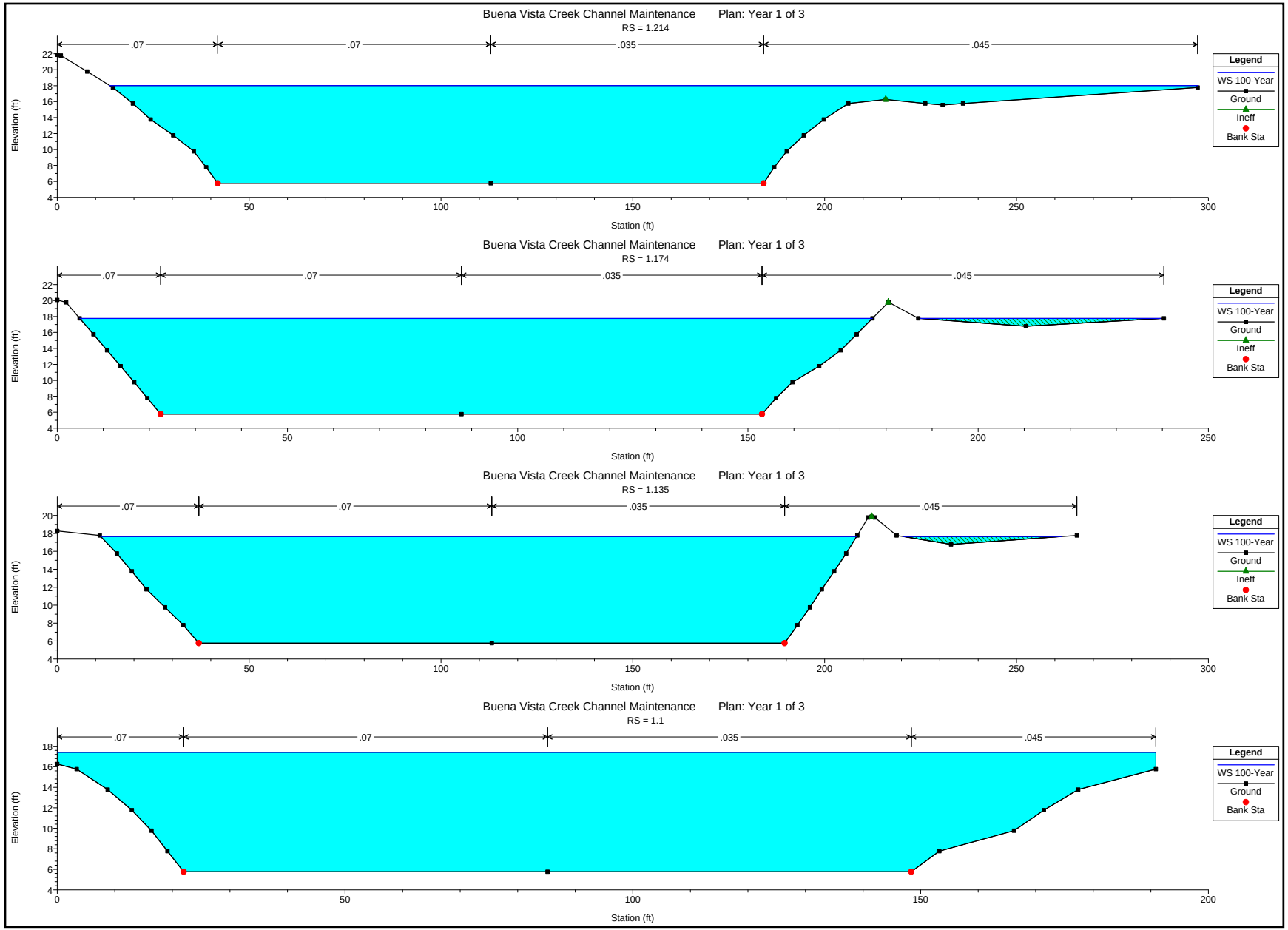
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.214
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.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.174
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.135
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.1
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.07
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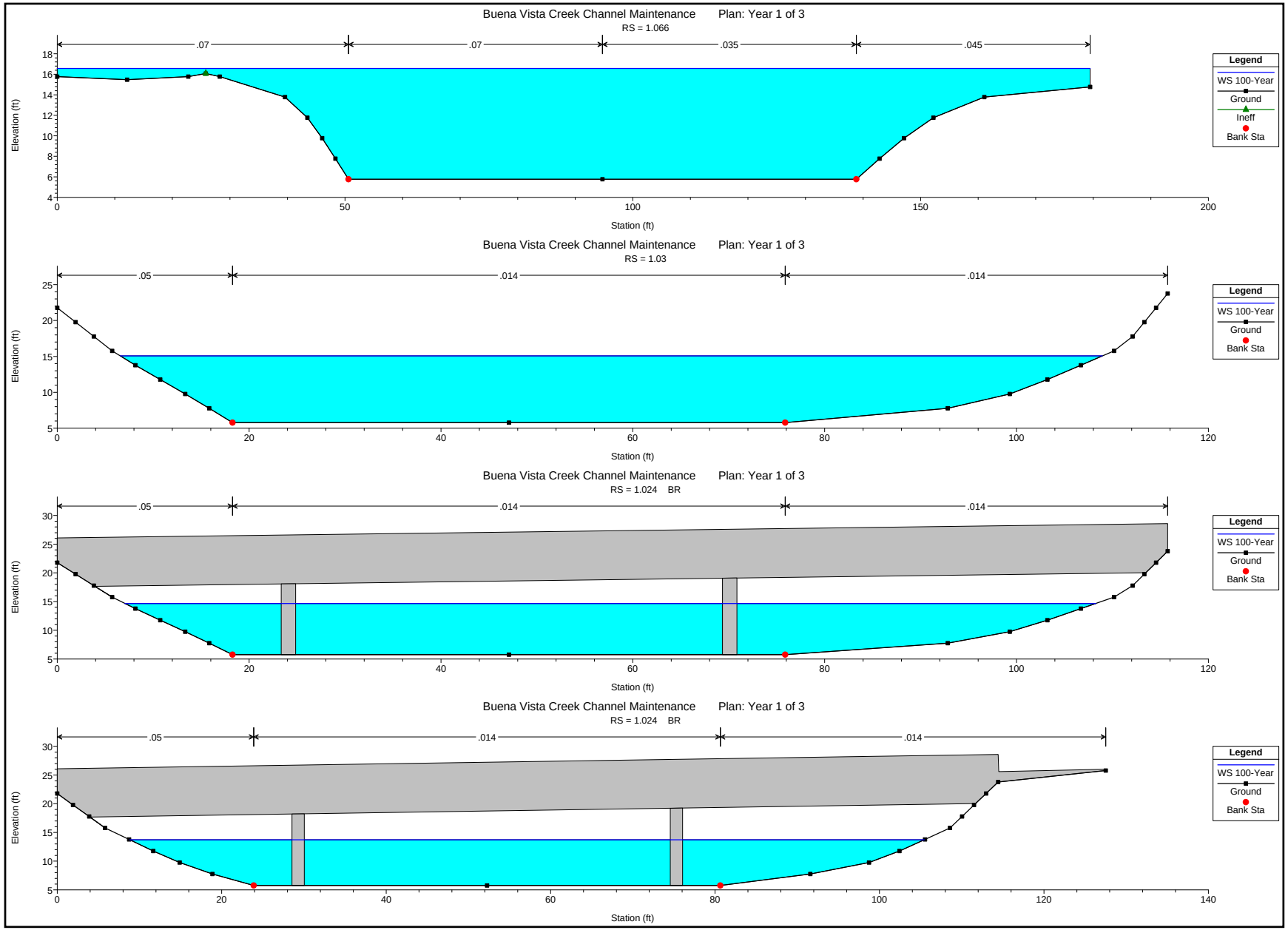
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.066
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.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.024 BR
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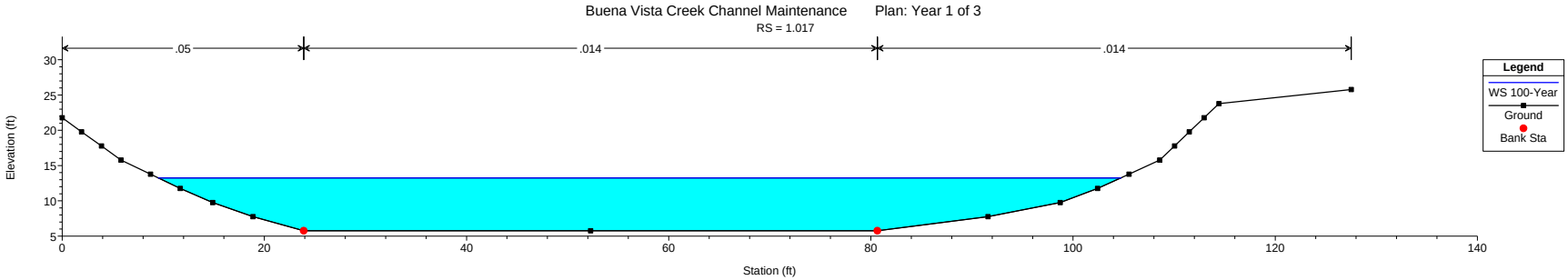
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.017
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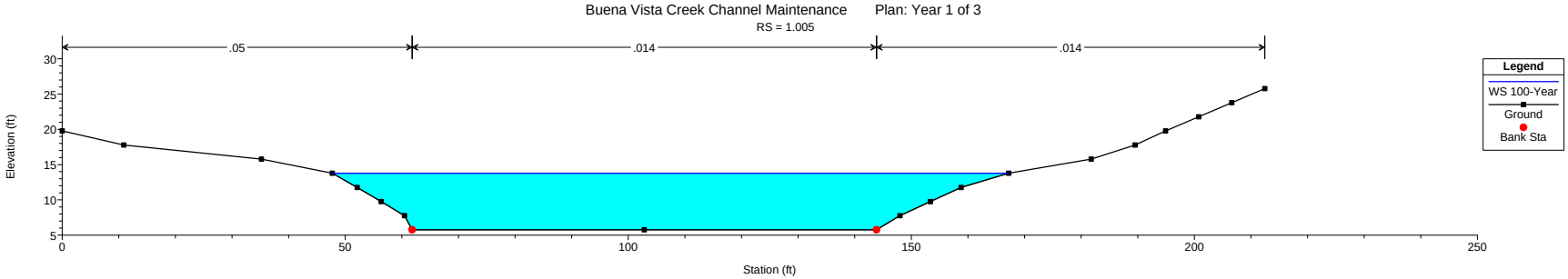
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1.005
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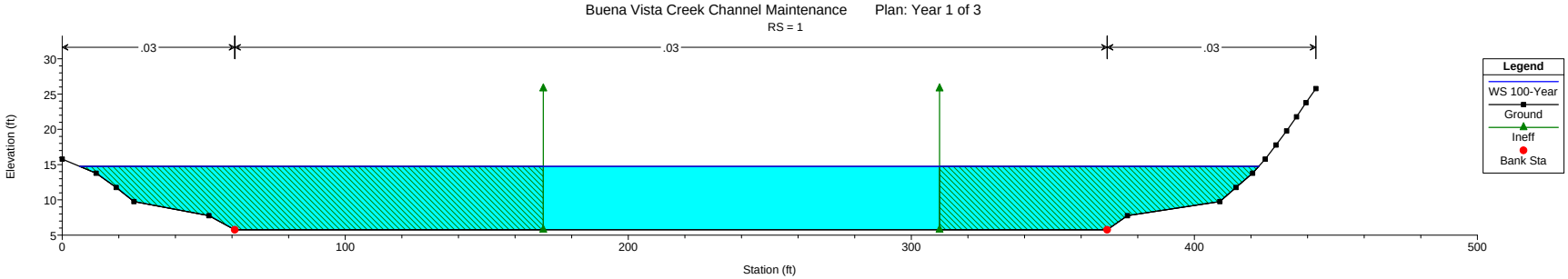
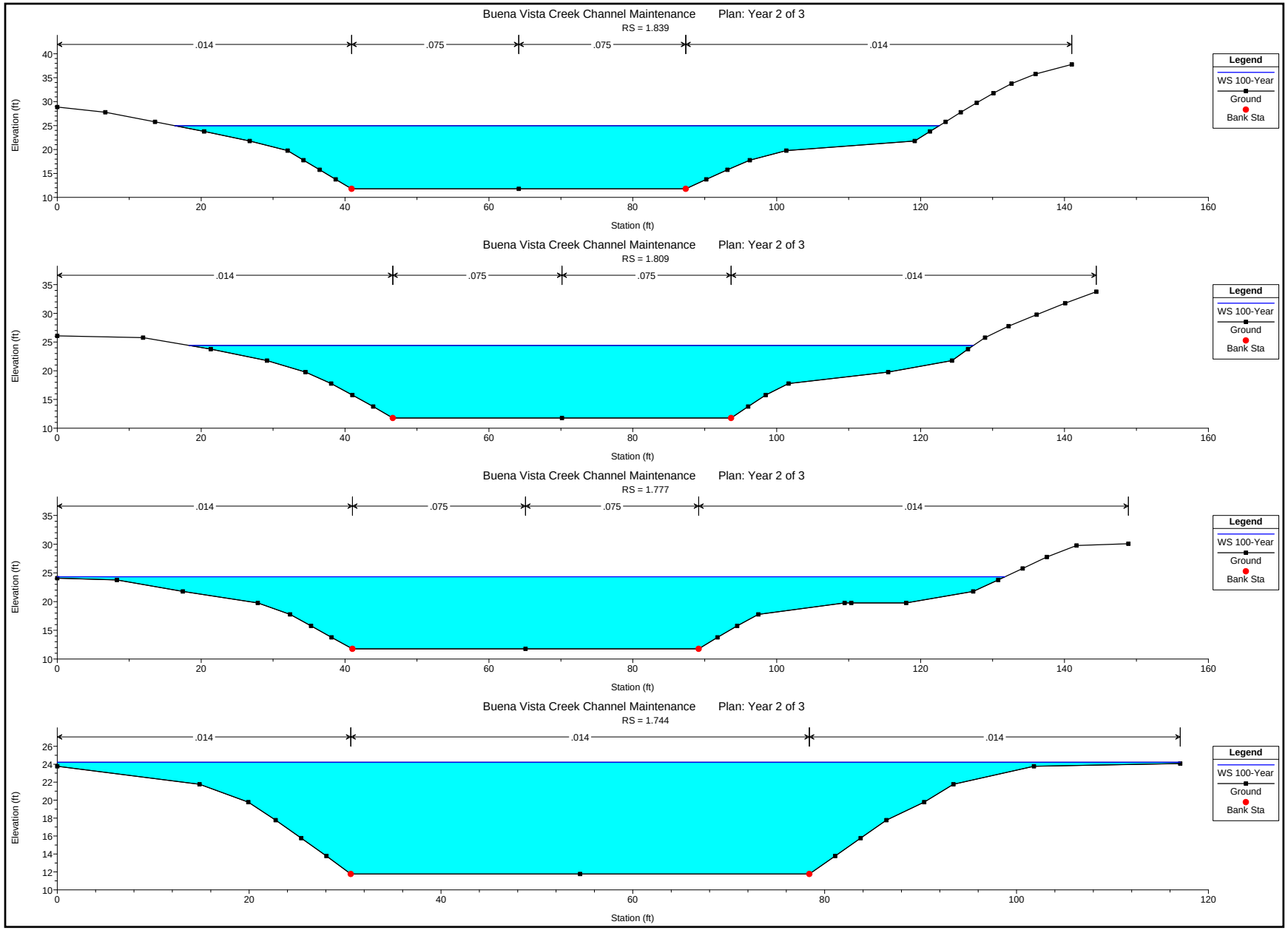
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 3
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 2 OF 3

HEC-RAS Plan: Year 2 of 3 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.65	12.17	17.48	0.003326	7.68	1260.15	179.45	0.41
Reach-1	1.1	100-Year	8500.00	5.77	17.52		17.87	0.001216	4.89	1869.88	190.87	0.25
Reach-1	1.135	100-Year	8500.00	5.77	17.80	10.29	18.07	0.000900	4.27	2110.04	245.12	0.22
Reach-1	1.174	100-Year	8500.00	5.77	17.95	10.79	18.30	0.001154	4.88	1846.88	226.67	0.25
Reach-1	1.214	100-Year	8500.00	5.77	18.26	10.52	18.52	0.000865	4.29	2245.93	284.31	0.21
Reach-1	1.255	100-Year	8500.00	5.77	18.44		18.72	0.000950	4.54	2187.12	274.77	0.22
Reach-1	1.296	100-Year	8500.00	5.77	18.49	12.46	19.06	0.001458	6.62	1645.69	233.59	0.33
Reach-1	1.336	100-Year	8500.00	5.77	18.83	12.04	19.34	0.001206	6.13	1688.77	210.04	0.30
Reach-1	1.373	100-Year	8500.00	5.77	19.19		19.58	0.001051	5.25	1826.60	184.32	0.25
Reach-1	1.413	100-Year	8500.00	5.77	19.42		19.79	0.000969	5.09	1830.59	169.06	0.24
Reach-1	1.454	100-Year	8500.00	5.77	19.62		20.01	0.000972	5.15	1847.60	176.67	0.24
Reach-1	1.498	100-Year	8500.00	9.77	19.79		20.42	0.002395	6.52	1402.92	167.18	0.36
Reach-1	1.532	100-Year	8500.00	9.77	20.57		21.11	0.006704	5.94	1486.86	169.43	0.32
Reach-1	1.564	100-Year	8500.00	9.77	21.63		21.96	0.003778	4.75	1853.79	206.07	0.24
Reach-1	1.597	100-Year	8500.00	9.77	22.26		22.65	0.003984	5.05	1740.09	169.33	0.25
Reach-1	1.629	100-Year	8500.00	9.77	22.93		23.29	0.003483	4.89	1809.16	166.92	0.24
Reach-1	1.661	100-Year	8500.00	9.77	23.51		23.86	0.003248	4.86	1832.78	164.81	0.23
Reach-1	1.701	100-Year	8500.00	11.77	24.24		24.99	0.008084	7.18	1294.60	142.02	0.36
Reach-1	1.734	100-Year	8500.00	11.77	23.48		25.65	0.000530	12.60	800.52	109.06	0.65
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	24.22	21.15	26.22	0.000453	12.13	848.32	117.06	0.61
Reach-1	1.777	100-Year	8500.00	11.77	24.32		26.40	0.002396	5.24	988.38	131.71	0.26
Reach-1	1.809	100-Year	8500.00	11.77	24.41		26.98	0.002757	5.65	919.78	109.03	0.28
Reach-1	1.839	100-Year	8500.00	11.77	24.97		27.42	0.002635	5.68	935.32	106.27	0.28


Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.777
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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Station (ft)
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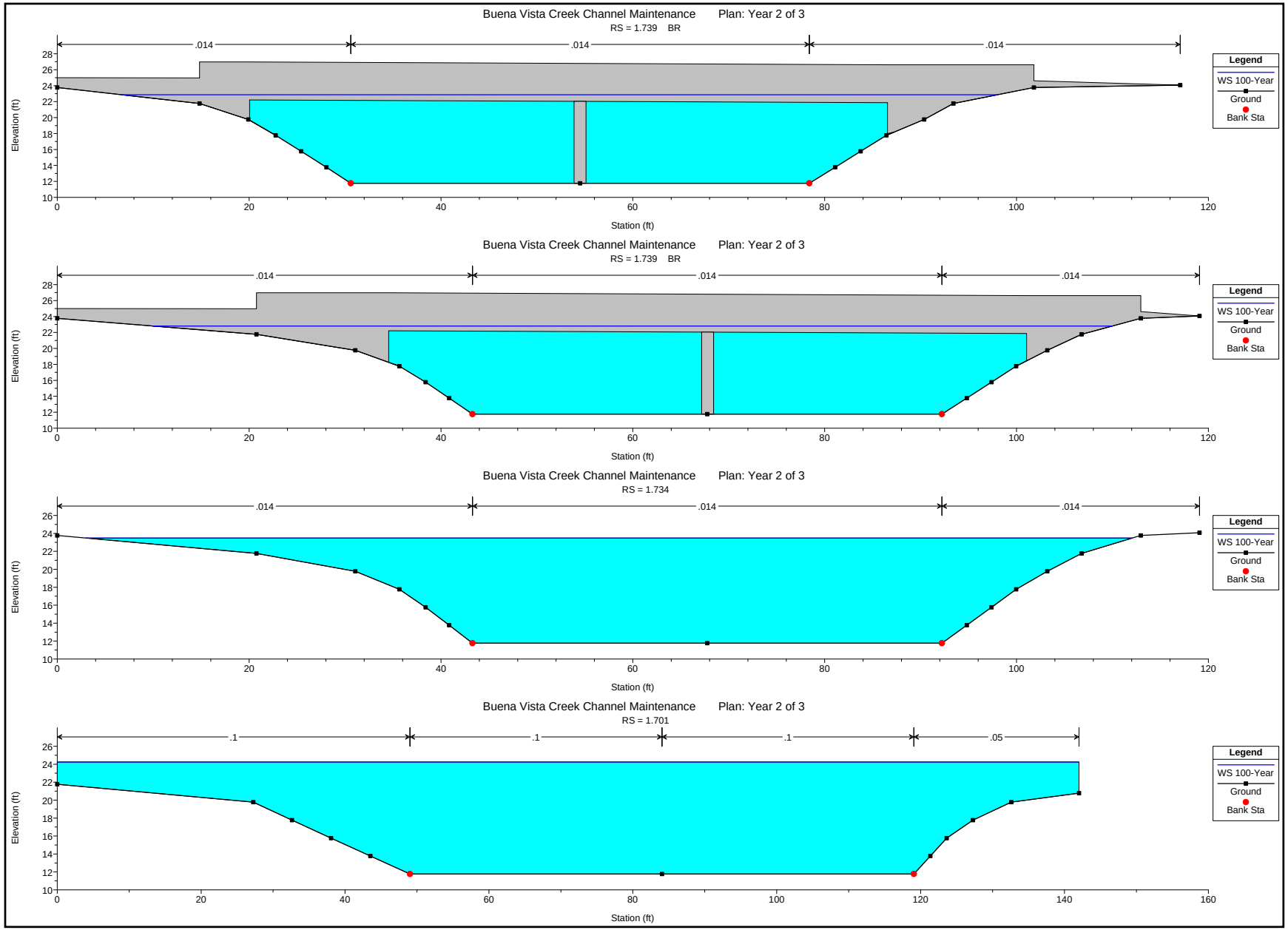
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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RS = 1.739 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
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Station (ft)
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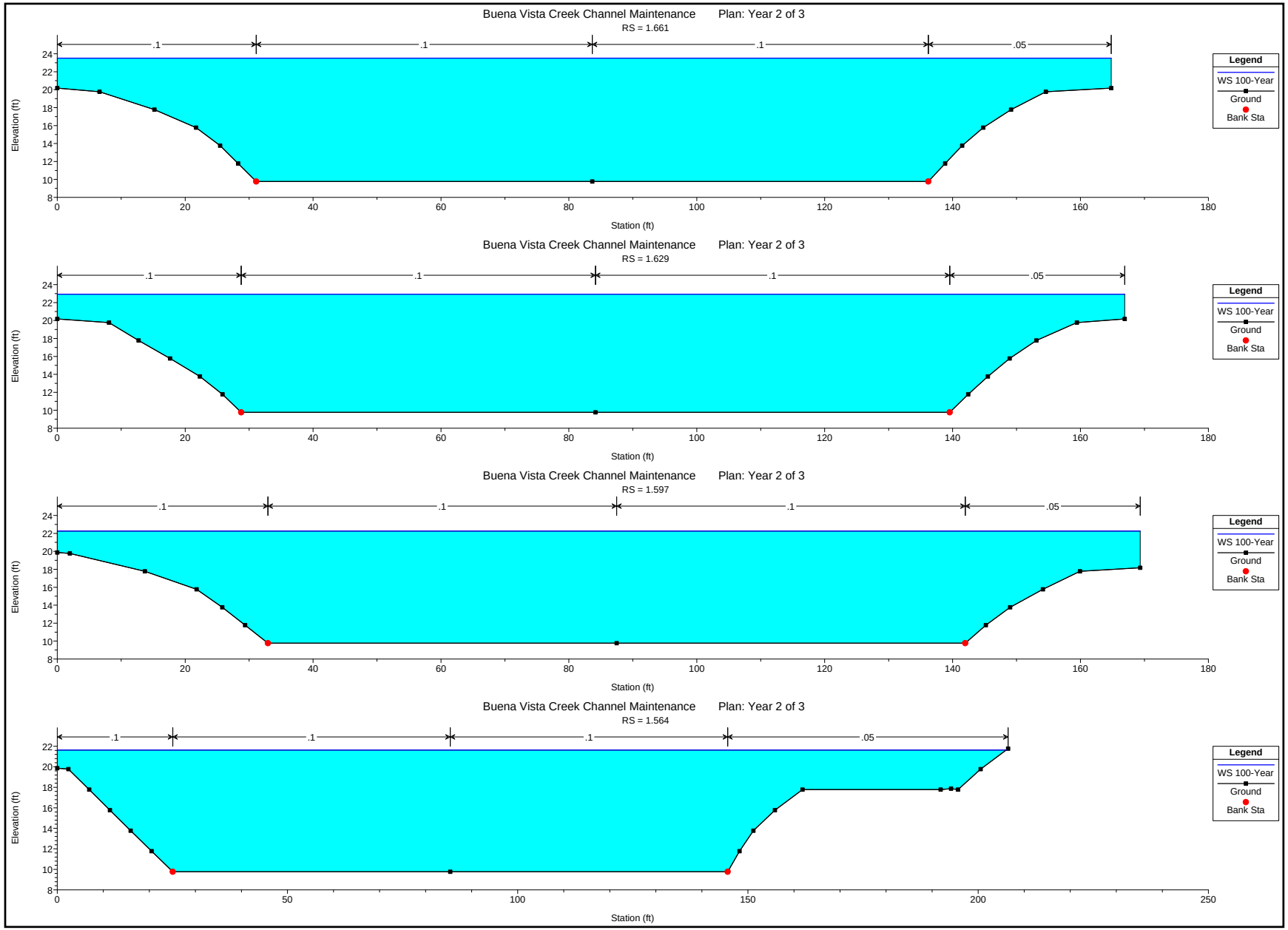
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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Station (ft)
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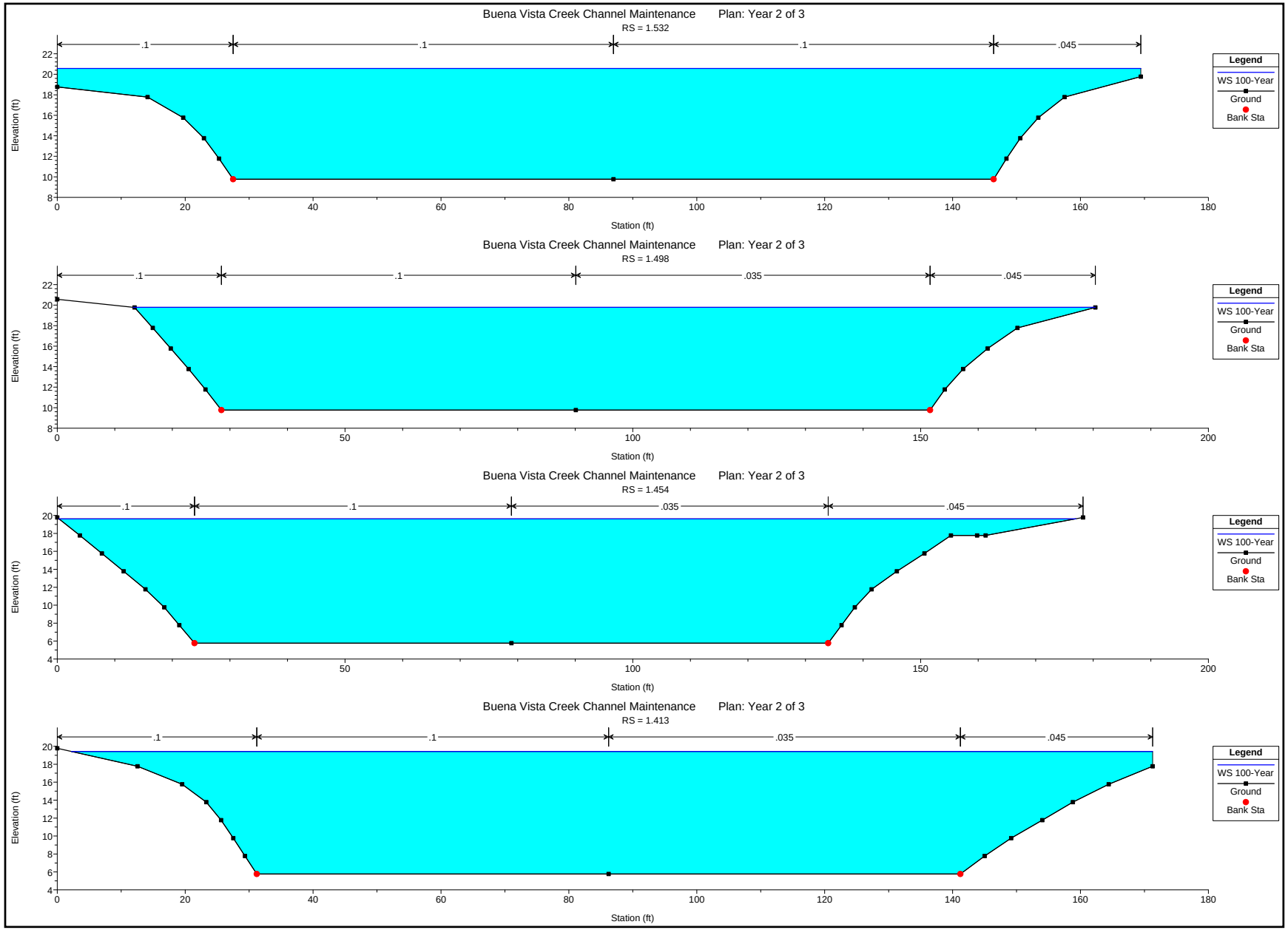
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.532
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.498
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.454
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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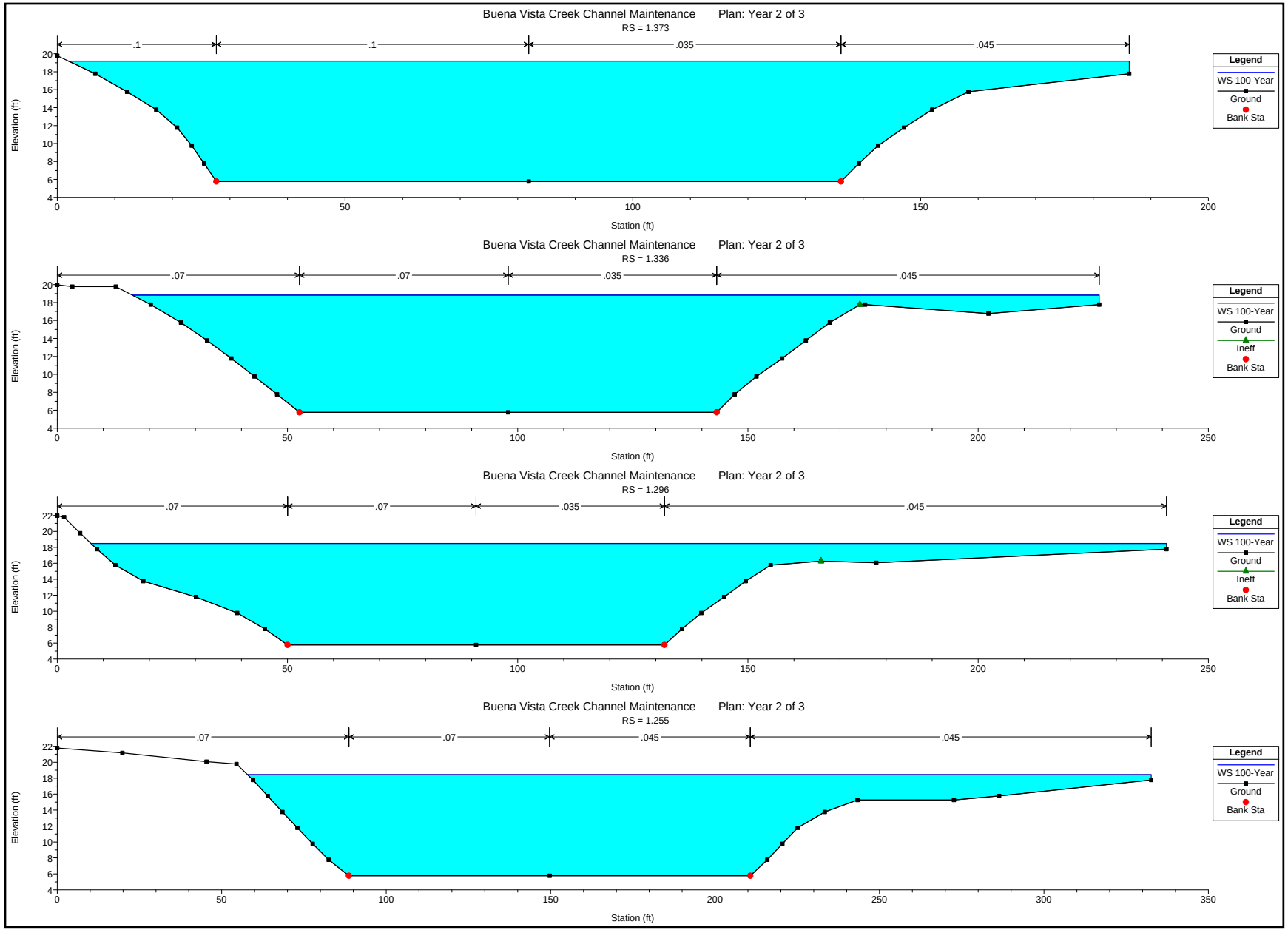
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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RS = 1.373
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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.336
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.296
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
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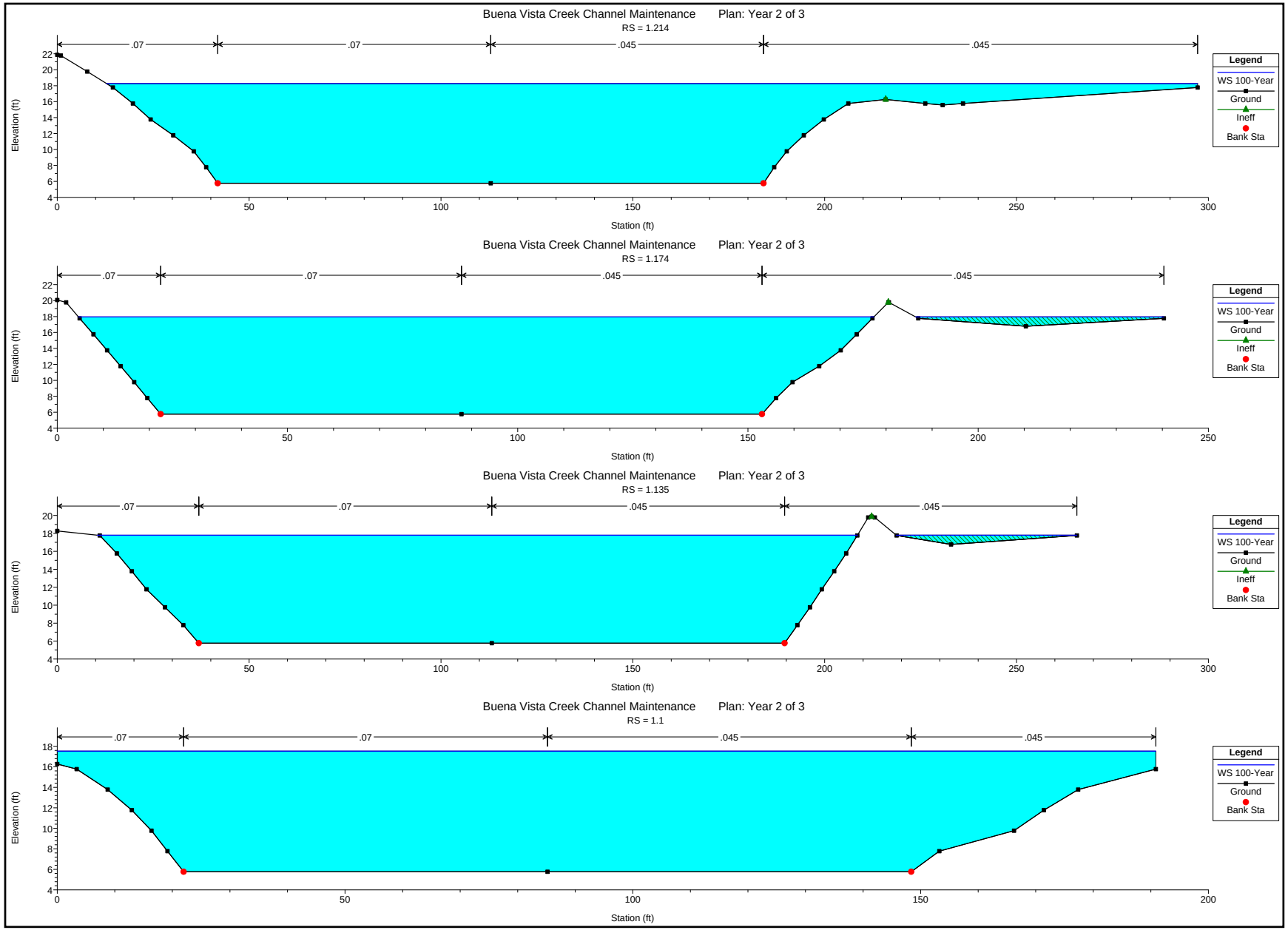
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.214
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.174
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.135
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.1
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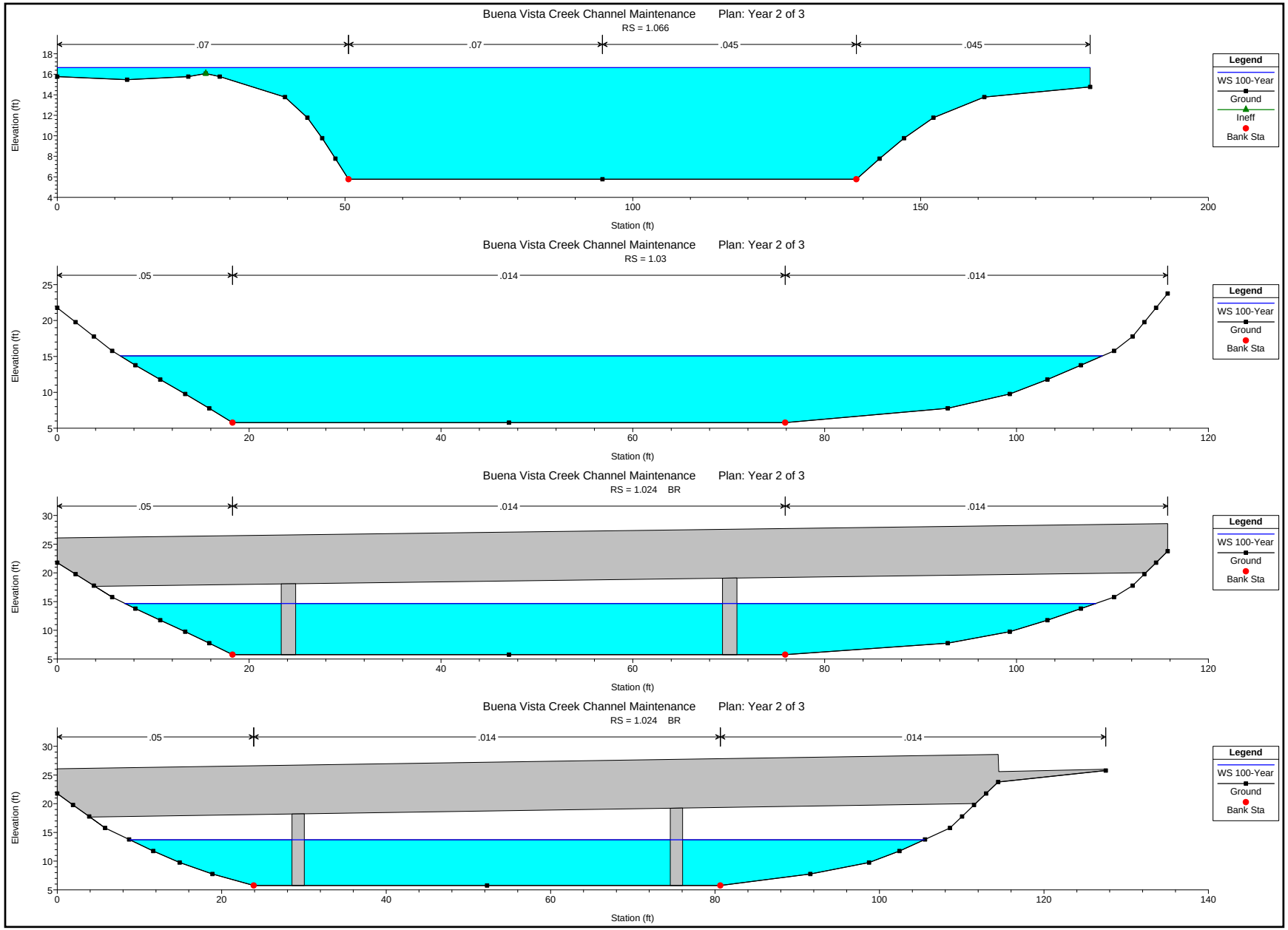
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.03
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1.024 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
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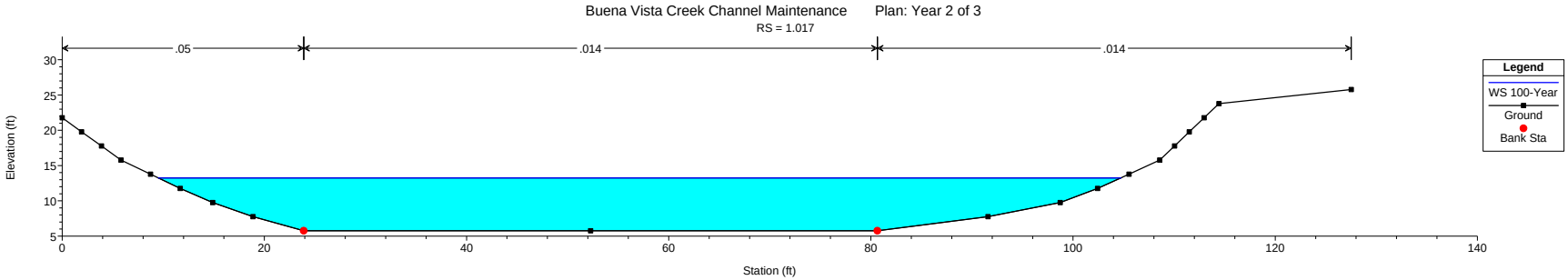
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Legend
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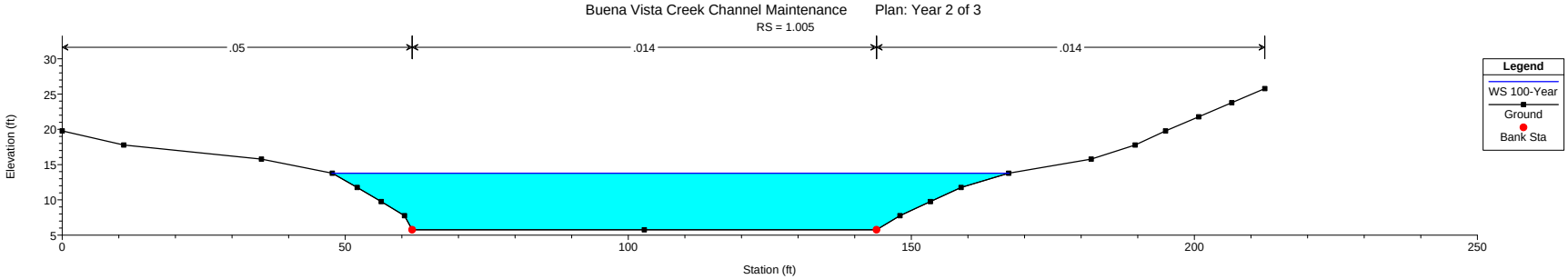
Ground
Bank Sta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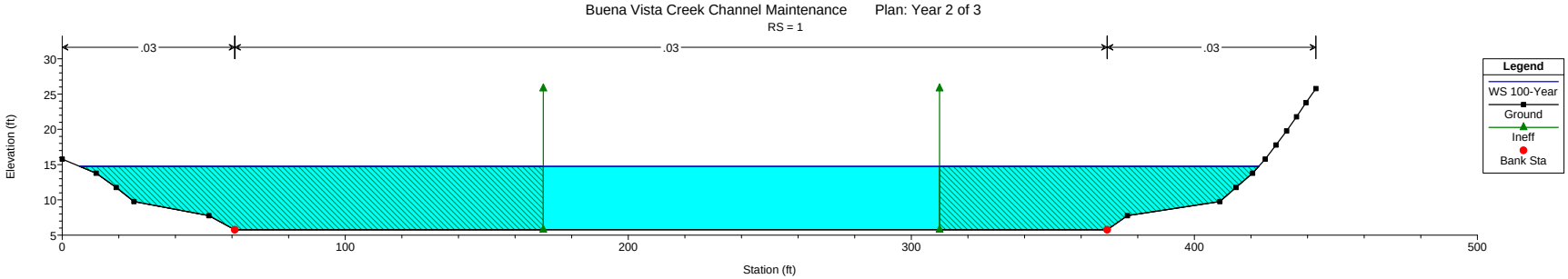
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 3
RS = 1
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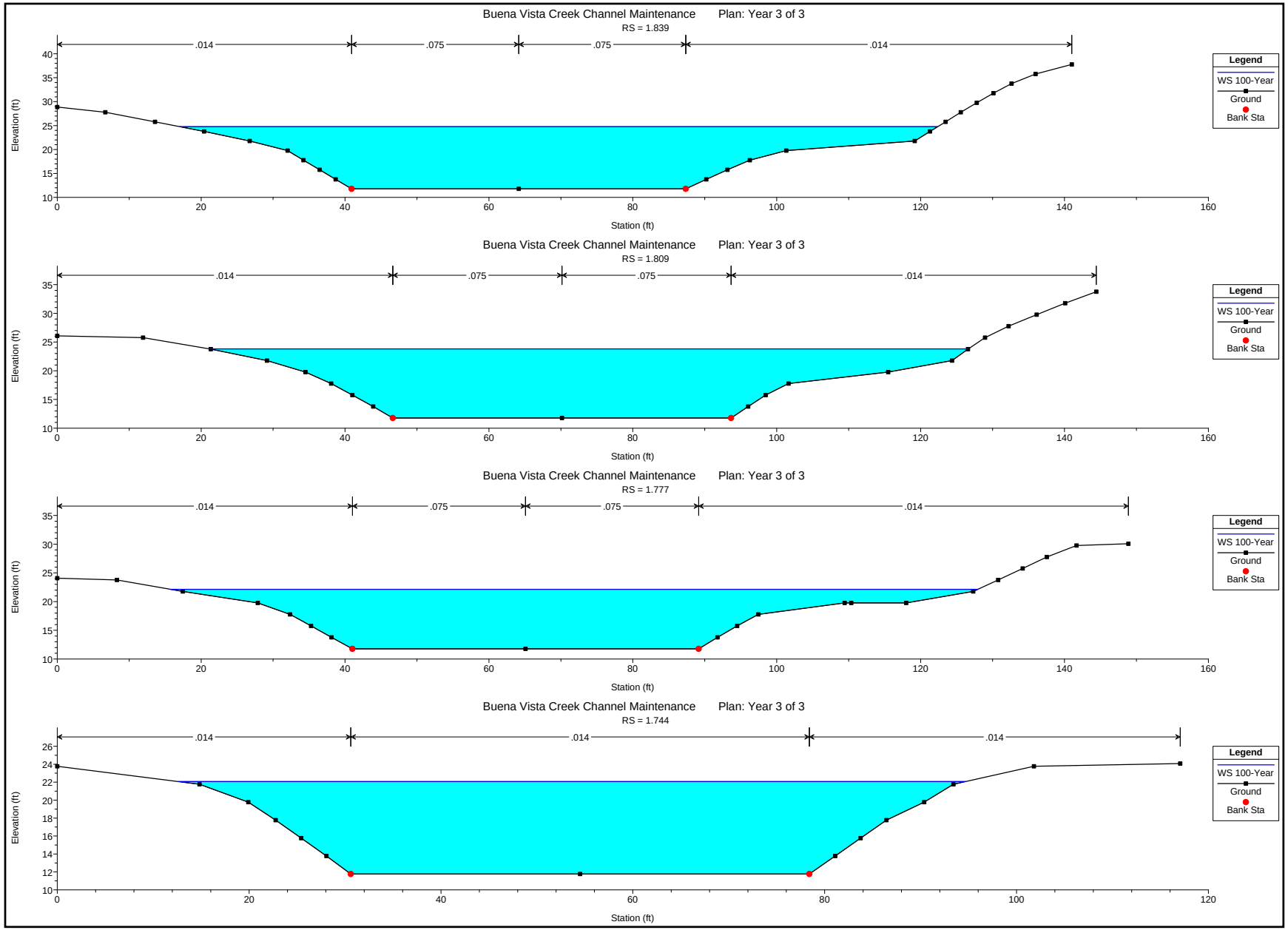
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 3 OF 3

HEC-RAS Plan: Year 3 of 3 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.69	12.16	17.49	0.003858	7.53	1268.30	179.45	0.40
Reach-1	1.1	100-Year	8500.00	5.77	17.60		17.93	0.001398	4.78	1884.52	190.87	0.24
Reach-1	1.135	100-Year	8500.00	5.77	17.90	10.29	18.16	0.001047	4.21	2130.47	247.82	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.09	10.79	18.43	0.001321	4.78	1870.97	227.56	0.24
Reach-1	1.214	100-Year	8500.00	5.77	18.43	10.52	18.67	0.000970	4.17	2294.47	284.88	0.21
Reach-1	1.255	100-Year	8500.00	5.77	18.63		18.89	0.001038	4.36	2240.86	275.26	0.21
Reach-1	1.296	100-Year	8500.00	5.77	18.76	12.42	19.25	0.001705	6.19	1708.48	234.08	0.30
Reach-1	1.336	100-Year	8500.00	5.77	19.13	12.01	19.58	0.001432	5.78	1751.57	211.18	0.28
Reach-1	1.373	100-Year	8500.00	5.77	19.51		19.86	0.001319	4.99	1885.90	185.38	0.24
Reach-1	1.413	100-Year	8500.00	5.77	19.78		20.13	0.001210	4.84	1893.13	171.29	0.23
Reach-1	1.454	100-Year	8500.00	5.77	20.04		20.39	0.001172	4.90	1922.39	178.22	0.23
Reach-1	1.498	100-Year	8500.00	9.77	20.29		20.85	0.002741	6.11	1489.79	175.68	0.33
Reach-1	1.532	100-Year	8500.00	9.77	20.70		21.26	0.001911	6.17	1508.06	169.43	0.33
Reach-1	1.564	100-Year	8500.00	9.77	21.12		21.56	0.001473	5.55	1749.52	204.56	0.29
Reach-1	1.597	100-Year	8500.00	9.77	21.33		21.86	0.001722	6.08	1582.65	169.33	0.32
Reach-1	1.629	100-Year	8500.00	9.77	21.62		22.14	0.001611	5.98	1591.14	166.92	0.31
Reach-1	1.661	100-Year	8500.00	9.77	21.88		22.43	0.001655	6.15	1564.70	164.81	0.31
Reach-1	1.701	100-Year	8500.00	11.77	21.67		23.40	0.006971	11.03	929.94	140.70	0.62
Reach-1	1.734	100-Year	8500.00	11.77	21.12	21.12	24.95	0.001218	16.44	579.05	81.48	0.95
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	22.07	21.15	25.21	0.000889	14.98	641.20	82.03	0.82
Reach-1	1.777	100-Year	8500.00	11.77	22.15	22.15	25.87	0.007110	7.95	727.57	112.24	0.43
Reach-1	1.809	100-Year	8500.00	11.77	23.81	22.62	26.77	0.003568	6.22	855.00	105.47	0.32
Reach-1	1.839	100-Year	8500.00	11.77	24.76		27.33	0.002878	5.87	912.96	105.32	0.29


Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.744
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
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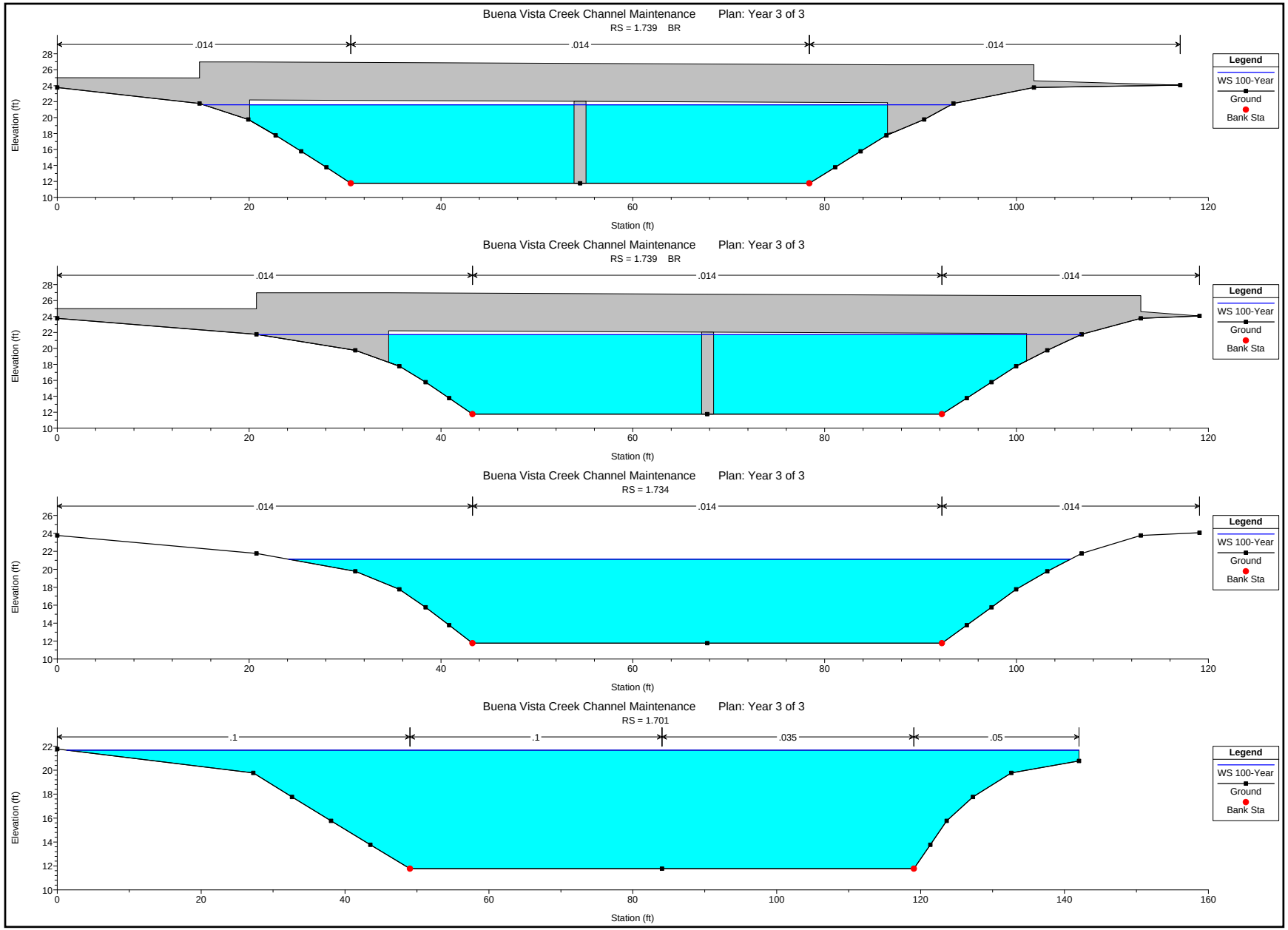
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.739 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.734
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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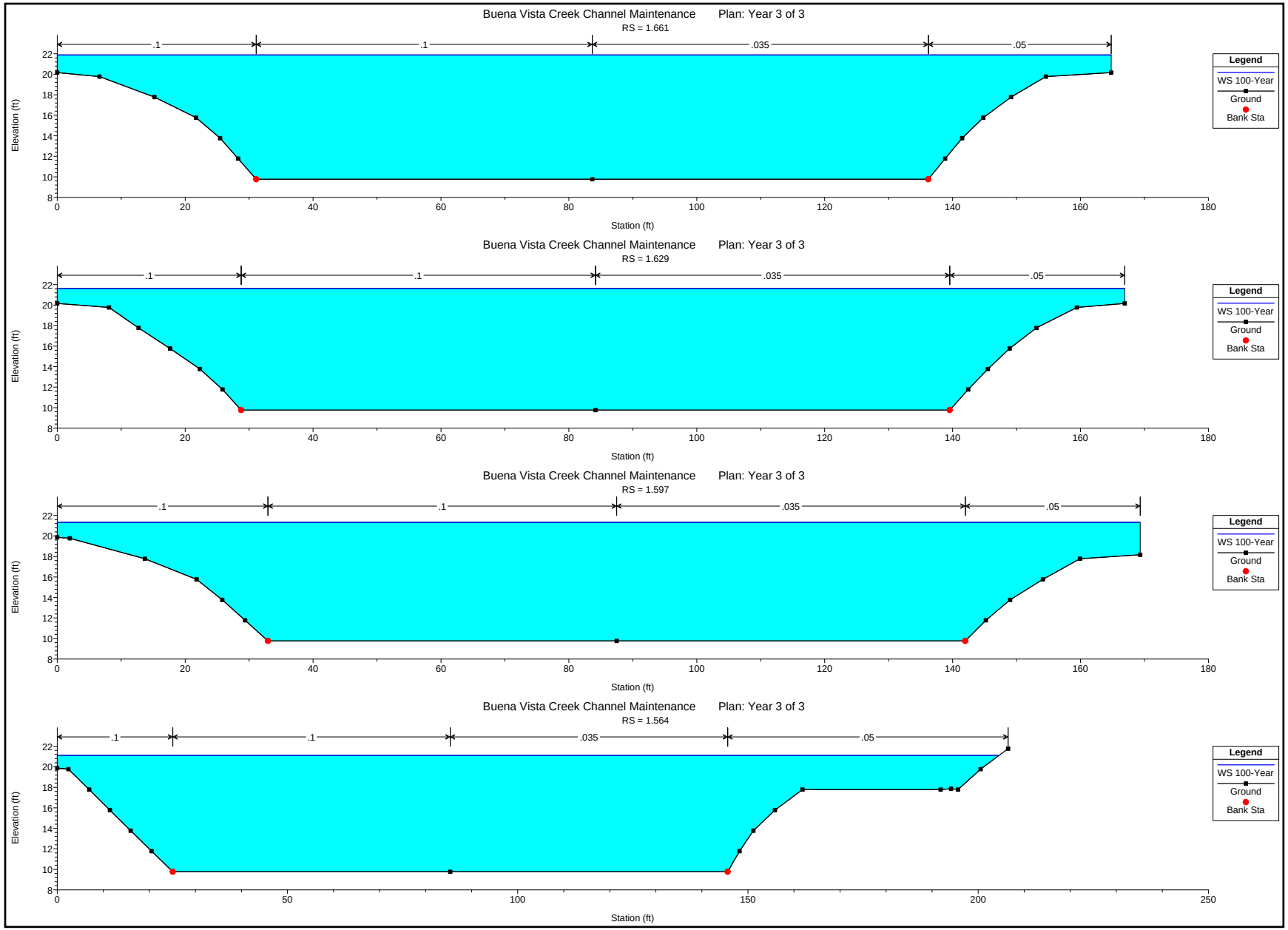
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.629
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.597
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Elevation (ft)
Station (ft)
Legend
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Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
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Legend
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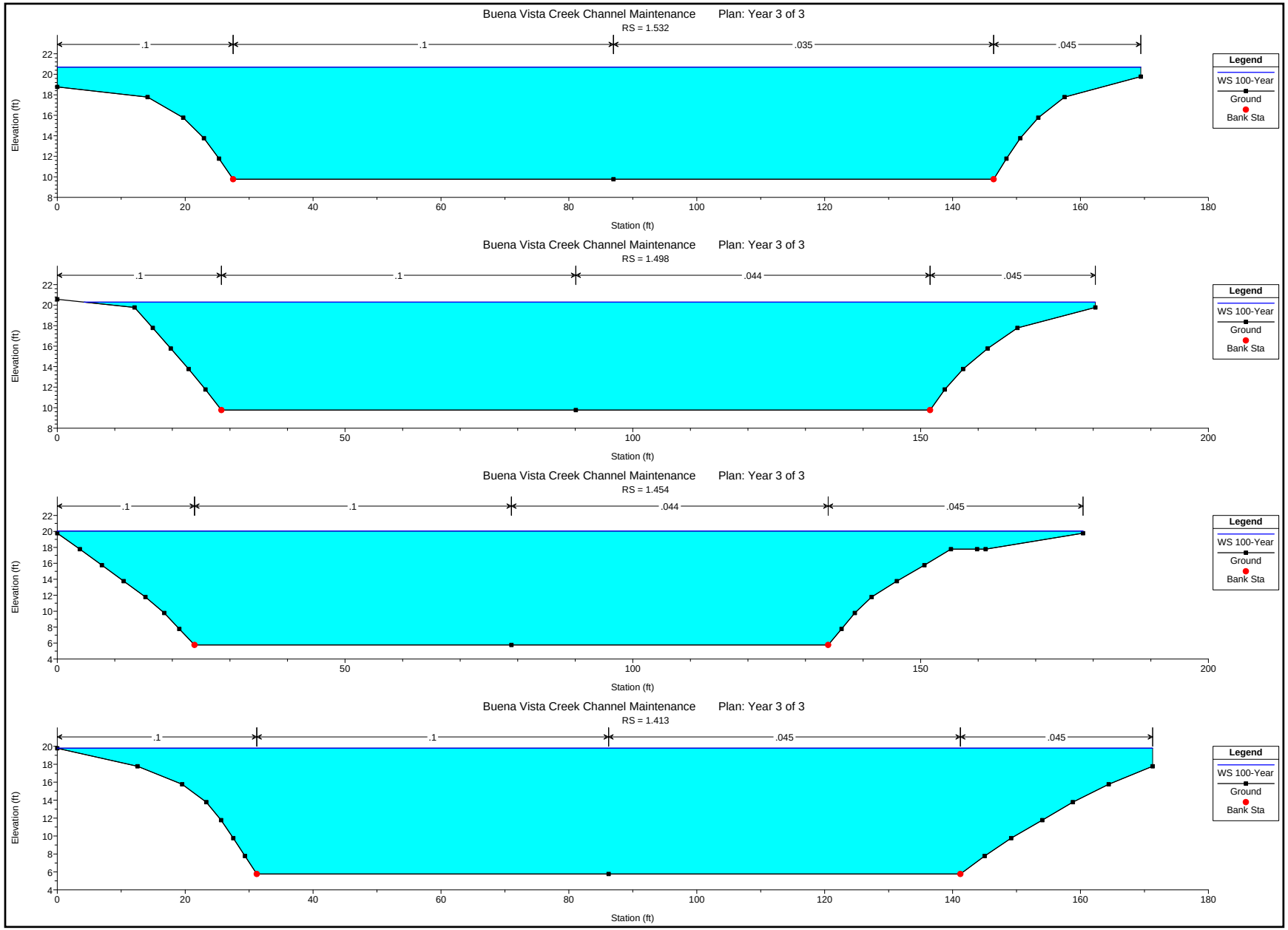
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Station (ft)
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Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
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Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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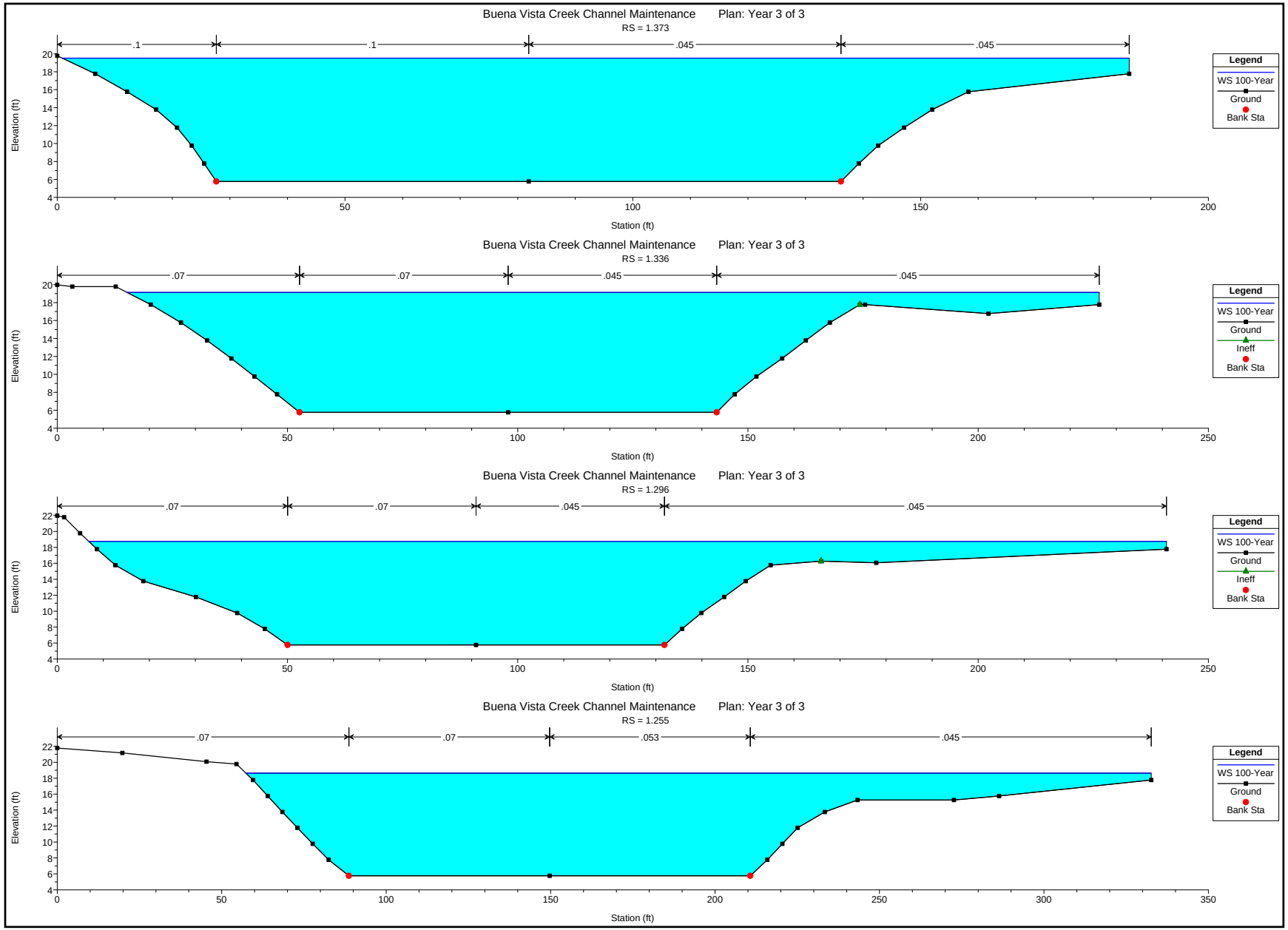
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Station (ft)
Legend
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
Legend
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
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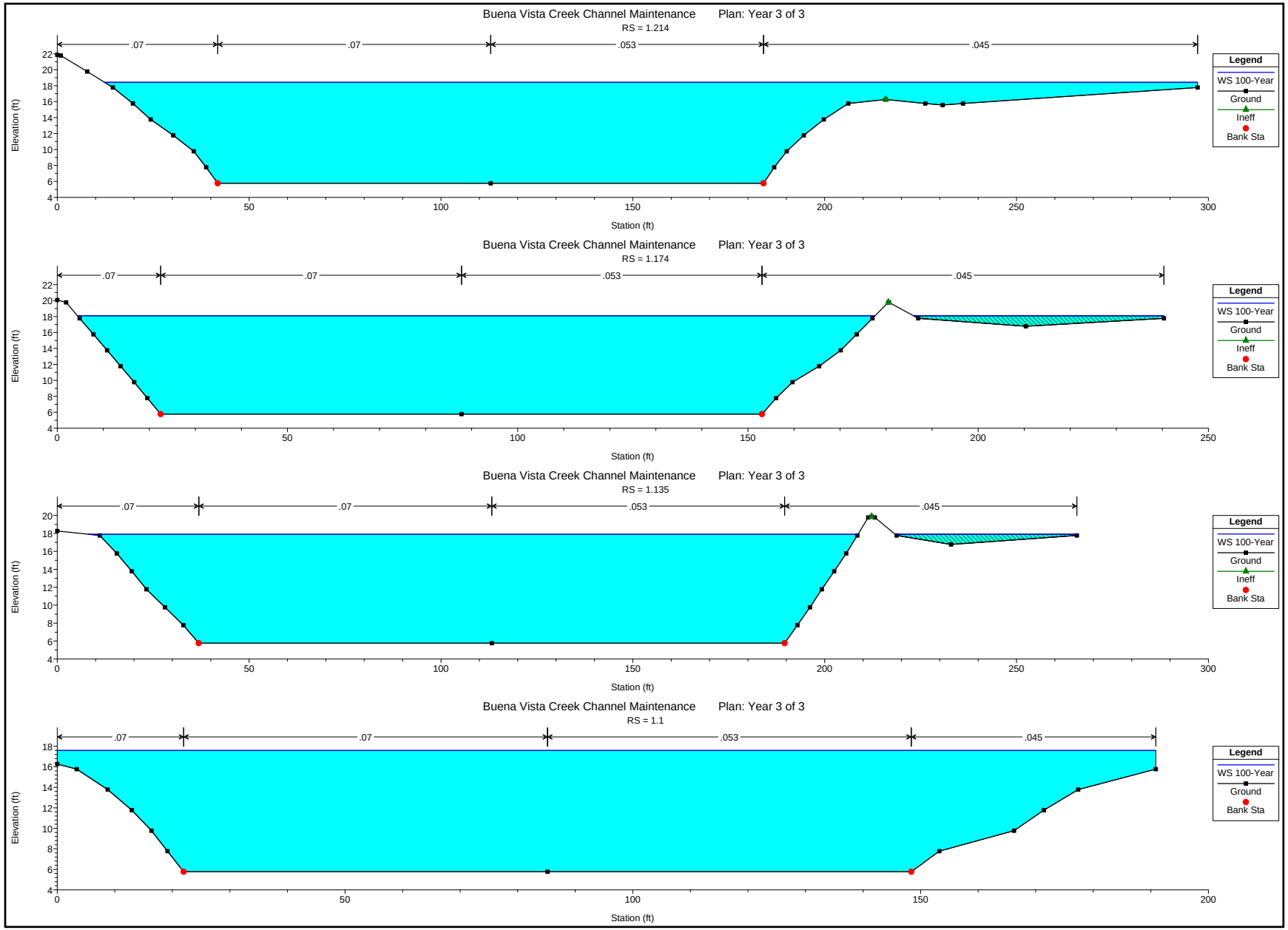
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.174
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.135
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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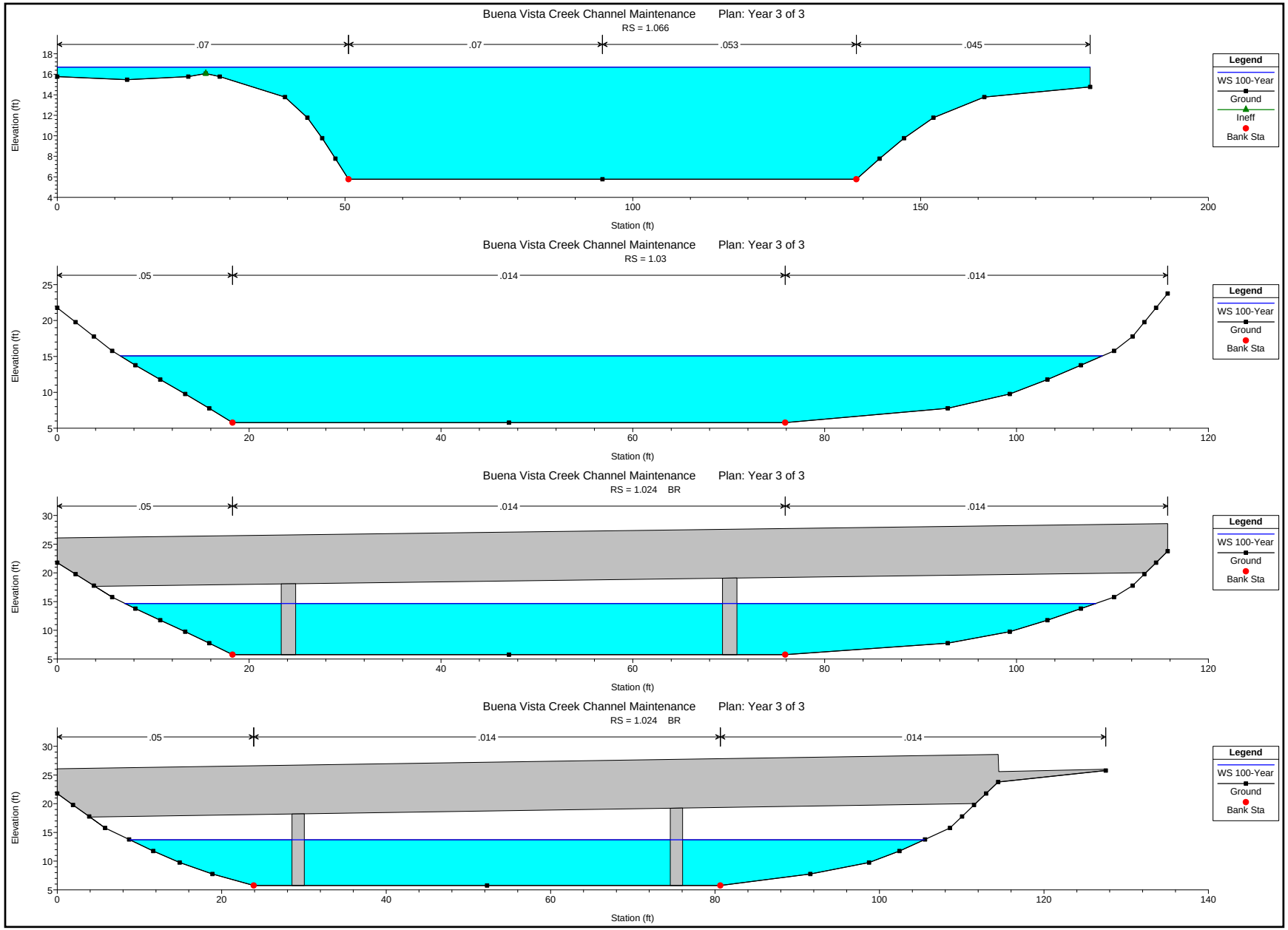
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.066
.07
.07
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
RS = 1.03
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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.014
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 3
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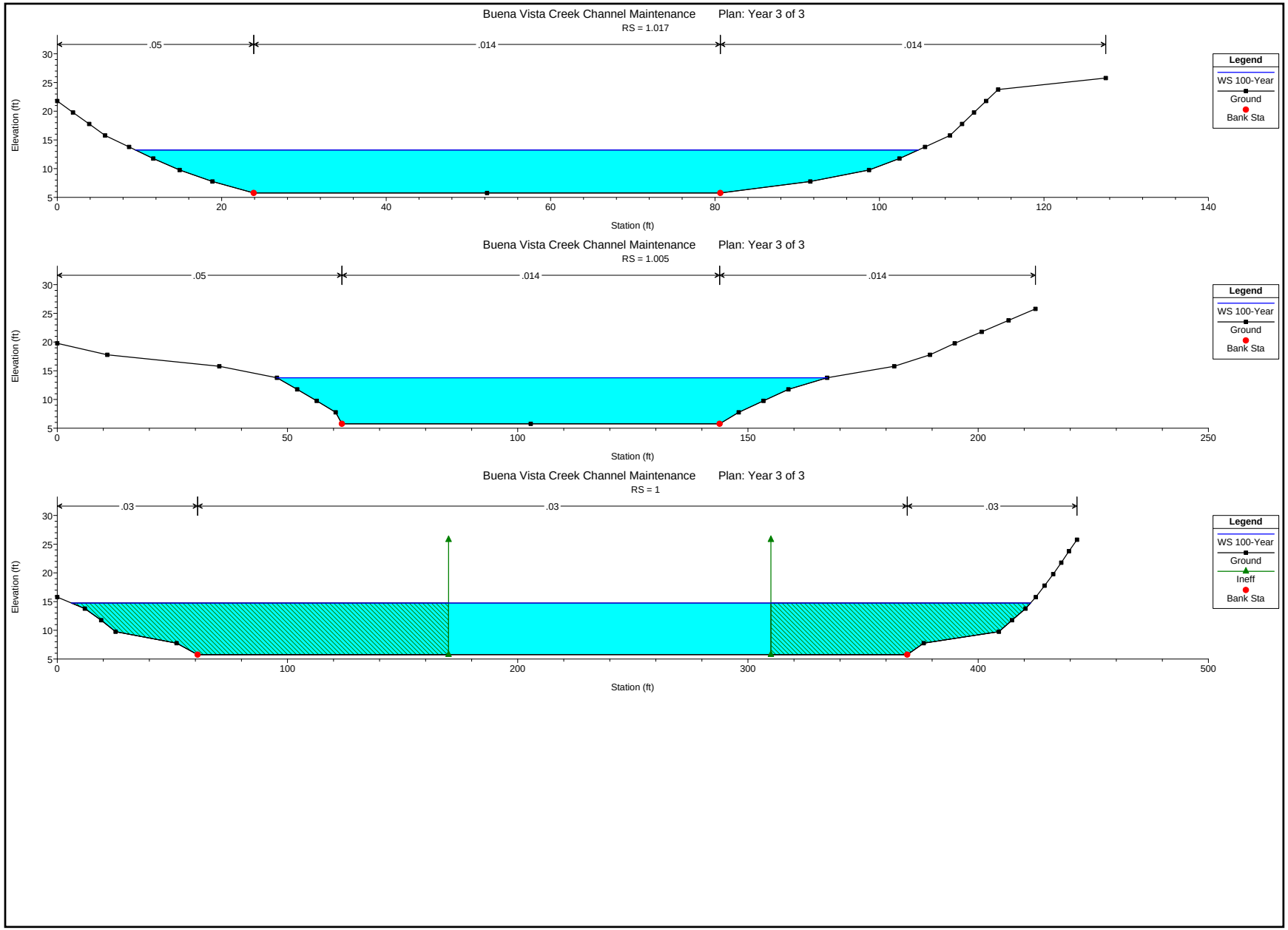
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Ground
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Station (ft)
Legend
WS 100-Year
Ground
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RS = 1
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

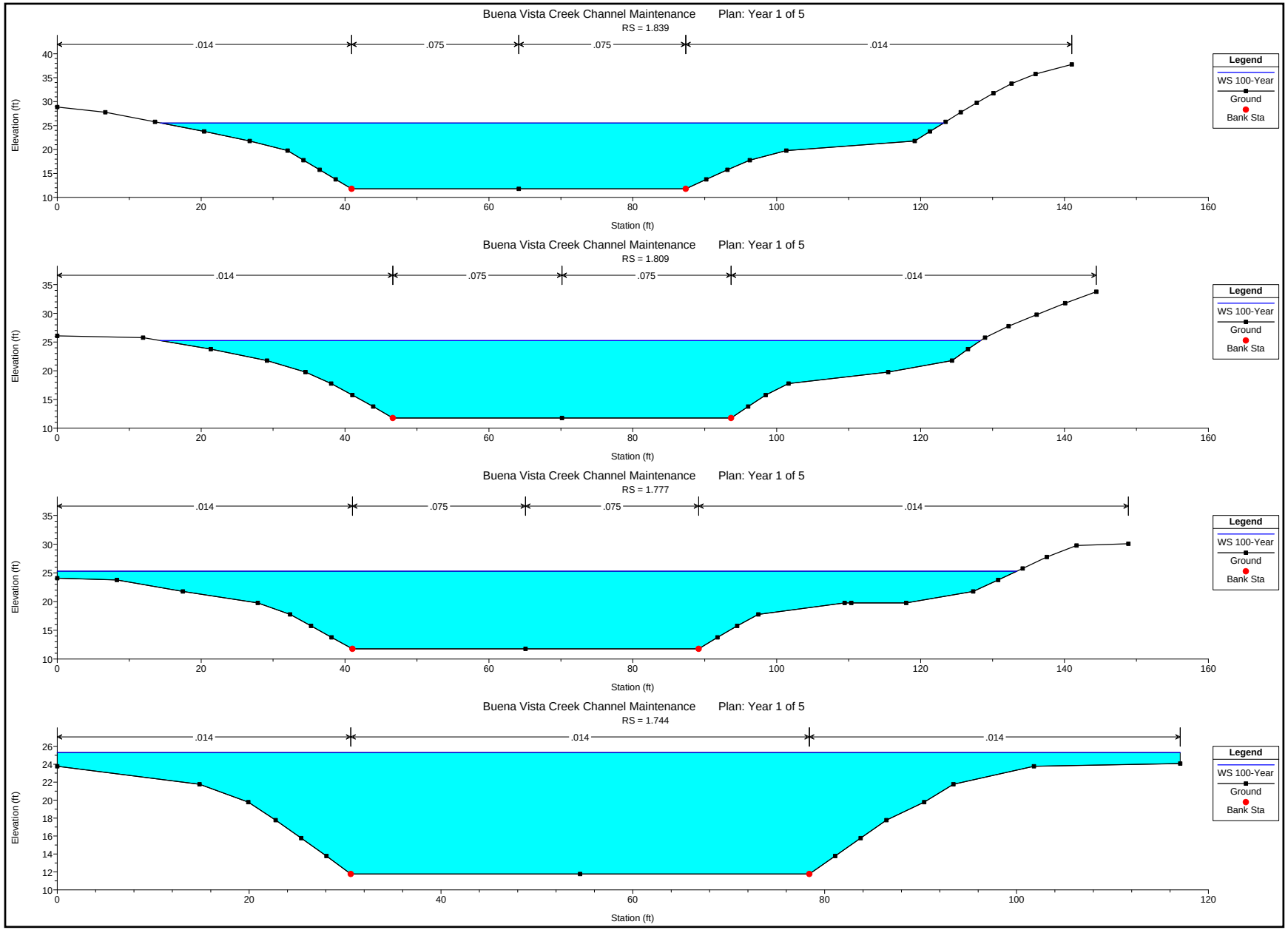
APPENDIX C

100-YEAR HEC-RAS ANALYSES
5-YEAR MAINTENANCE PLAN

YEAR 1 OF 5

HEC-RAS Plan: Year 1 of 5 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.57	12.19	17.46	0.002585	7.91	1246.22	179.45	0.42
Reach-1	1.1	100-Year	8500.00	5.77	17.41		17.77	0.000956	5.06	1847.88	190.87	0.26
Reach-1	1.135	100-Year	8500.00	5.77	17.65	10.30	17.93	0.000698	4.38	2080.51	238.21	0.22
Reach-1	1.174	100-Year	8500.00	5.77	17.83	10.78	18.18	0.001892	4.85	1825.16	225.86	0.25
Reach-1	1.214	100-Year	8500.00	5.77	18.26	10.51	18.52	0.001354	4.21	2248.62	284.34	0.21
Reach-1	1.255	100-Year	8500.00	5.77	18.56		18.81	0.001393	4.33	2219.94	275.07	0.21
Reach-1	1.296	100-Year	8500.00	5.77	18.83	12.38	19.27	0.002472	5.85	1724.89	234.21	0.29
Reach-1	1.336	100-Year	8500.00	5.77	19.34	11.98	19.74	0.002030	5.44	1796.50	211.98	0.26
Reach-1	1.373	100-Year	8500.00	5.77	19.91		20.22	0.002697	4.51	1960.66	186.25	0.21
Reach-1	1.413	100-Year	8500.00	5.77	20.44		20.74	0.002349	4.32	2005.68	171.29	0.20
Reach-1	1.454	100-Year	8500.00	5.77	20.97		21.24	0.002198	4.27	2087.85	178.22	0.19
Reach-1	1.498	100-Year	8500.00	9.77	21.58		21.97	0.004398	5.11	1720.68	180.35	0.26
Reach-1	1.532	100-Year	8500.00	9.77	22.35		22.72	0.003806	4.96	1787.97	169.43	0.25
Reach-1	1.564	100-Year	8500.00	9.77	22.98		23.24	0.002394	4.06	2133.40	206.50	0.20
Reach-1	1.597	100-Year	8500.00	9.77	23.39		23.71	0.002863	4.53	1931.43	169.33	0.22
Reach-1	1.629	100-Year	8500.00	9.77	23.87		24.18	0.002670	4.48	1967.15	166.92	0.21
Reach-1	1.661	100-Year	8500.00	9.77	24.32		24.63	0.002599	4.51	1966.85	164.81	0.21
Reach-1	1.701	100-Year	8500.00	11.77	24.89		25.54	0.006543	6.69	1387.11	142.02	0.33
Reach-1	1.734	100-Year	8500.00	11.77	24.27		26.07	0.000410	11.57	891.42	119.08	0.58
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	25.29	21.15	26.80	0.000314	10.67	973.96	117.06	0.51
Reach-1	1.777	100-Year	8500.00	11.77	25.30		26.94	0.001489	4.34	1118.40	133.38	0.21
Reach-1	1.809	100-Year	8500.00	11.77	25.26		27.37	0.001955	4.96	1014.27	114.02	0.24
Reach-1	1.839	100-Year	8500.00	11.77	25.54		27.71	0.002093	5.21	996.70	108.84	0.25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Legend
WS 100-Year
Ground
Bank Sta
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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Station (ft)
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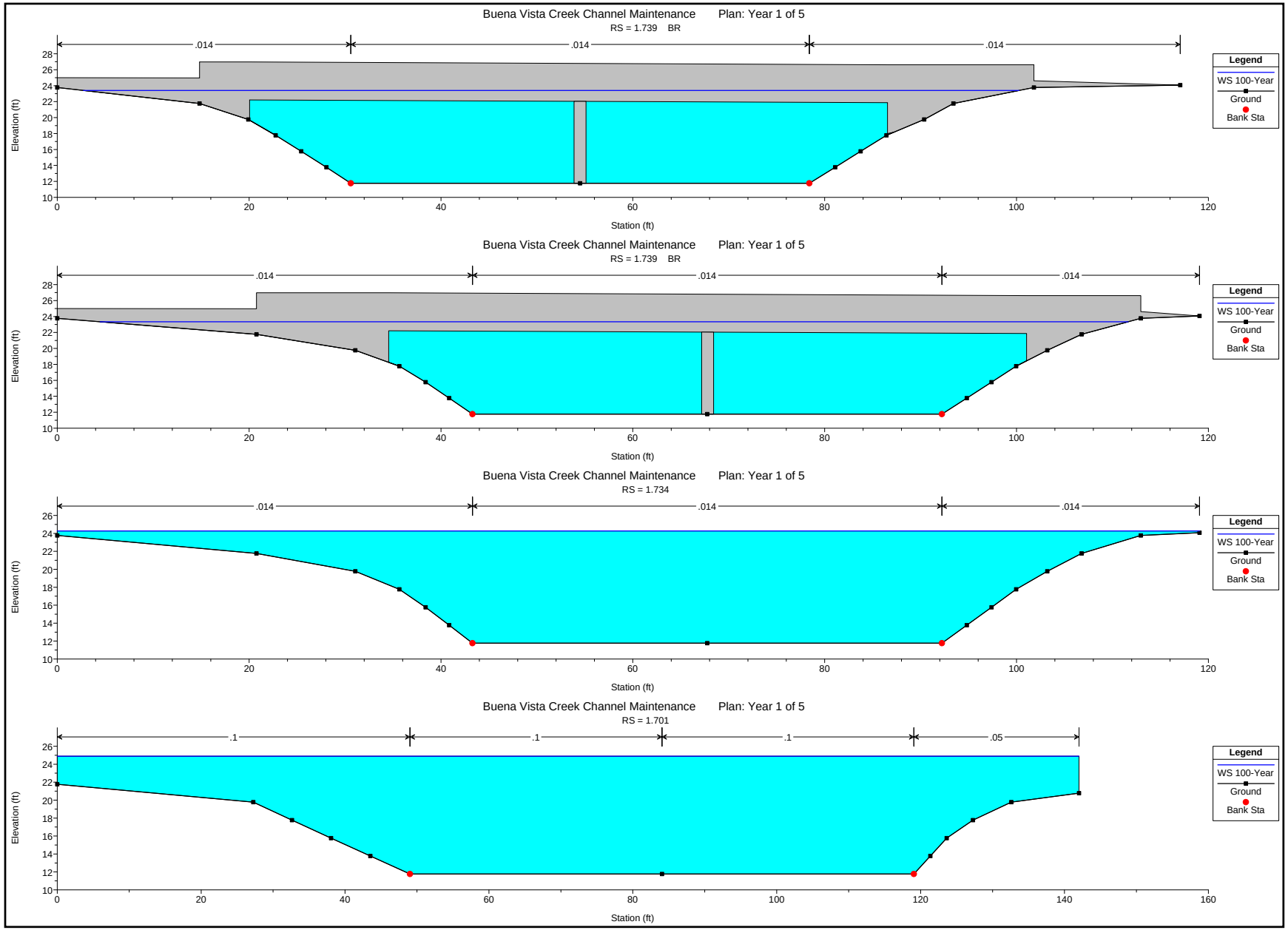
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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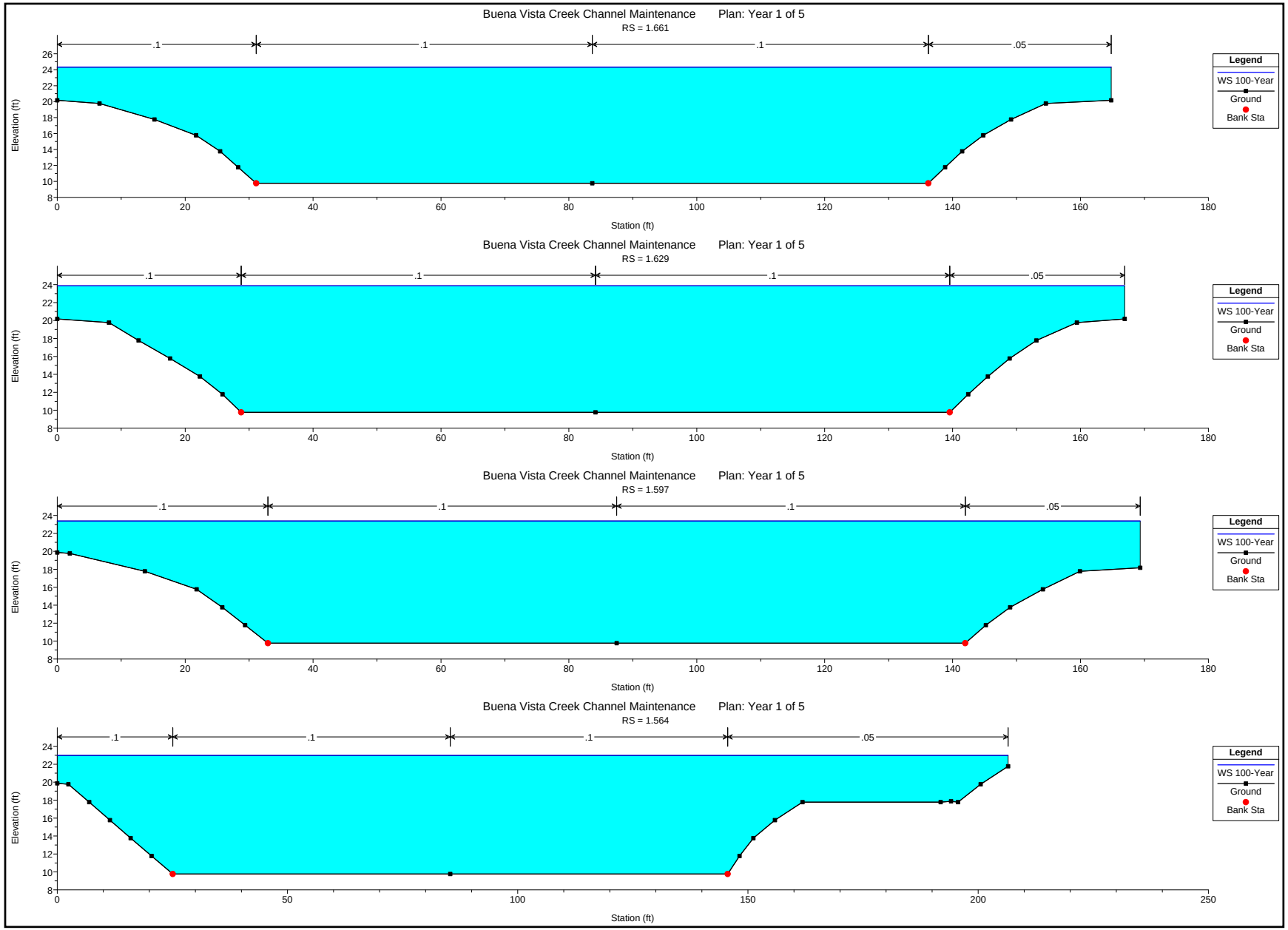
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.629
.1
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.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.597
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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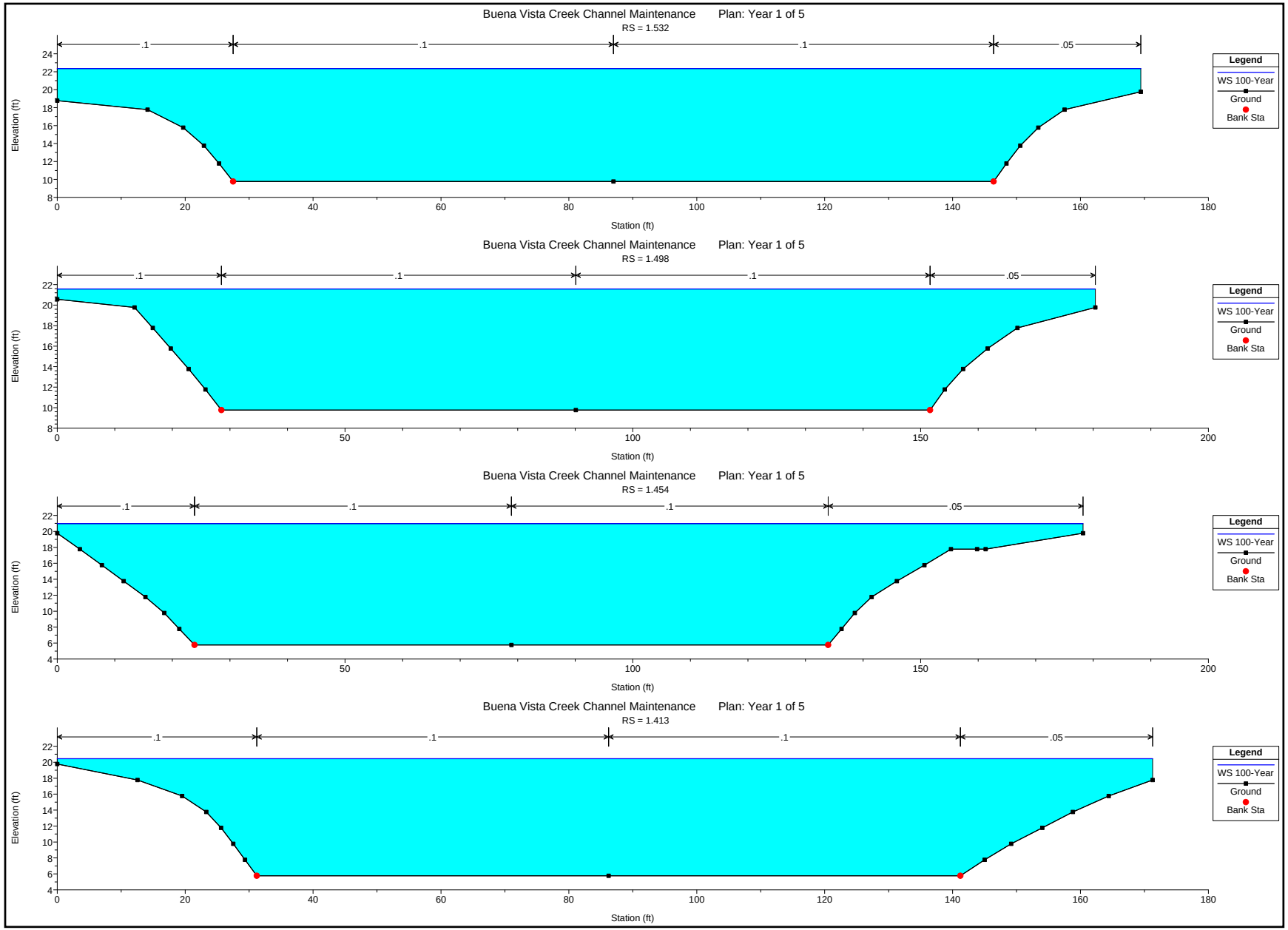
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.498
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.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.454
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.1
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.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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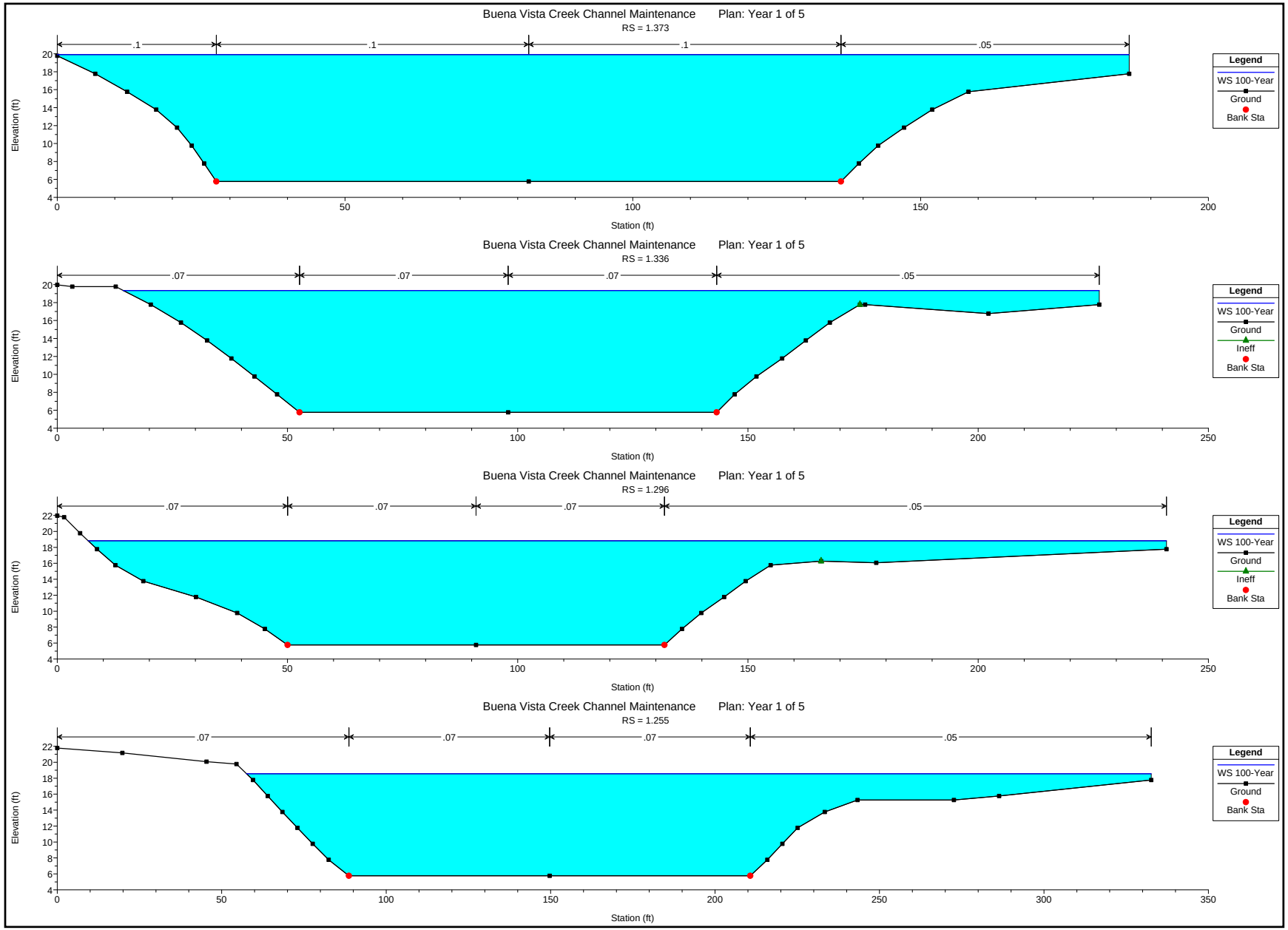
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.336
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.07
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.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.296
.07
.07
.07
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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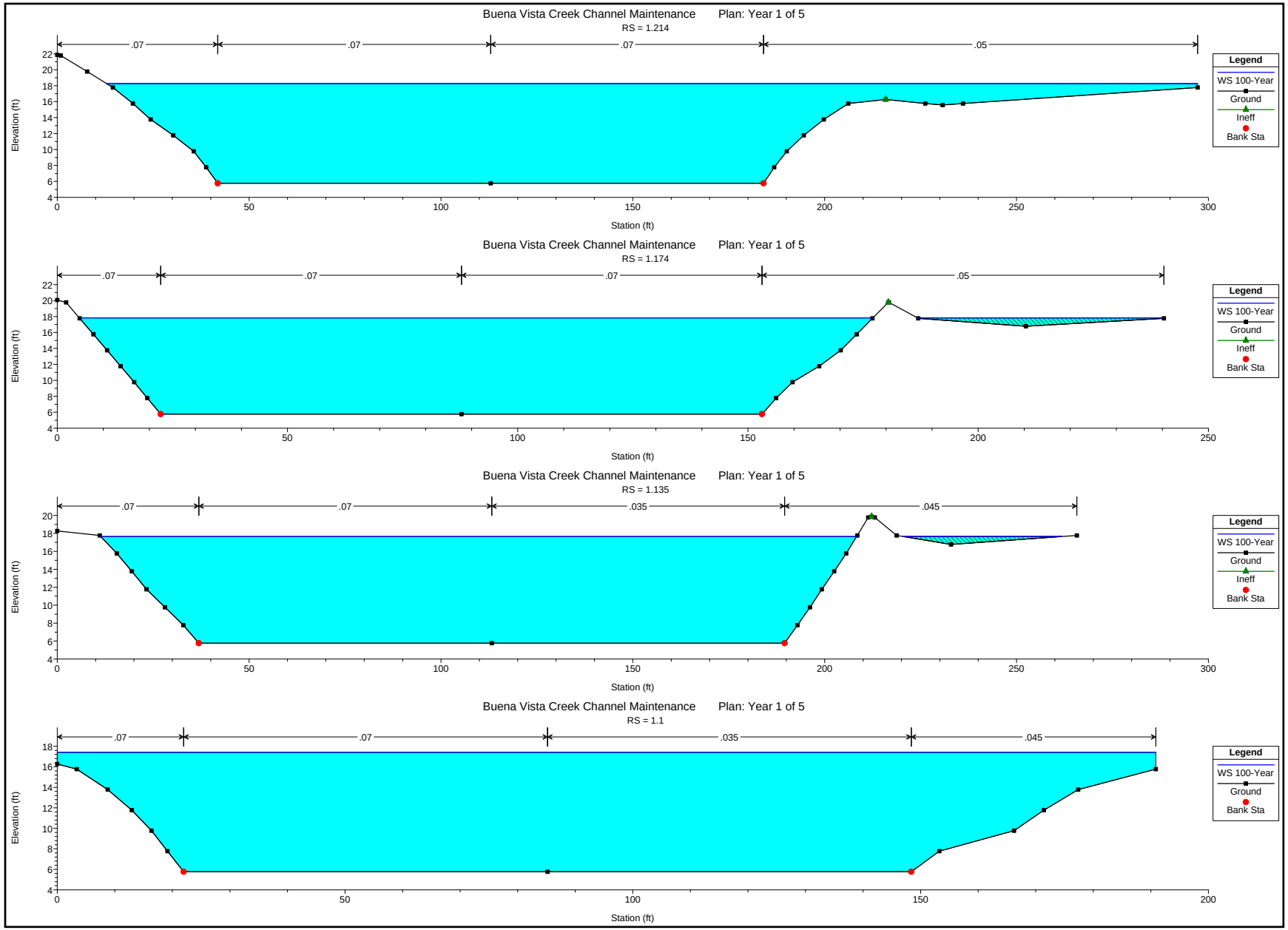
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Station (ft)
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WS 100-Year
Ground
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.174
.07
.07
.07
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1.135
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
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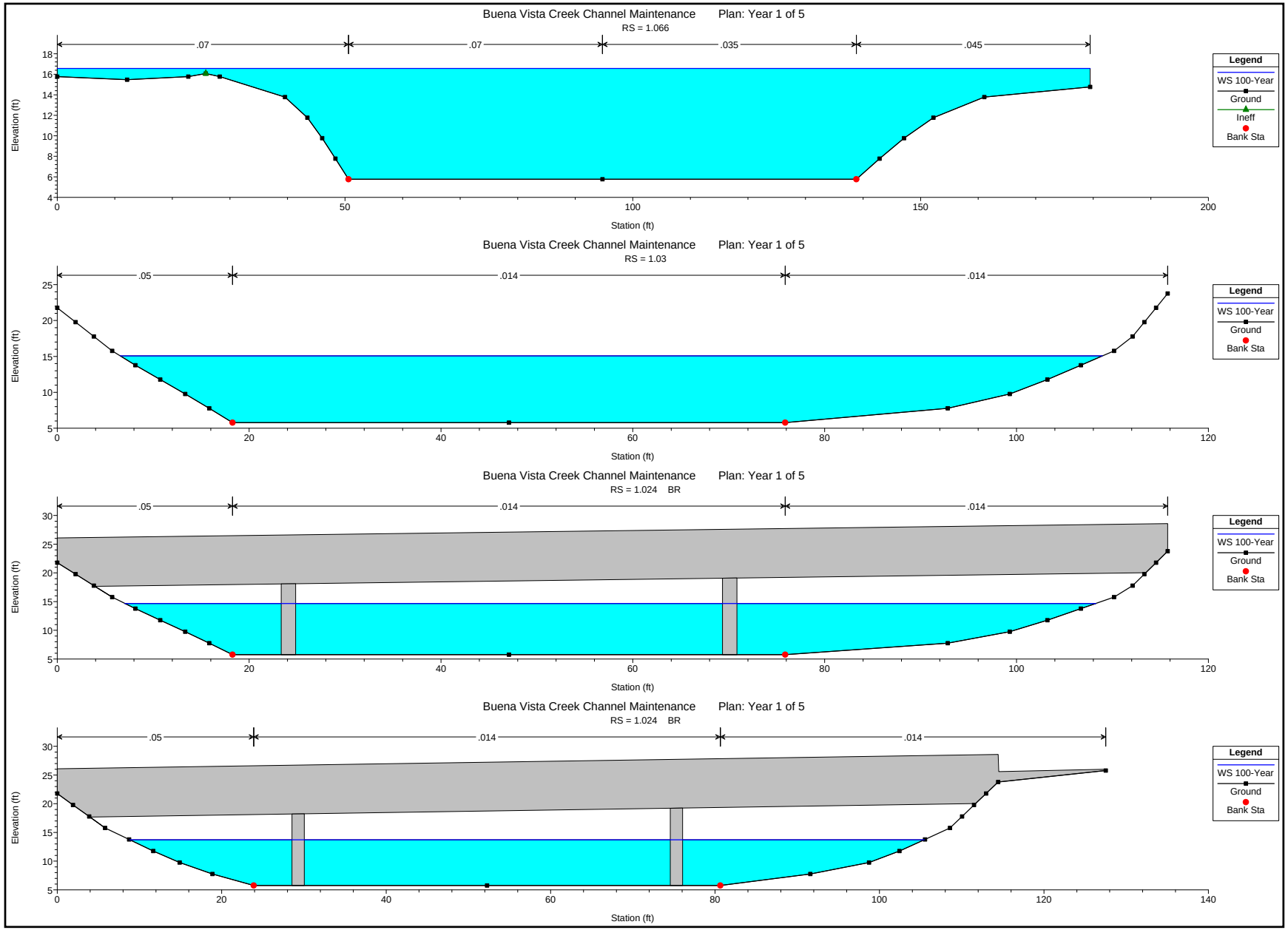
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Station (ft)
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Ground
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
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Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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Elevation (ft)
Station (ft)
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Ground
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Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
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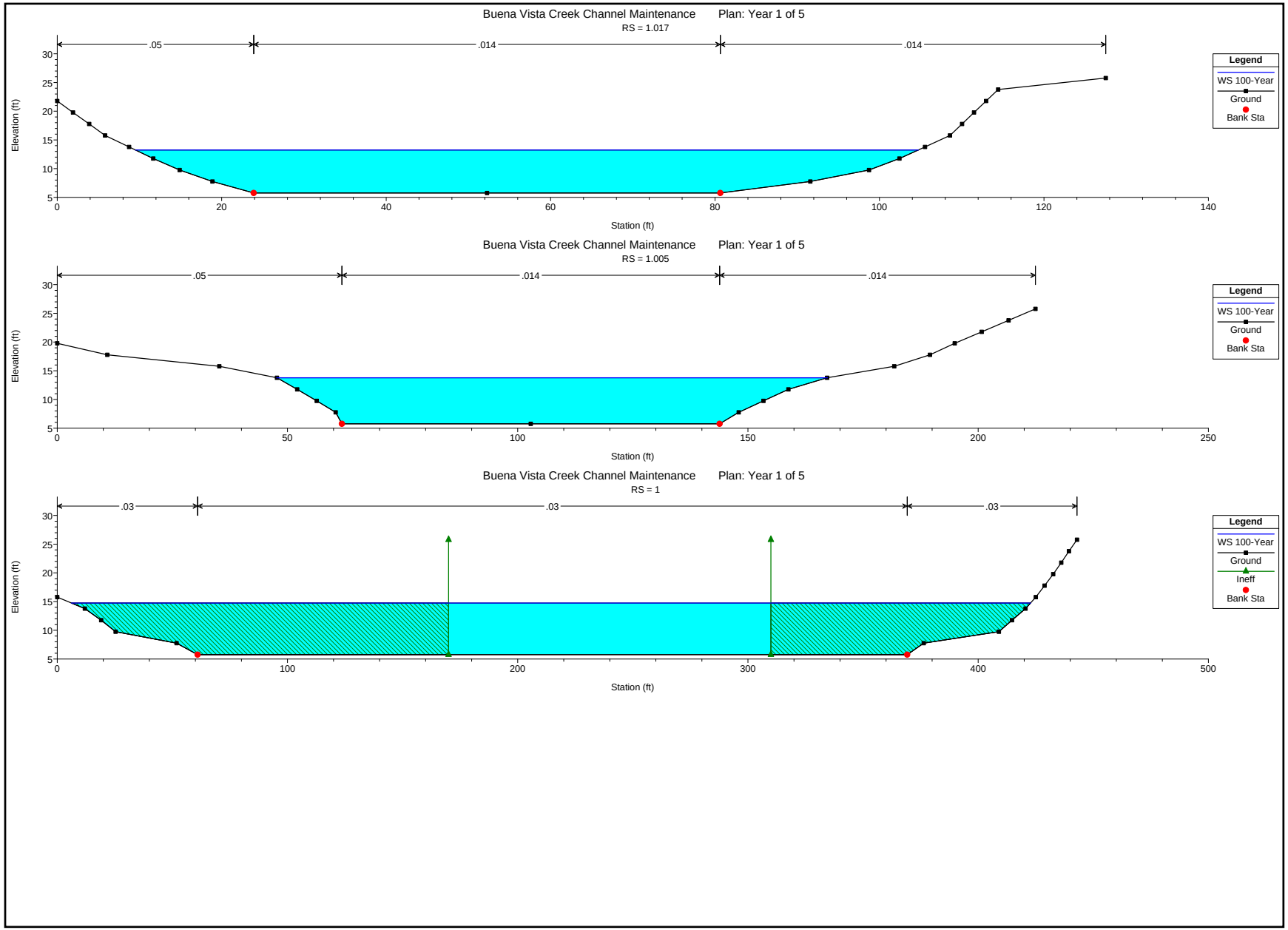
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Ground
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Station (ft)
Legend
WS 100-Year
Ground
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Buena Vista Creek Channel Maintenance Plan: Year 1 of 5
RS = 1
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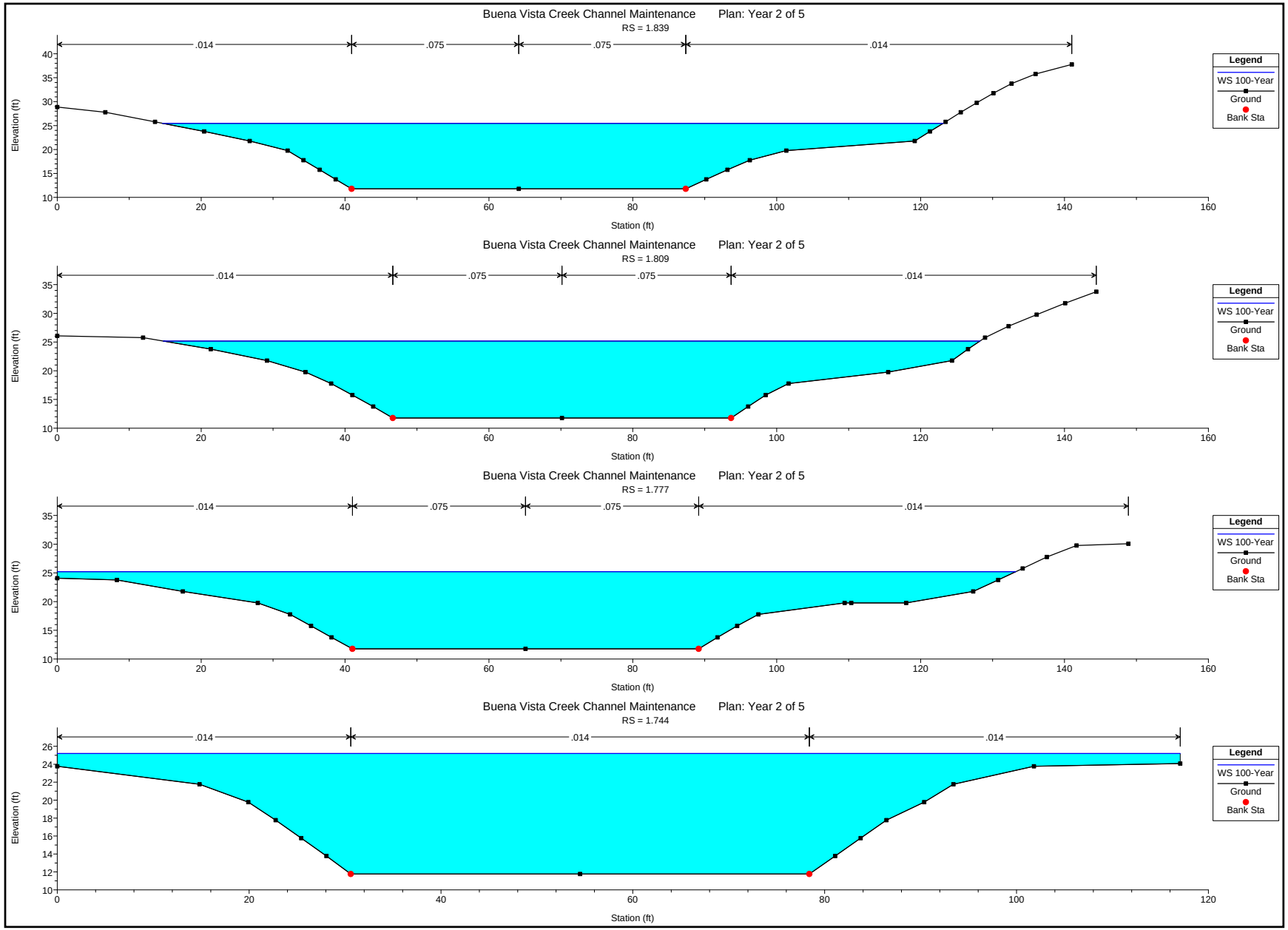
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 2 OF 5

HEC-RAS Plan: Year 2 of 5 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.65	12.17	17.48	0.003326	7.68	1260.15	179.45	0.41
Reach-1	1.1	100-Year	8500.00	5.77	17.52		17.87	0.001216	4.89	1869.88	190.87	0.25
Reach-1	1.135	100-Year	8500.00	5.77	17.80	10.29	18.07	0.000900	4.27	2110.04	245.12	0.22
Reach-1	1.174	100-Year	8500.00	5.77	17.92	10.80	18.28	0.000868	4.96	1840.83	226.44	0.25
Reach-1	1.214	100-Year	8500.00	5.77	18.17	10.53	18.44	0.000667	4.40	2220.38	284.01	0.22
Reach-1	1.255	100-Year	8500.00	5.77	18.30		18.61	0.000762	4.74	2148.77	274.42	0.24
Reach-1	1.296	100-Year	8500.00	5.77	18.32	12.46	18.93	0.001548	6.77	1607.36	233.29	0.34
Reach-1	1.336	100-Year	8500.00	5.77	18.89	11.98	19.34	0.002364	5.74	1701.65	210.28	0.28
Reach-1	1.373	100-Year	8500.00	5.77	19.55		19.88	0.003002	4.68	1894.61	185.54	0.22
Reach-1	1.413	100-Year	8500.00	5.77	20.14		20.46	0.002543	4.43	1954.71	171.29	0.21
Reach-1	1.454	100-Year	8500.00	5.77	20.71		21.00	0.002357	4.38	2042.21	178.22	0.20
Reach-1	1.498	100-Year	8500.00	9.77	21.37		21.78	0.004715	5.23	1682.87	180.35	0.27
Reach-1	1.532	100-Year	8500.00	9.77	22.19		22.57	0.003991	5.03	1761.19	169.43	0.25
Reach-1	1.564	100-Year	8500.00	9.77	22.85		23.11	0.002495	4.12	2106.59	206.50	0.20
Reach-1	1.597	100-Year	8500.00	9.77	23.27		23.60	0.002955	4.58	1912.30	169.33	0.22
Reach-1	1.629	100-Year	8500.00	9.77	23.78		24.09	0.002741	4.52	1950.84	166.92	0.21
Reach-1	1.661	100-Year	8500.00	9.77	24.23		24.55	0.002659	4.55	1952.65	164.81	0.21
Reach-1	1.701	100-Year	8500.00	11.77	24.82		25.48	0.006691	6.74	1377.00	142.02	0.33
Reach-1	1.734	100-Year	8500.00	11.77	24.18		26.03	0.000423	11.71	880.61	119.08	0.59
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	25.19	21.15	26.74	0.000324	10.79	962.16	117.06	0.52
Reach-1	1.777	100-Year	8500.00	11.77	25.20		26.89	0.001556	4.42	1105.62	133.22	0.21
Reach-1	1.809	100-Year	8500.00	11.77	25.17		27.33	0.002024	5.03	1004.24	113.50	0.24
Reach-1	1.839	100-Year	8500.00	11.77	25.47		27.68	0.002153	5.26	988.83	108.51	0.25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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.777
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
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Elevation (ft)
Station (ft)
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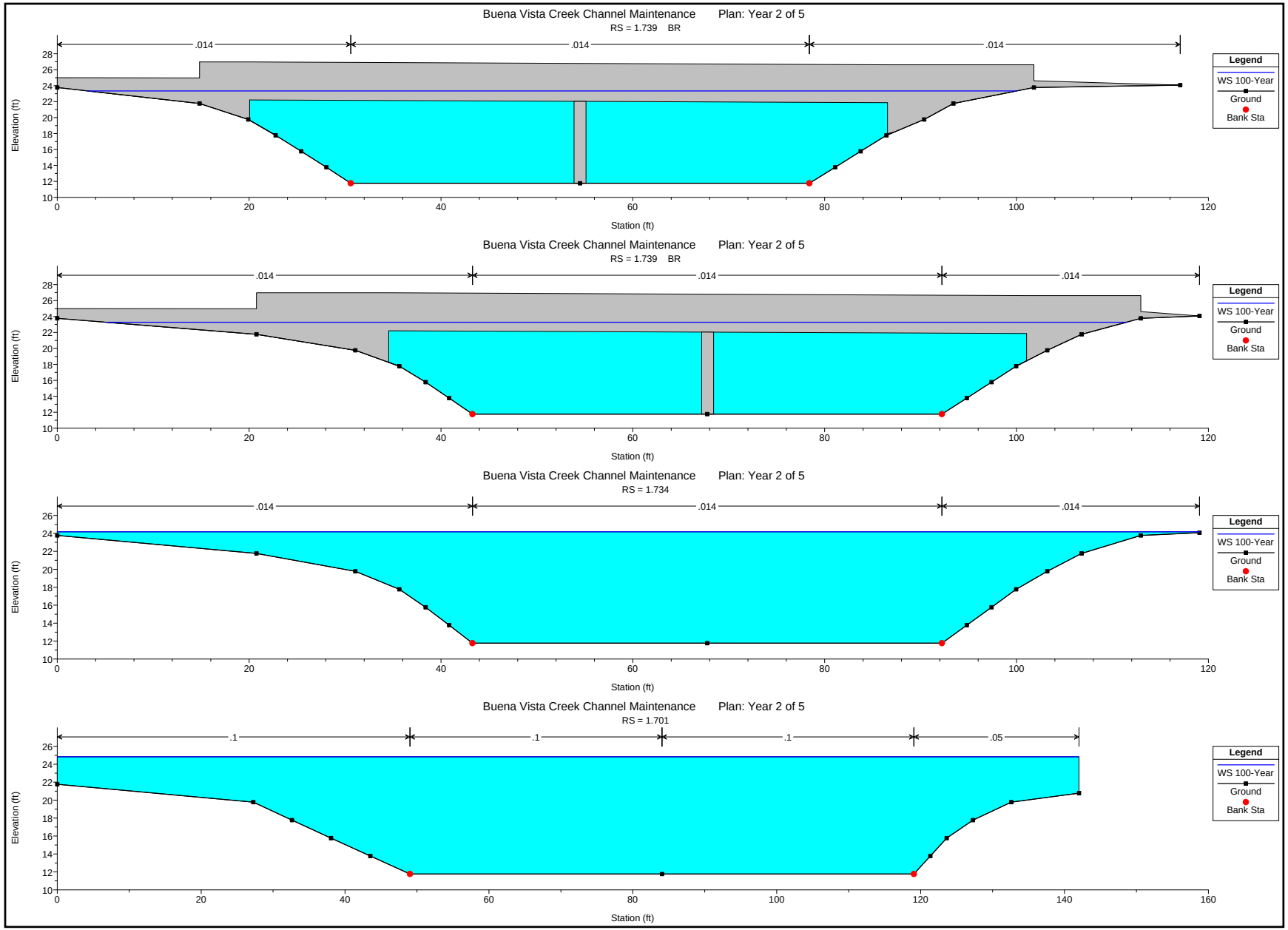
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Elevation (ft)
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Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.739 BR
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
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Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
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Elevation (ft)
Station (ft)
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WS 100-Year
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Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
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Legend
WS 100-Year
Ground
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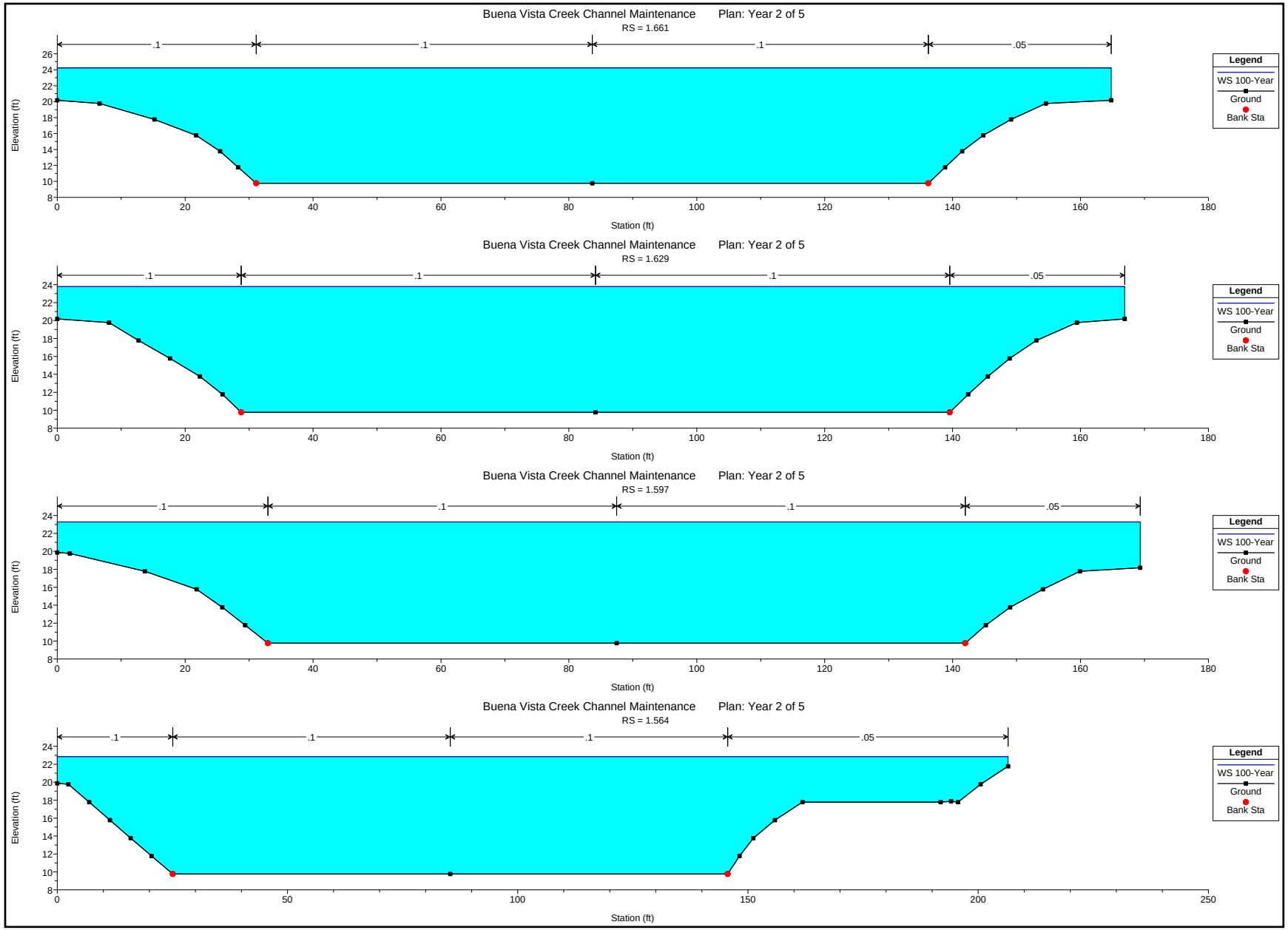
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.629
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.597
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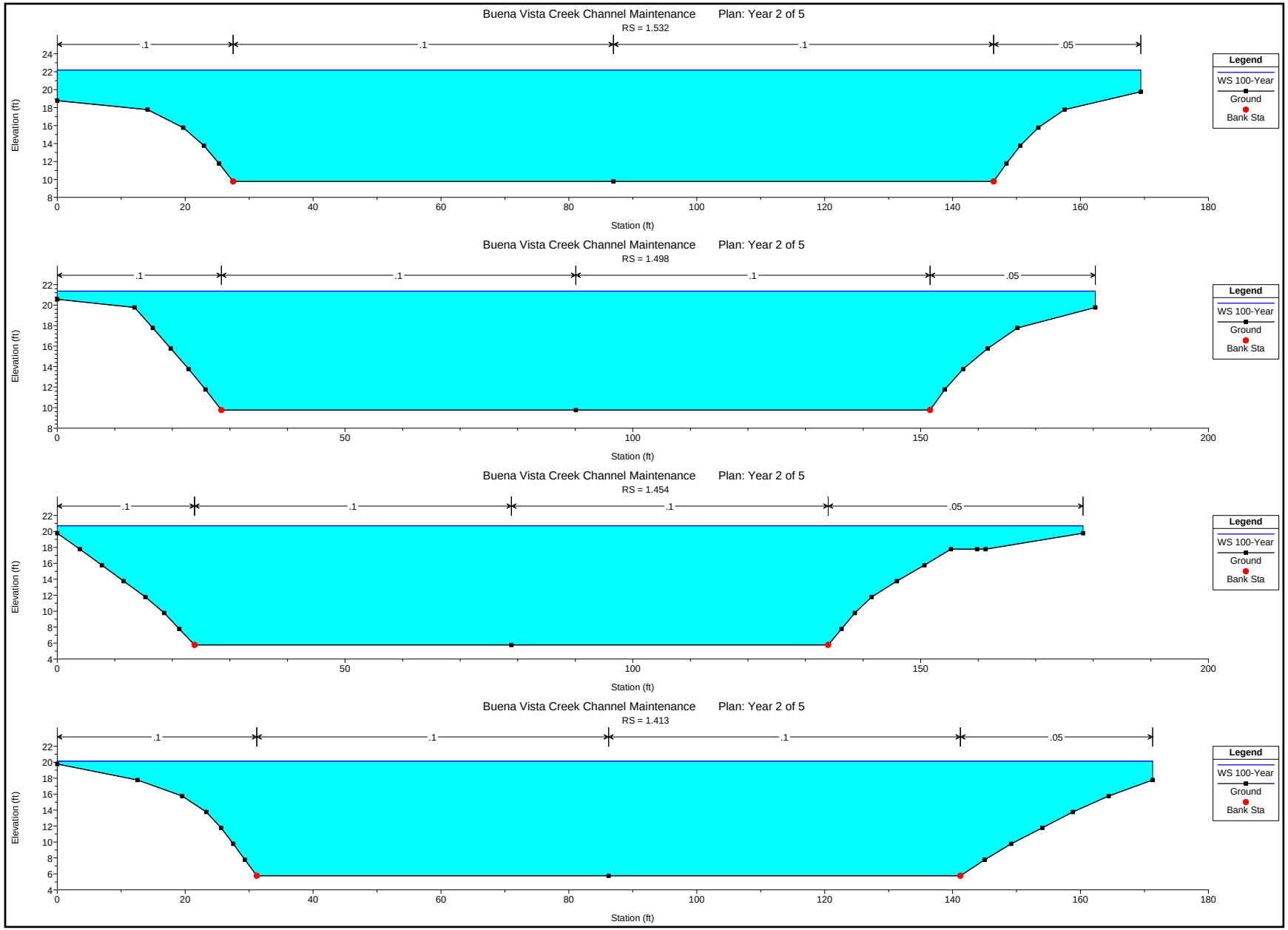
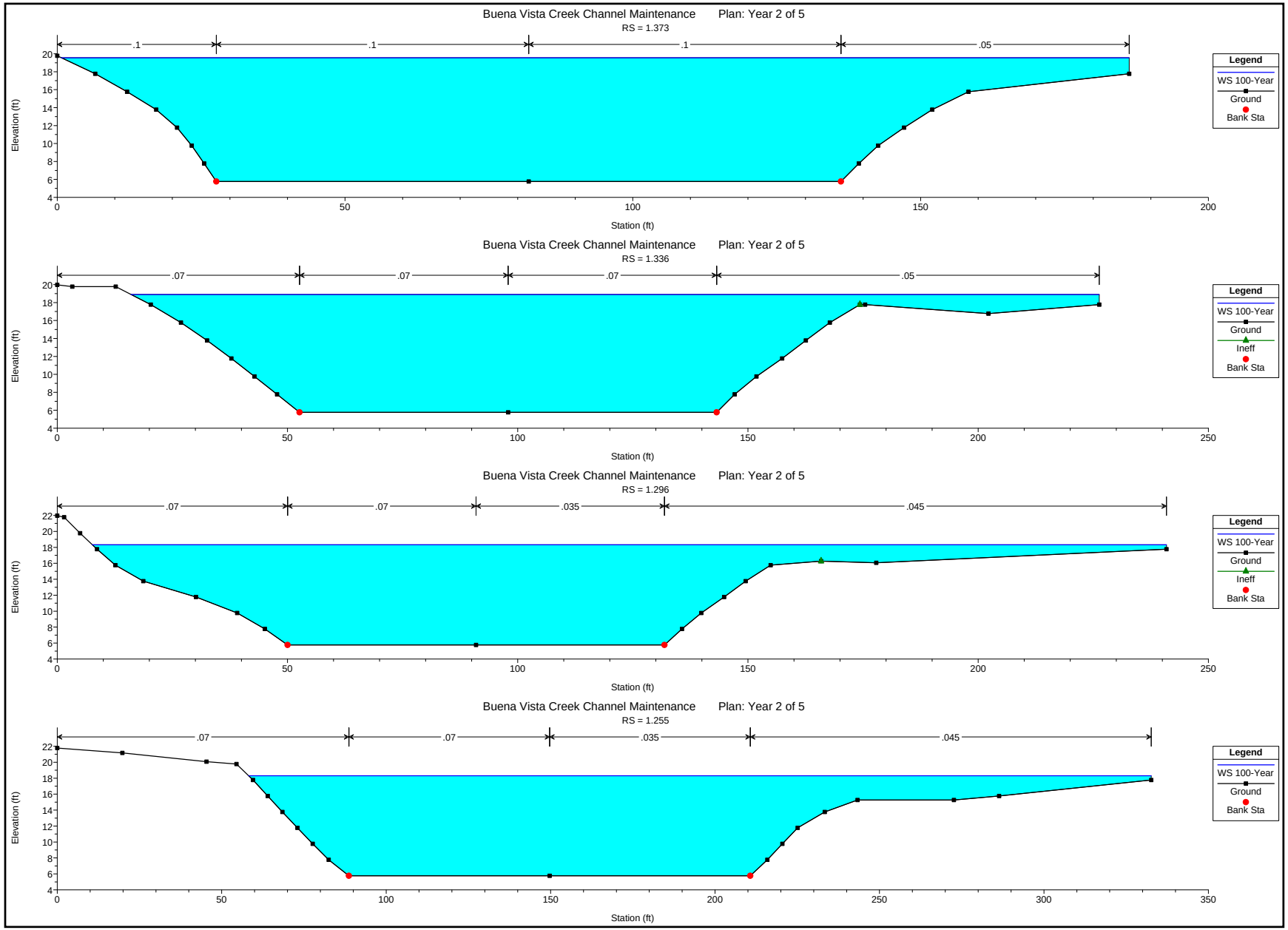
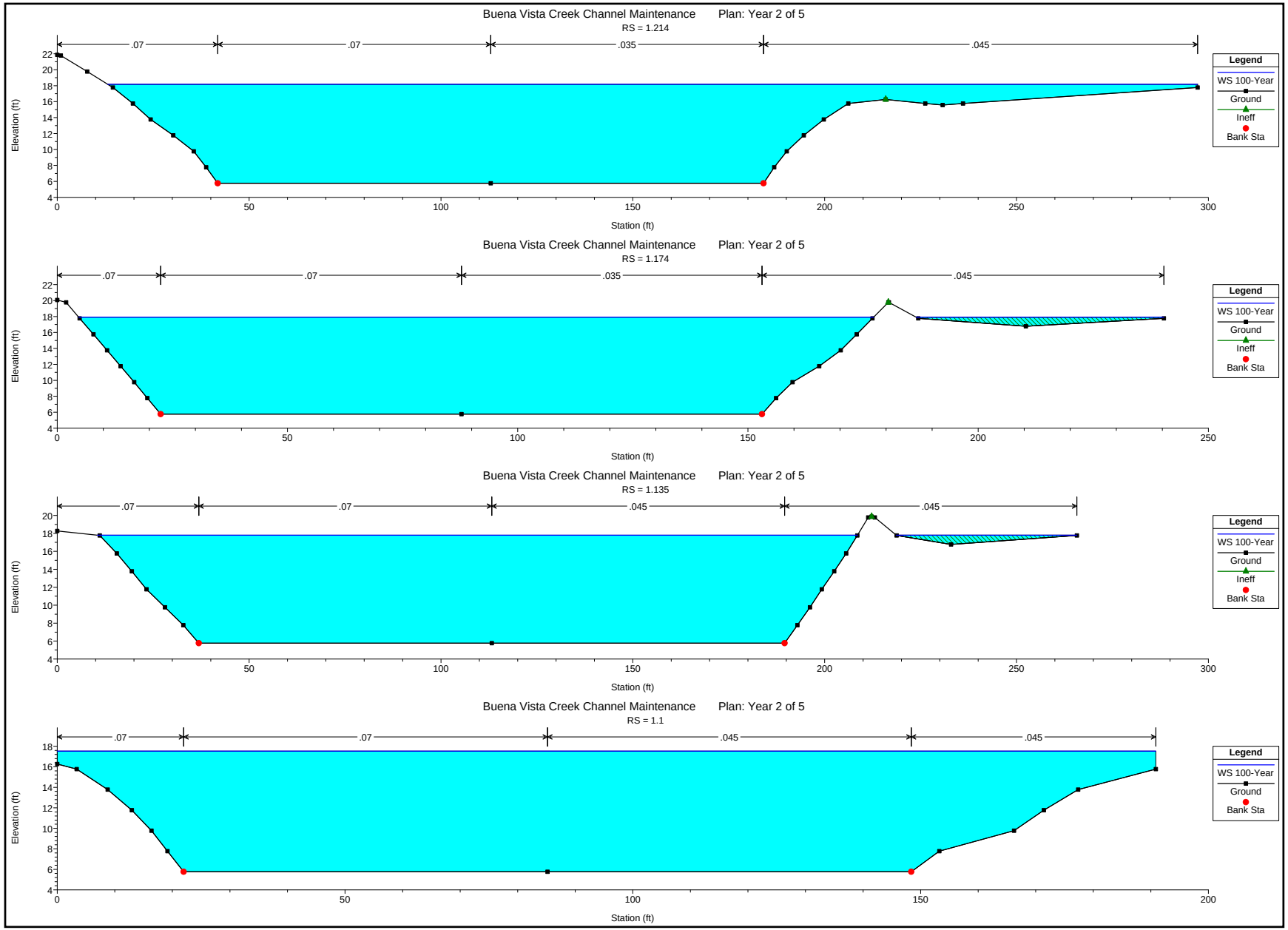
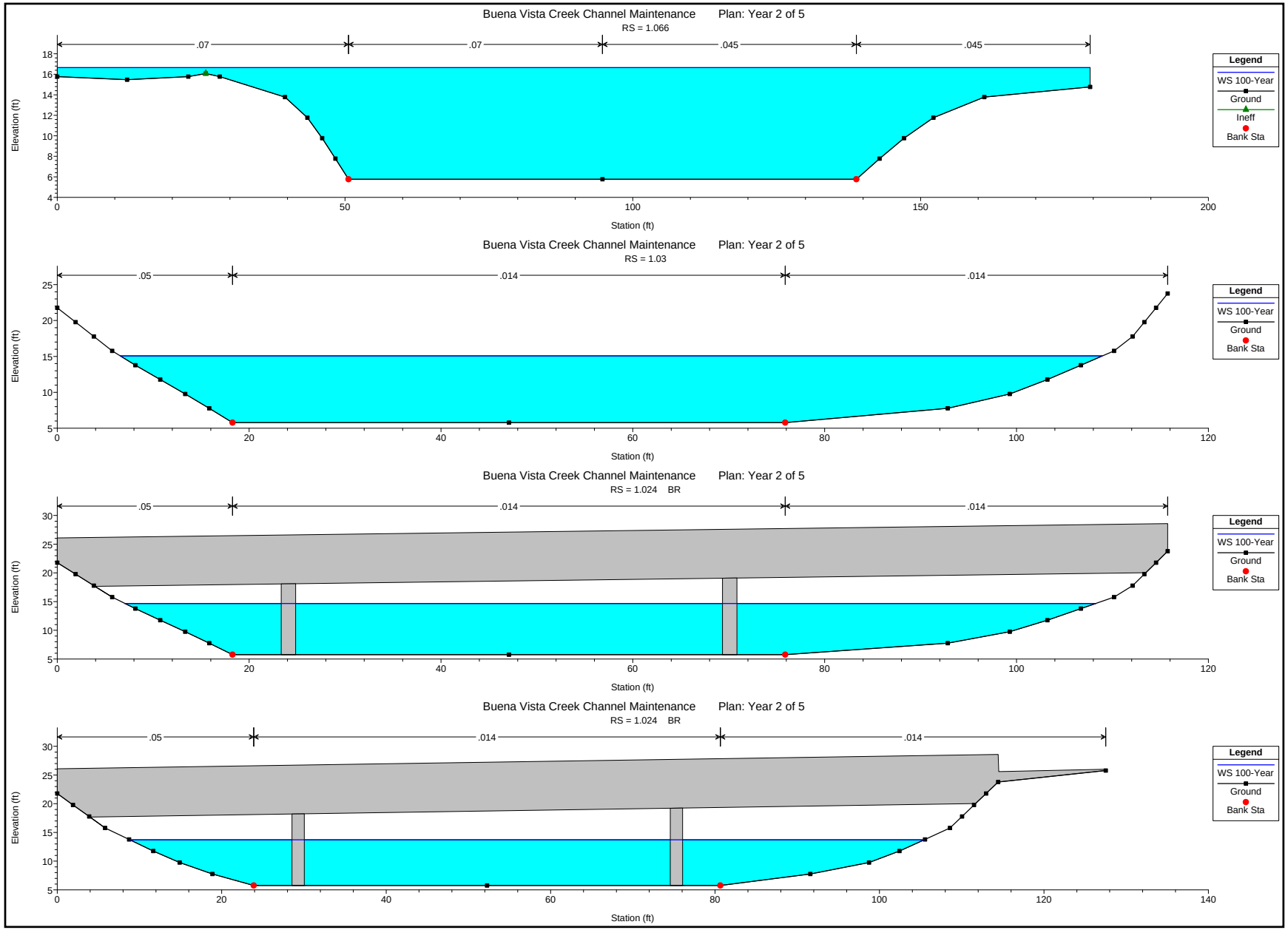
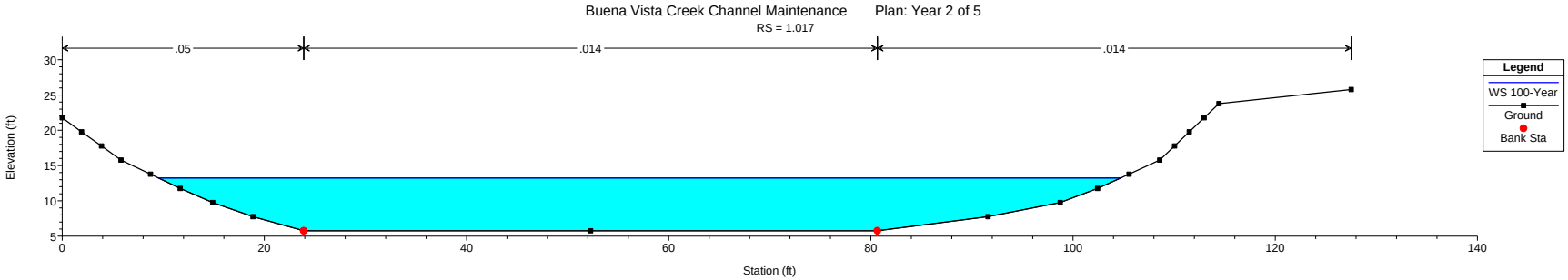
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.564
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta

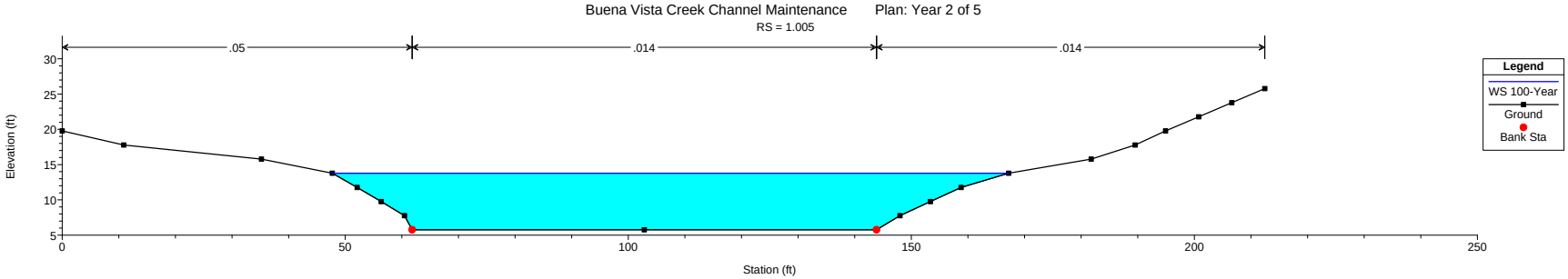

Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.532
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.498
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.454
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.413
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta

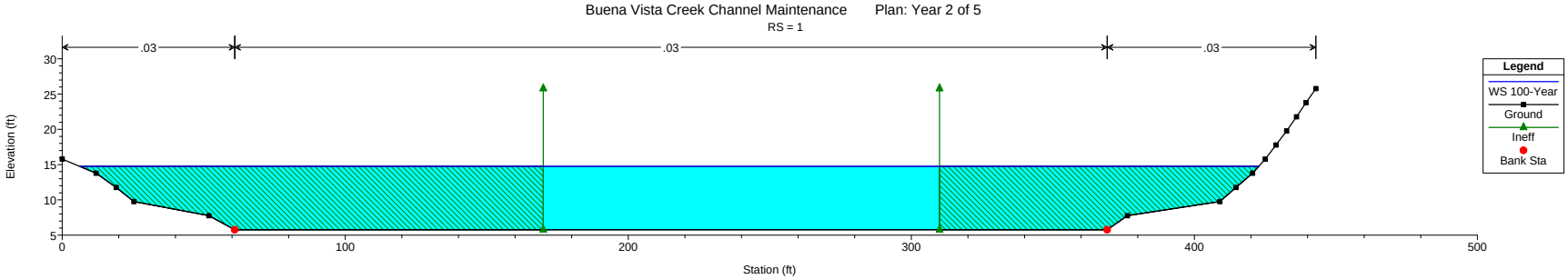

Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.373
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.336
.07
.07
.07
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.296
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.255
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.214
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.174
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.135
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.1
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.066
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.017
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta

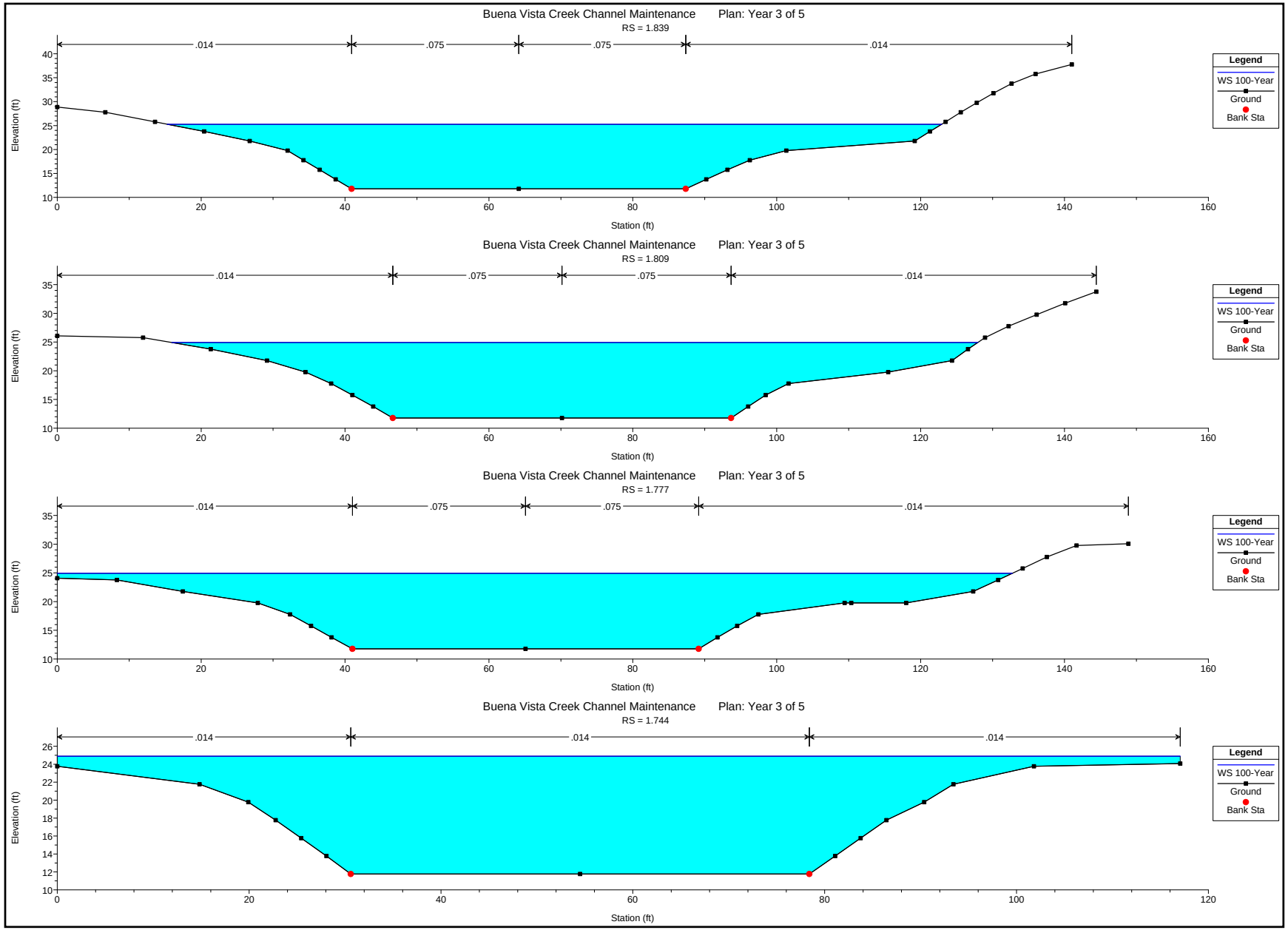

Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1.005
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta

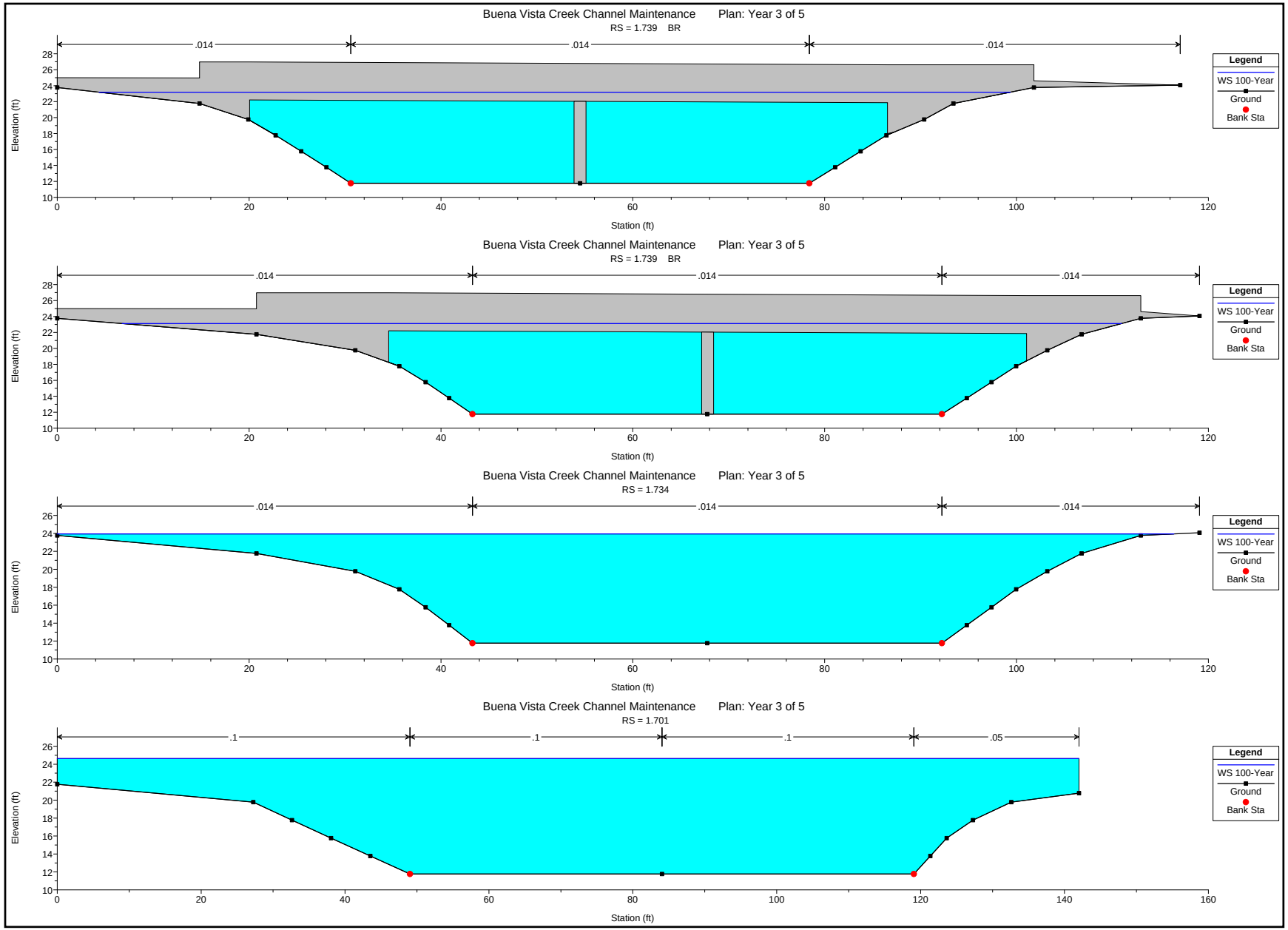

Buena Vista Creek Channel Maintenance Plan: Year 2 of 5
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

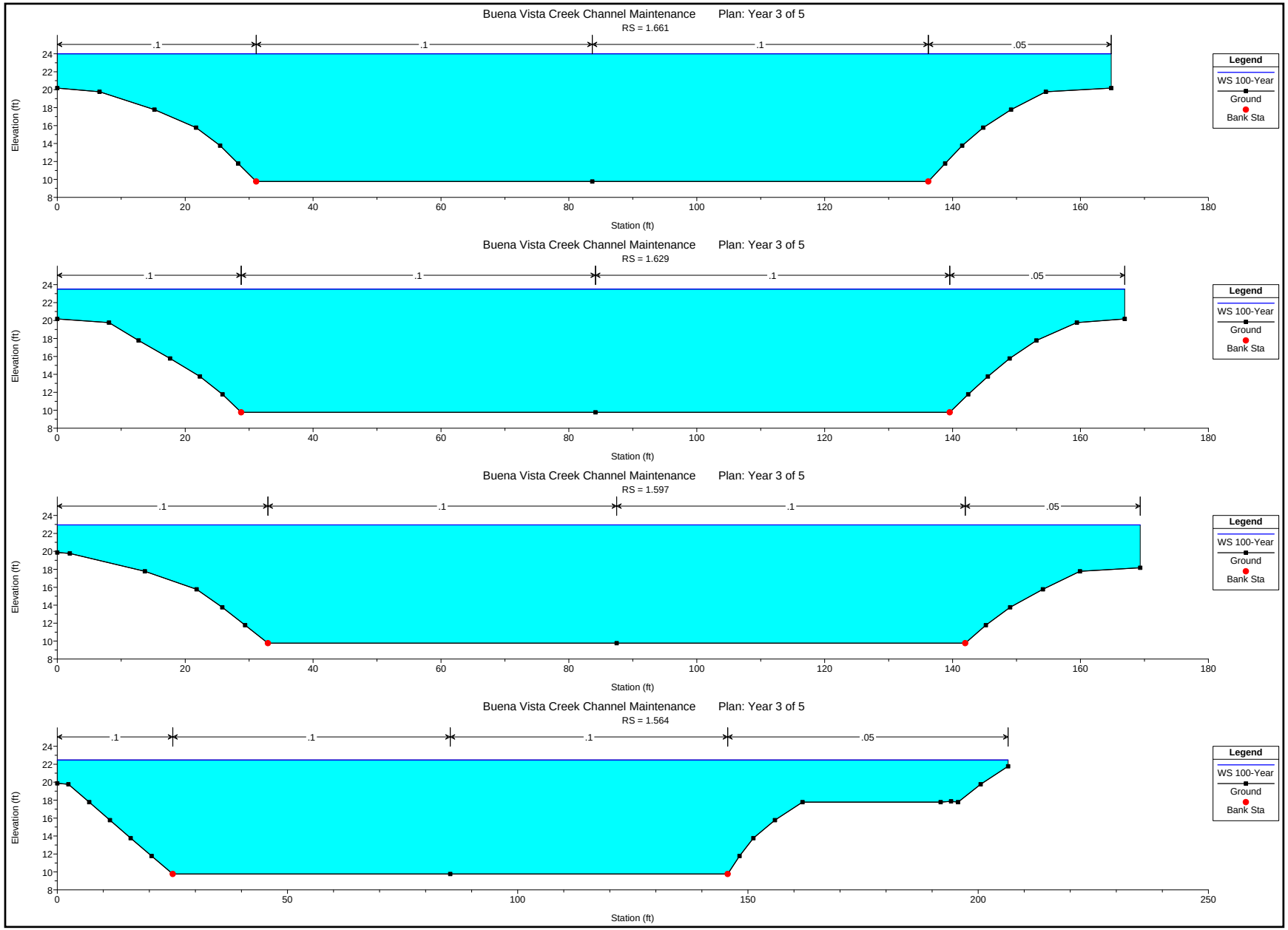
YEAR 3 OF 5

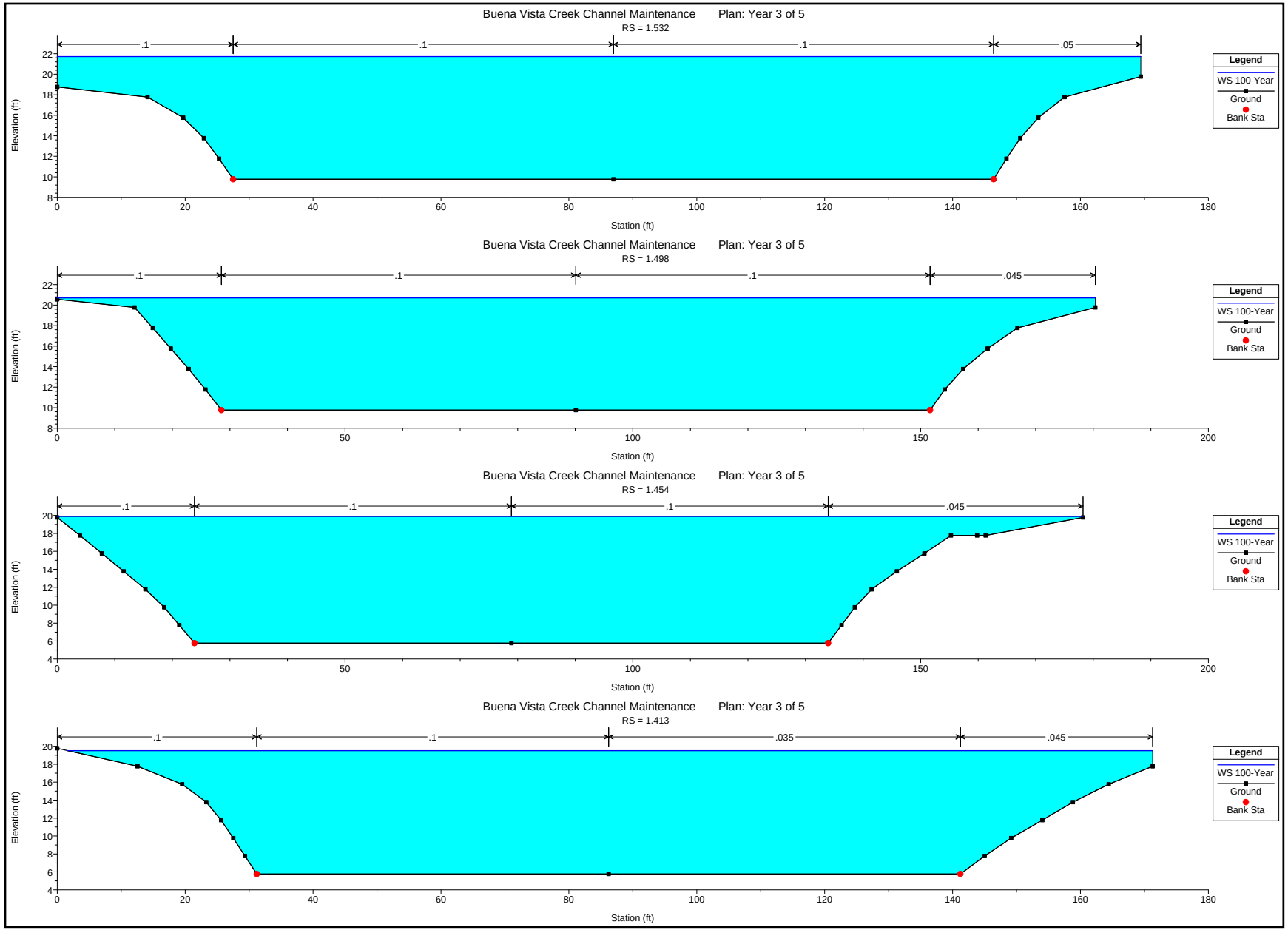
HEC-RAS Plan: Year 3 of 5 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

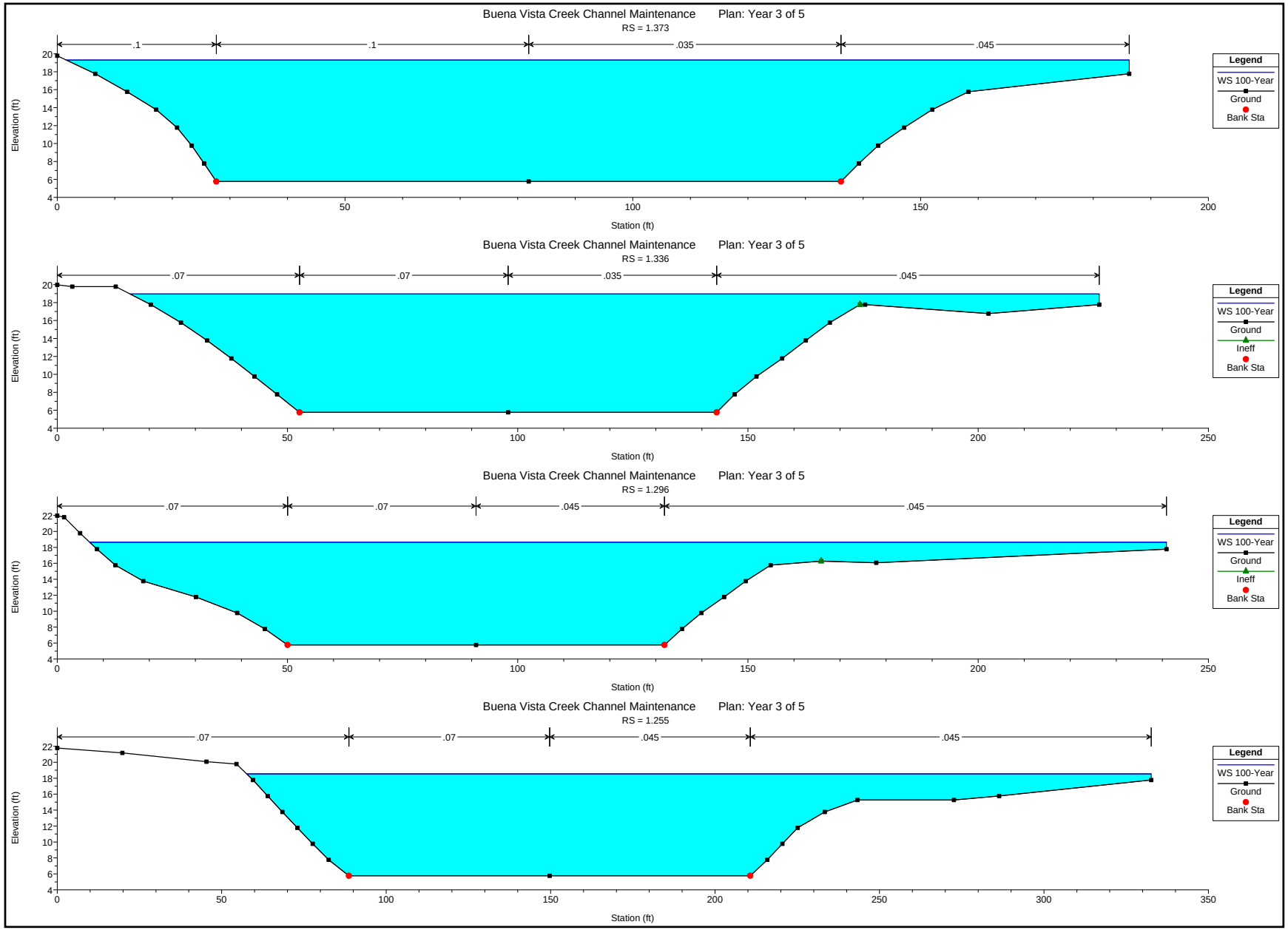
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.69	12.16	17.49	0.003858	7.53	1268.30	179.45	0.40
Reach-1	1.1	100-Year	8500.00	5.77	17.60		17.93	0.001398	4.78	1884.52	190.87	0.24
Reach-1	1.135	100-Year	8500.00	5.77	17.90	10.29	18.16	0.001047	4.21	2130.47	247.82	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.07	10.79	18.41	0.001116	4.83	1866.93	227.41	0.24
Reach-1	1.214	100-Year	8500.00	5.77	18.36	10.52	18.62	0.000834	4.24	2276.82	284.68	0.21
Reach-1	1.255	100-Year	8500.00	5.77	18.54		18.81	0.000917	4.49	2215.12	275.03	0.22
Reach-1	1.296	100-Year	8500.00	5.77	18.65	12.42	19.15	0.001775	6.28	1683.09	233.89	0.31
Reach-1	1.336	100-Year	8500.00	5.77	18.96	12.04	19.45	0.001159	6.05	1714.80	210.51	0.29
Reach-1	1.373	100-Year	8500.00	5.77	19.29		19.68	0.001019	5.19	1846.59	184.68	0.25
Reach-1	1.413	100-Year	8500.00	5.77	19.52		19.89	0.000943	5.05	1847.58	169.69	0.24
Reach-1	1.454	100-Year	8500.00	5.77	19.90		20.23	0.002912	4.69	1897.25	178.22	0.22
Reach-1	1.498	100-Year	8500.00	9.77	20.71		21.20	0.005806	5.58	1564.96	180.35	0.30
Reach-1	1.532	100-Year	8500.00	9.77	21.72		22.14	0.004620	5.28	1681.36	169.43	0.27
Reach-1	1.564	100-Year	8500.00	9.77	22.47		22.76	0.002822	4.30	2028.69	206.50	0.21
Reach-1	1.597	100-Year	8500.00	9.77	22.95		23.30	0.003240	4.72	1857.55	169.33	0.23
Reach-1	1.629	100-Year	8500.00	9.77	23.50		23.83	0.002958	4.63	1904.74	166.92	0.22
Reach-1	1.661	100-Year	8500.00	9.77	23.99		24.32	0.002837	4.65	1912.99	164.81	0.22
Reach-1	1.701	100-Year	8500.00	11.77	24.63		25.31	0.007125	6.88	1349.12	142.02	0.34
Reach-1	1.734	100-Year	8500.00	11.77	23.94		25.90	0.000458	12.02	852.10	116.41	0.61
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	24.89	21.15	26.56	0.000358	11.18	927.12	117.06	0.54
Reach-1	1.777	100-Year	8500.00	11.77	24.92		26.72	0.001775	4.65	1068.26	132.74	0.23
Reach-1	1.809	100-Year	8500.00	11.77	24.92		27.20	0.002239	5.22	975.72	112.01	0.25
Reach-1	1.839	100-Year	8500.00	11.77	25.27		27.57	0.002327	5.42	967.85	107.64	0.26

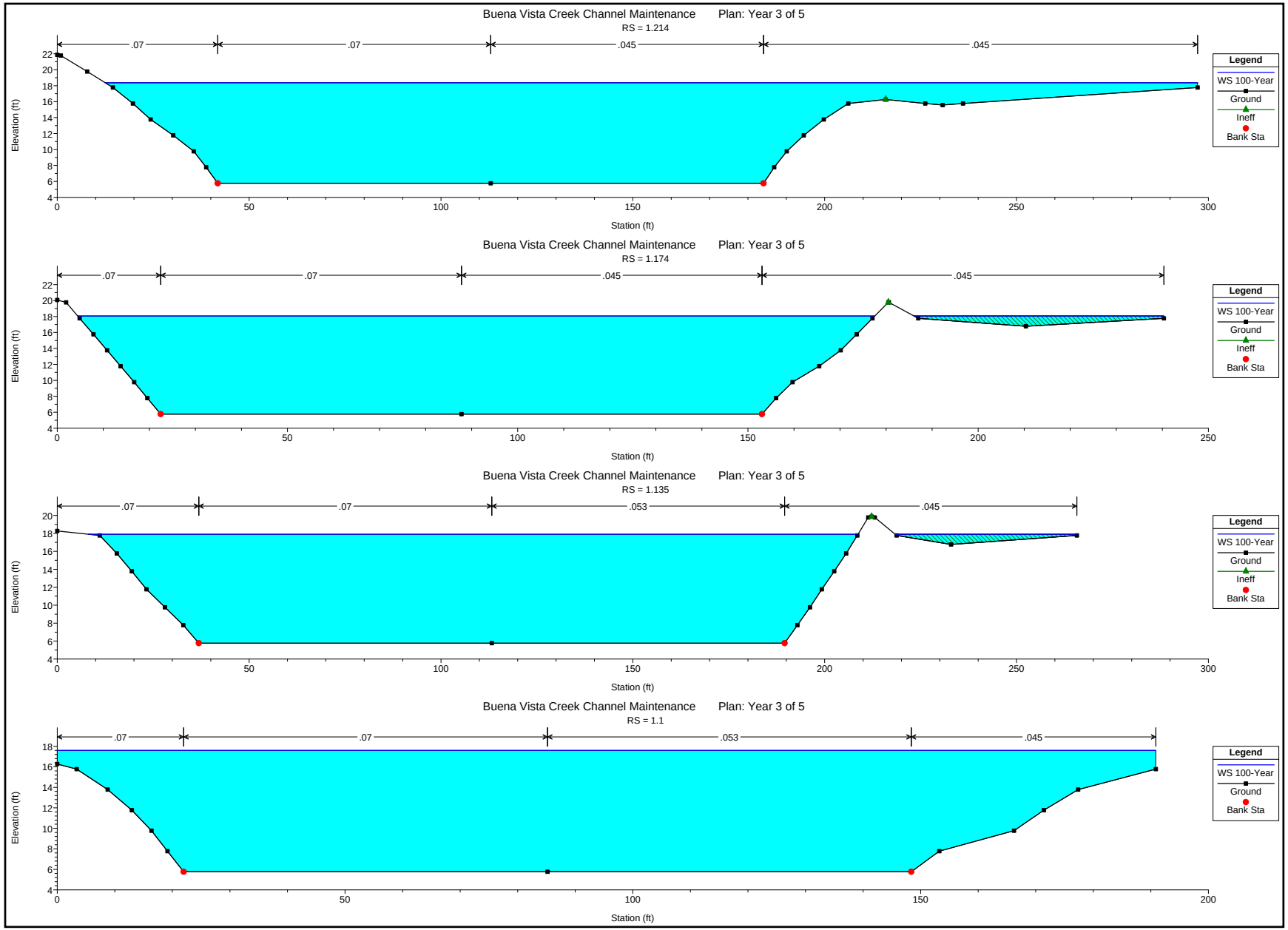

Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.839
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.809
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.777
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.744
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta

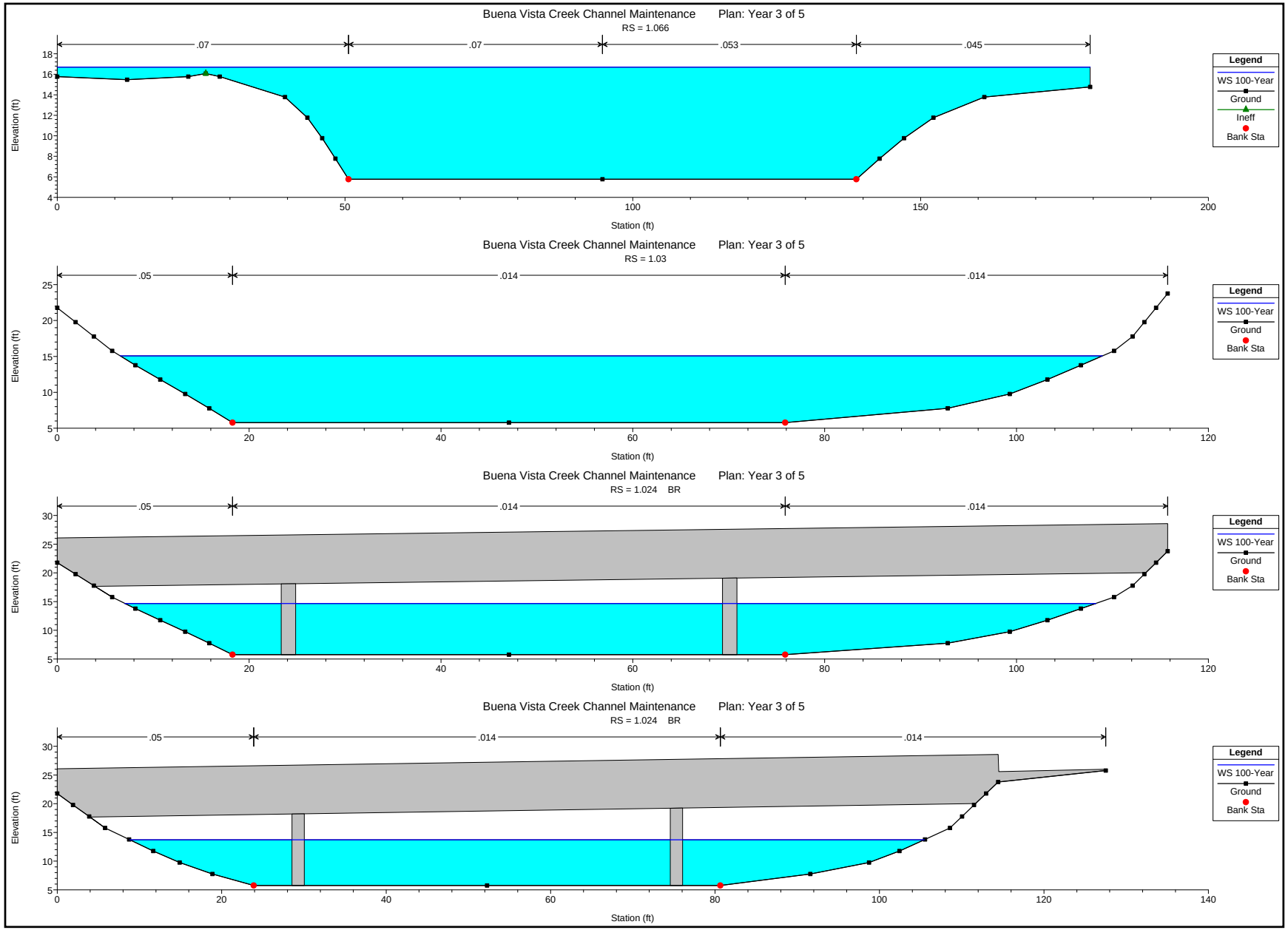

Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.734
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.701
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta

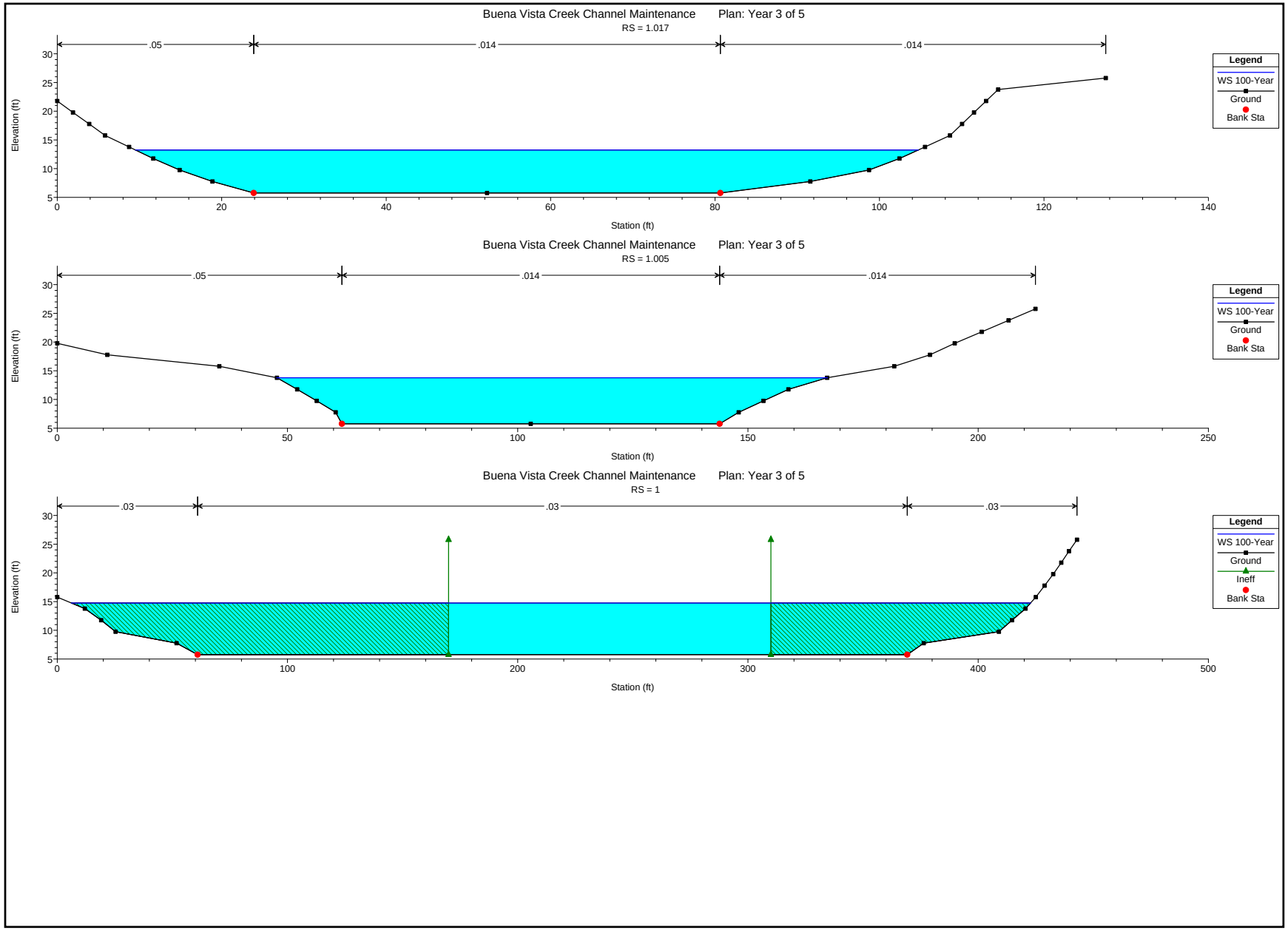

Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.661
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.629
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.597
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.564
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.532
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.498
.1
.1
.1
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.454
.1
.1
.1
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.413
.1
.1
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.373
.1
.1
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.336
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.296
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.255
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.214
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.174
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.135
.07
.07
.053
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.1
.07
.07
.053
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta

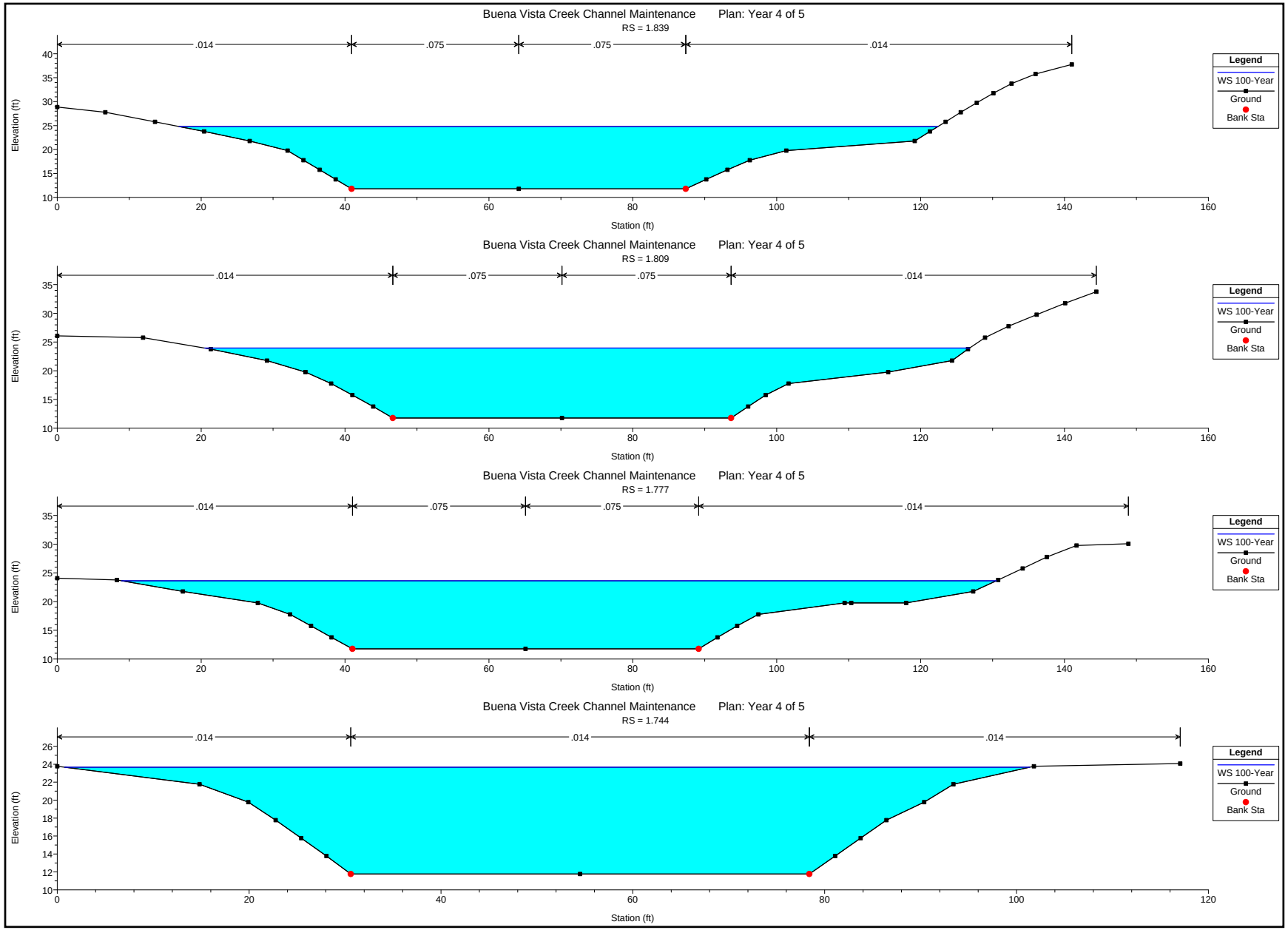

Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.066
.07
.07
.053
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.017
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1.005
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 5
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 4 OF 5

HEC-RAS Plan: Year 4 of 5 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.72	12.16	17.50	0.004285	7.42	1273.60	179.45	0.40
Reach-1	1.1	100-Year	8500.00	5.77	17.66		17.98	0.001540	4.70	1895.38	190.87	0.24
Reach-1	1.135	100-Year	8500.00	5.77	17.98	10.28	18.24	0.001163	4.16	2146.29	249.90	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.18	10.79	18.51	0.001287	4.74	1886.42	228.13	0.24
Reach-1	1.214	100-Year	8500.00	5.77	18.51	10.52	18.75	0.000943	4.13	2318.03	285.16	0.20
Reach-1	1.255	100-Year	8500.00	5.77	18.71		18.96	0.001011	4.32	2262.00	275.46	0.21
Reach-1	1.296	100-Year	8500.00	5.77	18.86	12.40	19.32	0.001898	5.96	1733.80	234.28	0.29
Reach-1	1.336	100-Year	8500.00	5.77	19.22	12.01	19.66	0.001391	5.72	1770.49	211.52	0.27
Reach-1	1.373	100-Year	8500.00	5.77	19.58		19.94	0.001290	4.95	1900.31	185.64	0.23
Reach-1	1.413	100-Year	8500.00	5.77	19.85		20.19	0.001188	4.81	1905.34	171.29	0.23
Reach-1	1.454	100-Year	8500.00	5.77	20.06		20.42	0.000864	4.96	1926.11	178.22	0.23
Reach-1	1.498	100-Year	8500.00	9.77	20.20		20.78	0.002076	6.23	1474.26	174.19	0.34
Reach-1	1.532	100-Year	8500.00	9.77	20.57		21.15	0.001994	6.25	1486.62	169.43	0.34
Reach-1	1.564	100-Year	8500.00	9.77	21.01		21.46	0.001501	5.57	1728.30	204.25	0.29
Reach-1	1.597	100-Year	8500.00	9.77	21.43		21.90	0.005066	5.44	1599.39	169.33	0.28
Reach-1	1.629	100-Year	8500.00	9.77	22.27		22.69	0.004153	5.16	1699.86	166.92	0.26
Reach-1	1.661	100-Year	8500.00	9.77	22.96		23.35	0.003723	5.06	1742.53	164.81	0.25
Reach-1	1.701	100-Year	8500.00	11.77	23.82		24.64	0.009341	7.55	1234.69	142.02	0.38
Reach-1	1.734	100-Year	8500.00	11.77	22.95		25.41	0.000633	13.35	744.74	101.93	0.70
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	23.67	21.15	25.87	0.000527	12.70	787.20	100.60	0.65
Reach-1	1.777	100-Year	8500.00	11.77	23.63		26.16	0.003222	5.85	900.39	121.57	0.30
Reach-1	1.809	100-Year	8500.00	11.77	23.95		26.81	0.003360	6.08	869.69	106.29	0.31
Reach-1	1.839	100-Year	8500.00	11.77	24.79		27.34	0.002834	5.84	916.80	105.49	0.29


Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.839
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.777
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
Bank Sta
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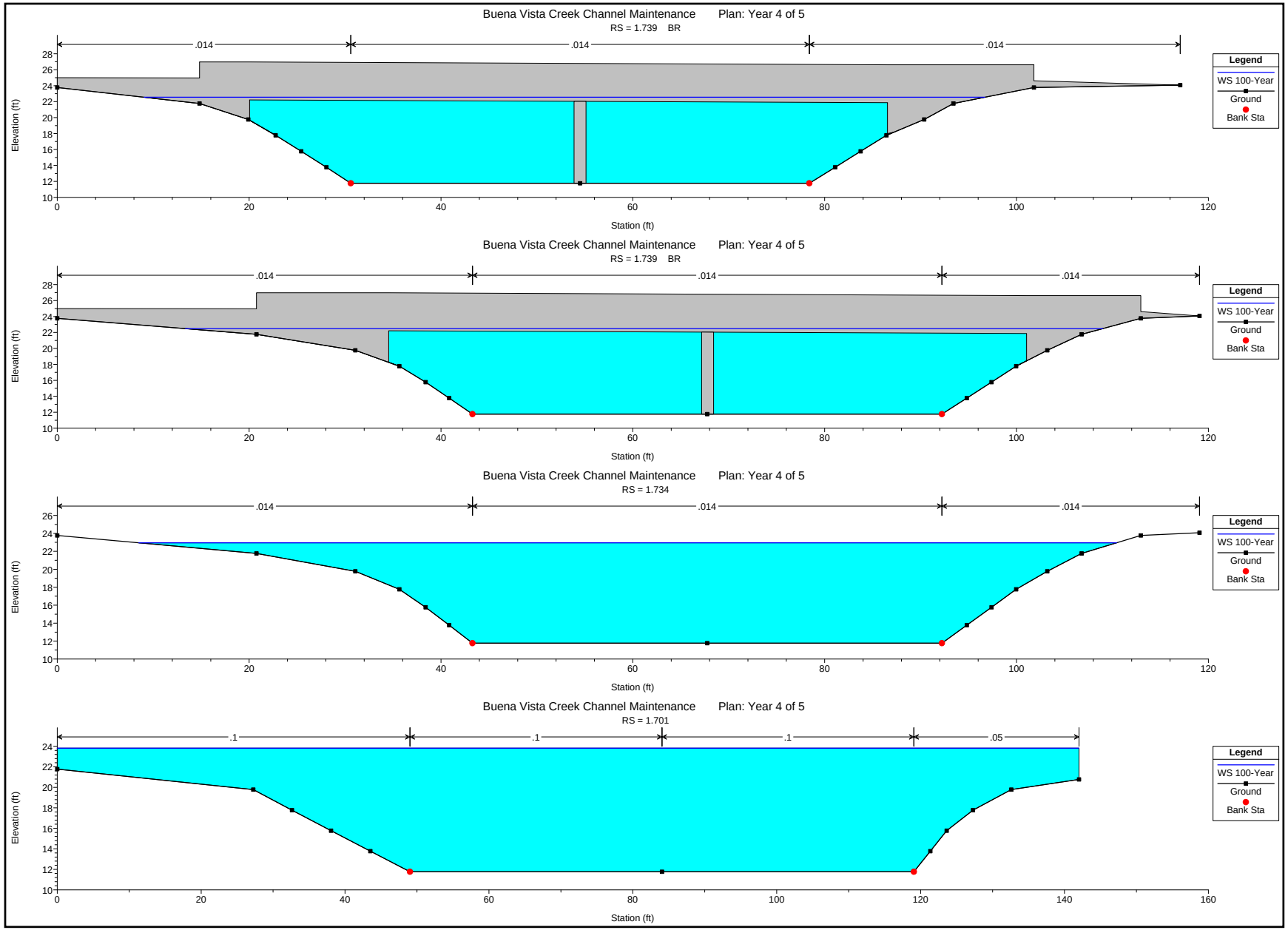
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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RS = 1.739 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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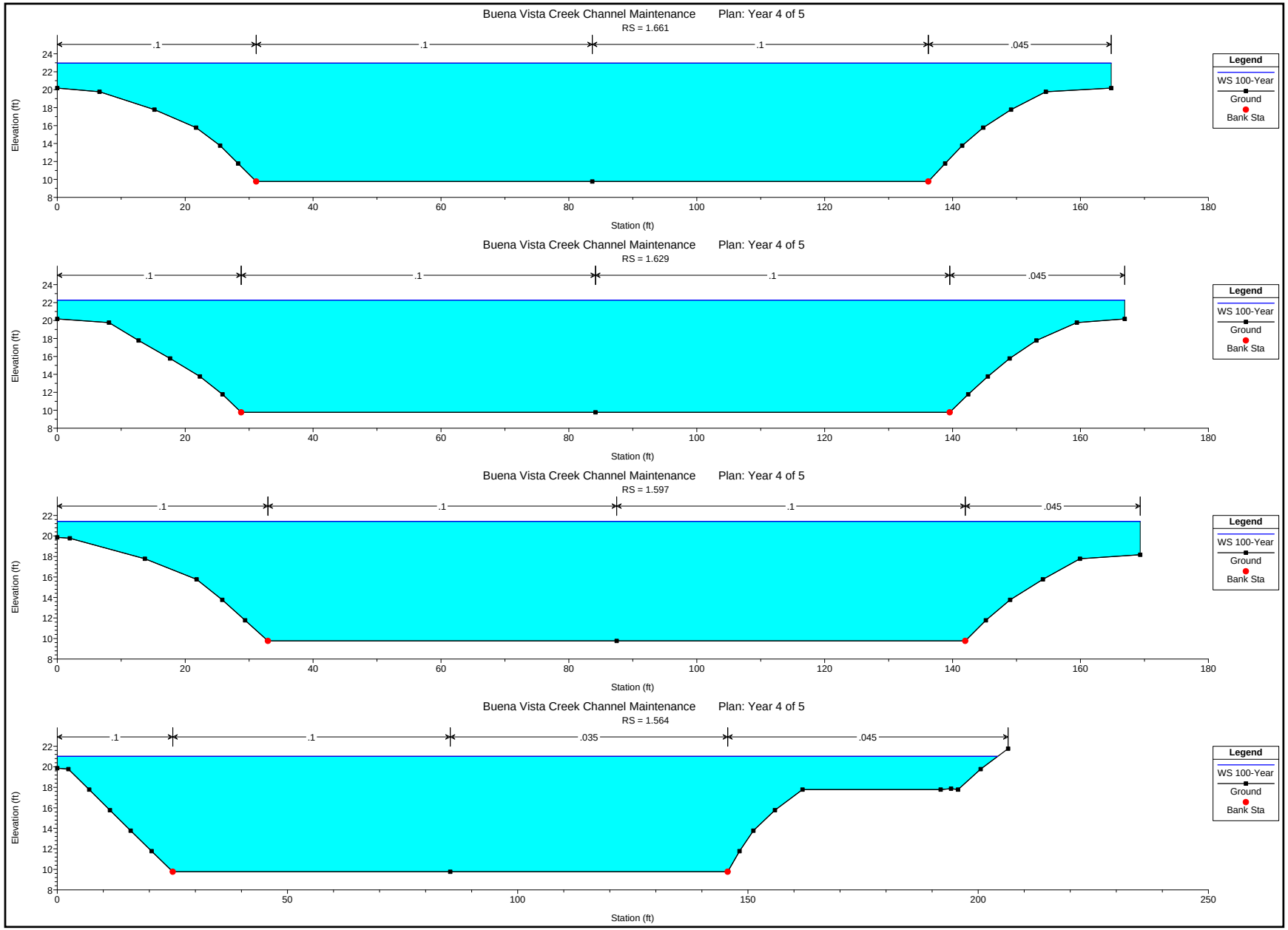
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.597
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
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Station (ft)
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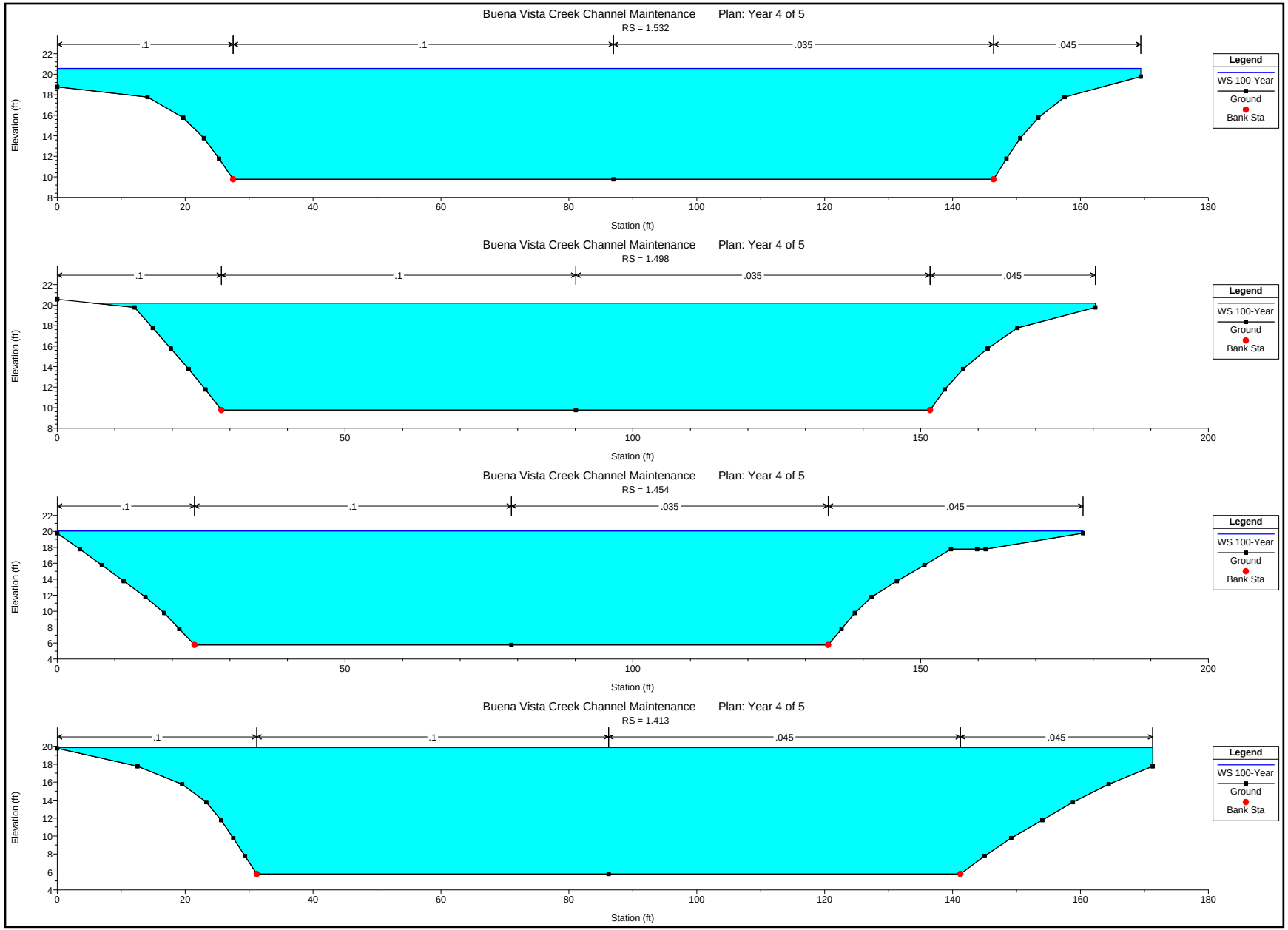
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.532
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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RS = 1.498
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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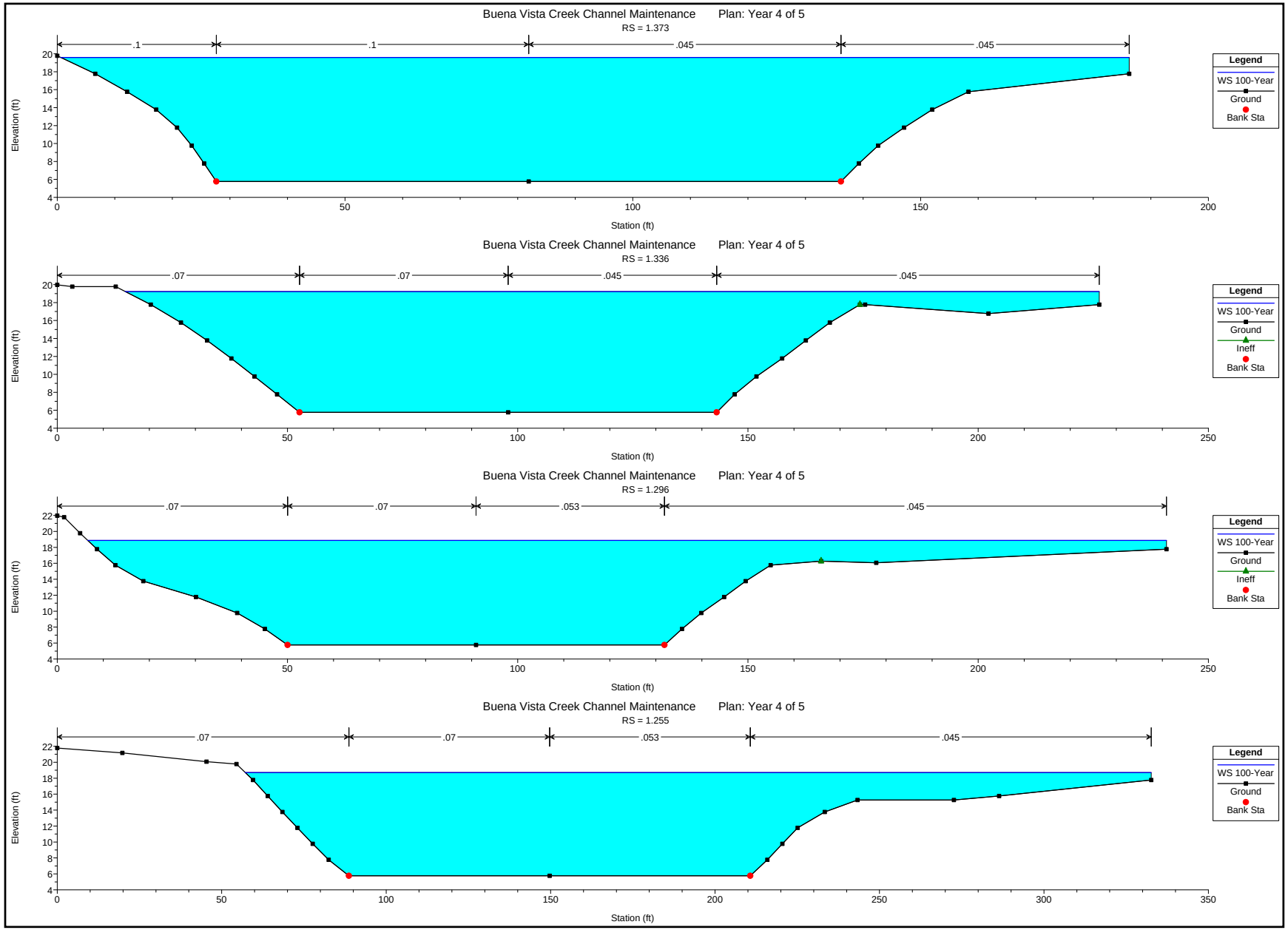
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.336
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.296
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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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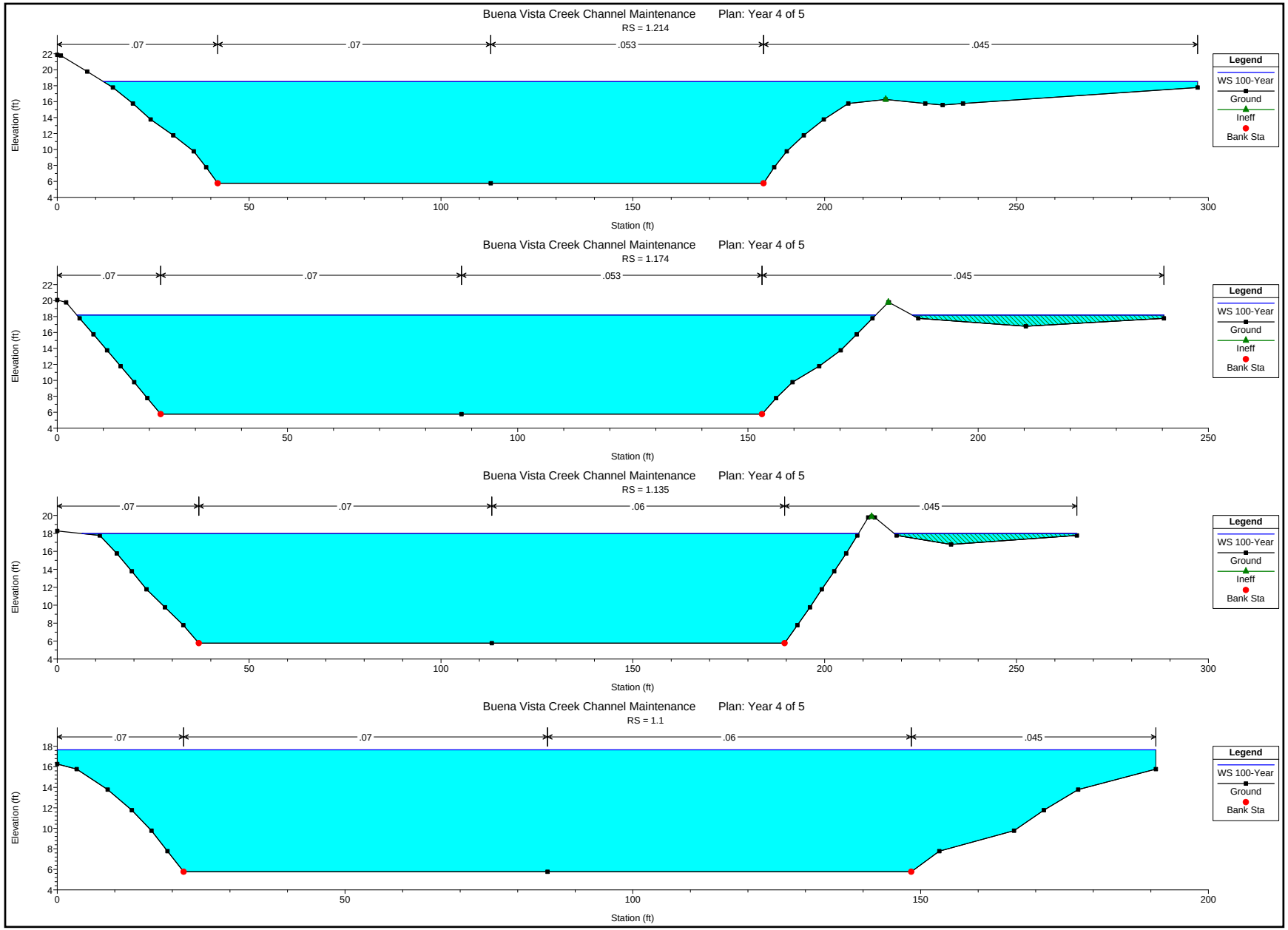
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.174
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.07
.053
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.135
.07
.07
.06
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.1
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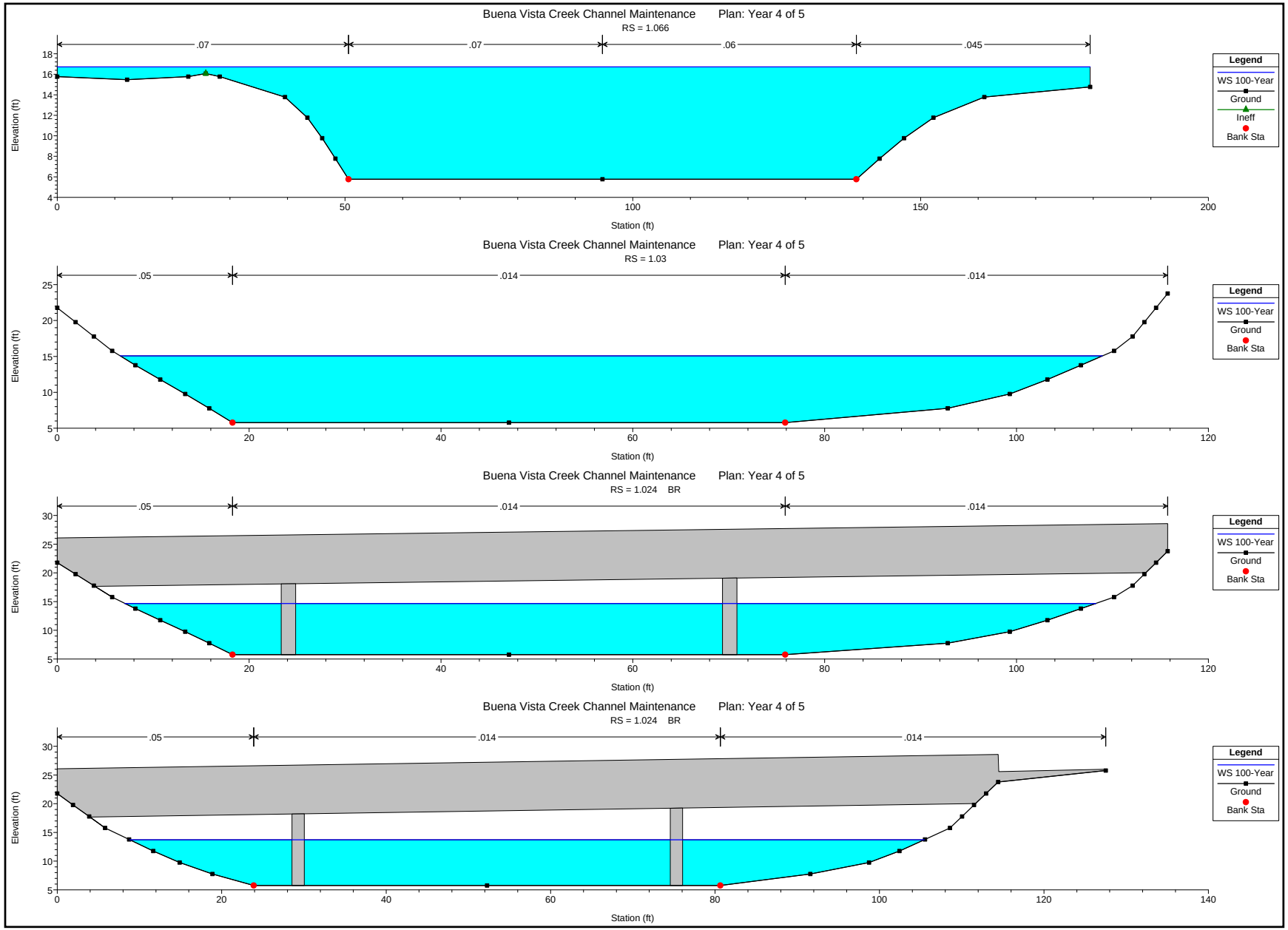
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.03
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.014
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.024 BR
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.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1.024 BR
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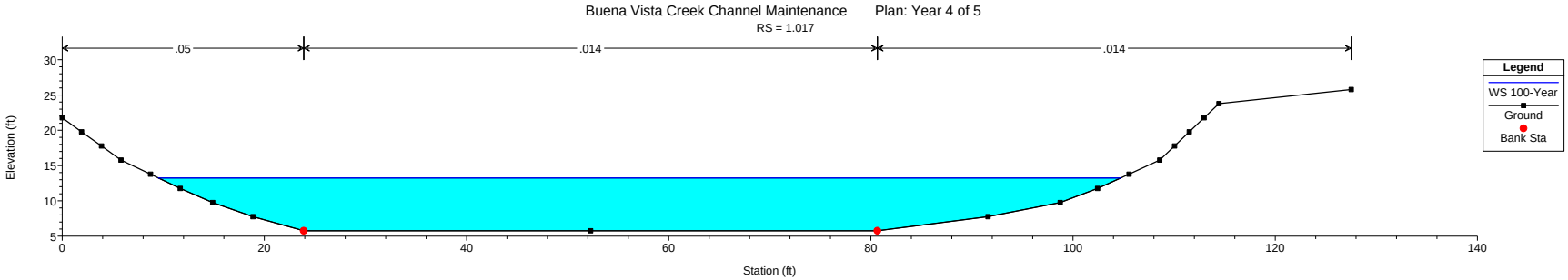
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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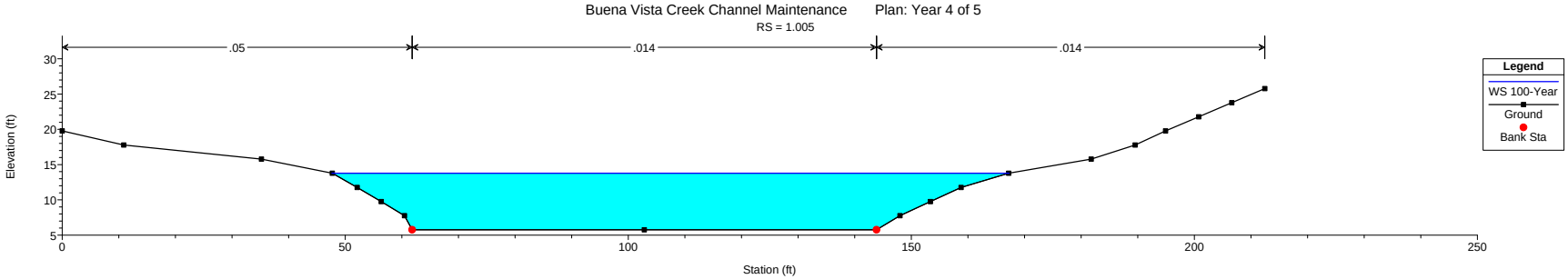
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
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Elevation (ft)
Station (ft)
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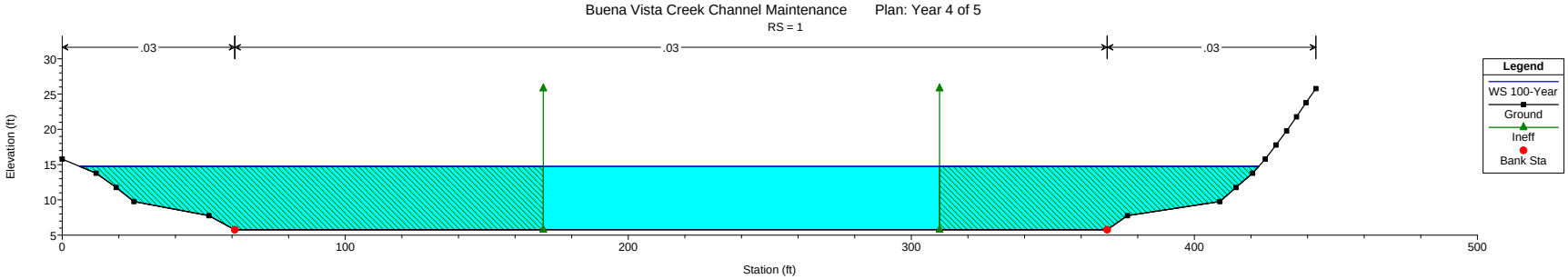
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 4 of 5
RS = 1
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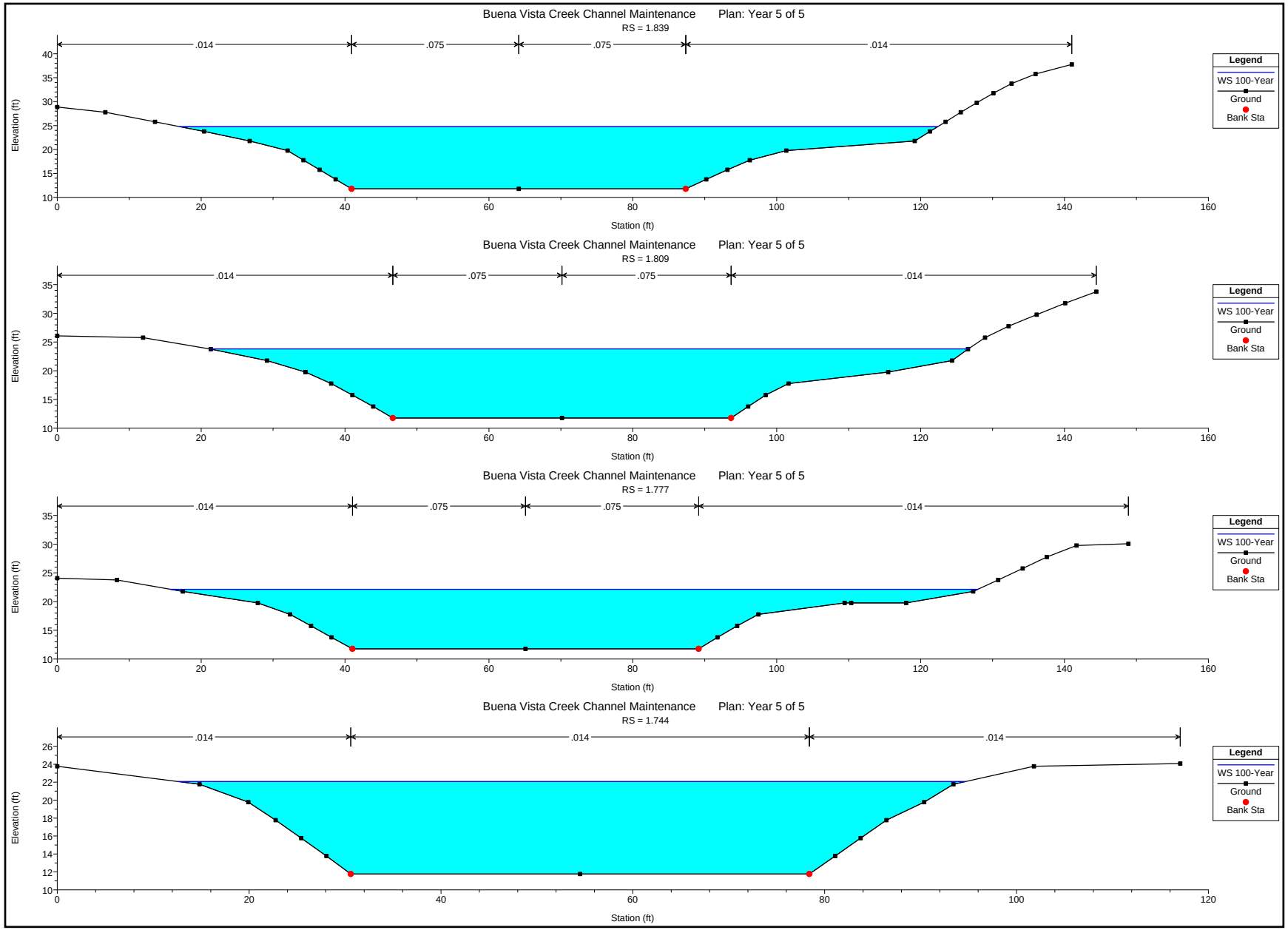
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 5 OF 5

HEC-RAS Plan: Year 5 of 5 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.74	12.16	17.51	0.004570	7.36	1276.67	179.45	0.39
Reach-1	1.1	100-Year	8500.00	5.77	17.69		18.02	0.001633	4.65	1902.29	190.87	0.24
Reach-1	1.135	100-Year	8500.00	5.77	18.03	10.28	18.28	0.001240	4.13	2156.64	251.24	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.26	10.78	18.58	0.001426	4.67	1899.57	228.61	0.23
Reach-1	1.214	100-Year	8500.00	5.77	18.61	10.51	18.84	0.001027	4.04	2346.91	285.50	0.20
Reach-1	1.255	100-Year	8500.00	5.77	18.83		19.07	0.001081	4.19	2295.13	275.76	0.20
Reach-1	1.296	100-Year	8500.00	5.77	19.02	12.38	19.44	0.001986	5.74	1769.36	234.56	0.28
Reach-1	1.336	100-Year	8500.00	5.77	19.40	12.00	19.80	0.001534	5.50	1808.23	212.19	0.26
Reach-1	1.373	100-Year	8500.00	5.77	19.78		20.11	0.001475	4.79	1936.91	186.25	0.23
Reach-1	1.413	100-Year	8500.00	5.77	20.08		20.41	0.001353	4.65	1944.64	171.29	0.22
Reach-1	1.454	100-Year	8500.00	5.77	20.35		20.67	0.001095	4.76	1976.58	178.22	0.22
Reach-1	1.498	100-Year	8500.00	9.77	20.58		21.10	0.002526	5.93	1540.70	180.35	0.32
Reach-1	1.532	100-Year	8500.00	9.77	21.03		21.54	0.002365	5.89	1564.49	169.43	0.31
Reach-1	1.564	100-Year	8500.00	9.77	21.51		21.89	0.001687	5.16	1831.02	205.74	0.27
Reach-1	1.597	100-Year	8500.00	9.77	21.71		22.20	0.001504	5.81	1648.29	169.33	0.30
Reach-1	1.629	100-Year	8500.00	9.77	21.97		22.45	0.001433	5.75	1649.19	166.92	0.29
Reach-1	1.661	100-Year	8500.00	9.77	22.20		22.71	0.001486	5.93	1617.08	164.81	0.30
Reach-1	1.701	100-Year	8500.00	11.77	22.00		23.58	0.006145	10.59	976.31	142.02	0.58
Reach-1	1.734	100-Year	8500.00	11.77	21.12	21.12	24.95	0.001218	16.44	579.05	81.48	0.95
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	22.07	21.15	25.21	0.000889	14.98	641.20	82.03	0.82
Reach-1	1.777	100-Year	8500.00	11.77	22.15	22.15	25.87	0.007110	7.95	727.57	112.24	0.43
Reach-1	1.809	100-Year	8500.00	11.77	23.81	22.62	26.77	0.003568	6.22	855.00	105.47	0.32
Reach-1	1.839	100-Year	8500.00	11.77	24.76		27.33	0.002878	5.87	912.96	105.32	0.29


Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
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Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
Legend
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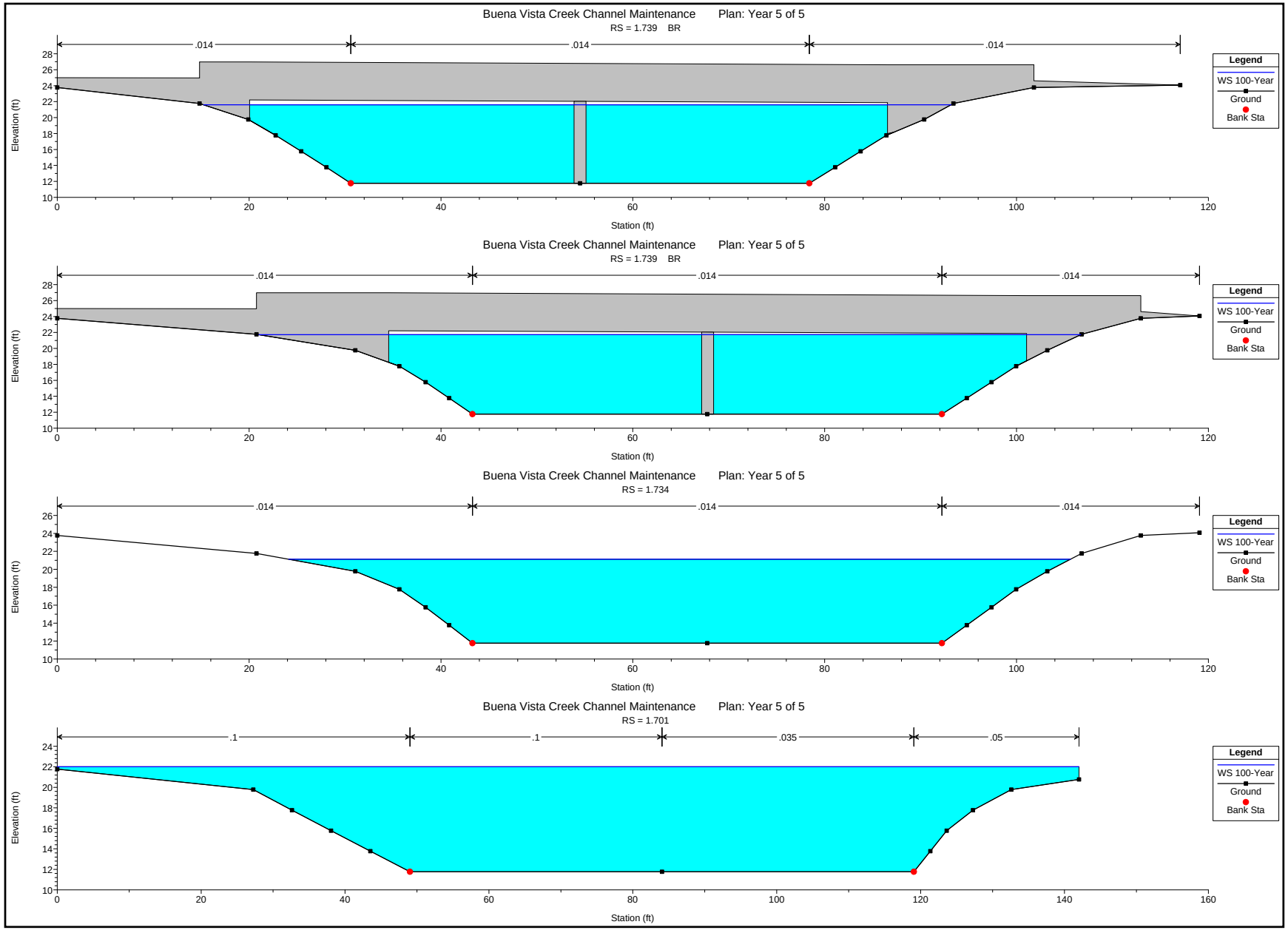
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.739 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.734
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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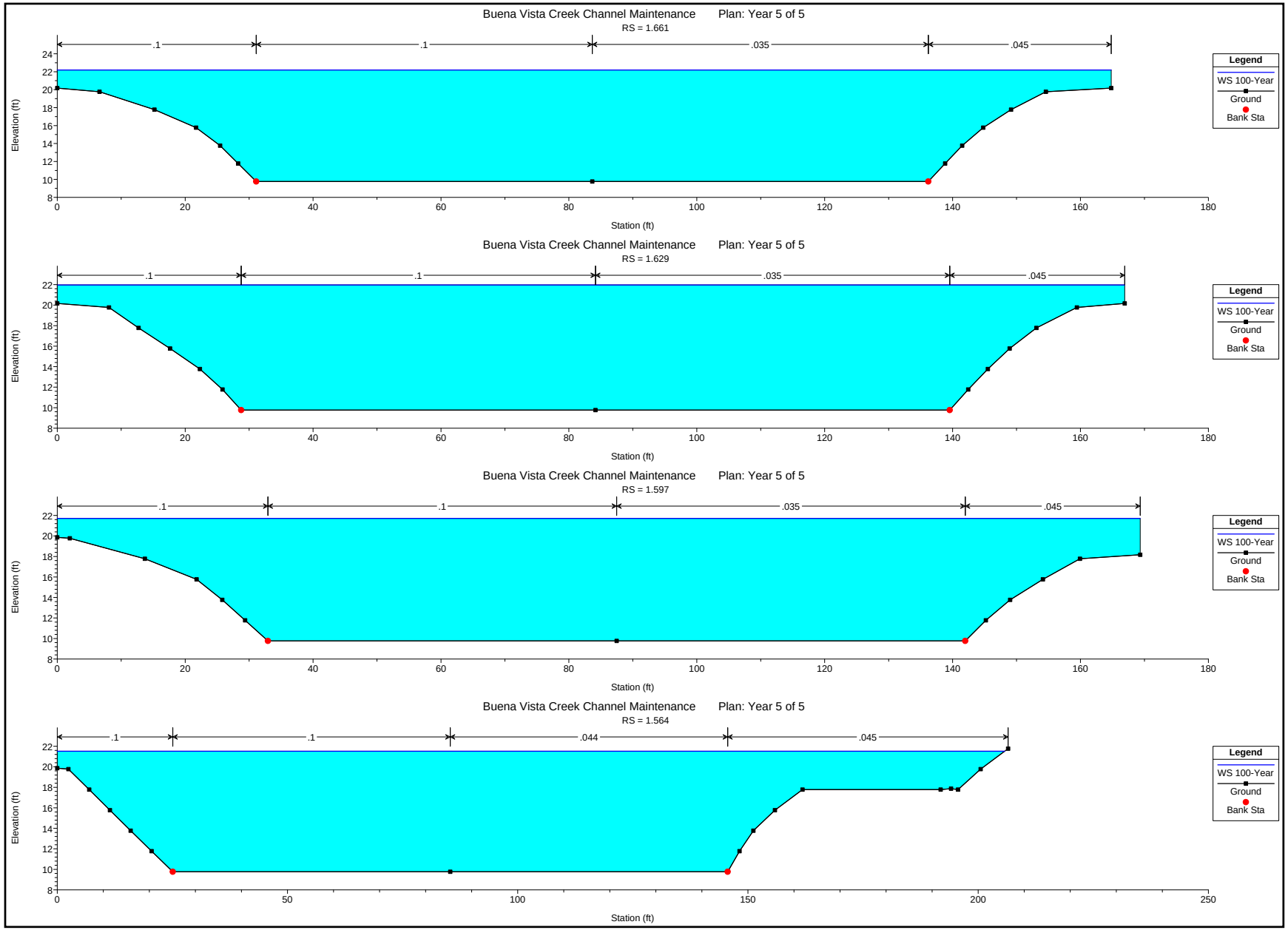
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.629
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.597
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Station (ft)
Legend
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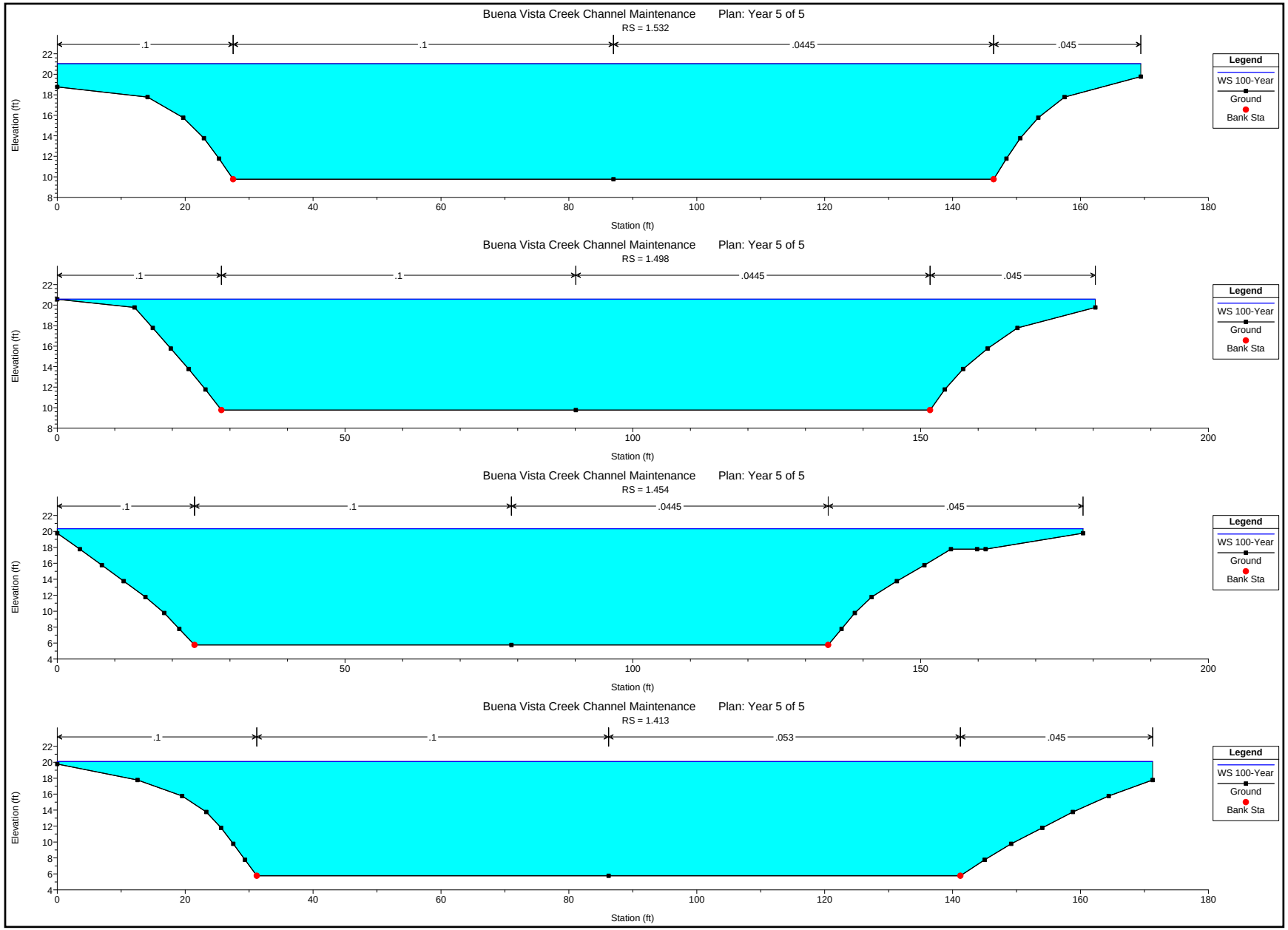
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Legend
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
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Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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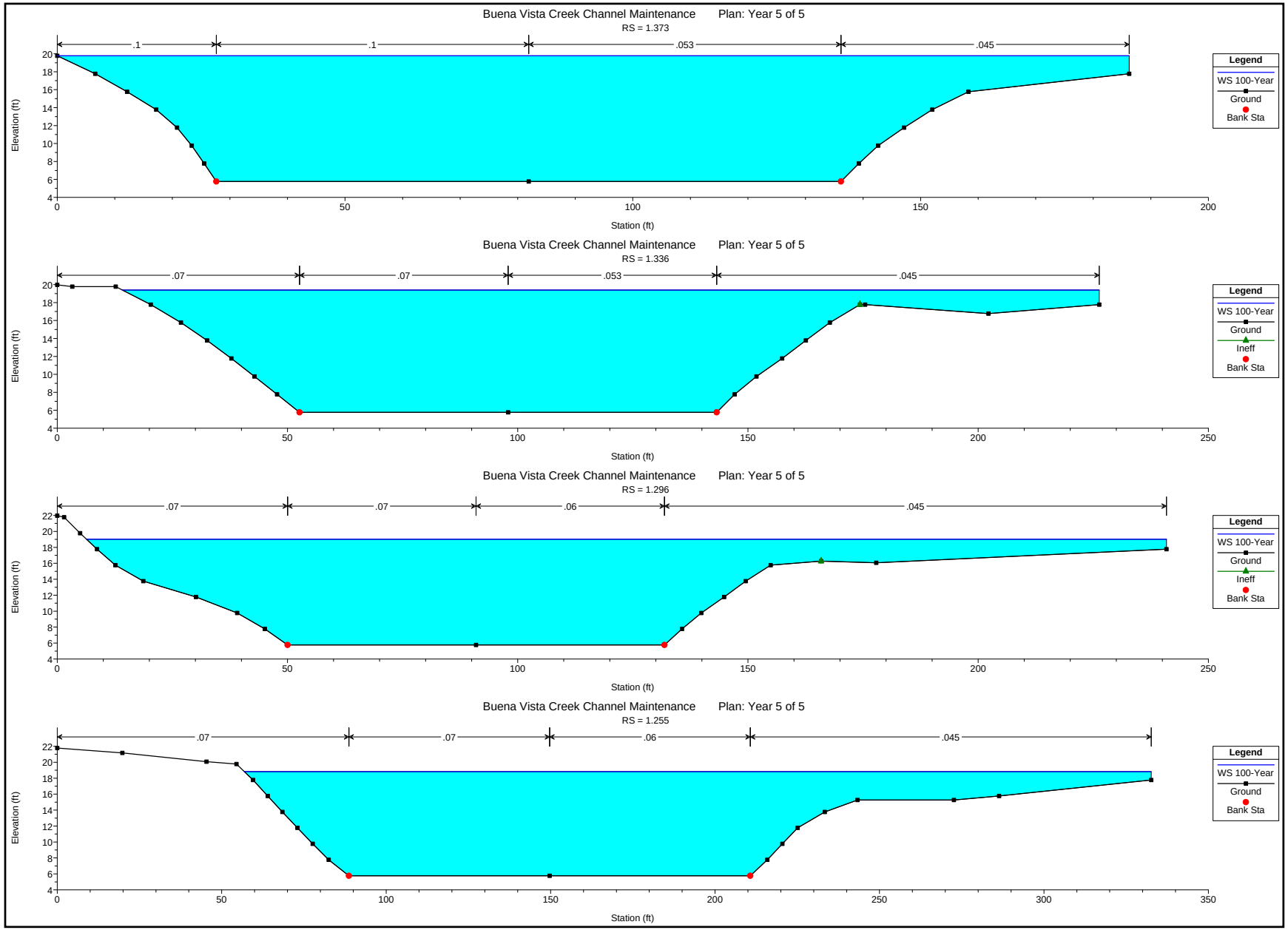
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
Legend
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Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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Elevation (ft)
Station (ft)
Legend
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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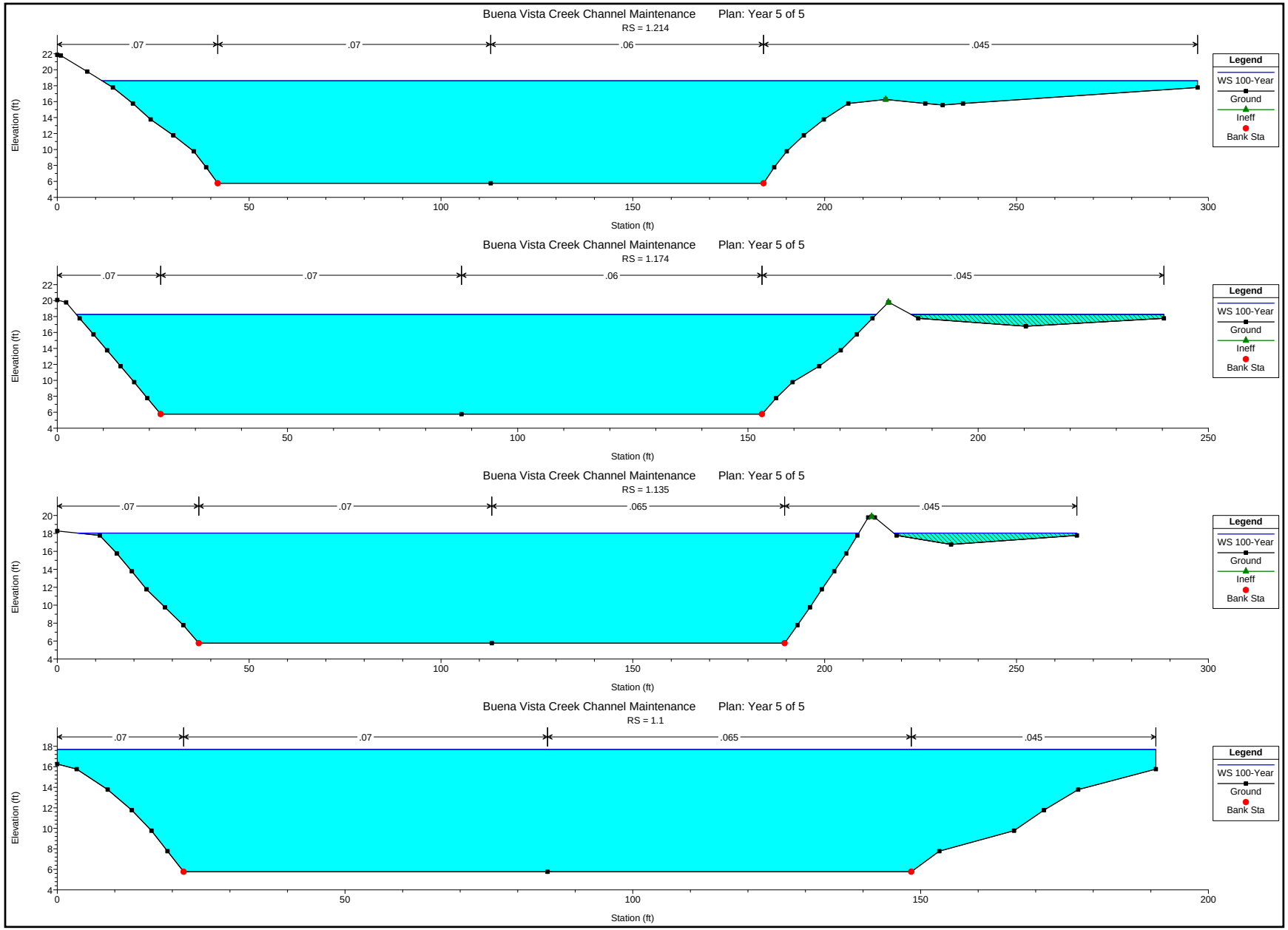
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.214
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.174
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.07
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.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.135
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.07
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.1
.07
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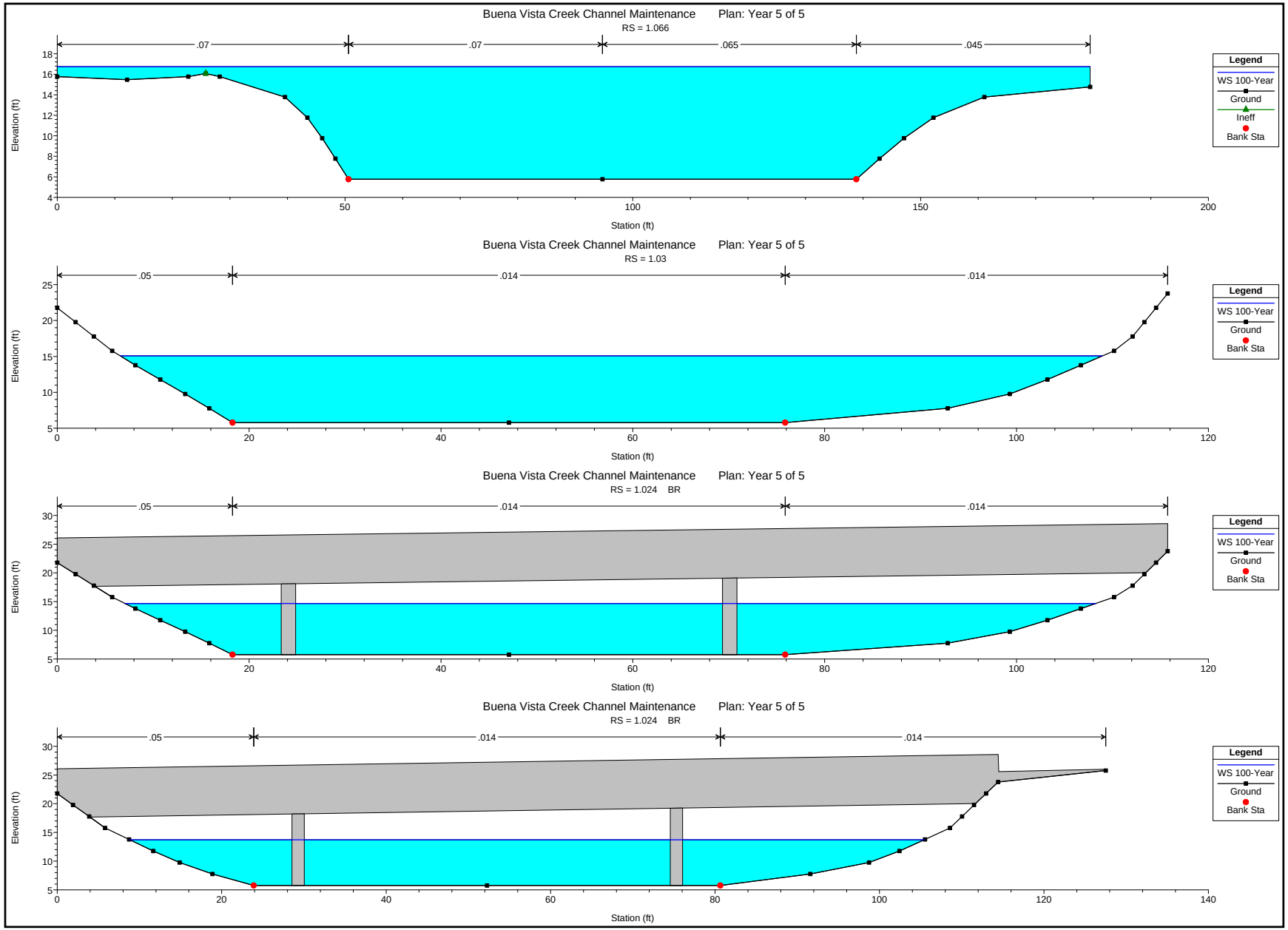
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.066
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.07
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
RS = 1.024 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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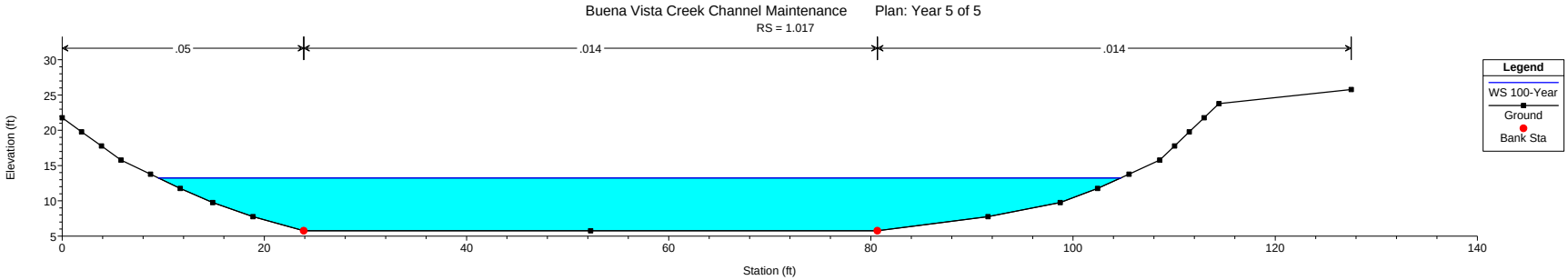
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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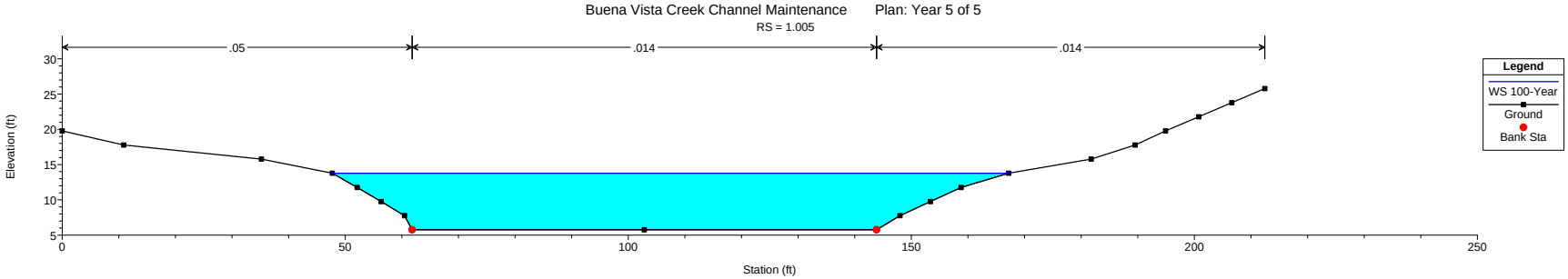
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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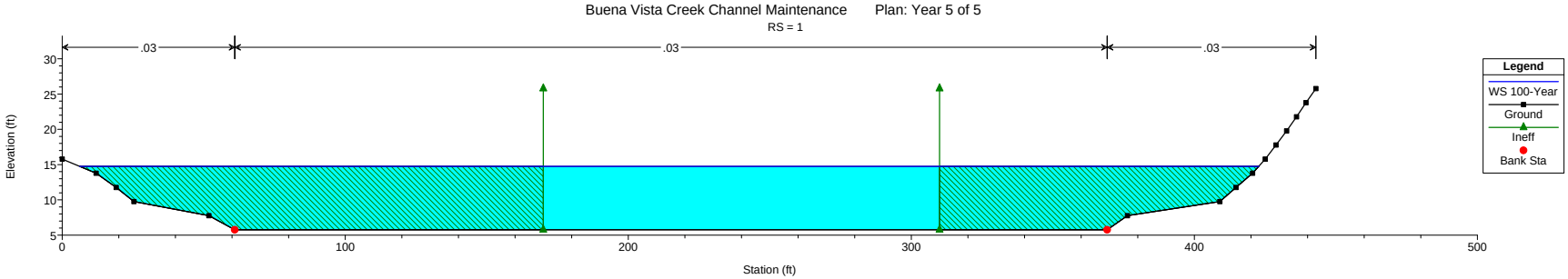
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 5 of 5
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

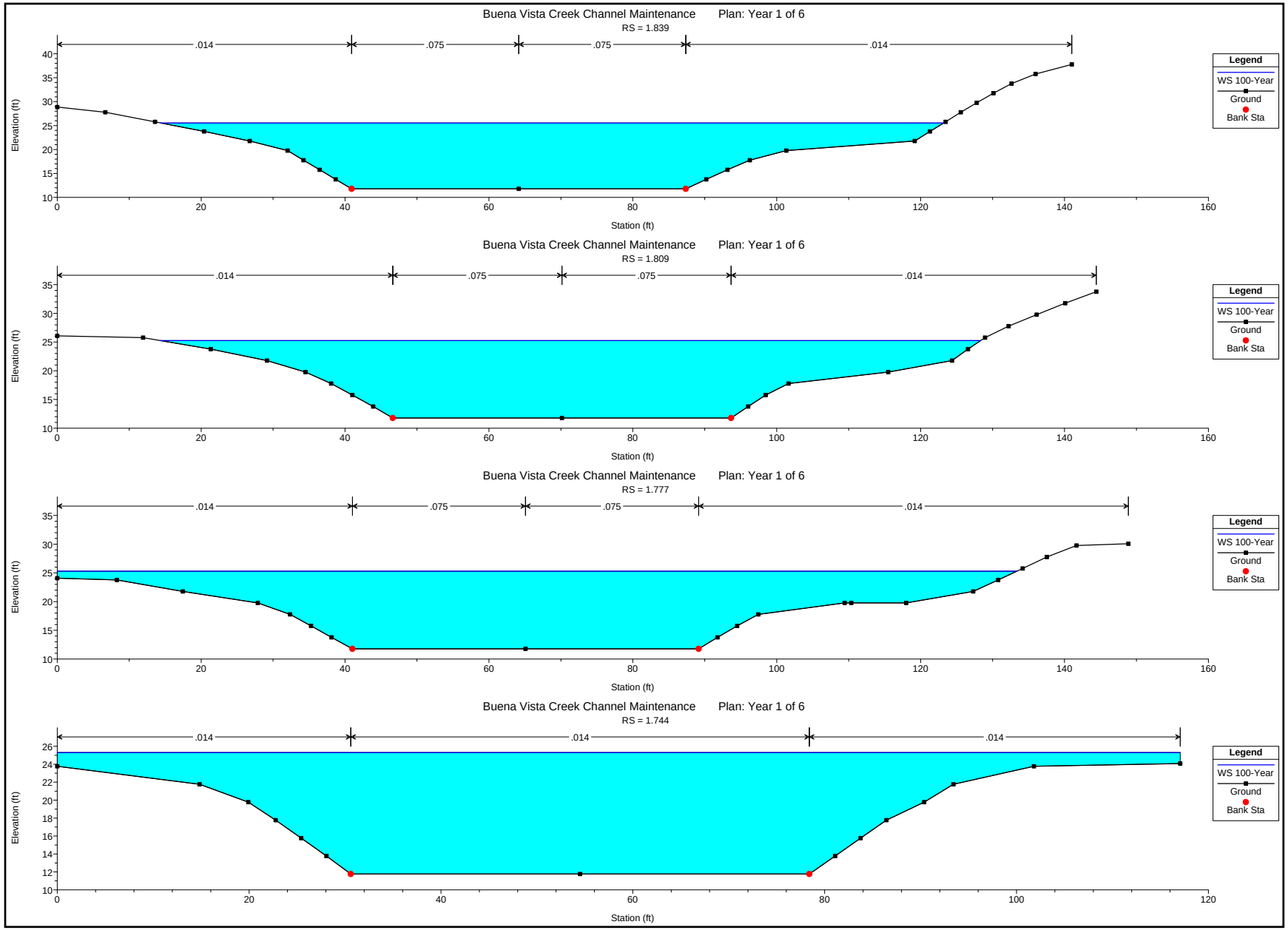
APPENDIX D

100-YEAR HEC-RAS ANALYSES
6-YEAR MAINTENANCE PLAN

YEAR 1 OF 6

HEC-RAS Plan: Year 1 of 6 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.57	12.19	17.46	0.002585	7.91	1246.22	179.45	0.42
Reach-1	1.1	100-Year	8500.00	5.77	17.41		17.77	0.000956	5.06	1847.88	190.87	0.26
Reach-1	1.135	100-Year	8500.00	5.77	17.65	10.30	17.93	0.000698	4.38	2080.51	238.21	0.22
Reach-1	1.174	100-Year	8500.00	5.77	17.83	10.78	18.18	0.001892	4.85	1825.16	225.86	0.25
Reach-1	1.214	100-Year	8500.00	5.77	18.26	10.51	18.52	0.001354	4.21	2248.62	284.34	0.21
Reach-1	1.255	100-Year	8500.00	5.77	18.56		18.81	0.001393	4.33	2219.94	275.07	0.21
Reach-1	1.296	100-Year	8500.00	5.77	18.83	12.38	19.27	0.002472	5.85	1724.89	234.21	0.29
Reach-1	1.336	100-Year	8500.00	5.77	19.34	11.98	19.74	0.002030	5.44	1796.50	211.98	0.26
Reach-1	1.373	100-Year	8500.00	5.77	19.91		20.22	0.002697	4.51	1960.66	186.25	0.21
Reach-1	1.413	100-Year	8500.00	5.77	20.44		20.74	0.002349	4.32	2005.68	171.29	0.20
Reach-1	1.454	100-Year	8500.00	5.77	20.97		21.24	0.002198	4.27	2087.85	178.22	0.19
Reach-1	1.498	100-Year	8500.00	9.77	21.58		21.97	0.004398	5.11	1720.68	180.35	0.26
Reach-1	1.532	100-Year	8500.00	9.77	22.35		22.72	0.003806	4.96	1787.97	169.43	0.25
Reach-1	1.564	100-Year	8500.00	9.77	22.98		23.24	0.002394	4.06	2133.40	206.50	0.20
Reach-1	1.597	100-Year	8500.00	9.77	23.39		23.71	0.002863	4.53	1931.43	169.33	0.22
Reach-1	1.629	100-Year	8500.00	9.77	23.87		24.18	0.002670	4.48	1967.15	166.92	0.21
Reach-1	1.661	100-Year	8500.00	9.77	24.32		24.63	0.002599	4.51	1966.85	164.81	0.21
Reach-1	1.701	100-Year	8500.00	11.77	24.89		25.54	0.006543	6.69	1387.11	142.02	0.33
Reach-1	1.734	100-Year	8500.00	11.77	24.27		26.07	0.000410	11.57	891.42	119.08	0.58
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	25.29	21.15	26.80	0.000314	10.67	973.96	117.06	0.51
Reach-1	1.777	100-Year	8500.00	11.77	25.30		26.94	0.001489	4.34	1118.40	133.38	0.21
Reach-1	1.809	100-Year	8500.00	11.77	25.26		27.37	0.001955	4.96	1014.27	114.02	0.24
Reach-1	1.839	100-Year	8500.00	11.77	25.54		27.71	0.002093	5.21	996.70	108.84	0.25


Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.809
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.777
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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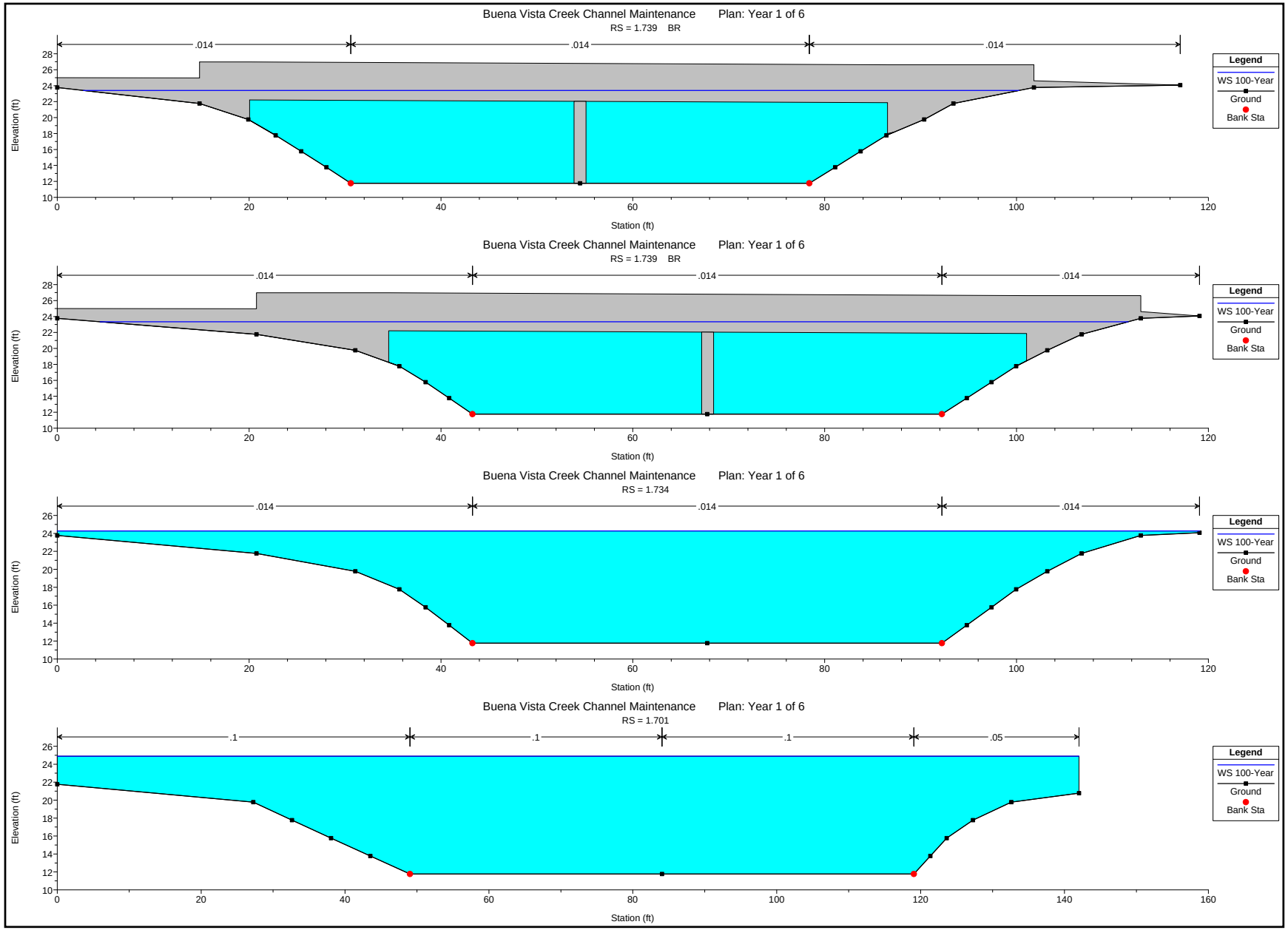
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.734
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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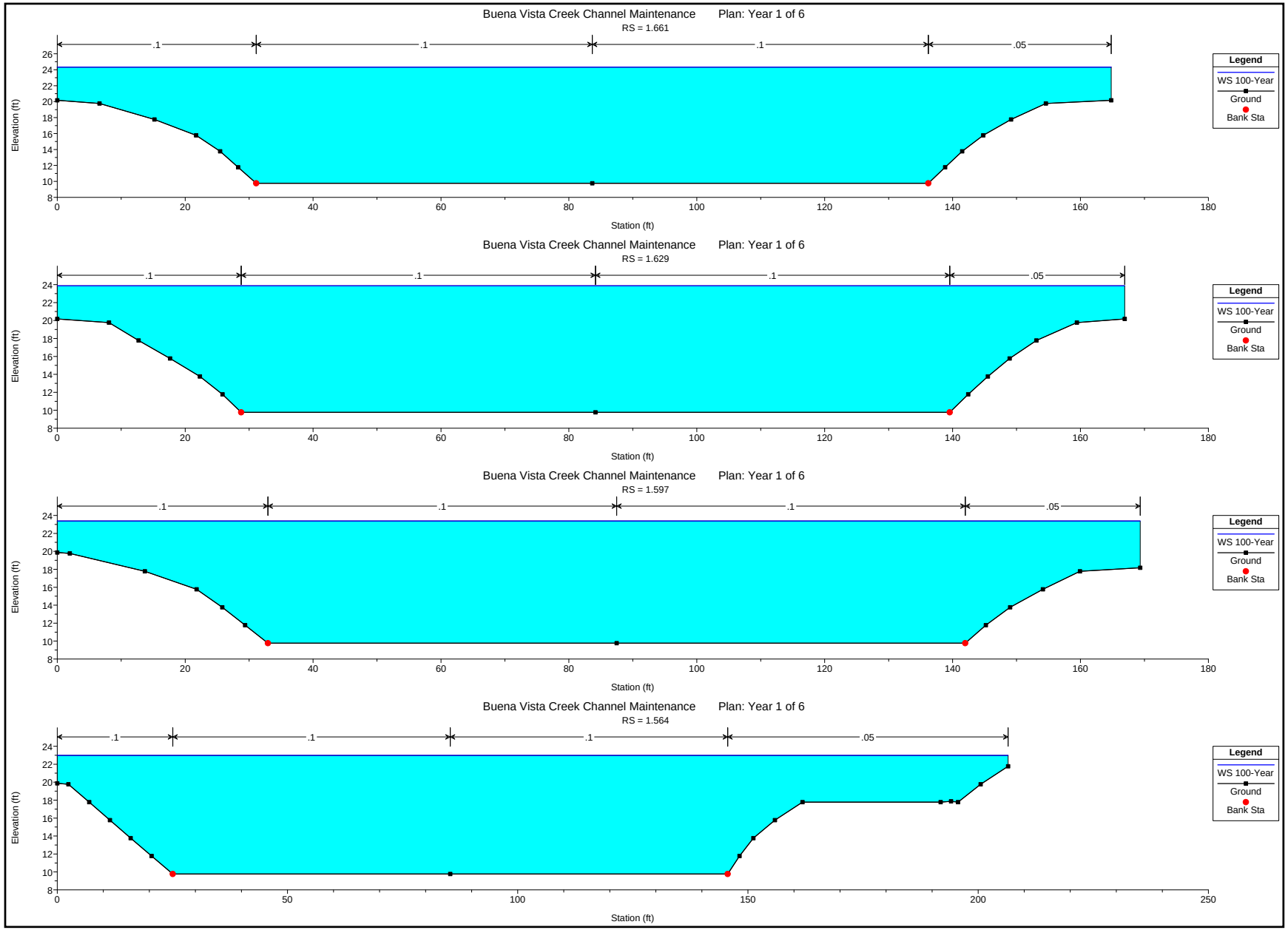
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.629
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.597
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.564
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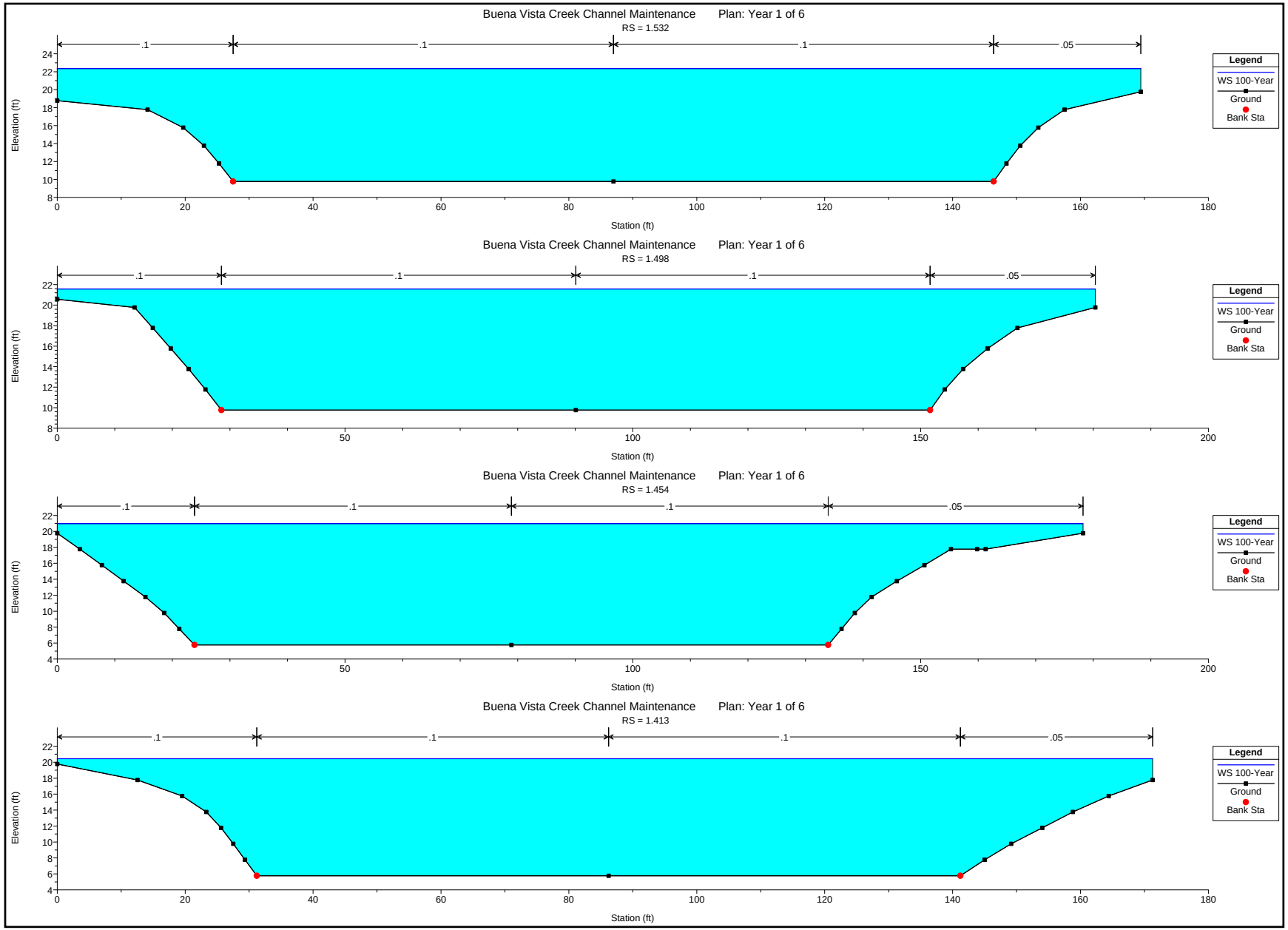
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.532
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.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.498
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.454
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.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.413
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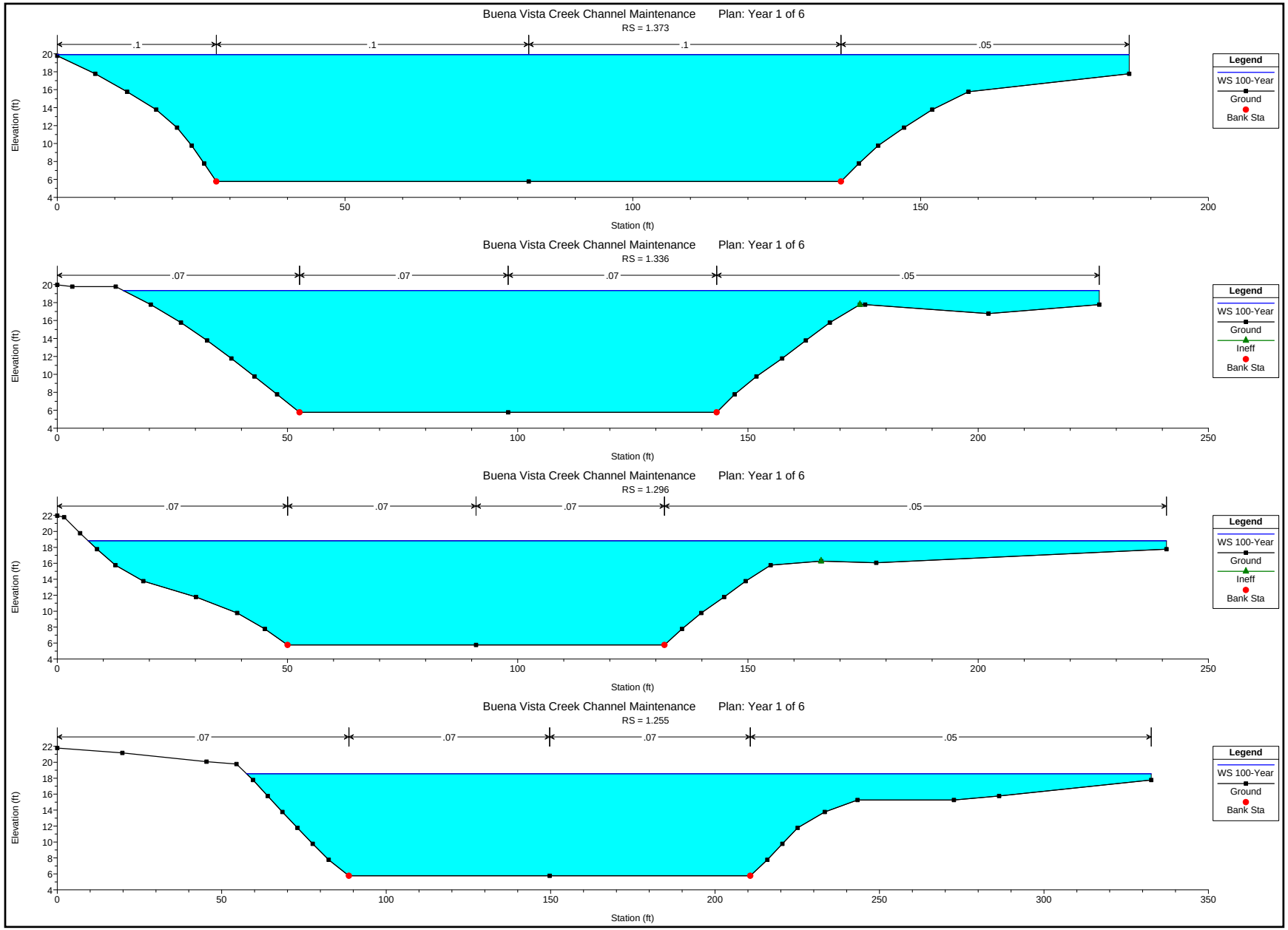
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.336
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.07
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.296
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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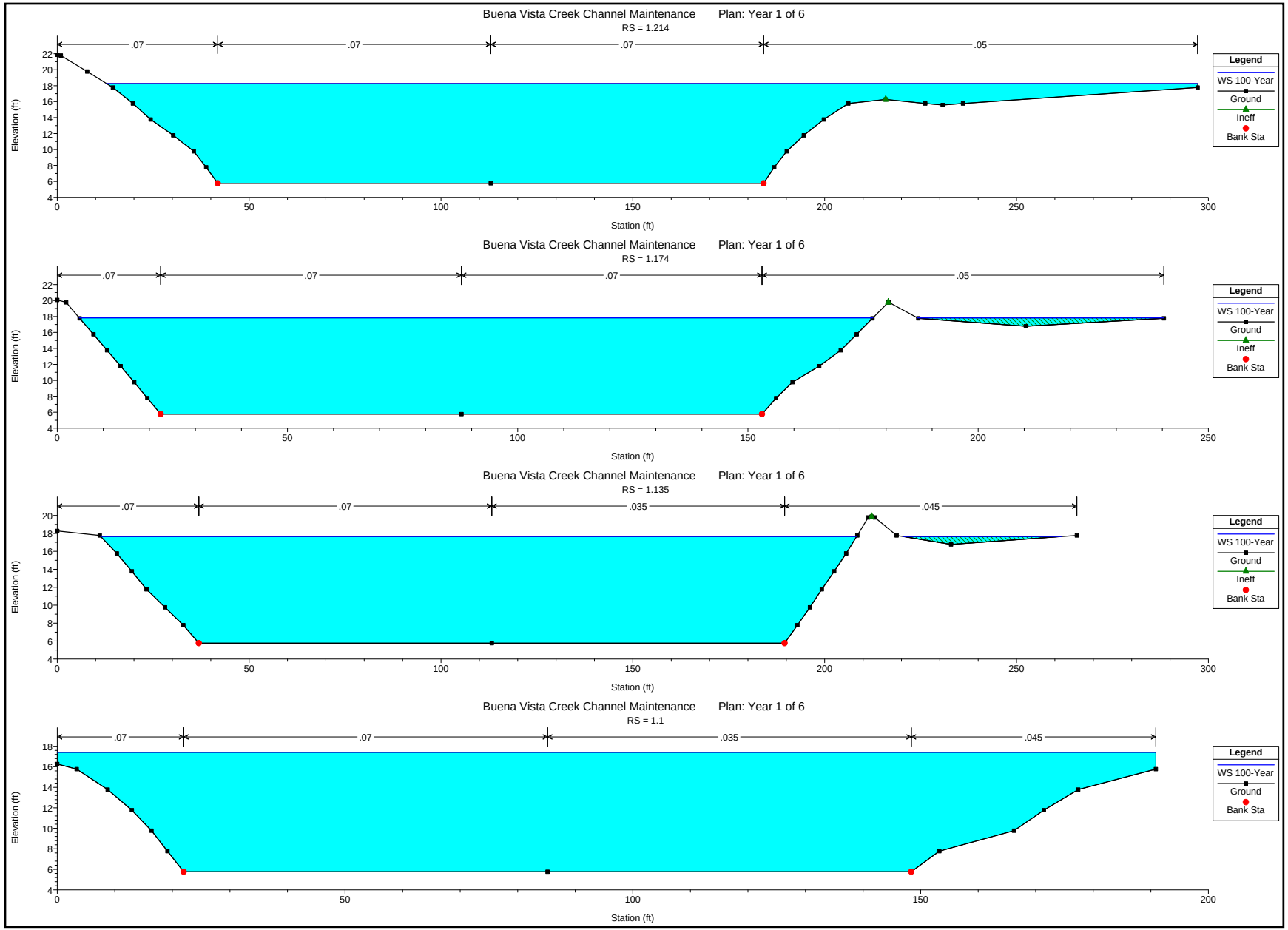
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.174
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.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.135
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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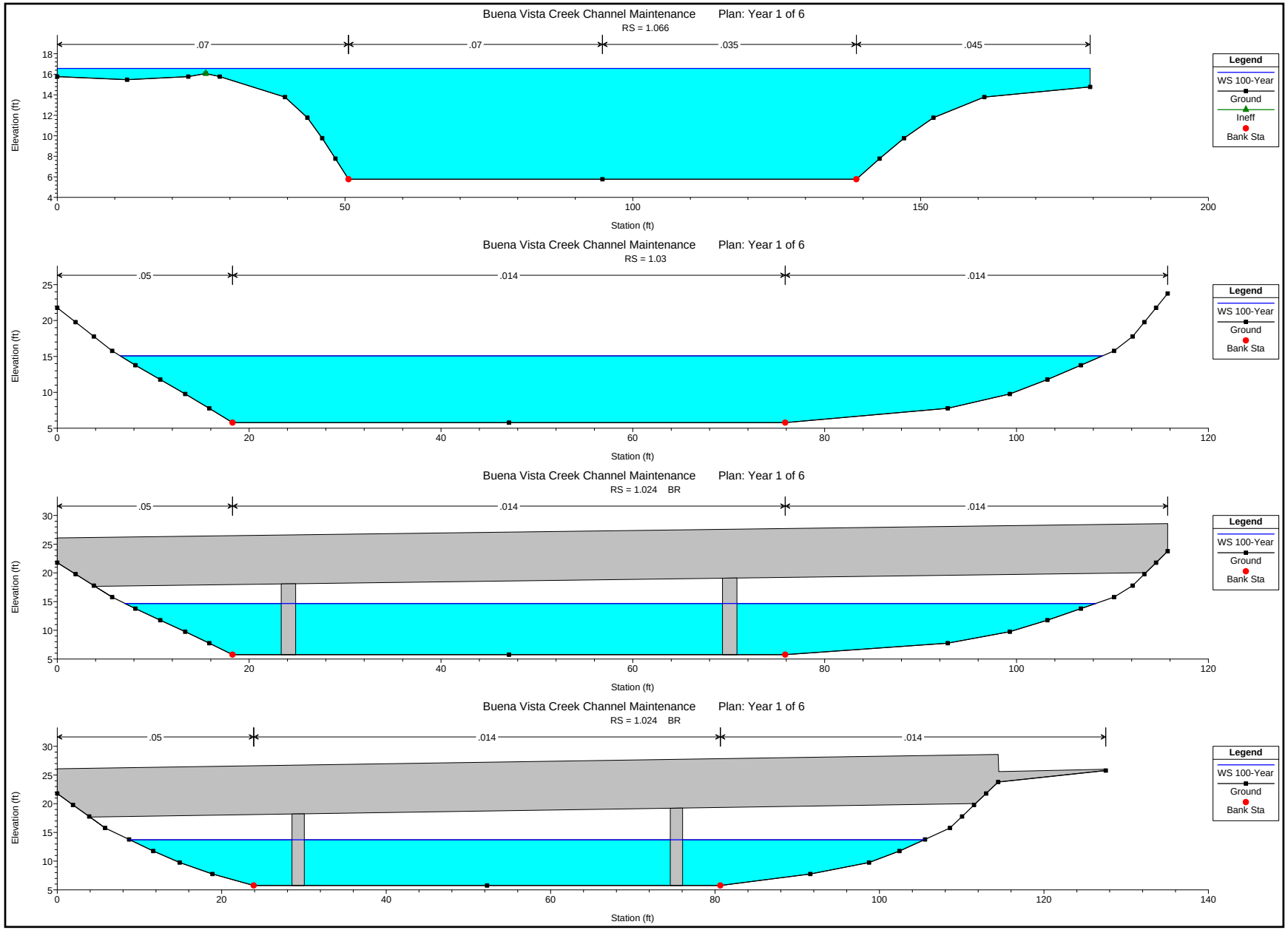
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.03
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1.024 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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Elevation (ft)
Station (ft)
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WS 100-Year
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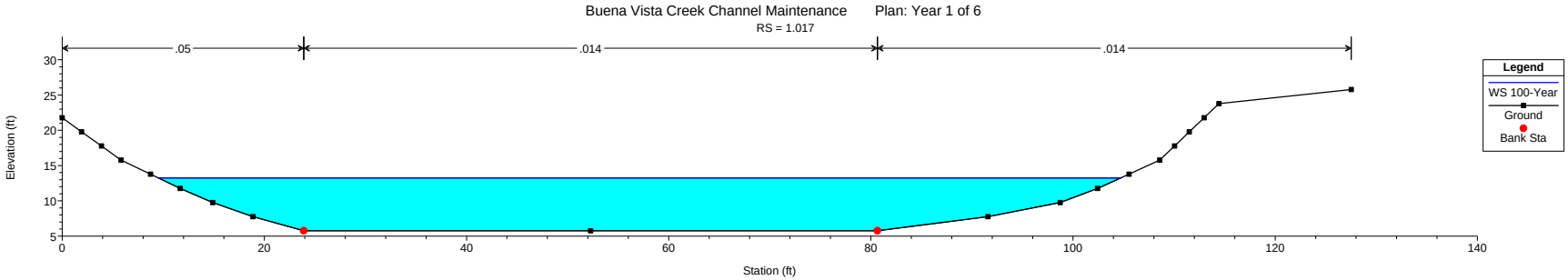
Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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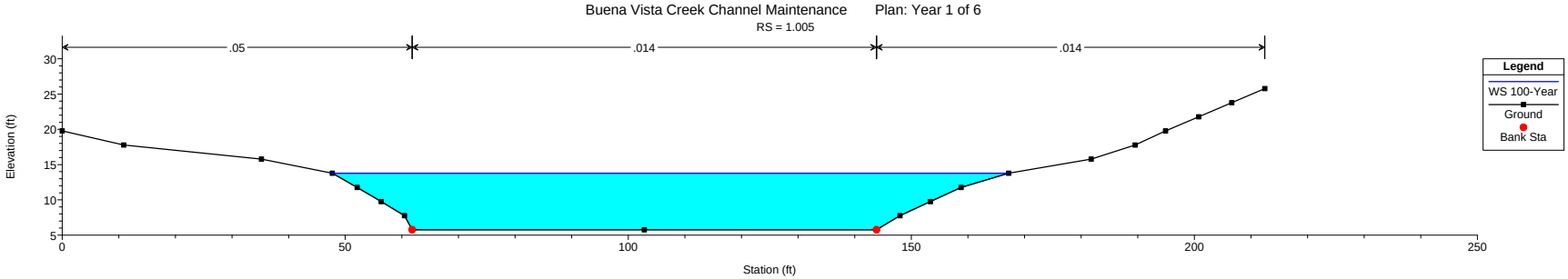
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
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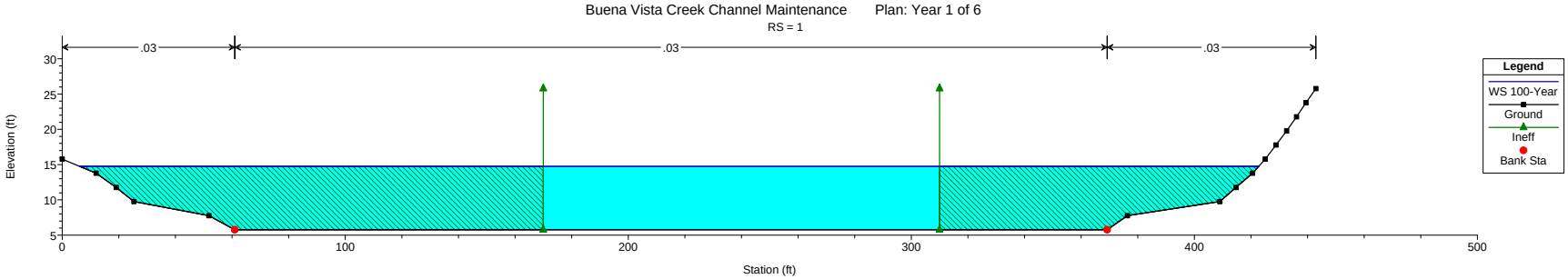
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 1 of 6
RS = 1
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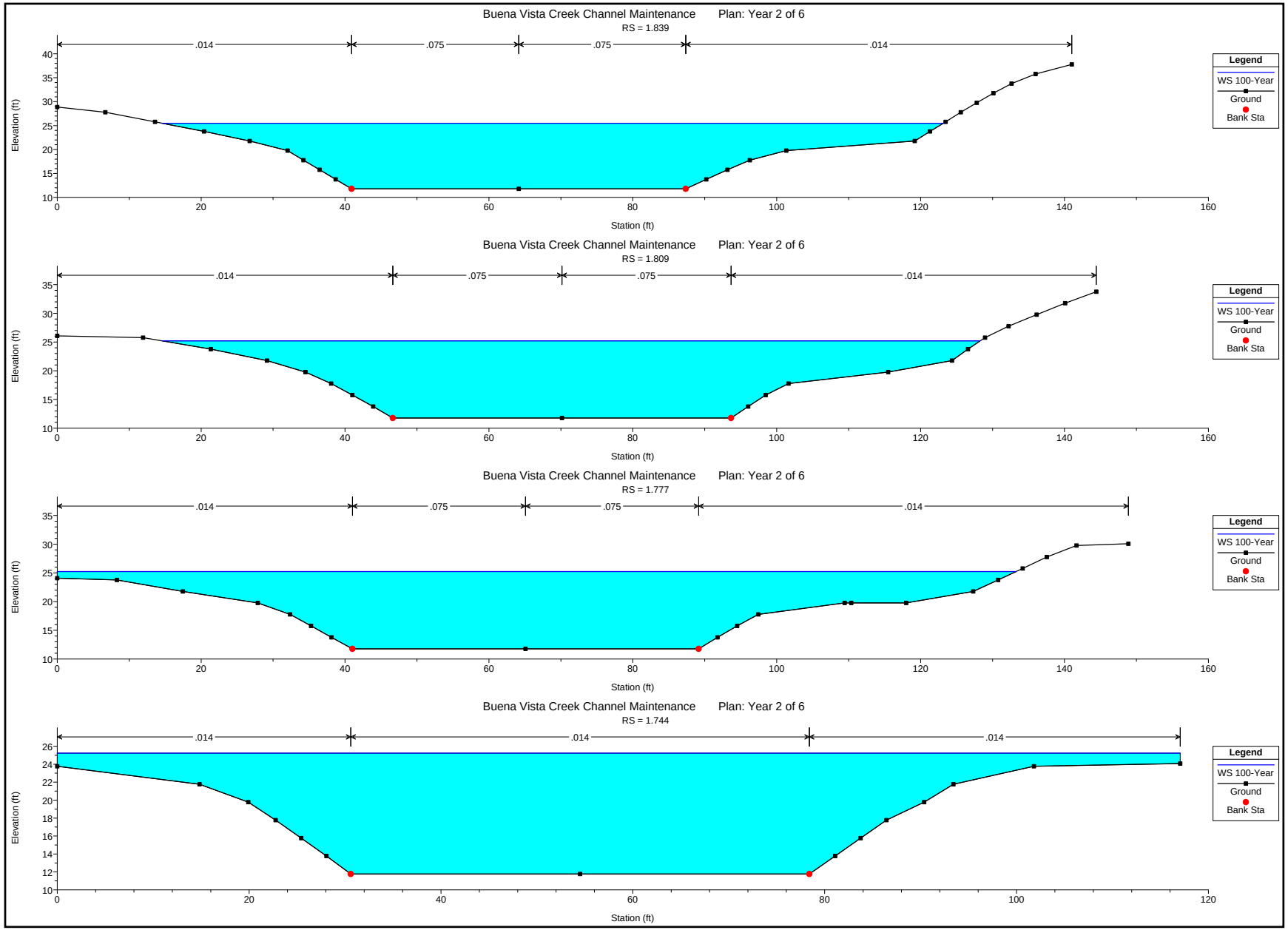
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 2 OF 6

HEC-RAS Plan: Year 2 of 6 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.65	12.17	17.48	0.003326	7.68	1260.15	179.45	0.41
Reach-1	1.1	100-Year	8500.00	5.77	17.52		17.87	0.001216	4.89	1869.88	190.87	0.25
Reach-1	1.135	100-Year	8500.00	5.77	17.80	10.29	18.07	0.000900	4.27	2110.04	245.12	0.22
Reach-1	1.174	100-Year	8500.00	5.77	17.92	10.80	18.28	0.000868	4.96	1840.83	226.44	0.25
Reach-1	1.214	100-Year	8500.00	5.77	18.17	10.53	18.44	0.000667	4.40	2220.38	284.01	0.22
Reach-1	1.255	100-Year	8500.00	5.77	18.30		18.61	0.000762	4.74	2148.77	274.42	0.24
Reach-1	1.296	100-Year	8500.00	5.77	18.46	12.38	18.95	0.002846	6.16	1639.18	233.54	0.30
Reach-1	1.336	100-Year	8500.00	5.77	19.06	11.98	19.48	0.002234	5.63	1736.41	210.90	0.27
Reach-1	1.373	100-Year	8500.00	5.77	19.68		20.00	0.002887	4.62	1918.49	185.96	0.22
Reach-1	1.413	100-Year	8500.00	5.77	20.25		20.56	0.002471	4.39	1973.05	171.29	0.20
Reach-1	1.454	100-Year	8500.00	5.77	20.81		21.08	0.002298	4.34	2058.55	178.22	0.20
Reach-1	1.498	100-Year	8500.00	9.77	21.44		21.85	0.004599	5.18	1696.33	180.35	0.27
Reach-1	1.532	100-Year	8500.00	9.77	22.25		22.62	0.003924	5.01	1770.65	169.43	0.25
Reach-1	1.564	100-Year	8500.00	9.77	22.90		23.16	0.002459	4.10	2116.02	206.50	0.20
Reach-1	1.597	100-Year	8500.00	9.77	23.31		23.64	0.002922	4.56	1919.01	169.33	0.22
Reach-1	1.629	100-Year	8500.00	9.77	23.81		24.12	0.002716	4.51	1956.55	166.92	0.21
Reach-1	1.661	100-Year	8500.00	9.77	24.26		24.58	0.002638	4.54	1957.62	164.81	0.21
Reach-1	1.701	100-Year	8500.00	11.77	24.85		25.50	0.006639	6.72	1380.53	142.02	0.33
Reach-1	1.734	100-Year	8500.00	11.77	24.21		26.04	0.000419	11.66	884.39	119.08	0.58
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	25.23	21.15	26.76	0.000320	10.75	966.29	117.06	0.52
Reach-1	1.777	100-Year	8500.00	11.77	25.23		26.91	0.001532	4.39	1110.09	133.28	0.21
Reach-1	1.809	100-Year	8500.00	11.77	25.20		27.34	0.002000	5.01	1007.73	113.69	0.24
Reach-1	1.839	100-Year	8500.00	11.77	25.49		27.69	0.002132	5.24	991.56	108.63	0.25


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.839
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.777
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.744
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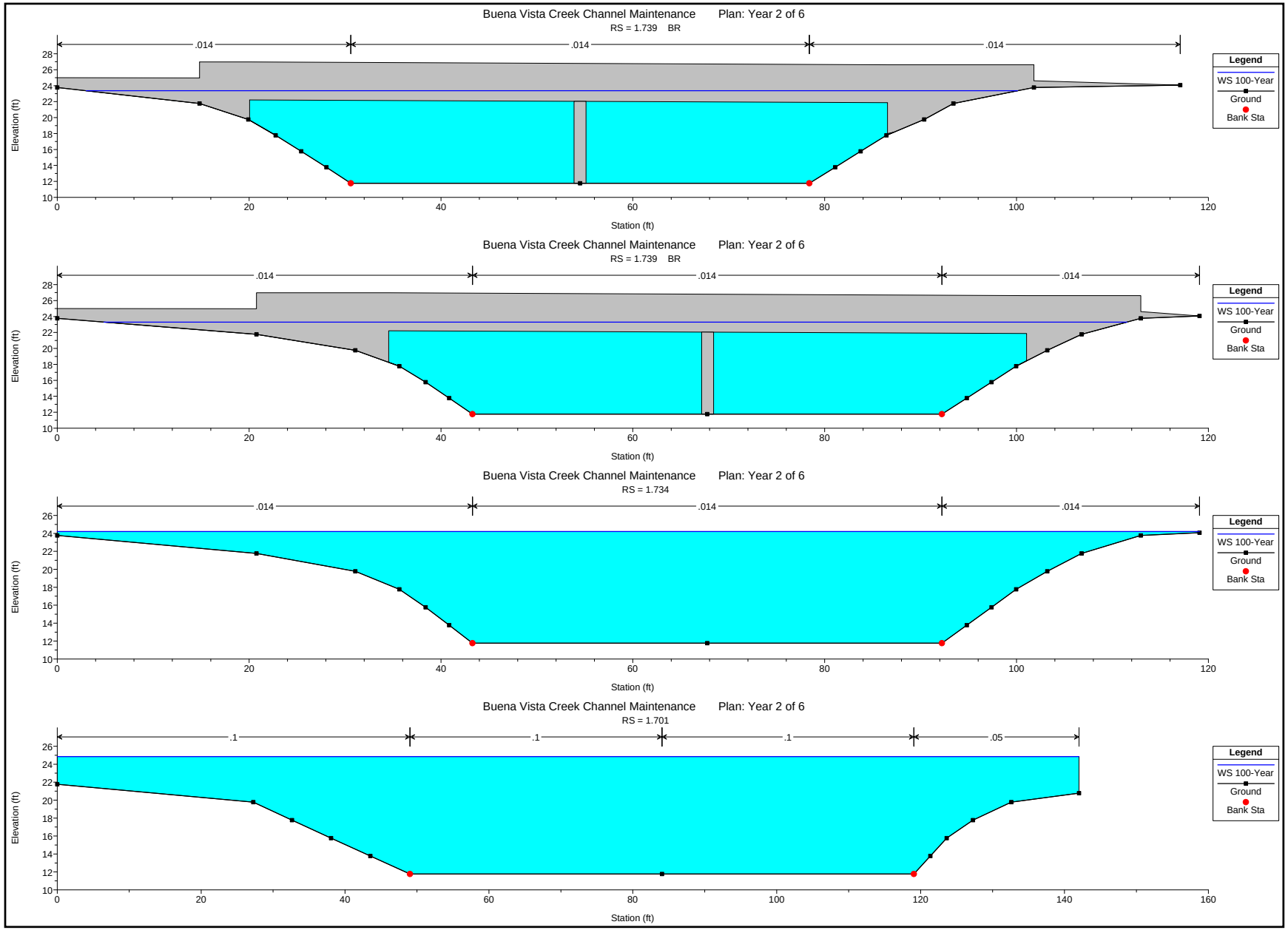
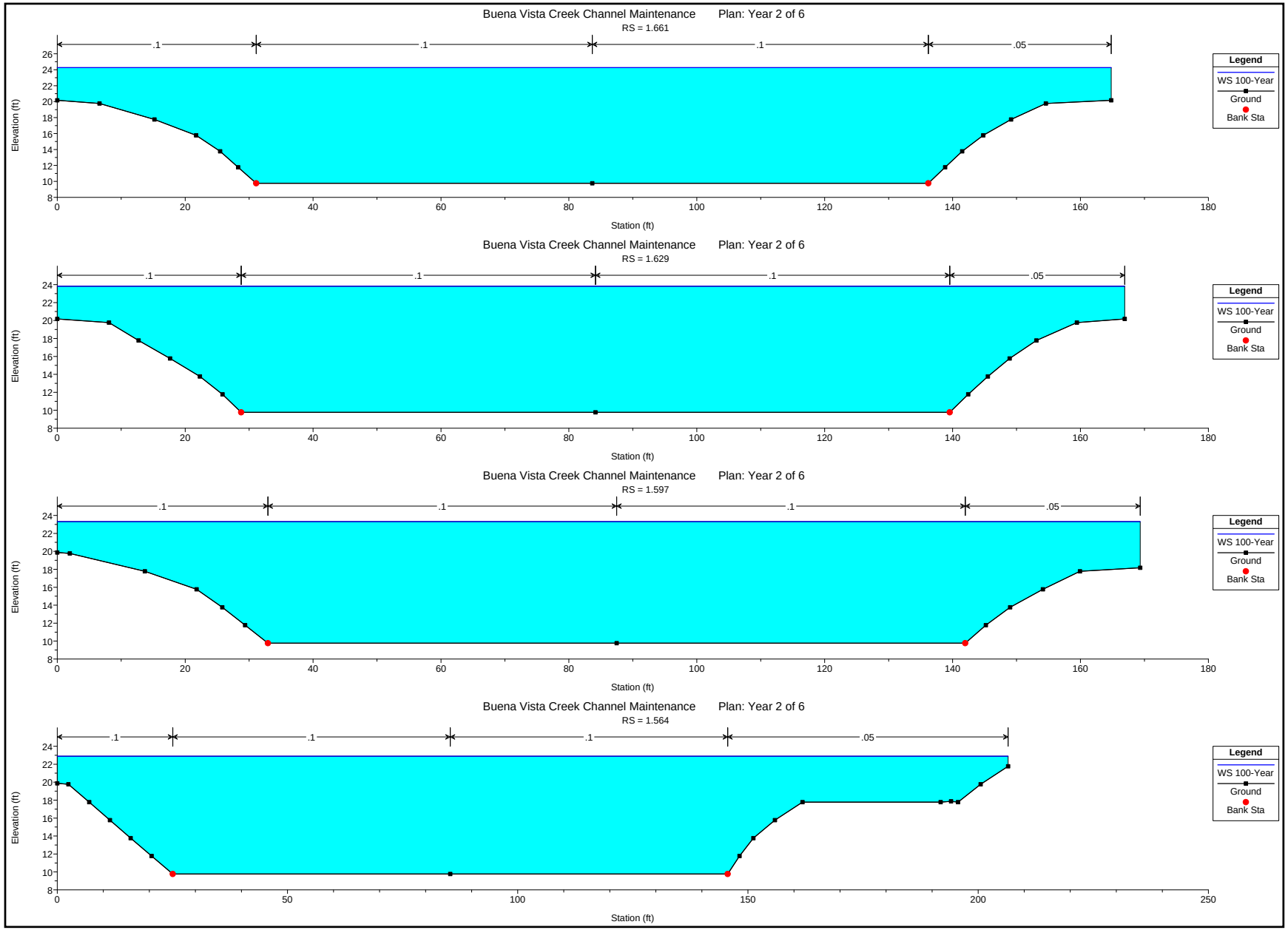
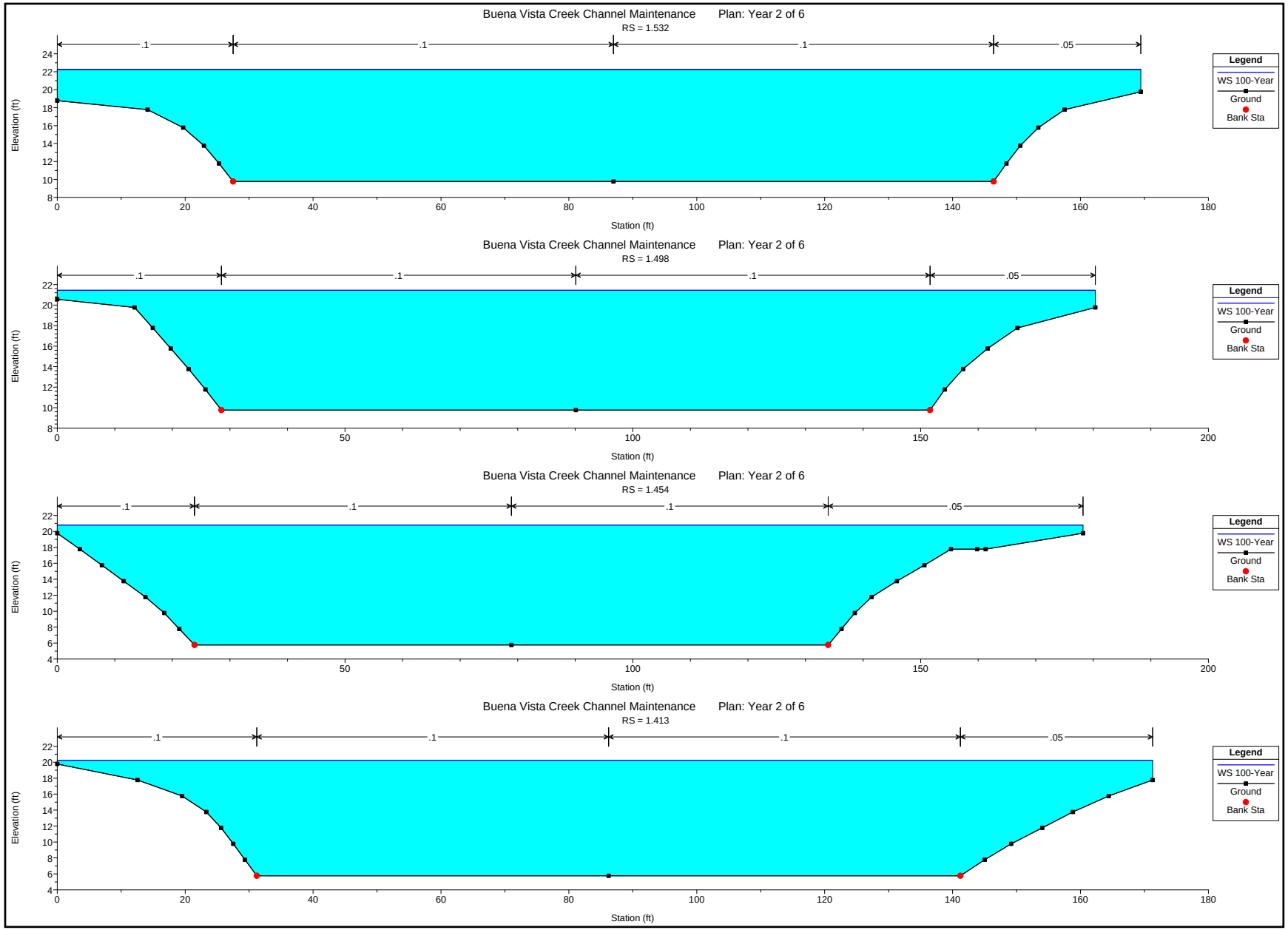
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.734
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.701
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.661
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.629
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.597
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.564
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.532
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.498
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.454
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.413
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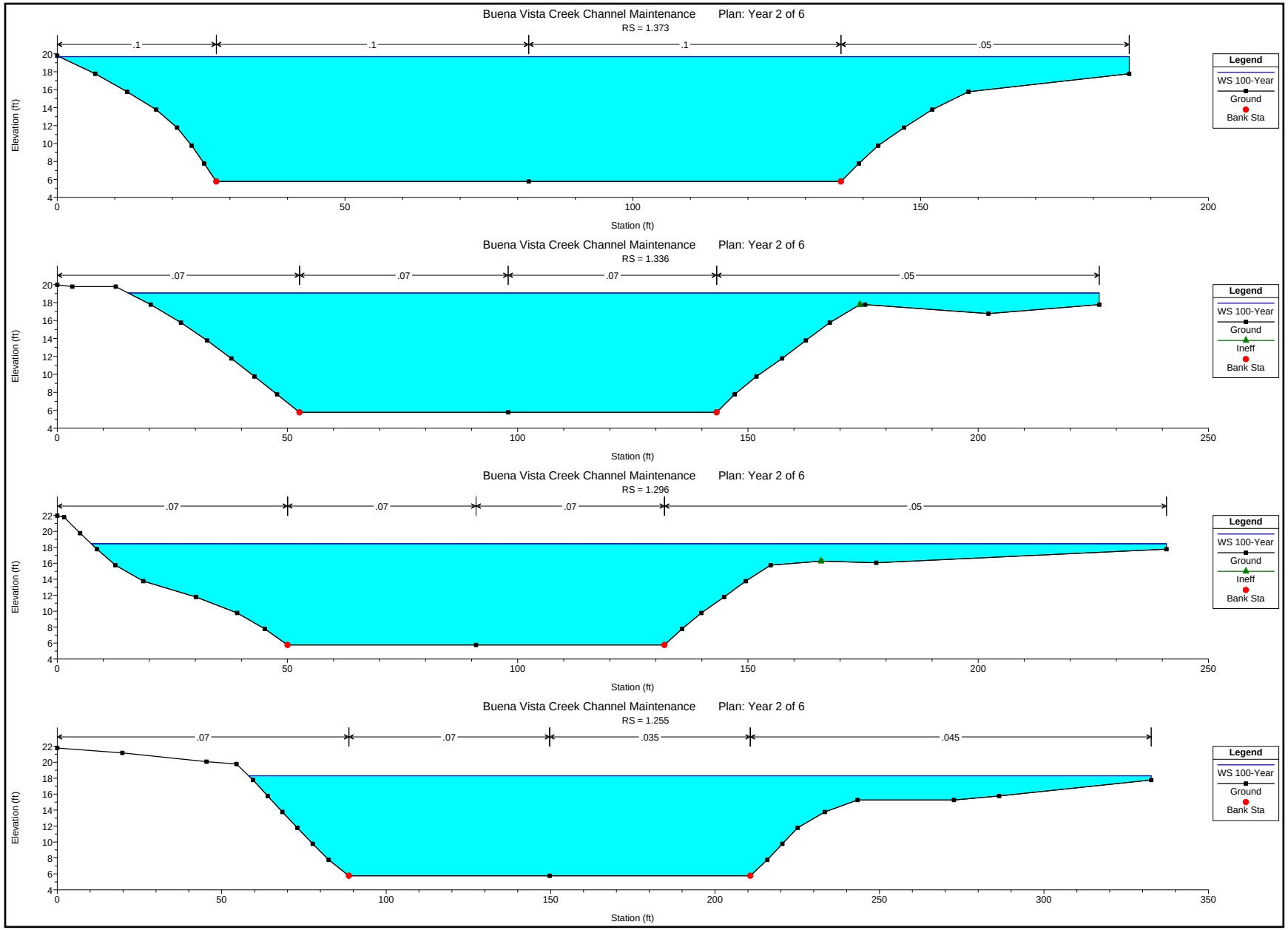
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.373
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.336
.07
.07
.07
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.296
.07
.07
.07
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.255
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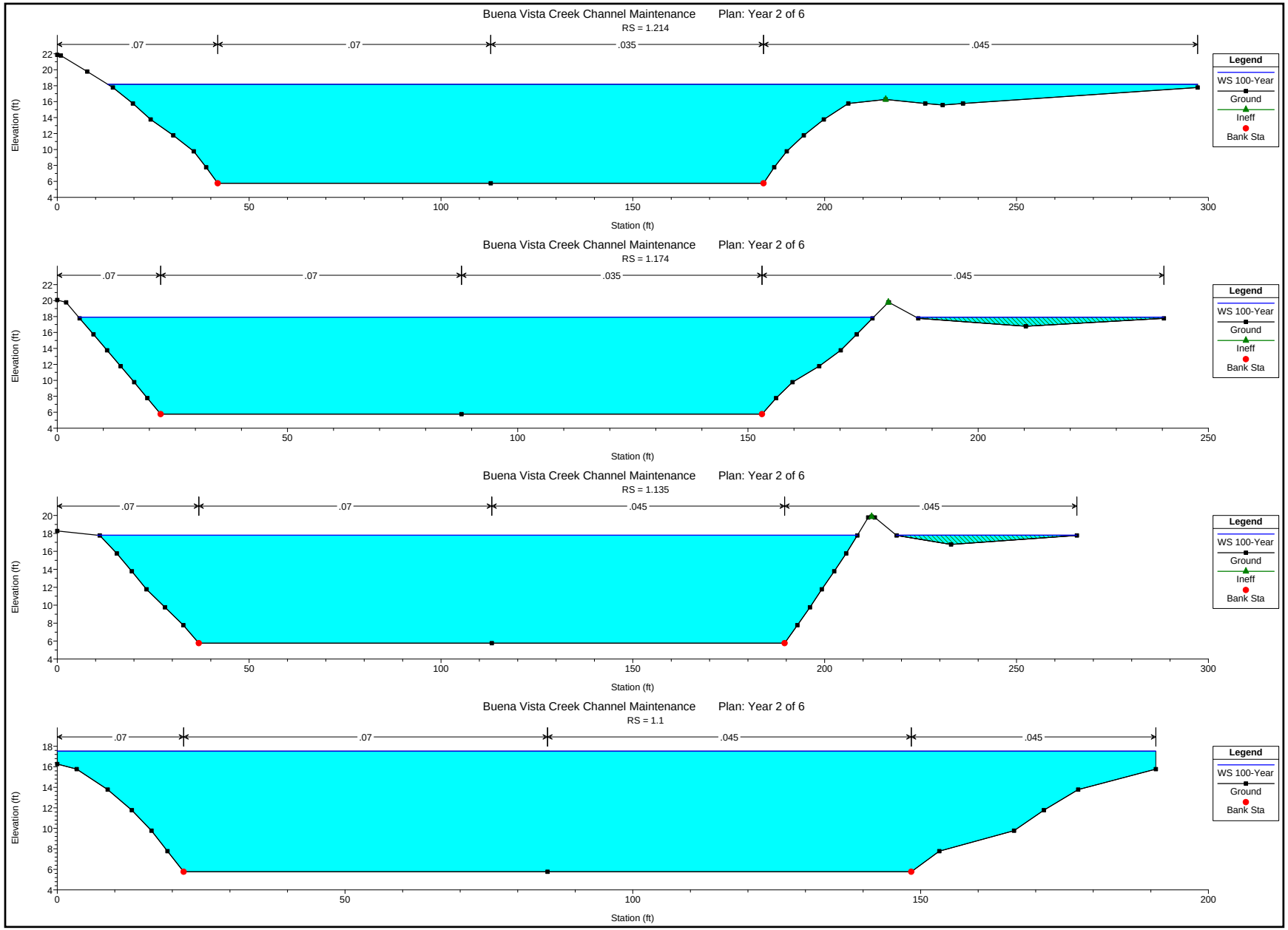
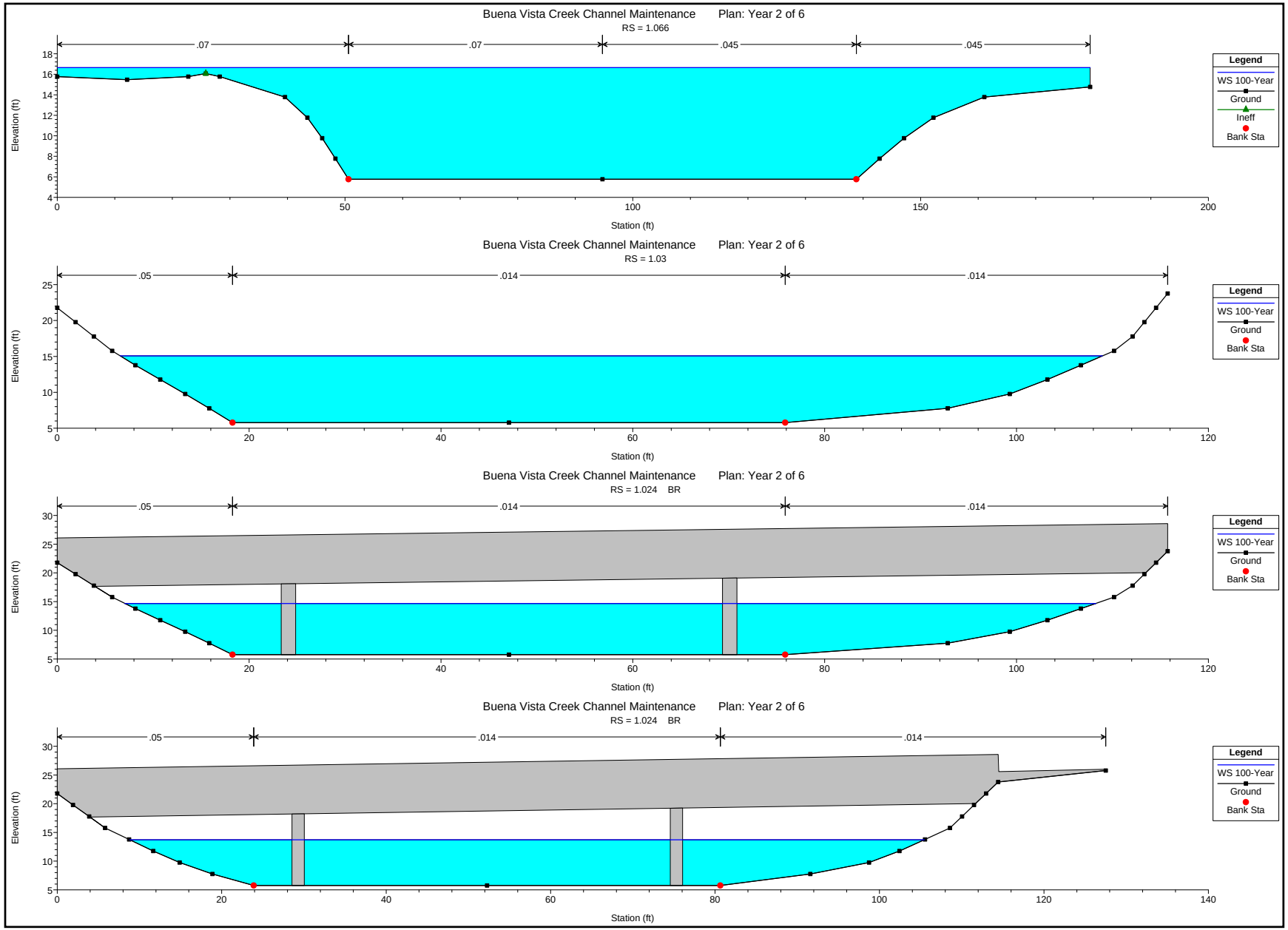
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.214
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.174
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.135
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.1
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.066
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.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.024 BR
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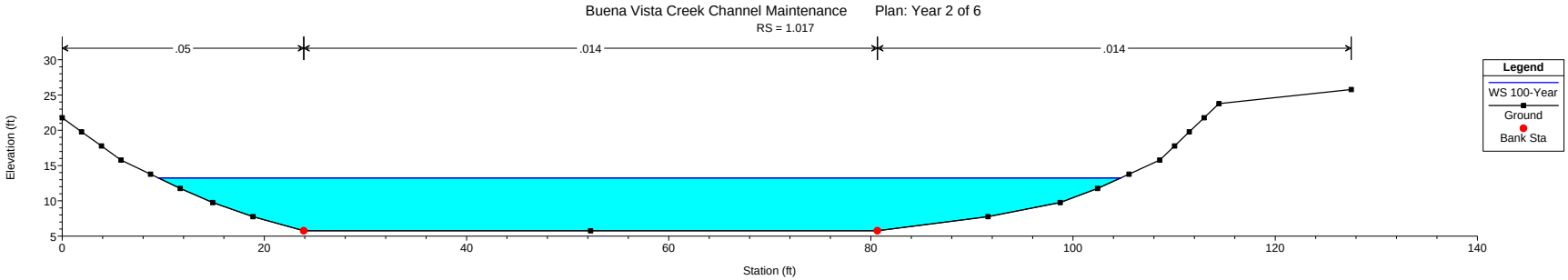
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.017
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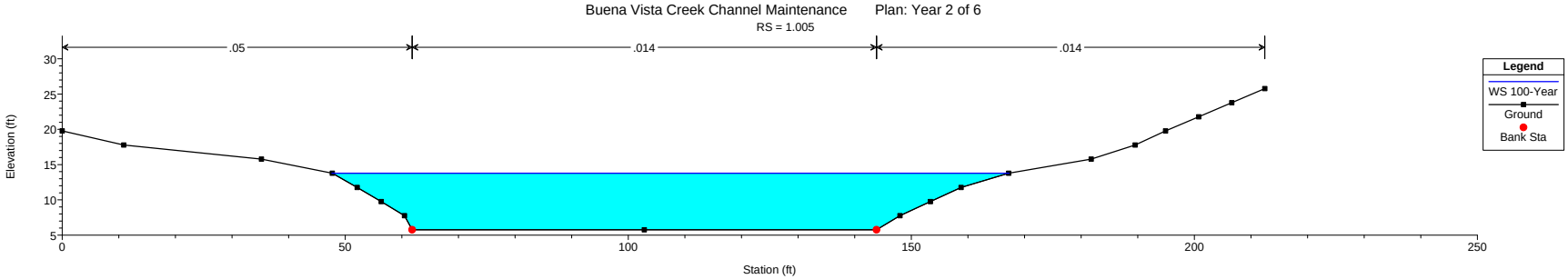
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1.005
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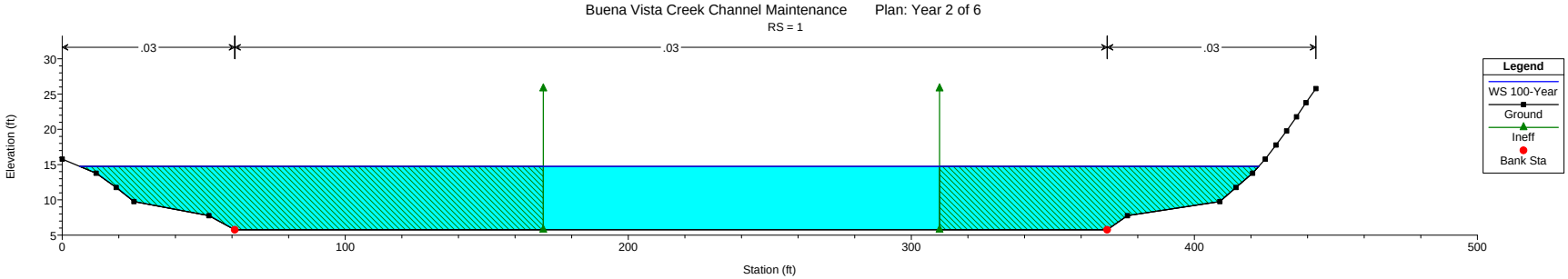
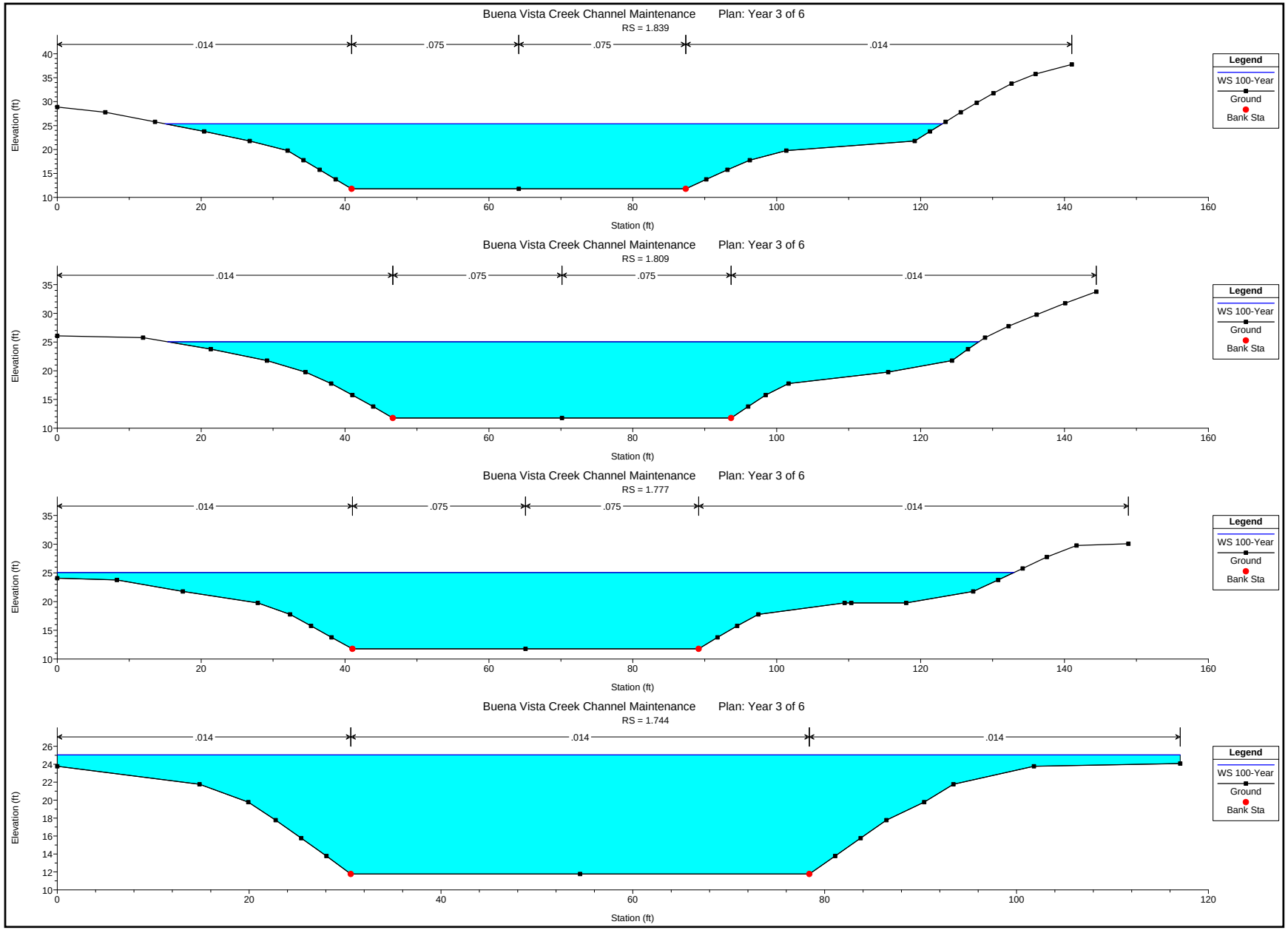
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 2 of 6
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 3 OF 6

HEC-RAS Plan: Year 3 of 6 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.69	12.16	17.49	0.003858	7.53	1268.30	179.45	0.40
Reach-1	1.1	100-Year	8500.00	5.77	17.60		17.93	0.001398	4.78	1884.52	190.87	0.24
Reach-1	1.135	100-Year	8500.00	5.77	17.90	10.29	18.16	0.001047	4.21	2130.47	247.82	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.07	10.79	18.41	0.001116	4.83	1866.93	227.41	0.24
Reach-1	1.214	100-Year	8500.00	5.77	18.36	10.52	18.62	0.000834	4.24	2276.82	284.68	0.21
Reach-1	1.255	100-Year	8500.00	5.77	18.54		18.81	0.000917	4.49	2215.12	275.03	0.22
Reach-1	1.296	100-Year	8500.00	5.77	18.59	12.46	19.14	0.001407	6.54	1668.84	233.77	0.32
Reach-1	1.336	100-Year	8500.00	5.77	18.92	12.04	19.42	0.001174	6.08	1706.48	210.36	0.30
Reach-1	1.373	100-Year	8500.00	5.77	19.26		19.65	0.001029	5.21	1840.19	184.57	0.25
Reach-1	1.413	100-Year	8500.00	5.77	19.63		19.99	0.002834	4.56	1867.84	170.44	0.22
Reach-1	1.454	100-Year	8500.00	5.77	20.29		20.59	0.002656	4.56	1965.93	178.22	0.21
Reach-1	1.498	100-Year	8500.00	9.77	21.03		21.47	0.005295	5.43	1621.43	180.35	0.29
Reach-1	1.532	100-Year	8500.00	9.77	21.94		22.34	0.004307	5.16	1719.17	169.43	0.26
Reach-1	1.564	100-Year	8500.00	9.77	22.65		22.92	0.002662	4.21	2065.19	206.50	0.21
Reach-1	1.597	100-Year	8500.00	9.77	23.10		23.44	0.003103	4.65	1883.04	169.33	0.22
Reach-1	1.629	100-Year	8500.00	9.77	23.63		23.95	0.002855	4.58	1926.09	166.92	0.22
Reach-1	1.661	100-Year	8500.00	9.77	24.10		24.42	0.002753	4.60	1931.27	164.81	0.21
Reach-1	1.701	100-Year	8500.00	11.77	24.72		25.39	0.006922	6.82	1361.91	142.02	0.33
Reach-1	1.734	100-Year	8500.00	11.77	24.04		25.96	0.000444	11.90	864.46	118.56	0.60
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	25.04	21.15	26.65	0.000341	10.99	944.20	117.06	0.53
Reach-1	1.777	100-Year	8500.00	11.77	25.06		26.80	0.001664	4.53	1086.36	132.97	0.22
Reach-1	1.809	100-Year	8500.00	11.77	25.04		27.26	0.002133	5.13	989.37	112.73	0.25
Reach-1	1.839	100-Year	8500.00	11.77	25.36		27.62	0.002244	5.35	977.65	108.05	0.26


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.839
.014
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.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.809
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.777
.014
.075
.075
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.744
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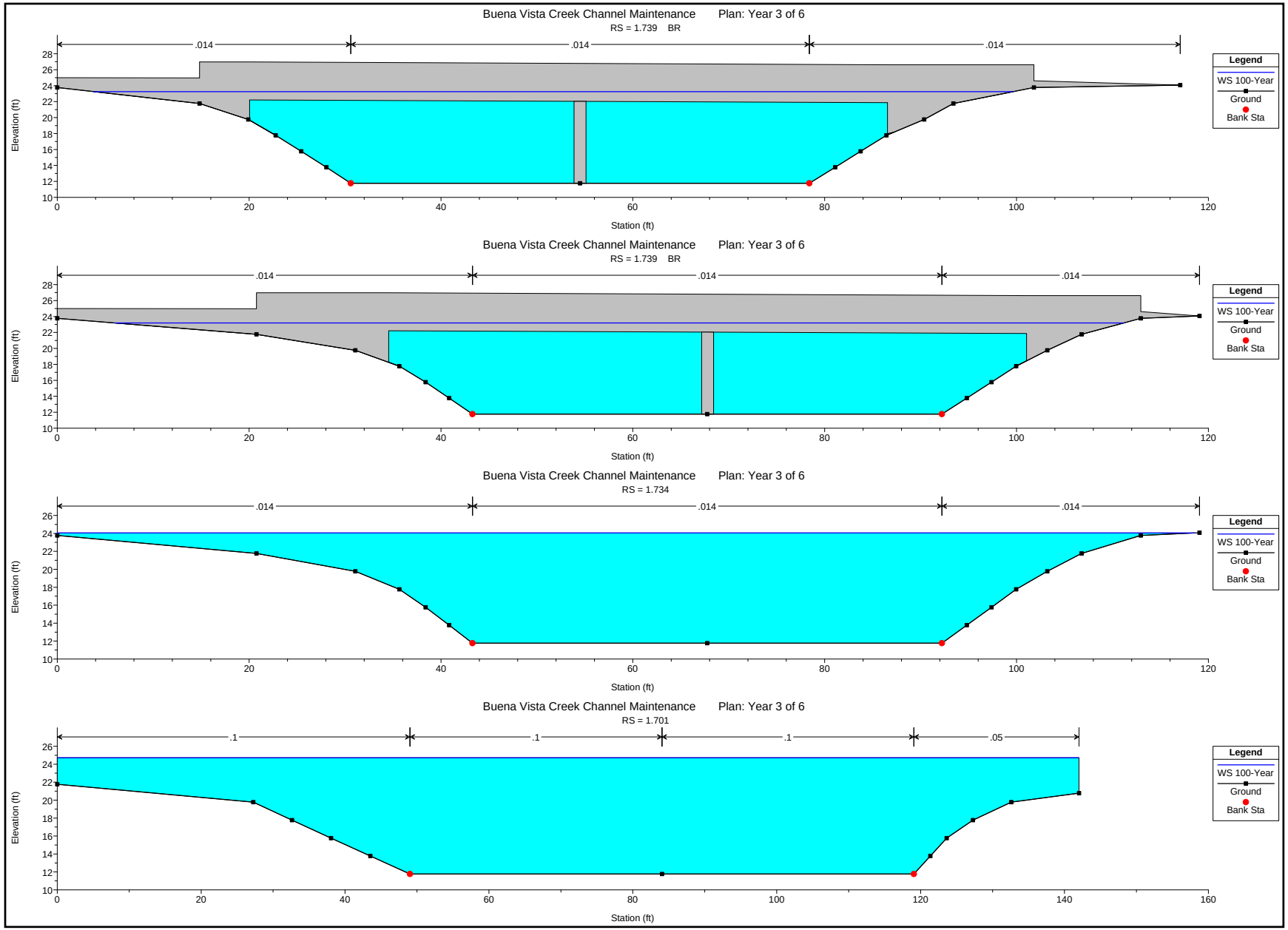
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.739 BR
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.734
.014
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.701
.1
.1
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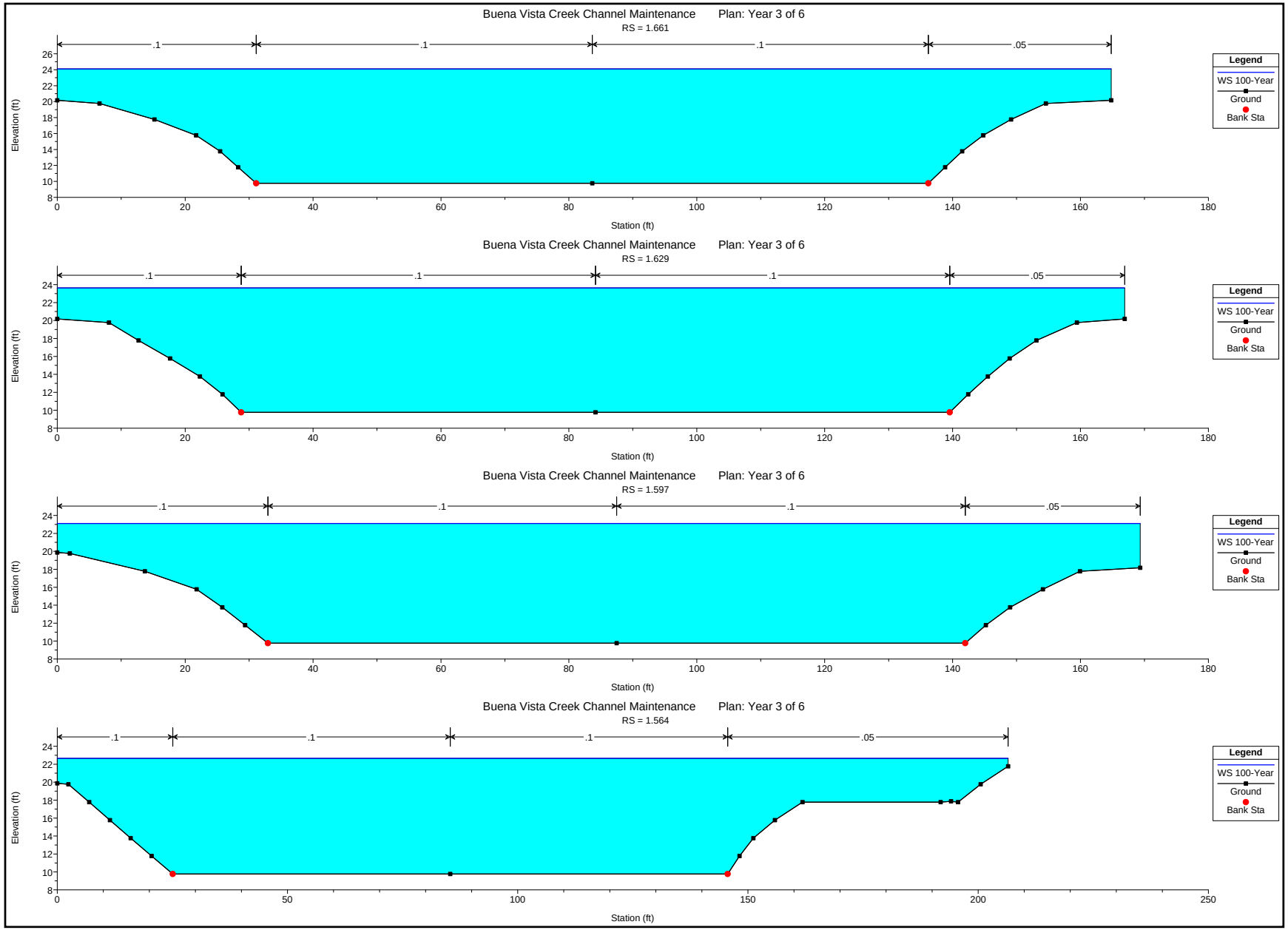
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.661
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.629
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.597
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.564
.1
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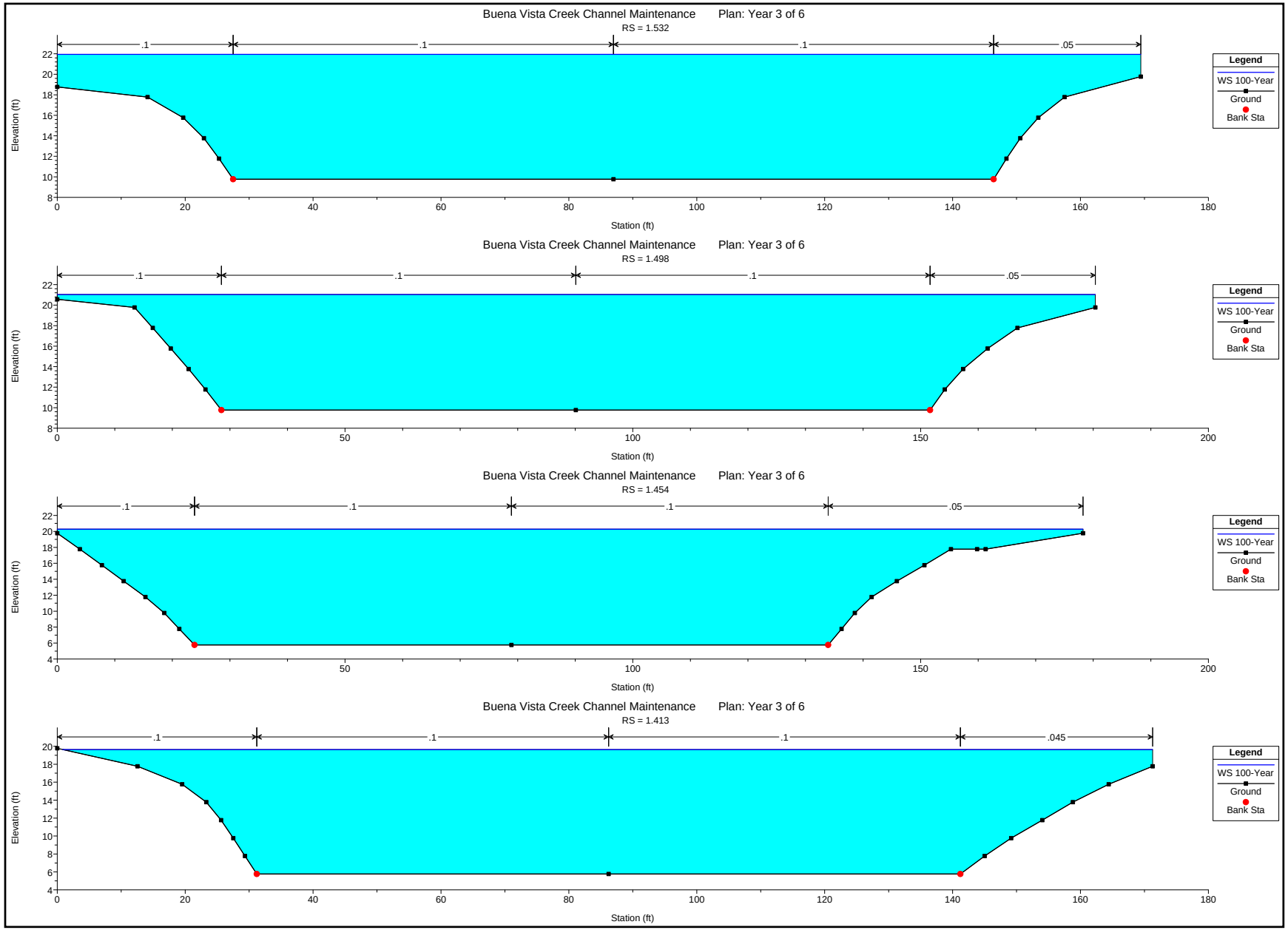
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.532
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.498
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.454
.1
.1
.1
.05
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.413
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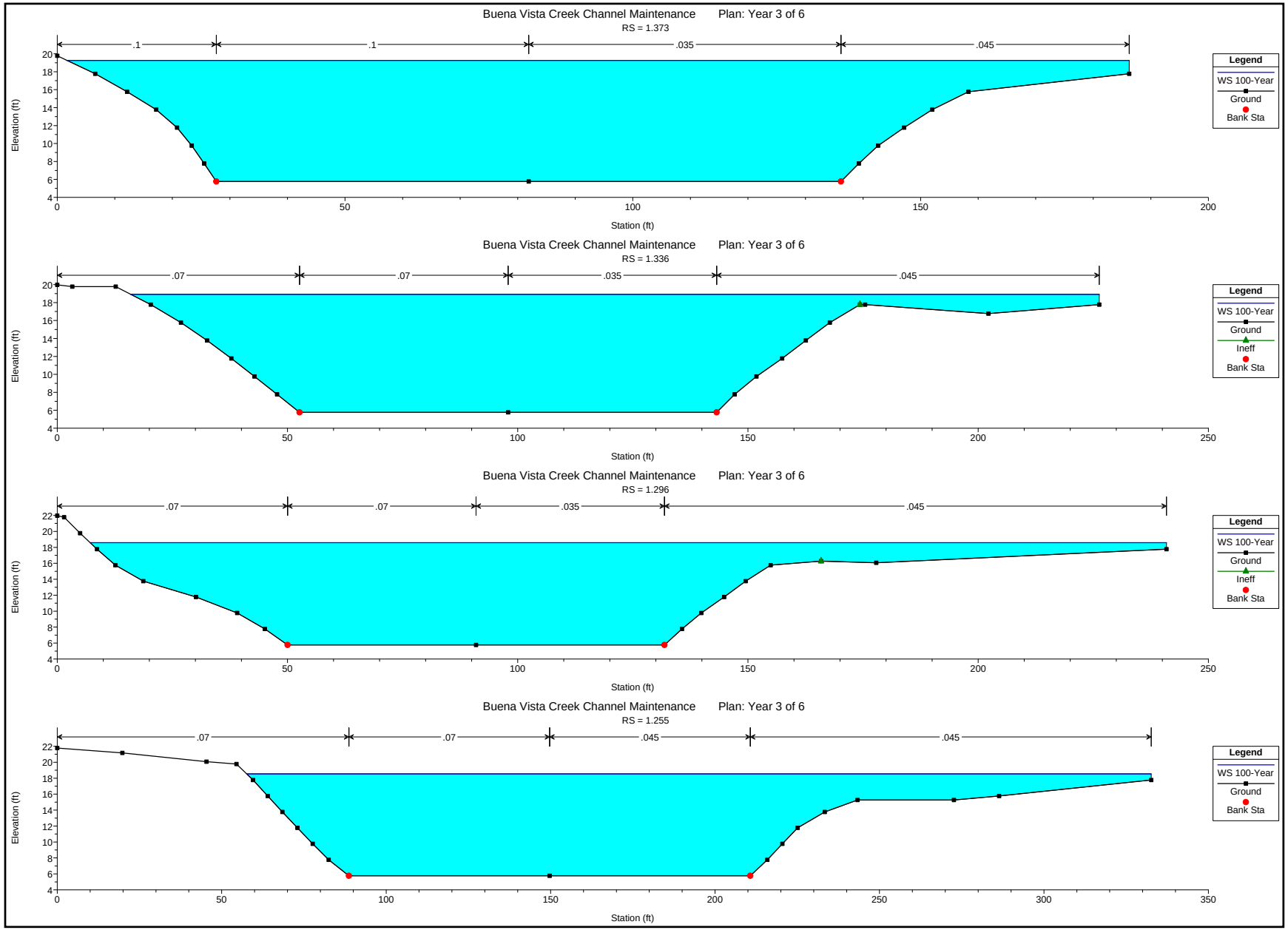
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.373
.1
.1
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.336
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.296
.07
.07
.035
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.255
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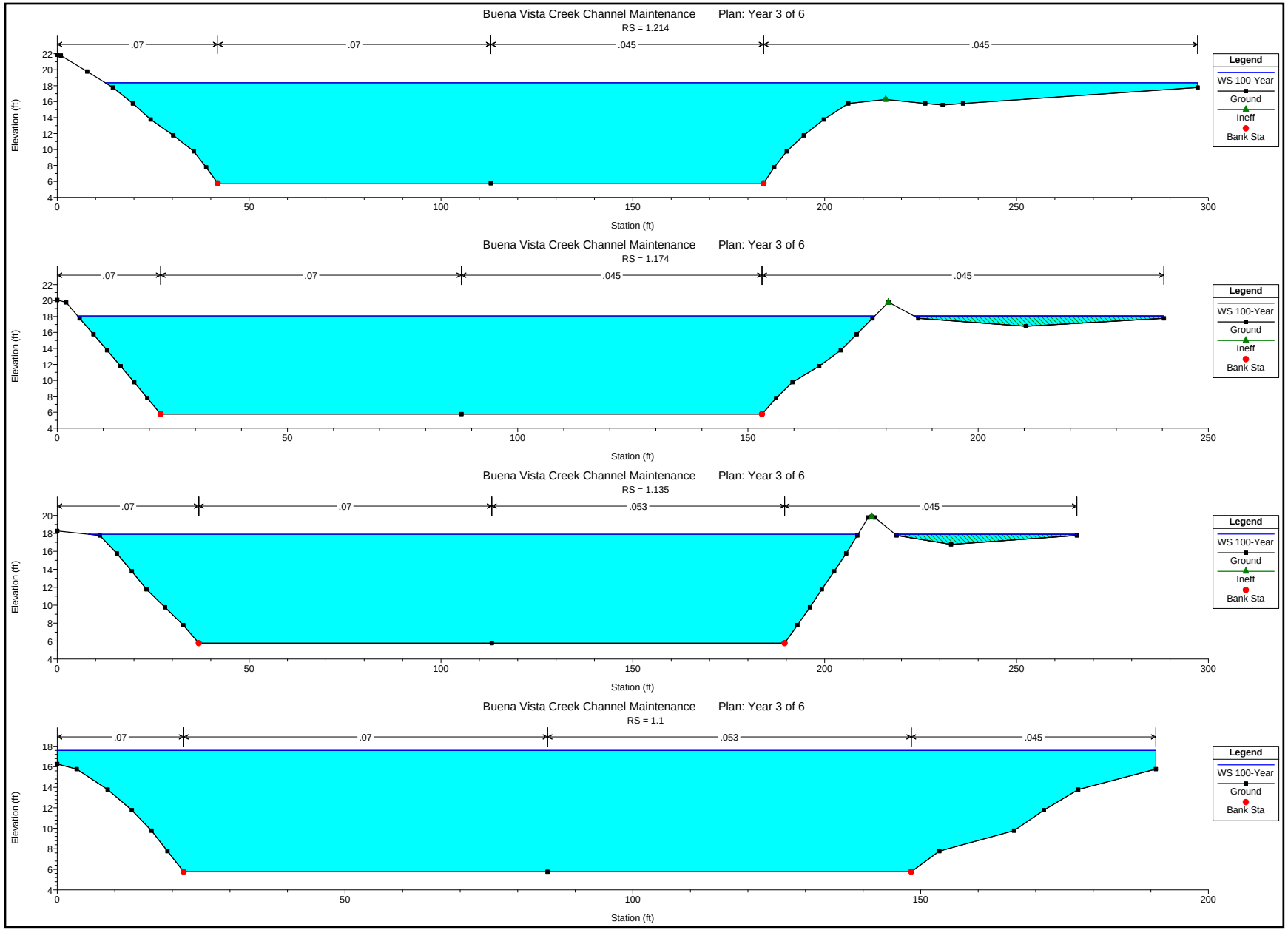
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.214
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.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.174
.07
.07
.045
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.135
.07
.07
.053
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.1
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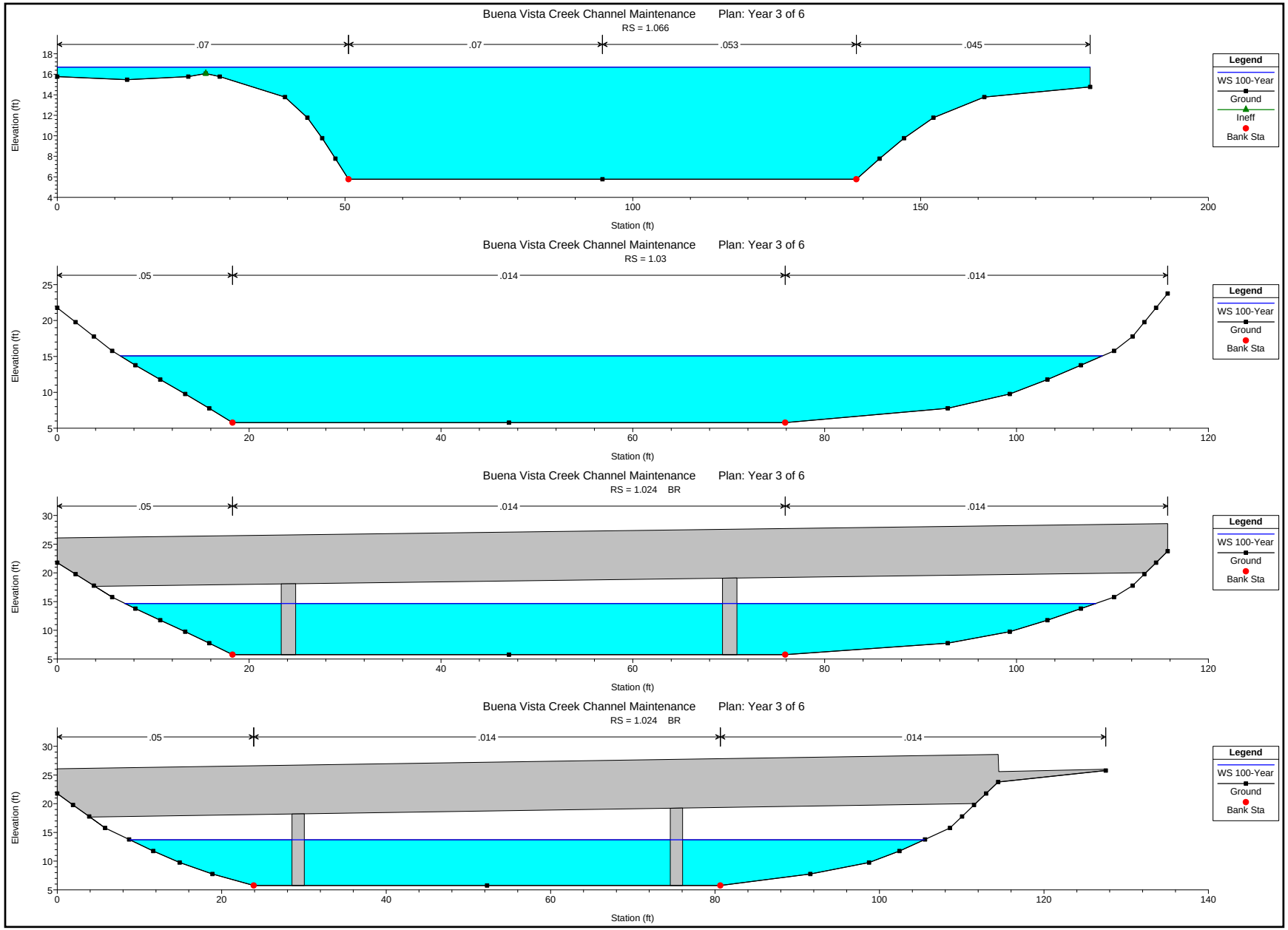
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.066
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.07
.053
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.03
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.024 BR
.05
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.024 BR
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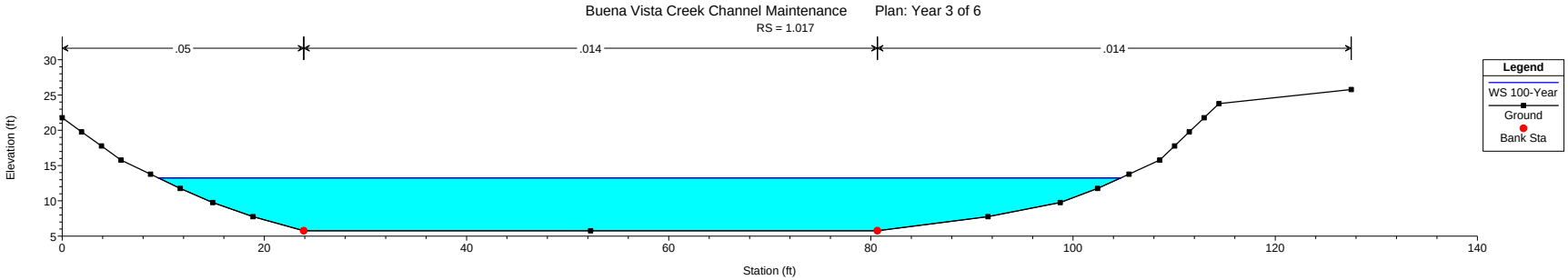
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.017
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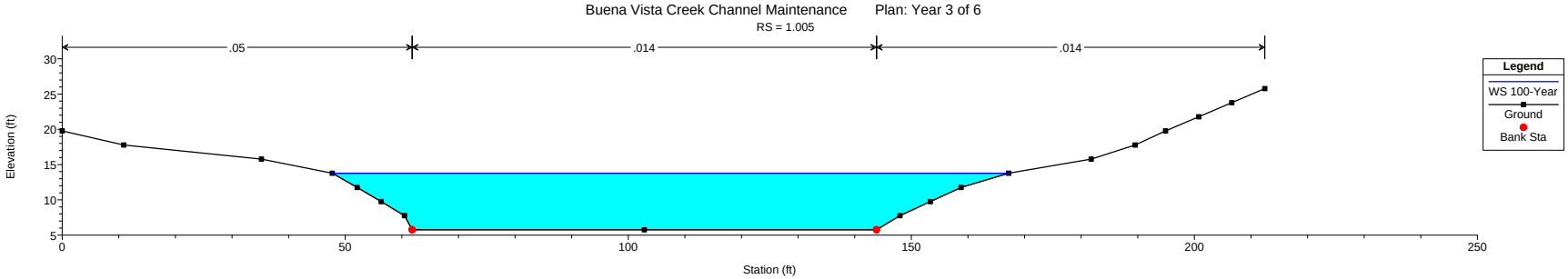
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1.005
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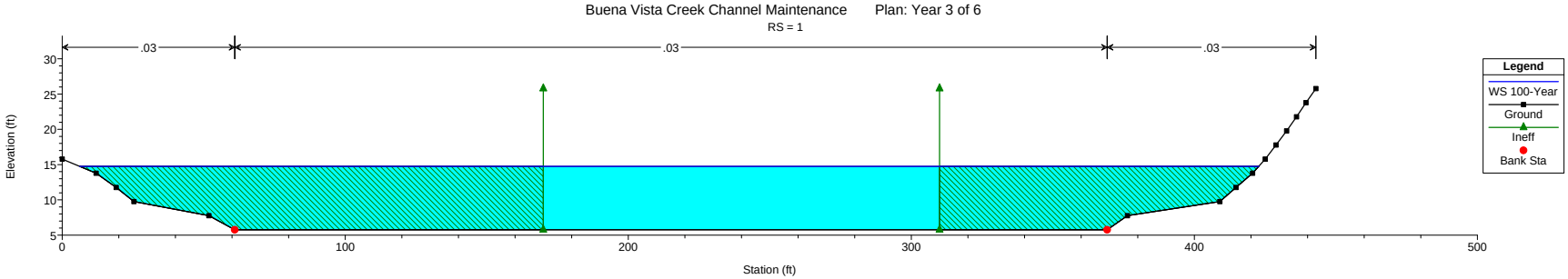
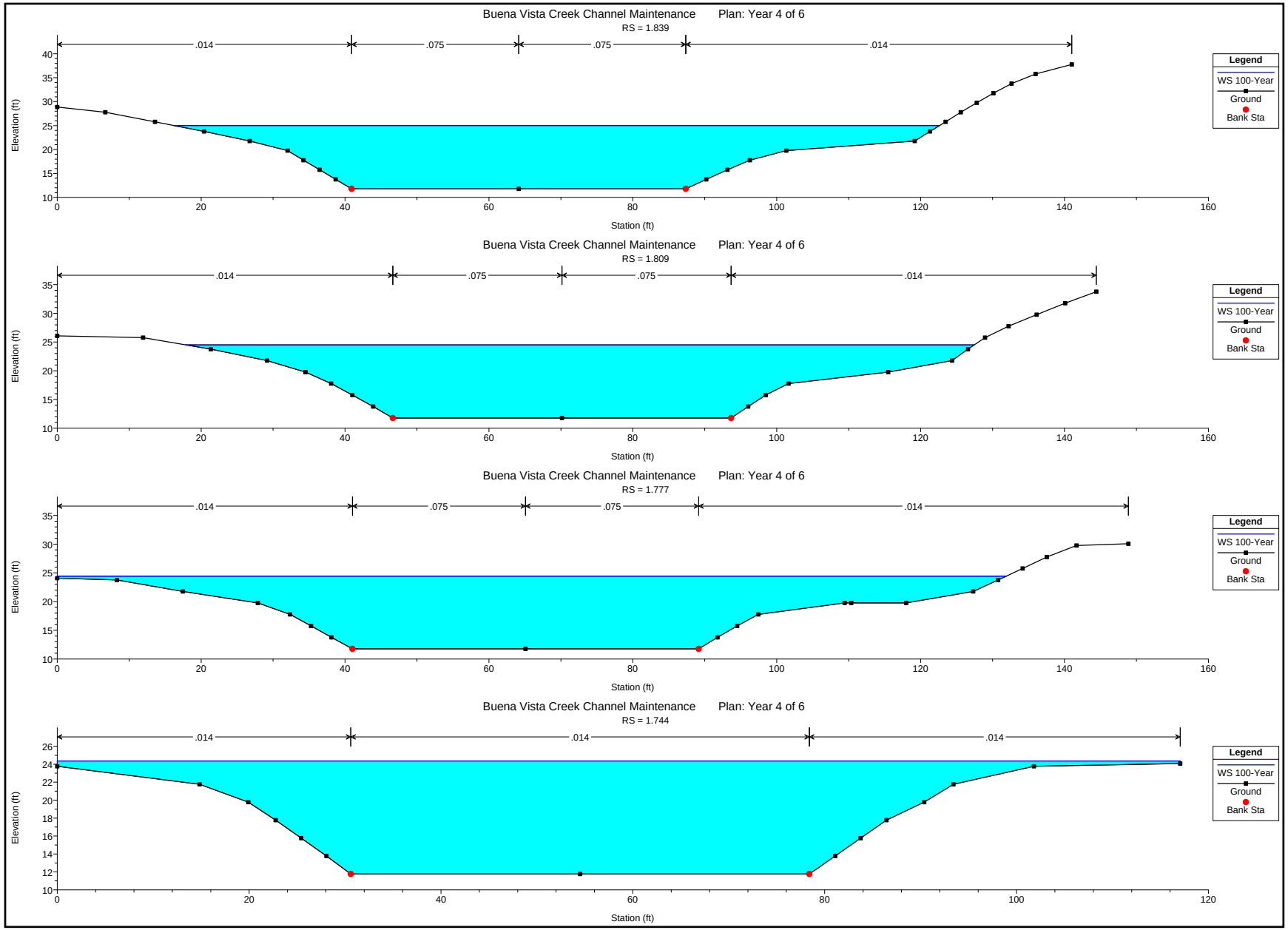
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 3 of 6
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 4 OF 6

HEC-RAS Plan: Year 4 of 6 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.72	12.16	17.50	0.004285	7.42	1273.60	179.45	0.40
Reach-1	1.1	100-Year	8500.00	5.77	17.66		17.98	0.001540	4.70	1895.38	190.87	0.24
Reach-1	1.135	100-Year	8500.00	5.77	17.98	10.28	18.24	0.001163	4.16	2146.29	249.90	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.18	10.79	18.51	0.001287	4.74	1886.42	228.13	0.24
Reach-1	1.214	100-Year	8500.00	5.77	18.51	10.52	18.75	0.000943	4.13	2318.03	285.16	0.20
Reach-1	1.255	100-Year	8500.00	5.77	18.71		18.96	0.001011	4.32	2262.00	275.46	0.21
Reach-1	1.296	100-Year	8500.00	5.77	18.83	12.42	19.31	0.001660	6.13	1725.53	234.22	0.30
Reach-1	1.336	100-Year	8500.00	5.77	19.19	12.01	19.63	0.001403	5.74	1764.54	211.41	0.28
Reach-1	1.373	100-Year	8500.00	5.77	19.56		19.91	0.001299	4.96	1895.77	185.56	0.24
Reach-1	1.413	100-Year	8500.00	5.77	19.78		20.13	0.000880	4.94	1892.50	171.29	0.23
Reach-1	1.454	100-Year	8500.00	5.77	19.97		20.33	0.000886	5.00	1909.01	178.22	0.23
Reach-1	1.498	100-Year	8500.00	9.77	20.11		20.70	0.002141	6.29	1458.45	172.66	0.34
Reach-1	1.532	100-Year	8500.00	9.77	20.82		21.32	0.006147	5.78	1528.42	169.43	0.31
Reach-1	1.564	100-Year	8500.00	9.77	21.80		22.12	0.003559	4.65	1888.89	206.50	0.24
Reach-1	1.597	100-Year	8500.00	9.77	22.39		22.78	0.003822	4.98	1763.01	169.33	0.25
Reach-1	1.629	100-Year	8500.00	9.77	23.04		23.39	0.003374	4.84	1827.41	166.92	0.23
Reach-1	1.661	100-Year	8500.00	9.77	23.60		23.95	0.003165	4.82	1847.87	164.81	0.23
Reach-1	1.701	100-Year	8500.00	11.77	24.31		25.05	0.007895	7.13	1304.65	142.02	0.35
Reach-1	1.734	100-Year	8500.00	11.77	23.57		25.69	0.000515	12.48	810.13	110.24	0.64
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	24.36	21.15	26.29	0.000431	11.92	864.58	117.06	0.59
Reach-1	1.777	100-Year	8500.00	11.77	24.44		26.46	0.002253	5.11	1004.27	131.92	0.25
Reach-1	1.809	100-Year	8500.00	11.77	24.51		27.02	0.002649	5.56	930.27	109.60	0.27
Reach-1	1.839	100-Year	8500.00	11.77	25.02		27.45	0.002584	5.64	940.40	106.49	0.27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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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WS 100-Year
Ground
Bank Sta
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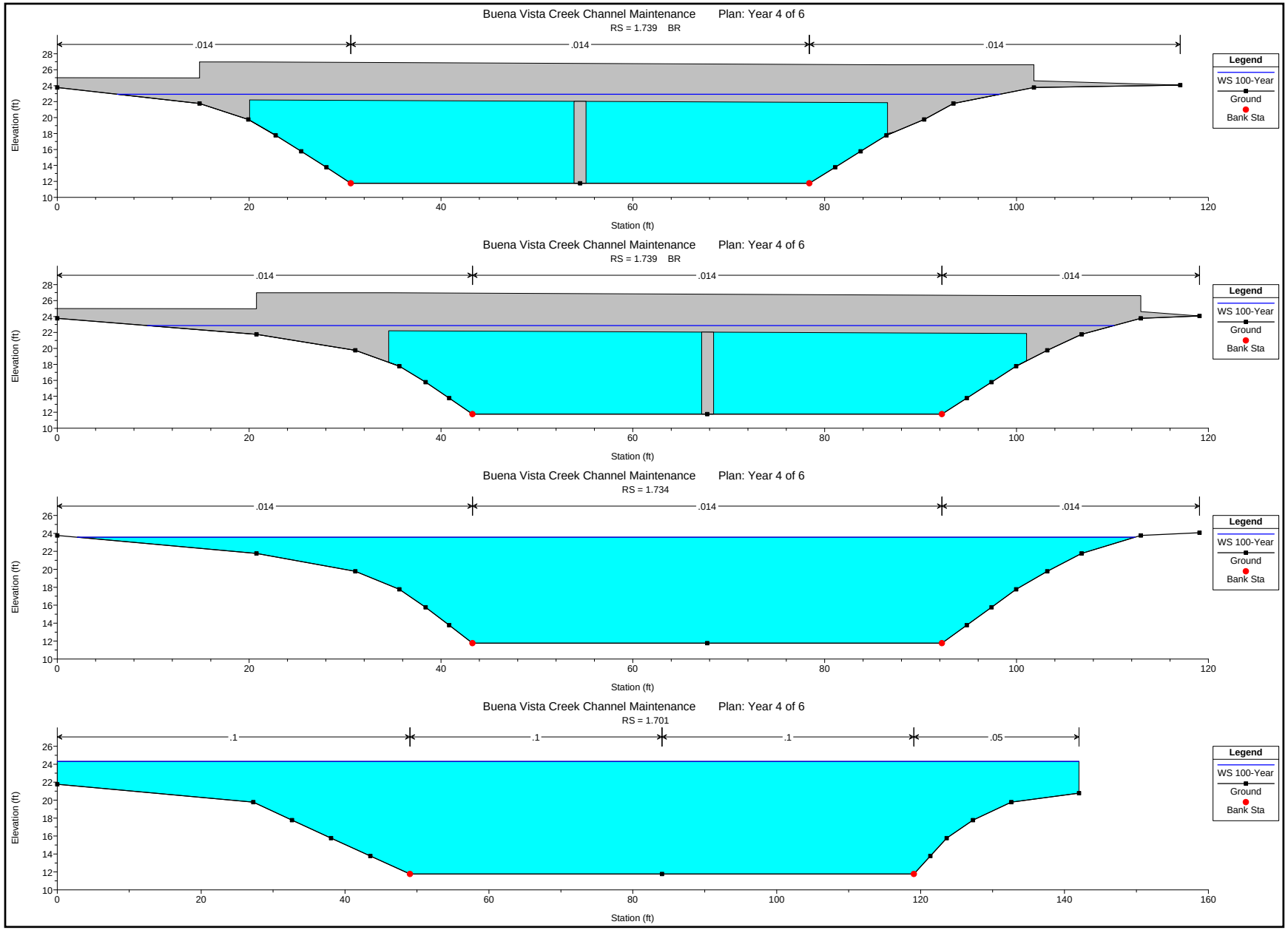
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Ground
Bank Sta
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Ground
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Ground
Bank Sta
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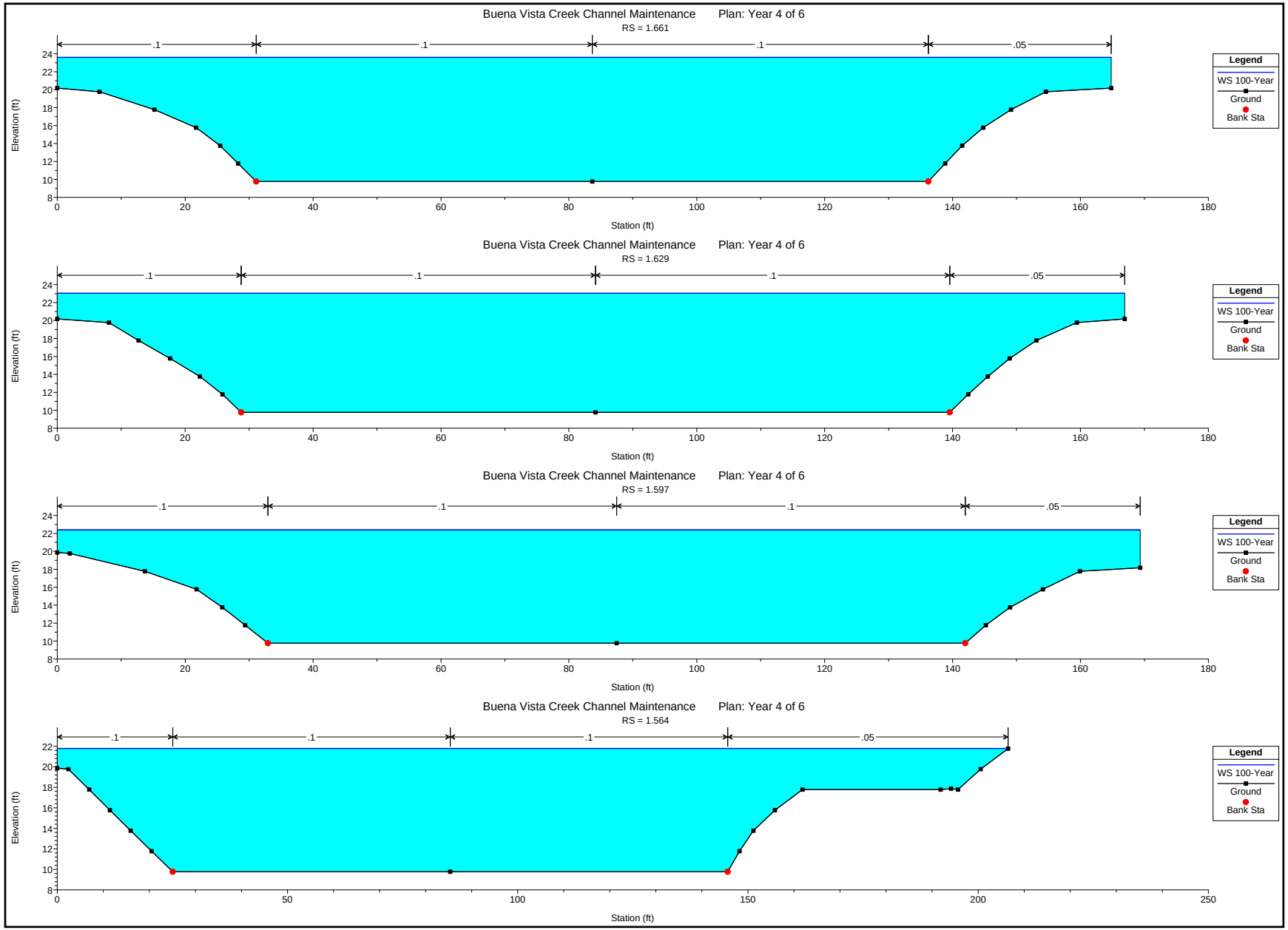
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Station (ft)
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Ground
Bank Sta
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WS 100-Year
Ground
Bank Sta
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Station (ft)
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Ground
Bank Sta
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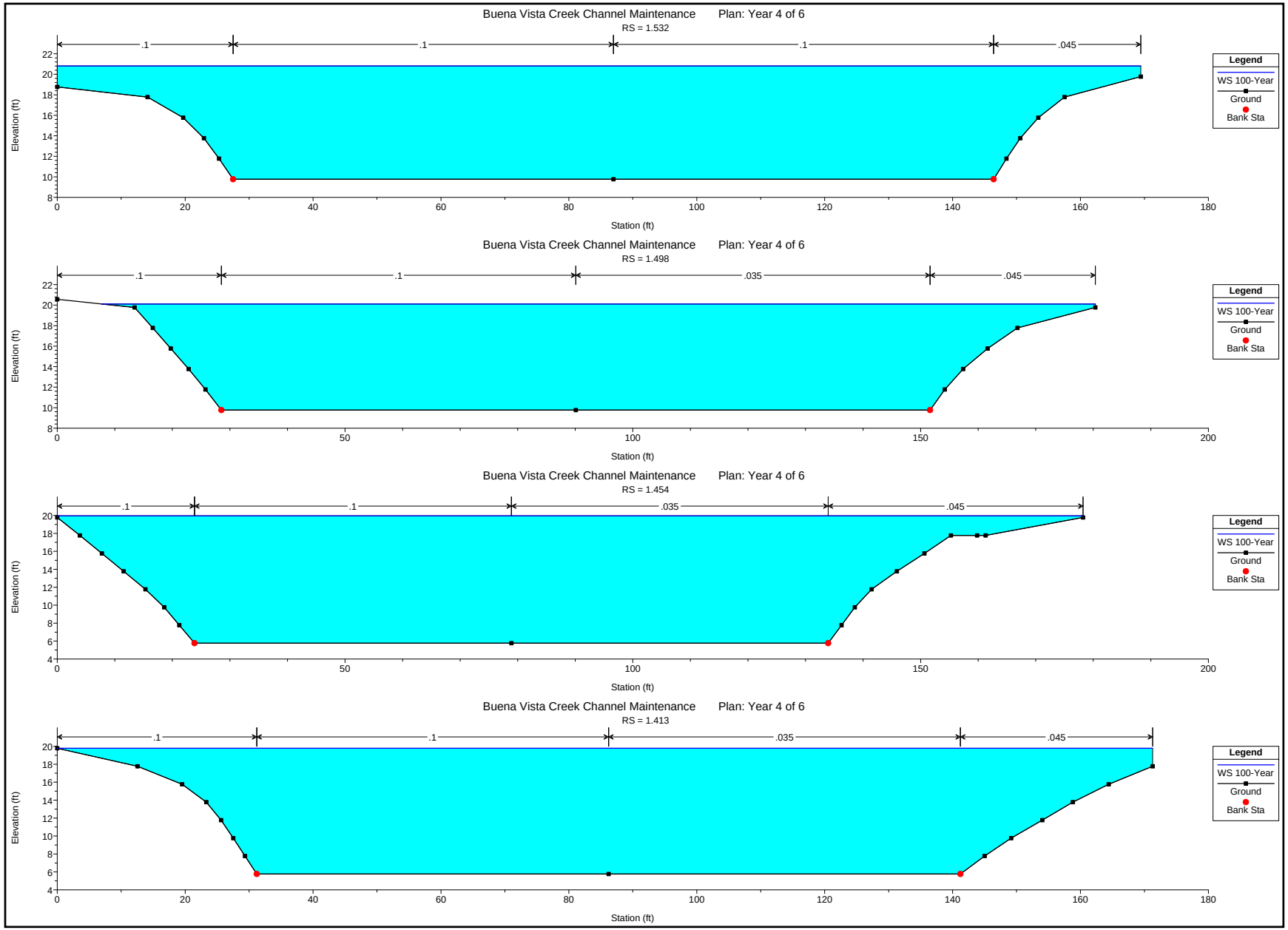
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Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
RS = 1.454
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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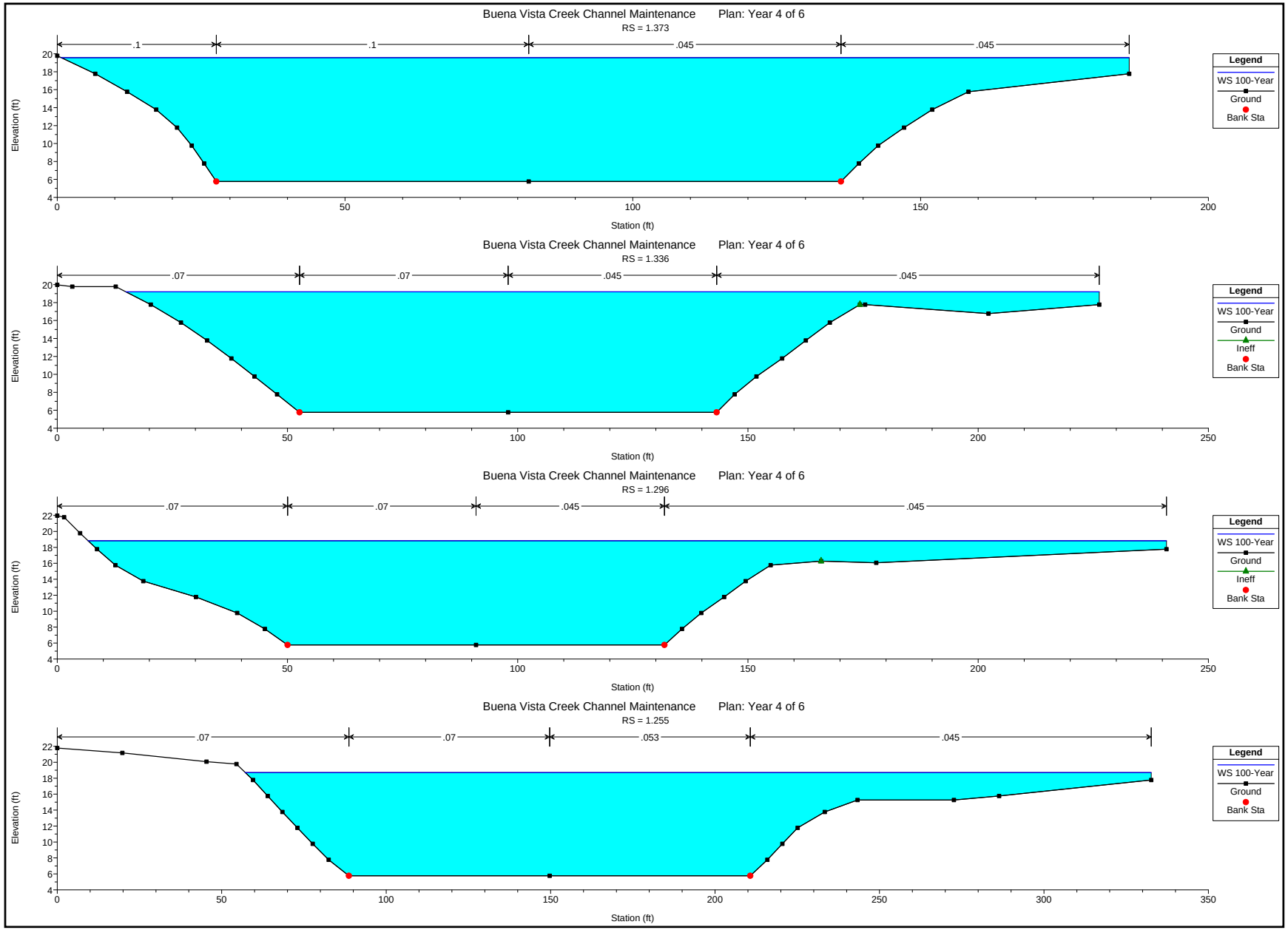
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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WS 100-Year
Ground
Bank Sta
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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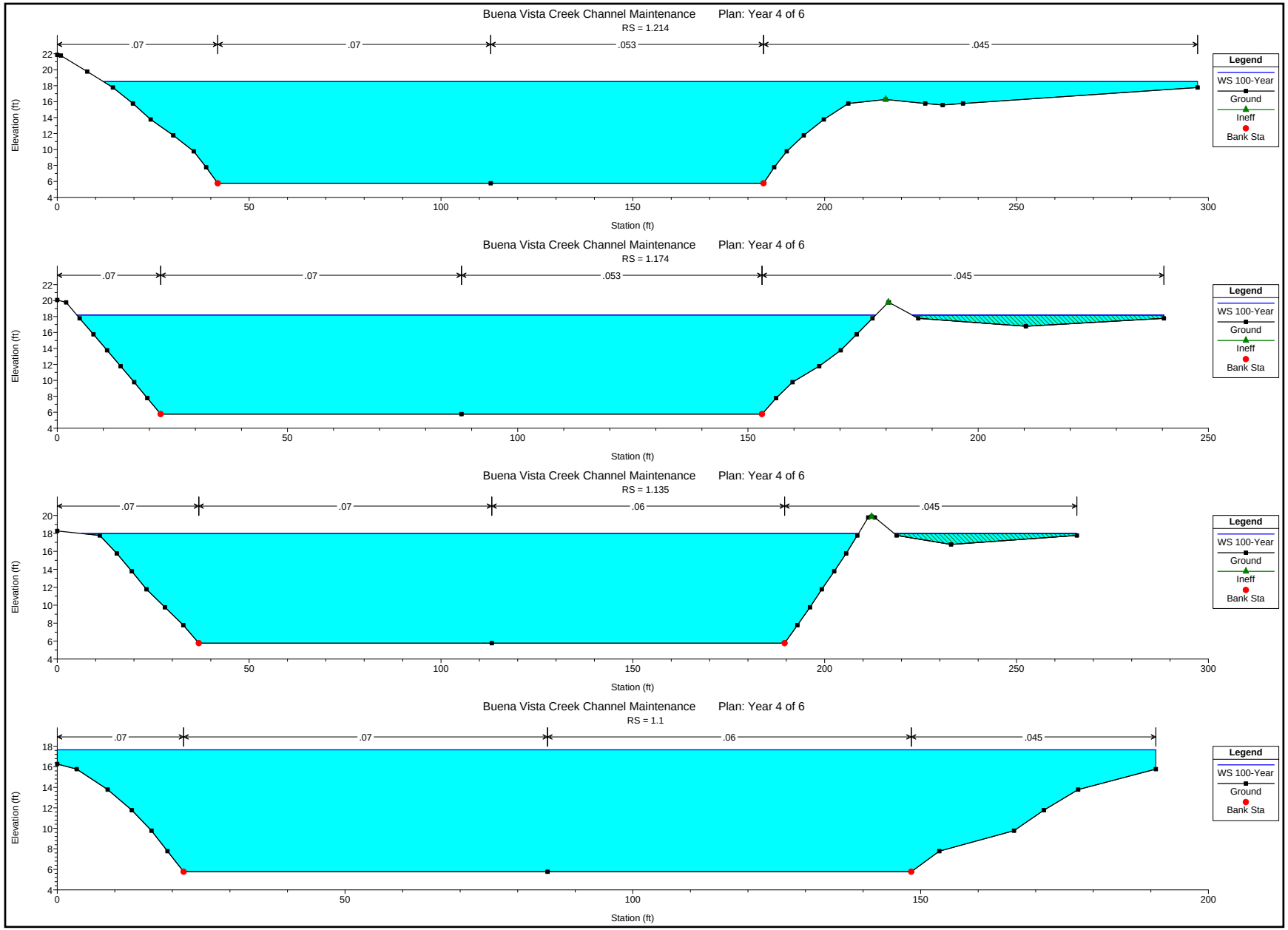
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
RS = 1.174
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
RS = 1.135
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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Legend
WS 100-Year
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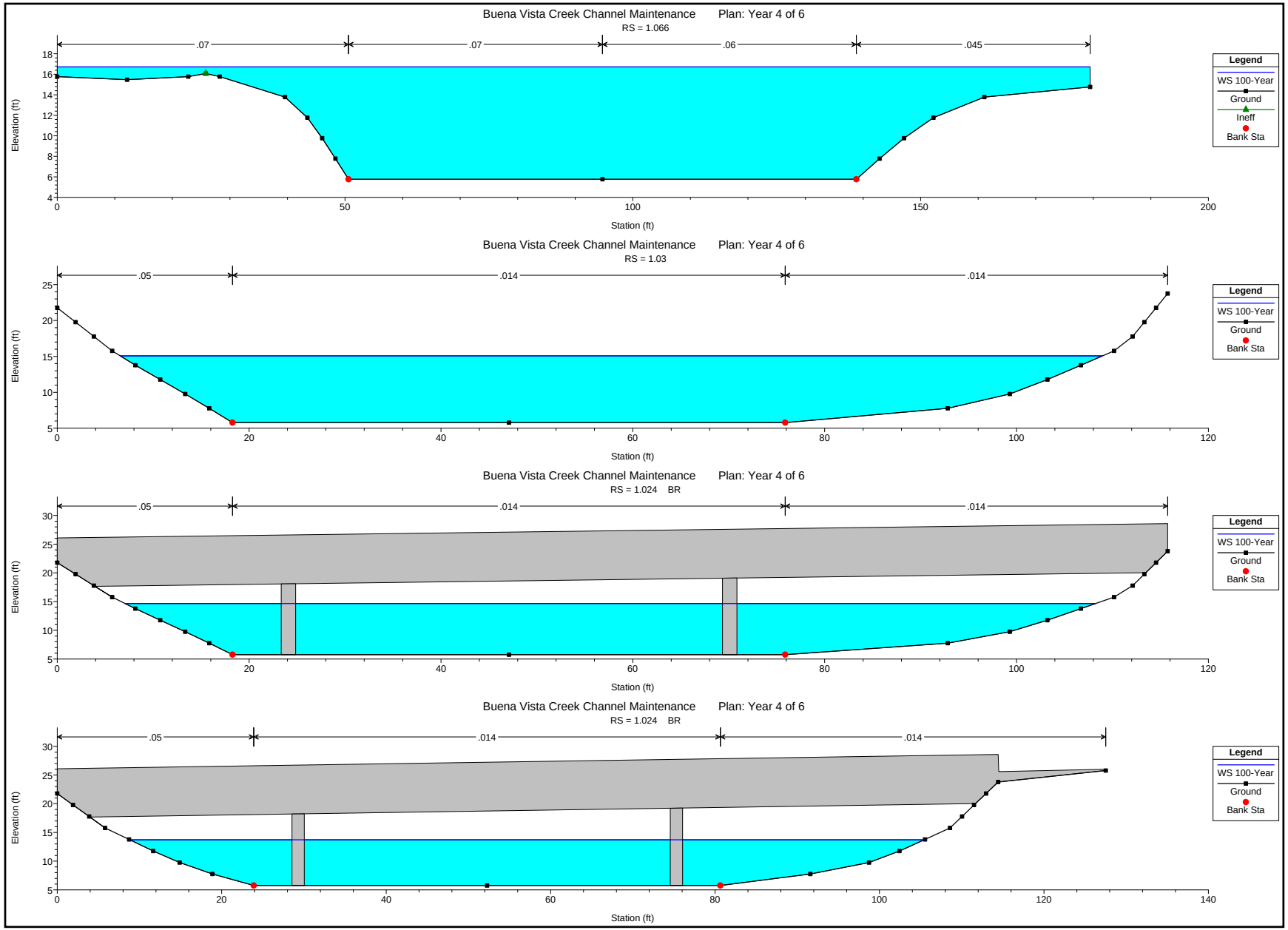
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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
RS = 1.03
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
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Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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Station (ft)
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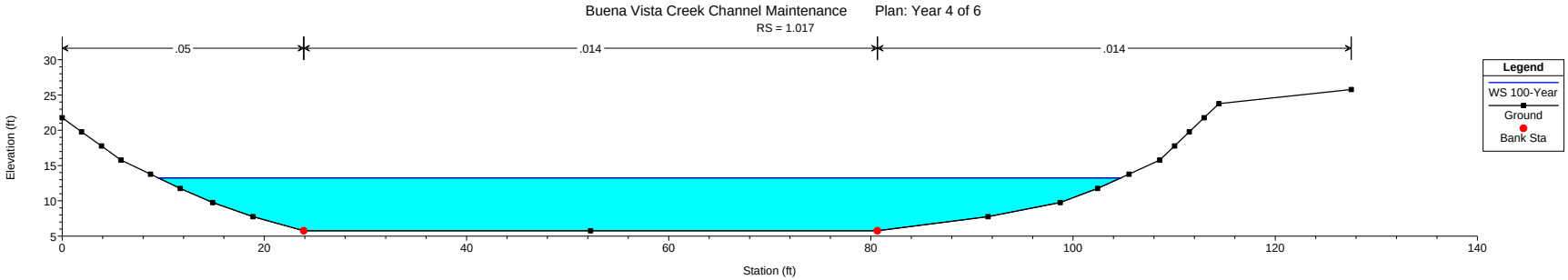
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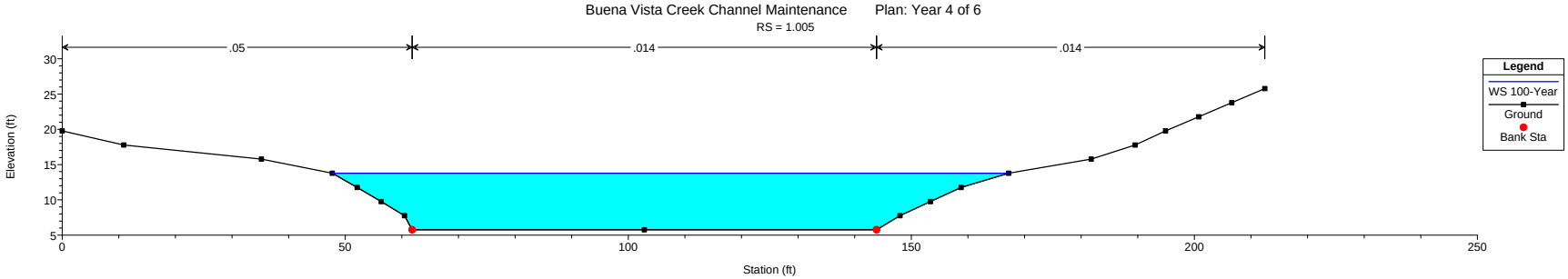
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
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Ground
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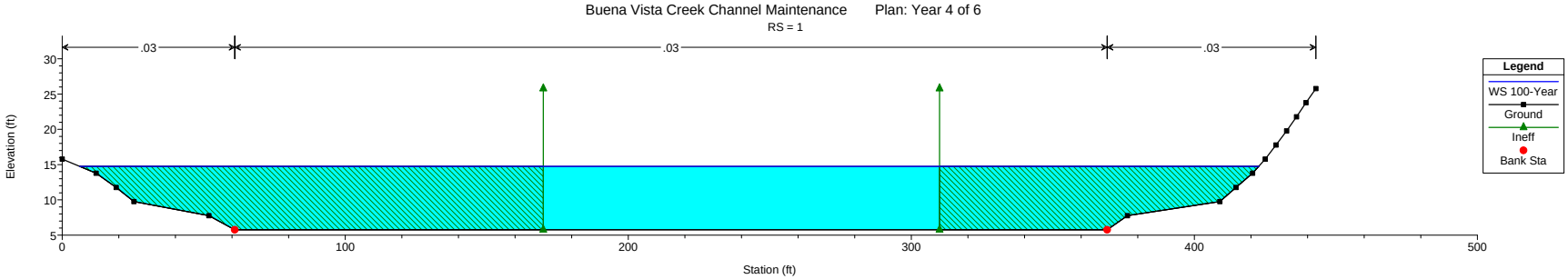
Buena Vista Creek Channel Maintenance Plan: Year 4 of 6
RS = 1
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 5 OF 6

HEC-RAS Plan: Year 5 of 6 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
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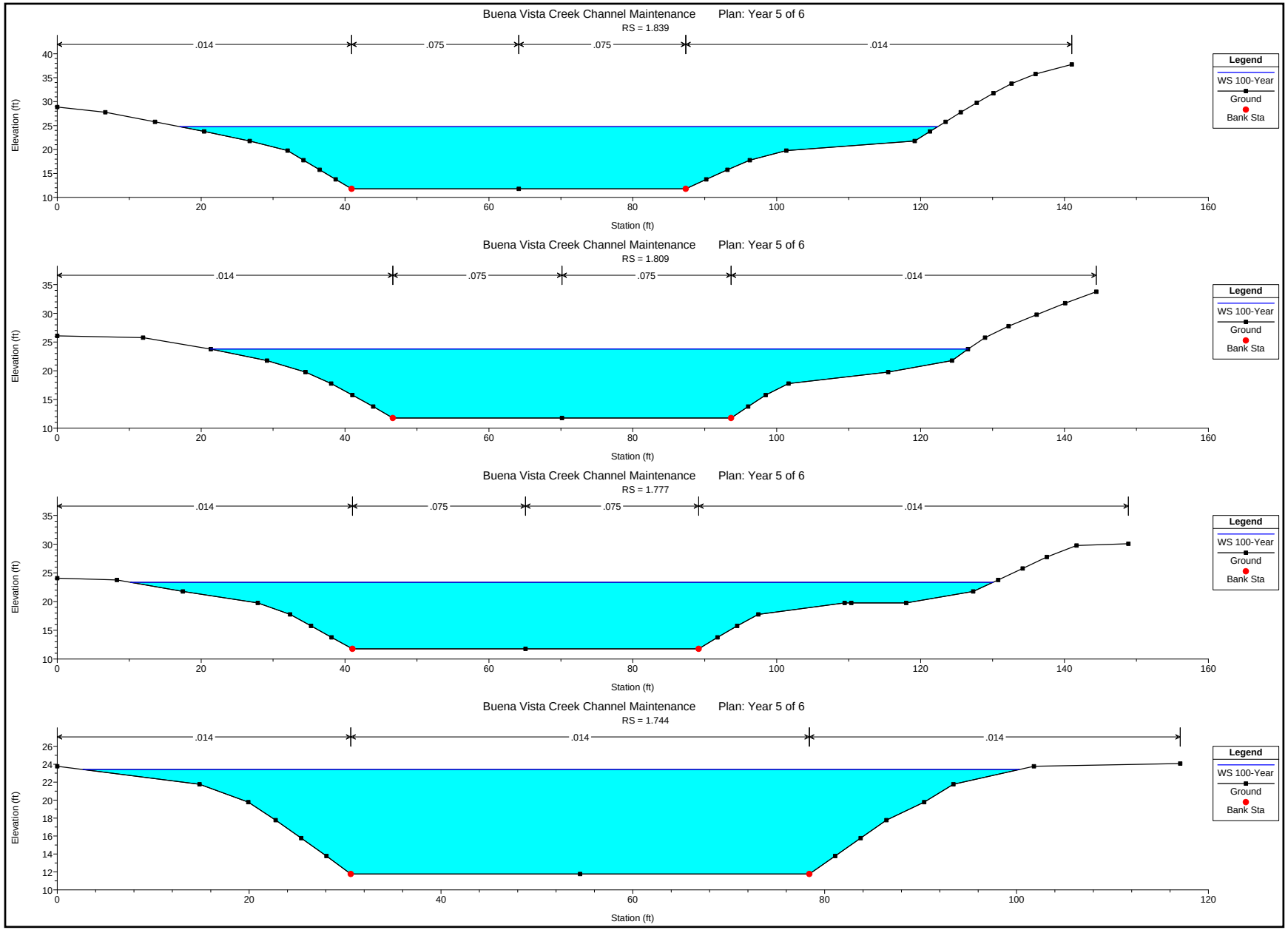
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.74	12.16	17.51	0.004570	7.36	1276.67	179.45	0.39
Reach-1	1.1	100-Year	8500.00	5.77	17.69		18.02	0.001633	4.65	1902.29	190.87	0.24
Reach-1	1.135	100-Year	8500.00	5.77	18.03	10.28	18.28	0.001240	4.13	2156.64	251.24	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.26	10.78	18.58	0.001426	4.67	1899.57	228.61	0.23
Reach-1	1.214	100-Year	8500.00	5.77	18.61	10.51	18.84	0.001027	4.04	2346.91	285.50	0.20
Reach-1	1.255	100-Year	8500.00	5.77	18.83		19.07	0.001081	4.19	2295.13	275.76	0.20
Reach-1	1.296	100-Year	8500.00	5.77	18.99	12.40	19.43	0.001810	5.86	1763.67	234.52	0.28
Reach-1	1.336	100-Year	8500.00	5.77	19.38	12.00	19.78	0.001545	5.52	1803.57	212.11	0.26
Reach-1	1.373	100-Year	8500.00	5.77	19.76		20.09	0.001483	4.80	1933.37	186.23	0.23
Reach-1	1.413	100-Year	8500.00	5.77	20.03		20.36	0.001133	4.74	1935.87	171.29	0.22
Reach-1	1.454	100-Year	8500.00	5.77	20.28		20.61	0.001116	4.79	1964.37	178.22	0.22
Reach-1	1.498	100-Year	8500.00	9.77	20.51		21.04	0.002580	5.97	1529.30	179.42	0.32
Reach-1	1.532	100-Year	8500.00	9.77	20.89		21.43	0.001793	6.05	1541.16	169.43	0.32
Reach-1	1.564	100-Year	8500.00	9.77	21.30		21.71	0.001364	5.40	1786.03	205.09	0.28
Reach-1	1.597	100-Year	8500.00	9.77	21.49		21.99	0.001614	5.94	1609.51	169.33	0.31
Reach-1	1.629	100-Year	8500.00	9.77	22.00		22.43	0.004533	5.31	1653.77	166.92	0.27
Reach-1	1.661	100-Year	8500.00	9.77	22.74		23.15	0.003975	5.17	1706.90	164.81	0.25
Reach-1	1.701	100-Year	8500.00	11.77	23.67		24.52	0.009859	7.69	1212.96	142.02	0.39
Reach-1	1.734	100-Year	8500.00	11.77	22.76		25.33	0.000676	13.64	725.17	99.31	0.73
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	23.41	21.15	25.75	0.000573	13.04	761.77	97.62	0.67
Reach-1	1.777	100-Year	8500.00	11.77	23.35	22.15	26.07	0.003695	6.17	867.49	119.85	0.32
Reach-1	1.809	100-Year	8500.00	11.77	23.78	22.62	26.76	0.003610	6.24	852.24	105.31	0.32
Reach-1	1.839	100-Year	8500.00	11.77	24.76		27.33	0.002878	5.87	913.00	105.32	0.29


Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.809
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
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Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.744
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Elevation (ft)
Station (ft)
Legend
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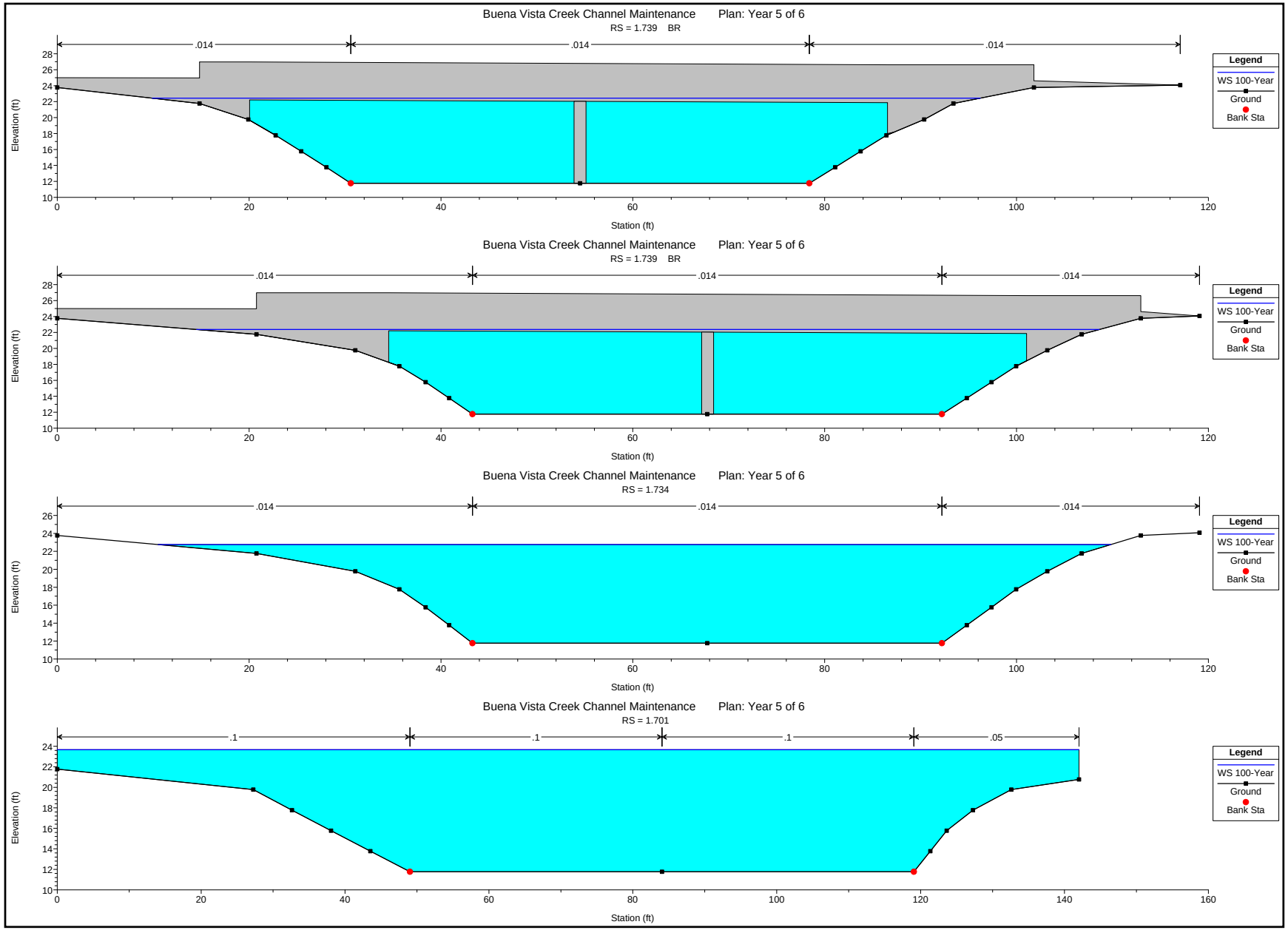
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.739 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.734
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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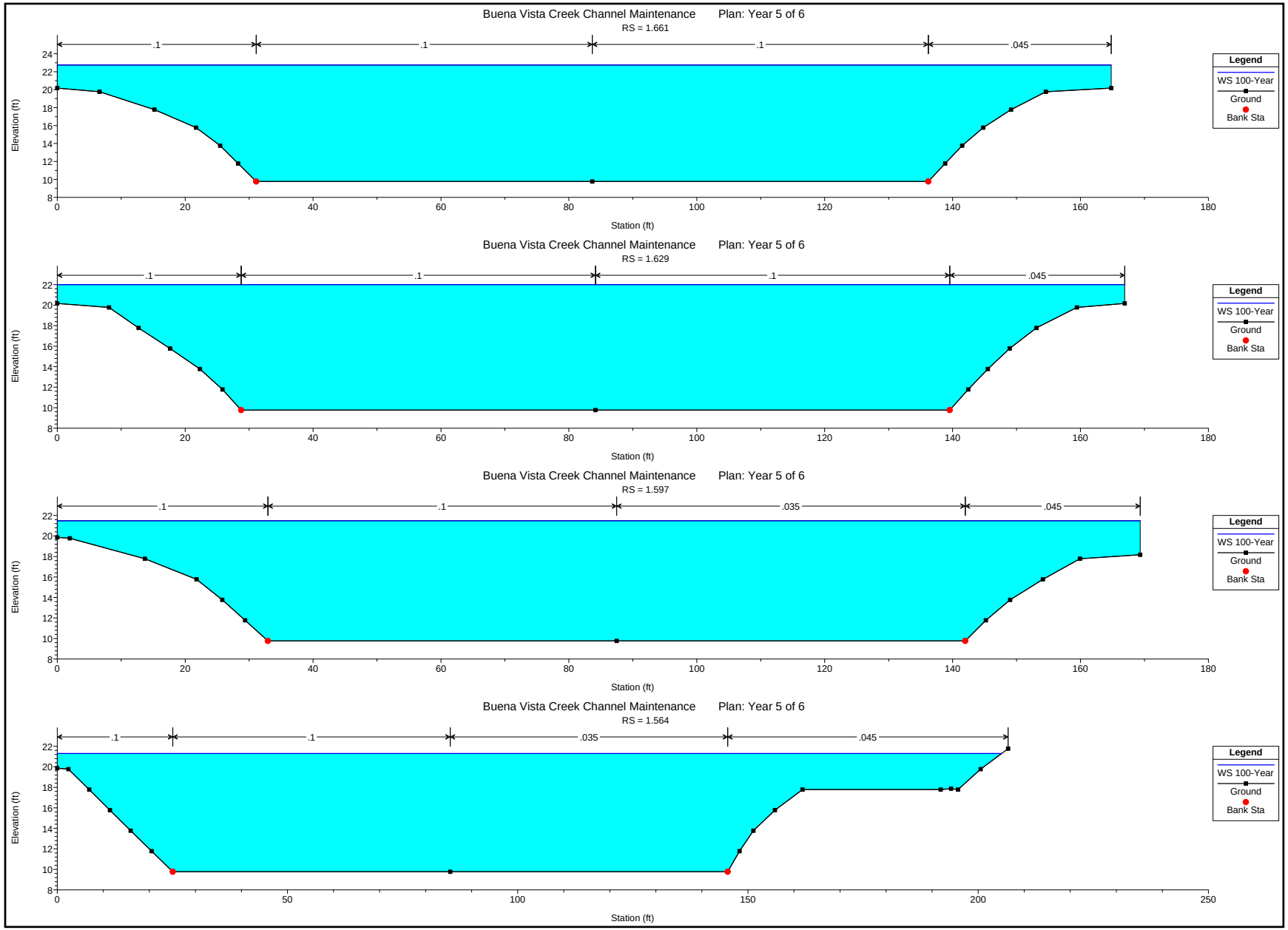
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.629
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Elevation (ft)
Station (ft)
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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.597
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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Elevation (ft)
Station (ft)
Legend
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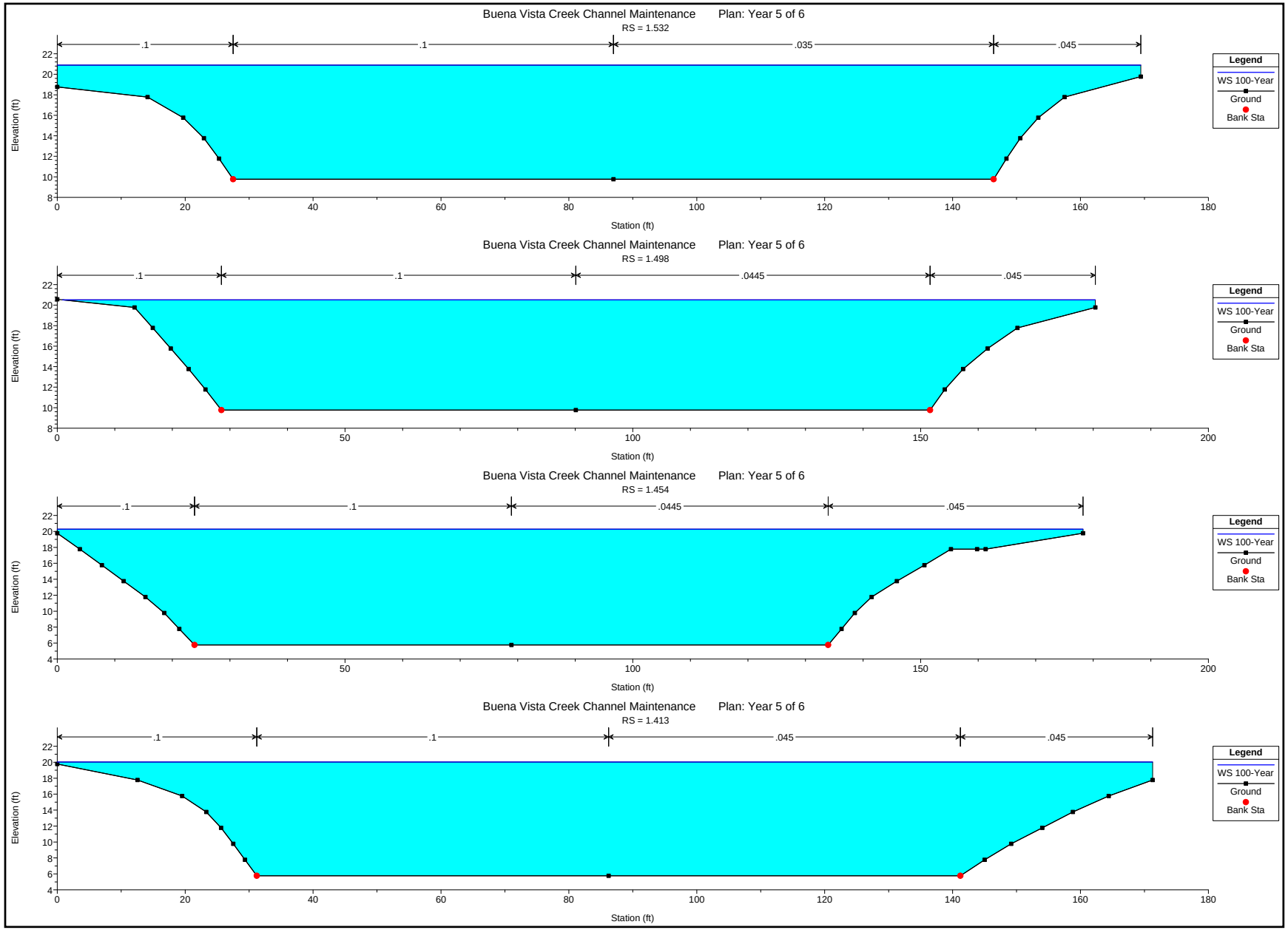
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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Station (ft)
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Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.454
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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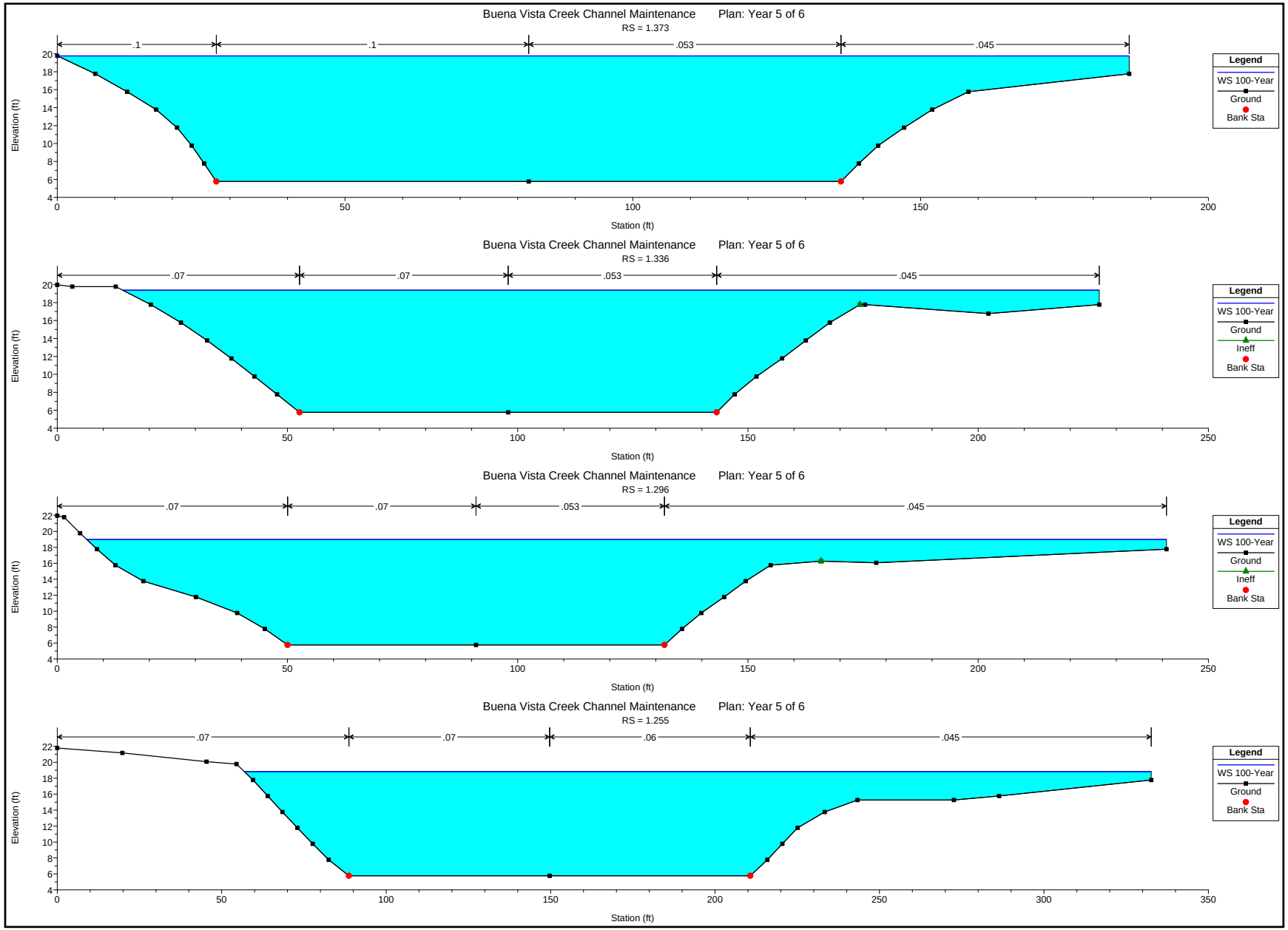
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
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.07
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.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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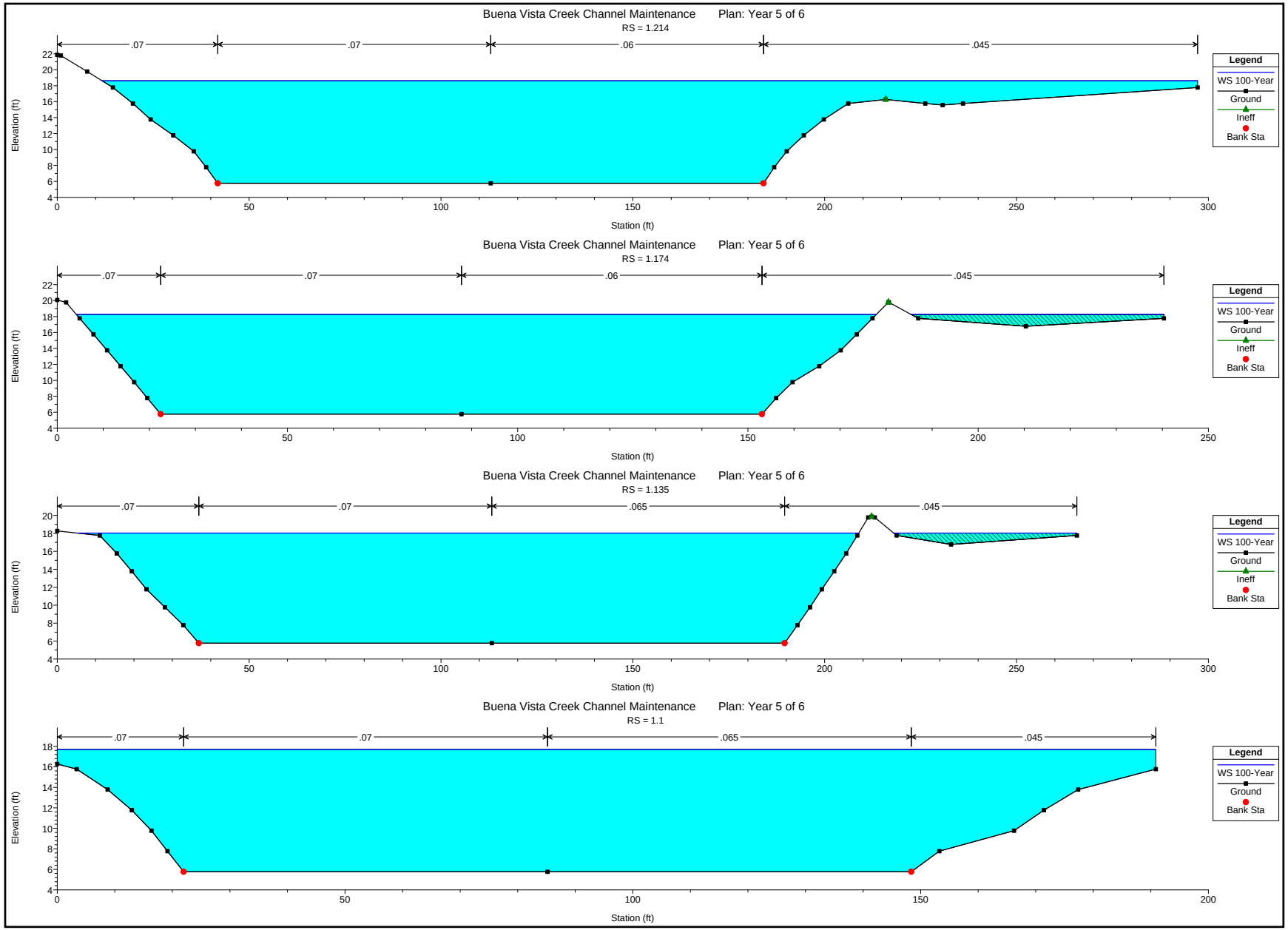
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Ground
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Bank Sta
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.07
.06
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.135
.07
.07
.065
.045
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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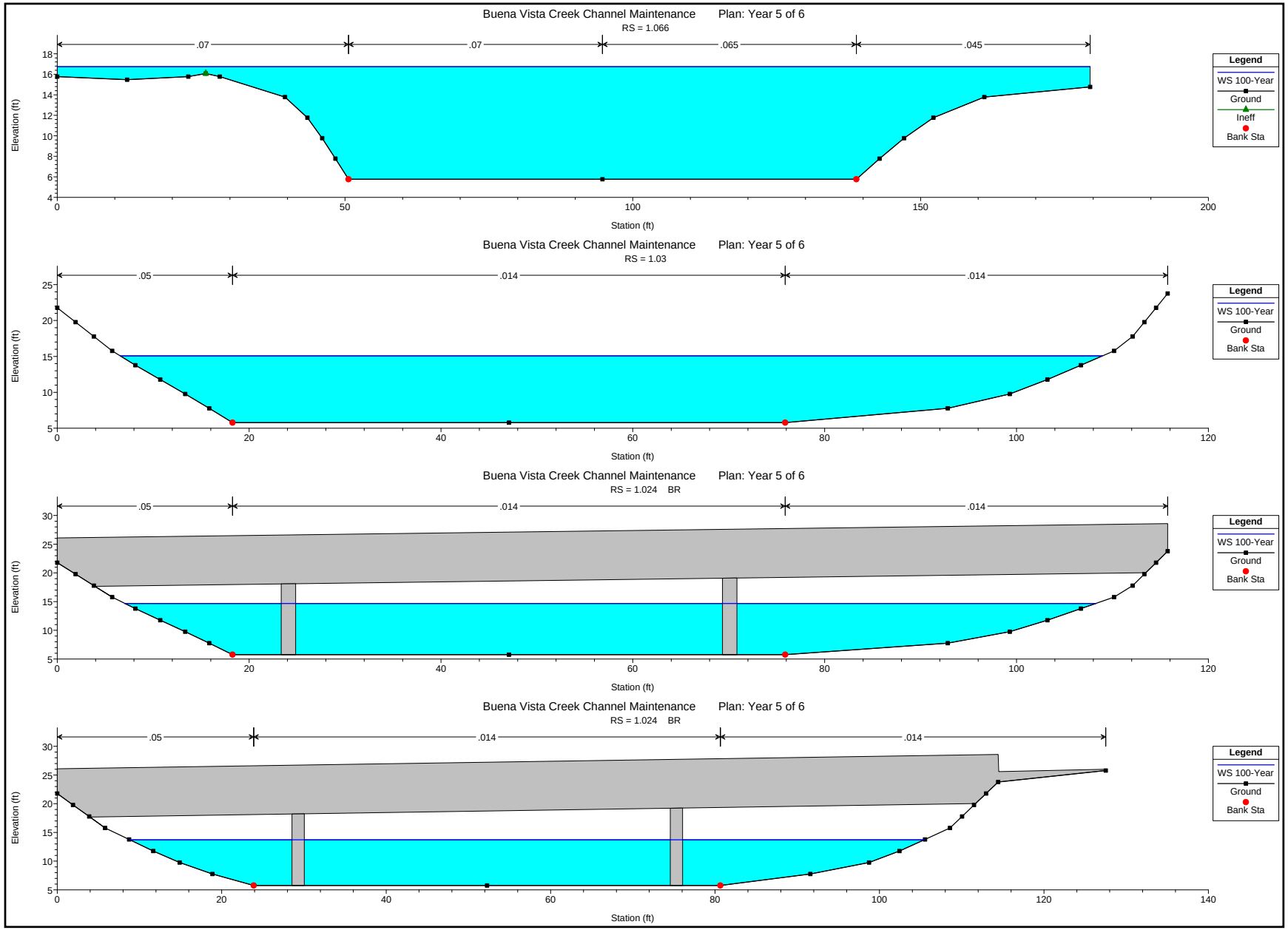
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.03
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.024 BR
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.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
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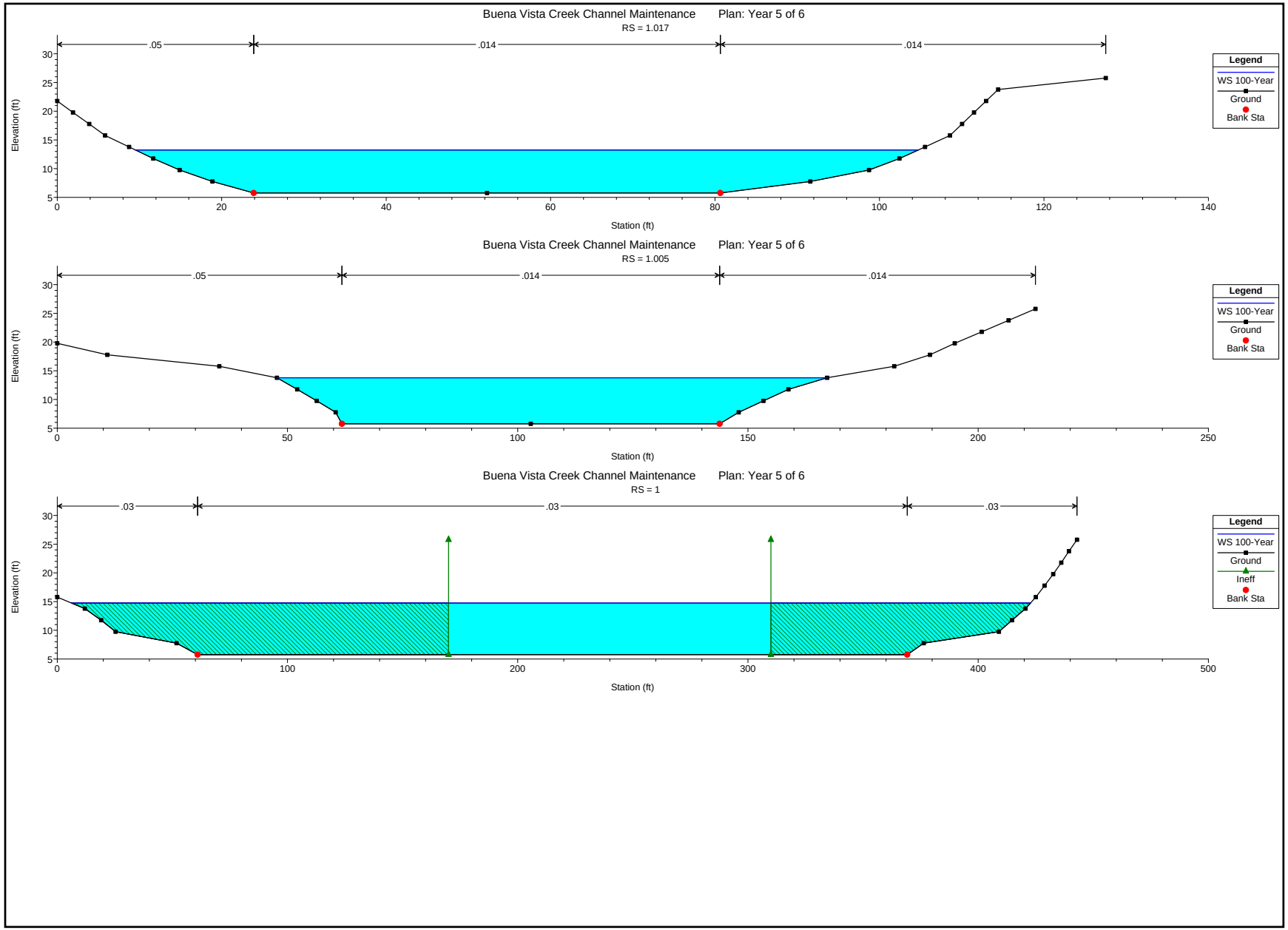
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1.005
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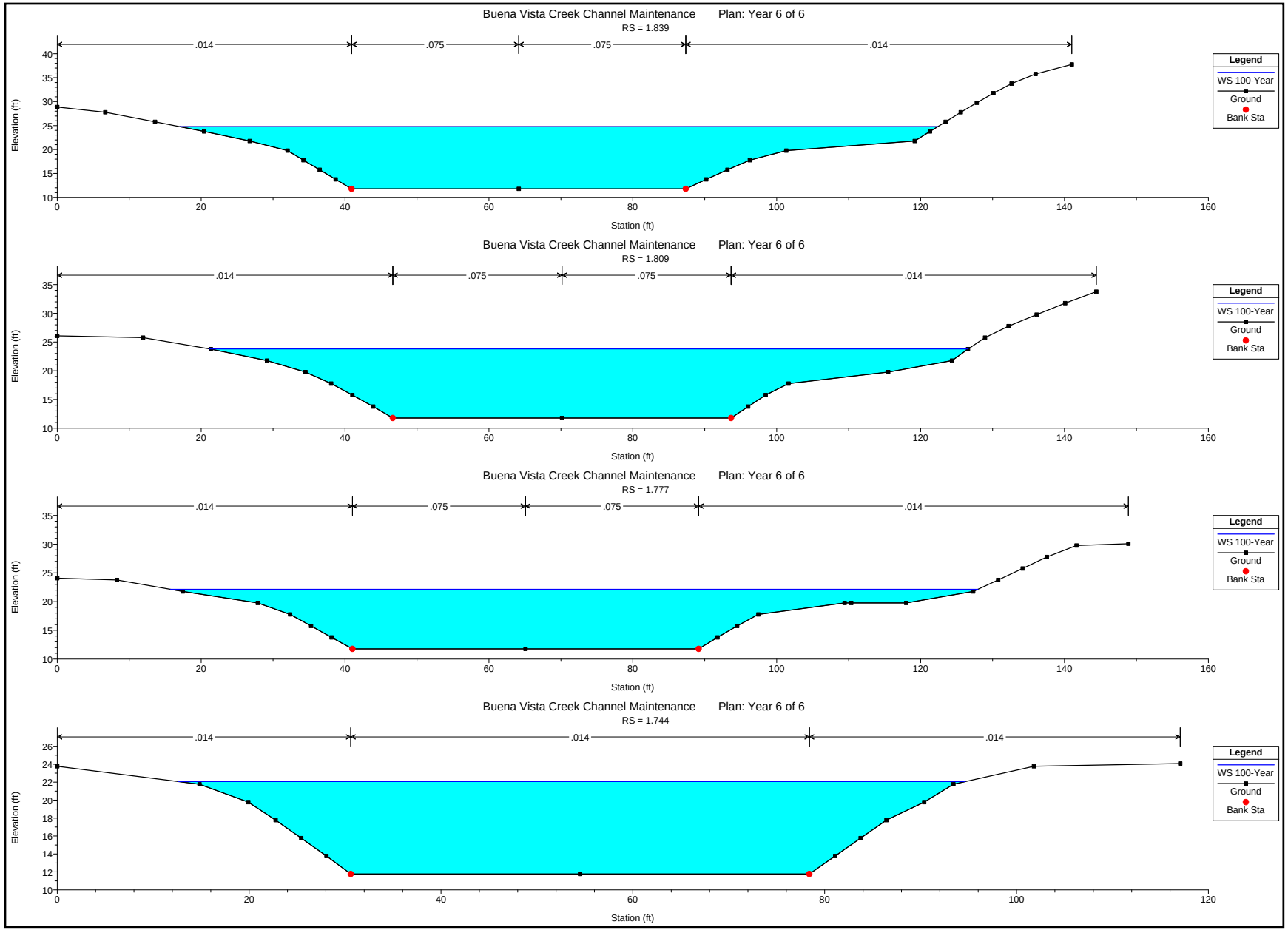
.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 5 of 6
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

YEAR 6 OF 6

HEC-RAS Plan: Year 6 of 6 River: RIVER-1 Reach: Reach-1 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	100-Year	8500.00	5.77	14.74	10.61	15.45	0.001002	6.77	1255.96	416.60	0.40
Reach-1	1.005	100-Year	8500.00	5.77	13.78		15.90	0.000798	12.01	785.24	119.63	0.75
Reach-1	1.017	100-Year	8500.00	5.77	13.25	13.57	17.06	0.001651	16.49	597.91	95.22	1.06
Reach-1	1.024		Bridge									
Reach-1	1.03	100-Year	8500.00	5.77	15.07	13.27	17.12	0.000673	12.18	797.40	102.38	0.70
Reach-1	1.066	100-Year	8500.00	5.77	16.75	12.15	17.52	0.004840	7.30	1279.27	179.45	0.39
Reach-1	1.1	100-Year	8500.00	5.77	17.73		18.05	0.001719	4.60	1908.60	190.87	0.23
Reach-1	1.135	100-Year	8500.00	5.77	18.08	10.28	18.33	0.001312	4.10	2166.27	252.49	0.21
Reach-1	1.174	100-Year	8500.00	5.77	18.32	10.78	18.64	0.001510	4.63	1910.87	229.03	0.23
Reach-1	1.214	100-Year	8500.00	5.77	18.69	10.51	18.91	0.001075	3.98	2369.80	285.77	0.20
Reach-1	1.255	100-Year	8500.00	5.77	18.92		19.15	0.001119	4.11	2320.10	275.99	0.20
Reach-1	1.296	100-Year	8500.00	5.77	19.11	12.38	19.52	0.001918	5.66	1791.30	234.73	0.27
Reach-1	1.336	100-Year	8500.00	5.77	19.51	11.98	19.89	0.001648	5.36	1832.13	212.62	0.25
Reach-1	1.373	100-Year	8500.00	5.77	19.91		20.23	0.001625	4.67	1961.19	186.25	0.22
Reach-1	1.413	100-Year	8500.00	5.77	20.22		20.53	0.001307	4.60	1967.32	171.29	0.21
Reach-1	1.454	100-Year	8500.00	5.77	20.50		20.81	0.001267	4.65	2004.54	178.22	0.21
Reach-1	1.498	100-Year	8500.00	9.77	20.80		21.29	0.002842	5.74	1580.59	180.35	0.30
Reach-1	1.532	100-Year	8500.00	9.77	21.25		21.74	0.002203	5.76	1601.85	169.43	0.30
Reach-1	1.564	100-Year	8500.00	9.77	21.71		22.07	0.001583	5.05	1870.31	206.31	0.26
Reach-1	1.597	100-Year	8500.00	9.77	21.94		22.39	0.001898	5.56	1687.28	169.33	0.28
Reach-1	1.629	100-Year	8500.00	9.77	22.21		22.66	0.001336	5.62	1688.55	166.92	0.28
Reach-1	1.661	100-Year	8500.00	9.77	22.42		22.90	0.001393	5.81	1653.22	164.81	0.29
Reach-1	1.701	100-Year	8500.00	11.77	22.23		23.72	0.005625	10.28	1009.41	142.02	0.56
Reach-1	1.734	100-Year	8500.00	11.77	21.12	21.12	24.95	0.001218	16.44	579.05	81.48	0.95
Reach-1	1.739		Bridge									
Reach-1	1.744	100-Year	8500.00	11.77	22.07	21.15	25.21	0.000889	14.98	641.20	82.03	0.82
Reach-1	1.777	100-Year	8500.00	11.77	22.15	22.15	25.87	0.007110	7.95	727.57	112.24	0.43
Reach-1	1.809	100-Year	8500.00	11.77	23.81	22.62	26.77	0.003568	6.22	855.00	105.47	0.32
Reach-1	1.839	100-Year	8500.00	11.77	24.76		27.33	0.002878	5.87	912.96	105.32	0.29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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.809
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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.075
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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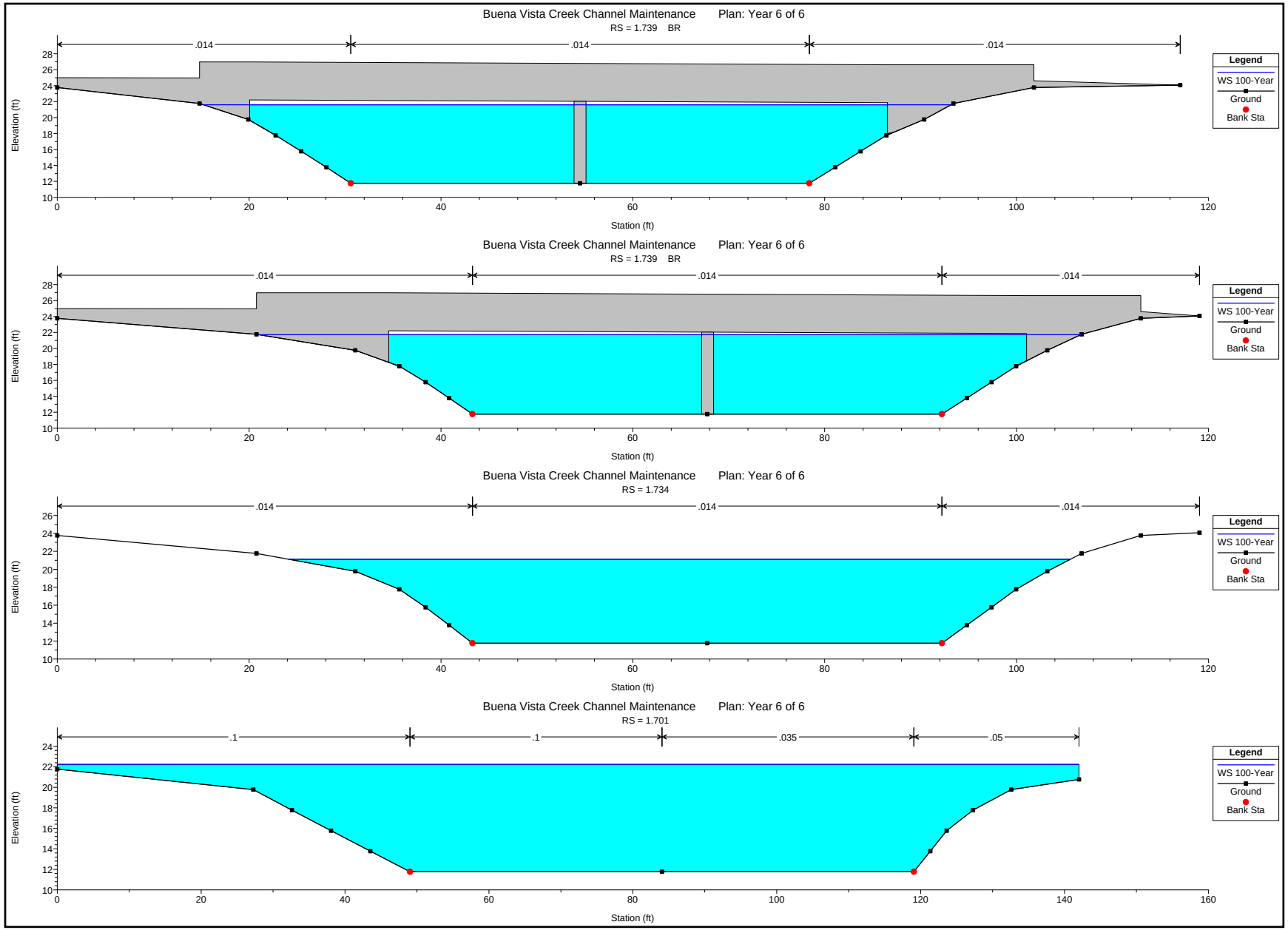
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.739 BR
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.014
.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.734
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.014
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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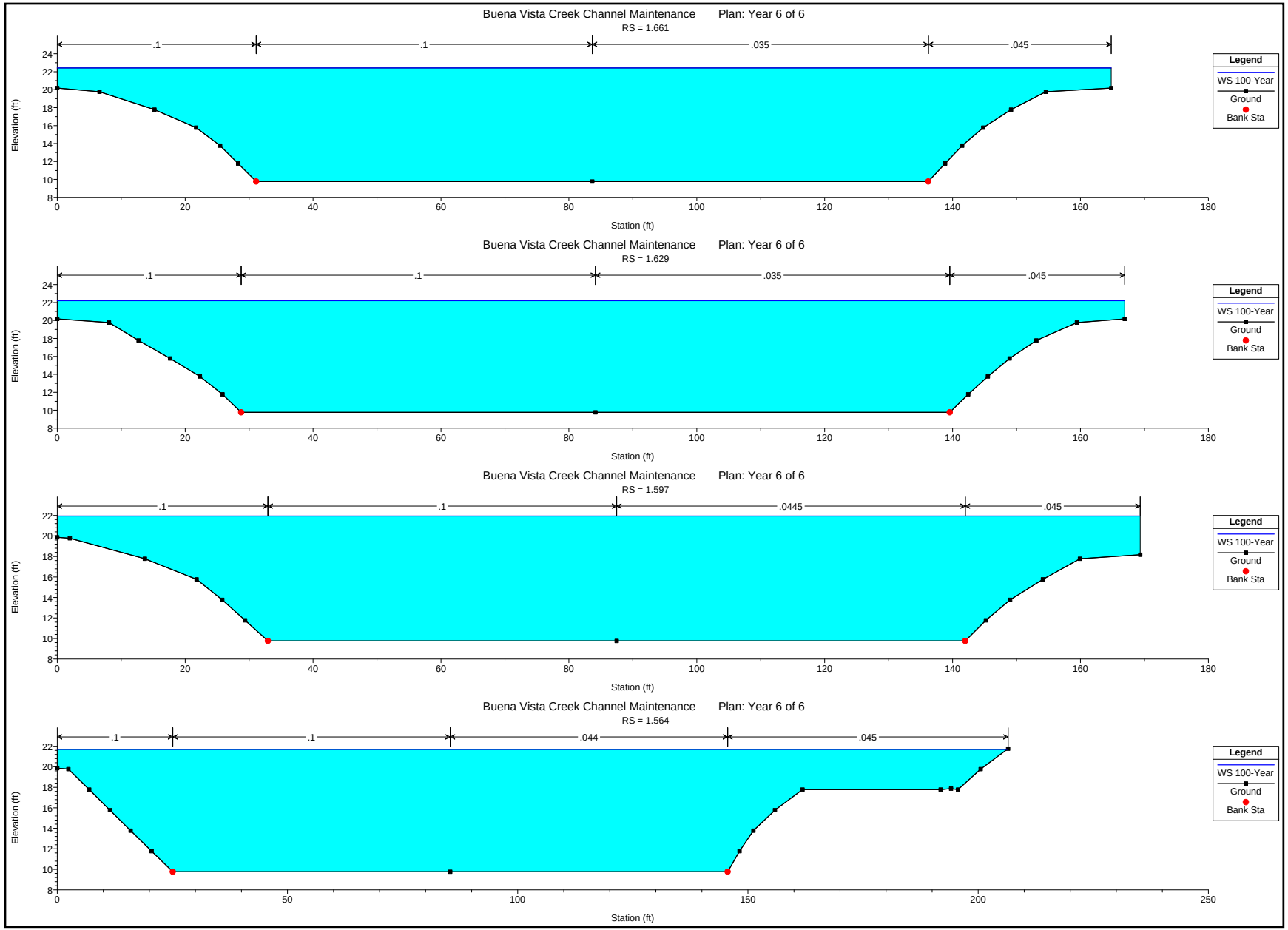
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.629
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.597
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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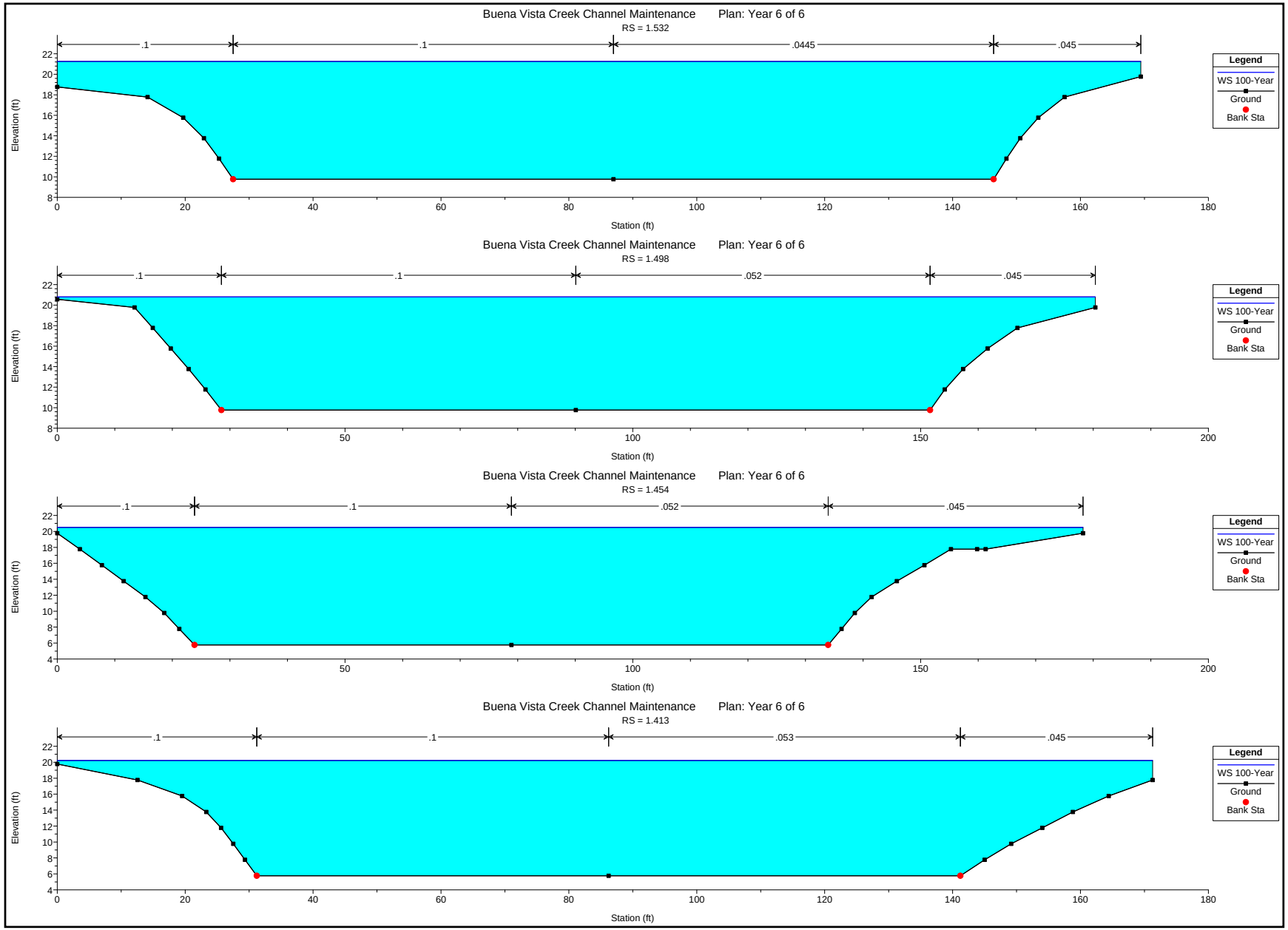
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta


Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.454
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
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WS 100-Year
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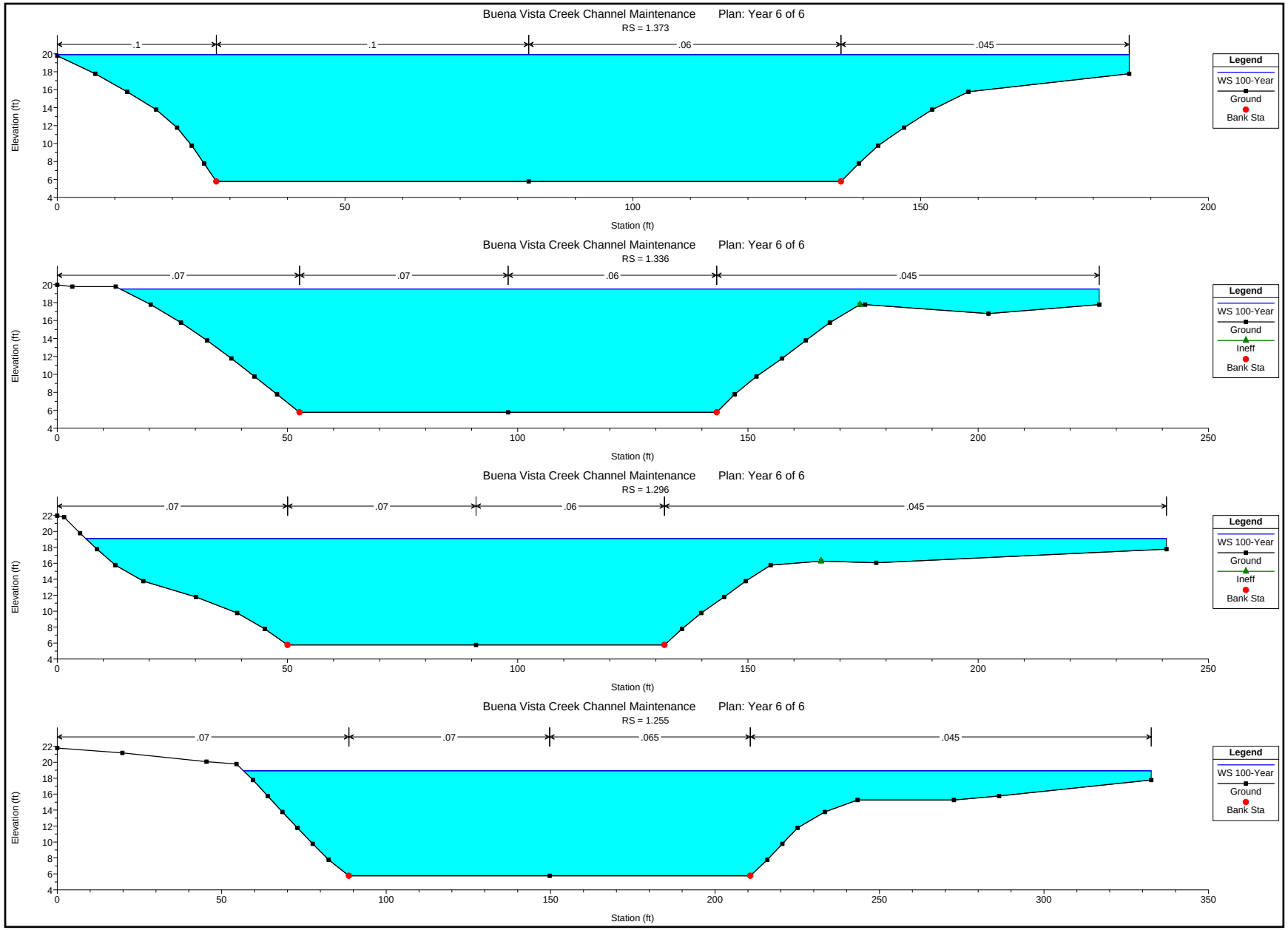
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.336
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
Legend
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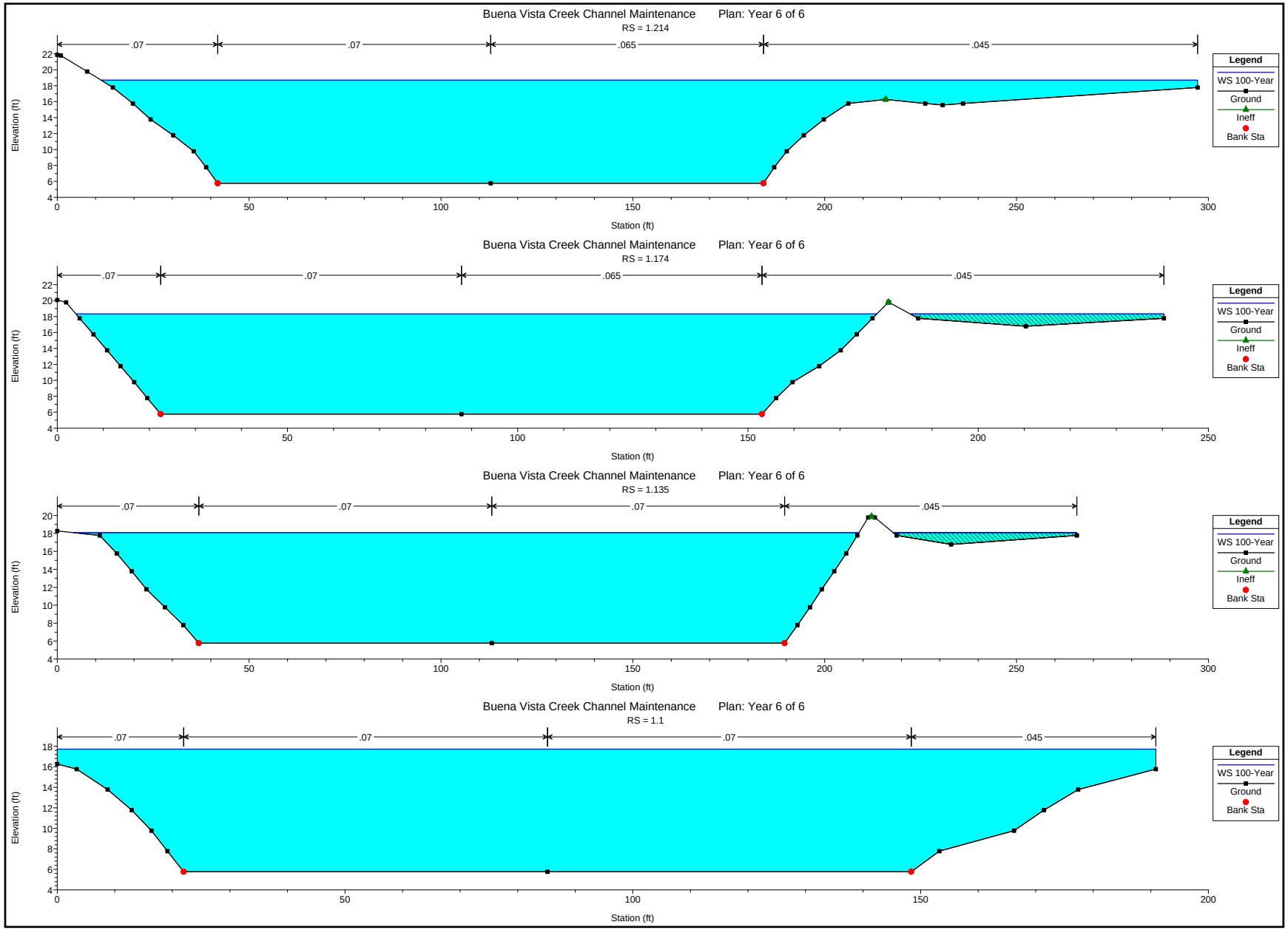
Bank Sta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Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.174
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.135
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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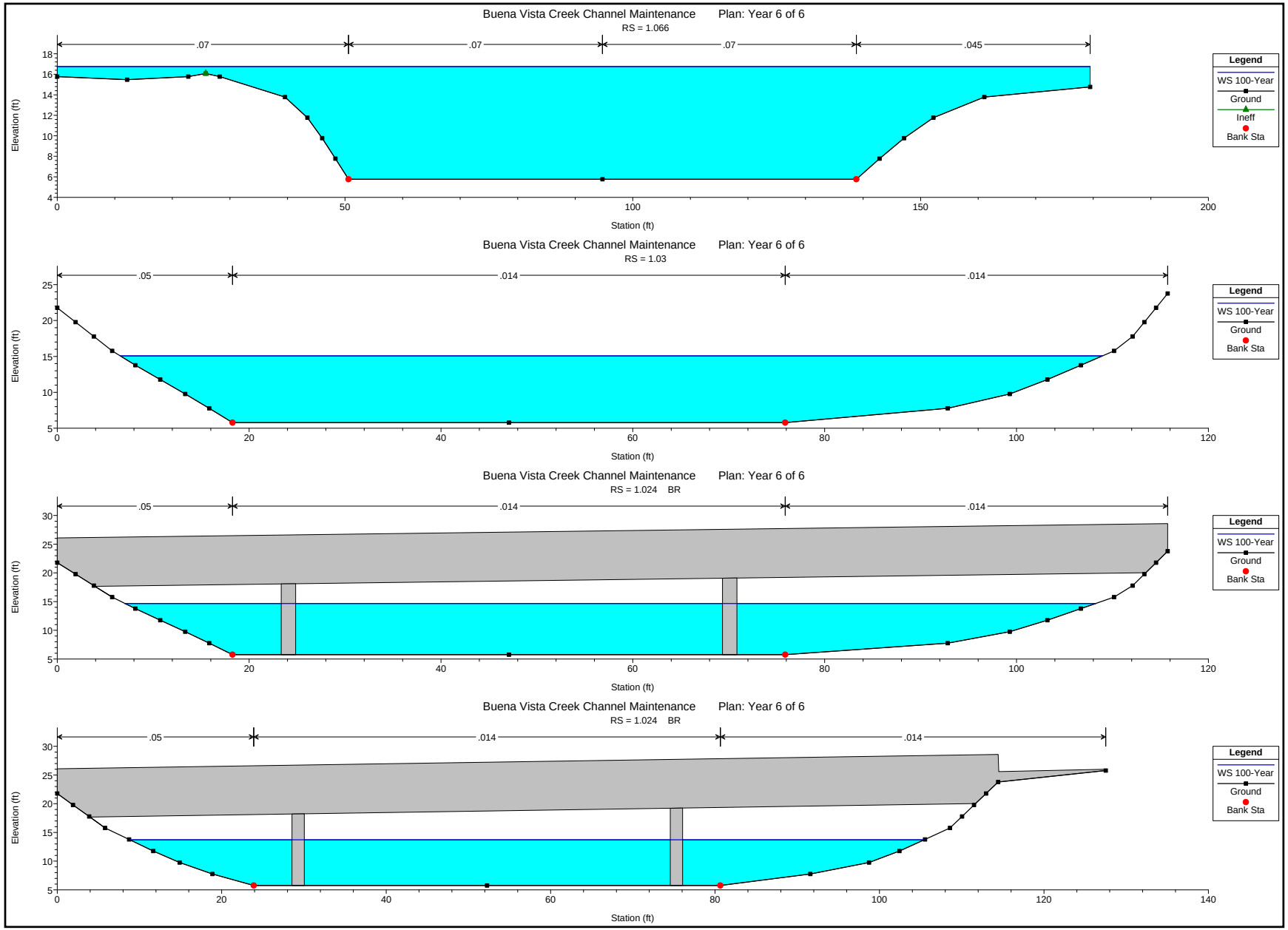
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1.024 BR
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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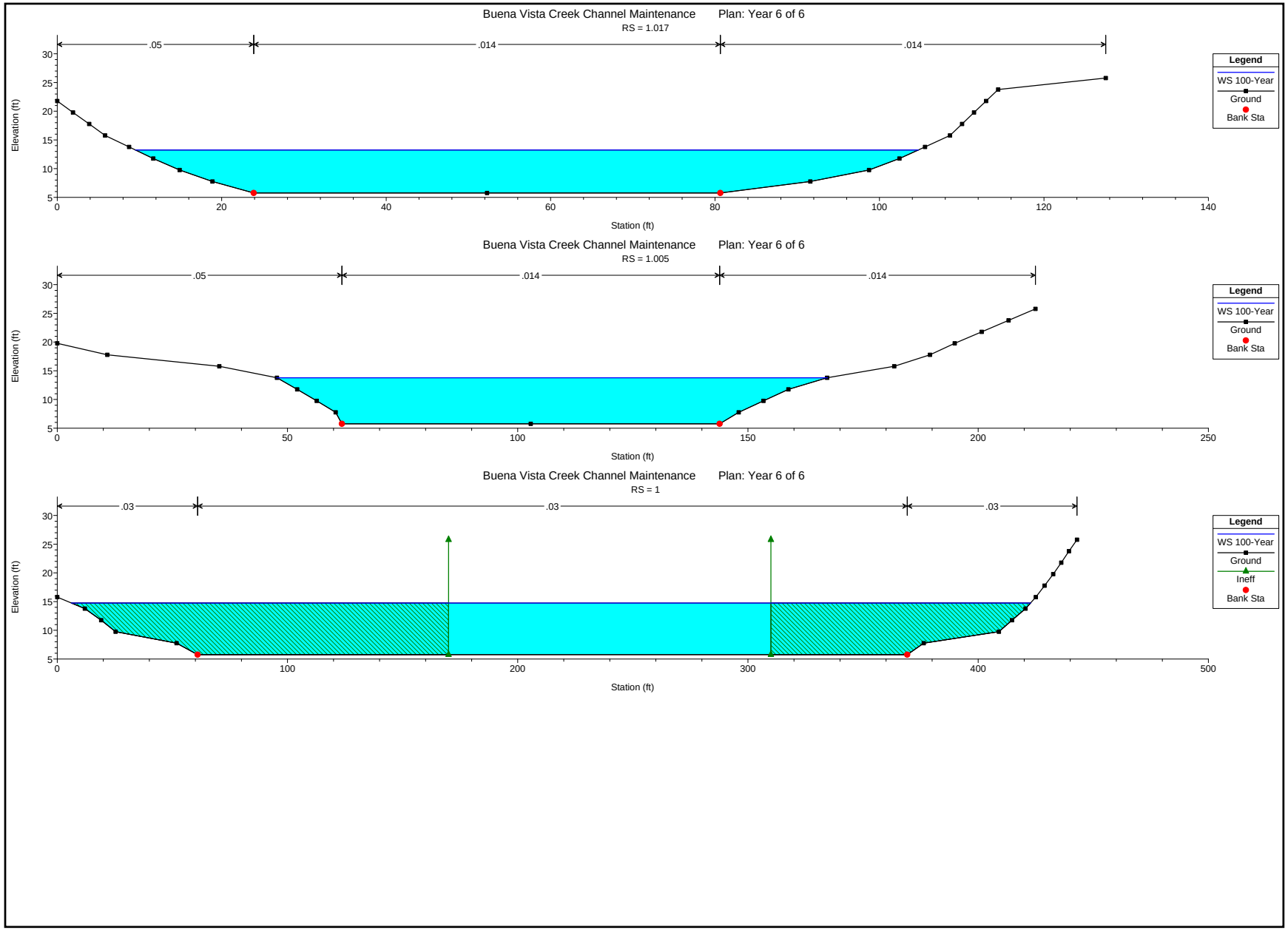
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta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Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
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Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Bank Sta
Buena Vista Creek Channel Maintenance Plan: Year 6 of 6
RS = 1
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
WS 100-Year
Ground
Ineff
Bank Sta

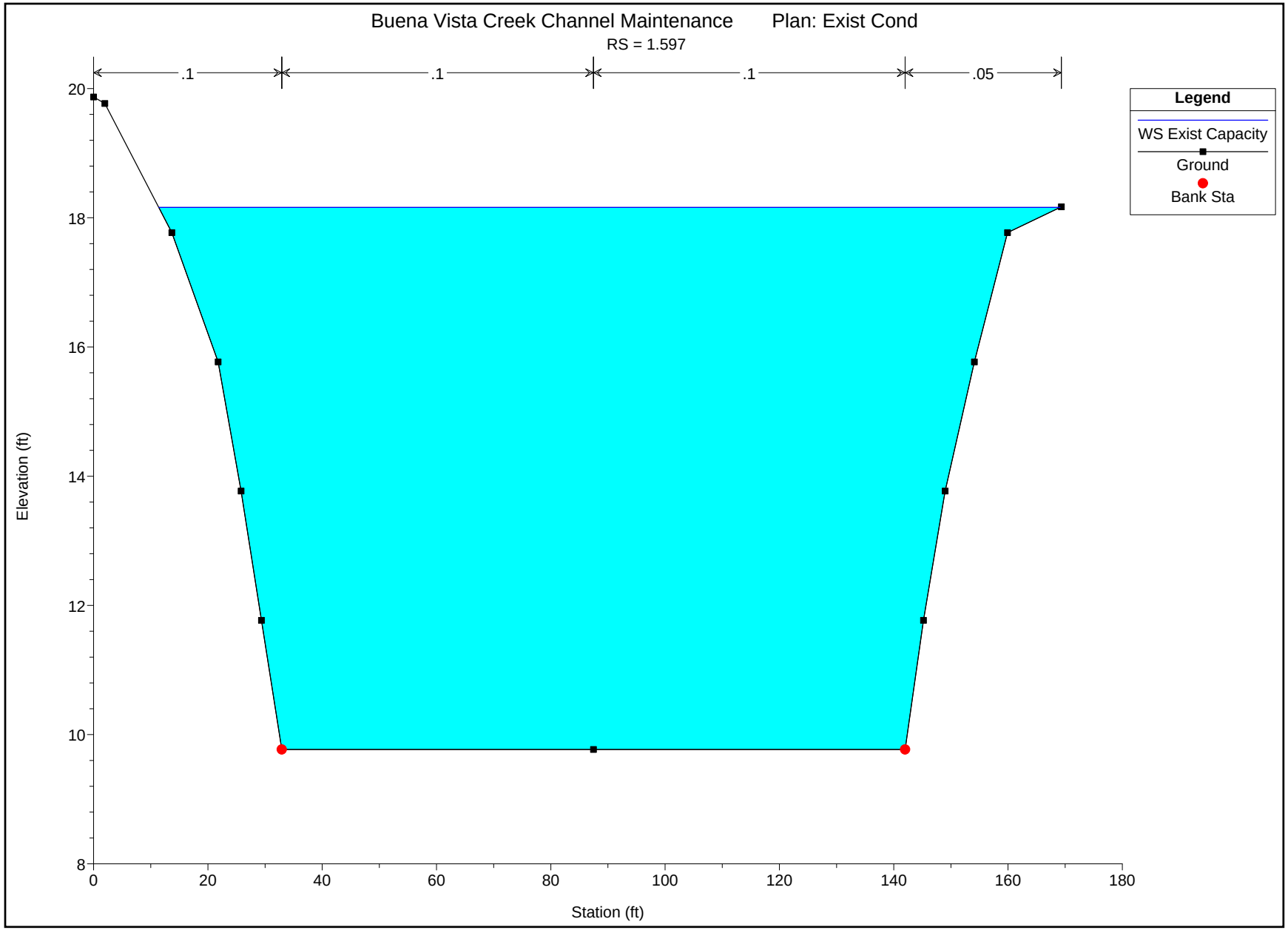
APPENDIX E

HEC-RAS OVERTOPPING ANALYSES

CURRENT CONDITIONS

HEC-RAS Plan: Exist Cond River: RIVER-1 Reach: Reach-1 Profile: Exist Capacity

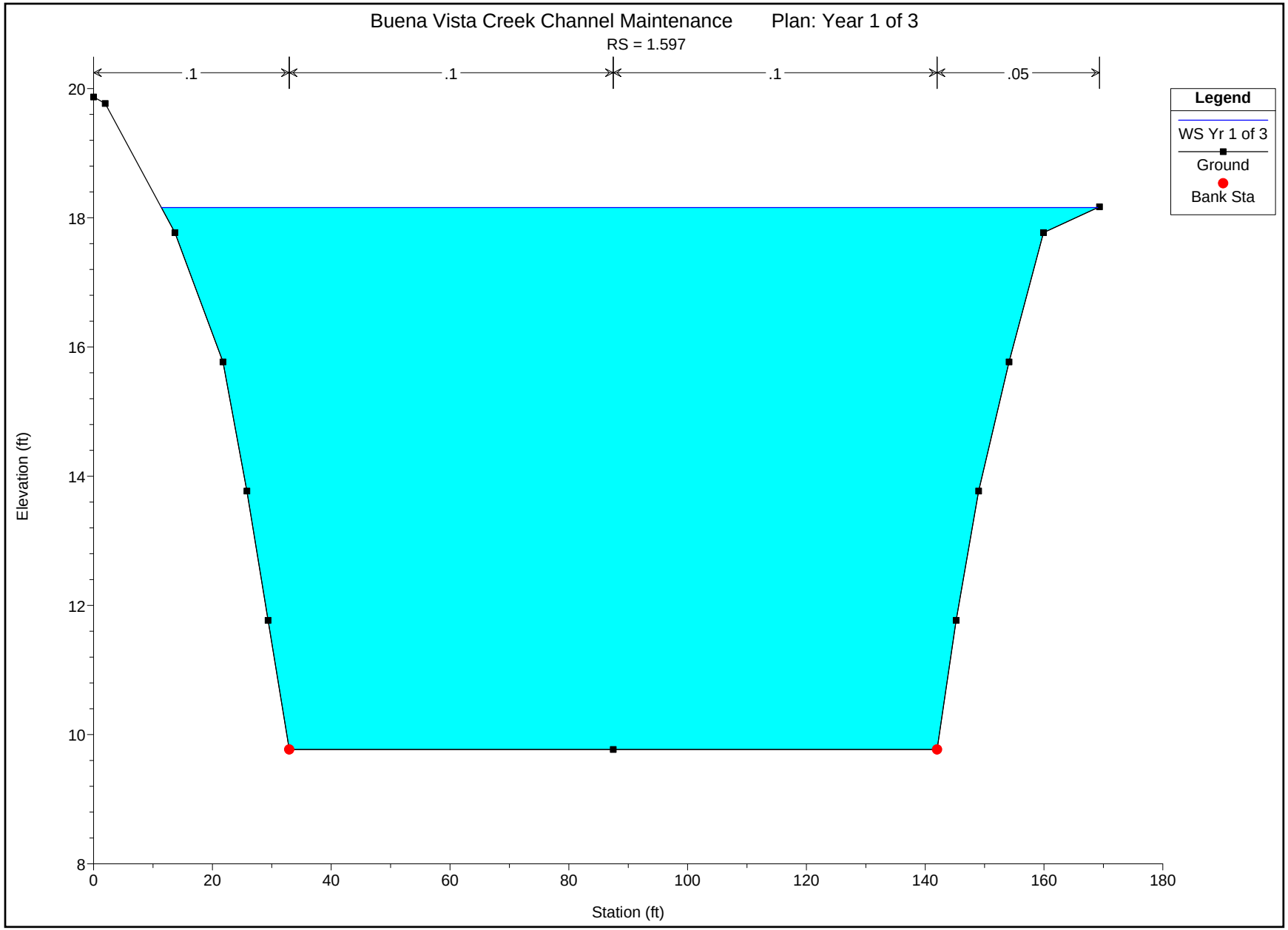
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Exist Capacity	3200.00	5.77	10.76	8.30	11.09	0.001000	4.58	699.17	389.60	0.36
Reach-1	1.005	Exist Capacity	3200.00	5.77	10.21		11.36	0.000913	8.66	397.49	99.16	0.72
Reach-1	1.017	Exist Capacity	3200.00	5.77	10.24	10.24	12.36	0.001725	11.97	326.20	85.48	1.00
Reach-1	1.024		Bridge									
Reach-1	1.03	Exist Capacity	3200.00	5.77	11.11	10.16	12.49	0.000898	9.72	416.10	90.34	0.74
Reach-1	1.066	Exist Capacity	3200.00	5.77	12.55	9.15	12.91	0.004194	4.92	674.93	113.73	0.33
Reach-1	1.1	Exist Capacity	3200.00	5.77	13.20		13.34	0.001413	3.04	1085.06	165.72	0.20
Reach-1	1.135	Exist Capacity	3200.00	5.77	13.46	8.14	13.56	0.000957	2.56	1287.04	181.96	0.16
Reach-1	1.174	Exist Capacity	3200.00	5.77	13.66	8.40	13.79	0.001194	2.91	1134.95	158.90	0.18
Reach-1	1.214	Exist Capacity	3200.00	5.77	13.90	8.26	14.01	0.000916	2.60	1275.09	176.17	0.16
Reach-1	1.255	Exist Capacity	3200.00	5.77	14.10		14.22	0.001028	2.80	1199.15	167.86	0.17
Reach-1	1.296	Exist Capacity	3200.00	5.77	14.34	9.30	14.55	0.001881	3.85	899.75	134.07	0.23
Reach-1	1.336	Exist Capacity	3200.00	5.77	14.72	9.08	14.88	0.001373	3.39	1002.46	135.18	0.20
Reach-1	1.373	Exist Capacity	3200.00	5.77	15.08		15.21	0.001879	2.85	1144.06	142.29	0.16
Reach-1	1.413	Exist Capacity	3200.00	5.77	15.45		15.57	0.001559	2.67	1211.87	143.40	0.15
Reach-1	1.454	Exist Capacity	3200.00	5.77	15.79		15.90	0.001460	2.64	1247.07	143.01	0.15
Reach-1	1.498	Exist Capacity	3200.00	9.77	16.29		16.51	0.005234	3.75	865.50	144.08	0.26
Reach-1	1.532	Exist Capacity	3200.00	9.77	17.13		17.31	0.003813	3.47	940.43	140.29	0.23
Reach-1	1.564	Exist Capacity	3200.00	9.77	17.71		17.85	0.002641	3.04	1080.94	154.61	0.19
Reach-1	1.597	Exist Capacity	3200.00	9.77	18.16		18.31	0.002644	3.16	1057.30	157.70	0.19
Reach-1	1.629	Exist Capacity	3200.00	9.77	18.59		18.72	0.002181	2.96	1109.65	144.86	0.18
Reach-1	1.661	Exist Capacity	3200.00	9.77	18.95		19.09	0.002126	3.00	1101.10	142.21	0.17
Reach-1	1.701	Exist Capacity	3200.00	11.77	19.53		19.91	0.007525	5.05	666.61	104.09	0.32
Reach-1	1.734	Exist Capacity	3200.00	11.77	19.35		20.23	0.000364	7.81	445.61	70.49	0.50
Reach-1	1.739		Bridge									
Reach-1	1.744	Exist Capacity	3200.00	11.77	19.38	16.78	20.28	0.000371	7.91	440.84	69.13	0.51
Reach-1	1.777	Exist Capacity	3200.00	11.77	18.96		20.69	0.006250	5.84	422.51	74.92	0.38
Reach-1	1.809	Exist Capacity	3200.00	11.77	20.36		21.45	0.002952	4.51	523.07	85.17	0.27
Reach-1	1.839	Exist Capacity	3200.00	11.77	20.98		21.91	0.002576	4.42	548.34	83.27	0.26


Buena Vista Creek Channel Maintenance
Plan: Exist Cond
RS = 1.597
.1
.1
.1
.05
Legend
WS Exist Capacity
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 1 OF 3

HEC-RAS Plan: Year 1 of 3 River: RIVER-1 Reach: Reach-1 Profile: Yr 1 of 3

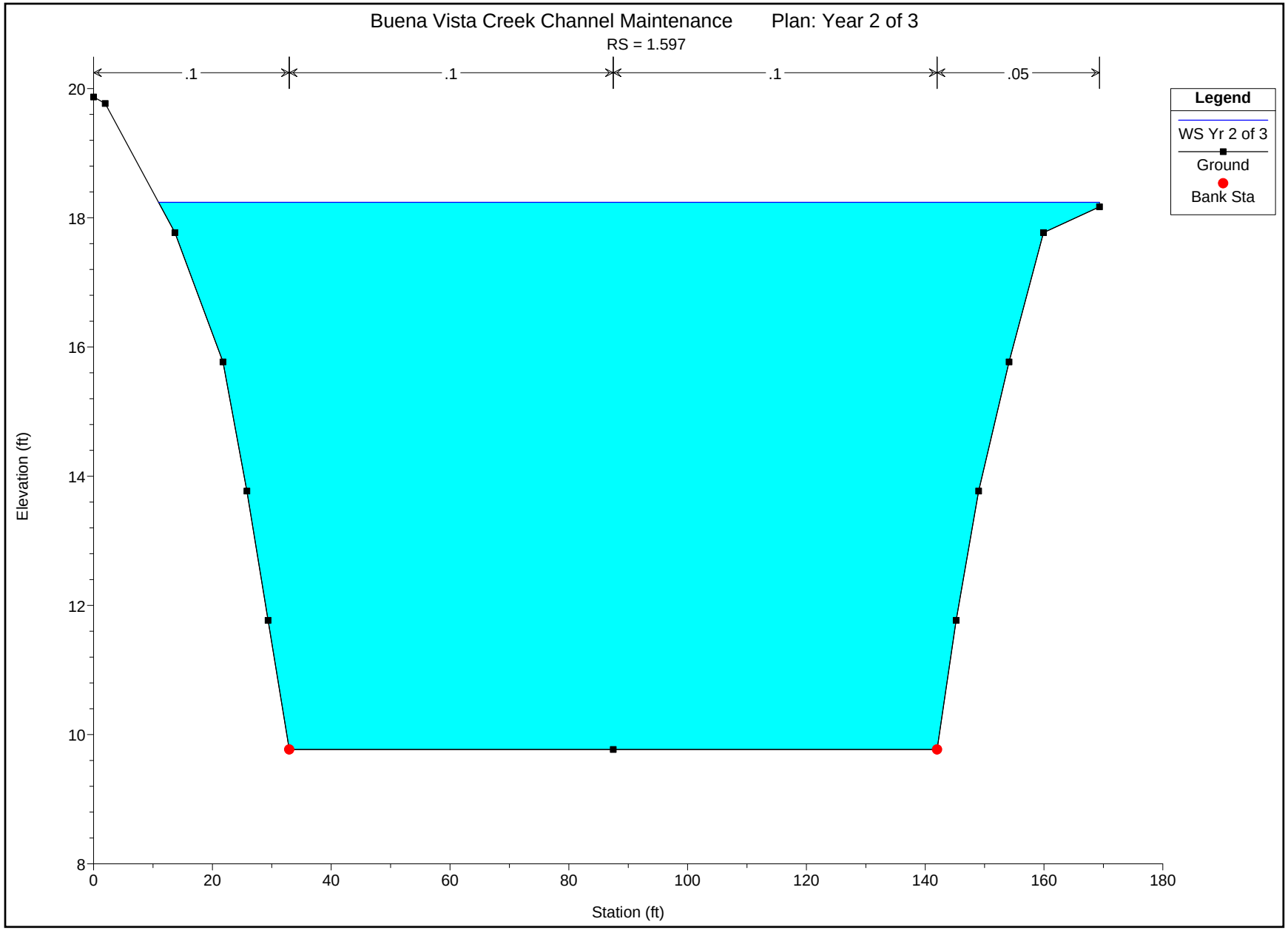
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 1 of 3	3300.00	5.77	10.86	8.35	11.19	0.001000	4.63	712.20	390.16	0.36
Reach-1	1.005	Yr 1 of 3	3300.00	5.77	10.37		11.44	0.000822	8.41	412.88	99.91	0.69
Reach-1	1.017	Yr 1 of 3	3300.00	5.77	10.15	10.15	12.09	0.001669	11.61	318.21	85.15	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 1 of 3	3300.00	5.77	11.17	9.98	12.23	0.000699	8.64	421.53	90.54	0.65
Reach-1	1.066	Yr 1 of 3	3300.00	5.77	12.05	9.23	12.52	0.002698	5.63	618.94	110.55	0.40
Reach-1	1.1	Yr 1 of 3	3300.00	5.77	12.64		12.82	0.000936	3.52	991.98	162.85	0.24
Reach-1	1.135	Yr 1 of 3	3300.00	5.77	12.83	8.20	12.96	0.000627	2.94	1174.15	179.75	0.19
Reach-1	1.174	Yr 1 of 3	3300.00	5.77	12.95	8.46	13.12	0.000809	3.37	1023.51	156.21	0.22
Reach-1	1.214	Yr 1 of 3	3300.00	5.77	13.14	8.31	13.27	0.000631	3.03	1141.45	171.91	0.20
Reach-1	1.255	Yr 1 of 3	3300.00	5.77	13.27		13.43	0.000750	3.34	1061.39	161.67	0.21
Reach-1	1.296	Yr 1 of 3	3300.00	5.77	13.47	9.36	13.76	0.002982	4.52	785.71	128.39	0.29
Reach-1	1.336	Yr 1 of 3	3300.00	5.77	14.05	9.14	14.27	0.001933	3.82	913.71	131.56	0.23
Reach-1	1.373	Yr 1 of 3	3300.00	5.77	14.56		14.71	0.002462	3.14	1069.68	139.29	0.19
Reach-1	1.413	Yr 1 of 3	3300.00	5.77	15.03		15.16	0.001945	2.89	1151.83	141.42	0.17
Reach-1	1.454	Yr 1 of 3	3300.00	5.77	15.45		15.57	0.001759	2.83	1198.21	141.54	0.16
Reach-1	1.498	Yr 1 of 3	3300.00	9.77	16.05		16.30	0.006326	4.02	831.59	143.10	0.28
Reach-1	1.532	Yr 1 of 3	3300.00	9.77	17.04		17.24	0.004241	3.63	927.21	139.83	0.24
Reach-1	1.564	Yr 1 of 3	3300.00	9.77	17.67		17.83	0.002855	3.15	1075.33	154.42	0.20
Reach-1	1.597	Yr 1 of 3	3300.00	9.77	18.16		18.32	0.002815	3.25	1056.89	157.62	0.20
Reach-1	1.629	Yr 1 of 3	3300.00	9.77	18.61		18.75	0.002298	3.05	1113.05	144.98	0.18
Reach-1	1.661	Yr 1 of 3	3300.00	9.77	18.99		19.13	0.002224	3.08	1107.07	142.50	0.18
Reach-1	1.701	Yr 1 of 3	3300.00	11.77	19.60		19.99	0.007755	5.16	673.54	104.45	0.32
Reach-1	1.734	Yr 1 of 3	3300.00	11.77	19.41		20.33	0.000377	7.99	449.52	70.71	0.51
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 1 of 3	3300.00	11.77	19.43	16.88	20.37	0.000385	8.09	444.60	69.31	0.52
Reach-1	1.777	Yr 1 of 3	3300.00	11.77	18.99		20.81	0.006546	5.99	424.46	75.14	0.39
Reach-1	1.809	Yr 1 of 3	3300.00	11.77	20.47		21.59	0.002952	4.55	532.31	85.94	0.27
Reach-1	1.839	Yr 1 of 3	3300.00	11.77	21.10		22.05	0.002584	4.46	558.50	84.67	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 1 of 3
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 1 of 3
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 2 OF 3

HEC-RAS Plan: Year 2 of 3 River: RIVER-1 Reach: Reach-1 Profile: Yr 2 of 3

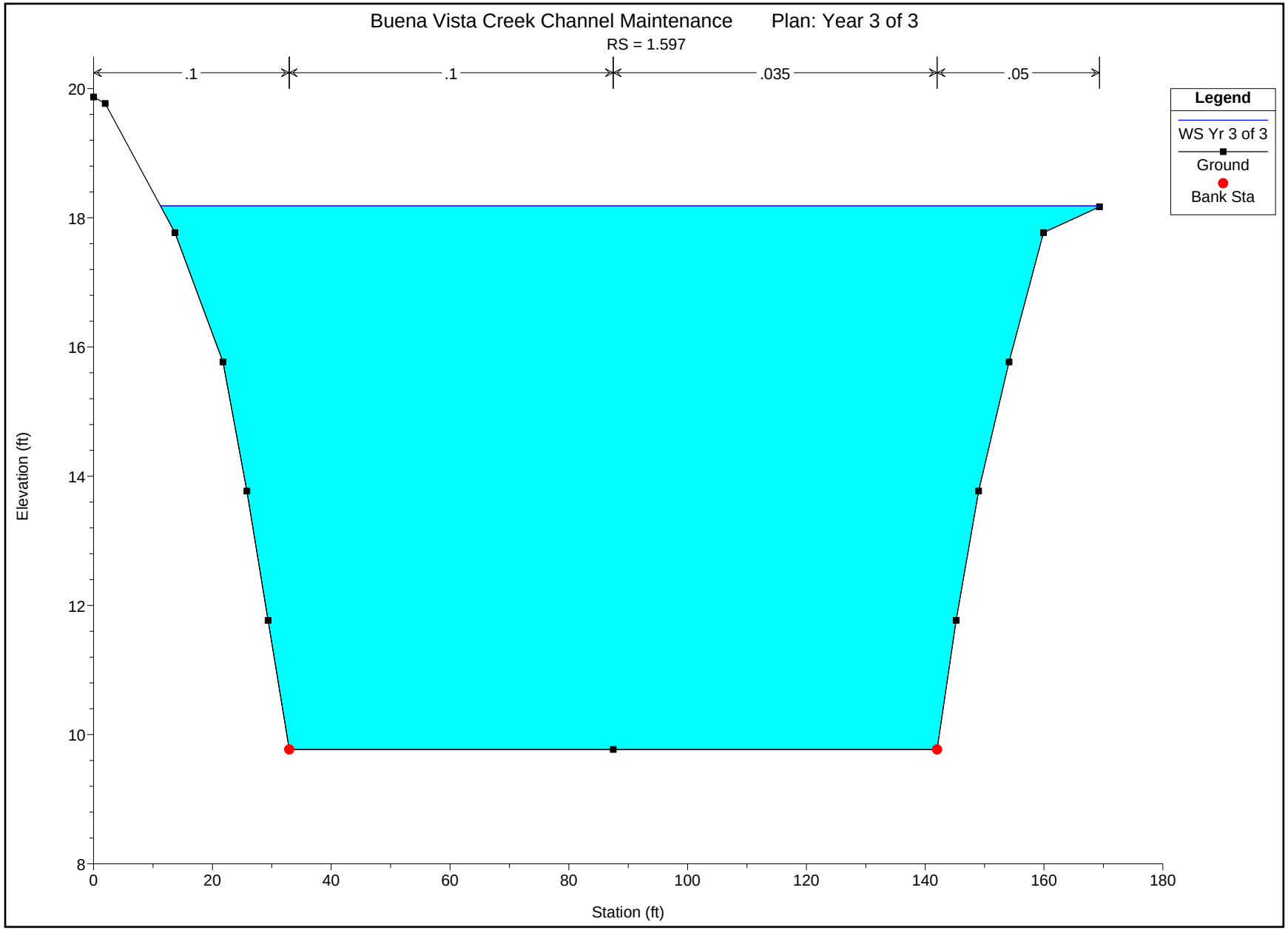
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 2 of 3	3900.00	5.77	11.39	8.65	11.77	0.001001	4.96	787.08	393.37	0.37
Reach-1	1.005	Yr 2 of 3	3900.00	5.77	10.83		12.05	0.000824	8.98	460.03	102.17	0.70
Reach-1	1.017	Yr 2 of 3	3900.00	5.77	10.63	10.63	12.77	0.001612	12.22	359.25	86.80	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 2 of 3	3900.00	5.77	11.72	10.44	12.91	0.000694	9.18	471.08	92.31	0.66
Reach-1	1.066	Yr 2 of 3	3900.00	5.77	12.71	9.63	13.23	0.003613	5.93	692.74	114.73	0.40
Reach-1	1.1	Yr 2 of 3	3900.00	5.77	13.41		13.61	0.001204	3.65	1119.74	166.78	0.23
Reach-1	1.135	Yr 2 of 3	3900.00	5.77	13.65	8.48	13.79	0.000817	3.07	1322.57	182.65	0.19
Reach-1	1.174	Yr 2 of 3	3900.00	5.77	13.81	8.77	14.00	0.001037	3.51	1159.45	159.46	0.22
Reach-1	1.214	Yr 2 of 3	3900.00	5.77	14.04	8.60	14.19	0.000803	3.14	1299.44	176.93	0.19
Reach-1	1.255	Yr 2 of 3	3900.00	5.77	14.21		14.38	0.000929	3.43	1217.30	168.82	0.21
Reach-1	1.296	Yr 2 of 3	3900.00	5.77	14.34	9.79	14.68	0.001365	4.93	899.84	134.08	0.30
Reach-1	1.336	Yr 2 of 3	3900.00	5.77	14.66	9.56	14.93	0.001009	4.34	994.63	134.87	0.26
Reach-1	1.373	Yr 2 of 3	3900.00	5.77	14.92		15.13	0.000872	3.70	1120.92	141.36	0.22
Reach-1	1.413	Yr 2 of 3	3900.00	5.77	15.11		15.30	0.000780	3.55	1162.86	141.79	0.20
Reach-1	1.454	Yr 2 of 3	3900.00	5.77	15.28		15.47	0.000759	3.54	1174.50	140.82	0.20
Reach-1	1.498	Yr 2 of 3	3900.00	9.77	15.42		15.87	0.003581	5.44	742.17	140.65	0.40
Reach-1	1.532	Yr 2 of 3	3900.00	9.77	16.47		16.81	0.007779	4.66	849.16	137.10	0.32
Reach-1	1.564	Yr 2 of 3	3900.00	9.77	17.55		17.77	0.004225	3.79	1055.76	153.75	0.24
Reach-1	1.597	Yr 2 of 3	3900.00	9.77	18.24		18.45	0.003791	3.80	1069.76	158.39	0.23
Reach-1	1.629	Yr 2 of 3	3900.00	9.77	18.84		19.02	0.002929	3.50	1146.43	146.24	0.20
Reach-1	1.661	Yr 2 of 3	3900.00	9.77	19.32		19.50	0.002737	3.50	1154.30	144.81	0.20
Reach-1	1.701	Yr 2 of 3	3900.00	11.77	20.05		20.53	0.008973	5.76	722.16	111.87	0.35
Reach-1	1.734	Yr 2 of 3	3900.00	11.77	19.79		20.94	0.000441	8.94	477.31	72.31	0.56
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 2 of 3	3900.00	11.77	19.83	17.44	21.00	0.000449	9.04	472.54	70.70	0.56
Reach-1	1.777	Yr 2 of 3	3900.00	11.77	19.23	18.91	21.55	0.007940	6.74	442.68	77.11	0.43
Reach-1	1.809	Yr 2 of 3	3900.00	11.77	21.14		22.41	0.002839	4.69	591.72	90.72	0.27
Reach-1	1.839	Yr 2 of 3	3900.00	11.77	21.81		22.86	0.002543	4.65	621.48	92.59	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 2 of 3
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 2 of 3
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 3 OF 3

HEC-RAS Plan: Year 3 of 3 River: RIVER-1 Reach: Reach-1 Profile: Yr 3 of 3

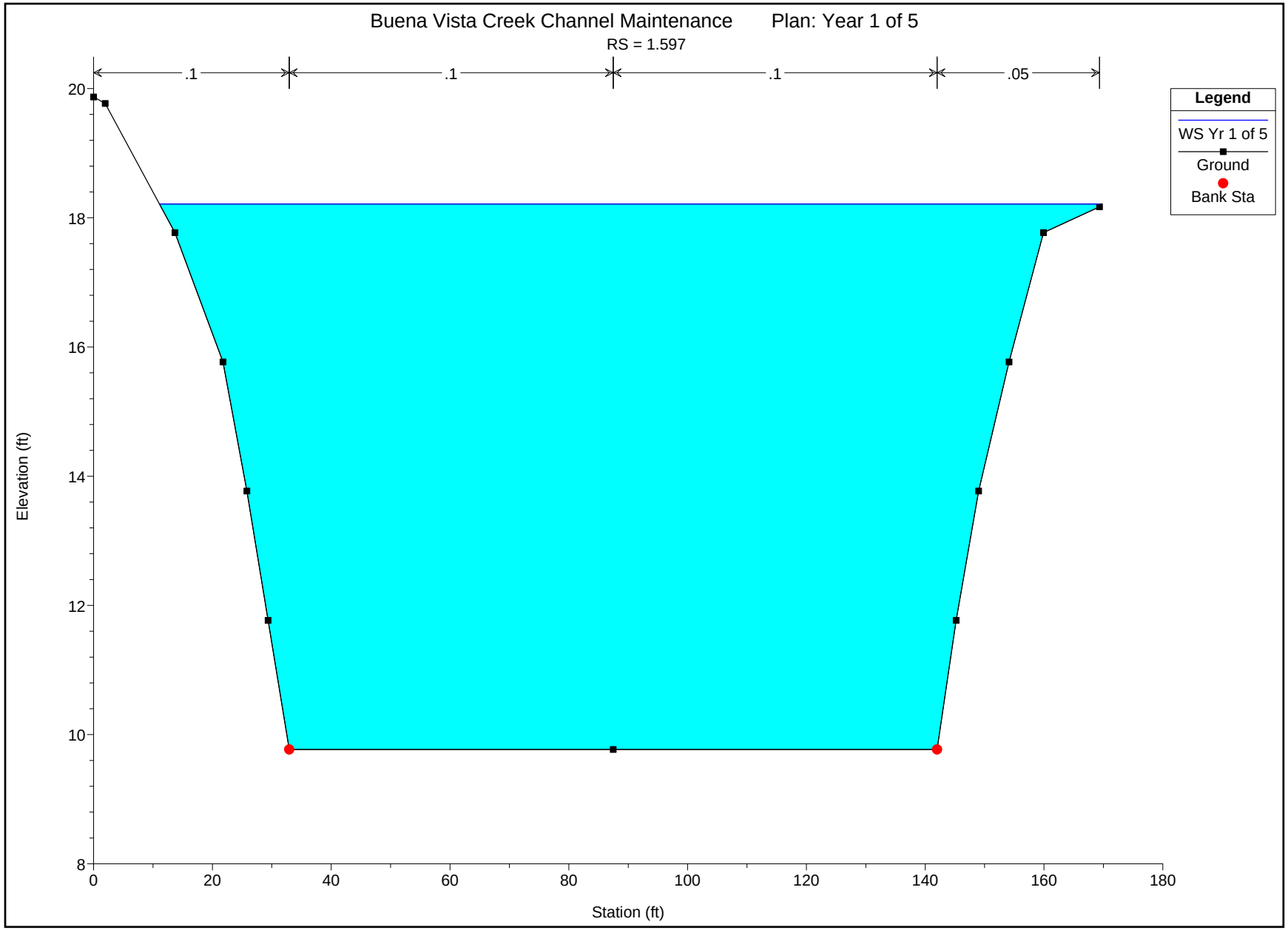
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 3 of 3	4900.00	5.77	12.22	9.12	12.68	0.001000	5.43	902.84	398.55	0.38
Reach-1	1.005	Yr 3 of 3	4900.00	5.77	11.56		13.00	0.000820	9.80	535.29	105.67	0.72
Reach-1	1.017	Yr 3 of 3	4900.00	5.77	11.34	11.34	13.82	0.001566	13.20	421.78	89.25	0.99
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 3 of 3	4900.00	5.77	12.55	11.12	13.95	0.000687	9.97	549.21	94.86	0.67
Reach-1	1.066	Yr 3 of 3	4900.00	5.77	13.69	10.24	14.29	0.004274	6.40	808.35	120.98	0.40
Reach-1	1.1	Yr 3 of 3	4900.00	5.77	14.51		14.74	0.001413	3.93	1307.19	175.59	0.23
Reach-1	1.135	Yr 3 of 3	4900.00	5.77	14.79	8.91	14.96	0.000970	3.32	1532.80	186.65	0.20
Reach-1	1.174	Yr 3 of 3	4900.00	5.77	14.98	9.26	15.20	0.001221	3.78	1348.15	163.23	0.22
Reach-1	1.214	Yr 3 of 3	4900.00	5.77	15.25	9.07	15.42	0.000942	3.39	1517.57	183.60	0.19
Reach-1	1.255	Yr 3 of 3	4900.00	5.77	15.45		15.65	0.001118	3.74	1439.18	212.94	0.21
Reach-1	1.296	Yr 3 of 3	4900.00	5.77	15.64	10.43	16.00	0.001690	5.13	1078.90	141.54	0.29
Reach-1	1.336	Yr 3 of 3	4900.00	5.77	16.02	10.14	16.31	0.001268	4.56	1182.78	142.55	0.25
Reach-1	1.373	Yr 3 of 3	4900.00	5.77	16.33		16.56	0.001178	3.96	1328.07	155.62	0.21
Reach-1	1.413	Yr 3 of 3	4900.00	5.77	16.59		16.80	0.001028	3.75	1377.87	150.54	0.20
Reach-1	1.454	Yr 3 of 3	4900.00	5.77	16.80		17.01	0.000971	3.75	1394.30	147.28	0.20
Reach-1	1.498	Yr 3 of 3	4900.00	9.77	17.04		17.45	0.003287	5.23	974.40	147.19	0.34
Reach-1	1.532	Yr 3 of 3	4900.00	9.77	17.52		17.92	0.002108	5.15	995.66	142.18	0.33
Reach-1	1.564	Yr 3 of 3	4900.00	9.77	17.90		18.25	0.001717	4.80	1115.23	189.34	0.30
Reach-1	1.597	Yr 3 of 3	4900.00	9.77	18.18		18.56	0.001818	5.05	1061.15	158.07	0.31
Reach-1	1.629	Yr 3 of 3	4900.00	9.77	18.51		18.85	0.001557	4.80	1098.89	144.45	0.29
Reach-1	1.661	Yr 3 of 3	4900.00	9.77	18.76		19.13	0.001578	4.92	1075.00	140.91	0.29
Reach-1	1.701	Yr 3 of 3	4900.00	11.77	18.75		20.02	0.007914	9.31	587.27	99.92	0.62
Reach-1	1.734	Yr 3 of 3	4900.00	11.77	18.26	18.26	21.20	0.001472	14.17	371.19	66.23	0.98
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 3 of 3	4900.00	11.77	19.28	18.34	21.46	0.000909	12.27	434.50	68.81	0.79
Reach-1	1.777	Yr 3 of 3	4900.00	11.77	20.18	20.18	22.56	0.007666	7.17	523.23	94.15	0.44
Reach-1	1.809	Yr 3 of 3	4900.00	11.77	21.77		23.43	0.003206	5.21	650.63	95.22	0.29
Reach-1	1.839	Yr 3 of 3	4900.00	11.77	22.53		23.93	0.002712	5.03	689.71	95.66	0.27


Buena Vista Creek Channel Maintenance
Plan: Year 3 of 3
RS = 1.597
.1
.1
.035
.05
Legend
WS Yr 3 of 3
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 1 OF 5

HEC-RAS Plan: Year 1 of 5 River: RIVER-1 Reach: Reach-1 Profile: Yr 1 of 5

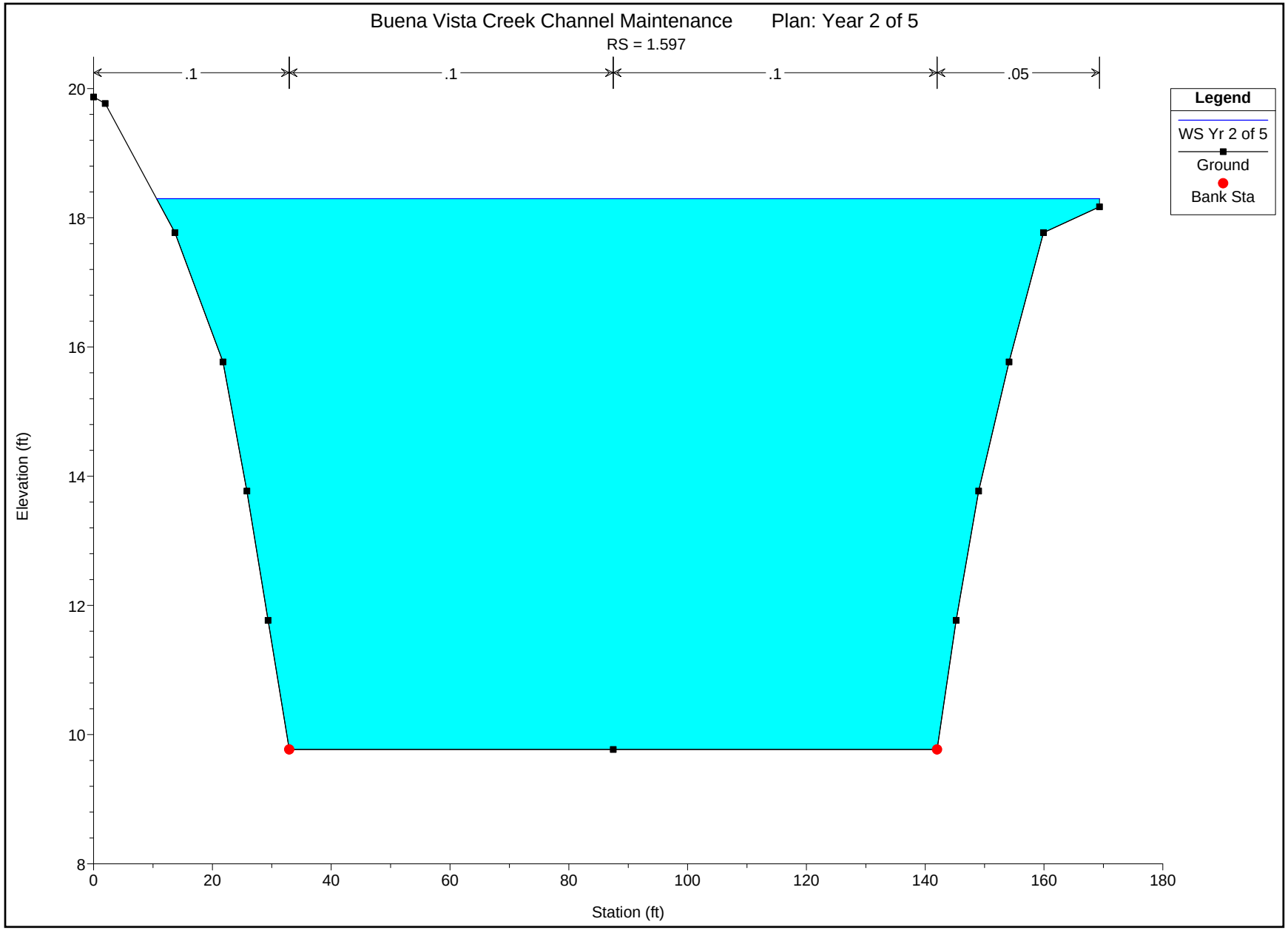
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 1 of 5	3300.00	5.77	10.86	8.35	11.19	0.001000	4.63	712.20	390.16	0.36
Reach-1	1.005	Yr 1 of 5	3300.00	5.77	10.37		11.44	0.000822	8.41	412.88	99.91	0.69
Reach-1	1.017	Yr 1 of 5	3300.00	5.77	10.15	10.15	12.09	0.001669	11.61	318.21	85.15	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 1 of 5	3300.00	5.77	11.17	9.98	12.23	0.000699	8.64	421.53	90.54	0.65
Reach-1	1.066	Yr 1 of 5	3300.00	5.77	12.05	9.23	12.52	0.002698	5.63	618.94	110.55	0.40
Reach-1	1.1	Yr 1 of 5	3300.00	5.77	12.64		12.82	0.000936	3.52	991.98	162.85	0.24
Reach-1	1.135	Yr 1 of 5	3300.00	5.77	12.83	8.20	12.96	0.000627	2.94	1174.15	179.75	0.19
Reach-1	1.174	Yr 1 of 5	3300.00	5.77	13.01	8.45	13.18	0.001710	3.29	1033.01	156.45	0.22
Reach-1	1.214	Yr 1 of 5	3300.00	5.77	13.35	8.31	13.48	0.001244	2.89	1179.10	173.12	0.18
Reach-1	1.255	Yr 1 of 5	3300.00	5.77	13.62		13.76	0.001347	3.08	1119.62	163.95	0.19
Reach-1	1.296	Yr 1 of 5	3300.00	5.77	13.93	9.36	14.19	0.002400	4.22	846.02	131.75	0.26
Reach-1	1.336	Yr 1 of 5	3300.00	5.77	14.41	9.14	14.60	0.001657	3.64	961.32	133.51	0.22
Reach-1	1.373	Yr 1 of 5	3300.00	5.77	14.85		14.99	0.002190	3.03	1110.73	140.95	0.18
Reach-1	1.413	Yr 1 of 5	3300.00	5.77	15.28		15.40	0.001772	2.81	1186.52	142.57	0.16
Reach-1	1.454	Yr 1 of 5	3300.00	5.77	15.66		15.77	0.001630	2.76	1227.99	142.43	0.15
Reach-1	1.498	Yr 1 of 5	3300.00	9.77	16.22		16.45	0.005794	3.92	854.69	143.77	0.27
Reach-1	1.532	Yr 1 of 5	3300.00	9.77	17.13		17.33	0.004055	3.58	940.49	140.29	0.23
Reach-1	1.564	Yr 1 of 5	3300.00	9.77	17.74		17.89	0.002767	3.12	1086.20	154.79	0.19
Reach-1	1.597	Yr 1 of 5	3300.00	9.77	18.21		18.37	0.002746	3.23	1065.81	158.24	0.20
Reach-1	1.629	Yr 1 of 5	3300.00	9.77	18.65		18.79	0.002256	3.03	1119.75	145.24	0.18
Reach-1	1.661	Yr 1 of 5	3300.00	9.77	19.03		19.17	0.002190	3.07	1112.72	142.78	0.18
Reach-1	1.701	Yr 1 of 5	3300.00	11.77	19.63		20.02	0.007649	5.14	676.62	104.61	0.32
Reach-1	1.734	Yr 1 of 5	3300.00	11.77	19.44		20.35	0.000372	7.96	451.68	70.83	0.51
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 1 of 5	3300.00	11.77	19.46	16.88	20.39	0.000379	8.06	446.73	69.41	0.51
Reach-1	1.777	Yr 1 of 5	3300.00	11.77	19.03		20.82	0.006385	5.94	427.63	75.48	0.39
Reach-1	1.809	Yr 1 of 5	3300.00	11.77	20.47		21.59	0.002945	4.55	532.64	85.96	0.27
Reach-1	1.839	Yr 1 of 5	3300.00	11.77	21.10		22.05	0.002581	4.46	558.70	84.69	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 1 of 5
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 1 of 5
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 2 OF 5

HEC-RAS Plan: Year 2 of 5 River: RIVER-1 Reach: Reach-1 Profile: Yr 2 of 5

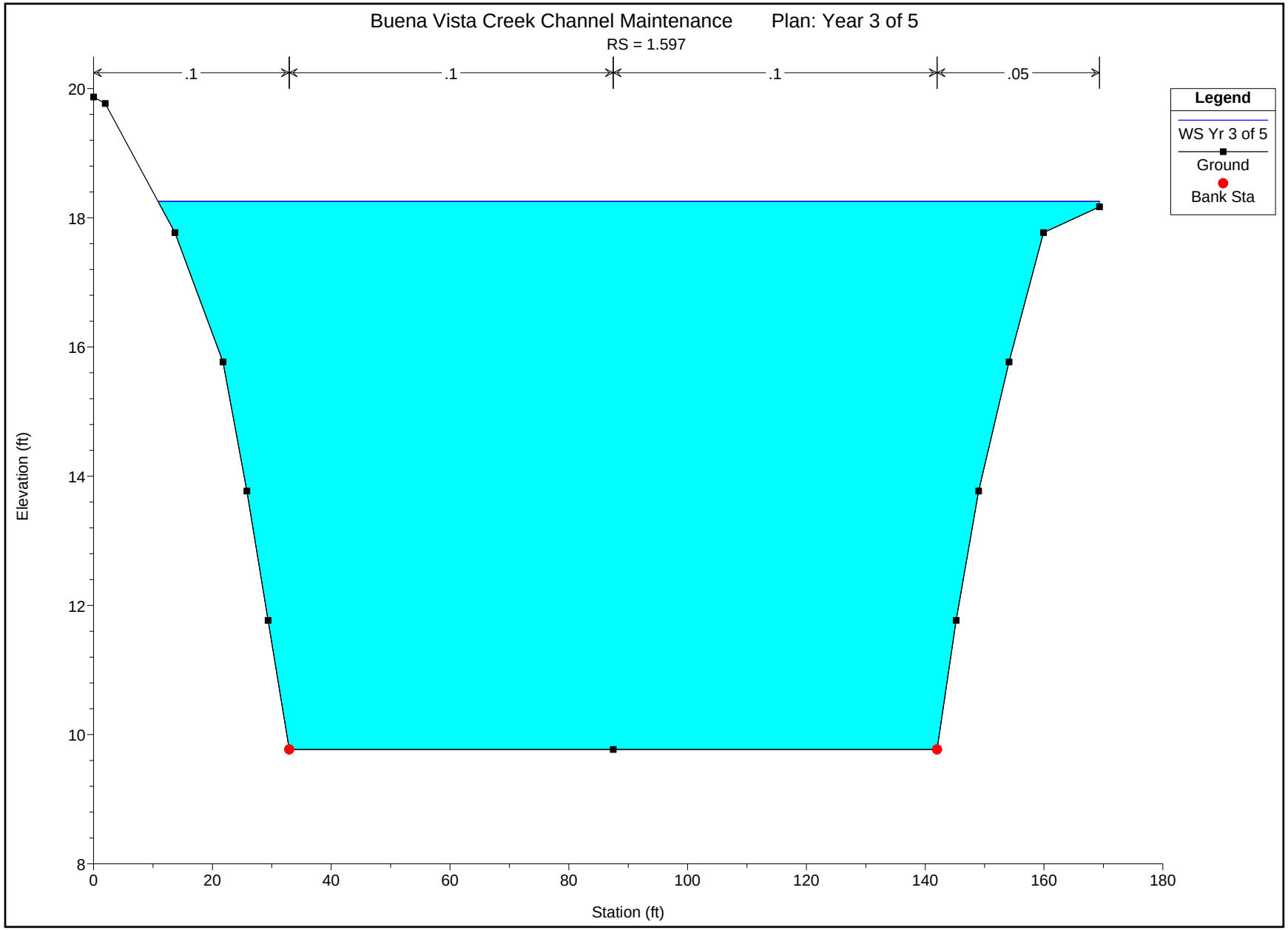
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 2 of 5	3400.00	5.77	10.95	8.40	11.29	0.001000	4.69	725.07	390.71	0.36
Reach-1	1.005	Yr 2 of 5	3400.00	5.77	10.45		11.54	0.000822	8.51	420.92	100.30	0.69
Reach-1	1.017	Yr 2 of 5	3400.00	5.77	10.23	10.23	12.20	0.001666	11.73	324.65	85.42	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 2 of 5	3400.00	5.77	11.27	10.05	12.35	0.000698	8.73	429.93	90.84	0.66
Reach-1	1.066	Yr 2 of 5	3400.00	5.77	12.19	9.30	12.66	0.003582	5.61	634.89	111.47	0.39
Reach-1	1.1	Yr 2 of 5	3400.00	5.77	12.86		13.04	0.001191	3.46	1028.64	163.99	0.23
Reach-1	1.135	Yr 2 of 5	3400.00	5.77	13.09	8.24	13.22	0.000799	2.89	1221.08	180.67	0.19
Reach-1	1.174	Yr 2 of 5	3400.00	5.77	13.23	8.51	13.39	0.000755	3.34	1066.45	157.26	0.22
Reach-1	1.214	Yr 2 of 5	3400.00	5.77	13.40	8.37	13.54	0.000594	3.01	1186.89	173.37	0.19
Reach-1	1.255	Yr 2 of 5	3400.00	5.77	13.52		13.68	0.000709	3.32	1102.78	163.29	0.21
Reach-1	1.296	Yr 2 of 5	3400.00	5.77	13.62	9.46	13.95	0.001423	4.75	805.69	129.64	0.30
Reach-1	1.336	Yr 2 of 5	3400.00	5.77	14.08	9.21	14.31	0.002024	3.92	917.72	131.72	0.24
Reach-1	1.373	Yr 2 of 5	3400.00	5.77	14.61		14.77	0.002558	3.21	1077.13	139.59	0.19
Reach-1	1.413	Yr 2 of 5	3400.00	5.77	15.10		15.24	0.002008	2.95	1161.92	141.76	0.17
Reach-1	1.454	Yr 2 of 5	3400.00	5.77	15.53		15.66	0.001810	2.89	1210.19	141.90	0.16
Reach-1	1.498	Yr 2 of 5	3400.00	9.77	16.15		16.41	0.006364	4.08	845.63	143.51	0.28
Reach-1	1.532	Yr 2 of 5	3400.00	9.77	17.14		17.35	0.004281	3.68	942.10	140.34	0.24
Reach-1	1.564	Yr 2 of 5	3400.00	9.77	17.80		17.96	0.003011	3.27	1095.14	186.08	0.20
Reach-1	1.597	Yr 2 of 5	3400.00	9.77	18.30		18.46	0.002809	3.29	1078.71	158.72	0.20
Reach-1	1.629	Yr 2 of 5	3400.00	9.77	18.75		18.89	0.002308	3.08	1133.17	145.74	0.18
Reach-1	1.661	Yr 2 of 5	3400.00	9.77	19.13		19.28	0.002236	3.12	1127.12	143.49	0.18
Reach-1	1.701	Yr 2 of 5	3400.00	11.77	19.74		20.14	0.007715	5.21	688.12	105.20	0.33
Reach-1	1.734	Yr 2 of 5	3400.00	11.77	19.54		20.48	0.000377	8.08	458.76	71.22	0.51
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 2 of 5	3400.00	11.77	19.56	16.97	20.52	0.000385	8.18	453.73	69.75	0.52
Reach-1	1.777	Yr 2 of 5	3400.00	11.77	19.12		20.96	0.006431	6.01	434.39	76.22	0.39
Reach-1	1.809	Yr 2 of 5	3400.00	11.77	20.58		21.73	0.002933	4.58	542.39	86.77	0.27
Reach-1	1.839	Yr 2 of 5	3400.00	11.77	21.22		22.19	0.002582	4.50	569.17	86.11	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 2 of 5
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 2 of 5
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 3 OF 5

HEC-RAS Plan: Year 3 of 5 River: RIVER-1 Reach: Reach-1 Profile: Yr 3 of 5

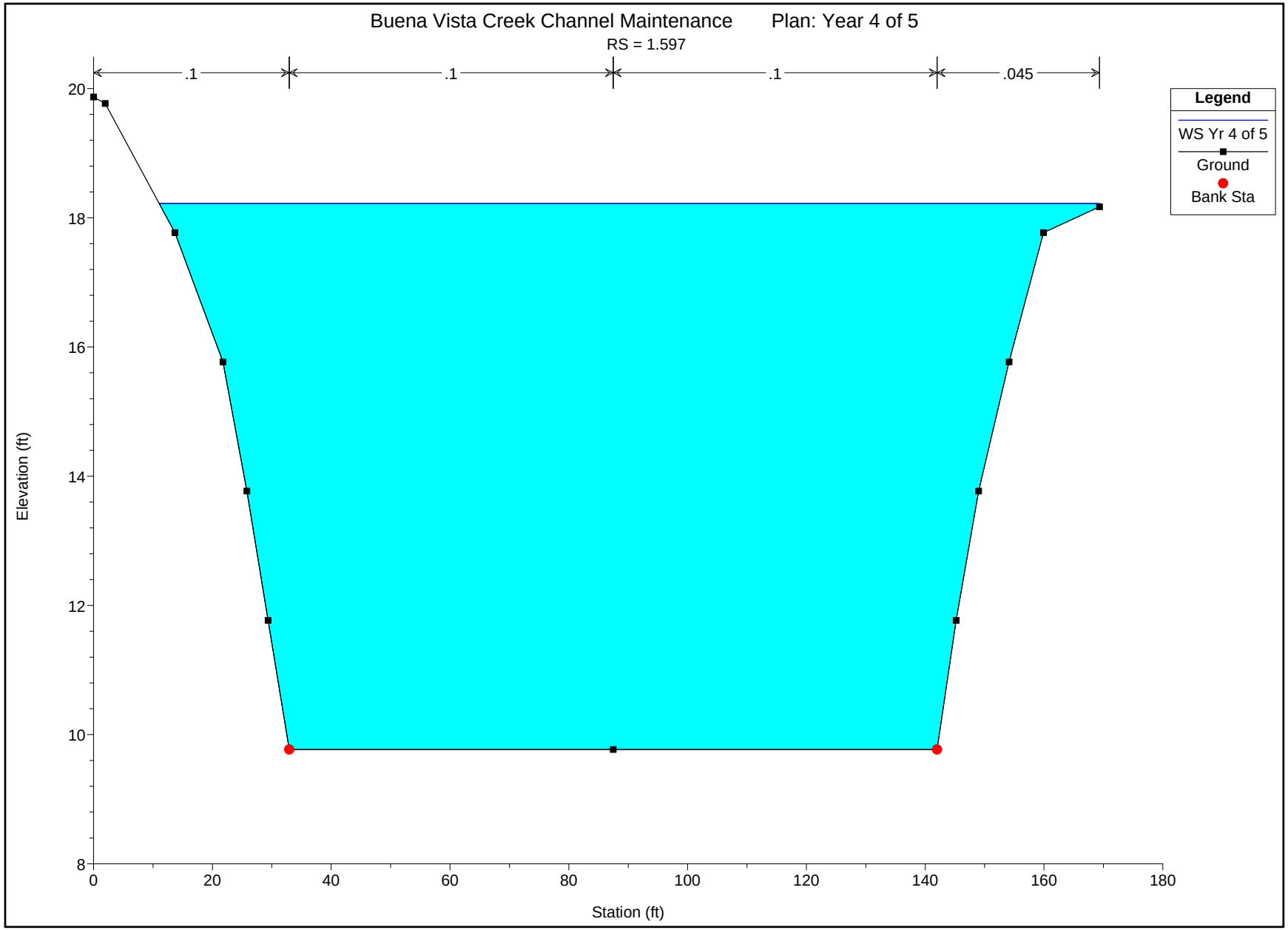
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 3 of 5	3500.00	5.77	11.04	8.45	11.39	0.001000	4.74	737.79	391.26	0.36
Reach-1	1.005	Yr 3 of 5	3500.00	5.77	10.53		11.64	0.000822	8.61	428.90	100.68	0.70
Reach-1	1.017	Yr 3 of 5	3500.00	5.77	10.30	10.30	12.32	0.001660	11.85	331.33	85.68	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 3 of 5	3500.00	5.77	11.36	10.13	12.46	0.000697	8.83	438.28	91.14	0.66
Reach-1	1.066	Yr 3 of 5	3500.00	5.77	12.32	9.36	12.79	0.004244	5.62	649.13	112.28	0.39
Reach-1	1.1	Yr 3 of 5	3500.00	5.77	13.05		13.22	0.001371	3.42	1059.53	164.94	0.22
Reach-1	1.135	Yr 3 of 5	3500.00	5.77	13.31	8.29	13.43	0.000920	2.87	1259.84	181.43	0.18
Reach-1	1.174	Yr 3 of 5	3500.00	5.77	13.48	8.56	13.64	0.000969	3.29	1106.07	158.21	0.21
Reach-1	1.214	Yr 3 of 5	3500.00	5.77	13.69	8.41	13.82	0.000752	2.96	1237.29	174.98	0.19
Reach-1	1.255	Yr 3 of 5	3500.00	5.77	13.85		14.00	0.000872	3.22	1156.58	165.58	0.20
Reach-1	1.296	Yr 3 of 5	3500.00	5.77	14.01	9.52	14.30	0.001682	4.54	856.30	132.20	0.28
Reach-1	1.336	Yr 3 of 5	3500.00	5.77	14.33	9.30	14.56	0.000932	4.07	949.72	133.04	0.24
Reach-1	1.373	Yr 3 of 5	3500.00	5.77	14.56		14.74	0.000807	3.47	1070.70	139.33	0.21
Reach-1	1.413	Yr 3 of 5	3500.00	5.77	14.74		14.90	0.000724	3.33	1110.30	140.04	0.20
Reach-1	1.454	Yr 3 of 5	3500.00	5.77	15.01		15.16	0.002304	3.14	1137.08	139.67	0.18
Reach-1	1.498	Yr 3 of 5	3500.00	9.77	15.81		16.12	0.008098	4.43	796.72	142.09	0.32
Reach-1	1.532	Yr 3 of 5	3500.00	9.77	17.01		17.24	0.004831	3.86	923.53	139.70	0.25
Reach-1	1.564	Yr 3 of 5	3500.00	9.77	17.73		17.89	0.003136	3.32	1083.54	154.70	0.21
Reach-1	1.597	Yr 3 of 5	3500.00	9.77	18.25		18.43	0.003032	3.40	1072.23	158.48	0.21
Reach-1	1.629	Yr 3 of 5	3500.00	9.77	18.74		18.89	0.002453	3.18	1132.12	145.70	0.19
Reach-1	1.661	Yr 3 of 5	3500.00	9.77	19.15		19.30	0.002355	3.21	1129.36	143.60	0.18
Reach-1	1.701	Yr 3 of 5	3500.00	11.77	19.78		20.20	0.008012	5.33	693.00	105.70	0.33
Reach-1	1.734	Yr 3 of 5	3500.00	11.77	19.57		20.56	0.000393	8.28	461.21	71.36	0.52
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 3 of 5	3500.00	11.77	19.60	17.07	20.61	0.000401	8.38	456.24	69.88	0.53
Reach-1	1.777	Yr 3 of 5	3500.00	11.77	19.12		21.07	0.006815	6.18	434.39	76.22	0.40
Reach-1	1.809	Yr 3 of 5	3500.00	11.77	20.69		21.87	0.002929	4.61	551.61	87.52	0.27
Reach-1	1.839	Yr 3 of 5	3500.00	11.77	21.34		22.33	0.002585	4.54	579.29	87.46	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 3 of 5
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 3 of 5
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 4 OF 5

HEC-RAS Plan: Year 4 of 5 River: RIVER-1 Reach: Reach-1 Profile: Yr 4 of 5

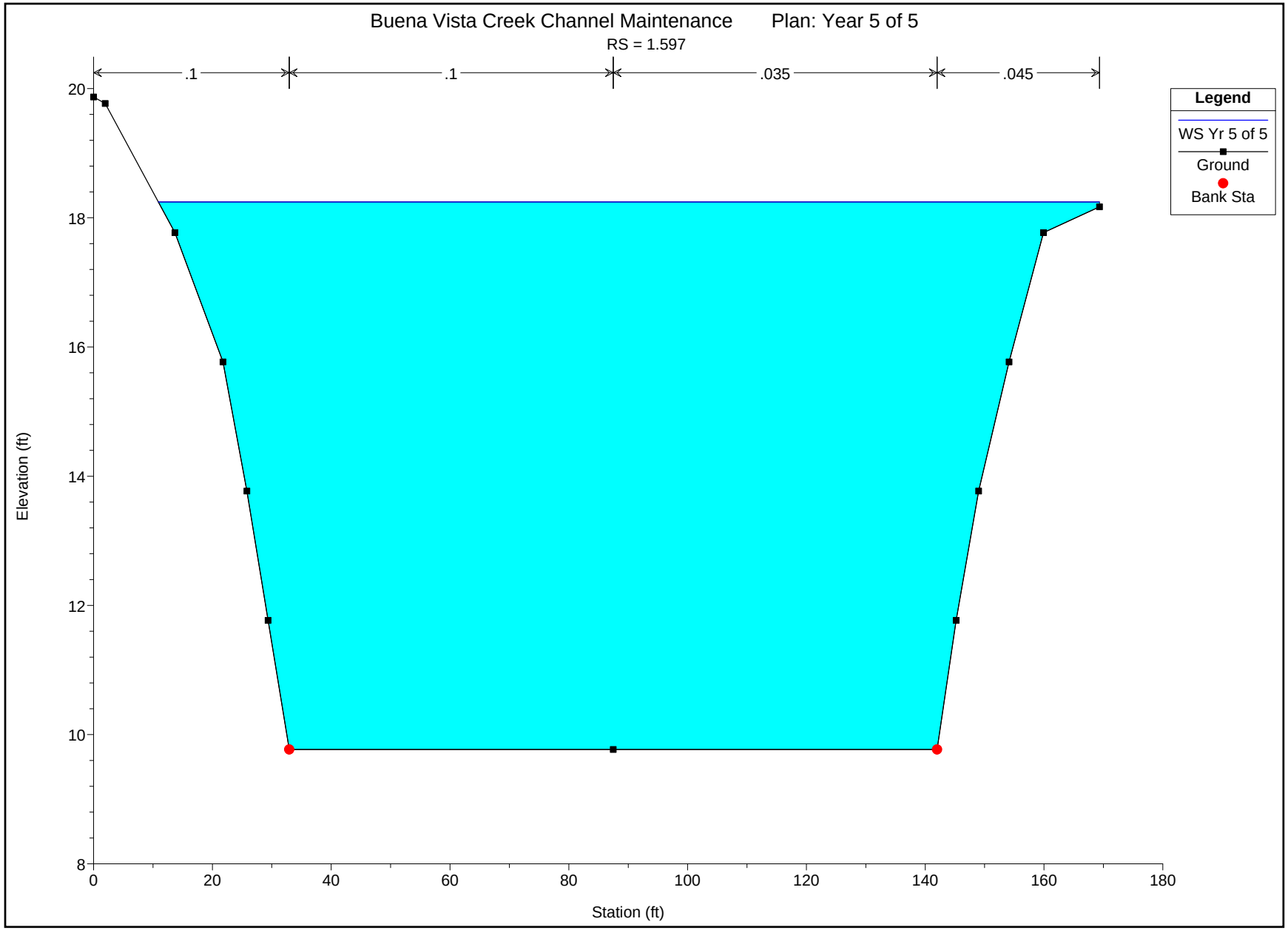
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 4 of 5	4800.00	5.77	12.14	9.08	12.59	0.001000	5.38	891.72	398.03	0.38
Reach-1	1.005	Yr 4 of 5	4800.00	5.77	11.49		12.90	0.000820	9.72	527.95	105.34	0.72
Reach-1	1.017	Yr 4 of 5	4800.00	5.77	11.27	11.27	13.71	0.001573	13.11	415.49	89.01	0.99
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 4 of 5	4800.00	5.77	12.47	11.05	13.84	0.000688	9.89	541.47	94.61	0.67
Reach-1	1.066	Yr 4 of 5	4800.00	5.77	13.61	10.18	14.20	0.004806	6.29	799.37	120.50	0.40
Reach-1	1.1	Yr 4 of 5	4800.00	5.77	14.47		14.69	0.001555	3.84	1300.36	175.22	0.23
Reach-1	1.135	Yr 4 of 5	4800.00	5.77	14.77	8.87	14.93	0.001066	3.25	1529.12	186.58	0.19
Reach-1	1.174	Yr 4 of 5	4800.00	5.77	14.97	9.21	15.18	0.001177	3.71	1346.23	163.20	0.22
Reach-1	1.214	Yr 4 of 5	4800.00	5.77	15.23	9.03	15.40	0.000911	3.33	1513.62	183.49	0.19
Reach-1	1.255	Yr 4 of 5	4800.00	5.77	15.42		15.62	0.001084	3.68	1433.22	212.10	0.21
Reach-1	1.296	Yr 4 of 5	4800.00	5.77	15.63	10.36	15.97	0.001909	4.95	1078.22	141.51	0.28
Reach-1	1.336	Yr 4 of 5	4800.00	5.77	16.01	10.09	16.29	0.001220	4.47	1181.67	142.49	0.25
Reach-1	1.373	Yr 4 of 5	4800.00	5.77	16.31		16.54	0.001137	3.88	1324.99	155.29	0.21
Reach-1	1.413	Yr 4 of 5	4800.00	5.77	16.56		16.76	0.000996	3.69	1373.57	150.34	0.20
Reach-1	1.454	Yr 4 of 5	4800.00	5.77	16.73		16.94	0.000700	3.74	1383.96	146.98	0.20
Reach-1	1.498	Yr 4 of 5	4800.00	9.77	16.86		17.28	0.002506	5.29	948.26	146.45	0.35
Reach-1	1.532	Yr 4 of 5	4800.00	9.77	17.30		17.71	0.002230	5.20	964.75	141.12	0.33
Reach-1	1.564	Yr 4 of 5	4800.00	9.77	17.71		18.05	0.001734	4.75	1081.51	154.63	0.30
Reach-1	1.597	Yr 4 of 5	4800.00	9.77	18.22		18.55	0.005708	4.66	1066.99	158.29	0.28
Reach-1	1.629	Yr 4 of 5	4800.00	9.77	19.09		19.36	0.003960	4.14	1184.03	147.65	0.24
Reach-1	1.661	Yr 4 of 5	4800.00	9.77	19.74		19.99	0.003497	4.07	1215.31	147.73	0.23
Reach-1	1.701	Yr 4 of 5	4800.00	11.77	20.65		21.27	0.010686	6.59	793.35	125.67	0.39
Reach-1	1.734	Yr 4 of 5	4800.00	11.77	20.27		21.80	0.000546	10.33	512.68	75.62	0.62
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 4 of 5	4800.00	11.77	20.33	18.25	21.87	0.000549	10.40	508.44	72.74	0.63
Reach-1	1.777	Yr 4 of 5	4800.00	11.77	20.12	20.12	22.46	0.007615	7.12	518.00	93.60	0.43
Reach-1	1.809	Yr 4 of 5	4800.00	11.77	21.71		23.33	0.003184	5.17	644.29	94.75	0.29
Reach-1	1.839	Yr 4 of 5	4800.00	11.77	22.46		23.82	0.002701	5.00	682.94	95.36	0.27


Buena Vista Creek Channel Maintenance
Plan: Year 4 of 5
RS = 1.597
.1
.1
.1
.045
Legend
WS Yr 4 of 5
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 5 OF 5

HEC-RAS Plan: Year 5 of 5 River: RIVER-1 Reach: Reach-1 Profile: Yr 5 of 5

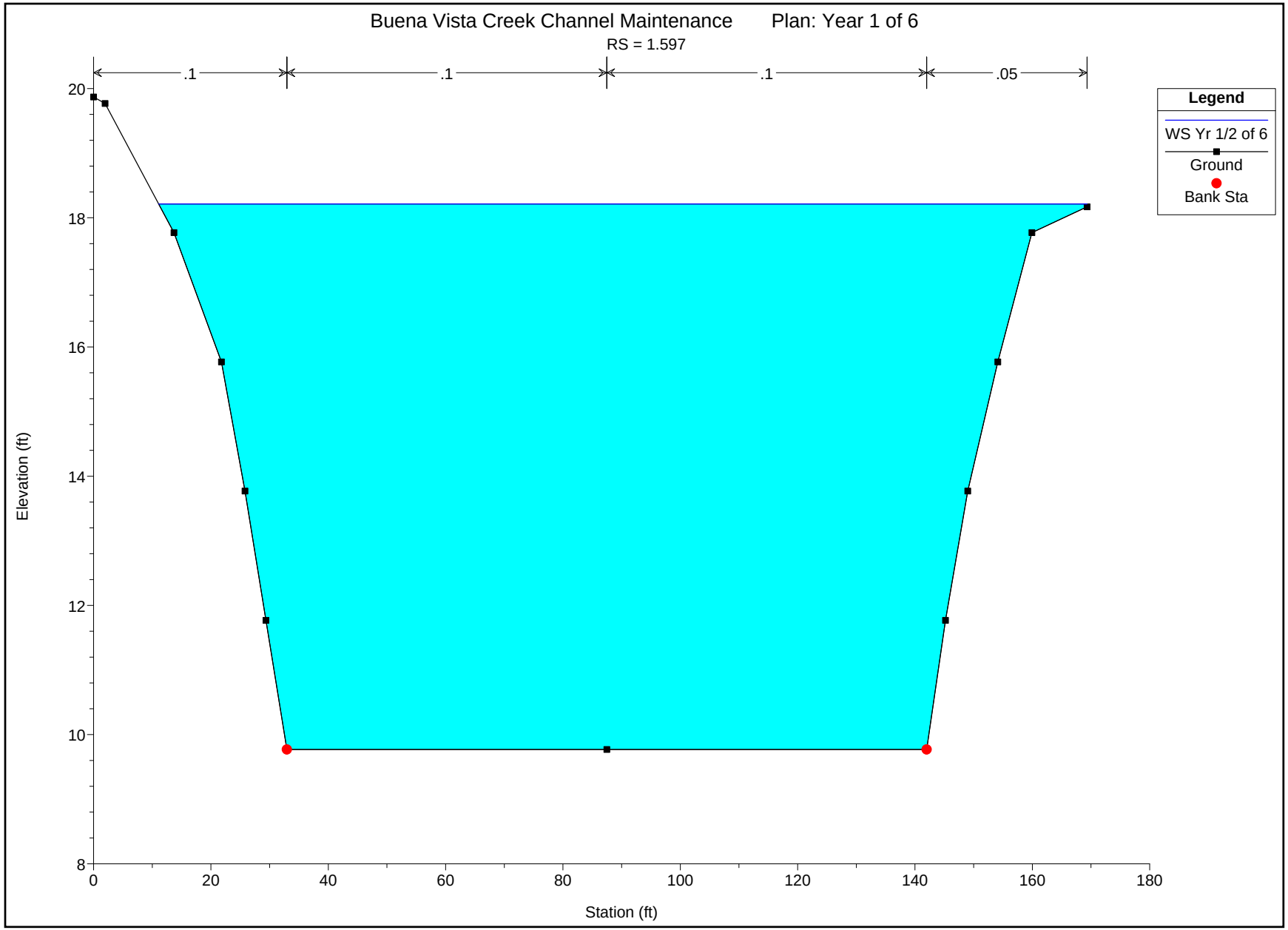
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 5 of 5	4600.00	5.77	11.98	8.98	12.41	0.001000	5.29	869.21	396.99	0.37
Reach-1	1.005	Yr 5 of 5	4600.00	5.77	11.35		12.72	0.000821	9.57	513.15	104.66	0.71
Reach-1	1.017	Yr 5 of 5	4600.00	5.77	11.13	11.13	13.51	0.001586	12.94	402.78	88.52	0.99
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 5 of 5	4600.00	5.77	12.31	10.93	13.64	0.000690	9.74	526.12	94.12	0.67
Reach-1	1.066	Yr 5 of 5	4600.00	5.77	13.44	10.06	14.00	0.005169	6.16	778.21	119.38	0.39
Reach-1	1.1	Yr 5 of 5	4600.00	5.77	14.31		14.52	0.001642	3.73	1272.31	173.70	0.23
Reach-1	1.135	Yr 5 of 5	4600.00	5.77	14.62	8.78	14.77	0.001123	3.16	1501.15	186.05	0.19
Reach-1	1.174	Yr 5 of 5	4600.00	5.77	14.84	9.11	15.04	0.001291	3.59	1325.03	162.78	0.21
Reach-1	1.214	Yr 5 of 5	4600.00	5.77	15.12	8.93	15.27	0.000992	3.21	1493.10	182.87	0.19
Reach-1	1.255	Yr 5 of 5	4600.00	5.77	15.33		15.51	0.001168	3.54	1413.88	209.37	0.20
Reach-1	1.296	Yr 5 of 5	4600.00	5.77	15.57	10.23	15.88	0.002011	4.72	1069.64	141.16	0.27
Reach-1	1.336	Yr 5 of 5	4600.00	5.77	15.97	9.96	16.23	0.001340	4.24	1176.21	142.24	0.23
Reach-1	1.373	Yr 5 of 5	4600.00	5.77	16.30		16.50	0.001286	3.69	1322.22	154.99	0.20
Reach-1	1.413	Yr 5 of 5	4600.00	5.77	16.57		16.75	0.001114	3.50	1374.78	150.39	0.19
Reach-1	1.454	Yr 5 of 5	4600.00	5.77	16.78		16.96	0.000875	3.53	1390.51	147.17	0.19
Reach-1	1.498	Yr 5 of 5	4600.00	9.77	16.99		17.36	0.003007	4.94	967.50	146.99	0.32
Reach-1	1.532	Yr 5 of 5	4600.00	9.77	17.52		17.87	0.002596	4.81	995.06	142.16	0.30
Reach-1	1.564	Yr 5 of 5	4600.00	9.77	17.97		18.26	0.002006	4.43	1126.97	189.63	0.27
Reach-1	1.597	Yr 5 of 5	4600.00	9.77	18.24		18.57	0.001550	4.69	1070.59	158.42	0.28
Reach-1	1.629	Yr 5 of 5	4600.00	9.77	18.52		18.82	0.001357	4.48	1100.30	144.50	0.27
Reach-1	1.661	Yr 5 of 5	4600.00	9.77	18.74		19.06	0.001394	4.62	1071.74	140.75	0.27
Reach-1	1.701	Yr 5 of 5	4600.00	11.77	18.73		19.86	0.007067	8.78	584.66	99.78	0.59
Reach-1	1.734	Yr 5 of 5	4600.00	11.77	18.06	17.98	20.83	0.001447	13.76	358.00	65.44	0.97
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 5 of 5	4600.00	11.77	19.01	18.06	21.09	0.000915	12.01	415.56	67.87	0.79
Reach-1	1.777	Yr 5 of 5	4600.00	11.77	20.02	20.02	22.27	0.007474	6.99	508.06	92.54	0.43
Reach-1	1.809	Yr 5 of 5	4600.00	11.77	21.57		23.12	0.003145	5.09	631.19	93.76	0.29
Reach-1	1.839	Yr 5 of 5	4600.00	11.77	22.31		23.61	0.002681	4.93	668.96	94.73	0.27


Buena Vista Creek Channel Maintenance
Plan: Year 5 of 5
RS = 1.597
.1
.1
.035
.045
Legend
WS Yr 5 of 5
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 1 OF 6

HEC-RAS Plan: Year 1 of 6 River: RIVER-1 Reach: Reach-1 Profile: Yr 1/2 of 6

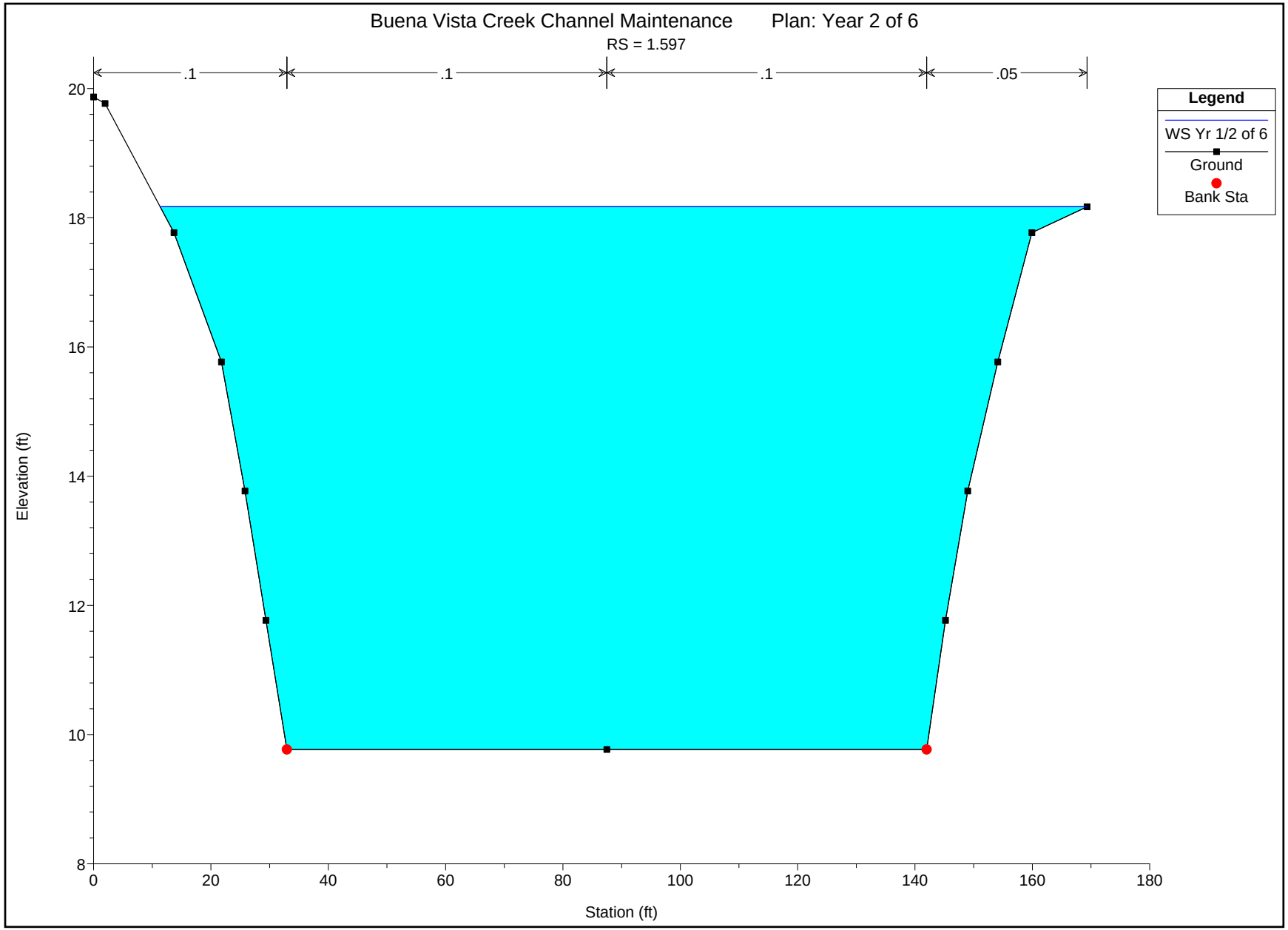
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 1/2 of 6	3300.00	5.77	10.86	8.35	11.19	0.001000	4.63	712.20	390.16	0.36
Reach-1	1.005	Yr 1/2 of 6	3300.00	5.77	10.37		11.44	0.000822	8.41	412.88	99.91	0.69
Reach-1	1.017	Yr 1/2 of 6	3300.00	5.77	10.15	10.15	12.09	0.001669	11.61	318.21	85.15	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 1/2 of 6	3300.00	5.77	11.17	9.98	12.23	0.000699	8.64	421.53	90.54	0.65
Reach-1	1.066	Yr 1/2 of 6	3300.00	5.77	12.05	9.23	12.52	0.002698	5.63	618.94	110.55	0.40
Reach-1	1.1	Yr 1/2 of 6	3300.00	5.77	12.64		12.82	0.000936	3.52	991.98	162.85	0.24
Reach-1	1.135	Yr 1/2 of 6	3300.00	5.77	12.83	8.20	12.96	0.000627	2.94	1174.15	179.75	0.19
Reach-1	1.174	Yr 1/2 of 6	3300.00	5.77	13.01	8.45	13.18	0.001710	3.29	1033.01	156.45	0.22
Reach-1	1.214	Yr 1/2 of 6	3300.00	5.77	13.35	8.31	13.48	0.001244	2.89	1179.10	173.12	0.18
Reach-1	1.255	Yr 1/2 of 6	3300.00	5.77	13.62		13.76	0.001347	3.08	1119.62	163.95	0.19
Reach-1	1.296	Yr 1/2 of 6	3300.00	5.77	13.93	9.36	14.19	0.002400	4.22	846.02	131.75	0.26
Reach-1	1.336	Yr 1/2 of 6	3300.00	5.77	14.41	9.14	14.60	0.001657	3.64	961.32	133.51	0.22
Reach-1	1.373	Yr 1/2 of 6	3300.00	5.77	14.85		14.99	0.002190	3.03	1110.73	140.95	0.18
Reach-1	1.413	Yr 1/2 of 6	3300.00	5.77	15.28		15.40	0.001772	2.81	1186.52	142.57	0.16
Reach-1	1.454	Yr 1/2 of 6	3300.00	5.77	15.66		15.77	0.001630	2.76	1227.99	142.43	0.15
Reach-1	1.498	Yr 1/2 of 6	3300.00	9.77	16.22		16.45	0.005794	3.92	854.69	143.77	0.27
Reach-1	1.532	Yr 1/2 of 6	3300.00	9.77	17.13		17.33	0.004055	3.58	940.49	140.29	0.23
Reach-1	1.564	Yr 1/2 of 6	3300.00	9.77	17.74		17.89	0.002767	3.12	1086.20	154.79	0.19
Reach-1	1.597	Yr 1/2 of 6	3300.00	9.77	18.21		18.37	0.002746	3.23	1065.81	158.24	0.20
Reach-1	1.629	Yr 1/2 of 6	3300.00	9.77	18.65		18.79	0.002256	3.03	1119.75	145.24	0.18
Reach-1	1.661	Yr 1/2 of 6	3300.00	9.77	19.03		19.17	0.002190	3.07	1112.72	142.78	0.18
Reach-1	1.701	Yr 1/2 of 6	3300.00	11.77	19.63		20.02	0.007649	5.14	676.62	104.61	0.32
Reach-1	1.734	Yr 1/2 of 6	3300.00	11.77	19.44		20.35	0.000372	7.96	451.68	70.83	0.51
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 1/2 of 6	3300.00	11.77	19.46	16.88	20.39	0.000379	8.06	446.73	69.41	0.51
Reach-1	1.777	Yr 1/2 of 6	3300.00	11.77	19.03		20.82	0.006385	5.94	427.63	75.48	0.39
Reach-1	1.809	Yr 1/2 of 6	3300.00	11.77	20.47		21.59	0.002945	4.55	532.64	85.96	0.27
Reach-1	1.839	Yr 1/2 of 6	3300.00	11.77	21.10		22.05	0.002581	4.46	558.70	84.69	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 1 of 6
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 1/2 of 6
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 2 OF 6

HEC-RAS Plan: Year 2 of 6 River: RIVER-1 Reach: Reach-1 Profile: Yr 1/2 of 6

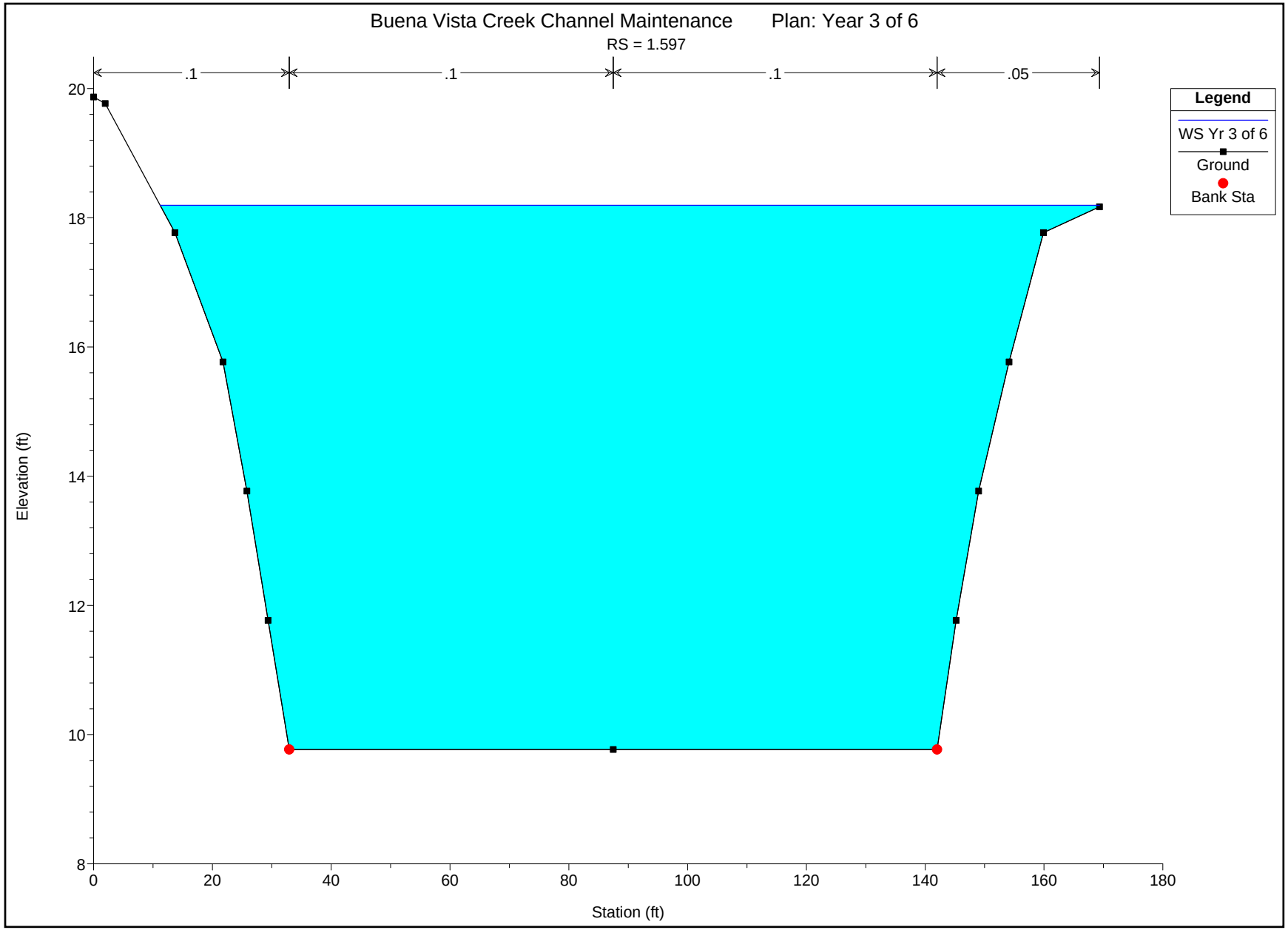
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 1/2 of 6	3300.00	5.77	10.86	8.35	11.19	0.001000	4.63	712.20	390.16	0.36
Reach-1	1.005	Yr 1/2 of 6	3300.00	5.77	10.37		11.44	0.000822	8.41	412.88	99.91	0.69
Reach-1	1.017	Yr 1/2 of 6	3300.00	5.77	10.15	10.15	12.09	0.001669	11.61	318.21	85.15	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 1/2 of 6	3300.00	5.77	11.17	9.98	12.23	0.000699	8.64	421.53	90.54	0.65
Reach-1	1.066	Yr 1/2 of 6	3300.00	5.77	12.09	9.23	12.55	0.003573	5.54	623.17	110.80	0.39
Reach-1	1.1	Yr 1/2 of 6	3300.00	5.77	12.75		12.92	0.001188	3.41	1009.98	163.41	0.23
Reach-1	1.135	Yr 1/2 of 6	3300.00	5.77	12.98	8.19	13.10	0.000795	2.85	1200.20	180.26	0.19
Reach-1	1.174	Yr 1/2 of 6	3300.00	5.77	13.11	8.46	13.27	0.000751	3.30	1048.26	156.82	0.21
Reach-1	1.214	Yr 1/2 of 6	3300.00	5.77	13.28	8.31	13.41	0.000590	2.97	1166.55	172.72	0.19
Reach-1	1.255	Yr 1/2 of 6	3300.00	5.77	13.40		13.56	0.000704	3.28	1083.56	162.54	0.21
Reach-1	1.296	Yr 1/2 of 6	3300.00	5.77	13.59	9.36	13.87	0.002813	4.44	801.54	129.38	0.28
Reach-1	1.336	Yr 1/2 of 6	3300.00	5.77	14.15	9.14	14.35	0.001856	3.77	925.98	132.06	0.23
Reach-1	1.373	Yr 1/2 of 6	3300.00	5.77	14.63		14.78	0.002389	3.11	1080.14	139.71	0.18
Reach-1	1.413	Yr 1/2 of 6	3300.00	5.77	15.10		15.22	0.001899	2.87	1160.60	141.71	0.17
Reach-1	1.454	Yr 1/2 of 6	3300.00	5.77	15.50		15.62	0.001725	2.81	1205.70	141.76	0.16
Reach-1	1.498	Yr 1/2 of 6	3300.00	9.77	16.09		16.34	0.006188	4.00	837.34	143.27	0.28
Reach-1	1.532	Yr 1/2 of 6	3300.00	9.77	17.06		17.26	0.004194	3.62	930.45	139.94	0.24
Reach-1	1.564	Yr 1/2 of 6	3300.00	9.77	17.69		17.84	0.002833	3.14	1077.97	154.51	0.20
Reach-1	1.597	Yr 1/2 of 6	3300.00	9.77	18.17		18.33	0.002800	3.25	1059.07	157.99	0.20
Reach-1	1.629	Yr 1/2 of 6	3300.00	9.77	18.62		18.76	0.002287	3.04	1114.71	145.05	0.18
Reach-1	1.661	Yr 1/2 of 6	3300.00	9.77	19.00		19.14	0.002215	3.08	1108.47	142.57	0.18
Reach-1	1.701	Yr 1/2 of 6	3300.00	11.77	19.61		20.00	0.007729	5.15	674.30	104.49	0.32
Reach-1	1.734	Yr 1/2 of 6	3300.00	11.77	19.41		20.33	0.000376	7.98	450.05	70.74	0.51
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 1/2 of 6	3300.00	11.77	19.44	16.88	20.38	0.000384	8.08	445.12	69.33	0.51
Reach-1	1.777	Yr 1/2 of 6	3300.00	11.77	19.00		20.81	0.006507	5.98	425.23	75.22	0.39
Reach-1	1.809	Yr 1/2 of 6	3300.00	11.77	20.47		21.59	0.002950	4.55	532.38	85.94	0.27
Reach-1	1.839	Yr 1/2 of 6	3300.00	11.77	21.10		22.05	0.002583	4.46	558.54	84.67	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 2 of 6
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 1/2 of 6
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 3 OF 6

HEC-RAS Plan: Year 3 of 6 River: RIVER-1 Reach: Reach-1 Profile: Yr 3 of 6

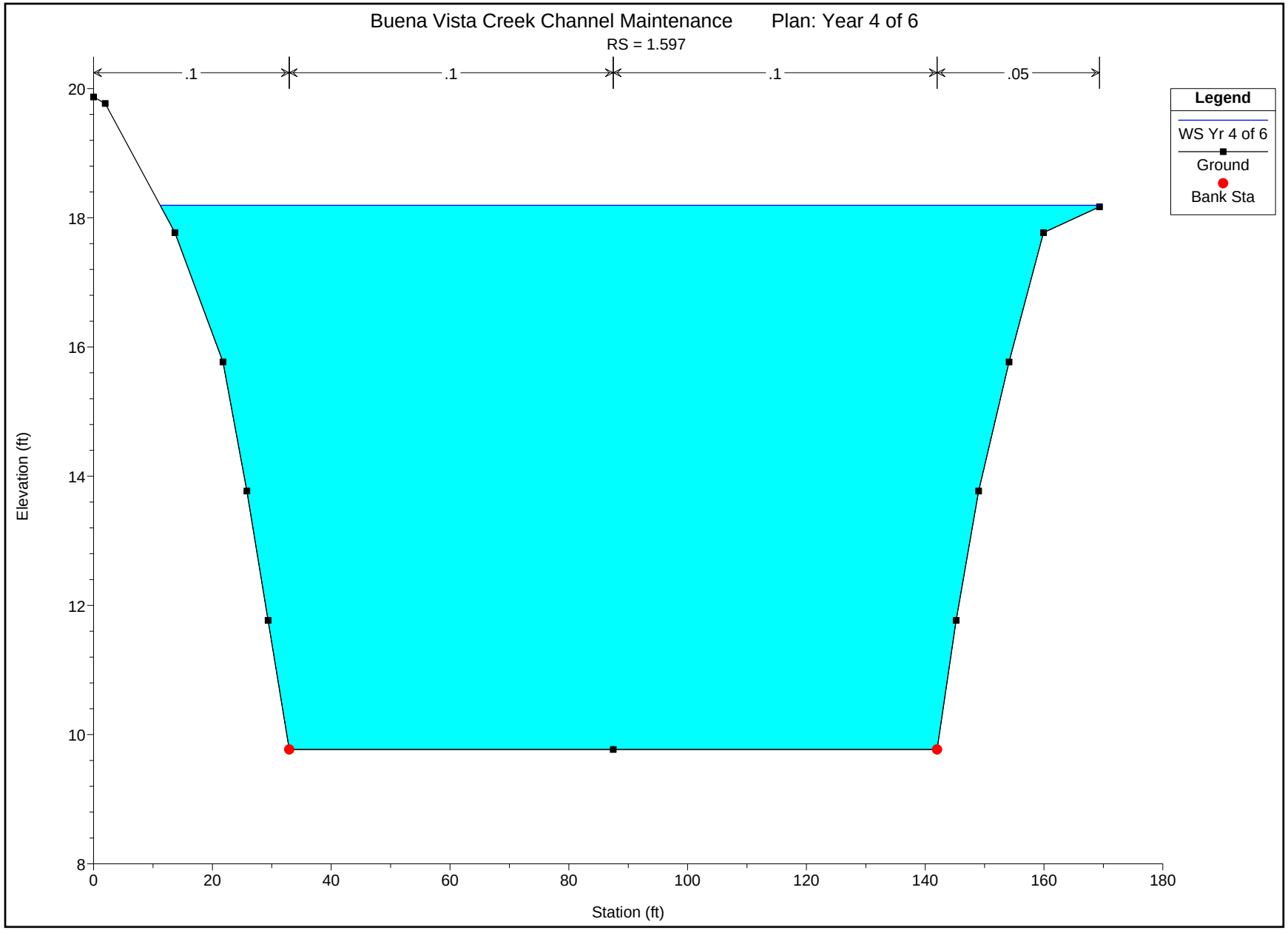
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 3 of 6	3400.00	5.77	10.95	8.40	11.29	0.001000	4.69	725.07	390.71	0.36
Reach-1	1.005	Yr 3 of 6	3400.00	5.77	10.45		11.54	0.000822	8.51	420.92	100.30	0.69
Reach-1	1.017	Yr 3 of 6	3400.00	5.77	10.23	10.23	12.20	0.001666	11.73	324.65	85.42	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 3 of 6	3400.00	5.77	11.27	10.05	12.35	0.000698	8.73	429.93	90.84	0.66
Reach-1	1.066	Yr 3 of 6	3400.00	5.77	12.22	9.30	12.68	0.004235	5.55	637.40	111.61	0.39
Reach-1	1.1	Yr 3 of 6	3400.00	5.77	12.94		13.11	0.001367	3.38	1040.93	164.37	0.22
Reach-1	1.135	Yr 3 of 6	3400.00	5.77	13.19	8.24	13.31	0.000916	2.84	1239.05	181.02	0.18
Reach-1	1.174	Yr 3 of 6	3400.00	5.77	13.36	8.51	13.52	0.000963	3.25	1087.89	157.77	0.21
Reach-1	1.214	Yr 3 of 6	3400.00	5.77	13.57	8.36	13.70	0.000747	2.92	1216.85	174.33	0.18
Reach-1	1.255	Yr 3 of 6	3400.00	5.77	13.73		13.88	0.000866	3.18	1137.12	164.63	0.20
Reach-1	1.296	Yr 3 of 6	3400.00	5.77	13.85	9.46	14.15	0.001282	4.59	835.76	131.31	0.28
Reach-1	1.336	Yr 3 of 6	3400.00	5.77	14.15	9.23	14.39	0.000945	4.04	927.00	132.10	0.25
Reach-1	1.373	Yr 3 of 6	3400.00	5.77	14.39		14.57	0.000814	3.44	1047.16	138.37	0.21
Reach-1	1.413	Yr 3 of 6	3400.00	5.77	14.69		14.84	0.002320	3.08	1103.14	139.80	0.18
Reach-1	1.454	Yr 3 of 6	3400.00	5.77	15.18		15.32	0.002062	3.01	1160.74	140.40	0.17
Reach-1	1.498	Yr 3 of 6	3400.00	9.77	15.90		16.17	0.007337	4.26	808.91	142.44	0.30
Reach-1	1.532	Yr 3 of 6	3400.00	9.77	17.00		17.22	0.004578	3.76	922.29	139.66	0.25
Reach-1	1.564	Yr 3 of 6	3400.00	9.77	17.68		17.84	0.003017	3.24	1076.91	154.47	0.20
Reach-1	1.597	Yr 3 of 6	3400.00	9.77	18.19		18.36	0.002942	3.34	1062.52	158.12	0.20
Reach-1	1.629	Yr 3 of 6	3400.00	9.77	18.66		18.81	0.002385	3.12	1121.12	145.29	0.18
Reach-1	1.661	Yr 3 of 6	3400.00	9.77	19.06		19.21	0.002298	3.15	1117.00	142.99	0.18
Reach-1	1.701	Yr 3 of 6	3400.00	11.77	19.69		20.09	0.007905	5.25	682.62	104.92	0.33
Reach-1	1.734	Yr 3 of 6	3400.00	11.77	19.48		20.44	0.000386	8.14	454.91	71.01	0.52
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 3 of 6	3400.00	11.77	19.51	16.97	20.49	0.000394	8.24	450.01	69.57	0.52
Reach-1	1.777	Yr 3 of 6	3400.00	11.77	19.05		20.94	0.006717	6.10	428.79	75.61	0.40
Reach-1	1.809	Yr 3 of 6	3400.00	11.77	20.58		21.73	0.002942	4.58	541.91	86.73	0.27
Reach-1	1.839	Yr 3 of 6	3400.00	11.77	21.22		22.19	0.002586	4.50	568.87	86.07	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 3 of 6
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 3 of 6
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 4 OF 6

HEC-RAS Plan: Year 4 of 6 River: RIVER-1 Reach: Reach-1 Profile: Yr 4 of 6

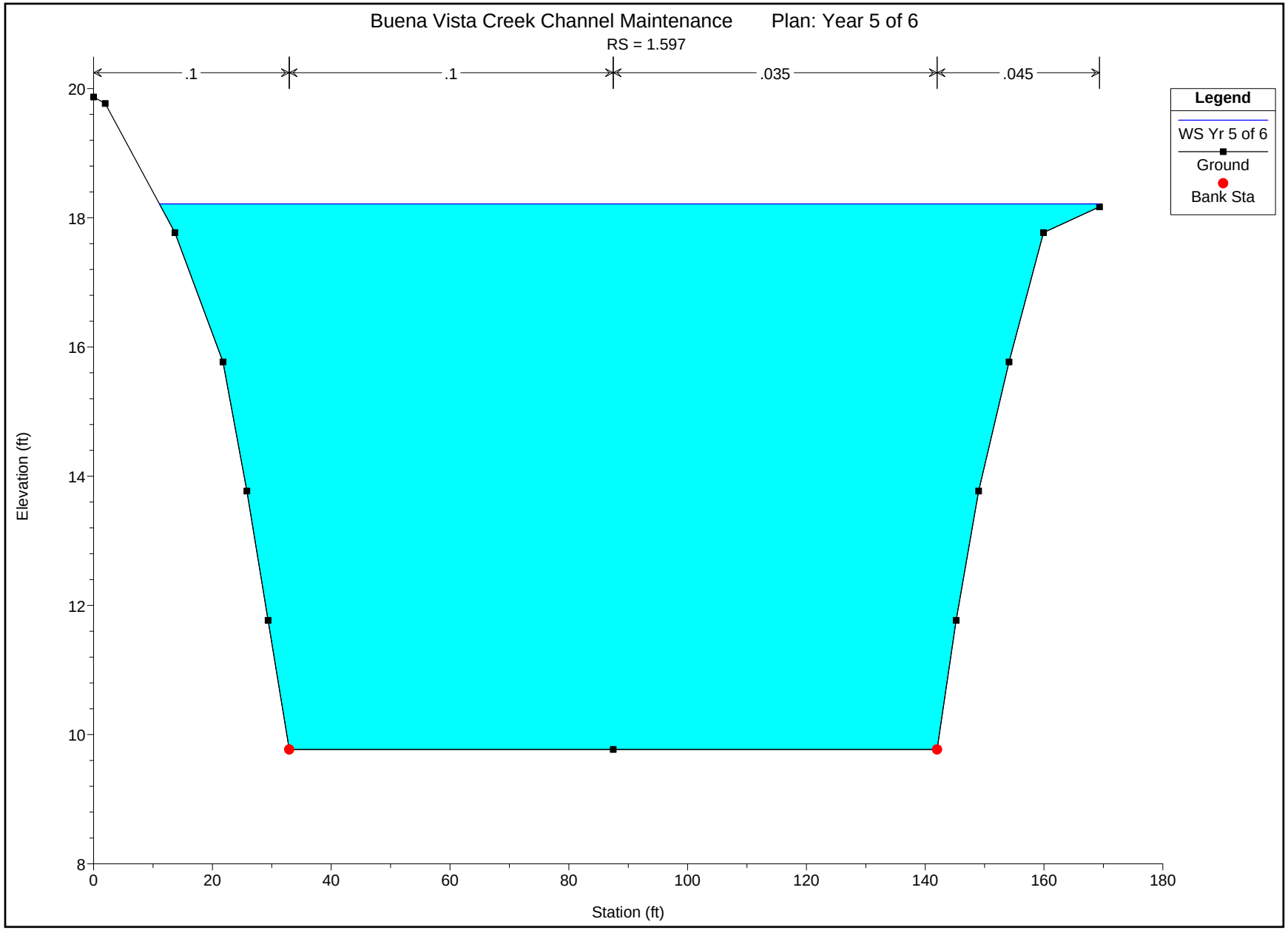
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 4 of 6	3800.00	5.77	11.31	8.60	11.68	0.001000	4.90	775.12	392.85	0.37
Reach-1	1.005	Yr 4 of 6	3800.00	5.77	10.76		11.95	0.000822	8.89	452.49	101.81	0.70
Reach-1	1.017	Yr 4 of 6	3800.00	5.77	10.55	10.55	12.66	0.001620	12.12	352.58	86.54	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 4 of 6	3800.00	5.77	11.63	10.35	12.80	0.000695	9.09	462.99	92.02	0.66
Reach-1	1.066	Yr 4 of 6	3800.00	5.77	12.65	9.56	13.14	0.004799	5.76	685.86	114.34	0.39
Reach-1	1.1	Yr 4 of 6	3800.00	5.77	13.44		13.62	0.001518	3.48	1124.09	166.91	0.22
Reach-1	1.135	Yr 4 of 6	3800.00	5.77	13.72	8.43	13.85	0.001027	2.94	1335.25	182.89	0.18
Reach-1	1.174	Yr 4 of 6	3800.00	5.77	13.92	8.72	14.09	0.001128	3.35	1176.26	159.80	0.21
Reach-1	1.214	Yr 4 of 6	3800.00	5.77	14.16	8.56	14.30	0.000870	3.00	1320.45	177.58	0.18
Reach-1	1.255	Yr 4 of 6	3800.00	5.77	14.35		14.50	0.000992	3.25	1240.24	170.02	0.20
Reach-1	1.296	Yr 4 of 6	3800.00	5.77	14.52	9.72	14.82	0.001588	4.59	924.46	135.13	0.27
Reach-1	1.336	Yr 4 of 6	3800.00	5.77	14.87	9.48	15.11	0.001171	4.05	1023.16	136.02	0.24
Reach-1	1.373	Yr 4 of 6	3800.00	5.77	15.16		15.34	0.001062	3.47	1154.20	142.70	0.20
Reach-1	1.413	Yr 4 of 6	3800.00	5.77	15.34		15.51	0.000680	3.37	1195.73	142.87	0.19
Reach-1	1.454	Yr 4 of 6	3800.00	5.77	15.49		15.66	0.000668	3.37	1204.08	141.71	0.19
Reach-1	1.498	Yr 4 of 6	3800.00	9.77	15.61		16.01	0.003038	5.12	768.98	141.35	0.37
Reach-1	1.532	Yr 4 of 6	3800.00	9.77	16.52		16.83	0.007213	4.51	855.46	137.32	0.31
Reach-1	1.564	Yr 4 of 6	3800.00	9.77	17.53		17.74	0.004046	3.70	1052.79	153.65	0.23
Reach-1	1.597	Yr 4 of 6	3800.00	9.77	18.19		18.40	0.003676	3.73	1062.46	158.12	0.23
Reach-1	1.629	Yr 4 of 6	3800.00	9.77	18.77		18.95	0.002852	3.43	1137.10	145.89	0.20
Reach-1	1.661	Yr 4 of 6	3800.00	9.77	19.24		19.42	0.002675	3.44	1143.29	144.27	0.20
Reach-1	1.701	Yr 4 of 6	3800.00	11.77	19.96		20.43	0.008824	5.67	712.15	109.79	0.35
Reach-1	1.734	Yr 4 of 6	3800.00	11.77	19.71		20.83	0.000434	8.81	471.53	71.92	0.55
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 4 of 6	3800.00	11.77	19.75	17.35	20.89	0.000442	8.91	466.75	70.38	0.56
Reach-1	1.777	Yr 4 of 6	3800.00	11.77	19.15	18.82	21.42	0.007902	6.67	436.52	76.45	0.43
Reach-1	1.809	Yr 4 of 6	3800.00	11.77	21.03		22.28	0.002860	4.67	581.86	89.94	0.27
Reach-1	1.839	Yr 4 of 6	3800.00	11.77	21.70		22.73	0.002556	4.63	611.35	91.60	0.26


Buena Vista Creek Channel Maintenance
Plan: Year 4 of 6
RS = 1.597
.1
.1
.1
.05
Legend
WS Yr 4 of 6
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 5 OF 6

HEC-RAS Plan: Year 5 of 6 River: RIVER-1 Reach: Reach-1 Profile: Yr 5 of 6

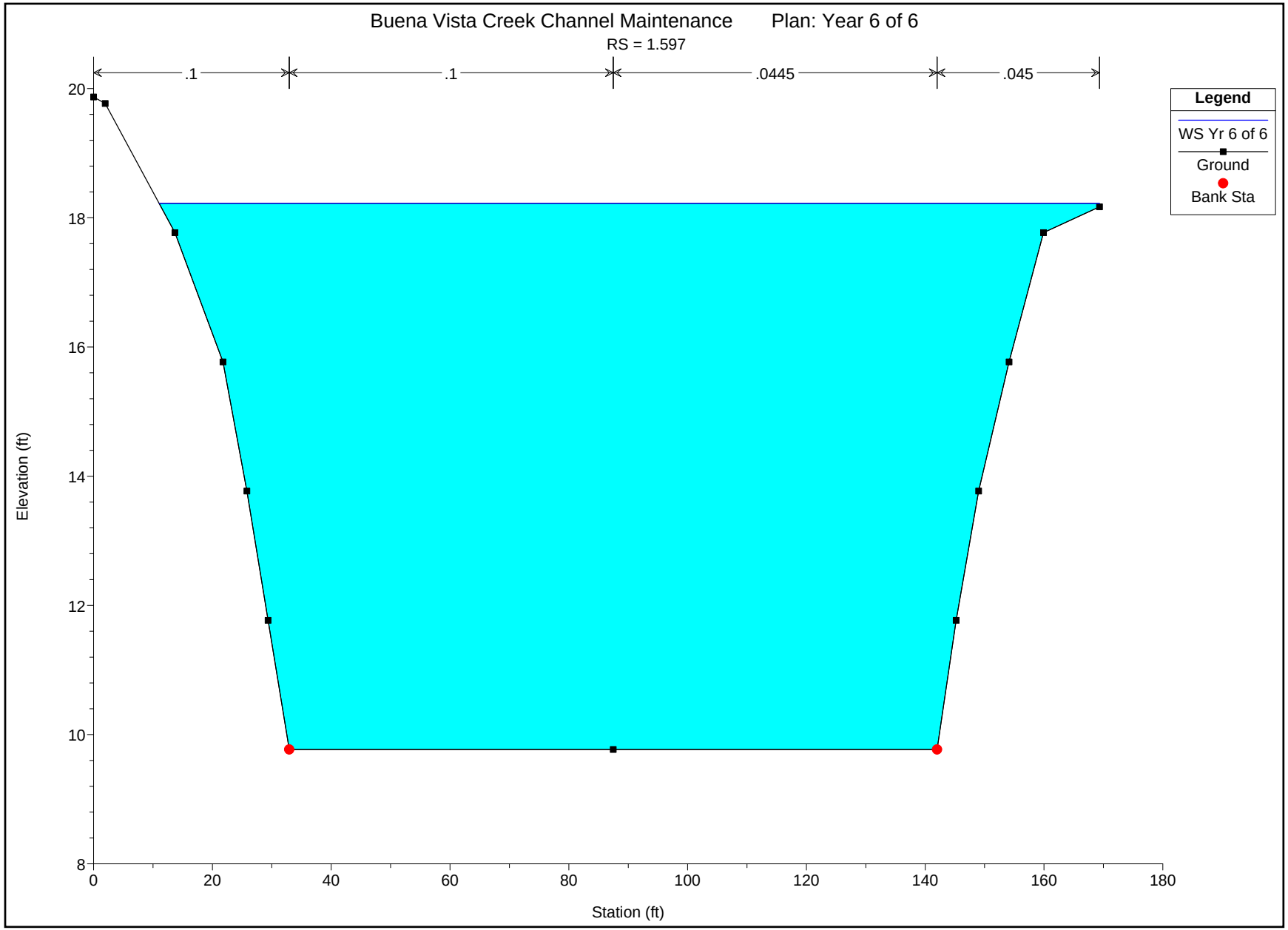
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 5 of 6	4800.00	5.77	12.14	9.08	12.59	0.001000	5.38	891.72	398.03	0.38
Reach-1	1.005	Yr 5 of 6	4800.00	5.77	11.49		12.90	0.000820	9.72	527.95	105.34	0.72
Reach-1	1.017	Yr 5 of 6	4800.00	5.77	11.27	11.27	13.71	0.001573	13.11	415.49	89.01	0.99
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 5 of 6	4800.00	5.77	12.47	11.05	13.84	0.000688	9.89	541.47	94.61	0.67
Reach-1	1.066	Yr 5 of 6	4800.00	5.77	13.62	10.18	14.20	0.005162	6.26	800.70	120.57	0.39
Reach-1	1.1	Yr 5 of 6	4800.00	5.77	14.51		14.72	0.001649	3.80	1307.12	175.59	0.23
Reach-1	1.135	Yr 5 of 6	4800.00	5.77	14.82	8.87	14.98	0.001131	3.22	1538.84	186.76	0.19
Reach-1	1.174	Yr 5 of 6	4800.00	5.77	15.04	9.21	15.25	0.001300	3.66	1358.11	163.43	0.21
Reach-1	1.214	Yr 5 of 6	4800.00	5.77	15.33	9.02	15.48	0.001000	3.27	1530.95	184.01	0.19
Reach-1	1.255	Yr 5 of 6	4800.00	5.77	15.54		15.73	0.001172	3.60	1458.06	215.56	0.20
Reach-1	1.296	Yr 5 of 6	4800.00	5.77	15.76	10.36	16.09	0.001821	4.87	1095.92	142.23	0.27
Reach-1	1.336	Yr 5 of 6	4800.00	5.77	16.15	10.07	16.42	0.001369	4.34	1202.12	143.43	0.24
Reach-1	1.373	Yr 5 of 6	4800.00	5.77	16.49		16.70	0.001318	3.78	1351.91	158.17	0.20
Reach-1	1.413	Yr 5 of 6	4800.00	5.77	16.73		16.93	0.000941	3.62	1400.18	151.56	0.19
Reach-1	1.454	Yr 5 of 6	4800.00	5.77	16.94		17.13	0.000907	3.63	1413.56	147.83	0.19
Reach-1	1.498	Yr 5 of 6	4800.00	9.77	17.15		17.54	0.003032	5.04	991.43	147.67	0.33
Reach-1	1.532	Yr 5 of 6	4800.00	9.77	17.59		17.97	0.001958	5.00	1006.18	142.54	0.31
Reach-1	1.564	Yr 5 of 6	4800.00	9.77	17.95		18.28	0.001606	4.66	1124.42	189.57	0.29
Reach-1	1.597	Yr 5 of 6	4800.00	9.77	18.21		18.57	0.001709	4.91	1065.94	158.25	0.30
Reach-1	1.629	Yr 5 of 6	4800.00	9.77	18.74		19.03	0.004556	4.33	1131.71	145.69	0.25
Reach-1	1.661	Yr 5 of 6	4800.00	9.77	19.47		19.74	0.003864	4.20	1175.96	145.85	0.24
Reach-1	1.701	Yr 5 of 6	4800.00	11.77	20.48		21.13	0.011444	6.73	772.45	121.78	0.40
Reach-1	1.734	Yr 5 of 6	4800.00	11.77	20.09		21.70	0.000589	10.58	498.98	74.36	0.65
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 5 of 6	4800.00	11.77	20.15	18.25	21.77	0.000591	10.65	495.61	72.02	0.65
Reach-1	1.777	Yr 5 of 6	4800.00	11.77	20.12	20.12	22.46	0.007615	7.12	518.00	93.60	0.43
Reach-1	1.809	Yr 5 of 6	4800.00	11.77	21.70		23.33	0.003185	5.17	644.28	94.75	0.29
Reach-1	1.839	Yr 5 of 6	4800.00	11.77	22.46		23.82	0.002701	5.00	682.93	95.36	0.27


Buena Vista Creek Channel Maintenance
Plan: Year 5 of 6
RS = 1.597
.1
.1
.035
.045
Legend
WS Yr 5 of 6
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180

YEAR 6 OF 6

HEC-RAS Plan: Year 6 of 6 River: RIVER-1 Reach: Reach-1 Profile: Yr 6 of 6

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1	Yr 6 of 6	4400.00	5.77	11.81	8.89	12.23	0.001001	5.20	846.30	395.92	0.37
Reach-1	1.005	Yr 6 of 6	4400.00	5.77	11.20		12.53	0.000822	9.41	498.20	103.96	0.71
Reach-1	1.017	Yr 6 of 6	4400.00	5.77	10.99	10.99	13.30	0.001584	12.72	391.29	88.07	0.98
Reach-1	1.024		Bridge									
Reach-1	1.03	Yr 6 of 6	4400.00	5.77	12.14	10.79	13.44	0.000691	9.59	510.78	93.62	0.67
Reach-1	1.066	Yr 6 of 6	4400.00	5.77	13.25	9.93	13.80	0.005513	6.03	756.78	118.23	0.39
Reach-1	1.1	Yr 6 of 6	4400.00	5.77	14.14		14.34	0.001720	3.63	1243.41	172.12	0.22
Reach-1	1.135	Yr 6 of 6	4400.00	5.77	14.46	8.69	14.61	0.001173	3.07	1471.83	185.50	0.18
Reach-1	1.174	Yr 6 of 6	4400.00	5.77	14.70	9.02	14.88	0.001351	3.49	1301.59	162.31	0.21
Reach-1	1.214	Yr 6 of 6	4400.00	5.77	14.98	8.84	15.13	0.001034	3.12	1468.32	182.12	0.18
Reach-1	1.255	Yr 6 of 6	4400.00	5.77	15.21		15.37	0.001153	3.34	1389.50	177.67	0.19
Reach-1	1.296	Yr 6 of 6	4400.00	5.77	15.43	10.10	15.73	0.001940	4.60	1050.56	140.38	0.26
Reach-1	1.336	Yr 6 of 6	4400.00	5.77	15.85	9.83	16.09	0.001441	4.07	1158.42	141.42	0.23
Reach-1	1.373	Yr 6 of 6	4400.00	5.77	16.19		16.38	0.001408	3.55	1305.78	153.21	0.19
Reach-1	1.413	Yr 6 of 6	4400.00	5.77	16.46		16.63	0.001055	3.38	1358.81	149.66	0.18
Reach-1	1.454	Yr 6 of 6	4400.00	5.77	16.68		16.86	0.001003	3.38	1376.68	146.78	0.18
Reach-1	1.498	Yr 6 of 6	4400.00	9.77	16.96		17.30	0.003417	4.73	962.47	146.85	0.31
Reach-1	1.532	Yr 6 of 6	4400.00	9.77	17.49		17.81	0.002405	4.62	991.08	142.03	0.29
Reach-1	1.564	Yr 6 of 6	4400.00	9.77	17.90		18.18	0.001889	4.27	1115.21	189.34	0.26
Reach-1	1.597	Yr 6 of 6	4400.00	9.77	18.22		18.51	0.001976	4.45	1067.08	158.29	0.27
Reach-1	1.629	Yr 6 of 6	4400.00	9.77	18.51		18.78	0.001249	4.30	1098.22	144.42	0.26
Reach-1	1.661	Yr 6 of 6	4400.00	9.77	18.71		19.00	0.001291	4.44	1067.21	140.53	0.26
Reach-1	1.701	Yr 6 of 6	4400.00	11.77	18.70		19.74	0.006563	8.44	581.70	99.62	0.56
Reach-1	1.734	Yr 6 of 6	4400.00	11.77	18.12	17.79	20.60	0.001279	13.02	362.12	65.69	0.91
Reach-1	1.739		Bridge									
Reach-1	1.744	Yr 6 of 6	4400.00	11.77	18.82	17.88	20.84	0.000920	11.83	402.67	67.23	0.79
Reach-1	1.777	Yr 6 of 6	4400.00	11.77	19.93	19.93	22.07	0.007199	6.81	500.44	91.73	0.42
Reach-1	1.809	Yr 6 of 6	4400.00	11.77	21.42		22.90	0.003110	5.01	617.41	92.71	0.28
Reach-1	1.839	Yr 6 of 6	4400.00	11.77	22.16		23.39	0.002665	4.87	654.40	94.08	0.27


Buena Vista Creek Channel Maintenance
Plan: Year 6 of 6
RS = 1.597
.1
.1
.0445
.045
Legend
WS Yr 6 of 6
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
18
16
14
12
10
8
0
20
40
60
80
100
120
140
160
180