Brawley Wash Floodplain Study
Pima County, Arizona
(Flood Control District Activity No. 40BRAW)

Prepared for:

Pima County Flood Control District
201 North Stone, 4th Floor
Tucson, Arizona 85701

Prepared by:

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September 6, 1996

sla Simons, Li & Associates, Inc.
Water Resources & Civil Engineering Consultants

September 6, 1996

R. Terry Hendricks, Principal Hydrologist
Pima County Flood Control District
201 North Stone, 4th Floor
Tucson, Arizona 85701

RE: Brawley Wash Floodplain Study - Pima County, Arizona
(Flood Control District Activity No. 40BRAW)

Dear Terry:

This letter/report presents the final results of a floodplain study of a portion of the Brawley Wash. This study was prepared under contract with the Pima County Flood Control District (District).

Project Location and Description

The study area encompasses approximately 12.5 square miles and includes: (1) Sections 25 through 27 and 34 through 36, within Township 12 South, Range 10 East; (2) the west half of Section 29 and Sections 30 and 31, within Township 12 South, Range 11 East; (3) Sections 1 through 3, within Township 13 South, Range 10 East; and (4) Section 6, within Township 13 South, Range 11 East.

The study reach extends from the Orange Grove Road alignment, which represents the area's southern boundary, to the Emigh Road alignment, which represents the area's northern boundary (see Figure 1). Anway Road borders the area on the west, and Avra Road borders the area on the east.

The study reach is approximately three miles in length and begins immediately upstream of the West Branch/East Branch bifurcation. However, the East Branch quickly loses its definition within the boundary of the study area. Consequently, for the purpose of this study, the West Branch was considered the primary flow corridor.

Originally, the purpose of the study was to obtain either a Letter of Map Revision (LOMR) or a Physical Map Revision (PMR) from the Federal Emergency Management Agency (FEMA). The FIRM Panel Number in question is 1560 B, with an effective date of February 15, 1983. Unfortunately, during the initial stages of the investigation, it became apparent to SLA that FEMA's guidelines for these types of map revisions could not be accommodated, primarily due to flow-distribution conflicts. These conflicts were explained in greater detail in a letter transmitted by SLA to the District on February 19, 1996. However, this situation did not preclude SLA's preparation of a detailed floodplain analysis that could be used by the District to guide floodplain management within the area. Consequently, the original scope-of-work was revised, as noted in a letter to the District dated April 18, 1996.

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Project Hydrology

One of the items addressed in the revised scope of work was the distribution of flow that would be used in the analysis. The study area was divided into three flow corridors, labeled the eastern, middle, and western corridors (see Figure 1). Historically, flows impacting the study area have been conveyed through both the middle and eastern flow corridors. Although the greatest potential for flow conveyance along the Brawley Wash watercourse appears to exist within the middle corridor, historic flows—particularly those observations made during the flood of 1962—indicate that a very real flood hazard exists within the eastern corridor. With guidance from the District, a conservative or "safe approach" was taken in the selection of the project hydrology for each of the three flow corridors.

The 100-year regulatory discharge for the Brawley Wash immediately upstream of the study area is approximately 35,000 cfs. Historically, however, the distribution of flow across the broad upstream floodplain has never been addressed. Earlier studies conducted by the USGS suggested that approximately 21,000 cfs would exit the study area along the East Branch, and that approximately 14,000 cfs would exit along the West Branch. However, the project topography and preliminary hydraulic analyses conducted by SLA suggest a distribution that is almost opposite the regulatory distribution, relative to the East and West Branches (i.e., 14,000 along the East Branch and 21,000 along the West Branch). For both safety reasons and floodplain-management purposes, a combined discharge of 42,000 cfs was selected by applying a 21,000, cfs distribution to each of the primary Brawley Wash corridors, (i.e., the middle and eastern corridors).

The regulatory discharge for the western corridor was selected following a comparison of the magnitude of flow generated within the localized upstream drainage area with the magnitude of overtopping flows from the Brawley Wash corridors. The Pima County procedure was used to define the 100-year peak discharge potential for the localized drainage area, and the HEC-2 split-flow routine was used to define the magnitude of overtopping flows. Since the Brawley Wash corridor did not provide a significant contribution to flows impacting the western corridor, the localized peak discharge of 900 cfs was used to map floodplains along the primary watercourses that traverse the area. The associated hydrologic computation sheet and a map depicting the boundary of the localized drainage area was transmitted to the Flood Control District as an attachment to SLA's letter dated July 26, 1996.

Floodplain Analysis and Mapping

The 100-year floodprone area within the Brawley Wash portion of the study area was mapped using the combined results of five distinct HEC-2 models (see Figure 2). The western corridor's 100-year floodplain was mapped using the results of a single HEC-2 model (see Figure 3). Hard copies of the HEC-2 input/output listings are provided in Appendix A. Plotted cross-sections are provided in Appendix B. As an added feature, hard copies of the HEC-RAS output

for each model is provided in Appendix C. A diskette containing copies of each of the models is provided as Appendix D.

The HEC-RAS output was provided for two reasons. The individual cross-section output from HEC-RAS provides a breakdown of the hydraulic depth or average depth within the left overbank, right overbank, and main-channel subsections. This can be useful information from a floodplain-management standpoint. In addition, it appears that in the future HEC-RAS will be more commonly used for analyses of this type.

A summary description of each computer model is provided in the following table. The underlined capital letters in the description correspond to the first four alpha characters used in the HEC-2 and HEC-RAS file names. This should give the user some idea of how the names were formulated. The last two alpha-numeric characters were used by the staff at SLA to distinguish one version from another. Since the names provided in the table represent the final versions, the last two characters are of no significance in the application of the data.

Table 1: Model Identification and Description

HEC-2 File Name	Description
BWWB2b.DAT	Brawley Wash West Branch. This run models the West Branch between Sections 10 and 120, and the main channel upstream of the confluence with the East Branch, between Sections 120 and 162. The flow quantity begins at 21,000 cfs, is reduced to 16,0000 cfs at Section 50 (i.e., upstream of confluence with the WTWB, increases to 29,000 at Section 120 to account for weir inflows from the East Corridor which occurs between Sections 120 and 161, and is finally reduced to 16,000 cfs at Section 161).
BWEC3b.DAT	Brawley Wash Eastern Corridor. This run models flow along the Eastern Corridor between Sections 10 and 162. An earlier version of this model utilized the split-flow routine to compute the quantity of flow overtopping the boundary between the east corridor and the middle corridor. The results of the preliminary analyses were then used to set the various flow quantities reflected in the model. Between Sections 10 and 90, a value of 21,000 cfs was used. A value of 8,000 cfs was applied between Sections 100 and 120. The minimum value of 7,000 cfs was applied to Sections 130 and 140. The quantity then increased to the initial value of 21,000 cfs at Section 162.
EB3a.DAT	East Branch (of the Brawley Wash). This run models a short segment of the East Branch between Sections 90 and 110. Preliminary analyses of the main channel immediately upstream of the confluence with the West Branch indicate that approximately 13,000 cfs is conveyed along this watercourse segment. This run was necessary to properly balance water-surface elevations due to a depression in the East Corridor conveyance area which is located adjacent to the East Branch.

Table 1: Model Identification and Description (continued)

HEC-2 File Name	Description
WTWB2.DAT	Western Tributary to the West Branch (of the Brawley Wash). This run models 5,000 cfs between Sections 50 and 161. This tributary occupies the western portion of the middle flow corridor. The peak discharge used in this model was selected using the results of a combined preliminary analysis of the upstream limit of the middle corridor. The results of the 21,000 cfs analysis indicated that approximately 5,0000 cfs would be conveyed along the western tributary and approximately 16,000 cfs would be conveyed within the main channel to the Brawley Wash.
WSWT.DAT	West Split along the Western Tributary (to the West Branch of the Brawley Wash). This run models 850 cfs between Sections 121 and 130. This discharge corresponds to the flow quantity observed within the left overbank region associated with Section 140 of model WTWB2.DAT.
WCWT2.DAT	West Corridor and its Western Tributary. This run models flow within the western corridor between Sections 35 and 150. A tributary model is also included. This model includes Sections 100.1 through 120.1. The peak discharge for all reaches is 900 cfs.
BWEC.DAT	Brawley Wash Eastern Corridor. This run models flow along the Eastern Corridor between Sections 10 and 162. This model utilized the split-flow routine to compute the quantity of flow overtopping the boundary between the east corridor and the middle corridor. The results of this analysis were used to set the various flow quantities reflected by the final model (BWEC3b.DAT). The peak discharge value for this model is 21,000 cfs.

It should be noted that an earlier version of the Brawley Wash East Corridor model (BWEC.DAT) is also provided to document the results of a split-flow analysis that was performed to define the overtopping potential along the western boundary of the eastern corridor. The overtopping flow quantities from the split-flow analysis were then input, as fixed values, into the final versions of the two models that are affected by this transfer of flow. These two models are BWEC3b.DAT and BWWB2b.DAT. The computed split-flow quantities are based on a side-weir-flow relationship that is built into the HEC-2 program. When attempting to estimate the quantity of flow overtopping a flow boundary (i.e., flow exiting a system perpendicular to its intended flow path), the HEC-2's split-flow routine is the appropriate tool to use.

A. Brawley Wash (Eastern and Middle Corridors)

One of the first steps in the analysis of the Brawley Wash portion of the study was to define the overtopping potential associated with the western boundary of the eastern corridor. As noted, the preceding table provides a description of the HEC-2 model that was used for this purpose. It was apparent after the project's scope-of-work was modified, and the analysis resumed, that the peak discharge applied to the eastern corridor (21,000 cfs) would exceed the

capacity of its upstream cross sections. Consequently, when applied, the split-flow routine computes what appears to be an unusually large quantity of flow (approximately 13,940 cfs) that exits the eastern corridor, as weir flow, and enters the main corridor between Sections 100 and 162. A section-by-section breakdown of the computed flow transfer is provided in the following table.

Table 2: Split-Flow Transfers from the Eastern to the Middle Corridor

Weir Segment	Quantity of Flow Transferred, in cfs	
(between Sections)	Incremental	Cumulative
100 - 110	5	5
110 - 120	255	260
120 - 130	154	413
130 - 140	951	1364
140 - 150	161	1525
150 - 160	1629	3155
160 - 161	4526	7681
161 -162	6258	13939

Using the flow-transfer quantities from the split-flow analysis as a guide, the peak discharge within the upstream reach of the model associated with the eastern corridor (BWEC3b.DAT) was reduced in the downstream direction to account for the loss of flow to the middle corridor. A corresponding increase in the peak discharge occurred within the upstream reach of the model associated with the middle corridor (BWWB2b.DAT). The upstream reach of this model represents the primary watercourse for the Brawley Wash.

As noted in the Table 1, "Descriptions," a preliminary HEC-2 analysis of the middle corridor, which was based on a discharge of 21,000 cfs, indicated that approximately 5,000 cfs would be conveyed around the west side of a raised area or "island" located within the western overbank. For the purpose of this project, this western flow path is considered a tributary to the West Branch. The remaining 16,000 cfs that impacts the upstream limit of the middle corridor will be conveyed around the east side of this raised area. Consequently, the starting discharge within the middle corridor at Section 162 is 16,000 cfs, as opposed to 21,000 cfs, since it was assumed that the divided-flow condition that most certainly exists at Section 161 will also be applicable to Section 162.

For discharge accounting purposes, flow within the middle corridor is primarily divided between two models (WTWB2.DAT and BWWB2b.DAT), and flow within the eastern corridor is associated with only one model (BWEC3b.DAT). However two additional, but significantly shorter, models were required to complete the analysis of the middle corridor. One model (WSWT.DAT) was required when it was noted that a similar flow divide or "island" condition existed along the Western Tributary flow path. The need for the fourth model came about when the applicable HEC-2 models associated with the eastern and middle corridors were modified to

account for the transfer of flow (as described above). A description of the application of the fourth model is provided in the following paragraph.

As the transfer of flow proceeded in the downstream direction, two important flow conditions were noted along this portion of the study reach. Between Sections 100 and 120, the computed water-surface elevations for 30,000 cfs exceeded the divide elevations between the eastern and middle corridors and the water-surface elevations for the 7,000 cfs that remained confined to the eastern corridor. This indicated that flow could again weir across the corridor divide, only in the opposite direction than noted earlier. In addition, the flow distribution along Section 120 indicated that approximately 12,000 cfs would be conveyed down the East Branch of the Brawley Wash and approximately 16,000 cfs would be conveyed down the West Branch. A trial and error evaluation was then used to balance the water-surface elevations between the eastern and middle corridors. This required the introduction of the fourth middle-corridor HEC-2 model (EB3a.DAT). The corresponding cross sections associated with the three distinct models (BWWB2b.DAT, BWEC3b.DAT, and EB3a.DAT) were then balanced, to the maximum extent practicable, by alternating the discharge quantity within the confluence region. The final water-surface elevations and discharge breakdown applied to the eastern and middle corridors, for floodplain mapping purposes, are summarized in Table 3.

Based on the results of the discharge balance between the middle and eastern corridors, the quantity of flow exiting the study area within each corridor approximates the quantity of flow entering the study area (i.e., 21,000 cfs enters and exits the respective corridors associated with the Brawley Wash). As previously noted, the flow-distribution quantities entering the study area correspond to the values indicated in the Flood Control District's letter dated April, 18, 1996. However, it should be noted that the flow quantities exiting the study area do not conform to the values used in the Flood Insurance Study (FIS).

As outlined in SLA's letter dated February 19, 1996, the only regulatory discharge provided in the FIS for the Brawley Wash is 35,000 cfs. This discharge applies above its confluence with the Los Robles Wash. A USGS study conducted in 1977 used a peak discharge of 14,000 cfs for the West Branch and 21,000 cfs for the East Branch. However, only that portion of the West Branch that is located between the downstream limit of the study area for this project and the Los Robles Wash confluence was mapped by detailed methods as a part of the most current FIS (effective date: February 15, 1983). Consequently, base flood elevations are only available along that portion of the West Branch of the Brawley Wash (see Figure 4). Although, the supporting documentation from the FIS analysis was not available for review, it appears that the 100-year peak discharge used in the USGS study was also used for the FIS by FEMA's study contractor.

account for the transfer of flow (as described above). A description of the application of the fourth model is provided in the following paragraph.

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Table 3: Peak Discharge Accounting and Water Surface Balance within the Brawley Wash Corridors

Section Number	Peak-Discharge Accounting between the Middle and Eastern Corridors HEC-2 Input File Name (discharge in cfs)					Total Discharge (cfs)
	WSWT.DAT	WTWB2.DAT	BWWB2b.DAT	EB3a.DAT	BWEC3b.DAT	
10	n/a	n/a	21000	n/a	21000	42000
20	n/a	n/a	21000	n/a	21000	42000
30	n/a	n/a	21000	n/a	21000	42000
40	n/a	n/a	21000	n/a	21000	42000
50	n/a	2950.9	18000	n/a	21000	41951
60	n/a	5000	16000	n/a	21000	42000
70	n/a	5000	16000	n/a	21000	42000
80	n/a	5000	16000	n/a	21000	42000
90	n/a	5000	16000	(8500)	21000	42000
100	n/a	5000	16000	12000	8000	41000
110	n/a	5000	16000	12000	8000	41000
121 & 120	685.8	4150	29000	n/a	8000	41836
122	685.8	n/a	n/a	n/a	n/a	n/a
123	685.8	n/a	n/a	n/a	n/a	n/a
130	850	4150	30000	n/a	7000	42000
140	n/a	5000	30000	n/a	7000	42000
150	n/a	5000	28405	n/a	8590	41995
160	n/a	5000	26775	n/a	10220	41995
161	n/a	5000	22250	n/a	14745	41995
162	n/a	*5000*	*16000*	n/a	21000	42000

Section Number	Water-Surface Balance between the Middle and Eastern Corridors HEC-2 Input File Name					Divide Elevations (between adjoining runs)	
	WSWT.DAT	WTWB2.DAT	BWWB2b.DAT	EB3a.DAT	BWEC3b.DAT	(1)	(2)
10	n/a	0.00	2035.67	n/a	2037.19		2036.00
20	n/a	0.00	2039.19	n/a	2039.90		2039.00
30	n/a	0.00	2042.69	n/a	2043.35		2043.00
40	n/a	0.00	2046.15	n/a	2046.85		2046.50
50	n/a	2049.96	2049.91	n/a	2050.81		2050.00
60	n/a	2054.80	2053.78	n/a	2054.41		2053.00
70	n/a	2058.49	2057.59	n/a	2057.89		2057.00
80	n/a	2061.61	2061.55	n/a	2061.74		2062.00
90	n/a	2064.83	2065.61	2065.66	2065.72		2065.00
100	n/a	2068.65	2069.14	2069.19	2069.29		2069.50
110	n/a	2072.84	2073.20	2073.18	2073.25		2073.00
121 & 120	2077.16	2077.16	2077.06	n/a	2076.92		2076.50
122	2078.20	n/a	n/a	n/a	n/a	2078.00	n/a
123	2079.54	n/a	n/a	n/a	n/a	2079.00	n/a
130	2082.07	2080.95	2080.19	n/a	2080.61	2080.00	2080.00
140	n/a	2084.53	2084.21	n/a	2084.22	2080.50	2084.00
150	n/a	2087.73	2087.97	n/a	2088.36		2088.50
160	n/a	2091.16	2091.40	n/a	2092.80		2092.00
161	n/a	2093.29	2095.00	n/a	2098.12		2096.50
162	n/a	0.00	2097.85	n/a	2103.25		2101.50

	Confluence Region for the East and West Branches of the Brawley Wash
(1)	Divide Elevations between WSWT.DAT and flows tributary to the Blanco Wash
(2)	Divide Elevations between BWWB2b.DAT and BWEC3b.DAT
(8500)	For accounting purposes, this discharge value is included in the 21,000 cfs associated with BWEC3b.DAT.
5,000-16,000	Distribution selected using the results of preliminary analysis.

Since the FEMA discharge for the West Branch (14,000 cfs) is significantly different than the discharge (21,000 cfs) calculated during this study, a direct tie to the FEMA mapping is not possible. The ability to tie the two analyses together is further complicated by the different datum used for the topographic mapping. The basis of the elevations shown on the effective FIRM panels for this area are referenced to the National Geodetic Vertical Datum of 1929, whereas the basis for the elevations shown on Figures 2 and 3 are referenced to the North American Vertical Datum of 1988. However, in an effort to confirm the use of 14,000 cfs for the FEMA study, and thus provide some basis for comparison between the two modeled results, a single section HEC-2 run was prepared using the ground data associated with Section 10 (see Figure 4.) and a discharge of 14,000 cfs. When the resultant water-surface elevation (2035.19 feet) was adjusted downwards to account for the fact that Section 10 is located approximately 350 feet upstream of the final water-surface elevation (2034.0 feet) that is shown on FIRM Panel No. 1560B, the corresponding water-surface elevation for this project, at the same location, is 2034.04 feet. The input/output listing for this single-section model is provided in Appendix E.

It was further noted that, within the detailed study area, the width of the FEMA flood plain is approximately equal to 3200 feet and the width at Section 10 for the 14,000 cfs analysis is 3000 feet. Therefore, aside from the differences in the peak discharge, a relatively close match with the current FEMA flood plain would have been possible.

Based on the results obtained from this study, it is SLA's recommendation that future analyses of the downstream reaches of the West Branch be based on at least 21,000 cfs as opposed to 14,000 cfs. It is further recommended that the West Branch and the main channel section located upstream of the confluence with the East Branch be considered as the primary watercourse for the purposes of establishing an "Administrative Floodway." The results of the hydraulic analyses conducted as part of this study indicate that the average depth of flow within the main conveyance area along the primary watercourse is approximately 2.6 feet. FIS guidelines for shallow flooded areas (i.e., where the average depth of flow is less than three feet) recommend against the determination of a computed floodway, which is normally accomplished using the loss of equal conveyance approach. However, considering the magnitude of flow associated with the Brawley Wash, during the 100-year event, it is strongly recommended that an "Administrative Floodway" be established. Again, SLA recommends the establishment of an "Administrative Floodway" along the primary watercourse. The peak discharge associated with this floodway should be 35,000 cfs, as opposed to the existing flow quantity which ranges between 21,000 cfs and 30,000 cfs.

From a floodplain-management standpoint, all areas that are located within the 100-year flood plain, as delineated on Figure 2, can be considered to have a Zone AE designation, as defined for FEMA mapping purposes. Areas outside the flood plain can be considered to have a Zone X designation.

B. Western Corridor

As previously noted, the analysis of the western corridor (see Figure 3) was based on a peak discharge of 900 cfs. Since it was difficult to determine the exact location and distribution of flow entering this portion of the study, the 900 cfs was applied to the two most prominent flow paths. Although these two paths converge, the peak discharge applied to the downstream reach, which extends from Section 35 to Section 90, was also limited 900 cfs. This approach provided a conservative delineation of the flood hazard areas associated with the upstream portion of the western corridor. As shown on Figure 3, the eastern branch of the upstream flow path extends from Section 90 to Section 150. The western branch extends from Section 90 to Section 120.

Based on the results of the hydraulic analysis, the average depth of flow within the western corridor is 0.6 feet. Consequently, the area could be designated as Zone X, as defined for FEMA mapping purposes. However, from a floodplain management standpoint, SLA recommends that the District either use the results of this study, and manage the area as a Zone AE, or manage the area as a Zone AO with average depths of flooding in the one-foot range. This latter recommendation applies to the area located in or near the 100-year flood plain as delineated on Figure 3. The remainder of the area, especially the area surrounding the prominent ridges, should be designated as Zone X.

In addition, during the course of the analysis, it was determined that the likelihood of breakover for flows conveyed within the western corridor overshadowed the likelihood of breakover for flows conveyed within the middle corridor. Consequently, there was no transfer of flow from either flow corridor, which was one of the stipulations, if deemed applicable, that was outlined in the revised scope-of-work.

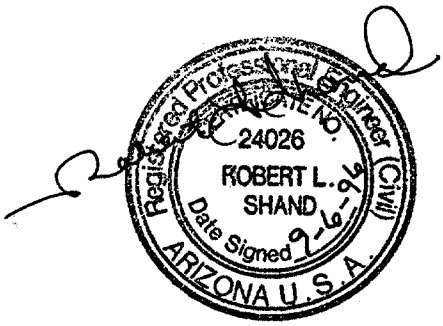
Application of the Results

Considering the number of hydraulic models required to properly map the 100-year flood-hazard areas that are located within the boundary of the study area, application of the results might seem difficult. However, SLA has prepared the floodplain maps is such a manner as to simplify the process.

When the depth of flooding or the associated water-surface elevation is desired at a particular location within the study area, the user should first consult either Figure 2 or Figure 3. Using the Section, Township, and Range numbers as a guide, the "site of interest" can be located on the map. The applicable HEC-2 model should then be referenced and the relative location of the site, with respect to the applicable cross-sections, should be noted. At this point, the desired water-surface elevation can be obtained by interpolation. If additional ground data is desired, the user can consult the 1:200 scale maps which accompany this report as a separate document. The cover sheet for this map set can be used to obtain the applicable page number. Each page provides the cross-section location numbers and the name of the applicable HEC-2

model. Again, the desired water-surface elevation can be obtained, once the "site of interest" is located, by interpolation.

This concludes SLA's presentation and discussion of the results of the Brawley Wash Floodplain Study for that portion of the wash that is located between the Orange Grove Road alignment and the Emigh Road alignment. Should you have any question concerning this letter/report, or should you require assistance during the application of the results, please feel free to contact me at your convenience.



Very truly yours,

SIMONS, LI & ASSOCIATES, INC.
Michael E. Zeller, P.E., P.H.
Principal and Senior Vice President

Robert L. Shand, P.E.
Project Manager

Attachments

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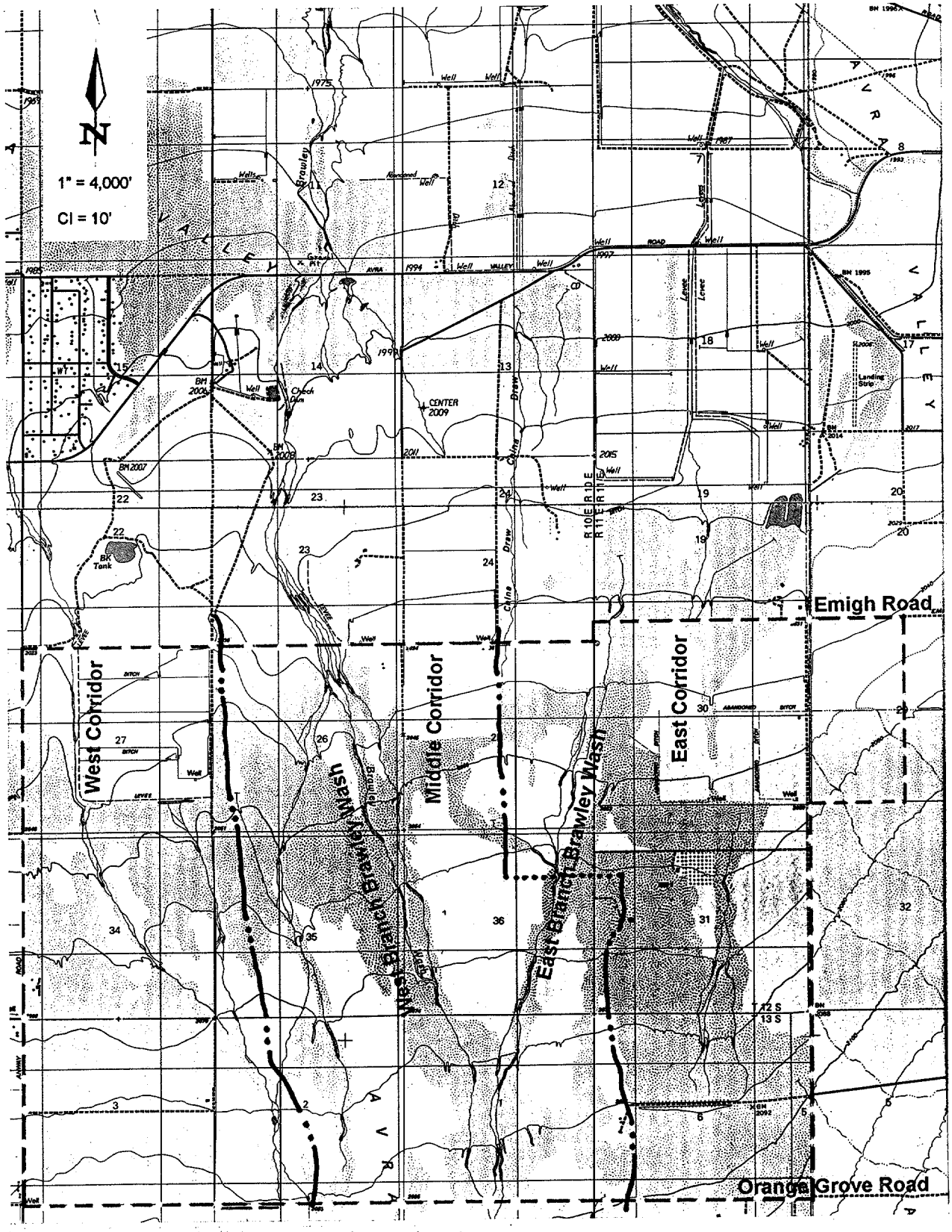


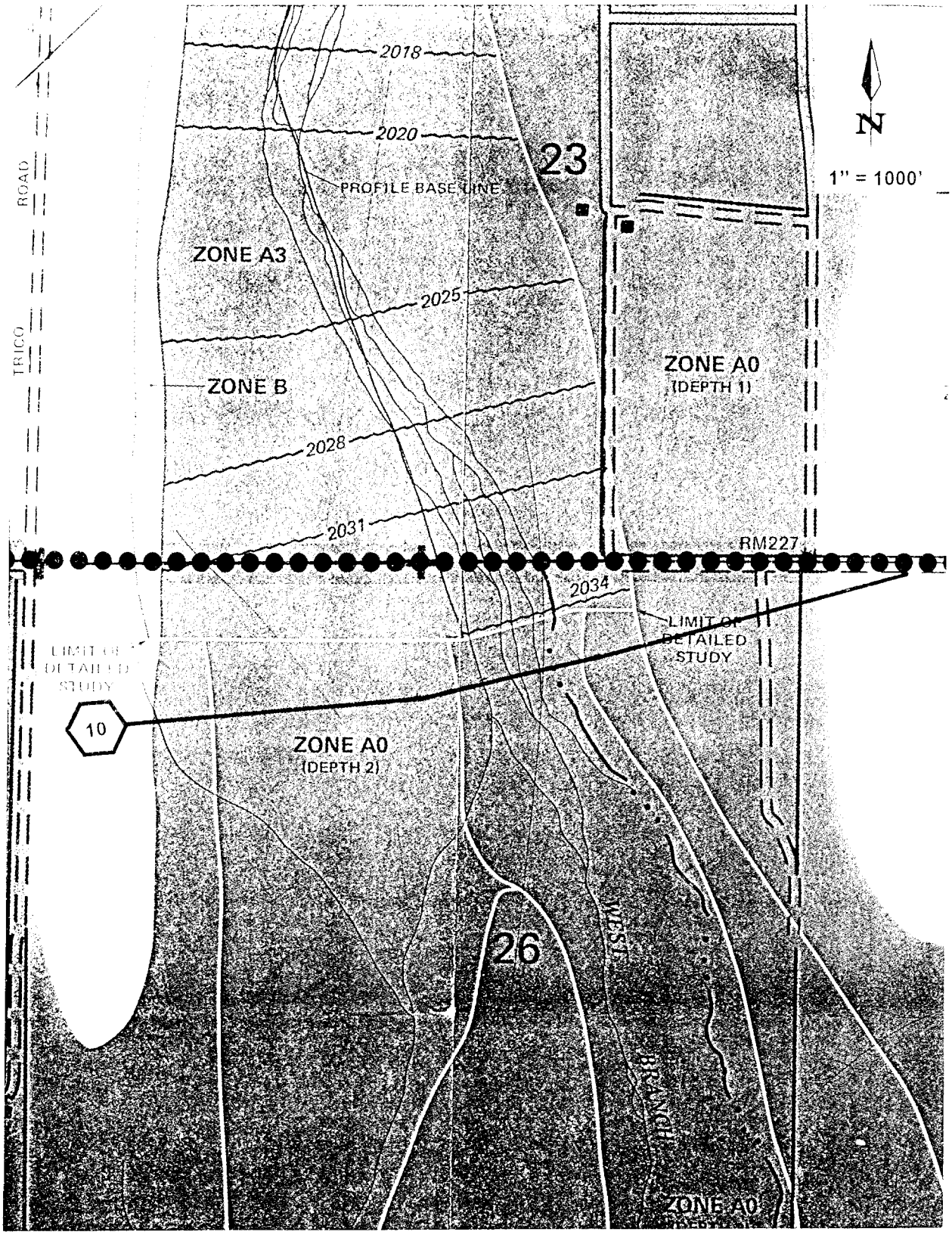
Legend

- Study Area Boundary
- Corridor Boundary

FIGURE 1

Project Location Map

sla Simons, Li & Associates, Inc.
Water Resources & Civil Engineering Consultants



Legend

Study Area's Northern Boundary

Cross Section Location

FIGURE 4

A Portion of FIRM Panel Number 1560B

APPENDIX A

HEC-2 Input/Output Listings

BWWB2B.DAT
THIS RUN EXECUTED 21AUG96 14:50:52

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
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T1      Brawley Wash Floodplain Study (SLA No. PAZ-PDOT-10.6)
T2      West Branch Anaysis (includes upstream limit of Main Corridor)
T3      100-year

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

       0        2        0        0      .004        0        0        0     2034        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      -1        0       -1        0        0        0       -1        0        0       15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        1       55       26       56       13       14       15        8        4
      53       54        0       38        1        2        3       11       12       42
       5       33       39       67       68

J6  IHLEQ     ICOPY    SUBDIV   STRTDS   RMILE

       1


NC      .06      .06      .06      0.1      0.3
QT         1    21000
X1      10.0       18     9230    10260        0        0        0        0        0        0
X3                                 8450
GR    2037.0   6970.0   2036.0   7170.0   2034.0   7350.0   2033.0   7780.0   2033.5   8080.0
GR    2033.5   8640.0   2034.0   8800.0   2034.0   9230.0   2032.0   9320.0   2031.0   9420.0
GR    2031.0   9890.0   2032.0   9920.0   2032.0  10160.0   2034.0  10260.0   2036.0  10520.0
GR    2035.0  11650.0   2035.0  12400.0   2036.0  12750.0

X1      20.0       17     9050    10750      850      850      850        0        0        0
X3                                 8860
GR    2040.5   6650.0   2040.0   6750.0   2039.0   7380.0   2039.0   7720.0   2038.0   7980.0
GR    2037.0   8170.0   2038.0   8480.0   2039.0   8860.0   2038.0   9050.0   2036.0   9150.0
GR    2036.0  10490.0   2038.0  10750.0   2039.0  11200.0   2038.0  11800.0   2038.0  13270.0
GR    2039.0  13700.0   2040.0  13750
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X1	30.0	26	8680	11310	900	900	900	0	0	0
X3				8400						
GR	2045.5	7100.0	2044.0	7250.0	2042.0	7670.0	2041.0	7890.0	2041.0	8180.0
GR	2042.0	8350.0	2042.0	8680.0	2040.0	8730.0	2040.0	8810.0	2039.5	8880.0
GR	2039.0	9040.0	2039.0	9180.0	2040.0	9250.0	2042.0	9520.0	2042.0	9890.0
GR	2042.0	9980.0	2040.0	10170.0	2038.5	10400.0	2040.0	10480.0	2040.0	11300.0
GR	2042.0	11310.0	2042.0	12100.0	2041.5	12370.0	2041.5	13600.0	2042.0	14350.0
GR	2044.0	14400.0								
X1	40.0	20	8650	11170	950	900	900	0	0	0
GR	2048.5	7100.0	2048.0	7140.0	2048.0	7460.0	2047.0	7830.0	2047.0	8400.0
GR	2046.0	8650.0	2044.0	8750.0	2043.5	8780.0	2043.5	9200.0	2044.0	9300.0
GR	2044.0	9900.0	2045.0	10230.0	2044.0	10500.0	2043.0	10510.0	2043.0	10760.0
GR	2043.5	10820.0	2044.0	10960.0	2045.0	11170.0	2045.0	14470.0	2046.0	14480.0
QT	1	18000								
X1	50.0	22	9670	11850	1150	950	950	0	0	0
X3				9670						
GR	2053.0	7080.0	2052.0	7640.0	2051.0	8150.0	2050.0	8320.0	2048.0	8470.0
GR	2048.0	8720.0	2049.0	8880.0	2049.0	9670.0	2048.0	9820.0	2048.0	10750.0
GR	2047.0	10780.0	2047.0	10920.0	2047.5	10970.0	2047.5	11500.0	2048.0	11540.0
GR	2048.5	11850.0	2048.0	12100.0	2048.0	12780.0	2048.5	13000.0	2049.0	13300.0
GR	2049.0	14000.0	2049.5	14520.0						
QT	1	16000								
X1	60.0	21	10470	12400	1050	900	950	0	0	0
X3				9800						
GR	2057.0	7370.0	2056.0	7750.0	2056.0	7930.0	2054.0	8240.0	2052.0	8320.0
GR	2052.0	8600.0	2054.0	8880.0	2054.0	9720.0	2053.0	10100.0	2053.0	10470.0
GR	2052.0	10600.0	2051.5	10740.0	2051.5	10980.0	2051.0	11050.0	2051.5	11100.0
GR	2051.5	12100.0	2052.0	12220.0	2052.5	12400.0	2052.5	13780.0	2053.0	14270.0
GR	2053.5	14570.0								
X1	70.0	21	11040	12700	1000	900	900	0	0	0
X3				10000						
GR	2060.0	7900.0	2058.0	8000.0	2056.0	8370.0	2056.0	8870.0	2058.0	9480.0
GR	2060.0	9920.0	2060.0	10070.0	2059.0	10150.0	2059.0	10730.0	2060.0	10860.0
GR	2058.0	11040.0	2056.0	11290.0	2055.0	11320.0	2055.0	11780.0	2053.5	12020.0
GR	2055.5	12430.0	2056.0	12580.0	2056.5	12700.0	2056.0	12950.0	2056.0	14050.0
GR	2058.0	14570.0								
X1	80.0	19	11700	12800	900	900	900	0	0	0
X3				9850						
GR	2065.0	7200.0	2064.0	7380.0	2062.0	7740.0	2060.0	8170.0	2060.0	9460.0
GR	2062.0	9600.0	2062.0	10380.0	2064.0	10600.0	2064.0	10800.0	2062.0	10980.0
GR	2060.0	11220.0	2060.0	11700.0	2059.0	11790.0	2059.0	12400.0	2060.0	12800.0
GR	2060.0	14150.0	2060.5	14600.0	2061.0	15000.0	2062.0	15780.0		

X1	90.0	21	11080	12120	950	950	950	0	0	0
X3				10200						
GR	2070.0	6900.0	2068.0	7380.0	2066.0	7550.0	2064.0	7930.0	2063.0	8028.0
GR	2063.0	9140.0	2064.0	9560.0	2066.0	9800.0	2066.0	10320.0	2064.0	10600.0
GR	2064.0	10910.0	2065.0	11080.0	2064.0	11180.0	2063.0	11400.0	2062.0	11600.0
GR	2062.0	11700.0	2063.0	11940.0	2064.0	12120.0	2064.0	13460.0	2065.0	14100.0
GR	2065.0	15200.0								
X1	100.0	25	10980	12080	850	850	850	0	0	0
X3				10100						
GR	2072.0	6800.0	2070.0	7340.0	2068.0	7630.0	2068.0	8000.0	2066.5	8400.0
GR	2068.0	8550.0	2068.0	9100.0	2070.0	9400.0	2070.0	9870.0	2071.0	10080.0
GR	2070.0	10250.0	2070.0	10650.0	2070.5	10770.0	2070.0	10870.0	2068.0	10980.0
GR	2065.5	11200.0	2065.5	11440.0	2067.0	11550.0	2066.5	11720.0	2066.5	11870.0
GR	2067.5	12080.0	2067.5	12430.0	2068.0	12530.0	2068.0	13700.0	2068.0	14900.0
QT	1	16000								
X1	110.0	21	10720	12070	870	870	870	0	0	0
X3				9900						
GR	2075.0	6370.0	2074.0	6800.0	2074.0	7400.0	2072.0	7800.0	2070.5	7970.0
GR	2070.0	8220.0	2070.0	8380.0	2071.0	8480.0	2072.0	9000.0	2074.0	9620.0
GR	2075.0	9900.0	2074.0	10200.0	2074.0	10600.0	2072.0	10720.0	2070.0	10800.0
GR	2070.0	11600.0	2072.0	12070.0	2073.0	12500.0	2073.5	12620.0	2072.0	13000.0
GR	2071.5	13700.0								
QT	1	29000								
X1	120.0	34	10420	11570	950	950	950	0	0	0
X3				9800						
GR	2079.0	5800.0	2078.0	6180.0	2077.5	6720.0	2078.0	7140.0	2076.0	7670.0
GR	2074.0	7900.0	2074.0	8050.0	2076.0	8260.0	2077.0	8560.0	2077.0	8840.0
GR	2078.0	9140.0	2077.0	9730.0	2077.0	10270.0	2076.0	10420.0	2074.0	10550.0
GR	2074.0	10600.0	2073.5	10670.0	2073.5	11240.0	2074.0	11300.0	2076.0	11570.0
GR	2076.0	12400.0	2075.0	13090.0	2075.0	13470.0	2074.5	13530.0	2074.0	13760.0
GR	2074.0	13950.0	2074.5	14200.0	2074.5	14360.0	2074.0	14420.0	2074.5	14700.0
GR	2075.0	14870.0	2075.5	15120.0	2076.0	15850.0	2076.5	15970.0		
QT	1	30000								
X1	130.0	35	10150	11570	1000	850	850	0	0	0
X3				9000						
GR	2082.0	6050.0	2080.5	6560.0	2082.0	6740.0	2082.0	7100.0	2080.0	7320.0
GR	2078.0	7620.0	2078.0	7750.0	2080.0	8020.0	2080.0	8450.0	2082.0	8780.0
GR	2082.0	9020.0	2081.0	9220.0	2081.0	9550.0	2082.0	9720.0	2083.0	9870.0
GR	2082.0	10000.0	2080.0	10150.0	2078.0	10430.0	2077.0	10500.0	2077.0	10830.0
GR	2077.5	10940.0	2078.0	11130.0	2078.5	11300.0	2079.0	11570.0	2078.0	11750.0
GR	2078.5	11820.0	2079.0	12020.0	2079.0	12220.0	2078.0	12470.0	2077.5	12630.0
GR	2077.5	13580.0	2077.5	13830.0	2078.0	13880.0	2078.0	15080.0	2080.0	15400.0
X1	140.0	33	9650	11120	900	900	900	0	0	0
X3				8300						
GR	2085.5	5650.0	2085.0	5800.0	2084.0	5880.0	2083.5	6150.0	2083.5	6290.0
GR	2084.0	6420.0	2084.0	6560.0	2082.0	6600.0	2081.5	6740.0	2082.0	6830.0
GR	2084.0	7310.0	2085.5	7990.0	2085.5	8300.0	2086.0	9000.0	2086.0	9490.0
GR	2084.0	9650.0	2082.0	9820.0	2080.0	9870.0	2081.0	10000.0	2081.0	10380.0

GR	2082.0	10560.0	2082.0	10950.0	2082.5	11120.0	2082.5	11360.0	2082.0	11630.0
GR	2081.0	11800.0	2081.0	12080.0	2082.0	12190.0	2083.0	12360.0	2083.0	12620.0
GR	2082.0	12720.0	2082.0	13570.0	2084.0	14280.0				
QT	1	28405								
X1	150.0	39	7700	9900	900	900	900	0	0	0
X3				6250						
GR	2088.0	3000.0	2088.0	3100.0	2087.5	3600.0	2088.0	4000.0	2088.0	4100.0
GR	2086.0	4400.0	2085.5	4440.0	2085.5	4540.0	2085.0	4620.0	2085.5	4820.0
GR	2085.5	5300.0	2086.0	5400.0	2088.0	5950.0	2089.0	6250.0	2089.0	6800.0
GR	2088.0	7190.0	2088.0	7550.0	2086.0	7700.0	2084.0	7890.0	2084.0	8000.0
GR	2085.0	8120.0	2085.0	9030.0	2085.5	9100.0	2085.0	9200.0	2085.0	9300.0
GR	2084.5	9430.0	2084.5	9820.0	2086.0	9900.0	2086.0	10050.0	2087.5	10200.0
GR	2087.5	10370.0	2086.0	10550.0	2086.0	11200.0	2086.5	11320.0	2086.5	11740.0
GR	2087.0	11880.0	2087.5	12000.0	2087.5	12340.0	2088.0	12580.0		
QT	1	26775								
X1	160.0	33	5590	8020	850	850	850	0	0	0
X3				4300		9600				
GR	2091.0	1420.0	2090.5	1580.0	2090.5	1840.0	2090.0	2220.0	2089.5	2350.0
GR	2089.5	2430.0	2089.5	2500.0	2089.5	2750.0	2090.0	3050.0	2090.0	3600.0
GR	2092.0	3820.0	2092.0	4400.0	2091.5	4720.0	2091.0	5050.0	2090.0	5590.0
GR	2088.5	5680.0	2088.5	6750.0	2089.0	6770.0	2088.5	6810.0	2088.5	7380.0
GR	2089.0	7500.0	2088.5	7660.0	2088.5	7950.0	2090.0	8020.0	2091.0	8300.0
GR	2090.0	8720.0	2090.0	9100.0	2090.5	9200.0	2090.5	9600.0	2091.0	10000.0
GR	2091.5	10320.0	2091.5	10580.0	2092.0	10700.0				
QT	1	22250								
X1	161.0	27	4540	7130	550	1050	1000	0	0	0
X3				4000						
GR	2094.0	1100.0	2092.0	1150.0	2092.0	1930.0	2091.5	2090.0	2091.5	2620.0
GR	2092.0	2780.0	2093.0	3350.0	2094.0	3550.0	2095.0	3820.0	2095.0	4000.0
GR	2094.0	4100.0	2093.5	4270.0	2093.5	4540.0	2092.5	4920.0	2092.5	5990.0
GR	2092.0	6140.0	2092.0	6550.0	2092.0	6680.0	2092.0	6950.0	2093.0	7130.0
GR	2094.0	7630.0	2094.8	7760.0	2094.0	7860.0	2093.5	7980.0	2093.5	8520.0
GR	2094.0	8990.0	2096.0	9580.0						
QT	1	16000								
X1	162.0	15	4300	7280	750	950	850	0	0	0
GR	2097.0	3800.0	2096.0	4300.0	2095.5	4800.0	2096.0	4870.0	2096.0	5870.0
GR	2095.5	6110.0	2095.5	6200.0	2095.5	6800.0	2096.0	6890.0	2096.5	7150.0
GR	2097.5	7280.0	2097.5	7500.0	2097.0	7600.0	2097.0	7950.0	2098.0	8080.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 10.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 8450.0 12750.0 TYPE= 1 TARGET= -8450.000

10.000	4.67	2035.67	2034.19	2034.00	2035.88	.21	.00	.00	2034.00
21000.0	3436.5	16440.3	1123.2	1440.1	4128.4	1022.3	.0	.0	2034.00
.00	2.39	3.98	1.10	.060	.060	.060	.000	2031.00	8450.00
.004061	0.	0.	0.	0	8	4	.00	3773.88	12635.63

FLOW DISTRIBUTION FOR SECNO= 10.00 CWSEL= 2035.67

STA=	8450.	8640.	8800.	9230.	10260.	10478.	11650.	12400.	12636.
PER Q=	5.2	3.6	7.6	78.3	1.2	.9	2.9	.3	
AREA=	412.9	307.7	719.5	4128.4	182.0	256.1	504.9	79.3	
VEL=	2.6	2.4	2.2	4.0	1.4	.8	1.2	.8	
DEPTH=	2.2	1.9	1.7	4.0	.8	.2	.7	.3	

*SECNO 20.000

3470 ENCROACHMENT STATIONS= 8860.0 13750.0 TYPE= 1 TARGET= -8860.000

20.000	3.19	2039.19	2037.90	.00	2039.32	.14	3.44	.01	2038.00
21000.0	161.6	16483.4	4355.0	131.5	5066.8	2778.1	142.1	84.1	2038.00
.08	1.23	3.25	1.57	.060	.060	.060	.000	2036.00	8860.00
.004022	850.	850.	850.	2	19	0	.00	4849.61	13709.61

FLOW DISTRIBUTION FOR SECNO= 20.00 CWSEL= 2039.19

STA=	8860.	9050.	10750.	11200.	11800.	13270.	13700.	13710.
PER Q=	.8	78.5	1.8	2.4	14.7	1.7	.0	
AREA=	131.5	5066.8	311.5	415.4	1752.6	297.7	.9	
VEL=	1.2	3.3	1.2	1.2	1.8	1.2	.3	
DEPTH=	.7	3.0	.7	.7	1.2	.7	.1	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 30.000

3470 ENCROACHMENT STATIONS= 8400.0 14400.0 TYPE= 1 TARGET= -8400.000

30.000	4.19	2042.69	2041.32	.00	2042.78	.09	3.45	.00	2042.00
21000.0	223.6	16320.7	4455.7	192.2	6169.9	2962.2	320.9	195.9	2042.00
.19	1.16	2.65	1.50	.060	.060	.060	.000	2038.50	8400.00
.003660	900.	900.	900.	3	12	0	.00	5967.16	14367.16

FLOW DISTRIBUTION FOR SECNO= 30.00 CWSEL= 2042.69

STA=	8400.	8680.	11310.	12100.	12370.	13600.	14350.	14367.
PER Q=	1.1	77.7	3.0	1.7	11.7	4.8	.0	
AREA=	192.2	6169.9	542.2	252.8	1459.1	702.2	5.9	
VEL=	1.2	2.6	1.2	1.4	1.7	1.4	.7	
DEPTH=	.7	2.3	.7	.9	1.2	.9	.3	

*SECNO 40.000
3280 CROSS SECTION 40.00 EXTENDED .15 FEET

40.000	3.15	2046.15	2045.34	.00	2046.24	.09	3.46	.00	2046.00
21000.0	.8	14469.5	6529.8	2.7	5485.0	3794.3	513.2	318.3	2045.00
.29	.28	2.64	1.72	.060	.060	.060	.000	2043.00	8613.04
.004022	950.	900.	900.	3	11	0	.00	5866.96	14480.00

FLOW DISTRIBUTION FOR SECNO= 40.00 CWSEL= 2046.15

STA=	8613.	8650.	11170.	14470.	14480.
PER Q=	.0	68.9	31.1	.0	
AREA=	2.7	5485.0	3787.8	6.5	
VEL=	.3	2.6	1.7	1.2	
DEPTH=	.1	2.2	1.1	.6	

*SECNO 50.000
3280 CROSS SECTION 50.00 EXTENDED .42 FEET

3470 ENCROACHMENT STATIONS= 9670.0 14520.0 TYPE= 1 TARGET= -9670.000

50.000	2.91	2049.91	2048.91	.00	2050.00	.08	3.76	.00	2049.00
18000.0	.0	11245.7	6754.3	.0	4493.0	3424.6	700.7	435.3	2048.50
.41	.00	2.50	1.97	.000	.060	.060	.000	2047.00	9670.00
.003896	1150.	950.	950.	3	14	0	.00	4850.00	14520.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 50.00 CWSEL= 2049.91

STA=	9670.	11850.	12100.	12780.	13000.	13300.	14000.	14520.
PER Q=	62.5	5.0	17.3	4.4	3.3	5.2	2.3	
AREA=	4493.0	416.6	1303.2	366.6	350.0	641.6	346.6	
VEL=	2.5	2.2	2.4	2.2	1.7	1.5	1.2	
DEPTH=	2.1	1.7	1.9	1.7	1.2	.9	.7	

*SECNO 60.000
3280 CROSS SECTION 60.00 EXTENDED .28 FEET

3470 ENCROACHMENT STATIONS= 9800.0 14570.0 TYPE= 1 TARGET= -9800.000

60.000	2.78	2053.78	2052.96	.00	2053.87	.09	3.87	.00	2053.00
16000.0	498.8	11089.3	4411.9	402.3	4094.8	2423.8	859.6	538.1	2052.50
.51	1.24	2.71	1.82	.060	.060	.060	.000	2051.00	9804.73
.004386	1050.	950.	900.	2	19	0	.00	4765.27	14570.00

FLOW DISTRIBUTION FOR SECNO= 60.00 CWSEL= 2053.78

STA=	9805.	10100.	10470.	12400.	13780.	14270.	14570.
PER Q=	.6	2.5	69.3	21.3	5.3	1.1	
AREA=	114.7	287.5	4094.8	1762.4	503.3	158.1	
VEL=	.9	1.4	2.7	1.9	1.7	1.1	
DEPTH=	.4	.8	2.1	1.3	1.0	.5	

*SECNO 70.000

3470 ENCROACHMENT STATIONS= 10000.0 14570.0 TYPE= 1 TARGET= -10000.000

70.000	4.08	2057.58	2056.54	.00	2057.69	.11	3.81	.00	2058.00
16000.0	.0	11174.5	4825.5	.0	3906.9	2401.2	996.8	622.9	2056.50
.61	.00	2.86	2.01	.000	.060	.060	.000	2053.50	11092.06
.004083	1000.	900.	900.	2	8	0	.00	3369.65	14461.71

FLOW DISTRIBUTION FOR SECNO= 70.00 CWSEL= 2057.58

STA=	11092.	12700.	12950.	14050.	14462.
PER Q=	69.8	4.0	23.4	2.8	
AREA=	3906.9	333.4	1741.8	326.0	
VEL=	2.9	1.9	2.1	1.4	
DEPTH=	2.4	1.3	1.6	.8	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 80.000

3470 ENCROACHMENT STATIONS= 9850.0 15780.0 TYPE= 1 TARGET= -9850.000

80.000	2.55	2061.55	2060.75	.00	2061.65	.10	3.96	.00	2060.00
16000.0	1894.3	7627.1	6478.6	886.1	2556.6	3107.3	1129.6	703.1	2060.00
.71	2.14	2.98	2.08	.060	.060	.060	.000	2059.00	11034.38
.004713	900.	900.	900.	4	18	0	.00	4392.19	15426.56

FLOW DISTRIBUTION FOR SECNO= 80.00 CWSEL= 2061.55

STA=	11034.	11220.	11700.	12800.	14150.	14600.	15000.	15427.
PER Q=	1.3	10.6	47.7	29.7	7.4	2.9	.5	
AREA=	143.6	742.5	2556.6	2088.3	583.6	318.8	116.6	
VEL=	1.4	2.3	3.0	2.3	2.0	1.5	.7	
DEPTH=	.8	1.5	2.3	1.5	1.3	.8	.3	

*SECNO 90.000
3280 CROSS SECTION 90.00 EXTENDED .61 FEET

3470 ENCROACHMENT STATIONS= 10200.0 15200.0 TYPE= 1 TARGET= -10200.000

90.000	3.61	2065.61	2064.74	.00	2065.70	.09	4.05	.00	2065.00
16000.0	1624.1	7833.3	6542.5	872.1	2688.6	3551.2	1278.6	803.6	2064.00
.82	1.86	2.91	1.84	.060	.060	.060	.000	2062.00	10374.04
.003900	950.	950.	950.	3	8	0	.00	4825.96	15200.00

FLOW DISTRIBUTION FOR SECNO= 90.00 CWSEL= 2065.61

STA=	10374.	10600.	10910.	11080.	12120.	13460.	14100.	15200.
PER Q=	1.5	6.7	2.0	49.0	28.8	7.4	4.7	
AREA=	182.4	500.3	189.4	2688.6	2162.8	713.0	675.4	
VEL=	1.3	2.1	1.7	2.9	2.1	1.7	1.1	
DEPTH=	.8	1.6	1.1	2.6	1.6	1.1	.6	

*SECNO 100.000
3280 CROSS SECTION 100.00 EXTENDED 1.14 FEET

3470 ENCROACHMENT STATIONS= 10100.0 14900.0 TYPE= 1 TARGET= -10100.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST
100.000	3.64	2069.14	2068.44	.00	2069.25	.12	3.54	.01	2068.00
16000.0	40.4	9500.0	6459.6	35.6	2967.0	3409.7	1410.5	889.5	2067.50
.91	1.13	3.20	1.89	.060	.060	.060	.000	2065.50	10917.40
.004451	850.	850.	850.	3	14	0	.00	3982.60	14900.00

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 2069.14

STA=	10917.	10980.	12080.	12430.	12530.	13700.	14900.
PER Q=	.3	59.4	8.2	1.8	15.0	15.4	
AREA=	35.6	2967.0	573.4	138.8	1331.7	1365.8	
VEL=	1.1	3.2	2.3	2.1	1.8	1.8	
DEPTH=	.6	2.7	1.6	1.4	1.1	1.1	

*SECNO 110.000

3265 DIVIDED FLOW

3280 CROSS SECTION 110.00 EXTENDED 1.70 FEET

3470 ENCROACHMENT STATIONS= 9900.0 13700.0 TYPE= 1 TARGET= -9900.000

110.000	3.20	2073.20	2072.14	.00	2073.36	.16	4.09	.01	2072.00
16000.0	53.6	13040.2	2906.2	43.2	3769.9	1503.1	1527.7	958.3	2072.00
.99	1.24	3.46	1.93	.060	.060	.060	.000	2070.00	10648.00
.004960	870.	870.	870.	4	11	0	.00	2903.97	13700.00

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 2073.20

STA=	10648.	10720.	12070.	12500.	12548.	13000.	13700.
PER Q=	.3	81.5	2.6	.0	1.4	14.2	
AREA=	43.2	3769.9	301.0	4.8	182.4	1015.0	
VEL=	1.2	3.5	1.4	.4	1.2	2.2	
DEPTH=	.6	2.8	.7	.1	.4	1.4	

*SECNO 120.000
3280 CROSS SECTION 120.00 EXTENDED .56 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.21

3470 ENCROACHMENT STATIONS= 9800.0 15970.0 TYPE= 1 TARGET= -9800.000

120.000	3.56	2077.06	2075.80	.00	2077.16	.10	3.80	.01	2076.00
29000.0	88.2	10218.9	18692.9	112.5	3437.1	8073.9	1712.4	1057.3	2076.00
1.09	.78	2.97	2.32	.060	.060	.060	.000	2073.50	9800.00
.003347	950.	950.	950.	4	16	0	.00	6170.00	15970.00

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 2077.06

STA=	9800.	10420.	11570.	12400.	13090.	13470.	13760.	13950.	14200.	14360.	14700.	14870.	15120.
PER Q=	.3	35.2	4.5	7.2	6.3	7.6	6.1	6.9	3.8	9.4	3.4	3.3	
AREA=	112.5	3437.1	880.3	1076.8	783.0	785.1	581.5	702.6	409.7	955.6	392.8	452.6	
VEL=	.8	3.0	1.5	1.9	2.3	2.8	3.0	2.9	2.7	2.9	2.5	2.1	
DEPTH=	.2	3.0	1.1	1.6	2.1	2.7	3.1	2.8	2.6	2.8	2.3	1.8	

STA=	15120.	15850.	15970.
PER Q=	5.7	.4	
AREA=	956.7	97.3	
VEL=	1.7	1.2	
DEPTH=	1.3	.8	

*SECNO 130.000
3280 CROSS SECTION 130.00 EXTENDED .19 FEET

3470 ENCROACHMENT STATIONS= 9000.0 15400.0 TYPE= 1 TARGET= -9000.000

130.000	3.19	2080.19	2079.00	.00	2080.30	.11	3.13	.00	2080.00
30000.0	.5	8118.6	21880.9	1.4	3084.2	8149.6	1935.6	1169.9	2079.00
1.18	.33	2.63	2.68	.060	.060	.060	.000	2077.00	10135.52
.004016	1000.	850.	850.	3	11	0	.00	5264.48	15400.00

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 2080.19

STA=	10136.	10150.	11570.	11820.	12220.	12470.	12630.	13580.	13830.	15080.	15400.
PER Q=	.0	27.1	3.4	3.3	3.1	3.7	25.9	6.8	24.4	2.2	
AREA=	1.4	3084.2	440.8	527.2	423.3	390.9	2558.5	673.3	2753.9	381.8	
VEL=	.3	2.6	2.3	1.9	2.2	2.8	3.0	3.0	2.7	1.8	
DEPTH=	.1	2.2	1.8	1.3	1.7	2.4	2.7	2.7	2.2	1.2	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 140.000
3280 CROSS SECTION 140.00 EXTENDED .21 FEET

3470 ENCROACHMENT STATIONS= 8300.0 14280.0 TYPE= 1 TARGET= -8300.000

140.000	4.21	2084.21	2083.14	.00	2084.36	.15	4.05	.01	2084.00
30000.0	.7	12336.1	17663.2	1.8	3754.4	6117.9	2153.7	1272.3	2082.50
1.26	.39	3.29	2.89	.060	.060	.060	.000	2080.00	9633.03
.005042	900.	900.	900.	5	6	0	.00	4646.97	14280.00

FLOW DISTRIBUTION FOR SECNO= 140.00 CWSEL= 2084.21

STA=	9633.	9650.	11120.	11360.	11630.	11800.	12080.	12190.	12360.	12620.	12720.	13570.	14280.
PER Q=	.0	41.1	3.4	4.9	5.3	11.5	3.4	2.4	2.1	1.4	18.7	5.7	
AREA=	1.8	3754.4	410.9	529.8	461.1	899.4	298.3	291.1	315.2	171.2	1880.3	860.6	
VEL=	.4	3.3	2.5	2.8	3.4	3.8	3.4	2.5	2.0	2.5	3.0	2.0	
DEPTH=	.1	2.6	1.7	2.0	2.7	3.2	2.7	1.7	1.2	1.7	2.2	1.2	

*SECNO 150.000

3470 ENCROACHMENT STATIONS= 6250.0 12580.0 TYPE= 1 TARGET= -6250.000

150.000	3.97	2087.97	2086.63	.00	2088.10	.13	3.74	.00	2086.00
28405.0	212.4	21618.7	6574.0	145.6	6870.5	3354.2	2362.8	1372.1	2086.00
1.35	1.46	3.15	1.96	.060	.060	.060	.000	2084.00	7552.20
.003536	900.	900.	900.	3	14	0	.00	5013.74	12565.94

FLOW DISTRIBUTION FOR SECNO= 150.00 CWSEL= 2087.97

STA=	7552.	7700.	9900.	10200.	11200.	11740.	12566.
PER Q=	.7	76.1	3.5	12.0	5.7	2.0	
AREA=	145.6	6870.5	478.7	1580.7	824.2	470.6	
VEL=	1.5	3.1	2.1	2.2	2.0	1.2	
DEPTH=	1.0	3.1	1.6	1.6	1.5	.6	

*SECNO 160.000

3470 ENCROACHMENT STATIONS= 4300.0 9600.0 TYPE= 1 TARGET= 5300.000

160.000	2.90	2091.40	2090.18	.00	2091.56	.16	3.46	.01	2090.00
26775.0	807.6	23042.6	2924.8	547.2	6867.3	1653.4	2552.5	1468.1	2090.00
1.42	1.48	3.36	1.77	.060	.060	.060	.000	2088.50	4779.14
.004594	850.	850.	850.	3	14	0	.00	4820.86	9600.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IBC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 160.00 CWSEL= 2091.40

STA=	4779.	5050.	5590.	8020.	8300.	8720.	9100.	9200.	9600.
PER Q=	.1	2.9	86.1	1.5	2.3	4.2	.8	2.1	
AREA=	55.6	491.6	6867.3	254.9	382.4	536.0	116.0	364.2	
VEL=	.6	1.6	3.4	1.6	1.6	2.1	1.9	1.6	
DEPTH=	.2	.9	2.8	.9	.9	1.4	1.2	.9	

*SECNO 161.000

3470 ENCROACHMENT STATIONS= 4000.0 9580.0 TYPE= 1 TARGET= -4000.000

161.000	3.50	2095.00	2093.78	.00	2095.08	.08	3.51	.01	2093.50
22250.0	1086.6	17010.2	4153.2	671.1	6744.6	2597.2	2767.6	1579.3	2093.00
1.54	1.62	2.52	1.60	.060	.060	.060	.000	2091.50	4000.00
.002894	550.	1000.	1050.	2	15	0	.00	5286.94	9286.94

FLOW DISTRIBUTION FOR SECNO= 161.00 CWSEL= 2095.00

STA=	4000.	4100.	4270.	4540.	7130.	7630.	7760.	7860.	7980.	8520.	8990.	9287.
PER Q=	.2	1.5	3.2	76.5	5.9	.3	.3	1.1	6.4	4.1	.6	
AREA=	50.7	213.6	406.8	6744.6	753.3	78.9	60.7	150.8	813.6	590.6	149.5	
VEL=	.8	1.6	1.8	2.5	1.8	1.0	1.0	1.6	1.8	1.6	.8	
DEPTH=	.5	1.3	1.5	2.6	1.5	.6	.6	1.3	1.5	1.3	.5	

*SECNO 162.000
3280 CROSS SECTION 162.00 EXTENDED .85 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

162.000	2.35	2097.85	2096.81	.00	2097.94	.08	2.86	.00	2096.00
16000.0	1259.7	14165.7	574.6	676.4	5896.3	483.6	2936.1	1674.6	2097.50
1.65	1.86	2.40	1.19	.060	.060	.060	.000	2095.50	3800.00
.003788	750.	850.	950.	4	22	0	.00	4260.86	8060.86

FLOW DISTRIBUTION FOR SECNO= 162.00 CWSEL= 2097.85

STA=	3800.	4300.	7280.	7500.	7600.	7950.	8061.
PER Q=	7.9	88.5	.4	.4	2.6	.3	
AREA=	676.4	5896.3	77.6	60.3	298.5	47.3	
VEL=	1.9	2.4	.8	1.1	1.4	.9	
DEPTH=	1.4	2.0	.4	.6	.9	.4	

THIS RUN EXECUTED 21AUG96 14:50:53

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
	10.000	2035.67	2.39	3.98	1.10	3436.53	16440.29	1123.18	4.67	3773.88	8450.00	12635.63
	20.000	2039.19	1.23	3.25	1.57	161.56	16483.42	4355.01	3.19	4849.61	8860.00	13709.61
	30.000	2042.69	1.16	2.65	1.50	223.64	16320.71	4455.65	4.19	5967.16	8400.00	14367.16
	40.000	2046.15	.28	2.64	1.72	.76	14469.48	6529.77	3.15	5866.96	8613.04	14480.00
	50.000	2049.91	.00	2.50	1.97	.00	11245.67	6754.33	2.91	4850.00	9670.00	14520.00
	60.000	2053.78	1.24	2.71	1.82	498.79	11089.27	4411.94	2.78	4765.27	9804.73	14570.00
	70.000	2057.58	.00	2.86	2.01	.00	11174.53	4825.47	4.08	3369.65	11092.06	14461.71
	80.000	2061.55	2.14	2.98	2.08	1894.27	7627.14	6478.59	2.55	4392.19	11034.38	15426.56
	90.000	2065.61	1.86	2.91	1.84	1624.15	7833.31	6542.54	3.61	4825.96	10374.04	15200.00
	100.000	2069.14	1.13	3.20	1.89	40.42	9500.00	6459.58	3.64	3982.60	10917.40	14900.00
	110.000	2073.20	1.24	3.46	1.93	53.59	13040.17	2906.24	3.20	2903.97	10648.00	13700.00
*	120.000	2077.06	.78	2.97	2.32	88.19	10218.90	18692.91	3.56	6170.00	9800.00	15970.00
	130.000	2080.19	.33	2.63	2.68	.46	8118.64	21880.90	3.19	5264.48	10135.52	15400.00
	140.000	2084.21	.39	3.29	2.89	.71	12336.11	17663.18	4.21	4646.97	9633.03	14280.00
	150.000	2087.97	1.46	3.15	1.96	212.37	21618.68	6573.95	3.97	5013.74	7552.20	12565.94
	160.000	2091.40	1.48	3.36	1.77	807.63	23042.62	2924.75	2.90	4820.86	4779.14	9600.00
	161.000	2095.00	1.62	2.52	1.60	1086.64	17010.16	4153.19	3.50	5286.94	4000.00	9286.94

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
*	162.000	2097.85	1.86	2.40	1.19	1259.70	14165.71	574.59	2.35	4260.86	3800.00	8060.86

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
	10.000	2035.67	2034.19	2035.88	.00	.00	2031.00	40.61	.00	.00	1.02	.35
	20.000	2039.19	2037.90	2039.32	3.44	.01	2036.00	40.22	5.88	850.00	.75	.33
	30.000	2042.69	2041.32	2042.78	3.45	.00	2038.50	36.60	2.78	900.00	.54	.30
	40.000	2046.15	2045.34	2046.24	3.46	.00	2043.00	40.22	5.00	900.00	.55	.32
	50.000	2049.91	2048.91	2050.00	3.76	.00	2047.00	38.96	4.21	950.00	.50	.31
	60.000	2053.78	2052.96	2053.87	3.87	.00	2051.00	43.86	4.21	950.00	.58	.33
	70.000	2057.58	2056.54	2057.69	3.81	.00	2053.50	40.83	2.78	900.00	.62	.32
	80.000	2061.55	2060.75	2061.65	3.96	.00	2059.00	47.13	6.11	900.00	.68	.34
	90.000	2065.61	2064.74	2065.70	4.05	.00	2062.00	39.00	3.16	950.00	.63	.32
	100.000	2069.14	2068.44	2069.25	3.54	.01	2065.50	44.51	4.12	850.00	.75	.34
	110.000	2073.20	2072.14	2073.36	4.09	.01	2070.00	49.60	5.17	870.00	.86	.36
*	120.000	2077.06	2075.80	2077.16	3.80	.01	2073.50	33.47	3.68	950.00	.62	.30
	130.000	2080.19	2079.00	2080.30	3.13	.00	2077.00	40.16	4.12	850.00	.54	.31
	140.000	2084.21	2083.14	2084.36	4.05	.01	2080.00	50.42	3.33	900.00	.80	.36
	150.000	2087.97	2086.63	2088.10	3.74	.00	2084.00	35.36	4.44	900.00	.69	.31
	160.000	2091.40	2090.18	2091.56	3.46	.01	2088.50	45.94	5.29	850.00	.81	.35
	161.000	2095.00	2093.78	2095.08	3.51	.01	2091.50	28.94	3.00	1000.00	.47	.28
*	162.000	2097.85	2096.81	2097.94	2.86	.00	2095.50	37.88	4.71	850.00	.47	.30

SLA, INC.

BWEC3B.DAT
THIS RUN EXECUTED 16AUG96 15:59:18

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
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T1      Brawley Wash Floodplain Study (SLA No. PAZ-PDOT-10.6)
T2      Eastern Corridor Anaysis
T3      100-year

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

        0       2        0        0     .004        0        0        0     2073        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

       -1       0       -1        0        0        0       -1        0        0       15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

       38       1       55       26       56       13       14       15        8        4
       53      54        0       38        1        2        3       11       12       42
        5      33       39       67       68

J6  IHLEQ     ICOPY    SUBDIV   STRTDS   RMILE

        1


NC     .06      .06      .06      0.1      0.3
QT        1    21000
X1     10.0       18    17020    22450        0        0        0        0        0        0
GR   2036.0  14250.0   2036.0  15750.0   2036.0  17020.0   2035.0  17310.0   2035.0  17480.0
GR   2036.0  17850.0   2036.0  18190.0   2036.5  18350.0   2036.5  18980.0   2036.0  19180.0
GR   2036.0  19470.0   2035.5  19580.0   2036.0  20190.0   2036.0  20380.0   2035.5  20670.0
GR   2035.5  21950.0   2036.0  22450.0   2037.0  22950.0

X1     20.0       16    17200    21920      670      670      670        0        0        0
GR   2039.0  14300.0   2039.0  15750.0   2039.0  17200.0   2038.0  17300.0   2038.0  17570.0
GR   2039.0  17730.0   2039.0  17850.0   2038.0  18200.0   2038.5  19060.0   2038.0  19980.0
GR   2038.0  20350.0   2038.0  20980.0   2039.0  21920.0   2039.5  22230.0   2039.5  22700.0
GR   2040.0  23100.0

X1     30.0       20    17160    21785      880      880      880        0        0        0
GR   2043.0  14450.0   2043.0  15730.0   2042.5  16270.0   2042.5  16750.0   2042.5  17160.0
GR   2042.0  17300.0   2041.5  17370.0   2041.5  17830.0   2042.0  17900.0   2042.0  18160.0
GR   2041.0  18380.0   2040.5  18600.0   2040.5  18800.0   2041.0  19360.0   2041.5  20160.0
GR   2042.0  20320.0   2042.0  21400.0   2042.5  21785.0   2043.0  22170.0   2044.0  22570.0
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X1	40.0	16	15870	20490	880	880	880	0	0	0
GR	2046.5	14500.0	2046.5	15600.0	2046.0	15870.0	2045.5	16100.0	2045.5	17230.0
GR	2045.0	17320.0	2045.5	17870.0	2045.5	18150.0	2044.5	18710.0	2044.5	19200.0
GR	2044.5	19990.0	2045.0	20250.0	2046.0	20490.0	2046.0	21000.0	2046.0	21830.0
GR	2048.0	22260.0								
X1	50.0	21	16250	21000	900	900	900	0	0	0
GR	2050.0	14830.0	2050.0	15200.0	2051.0	15650.0	2050.0	15980.0	2050.0	16250.0
GR	2049.0	16600.0	2050.0	16910.0	2050.0	17150.0	2049.0	17310.0	2049.0	17640.0
GR	2049.5	17990.0	2049.5	18370.0	2049.0	18600.0	2049.0	19070.0	2050.0	19150.0
GR	2048.5	19170.0	2048.5	20380.0	2049.5	20600.0	2050.0	21000.0	2050.0	22050.0
GR	2052.0	22550.0								
X1	60.0	21	16260	20750	870	870	870	0	0	0
GR	2053.0	15200.0	2054.0	15600.0	2055.0	15930.0	2054.5	16170.0	2054.0	16260.0
GR	2053.0	16460.0	2053.0	16800.0	2053.0	17400.0	2053.5	17500.0	2053.0	17980.0
GR	2053.0	18170.0	2052.5	18540.0	2052.5	18750.0	2053.0	19050.0	2052.0	19360.0
GR	2052.0	20580.0	2053.0	20750.0	2053.0	21900.0	2054.0	22000.0	2055.0	22260.0
GR	2056.0	22770.0								
X1	70.0	25	16340	21040	900	900	900	0	0	0
GR	2057.0	15490.0	2057.0	15800.0	2058.0	16030.0	2059.5	16170.0	2058.0	16340.0
GR	2056.5	16720.0	2056.5	17270.0	2056.0	17420.0	2055.5	17580.0	2055.5	17900.0
GR	2056.0	17950.0	2056.0	18270.0	2056.5	18480.0	2056.0	18900.0	2056.0	19590.0
GR	2055.5	19780.0	2055.5	20470.0	2056.0	20570.0	2056.0	20920.0	2057.0	21040.0
GR	2057.0	21390.0	2057.5	21530.0	2057.5	22200.0	2058.0	22270.0	2060.0	22750.0
X1	80.0	22	16480	21100	850	850	850	0	0	0
GR	2062.0	15780.0	2060.0	15930.0	2061.0	16000.0	2062.0	16250.0	2062.0	16480.0
GR	2060.0	16690.0	2060.0	17040.0	2059.0	17340.0	2059.5	17530.0	2059.5	17790.0
GR	2060.0	17850.0	2061.0	18700.0	2060.5	18950.0	2060.5	19730.0	2060.0	19870.0
GR	2059.5	20000.0	2059.5	20250.0	2060.0	20970.0	2060.5	21100.0	2060.5	21680.0
GR	2062.0	22150.0	2064.0	22650.0						
QT	1	21000								
X1	90.0	16	15200	21425	900	900	900	0	0	0
GR	2065.0	15200.0	2064.0	15350.0	2064.0	17330.0	2064.5	17650.0	2065.0	17950.0
GR	2065.0	19120.0	2064.0	19400.0	2063.0	20083.0	2063.5	20480.0	2063.5	20820.0
GR	2063.0	20940.0	2063.5	21050.0	2064.0	21250.0	2065.0	21425.0	2066.0	21600.0
GR	2067.0	21770.0								
QT	1	8000								
X1	100.0	13	17150	21150	900	900	900	0	0	0
GR	2069.5	17150.0	2068.5	17300.0	2068.5	18040.0	2069.0	18400.0	2068.0	19040.0
GR	2068.0	19380.0	2067.0	19890.0	2067.0	20020.0	2067.5	20400.0	2067.5	20580.0
GR	2068.0	20760.0	2070.0	21150.0	2072.0	21520.0				
QT	1	8000								
X1	110.0	15	16550	20400	1000	1000	1000	0	0	0
GR	2073.0	16550.0	2072.0	16600.0	2072.0	16990.0	2072.5	17320.0	2073.0	17640.0
GR	2073.0	18060.0	2072.5	18320.0	2072.0	19240.0	2070.0	19580.0	2070.0	19750.0
GR	2070.5	19850.0	2072.0	20170.0	2073.0	20400.0	2074.0	20740.0	2076.0	21150.0

QT	1	8000								
X1	120.0	16	15970	20300	800	800	800	0	0	0
GR	2076.5	15970.0	2076.5	16710.0	2076.0	16770.0	2076.0	16920.0	2077.0	17140.0
GR	2077.0	17270.0	2076.0	17300.0	2076.5	17490.0	2076.5	18300.0	2076.0	18370.0
GR	2074.0	19000.0	2074.0	19140.0	2075.0	19470.0	2076.0	19900.0	2078.0	20300.0
GR	2080.0	20650.0								
QT	1	7000								
X1	130.0	15	15470	19100	850	850	850	0	0	0
GR	2080.0	15470.0	2079.5	15850.0	2080.0	16100.0	2079.5	16310.0	2079.5	16600.0
GR	2080.0	16660.0	2080.0	17700.0	2079.0	17850.0	2079.0	18420.0	2078.0	18550.0
GR	2078.0	18750.0	2080.0	19100.0	2080.0	19300.0	2082.0	19770.0	2084.0	20150.0
QT	1	7000								
X1	140.0	17	14850	18440	830	830	830	0	0	0
GR	2084.0	14850.0	2083.5	15000.0	2083.5	15550.0	2083.0	15780.0	2083.0	16140.0
GR	2083.5	16320.0	2083.5	16580.0	2083.0	16820.0	2083.0	17350.0	2084.0	17440.0
GR	2084.0	17520.0	2082.0	17640.0	2082.0	17820.0	2082.5	17870.0	2082.5	18100.0
GR	2084.0	18440.0	2086.0	18940.0						
QT	1	8590								
X1	150.0	12	12900	16320	850	850	850	0	0	0
GR	2088.5	12900.0	2088.0	13040.0	2087.5	13170.0	2087.5	13600.0	2087.0	13650.0
GR	2087.0	15080.0	2088.0	15230.0	2086.0	15540.0	2086.0	15800.0	2087.0	16040.0
GR	2088.0	16320.0	2090.0	16560.0						
QT	1	10220								
X1	160.0	8	10850	13800	1050	1050	1050	0	0	0
GR	2092.0	10850.0	2091.5	11000.0	2091.5	11380.0	2091.0	11700.0	2091.0	13480.0
GR	2091.5	13660.0	2092.0	13800.0	2094.0	14300.0				
QT	1	14745								
X1	161.0	9	10560	13220	1070	1070	1070	0	0	0
GR	2096.5	10560.0	2096.0	10740.0	2096.0	11580.0	2097.5	11950.0	2096.0	12570.0
GR	2096.0	13120.0	2096.5	13220.0	2098.0	13470.0	2100.0	13800.0		
QT	1	21000								
X1	162.0	6	10370	13050	1050	1050	1050	0	0	0
GR	2101.5	10370.0	2100.5	10570.0	2100.5	12700.0	2101.0	12870.0	2102.0	13050.0
GR	2104.0	13440.0								

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IBC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 1.19 FEET

10.000	2.19	2037.19	2036.47	2073.00	2037.24	.06	.00	.00	2036.00
21000.0	5787.6	14791.5	420.8	3293.8	7569.2	344.5	.0	.0	2036.00
.00	1.76	1.95	1.22	.060	.060	.060	.000	2035.00	14250.00
.003998	0.	0.	0.	0	26	10	.00	8700.00	22950.00

FLOW DISTRIBUTION FOR SECNO= 10.00 CWSEL= 2037.19

STA=	14250.	15750.	17020.	22450.	22950.
PER Q=	14.9	12.6	70.4	2.0	
AREA=	1783.6	1510.1	7569.2	344.5	
VEL=	1.8	1.8	2.0	1.2	
DEPTH=	1.2	1.2	1.4	.7	

*SECNO 20.000
3280 CROSS SECTION 20.00 EXTENDED .90 FEET

20.000	1.90	2039.90	2039.19	.00	2039.96	.07	2.71	.00	2039.00
21000.0	3869.7	16691.5	438.8	2614.3	7635.0	455.1	168.5	134.0	2039.00
.09	1.48	2.19	.96	.060	.060	.060	.000	2038.00	14300.00
.004103	670.	670.	670.	2	11	0	.00	8721.19	23021.19

FLOW DISTRIBUTION FOR SECNO= 20.00 CWSEL= 2039.90

STA=	14300.	15750.	17200.	21920.	22230.	22700.	23021.
PER Q=	9.2	9.2	79.5	1.1	.8	.2	
AREA=	1307.2	1307.2	7635.0	202.0	188.7	64.5	
VEL=	1.5	1.5	2.2	1.2	.9	.5	
DEPTH=	.9	.9	1.6	.7	.4	.2	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 30.000
3280 CROSS SECTION 30.00 EXTENDED .35 FEET

30.000	2.85	2043.35	2042.36	.00	2043.42	.07	3.46	.00	2042.50
21000.0	1719.7	19019.0	261.3	1527.8	8401.3	255.4	379.5	301.5	2042.50
.21	1.13	2.26	1.02	.060	.060	.060	.000	2040.50	14450.00
.003770	880.	880.	880.	3	5	0	.00	7859.89	22309.89

FLOW DISTRIBUTION FOR SECNO= 30.00 CWSEL= 2043.35

STA=	14450.	15730.	16270.	16750.	17160.	21785.	22170.	22310.
PER Q=	1.6	1.7	2.6	2.3	90.6	1.2	.1	
AREA=	447.7	323.9	407.9	348.4	8401.3	230.9	24.5	
VEL=	.8	1.1	1.4	1.4	2.3	1.1	.5	
DEPTH=	.3	.6	.8	.8	1.8	.6	.2	

*SECNO 40.000
3280 CROSS SECTION 40.00 EXTENDED .35 FEET

40.000	2.35	2046.85	2045.96	.00	2046.93	.08	3.50	.00	2046.00
21000.0	485.8	18814.6	1699.7	543.1	8081.4	1212.4	581.7	456.7	2046.00
.32	.89	2.33	1.40	.060	.060	.060	.000	2044.50	14500.00
.004192	880.	880.	880.	3	8	0	.00	7512.14	22012.14

FLOW DISTRIBUTION FOR SECNO= 40.00 CWSEL= 2046.85

STA=	14500.	15600.	15870.	20490.	21000.	21830.	22012.
PER Q=	1.4	.9	89.6	3.0	4.8	.3	
AREA=	381.9	161.2	8081.4	432.1	703.1	77.2	
VEL=	.8	1.1	2.3	1.4	1.4	.9	
DEPTH=	.3	.6	1.7	.8	.8	.4	

*SECNO 50.000

3265 DIVIDED FLOW

3280 CROSS SECTION 50.00 EXTENDED .82 FEET

50.000	2.31	2050.81	2050.01	.00	2050.89	.08	3.96	.00	2050.00
21000.0	1006.9	18657.4	1335.7	782.1	7901.8	940.2	782.8	609.6	2050.00
.43	1.29	2.36	1.42	.060	.060	.060	.000	2048.50	14830.00
.004611	900.	900.	900.	4	14	0	.00	7280.65	22254.04

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 50.00 CWSEL= 2050.81

STA=	14830.	15200.	15567.	15980.	16250.	21000.	22050.	22254.
PER Q=	2.1	.7	.5	1.5	88.8	6.0	.4	
AREA=	302.0	149.9	109.9	220.4	7901.8	857.0	83.3	
VEL=	1.5	.9	.9	1.5	2.4	1.5	.9	
DEPTH=	.8	.4	.3	.8	1.7	.8	.4	

*SECNO 60.000

3265 DIVIDED FLOW

3280 CROSS SECTION 60.00 EXTENDED 1.41 FEET

60.000	2.41	2054.41	2053.49	.00	2054.48	.07	3.60	.00	2054.00
21000.0	543.5	17210.7	3245.8	409.2	7835.5	1739.5	978.6	746.8	2053.00
.54	1.33	2.20	1.87	.060	.060	.060	.000	2052.00	15200.00
.003744	870.	870.	870.	4	14	0	.00	6458.64	22107.59

FLOW DISTRIBUTION FOR SECNO= 60.00 CWSEL= 2054.41

STA=	15200.	15600.	15737.	16260.	20750.	21900.	22000.	22108.
PER Q=	2.5	.1	.0	82.0	14.8	.6	.1	
AREA=	365.5	28.3	15.4	7835.5	1625.9	91.4	22.3	
VEL=	1.4	.5	.5	2.2	1.9	1.4	.5	
DEPTH=	.9	.2	.0	1.7	1.4	.9	.2	

*SECNO 70.000

3265 DIVIDED FLOW

3280 CROSS SECTION 70.00 EXTENDED .88 FEET

70.000	2.39	2057.89	2056.88	.00	2057.97	.08	3.48	.00	2058.00
21000.0	476.3	19756.1	767.6	364.3	8485.1	666.7	1180.1	879.6	2057.00
.65	1.31	2.33	1.15	.060	.060	.060	.000	2055.50	15490.00
.003987	900.	900.	900.	4	11	0	.00	6398.17	22253.87

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 70.00 CWSEL= 2057.89

STA=	15490.	15800.	16003.	21040.	21390.	21530.	22200.	22254.
PER Q=	1.9	.4	94.1	2.1	.5	1.0	.0	
AREA=	274.3	90.0	8485.1	309.7	88.9	257.8	10.4	
VEL=	1.4	.9	2.3	1.4	1.2	.8	.5	
DEPTH=	.9	.4	1.8	.9	.6	.4	.2	

*SECNO 80.000

3265 DIVIDED FLOW

80.000	2.74	2061.74	2060.95	.00	2061.83	.09	3.87	.00	2062.00
21000.0	428.7	18769.2	1802.1	270.1	7553.0	963.4	1358.6	1000.0	2060.50
.75	1.59	2.48	1.87	.060	.060	.060	.000	2059.00	15799.24
.005187	850.	850.	850.	5	14	0	.00	5949.27	22069.60

FLOW DISTRIBUTION FOR SECNO= 80.00 CWSEL= 2061.74

STA=	15799.	15930.	16000.	16186.	21100.	21680.	22070.
PER Q=	.9	.9	.3	89.4	7.1	1.5	
AREA=	114.0	87.0	69.1	7553.0	721.2	242.2	
VEL=	1.6	2.1	.9	2.5	2.1	1.3	
DEPTH=	.9	1.2	.4	1.6	1.2	.6	

*SECNO 90.000
3280 CROSS SECTION 90.00 EXTENDED .73 FEET

90.000	2.72	2065.72	2064.69	.00	2065.79	.07	3.95	.00	2065.00
21000.0	.0	20964.0	36.0	.0	10003.6	46.2	1553.2	1127.1	2065.00
.87	.00	2.10	.78	.000	.060	.060	.000	2063.00	15200.00
.003804	900.	900.	900.	3	14	0	.00	6352.19	21552.19

FLOW DISTRIBUTION FOR SECNO= 90.00 CWSEL= 2065.72

STA=	15200.	21425.	21552.
PER Q=	99.8	.2	
AREA=	10003.6	46.2	
VEL=	2.1	.8	
DEPTH=	1.6	.4	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .37

100.000	2.29	2069.29	2068.40	.00	2069.34	.05	3.55	.00	2069.50
8000.0	.0	8000.0	.0	.0	4526.0	.0	1703.8	1232.3	2070.00
1.01	.00	1.77	.00	.000	.060	.000	.000	2067.00	17181.16
.004078	900.	900.	900.	5	14	0	.00	3830.82	21011.99

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 2069.29

STA= 17181. 21150.
PER Q= 100.0
AREA= 4526.0
VEL= 1.8
DEPTH= 1.2

*SECNO 110.000
3280 CROSS SECTION 110.00 EXTENDED .25 FEET

110.000	3.25	2073.25	2072.30	.00	2073.30	.05	3.96	.00	2073.00
8000.0	.0	7995.8	4.2	.0	4613.2	10.9	1808.8	1321.5	2073.00
1.17	.00	1.73	.39	.000	.060	.060	.000	2070.00	16550.00
.003849	1000.	1000.	1000.	2	5	0	.00	3936.16	20486.16

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 2073.25

STA= 16550. 20400. 20486.
PER Q= 99.9 .1
AREA= 4613.2 10.9
VEL= 1.7 .4
DEPTH= 1.2 .1

*SECNO 120.000

3265 DIVIDED FLOW

3280 CROSS SECTION 120.00 EXTENDED .42 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
120.000	2.92	2076.92	2075.86	.00	2076.98	.06	3.68	.00	2076.50
8000.0	.0	8000.0	.0	.0	4231.8	.0	1890.1	1394.0	2078.00
1.29	.00	1.89	.00	.000	.060	.000	.000	2074.00	15970.00
.005343	800.	800.	800.	5	11	0	.00	3965.17	20084.52

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 2076.92

STA= 15970. 20300.
PER Q= 100.0
AREA= 4231.8
VEL= 1.9
DEPTH= 1.1

*SECNO 130.000
3280 CROSS SECTION 130.00 EXTENDED .61 FEET

130.000	2.61	2080.61	2079.81	.00	2080.65	.04	3.67	.00	2080.00
7000.0	.0	6839.3	160.7	.0	4175.6	165.8	1973.8	1471.5	2080.00
1.43	.00	1.64	.97	.000	.060	.060	.000	2078.00	15470.00
.003630	850.	850.	850.	5	12	0	.00	3973.43	19443.43

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 2080.61

STA= 15470. 19100. 19300. 19443.
PER Q= 97.7 1.9 .4
AREA= 4175.6 122.1 43.8
VEL= 1.6 1.1 .7
DEPTH= 1.2 .6 .3

*SECNO 140.000
3280 CROSS SECTION 140.00 EXTENDED .22 FEET

140.000	2.22	2084.22	2083.59	.00	2084.27	.05	3.61	.00	2084.00
7000.0	.0	6997.6	2.4	.0	3809.9	5.9	2051.5	1544.1	2084.00
1.56	.00	1.84	.40	.000	.060	.060	.000	2082.00	14850.00
.005081	830.	830.	830.	4	14	0	.00	3644.14	18494.14

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 140.00 CWSEL= 2084.22

STA=	14850.	18440.	18494.
PER Q=	100.0	.0	
AREA=	3809.9	5.9	
VEL=	1.8	.4	
DEPTH=	1.1	.1	

*SECNO 150.000

150.000	2.36	2088.36	2087.62	.00	2088.42	.06	4.15	.00	2088.50
8590.0	.0	8585.9	4.1	.0	4306.9	7.6	2130.8	1613.0	2088.00
1.68	.00	1.99	.54	.000	.060	.060	.000	2086.00	12940.20
.004690	850.	850.	850.	5	14	0	.00	3422.58	16362.77

FLOW DISTRIBUTION FOR SECNO= 150.00 CWSEL= 2088.36

STA=	12940.	16320.	16363.
PER Q=	100.0	.0	
AREA=	4306.9	7.6	
VEL=	2.0	.5	
DEPTH=	1.3	.2	

*SECNO 160.000
3280 CROSS SECTION 160.00 EXTENDED .80 FEET

160.000	1.80	2092.80	2091.89	.00	2092.87	.07	4.45	.00	2092.00
10220.0	.0	10153.0	67.0	.0	4778.4	80.1	2241.4	1692.2	2092.00
1.81	.00	2.12	.84	.000	.060	.060	.000	2091.00	10850.00
.003870	1050.	1050.	1050.	4	18	0	.00	3150.07	14000.07

FLOW DISTRIBUTION FOR SECNO= 160.00 CWSEL= 2092.80

STA=	10850.	13800.	14000.
PER Q=	99.3	.7	
AREA=	4778.4	80.1	
VEL=	2.1	.8	
DEPTH=	1.6	.4	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 161.000
3280 CROSS SECTION 161.00 EXTENDED 1.62 FEET

161.000	2.12	2098.12	2097.26	.00	2098.26	.13	5.37	.02	2096.50
14745.0	.0	14347.9	397.1	.0	4830.3	219.0	2363.1	1766.9	2096.50
1.92	.00	2.97	1.81	.000	.060	.060	.000	2096.00	10560.00
.006498	1070.	1070.	1070.	3	19	0	.00	2930.02	13490.02

FLOW DISTRIBUTION FOR SECNO= 161.00 CWSEL= 2098.12

STA=	10560.	13220.	13470.	13490.
PER Q=	97.3	2.7	.0	
AREA=	4830.3	217.8	1.2	
VEL=	3.0	1.8	.3	
DEPTH=	1.8	.9	.1	

*SECNO 162.000
3280 CROSS SECTION 162.00 EXTENDED 1.75 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.84

162.000	2.75	2103.25	2101.85	.00	2103.39	.13	5.13	.00	2101.50
21000.0	.0	20826.5	173.5	.0	7054.7	153.0	2510.8	1837.5	2102.00
2.02	.00	2.95	1.13	.000	.060	.060	.000	2100.50	10370.00
.003912	1050.	1050.	1050.	4	14	0	.00	2924.27	13294.27

FLOW DISTRIBUTION FOR SECNO= 162.00 CWSEL= 2103.25

STA=	10370.	13050.	13294.
PER Q=	99.2	.8	
AREA=	7054.7	153.0	
VEL=	3.0	1.1	
DEPTH=	2.6	.6	

THIS RUN EXECUTED 16AUG96 15:59:19

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
	10.000	2037.19	1.76	1.95	1.22	5787.65	14791.53	420.82	2.19	8700.00	14250.00	22950.00
	20.000	2039.90	1.48	2.19	.96	3869.68	16691.55	438.78	1.90	8721.19	14300.00	23021.19
	30.000	2043.35	1.13	2.26	1.02	1719.69	19018.99	261.32	2.85	7859.89	14450.00	22309.89
	40.000	2046.85	.89	2.33	1.40	485.78	18814.57	1699.65	2.35	7512.14	14500.00	22012.14
	50.000	2050.81	1.29	2.36	1.42	1006.91	18657.37	1335.72	2.31	7280.65	14830.00	22254.04
	60.000	2054.41	1.33	2.20	1.87	543.51	17210.70	3245.79	2.41	6458.64	15200.00	22107.59
	70.000	2057.89	1.31	2.33	1.15	476.29	19756.09	767.62	2.39	6398.17	15490.00	22253.87
	80.000	2061.74	1.59	2.48	1.87	428.70	18769.20	1802.10	2.74	5949.27	15799.24	22069.60
	90.000	2065.72	.00	2.10	.78	.00	20964.04	35.95	2.72	6352.19	15200.00	21552.19
*	100.000	2069.29	.00	1.77	.00	.00	8000.00	.00	2.29	3830.82	17181.16	21011.99
	110.000	2073.25	.00	1.73	.39	.00	7995.77	4.23	3.25	3936.16	16550.00	20486.16
	120.000	2076.92	.00	1.89	.00	.00	8000.00	.00	2.92	3965.17	15970.00	20084.52
	130.000	2080.61	.00	1.64	.97	.00	6839.34	160.66	2.61	3973.43	15470.00	19443.43
	140.000	2084.22	.00	1.84	.40	.00	6997.65	2.35	2.22	3644.14	14850.00	18494.14
	150.000	2088.36	.00	1.99	.54	.00	8585.90	4.09	2.36	3422.58	12940.20	16362.77
	160.000	2092.80	.00	2.12	.84	.00	10153.02	66.98	1.80	3150.07	10850.00	14000.07
	161.000	2098.12	.00	2.97	1.81	.00	14347.88	397.11	2.12	2930.02	10560.00	13490.02

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
*	162.000	2103.25	.00	2.95	1.13	.00	20826.50	173.50	2.75	2924.27	10370.00	13294.27

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
	10.000	2037.19	2036.47	2037.24	.00	.00	2035.00	39.98	.00	.00	.35	.29
	20.000	2039.90	2039.19	2039.96	2.71	.00	2038.00	41.03	4.48	670.00	.41	.30
	30.000	2043.35	2042.36	2043.42	3.46	.00	2040.50	37.70	2.84	880.00	.43	.30
	40.000	2046.85	2045.96	2046.93	3.50	.00	2044.50	41.92	4.55	880.00	.46	.31
	50.000	2050.81	2050.01	2050.89	3.96	.00	2048.50	46.11	4.44	900.00	.48	.32
	60.000	2054.41	2053.49	2054.48	3.60	.00	2052.00	37.44	4.02	870.00	.41	.29
	70.000	2057.89	2056.88	2057.97	3.48	.00	2055.50	39.87	3.89	900.00	.45	.31
	80.000	2061.74	2060.95	2061.83	3.87	.00	2059.00	51.87	4.12	850.00	.53	.34
	90.000	2065.72	2064.69	2065.79	3.95	.00	2063.00	38.04	4.44	900.00	.38	.29
*	100.000	2069.29	2068.40	2069.34	3.55	.00	2067.00	40.78	4.44	900.00	.30	.29
	110.000	2073.25	2072.30	2073.30	3.96	.00	2070.00	38.49	3.00	1000.00	.29	.28
	120.000	2076.92	2075.86	2076.98	3.68	.00	2074.00	53.43	5.00	800.00	.34	.33
	130.000	2080.61	2079.81	2080.65	3.67	.00	2078.00	36.30	4.71	850.00	.26	.27
	140.000	2084.22	2083.59	2084.27	3.61	.00	2082.00	50.81	4.82	830.00	.34	.31
	150.000	2088.36	2087.62	2088.42	4.15	.00	2086.00	46.90	4.71	850.00	.37	.31
	160.000	2092.80	2091.89	2092.87	4.45	.00	2091.00	38.70	4.76	1050.00	.39	.29
	161.000	2098.12	2097.26	2098.26	5.37	.02	2096.00	64.98	4.67	1070.00	.74	.39
*	162.000	2103.25	2101.85	2103.39	5.13	.00	2100.50	39.12	4.29	1050.00	.64	.32

SLA, INC.

EB3A.DAT
THIS RUN EXECUTED 21AUG96 14:54:51

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
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T1      Brawley Wash Floodplain Study (SLA No. PAZ-PDOT-10.6)
T2      East Branch Analysis in the immediate vicinity of the confluence
T3      100-year

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

       0        2        0        0     .000        0        0        0  2065.66        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      -1        0       -1        0        0        0       -1        0        0       15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        1       55       26       56       13       14       15        8        4
      53       54        0       38        1        2        3       11       12       42
       5       33       39       67       68

J6  IHLEQ     ICOPY    SUBDIV   STRTDS   RMILE

       1


NC     .06      .06      .06      0.1      0.3
QT        1     8500
X1     90.0       16    15200    17650        0        0        0        0        0        0
X3                                                  17950
GR  2065.0  15200.0  2064.0  15350.0  2064.0  17330.0  2064.5  17490.0  2065.0  17650.0
GR  2065.0  17950.0  2065.0  19120.0  2064.0  19400.0  2063.0  20083.0  2063.5  20480.0
GR  2063.5  20820.0  2063.0  20940.0  2063.5  21050.0  2064.0  21250.0  2066.0  21600.0
GR  2067.0  21770.0

QT        1     12000
X1    100.0       10    14900    17000      850      850      850        0        0        0
GR  2068.0  14900.0  2067.0  15040.0  2067.0  15770.0  2067.5  15900.0  2067.0  16000.0
GR  2066.5  16400.0  2067.0  16500.0  2067.0  16750.0  2068.0  17000.0  2069.5  17150.0

QT        1     12000
X1    110.0       13    13700    15640     1050     1050     1050        0        0        0
X3                                  13700.0
GR  2073.5  12620.0  2072.0  13000.0  2071.5  13700.0  2071.0  14030.0  2070.5  14220.0
GR  2070.5  14550.0  2071.0  14630.0  2070.5  14900.0  2070.0  15000.0  2071.0  15170.0
GR  2071.0  15450.0  2072.0  15640.0  2073.0  16300.0
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 90.000

3470 ENCROACHMENT STATIONS= .0 17950.0 TYPE= 1 TARGET= 17950.000

90.000	2.66	2065.66	2064.82	2065.66	2065.73	.07	.00	.00	2115.00
8500.0	.0	8260.2	239.8	.0	3831.8	198.0	.0	.0	2065.00
.00	.00	2.16	1.21	.000	.060	.060	.000	2063.00	15200.00
.004176	0.	0.	0.	0	17	0	.00	2750.00	17950.00

FLOW DISTRIBUTION FOR SECNO= 90.00 CWSEL= 2065.66

STA=	15200.	17650.	17950.
PER Q=	97.2	2.8	
AREA=	3831.8	198.0	
VEL=	2.2	1.2	
DEPTH=	1.6	.7	

*SECNO 100.000
3280 CROSS SECTION 100.00 EXTENDED 1.19 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.41

100.000	2.69	2069.19	2068.06	.00	2069.30	.11	3.56	.01	2068.00
12000.0	.0	11918.8	81.2	.0	4480.6	71.3	83.7	48.5	2068.00
.09	.00	2.66	1.14	.000	.060	.060	.000	2066.50	14900.00
.004203	850.	850.	850.	2	14	0	.00	2219.43	17119.43

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 2069.19

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 14900. 17000. 17119.
PER Q= 99.3 .7
AREA= 4480.6 71.3
VEL= 2.7 1.1
DEPTH= 2.1 .6

*SECNO 110.000
3280 CROSS SECTION 110.00 EXTENDED .18 FEET

3470 ENCROACHMENT STATIONS= 13700.0 16300.0 TYPE= 1 TARGET= -13700.000

110.000	3.18	2073.18	2071.90	.00	2073.28	.10	3.97	.00	2071.50
12000.0	.0	11496.3	503.7	.0	4511.1	448.6	198.4	106.6	2072.00
.21	.00	2.55	1.12	.000	.060	.060	.000	2070.00	13700.00
.003441	1050.	1050.	1050.	4	19	0	.00	2600.00	16300.00

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 2073.18

STA= 13700. 15640. 16300.
PER Q= 95.8 4.2
AREA= 4511.1 448.6
VEL= 2.5 1.1
DEPTH= 2.3 .7

SLA, INC.

THIS RUN EXECUTED 21AUG96 14:54:51

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
	90.000	2065.66	.00	2.16	1.21	.00	8260.19	239.81	2.66	2750.00	15200.00	17950.00
*	100.000	2069.19	.00	2.66	1.14	.00	11918.80	81.20	2.69	2219.43	14900.00	17119.43
	110.000	2073.18	.00	2.55	1.12	.00	11496.30	503.70	3.18	2600.00	13700.00	16300.00

047

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
	90.000	2065.66	2064.82	2065.73	.00	.00	2063.00	41.76	.00	.00	.41	.30
*	100.000	2069.19	2068.06	2069.30	3.56	.01	2066.50	42.03	4.12	850.00	.56	.32
	110.000	2073.18	2071.90	2073.28	3.97	.00	2070.00	34.41	3.33	1050.00	.50	.29

WTWB2.DAT
THIS RUN EXECUTED 13AUG96 14:35:28

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
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SPLIT FLOW BEING PERFORMED

SF      Weir Flow Analysis along the Eastern Boundary


TW      SEC  50 SEC  60
WS    5      50      60      -1     2.5
WC    0    2049     300    2050     600    2052     820    2054    1000    2055

TW      SEC  60 SEC  70
WS    5      60      70      -1     2.5
WC    0    2055     150    2056     500    2058     850    2060     950    2060
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T1      Brawley Wash Floodplain Study (SLA No. PAZ-P00T-10.6)
T2      West Tributary entering the West Branch
T3      100-year

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

        0       2        0        0     .004        0        0        0  2049.98        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

       -1       0       -1        0        0        0       -1        0        0        15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

       38       1       55       26       56       13       14       15        8        4
       53      54        0       38        1        2        3       11       12       42
        5      33       39       67       68

J6  IHLEQ    ICOPY    SUBDIV   STRTDS   RMILE

        1


NC     .06      .06      .06      0.1      0.3
QT       1     5000
X1    50.0        8     8320     8880        0        0        0        0        0        0
GR  2053.0   7080.0   2052.0   7640.0   2051.0   8150.0   2050.0   8320.0   2048.0   8470.0
GR  2048.0   8720.0   2049.0   8880.0   2049.0   9670.0

X1    60.0        9     8240     8880     1000     1000     1000        0        0        0
X3                                                9450
GR  2057.0   7370.0   2056.0   7750.0   2056.0   7930.0   2054.0   8240.0   2052.0   8320.0
GR  2052.0   8600.0   2054.0   8880.0   2055.0   9450.0   2054.0   9720.0

X1    70.0        7     8000     9480     1000     1000     1000        0        0        0
X3                                               10000
GR  2060.0   7900.0   2058.0   8000.0   2056.0   8370.0   2056.0   8870.0   2058.0   9480.0
GR  2060.0   9920.0   2060.0  10070.0

X1    80.0        7     7740     9600      900      900      900        0        0        0
X3                                                9850
GR  2065.0   7200.0   2064.0   7380.0   2062.0   7740.0   2060.0   8170.0   2060.0   9460.0
GR  2062.0   9600.0   2062.0  10380.0

X1    90.0        9     7550     9800      900      900      900        0        0        0
X3                                               10200
GR  2070.0   6900.0   2068.0   7380.0   2066.0   7550.0   2064.0   7930.0   2063.0   8028.0
GR  2063.0   9140.0   2064.0   9560.0   2066.0   9800.0   2066.0  10320.0
```

X1	100.0	11	7340	9400	870	870	870	0	0	0
X3						10080				
GR	2072.0	6800.0	2070.0	7340.0	2068.0	7630.0	2066.5	8300.0	2066.5	8500.0
GR	2067.5	8550.0	2067.5	9000.0	2068.0	9100.0	2070.0	9400.0	2070.0	9870.0
GR	2077.0	10080.0								
X1	110.0	11	6800	9620	870	870	870	0	0	0
X3						9900				
GR	2075.0	6370.0	2074.0	6800.0	2074.0	7400.0	2072.0	7800.0	2070.5	7970.0
GR	2070.0	8220.0	2070.0	8380.0	2071.0	8480.0	2072.0	9000.0	2074.0	9620.0
GR	2075.0	9900.0								
QT	1	4150								
X1	120.0	12	7140	8560	1000	1000	1000	0	0	0
X3				7174		9140				
GR	2079.0	5800.0	2078.0	6180.0	2077.5	6720.0	2076.0	6900.0	2078.0	7140.0
GR	2076.0	7670.0	2074.0	7900.0	2074.0	8050.0	2076.0	8260.0	2077.0	8560.0
GR	2077.0	8840.0	2078.0	9140.0						
X1	130.0	11	7100	8780	970	970	970	0	0	0
X3				7100		9000				
GR	2082.0	6050.0	2080.5	6560.0	2082.0	6740.0	2082.0	7100.0	2080.0	7320.0
GR	2078.0	7620.0	2078.0	7750.0	2079.5	8020.0	2080.0	8450.0	2082.0	8780.0
GR	2082.0	9020.0								
QT	1	5000								
X1	140.0	13	6560	7310	860	860	860	0	0	0
X3						8300				
GR	2085.5	5650.0	2085.0	5800.0	2084.0	5880.0	2083.5	6150.0	2083.5	6290.0
GR	2084.0	6420.0	2084.0	6560.0	2082.0	6600.0	2081.5	6740.0	2082.0	6830.0
GR	2084.0	7310.0	2085.5	7990.0	2085.5	8300.0				
X1	150.0	14	4100	5950	870	870	870	0	0	0
X3				4000		6250				
GR	2088.0	3100.0	2087.5	3600.0	2088.0	4000.0	2088.0	4100.0	2086.0	4400.0
GR	2085.5	4440.0	2085.5	4540.0	2085.5	4620.0	2085.5	4820.0	2085.5	5300.0
GR	2086.0	5400.0	2088.0	5950.0	2089.0	6250.0	2089.0	6800.0		
X1	160.0	12	1420	3820	850	850	850	0	0	0
X3						4300				
GR	2091.0	1420.0	2090.5	1580.0	2090.5	1840.0	2090.0	2220.0	2089.5	2350.0
GR	2089.5	2430.0	2089.5	2500.0	2089.5	2750.0	2090.0	3050.0	2090.0	3600.0
GR	2092.0	3820.0	2092.0	4400.0						
X1	161.0	10	1100	3550	500	500	500	0	0	0
X3						4000				
GR	2094.0	1100.0	2092.0	1150.0	2092.0	1930.0	2091.5	2090.0	2091.5	2620.0
GR	2092.0	2780.0	2093.0	3350.0	2094.0	3550.0	2095.0	3820.0	2095.0	4000.0

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 50.000
3280 CROSS SECTION 50.00 EXTENDED .96 FEET

50.000	1.96	2049.96	2049.31	2049.98	2050.01	.06	.00	.00	2050.00
2950.9	.0	1808.9	1142.0	.0	866.3	756.4	.0	.0	2049.00
.00	.00	2.09	1.51	.000	.060	.060	.000	2048.00	8323.19
.003943	0.	0.	0.	0	21	4	.00	1346.81	9670.00

FLOW DISTRIBUTION FOR SECNO= 50.00 CWSEL= 2049.96

STA=	8323.	8880. 9670.
PER Q=	61.3	38.7
AREA=	866.3	756.4
VEL=	2.1	1.5
DEPTH=	1.6	1.0

*SECNO 60.000
3280 CROSS SECTION 60.00 EXTENDED .80 FEET

3470 ENCROACHMENT STATIONS= .0. 9450.0 TYPE= 1 TARGET= 9449.999

60.000	2.80	2054.80	2053.76	.00	2054.96	.16	4.92	.03	2054.00
5000.0	52.4	4755.0	192.6	49.7	1432.5	182.8	37.7	29.5	2054.00
.09	1.05	3.32	1.05	.060	.060	.060	.000	2052.00	8115.88
.006135	1000.	1000.	1000.	4	11	0	.00	1220.57	9336.44

FLOW DISTRIBUTION FOR SECNO= 60.00 CWSEL= 2054.80

STA=	8116.	8240.	8880. 9336.
PER Q=	1.0	95.1	3.9
AREA=	49.7	1432.5	182.8
VEL=	1.1	3.3	1.1
DEPTH=	.4	2.2	.4

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 70.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.56

3470 ENCROACHMENT STATIONS= .0 10000.0 TYPE= 1 TARGET= 9999.999

70.000	2.49	2058.49	2057.19	.00	2058.54	.05	3.56	.01	2058.00
5000.0	2.8	4984.9	12.3	5.8	2694.0	25.6	88.1	62.0	2058.00
.24	.48	1.85	.48	.060	.060	.060	.000	2056.00	7975.88
.002511	1000.	1000.	1000.	4	14	0	.00	1610.25	9586.13

FLOW DISTRIBUTION FOR SECNO= 70.00 CWSEL= 2058.49

STA=	7976.	8000.	9480.	9586.
PER Q=	.1	99.7	.2	
AREA=	5.8	2694.0	25.6	
VEL=	.5	1.9	.5	
DEPTH=	.2	1.8	.2	

*SECNO 80.000

3470 ENCROACHMENT STATIONS= .0 9850.0 TYPE= 1 TARGET= 9849.999

80.000	1.61	2061.61	2060.75	.00	2061.68	.07	3.13	.00	2062.00
5000.0	.0	5000.0	.0	.0	2428.5	.0	141.4	96.6	2062.00
.36	.00	2.06	.00	.000	.060	.000	.000	2060.00	7826.03
.004451	900.	900.	900.	4	17	0	.00	1745.96	9571.99

FLOW DISTRIBUTION FOR SECNO= 80.00 CWSEL= 2061.61

STA=	7826.	9600.
PER Q=	100.0	
AREA=	2428.5	
VEL=	2.1	
DEPTH=	1.4	

*SECNO 90.000

3470 ENCROACHMENT STATIONS= .0 10200.0 TYPE= 1 TARGET= 10200.000

90.000	1.83	2064.83	2063.80	.00	2064.88	.05	3.20	.00	2066.00
5000.0	.0	5000.0	.0	.0	2830.8	.0	195.7	134.2	2066.00
.50	.00	1.77	.00	.000	.060	.000	.000	2063.00	7772.29
.002962	900.	900.	900.	4	8	0	.00	1887.32	9659.61

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 90.00 CWSEL= 2064.83

STA= 7772. 9800.
PER Q= 100.0
AREA= 2830.8
VEL= 1.8
DEPTH= 1.5

*SECNO 100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

3470 ENCROACHMENT STATIONS= .0 10080.0 TYPE= 1 TARGET= 10080.000

100.000	2.15	2068.65	2067.95	.00	2068.73	.09	3.84	.01	2070.00
5000.0	.0	5000.0	.0	.0	2116.1	.0	245.1	169.6	2070.00
.60	.00	2.36	.00	.000	.060	.000	.000	2066.50	7536.12
.006590	870.	870.	870.	5	15	0	.00	1661.00	9197.12

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 2068.65

STA= 7536. 9400.
PER Q= 100.0
AREA= 2116.1
VEL= 2.4
DEPTH= 1.3

*SECNO 110.000

3470 ENCROACHMENT STATIONS= .0 9900.0 TYPE= 1 TARGET= 9899.999

110.000	2.84	2072.84	2071.64	.00	2072.90	.06	4.16	.00	2074.00
5000.0	.0	5000.0	.0	.0	2485.1	.0	291.1	202.5	2074.00
.72	.00	2.01	.00	.000	.060	.000	.000	2070.00	7631.74
.003758	870.	870.	870.	4	15	0	.00	1629.07	9260.81

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 2072.84

STA= 7632. 9620.
PER Q= 100.0
AREA= 2485.1
VEL= 2.0
DEPTH= 1.5

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 120.000

3470 ENCROACHMENT STATIONS= 7174.0 9140.0 TYPE= 1 TARGET= 1966.000

120.000	3.16	2077.16	2075.87	.00	2077.24	.08	4.33	.01	100000.00
4150.0	.0	4126.2	23.8	.0	1798.0	47.9	340.8	238.7	2077.00
.84	.00	2.29	.50	.000	.060	.060	.000	2074.00	7363.19
.004990	1000.	1000.	1000.	4	14	0	.00	1524.13	8887.31

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 2077.16

STA=	7363.	8560.	8840.	8887.
PER Q=	99.4	.5	.0	
AREA=	1798.0	44.2	3.7	
VEL=	2.3	.5	.3	
DEPTH=	1.5	.2	.1	

*SECNO 130.000

3470 ENCROACHMENT STATIONS= 7100.0 9000.0 TYPE= 1 TARGET= 1900.000

130.000	2.95	2080.95	2079.78	.00	2081.00	.06	3.76	.00	2082.00
4150.0	.0	4150.0	.0	.0	2194.7	.0	385.8	271.1	2082.00
.99	.00	1.89	.00	.000	.060	.000	.000	2078.00	7216.12
.003169	970.	970.	970.	4	11	0	.00	1389.69	8605.82

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 2080.95

STA=	7216.	8780.
PER Q=	100.0	
AREA=	2194.7	
VEL=	1.9	
DEPTH=	1.6	

*SECNO 140.000

3470 ENCROACHMENT STATIONS= .0 8300.0 TYPE= 1 TARGET= 8299.999

140.000	3.03	2084.53	2083.74	.00	2084.64	.11	3.63	.02	2084.00
5000.0	857.5	4094.5	48.1	539.7	1433.0	63.0	427.5	301.7	2084.00
1.08	1.59	2.86	.76	.060	.060	.060	.000	2081.50	5837.81
.005614	860.	860.	860.	3	15	0	.00	1711.25	7549.06

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 140.00 CWSEL= 2084.53

STA=	5838.	5880.	6150.	6290.	6420.	6560.	7310.	7549.
PER Q=	.2	6.6	5.4	3.2	1.8	81.9	1.0	
AREA=	11.1	209.9	143.8	101.1	73.8	1433.0	63.0	
VEL=	.8	1.6	1.9	1.6	1.2	2.9	.8	
DEPTH=	.3	.8	1.0	.8	.5	1.9	.3	

*SECNO 150.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.46

3470 ENCROACHMENT STATIONS= 4000.0 6250.0 TYPE= 1 TARGET= 2250.000

150.000	2.23	2087.73	2086.46	.00	2087.78	.05	3.13	.01	2088.00
5000.0	.0	5000.0	.0	.0	2832.2	.0	476.1	336.1	2088.00
1.21	.00	1.77	.00	.000	.060	.000	.000	2085.50	4140.39
.002645	870.	870.	870.	5	17	0	.00	1735.55	5875.95

FLOW DISTRIBUTION FOR SECNO= 150.00 CWSEL= 2087.73

STA=	4140.	5950.
PER Q=	100.0	
AREA=	2832.2	
VEL=	1.8	
DEPTH=	1.6	

*SECNO 160.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .70

3470 ENCROACHMENT STATIONS= .0 4300.0 TYPE= 1 TARGET= 4299.999

160.000	1.66	2091.16	2090.52	.00	2091.22	.06	3.44	.00	2141.00
5000.0	.0	5000.0	.0	.0	2556.7	.0	528.7	375.6	2092.00
1.34	.00	1.96	.00	.000	.060	.000	.000	2089.50	1420.00
.005439	850.	850.	850.	4	14	0	.00	2307.19	3727.19

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IBC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 160.00 CWSEL= 2091.16

STA= 1420. 3820.
PER Q= 100.0
AREA= 2556.7
VEL= 2.0
DEPTH= 1.1

*SECNO 161.000

3470 ENCROACHMENT STATIONS= .0 4000.0 TYPE= 1 TARGET= 3999.999

161.000	1.79	2093.29	2092.45	.00	2093.33	.05	2.12	.00	2144.00
5000.0	.0	5000.0	.0	.0	2918.4	.0	560.1	402.0	2094.00
1.42	.00	1.71	.00	.000	.060	.000	.000	2091.50	1117.85
.003462	500.	500.	500.	3	11	0	.00	2289.38	3407.23

FLOW DISTRIBUTION FOR SECNO= 161.00 CWSEL= 2093.29

STA= 1118. 3550.
PER Q= 100.0
AREA= 2918.4
VEL= 1.7
DEPTH= 1.3

05

TW SEC 50 SEC 60

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
2049.13	2049.32	.01	2049.13	2049.32	.01	5	2049.958	2054.800	50.000	60.000

TW SEC 60 SEC 70

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	2049.13	2049.32	.01	5	2054.800	2058.486	60.000	70.000

THIS RUN EXECUTED 13AUG96 14:35:30

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
	50.000	2049.96	.00	2.09	1.51	.00	1808.91	1141.96	1.96	1346.81	8323.19	9670.00
	60.000	2054.80	1.05	3.32	1.05	52.37	4755.04	192.59	2.80	1220.57	8115.88	9336.44
*	70.000	2058.49	.48	1.85	.48	2.80	4984.89	12.31	2.49	1610.25	7975.88	9586.13
	80.000	2061.61	.00	2.06	.00	.00	5000.00	.00	1.61	1745.96	7826.03	9571.99
	90.000	2064.83	.00	1.77	.00	.00	5000.00	.00	1.83	1887.32	7772.29	9659.61
*	100.000	2068.65	.00	2.36	.00	.00	5000.00	.00	2.15	1661.00	7536.12	9197.12
	110.000	2072.84	.00	2.01	.00	.00	5000.00	.00	2.84	1629.07	7631.74	9260.81
	120.000	2077.16	.00	2.29	.50	.00	4126.25	23.75	3.16	1524.13	7363.19	8887.31
	130.000	2080.95	.00	1.89	.00	.00	4150.00	.00	2.95	1389.69	7216.12	8605.82
	140.000	2084.53	1.59	2.86	.76	857.45	4094.45	48.09	3.03	1711.25	5837.81	7549.06
*	150.000	2087.73	.00	1.77	.00	.00	5000.00	.00	2.23	1735.55	4140.39	5875.95
*	160.000	2091.16	.00	1.96	.00	.00	5000.00	.00	1.66	2307.19	1420.00	3727.19
	161.000	2093.29	.00	1.71	.00	.00	5000.00	.00	1.79	2289.38	1117.85	3407.23

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
	50.000	2049.96	2049.31	2050.01	.00	.00	2048.00	39.43	.00	.00	.38	.30
	60.000	2054.80	2053.76	2054.96	4.92	.03	2052.00	61.35	4.00	1000.00	.86	.39
*	70.000	2058.49	2057.19	2058.54	3.56	.01	2056.00	25.11	4.00	1000.00	.29	.24
	80.000	2061.61	2060.75	2061.68	3.13	.00	2060.00	44.51	4.44	900.00	.39	.31
	90.000	2064.83	2063.80	2064.88	3.20	.00	2063.00	29.62	3.33	900.00	.28	.25
*	100.000	2068.65	2067.95	2068.73	3.84	.01	2066.50	65.90	4.02	870.00	.52	.37
	110.000	2072.84	2071.64	2072.90	4.16	.00	2070.00	37.58	4.02	870.00	.36	.29
	120.000	2077.16	2075.87	2077.24	4.33	.01	2074.00	49.90	4.00	1000.00	.47	.33
	130.000	2080.95	2079.78	2081.00	3.76	.00	2078.00	31.69	4.12	970.00	.31	.27
	140.000	2084.53	2083.74	2084.64	3.63	.02	2081.50	56.14	4.07	860.00	.67	.36
*	150.000	2087.73	2086.46	2087.78	3.13	.01	2085.50	26.45	4.60	870.00	.27	.24
*	160.000	2091.16	2090.52	2091.22	3.44	.00	2089.50	54.39	4.71	850.00	.38	.33
	161.000	2093.29	2092.45	2093.33	2.12	.00	2091.50	34.62	4.00	500.00	.28	.27

061

W5WT.DAT
THIS RUN EXECUTED 12AUG96 10:58:09

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
**************************************


SPLIT FLOW BEING PERFORMED


SF      Weir Flow Analysis along the Western Boundary


TW      SEC  121.0 SEC  122.0
WS    3   121.0   122.0      -1     2.5
WC    0    2078     300    2078     425    2079

TW      SEC  122.0 SEC  122.0
WS    3   122.0   123.0      -1     2.5
WC    0    2079     200    2079     500    2080

TW      SEC  123.0 SEC  130.0
WS    3   123.0   130.0      -1     2.5
WC    0    2080     550    2082     650  2080.5
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062

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T1      Brawley Wash Floodplain Study (SLA No. PAZ-PDOT-10.6)
T2      West Split along the West Tributary to the West Branch
T3      100-year

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

        0       2        0        0     .005        0        0        0  2077.16        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

       -1       0       -1        0        0        0       -1        0        0        15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

       38       1       55       26       56       13       14       15        8        4
       53      54        0       38        1        2        3       11       12       42
        5      33       39       67       68

J6  IHLEQ     ICOPY    SUBDIV   STRTDS   RMILE

        1


NC      .06      .06      .06      0.1      0.3
QT        1      850
X1    121.0       12     1020     1110        0        0        0        0        0        0
GR   2078.0      0.0   2077.0    100.0   2077.0    680.0   2078.0    830.0   2078.0   1000.0
GR   2076.0   1020.0   2074.0   1070.0   2076.0   1110.0   2077.0   1170.0   2077.5   1330.0
GR   2078.0   1600.0   2078.5   1650.0

X1    122.0        9      820     1170      400      470      470        0        0        0
GR   2079.0      0.0   2078.0    250.0   2077.5    820.0   2076.0    980.0   2076.0   1020.0
GR   2078.0   1170.0   2079.0   1300.0   2080.0   1420.0   2081.0   1650.0

X1    123.0        7      420     1200      500      250      400        0        0        0
GR   2080.0      0.0   2079.5    200.0   2079.5    420.0   2078.5    750.0   2078.5    950.0
GR   2080.0   1200.0   2081.0   1500.0

X1    130.0        5     6050     6740      600      400      500        0        0        0
GR   2082.5   5850.0   2082.0   6050.0   2080.5   6560.0   2082.0   6740.0   2082.5   6940.0
```

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 121.000

3265 DIVIDED FLOW

121.000	3.16	2077.16	2076.23	2077.16	2077.28	.12	.00	.00	2076.00
685.8	57.6	573.8	54.4	102.7	194.4	43.7	.0	.0	2076.00
.00	.56	2.95	1.24	.060	.060	.060	.000	2074.00	84.01
.005094	0.	0.	0.	0	17	0	.00	832.75	1221.17

FLOW DISTRIBUTION FOR SECNO= 121.00 CWSEL= 2077.16

STA=	84.	100.	680.	704.	1020.	1110.	1170.	1221.
PER Q=	.1	7.0	.1	1.2	83.7	7.7	.2	
AREA=	1.3	92.7	1.9	6.7	194.4	39.6	4.1	
VEL=	.3	.5	.3	1.2	3.0	1.3	.3	
DEPTH=	.1	.2	.1	.0	2.2	.7	.1	

*SECNO 122.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.02

122.000	2.20	2078.20	2077.09	.00	2078.21	.02	.93	.01	2077.50
685.8	131.3	554.0	.5	259.4	498.8	2.5	5.7	8.9	2078.00
.13	.51	1.11	.19	.060	.060	.060	.000	2076.00	200.87
.001254	400.	470.	470.	4	22	0	.00	994.68	1195.55

FLOW DISTRIBUTION FOR SECNO= 122.00 CWSEL= 2078.20

STA=	201.	250.	820.	1170.	1196.
PER Q=	.1	19.0	80.8	.1	
AREA=	4.8	254.5	498.8	2.5	
VEL=	.2	.5	1.1	.2	
DEPTH=	.1	.4	1.4	.1	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 123.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .48

123.000	1.04	2079.54	2079.06	.00	2079.57	.03	1.36	.00	2079.50
685.8	2.8	682.9	.0	11.6	483.6	.0	11.7	18.7	2080.00
.21	.24	1.41	.00	.060	.060	.000	.000	2078.50	179.88
.005376	500.	400.	250.	4	14	0	.00	945.17	1125.05

FLOW DISTRIBUTION FOR SECNO= 123.00 CWSEL= 2079.54

STA=	180.	200.	420.	1200.
PER Q=	.0	.4	99.6	
AREA=	.5	11.1	483.6	
VEL=	.2	.2	1.4	
DEPTH=	.0	.1	.7	

*SECNO 130.000

130.000	1.57	2082.07	2081.46	.00	2082.11	.03	2.53	.00	2082.00
850.0	.2	849.6	.2	1.0	566.4	1.0	17.8	28.7	2082.00
.30	.18	1.50	.18	.060	.060	.060	.000	2080.50	6021.68
.004774	600.	500.	400.	3	11	0	.00	746.64	6768.32

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 2082.07

STA=	6022.	6050.	6740.	6768.
PER Q=	.0	100.0	.0	
AREA=	1.0	566.4	1.0	
VEL=	.2	1.5	.2	
DEPTH=	.0	.8	.0	

TW SEC 121.0 SEC 122.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	5	2077.160	2078.196	121.000	122.000

TW SEC 122.0 SEC 122.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	5	2078.196	2079.544	122.000	123.000

TW SEC 123.0 SEC 130.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
164.23	163.67	.34	164.23	163.67	.34	5	2079.544	2082.071	123.000	130.000

THIS RUN EXECUTED 12AUG96 10:58:10

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
	121.000	2077.16	.56	2.95	1.24	57.59	573.79	54.39	3.16	832.75	84.01	1221.17
*	122.000	2078.20	.51	1.11	.19	131.31	553.98	.47	2.20	994.68	200.87	1195.55
*	123.000	2079.54	.24	1.41	.00	2.82	682.95	.00	1.04	945.17	179.88	1125.05
	130.000	2082.07	.18	1.50	.18	.18	849.63	.18	1.57	746.64	6021.68	6768.32

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
	121.000	2077.16	2076.23	2077.28	.00	.00	2074.00	50.94	.00	.00	.69	.35
*	122.000	2078.20	2077.09	2078.21	.93	.01	2076.00	12.54	4.26	470.00	.11	.16
*	123.000	2079.54	2079.06	2079.57	1.36	.00	2078.50	53.76	6.25	400.00	.23	.30
	130.000	2082.07	2081.46	2082.11	2.53	.00	2080.50	47.74	4.00	500.00	.24	.29

WCWT2.DAT
THIS RUN EXECUTED 27AUG96 16:23:30

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
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T1     Brawley Wash Floodplain Study (SLA No. PAZ-PDOT-10.6)
T2     West Corridor Analysis (includes the West Tributary)
T3     100-year

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

       0        2        0        0     .003        0        0        0     2044        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      -1        0       -1        0        0        0       -1        0        0       15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        1       55       26       56       13       14       15        8        4
      53       54        0       38        1        2        3       11       12       42
       5       33       39       67       68

J6  IHLEQ     ICOPY    SUBDIV   STRTDS   RMILE

       1


NC      .06      .06      .06      0.1      0.3
QT        1      900
X1     35.0        8        0     1300        0        0        0        0        0        0
GR   2044.0      0.0   2042.0    130.0   2038.0    140.0   2038.0    190.0   2040.0    210.0
GR   2040.0   1020.0   2042.0   1100.0   2044.0   1300.0

X1     40.0        8     2150     3820      600      600      600        0        0        0
GR   2046.0   2150.0   2044.0   2420.0   2043.0   2610.0   2043.0   2860.0   2043.5   3140.0
GR   2043.5   3420.0   2044.0   3500.0   2046.0   3820.0

X1     50.0        4     2160     3720     1400     1400     1400        0        0        0
GR   2050.0   2160.0   2049.0   2620.0   2049.0   2970.0   2050.0   3720.0

X1     60.0        4     2650     4250     1270     1270     1270        0        0        0
GR   2056.0   2650.0   2054.0   2880.0   2054.0   3720.0   2056.0   4250.0
```

X1	70.0	4	2950	4440	1150	1500	1500	0	0	0
GR	2060.0	2950.0	2058.0	4030.0	2058.0	4310.0	2060.0	4440.0		
X1	80.0	6	3500	5220	1070	1070	1070	0	0	0
GR	2064.0	3500.0	2063.0	3700.0	2063.0	4250.0	2062.0	4420.0	2062.0	4700.0
GR	2064.0	5220.0								
X1	90.0	5	3000	5750	950	950	950	0	0	0
GR	2068.0	3000.0	2066.5	3180.0	2066.5	4220.0	2066.5	5100.0	2068.0	5750.0
X1	100.0	7	3500	6700	900	900	900	0	0	0
GR	2072.0	3500.0	2070.0	3800.0	2070.0	4650.0	2070.5	5000.0	2071.0	5560.0
GR	2071.0	6250.0	2072.0	6700.0						
X1	110.0	8	3130	5800	900	900	900	0	0	0
GR	2078.0	3130.0	2076.0	3300.0	2074.0	3650.0	2074.0	4740.0	2075.0	5000.0
GR	2075.0	5130.0	2074.5	5300.0	2075.0	5800.0				
X1	120.0	7	3400	5800	1050	1050	1050	0	0	0
GR	2082.0	3050.0	2080.0	3400.0	2079.5	3550.0	2079.5	4700.0	2079.5	5080.0
GR	2078.5	5370.0	2079.0	5800.0						
X1	130.0	6	3250	5850	1050	1050	1050	0	0	0
GR	2084.0	3250.0	2082.5	4000.0	2082.5	5250.0	2082.0	5420.0	2082.0	5800.0
GR	2082.5	5850.0								
X1	140.0	7	3750	5680	950	950	950	0	0	0
GR	2088.0	2850.0	2086.0	3750.0	2085.5	4000.0	2085.0	4640.0	2084.5	5000.0
GR	2085.0	5360.0	2085.5	5680.0						
X1	150.0	4	2370	3500	830	830	830	0	0	0
GR	2090.0	1250.0	2088.0	2370.0	2087.5	2550.0	2087.5	3500.0		
X1	-90.0	5	3000	5750	950	950	950	0	0	0
GR	2068.0	3000.0	2066.5	3180.0	2066.5	4220.0	2066.5	5100.0	2068.0	5750.0
X1	100.1	4	2000	3320	850	850	850	0	0	0
GR	2072.0	2000.0	2070.0	2670.0	2070.0	2900.0	2072.0	3320.0		
X1	110.1	4	1380	2380	1200	1200	1200	0	0	0
GR	2077.0	1380.0	2076.0	1660.0	2076.0	2220.0	2077.0	2380.0		
X1	120.1	8	0	2020	1700	1700	1700	0	0	0
X5	1	2086.12								
GR	2087.0	0.0	2086.0	300.0	2085.5	750.0	2085.0	860.0	2085.5	950.0
GR	2085.5	1700.0	2086.0	1830.0	2087.0	2020.0				

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300

*SECNO 35.000

35.000	2.70	2040.70	2040.14	2044.00	2040.72	.02	.00	.00	2044.00
900.0	.0	900.0	.0	.0	755.5	.0	.0	.0	2044.00
.00	.00	1.19	.00	.000	.060	.000	.000	2038.00	133.25
.002988	0.	0.	0.	0	16	6	.00	914.78	1048.03

FLOW DISTRIBUTION FOR SECNO= 35.00 CWSEL= 2040.70

STA= 133. 1300.
PER Q= 100.0
AREA= 755.5
VEL= 1.2
DEPTH= .8

*SECNO 40.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .62

40.000	.90	2043.90	2043.57	.00	2043.93	.04	3.20	.00	2046.00
900.0	.0	900.0	.0	.0	599.1	.0	9.3	13.5	2046.00
.11	.00	1.50	.00	.000	.060	.000	.000	2043.00	2440.76
.007694	600.	600.	600.	5	21	0	.00	1041.76	3482.52

FLOW DISTRIBUTION FOR SECNO= 40.00 CWSEL= 2043.90

STA= 2441. 3820.
PER Q= 100.0
AREA= 599.1
VEL= 1.5
DEPTH= .6

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 50.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.60

50.000	.98	2049.98	2049.45	.00	2050.00	.01	6.07	.00	2050.00
900.0	.0	900.0	.0	.0	927.4	.0	33.9	54.9	2050.00
.51	.00	.97	.00	.000	.060	.000	.000	2049.00	2168.20
.003015	1400.	1400.	1400.	6	8	0	.00	1538.44	3706.63

FLOW DISTRIBUTION FOR SECNO= 50.00 CWSEL= 2049.98

STA= 2168. 3720.
PER Q= 100.0
AREA= 927.4
VEL= 1.0
DEPTH= .6

*SECNO 60.000

60.000	.74	2054.74	2054.32	.00	2054.76	.02	4.76	.00	2056.00
900.0	.0	900.0	.0	.0	725.6	.0	58.0	93.7	2056.00
.80	.00	1.24	.00	.000	.060	.000	.000	2054.00	2794.90
.004480	1270.	1270.	1270.	5	17	0	.00	1121.20	3916.10

FLOW DISTRIBUTION FOR SECNO= 60.00 CWSEL= 2054.74

STA= 2795. 4250.
PER Q= 100.0
AREA= 725.6
VEL= 1.2
DEPTH= .6

*SECNO 70.000

70.000	1.29	2059.29	2058.55	.00	2059.31	.02	4.55	.00	2060.00
900.0	.0	900.0	.0	.0	868.5	.0	85.4	131.3	2060.00
1.20	.00	1.04	.00	.000	.060	.000	.000	2058.00	3331.40
.002291	1150.	1500.	1500.	5	15	0	.00	1062.69	4394.09

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 70.00 CWSEL= 2059.29

STA= 3331. 4440.
PER Q= 100.0
AREA= 868.5
VEL= 1.0
DEPTH= .8

*SECNO 80.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

80.000	1.17	2063.17	2062.58	.00	2063.20	.02	3.89	.00	2064.00
900.0	.0	900.0	.0	.0	722.9	.0	105.0	160.8	2064.00
1.44	.00	1.24	.00	.000	.060	.000	.000	2062.00	3664.94
.005757	1070.	1070.	1070.	4	14	0	.00	1340.63	5005.58

FLOW DISTRIBUTION FOR SECNO= 80.00 CWSEL= 2063.17

STA= 3665. 5220.
PER Q= 100.0
AREA= 722.9
VEL= 1.2
DEPTH= .5

*SECNO 90.000

90.000	.51	2067.01	2066.69	.00	2067.02	.01	3.83	.00	2068.00
900.0	.0	900.0	.0	.0	1062.5	.0	124.4	199.5	2068.00
1.75	.00	.85	.00	.000	.060	.000	.000	2066.50	3118.18
.003097	950.	950.	950.	4	20	0	.00	2205.04	5323.23

FLOW DISTRIBUTION FOR SECNO= 90.00 CWSEL= 2067.01

STA= 3118. 5750.
PER Q= 100.0
AREA= 1062.5
VEL= .8
DEPTH= .5

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 100.000

100.000	.67	2070.67	2070.31	.00	2070.69	.02	3.67	.00	2072.00
900.0	.0	900.0	.0	.0	771.7	.0	143.4	237.7	2072.00
1.96	.00	1.17	.00	.000	.060	.000	.000	2070.00	3698.96
.005358	900.	900.	900.	5	14	0	.00	1495.45	5194.41

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 2070.67

STA= 3699. 6700.
PER Q= 100.0
AREA= 771.7
VEL= 1.2
DEPTH= .5

*SECNO 110.000

3265 DIVIDED FLOW

110.000	.70	2074.70	2074.27	.00	2074.71	.02	4.02	.00	2078.00
900.0	.0	900.0	.0	.0	889.0	.0	160.5	270.3	2075.00
2.21	.00	1.01	.00	.000	.060	.000	.000	2074.00	3528.28
.003825	900.	900.	900.	3	18	0	.00	1654.61	5495.56

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 2074.70

STA= 3528. 5800.
PER Q= 100.0
AREA= 889.0
VEL= 1.0
DEPTH= .5

*SECNO 120.000
3280 CROSS SECTION 120.00 EXTENDED .69 FEET

120.000	1.19	2079.69	2079.18	.00	2079.70	.02	4.99	.00	2080.00
900.0	.0	900.0	.0	.0	891.3	.0	182.0	318.0	2079.00
2.50	.00	1.01	.00	.000	.060	.000	.000	2078.50	3494.19
.005907	1050.	1050.	1050.	8	8	0	.00	2305.81	5800.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 2079.69

STA= 3494. 5800.
PER Q= 100.0
AREA= 891.3
VEL= 1.0
DEPTH= .4

*SECNO 130.000
3280 CROSS SECTION 130.00 EXTENDED .47 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.67

130.000	.96	2082.96	2082.57	.00	2082.97	.01	3.27	.00	2084.00
900.0	.0	900.0	.0	.0	1165.1	.0	206.8	370.9	2082.50
2.88	.00	.77	.00	.000	.060	.000	.000	2082.00	3766.11
.002113	1050.	1050.	1050.	6	13	0	.00	2083.89	5850.00

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 2082.96

STA= 3766. 5850.
PER Q= 100.0
AREA= 1165.1
VEL= .8
DEPTH= .6

*SECNO 140.000
3280 CROSS SECTION 140.00 EXTENDED .08 FEET

140.000	1.08	2085.58	2085.13	.00	2085.60	.01	2.62	.00	2086.00
900.0	.0	900.0	.0	.0	919.1	.0	229.5	412.4	2085.50
3.15	.00	.98	.00	.000	.060	.000	.000	2084.50	3959.11
.003608	950.	950.	950.	5	14	0	.00	1720.89	5680.00

FLOW DISTRIBUTION FOR SECNO= 140.00 CWSEL= 2085.58

STA= 3959. 5680.
PER Q= 100.0
AREA= 919.1
VEL= 1.0
DEPTH= .5

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 150.000
3280 CROSS SECTION 150.00 EXTENDED .77 FEET

150.000	.77	2088.27	2087.80	.00	2088.29	.02	2.69	.00	2088.00
900.0	7.0	893.0	.0	20.0	822.4	.0	246.3	441.0	2087.50
3.36	.35	1.09	.00	.060	.060	.000	.000	2087.50	2220.16
.002939	830.	830.	830.	4	14	0	.00	1279.84	3500.00

FLOW DISTRIBUTION FOR SECNO= 150.00 CWSEL= 2088.27

STA=	2220.	2370. 3500.
PER Q=	.8	99.2
AREA=	20.0	822.4
VEL=	.4	1.1
DEPTH=	.1	.7

*SECNO -90.000
START TRIB COMP

-90.000	90.000	2067.013							
-90.000	.51	2067.01	.00	.00	2067.02	.01	2.98	-.29	2068.00
900.0	.0	900.0	.0	.0	1058.7	.0	267.0	479.0	2068.00
3.67	.00	.85	.00	.000	.060	.000	.000	2066.50	3118.39
.003132	950.	950.	950.	0	0	0	.00	2204.10	5322.49

FLOW DISTRIBUTION FOR SECNO= -90.00 CWSEL= 2067.01

STA=	3118.	5750.
PER Q=	100.0	
AREA=	1058.7	
VEL=	.9	
DEPTH=	.5	

*SECNO 100.100

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .65

100.100	1.06	2071.06	2070.61	.00	2071.10	.04	4.07	.01	2072.00
900.0	.0	900.0	.0	.0	549.0	.0	282.7	508.3	2072.00
3.81	.00	1.64	.00	.000	.060	.000	.000	2070.00	2315.29
.007322	850.	850.	850.	4	8	0	.00	807.07	3122.36

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 100.10 CWSEL= 2071.06

STA= 2315. 3320.
PER Q= 100.0
AREA= 549.0
VEL= 1.6
DEPTH= .7

*SECNO 110.100

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.41

110.100	.95	2076.95	2076.41	.00	2076.97	.02	5.87	.00	2077.00
900.0	.0	900.0	.0	.0	729.3	.0	300.3	532.9	2077.00
4.08	.00	1.23	.00	.000	.060	.000	.000	2076.00	1394.36
.003669	1200.	1200.	1200.	5	18	0	.00	977.44	2371.80

FLOW DISTRIBUTION FOR SECNO= 110.10 CWSEL= 2076.95

STA= 1394. 2380.
PER Q= 100.0
AREA= 729.3
VEL= 1.2
DEPTH= .7

*SECNO 120.100
WATER EL=X5 CARD= 2086.120

120.100	1.12	2086.12	2085.75	.00	2086.14	.02	6.60	.00	2087.00
900.0	.0	900.0	.0	.0	857.3	.0	331.3	583.0	2087.00
4.53	.00	1.05	.00	.000	.060	.000	.000	2085.00	263.96
.004090	1700.	1700.	1700.	0	14	0	.00	1588.86	1852.82

FLOW DISTRIBUTION FOR SECNO= 120.10 CWSEL= 2086.12

STA= 264. 2020.
PER Q= 100.0
AREA= 857.3
VEL= 1.0
DEPTH= .5

THIS RUN EXECUTED 27AUG96 16:23:30

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
	35.000	2040.70	.00	1.19	.00	.00	900.00	.00	2.70	914.78	133.25	1048.03
*	40.000	2043.90	.00	1.50	.00	.00	900.00	.00	.90	1041.76	2440.76	3482.52
*	50.000	2049.98	.00	.97	.00	.00	900.00	.00	.98	1538.44	2168.20	3706.63
	60.000	2054.74	.00	1.24	.00	.00	900.00	.00	.74	1121.20	2794.90	3916.10
	70.000	2059.29	.00	1.04	.00	.00	900.00	.00	1.29	1062.69	3331.40	4394.09
*	80.000	2063.17	.00	1.24	.00	.00	900.00	.00	1.17	1340.63	3664.94	5005.58
	90.000	2067.01	.00	.85	.00	.00	900.00	.00	.51	2205.04	3118.18	5323.23
	100.000	2070.67	.00	1.17	.00	.00	900.00	.00	.67	1495.45	3698.96	5194.41
	110.000	2074.70	.00	1.01	.00	.00	900.00	.00	.70	1654.61	3528.28	5495.56
	120.000	2079.69	.00	1.01	.00	.00	900.00	.00	1.19	2305.81	3494.19	5800.00
*	130.000	2082.96	.00	.77	.00	.00	900.00	.00	.96	2083.89	3766.11	5850.00
	140.000	2085.58	.00	.98	.00	.00	900.00	.00	1.08	1720.89	3959.11	5680.00
	150.000	2088.27	.35	1.09	.00	7.04	892.96	.00	.77	1279.84	2220.16	3500.00
	-90.000	2067.01	.00	.85	.00	.00	900.00	.00	.51	2204.10	3118.39	5322.49
*	100.100	2071.06	.00	1.64	.00	.00	900.00	.00	1.06	807.07	2315.29	3122.36
*	110.100	2076.95	.00	1.23	.00	.00	900.00	.00	.95	977.44	1394.36	2371.80
*	120.100	2086.12	.00	1.05	.00	.00	900.00	.00	1.12	1588.86	263.96	1852.82

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
	35.000	2040.70	2040.14	2040.72	.00	.00	2038.00	29.88	.00	.00	.15	.23
*	40.000	2043.90	2043.57	2043.93	3.20	.00	2043.00	76.94	8.33	600.00	.28	.35
*	50.000	2049.98	2049.45	2050.00	6.07	.00	2049.00	30.15	4.29	1400.00	.11	.22
	60.000	2054.74	2054.32	2054.76	4.76	.00	2054.00	44.80	3.94	1270.00	.18	.27
	70.000	2059.29	2058.55	2059.31	4.55	.00	2058.00	22.91	2.67	1500.00	.12	.20
*	80.000	2063.17	2062.58	2063.20	3.89	.00	2062.00	57.57	3.74	1070.00	.19	.30
	90.000	2067.01	2066.69	2067.02	3.83	.00	2066.50	30.97	4.74	950.00	.09	.22
	100.000	2070.67	2070.31	2070.69	3.67	.00	2070.00	53.58	3.89	900.00	.17	.29
	110.000	2074.70	2074.27	2074.71	4.02	.00	2074.00	38.25	4.44	900.00	.11	.27
	120.000	2079.69	2079.18	2079.70	4.99	.00	2078.50	59.07	4.29	1050.00	.14	.29
*	130.000	2082.96	2082.57	2082.97	3.27	.00	2082.00	21.13	3.33	1050.00	.07	.18
	140.000	2085.58	2085.13	2085.60	2.62	.00	2084.50	36.08	2.63	950.00	.12	.24
	150.000	2088.27	2087.80	2088.29	2.69	.00	2087.50	29.39	3.61	830.00	.13	.22
	-90.000	2067.01	.00	2067.02	2.98	-.29	2066.50	31.32	.00	950.00	.09	.22
*	100.100	2071.06	2070.61	2071.10	4.07	.01	2070.00	73.22	4.12	850.00	.31	.35
*	110.100	2076.95	2076.41	2076.97	5.87	.00	2076.00	36.69	5.00	1200.00	.17	.25
*	120.100	2086.12	2085.75	2086.14	6.60	.00	2085.00	40.90	5.29	1700.00	.14	.25

080

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 40.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 50.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 80.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 130.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 100.100 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 110.100 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

NOTE SECNO= 120.100 PROFILE= 1 WSEL BASED ON XS CARD

BWEC.DAT
THIS RUN EXECUTED 13MAY96 15:51:56

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
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SPLIT FLOW BEING PERFORMED


SF      Weir Flow Analysis along the Western Boundary


TW      SEC 100 SEC 110
WS    4     100     110      90     2.5
WC    0  2069.5      50    2070     475    2072    1000    2073

TW      SEC 110 SEC 120
WS    4     110     120      90     2.5
WC    0    2073     200    2074     830    2076     930  2076.5

TW      SEC 120 SEC 130
WS    4     120     130      90     2.5
WC    0  2076.5     300    2078     450    2080     970    2080

TW      SEC 130 SEC 140
WS    4     130     140      90     2.5
WC    0    2080     450    2082     550    2082     950    2084

TW      SEC 140 SEC 150
WS    4     140     150      90     2.5
WC    0    2084     400    2086     650    2088     850  2088.5

TW      SEC 150 SEC 160
WS    4     150     160      90     2.5
WC    0  2088.5     150    2088     450    2090     800    2092

TW      SEC 160 SEC 161
WS    5     160     161      90     2.5
WC    0    2092     130    2092     500    2094     980    2096    1070  2096.5

TW      SEC 161 SEC 162
WS    4     161     162      90     2.5
WC    0  2096.5     350    2098     625    2100    1050  2100.5
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082

T1 Brawley Wash Floodplain Study (SLA No. PAZ-PDOT-10.6)
T2 Eastern Corridor Anaysis
T3 100-year

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	0	.004	0	0	0	2073	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1	0	-1	0	0	0	-1	0	0	15

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	1	55	26	56	13	14	15	8	4
53	54	0	38	1	2	3	11	12	42
5	33	39	67	68					

J6	IHLEQ	ICOPY	SUBDIV	STRTDS	RMILE
	1				

NC	.06	.06	.06	0.1	0.3					
QT	1	21000								
X1	10.0	18	15750	19470	0	0	0	0	0	0
GR	2036.0	14250.0	2036.0	15750.0	2036.0	17020.0	2035.0	17310.0	2035.0	17480.0
GR	2036.0	17850.0	2036.0	18190.0	2036.5	18350.0	2036.5	18980.0	2036.0	19180.0
GR	2036.0	19470.0	2035.5	19580.0	2036.0	20190.0	2036.0	20380.0	2035.5	20670.0
GR	2035.5	21950.0	2036.0	22450.0	2037.0	22950.0				
X1	20.0	16	15750	19060	670	670	670	0	0	0
GR	2039.0	14300.0	2039.0	15750.0	2039.0	17200.0	2038.0	17300.0	2038.0	17570.0
GR	2039.0	17730.0	2039.0	17850.0	2038.0	18200.0	2038.5	19060.0	2038.0	19980.0
GR	2038.0	20350.0	2038.0	20980.0	2039.0	21920.0	2039.5	22230.0	2039.5	22700.0
GR	2040.0	23100.0								
X1	30.0	19	15730	19360	880	880	880	0	0	0
GR	2043.0	14450.0	2043.0	15730.0	2042.5	16270.0	2042.5	16750.0	2042.5	17160.0
GR	2042.0	17300.0	2041.5	17370.0	2041.5	17830.0	2042.0	17900.0	2042.0	18160.0
GR	2041.0	18380.0	2040.5	18600.0	2040.5	18800.0	2041.0	19360.0	2041.5	20160.0
GR	2042.0	20320.0	2042.0	21400.0	2043.0	22170.0	2044.0	22570.0		
X1	40.0	16	15600	19200	880	880	880	0	0	0
GR	2046.5	14500.0	2046.5	15600.0	2046.0	15870.0	2045.5	16100.0	2045.5	17230.0
GR	2045.0	17320.0	2045.5	17870.0	2045.5	18150.0	2044.5	18710.0	2044.5	19200.0
GR	2044.5	19990.0	2045.0	20250.0	2046.0	20490.0	2046.0	21000.0	2046.0	21830.0
GR	2048.0	22260.0								

X1	50.0	21	15650	19150	900	900	900	0	0	0
GR	2050.0	14830.0	2050.0	15200.0	2051.0	15650.0	2050.0	15980.0	2050.0	16250.0
GR	2049.0	16600.0	2050.0	16910.0	2050.0	17150.0	2049.0	17310.0	2049.0	17640.0
GR	2049.5	17990.0	2049.5	18370.0	2049.0	18600.0	2049.0	19070.0	2050.0	19150.0
GR	2048.5	19170.0	2048.5	20380.0	2049.5	20600.0	2050.0	21000.0	2050.0	22050.0
GR	2052.0	22550.0								
X1	60.0	21	15930	19050	870	870	870	0	0	0
GR	2053.0	15200.0	2054.0	15600.0	2055.0	15930.0	2054.5	16170.0	2054.0	16260.0
GR	2053.0	16460.0	2053.0	16800.0	2053.0	17400.0	2053.5	17500.0	2053.0	17980.0
GR	2053.0	18170.0	2052.5	18540.0	2052.5	18750.0	2053.0	19050.0	2052.0	19360.0
GR	2052.0	20580.0	2053.0	20750.0	2053.0	21900.0	2054.0	22000.0	2055.0	22260.0
GR	2056.0	22770.0								
X1	70.0	25	16170	18480	900	900	900	0	0	0
GR	2057.0	15490.0	2057.0	15800.0	2058.0	16030.0	2059.5	16170.0	2058.0	16340.0
GR	2056.5	16720.0	2056.5	17270.0	2056.0	17420.0	2055.5	17580.0	2055.5	17900.0
GR	2056.0	17950.0	2056.0	18270.0	2056.5	18480.0	2056.0	18900.0	2056.0	19590.0
GR	2055.5	19780.0	2055.5	20470.0	2056.0	20570.0	2056.0	20920.0	2057.0	21040.0
GR	2057.0	21390.0	2057.5	21530.0	2057.5	22200.0	2058.0	22270.0	2060.0	22750.0
X1	80.0	22	16250	18700	850	850	850	0	0	0
GR	2062.0	15780.0	2060.0	15930.0	2061.0	16000.0	2062.0	16250.0	2062.0	16480.0
GR	2060.0	16690.0	2060.0	17040.0	2059.0	17340.0	2059.5	17530.0	2059.5	17790.0
GR	2060.0	17850.0	2061.0	18700.0	2060.5	18950.0	2060.5	19730.0	2060.0	19870.0
GR	2059.5	20000.0	2059.5	20250.0	2060.0	20970.0	2060.0	21100.0	2060.0	21680.0
GR	2062.0	22150.0	2064.0	22650.0						
X1	90.0	15	15200	17950	900	900	900	0	0	0
GR	2065.0	15200.0	2064.0	15350.0	2064.0	17330.0	2064.5	17650.0	2065.0	17950.0
GR	2065.0	19120.0	2064.0	19400.0	2063.0	20083.0	2063.5	20480.0	2063.5	20820.0
GR	2063.0	20940.0	2063.5	21050.0	2064.0	21250.0	2066.0	21600.0	2067.0	21770.0
X1	100.0	13	17150	21150	900	900	900	0	0	0
GR	2069.5	17150.0	2068.5	17300.0	2068.5	18040.0	2069.0	18400.0	2068.0	19040.0
GR	2068.0	19380.0	2067.0	19890.0	2067.0	20020.0	2067.5	20400.0	2067.5	20580.0
GR	2068.0	20760.0	2070.0	21150.0	2072.0	21520.0				
X1	110.0	15	16550	20400	1000	1000	1000	0	0	0
GR	2073.0	16550.0	2072.0	16600.0	2072.0	16990.0	2072.5	17320.0	2073.0	17640.0
GR	2073.0	18060.0	2072.5	18320.0	2072.0	19240.0	2070.0	19580.0	2070.0	19750.0
GR	2070.5	19850.0	2072.0	20170.0	2073.0	20400.0	2074.0	20740.0	2076.0	21150.0
X1	120.0	16	15970	20300	800	800	800	0	0	0
GR	2076.5	15970.0	2076.5	16710.0	2076.0	16770.0	2076.0	16920.0	2077.0	17140.0
GR	2077.0	17270.0	2076.0	17300.0	2076.5	17490.0	2076.5	18300.0	2076.0	18370.0
GR	2074.0	19000.0	2074.0	19140.0	2075.0	19470.0	2076.0	19900.0	2078.0	20300.0
GR	2080.0	20650.0								

X1	130.0	15	15470	19100	850	850	850	0	0	0
GR	2080.0	15470.0	2079.5	15850.0	2080.0	16100.0	2079.5	16310.0	2079.5	16600.0
GR	2080.0	16660.0	2080.0	17700.0	2079.0	17850.0	2079.0	18420.0	2078.0	18550.0
GR	2078.0	18750.0	2080.0	19100.0	2080.0	19300.0	2082.0	19770.0	2084.0	20150.0
X1	140.0	17	14850	18440	830	830	830	0	0	0
GR	2084.0	14850.0	2083.5	15000.0	2083.5	15550.0	2083.0	15780.0	2083.0	16140.0
GR	2083.5	16320.0	2083.5	16580.0	2083.0	16820.0	2083.0	17350.0	2084.0	17440.0
GR	2084.0	17520.0	2082.0	17640.0	2082.0	17820.0	2082.5	17870.0	2082.5	18100.0
GR	2084.0	18440.0	2086.0	18940.0						
X1	150.0	12	12900	16320	850	850	850	0	0	0
GR	2088.5	12900.0	2088.0	13040.0	2087.5	13170.0	2087.5	13600.0	2087.0	13650.0
GR	2087.0	15080.0	2088.0	15230.0	2086.0	15540.0	2086.0	15800.0	2087.0	16040.0
GR	2088.0	16320.0	2090.0	16560.0						
X1	160.0	8	10850	13800	1050	1050	1050	0	0	0
GR	2092.0	10850.0	2091.5	11000.0	2091.5	11380.0	2091.0	11700.0	2091.0	13480.0
GR	2091.5	13660.0	2092.0	13800.0	2094.0	14300.0				
X1	161.0	9	10560	13220	1070	1070	1070	0	0	0
GR	2096.5	10560.0	2096.0	10740.0	2096.0	11580.0	2097.5	11950.0	2096.0	12570.0
GR	2096.0	13120.0	2096.5	13220.0	2098.0	13470.0	2100.0	13800.0		
X1	162.0	6	10370	13050	1050	1050	1050	0	0	0
GR	2101.5	10370.0	2100.5	10570.0	2100.5	12700.0	2101.0	12870.0	2102.0	13050.0
GR	2104.0	13440.0								

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IBC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 1.18 FEET

10.000	2.18	2037.18	2036.43	2073.00	2037.24	.06	.00	.00	2036.00
21000.0	3109.5	7994.9	9895.6	1775.6	4498.4	4886.8	.0	.0	2036.00
.00	1.75	1.78	2.02	.060	.060	.060	.000	2035.00	14250.00
.003997	0.	0.	0.	0	28	10	.00	8700.00	22950.00

FLOW DISTRIBUTION FOR SECNO= 10.00 CWSEL= 2037.18

STA=	14250.	15750.	19470.	19580.	20190.	20380.	20670.	21950.	22450.	22950.
PER Q=	14.8	38.1	1.5	8.3	1.9	3.9	22.7	6.8	2.0	
AREA=	1775.6	4498.4	157.7	874.6	224.9	415.8	2155.2	716.9	341.9	
VEL=	1.8	1.8	2.0	2.0	1.8	2.0	2.2	2.0	1.2	
DEPTH=	1.2	1.2	1.4	1.4	1.2	1.4	1.7	1.4	.7	

*SECNO 20.000
3280 CROSS SECTION 20.00 EXTENDED .91 FEET

20.000	1.91	2039.91	2039.21	.00	2039.97	.06	2.73	.00	2039.00
21000.0	1956.2	7894.9	11148.9	1312.3	4215.6	5207.4	168.4	134.0	2038.50
.09	1.49	1.87	2.14	.060	.060	.060	.000	2038.00	14300.00
.004142	670.	670.	670.	4	11	0	.00	8724.02	23024.02

FLOW DISTRIBUTION FOR SECNO= 20.00 CWSEL= 2039.91

STA=	14300.	15750.	19060.	19980.	20350.	20980.	21920.	22230.	22700.	23024.
PER Q=	9.3	37.6	16.2	8.2	14.0	12.6	1.2	.8	.2	
AREA=	1312.3	4215.6	1522.6	704.9	1200.2	1320.7	203.1	190.4	65.6	
VEL=	1.5	1.9	2.2	2.4	2.4	2.0	1.2	.9	.5	
DEPTH=	.9	1.3	1.7	1.9	1.9	1.4	.7	.4	.2	

*SECNO 30.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3280 CROSS SECTION 30.00 EXTENDED .38 FEET

30.000	2.88	2043.38	2042.43	.00	2043.45	.07	3.48	.00	2043.00
21000.0	389.1	11986.8	8624.1	486.9	5775.7	4162.8	382.1	301.6	2041.00
.21	.80	2.08	2.07	.060	.060	.060	.000	2040.50	14450.00
.003780	880.	880.	880.	3	5	0	.00	7872.15	22322.15

FLOW DISTRIBUTION FOR SECNO= 30.00 CWSEL= 2043.38

STA=	14450.	15730.	19360.	20160.	20320.	21400.	22170.	22322.
PER Q=	1.9	57.1	20.5	2.6	13.4	4.5	.1	
AREA=	486.9	5775.7	1704.3	260.9	1490.8	677.9	28.9	
VEL=	.8	2.1	2.5	2.1	1.9	1.4	.5	
DEPTH=	.4	1.6	2.1	1.6	1.4	.9	.2	

*SECNO 40.000
3280 CROSS SECTION 40.00 EXTENDED .35 FEET

40.000	2.35	2046.85	2046.08	.00	2046.92	.07	3.47	.00	2046.50
21000.0	306.0	11719.3	8974.6	386.7	5535.6	3947.6	587.1	457.0	2044.50
.33	.79	2.12	2.27	.060	.060	.060	.000	2044.50	14500.00
.004117	880.	880.	880.	5	12	0	.00	7513.09	22013.09

FLOW DISTRIBUTION FOR SECNO= 40.00 CWSEL= 2046.85

STA=	14500.	15600.	19200.	19990.	20250.	20490.	21000.	21830.	22013.
PER Q=	1.5	55.8	24.9	6.8	3.0	3.0	4.8	.3	
AREA=	386.7	5535.6	1857.7	546.4	324.4	434.3	706.8	78.0	
VEL=	.8	2.1	2.8	2.6	1.9	1.4	1.4	.9	
DEPTH=	.4	1.5	2.4	2.1	1.4	.9	.9	.4	

*SECNO 50.000

3265 DIVIDED FLOW

3280 CROSS SECTION 50.00 EXTENDED .80 FEET

50.000	2.29	2050.79	2050.12	.00	2050.87	.08	3.95	.00	2051.00
21000.0	562.3	9158.2	11279.5	440.0	4516.8	4550.2	787.3	609.7	2050.00
.44	1.28	2.03	2.48	.060	.060	.060	.000	2048.50	14830.00
.004651	900.	900.	900.	2	17	0	.00	7264.05	22250.01

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 50.00 CWSEL= 2050.79

STA=	14830.	15200.	15560.	19150.	19170.	20380.	20600.	21000.	22050.	22250.
PER Q=	2.0	.6	43.6	.3	39.0	4.7	3.5	5.8	.3	
AREA=	296.0	144.0	4516.8	31.0	2783.1	396.0	420.0	840.1	80.0	
VEL=	1.5	.9	2.0	2.3	2.9	2.5	1.7	1.5	.9	
DEPTH=	.8	.4	1.3	1.6	2.3	1.8	1.1	.8	.4	

*SECNO 60.000

3265 DIVIDED FLOW

3280 CROSS SECTION 60.00 EXTENDED 1.39 FEET

60.000	2.39	2054.39	2053.53	.00	2054.47	.07	3.60	.00	2055.00
21000.0	512.8	7335.3	13151.9	383.0	3929.5	5541.1	980.7	746.6	2053.00
.55	1.34	1.87	2.37	.060	.060	.060	.000	2052.00	15200.00
.003721	870.	870.	870.	3	23	0	.00	6443.04	22102.32

FLOW DISTRIBUTION FOR SECNO= 60.00 CWSEL= 2054.39

STA=	15200.	15600.	15730.	19050.	19360.	20580.	20750.	21900.	22000.	22102.
PER Q=	2.4	.1	34.9	6.5	37.6	3.5	14.4	.6	.0	
AREA=	357.4	25.6	3929.5	587.0	2920.1	321.9	1602.6	89.4	20.1	
VEL=	1.4	.5	1.9	2.3	2.7	2.3	1.9	1.4	.5	
DEPTH=	.9	.2	1.4	1.9	2.4	1.9	1.4	.9	.2	

*SECNO 70.000

3265 DIVIDED FLOW

3280 CROSS SECTION 70.00 EXTENDED .87 FEET

70.000	2.37	2057.87	2056.88	.00	2057.95	.08	3.48	.00	2059.50
21000.0	462.0	7243.3	13294.7	356.2	3374.1	5684.3	1179.7	879.1	2056.50
.66	1.30	2.15	2.34	.060	.060	.060	.000	2055.50	15490.00
.004009	900.	900.	900.	2	14	0	.00	6388.28	22251.64

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 70.00 CWSEL= 2057.87

STA=	15490.	16000.	18480.	18900.	19590.	19780.	20470.	20920.	21390.	22252.
PER Q=	2.2	34.5	7.0	14.6	5.0	21.7	10.0	3.6	1.4	
AREA=	356.2	3374.1	679.9	1289.5	402.6	1634.5	866.0	468.4	343.3	
VEL=	1.3	2.1	2.2	2.4	2.6	2.8	2.4	1.6	.9	
DEPTH=	.7	1.6	1.6	1.9	2.1	2.4	1.9	1.0	.4	

*SECNO 80.000

3265 DIVIDED FLOW

80.000	2.67	2061.67	2060.83	.00	2061.76	.09	3.81	.00	2062.00
21000.0	373.6	8509.0	12117.5	245.1	3530.4	5052.1	1357.7	999.3	2061.00
.76	1.52	2.41	2.40	.060	.060	.060	.000	2059.00	15804.24
.004998	850.	850.	850.	4	19	0	.00	5925.04	22074.04

FLOW DISTRIBUTION FOR SECNO= 80.00 CWSEL= 2061.67

STA=	15804.	16169.	18700.	19730.	20000.	20250.	20970.	21680.	22074.
PER Q=	1.8	40.5	10.4	5.3	7.6	17.9	14.0	2.4	
AREA=	245.1	3530.4	1149.6	450.2	544.2	1387.3	1190.5	330.4	
VEL=	1.5	2.4	1.9	2.5	2.9	2.7	2.5	1.6	
DEPTH=	.7	1.6	1.1	1.7	2.2	1.9	1.7	.8	

*SECNO 90.000
3280 CROSS SECTION 90.00 EXTENDED .65 FEET

90.000	2.65	2065.65	2064.74	.00	2065.72	.08	3.96	.00	2065.00
21000.0	.0	8481.5	12518.5	.0	4149.8	5395.0	1547.5	1126.0	2065.00
.87	.00	2.04	2.32	.000	.060	.060	.000	2063.00	15200.00
.003936	900.	900.	900.	2	17	0	.00	6338.26	21538.26

FLOW DISTRIBUTION FOR SECNO= 90.00 CWSEL= 2065.65

STA=	15200.	17950.	19120.	19400.	20083.	20480.	20820.	20940.	21050.	21250.	21538.
PER Q=	40.4	4.2	2.6	18.1	12.6	9.0	3.8	3.5	4.3	1.5	
AREA=	4149.8	757.2	321.2	1466.5	951.7	730.1	287.7	263.7	379.4	237.4	
VEL=	2.0	1.2	1.7	2.6	2.8	2.6	2.8	2.8	2.4	1.4	
DEPTH=	1.5	.6	1.1	2.1	2.4	2.1	2.4	2.4	1.9	.8	

040

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .34

100.000	2.22	2069.22	2068.35	.00	2069.26	.04	3.53	.00	2069.50
7056.0	.0	7056.0	.0	.0	4237.1	.0	1689.9	1230.7	2070.00
1.02	.00	1.67	.00	.000	.060	.000	.000	2067.00	17192.52
.003917	900.	900.	900.	5	8	0	.00	3804.71	20997.23

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 2069.22

STA= 17193. 21150.
PER Q= 100.0
AREA= 4237.1
VEL= 1.7
DEPTH= 1.1

*SECNO 110.000
3280 CROSS SECTION 110.00 EXTENDED .16 FEET

110.000	3.16	2073.16	2072.20	.00	2073.20	.04	3.94	.00	2073.00
7060.7	.0	7059.5	1.2	.0	4242.8	4.2	1787.2	1319.2	2073.00
1.19	.00	1.66	.29	.000	.060	.060	.000	2070.00	16550.00
.003965	1000.	1000.	1000.	4	5	0	.00	3903.46	20453.46

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 2073.16

STA= 16550. 20400. 20453.
PER Q= 100.0 .0
AREA= 4242.8 4.2
VEL= 1.7 .3
DEPTH= 1.1 .1

*SECNO 120.000

3265 DIVIDED FLOW

3280 CROSS SECTION 120.00 EXTENDED .37 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST
120.000	2.86	2076.86	2075.79	.00	2076.91	.05	3.71	.00	2076.50
7316.0	.0	7316.0	.0	.0	4007.9	.0	1863.0	1391.2	2078.00
1.31	.00	1.83	.00	.000	.060	.000	.000	2074.00	15970.00
.005310	800.	800.	800.	2	11	0	.00	3939.68	20073.19

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 2076.86

STA= 15970. 20300.
PER Q= 100.0
AREA= 4007.9
VEL= 1.8
DEPTH= 1.0

*SECNO 130.000
3280 CROSS SECTION 130.00 EXTENDED .64 FEET

130.000	2.64	2080.64	2079.85	.00	2080.68	.04	3.77	.00	2080.00
7470.4	.0	7291.5	178.8	.0	4277.5	175.6	1945.6	1468.5	2080.00
1.45	.00	1.70	1.02	.000	.060	.060	.000	2078.00	15470.00
.003807	850.	850.	850.	5	20	0	.00	3980.03	19450.03

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 2080.64

STA= 15470. 19100. 19300. 19450.
PER Q= 97.6 1.9 .5
AREA= 4277.5 127.7 47.9
VEL= 1.7 1.1 .7
DEPTH= 1.2 .6 .3

*SECNO 140.000
3280 CROSS SECTION 140.00 EXTENDED .34 FEET

140.000	2.33	2084.33	2083.67	.00	2084.39	.06	3.71	.00	2084.00
8425.7	.0	8418.0	7.7	.0	4245.5	14.3	2028.6	1541.4	2084.00
1.57	.00	1.98	.54	.000	.060	.060	.000	2082.00	14850.00
.005126	830.	830.	830.	5	14	0	.00	3674.47	18524.47

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 140.00 CWSEL= 2084.33

STA= 14850. 18440. 18524.
PER Q= 99.9 .1
AREA= 4245.5 14.3
VEL= 2.0 .5
DEPTH= 1.2 .2

*SECNO 150.000

150.000	2.38	2088.38	2087.62	.00	2088.44	.06	4.04	.00	2088.50
8587.8	.0	8583.2	4.7	.0	4380.4	8.6	2113.0	1610.8	2088.00
1.69	.00	1.96	.54	.000	.060	.060	.000	2086.00	12934.11
.004440	850.	850.	850.	3	18	0	.00	3431.27	16365.38

FLOW DISTRIBUTION FOR SECNO= 150.00 CWSEL= 2088.38

STA= 12934. 16320. 16365.
PER Q= 99.9 .1
AREA= 4380.4 8.6
VEL= 2.0 .5
DEPTH= 1.3 .2

*SECNO 160.000
3280 CROSS SECTION 160.00 EXTENDED .78 FEET

160.000	1.79	2092.79	2091.89	.00	2092.86	.07	4.42	.00	2092.00
10218.6	.0	10154.1	64.5	.0	4730.8	76.9	2223.8	1690.0	2092.00
1.82	.00	2.15	.84	.000	.060	.060	.000	2091.00	10850.00
.004002	1050.	1050.	1050.	2	18	0	.00	3146.04	13996.04

FLOW DISTRIBUTION FOR SECNO= 160.00 CWSEL= 2092.79

STA= 10850. 13800. 13996.
PER Q= 99.4 .6
AREA= 4730.8 76.9
VEL= 2.1 .8
DEPTH= 1.6 .4

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 161.000
3280 CROSS SECTION 161.00 EXTENDED 1.64 FEET

161.000	2.14	2098.14	2097.26	.00	2098.27	.13	5.39	.02	2096.50
14744.9	.0	14342.5	402.4	.0	4866.6	222.8	2345.4	1764.7	2096.50
1.93	.00	2.95	1.81	.000	.060	.060	.000	2096.00	10560.00
.006333	1070.	1070.	1070.	5	19	0	.00	2932.28	13492.28

FLOW DISTRIBUTION FOR SECNO= 161.00 CWSEL= 2098.14

STA=	10560.	13220.	13470.	13492.
PER Q=	97.3	2.7	.0	
AREA=	4866.6	221.3	1.5	
VEL=	2.9	1.8	.3	
DEPTH=	1.8	.9	.1	

*SECNO 162.000
3280 CROSS SECTION 162.00 EXTENDED 1.74 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.80

162.000	2.74	2103.24	2101.85	.00	2103.38	.14	5.11	.00	2101.50
21000.0	.0	20828.5	171.5	.0	7033.8	151.1	2493.3	1835.3	2102.00
2.02	.00	2.96	1.14	.000	.060	.060	.000	2100.50	10370.00
.003952	1050.	1050.	1050.	4	14	0	.00	2922.75	13292.75

FLOW DISTRIBUTION FOR SECNO= 162.00 CWSEL= 2103.24

STA=	10370.	13050.	13293.
PER Q=	99.2	.8	
AREA=	7033.8	151.1	
VEL=	3.0	1.1	
DEPTH=	2.6	.6	

TW SEC 100 SEC 110

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
4.73	4.74	.22	4.73	4.74	.22	14	2069.215	2073.156	100.000	110.000

TW SEC 110 SEC 120

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
255.28	254.94	.14	260.01	259.67	.13	14	2073.156	2076.860	110.000	120.000

TW SEC 120 SEC 130

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
154.36	153.67	.45	414.37	413.34	.25	14	2076.860	2080.638	120.000	130.000

TW SEC 130 SEC 140

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
955.30	950.94	.46	1369.67	1364.28	.39	14	2080.638	2084.333	130.000	140.000

TW SEC 140 SEC 150

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
162.15	161.16	.61	1531.82	1525.44	.42	14	2084.333	2088.379	140.000	150.000

TW SEC 150 SEC 160

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1630.73	1629.48	.08	3162.55	3154.92	.24	14	2088.379	2092.792	150.000	160.000

TW SEC 160 SEC 161

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
4526.35	4525.57	.02	7688.90	7680.50	.11	14	2092.792	2098.135	160.000	161.000

TW SEC 161 SEC 162

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
6255.08	6258.32	.05	13943.98	13938.82	.04	14	2098.135	2103.244	161.000	162.000

SLA, INC.

THIS RUN EXECUTED 13MAY96 15:52:07

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
	10.000	2037.18	1.75	1.78	2.02	3109.45	7994.91	9895.64	2.18	8700.00	14250.00	22950.00
	20.000	2039.91	1.49	1.87	2.14	1956.19	7894.88	11148.93	1.91	8724.02	14300.00	23024.02
	30.000	2043.38	.80	2.08	2.07	389.11	11986.76	8624.13	2.88	7872.15	14450.00	22322.15
	40.000	2046.85	.79	2.12	2.27	306.04	11719.35	8974.62	2.35	7513.09	14500.00	22013.09
	50.000	2050.79	1.28	2.03	2.48	562.31	9158.20	11279.49	2.29	7264.05	14830.00	22250.01
	60.000	2054.39	1.34	1.87	2.37	512.84	7335.29	13151.87	2.39	6443.04	15200.00	22102.32
	70.000	2057.87	1.30	2.15	2.34	462.02	7243.26	13294.72	2.37	6388.28	15490.00	22251.64
	80.000	2061.67	1.52	2.41	2.40	373.55	8508.98	12117.46	2.67	5925.04	15804.24	22074.04
	90.000	2065.65	.00	2.04	2.32	.00	8481.54	12518.46	2.65	6338.26	15200.00	21538.26
*	100.000	2069.22	.00	1.67	.00	.00	7056.02	.00	2.22	3804.71	17192.52	20997.23
	110.000	2073.16	.00	1.66	.29	.00	7059.54	1.20	3.16	3903.46	16550.00	20453.46
	120.000	2076.86	.00	1.83	.00	.00	7316.02	.00	2.86	3939.68	15970.00	20073.19
	130.000	2080.64	.00	1.70	1.02	.00	7291.54	178.85	2.64	3980.03	15470.00	19450.03
	140.000	2084.33	.00	1.98	.54	.00	8417.95	7.73	2.33	3674.47	14850.00	18524.47
	150.000	2088.38	.00	1.96	.54	.00	8583.17	4.66	2.38	3431.27	12934.11	16365.38
	160.000	2092.79	.00	2.15	.84	.00	10154.05	64.52	1.79	3146.04	10850.00	13996.04
	161.000	2098.14	.00	2.95	1.81	.00	14342.47	402.45	2.14	2932.28	10560.00	13492.28

Sheet 1 of 1

CITY OF TUCSON, ARIZONA

ESTIMATE FOR PAYMENT NUMBER COM40#17

For the period July 29, 1996 to August 14, 1996 Incl. P. O. No. P61164

Project Tucson Stormwater Master Study (TSMS) Phase III/Traffic Operations System

Job No. _____ Contract No. 0296-92-Amend. No. 3 Date of Contract November 14, 1994

Contractor's Name Simons, Li & Associates Amount of Contract $ 600,000.00

Contractor's Address 110 S. Church #2170 Tucson, 85701 Telephone No. 884-9594

Item No.	Description	Unit	Quantity	Amount Completed	Value of Completed Work
1	Task 2 - retainage	SLA	4,525.53	100.0%	4,525.53
2	Task 3 - retainage	SLA	8,899.74	100.0%	8,899.74
3	Task 4 - retainage	SLA	5,423.38	100.0%	5,423.38

This bill is for retainage on Tasks 2, 3, and 4 which have been completed.

FORM: 100A

Submitted Michael E. Zeller 8-15-96
For Contractor Date

Checked J. Jaglus for 8/27/96
Architect/Engineer in Charge Date

Approved Alice Elias for 8.30.96
City Engineer/Chief Engineer Date

Approved _____
Department Director Date

Approved _____
Purchasing Agent Date

Total $	18,848.65
Retained (____ %)	0.00
Total less Retained	18,848.65
Previous Payments	
Due this estimate	18,848.65
Percent Completed:	

Distribution After Approval:
White - Accounting
Blue - Contractor
Green - Department/Division
Canary - Consultant (Arch. - Eng.)
Pink - Purchasing/Contract Admin.
Goldenrod - Accounting/Suspense

78-6-1880-6

046

	SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
*	162.000	2103.24	.00	2.96	1.14	.00	20828.51	171.49	2.74	2922.75	10370.00	13292.75

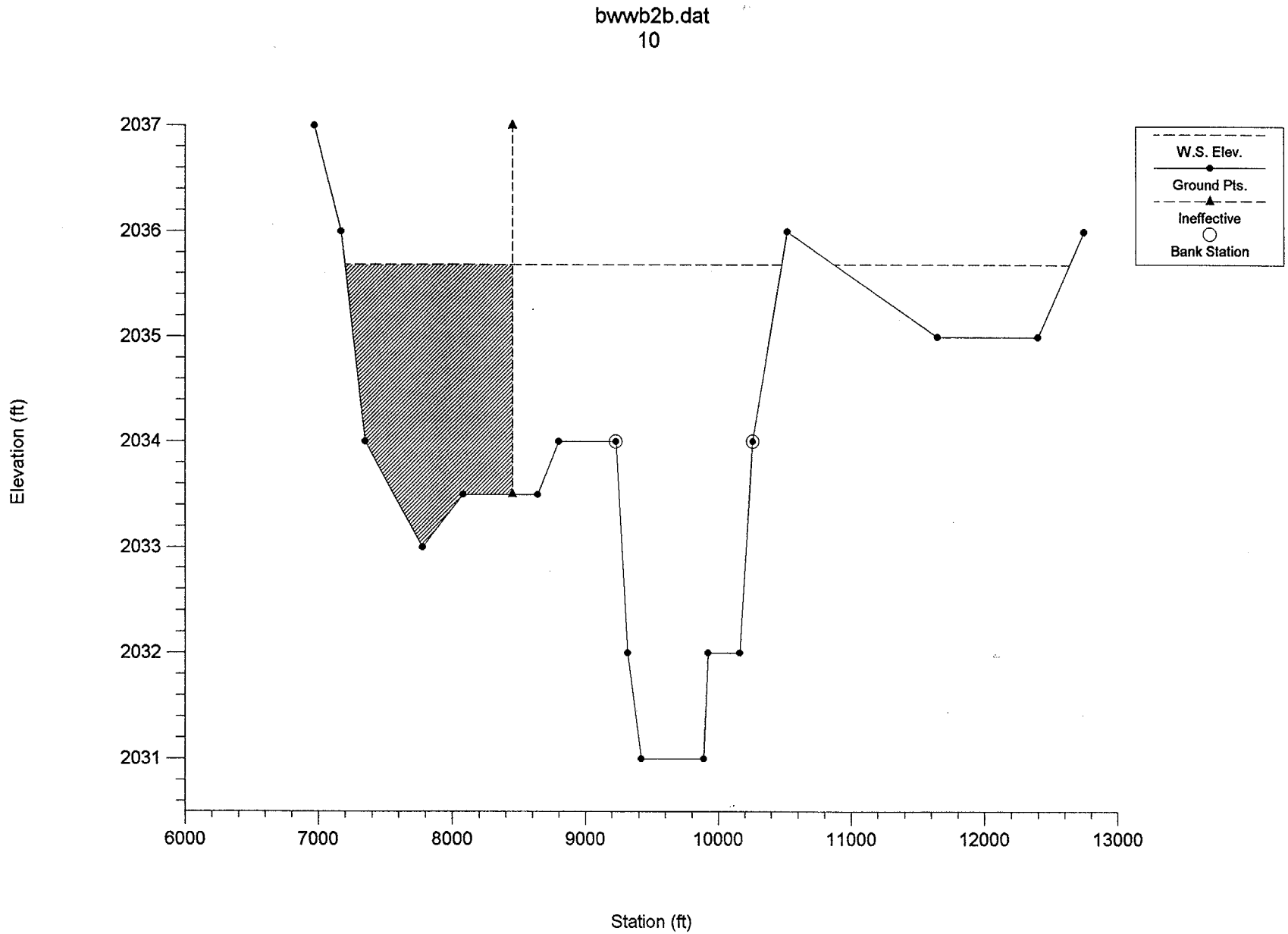
100-year

SUMMARY PRINTOUT

	SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
	10.000	2037.18	2036.43	2037.24	.00	.00	2035.00	39.97	.00	.00	.30	.28
	20.000	2039.91	2039.21	2039.97	2.73	.00	2038.00	41.42	4.48	670.00	.33	.29
	30.000	2043.38	2042.43	2043.45	3.48	.00	2040.50	37.80	2.84	880.00	.38	.29
	40.000	2046.85	2046.08	2046.92	3.47	.00	2044.50	41.17	4.55	880.00	.40	.30
	50.000	2050.79	2050.12	2050.87	3.95	.00	2048.50	46.51	4.44	900.00	.37	.31
	60.000	2054.39	2053.53	2054.47	3.60	.00	2052.00	37.21	4.02	870.00	.29	.29
	70.000	2057.87	2056.88	2057.95	3.48	.00	2055.50	40.09	3.89	900.00	.37	.31
	80.000	2061.67	2060.83	2061.76	3.81	.00	2059.00	49.98	4.12	850.00	.45	.35
	90.000	2065.65	2064.74	2065.72	3.96	.00	2063.00	39.36	4.44	900.00	.37	.29
*	100.000	2069.22	2068.35	2069.26	3.53	.00	2067.00	39.17	4.44	900.00	.27	.28
	110.000	2073.16	2072.20	2073.20	3.94	.00	2070.00	39.65	3.00	1000.00	.27	.28
	120.000	2076.86	2075.79	2076.91	3.71	.00	2074.00	53.10	5.00	800.00	.32	.33
	130.000	2080.64	2079.85	2080.68	3.77	.00	2078.00	38.07	4.71	850.00	.28	.28
	140.000	2084.33	2083.67	2084.39	3.71	.00	2082.00	51.26	4.82	830.00	.38	.32
	150.000	2088.38	2087.62	2088.44	4.04	.00	2086.00	44.40	4.71	850.00	.36	.30
	160.000	2092.79	2091.89	2092.86	4.42	.00	2091.00	40.02	4.76	1050.00	.40	.30
	161.000	2098.14	2097.26	2098.27	5.39	.02	2096.00	63.33	4.67	1070.00	.72	.38
*	162.000	2103.24	2101.85	2103.38	5.11	.00	2100.50	39.52	4.29	1050.00	.65	.32

APPENDIX B

Plotted Cross-Sections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2033
2032
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8000
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10000
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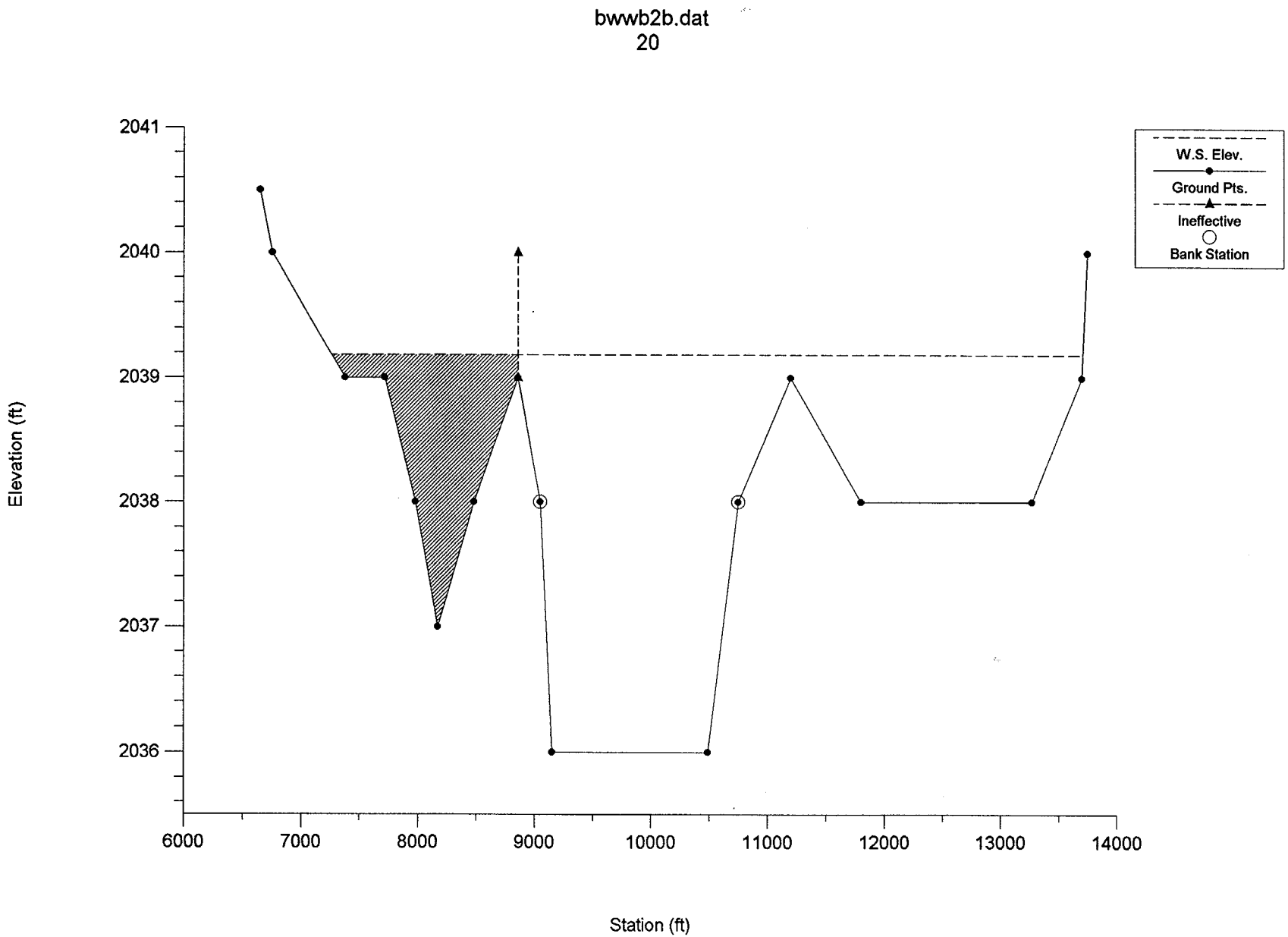
12000
13000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

SLA, INC.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Ground Pts.
Ineffective
Bank Station
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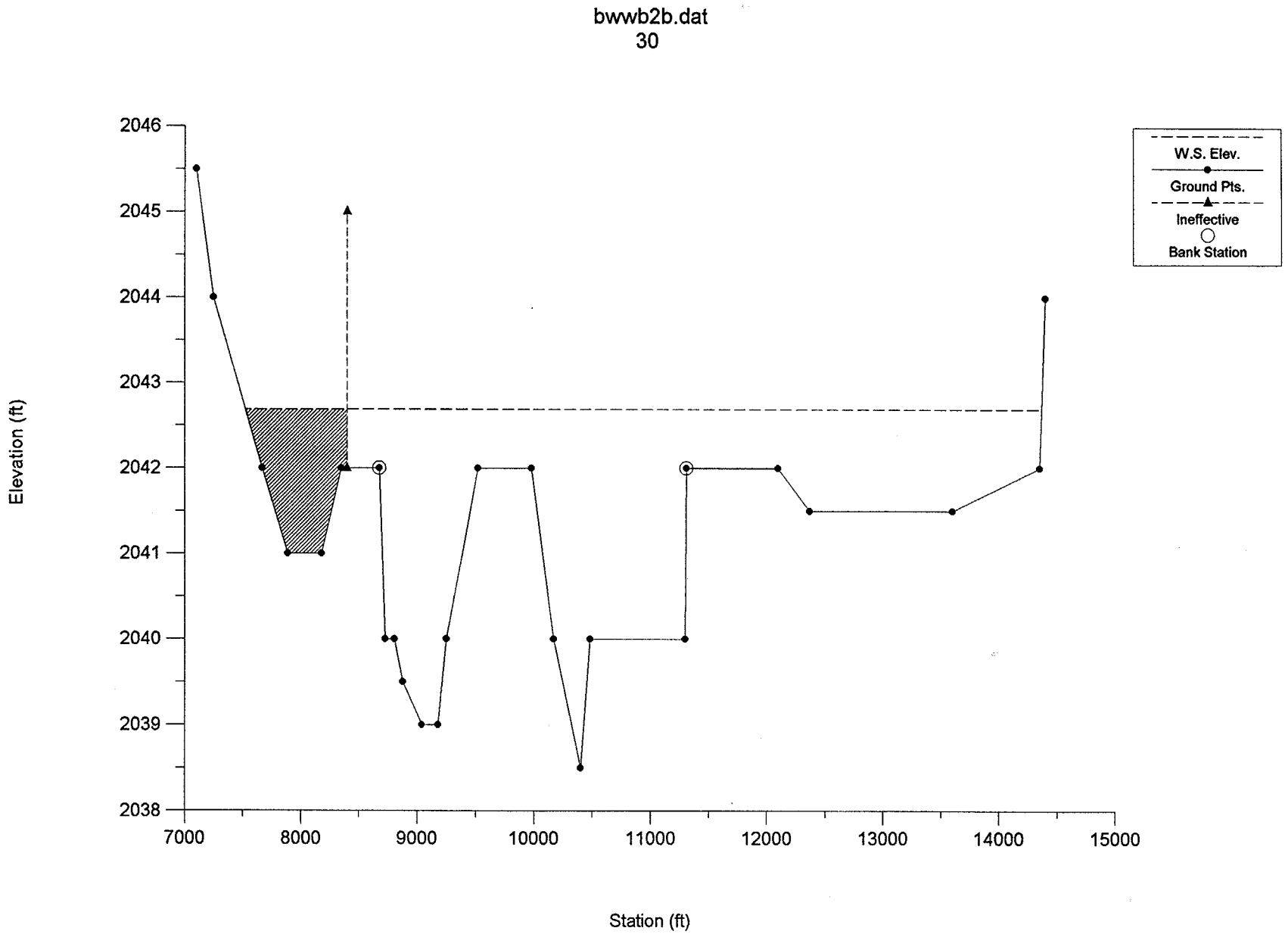
Station (ft)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Ground Pts.
Ineffective
Bank Station
Elevation (ft)
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2041
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14000
15000
Station (ft)

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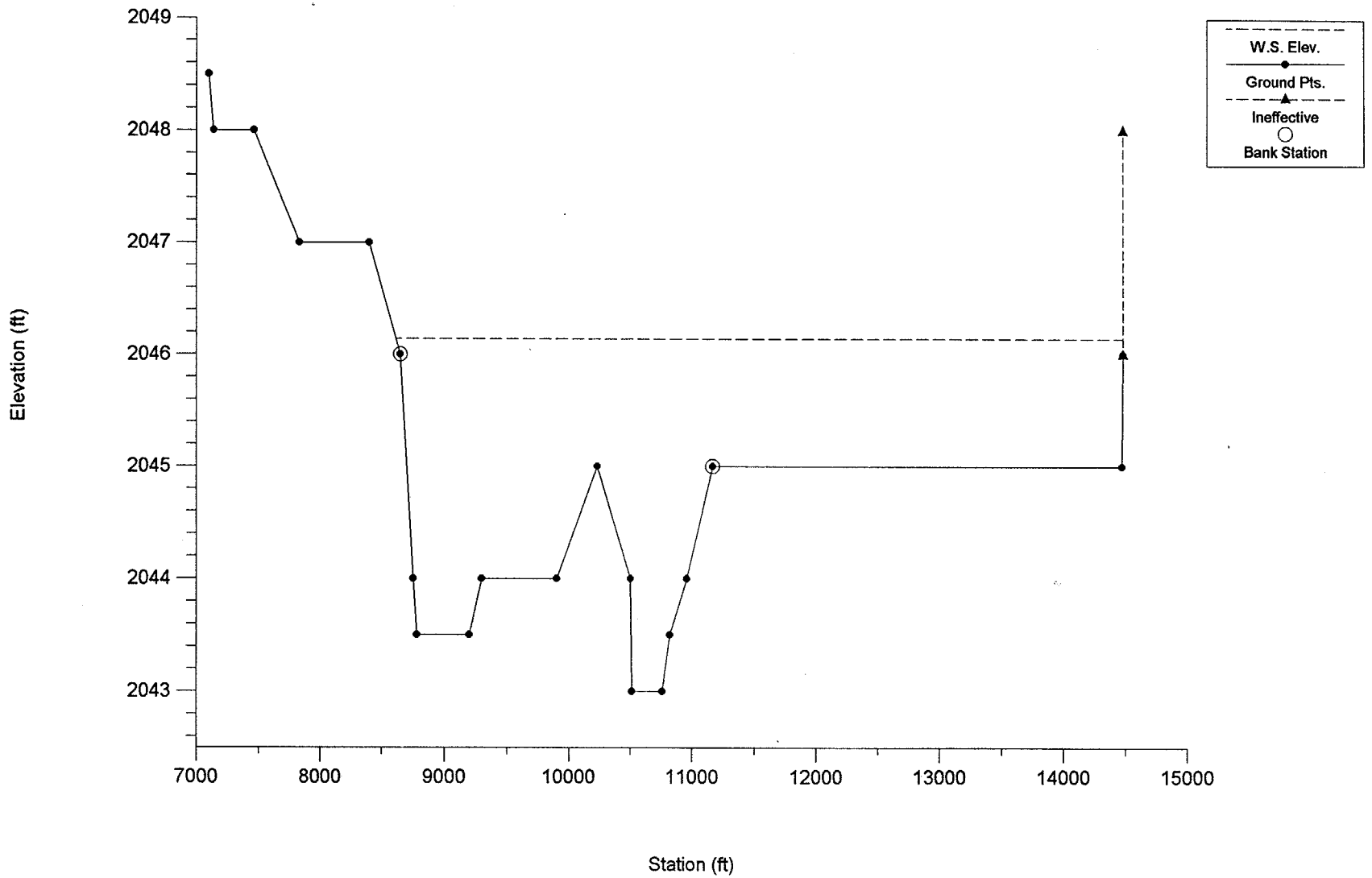

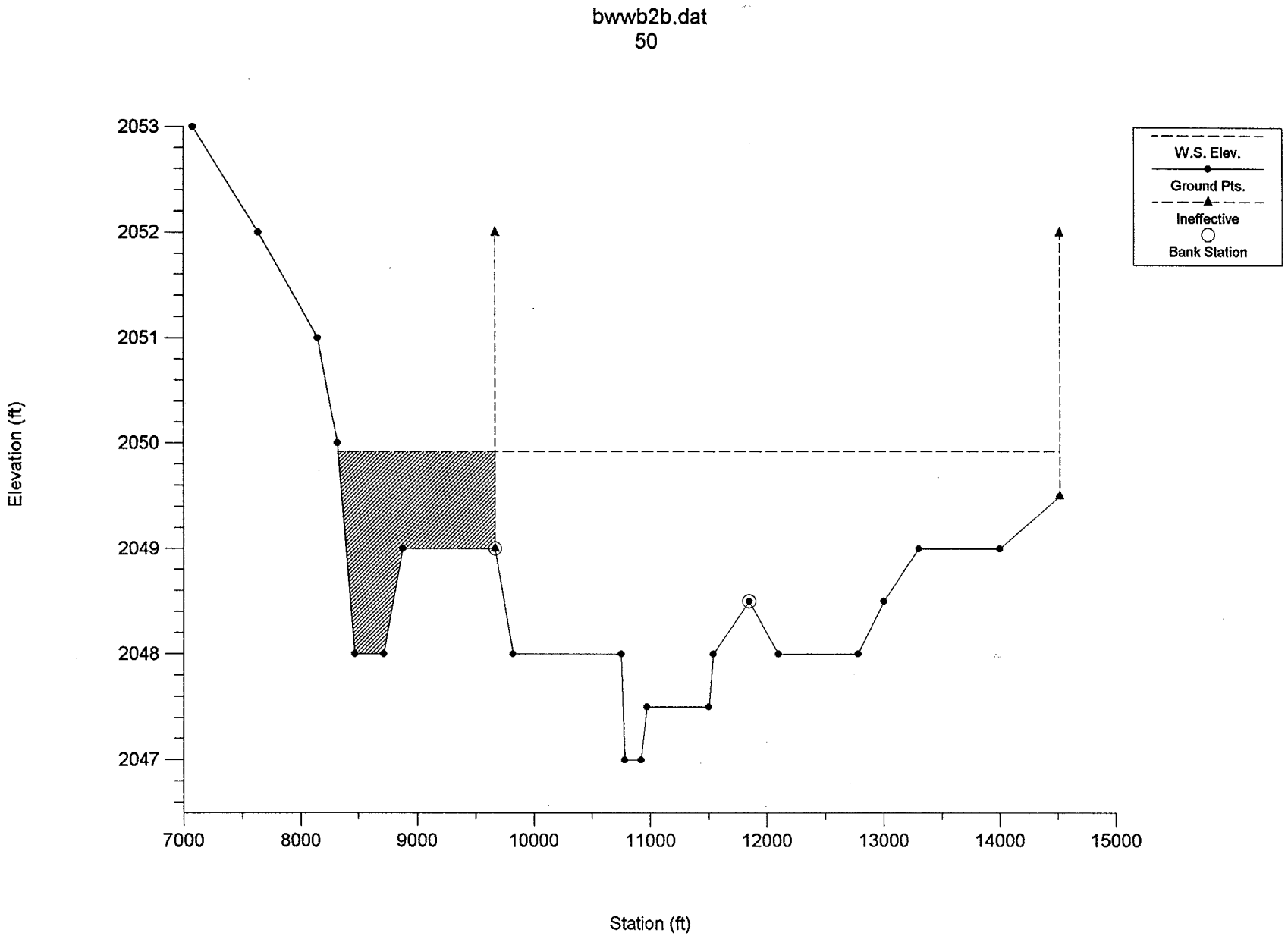
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Ground Pts.
Ineffective
Bank Station
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9000
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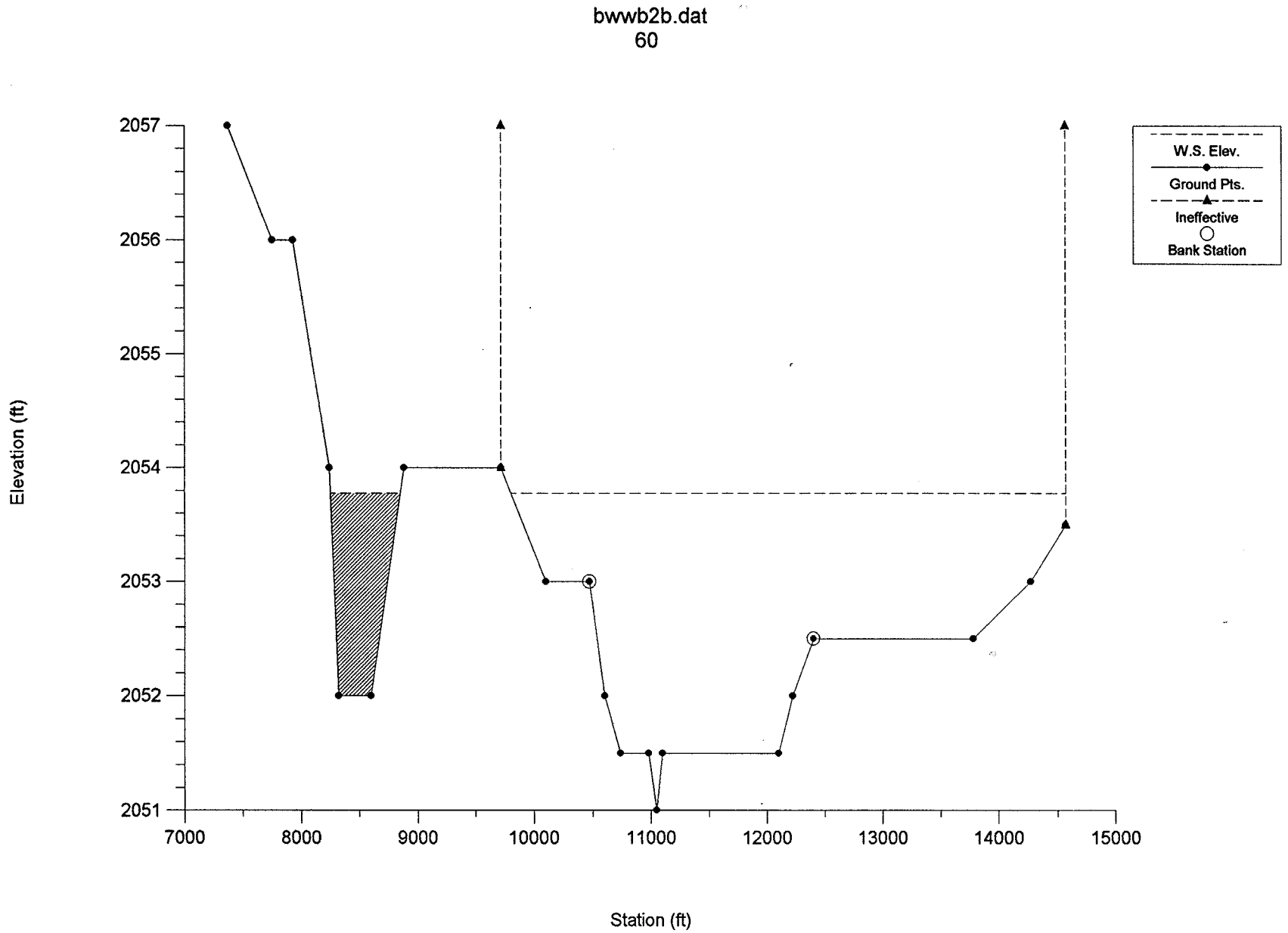
15000
Station (ft)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Ground Pts.
Ineffective
Bank Station
Elevation (ft)
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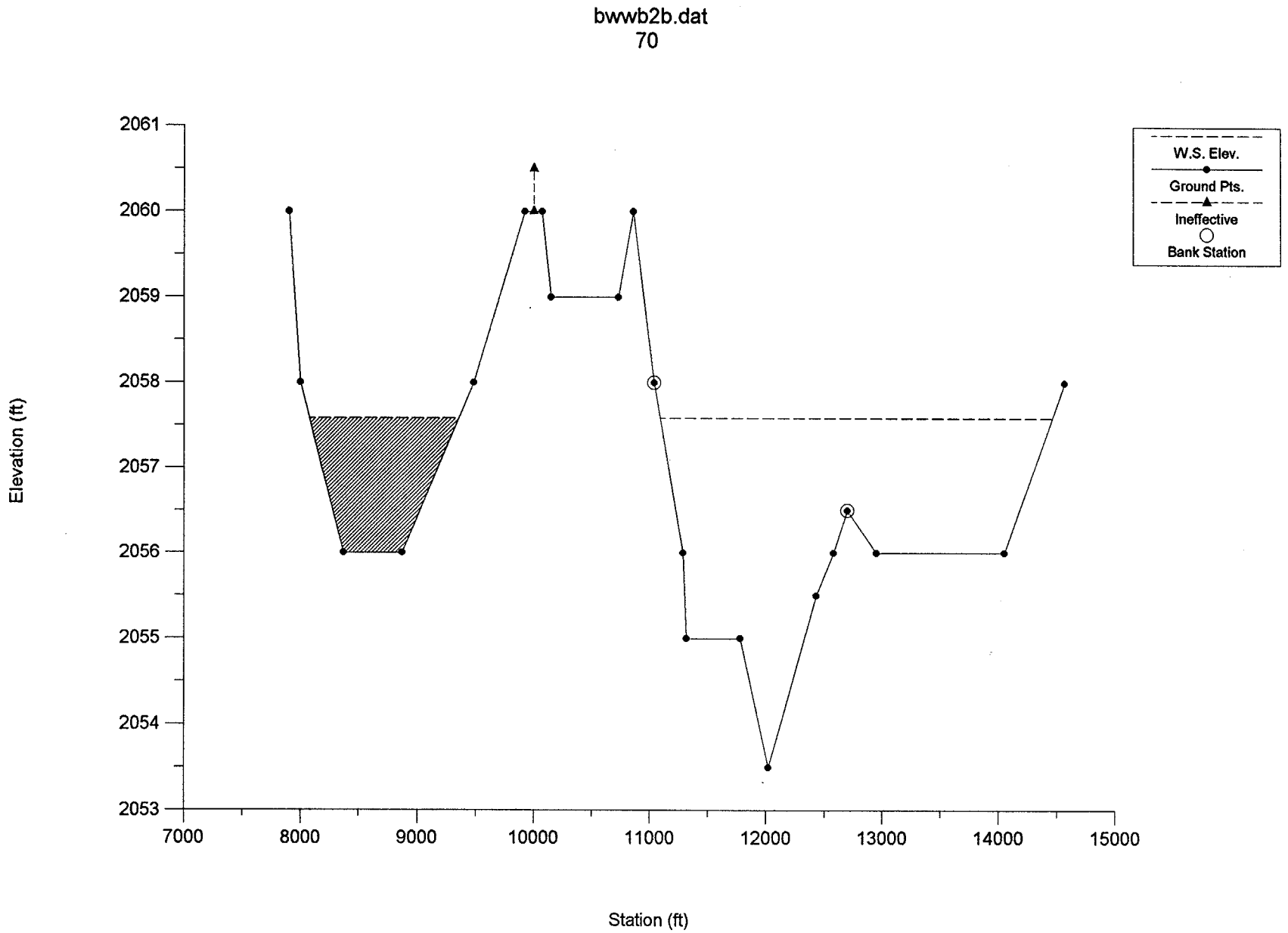
15000
Station (ft)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14000
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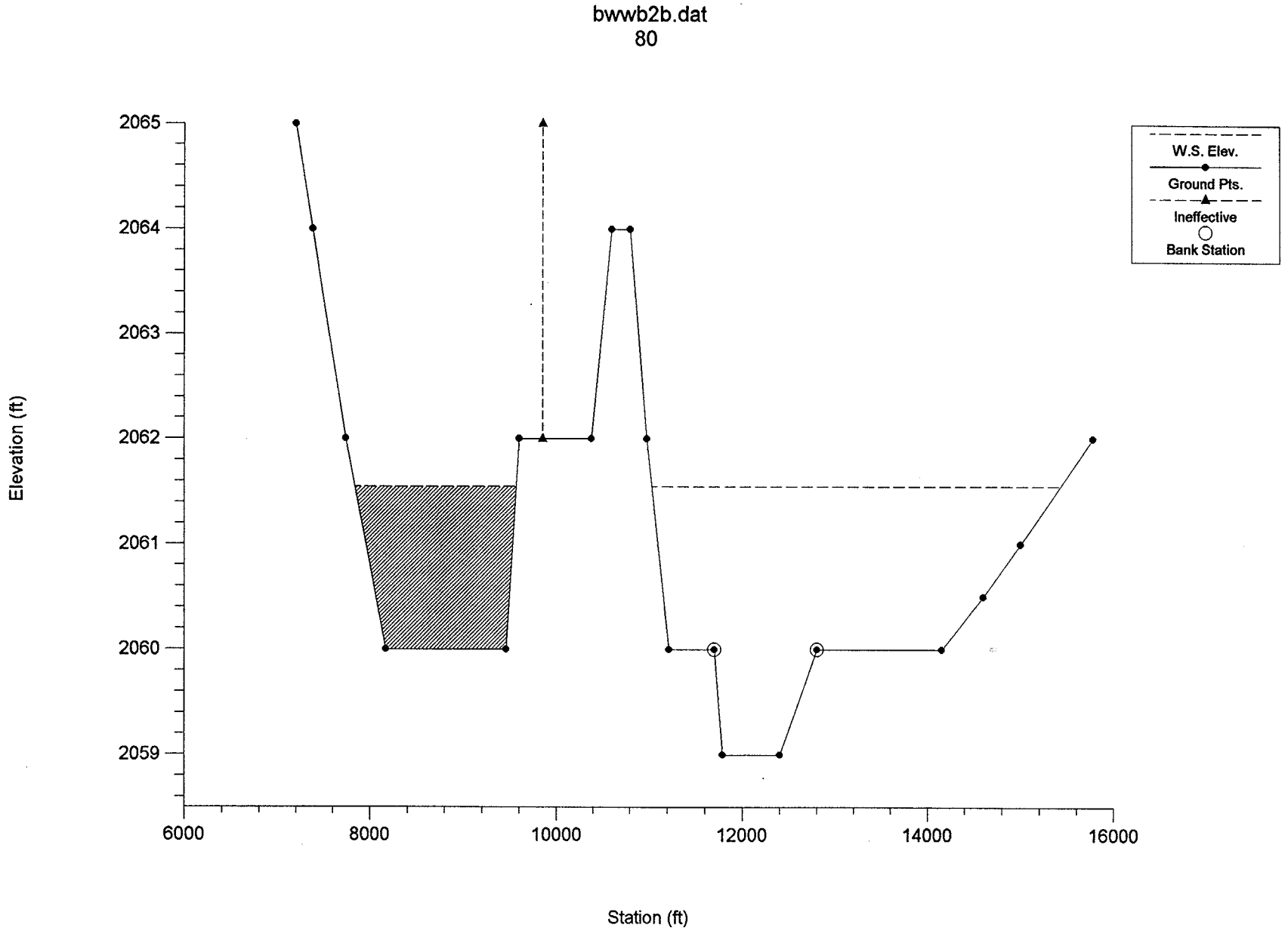
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station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W.S. Elev.
Ground Pts.
Ineffective
Bank Station
Elevation (ft)
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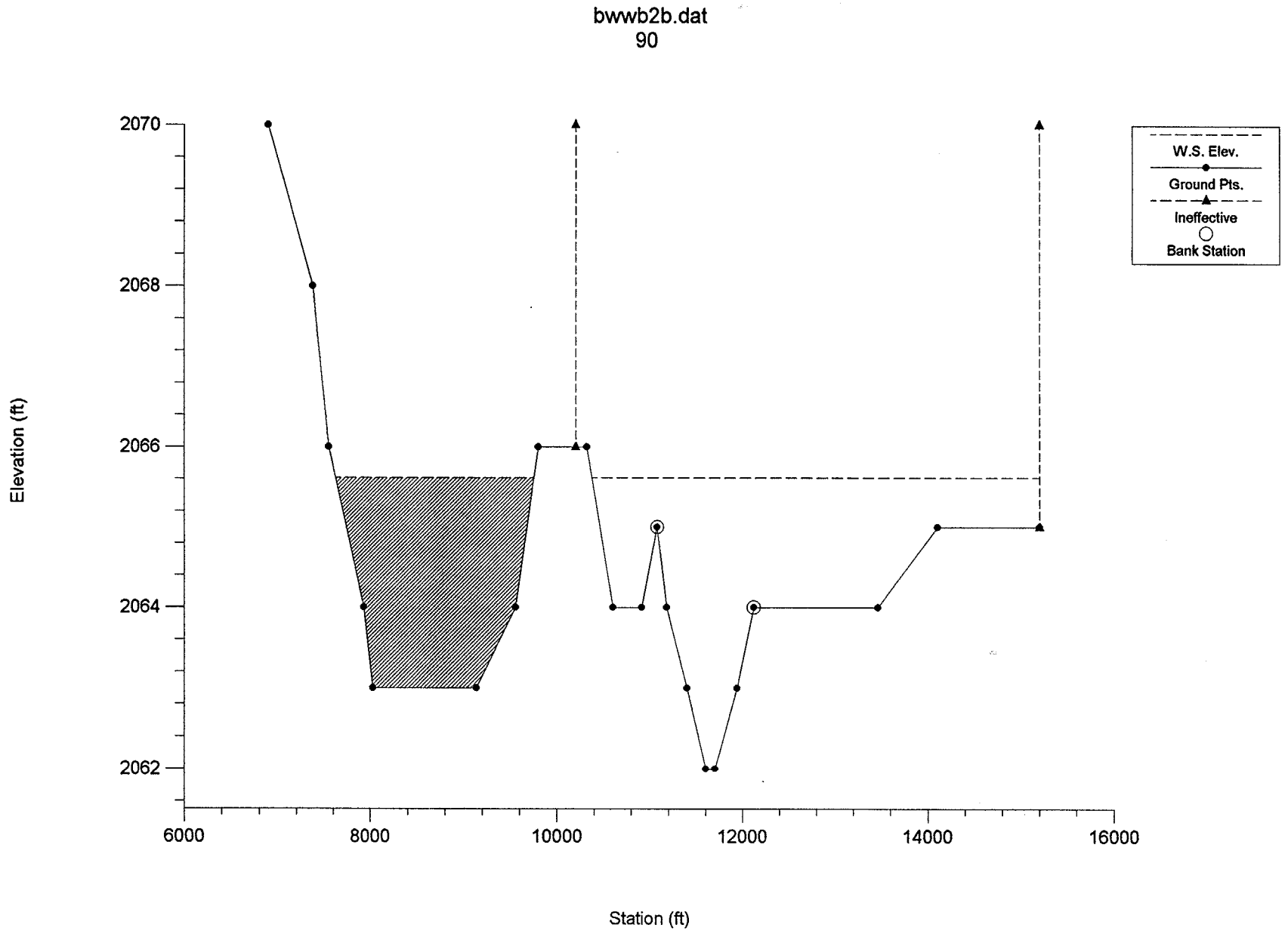
6000
8000
10000
12000
14000
16000
Station (ft)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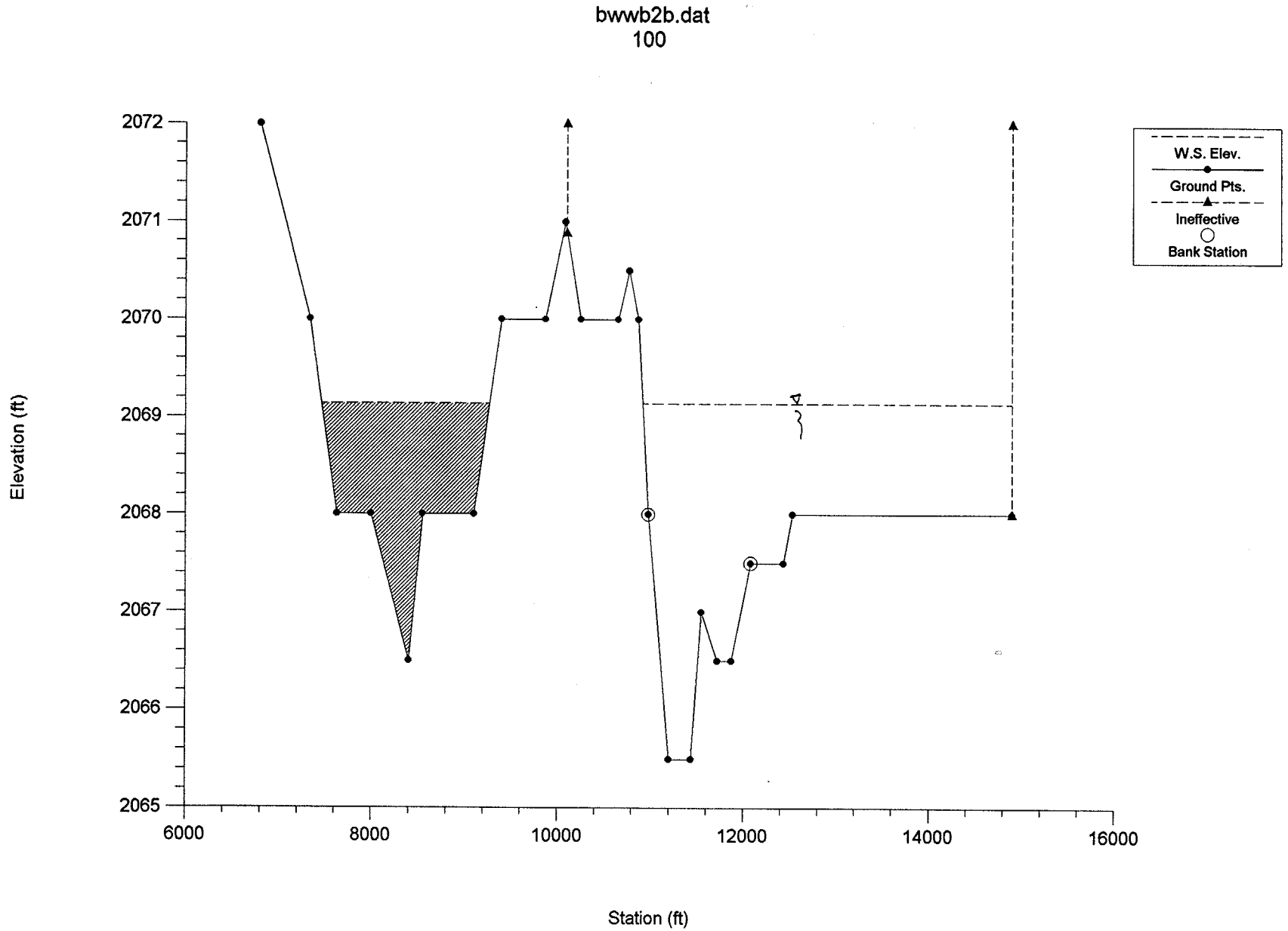
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station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Ground Pts.
Ineffective
Bank Station
Elevation (ft)
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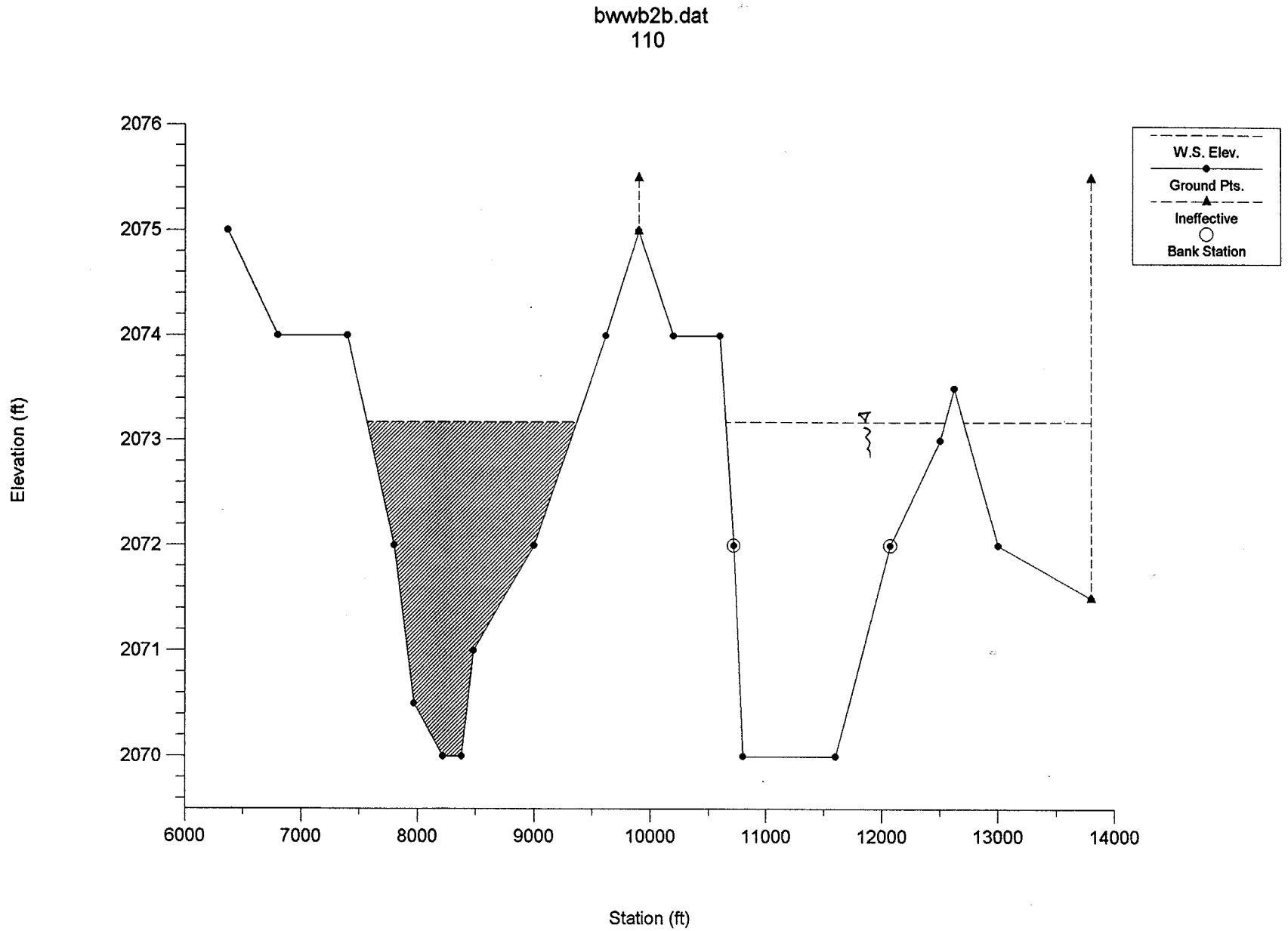
Station (ft)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Ground Pts.
Ineffective
Bank Station
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2073
2072
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7000
8000
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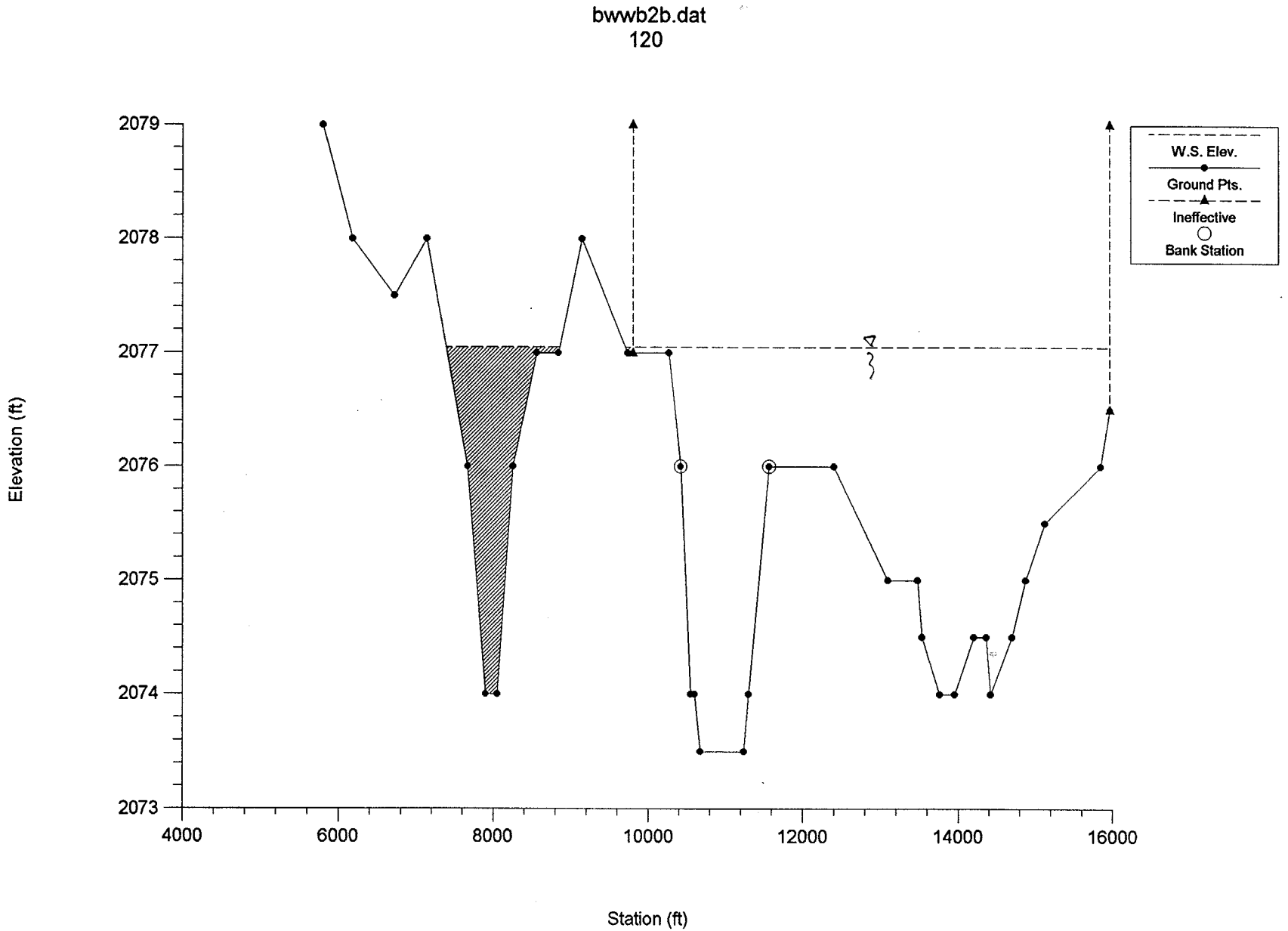
13000
14000
Station (ft)

SLA, INC.

112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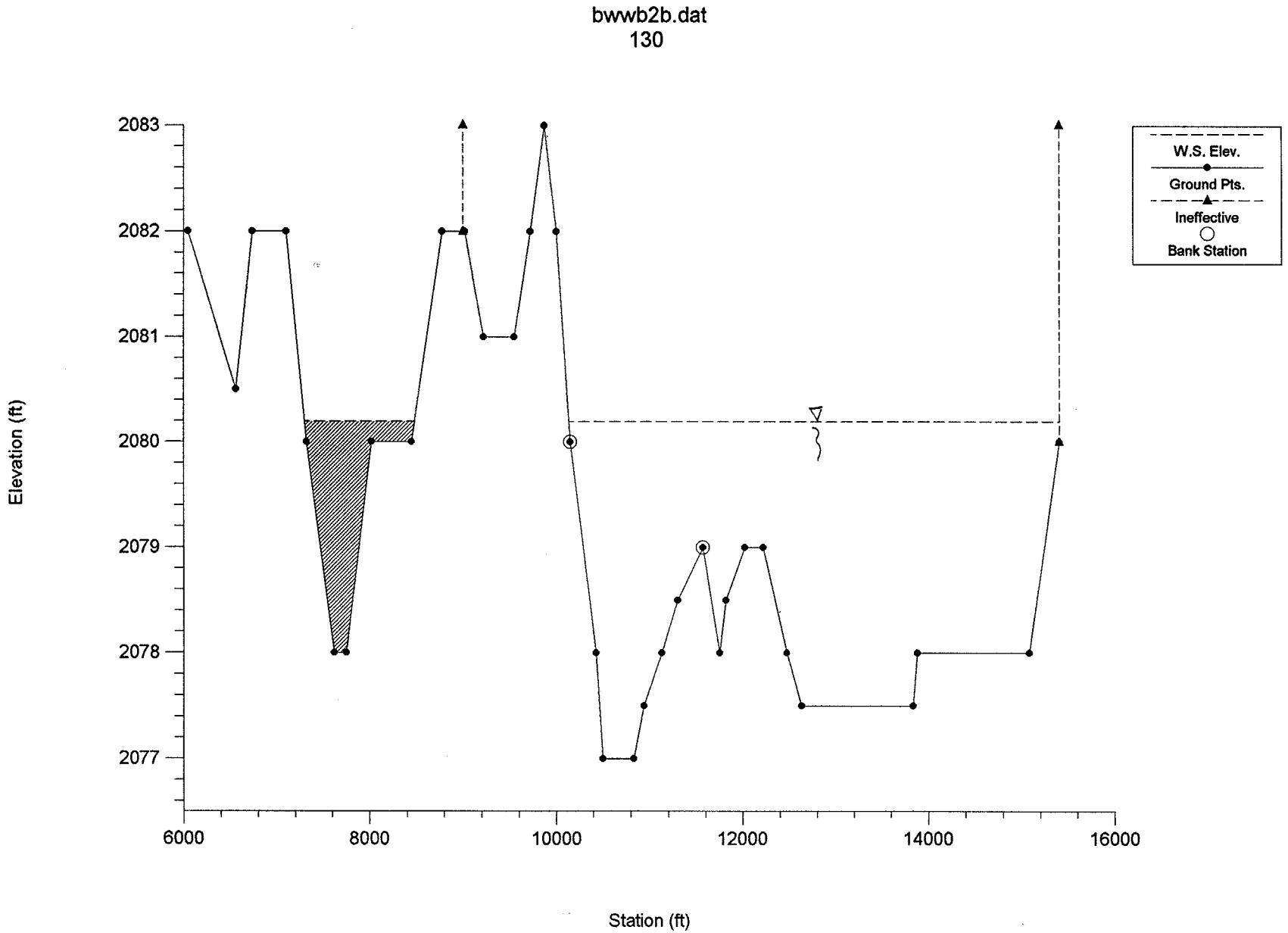
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station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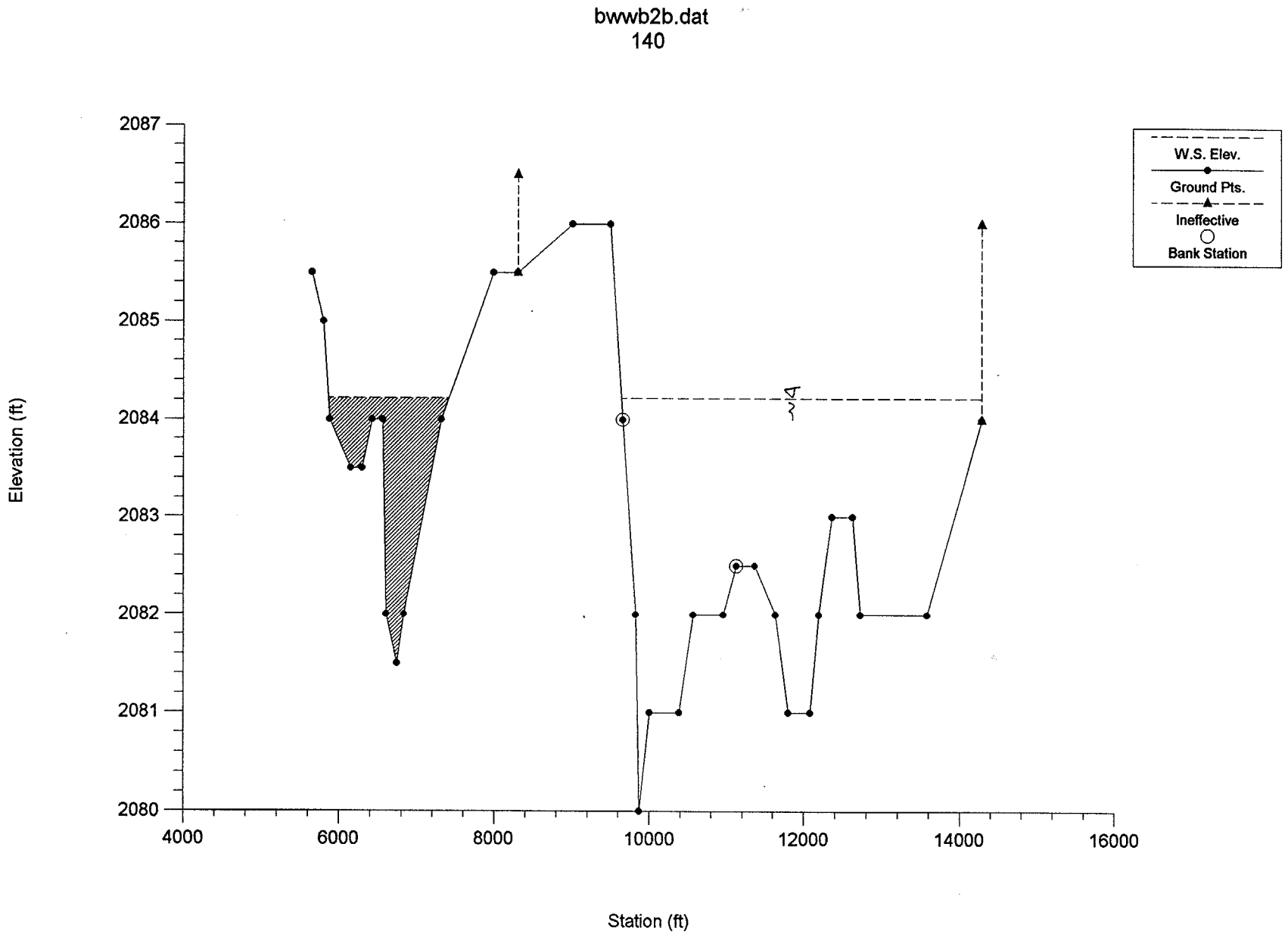
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station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Ground Pts.
Ineffective
Bank Station
Elevation (ft)
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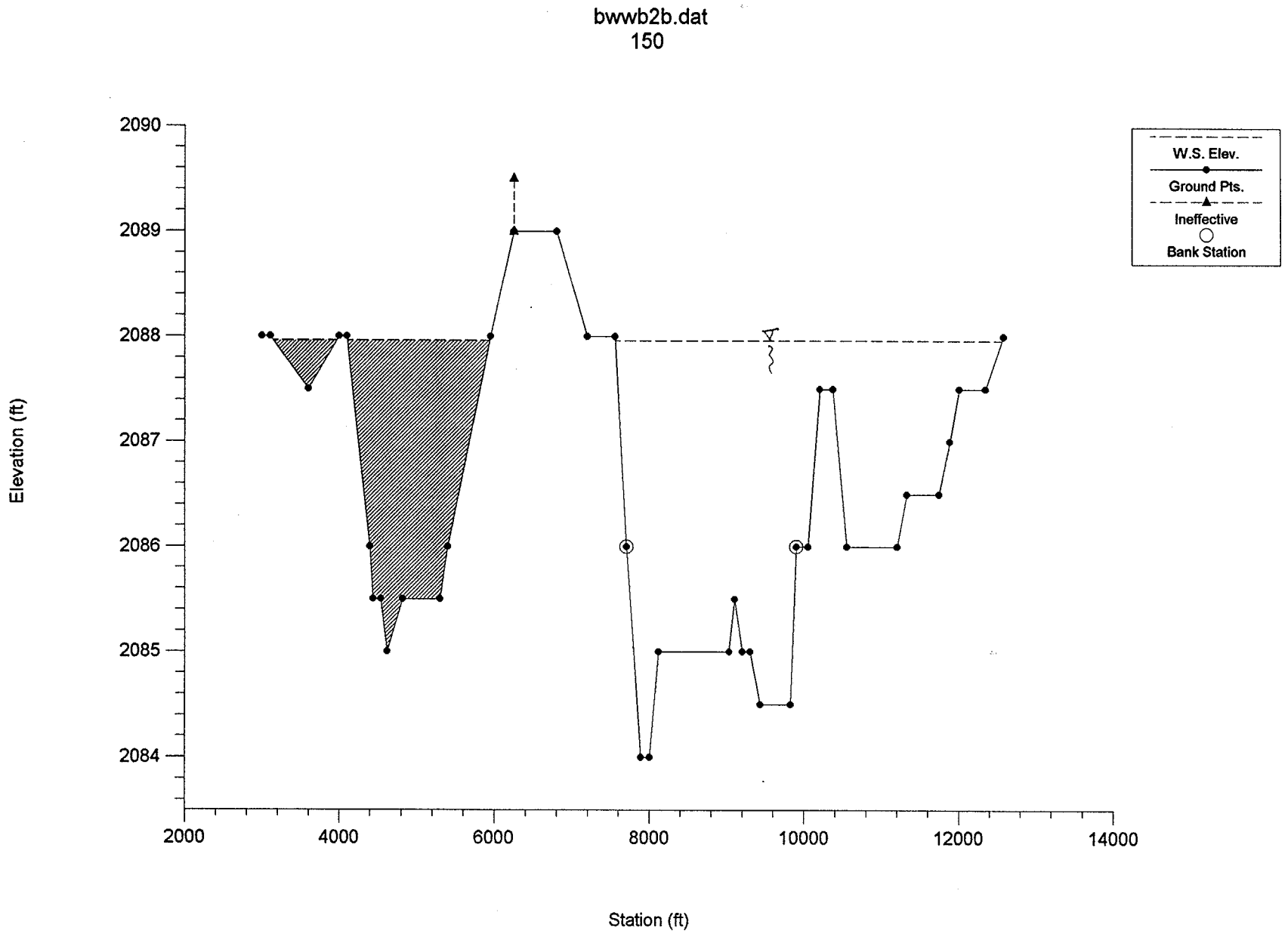
Station (ft)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Ground Pts.
Ineffective
Bank Station
Elevation (ft)
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12000
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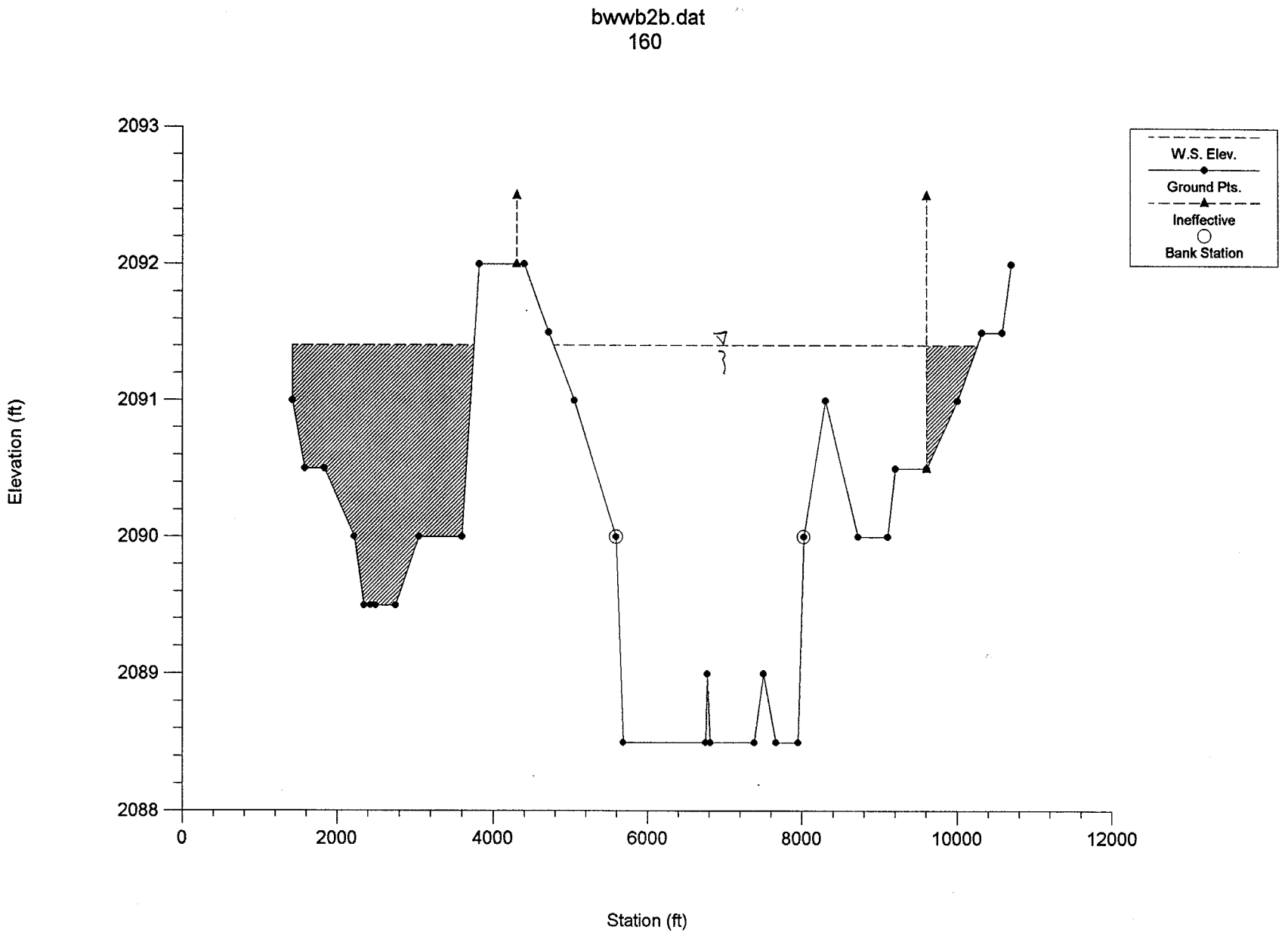
Station (ft)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Ground Pts.
Ineffective
Bank Station
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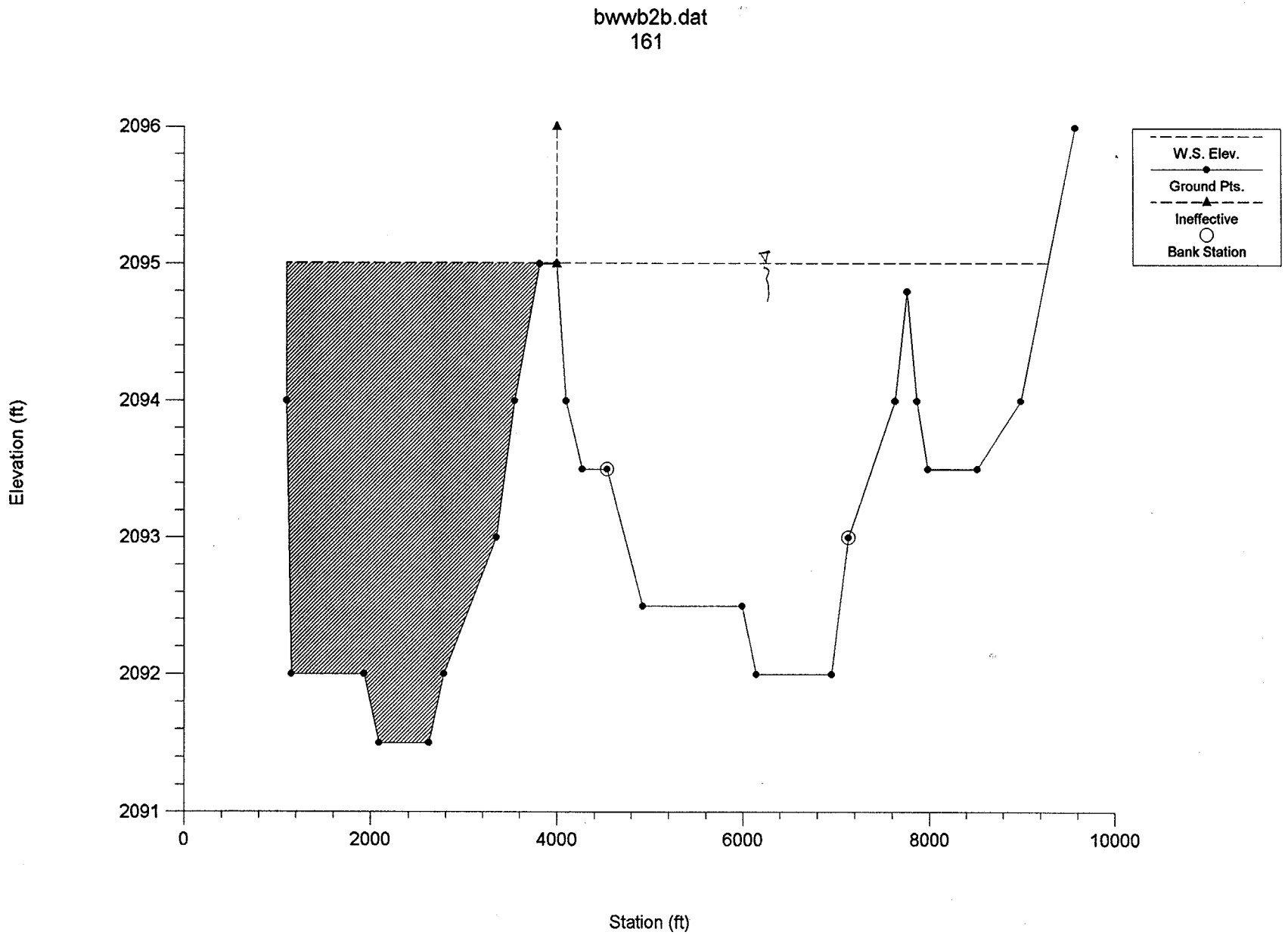
Station (ft)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Ground Pts.
Ineffective
Bank Station
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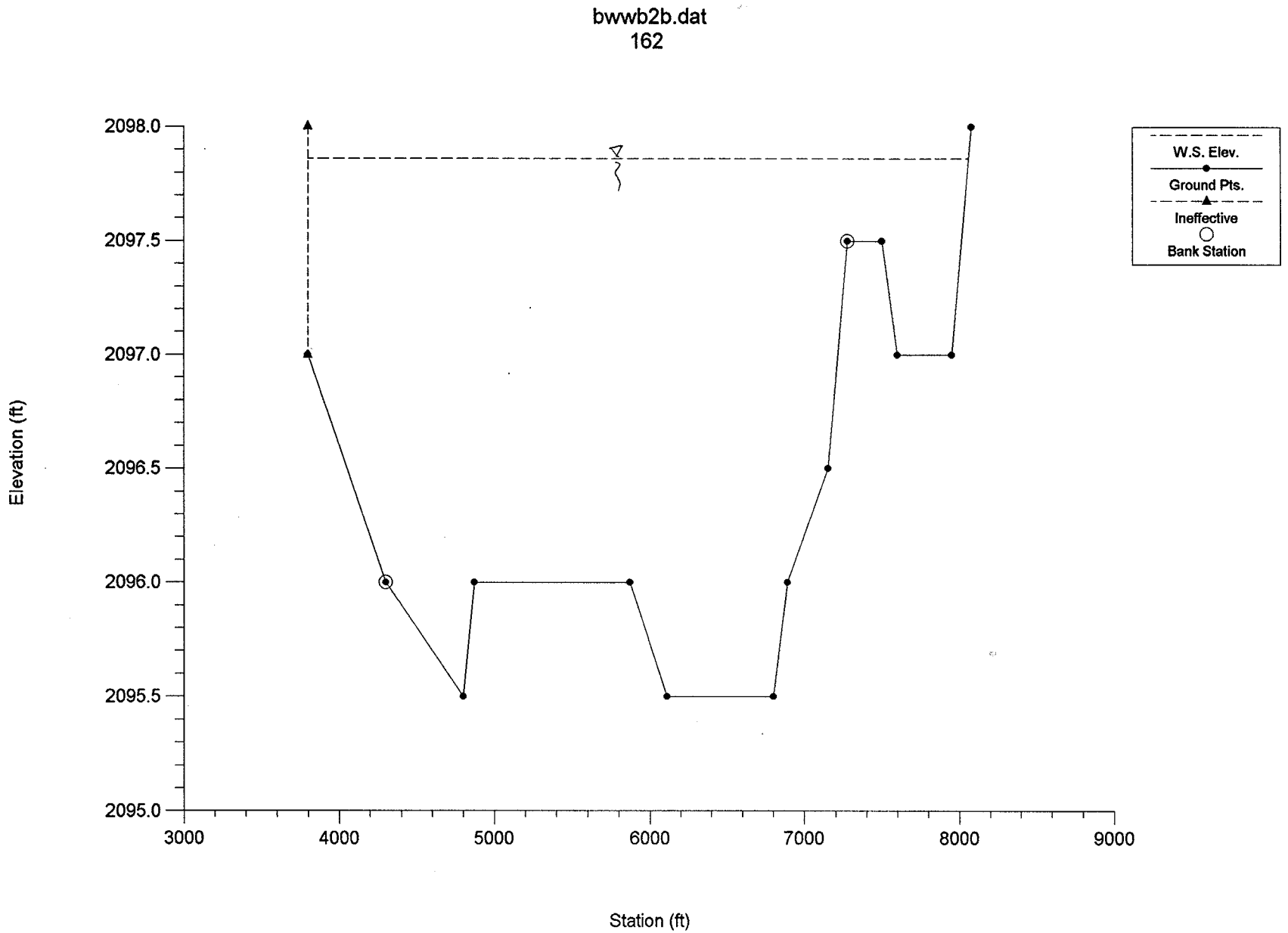
Station (ft)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6000
7000
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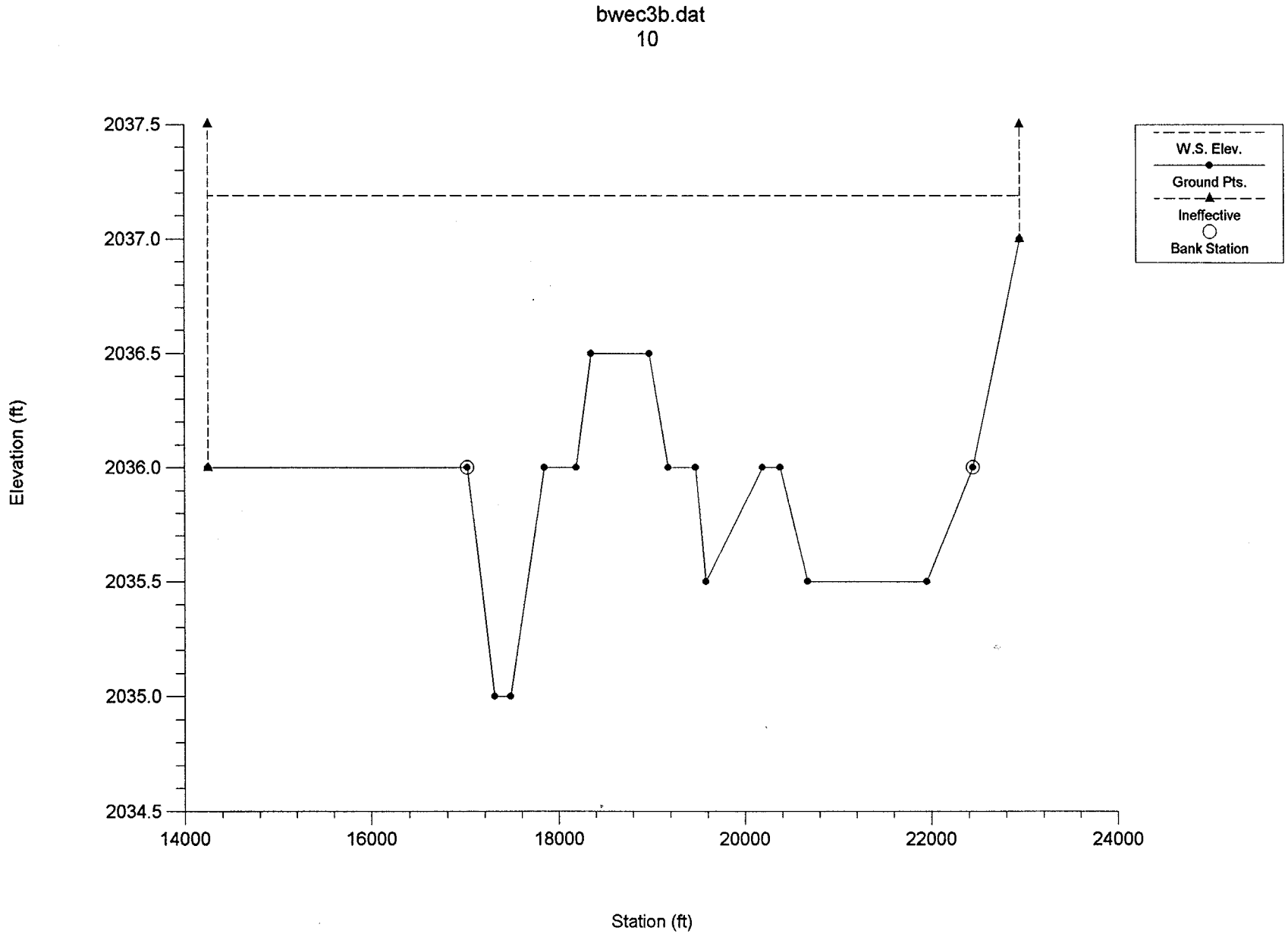
9000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station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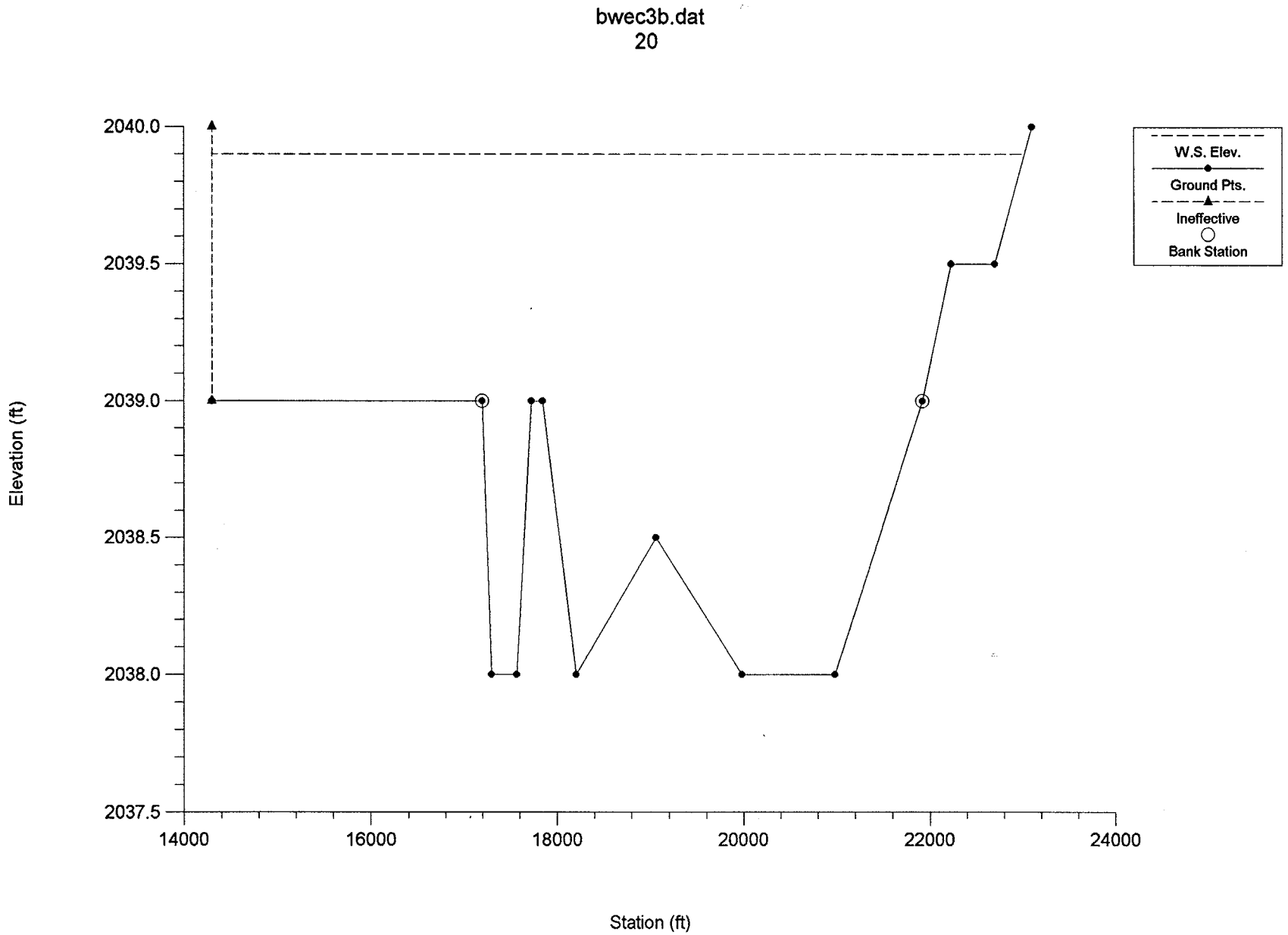
18000
20000
22000
24000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station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Elevation (ft)
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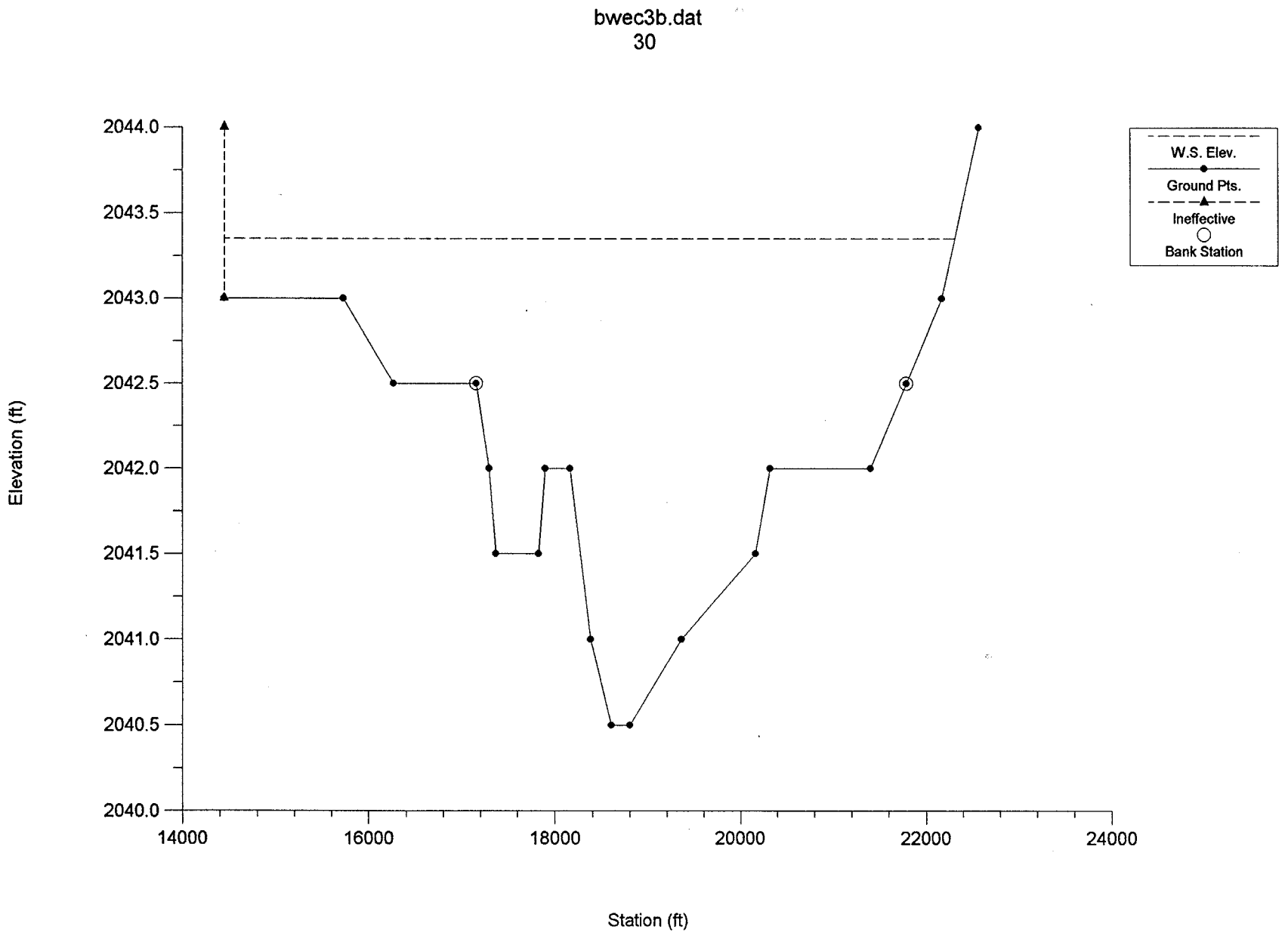
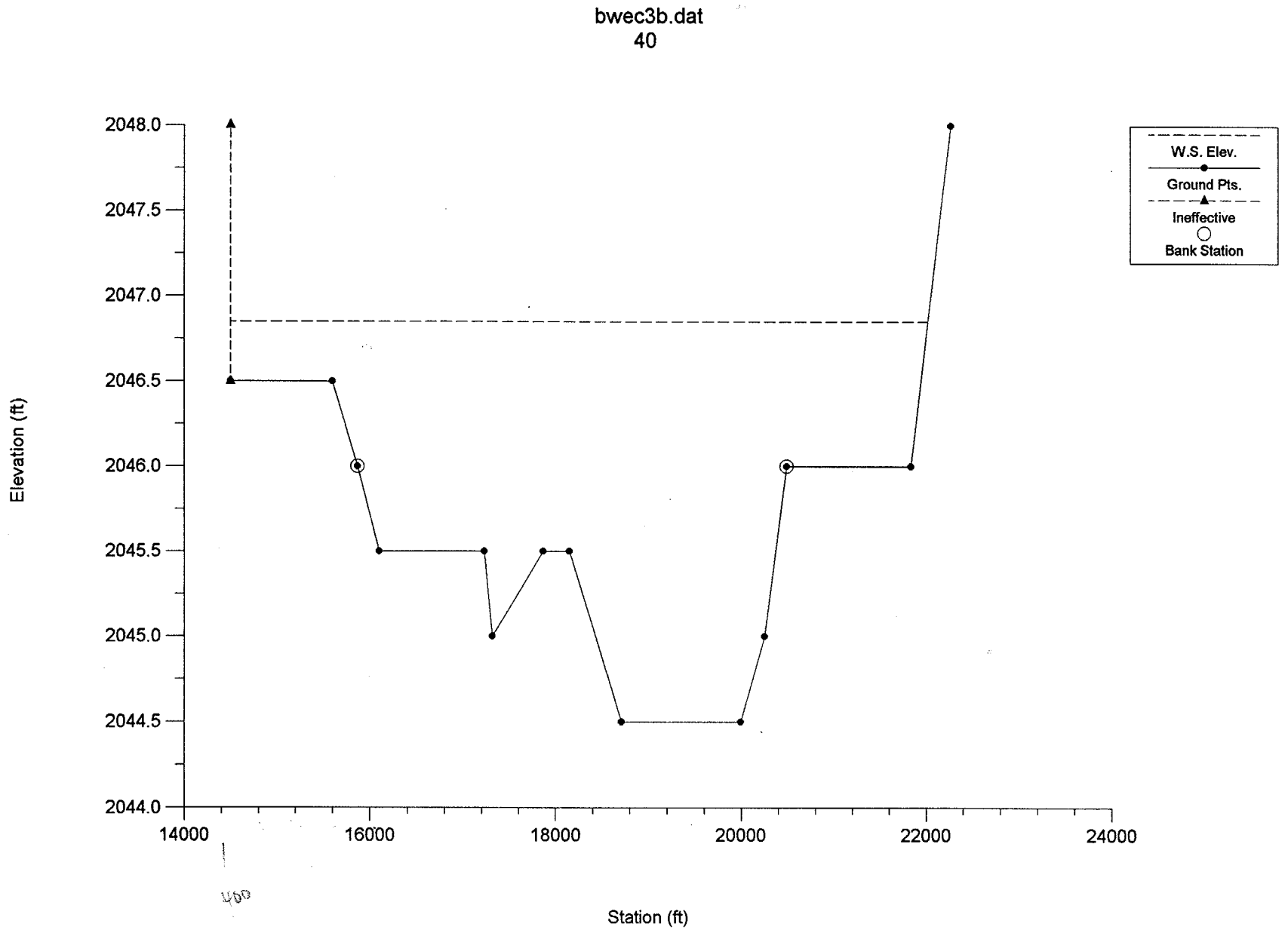
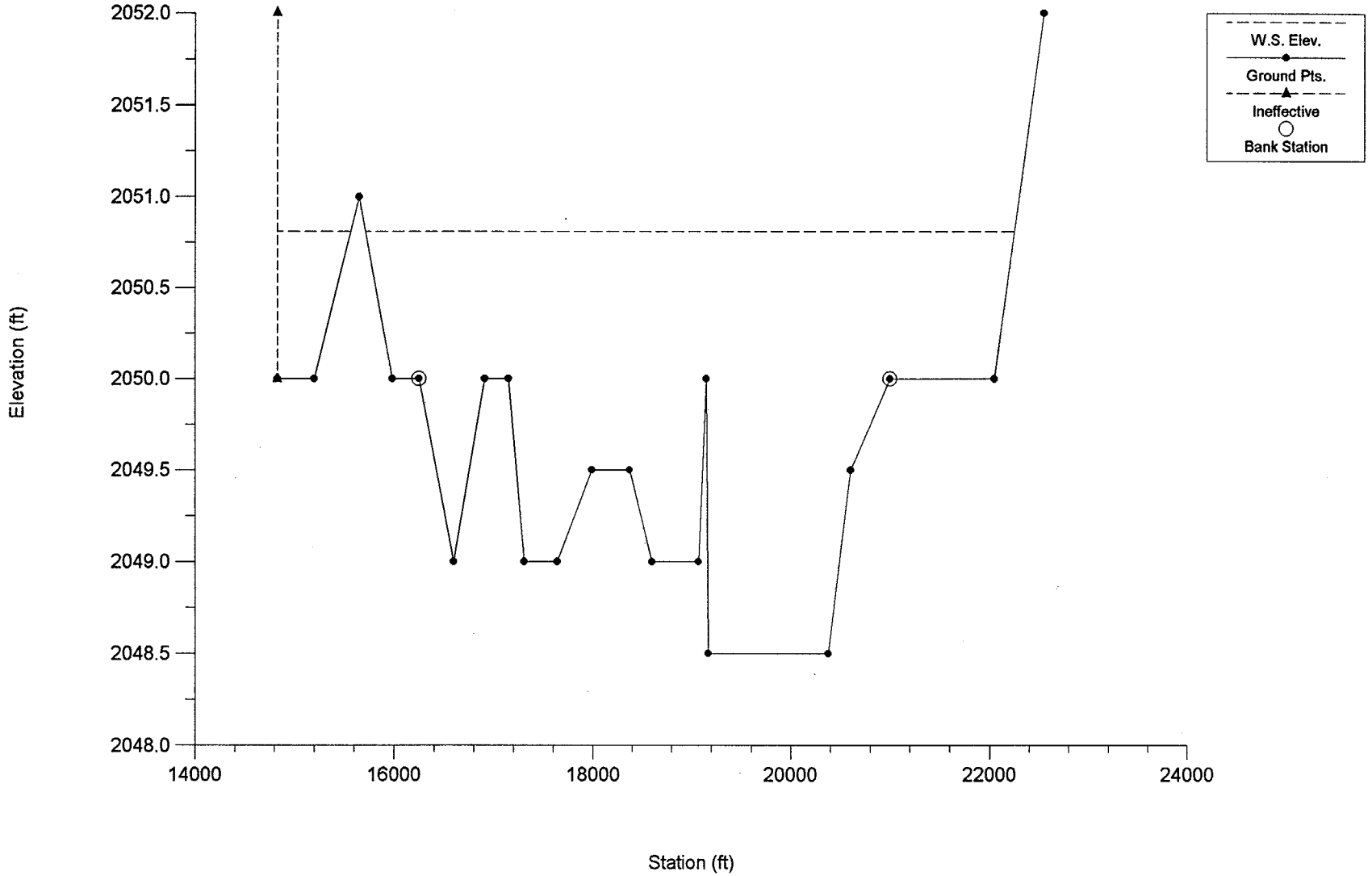
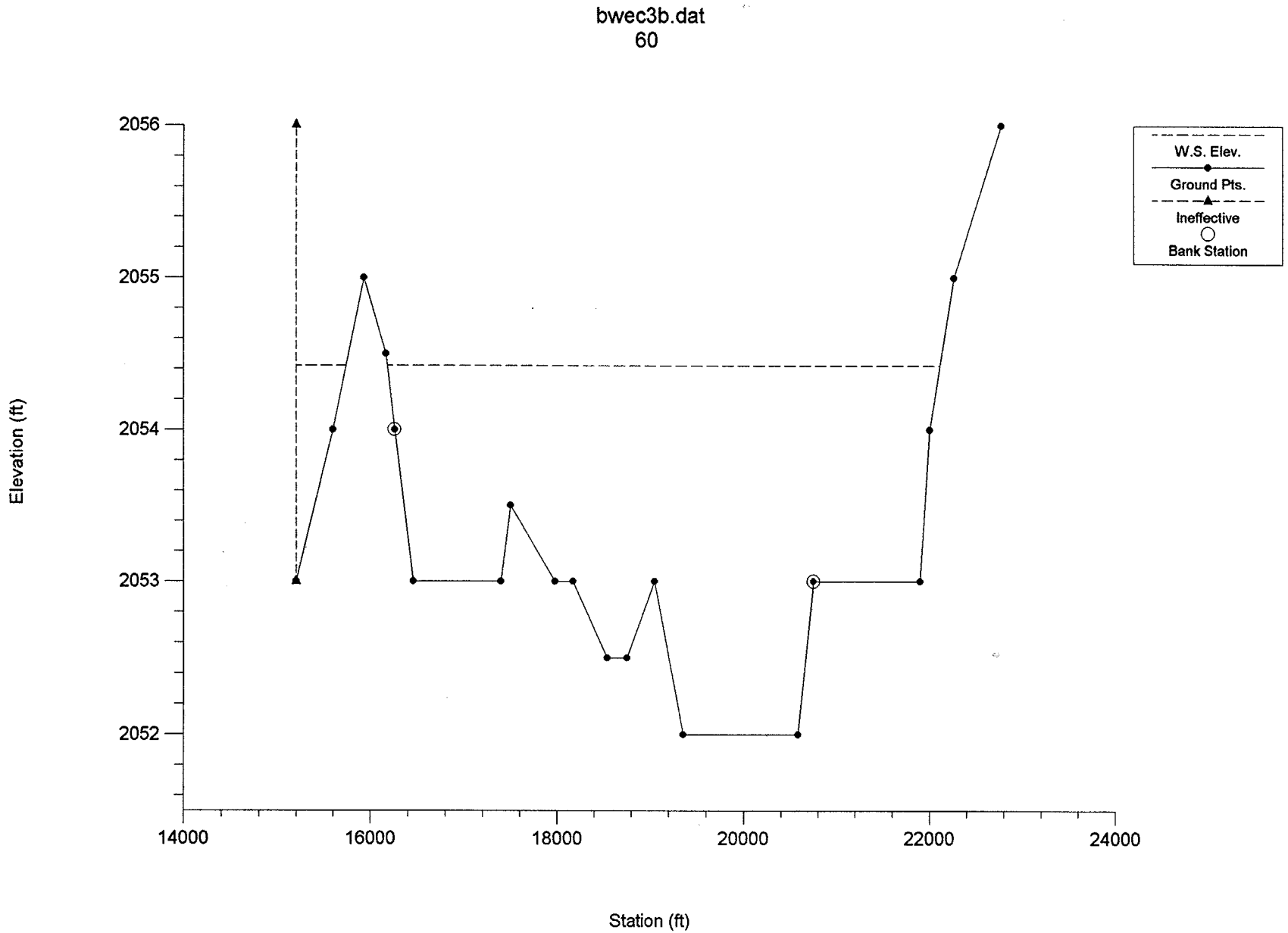
18000
20000
22000
24000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

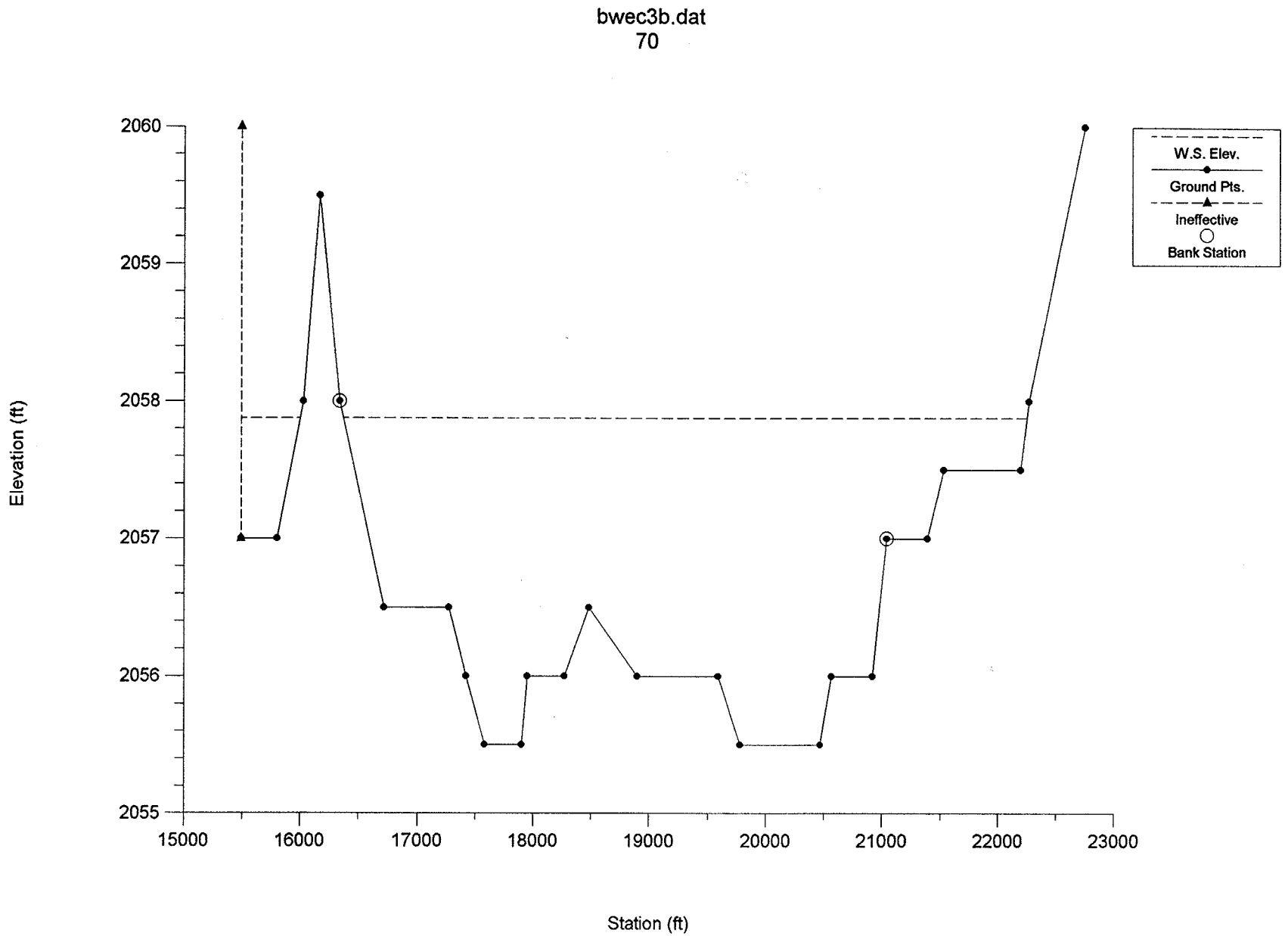

bwec3b.dat
30
2044.0
2043.5
2043.0
2042.5
2042.0
2041.5
2041.0
2040.5
2040.0
Elevation (ft)
14000
16000
18000
20000
22000
24000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station


bwec3b.dat
40
W.S. Elev.
Ground Pts.
Ineffective
Bank Station
Elevation (ft)
2048.0
2047.5
2047.0
2046.5
2046.0
2045.5
2045.0
2044.5
2044.0
14000
16000
18000
20000
22000
24000
Station (ft)

bwec3b.dat
50




bwec3b.dat
60
2056
2055
2054
2053
2052
Elevation (ft)
14000
16000
18000
20000
22000
24000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station


bwec3b.dat
70
W.S. Elev.
Ground Pts.
Ineffective
Bank Station
Elevation (ft)
2060
2059
2058
2057
2056
2055
15000
16000
17000
18000
19000
20000
21000
22000
23000
Station (ft)

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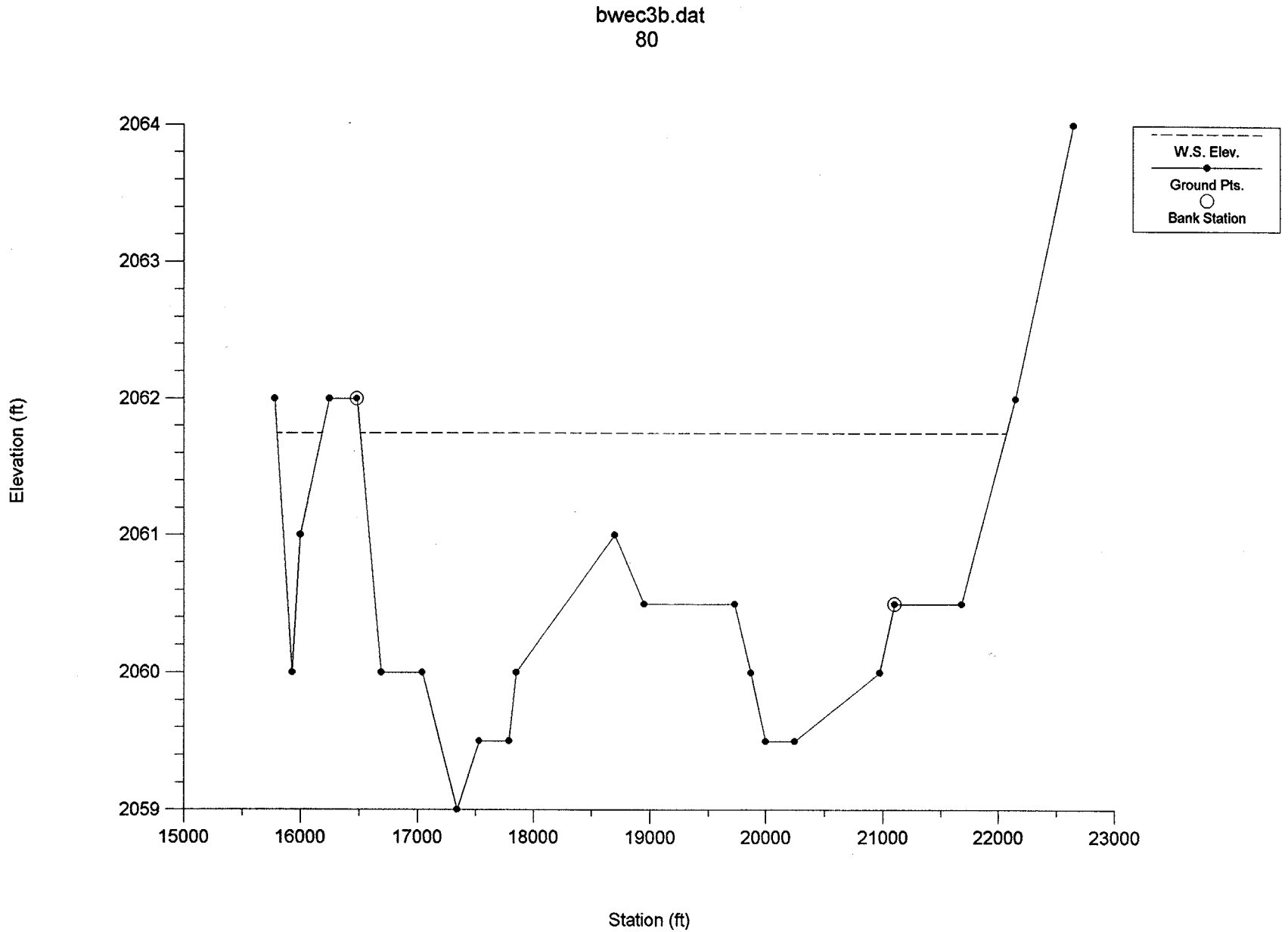
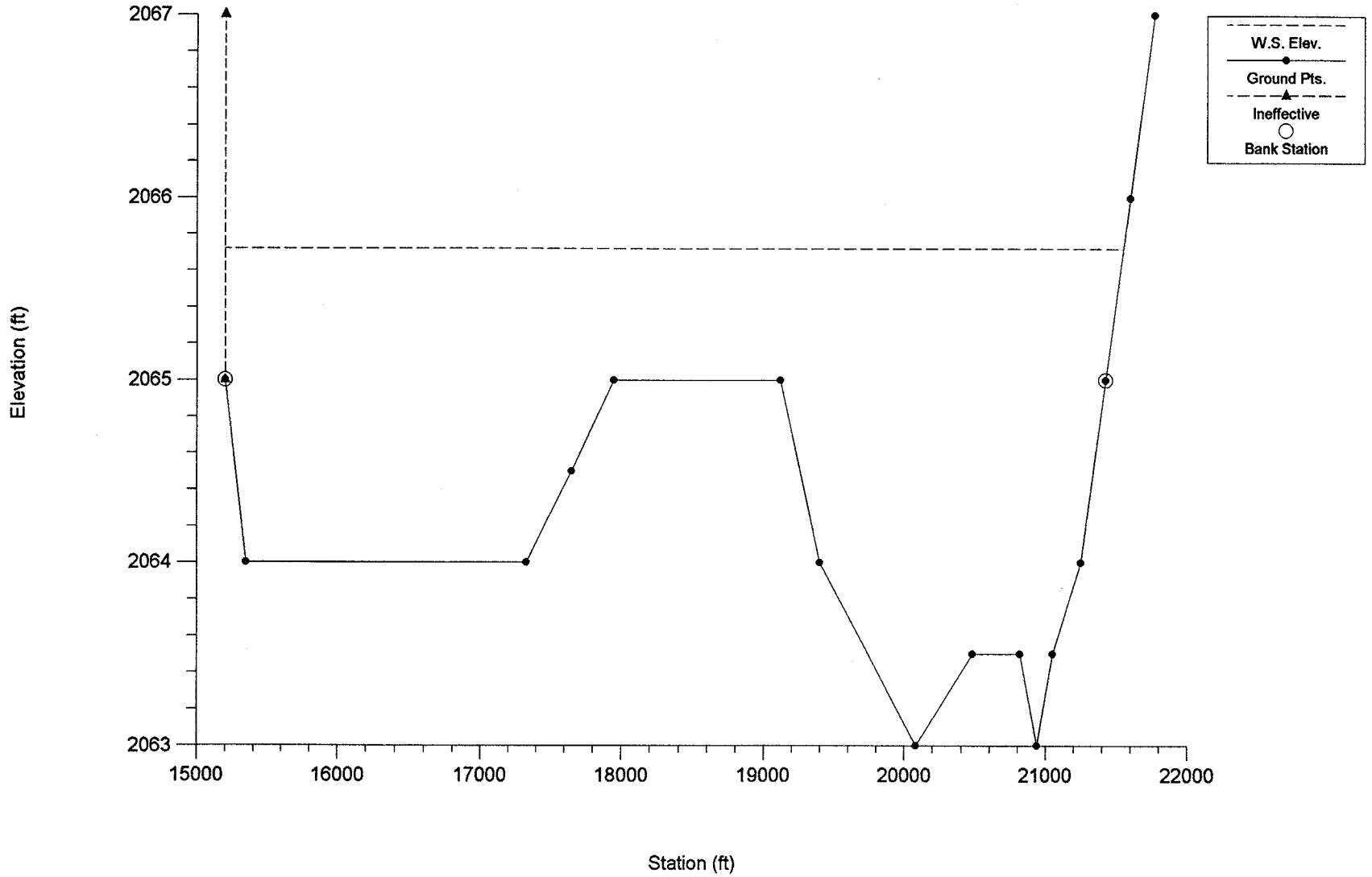
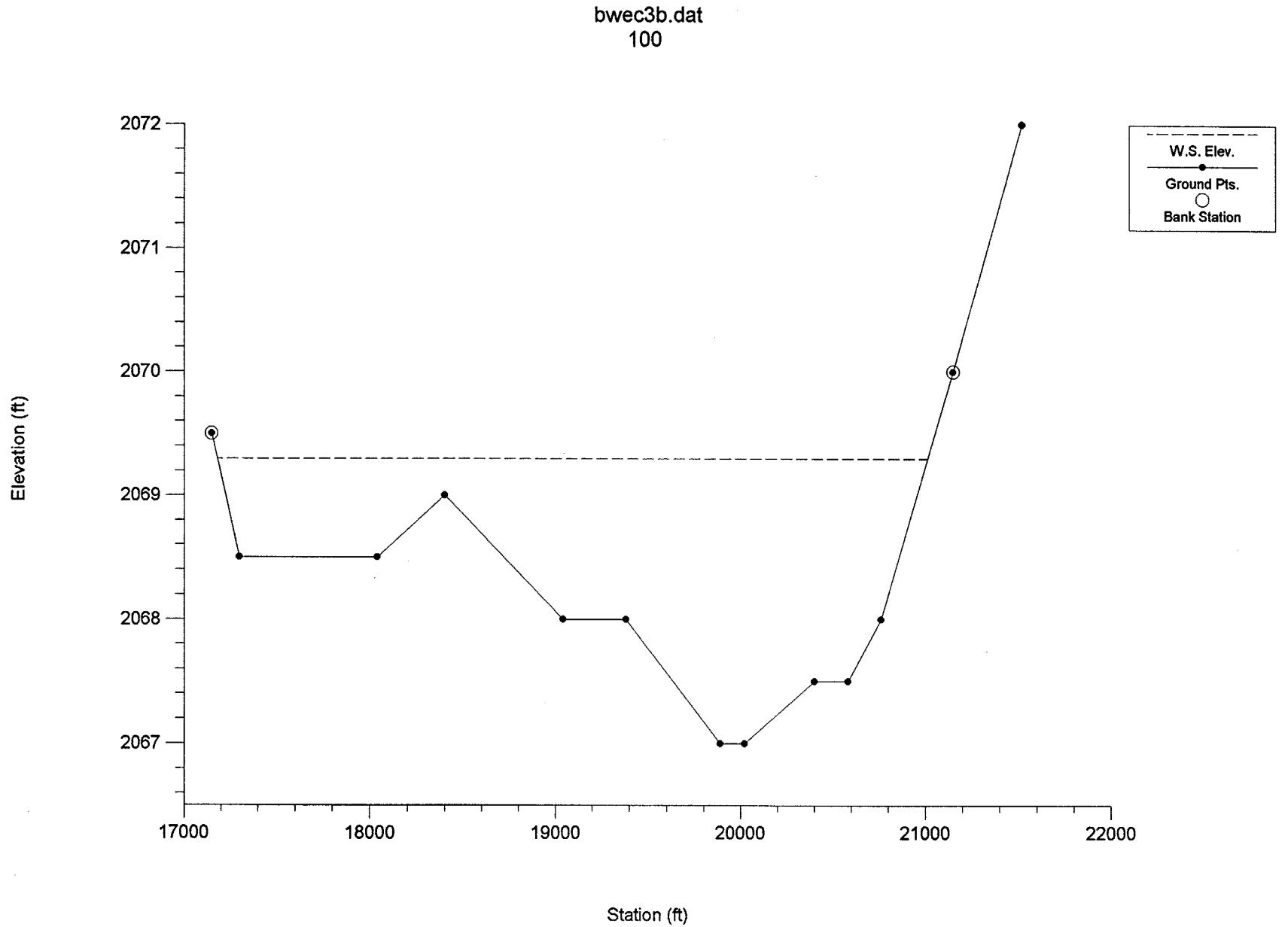
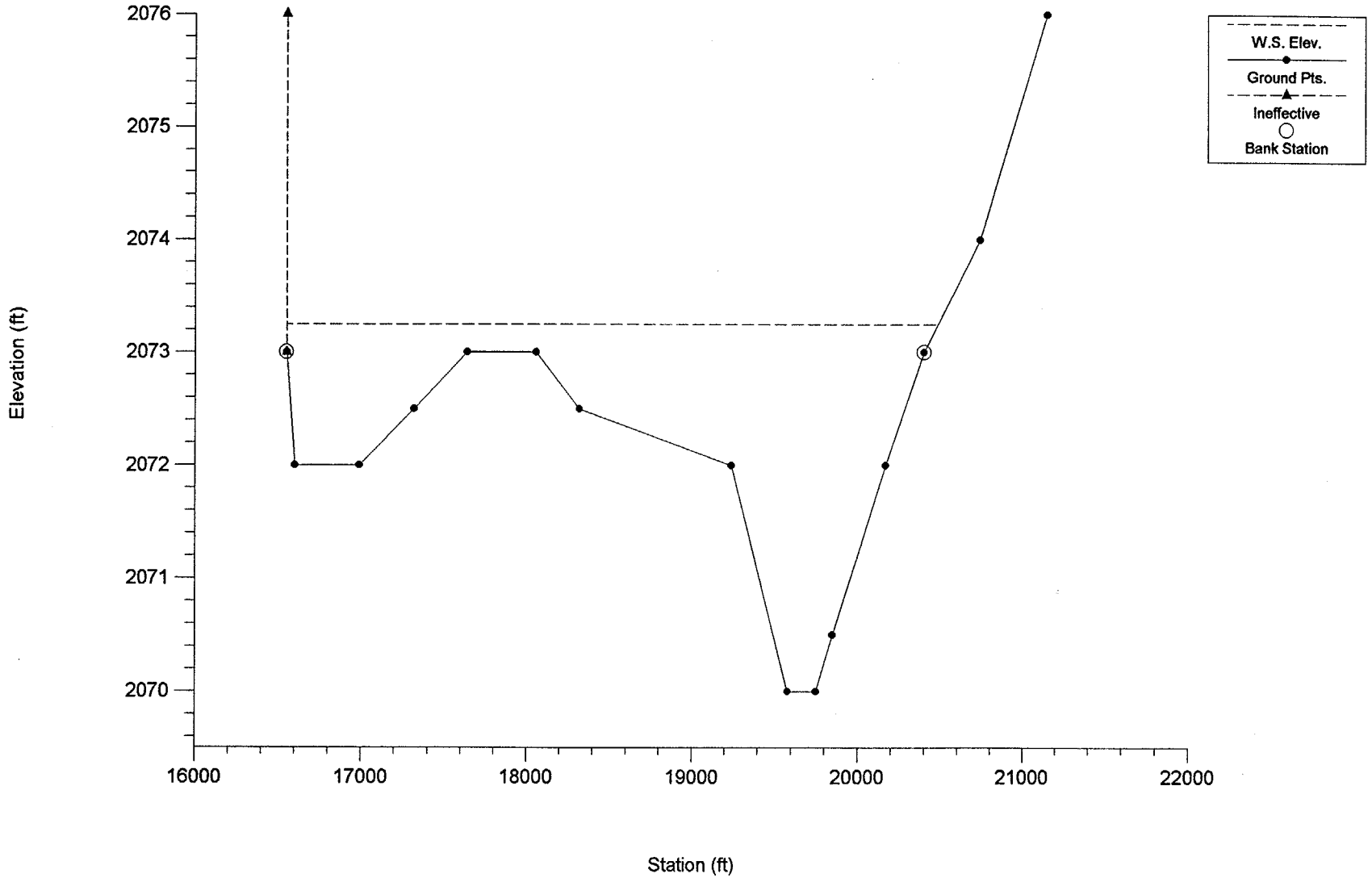

bwec3b.dat
80
W.S. Elev.
Ground Pts.
Bank Station
Elevation (ft)
2064
2063
2062
2061
2060
2059
15000
16000
17000
18000
19000
20000
21000
22000
23000
Station (ft)

bwec3b.dat
90




bwec3b.dat
100
2072
2071
2070
2069
2068
2067
Elevation (ft)
17000
18000
19000
20000
21000
22000
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

bwec3b.dat
110



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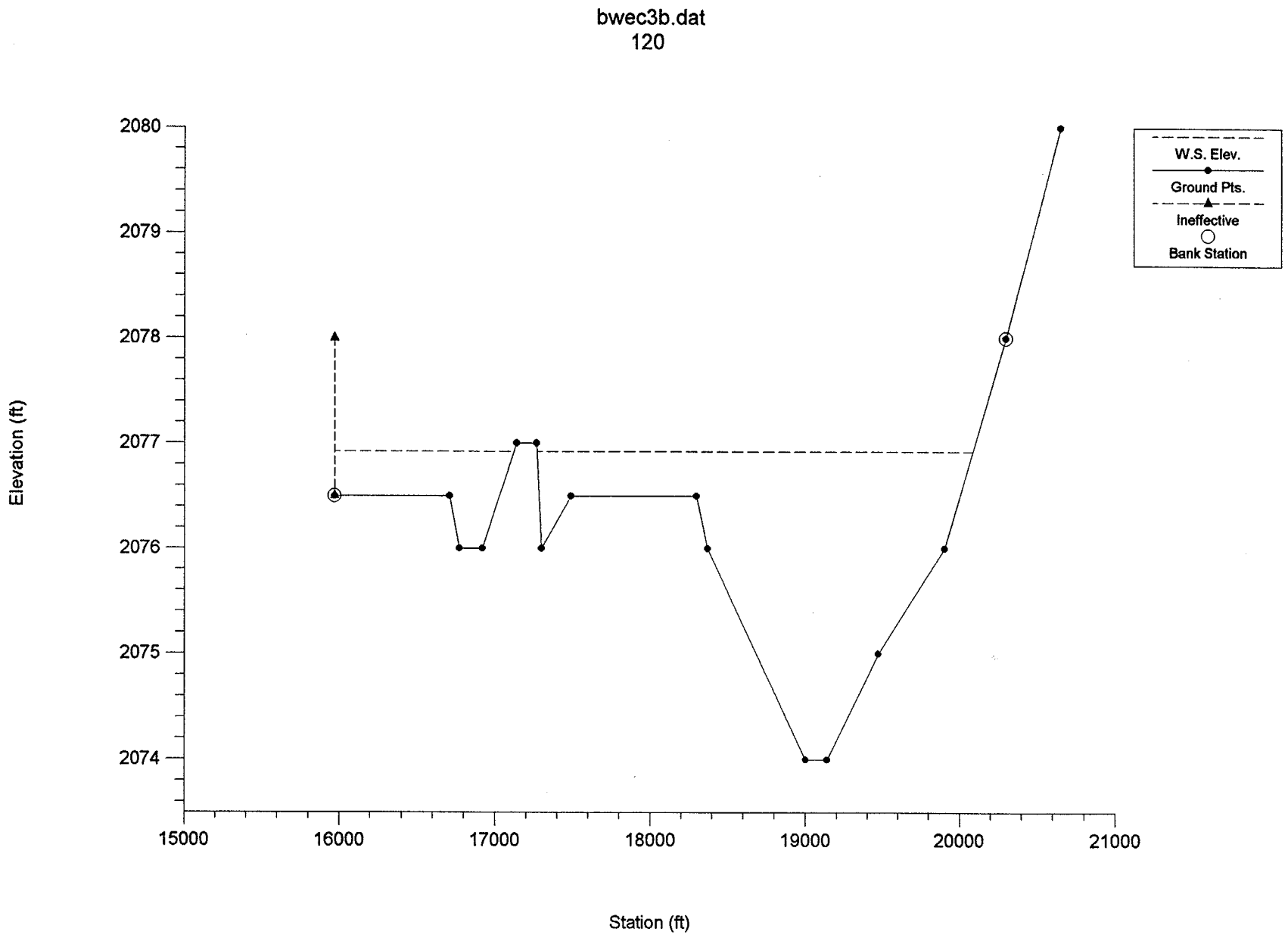
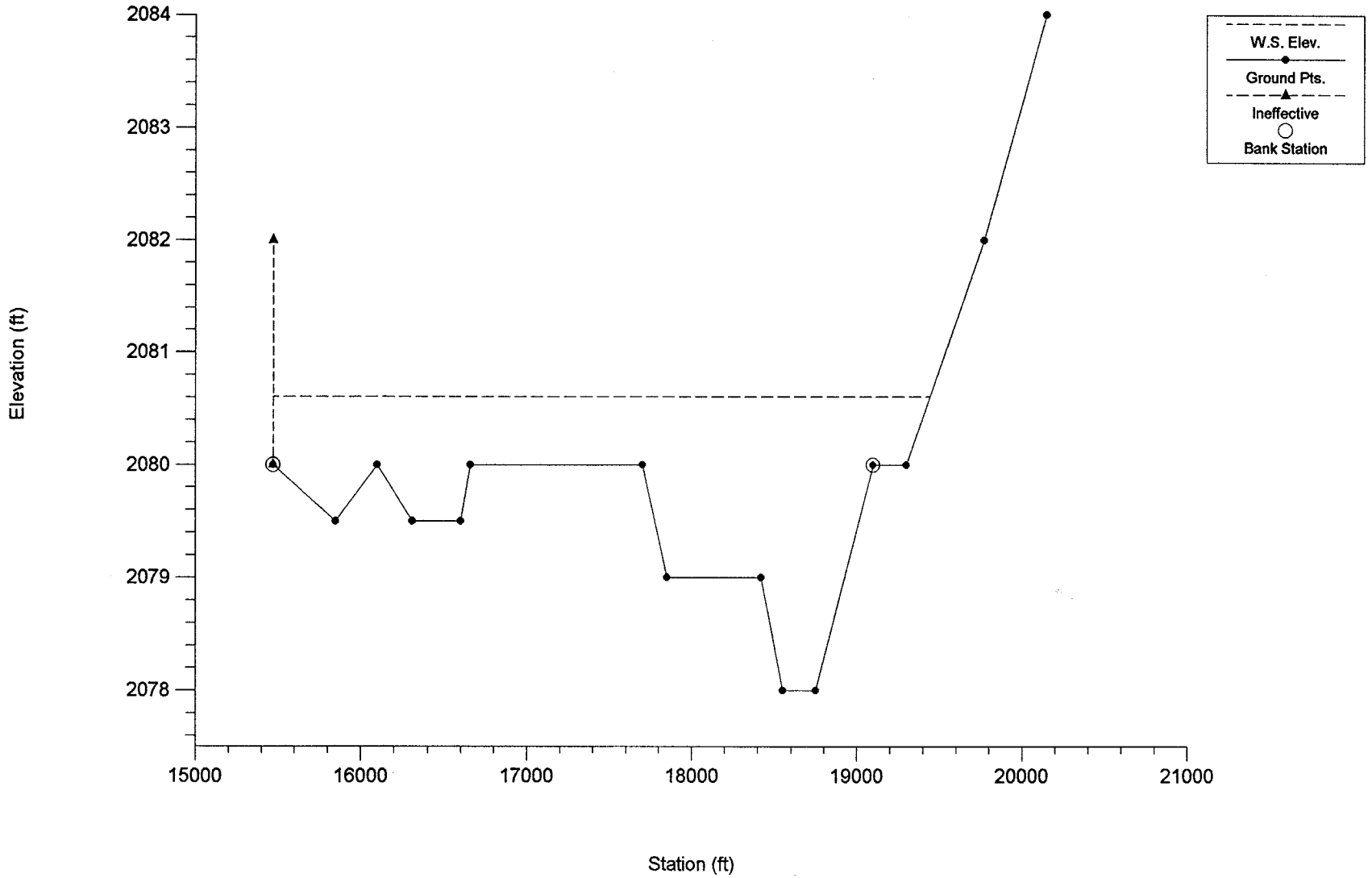
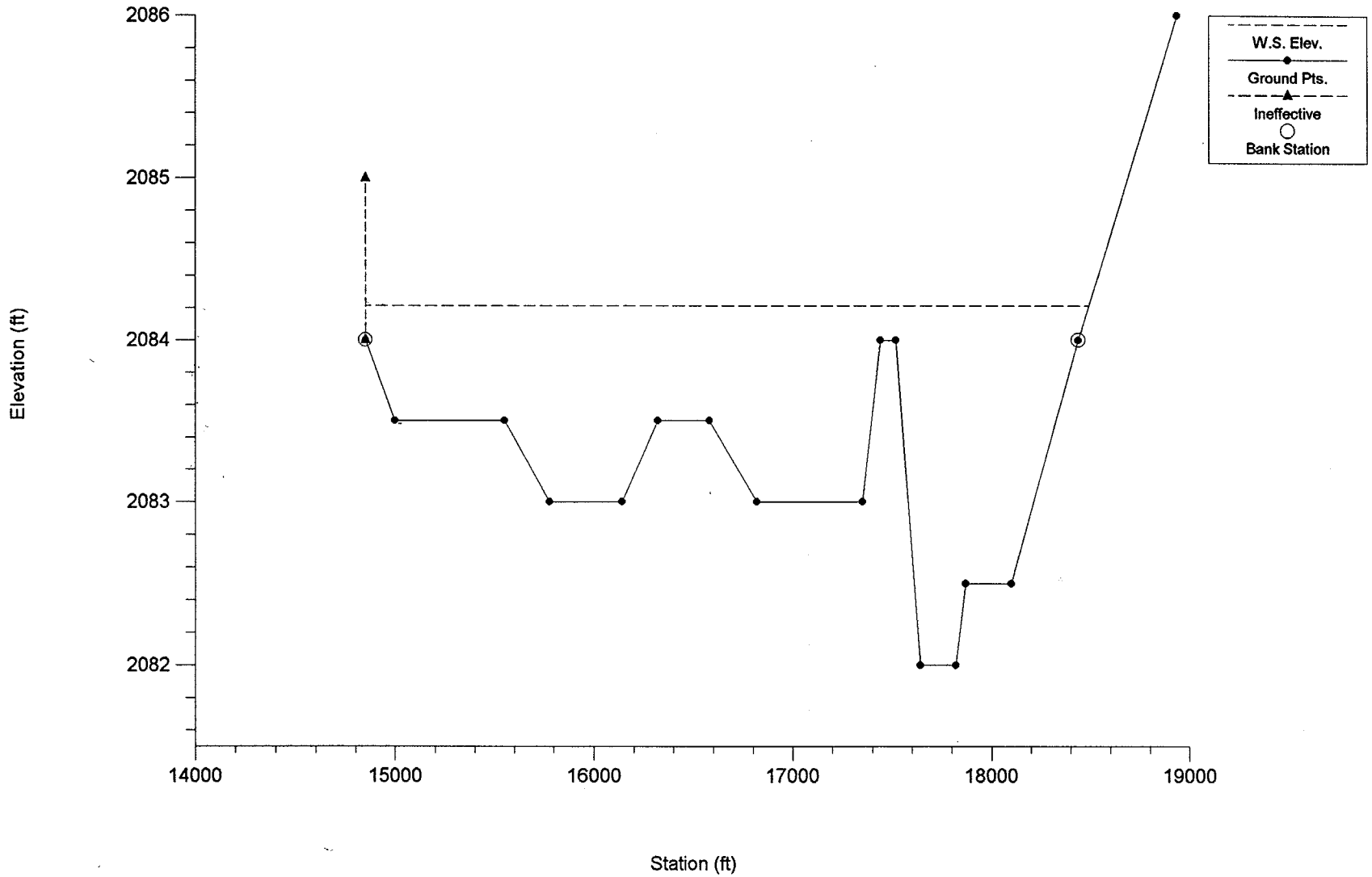
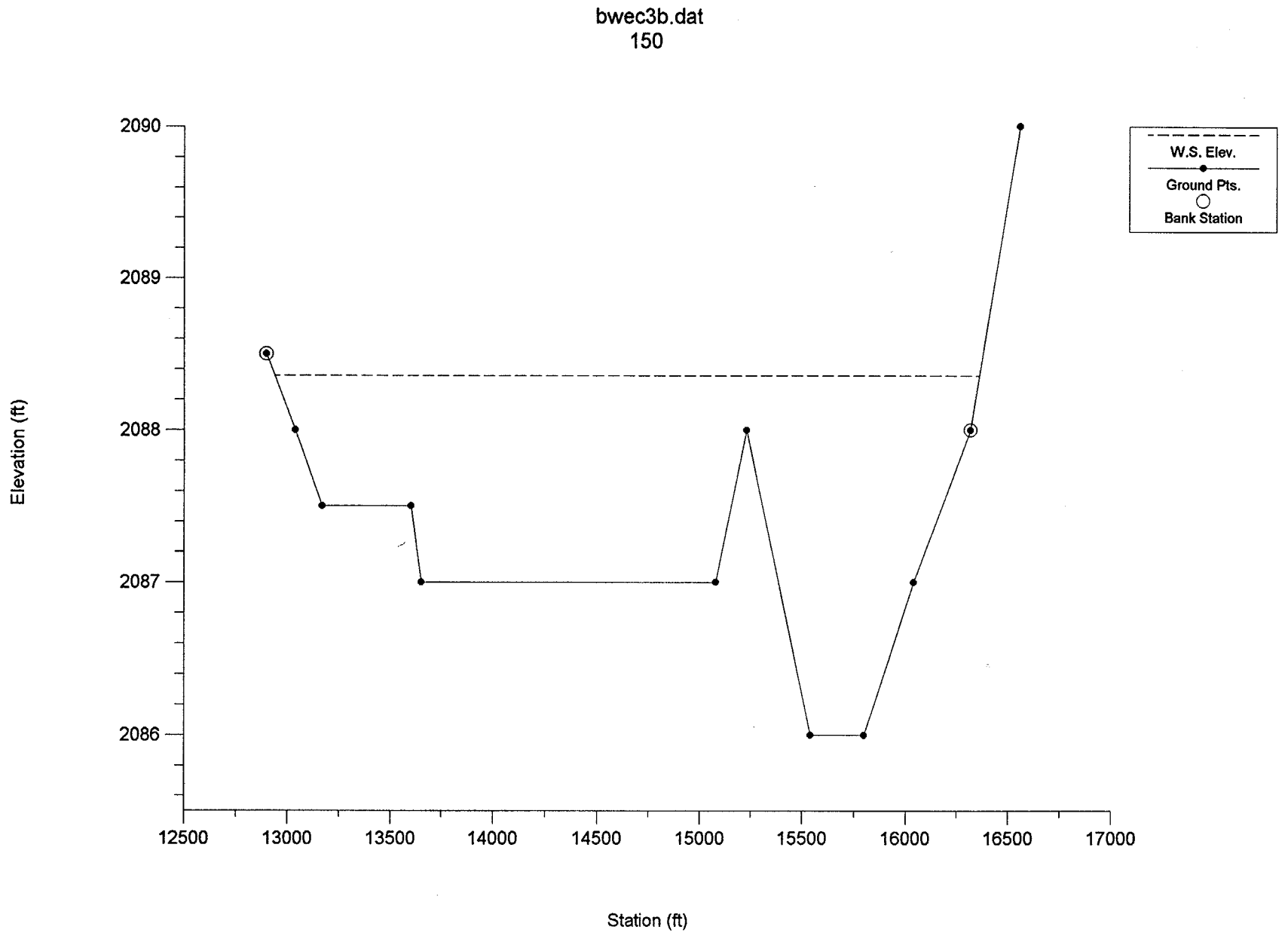

bwec3b.dat
120
Elevation (ft)
2080
2079
2078
2077
2076
2075
2074
15000
16000
17000
18000
19000
20000
21000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

bwec3b.dat
130

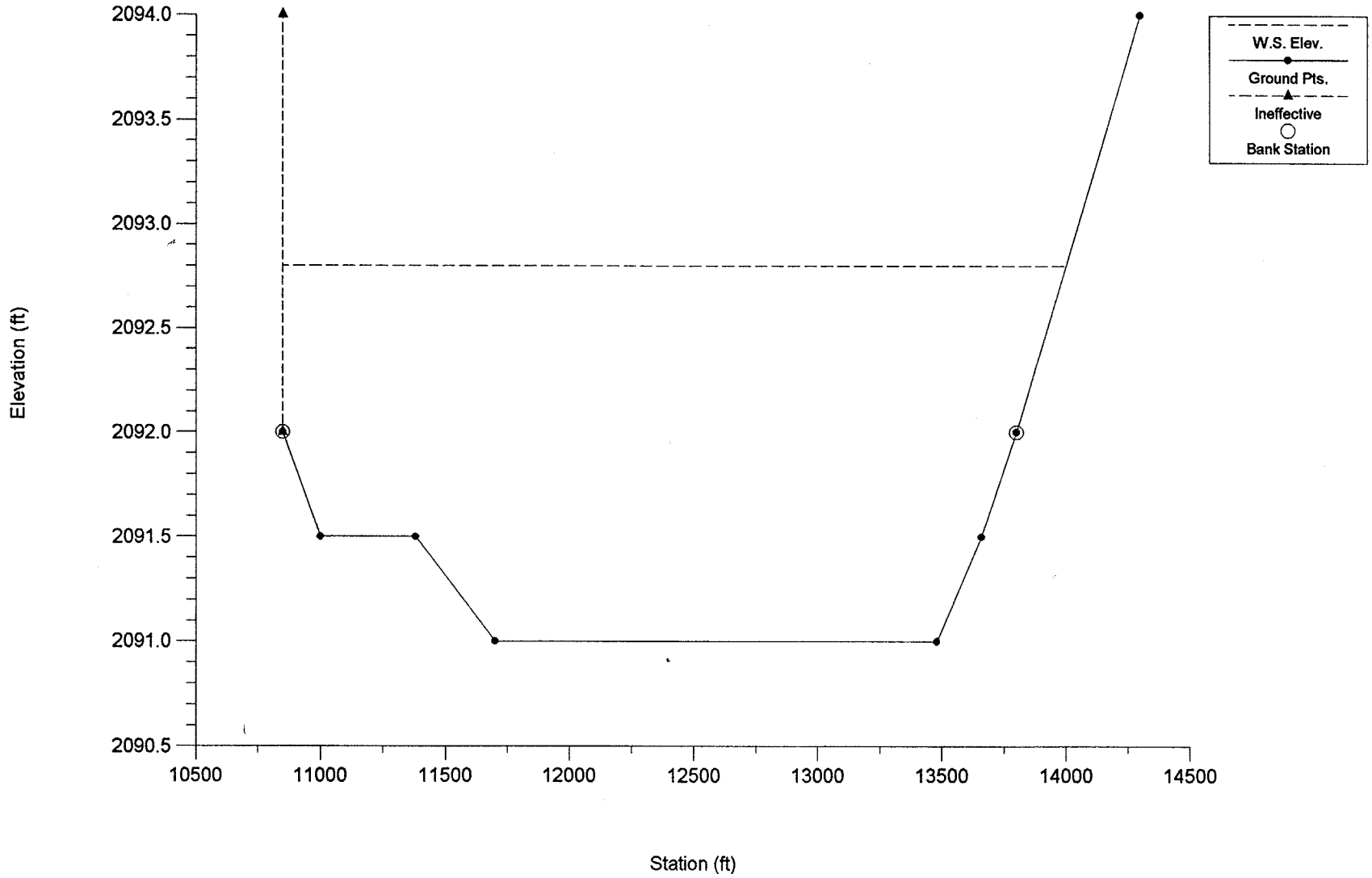


bwec3b.dat
140

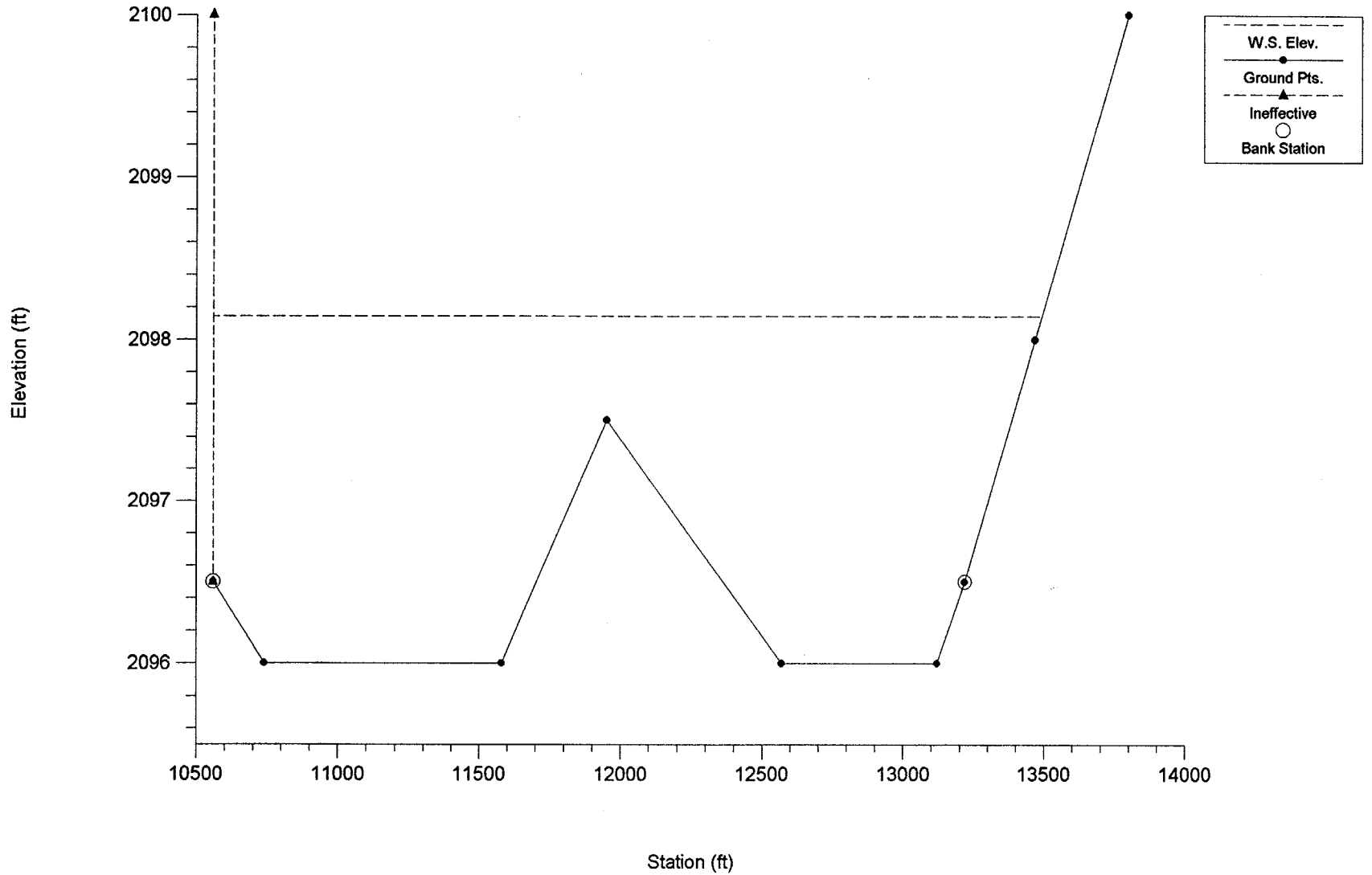



bwec3b.dat
150
W.S. Elev.
Ground Pts.
Bank Station
2090
2089
2088
2087
2086
Elevation (ft)
12500
13000
13500
14000
14500
15000
15500
16000
16500
17000
Station (ft)

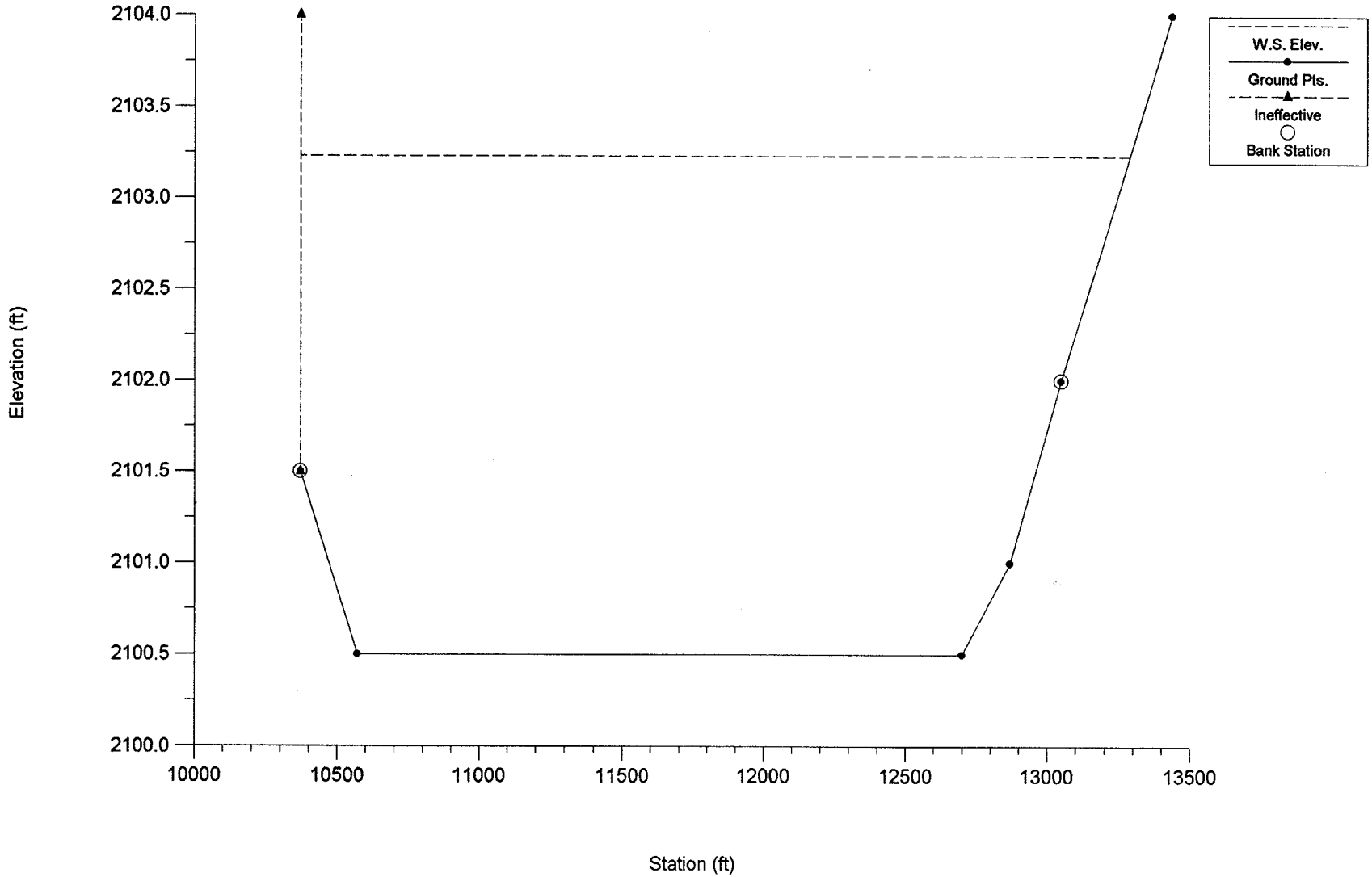
bwec3b.dat
160



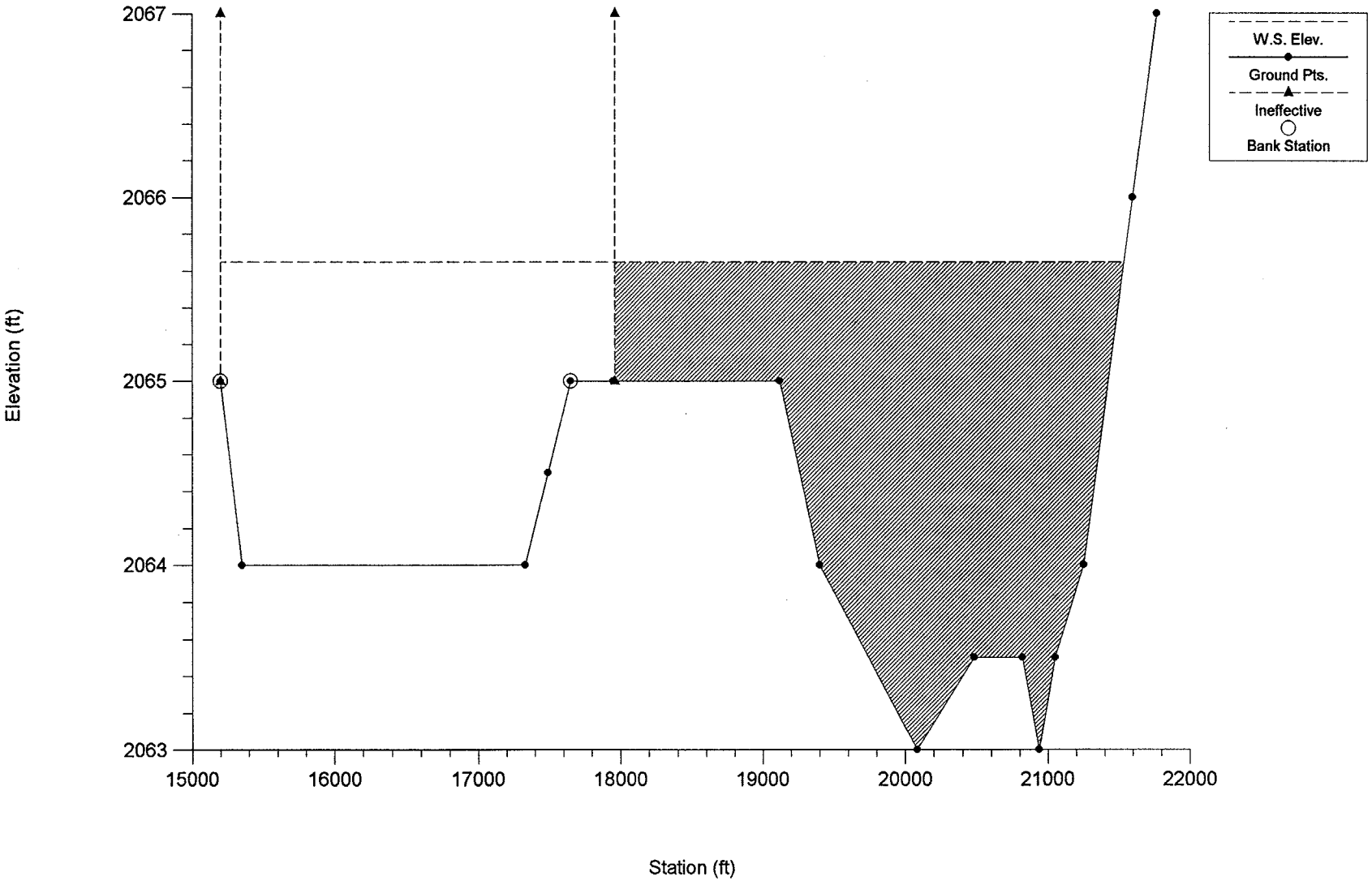
bwec3b.dat
161



bwec3b.dat
162



eb3a.dat
90



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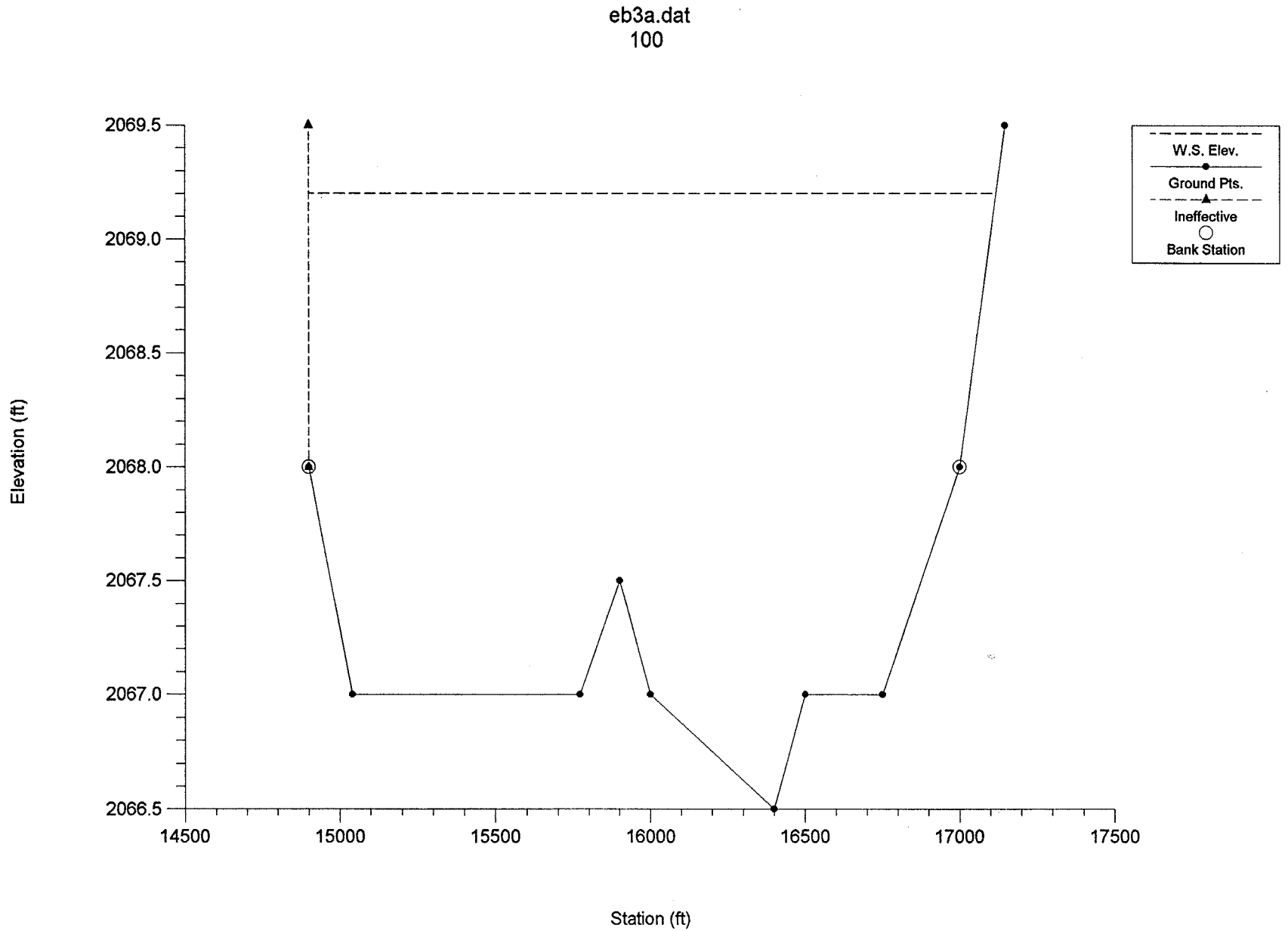
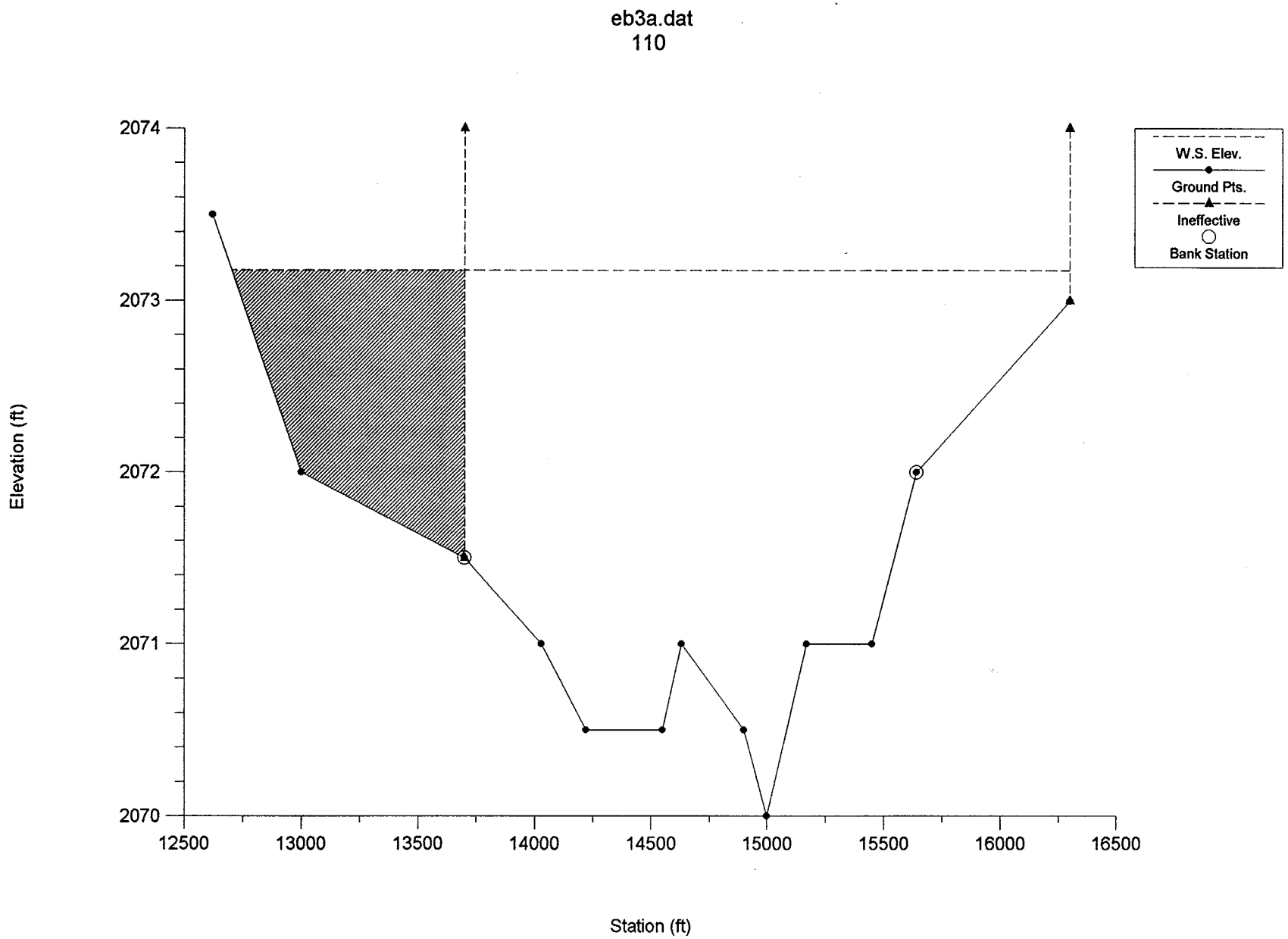
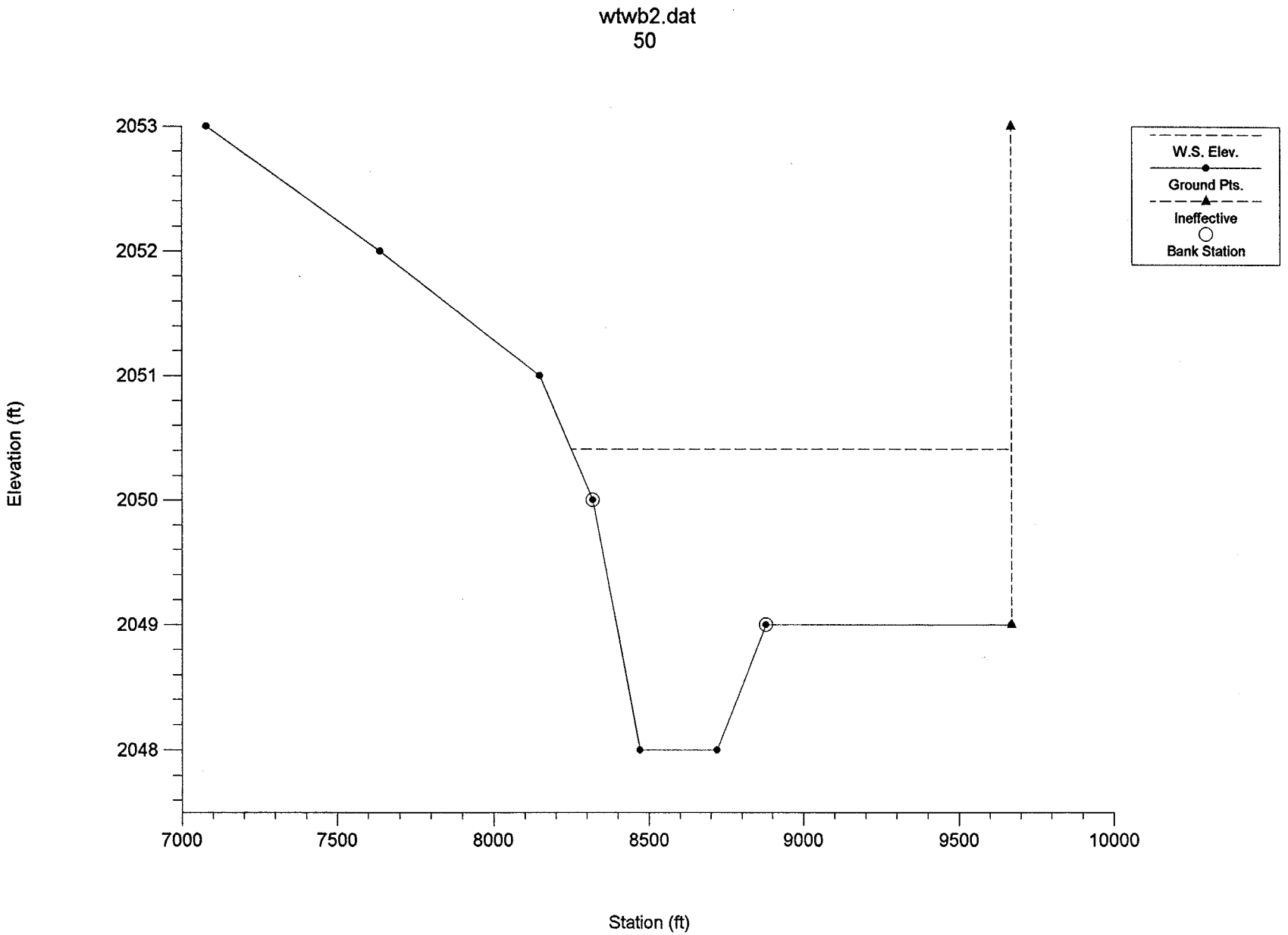
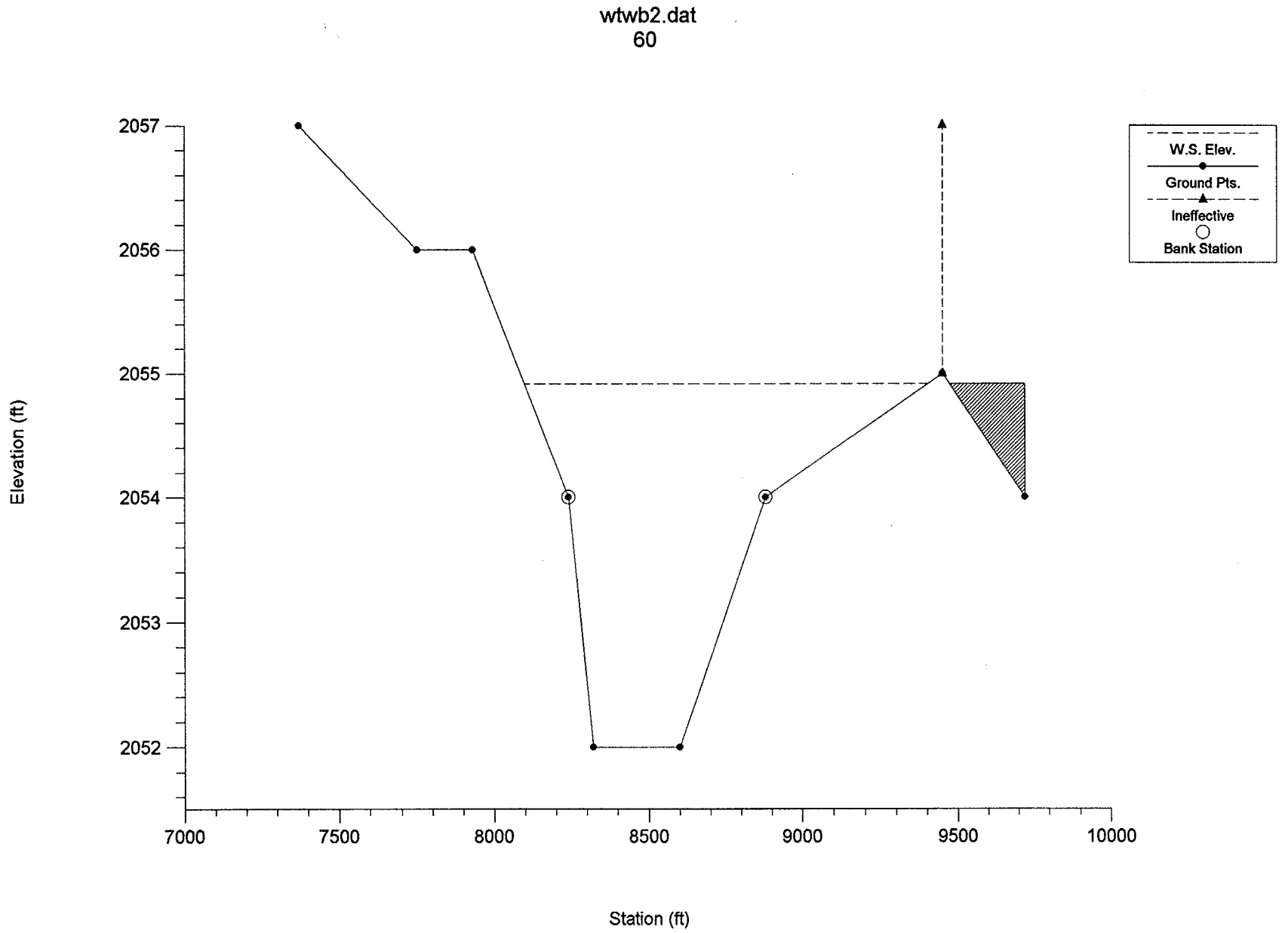
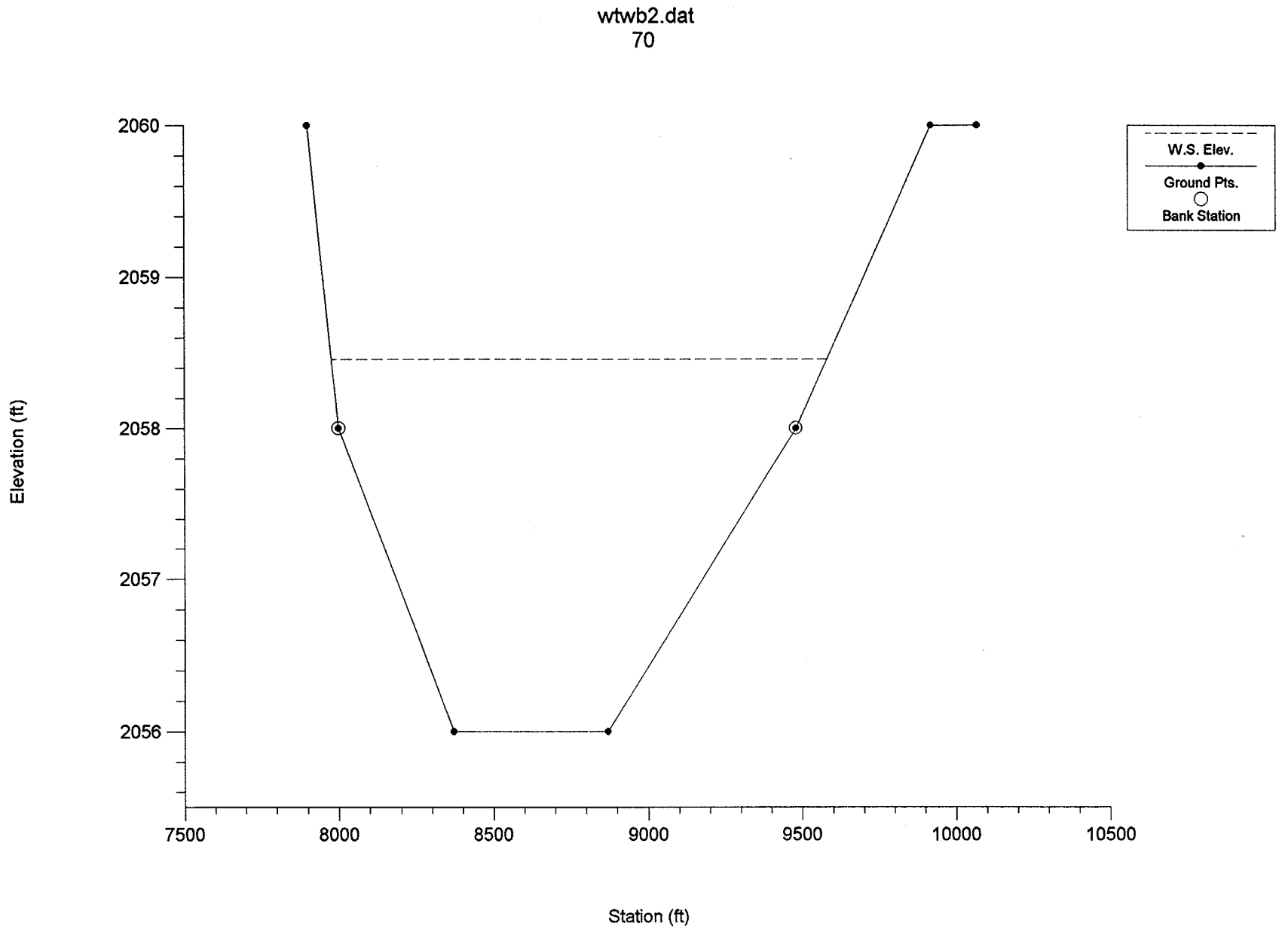

eb3a.dat
100
2069.5
2069.0
2068.5
2068.0
2067.5
2067.0
2066.5
Elevation (ft)
14500
15000
15500
16000
16500
17000
17500
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station


eb3a.dat
110
W.S. Elev.
Ground Pts.
Ineffective
Bank Station
Elevation (ft)
2074
2073
2072
2071
2070
12500
13000
13500
14000
14500
15000
15500
16000
16500
Station (ft)

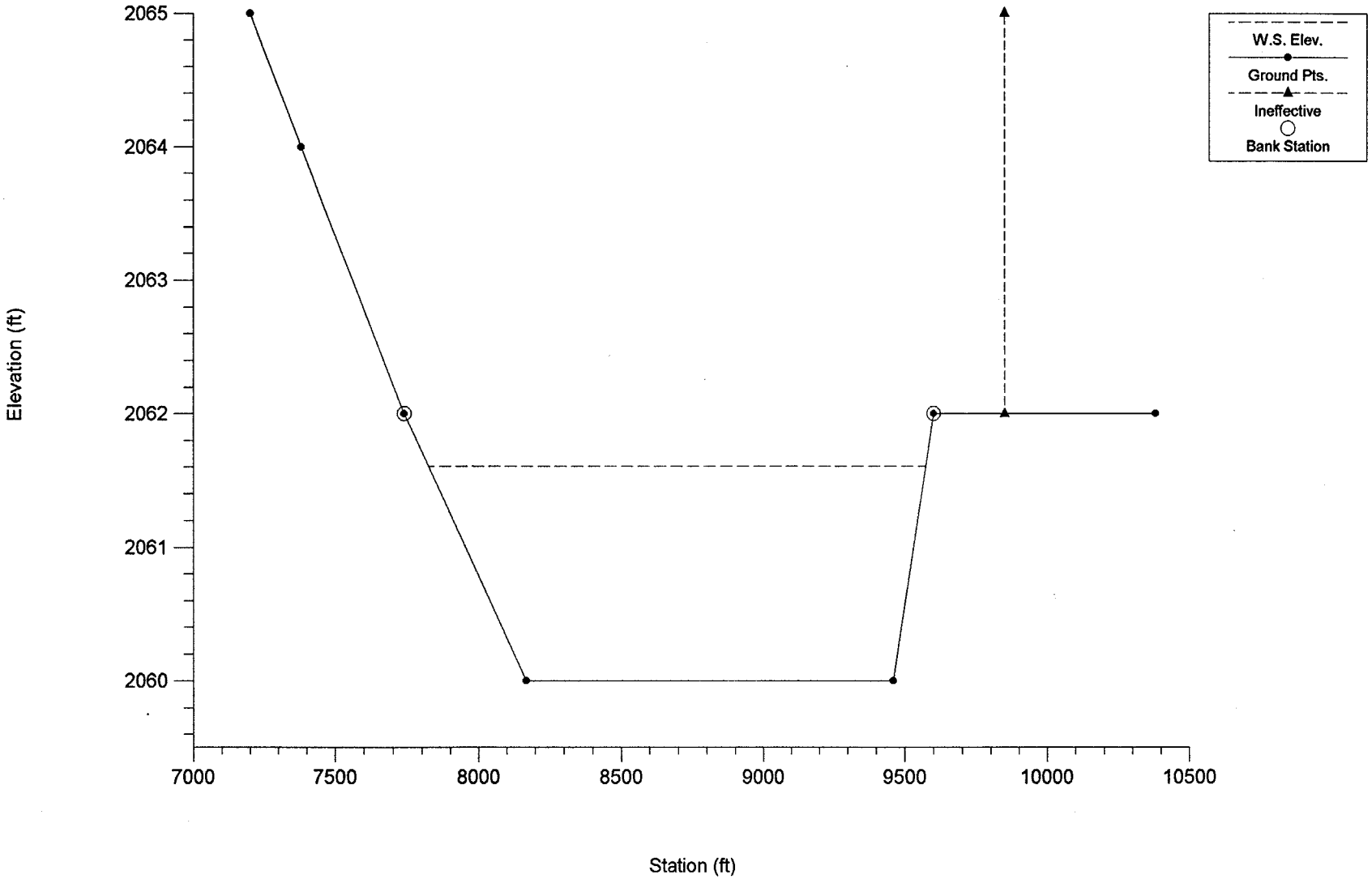
SLA, INC.


wtwb2.dat
50
2053
2052
2051
2050
2049
2048
Elevation (ft)
7000
7500
8000
8500
9000
9500
10000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

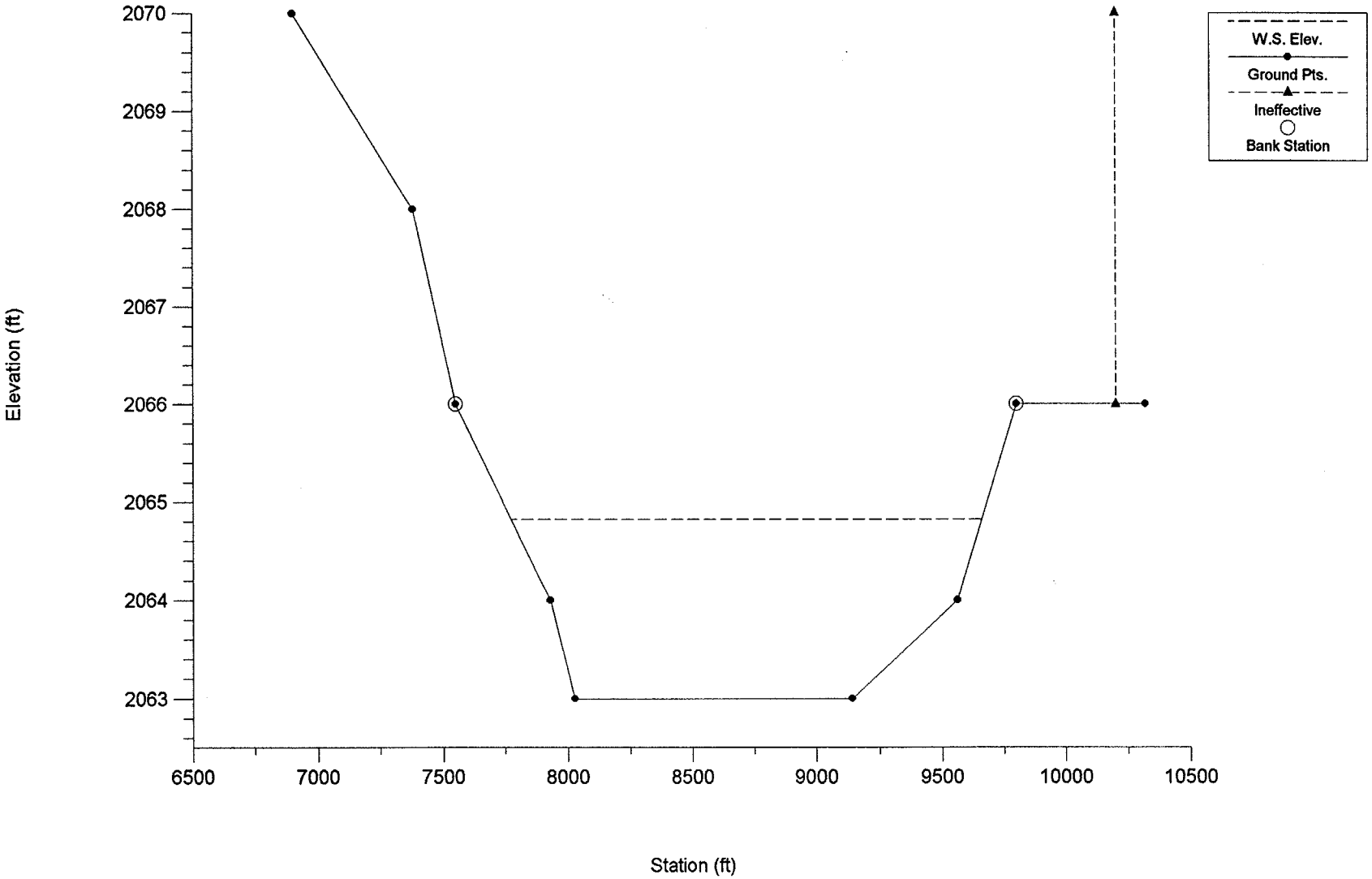

wtwb2.dat
60
2057
2056
2055
2054
2053
2052
Elevation (ft)
7000
7500
8000
8500
9000
9500
10000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station


wtwb2.dat
70
W.S. Elev.
Ground Pts.
Bank Station
Elevation (ft)
2060
2059
2058
2057
2056
7500
8000
8500
9000
9500
10000
10500
Station (ft)

wtwb2.dat
80


2065
2064
2063
2062
2061
2060
Elevation (ft)
7000
7500
8000
8500
9000
9500
10000
10500
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

wtwb2.dat
90



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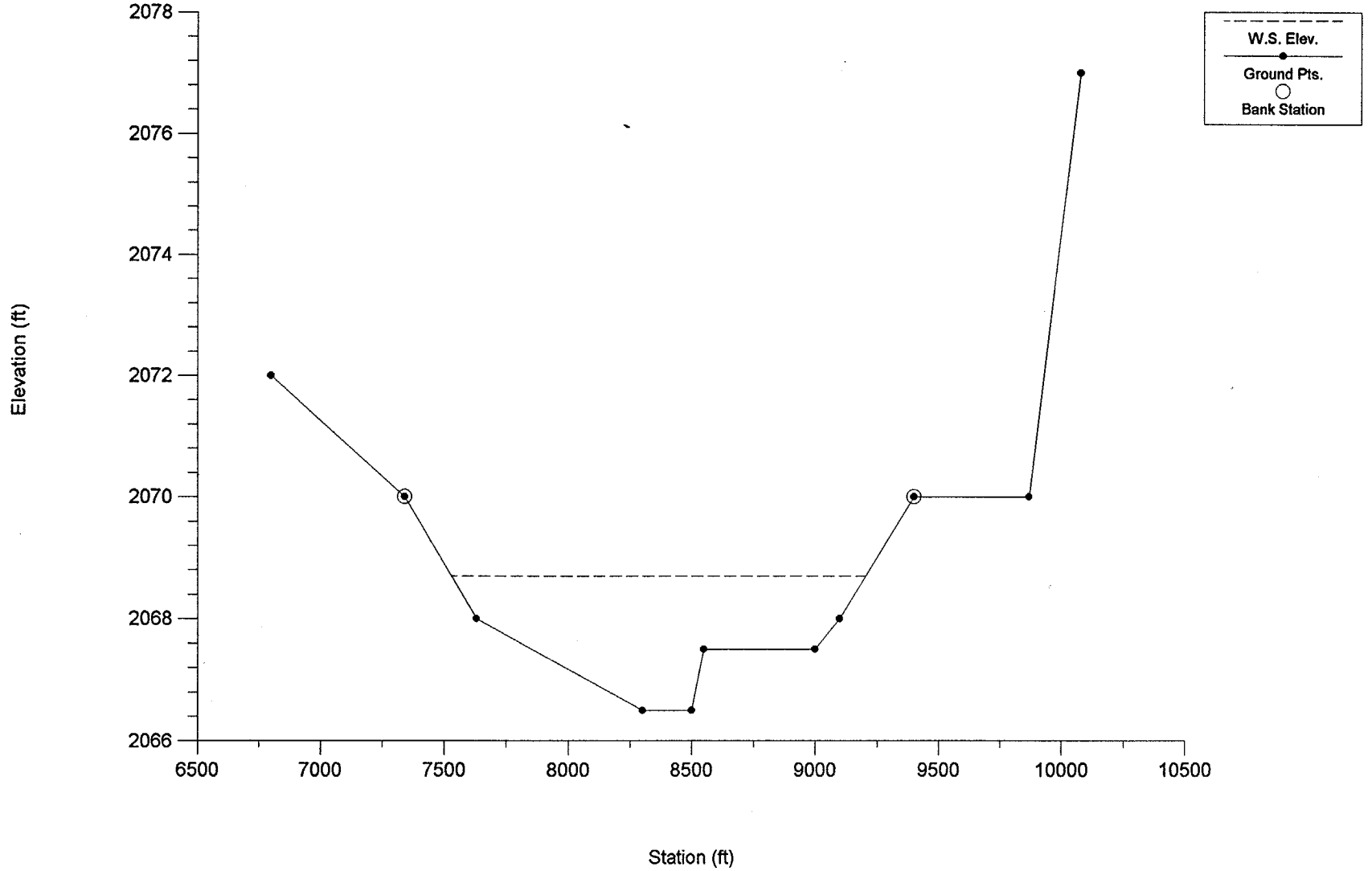
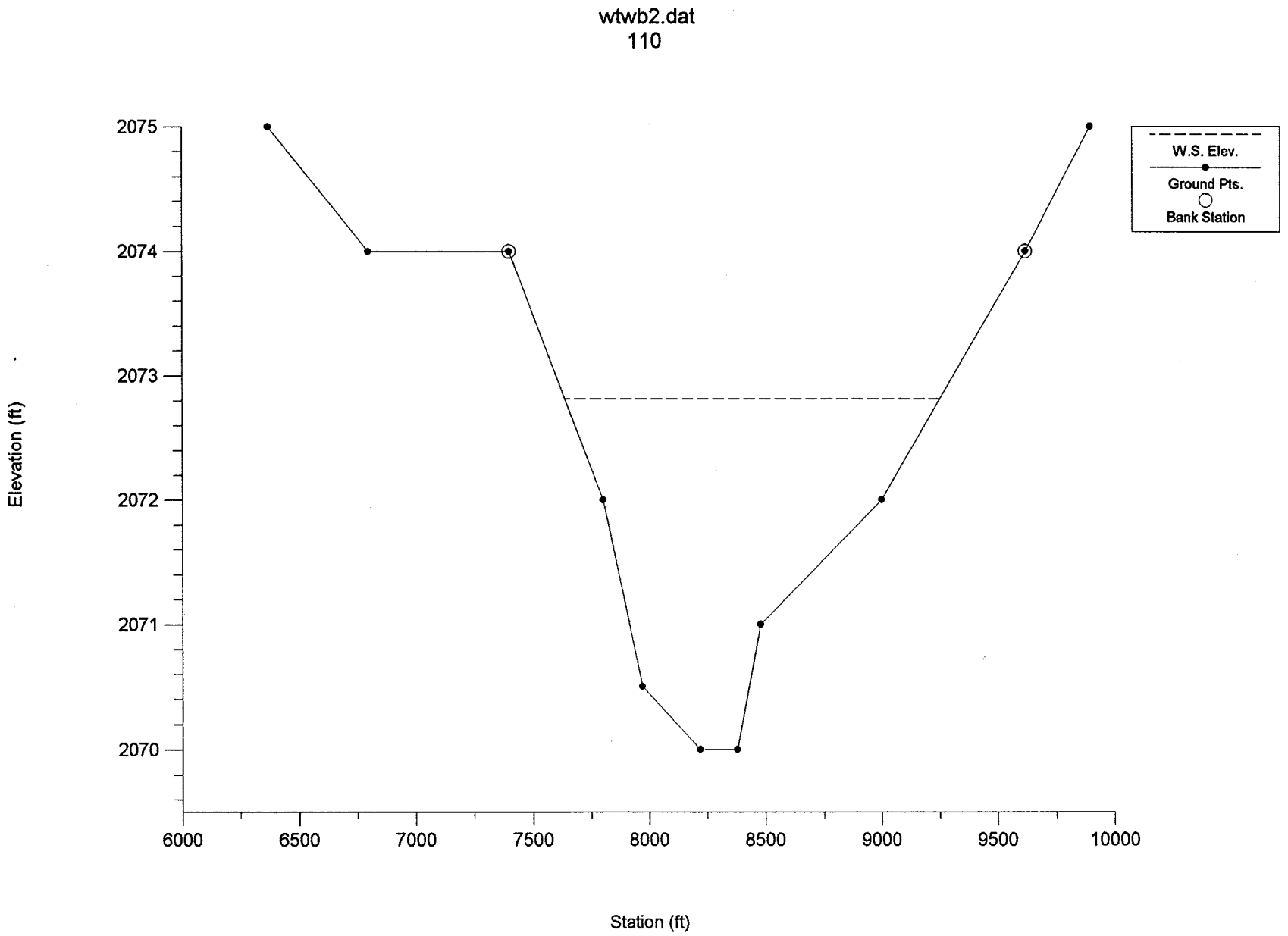
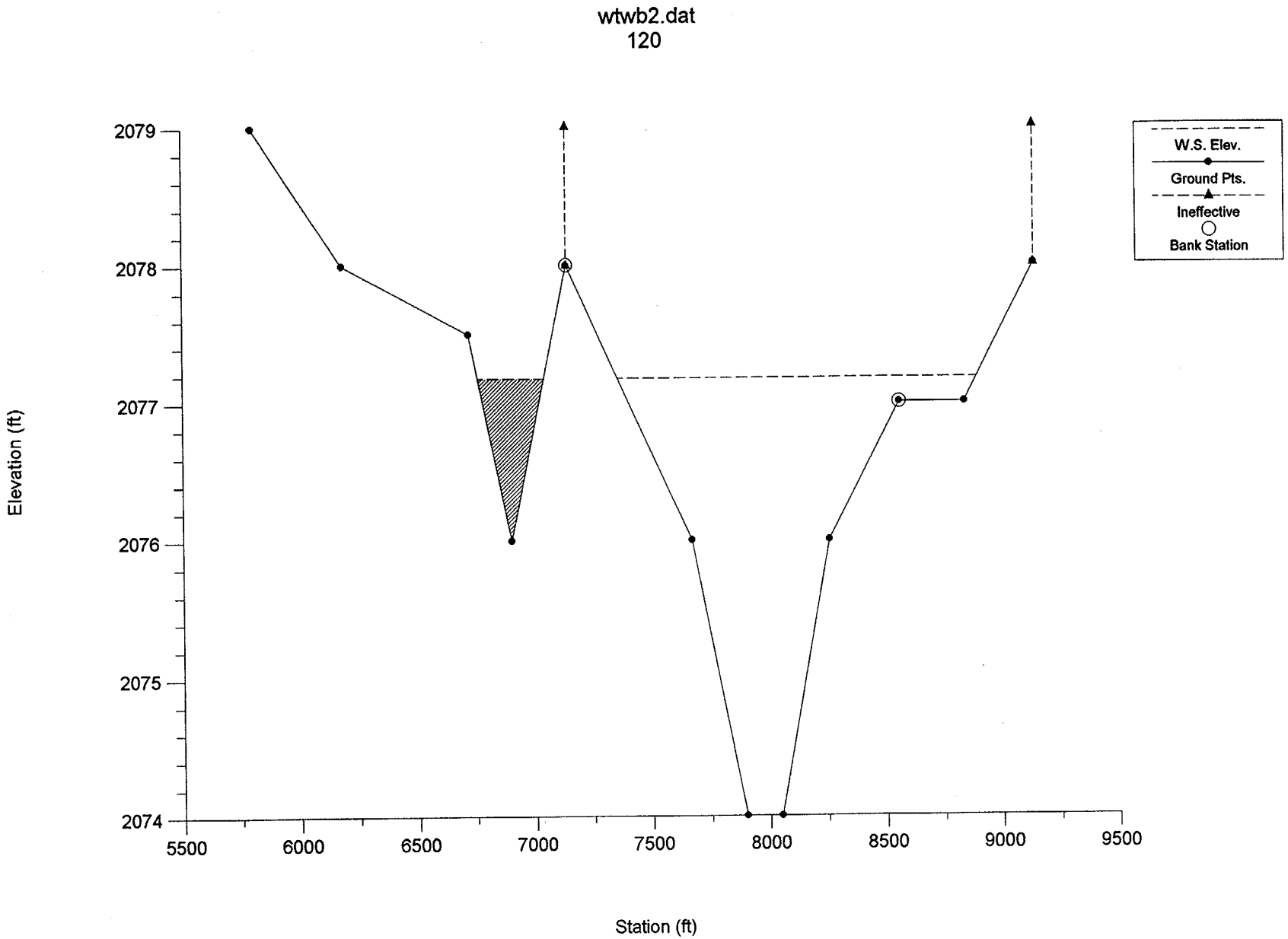
wtwb2.dat
100

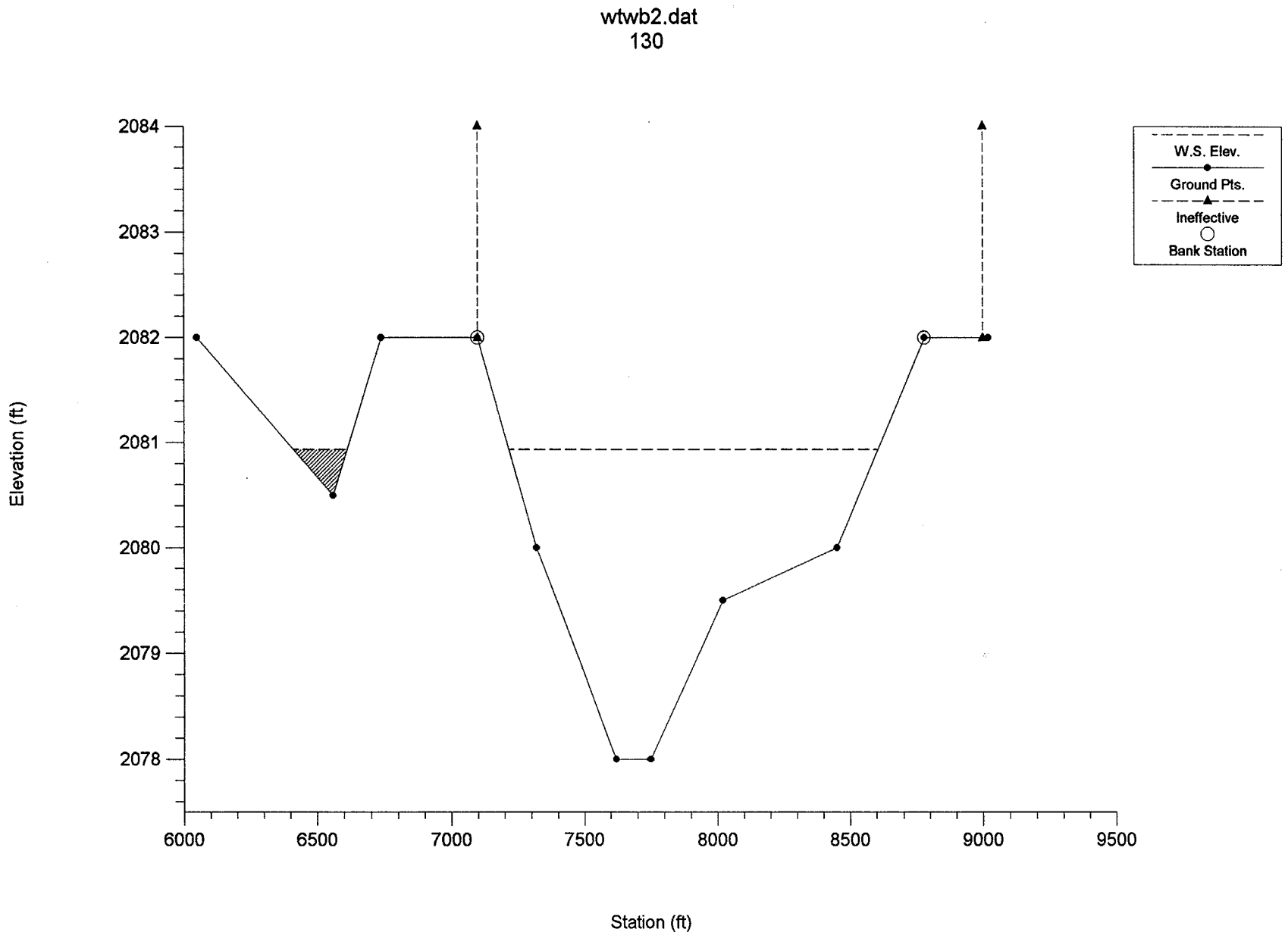


SLA, INC.

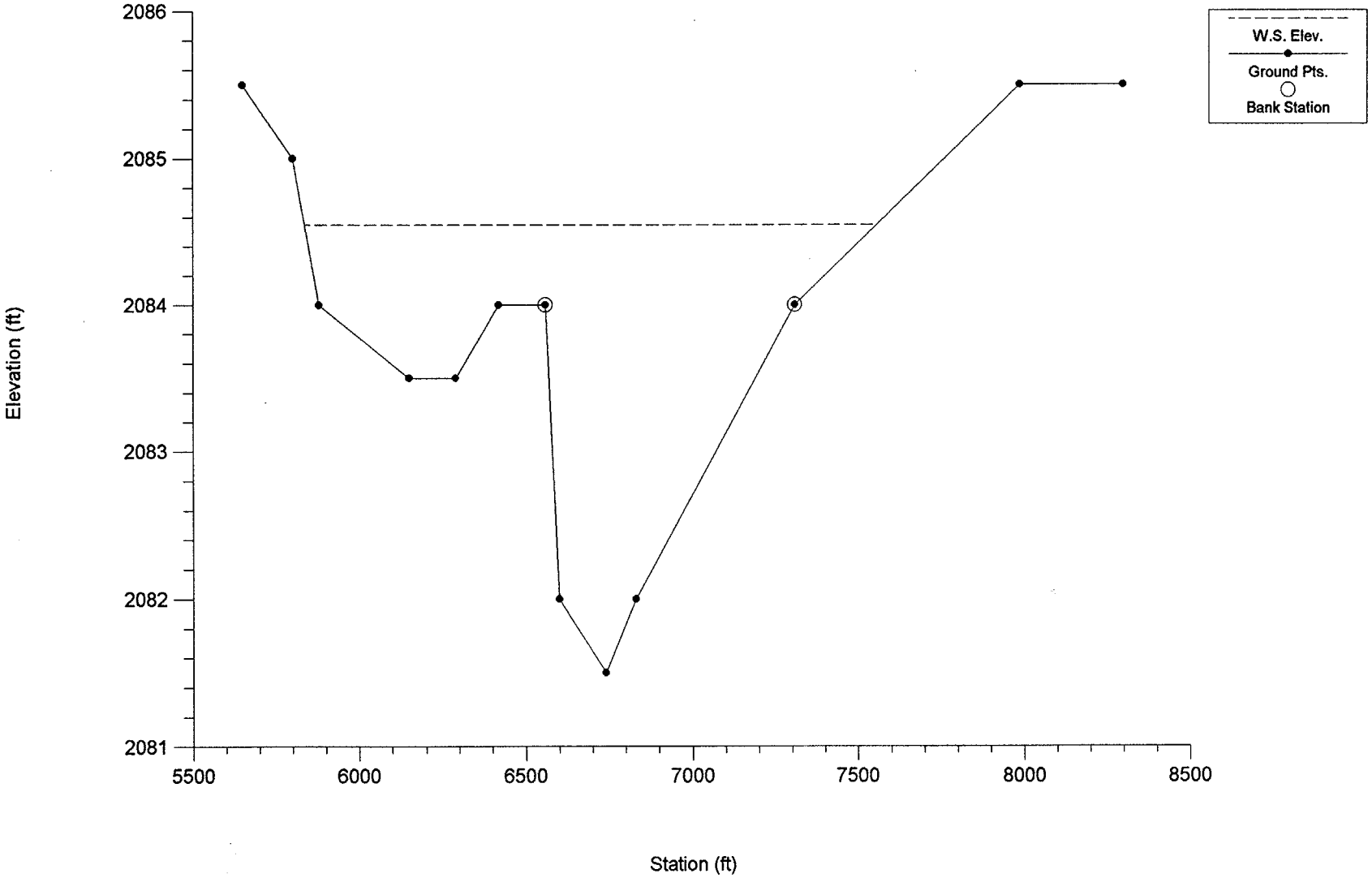

wtwb2.dat
110
2075
2074
2073
2072
2071
2070
Elevation (ft)
6000
6500
7000
7500
8000
8500
9000
9500
10000
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

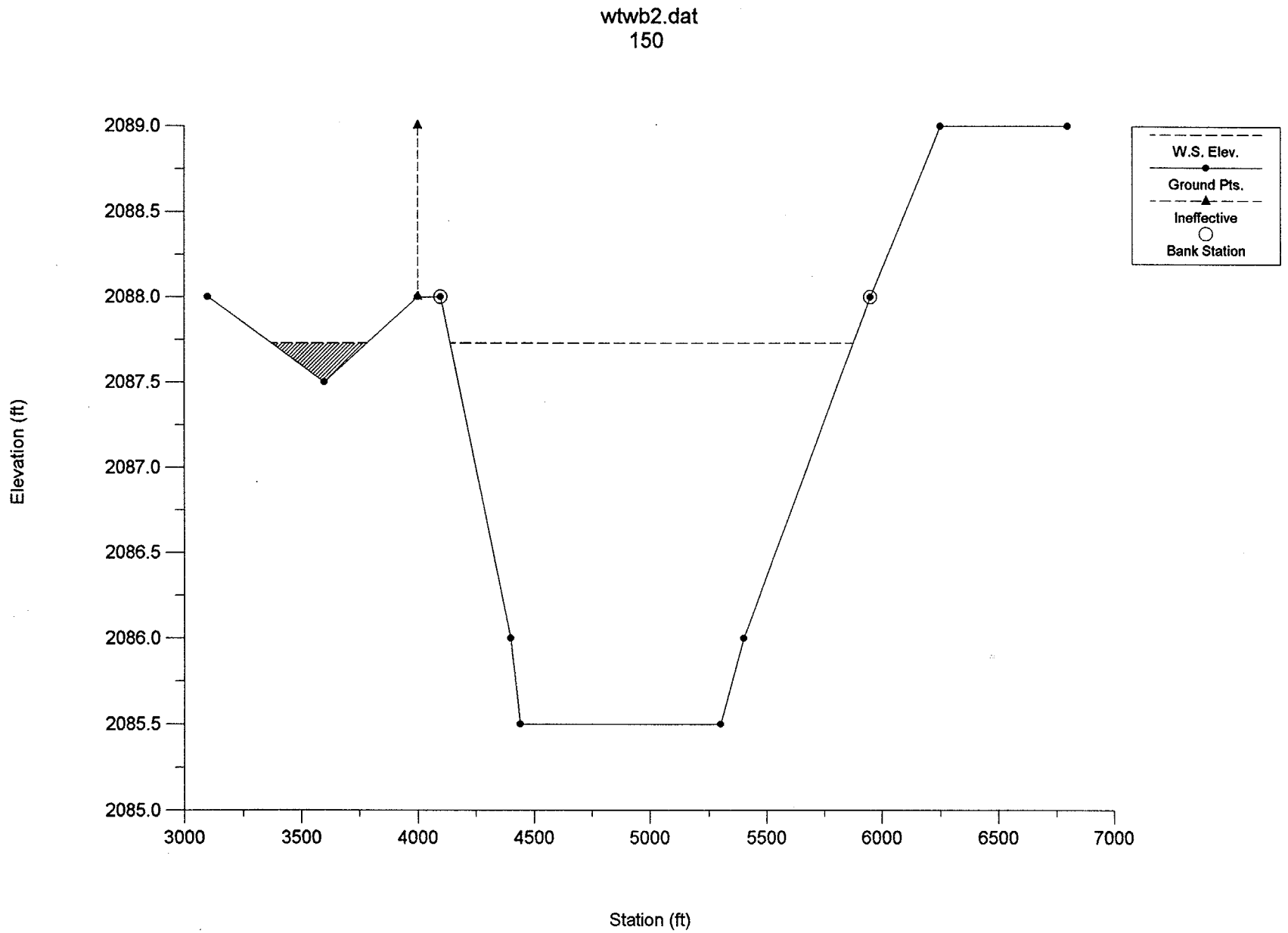

wtwb2.dat
120
W.S. Elev.
Ground Pts.
Ineffective
Bank Station
Elevation (ft)
2079
2078
2077
2076
2075
2074
5500
6000
6500
7000
7500
8000
8500
9000
9500
Station (ft)

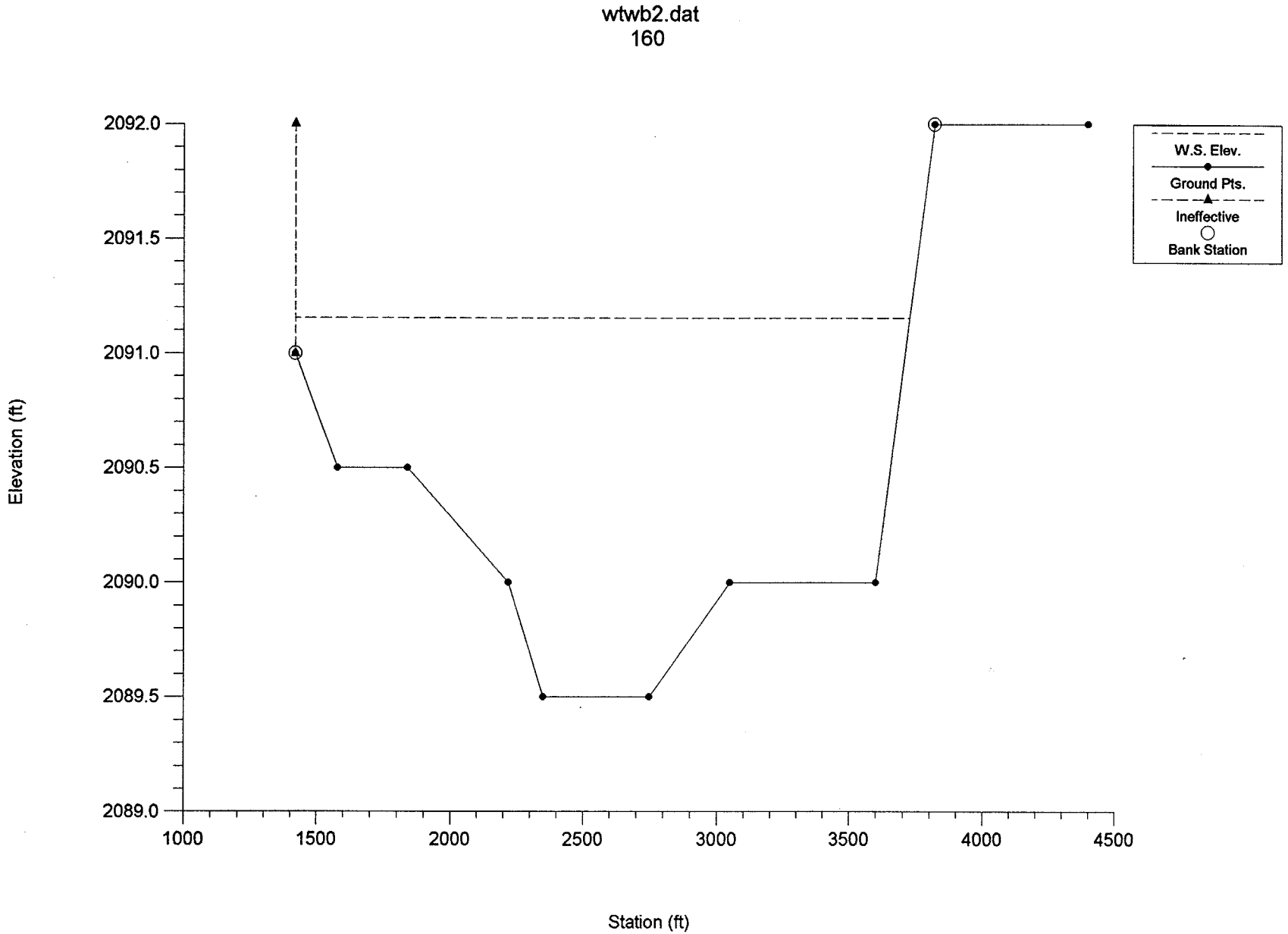
SLA, INC.


wtwb2.dat
130
2084
2083
2082
2081
2080
2079
2078
Elevation (ft)
6000
6500
7000
7500
8000
8500
9000
9500
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

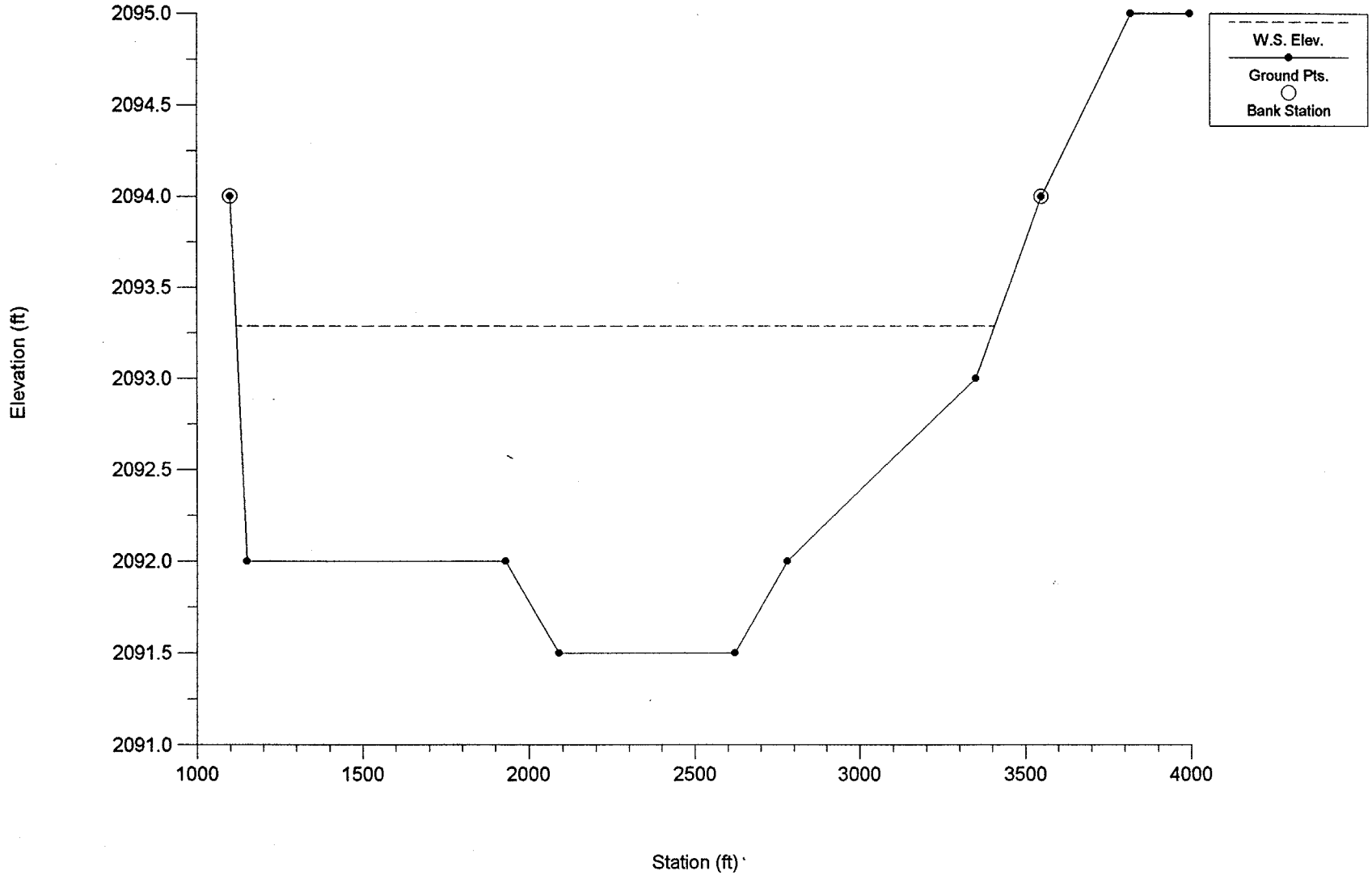
wtwb2.dat
140

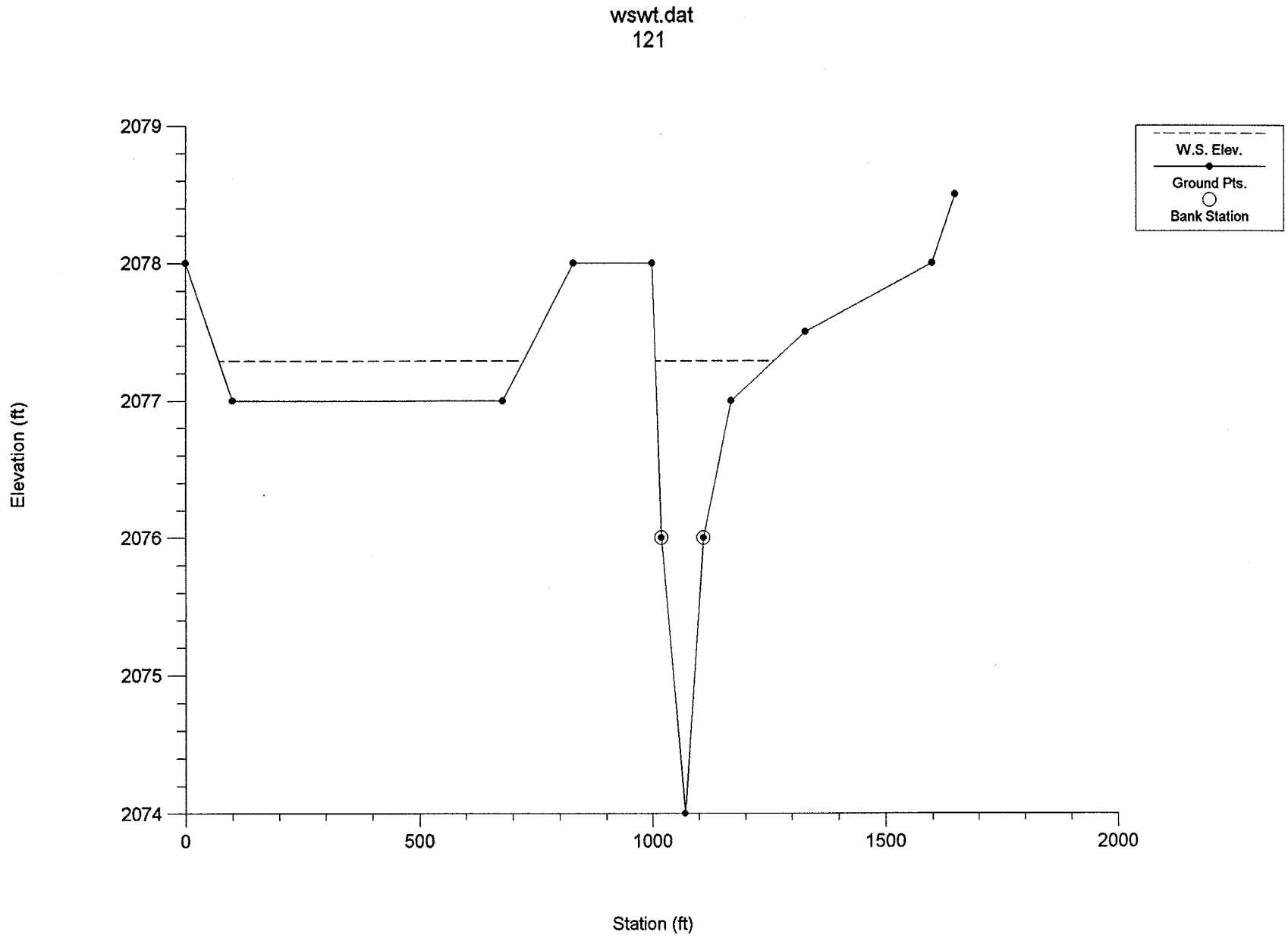


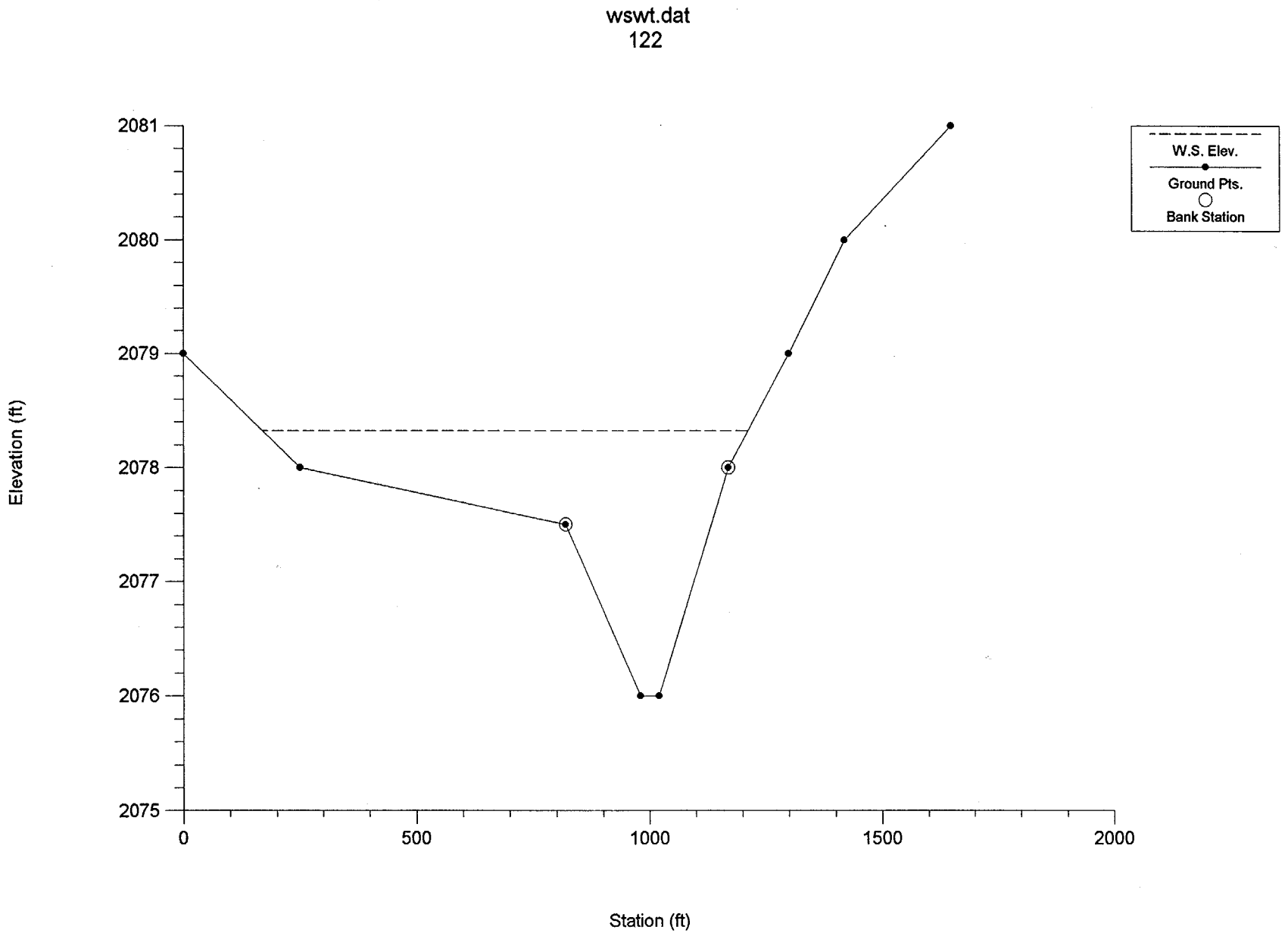

wtwb2.dat
150
2089.0
2088.5
2088.0
2087.5
2087.0
2086.5
2086.0
2085.5
2085.0
Elevation (ft)
3000
3500
4000
4500
5000
5500
6000
6500
7000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station


wtwb2.dat
160
2092.0
2091.5
2091.0
2090.5
2090.0
2089.5
2089.0
Elevation (ft)
1000
1500
2000
2500
3000
3500
4000
4500
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

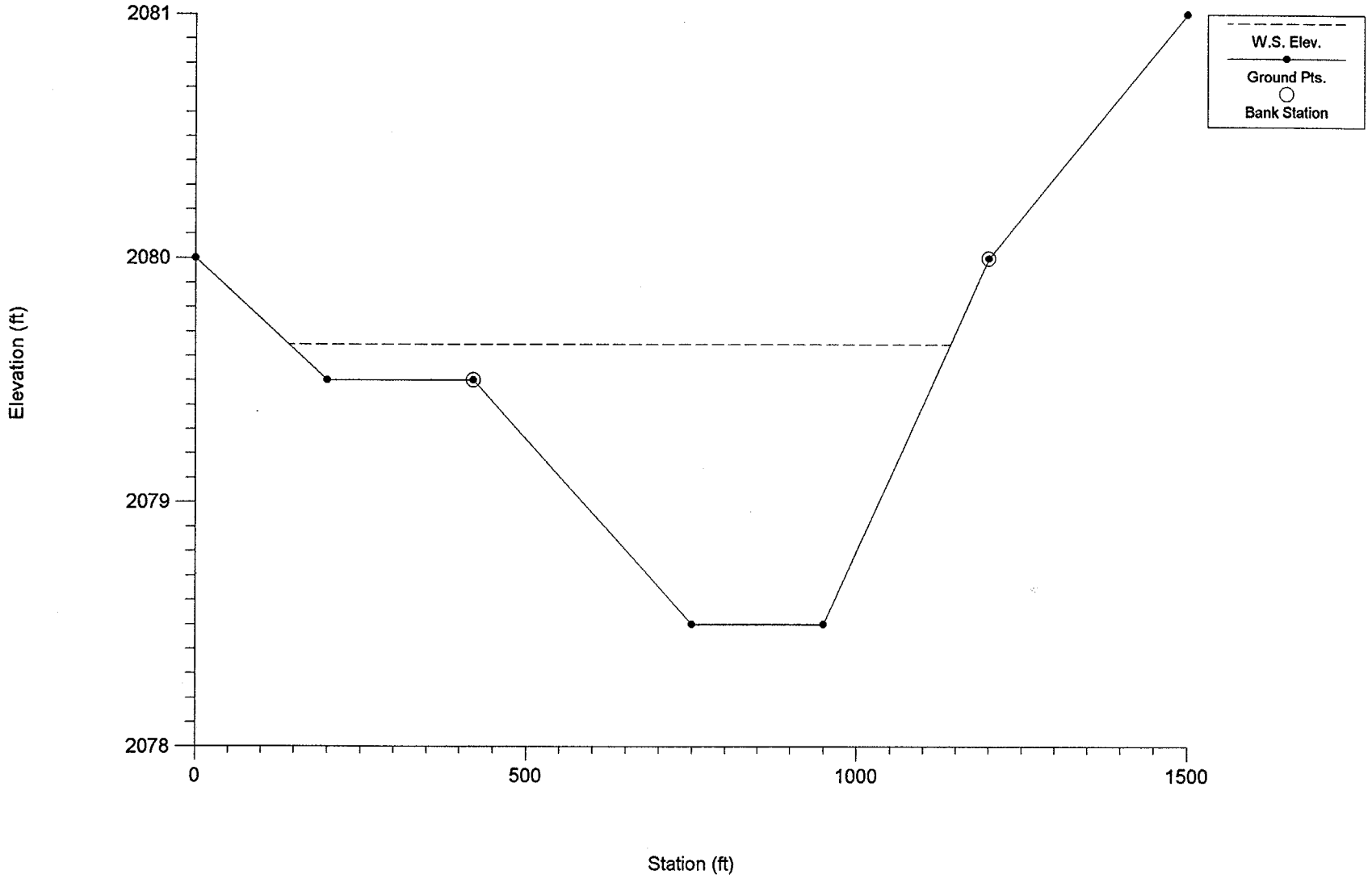
wtwb2.dat
161




wswt.dat
121
W.S. Elev.
Ground Pts.
Bank Station
2079
2078
2077
2076
2075
2074
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


wswt.dat
122
2081
2080
2079
2078
2077
2076
2075
Elevation (ft)
0
500
1000
1500
2000
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

wswt.dat
123



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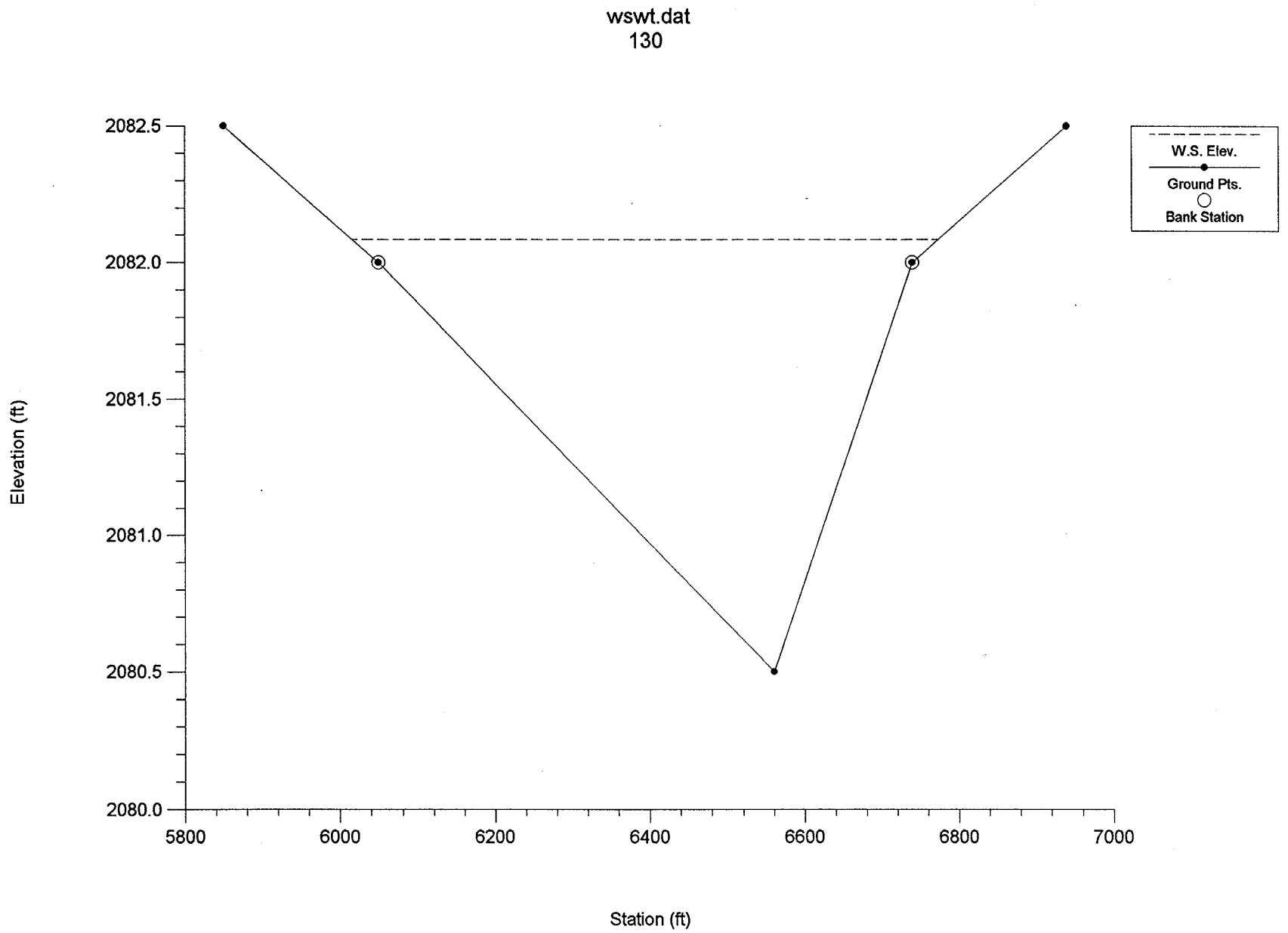
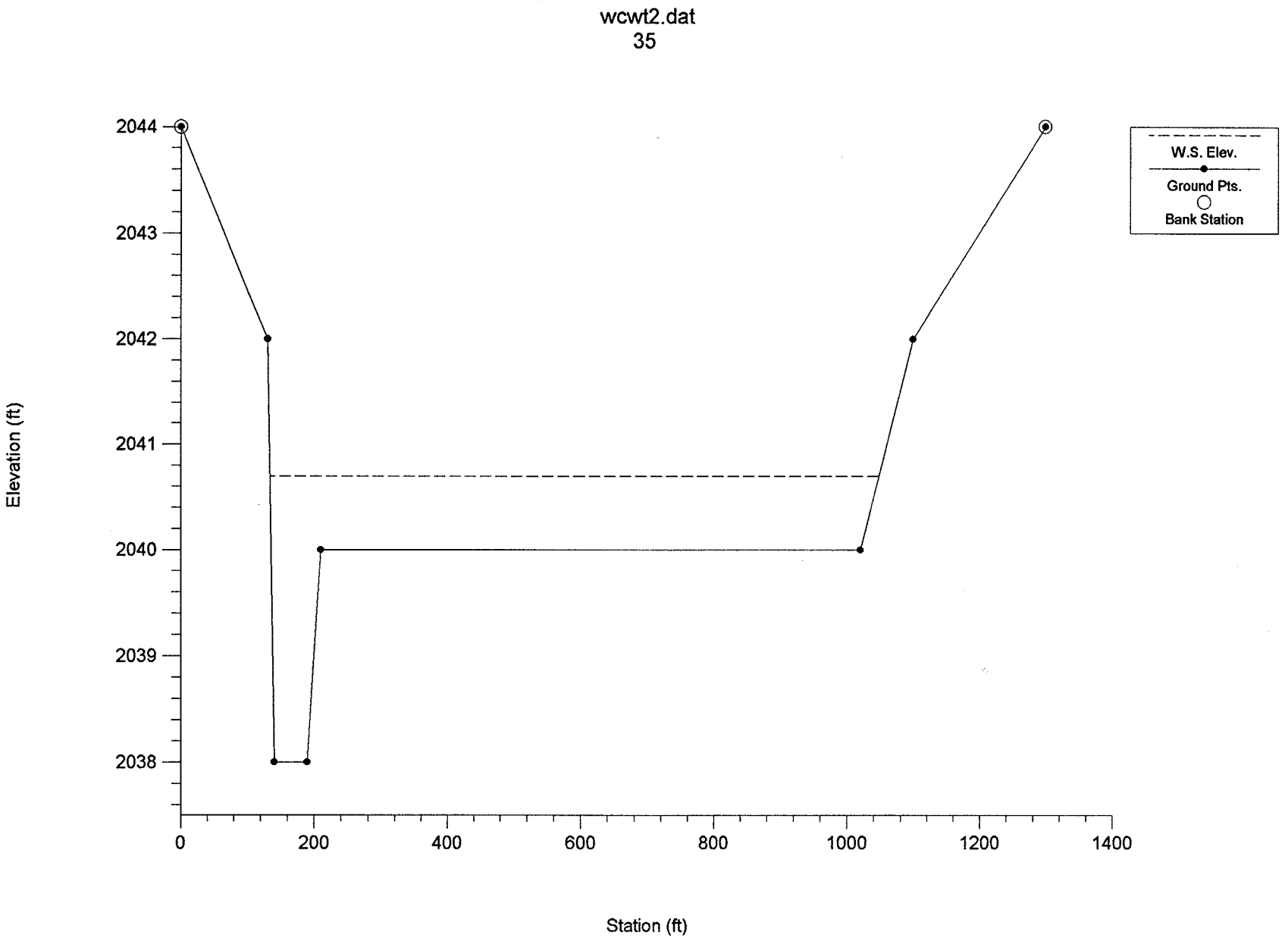
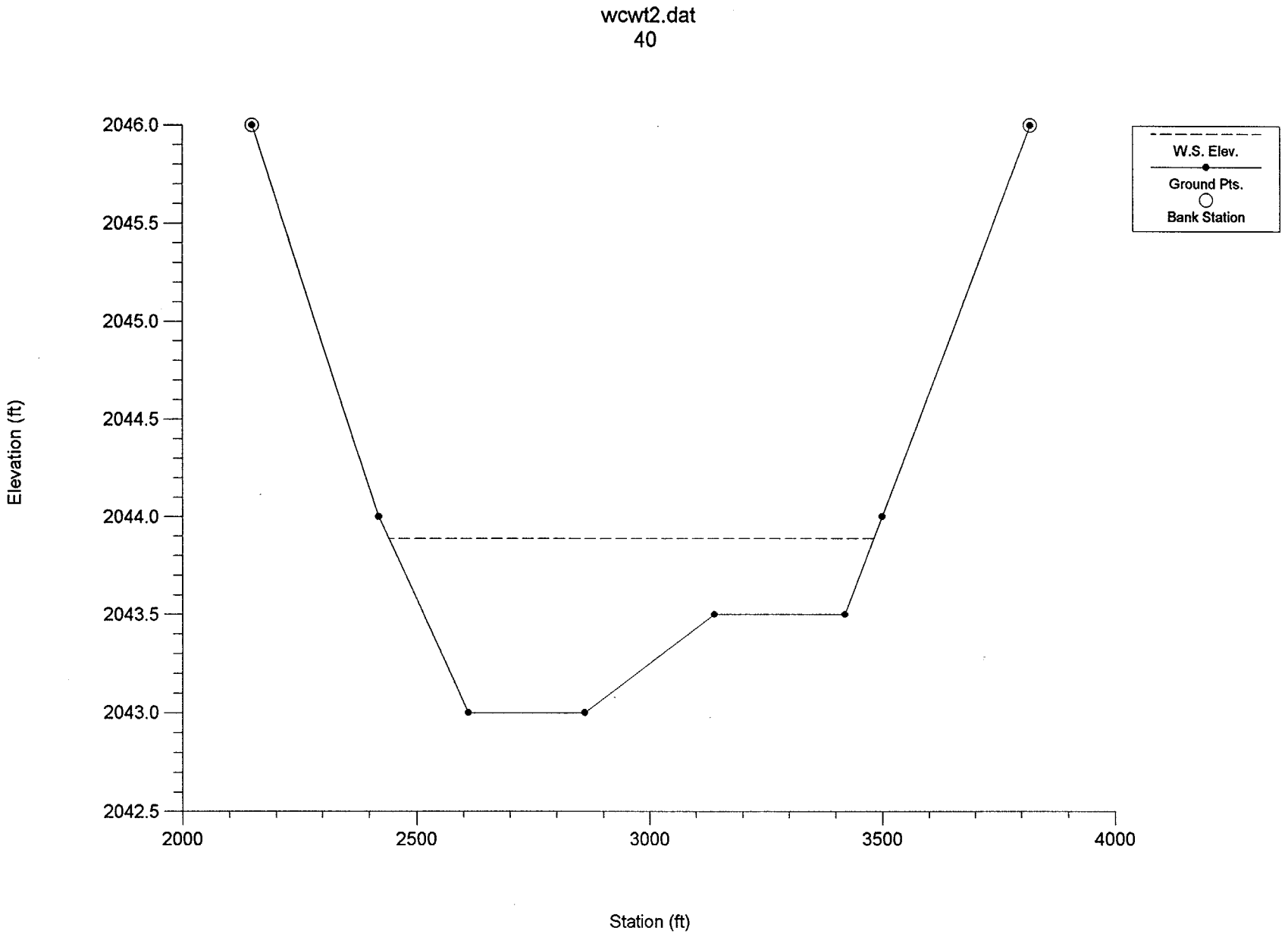
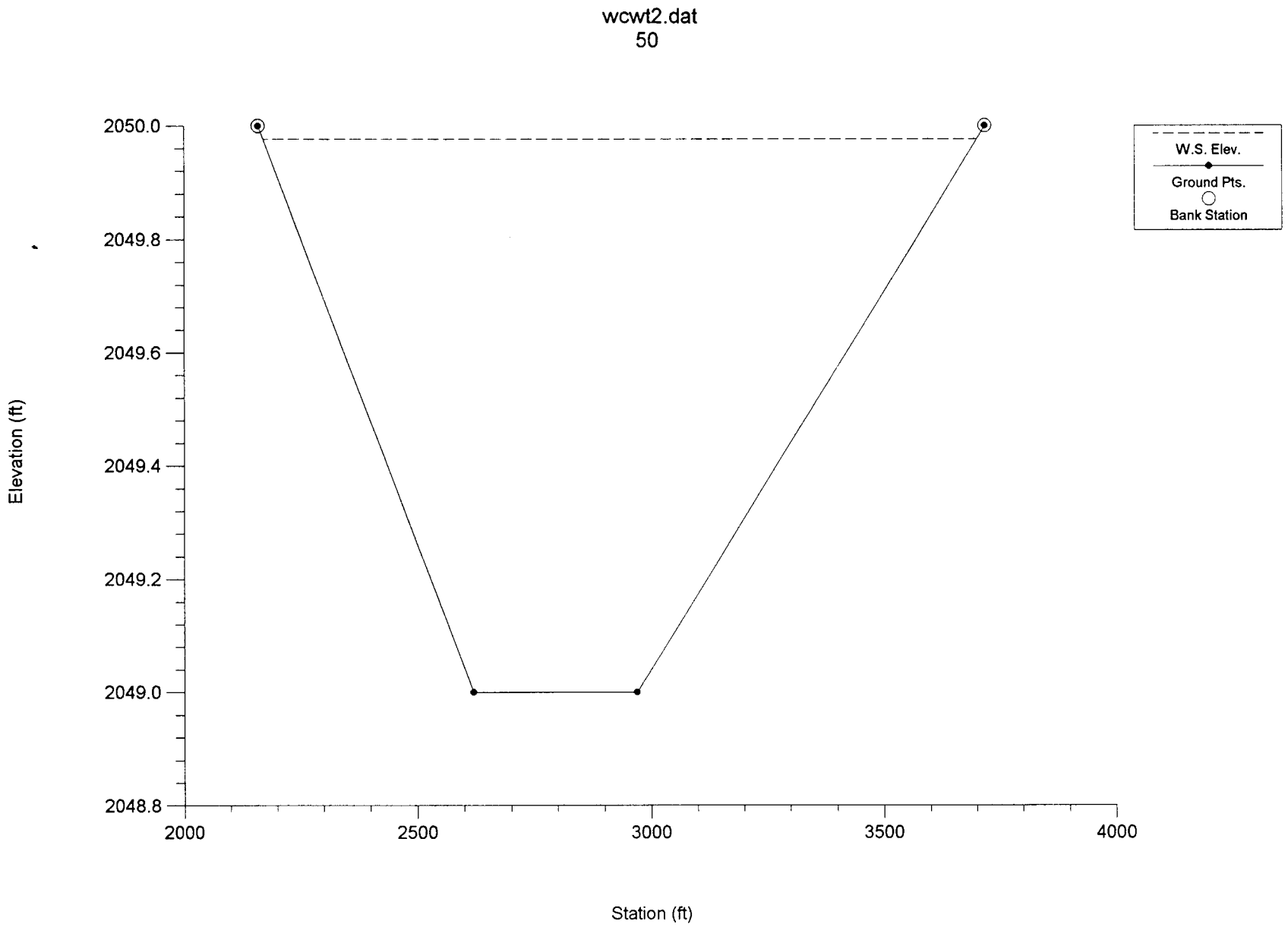

wswt.dat
130
2082.5
2082.0
2081.5
2081.0
2080.5
2080.0
Elevation (ft)
5800
6000
6200
6400
6600
6800
7000
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

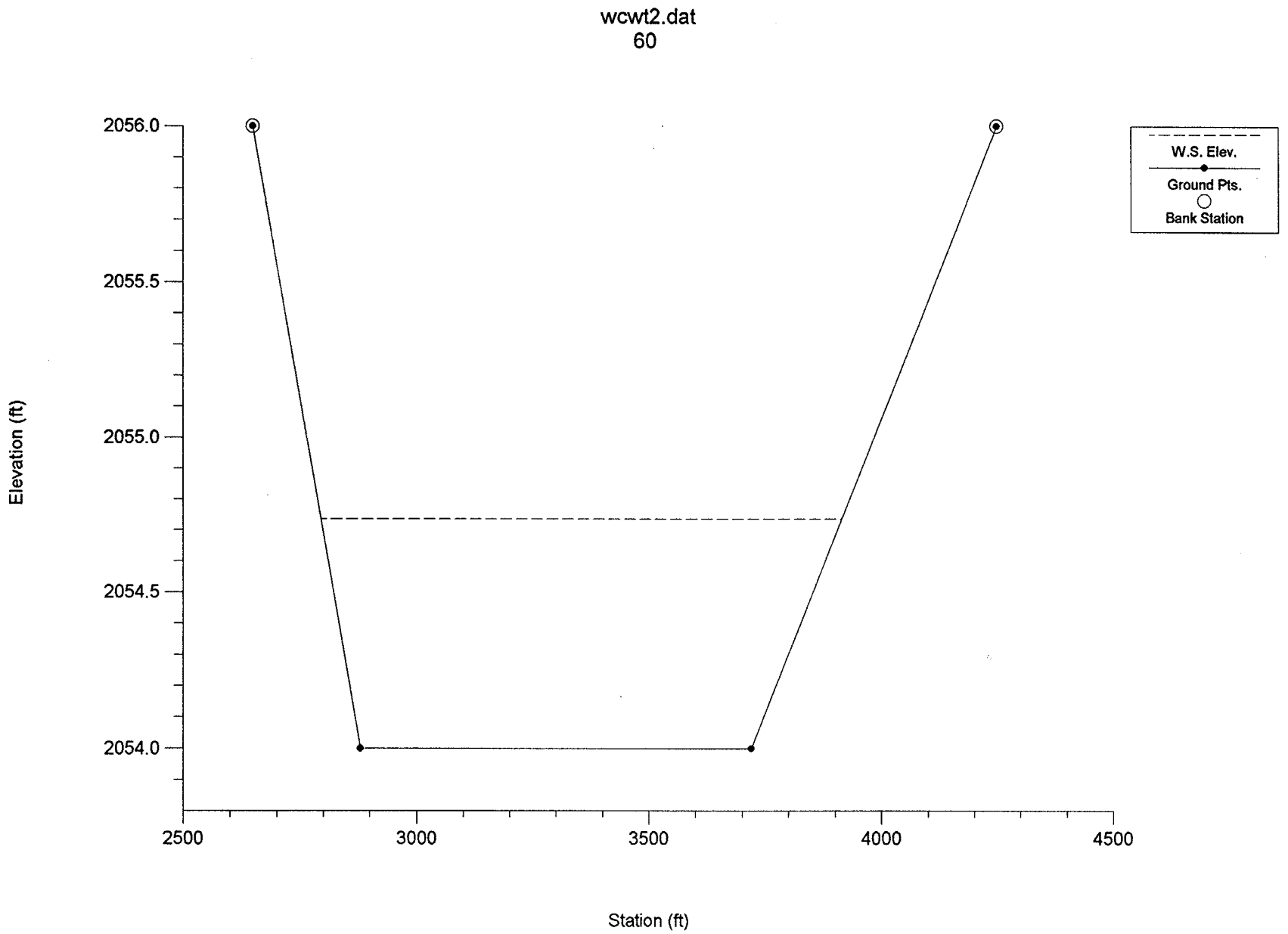

wcwt2.dat
35
2044
2043
2042
2041
2040
2039
2038
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

SLA, INC.

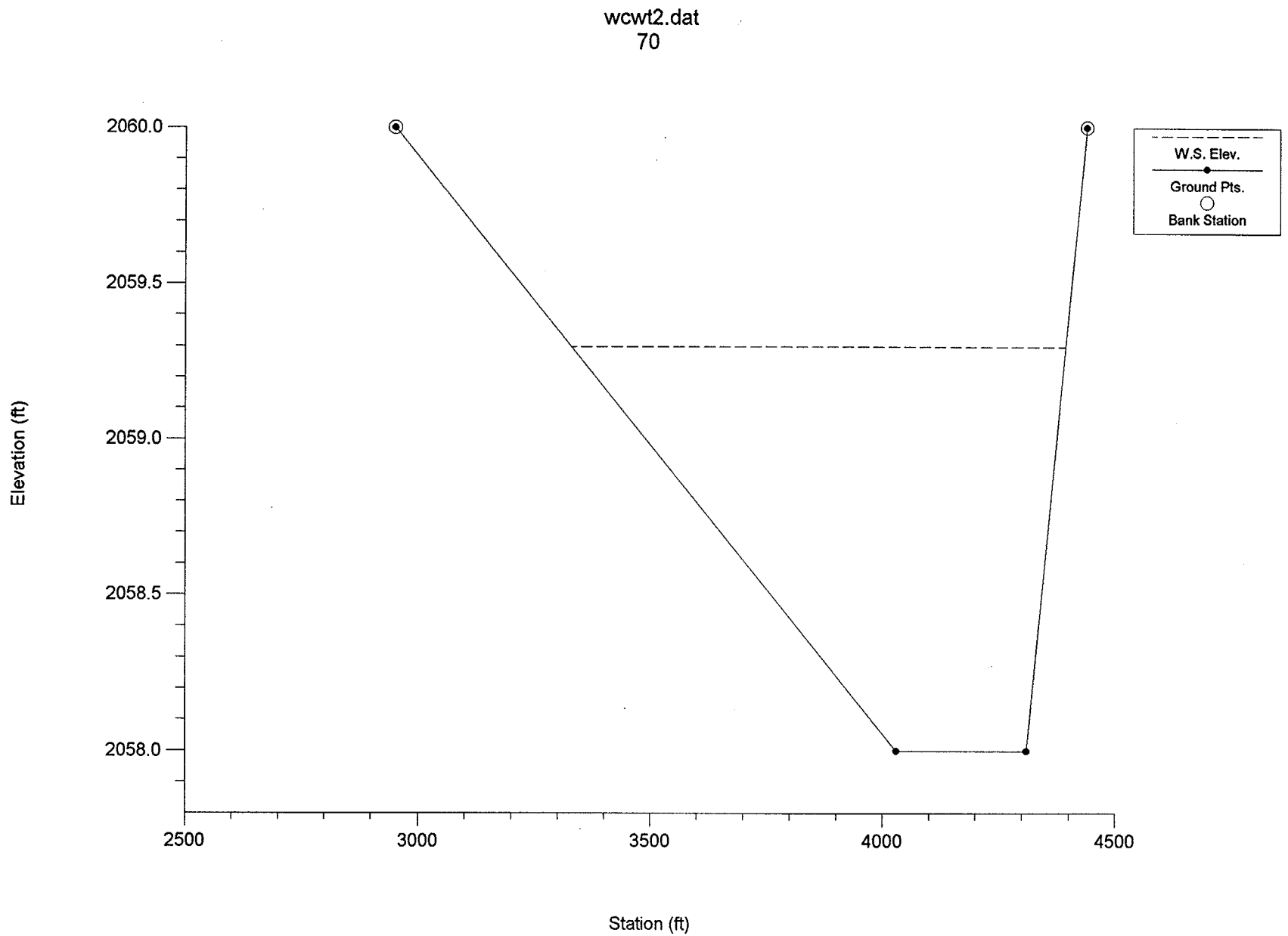

wcwt2.dat
40
2046.0
2045.5
2045.0
2044.5
2044.0
2043.5
2043.0
2042.5
Elevation (ft)
2000
2500
3000
3500
4000
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

SLA, INC.


wcwt2.dat
50
2050.0
2049.8
2049.6
2049.4
2049.2
2049.0
2048.8
Elevation (ft)
2000
2500
3000
3500
4000
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station


wcwt2.dat
60
2056.0
2055.5
2055.0
2054.5
2054.0
Elevation (ft)
2500
3000
3500
4000
4500
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

SLA, INC.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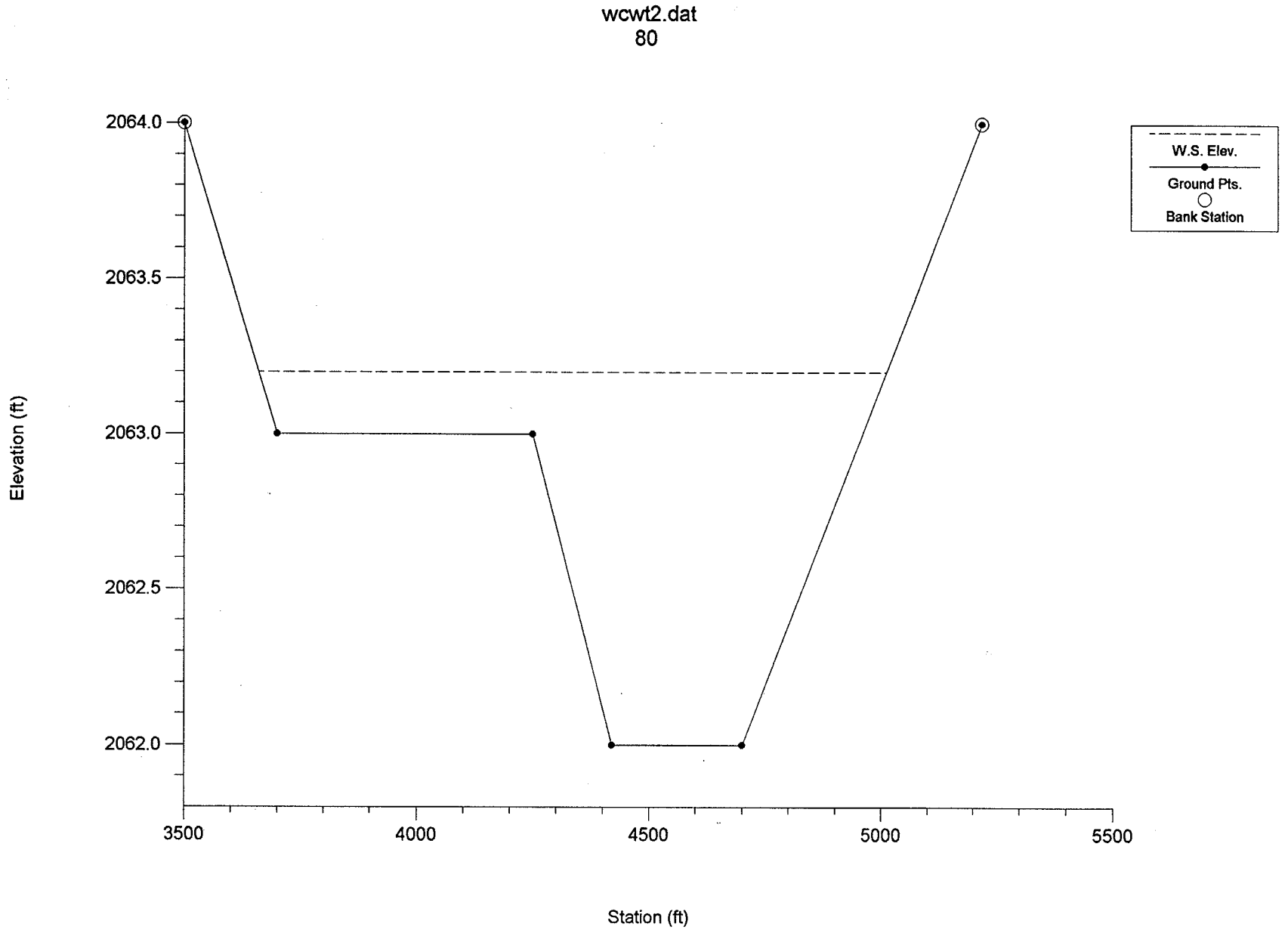
3000
3500
4000
4500
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

SLA, INC.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Elevation (ft)
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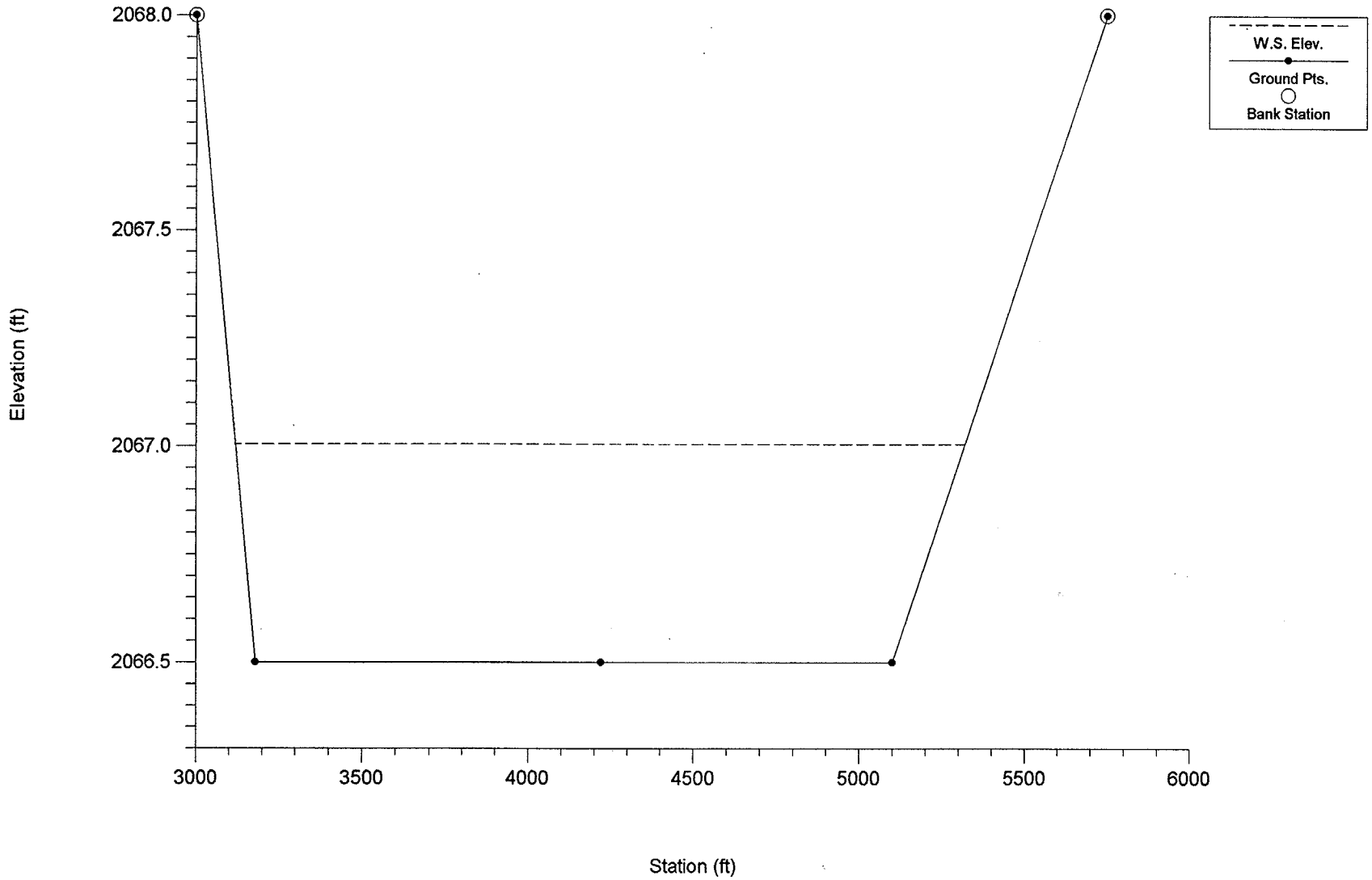
4500
5000
5500
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

SLA, INC.

wcwt2.dat
90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3500
4000
4500
5000
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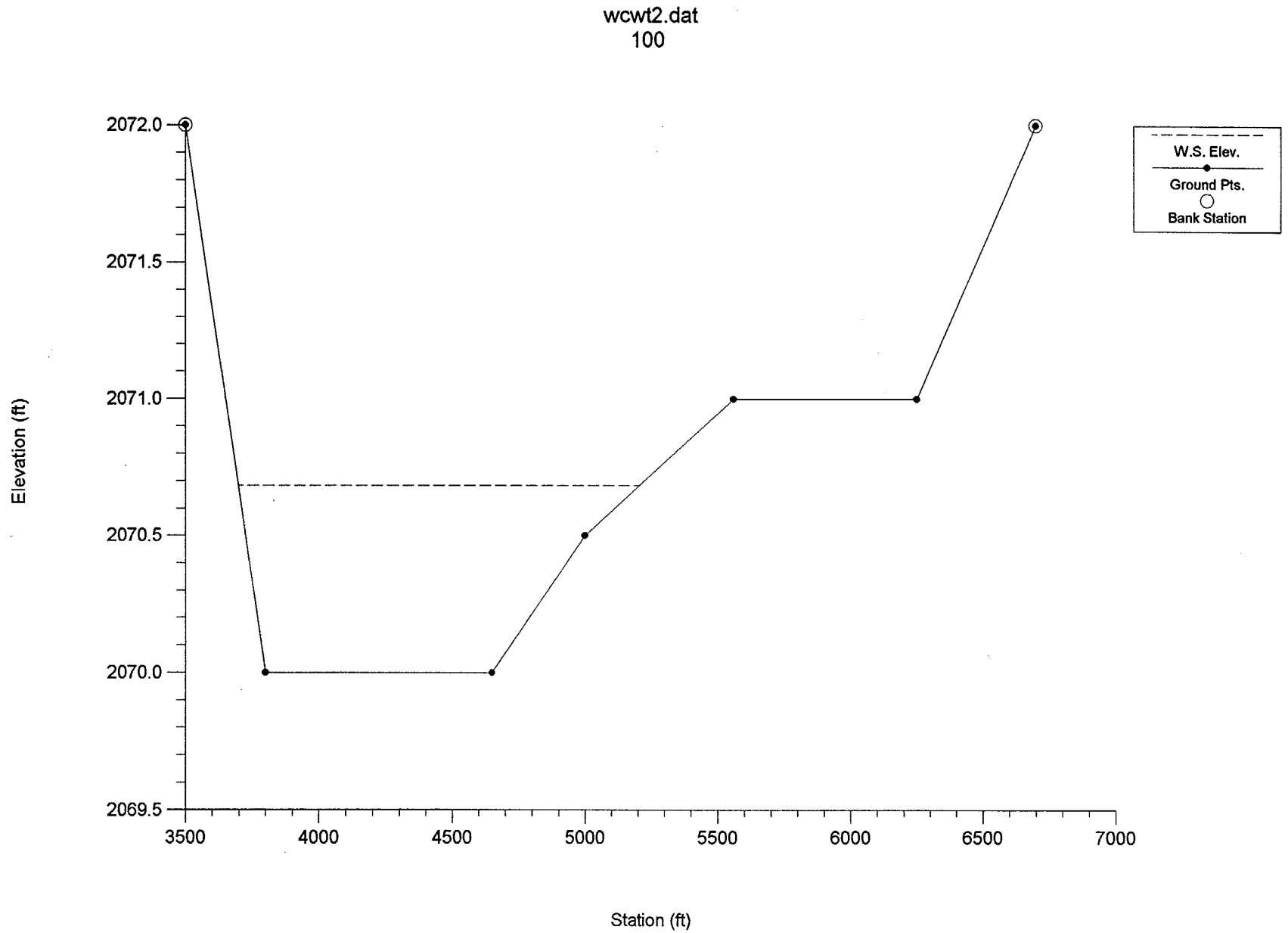
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station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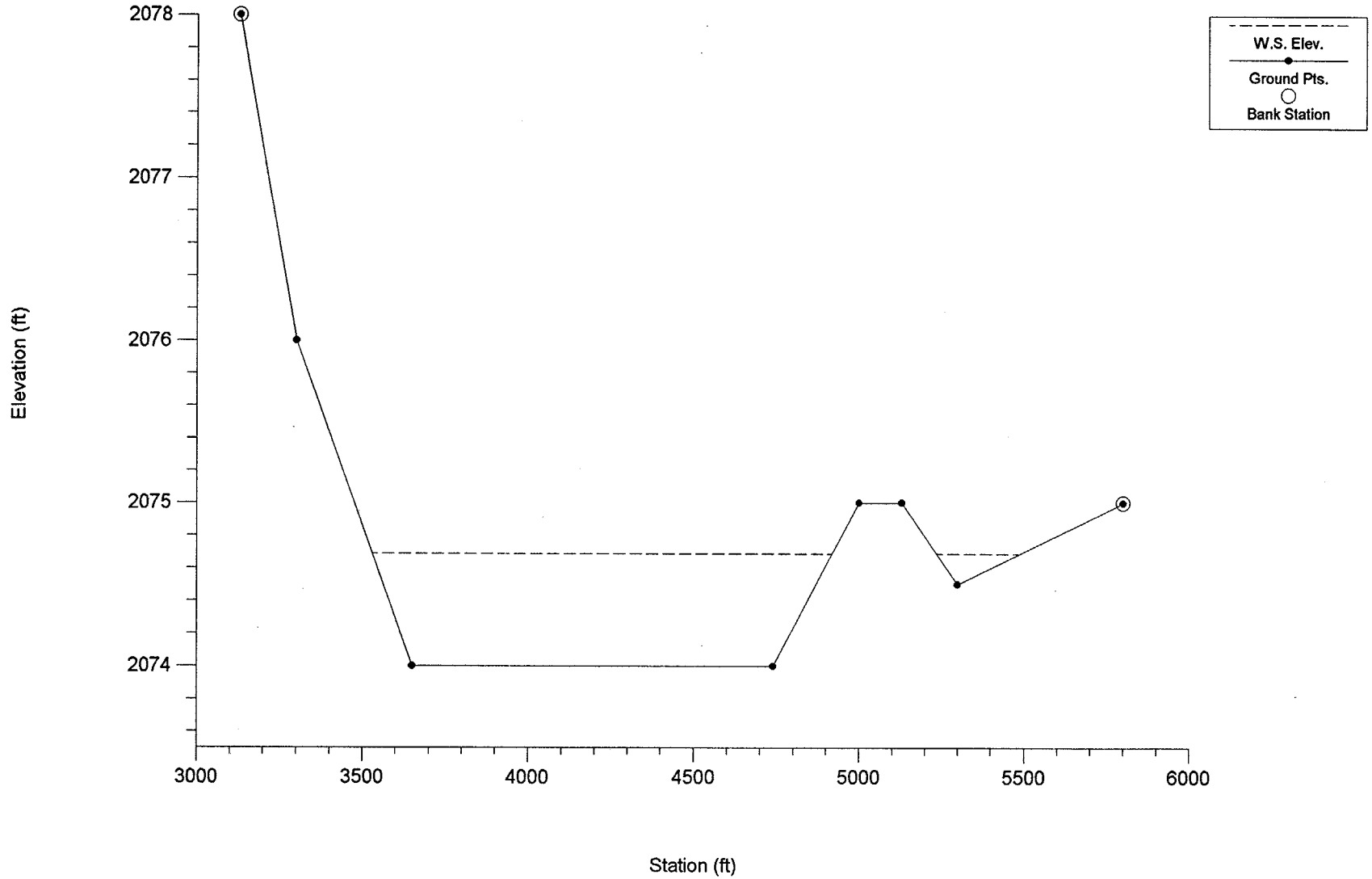
Elevation (ft)
3500
4000
4500
5000
5500
6000
6500
7000
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

SLA, INC.

wcwt2.dat
110



SLA, INC.

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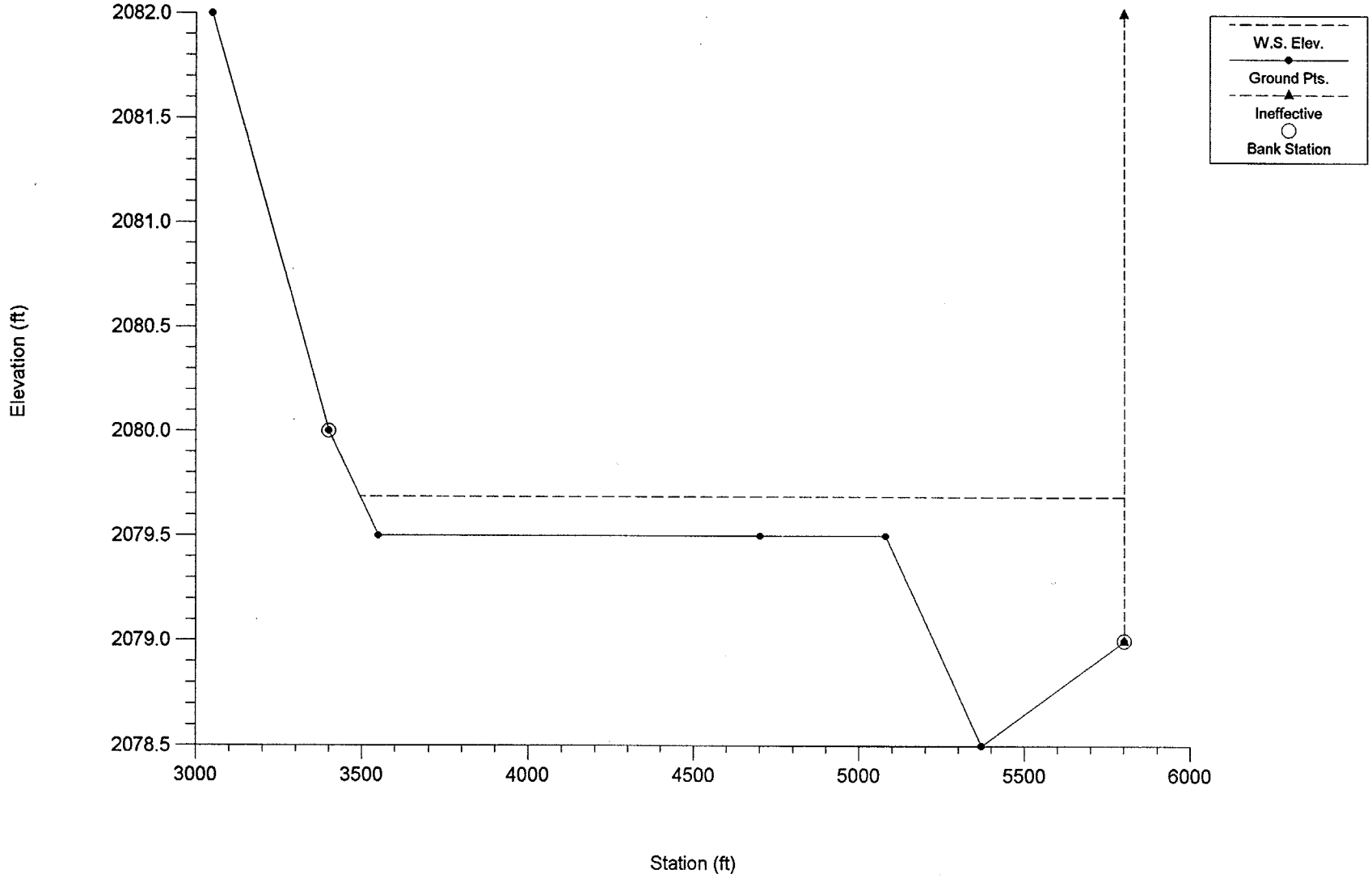

SLA, INC.

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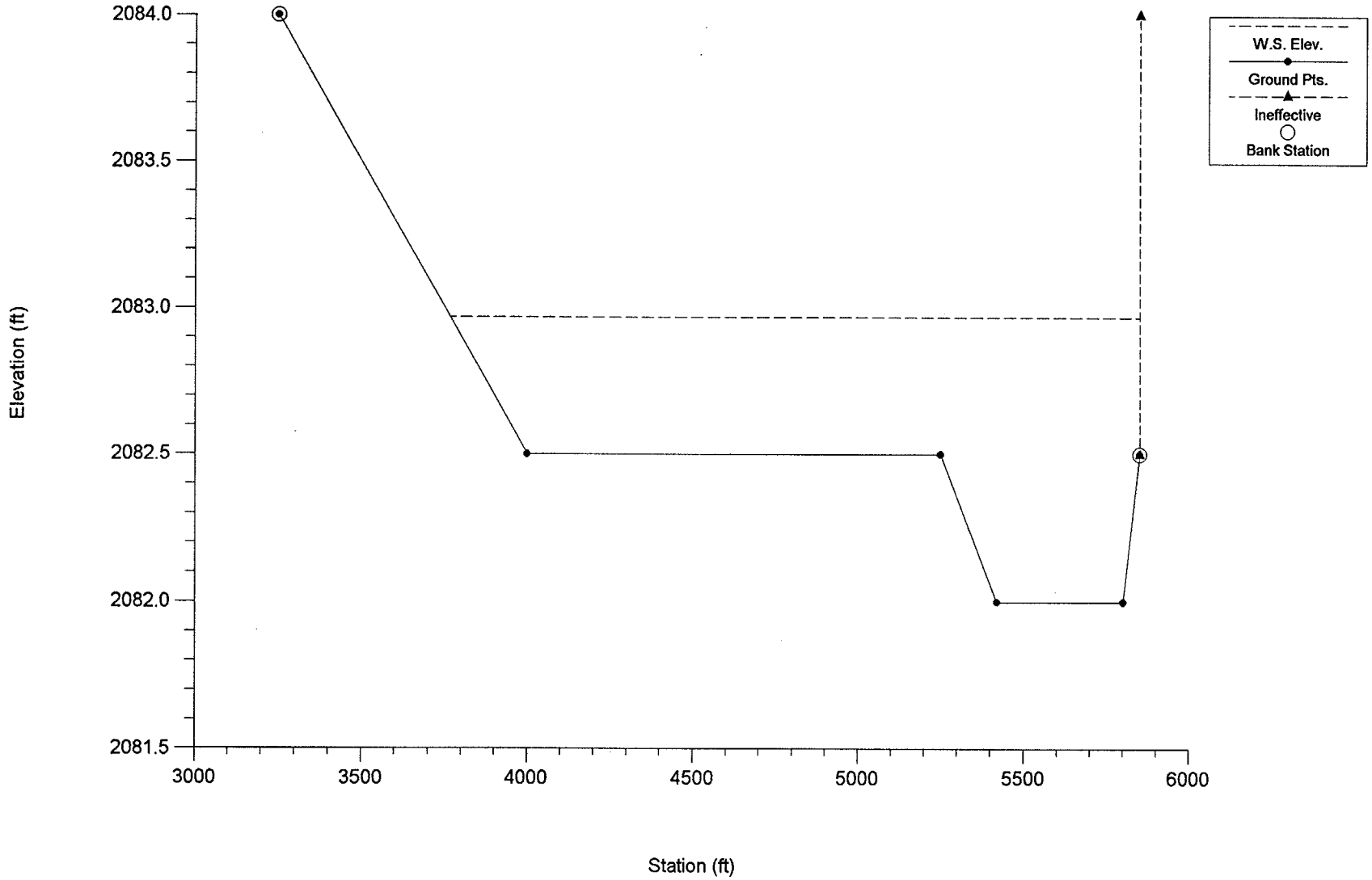
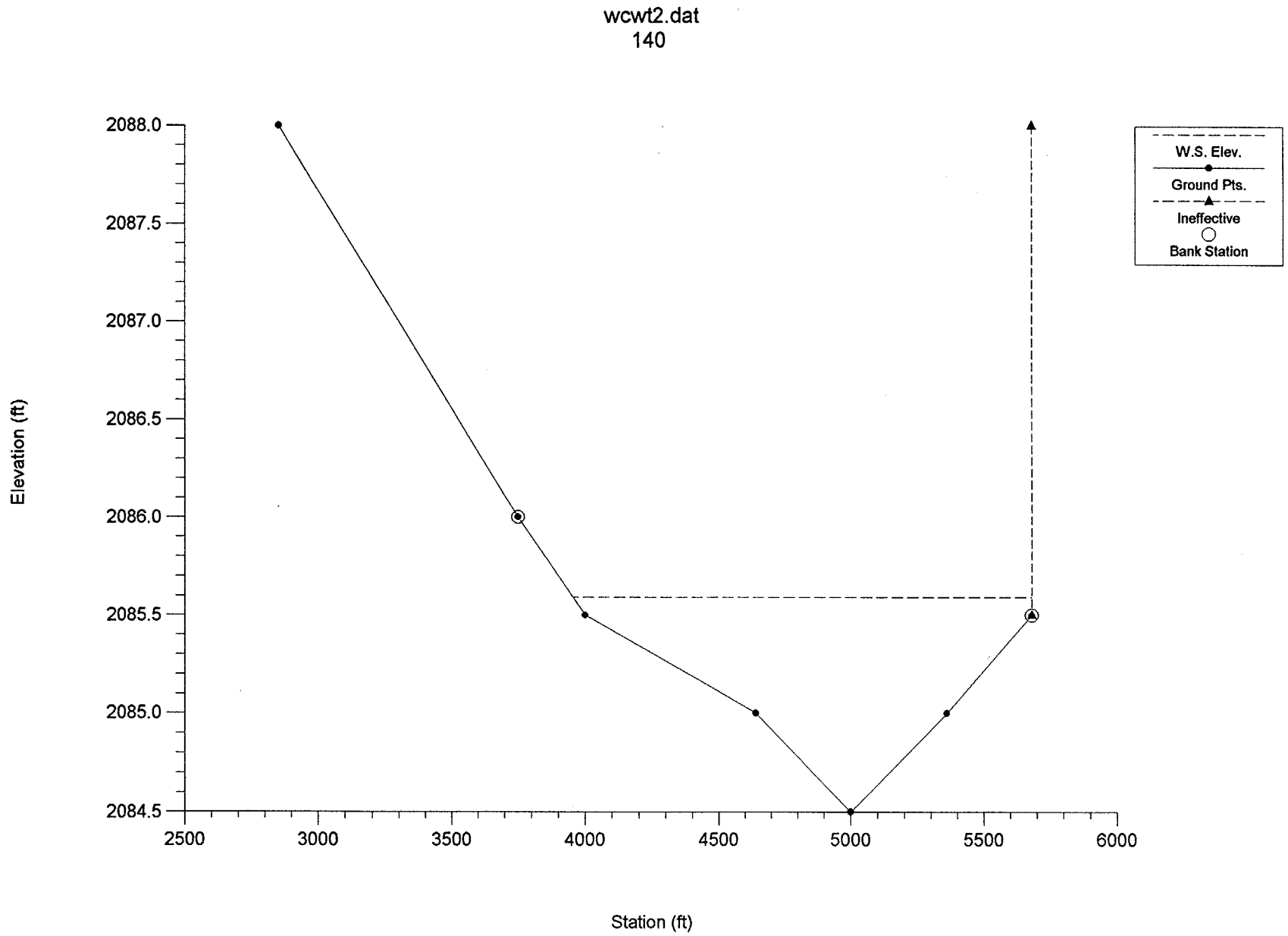


SLA, INC.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2087.0
2086.5
2086.0
2085.5
2085.0
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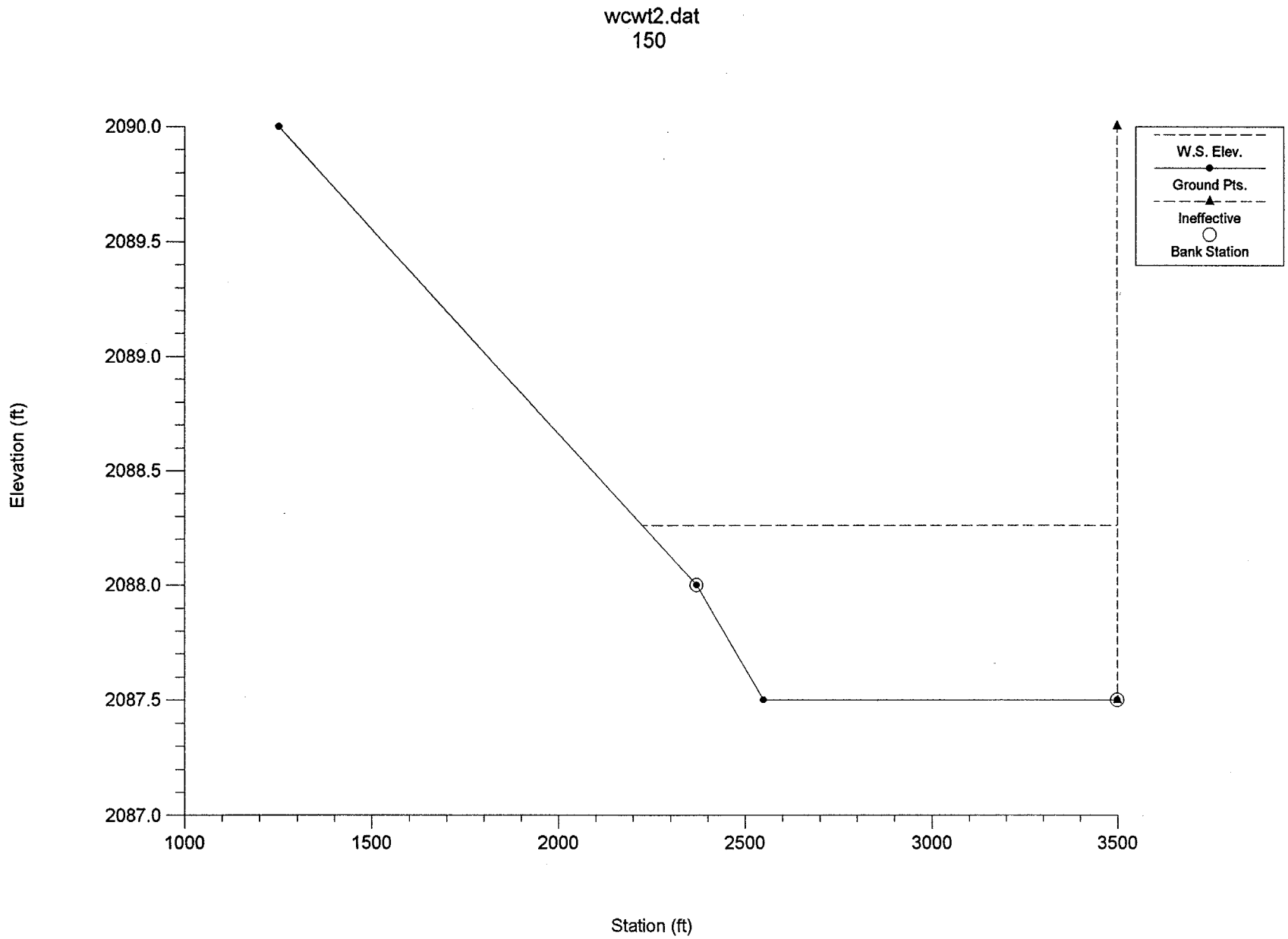
Elevation (ft)
2500
3000
3500
4000
4500
5000
5500
6000
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

SLA, INC.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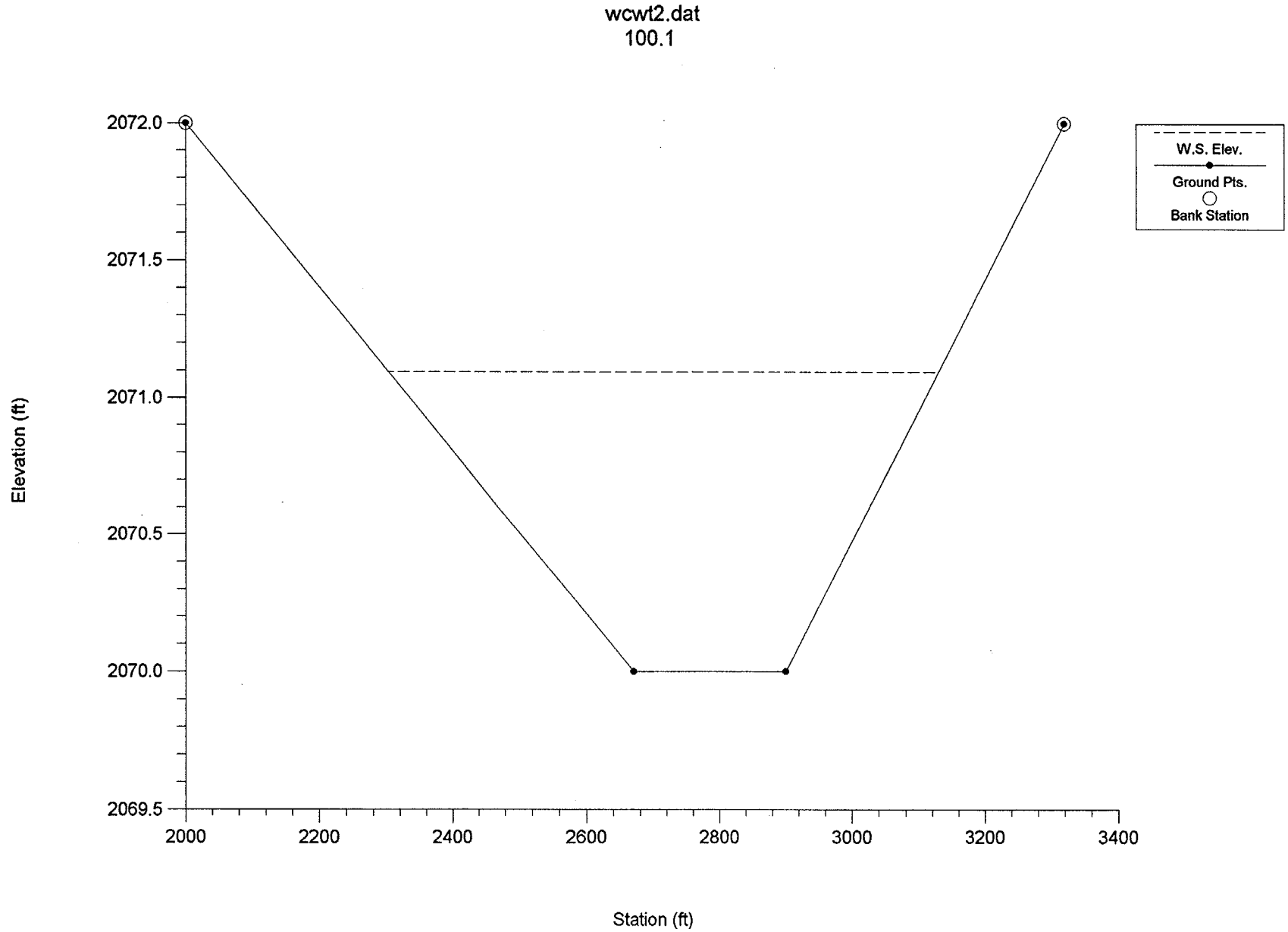
2090.0
2089.5
2089.0
2088.5
2088.0
2087.5
2087.0
Elevation (ft)
1000
1500
2000
2500
3000
3500
Station (ft)
W.S. Elev.
Ground Pts.
Ineffective
Bank Station

SLA, INC.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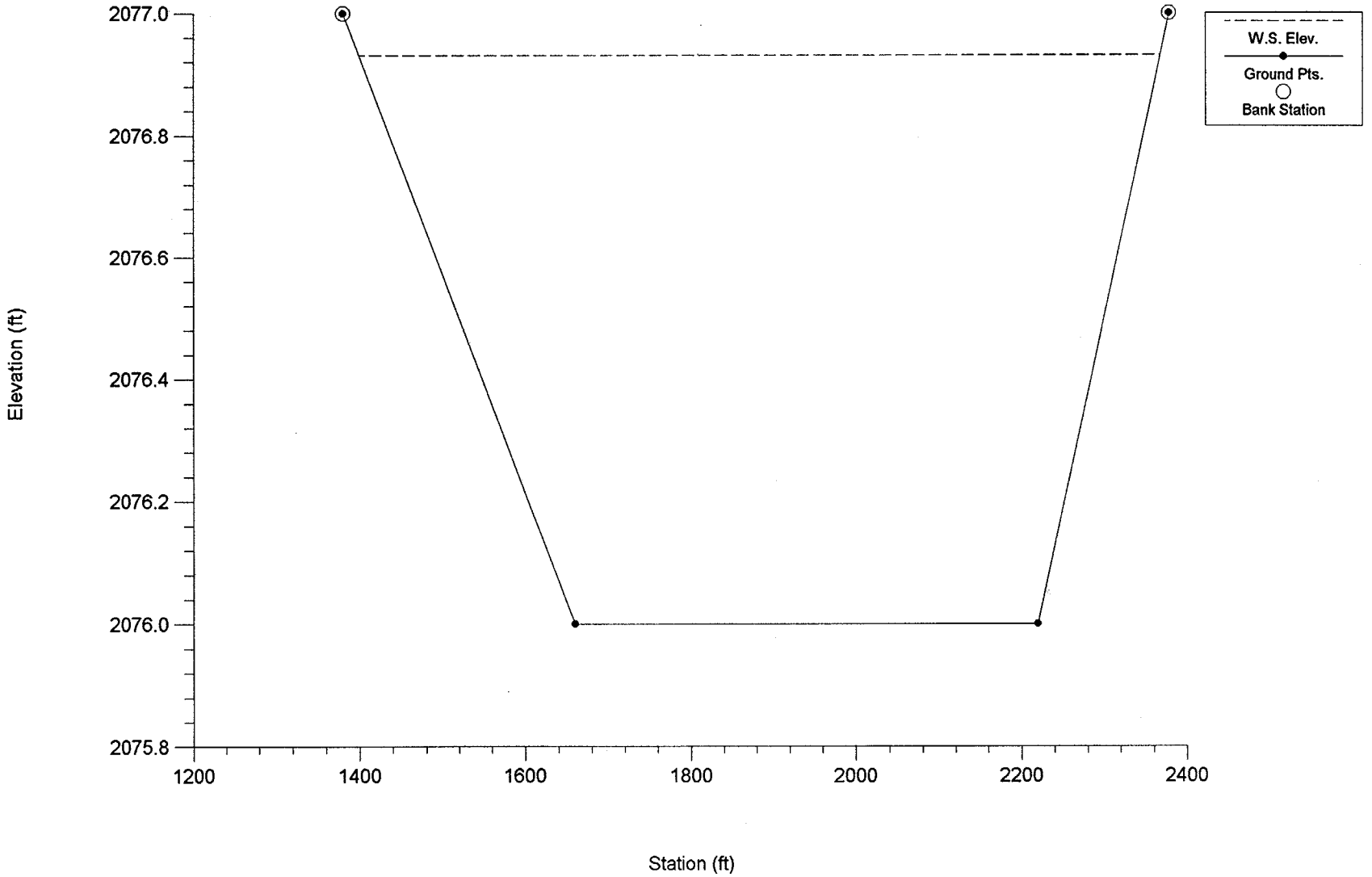
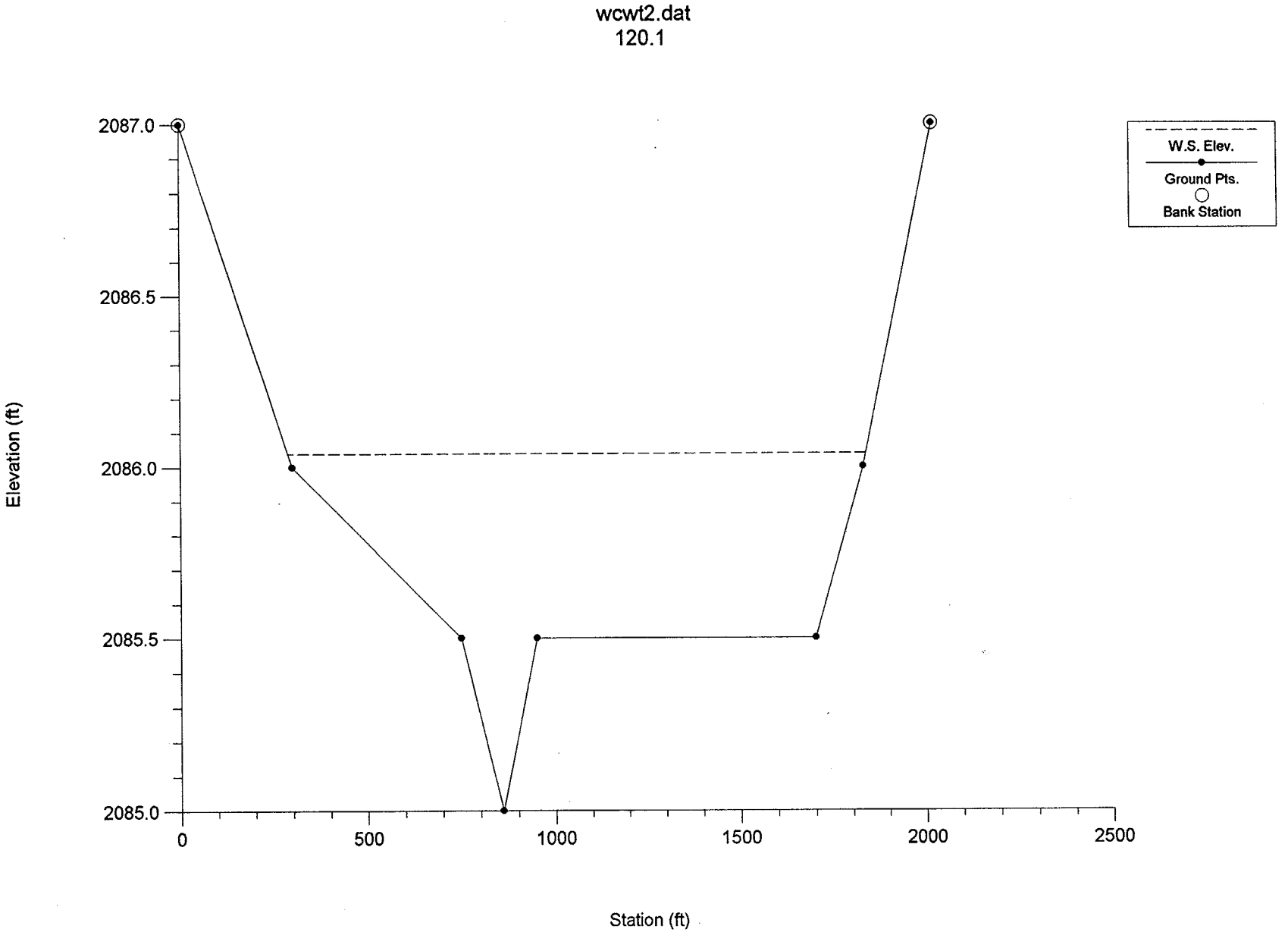
2071.5
2071.0
2070.5
2070.0
2069.5
Elevation (ft)
2000
2200
2400
2600
2800
3000
3200
3400
Station (ft)
W.S. Elev.
Ground Pts.
Bank Station

SLA, INC.

wcwt2.dat
110.1




wcwt2.dat
120.1
W.S. Elev.
Ground Pts.
Bank Station
Elevation (ft)
2087.0
2086.5
2086.0
2085.5
2085.0
0
500
1000
1500
2000
2500
Station (ft)

APPENDIX C

HEC-RAS Output Listings

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 30 Profile: 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	2042.69	Element			
Vel Head (ft)	0.09	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2042.78	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.003634	Flow Area (sq ft)	193.25	6180.19	2974.12
Q Total (cfs)	21000.00	Flow (cfs)	224.95	16306.52	4468.54
Top Width (ft)	5967.25	Top Width (ft)	280.00	2630.00	3057.25
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)	1.16	2.64	1.50
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)	0.69	2.35	0.97
Crit W.S. (ft)	2041.33	Wetted Per. (ft)	280.69	2630.28	3057.27
Conv. Total (cfs)	348366.5	Conv. (cfs)	3731.6	270506.8	74128.0

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 20 Profile: 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	2039.19	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2039.33	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.004057	Flow Area (sq ft)	130.53	5057.92	2762.56
Q Total (cfs)	21000.00	Flow (cfs)	160.21	16504.86	4334.92
Top Width (ft)	4849.35	Top Width (ft)	190.00	1700.00	2959.35
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)	1.23	3.26	1.57
Max Chl Dpth (ft)	3.19	Hydr. Depth (ft)	0.69	2.98	0.93
Crit W.S. (ft)	2037.87	Wetted Per. (ft)	190.19	1700.03	2959.36
Conv. Total (cfs)	329686.0	Conv. (cfs)	2515.3	259115.4	68055.4

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 10 Profile: 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	2035.69	Element			
Vel Head (ft)	0.21	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2035.89	Reach Len. (ft)			
E.G. Slope (ft/ft)	0.004002	Flow Area (sq ft)	1449.44	4140.74	1045.88
Q Total (cfs)	21000.00	Flow (cfs)	3448.13	16401.63	1150.24
Top Width (ft)	3793.14	Top Width (ft)	780.00	1030.00	1983.14
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)	2.38	3.96	1.10
Max Chl Dpth (ft)	4.69	Hydr. Depth (ft)	1.86	4.02	0.53
Crit W.S. (ft)	2034.19	Wetted Per. (ft)	782.19	1030.06	1983.15
Conv. Total (cfs)	331942.5	Conv. (cfs)	54503.8	259257.0	18181.7

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 60 Profile: 1

W.S. Elev (ft)	2053.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2053.87	Reach Len. (ft)	1050.00	950.00	900.00
E.G. Slope (ft/ft)	0.004382	Flow Area (sq ft)	402.58	4095.74	2424.87
Q Total (cfs)	16000.00	Flow (cfs)	499.14	11087.96	4412.90
Top Width (ft)	4765.45	Top Width (ft)	665.45	1930.00	2170.00
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)	1.24	2.71	1.82
Max Chl Dpth (ft)	2.78	Hydr. Depth (ft)	0.60	2.12	1.12
Crit W.S. (ft)	2052.96	Wetted Per. (ft)	665.46	1930.01	2170.28
Conv. Total (cfs)	241709.6	Conv. (cfs)	7540.5	167504.1	66665.0

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 50 Profile: 1

W.S. Elev (ft)	2049.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2050.00	Reach Len. (ft)	1150.00	950.00	950.00
E.G. Slope (ft/ft)	0.003859	Flow Area (sq ft)		4504.16	3438.25
Q Total (cfs)	18000.00	Flow (cfs)		11237.55	6762.45
Top Width (ft)	4850.00	Top Width (ft)		2180.00	2670.00
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)		2.49	1.97
Max Chl Dpth (ft)	2.92	Hydr. Depth (ft)		2.07	1.29
Crit W.S. (ft)	2048.92	Wetted Per. (ft)		2180.95	2670.42
Conv. Total (cfs)	289758.9	Conv. (cfs)		180898.9	108859.9

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 40 Profile: 1

W.S. Elev (ft)	2046.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2046.23	Reach Len. (ft)	950.00	900.00	900.00
E.G. Slope (ft/ft)	0.004081	Flow Area (sq ft)	2.47	5466.57	3770.06
Q Total (cfs)	21000.00	Flow (cfs)	0.66	14492.19	6507.15
Top Width (ft)	5865.13	Top Width (ft)	35.13	2520.00	3310.00
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)	0.27	2.65	1.73
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)	0.07	2.17	1.14
Crit W.S. (ft)	2045.35	Wetted Per. (ft)	35.13	2520.08	3310.19
Conv. Total (cfs)	328733.3	Conv. (cfs)	10.4	226860.2	101862.7

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 90 Profile: 1

W.S. Elev (ft)	2065.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2065.71	Reach Len. (ft)	950.00	950.00	950.00
E.G. Slope (ft/ft)	0.003897	Flow Area (sq ft)	872.42	2689.08	3552.67
Q Total (cfs)	16000.00	Flow (cfs)	1624.36	7831.96	6543.69
Top Width (ft)	4826.03	Top Width (ft)	706.03	1040.00	3080.00
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)	1.86	2.91	1.84
Max Chl Dpth (ft)	3.61	Hydr. Depth (ft)	1.24	2.59	1.15
Crit W.S. (ft)	2064.75	Wetted Per. (ft)	706.04	1040.01	3080.62
Conv. Total (cfs)	256295.3	Conv. (cfs)	26019.7	125455.9	104819.8

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 80 Profile: 1

W.S. Elev (ft)	2061.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2061.65	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.004714	Flow Area (sq ft)	886.07	2556.56	3107.26
Q Total (cfs)	16000.00	Flow (cfs)	1894.28	7627.07	6478.64
Top Width (ft)	4392.19	Top Width (ft)	665.63	1100.00	2626.56
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	2.14	2.98	2.08
Max Chl Dpth (ft)	2.55	Hydr. Depth (ft)	1.33	2.32	1.18
Crit W.S. (ft)	2060.75	Wetted Per. (ft)	665.63	1100.01	2626.56
Conv. Total (cfs)	233043.2	Conv. (cfs)	27590.6	111089.8	94362.7

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 70 Profile: 1

W.S. Elev (ft)	2057.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2057.69	Reach Len. (ft)	1000.00	900.00	900.00
E.G. Slope (ft/ft)	0.004074	Flow Area (sq ft)		3909.30	2403.77
Q Total (cfs)	16000.00	Flow (cfs)		11172.00	4828.01
Top Width (ft)	3370.21	Top Width (ft)		1608.12	1762.09
Vel Total (ft/s)	2.53	Avg. Vel. (ft/s)		2.86	2.01
Max Chl Dpth (ft)	4.08	Hydr. Depth (ft)		2.43	1.36
Crit W.S. (ft)	2056.55	Wetted Per. (ft)		1608.15	1762.09
Conv. Total (cfs)	250676.3	Conv. (cfs)		175034.6	75641.6

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 120 Profile: 1

W.S. Elev (ft)	2077.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2077.15	Reach Len. (ft)	950.00	950.00	950.00
E.G. Slope (ft/ft)	0.003401	Flow Area (sq ft)	106.03	3425.06	8027.71
Q Total (cfs)	29000.00	Flow (cfs)	84.60	10239.01	18676.38
Top Width (ft)	6170.00	Top Width (ft)	620.00	1150.00	4400.00
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	0.80	2.99	2.33
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)	0.17	2.98	1.82
Crit W.S. (ft)	2075.81	Wetted Per. (ft)	620.05	1150.03	4400.56
Conv. Total (cfs)	497307.3	Conv. (cfs)	1450.8	175584.0	320272.5

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 110 Profile: 1

W.S. Elev (ft)	2073.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2073.34	Reach Len. (ft)	870.00	870.00	870.00
E.G. Slope (ft/ft)	0.004902	Flow Area (sq ft)	41.87	3744.89	1618.85
Q Total (cfs)	16000.00	Flow (cfs)	51.11	12819.86	3129.04
Top Width (ft)	2993.71	Top Width (ft)	70.88	1350.00	1572.82
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	1.22	3.42	1.93
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)	0.59	2.77	1.03
Crit W.S. (ft)	2072.15	Wetted Per. (ft)	70.89	1350.03	1574.51
Conv. Total (cfs)	228515.8	Conv. (cfs)	730.0	183096.2	44689.6

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 100 Profile: 1

W.S. Elev (ft)	2069.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2069.25	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.004470	Flow Area (sq ft)	35.49	2964.58	3403.48
Q Total (cfs)	16000.00	Flow (cfs)	40.30	9506.26	6453.44
Top Width (ft)	3982.48	Top Width (ft)	62.48	1100.00	2820.00
Vel Total (ft/s)	2.50	Avg. Vel. (ft/s)	1.14	3.21	1.90
Max Chl Dpth (ft)	3.64	Hydr. Depth (ft)	0.57	2.70	1.21
Crit W.S. (ft)	2068.41	Wetted Per. (ft)	62.49	1100.03	2821.14
Conv. Total (cfs)	239308.6	Conv. (cfs)	602.7	142183.1	96522.8

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 150 Profile: 1

W.S. Elev (ft)	2087.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2088.10	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.003573	Flow Area (sq ft)	144.52	6853.90	3334.03
Q Total (cfs)	28405.00	Flow (cfs)	211.28	21641.57	6552.14
Top Width (ft)	5009.54	Top Width (ft)	147.24	2200.00	2662.30
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)	1.46	3.16	1.97
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)	0.98	3.12	1.25
Crit W.S. (ft)	2086.64	Wetted Per. (ft)	147.25	2200.03	2662.32
Conv. Total (cfs)	475218.1	Conv. (cfs)	3534.8	362065.4	109617.9

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 140 Profile: 1

W.S. Elev (ft)	2084.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2084.36	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.005008	Flow Area (sq ft)	1.88	3761.19	6132.58
Q Total (cfs)	30000.00	Flow (cfs)	0.75	12330.92	17668.33
Top Width (ft)	4647.34	Top Width (ft)	17.34	1470.00	3160.00
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)	0.40	3.28	2.88
Max Chl Dpth (ft)	4.22	Hydr. Depth (ft)	0.11	2.56	1.94
Crit W.S. (ft)	2083.11	Wetted Per. (ft)	17.35	1470.06	3160.24
Conv. Total (cfs)	423924.7	Conv. (cfs)	10.6	174246.1	249668.0

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 130 Profile: 1

W.S. Elev (ft)	2080.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2080.31	Reach Len. (ft)	1000.00	850.00	850.00
E.G. Slope (ft/ft)	0.003988	Flow Area (sq ft)	1.47	3090.81	8167.40
Q Total (cfs)	30000.00	Flow (cfs)	0.49	8119.07	21880.44
Top Width (ft)	5264.83	Top Width (ft)	14.83	1420.00	3830.00
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)	0.33	2.63	2.68
Max Chl Dpth (ft)	3.20	Hydr. Depth (ft)	0.10	2.18	2.13
Crit W.S. (ft)	2079.00	Wetted Per. (ft)	14.83	1420.02	3830.21
Conv. Total (cfs)	475025.8	Conv. (cfs)	7.8	128558.9	346459.2

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 162 Profile: 1

W.S. Elev (ft)	2097.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2097.95	Reach Len. (ft)	750.00	850.00	950.00
E.G. Slope (ft/ft)	0.003722	Flow Area (sq ft)	681.15	5924.67	491.08
Q Total (cfs)	16000.00	Flow (cfs)	1263.31	14153.96	582.72
Top Width (ft)	4262.10	Top Width (ft)	500.00	2980.00	782.10
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)	1.85	2.39	1.19
Max Chl Dpth (ft)	2.36	Hydr. Depth (ft)	1.36	1.99	0.63
Crit W.S. (ft)	2096.81	Wetted Per. (ft)	500.86	2980.01	782.10
Conv. Total (cfs)	262249.2	Conv. (cfs)	20706.4	231991.6	9551.2

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 161 Profile: 1

W.S. Elev (ft)	2095.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2095.09	Reach Len. (ft)	550.00	1000.00	1050.00
E.G. Slope (ft/ft)	0.002896	Flow Area (sq ft)	670.93	6743.94	2596.68
Q Total (cfs)	22250.00	Flow (cfs)	1086.54	17010.69	4152.78
Top Width (ft)	8186.87	Top Width (ft)	3440.00	2590.00	2156.87
Vel Total (ft/s)	2.22	Avg. Vel. (ft/s)	1.62	2.52	1.60
Max Chl Dpth (ft)	3.51	Hydr. Depth (ft)	1.24	2.60	1.20
Crit W.S. (ft)	2093.79	Wetted Per. (ft)	540.01	2590.00	2156.88
Conv. Total (cfs)	413467.3	Conv. (cfs)	20190.9	316106.2	77170.2

HEC-RAS Plan: bwwb2b.dat Reach: 1 Riv Sta: 160 Profile: 1

W.S. Elev (ft)	2091.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2091.57	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.004601	Flow Area (sq ft)	546.41	6864.90	1651.89
Q Total (cfs)	26775.00	Flow (cfs)	806.65	23045.84	2922.51
Top Width (ft)	4980.22	Top Width (ft)	970.22	2430.00	1580.00
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	1.48	3.36	1.77
Max Chl Dpth (ft)	2.91	Hydr. Depth (ft)	0.56	2.83	1.05
Crit W.S. (ft)	2090.19	Wetted Per. (ft)	3950.22	2430.04	1580.91
Conv. Total (cfs)	394725.8	Conv. (cfs)	11891.9	339749.4	43084.6

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 30 Profile: 1

W.S. Elev (ft)	2043.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2043.42	Reach Len. (ft)	880.00	880.00	880.00
E.G. Slope (ft/ft)	0.003763	Flow Area (sq ft)	1530.09	8405.21	255.81
Q Total (cfs)	21000.00	Flow (cfs)	1722.08	19016.17	261.75
Top Width (ft)	7860.23	Top Width (ft)	2710.00	4625.00	525.23
Vel Total (ft/s)	2.06	Avg. Vel. (ft/s)	1.13	2.26	1.02
Max Chl Dpth (ft)	2.85	Hydr. Depth (ft)	0.56	1.82	0.49
Crit W.S. (ft)	2042.38	Wetted Per. (ft)	2710.35	4625.01	525.24
Conv. Total (cfs)	342330.9	Conv. (cfs)	28072.5	309991.5	4266.9

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 20 Profile: 1

W.S. Elev (ft)	2039.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2039.97	Reach Len. (ft)	670.00	670.00	670.00
E.G. Slope (ft/ft)	0.004119	Flow Area (sq ft)	2610.07	7628.12	453.53
Q Total (cfs)	21000.00	Flow (cfs)	3866.24	16696.41	437.35
Top Width (ft)	8720.02	Top Width (ft)	2900.00	4720.00	1100.02
Vel Total (ft/s)	1.96	Avg. Vel. (ft/s)	1.48	2.19	0.96
Max Chl Dpth (ft)	1.90	Hydr. Depth (ft)	0.90	1.62	0.41
Crit W.S. (ft)	2039.19	Wetted Per. (ft)	2900.90	4720.01	1100.02
Conv. Total (cfs)	327220.2	Conv. (cfs)	60243.4	260162.1	6814.7

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 10 Profile: 1

W.S. Elev (ft)	2037.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2037.24	Reach Len. (ft)			
E.G. Slope (ft/ft)	0.004002	Flow Area (sq ft)	3292.76	7567.25	344.36
Q Total (cfs)	21000.00	Flow (cfs)	5787.40	14791.94	420.66
Top Width (ft)	8700.00	Top Width (ft)	2770.00	5430.00	500.00
Vel Total (ft/s)	1.87	Avg. Vel. (ft/s)	1.76	1.95	1.22
Max Chl Dpth (ft)	2.19	Hydr. Depth (ft)	1.19	1.39	0.69
Crit W.S. (ft)	2036.45	Wetted Per. (ft)	2771.19	5430.01	500.19
Conv. Total (cfs)	331946.6	Conv. (cfs)	91481.3	233815.9	6649.3

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 60 Profile: 1

W.S. Elev (ft)	2054.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2054.49	Reach Len. (ft)	870.00	870.00	870.00
E.G. Slope (ft/ft)	0.003676	Flow Area (sq ft)	414.74	7876.10	1751.81
Q Total (cfs)	21000.00	Flow (cfs)	548.41	17199.95	3251.64
Top Width (ft)	6465.60	Top Width (ft)	615.65	4490.00	1359.94
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)	1.32	2.18	1.86
Max Chl Dpth (ft)	2.42	Hydr. Depth (ft)	0.67	1.75	1.29
Crit W.S. (ft)	2053.50	Wetted Per. (ft)	617.08	4490.01	1359.95
Conv. Total (cfs)	346383.2	Conv. (cfs)	9045.7	283703.5	53634.0

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 50 Profile: 1

W.S. Elev (ft)	2050.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2050.89	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.004666	Flow Area (sq ft)	775.60	7877.42	933.81
Q Total (cfs)	21000.00	Flow (cfs)	1000.75	18670.20	1329.05
Top Width (ft)	7275.37	Top Width (ft)	1272.61	4750.00	1252.76
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)	1.29	2.37	1.42
Max Chl Dpth (ft)	2.31	Hydr. Depth (ft)	0.61	1.66	0.75
Crit W.S. (ft)	2050.02	Wetted Per. (ft)	1273.42	4750.07	1252.76
Conv. Total (cfs)	307435.3	Conv. (cfs)	14650.7	273327.6	19457.0

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 40 Profile: 1

W.S. Elev (ft)	2046.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2046.93	Reach Len. (ft)	880.00	880.00	880.00
E.G. Slope (ft/ft)	0.004169	Flow Area (sq ft)	546.63	8093.26	1216.26
Q Total (cfs)	21000.00	Flow (cfs)	489.45	18806.92	1703.63
Top Width (ft)	7512.69	Top Width (ft)	1370.00	4620.00	1522.69
Vel Total (ft/s)	2.13	Avg. Vel. (ft/s)	0.90	2.32	1.40
Max Chl Dpth (ft)	2.35	Hydr. Depth (ft)	0.40	1.75	0.80
Crit W.S. (ft)	2045.95	Wetted Per. (ft)	1370.35	4620.01	1522.69
Conv. Total (cfs)	325229.3	Conv. (cfs)	7580.2	291264.8	26384.3

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 90 Profile: 1

		Left OB	Channel	Right OB
W.S. Elev (ft)	2065.72 Element			
Vel Head (ft)	0.07 Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2065.79 Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.003855 Flow Area (sq ft)		9964.11	45.42
Q Total (cfs)	21000.00 Flow (cfs)		20964.64	35.36
Top Width (ft)	6351.08 Top Width (ft)		6225.00	126.08
Vel Total (ft/s)	2.10 Avg. Vel. (ft/s)		2.10	0.78
Max Chl Dpth (ft)	2.72 Hydr. Depth (ft)		1.60	0.36
Crit W.S. (ft)	2064.70 Wetted Per. (ft)		6225.73	126.08
Conv. Total (cfs)	338204.5 Conv. (cfs)		337635.1	569.4

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 80 Profile: 1

		Left OB	Channel	Right OB
W.S. Elev (ft)	2061.75 Element			
Vel Head (ft)	0.09 Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2061.84 Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.005145 Flow Area (sq ft)	271.61	7570.95	967.18
Q Total (cfs)	21000.00 Flow (cfs)	429.89	18765.00	1805.11
Top Width (ft)	5952.17 Top Width (ft)	387.88	4593.47	970.82
Vel Total (ft/s)	2.38 Avg. Vel. (ft/s)	1.58	2.48	1.87
Max Chl Dpth (ft)	2.75 Hydr. Depth (ft)	0.70	1.65	1.00
Crit W.S. (ft)	2060.93 Wetted Per. (ft)	387.90	4593.49	970.83
Conv. Total (cfs)	292776.8 Conv. (cfs)	5993.4	261617.0	25166.4

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 70 Profile: 1

		Left OB	Channel	Right OB
W.S. Elev (ft)	2057.88 Element			
Vel Head (ft)	0.08 Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2057.96 Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.004035 Flow Area (sq ft)	361.17	8456.58	659.28
Q Total (cfs)	21000.00 Flow (cfs)	473.10	19767.34	759.57
Top Width (ft)	6394.36 Top Width (ft)	512.09	4669.26	1213.01
Vel Total (ft/s)	2.22 Avg. Vel. (ft/s)	1.31	2.34	1.15
Max Chl Dpth (ft)	2.38 Hydr. Depth (ft)	0.71	1.81	0.54
Crit W.S. (ft)	2056.87 Wetted Per. (ft)	512.97	4669.27	1213.01
Conv. Total (cfs)	330577.3 Conv. (cfs)	7447.4	311173.0	11956.9

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 120 Profile: 1

W.S. Elev (ft)	2076.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.060	
E.G. Elev (ft)	2076.98	Reach Len. (ft)	800.00	800.00	800.00
E.G. Slope (ft/ft)	0.005332	Flow Area (sq ft)		4234.68	
Q Total (cfs)	8000.00	Flow (cfs)		8000.00	
Top Width (ft)	3965.50	Top Width (ft)		3965.50	
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89	
Max Chl Dpth (ft)	2.92	Hydr. Depth (ft)		1.07	
Crit W.S. (ft)	2075.86	Wetted Per. (ft)		3965.96	
Conv. Total (cfs)	109558.6	Conv. (cfs)		109558.6	

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 110 Profile: 1

W.S. Elev (ft)	2073.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2073.30	Reach Len. (ft)	1000.00	1000.00	1000.00
E.G. Slope (ft/ft)	0.003881	Flow Area (sq ft)		4601.88	10.67
Q Total (cfs)	8000.00	Flow (cfs)		7995.88	4.12
Top Width (ft)	3935.17	Top Width (ft)		3850.00	85.17
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)		1.74	0.39
Max Chl Dpth (ft)	3.25	Hydr. Depth (ft)		1.20	0.13
Crit W.S. (ft)	2072.30	Wetted Per. (ft)		3850.27	85.17
Conv. Total (cfs)	128419.8	Conv. (cfs)		128353.7	66.1

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 100 Profile: 1

W.S. Elev (ft)	2069.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.060	
E.G. Elev (ft)	2069.35	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.004009	Flow Area (sq ft)		4550.35	
Q Total (cfs)	8000.00	Flow (cfs)		8000.00	
Top Width (ft)	3833.01	Top Width (ft)		3833.01	
Vel Total (ft/s)	1.76	Avg. Vel. (ft/s)		1.76	
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)		1.19	
Crit W.S. (ft)	2068.41	Wetted Per. (ft)		3833.02	
Conv. Total (cfs)	126344.8	Conv. (cfs)		126344.8	

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 150 Profile: 1

W.S. Elev (ft)	2088.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2088.42	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.004679	Flow Area (sq ft)		4310.23	7.67
Q Total (cfs)	8590.00	Flow (cfs)		8585.88	4.12
Top Width (ft)	3422.97	Top Width (ft)		3380.08	42.89
Vel Total (ft/s)	1.99	Avg. Vel. (ft/s)		1.99	0.54
Max Chl Dpth (ft)	2.36	Hydr. Depth (ft)		1.28	0.18
Crit W.S. (ft)	2087.59	Wetted Per. (ft)		3380.10	42.89
Conv. Total (cfs)	125583.7	Conv. (cfs)		125523.5	60.2

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 140 Profile: 1

W.S. Elev (ft)	2084.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2084.27	Reach Len. (ft)	830.00	830.00	830.00
E.G. Slope (ft/ft)	0.005145	Flow Area (sq ft)		3795.90	5.65
Q Total (cfs)	7000.00	Flow (cfs)		6997.75	2.25
Top Width (ft)	3643.16	Top Width (ft)		3590.00	53.16
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)		1.84	0.40
Max Chl Dpth (ft)	2.21	Hydr. Depth (ft)		1.06	0.11
Crit W.S. (ft)	2083.60	Wetted Per. (ft)		3590.24	53.16
Conv. Total (cfs)	97594.6	Conv. (cfs)		97563.2	31.4

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 130 Profile: 1

W.S. Elev (ft)	2080.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2080.65	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.003678	Flow Area (sq ft)		4159.62	164.34
Q Total (cfs)	7000.00	Flow (cfs)		6840.43	159.57
Top Width (ft)	3972.40	Top Width (ft)		3630.00	342.40
Vel Total (ft/s)	1.62	Avg. Vel. (ft/s)		1.64	0.97
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)		1.15	0.48
Crit W.S. (ft)	2079.79	Wetted Per. (ft)		3630.62	342.40
Conv. Total (cfs)	115423.6	Conv. (cfs)		112792.4	2631.2

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 162 Profile: 1

W.S. Elev (ft)	2103.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2103.37	Reach Len. (ft)	1050.00	1050.00	1050.00
E.G. Slope (ft/ft)	0.004020	Flow Area (sq ft)		6999.08	147.97
Q Total (cfs)	21000.00	Flow (cfs)		20831.80	168.20
Top Width (ft)	2920.23	Top Width (ft)		2680.00	240.23
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)		2.98	1.14
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)		2.61	0.62
Crit W.S. (ft)	2101.85	Wetted Per. (ft)		2681.74	240.23
Conv. Total (cfs)	331228.2	Conv. (cfs)		328575.3	2652.9

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 161 Profile: 1

W.S. Elev (ft)	2098.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2098.28	Reach Len. (ft)	1070.00	1070.00	1070.00
E.G. Slope (ft/ft)	0.006214	Flow Area (sq ft)		4893.90	225.56
Q Total (cfs)	14745.00	Flow (cfs)		14338.56	406.44
Top Width (ft)	2933.97	Top Width (ft)		2660.00	273.97
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)		2.93	1.80
Max Chl Dpth (ft)	2.15	Hydr. Depth (ft)		1.84	0.82
Crit W.S. (ft)	2097.26	Wetted Per. (ft)		2661.65	273.97
Conv. Total (cfs)	187057.2	Conv. (cfs)		181901.0	5156.2

HEC-RAS Plan: bwec3b.dat Reach: 1 Riv Sta: 160 Profile: 1

W.S. Elev (ft)	2092.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2092.87	Reach Len. (ft)	1050.00	1050.00	1050.00
E.G. Slope (ft/ft)	0.003871	Flow Area (sq ft)		4778.36	80.06
Q Total (cfs)	10220.00	Flow (cfs)		10153.01	66.98
Top Width (ft)	3150.07	Top Width (ft)		2950.00	200.07
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)		2.12	0.84
Max Chl Dpth (ft)	1.80	Hydr. Depth (ft)		1.62	0.40
Crit W.S. (ft)	2091.89	Wetted Per. (ft)		2950.80	200.07
Conv. Total (cfs)	164262.5	Conv. (cfs)		163185.8	1076.6

HEC-RAS Plan: eb3a.dat Reach: 1 Riv Sta: 110 Profile: 1

W.S. Elev (ft)	2073.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2073.28	Reach Len. (ft)	1050.00	1050.00	1050.00
E.G. Slope (ft/ft)	0.003440	Flow Area (sq ft)		4510.15	448.27
Q Total (cfs)	12000.00	Flow (cfs)		11496.97	503.03
Top Width (ft)	3598.73	Top Width (ft)	998.73	1940.00	660.00
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)		2.55	1.12
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)		2.32	0.68
Crit W.S. (ft)	2071.90	Wetted Per. (ft)		1940.01	660.18
Conv. Total (cfs)	204592.8	Conv. (cfs)		196016.4	8576.4

HEC-RAS Plan: eb3a.dat Reach: 1 Riv Sta: 100 Profile: 1

W.S. Elev (ft)	2069.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2069.30	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.004220	Flow Area (sq ft)		4475.48	71.03
Q Total (cfs)	12000.00	Flow (cfs)		11919.08	80.92
Top Width (ft)	2219.19	Top Width (ft)		2100.00	119.19
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)		2.66	1.14
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)		2.13	0.60
Crit W.S. (ft)	2068.06	Wetted Per. (ft)		2101.20	119.20
Conv. Total (cfs)	184729.6	Conv. (cfs)		183483.9	1245.7

HEC-RAS Plan: eb3a.dat Reach: 1 Riv Sta: 90 Profile: 1

W.S. Elev (ft)	2065.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2065.73	Reach Len. (ft)			
E.G. Slope (ft/ft)	0.004175	Flow Area (sq ft)		3831.78	197.97
Q Total (cfs)	8500.00	Flow (cfs)		8259.88	240.12
Top Width (ft)	6340.48	Top Width (ft)		2450.00	3890.48
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)		2.16	1.21
Max Chl Dpth (ft)	2.66	Hydr. Depth (ft)		1.56	0.66
Crit W.S. (ft)	2064.80	Wetted Per. (ft)		2450.66	300.00
Conv. Total (cfs)	131553.3	Conv. (cfs)		127837.0	3716.3

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 161 Profile: 1

W.S. Elev (ft)	2093.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.060	
E.G. Elev (ft)	2093.33	Reach Len. (ft)	500.00	500.00	500.00
E.G. Slope (ft/ft)	0.003463	Flow Area (sq ft)		2918.36	
Q Total (cfs)	5000.00	Flow (cfs)		5000.00	
Top Width (ft)	2289.38	Top Width (ft)		2289.38	
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71	
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)		1.27	
Crit W.S. (ft)	2092.44	Wetted Per. (ft)		2289.41	
Conv. Total (cfs)	84968.7	Conv. (cfs)		84968.7	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 160 Profile: 1

W.S. Elev (ft)	2091.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.060	
E.G. Elev (ft)	2091.22	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.005419	Flow Area (sq ft)		2559.47	
Q Total (cfs)	5000.00	Flow (cfs)		5000.00	
Top Width (ft)	2307.32	Top Width (ft)		2307.32	
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)		1.95	
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		1.11	
Crit W.S. (ft)	2090.53	Wetted Per. (ft)		2307.49	
Conv. Total (cfs)	67920.6	Conv. (cfs)		67920.6	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 150 Profile: 1

W.S. Elev (ft)	2087.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.060	
E.G. Elev (ft)	2087.78	Reach Len. (ft)	870.00	870.00	870.00
E.G. Slope (ft/ft)	0.002655	Flow Area (sq ft)		2828.42	
Q Total (cfs)	5000.00	Flow (cfs)		5000.00	
Top Width (ft)	2145.95	Top Width (ft)	411.33	1734.62	
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)		1.77	
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)		1.63	
Crit W.S. (ft)	2086.46	Wetted Per. (ft)		1734.63	
Conv. Total (cfs)	97038.6	Conv. (cfs)		97038.6	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 140 Profile: 1

W.S. Elev (ft)	2084.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2084.66	Reach Len. (ft)	860.00	860.00	860.00
E.G. Slope (ft/ft)	0.005351	Flow Area (sq ft)	555.25	1449.12	68.27
Q Total (cfs)	5000.00	Flow (cfs)	875.48	4072.29	52.23
Top Width (ft)	1722.71	Top Width (ft)	723.91	750.00	248.80
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	1.58	2.81	0.77
Max Chl Dpth (ft)	3.05	Hydr. Depth (ft)	0.77	1.93	0.27
Crit W.S. (ft)	2083.74	Wetted Per. (ft)	723.91	750.06	248.80
Conv. Total (cfs)	68352.4	Conv. (cfs)	11968.2	55670.2	714.0

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 130 Profile: 1

W.S. Elev (ft)	2080.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.060	
E.G. Elev (ft)	2080.99	Reach Len. (ft)	970.00	970.00	970.00
E.G. Slope (ft/ft)	0.003203	Flow Area (sq ft)		2186.92	
Q Total (cfs)	4150.00	Flow (cfs)		4150.00	
Top Width (ft)	1589.96	Top Width (ft)	201.81	1388.15	
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)		1.90	
Max Chl Dpth (ft)	2.94	Hydr. Depth (ft)		1.58	
Crit W.S. (ft)	2079.78	Wetted Per. (ft)		1388.17	
Conv. Total (cfs)	73328.1	Conv. (cfs)		73328.1	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 120 Profile: 1

W.S. Elev (ft)	2077.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.060	0.060
E.G. Elev (ft)	2077.26	Reach Len. (ft)	1000.00	1000.00	1000.00
E.G. Slope (ft/ft)	0.004790	Flow Area (sq ft)		1822.26	54.59
Q Total (cfs)	4150.00	Flow (cfs)		4121.35	28.65
Top Width (ft)	1818.27	Top Width (ft)	282.71	1202.16	333.39
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)		2.26	0.52
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)		1.52	0.16
Crit W.S. (ft)	2075.87	Wetted Per. (ft)		1202.19	333.39
Conv. Total (cfs)	59963.8	Conv. (cfs)		59549.9	413.9

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 110 Profile: 1

W.S. Elev (ft)	2072.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.060	
E.G. Elev (ft)	2072.88	Reach Len. (ft)	870.00	870.00	870.00
E.G. Slope (ft/ft)	0.003939	Flow Area (sq ft)		2442.28	
Q Total (cfs)	5000.00	Flow (cfs)		5000.00	
Top Width (ft)	1615.62	Top Width (ft)		1615.62	
Vel Total (ft/s)	2.05	Avg. Vel. (ft/s)		2.05	
Max Chl Dpth (ft)	2.81	Hydr. Depth (ft)		1.51	
Crit W.S. (ft)	2071.64	Wetted Per. (ft)		1615.64	
Conv. Total (cfs)	79666.3	Conv. (cfs)		79666.3	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 100 Profile: 1

W.S. Elev (ft)	2068.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.060	
E.G. Elev (ft)	2068.78	Reach Len. (ft)	870.00	870.00	870.00
E.G. Slope (ft/ft)	0.005869	Flow Area (sq ft)		2198.78	
Q Total (cfs)	5000.00	Flow (cfs)		5000.00	
Top Width (ft)	1675.62	Top Width (ft)		1675.62	
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)		2.27	
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)		1.31	
Crit W.S. (ft)	2067.95	Wetted Per. (ft)		1675.64	
Conv. Total (cfs)	65267.1	Conv. (cfs)		65267.1	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 90 Profile: 1

W.S. Elev (ft)	2064.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.060	
E.G. Elev (ft)	2064.87	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.002995	Flow Area (sq ft)		2820.69	
Q Total (cfs)	5000.00	Flow (cfs)		5000.00	
Top Width (ft)	1885.66	Top Width (ft)		1885.66	
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)		1.77	
Max Chl Dpth (ft)	1.82	Hydr. Depth (ft)		1.50	
Crit W.S. (ft)	2063.80	Wetted Per. (ft)		1885.67	
Conv. Total (cfs)	91367.8	Conv. (cfs)		91367.8	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 80 Profile: 1

W.S. Elev (ft)	2061.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.060	
E.G. Elev (ft)	2061.67	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.004393	Flow Area (sq ft)		2439.21	
Q Total (cfs)	5000.00	Flow (cfs)		5000.00	
Top Width (ft)	1747.70	Top Width (ft)		1747.70	
Vel Total (ft/s)	2.05	Avg. Vel. (ft/s)		2.05	
Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)		1.40	
Crit W.S. (ft)	2060.75	Wetted Per. (ft)		1747.71	
Conv. Total (cfs)	75441.7	Conv. (cfs)		75441.7	

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 70 Profile: 1

W.S. Elev (ft)	2058.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2058.51	Reach Len. (ft)	1000.00	1000.00	1000.00
E.G. Slope (ft/ft)	0.002632	Flow Area (sq ft)	5.23	2657.13	23.03
Q Total (cfs)	5000.00	Flow (cfs)	2.49	4986.57	10.94
Top Width (ft)	1603.53	Top Width (ft)	22.88	1480.00	100.65
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	0.48	1.88	0.48
Max Chl Dpth (ft)	2.46	Hydr. Depth (ft)	0.23	1.80	0.23
Crit W.S. (ft)	2057.19	Wetted Per. (ft)	22.88	1480.01	100.66
Conv. Total (cfs)	97466.8	Conv. (cfs)	48.5	97205.0	213.3

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 60 Profile: 1

W.S. Elev (ft)	2054.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2055.06	Reach Len. (ft)	1000.00	1000.00	1000.00
E.G. Slope (ft/ft)	0.005031	Flow Area (sq ft)	65.06	1506.41	239.27
Q Total (cfs)	5000.00	Flow (cfs)	67.92	4682.29	249.78
Top Width (ft)	1551.68	Top Width (ft)	142.02	640.00	769.66
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	1.04	3.11	1.04
Max Chl Dpth (ft)	2.92	Hydr. Depth (ft)	0.46	2.35	0.46
Crit W.S. (ft)	2053.76	Wetted Per. (ft)	142.02	640.03	522.27
Conv. Total (cfs)	70489.5	Conv. (cfs)	957.6	66010.5	3521.4

HEC-RAS Plan: wtwb2.dat Reach: 1 Riv Sta: 50 Profile: 1

W.S. Elev (ft)	2050.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2050.49	Reach Len. (ft)			
E.G. Slope (ft/ft)	0.004000	Flow Area (sq ft)	14.54	1121.60	1116.72
Q Total (cfs)	5000.00	Flow (cfs)	7.96	2791.45	2200.59
Top Width (ft)	1420.31	Top Width (ft)	70.31	560.00	790.00
Vel Total (ft/s)	2.22	Avg. Vel. (ft/s)	0.55	2.49	1.97
Max Chl Dpth (ft)	2.41	Hydr. Depth (ft)	0.21	2.00	1.41
Crit W.S. (ft)	2049.56	Wetted Per. (ft)	70.31	560.02	791.41
Conv. Total (cfs)	79052.4	Conv. (cfs)	125.9	44134.1	34792.4

HEC-RAS Plan: wswt.dat Reach: 1 Riv Sta: 130 Profile: 1

W.S. Elev (ft)	2082.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2082.12	Reach Len. (ft)	600.00	500.00	400.00
E.G. Slope (ft/ft)	0.004499	Flow Area (sq ft)	1.46	576.46	1.46
Q Total (cfs)	850.00	Flow (cfs)	0.30	849.41	0.30
Top Width (ft)	758.36	Top Width (ft)	34.18	690.00	34.18
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)	0.20	1.47	0.20
Max Chl Dpth (ft)	1.59	Hydr. Depth (ft)	0.04	0.84	0.04
Crit W.S. (ft)	2081.46	Wetted Per. (ft)	34.18	690.01	34.18
Conv. Total (cfs)	12672.4	Conv. (cfs)	4.4	12663.6	4.4

HEC-RAS Plan: wswt.dat Reach: 1 Riv Sta: 123 Profile: 1

W.S. Elev (ft)	2079.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.060	
E.G. Elev (ft)	2079.68	Reach Len. (ft)	500.00	400.00	250.00
E.G. Slope (ft/ft)	0.005308	Flow Area (sq ft)	36.31	551.64	
Q Total (cfs)	850.00	Flow (cfs)	17.36	832.64	
Top Width (ft)	999.26	Top Width (ft)	278.30	720.96	
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)	0.48	1.51	
Max Chl Dpth (ft)	1.15	Hydr. Depth (ft)	0.13	0.77	
Crit W.S. (ft)	2079.13	Wetted Per. (ft)	278.30	720.96	
Conv. Total (cfs)	11667.1	Conv. (cfs)	238.3	11428.8	

HEC-RAS Plan: wswt.dat Reach: 1 Riv Sta: 122 Profile: 1

W.S. Elev (ft)	2078.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2078.34	Reach Len. (ft)	400.00	470.00	470.00
E.G. Slope (ft/ft)	0.001287	Flow Area (sq ft)	338.70	542.54	6.72
Q Total (cfs)	850.00	Flow (cfs)	202.71	645.53	1.77
Top Width (ft)	1042.18	Top Width (ft)	650.38	350.00	41.80
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)	0.60	1.19	0.26
Max Chl Dpth (ft)	2.32	Hydr. Depth (ft)	0.52	1.55	0.16
Crit W.S. (ft)	2077.20	Wetted Per. (ft)	650.38	350.02	41.80
Conv. Total (cfs)	23695.6	Conv. (cfs)	5651.0	17995.5	49.2

HEC-RAS Plan: wswt.dat Reach: 1 Riv Sta: 121 Profile: 1

W.S. Elev (ft)	2077.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.060	0.060	0.060
E.G. Elev (ft)	2077.40	Reach Len. (ft)			
E.G. Slope (ft/ft)	0.005002	Flow Area (sq ft)	187.38	206.15	60.94
Q Total (cfs)	850.00	Flow (cfs)	145.43	627.01	77.56
Top Width (ft)	908.51	Top Width (ft)	665.54	90.00	152.97
Vel Total (ft/s)	1.87	Avg. Vel. (ft/s)	0.78	3.04	1.27
Max Chl Dpth (ft)	3.29	Hydr. Depth (ft)	0.28	2.29	0.40
Crit W.S. (ft)	2076.45	Wetted Per. (ft)	665.60	90.09	152.98
Conv. Total (cfs)	12018.1	Conv. (cfs)	2056.2	8865.2	1096.6

HEC-RAS Plan: wcwt2.dat Reach: 1 Riv Sta: 150 Profile: 1

W.S. Elev (ft)	2088.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.060	
E.G. Elev (ft)	2088.28	Reach Len. (ft)	830.00	830.00	830.00
E.G. Slope (ft/ft)	0.003036	Flow Area (sq ft)	19.04	814.64	
Q Total (cfs)	900.00	Flow (cfs)	6.68	893.32	
Top Width (ft)	1276.02	Top Width (ft)	146.02	1130.00	
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)	0.35	1.10	
Max Chl Dpth (ft)	0.76	Hydr. Depth (ft)	0.13	0.72	
Crit W.S. (ft)	2087.80	Wetted Per. (ft)	146.02	1130.76	
Conv. Total (cfs)	16334.5	Conv. (cfs)	121.2	16213.3	

HEC-RAS Plan: wcwt2.dat Reach: 1 Riv Sta: 140 Profile: 1

W.S. Elev (ft)	2085.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.060	
E.G. Elev (ft)	2085.61	Reach Len. (ft)	950.00	950.00	950.00
E.G. Slope (ft/ft)	0.003424	Flow Area (sq ft)		934.64	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1725.41	Top Width (ft)		1725.41	
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96	
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)		0.54	
Crit W.S. (ft)	2085.12	Wetted Per. (ft)		1725.50	
Conv. Total (cfs)	15380.6	Conv. (cfs)		15380.6	

HEC-RAS Plan: wcwt2.dat Reach: 1 Riv Sta: 130 Profile: 1

W.S. Elev (ft)	2082.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.060	
E.G. Elev (ft)	2082.98	Reach Len. (ft)	1050.00	1050.00	1050.00
E.G. Slope (ft/ft)	0.002104	Flow Area (sq ft)		1166.61	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	2084.25	Top Width (ft)		2084.25	
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77	
Max Chl Dpth (ft)	0.97	Hydr. Depth (ft)		0.56	
Crit W.S. (ft)	2082.56	Wetted Per. (ft)		2084.73	
Conv. Total (cfs)	19619.5	Conv. (cfs)		19619.5	

HEC-RAS Plan: wcwt2.dat Reach: 1 Riv Sta: 120 Profile: 1

W.S. Elev (ft)	2079.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2079.70	Reach Len. (ft)	1050.00	1050.00	1050.00
E.G. Slope (ft/ft)	0.005883	Flow Area (sq ft)		892.40	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	2305.96	Top Width (ft)		2305.96	
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)		1.01	
Max Chl Dpth (ft)	1.19	Hydr. Depth (ft)		0.39	
Crit W.S. (ft)	2079.18	Wetted Per. (ft)		2306.65	
Conv. Total (cfs)	11734.2	Conv. (cfs)		11734.2	

HEC-RAS Plan: wcwt2.dat Reach: 1 Riv Sta: 110 Profile: 1

W.S. Elev (ft)	2074.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2074.70	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.004000	Flow Area (sq ft)		873.73	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1638.15	Top Width (ft)		1638.15	
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03	
Max Chl Dpth (ft)	0.69	Hydr. Depth (ft)		0.53	
Crit W.S. (ft)	2074.27	Wetted Per. (ft)		1638.15	
Conv. Total (cfs)	14231.1	Conv. (cfs)		14231.1	

HEC-RAS Plan: wcwt2.dat Reach: 1 Riv Sta: 100 Profile: 1

W.S. Elev (ft)	2070.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2070.70	Reach Len. (ft)	900.00	900.00	900.00
E.G. Slope (ft/ft)	0.005094	Flow Area (sq ft)		786.00	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1507.54	Top Width (ft)		1507.54	
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)		1.15	
Max Chl Dpth (ft)	0.68	Hydr. Depth (ft)		0.52	
Crit W.S. (ft)	2070.31	Wetted Per. (ft)		1507.55	
Conv. Total (cfs)	12609.6	Conv. (cfs)		12609.6	

HEC-RAS Plan: wcwt2.dat Reach: 2 Riv Sta: 120.1 Profile: 1

W.S. Elev (ft)	2086.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2086.06	Reach Len. (ft)	1700.00	1700.00	1700.00
E.G. Slope (ft/ft)	0.006776	Flow Area (sq ft)		729.38	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1548.90	Top Width (ft)		1548.90	
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)		1.23	
Max Chl Dpth (ft)	1.04	Hydr. Depth (ft)		0.47	
Crit W.S. (ft)	2085.75	Wetted Per. (ft)		1548.91	
Conv. Total (cfs)	10933.4	Conv. (cfs)		10933.4	

HEC-RAS Plan: wcwt2.dat Reach: 2 Riv Sta: 110.1 Profile: 1

W.S. Elev (ft)	2076.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2076.96	Reach Len. (ft)	1200.00	1200.00	1200.00
E.G. Slope (ft/ft)	0.003926	Flow Area (sq ft)		712.43	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	969.81	Top Width (ft)		969.81	
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26	
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)		0.73	
Crit W.S. (ft)	2076.41	Wetted Per. (ft)		969.82	
Conv. Total (cfs)	14364.5	Conv. (cfs)		14364.5	

HEC-RAS Plan: wcwt2.dat Reach: 2 Riv Sta: 100.1 Profile: 1

W.S. Elev (ft)	2071.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.060	
E.G. Elev (ft)	2071.13	Reach Len. (ft)	850.00	850.00	850.00
E.G. Slope (ft/ft)	0.006351	Flow Area (sq ft)		578.56	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	826.76	Top Width (ft)		826.76	
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)		1.56	
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)		0.70	
Crit W.S. (ft)	2070.61	Wetted Per. (ft)		826.76	
Conv. Total (cfs)	11293.7	Conv. (cfs)		11293.7	

HEC-RAS Plan: wcwt2.dat Reach: 3 Riv Sta: 90 Profile: 1

W.S. Elev (ft)	2067.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.060	
E.G. Elev (ft)	2067.02	Reach Len. (ft)	950.00	950.00	950.00
E.G. Slope (ft/ft)	0.003316	Flow Area (sq ft)		1039.90	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	2199.37	Top Width (ft)		2199.37	
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87	
Max Chl Dpth (ft)	0.50	Hydr. Depth (ft)		0.47	
Crit W.S. (ft)	2066.69	Wetted Per. (ft)		2199.37	
Conv. Total (cfs)	15630.2	Conv. (cfs)		15630.2	

HEC-RAS Plan: wcwt2.dat Reach: 3 Riv Sta: 80 Profile: 1

W.S. Elev (ft)	2063.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2063.22	Reach Len. (ft)	1070.00	1070.00	1070.00
E.G. Slope (ft/ft)	0.005006	Flow Area (sq ft)		756.46	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1352.09	Top Width (ft)		1352.09	
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)		1.19	
Max Chl Dpth (ft)	1.20	Hydr. Depth (ft)		0.56	
Crit W.S. (ft)	2062.58	Wetted Per. (ft)		1352.10	
Conv. Total (cfs)	12720.0	Conv. (cfs)		12720.0	

HEC-RAS Plan: wcwt2.dat Reach: 3 Riv Sta: 70 Profile: 1

W.S. Elev (ft)	2059.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2059.31	Reach Len. (ft)	1150.00	1500.00	1500.00
E.G. Slope (ft/ft)	0.002262	Flow Area (sq ft)		872.68	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1065.05	Top Width (ft)		1065.05	
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03	
Max Chl Dpth (ft)	1.30	Hydr. Depth (ft)		0.82	
Crit W.S. (ft)	2058.55	Wetted Per. (ft)		1065.06	
Conv. Total (cfs)	18924.1	Conv. (cfs)		18924.1	

HEC-RAS Plan: wcwt2.dat Reach: 3 Riv Sta: 60 Profile: 1

W.S. Elev (ft)	2054.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2054.76	Reach Len. (ft)	1270.00	1270.00	1270.00
E.G. Slope (ft/ft)	0.004569	Flow Area (sq ft)		720.98	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1119.62	Top Width (ft)		1119.62	
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)		1.25	
Max Chl Dpth (ft)	0.74	Hydr. Depth (ft)		0.64	
Crit W.S. (ft)	2054.32	Wetted Per. (ft)		1119.62	
Conv. Total (cfs)	13314.9	Conv. (cfs)		13314.9	

HEC-RAS Plan: wcwt2.dat Reach: 3 Riv Sta: 50 Profile: 1

W.S. Elev (ft)	2049.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.060	
E.G. Elev (ft)	2049.99	Reach Len. (ft)	1400.00	1400.00	1400.00
E.G. Slope (ft/ft)	0.003096	Flow Area (sq ft)		918.40	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1531.35	Top Width (ft)		1531.35	
Vel Total (ft/s)	0.98	Avg. Vel. (ft/s)		0.98	
Max Chl Dpth (ft)	0.98	Hydr. Depth (ft)		0.60	
Crit W.S. (ft)	2049.45	Wetted Per. (ft)		1531.35	
Conv. Total (cfs)	16175.0	Conv. (cfs)		16175.0	

HEC-RAS Plan: wcwt2.dat Reach: 3 Riv Sta: 40 Profile: 1

W.S. Elev (ft)	2043.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.060	
E.G. Elev (ft)	2043.92	Reach Len. (ft)	600.00	600.00	600.00
E.G. Slope (ft/ft)	0.007775	Flow Area (sq ft)		597.06	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	1041.08	Top Width (ft)		1041.08	
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)		1.51	
Max Chl Dpth (ft)	0.89	Hydr. Depth (ft)		0.57	
Crit W.S. (ft)	2043.57	Wetted Per. (ft)		1041.08	
Conv. Total (cfs)	10206.7	Conv. (cfs)		10206.7	

HEC-RAS Plan: wcwt2.dat Reach: 3 Riv Sta: 35 Profile: 1

W.S. Elev (ft)	2040.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.060	
E.G. Elev (ft)	2040.72	Reach Len. (ft)			
E.G. Slope (ft/ft)	0.003001	Flow Area (sq ft)		754.53	
Q Total (cfs)	900.00	Flow (cfs)		900.00	
Top Width (ft)	914.73	Top Width (ft)		914.73	
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)		1.19	
Max Chl Dpth (ft)	2.70	Hydr. Depth (ft)		0.82	
Crit W.S. (ft)	2040.16	Wetted Per. (ft)		915.36	
Conv. Total (cfs)	16427.8	Conv. (cfs)		16427.8	

APPENDIX D

3½ IBM Formatted Diskette

APPENDIX E

HEC-2 Input/Output Listings for the FEMA Comparison Analysis

SLA, INC.

START. DAT
THIS RUN EXECUTED 29AUG96 11:26:27

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2;  May 1991
**************************************


T1     Brawley Wash Floodplain Study (SLA No. PAZ-PDOT-10.6)
T2     West Branch Anaysis (includes upstream limit of Main Corridor)
T3     100-year

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS    Q        WSEL     FQ

       0        2        0        0     .0033        0        0        0     2034        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      -1        0       -1        0        0        0       -1        0        0       15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        1       55       26       56       13       14       15        8        4
      53       54        0       38        1        2        3       11       12       42
       5       33       39       67       68

J6  IHLEQ     ICOPY    SUBDIV   STRTDS   RMILE

       1


NC      .06      .06      .06      0.1      0.3
QT         1    14000
X1      10.0       18     9230    10260        0        0        0        0        0        0
X3                                 8450
GR   2037.0   6970.0   2036.0   7170.0   2034.0   7350.0   2033.0   7780.0   2033.5   8080.0
GR   2033.5   8640.0   2034.0   8800.0   2034.0   9230.0   2032.0   9320.0   2031.0   9420.0
GR   2031.0   9890.0   2032.0   9920.0   2032.0  10160.0   2034.0  10260.0   2036.0  10520.0
GR   2035.0  11650.0   2035.0  12400.0   2036.0  12750.0
```

SLA, INC.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

IHLEQ = 1. THEREFORE FRICTION LOSS (HL) IS CALCULATED AS A FUNCTION OF PROFILE TYPE, WHICH CAN VARY FROM REACH TO REACH. SEE DOCUMENTATION FOR DETAILS.

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 10.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 8450.0 12750.0 TYPE= 1 TARGET= -8450.000

10.000	4.19	2035.19	2033.37	2034.00	2035.34	.15	.00	.00	2034.00
14000.0	1882.6	11946.8	170.6	1066.3	3634.8	266.0	.0	.0	2034.00
.00	1.77	3.29	.64	.060	.060	.060	.000	2031.00	8450.00
.003278	0.	0.	0.	0	15	5	.00	3002.29	12467.89

FLOW DISTRIBUTION FOR SECNO= 10.00 CWSEL= 2035.19

STA=	8450.	8640.	8800.	9230.	10260.	10415.	11650.	12400.	12468.
PER Q=	4.6	3.0	5.9	85.3	.7	.0	.5	.0	
AREA=	321.9	231.0	513.4	3634.8	92.7	21.3	145.5	6.6	
VEL=	2.0	1.8	1.6	3.3	1.0	.3	.5	.3	
DEPTH=	1.7	1.4	1.2	3.5	.6	.0	.2	.1	

THIS RUN EXECUTED 29AUG96 11:26:27

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-year

SUMMARY PRINTOUT

SECNO	CWSEL	VLOB	VCH	VROB	QLOB	QCH	QROB	DEPTH	TOPWID	SSTA	ENDST
10.000	2035.19	1.77	3.29	.64	1882.61	11946.78	170.61	4.19	3002.29	8450.00	12467.89

100-year

SUMMARY PRINTOUT

SECNO	CWSEL	CRIWS	EG	HL	OLOSS	ELMIN	10*KS	K*CHSL	XLCH	SHEAR	FRCH
10.000	2035.19	2033.37	2035.34	.00	.00	2031.00	32.78	.00	.00	.72	.31

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
PIMA COUNTY BOARD OF SUPERVISORS

WATER-RESOURCES INVESTIGATIONS 78-33
OPEN-FILE REPORT (SHEET 1 OF 1)

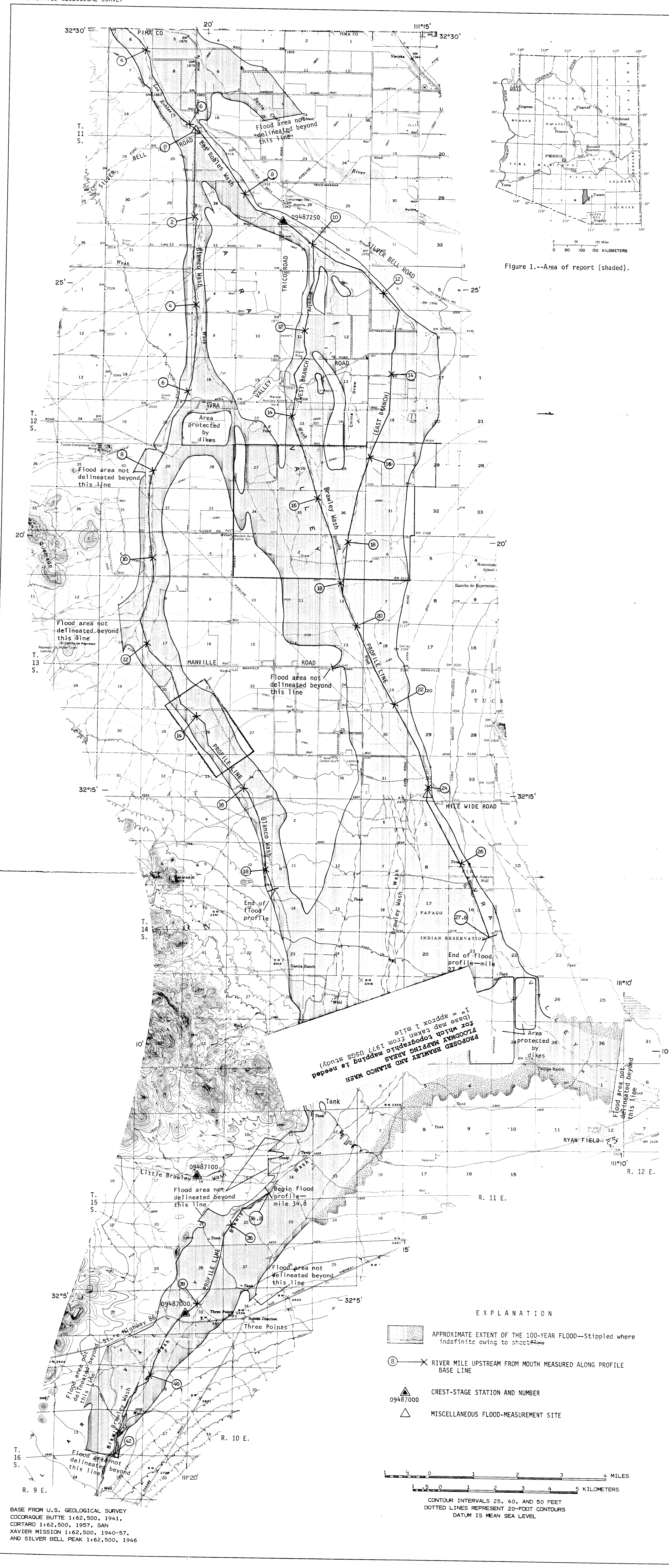


Figure 1.--Area of report (shaded).

INTRODUCTION

Avra Valley is about 15 mi west of Tucson, Ariz. (fig. 1), and extends from near Three Points at the upstream end to the Pima-Pinal County line at the downstream end. At the present time (1977) the land is used mainly for agriculture and cattle grazing. Although the valley is sparsely populated and has no incorporated towns, its proximity to Tucson makes it highly desirable for future urban development. The purpose of this map is to show the administrators and planners concerned with future land development the approximate areas that are subject to inundation by the 100-year flood. The study was requested by the Pima County Engineer and was made by the U.S. Geological Survey in cooperation with the Pima County Board of Supervisors.

Avra Valley is a wide plain bounded by low mountains on the east and west and is drained mainly by Brawley Wash. Brawley Wash becomes Los Robles Wash 10 mi upstream from its mouth. Brawley Wash heads near the international boundary about 40 mi south of Three Points and joins the Santa Cruz River as Los Robles Wash 3 mi north of the Pima-Pinal County line. Blanco Wash drains the west side of Avra Valley and joins Los Robles Wash at Silver Bell Road about 2 mi south of the county line.

The channel of Brawley Wash is well defined from its entry into the study area to a stock tank in sec. 1, T. 15 S., R. 10 E., about 5 mi downstream from Three Points. Most of the natural drainage system consists of small braided channels bordered by narrow bands of dense vegetation, which cause floodwater to spread over wide areas at shallow depths. In some places the natural channels have been alined and enlarged, and dikes and ditches have been built around irrigated fields in an attempt to prevent inundation by floodwater. The drainage divide between Brawley and Blanco Washes is not well defined, and during the 100-year flood the areas inundated by the washes may join in several places.

The flood profiles and the approximate areas that would be inundated by the 100-year flood are based on the alinement and capacity of the channels and the location of fields and dikes in 1976. The information given for areas that would be inundated by the 100-year floods along Brawley, Los Robles, and Blanco Washes is a refinement of similar information given in the 1970 flood-prone maps of the Silver Bell Peak, Cocoraque Butte, San Xavier Mission, Avra, and Marana quadrangles.

FLOOD HISTORY

The flood of September 26, 1962, is the largest known in Avra Valley and is comparable to the 100-year flood in much of the valley. The peak discharge increased from 13,000 ft^3/s at crest-stage gage 09487000 on Brawley Wash near Three Points to 38,800 ft^3/s at Mile Wide Road and then decreased to 32,000 ft^3/s at crest-stage gage 09487250 on Los Robles Wash at Trico Road (see table 1). The flood mainly was the result of inflow between Three Points and Mile Wide Road. The 1962 peak discharge on Little Brawley Wash—a tributary that enters Brawley Wash 3 mi downstream from Three Points—was 13,800 ft^3/s from a drainage area of 11.9 mi^2. The flood of September 5, 1970, was of about the same magnitude as the flood of 1962 at crest-stage gage 09487000 near Three Points, but the flood discharge in 1970 decreased sharply as it moved downstream (see table 1).

Table 1.--Peak discharges for the floods of September 1962, September 1970, and the 100-year flood

[Estimates for the 100-year flood determined from methods described by B. N. Aldridge and Alberto Condes de la Torre (written commun., 1970)]

Location	River miles upstream from mouth	Drainage area, in square miles	Peak discharge, in cubic feet per second		
			Flood of September 1962	Flood of September 1970	100-year flood
BRAWLEY-LOS ROBLES WASH					
Brawley Wash near Three Points (at State Highway 86); crest-stage gage 09487000	38.6	776	13,000	13,700	27,000
Brawley Wash at Mile Wide Road	24.4	1,077	38,800	6,140	32,000
Brawley Wash (east branch)	10.0 to 19.2	-----	------	------	21,000
Brawley Wash (west branch)	10.0 to 18.3	-----	------	------	14,000
Los Robles Wash near Marana (at Trico Road); crest-stage gage 09487250	9.1	1,170	32,000	4,490	35,000
Los Robles Wash at Silver Bell Road	6.2	1,349	32,600	------	37,000
BLANCO WASH					
Blanco Wash 1 mile north of Manville Road	11.5	64	------	------	6,000
Blanco Wash at Avra Valley Road	6.2	115	------	------	8,800
Blanco Wash at mouth	0	165	------	------	11,000
LITTLE BRAWLEY WASH					
Little Brawley Wash near Three Points; crest-stage gage 09487100	----	11.9	13,800	------	2,300

DETERMINATION OF THE 100-YEAR FLOOD

The peak discharges for the 100-year floods on Brawley, Los Robles, and Blanco Washes were determined from regional flood-frequency relations developed by B. N. Aldridge and Alberto Condes de la Torre (written commun., 1970) and were coordinated with the U.S. Army Corps of Engineers, Arizona Water Commission, Arizona State Land Department, and U.S. Soil Conservation Service (see table 1). The relation between the 100-year flood and size of drainage area in Avra Valley is shown in figure 2. The 100-year flood is defined as the discharge that will be exceeded on the average of once in 100 years. The chance of the 100-year flood occurring in any year is 1 in 100 or 1 percent.

FLOOD PROFILES

Profiles of the elevation of the water surface of the 100-year floods on Brawley, Los Robles, and Blanco Washes are shown in figures 3-9. The lines along which the profiles were developed are shown on the topographic map. The river miles upstream from the mouth shown in the profiles and table 1 correspond to those shown along the streams on the topographic map. Preliminary flood profiles were developed using step-backwater computations, and the limits of inundation were plotted on topographic maps. The preliminary flood profiles then were adjusted to match the elevations on the topographic maps where flood boundaries cross topographic contours, streambed profiles, and high-water marks for the floods of 1962 and 1970. High-water information was obtained from residents, field surveys, and aerial photographs of the floods of 1962 and 1970. The step-backwater computations were made using U.S. Geological Survey computer program E 431 (Shearman, 1976) and channel cross-section data furnished by the Pima County Engineer. Data for 70 cross sections at 3,700-ft average intervals were used in the program. The roughness values were selected and the hydraulic computations were made by the author and were reviewed by personnel of the U.S. Geological Survey.

A flood profile was not developed from mile 27.8 to mile 34.8 along Brawley Wash because the 100-year flood would spread over a wide area as flow in the many small channels and as overflow at an average depth of less than 3 ft between the channels. From mile 22.1 to mile 27.8, the flood profile is applicable only along the east edge of the inundated area.

AREAS SUBJECT TO INUNDATION

The approximate areas subject to inundation by the 100-year flood are shown on the map and were determined on the basis of the 100-year flood profiles, areas inundated by the floods of 1962 and 1970, contour maps, and stereo-aerial photographs. In most of the area between Three Points and Ryan Field the boundary of inundation is indefinite because of the wide areas that are subject to sheetflow. In this report sheetflow is defined as flow that averages less than 1 ft deep.

The approximate areas that would be inundated by the 100-year flood are based on the alinement and capacity of the channels and location of fields and dikes in 1976. Changes made in the dikes, ditches, or pattern of agricultural development and the channel changes that occur during floods in the desert washes may affect the boundaries of inundation. Where small braided channels are present, new channels are cut when the existing channels become clogged either by the deposition of sediment as the floodwater recedes or by the vegetation that grows in the channels between floods. Along the defined channels, erosion and deposition cause channel migration and changes in channel shape. Therefore, the boundaries of the areas subject to inundation probably would not be the same for any two floods of the same magnitude, even if there were no changes made by man.

SELECTED REFERENCES

Aldridge, B. N., and Burkham, D. E., 1974, Delineation of flood hazards in the Marana quadrangle, Pima County, Arizona: U.S. Geol. Survey Misc. Inv. Ser. Map I-846-B, 1 sheet.

Lewis, D. D., 1963, Desert floods—a report on southern Arizona floods of September 1962: Arizona State Land Dept. Water-Resources Rept. 13, 30 p.

Patterson, J. L., and Somers, W. P., 1966, Magnitude and frequency of floods in the United States, Part 9, Colorado River basin: U.S. Geol. Survey Water-Supply Paper 1683, 475 p.

Roeske, R. H., Cooley, M. E., and Aldridge, B. N., 1977, Floods of September 1970 in Arizona, Utah, Colorado, and New Mexico: U.S. Geol. Survey Water-Supply Paper 2052. [In press]

Shearman, J. O., 1976, Computer applications for step-backwater and floodway analyses—Computer program E 431 user's manual: U.S. Geol. Survey Open-File Rept. 76-499, 103 p.

U.S. Army Corps of Engineers, 1963, Flood-damage report on storm and flood of 26-30 September 1962—Santa Cruz River and Santa Rosa Wash, southern Arizona: Corps of Engineers, U.S. Army Engineer District, Los Angeles, 32 p.

Other information pertaining to floods in Avra Valley can be obtained at the office of the U.S. Geological Survey, Tucson, Ariz.

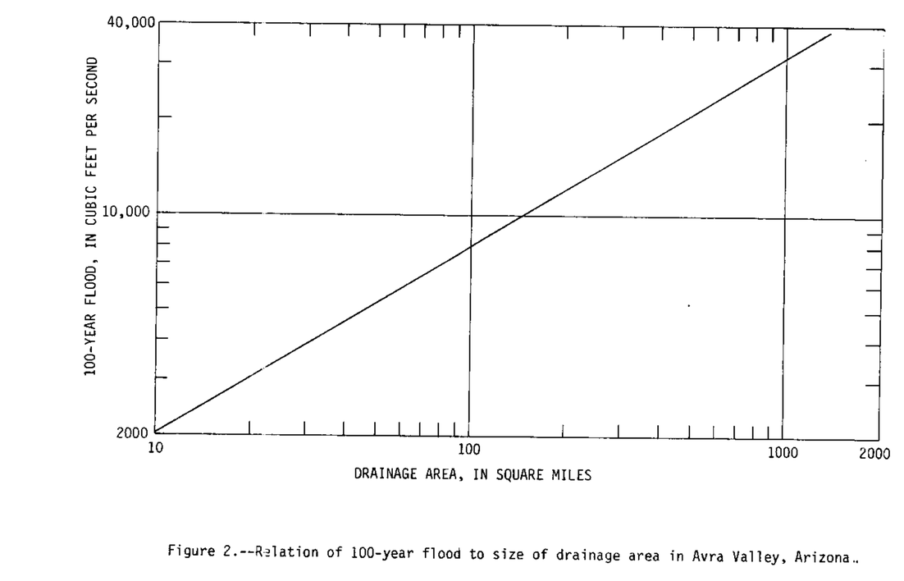


Figure 2.--Relation of 100-year flood to size of drainage area in Avra Valley, Arizona.

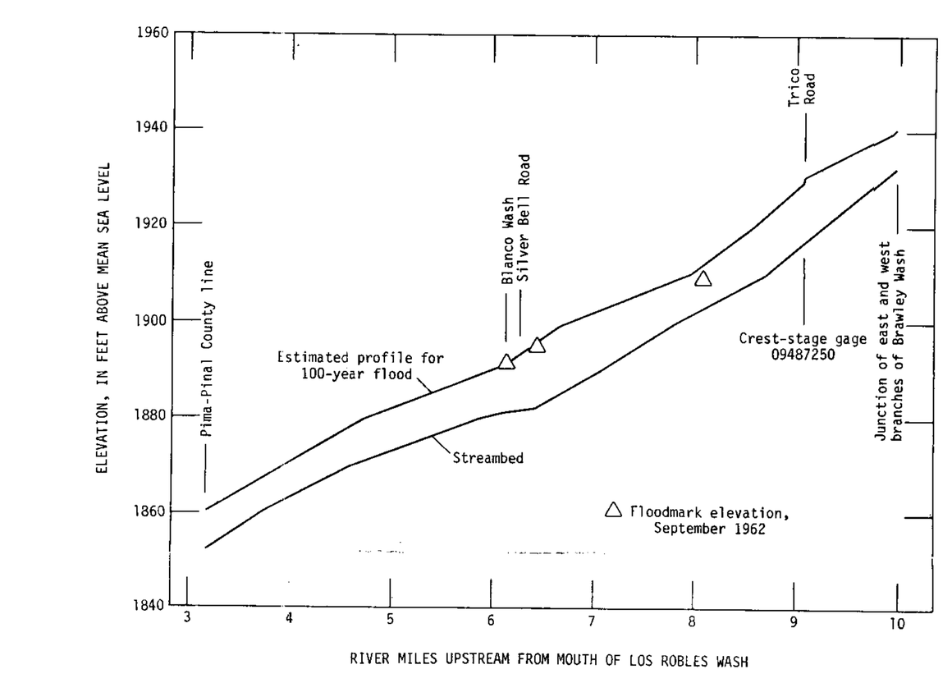


Figure 3.--Flood profile for Los Robles Wash.

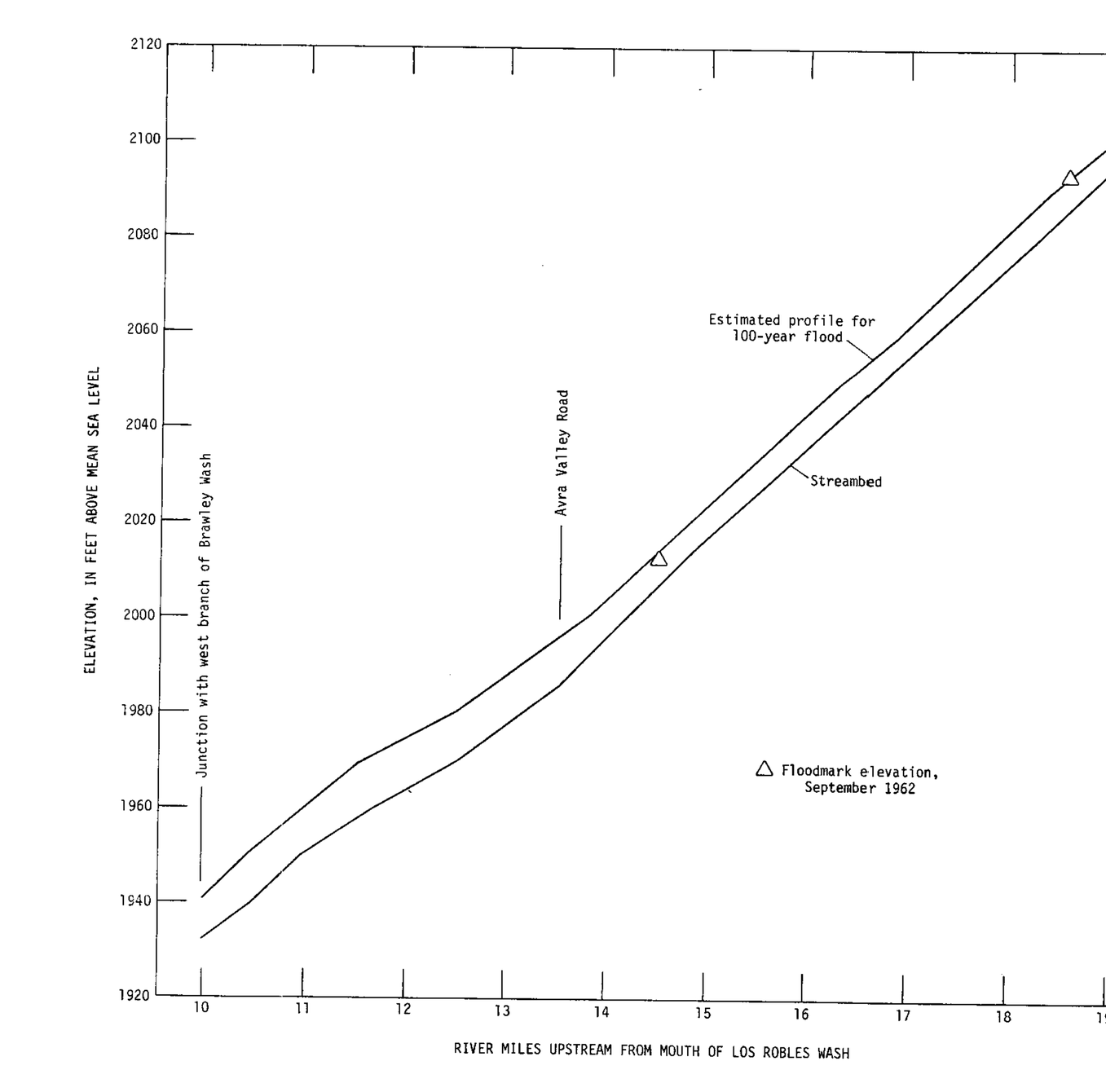


Figure 4.--Flood profile for east branch of Brawley Wash.

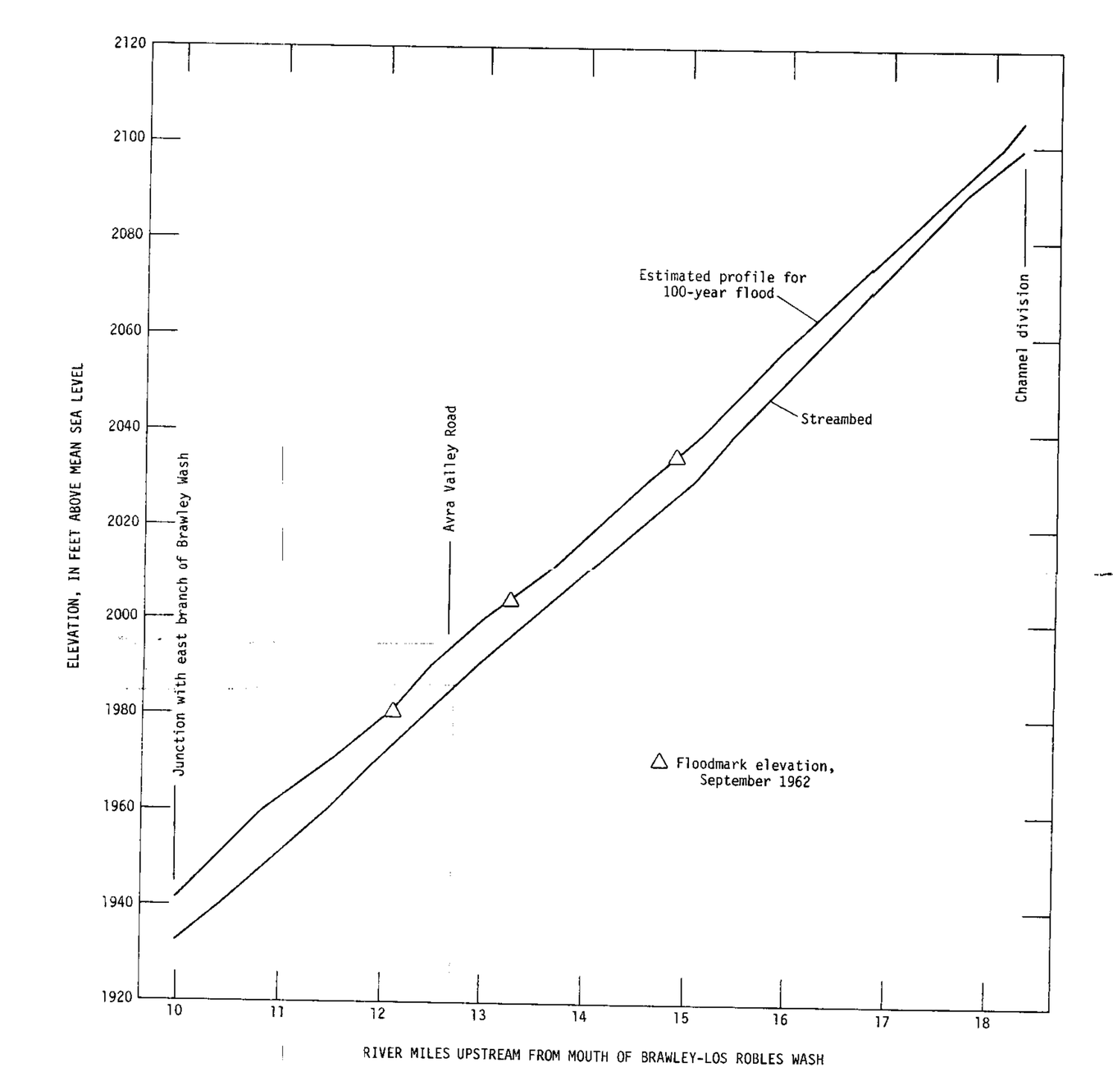


Figure 5.--Flood profile for west branch of Brawley Wash.

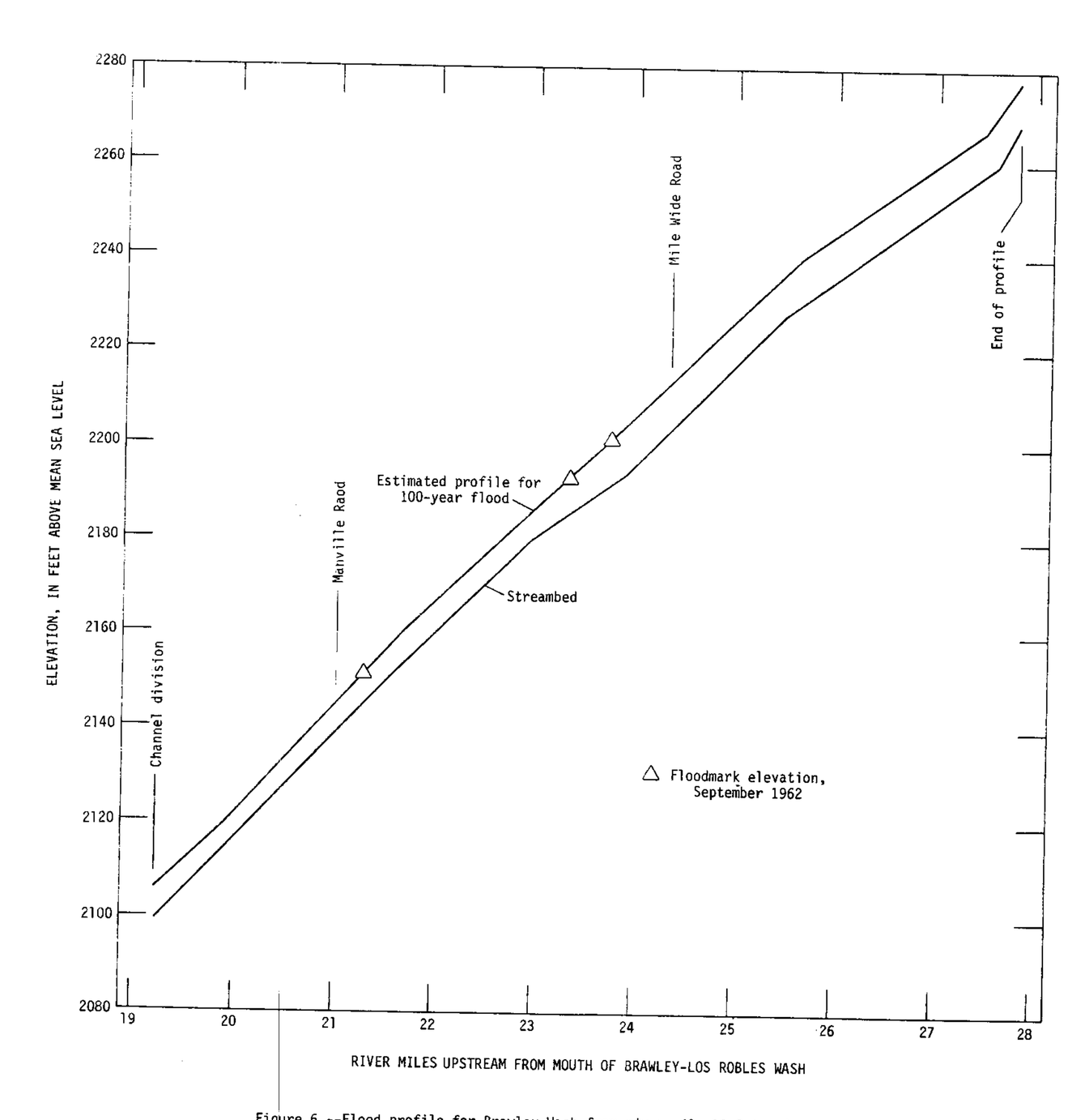


Figure 6.--Flood profile for Brawley Wash from river mile 19.2 to river mile 27.8.

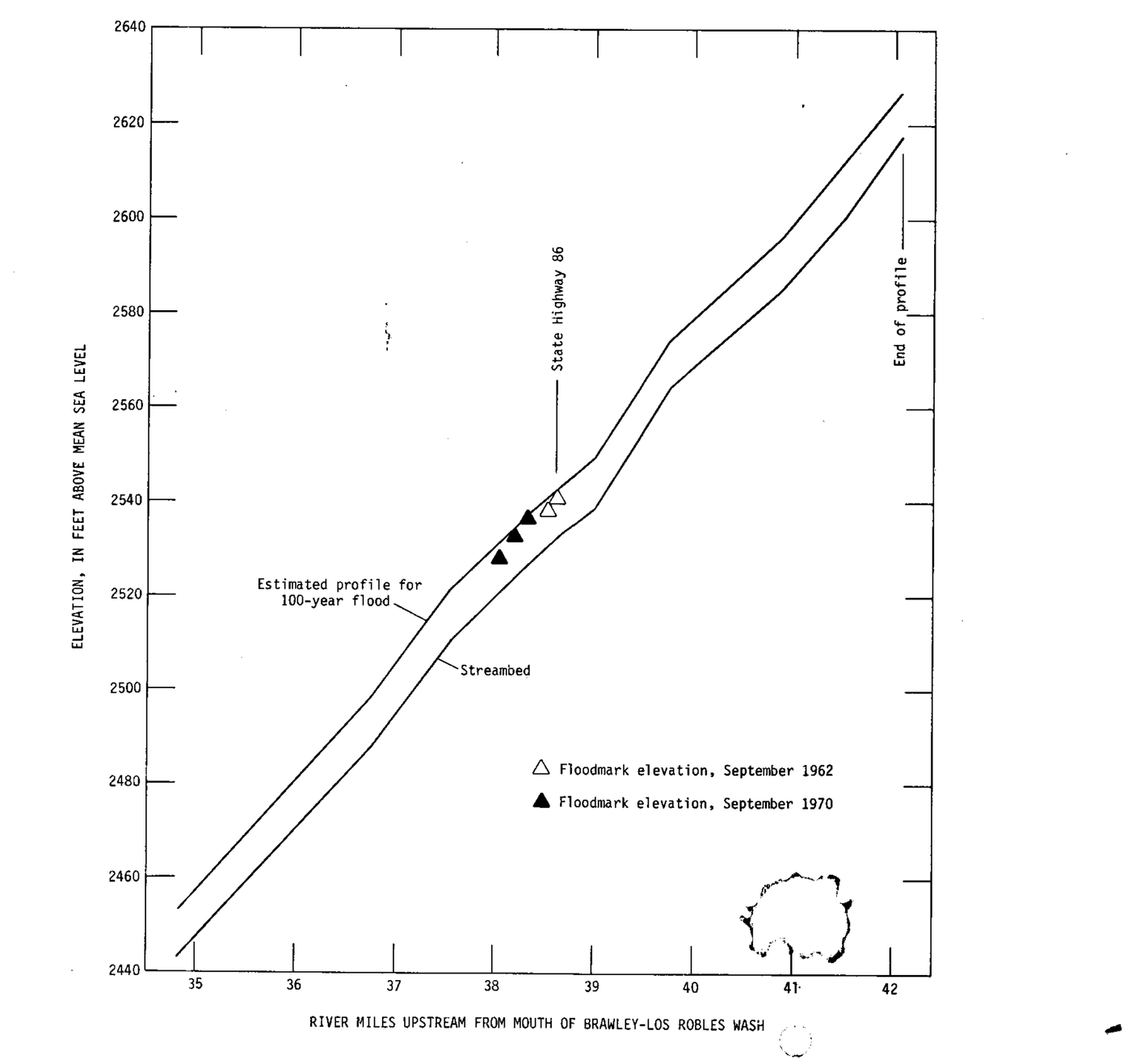


Figure 7.--Flood profile for Brawley Wash from river mile 34.8 to river mile 42.

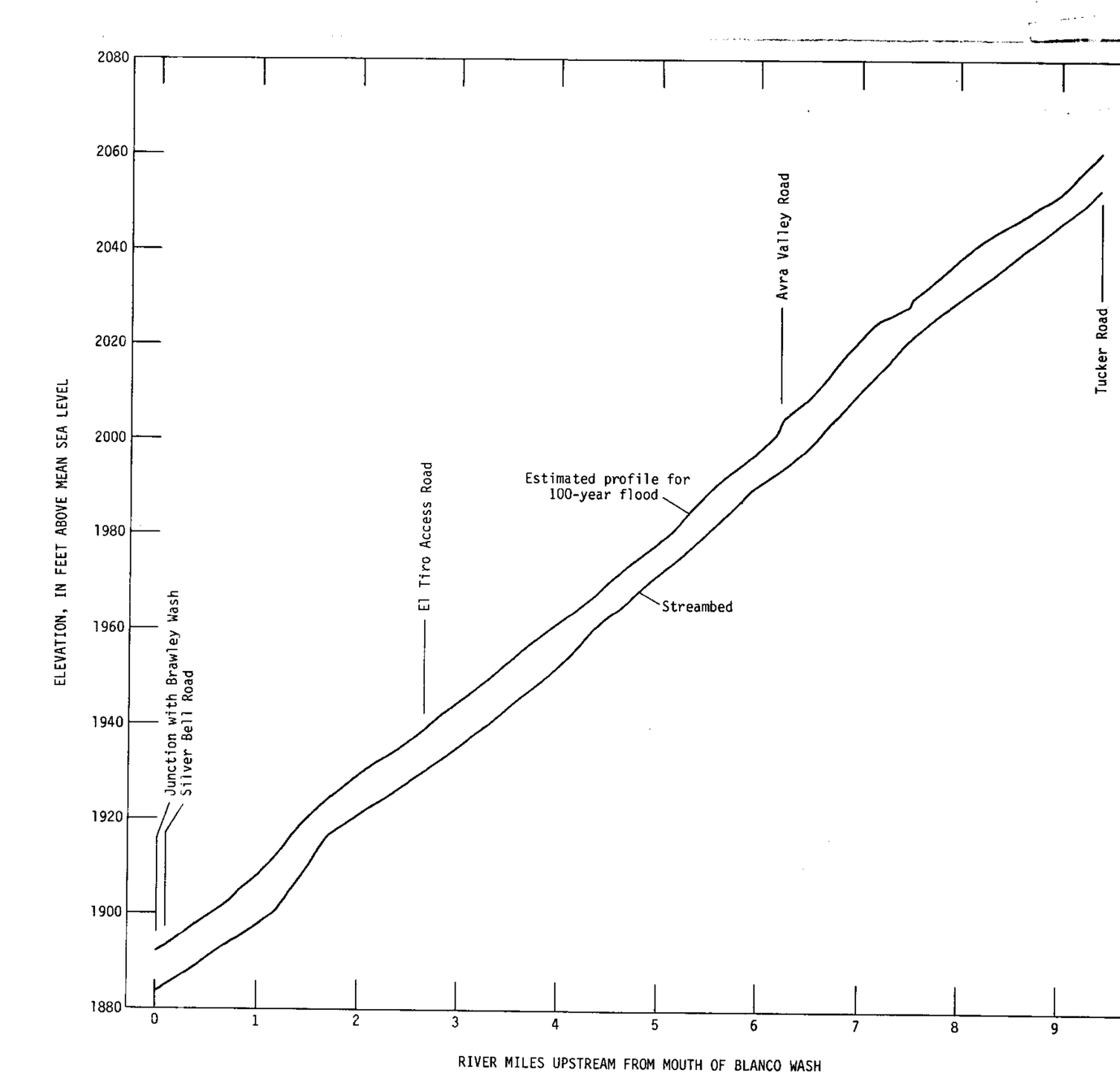


Figure 8.--Flood profile for Blanco Wash from mouth to Tucker Road.

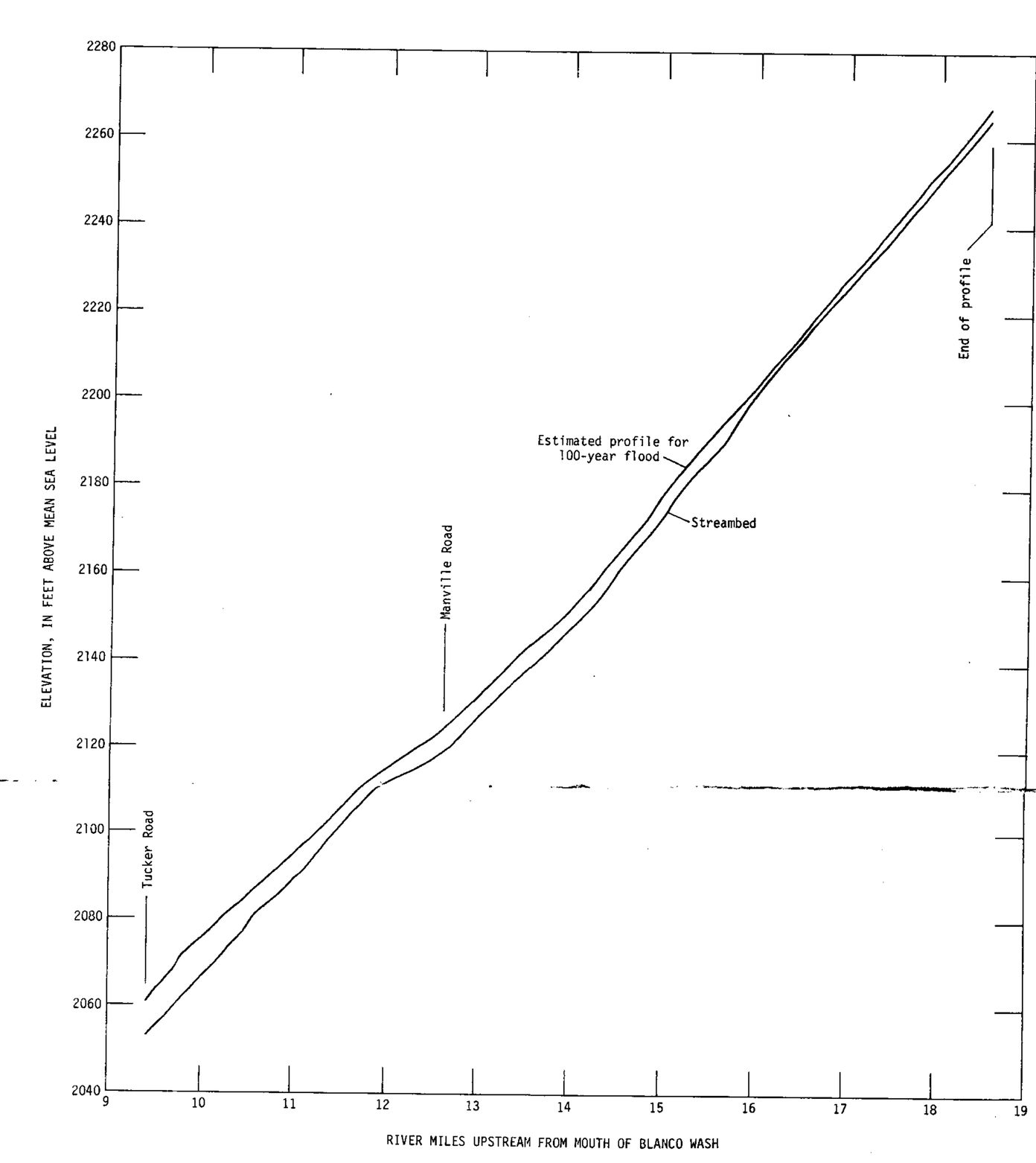


Figure 9.--Flood profile for Blanco Wash from Tucker Road to river mile 18.5.

CONVERSION FACTORS

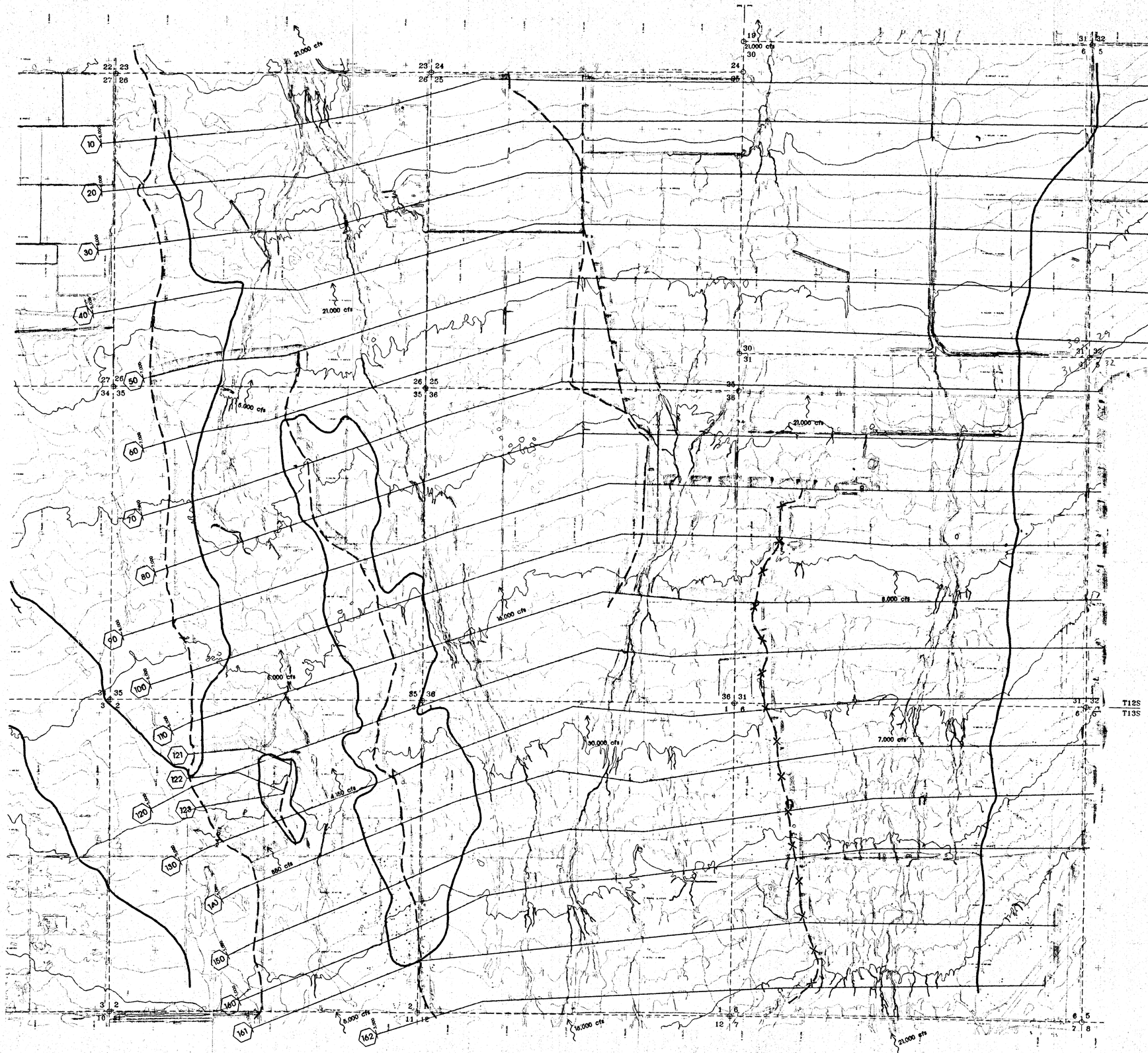
Multiply U.S. customary units	By	To obtain metric units
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometers (km)
square mile (mi^2)	2.590	square kilometers (km^2)
cubic foot per second (ft^3/s)	.02832	cubic meter per second (m^3/s)

AREAS SUBJECT TO INUNDATION BY THE 100-YEAR FLOOD IN AVRA VALLEY, PIMA COUNTY, ARIZONA

By

R. H. Roeske

1977



NORTH
1"=800'
C.I.= 2'

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON AMERICAN VERTICAL DATUM OF 1988

LEGEND

- EFFECTIVE FLOW BOUNDARIES USED IN HEC-2 FLOODPLAIN ANALYSIS
- 60 CROSS LOCATION
- 100-YEAR FLOODPRONE LIMITS

RUN BOUNDARIES

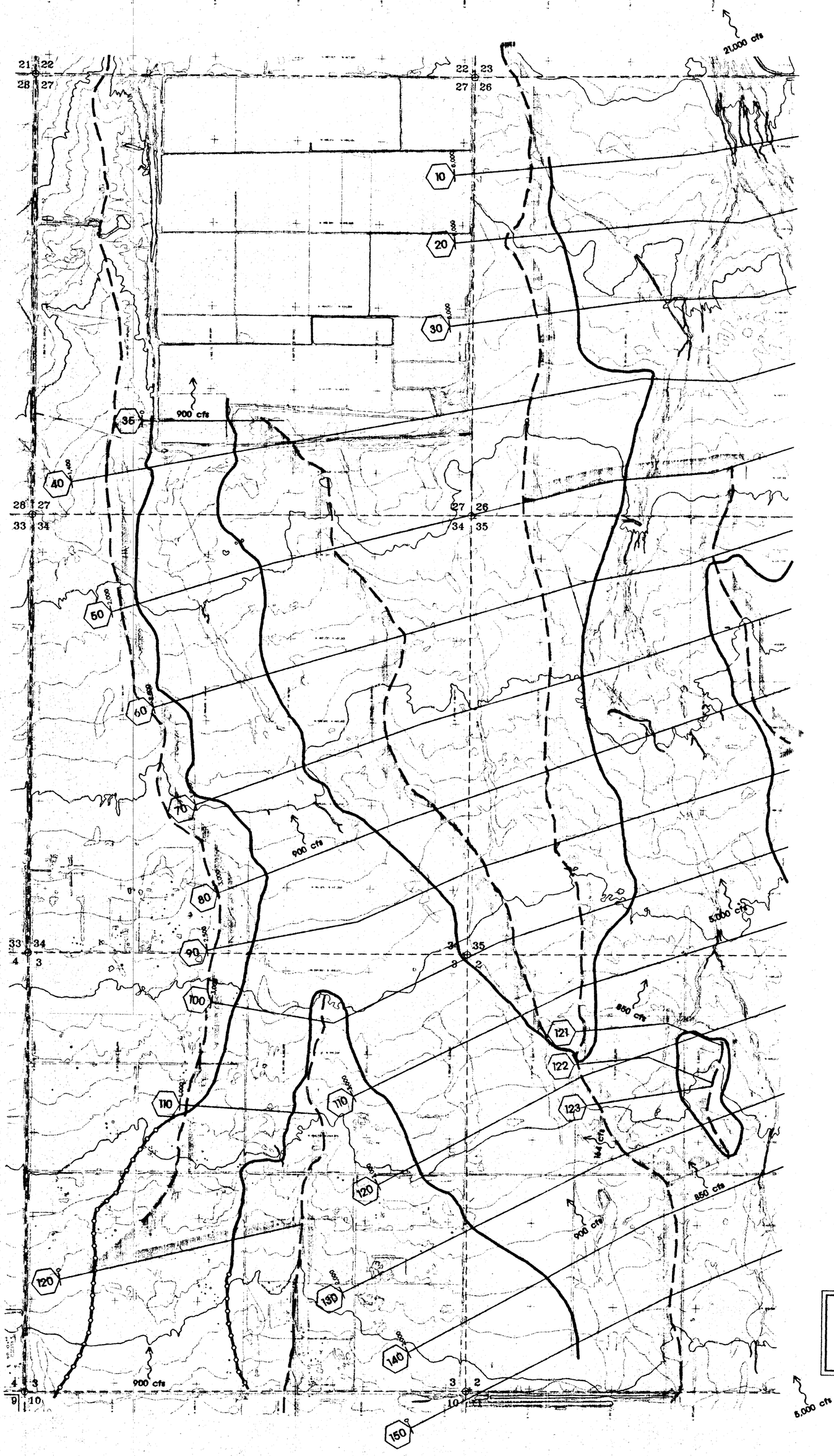
- WSWT.DAT
- WTWB2.DAT
- BWWB2b.DAT
- BWEC3b.DAT
- EC3a.DAT.
- WEIR SECTION ASSOCIATED WITH BWEC.DAT

FIGURE 2

BRAWLEY WASH FLOODPLAIN STUDY
MIDDLE AND EASTERN CORRIDORS FLOOD PLAIN AND CROSS-SECTION LOCATION MAP

SEPTEMBER, 1996

SIMONS, LI & ASSOCIATES, INC.



NORTH
1"=800'
C.I.= 2'

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON AMERICAN VERTICAL DATUM OF 1988

LEGEND

- EFFECTIVE FLOW BOUNDARIES USED IN HEC-2 FLOODPLAIN ANALYSIS
- 60 — CROSS LOCATION
- 100-YEAR FLOODPRONE LIMITS
- APPROXIMATE 100-YEAR FLOODPRONE LIMITS

RUN BOUNDARIES

- WSWT.DAT
- WTWB2.DAT
- BWWB2b.DAT
- WCWT2.DAT

FIGURE 3

BRAWLEY WASH FLOODPLAIN STUDY

WESTERN CORRIDOR FLOOD PLAIN AND CROSS-SECTION LOCATION MAP

SEPTEMBER, 1996

SIMONS, LI & ASSOCIATES, INC.