# LETTER OF MAP REVISION
# for
# RITTENHOUSE ROAD CHANNEL

# TECHNICAL DATA NOTEBOOK

**Prepared for:**
**Federal Emergency Management Agency**
**Hazards Study Branch**
**Mitigation Directorate**
**500 C Street SW, Room 422**
**Washington, DC 20472**

**Prepared by:**
**Maricopa County Flood Control District**
**Phoenix, Arizona 85009**
**2801 West Durango Street**
**(602) 506-1501**

**January 1999**

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LETTER OF MAP REVISION

For

RITTENHOUSE ROAD CHANNEL

TECHNICAL DATA NOTEBOOK

## SECTION 1: INTRODUCTION

This Technical Data Notebook documents the hydraulic analysis conducted in support of a request for a Letter of Map Revision (LOMR) for the Rittenhouse Road Channel. The channel is constructed from the confluence of the East Maricopa Floodway (EMF) to the intersection of the Ellsworth Road. This LOMR request is required due to the construction of the Rittenhouse Road channel along the Southern Pacific Railroad (SPRR). The objective of the construction project is to eliminate the flooding problems along the Southern Pacific Railroad (SPRR) and the Rittenhouse Road. Additionally, the channel is constructed to convey the 100-year flood as determined by the Queen Creek Area Drainage Master Study (Ref. 1).

The Rittenhouse Channel is located within Township 2S Range 7E, within the City of Mesa, Towns of Queen Creek and Gilbert, and Unincorporated Maricopa County. Box culverts at Power, Sossaman and Germann Roads have been built as part of this project. Additionally, there are 22 (twenty two) drop structures that are incorporated in the channel design. The location of the constructed channel is shown on Figure 1.

## SECTION 2: ADWR AND FEMA FORMS

### 2.1 Study Documentation Abstract

The completed study documentation abstract is contained within the following pages.

### 2.2 Application/Certification Forms

The required FEMA Application and Certification Forms are included in Appendix B of this Technical Data Notebook (TDN).

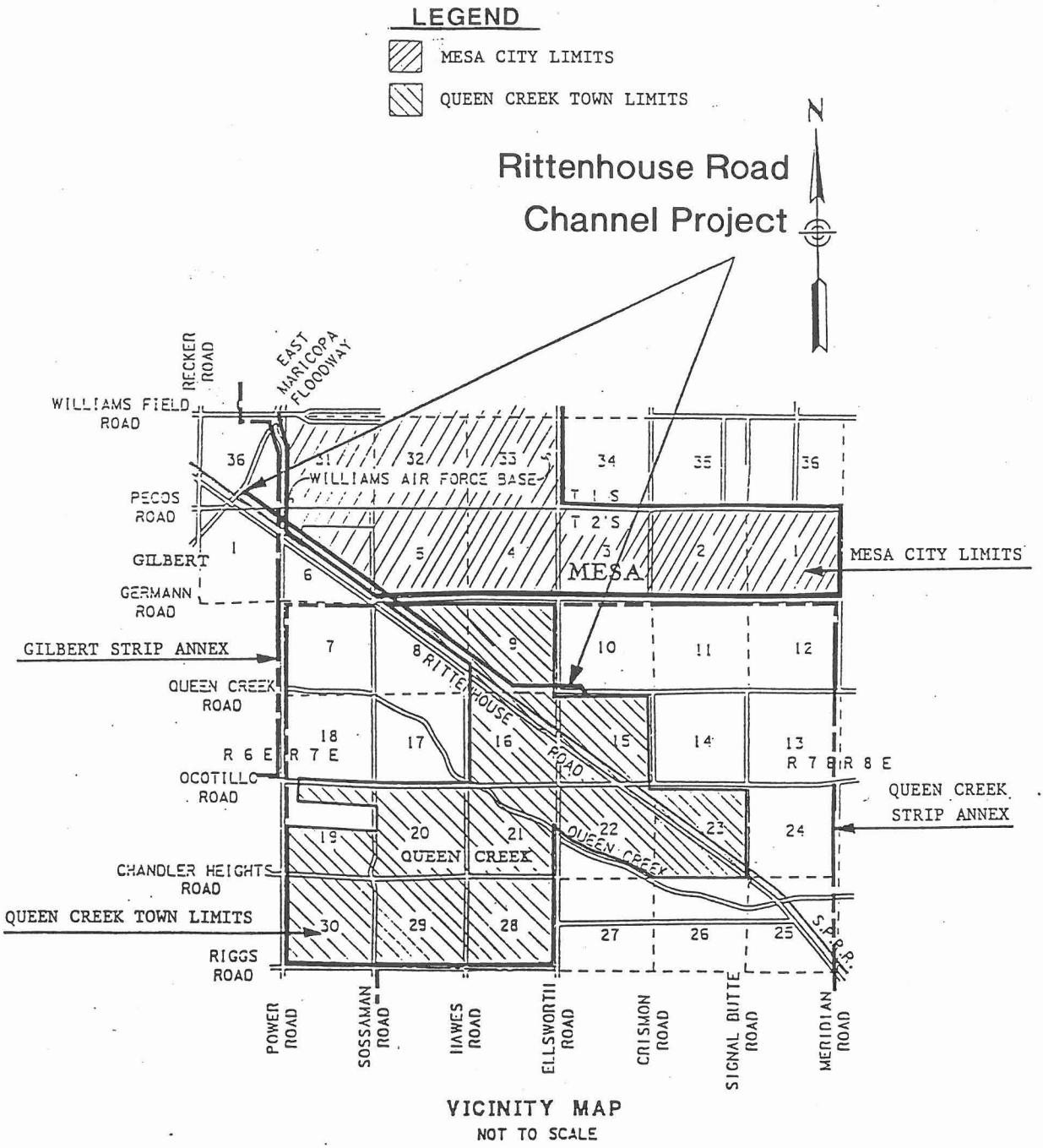



Figure 1: Project Location Map.

| STUDY DOCUMENTATION ABSTRACT | | INITIAL STUDY | RESTUDY | LOMR | OTHER |
|---|---|---|---|---|---|
| **Rittenhouse Channel LOMR** | | | | **X** | |
| **SECTION 1: GENERAL INFORMATION** | | | | | |
| 1A | COMMUNITY | City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated Maricopa County | | | |
| 1B | COMMUNITY NUMBER | 040048, 040132, 040044, 040037 | | | |
| 1C | COUNTY | Maricopa | | | |
| 1D | STATE | Arizona | | | |
| 1E | | | | | |
| 1F | STUDY CONTRACTOR<br>CONTACT(S)<br>ADDRESS<br>PHONE | Flood Control District of Maricopa County<br>Hasan Mushtaq, Ph.D., P.E.<br>2801 West Durango Street<br>Phoenix, Arizona 85009<br>(602) 506-4528 | | | |
| 1G | TECH REVIEWER (FEMA)<br>PHONE | | | | |
| 1H | FEMA REGIONAL REVIEWER<br>PHONE | | | | |
| 1I | STATE REVIEWER<br>PHONE | Arizona Department of Water Resources<br>(602) 417-2400 | | | |
| 1K | RIVER OR STREAM NAME | Rittenhouse Road Channel | | | |
| 1L | REACH DESCRIPTION | From EMF to Ellsworth Road | | | |
| 1M | STUDY TYPE | Channelization LOMR | | | |
| **SECTION 2: MAPPING INFORMATION** | | | | | |
| 2A | USGS QUAD SHEET(S) | Higley, Desert Well, Gila Butte, Chandler Heights and Sacaton NE, Arizona, 7.5 Minute Series (Topographic) Map | | | |
| 2B | MAPPING FOR HYDROLOGIC STUDY:<br>TYPE/SOURCE<br>SCALE<br>DATE | <br>USGS 7.5 Minute Series (Topographic) Map<br>1:24000<br>Various | | | |
| 2C | MAPPING FOR HYDROLOGIC STUDY:<br>TYPE/SOURCE<br>SCALE<br>DATE | <br>DTM, Wood & Associates, Inc.<br>1"=200'; 2-foot contour interval<br>October & November, 1986 | | | |

| STUDY DOCUMENTATION ABSTRACT (CONTINUED) | | |
|---|---|---|
| **SECTION 3: HYDROLOGY (completed as part of Queen Creek ADMS, FCD No. 86-23)** | | |
| 3A | MODEL OR METHODS USED (including vendor and version description) | HEC-1 Flood Hydrograph Package<br>US Army Corps' of Engineers |
| 3B | STORM DURATION | 24-hour |
| 3C | HYETOGRAPH | |
| 3D | FREQUENCIES DETERMINED | 2, 5, 10, 25, 50, AND 100 YEAR |
| 3E | LIST OF GAGE USED IN FREQUENCY ANALYSIS OR CALIBRATION (Location, Years of Record, Gage Ownership) | None |
| 3F | RAINFALL AND REFERENCE | US Department of Commerce, National Oceanic and Atmospheric Administration, Atlas 2 Precipitation-Frequency Atlas of the Western United States, Volume VIII-Arizona |
| 3G | UNIQUE CONDITIONS AND PROBLEMS | N/A |
| 3H | COORDINATION OF Q'S (Agency, Date, Comments) | Flood Control District of Maricopa County<br>2801 West Durango Street, Phoenix, Arizona 85009<br>August 1991 |
| **SECTION 4: HYDRAULICS** | | |
| 4A | MODEL OR METHOD USED (including vendor and version description) | HEC-RAS (River Analysis System)<br>US Army Corps' of Engineers<br>Version 2.1, Dated October 1997 |
| 4B | REGIME | Mixed |
| 4C | FREQUENCIES FOR WHICH PROFILE WERE COMPUTED | 100-Year |
| 4D | METHOD OF FLOODWAY CALCULATION | Method 1 |
| 4E | UNIQUE CONDITIONS AND PROBLEMS | See Attached Report |
| **ADDITIONAL STUDY INFORMATION** | | |
| ITEM | | DESCRIPTION/DISCUSSION |
| Supporting documents | | Report provides technical appendices including FEMA forms, HEC-RAS output, and As-Built drawings for the Rittenhouse Road Channel |

## SECTION 3: SURVEY AND MAPPING INFORMATION

### 3.1 Field Survey Information

The ground control survey and photogrammetry for the project mapping remains same as that used for the Queen Creek ADMS (Ref. 1). The survey and photogrammetry were performed by Wood & Associates, Inc. The aerial photography was performed in October & November 1986.

### 3.2 Mapping Description

The topographic mapping used for the hydraulic analysis conducted for this LOMR request remains same as that used for the Queen Creek ADMS (Ref. 1). The topographic mapping was developed by Wood & Associates, Inc. The mapping scale was at 1"=200" with 2-foot contour interval.

The Flood Insurance Rate Map (FIRM) affected by this project are FIRM NO. 04013C 2690F (dated 12/03/93) and 04013C 2695F (dated 12/03/93).

## SECTION 4: HYDROLOGIC ANALYSIS

### 4.1 Method Description

The 100-Year peak discharge for this LOMR is selected from the Queen Creek ADMS (Ref. 1). According to the hydrologic analysis, Table 1 provides the 100-year peak discharges at key locations along the Rittenhouse Road Channel.

## SECTION 5: HYDRAULIC ANALYSIS

### 5.1 Method Description

The floodplain and floodway water surface elevations for the project reach are defined by using the U.S. Army Corps of Engineers HEC-RAS River Analysis System model, Version 2.1, October 1997. Duplicate effective models (using both HEC-2 and HEC-RAS) are developed from the effective HEC-2 hydraulic analysis for the Southern Pacific Railroad (SPRR). The resulting water surface elevations are compared with the effective water surface elevations in Table 2. The detailed input/output for the effective and the duplicate effective models are listed in Appendices C and D respectively. The post-project condition model is developed for the project using the As-Built plans for the Rittenhouse Road Channel. The project As-Built plans are provided in Appendix E.

Table 1

100-Year Peak Discharge

| Concentration Point | Q100 (cfs.) | Discharge Route |
|---|---|---|
| Ocotillo Road and SPRR | 361 | Under SPRR to Queen Creek |
| Intersection of Signal Butte and Queen Creek Roads | 506 | NE Corner of Queen Creek School |
| NE Corner of Queen Creek School | 516 | West to Germann and Sossaman Roads |
| Intersection of Germann and Sossaman Roads | 813 | Existing Power Road Boxes North of SPRR |
| Power Road at existing Box Culverts | 1,053 | East Maricopa Floodway North of SPRR |
| East Maricopa Floodway North of SPRR | 1,047 | East Maricopa Floodway |

Table 2
Comparison of Water Surface Elevations
(main channel only)

| Cross-Section No. | Effective WSE (ft.) (HEC-2) | Dup. Effect. WSE (ft.) (HEC-2) | Change | Effective WSE (ft.) (HEC-2) | Dup. Effect. WSE (ft.) HEC-RAS | Change |
|---|---|---|---|---|---|---|
| 0.038 | 1321.27 | 1321.27 | 0.00 | 1321.27 | 1321.30 | 0.03 |
| 0.199 | 1323.47 | 1323.47 | 0.00 | 1323.47 | 1323.44 | -0.03 |
| 0.407 | 1326.71 | 1326.71 | 0.00 | 1326.71 | 1326.72 | 0.01 |
| 0.646 | 1331.15 | 1331.15 | 0.00 | 1331.15 | 1331.10 | -0.05 |
| 0.659 | | | | | | |
| 0.672 | 1333.04 | 1333.04 | 0.00 | 1333.04 | 1333.39 | 0.35 |
| 0.681 | 1333.04 | 1333.04 | 0.00 | 1333.04 | 1333.38 | 0.34 |
| 0.785 | 1334.21 | 1334.21 | 0.00 | 1334.21 | 1334.22 | 0.01 |
| 0.843 | 1336.00 | 1336.01 | 0.01 | 1336.00 | 1336.00 | 0.00 |
| 1.078 | 1339.29 | 1339.29 | 0.00 | 1339.29 | 1339.29 | 0.00 |
| 1.227 | 1342.27 | 1342.27 | 0.00 | 1342.27 | 1342.27 | 0.00 |
| 1.419 | 1346.17 | 1346.17 | 0.00 | 1346.17 | 1346.17 | 0.00 |
| 1.561 | 1348.69 | 1348.69 | 0.00 | 1348.69 | 1348.69 | 0.00 |
| 1.712 | 1351.03 | 1351.04 | 0.01 | 1351.03 | 1351.04 | 0.01 |
| 1.86 | 1353.81 | 1353.82 | 0.01 | 1353.81 | 1353.81 | 0.00 |
| 1.939 | 1357.21 | 1357.21 | 0.00 | 1357.21 | 1357.21 | 0.00 |
| 2.053 | 1358.10 | 1358.10 | 0.00 | 1358.10 | 1358.10 | 0.00 |
| 2.218 | 1359.72 | 1359.72 | 0.00 | 1359.72 | 1359.73 | 0.01 |
| 2.343 | 1363.21 | 1363.20 | -0.01 | 1363.21 | 1363.19 | -0.02 |
| 2.559 | 1367.05 | 1367.06 | 0.01 | 1367.05 | 1367.05 | 0.00 |
| 2.795 | 1369.63 | 1369.60 | -0.03 | 1369.63 | 1369.70 | 0.07 |
| 2.947 | 1370.88 | 1370.85 | -0.03 | 1370.88 | 1370.92 | 0.04 |
| 3.136 | 1374.27 | 1374.21 | -0.06 | 1374.27 | 1374.12 | -0.15 |
| 3.305 | 1377.74 | 1377.65 | -0.09 | 1377.74 | 1377.69 | -0.05 |
| 3.551 | 1381.71 | 1381.73 | 0.02 | 1381.71 | 1381.72 | 0.01 |
| 6.676 | 1383.10 | 1383.10 | 0.00 | 1383.10 | 1383.10 | 0.00 |
| 3.892 | 1386.63 | 1386.63 | 0.00 | 1386.63 | 1386.62 | -0.01 |
| 4.123 | 1390.03 | 1390.03 | 0.00 | 1390.03 | 1390.26 | 0.23 |

Table 2 (continued)
Comparison of Water Surface Elevations
(main channel only)

| Cross-Section No. | Effective WSE (ft.) (HEC-2) | Dup. Effect. WSE (ft.) (HEC-2) | Change | Effective WSE (ft.) (HEC-2) | Dup. Effect. WSE (ft.) HEC-RAS | Change |
|---|---|---|---|---|---|---|
| 4.23 | 1391.55 | 1391.55 | 0.00 | 1391.55 | 1391.30 | -0.25 |
| 4.341 | 1394.55 | 1394.55 | 0.00 | 1394.55 | 1394.60 | 0.05 |
| 4.616 | 1395.95 | 1395.95 | 0.00 | 1395.95 | 1395.91 | -0.04 |
| 4.637 | 1396.49 | 1396.49 | 0.00 | 1396.49 | 1396.51 | 0.02 |
| 4.748 | 1397.55 | 1397.55 | 0.00 | 1397.55 | 1397.55 | 0.00 |
| 4.924 | 1400.91 | 1400.91 | 0.00 | 1400.91 | 1400.92 | 0.01 |
| 5.038 | 1403.36 | 1403.36 | 0.00 | 1403.36 | 1403.35 | -0.01 |
| 5.17 | 1406.86 | 1406.86 | 0.00 | 1406.86 | 1406.86 | 0.00 |
| 5.375 | 1410.73 | 1410.73 | 0.00 | 1410.73 | 1410.73 | 0.00 |
| 5.523 | 1412.61 | 1412.61 | 0.00 | 1412.61 | 1412.62 | 0.01 |
| 5.631 | 1412.93 | 1412.93 | 0.00 | 1412.93 | 1412.93 | 0.00 |
| 5.864 | 1414.54 | 1414.54 | 0.00 | 1414.54 | 1414.56 | 0.02 |
| 6.047 | 1418.83 | 1418.83 | 0.00 | 1418.83 | 1418.81 | -0.02 |
| 6.259 | 1422.08 | 1422.08 | 0.00 | 1422.08 | 1422.09 | 0.01 |
| 6.472 | 1425.51 | 1425.51 | 0.00 | 1425.51 | 1425.50 | -0.01 |
| 6.672 | 1428.59 | 1428.59 | 0.00 | 1428.59 | 1428.60 | 0.01 |
| 6.811 | 1431.84 | 1431.84 | 0.00 | 1431.84 | 1431.84 | 0.00 |
| 7.019 | 1434.94 | 1434.94 | 0.00 | 1434.94 | 1434.94 | 0.00 |
| 7.201 | 1439.55 | 1439.45 | -0.10 | 1439.55 | 1438.99 | -0.56 |
| 7.455 | 1443.61 | 1443.59 | -0.02 | 1443.61 | 1443.47 | -0.14 |
| 7.519 | 1446.40 | 1446.40 | 0.00 | 1446.40 | 1446.41 | 0.01 |

The design invert elevation for the low flow channel at the fist drop structure at station 800+00, upstream of the confluence with the East Maricopa Floodway (EMF) is 1312.76 feet MSL. Assuming a non-coincidental peak with the EMF, the HEC-RAS model is started at critical depth. This critical depth as determined by the HEC-RAS hydraulic model, was 1315.90 feet MSL.

## 5.2 Study Work Maps

A location map for the Rittenhouse Road Channel is shown in Figure 1. The full-size work maps for the delineated floodplain/floodway are included in Appendix F.

## 5.3 Parameter Estimation

### 5.3.1 Roughness Coefficients

The Manning's roughness coefficients are chosen according to the Final Conceptual Design Report for Rittenhouse Road Channel (Ref. 2). According to the report, roughness coefficient for the dirt channel with weeds is selected as 0.027. For portions of the channel with drop structures and bank protection, the Manning's roughness coefficient was selected as 0.035.

### 5.3.2 Expansion and Contraction Coefficients

Coefficients of 0.3 and 0.1 are used to compute expansion and contraction losses, respectively, from channel cross section to cross-section in the channel. These values are consistent with the values recommended by the HEC-RAS User's Manual (Ref. 3) and the Drainage Design Manual for the Maricopa County, Volume II, Hydraulics (Ref. 4).

## 5.4 Cross-Section Description

The As-Built plans for the Rittenhouse Channel are used to develop the cross sections for the HEC-RAS hydraulic model. Cross sections are oriented approximately perpendicular to the anticipated flow paths. They are numbered consecutively from the downstream to upstream beginning at the upstream of the first drop structure at station 800+00. The channel baseline uses standard engineering stationing with the distance measured in feet above the confluence with the East Maricopa Floodway (EMF), beginning at station 800+00.

The cross-sections are defined by data points oriented left to right, looking downstream. Each data point consists of an elevation and corresponding station number. The intersection of each cross-section and the channel baseline is assigned station number 1000+00. Each point in the cross-section is defined relative to the channel baseline with station less than 1000+00 to the left and greater than 1000+00 to the right. Cross-sections are taken at significant changes in geometry within the project reach. For stretches of channel with no change in

geometry, cross sections are interpolated with a maximum distance of 100' or less. Locations of cross-sections used in this LOMR are shown on the work maps (Appendix F). Cross-sections plots for the Rittenhouse Road Channel are included in Appendix H.

## 5.5 Modeling Consideration

The post-project condition HEC-RAS hydraulic model is developed for subcritical flow regime.

### 5.5.1 Hydraulic Jump/Drop Analysis

No hydraulic jump or drops occur or are designed along the project reach.

### 5.5.2 Bridges and Culverts

Several culverts have been designed along the project reach for the Rittenhouse Road Channel. These are described as follows.

#### 5.5.2.1 Power Road Culvert

There is an existing 3-10'X4' Concrete Box Culvert (CBC) at Power Road. One additional 3-6'X6' Concrete Box Culvert (CBC), 79.46 feet long, with flared wing walls is constructed as part of the Rittenhouse Road Channel project. The new CBC (3-6'X6') culvert will account for the low flow conditions with an upstream invert elevation at 1325.82 feet MSL. The existing CBC (3-10'X4') culvert has an upstream invert elevation of 1328.8 feet MSL.

The standard culvert routine available in the HEC-RAS hydraulic program is used to model the culvert. The standard step energy method is applied to determine the upstream water surface elevation.

#### 5.5.2.2 Sossaman Road Culvert

A new 90.0 feet long, 3-8'X6' Concrete Box Culvert (CBC) with flared wing walls is constructed at the Sossaman Road intersection. The design upstream invert elevation is at 1347.11 feet MSL. The standard culvert routine available in the HEC-RAS hydraulic program is used to model the culvert. Standard step energy method is applied to determine the upstream water surface elevation.

#### 5.5.2.3 Germann Road Culvert

A new 108 feet long, 3-8'X6' Concrete Box Culvert (CBC) with flared wing walls is constructed at the Germann Road intersection. The design upstream invert elevation is at

1347.46 feet MSL. The standard culvert routine available in the HEC-RAS hydraulic program is used to model the culvert. Standard step energy method is applied to determine the upstream water surface elevation.

### 5.5.3 Levees and Dikes

No levees or dikes are designed within the project reach for the Rittenhouse Road Channel.

### 5.5.4 Islands and Flow Splits

There are no islands or flow splits within the project reach for the Rittenhouse Road Channel.

### 5.5.5 Ineffective Flow Areas

There are no ineffective flow areas associated within the project reach for the Rittenhouse Road Channel.

### 5.5.6 Supercritical Flow

The flows become very near critical at the downstream of the drop structures. However, a supercritical flow regime is never established as the highest froude number, according to the HEC-RAS hydraulic modeling is 1.02.

## 5.6 Floodway Modeling

The floodway concept is used to define the amount of floodplain encroachment that is considered acceptable for development. The principle is that limited encroachment is likely to have an insignificant effect on all but the severe flood events. A floodway consists of the main channel of a stream plus sufficient overbank area to convey the 100-year flood without increasing flood heights by more than a specified amount. Federal standards limit the increase to one foot above the base flood elevation; however, some jurisdictions have stricter standards. No jurisdiction affected by this project has a stricter standard, therefore, an increase of one-foot maximum will apply for this project reach. The relationship between the floodplain, floodway and the fringe area is shown in Figure 2.

Normally, the floodway is determined by encroaching on the floodplain to reduce the conveyance by equal amounts on each side. The encroachment is increased gradually until the maximum allowable increase in depth is achieved.

From the natural floodplain analysis, it was found that the 100-year flow is contained within the Rittenhouse Road Channel top-of-banks. An equal conveyance encroachment on the natural floodplain, with a starting water surface elevation of 1316.90 M.S.L.(1.0 ft. higher

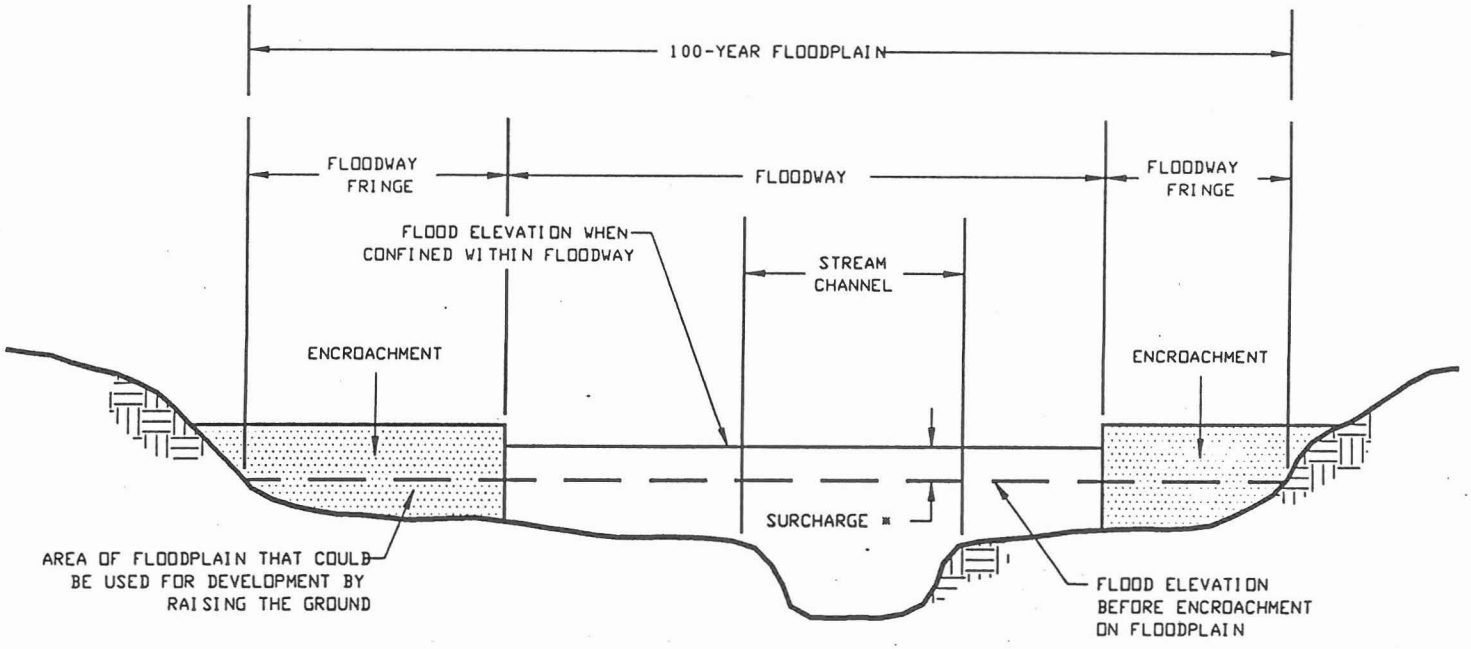



Figure 2: Floodway Definition Sketch.

* SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

than the critical WSE), resulted in greater top widths, since Method 4 encroachment does not continue inside the channel bank stations. Therefore, for all practical purposes, it is assumed that the floodplain/floodway widths are identical and equal to the distance between the top-of-banks for the Rittenhouse Road Channel at all cross sections. The top widths of the channel are then plotted on the work maps included in Appendix F.

### 5.7 Problems Encountered

No special problems are encountered during the study.

### 5.8 Calibration

As shown in Table 2, the water surface elevations of the duplicate effective models (both HEC-2 and HEC-RAS) closely match with those from the effective model validating the use of the HEC-RAS hydraulic model. The starting water-surface elevation for the duplicate effective model is selected from the effective hydraulic model, which is 1321.30. The HEC-2 hydraulic model is imported into the HEC-RAS model before a natural run was performed. The duplicate effective model created by the use of HEC-RAS hydraulic model is also modified to account for proper encroachment, ineffective flow areas, and sediment deposit elevations at several cross-sections within the effective HEC-2 hydraulic model.

The water surface elevations resulting from the post-project HEC-RAS hydraulic model are compared to the currently effective FIS information. The starting water surface elevation (1315.90' MSL) is much lower than that (1321.30' MSL) of the currently effective hydraulic model. This resulted in lower water surface elevations for the post-project conditions for the entire Rittenhouse Road Channel.

### 5.9 Final Results

The detailed results of the post-project HEC-RAS hydraulic modeling is included in Appendix G. The cross-section plots for the Rittenhouse Road Channel are included in Appendix H. The post-project water surface elevations are lower than those of the effective hydraulic model at all locations. The HEC-RAS hydraulic model results show that the floodplain is contained within the bank stations of the channel. Therefore, for practical reasons, the floodplain and floodway widths, at all cross-sections, are assumed equal to the distance between the top-of-banks for the Rittenhouse Road Channel.

## SECTION 6: EROSION AND SEDIMENT TRANSPORT ANALYSIS

No sediment transport analysis is performed as part of this study.

## SECTION 7: DRAFT FIS REPORT

### 7.1 Summary of Discharges

A summary of the effective FIS discharges as compared with the discharges used in this LOMR analysis is listed in Table 3.

### 7.2 Floodplain Delineation

The existing hydrology that was used to delineate the floodplain along the Rittenhouse Road does not account for the three arch pipes at Ocotillo Road. However, these pipes have been included in the revised hydrologic analysis (Ref. 2), performed as part of the Rittenhouse Road Channel Design. After investigating the pipes with and without the clogging, it was decided by the Town of Queen Creek, SPRR representatives, Maricopa County Department of Transportation representatives, and the Flood Control District of Maricopa County representatives that a 60-inch equivalent diameter arch pipe will adequately represent the existing conditions. This will allow the 100-yr. discharge of 361.0 cfs. at concentration point 280C to leave the drainage area in the south-western direction towards the Queen Creek. The hydraulic analysis of the 361.0 cfs. leaving in the southwestern direction is beyond the scope of this study. Therefore, a Limit of Detailed Study is incorporated at the intersection of the Rittenhouse Road and the Ocotillo Road.

Since the 100-yr. discharge of 361.0 cfs. is leaving the drainage area, the length of the Rittenhouse Road, between Ocotillo Road (280C) and the Queen Creek Road (270D), will be subject to inundation by a combined contribution from sub-basins 268B (100.0 cfs.) and 268C (98.0 cfs.) only. Assuming no other losses, the total contribution from these two sub-basins amounts to approximately 198.0 cfs. An HEC-RAS model is created using the GR information from the existing HEC-2 model to determine the velocity and depth of water in this reach (between cross section 5.631 to 4.341) of the Rittenhouse Road. The HEC-RAS hydraulic modeling results indicate that the maximum depth of flow in this reach is less 0.8' with a maximum flow velocity of 2.7 ft/sec. On average the depth of flow is approximately 0.3 ft and the average velocity is approximately 1.5 ft/sec. Based on the hydraulic analysis, it is recommended that the existing delineated floodplain through this reach (from Ocotillo Road to Queen Creek Road from cross section 5.631 to 4.23) be eliminated from the floodplain delineation. The detailed HEC-RAS input/output, for this reach is included in Appendix J.

The post-project condition HEC-RAS hydraulic model is used to delineate the 100-yr. floodplain from the Eastern Maricopa Floodway to the Ellsworth Road. There is a 72" cast-in-place pipe culvert to convey the 100-yr. discharge of 516.0 cfs. from concentration point CO270A. The hydraulic analyses to support the design of the inlet and the culvert is included in Appendix K.

Table 3

Summary of Discharges

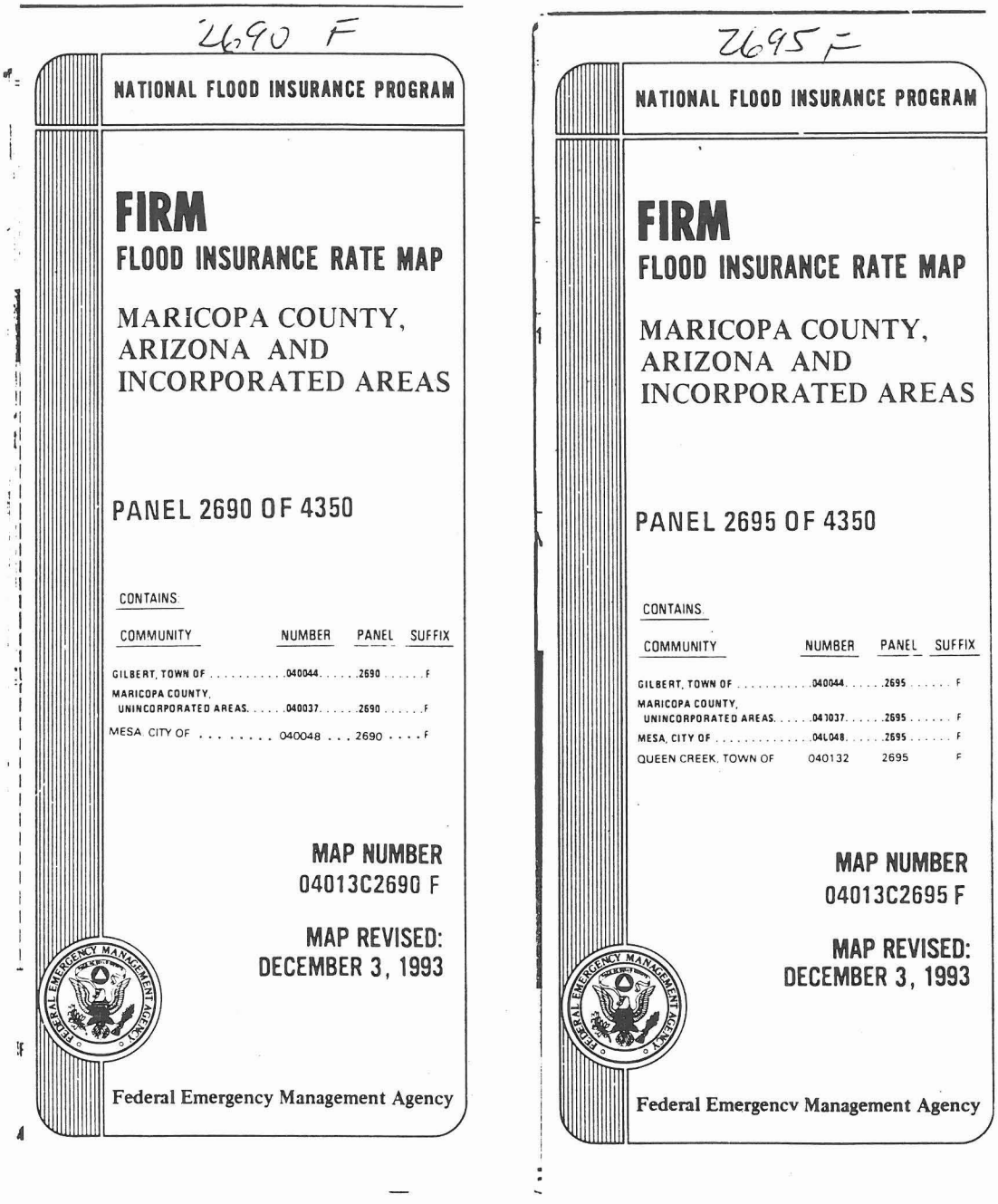
| Cross Section | 100-Year Discharge (cfs.) | |
|---|---|---|
| | Effective (HEC-2) | Post-project (HEC-RAS) |
| Ocotillo Road and SPRR | 393 | 361 |
| Intersection of Signal Butte and Queen Creek Roads | 393 | 506 |
| NE Corner of Queen Creek School | 828 | 516 |
| Intersection of Hawes Road | 1172 | 505 |
| Intersection of Germann Road | 1,172 | 813 |
| Intersection of Sossaman Road | 1,358 | 813 |
| Power Road at existing Box Culverts | 1,085 | 1,053 |
| East Maricopa Floodway North of SPRR | 1,085 | 1,047 |

## 7.3 Floodway Data Table

The post-project condition floodplain and floodway information is listed in Appendix I.

## 7.4 Annotated FIRM

The annotated FIRM maps are shown in Figure 3. The existing delineation of the Zone AH is based on a study performed by Wood & Associates, Inc. (Ref. 5).



2690 F

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**
**FLOOD INSURANCE RATE MAP**

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2690 OF 4350

CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| GILBERT, TOWN OF | 040044 | 2690 | F |
| MARICOPA COUNTY, UNINCORPORATED AREAS | 040037 | 2690 | F |
| MESA, CITY OF | 040048 | 2690 | F |

**MAP NUMBER**
04013C2690 F

**MAP REVISED:**
DECEMBER 3, 1993

Federal Emergency Management Agency

2695 F

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**
**FLOOD INSURANCE RATE MAP**

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2695 OF 4350

CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| GILBERT, TOWN OF | 040044 | 2695 | F |
| MARICOPA COUNTY, UNINCORPORATED AREAS | 040037 | 2695 | F |
| MESA, CITY OF | 040048 | 2695 | F |
| QUEEN CREEK, TOWN OF | 040132 | 2695 | F |

**MAP NUMBER**
04013C2695 F

**MAP REVISED:**
DECEMBER 3, 1993

Federal Emergency Management Agency

Figure 3: Annotated FIRM Map (continued).

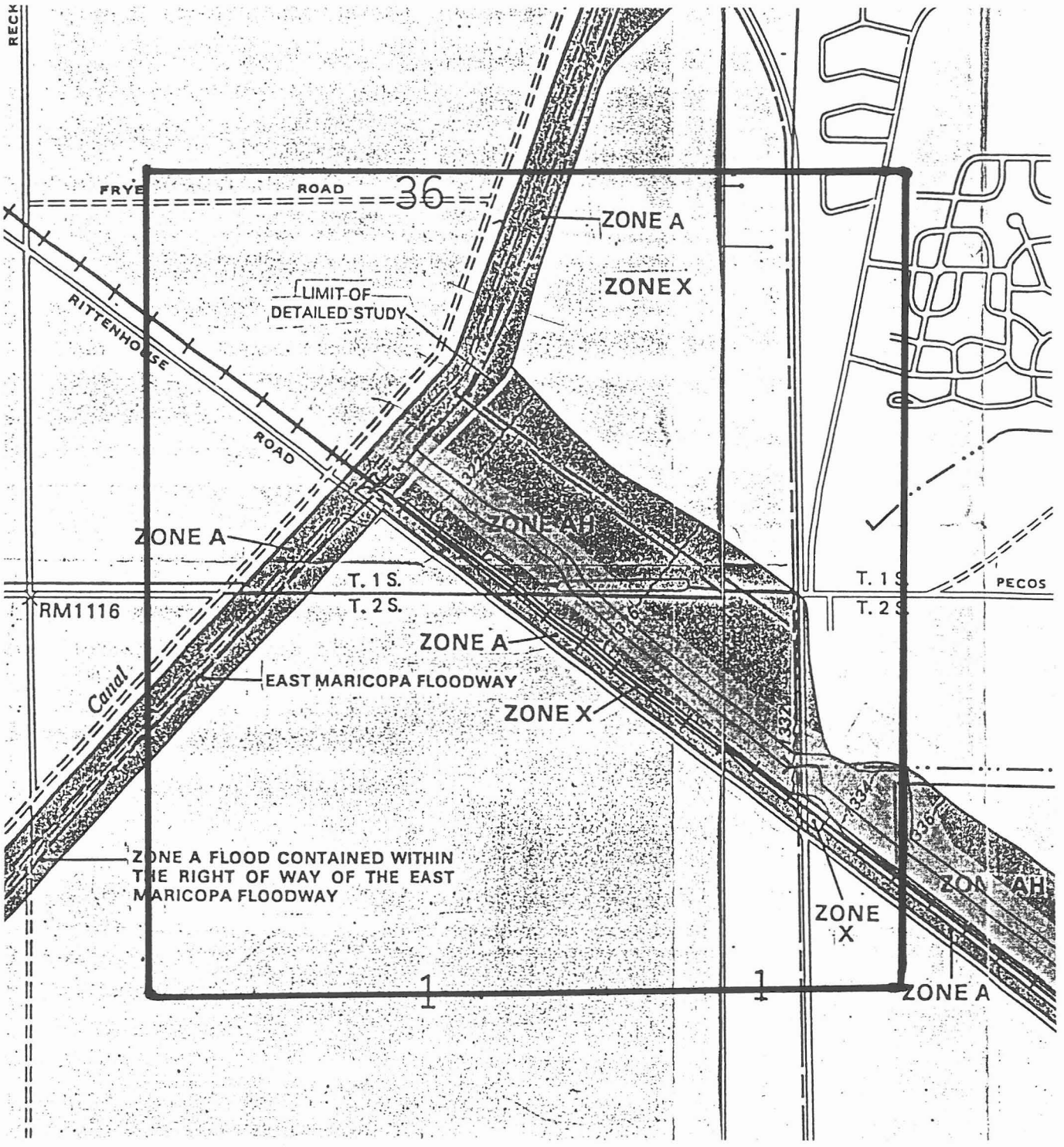



Figure 3 (continued): Annotated FIRM Map (continued).

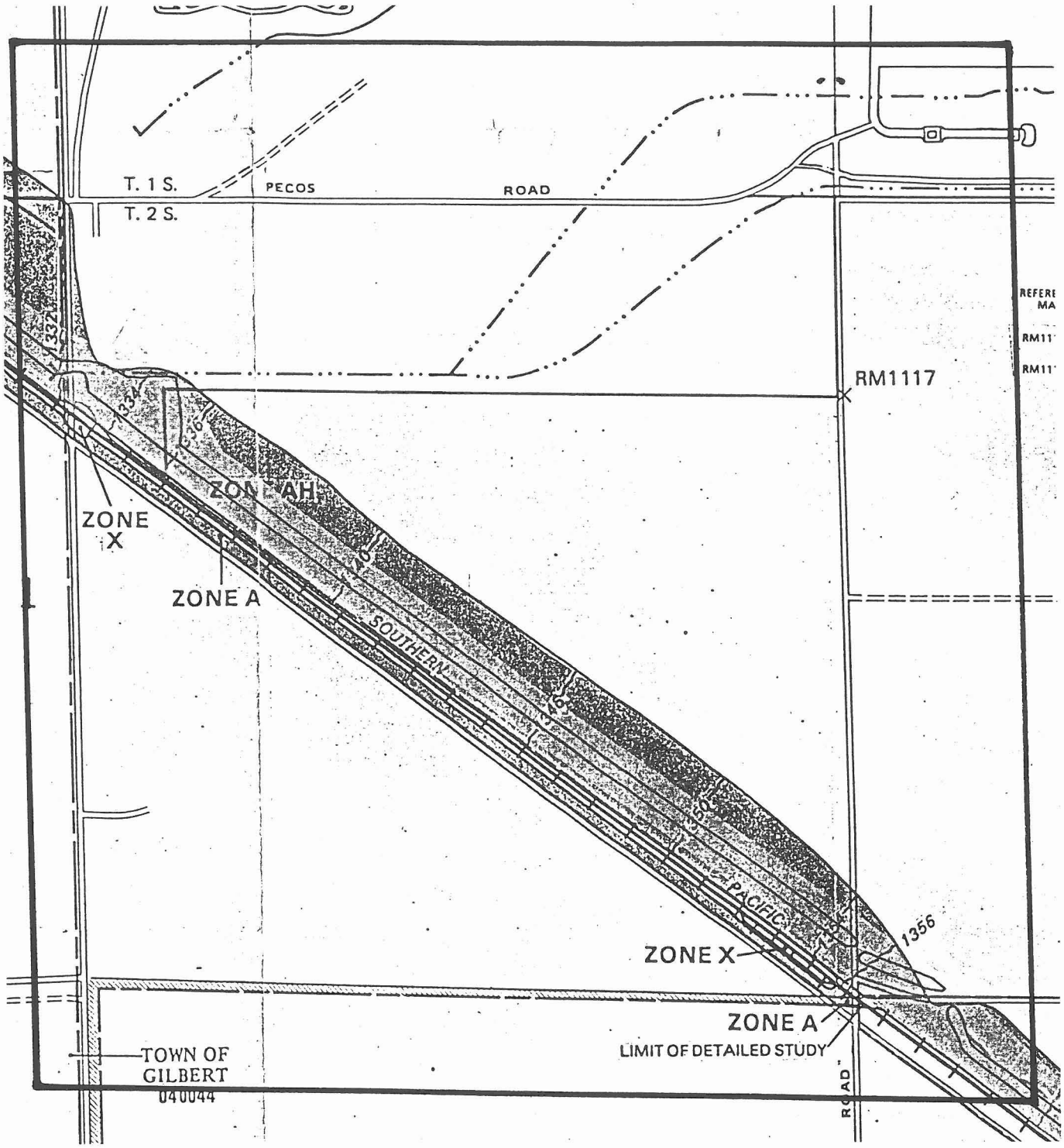



Figure 3 (continued): Annotated FIRM Map (continued).

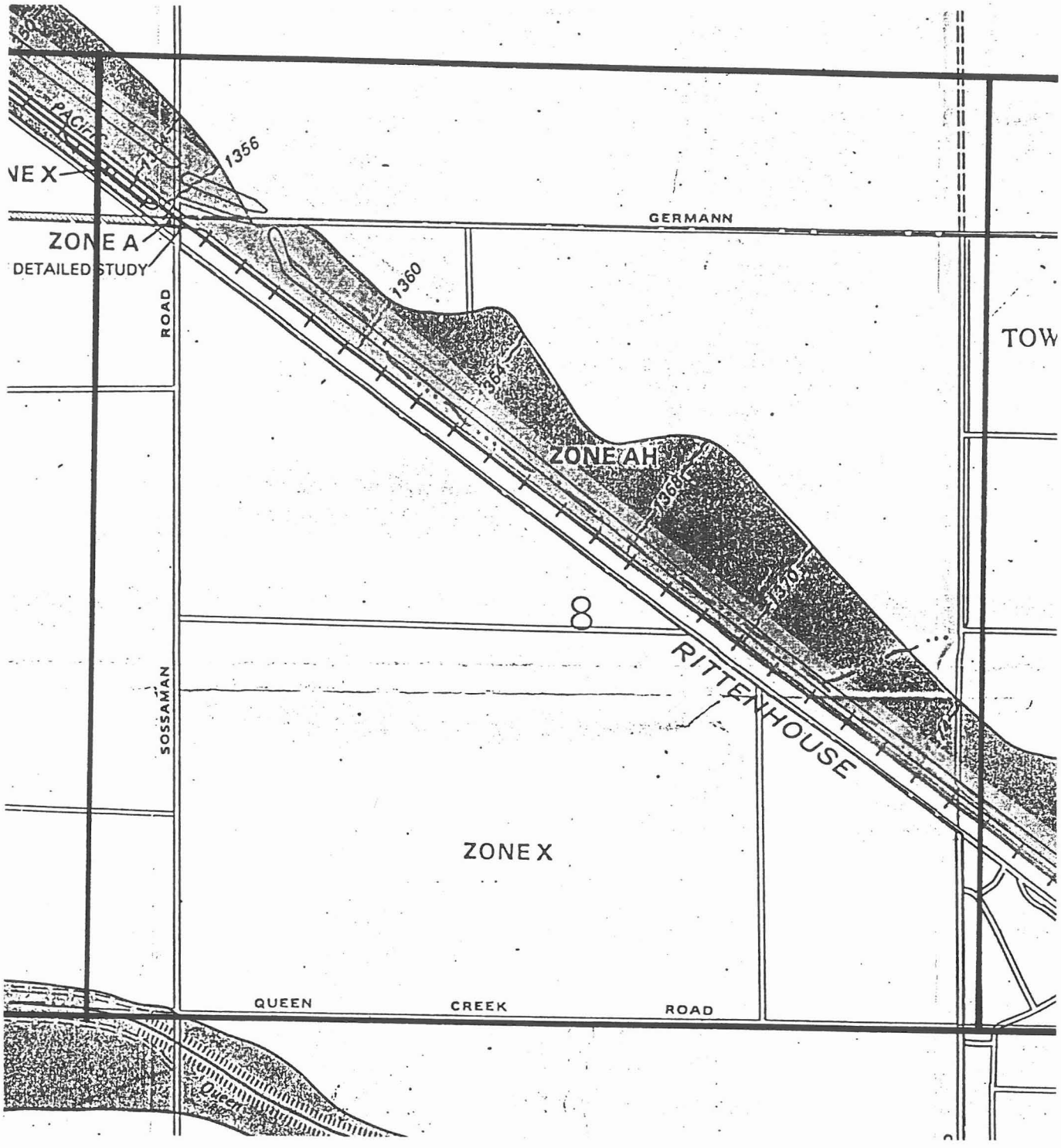



Figure 3 (continued): Annotated FIRM Map (continued).

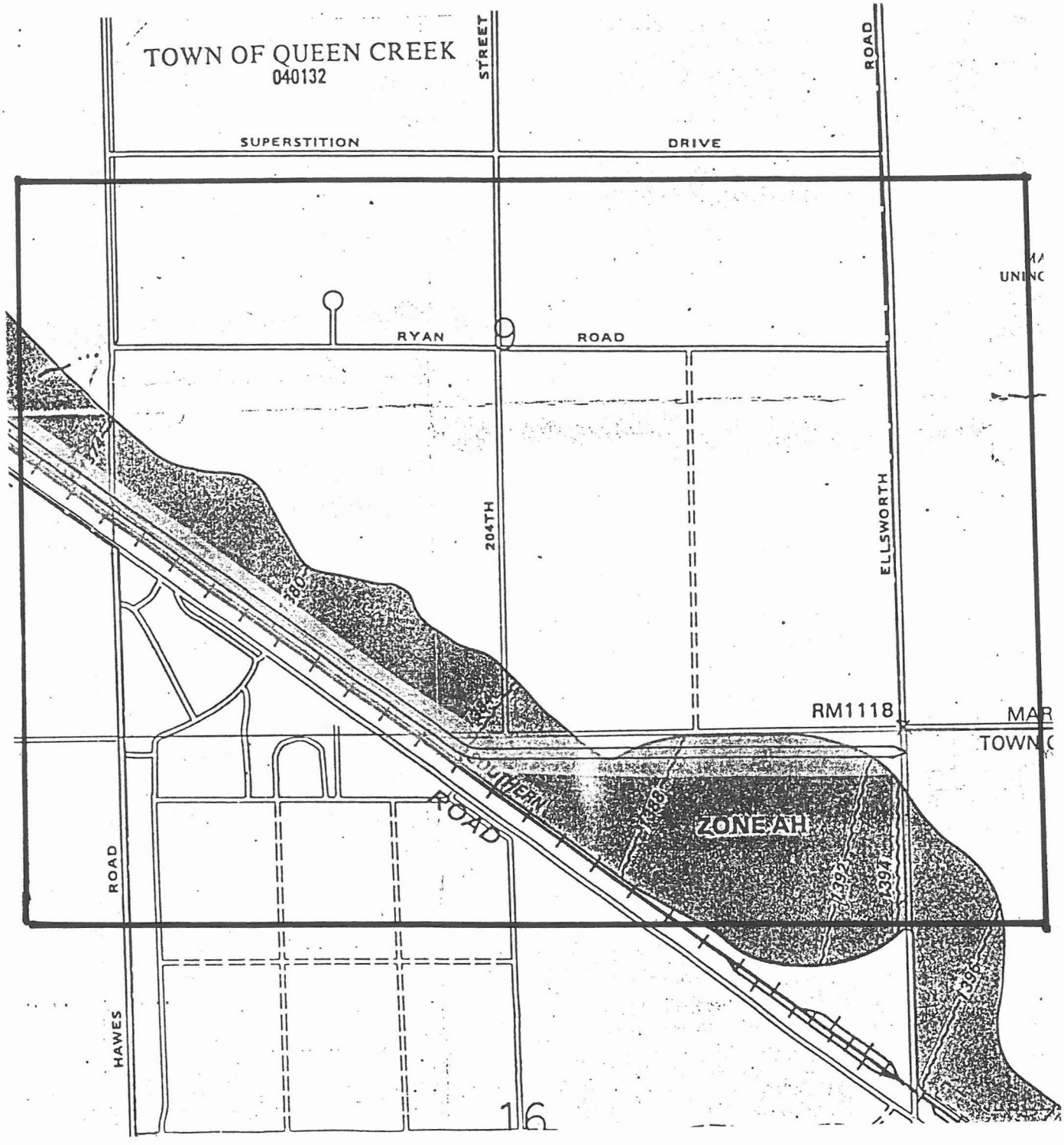



Figure 3 (continued): Annotated FIRM Map (continued).

## 7.4 Flood Profiles

The flood profile for the Rittenhouse Road Channel is shown in Figure 4. The profile plot resulted from the HEC-RAS hydraulic analysis performed on the Rittenhouse Road Channel, based on the As-Built plans.

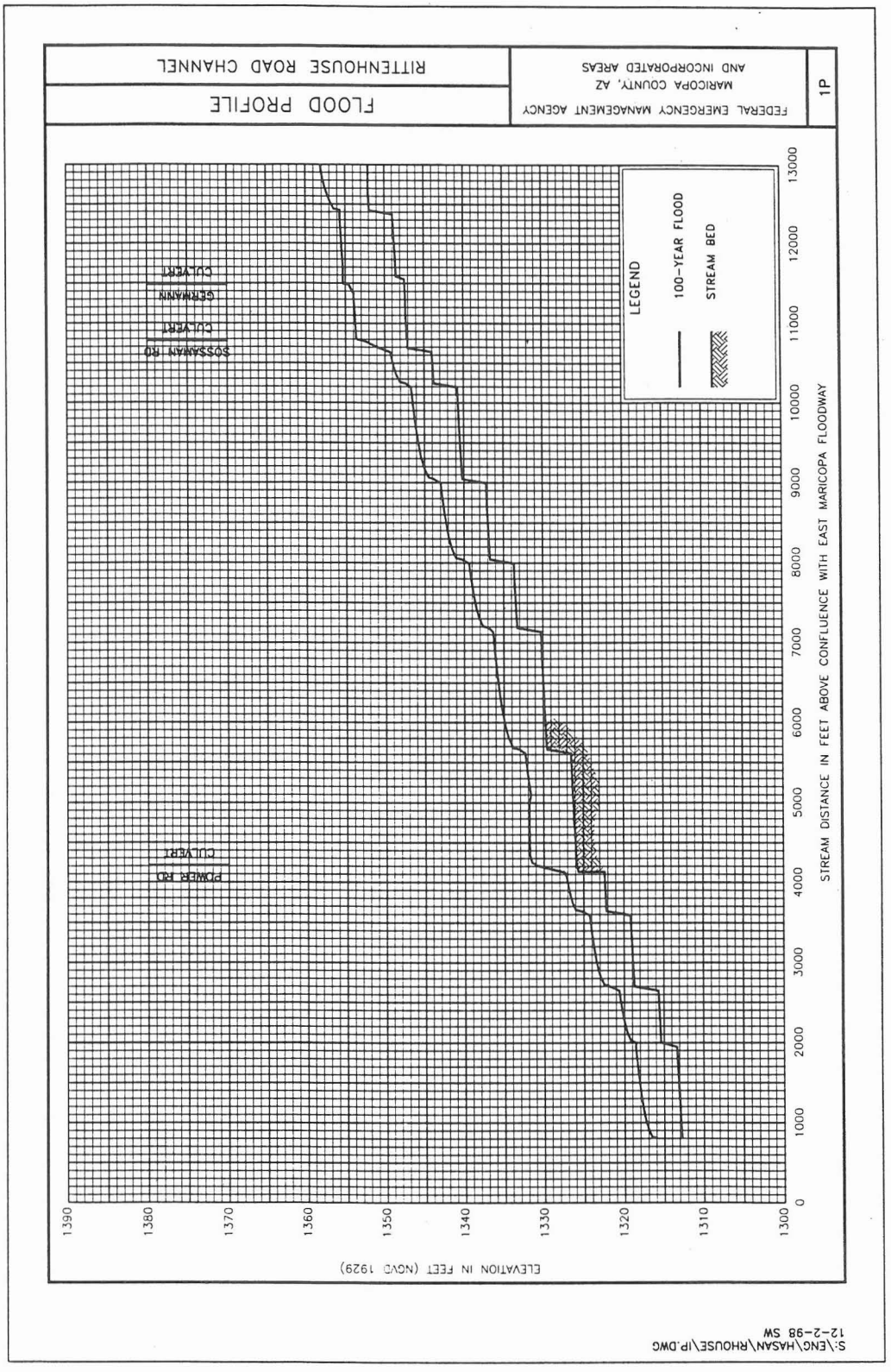



Figure 4: Flood Profiles.

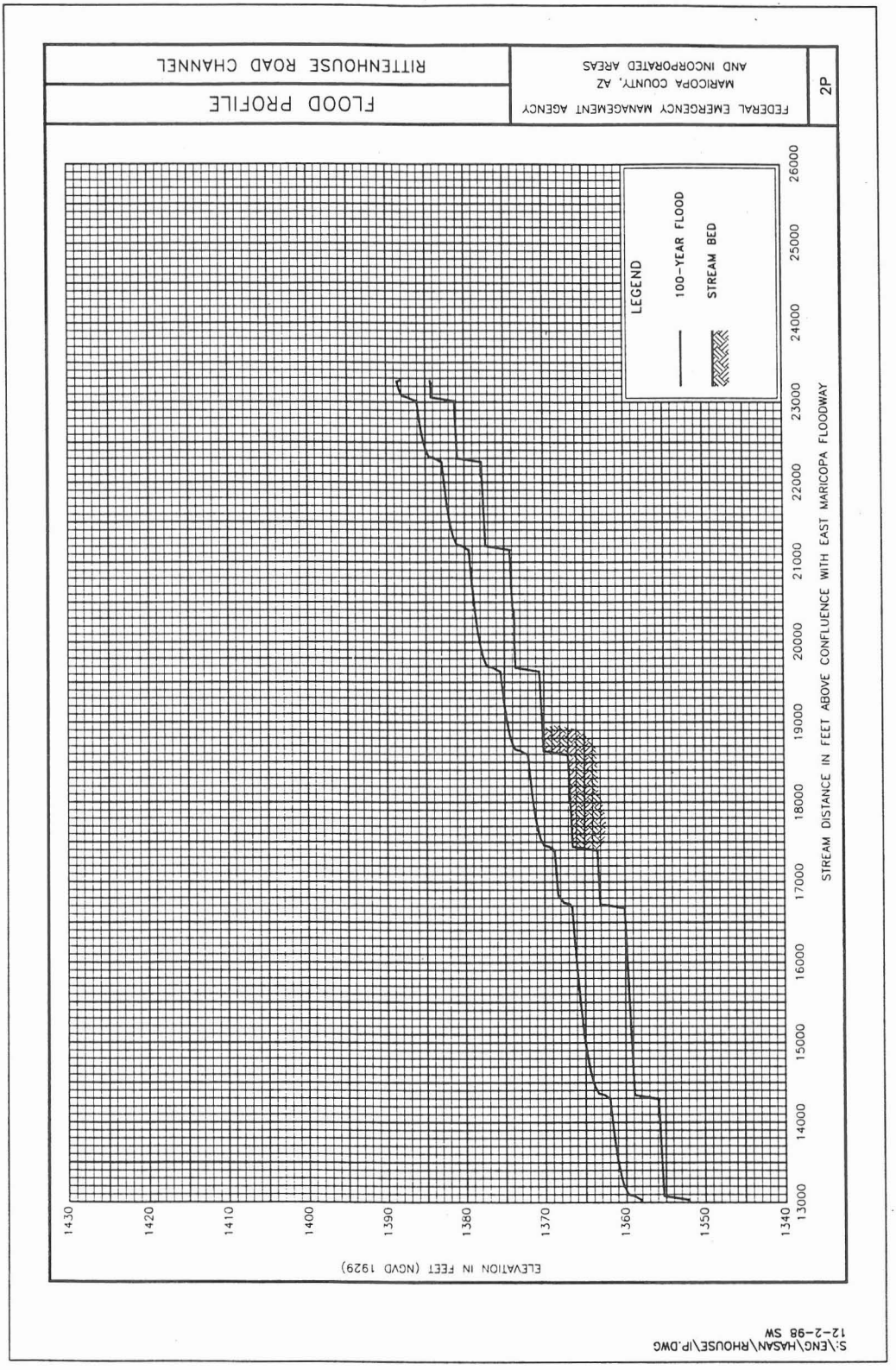
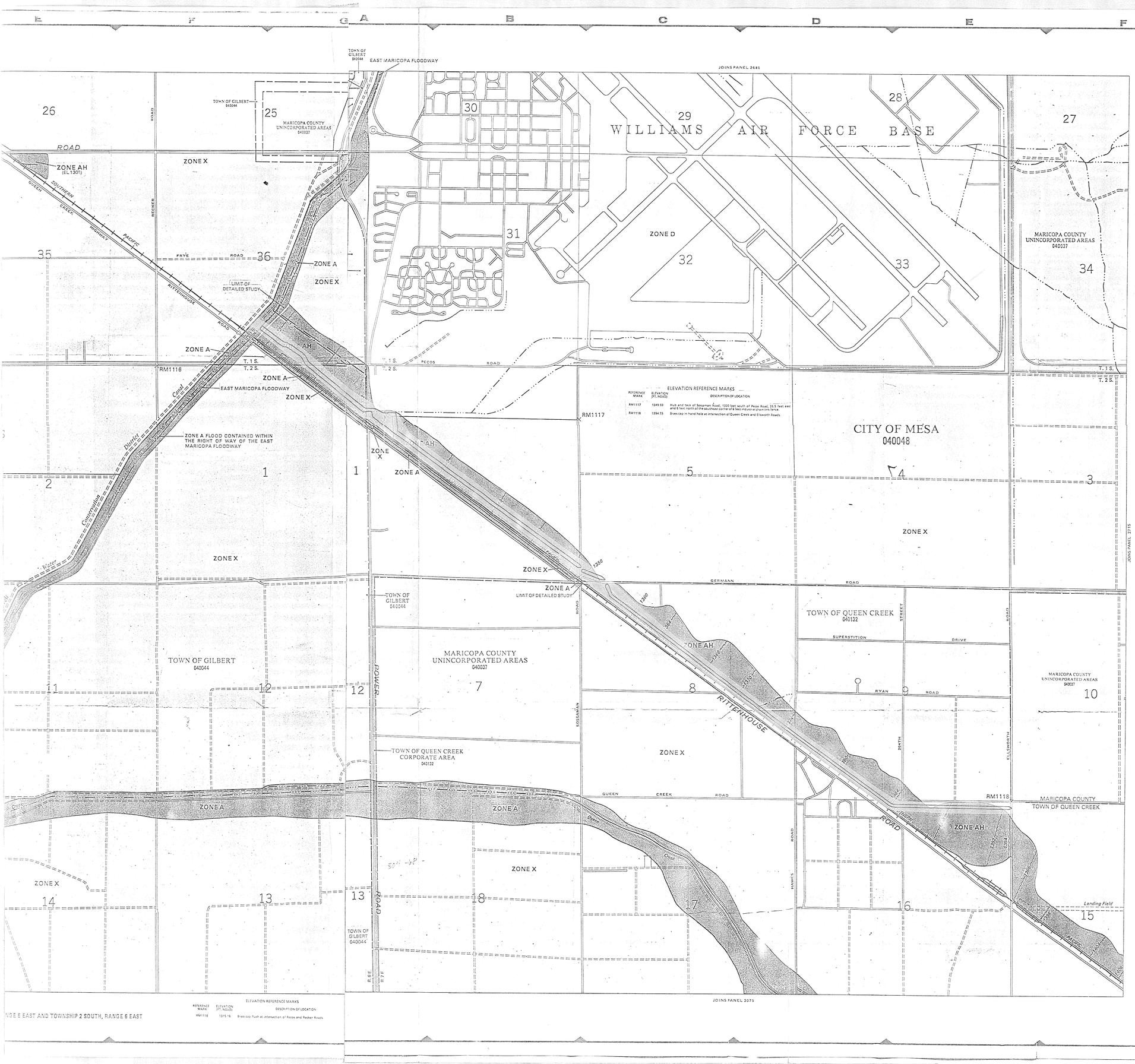



Figure 4 (continued): Flood Profiles (continued).




## LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- ZONE A — No base flood elevations determined.
- ZONE AE — Base flood elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE A99 — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- ZONE V — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- ZONE X — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- ZONE X — Areas determined to be outside 500-year flood plain.
- ZONE D — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 × — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100 year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3,1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

2690 F

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2690 OF 4350

CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| GILBERT, TOWN OF | 040044 | 2690 | F |
| MARICOPA COUNTY UNINCORPORATED AREAS | 040037 | 2690 | F |
| MESA, CITY OF | 040048 | 2690 | F |

MAP NUMBER
04013C2690 F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency

2695 F

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2695 OF 4350

CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| GILBERT, TOWN OF | 040044 | 2695 | F |
| MARICOPA COUNTY UNINCORPORATED AREAS | 040037 | 2695 | F |
| MESA, CITY OF | 040048 | 2695 | F |
| QUEEN CREEK, TOWN OF | 040132 | 2695 | F |

MAP NUMBER
04013C2695 F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency

# Appendix A

# APPENDIX A

# REFERENCES

## REFERENCES


1. Flood Control District of Maricopa County, Queen Creek Area Drainage Master Study, FCD Contract No. 86-23, Wood & Associates, Inc., 1991.

2. Flood Control District of Maricopa County, Final Conceptual Design Report for Rittenhouse Road Channel from Signal Butte Road to the East Maricopa Floodway (EMF), FCD Contract No. 92-13, Gannett Fleming, Inc., 1993.

3. U.S. Army Corps of Engineers, HEC-RAS River Analysis System, User's Manual, Version 2.1, October 1997.

4. Flood Control District of Maricopa County, Drainage Design Manual, Volume II, Hydraulics, 1996.

5. Flood Control District of Maricopa County, Southern Pacific Railroad Flood Insurance Study, Queen Creek Area, Maricopa County, FCD Contract No. 89-53, Wood & Associates, Inc., 1990.

# Appendix B

# APPENDIX B

# FEMA APPLICATION AND CERTIFICATION FORMS

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**REVISION REQUESTER AND COMMUNITY OFFICIAL FORM** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

## 1. REQUESTED RESPONSE FROM FEMA

This request is for a:

☐ CLOMR A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60,65 & 72).

☒ LOMR A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)

☐ Other Describe: _____

## 2. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)

☒ Physical Change ☐ Improved Methodology/Data ☐ Floodway Revision

☐ Other Describe: _____
Note: A photograph is not required, but is very helpful during review.

2. Flooding Source: Rittenhouse Road, Southern Pacific Railroad

3. Project Name/Identifier: Rittenhouse Road Channel

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

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

| Community No. | Community Name | State | Map No. | Panel No. | Effective Date |
|---|---|---|---|---|---|
| Ex: 480301 | Katy, City | TX | 480301 | 0005D | 02/08/83 |
| 480287 | Harris County | TX | 48201C | 0220G | 09/28/90 |
| 040048 | City of Mesa | AZ | 04013 C | 2695 F | 12/03/93 |
| 040132 | Town of Queen Creek | AZ | 04013 C | 2695 F | 12/03/93 |
| 040044 | Town of Gilbert | | 04013 C | 2695 F | 12/03/93 |
| 040044 | Town of Gilbert | | 04013 C | 2690 F | 12/03/93 |
| 040037 | Unincorporated Area | | 04013 C | 2695 F | 12/03/93 |

6. The area of revision encompasses the following types of flooding and structures. Check all that apply.

| Types of Flooding | Structures |
|---|---|
| ☐ Riverine | ☒ Channelization |
| ☐ Coastal | ☐ Levee/Floodwall |
| ☐ Alluvial fan | ☒ Bridge/Culvert |
| ☒ Shallow Flooding (e.g. Zones AO and AH) | ☐ Dam |
| ☐ Lakes | ☐ Fill |
| ☐ Other (describe) | ☐ Other (describe) |

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
   ☐ Yes ☒ No

**If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.**

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No ☒ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☐ No

**If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.**

## 5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☒ performing ☐ overseeing compliance with the maintenance and operation plans of the Rittenhouse Road Channel
(Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

**Operation and maintenance plans are attached.** ☒ **Yes** ☐ **No** ☐ **N/A**

## 6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes Fee amount: $$3,300.00

***OR***

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. ☐ Yes

**Please see Instructions for Fee Amounts**

## 7. SIGNATURE

***Note:*** **I understand that my signature indicates that all information submitted in support of this request is correct**

_____
Signature of Revision Requester

Michael S. Ellegood, P.E.
Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

Telephone No.: (602) 506-4700 Date:

***Note:*** **Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.**

_____
Signature of Community Official

Richard Shaner, P.E.
Town Engineer
Printed Name and Title of Community Official

Town of Queen Creek
Community Name

Telephone No.: (602) 987-9887 Date:

**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR**

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

_____
Signature

Ronald D. Schreier, P.E.
Printed Name and Title of Revision Requester

Registr No. 20950 Expires (Date) 6/30/2001 State AZ

Type of License/Expertise: Civil

**Check which forms have been included with this request**

| Form Name and (Number) | Required if ..... |
|---|---|
| ☐ **Hydrologic** (3) | new or revised discharges |
| ☒ **Hydraulic** (4) | new or revised water-surface elevations |
| ☒ **Mapping** (5) | floodplain/floodway changes |
| ☒ **Channelization** (6) | channel is modified |
| ☒ **Bridge/Culvert** (7) | addition/revision of bridge/culvert |
| ☐ **Levee/Floodwall** (8) | addition/revision of levee/floodwall |
| ☐ **Coastal** (9) | new or revised coastal elevations |
| ☐ **Coastal Structures** (10) | addition/revision of coastal structure |
| ☐ **Dam** (11) | addition/revision of dam |
| ☐ **Alluvial Fan** (12) | structures proposed on alluvial fan |

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM** | O.M.B. Burden No. 3067-0148<br>Expires July 31, 1997 | FEMA USE ONLY |
|---|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 0.23 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2
2. I am licensed with an expertise in: hydrology; hydraulics; general civil engineering [example: water resources (*hydrology, hydraulics, sediment transport, interior drainage*)* structural, geotechnical, land surveying.]
3. I have 16± years experience in the expertise listed above.
4. I have __ prepared ✓ reviewed the attached supporting data and analyses related to my expertise.
5. I __ have ✓ have not visited and physically viewed the project. (CONSTRUCTED PROJECT)
6. In my opinion, the following analyses and/or designs, is/are being certified:
   HEC-1; HEC-2; CHANNEL DESIGN ("RITTENHOUSE CHANNEL")
7. Based upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

   Basis for above statement: (check all that apply)

   a. __ Viewed all phases of actual construction.
   b. __ Compared plans and specifications with as-built survey information.
   c. __ Examined plans and specifications and compared with completed projects.
   d. ✓ Other: HAVE NOT REVIEWED CONSTRUCTED PROJECT.
8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: RONALD D. SCHREIER

Title: VICE PRESIDENT/PROJECT MANAGER

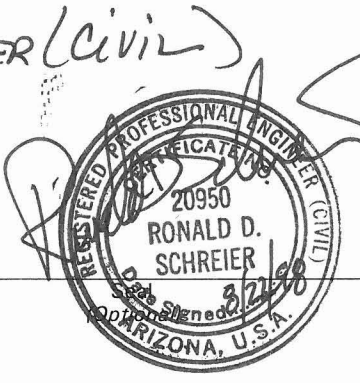
Registration No.: 20950 Expiration Date: 6/30/2001

State: ARIZONA

Type of License: REGISTERED PROFESSIONAL ENGINEER (CIVIL)

Ronald D Schreier
Signature

8/22/98
Date




*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

## 4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
☐ Yes ☒ No

**If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.**

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No ☒ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☐ No

**If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.**

## 5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☒ performing ☐ overseeing compliance with the maintenance and operation plans of the Rittenhouse Road Channel
(Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

**Operation and maintenance plans are attached.** ☒ **Yes** ☐ **No** ☐ **N/A**

## 6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes Fee amount: $$3,300.00

***OR***

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. ☐ Yes

**Please see Instructions for Fee Amounts**

## 7. SIGNATURE

***Note:*** **I understand that my signature indicates that all information submitted in support of this request is correct**

Signature of Revision Requester

Michael S. Ellegood, P.E.
Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

Telephone No.: (602) 506-4700 Date:

***Note:*** **Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.**

Signature of Community Official

Richard Shaner, P.E.
Town Engineer
Printed Name and Title of Community Official

Town of Queen Creek
Community Name

Telephone No.: (602) 987-9887 Date:

**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR**

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

Signature

Curtiss W. Gilley, P.E.
Printed Name and Title of Revision Requester

Registr No. 25868 Expires (Date) 3/31/2001 State AZ

Type of License/Expertise: Civil

**Check which forms have been included with this request**

| Form Name and (Number) | Required if ..... |
|---|---|
| ☐ **Hydrologic** (3) | new or revised discharges |
| ☒ **Hydraulic** (4) | new or revised water-surface elevations |
| ☒ **Mapping** (5) | floodplain/floodway changes |
| ☒ **Channelization** (6) | channel is modified |
| ☒ **Bridge/Culvert** (7) | addition/revision of bridge/culvert |
| ☐ **Levee/Floodwall** (8) | addition/revision of levee/floodwall |
| ☐ **Coastal** (9) | new or revised coastal elevations |
| ☐ **Coastal Structures** (10) | addition/revision of coastal structure |
| ☐ **Dam** (11) | addition/revision of dam |
| ☐ **Alluvial Fan** (12) | structures proposed on alluvial fan |

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM** | O.M.B. Burden No. 3067-0148<br>Expires July 31, 1997 | FEMA USE ONLY |
|---|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 0.23 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2

2. I am licensed with an expertise in: structural / soil-structure interaction / hydraulics
[example: water resources (*hydrology, hydraulics, sediment transport, interior drainage*)* structural, geotechnical, land surveying.]

3. I have 35 years experience in the expertise listed above.

4. I have ✓ prepared __ reviewed the attached supporting data and analyses related to my expertise.

5. I ✓ have __ have not visited and physically viewed the project.

6. In my opinion, the following analyses and/or designs, is/are being certified:
Project: Rittenhouse Channel - Phase II FCD 97-34 VE Proposal #1
Installation of 2-72" Cast-in-Place Concrete Pipe station 232+51.81 to 254+18

7. Based upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

   Basis for above statement: (check all that apply)

   a. ✓ Viewed all phases of actual construction.
   b. __ Compared plans and specifications with as-built survey information.
   c. __ Examined plans and specifications and compared with completed projects.
   d. __ Other:

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

Name: Curtiss W. Gilley

Title: Professional Engineer / President Terrain Engineering, Inc

Registration No.: 25868 Expiration Date: 03/31/01

State: Arizona

Type of License: PE (Civil)

Curtiss W Gilley
Signature

9/18/98
Date

Seal
*(Optional)*

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

## 9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. X Yes __ No
Initial fee amount: $ 3,300.00

Or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. __ Yes __ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazards, or solely to provide more detailed data. __ Yes __ No

| | |
|---|---|
| **Note:** I understand that my signature indicates that all information submitted in support of this request is correct. | **Note:** Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community. |
| _____<br>Signature of Revision Requestor | Richard L. Shaner<br>Signature of Community Official |
| **Michael S. Ellegood, P.E.**<br>**Chief Engineer and General Manager**<br>Printed Name and Title of Revision Requestor | **Richard Shaner, P.E.**<br>**Town Engineer**<br>Printed Name and Title of Community Official |
| **Flood Control District of Maricopa County**<br>Company Name | **Town of Queen Creek**<br>Community Name |
| **(602) 506-4700**<br>Telephone No. Date | 8-17-98<br>Date |

Does this request impact any other communities: __ Yes X No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

**Note:** Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

## 9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. X Yes __ No
Initial fee amount: $ 3,300.00

Or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. __ Yes __ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazards, or solely to provide more detailed data. __ Yes __ No

| | |
|---|---|
| **Note:** I understand that my signature indicates that all information submitted in support of this request is correct. | **Note:** Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community. |
| Signature of Revision Requestor | Signature of Community Official |
| **Michael S. Ellegood, P.E.**<br>**Chief Engineer and General Manager**<br>Printed Name and Title of Revision Requestor | **Lonnie Frost,**<br>**Floodplain Administrator**<br>Printed Name and Title of Community Official |
| **Flood Control District of Maricopa County**<br>Company Name | **Town of Gilbert**<br>Community Name |
| **(602) 506-4700**<br>Telephone No. Date | 5 Aug 98<br>Date |

Does this request impact any other communities: __ Yes X No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

**Note:** Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

## 4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
☐ Yes ☒ No

**If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.**

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No ☒ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☐ No

**If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.**

## 5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☒ performing ☐ overseeing compliance with the maintenance and operation plans of the Rittenhouse Road Channel (Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

**Operation and maintenance plans are attached.** ☒ **Yes** ☐ **No** ☐ **N/A**

## 6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes Fee amount: $$3,300.00

*OR*

This request is based on a federally sponsored fl[illegible] project where 50 percent or more of the project's cost is federally sponsored, or the request is based o[illegible]ologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate stud[illegible]y FEMA and shown on the effective FIRM; thus the project is fee exempt. ☐ Yes

**Please see Instructions for Fee Amo[illegible]**

## 7. SIGNATURE

***Note:*** **I understand that my signatur[illegible] that all information submitted in support of this request is correct**

Signature of Revision Requester

Michael S. Ellegood, P.E.
Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

Telephone No.: (602) 506-4700 Date:

***Note:*** **Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.**

Signature of Community Official

Lonnie Frost
Floodplain Administrator
Printed Name and Title of Community Official

Town of Gilbert
Community Name

Telephone No.: (602) 503-6842 Date:

### CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

Signature

Ronald D. Schreier, P.E.
Printed Name and Title of Revision Requester

Registr No. 20950 Expires (Date) 6/30/2001 State AZ

Type of License/Expertise: Civil

**Check which forms have been included with this request**

| Form Name and (Number) | Required if ..... |
|---|---|
| ☐ **Hydrologic** (3) | new or revised discharges |
| ☒ **Hydraulic** (4) | new or revised water-surface elevations |
| ☒ **Mapping** (5) | floodplain/floodway changes |
| ☒ **Channelization** (6) | channel is modified |
| ☒ **Bridge/Culvert** (7) | addition/revision of bridge/culvert |
| ☐ **Levee/Floodwall** (8) | addition/revision of levee/floodwall |
| ☐ **Coastal** (9) | new or revised coastal elevations |
| ☐ **Coastal Structures** (10) | addition/revision of coastal structure |
| ☐ **Dam** (11) | addition/revision of dam |
| ☐ **Alluvial Fan** (12) | structures proposed on alluvial fan |

## 4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
☐ Yes ☒ No

**If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.**

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No ☒ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☐ No

**If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.**

## 5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☒ performing ☐ overseeing compliance with the maintenance and operation plans of the Rittenhouse Road Channel
(Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

**Operation and maintenance plans are attached.** ☒ **Yes** ☐ **No** ☐ **N/A**

## 6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes Fee amount: $$3,300.00

***OR***

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. ☐ Yes

**Please see Instructions for Fee Amounts**

## 7. SIGNATURE

***Note:*** **I understand that my signature indicates that all information submitted in support of this request is correct**

_____
Signature of Revision Requester

Michael S. Ellegood, P.E.
Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

Telephone No.: (602) 506-4700 Date:

***Note:*** **Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.**

_____
Signature of Community Official

Kieth Nath, P.E.
City Engineer
Printed Name and Title of Community Official

City of Mesa
Community Name

Telephone No.: (602) 644-2517 Date:

**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR**

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

_____
Signature

Ronald D. Schreier, P.E.
Printed Name and Title of Revision Requester

Registr No. 20950 Expires (Date) 6/30/2001 State AZ

Type of License/Expertise: Civil

**Check which forms have been included with this request**

| Form Name and (Number) | Required if ..... |
|---|---|
| ☐ **Hydrologic** (3) | new or revised discharges |
| ☒ **Hydraulic** (4) | new or revised water-surface elevations |
| ☒ **Mapping** (5) | floodplain/floodway changes |
| ☒ **Channelization** (6) | channel is modified |
| ☒ **Bridge/Culvert** (7) | addition/revision of bridge/culvert |
| ☐ **Levee/Floodwall** (8) | addition/revision of levee/floodwall |
| ☐ **Coastal** (9) | new or revised coastal elevations |
| ☐ **Coastal Structures** (10) | addition/revision of coastal structure |
| ☐ **Dam** (11) | addition/revision of dam |
| ☐ **Alluvial Fan** (12) | structures proposed on alluvial fan |

## 9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. X Yes __ No
Initial fee amount: $ 3,300.00

Or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. __ Yes __ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazards, or solely to provide more detailed data. __ Yes __ No

| | |
|---|---|
| **Note:** I understand that my signature indicates that all information submitted in support of this request is correct. | **Note:** Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community. |
| _____<br>Signature of Revision Requestor | Keith Nath<br>Signature of Community Official |
| **Michael S. Ellegood, P.E.**<br>**Chief Engineer and General Manager**<br>Printed Name and Title of Revision Requestor | **Keith Nath, P.E.**<br>**City Engineer**<br>Printed Name and Title of Community Official |
| **Flood Control District of Maricopa County**<br>Company Name | **City of Mesa**<br>Community Name |
| **(602) 506-4700**<br>Telephone No. Date | 8-5-98<br>Date |

Does this request impact any other communities: __ Yes X No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

**Note:** Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS FORM** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

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

Community Name: City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated Maricopa County

Flooding Source: Rittenhouse Road, Southern Pacific Railroad

Project Name/Identifier: Rittenhouse Road Channel

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: East Maricopa Floodway (EMF)

Upstream Limit: Ellsworth Road

## 2. MODELS SUBMITTED

| **Requirements: for areas which have detailed flooding:** | **for areas which do not have detailed flooding:** |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☒ **Natural** **File Name** 89500L, 89500R ☐ **Floodway** **File Name** _____
Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____
The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Correctly Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____
The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☒ **Natural** **File Name** Rittfin.prj ☒ **Floodway** **File Name** Rittfin.prj
The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☐ **Natural** ☐ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritial depth ☒ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☐ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program** ☐ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within _____ (feet) Upstream End _____ within _____ (feet)
*Cross-Section #* *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within _____ (feet) Upstream End _____ within _____ (feet)
*Cross-Section #* *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within _____ (feet) Upstream End _____ within _____ (feet)
*Cross-Section #* *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☒ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☐ Labeled ☐ Low Chord Elevations ☐ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☒ **Yes** ☐ **Not Required**

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE / COASTAL MAPPING FORM** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

Public reporting burden for this form is estimated to average 1.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

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

Community Name: City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated Maricopa County

Flooding Source: Rittenhouse Road, Southern Pacific Railroad

Project Name/Identifier: Rittenhouse Road Channel

This is a ☒ Manual ☐ Digital submission. *Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.*

## 1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

| | | | |
|---|---|---|---|
| a. Revised approximate 100-year floodplain boundaries (Zone A) | ☐ Yes | ☐ No | ☒ N/A |
| b. Revised detailed 100- and 500-year floodplain boundaries. | ☒ Yes | ☐ No | ☐ N/A |
| c. Revised floodway boundaries | ☐ Yes | ☐ No | ☒ N/A |
| d. Location and alignment of all cross sections with stationing control indicated. | ☒ Yes | ☐ No | ☐ N/A |
| e. Stream alignments, road alignments and dam alignments. | ☒ Yes | ☐ No | ☐ N/A |
| f. Current community boundaries. | ☒ Yes | ☐ No | ☐ N/A |
| g. Effective 100- year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap | ☒ Yes | ☐ No | ☐ N/A |
| h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| i. The requester's property boundaries and community easements | ☒ Yes | ☐ No | ☐ N/A |
| j. The signed certification of a registered professional engineer | ☒ Yes | ☐ No | ☐ N/A |
| k. Location and description of reference marks | ☒ Yes | ☐ No | ☐ N/A |
| l. Vertical datum (example: NGVD, NAVD) | ☒ Yes | ☐ No | ☐ N/A |
| m. Coastal zone designations tie into adjacent areas not being revised | ☐ Yes | ☐ No | ☒ N/A |
| n. Location and alignment of all coastal transects used to revise the coastal analyze | ☐ Yes | ☐ No | ☒ N/A |
| o. V-zone has been delineated to extend landward to the heel of the primary frontal dune | ☐ Yes | ☐ No | ☒ N/A |

**If any items are marked No or N/A please attach an explanation.**

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)? Topographic Mapping, 1986

3. What is the scale and contour interval of the following workmaps?

Effective FIS Scale 1" = 200' Contour Interval 2'

Revision Request Scale 1" = 200' Contour Interval 2'

*NOTE: Revised topographic information must be of equal or greater detail than effective.*

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. **FIRM/FBFM attached?** ☒ **Yes** ☐ **No**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ☐ Yes ☐ No
If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4).

3. Has fill been/will be placed in floodway fringe (*area between the floodway and 100-year floodplain boundaries*)? ☐ Yes ☐ No

If Yes, then complete A, B, C, and D below.

a. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ☐ Yes ☐ No

If Yes, justify steeper slopes _____

b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (*Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*

☐ Yes ☐ No

If No, describe erosion protection provided _____

c. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

d. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

**If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.**

**Fill certification attached** ☐ **Yes** ☐ **No**

4. Has fill been/will be placed in a V zone? ☐ Yes ☐ No

If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

☐ Yes ☐ No

If Yes, attach the Coastal Structures Form (Form 10).

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**CHANNELIZATION FORM** | O.M.B. Burden No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 1.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

Community Name: City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated MAricopa County

Flooding Source: Rittenhouse Road, Southern Pacific Railroad

Project Name/Identifier: Rittenhouse Road Channel

## 1. REACH TO BE REVISED

Describe the limits of the revision **OR** submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Eastern Maricopa Floodway

Upstream Limit: Ellsworth Road

## 2. CHANNEL DESCRIPTION

**Attach the following information about the channel (check box if information has been provided):**

☒ Description of the inlet and outlet

☒ Description of the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)*:

## 3. ACCESSORY STRUCTURES

The channelization includes:

- ☐ Levees *(Attach Levee/Floodwall System Analysis Form - Form 8)*
- ☒ Drop structures
- ☐ Superelevated sections
- ☐ Transitions in cross sectional geometry
- ☐ Debris basin/detention basin
- ☐ Energy dissipater
- ☐ Other (Describe):

## 4. DRAWING CHECKLIST

**Attach the plans of the channelization certified by a registered professional engineer. The plan detail and information should include (check box if information has been provided):**

☒ Channel alignment and locations of inlet, outlet, and accessory structures

☒ Channel lining

☒ Typical cross sections and profiles of channel banks and invert

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 5. HYDRAULIC CONSIDERATIONS

1. The channel was designed to carry 506.0 to 1053.0 (cfs) and/or the 100-year flood.

2. The design elevation in the channel based on:

   ☒ Subcritical flow

   ☐ Critical flow

   ☐ Supercritical flow

   ☐ Energy grade line

3. **If there is the potential for a hydraulic jump at the following locations, check the box(es) that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.**

| | |
|---|---|
| Inlet to channel? | ☐ Yes |
| Outlet of channel? | ☐ Yes |
| At Drop Structures? | ☒ Yes |
| At Transitions? | ☐ Yes |
| Other locations? | ☐ Yes |

**Explanation Attached?** ☒ **Yes** ☐ **No** ☐ **N/A**

## 6. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood water-surface elevations, then provide the following information **(Check the box if provided):**

☐ Estimated sediment load

☐ Method used to estimate sediment transport

☐ Method used to estimate scour and/or deposition

☐ Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**BRIDGE/CULVERT FORM** | O.M.B. Burden No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 2 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

Community Name: City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated Maricopa County

Flooding Source: Rittenhouse Road, Southern Pacific Railroad

Project Name/Identifier: Rittenhouse Road Channel

## 1. IDENTIFIER

1. Name of structure (roadway, railroad, etc.): Power Road Culvert

2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier):

   Cross section 4564

3. This revision reflects (check one of the following):

   ☒ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

4. Hydraulic model used to analyze the structure *(e.g., HEC-2 with special bridge routine, WSPRO, HY8)*

   HEC-RAS culvert routine

   If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

   **Justification attached** ☐ **Yes** ☐ **No** ☒ **N/A**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 2. DRAWING CHECKLIST

**Attach plans of the structure(s) certified by a registered professional engineer. The plan detail and information should include the following (check the boxes if the information has been provided):**

- ☒ Dimensions (height, width, span, radius, length)
- ☒ Shape (culverts only)
- ☒ Material
- ☒ Beveling or Rounding
- ☒ Wing Wall Angle
- ☒ Low Chord Elevations - Upstream and Downstream
- ☒ Top of Road Elevations - Upstream and Downstream
- ☒ Structure Invert Elevations - Upstream and Downstream
- ☒ Stream Invert Elevations - Upstream and Downstream
- ☒ Skew Angle
- ☒ Cross-Section Locations
- ☒ Distances Between Cross Sections
- ☒ Erosion Protection

## 3. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood elevations, then provide the following information **(Check the box if provided):**

- ☐ Estimated sediment load
- ☐ Method used to estimate sediment transport
- ☐ Method used to estimate scour and/or deposition
- ☐ Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**BRIDGE/CULVERT FORM** | O.M.B. Burden No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

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Community Name: City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated Maricopa County

Flooding Source: Rittenhouse Road, Southern Pacific Railroad

Project Name/Identifier: Rittenhouse Road Channel

## 1. IDENTIFIER

1. Name of structure (roadway, railroad, etc.): Sossaman Road Culvert

2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier):

   Cross section 11185

3. This revision reflects (check one of the following):

   ☒ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

4. Hydraulic model used to analyze the structure *(e.g., HEC-2 with special bridge routine, WSPRO, HY8)*

   HEC-RAS culvert routine

   If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

   **Justification attached** ☐ **Yes** ☐ **No** ☒ **N/A**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 2. DRAWING CHECKLIST

**Attach plans of the structure(s) certified by a registered professional engineer. The plan detail and information should include the following (check the boxes if the information has been provided):**

- ☒ Dimensions (height, width, span, radius, length)
- ☒ Shape (culverts only)
- ☒ Material
- ☒ Beveling or Rounding
- ☒ Wing Wall Angle
- ☒ Low Chord Elevations - Upstream and Downstream
- ☒ Top of Road Elevations - Upstream and Downstream
- ☒ Structure Invert Elevations - Upstream and Downstream
- ☒ Stream Invert Elevations - Upstream and Downstream
- ☒ Skew Angle
- ☒ Cross-Section Locations
- ☒ Distances Between Cross Sections
- ☒ Erosion Protection

## 3. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood elevations, then provide the following information **(Check the box if provided):**

- ☐ Estimated sediment load
- ☐ Method used to estimate sediment transport
- ☐ Method used to estimate scour and/or deposition
- ☐ Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**BRIDGE/CULVERT FORM** | O.M.B. Burden No. 3067-0148<br>Expires April 30, 2001 |
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Community Name: City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated Maricopa County

Flooding Source: Rittenhouse Road, Southern Pacific Railroad

Project Name/Identifier: Rittenhouse Road Channel

## 1. IDENTIFIER

1. Name of structure (roadway, railroad, etc.): Germann Road Culvert

2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier):

   Cross section 11819

3. This revision reflects (check one of the following):

   ☒ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

4. Hydraulic model used to analyze the structure *(e.g., HEC-2 with special bridge routine, WSPRO, HY8)*

   HEC-RAS culvert routine

   If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

   **Justification attached** ☐ **Yes** ☐ **No** ☒ **N/A**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 2. DRAWING CHECKLIST

**Attach plans of the structure(s) certified by a registered professional engineer. The plan detail and information should include the following (check the boxes if the information has been provided):**

- ☒ Dimensions (height, width, span, radius, length)
- ☒ Shape (culverts only)
- ☒ Material
- ☒ Beveling or Rounding
- ☒ Wing Wall Angle
- ☒ Low Chord Elevations - Upstream and Downstream
- ☒ Top of Road Elevations - Upstream and Downstream
- ☒ Structure Invert Elevations - Upstream and Downstream
- ☒ Stream Invert Elevations - Upstream and Downstream
- ☒ Skew Angle
- ☒ Cross-Section Locations
- ☒ Distances Between Cross Sections
- ☒ Erosion Protection

## 3. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood elevations, then provide the following information **(Check the box if provided):**

- ☐ Estimated sediment load
- ☐ Method used to estimate sediment transport
- ☐ Method used to estimate scour and/or deposition
- ☐ Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**BRIDGE/CULVERT FORM** | O.M.B. Burden No. 3067-0148<br>Expires April 30, 2001 |
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Community Name: City of Mesa, Town of Queen Creek, Town of Gilbert, Unincorporated Maricopa County

Flooding Source: Rittenhouse Road, Southern Pacific Railroad

Project Name/Identifier: Rittenhouse Road Channel

## 1. IDENTIFIER

1. Name of structure (roadway, railroad, etc.): Ellsworth Road Culvert

2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier):

   Cross section 23686

3. This revision reflects (check one of the following):

   ☒ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

4. Hydraulic model used to analyze the structure *(e.g., HEC-2 with special bridge routine, WSPRO, HY8)*

   HEC-RAS culvert routine

   If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

   **Justification attached** ☐ **Yes** ☐ **No** ☒ **N/A**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 2. DRAWING CHECKLIST

**Attach plans of the structure(s) certified by a registered professional engineer. The plan detail and information should include the following (check the boxes if the information has been provided):**

- ☒ Dimensions (height, width, span, radius, length)
- ☒ Shape (culverts only)
- ☒ Material
- ☒ Beveling or Rounding
- ☒ Wing Wall Angle
- ☒ Low Chord Elevations - Upstream and Downstream
- ☒ Top of Road Elevations - Upstream and Downstream
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- ☒ Stream Invert Elevations - Upstream and Downstream
- ☒ Skew Angle
- ☒ Cross-Section Locations
- ☒ Distances Between Cross Sections
- ☒ Erosion Protection

## 3. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood elevations, then provide the following information **(Check the box if provided):**

- ☐ Estimated sediment load
- ☐ Method used to estimate sediment transport
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- ☐ Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport

## Attachment to FEMA Forms

MT-2 Form 4

1. Copy of the FIRM(s) depicting area of revision is shown in Figure 3.

3. Assuming non-coincident peak in the Eastern Maricopa Floodway (EMF), the HEC-RAS hydraulic modeling is started with critical depth.

4. At downstream of the drop structures, the flow becomes very near critical to critical. However, a supercritical flow regime is never established.

MT-2 Form 5

1.1.a Existing floodplain boundaries are Zone AH.
1.1.c Existing FIS does not have a floodway boundary.
1.1.m Not in coastal area.
1.1.n Not in coastal area.
1.1.o Not in coastal area.

MT-2 Form 6

2 Rittenhouse Channel begins from east of Queen Creek School and continues west until the Railroad and then turns northwest along the Railroad. Finally, the channel outlets into the Eastern Maricopa Floodway (EMF). The total length of the channel is 4.7 miles. The channel is trapezoidal with side slopes of 4:1, bottom width ranges from 10' to 42' and flow depth ranges from 5' to 6'. The channel is excavated (below ground) with 1' to 1.5' of freeboard. The channel consists of several drop structures with heights ranging from 3' to 5'. The drop structures are required to reduce the velocity within the channel to prevent bed and bank erosion. The channel has 4" gravel mulch as erosion protection cover. The channel crosses four major roads: These are: Power Road, Sossaman Road, Germann Road and Ellsworth Road. Each of the crossings is constructed with either pipe culvert or box culvert. Portions of the channel is within City of Mesa jurisdiction and the Town of Queen Creek.

The purpose of the channel is to collect the runoff coming from northeast of the Railroad and convey it safely to Eastern Maricopa Floodway (EMF). The main objective of the channel is to reduce or eliminate the floodplain mapped by the Federal Emergency Management Agency (FEMA) behind the Railroad. The Railroad is acting as a berm to block the flow that would have gone southwest. Currently, flows pond behind the Railroad and cause a flooding problem north of the Railroad

After the channel is completed, the revised floodplain/floodway and the associated flooding hazard will be reduced.

The channel, east of the Ellsworth Road, is conveyed through double 72" cast-in-place pipe culverts. Since, the channel is in front of school, as safety concern, the District chose to cover the channel and replace it with pipe culverts. The channel captures runoff coming from east of Ellsworth Road and north of Queen Creek Road and diverts it toward the Eastern Maricopa Floodway (EMF). The channel removes large number of irrigation parcels and some developable industrial land from the FEMA designated floodplain. The District constructed the project in two phases: Phase I started from Eastern Maricopa Floodway (EMF) to Sossaman Road and Phase II started from Sossaman Road to just east of Ellsworth Road. The channel is designed to convey 100-year runoff from the contributing watershed. The project will be owned, operated and maintained by the District staff.

MT-2 Form 6

5.3 At downstream of the drop structures, the flow becomes very near critical to critical. However, a supercritical flow regime is never established.

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
## Operations and Maintenance Division
## Operation and Maintenance Procedure
## Rittenhouse Road Channel

**Inspections:**

1. Quarterly Operational Inspections:
   a. List any discrepancies
   b. Review for action required
   c. Schedule necessary repairs

2. Annual Maintenance Inspection:
   a. List all needed maintenance and repairs
   b. Assign work orders for the noted repairs

3. Formal Annual Inspection:
   a. Inspect project to insure all maintenance and repairs are completed satisfactorily.
   b. Complete annual inspection reports for file.

4. Major Storm Event:
   a. Inspect project during or after a major storm event
   b. List any problems
   c. Record impoundment depth.

5. Citizen Complaints/ Inquires:
   a. Investigate area of complaint
   b. Respond to citizen within 48 hours
   c. Take action if in-house/refer to proper agency ,if not

**O&M Responsibilities:**

- All concrete and rip rap flood control structures and associated metal work (repair/refurbish and debris removal).
- Erosion repairs/ gravel mulch embankments
- Sediment removal from basin and channels
- Debris removal from flows through basins and channels
- Fencing and access gates
- Maintenance and access roads
- Flood Control District signs
- Unwanted vegetation removal
- Safety hazards
- Rodent control
- Vandalism

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY**
**Operations and Maintenance Division**

Standard Maintenance Procedures
Prepared for the Rittenhouse Road Channel

**SUBJECT:** Maintenance of Channels, Basins and Structures

**PURPOSE:** To insure the integrity of the project is preserved and will function as designed.

**PROCEDURE A:**

1. Vegetation
   Remove or destroy woody vegetation within the flow area of the channel/basin, collection ditches, or side inlet basins. Also remove trash or other objects that will impede flows in these areas. If grasses are established, maintain the height to a maximum of six inches.

2. Sediment Deposits
   Remove deposits of loose material to obtain designed grades and cross sections. Loose deposited materials shall not be used within the channel/basin unless tested to meet the earthfill criteria in the construction specifications.

3. Erosion
   Make repairs of eroded areas by replacing lost material with compacted earth, or other suitable erosion resistant material, in accordance with the original construction specifications.

**PROCEDURE B:** If the project has been landscaped, preserve the integrity of the landscape design.

**PROCEDURE C:** Rodent Control

1. Gophers can damage the structure by burrowing deep holes with more than one outlet. These can be identified by fresh mounds of soil.

2. Ground squirrels can also damage structures even with insignificant numbers and must be treated.

3. A licensed pesticide applicator shall apply the appropriate pesticide and the MSDS shall be with the licensed applicator.

4. After rodent activity has been controlled, holes are to be filled and compacted.

**PROCEDURE D:** Graffiti Removal

1. Graffiti needs to be removed as soon as possible to discourage repeated application.

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# INSPECTION SCHEDULE FOR 1999
# FCDMC DAMS, FLOODWAYS AND DIVERSIONS

| STATE DAM# | | | LAST INSPECTION 98 | ANNUAL INSPECTION 99 | INFORMAL INSPECTION 99 |
|---|---|---|---|---|---|
| | **COE STRUCTURES (DAM)** | | | | |
| #07.57 | ADOBE | | May-98 | May-99 | Dec-99 |
| #07.58 | CAVE BUTTES/CAVE CREEK | | May-98 | May-99 | Dec-99 |
| #07.56 | DREAMY DRAW | | May-98 | May-99 | Dec-99 |
| #07.55 | NEW RIVER DAM | | May-98 | May-99 | Dec-99 |
| | **COE CHANNELS AND FLOODWAYS** | | | | |
| | ACDC (AND CAVE CREEK) | (Joint) | May-98 | May-99 | Dec-99 |
| | SKUNK CREEK (I-17) CHAN. | | May-98 | May-99 | Dec-99 |
| | SKUNK CREEK/NEW RIV. FDY. | | May-98 | May-99 | Dec-99 |
| | **SCS STRUCTURES (FRS)** | | | | |
| #07.52 | SADDLEBACK | | Mar-98 | Mar-99 | |
| #07.53 | HARQUAHALA | | Mar-98 | Mar-99 | |
| #07.48 | SUNNY COVE | | Sep-98 | Sep-99 | |
| #07.49 | SUNSET | | Sep-98 | Sep-99 | |
| #07.28 | WHITE TANKS#3 | | Sep-98 | Sep-99 | |
| #07.29 | WHITE TANKS#4 | | Sep-98 | Sep-99 | |
| #07.42 | BUCKEYE #1 | | Aug-98 | Aug-99 | |
| #07.44 | BUCKEYE #2 | | Aug-98 | Aug-99 | |
| #07.45 | BUCKEYE #3 | | Aug-98 | Aug-99 | |
| #11.02 | POWERLINE | | Jun-98 | Jun-99 | |
| #11.12 | RITTENHOUSE | | Jun-98 | Jun-99 | |
| #11.11 | VINEYARD | | Jun-98 | Jun-99 | |
| #07.43 | GUADALUPE | (Joint) | Oct-98 | Oct-99 | |
| #07.50 | SPOOK HILL | | Oct-98 | Oct-99 | |
| #07.60 | SIGNAL BUTTE | | Oct-98 | Oct-99 | |
| | APACHE JUNCTION | | Oct-98 | Oct-99 | |
| | **SCS FLOODWAYS** | | | | |
| | HARQUAHALA | | Mar-98 | Mar-99 | |
| | SADDLEBACK | | Mar-98 | Mar-99 | |
| | POWERLINE | | Jun-98 | Jun-99 | |
| | SPK HILL FDWY AND SD BASIN | | Nov-98 | Dec-99 | |
| | E.M.F. | (Joint) | Nov-98 | Dec-99 | |
| | SIGNAL BUTTE | | Nov-98 | Dec-99 | |
| | PASS MOUNTAIN | | Nov-98 | Dec-99 | |
| | BULLDOG | | Nov-98 | Dec-99 | |
| | **SCS DIVERSIONS** | | | | |
| N.A. | CENTENNIAL LEVEE #1 | | Mar-98 | Mar-99 | |
| N.A. | PASS MOUNTAIN | | Nov-98 | Dec-99 | |
| | **FCD STRUCTURES, CHANNELS, AND FLOODWAYS*** | | | | |
| | HOLLY ACRES RIPRAP | | Jan-98 | Jan-99 | |
| | PERRYVILLE RIPRAP | | Jan-98 | Jan-99 | |
| | SALT/GILA LOW FLOW | | Jan-98 | Jan-99 | |
| | COLTER CHANNEL | | Jan-98 | Jan-99 | |
| | CASANDRAO DAM** | | Sep-98 | Sep-99 | |
| | RIO SALADO | | Jan-98 | Jan-99 | |
| | ALMA SCHOOL DRAIN | | Apr-98 | Apr-99 | |
| | AGUA FRIA FLOODWAY | | Apr-98 | Apr-99 | |
| | INDIAN SCHOOL RD. DRAIN | | Apr-98 | Apr-99 | |
| | 48TH ST. DRAIN | | Apr-98 | Apr-99 | |
| | DYSART DRAIN | | Apr-98 | Apr-99 | |
| | EL MIRAGE DRAIN | | Apr-98 | Apr-99 | |
| #07.21 | McMICKEN DAM** | | Jun-98 | Jun-99 | |
| | McMICKEN FLOODWAY | | Jun-98 | Jun-99 | |
| | INDIAN BEND WASH (COE) | (Joint) | Jul-98 | Jul-99 | |
| | SCATTERWASH | (Joint) | Jul-98 | Jul-99 | |
| | EAST FORK/ CAVE CREEK | | Jul-98 | Jul-99 | |
| | OLD CROSS CUT CANAL | (Joint) | Jul-98 | Jul-99 | |
| | 10th ST WASH BASINS | (Joint) | Jul-98 | Jul-99 | |
| | SOSSMAN ROAD DRAIN | | Jun-98 | Jun-99 | |
| | GUADALUPE CHNL AND BOX | | Jun-98 | Jun-99 | |
| | SALT/GILA CREARING | | Jan-98 | Jan-99 | |
| | SUN CITY DRAINS | | Feb-98 | Feb-99 | |
| | SUN CITY WEST DRAINS | | Feb-98 | Feb-99 | |
| | PARADISE VALY RETN BSN #4 | | Feb-98 | Feb-99 | |
| | RTTENHOUSE RD. CHANNEL | | | Feb-99 | |
| | RID OVERCHUTE | | | Feb-99 | |
| | CAMELBACK RANCH LEVEE | | | Feb-99 | |
| | | | | | |

*FCD C&O DIV. ONLY **FCD & ADWR ONLY

Questions/Comments: Contact Operations and Maintenance Division Manager @ 506-4707

fax@ 506-1663

| OPERATIONAL INSPECTIONS SCHEDULE - 1999 | | | | |
|---|---|---|---|---|
| O&M INSPECTION | Jan-99 OPER. INSP. | Apr-99 OPER. INSP. | Jul-99 OPER. INSP. | Oct-99 OPER. INSP. |
| SADDLEBACK FRS | X | X | X | X |
| SADDLEBACK FLOODWAY | X | X | X | X |
| HARQUAHALA FRS | X | X | X | X |
| HARQUAHALA FLOODWAY | X | X | X | X |
| CENTENNIAL DIVERSION | X | X | X | X |
| DYSART DRAIN | X | X | X | X |
| ELMIRAGE DRAIN | X | X | X | X |
| 48TH STREET DRAIN | X | X | X | X |
| ALMA SCHOOL DRAIN | X | X | X | X |
| AGUA FRIA FLOODWAY | X | X | X | X |
| COLTER CHANNEL | X | X | X | X |
| INDIAN SCHOOL DRAIN | X | X | X | X |
| ADOBE DAM | X | X | X | X |
| DREAMY DRAW DAM | X | X | X | X |
| CAVE BUTTES AND CAVE CREEK DAMS | X | X | X | X |
| SCATTER WASH (BEARDSLEY TO 43RD AVE) | X | X | X | X |
| NEW RIVER DAM | X | X | X | X |
| SKUNK CREEK AT I-17 | X | X | X | X |
| McMICKEN DAM | X | X | X | X |
| McMICKEN FLOODWAY | X | X | X | X |
| SUNSET FRS | X | X | X | X |
| SUNNY COVE FRS | X | X | X | X |
| SUNSET/SUNNY COVE PIPELINE | X | X | X | X |
| CASANDRAO DAM | X | X | X | X |
| OLD CROSS-CUT CANAL | X | X | X | X |
| IBW INLET AND INTERCEPTOR | X | X | X | X |
| IBW OUTLET | X | X | X | X |
| IBW SIDE DRAINS | X | X | X | X |
| IBW GREENBELT | X | X | X | X |
| BUCKEYE #1 | X | X | X | X |
| BUCKEYE #2 | X | X | X | X |
| BUCKEYE #3 | X | X | X | X |
| WHITE TANKS #3 | X | X | X | X |
| WHITE TANKS #4 | X | X | X | X |
| POWERLINE FRS | X | X | X | X |
| POWERLINE FLOODWAY | X | X | X | X |
| VINEYARD FRS | X | X | X | X |
| RITTENHOUSE FRS | X | X | X | X |
| SOSSAMAN DRAIN | X | X | X | X |
| GUADALUPE ROAD CHANNEL AND BOX | X | X | X | X |
| SPOOK HILL FRS | X | X | X | X |
| GUADALUPE DAM | X | X | X | X |
| SIGNAL BUTTE FRS | X | X | X | X |
| PASS MTN. DIVERSION AND FLOODWAY | X | X | X | X |
| APACHE JUNCTION FRS & FLOODWAY | X | X | X | X |
| E.M.F. & UNIVERSITY DET. BASIN | X | X | X | X |
| SIGNAL BUTTE FLOODWAY | X | X | X | X |
| BULLDOG FLOODWAY | X | X | X | X |
| SPOOKHILL FLOODWAY AND SED. BASIN | X | X | X | X |
| HOLLY ACRES | X | X | X | X |
| PERYVILLE RIPRAP | X | X | X | X |
| SALT/GILA CLEARING | X | X | X | X |
| SALT/GILA LOW FLOW | X | X | X | X |
| SALT RIVER CHANNEL (ADOT) | X | X | X | X |
| SALT RIVER CHANNEL- RIO SALADO | X | X | X | X |
| SALT RIVER CHANNEL - WARNING SIGNS | X | X | X | X |
| ACDC & CAVE CREEK ARM | X | X | X | X |
| EAST FORK/ CAVE CREEK/ BASIN #4 | X | X | X | X |
| NEW RIVER CHANNEL | X | X | X | X |
| SUN CITY DRAINS | X | X | X | X |
| SUN CITY WEST DRAINS | X | X | X | X |
| SKUNK CREEK CHANNELIZATION | X | X | X | X |
| 10TH STREET BASIN 1 & 2 | X | X | X | X |
| EAST VALLEY DRAINS | X | X | X | X |
| RID OVERCHUTE | X | X | X | X |
| RITTENHOUSE RD. CHANNEL | X | X | X | X |
| CAMELBACK RANCH LEVEE | X | X | X | X |
| | | | | |

Questions/Comments: Contact Operations and Maintenance Division Manager @ 506-4707

fax 506-1663

# Appendix C

# APPENDIX C

# EFFECTIVE HYDRAULIC MODEL

## (HEC-2 model for main channel only)

THIS RUN EXECUTED: 06/08/1990 10:53:33.28

```
************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
************************************************
```

```
T1       FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD
T2       QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**
T3       100-YEAR FLOODPLAIN DELINEATION   REVISED: JUNE 1990
J1   -10       2       0              -1                          1321.30
J2    -1              -1
J3    38      43       1       2      26      39      21      22      27      28
J3    53      54               38      13      14      15      55      26      56
J3    63       1      51       4      42      57              38      39      33
J3     3      10      11      12       5       7       8      16      17      18
J5    +1
NC 0.040   0.050   0.050     0.1     0.3
QT     1    1085
ET           9.1                                                    9900.0 11100.0
X1 0.038      11  9950.0 10062.0
GR1325.4  9900.0  1321.1  9908.0  1320.8  9925.0  1321.1  9950.0  1321.0  9955.0
GR1319.7  9975.0  1319.2 10000.0  1319.2 10025.0  1319.5 10048.0  1321.0 10062.0
GR1321.0 11100.0
ET           9.1                                                    9960.0 11020.0
X1 0.199      16  9990.0 10045.0     880     880     880
X3     0  1322.0
GR1325.0  9835.0  1322.0  9840.0  1322.0  9880.0  1322.0  9945.0  1324.0  9950.0
GR1326.8  9960.0  1322.0  9990.0  1320.0 10000.0  1322.0 10045.0  1322.8 10350.0
GR1322.5 10710.0  1322.0 10910.0  1322.2 11020.0  1322.0 11150.0  1322.3 11360.0
GR1322.7 11760.0
ET           9.1                                                    9960.0 11000.0
X1 0.407      20  9980.0 10575.0    1100    1220    1100
GR1328.0  9840.0  1326.7  9860.0  1326.0  9905.0  1325.6  9925.0  1326.0  9940.0
GR1328.0  9950.0  1329.6  9960.0  1327.0  9980.0  1326.0 10000.0  1327.0 10575.0
GR1326.0 10680.0  1326.0 10730.0  1326.2 10880.0  1326.1 11000.0  1326.0 11100.0
GR1325.9 11200.0  1326.0 11270.0  1325.7 11600.0  1326.0 11900.0  1328.0 12000.0
X1 0.646      24  9970.0 10125.0    1250    1250    1250
X3    10  1330.0
GR1331.6  9750.0  1329.3  9765.0  1330.0  9780.0  1330.8  9800.0  1330.0  9830.0
GR1329.6  9840.0  1330.0  9850.0  1332.0  9860.0  1333.5  9875.0  1332.0  9885.0
GR1330.0  9905.0  1329.7  9925.0  1330.0  9950.0  1330.2  9960.0  1330.0  9970.0
GR1328.5 10000.0  1330.0 10005.0  1331.0 10125.0  1330.7 10270.0  1331.0 10400.0
GR1330.0 10555.0  1330.0 10780.0  1330.0 11000.0  1332.4 11160.0
NC 0.014   0.014   0.014     0.3     0.5
ET           9.1                                                    9725.0 11160.0
SB  1.25     2.4    2.83       0    33.7     3.7   120.0       0  1328.9  1328.8
X1 0.672      19  9984.2 10015.8     170     175     160
X2     0       0       1  1332.0  1334.0
X3    10
BT    -7  9725.0  1335.0  1333.0  9910.0  1335.5  1333.5  9984.2  1333.2  1332.9
BT       10015.8  1333.0  1332.9 10265.0  1334.0  1332.0 10750.0  1333.0  1331.0
BT       11160.0  1332.4  1331.0
GR1333.0  9725.0  1333.5  9910.0  1332.9  9983.2  1332.9  9984.2  1328.9  9984.3
GR1328.9  9994.1  1332.9  9994.2  1332.9  9995.0  1328.9  9995.1  1328.9 10004.9
GR1332.9 10005.0  1332.9 10005.8  1328.9 10015.0  1328.9 10015.7  1332.9 10015.8
GR1332.9 10016.8  1332.0 10265.0  1331.0 10750.0  1330.4 11160.0
NC 0.040   0.050   0.050     0.1     0.3
ET           9.1                                                    9700.0 11140.0
X1 0.681      13  9975.0 10025.0      50      50      50
X3    10  1332.0
GR1332.0  9365.0  1333.2  9525.0  1334.0  9670.0  1335.2  9700.0  1334.0  9710.0
GR1332.0  9975.0  1330.0  9995.0  1329.0 10000.0  1330.0 10015.0  1332.0 10025.0
GR1332.0 10160.0  1332.0 10875.0  1332.0 11140.0
ET           9.1                                                    9950.0 10600.0
X1 0.785      13  9985.0 10430.0     480     550     500
GR1333.5  9580.0  1333.0  9735.0  1333.0  9810.0  1334.0  9930.0  1336.3  9950.0
GR1336.0  9955.0  1334.0  9985.0  1333.0 10000.0  1333.5 10080.0  1334.0 10430.0
GR1334.0 10500.0  1334.0 10560.0  1336.0 10600.0
ET           9.1                                                    9975.0 10600.0
X1 0.843      13  9990.0 10395.0     375     405     370
GR1334.0  9785.0  1333.9  9800.0  1335.3  9830.0  1334.0  9870.0  1334.0  9955.0
GR1336.0  9960.0  1337.3  9975.0  1335.0  9990.0  1334.0 10000.0  1335.0 10395.0
GR1335.5 10680.0  1336.0 10860.0  1338.0 10920.0
ET           9.1                                                    9970.0 10600.0
X1 1.078      14  9990.0 10580.0    1240    1215    1240
GR1338.0  9625.0  1338.0  9800.0  1340.0  9830.0  1338.0  9875.0  1337.4  9910.0
GR1338.0  9945.0  1340.0  9955.0  1341.0  9970.0  1339.0  9990.0  1338.0 10000.0
GR1338.0 10080.0  1339.0 10580.0  1340.0 11610.0  1340.0 11690.0
ET           9.1                                                    9950.0 10600.0
X1 1.227      16  9980.0 10840.0     790     850     790
GR1343.0  9815.0  1342.0  9840.0  1340.0  9900.0  1339.5  9920.0  1340.0  9925.0
GR1342.0  9935.0  1344.0  9945.0  1344.8  9950.0  1342.0  9970.0  1341.5  9980.0
GR1340.5 10000.0  1341.0 10105.0  1341.5 10600.0  1341.5 10840.0  1342.0 11290.0
GR1344.0 12150.0
ET           9.1                                                    9950.0 10600.0
X1 1.419      17  9980.0 10120.0    1010    1230    1010
GR1348.2  9810.0  1345.0  9835.0  1345.3  9875.0  1344.0  9910.0  1344.0  9920.0
GR1346.0  9930.0  1348.0  9940.0  1348.6  9950.0  1345.0  9980.0  1344.0 10000.0
GR1345.0 10120.0  1346.0 10220.0  1346.1 10310.0  1346.0 10400.0  1345.5 10600.0
GR1345.0 10950.0  1346.0 11230.0
ET           9.1                                                    9960.0 10600.0
X1 1.561      14  9990.0 10040.0     750     750     750
GR1350.5  9820.0  1347.9  9840.0  1347.2  9870.0  1346.0  9920.0  1346.0  9935.0
GR1348.0  9940.0  1350.0  9950.0  1350.7  9960.0  1347.0  9990.0  1346.0 10000.0
GR1347.0 10040.0  1348.0 10480.0  1348.0 11050.0  1350.0 12620.0
ET           9.1                                                    9980.0 10600.0
X1 1.712      15  9995.0 10420.0     790     930     790
GR1351.5  9840.0  1350.0  9860.0  1349.0  9870.0  1350.0  9925.0  1349.0  9945.0
GR1350.0  9955.0  1352.0  9970.0  1352.9  9980.0  1351.0  9995.0  1350.0 10000.0
GR1350.3 10200.0  1350.0 10420.0  1349.9 10550.0  1350.0 10680.0  1352.0 11625.0
ET           9.1                                                    9940.0 10600.0
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X1 1.860      12  9975.0 10380.0     780     800     780
GR1353.0  9810.0  1351.0  9840.0  1352.0  9855.0  1354.0  9880.0  1354.8  9920.0
GR1355.0  9940.0  1353.0  9975.0  1352.0 10000.0  1353.0 10380.0  1354.0 10530.0
GR1355.0 10640.0  1356.0 11220.0
NC 0.015   0.015   0.015     0.3     0.5
QT     1    1358
X1 1.939      11  9690.0 10270.0     210     550     370
X2                                                              15
GR1360.1  8780.0  1359.2  8985.0  1358.3  9190.0  1356.7  9580.0  1356.8  9690.0
GR1356.7  9800.0  1356.4 10000.0  1357.4 10270.0  1358.6 10595.0  1359.6 10925.0
GR1360.7 11260.0
NC 0.040   0.040   0.040     0.1     0.3
ET           9.1                                        9970.0 10545.0
X1 2.053      17  9990.0 10050.0     600     320     450
X2                                                              15
GR1356.0  9600.0  1355.0  9680.0  1354.0  9790.0  1354.0  9805.0  1356.0  9830.0
GR1354.0  9850.0  1352.0  9870.0  1352.0  9935.0  1354.0  9950.0  1356.0  9955.0
GR1358.0  9970.0  1356.0  9990.0  1354.7 10000.0  1356.0 10050.0  1356.0 10220.0
GR1358.0 10470.0  1358.0 10545.0
QT     1    1172
X1 2.218       7  9990.0 10370.0     850     880     845
X2                                                              15
GR1361.9  9965.0  1359.0  9990.0  1358.0 10000.0  1360.0 10370.0  1360.0 11000.0
GR1361.6 11010.0  1360.0 12100.0
X1 2.343       8  9990.0 10030.0     660     730     660
X3     0  1362.0
GR1364.8  9970.0  1362.0  9990.0  1360.0 10000.0  1362.0 10030.0  1362.0 10340.0
GR1363.0 10650.0  1364.0 11380.0  1364.9 11500.0
X1 2.559       7  9980.0 10030.0    1125    1125    1125
GR1368.7  9960.0  1366.0  9980.0  1364.0 10000.0  1366.0 10030.0  1366.0 10130.0
GR1368.0 10850.0  1368.0 12260.0
NC 0.040   0.050   0.050     0.1     0.3
X1 2.795       8  9970.0 10010.0    1250    1250    1250
X3     0  1365.2
GR1371.4  9940.0  1366.0  9970.0  1363.5 10000.0  1366.0 10010.0  1368.0 10020.0
GR1368.0 10140.0  1370.0 10960.0  1372.0 11740.0
X1 2.947       9  9985.0 10020.0     800     800     800
GR1373.2  9950.0  1368.0  9985.0  1366.0 10000.0  1368.0 10020.0  1370.0 10030.0
GR1370.0 10180.0  1372.0 11240.0  1374.0 11770.0  1376.0 12200.0
X1 3.136      10  9985.0 10030.0    1000    1000    1000
X3     0  1371.0
GR1376.3  9960.0  1370.0  9985.0  1366.5 10000.0  1372.0 10030.0  1374.0 10300.0
GR1374.0 10420.0  1376.0 11170.0  1376.0 11250.0  1376.0 11530.0  1378.0 12000.0
X1 3.305       9  9980.0 10030.0     890     890     890
X3     0  1375.0
GR1380.2  9960.0  1380.0  9970.0  1376.0  9980.0  1373.0 10000.0  1376.0 10030.0
GR1377.0 10190.0  1378.0 10910.0  1380.0 11840.0  1380.0 12230.0
X1 3.551       6  9990.0 10025.0    1300    1300    1300
GR1384.0  9955.0  1378.0  9990.0  1377.0 10000.0  1380.0 10025.0  1382.0 10860.0
GR1384.0 12100.0
X1 3.676       9  9980.0 10015.0     670     670     670
GR1385.9  9965.0  1380.0  9980.0  1378.8 10000.0  1380.0 10015.0  1382.0 10025.0
GR1382.0 10050.0  1382.0 10260.0  1384.0 11090.0  1386.0 12210.0
QT     1     828
X1 3.892       9  9985.0 10030.0    1140    1140    1140
GR1389.6  9960.0  1384.0  9985.0  1382.0 10000.0  1386.0 10030.0  1386.0 10100.0
GR1386.8 10650.0  1387.0 11150.0  1388.0 11540.0  1389.0 12125.0
NC 0.100   0.035   0.050     0.1     0.3
ET           9.1                                        9560.0 10960.0
X1 4.123      12  9440.0 10090.0    1270    1200    1235
GR1393.1  9440.0  1388.0  9475.0  1390.0  9530.0  1390.0  9560.0  1388.8 10000.0
GR1390.0 10090.0  1390.0 10120.0  1389.4 10300.0  1389.3 10800.0  1390.0 10960.0
GR1390.0 11330.0  1391.0 12450.0
ET           9.1                                        9300.0 10900.0
X1 4.230       8  9740.0 10180.0     800     700     650
GR1392.0  9045.0  1391.0  9250.0  1391.0  9740.0  1391.0 10000.0  1391.4 10180.0
GR1391.0 10225.0  1391.0 10700.0  1392.0 10900.0
NC 0.015   0.015   0.015     0.3     0.5
X1 4.341       8  9585.0 10480.0     580     520     490
GR1399.5  8420.0  1398.0  8610.0  1396.0  8830.0  1395.0  9175.0  1394.5  9585.0
GR1394.0 10000.0  1394.5 10480.0  1394.9 10880.0
NC 0.040   0.100   0.050     0.1     0.3
ET           9.1                                        9850.0 11250.0
X1 4.616       9  9930.0 10640.0    1000    1000    1000
GR1399.5  9850.0  1396.0  9930.0  1395.0 10000.0  1394.4 10100.0  1395.0 10640.0
GR1395.1 11130.0  1396.0 12030.0  1396.0 12440.0  1398.0 12560.0
X1 4.637       7  9925.0 10010.0      75     550     110
GR1399.5  9880.0  1398.0  9925.0  1395.3 10000.0  1395.5 10010.0  1396.0 10480.0
GR1398.0 10870.0  1400.0 11320.0
NC 0.040   0.040   0.035     0.1     0.3
X1 4.748       8  9960.0 10070.0     630     330     600
GR1400.6  9950.0  1398.0  9960.0  1396.0 10000.0  1396.0 10070.0  1396.0 10280.0
GR1398.0 10510.0  1400.0 11400.0  1402.0 12720.0
X1 4.924       8  9975.0 10490.0     930    1040     930
GR1403.2  9960.0  1401.0  9975.0  1400.0 10000.0  1401.0 10490.0  1402.0 10760.0
GR1402.0 11000.0  1404.0 12280.0  1404.5 12820.0
X1 5.038       8  9985.0 10640.0     600     630     600
GR1406.2  9965.0  1403.0  9985.0  1402.0 10000.0  1403.0 10640.0  1404.0 11100.0
GR1404.0 11475.0  1406.0 11485.0  1406.0 11800.0
ET           9.1                                        9970.0 10500.0
X1 5.170      10  9990.0 10100.0     700     700     700
GR1409.6  9970.0  1408.0  9985.0  1407.0  9990.0  1406.0 10000.0  1406.0 10080.0
GR1406.7 10100.0  1406.2 10500.0  1406.0 10740.0  1406.0 11460.0  1408.0 11920.0
ET           9.1                                        9955.0 10800.0
X1 5.375       9  9990.0 10040.0    1080    1150    1080
```

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GR1411.9  9955.0  1409.0  9990.0  1408.0 10000.0  1409.5 10040.0  1410.0 10350.0
GR1410.6 10800.0  1410.0 11310.0  1411.0 12250.0  1412.0 12755.0
X1 5.523       8  9940.0 10120.0     780      790      780
GR1414.2  9920.0  1414.0  9930.0  1412.0  9940.0  1411.0 10000.0  1412.0 10120.0
GR1413.0 10400.0  1413.0 10860.0  1413.0 11365.0
NC 0.015   0.015   0.015     0.3     0.5
X1 5.631       8  9730.0 10300.0     340      800      600
GR1414.5  9425.0  1412.0  9730.0  1410.3 10000.0  1412.0 10300.0  1414.0 10500.0
GR1415.0 10870.0  1416.0 11010.0  1416.0 11525.0
QT     1     393
NC 0.040   0.040   0.035     0.1     0.3
X1 5.864       8  9975.0 10390.0    1410     1050     1230
GR1418.0  9940.0  1414.0  9975.0  1413.0 10000.0  1414.0 10020.0  1415.0 10390.0
GR1416.0 10745.0  1417.0 11120.0  1416.8 11350.0
ET           9.1                                                  9960.0 10770.0
X1 6.047       9  9990.0 10020.0     970      980      970
GR1421.0  9960.0  1417.0  9990.0  1416.0 10000.0  1417.0 10020.0  1418.0 10045.0
GR1420.0 10770.0  1420.0 11670.0  1418.0 11685.0  1418.0 11850.0
ET           9.1                                                  9965.0 10510.0
X1 6.259       9  9995.0 10025.0    1120     1120     1120
GR1424.8  9965.0  1421.0  9995.0  1420.0 10000.0  1421.0 10025.0  1422.0 10150.0
GR1424.0 10510.0  1424.0 12010.0  1422.0 12025.0  1422.0 12560.0
X1 6.472      10  9990.0 10015.0    1120     1120     1120
GR1428.9  9950.0  1424.0  9980.0  1423.0  9990.0  1422.0 10000.0  1423.0 10015.0
GR1424.0 10025.0  1426.0 10050.0  1426.0 10545.0  1430.0 11095.0  1430.0 12100.0
X1 6.672       7  9990.0 10015.0    1060     1060     1060
GR1432.4  9945.0  1427.0  9990.0  1426.0 10000.0  1427.0 10015.0  1430.0 10040.0
GR1432.0 11160.0  1434.0 12135.0
X1 6.811      10  9980.0 10020.0     730      730      730
GR1434.5  9950.0  1430.0  9980.0  1429.0 10000.0  1430.0 10020.0  1432.0 10050.0
GR1432.0 10630.0  1434.0 10725.0  1434.0 11315.0  1434.0 11395.0  1436.0 12150.0
X1 7.019      10  9990.0 10020.0    1100     1100     1100
GR1440.1  9945.0  1433.0  9990.0  1432.0 10000.0  1433.0 10020.0  1440.0 10040.0
GR1436.0 10070.0  1436.0 10310.0  1438.0 10890.0  1440.0 10905.0  1440.0 12710.0
X1 7.201       8  9980.0 10090.0     960      960      960
X3     0  1438.0
GR1441.6  9960.0  1441.0  9980.0  1440.0 10000.0  1440.0 10040.0  1434.0 10060.0
GR1438.0 10090.0  1440.0 10220.0  1442.0 10810.0
X1 7.455      10  9980.0 10115.0    1340     1340     1340
GR1448.6  9950.0  1443.0  9980.0  1442.0 10000.0  1442.0 10050.0  1443.0 10115.0
GR1444.0 10190.0  1446.0 11235.0  1446.5 11400.0  1448.0 11990.0  1448.5 12300.0
ET           9.1                                                  9970.0 10050.0
X1 7.519       7  9970.0 10050.0     340      340      340
GR1449.2  9920.0  1448.0  9960.0  1446.0  9970.0  1445.0 10000.0  1446.0 10050.0
GR1446.0 11300.0  1446.0 11640.0
EJ


ER
```

```
*******************************************************
*  WATER SURFACE PROFILES                             *
*  VERSION OF NOVEMBER 1976                           *
*  UPDATED MAY 1984                                   *
*                                                     *
*  RUN DATE: 06/08/1990       TIME: 10:52:45.33       *
*******************************************************
```


```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
*  (916) 551-1748 (FTS) 448-2105    *
*************************************
```


```
X     X  XXXXXXX   XXXXX             XXXXX
X     X  X       X     X           X     X
X     X  X       X                       X
XXXXXXX  XXXX    X          XXXXX    XXXXX
X     X  X       X                  X
X     X  X       X     X            X
X     X  XXXXXXX  XXXXX             XXXXXXX
```

```
:::::::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::::::
:::                                           :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION     :::
:::          by: HAESTAD METHODS              :::
:::                                           :::
:::::::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::::::
```

```
        ==============================
        H A E S T A D   M E T H O D S
        ==============================
```


37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

THIS RUN EXECUTED: 06/08/1990 10:52:45.66

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************

T1       FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD
T2       QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**
T3       100-YEAR FLOODPLAIN DELINEATION   REVISED: JUNE 1990

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       2.        0.        0. -1.000000      0.00      0.0       0.  1321.300     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     -1.000    0.000    -1.000    0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.000    43.000    1.000     2.000    26.000    39.000    21.000    22.000    27.000    28.000

     53.000    54.000    0.000    38.000    13.000    14.000    15.000    55.000    26.000    56.000

     63.000     1.000   51.000     4.000    42.000    57.000     0.000    38.000    39.000    33.000

      3.000    10.000   11.000    12.000     5.000     7.000     8.000    16.000    17.000    18.000

J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

      1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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

*PROF 1


CCHV=   0.100 CEHV=   0.300
*SECNO 0.038
3280 CROSS SECTION      0.04 EXTENDED      0.27 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9900.0   11100.0  TYPE=     1  TARGET=    1200.000
     0.04      2.07  1321.27  1321.27     0.00  1321.45     0.17      0.00      0.00  1321.10
    1085.       24.     704.     357.      14.     176.     284.        0.        0.   1321.00
     0.00      1.75     4.01     1.25    0.040    0.050    0.050     0.000  1319.20  9907.68
 0.010008        0.       0.       0.        0        5        0      0.00  1192.32 11100.00


*SECNO 0.199
3280 CROSS SECTION      0.20 EXTENDED      0.76 FEET


3470 ENCROACHMENT STATIONS=    9960.0   11020.0  TYPE=     1  TARGET=    1060.000
     0.20      1.47  1323.47     0.00     0.00  1323.49     0.02      2.02      0.02  1322.00
    1085.        6.      97.     982.       7.      80.    1007.       16.       23.   1322.00
     0.25      0.94     1.21     0.98    0.040    0.050    0.050     0.000  1322.00  9980.87
 0.000995      880.     880.     880.        6        0        0      0.00  1039.13 11020.00


*SECNO 0.407

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=    9960.0   11000.0  TYPE=     1  TARGET=    1040.000
     0.41      0.71  1326.71     0.00     0.00  1326.85     0.14      3.33      0.04  1327.00
    1085.        0.     357.     728.       0.     149.     220.       36.       48.   1327.00
     0.36      0.00     2.40     3.31    0.000    0.050    0.050     0.000  1326.00  9985.85
 0.026034     1100.    1100.    1220.        5        0        0      0.00   815.26 11000.00


*SECNO 0.646

3265 DIVIDED FLOW
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 0.65 | 1.15 | 1331.15 | 0.00 | 0.00 | 1331.17 | 0.02 | 4.31 | 0.01 | 1330.00 |
| 1085. | 221. | 106. | 758. | 167. | 119. | 743. | 56. | 78. | 1331.00 |
| 0.68 | 1.32 | 0.89 | 1.02 | 0.040 | 0.050 | 0.050 | 0.000 | 1330.00 | 9754.18 |
| 0.001287 | 1250. | 1250. | 1250. | 9 | 0 | 0 | 0.00 | 1285.10 | 11076.96 |

CCHV= 0.300 CEHV= 0.500

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1330.80 ,NOT 1331.15 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 2.40 | 2.83 | 0.00 | 33.70 | 3.70 | 120.00 | 0.00 | 1328.90 | 1328.80 |

*SECNO 0.672
PRESS FLOW BECAUSE EGLWC OF 1342.79 EXCEEDS 1.5 DEPTH

3265 DIVIDED FLOW

3280 CROSS SECTION 0.67 EXTENDED 2.64 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 1334.20 | 1342.79 | 0.00 | 234. | 855. | 120. | 93. | 1332.00 | 1334.00 |

3470 ENCROACHMENT STATIONS= 9725.0 11160.0 TYPE= 1 TARGET= 1435.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.67 | 4.14 | 1333.04 | 0.00 | 0.00 | 1333.04 | 0.00 | 1.87 | 0.00 | 1332.90 |
| 1085. | 0. | 62. | 1023. | 2. | 105. | 1857. | 62. | 83. | 1332.90 |
| 0.77 | 0.06 | 0.59 | 0.55 | 0.014 | 0.014 | 0.014 | 0.000 | 1328.90 | 9725.00 |
| 0.000012 | 170. | 160. | 175. | 0 | 0 | 6 | 0.00 | 1210.26 | 11160.00 |

CCHV= 0.100 CEHV= 0.300
*SECNO 0.681
3280 CROSS SECTION 0.68 EXTENDED 1.04 FEET

3470 ENCROACHMENT STATIONS= 9700.0 11140.0 TYPE= 1 TARGET= 1440.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.68 | 1.04 | 1333.04 | 0.00 | 0.00 | 1333.05 | 0.01 | 0.00 | 0.00 | 1332.00 |
| 1085. | 48. | 45. | 992. | 71. | 52. | 1155. | 64. | 84. | 1332.00 |
| 0.78 | 0.68 | 0.86 | 0.86 | 0.040 | 0.050 | 0.050 | 0.000 | 1332.00 | 9837.76 |
| 0.000799 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 1302.24 | 11140.00 |

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

*SECNO 0.785
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 9950.0 10600.0 TYPE= 1 TARGET= 650.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.79 | 1.21 | 1334.21 | 1334.21 | 0.00 | 1334.46 | 0.25 | 1.29 | 0.07 | 1334.00 |
| 1085. | 1. | 1025. | 59. | 0. | 249. | 28. | 73. | 96. | 1334.00 |
| 0.82 | 1.69 | 4.12 | 2.14 | 0.040 | 0.050 | 0.050 | 0.000 | 1333.00 | 9981.84 |
| 0.041777 | 480. | 500. | 550. | 19 | 11 | 0 | 0.00 | 582.37 | 10564.21 |

*SECNO 0.843

3470 ENCROACHMENT STATIONS= 9975.0 10600.0 TYPE= 1 TARGET= 625.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.84 | 2.00 | 1336.00 | 0.00 | 0.00 | 1336.03 | 0.03 | 1.55 | 0.02 | 1335.00 |
| 1085. | 3. | 912. | 170. | 3. | 611. | 170. | 78. | 101. | 1335.00 |
| 0.89 | 0.89 | 1.49 | 1.00 | 0.040 | 0.050 | 0.050 | 0.000 | 1334.00 | 9983.42 |
| 0.001460 | 375. | 370. | 405. | 6 | 0 | 0 | 0.00 | 616.58 | 10600.00 |

*SECNO 1.078

3470 ENCROACHMENT STATIONS= 9970.0 10600.0 TYPE= 1 TARGET= 630.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.08 | 1.29 | 1339.29 | 0.00 | 0.00 | 1339.36 | 0.07 | 3.31 | 0.01 | 1339.00 |
| 1085. | 0. | 1079. | 6. | 0. | 504. | 6. | 96. | 119. | 1339.00 |
| 1.05 | 0.81 | 2.14 | 1.00 | 0.040 | 0.050 | 0.050 | 0.000 | 1338.00 | 9987.13 |
| 0.006400 | 1240. | 1240. | 1215. | 8 | 0 | 0 | 0.00 | 612.87 | 10600.00 |

*SECNO 1.227

3470 ENCROACHMENT STATIONS= 9950.0 10600.0 TYPE= 1 TARGET= 650.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.23 | 1.77 | 1342.27 | 0.00 | 0.00 | 1342.31 | 0.04 | 2.95 | 0.00 | 1341.50 |
| 1085. | 6. | 1079. | 0. | 5. | 687. | 0. | 107. | 130. | 100000.00 |
| 1.19 | 1.15 | 1.57 | 0.00 | 0.040 | 0.050 | 0.000 | 0.000 | 1340.50 | 9968.11 |
| 0.002442 | 790. | 790. | 850. | 4 | 0 | 0 | 0.00 | 631.89 | 10600.00 |

*SECNO 1.419
3280 CROSS SECTION 1.42 EXTENDED 0.17 FEET

3470 ENCROACHMENT STATIONS= 9950.0 10600.0 TYPE= 1 TARGET= 650.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 1.42 | 2.17 | 1346.17 | 0.00 | 0.00 | 1346.32 | 0.15 | 3.98 | 0.03 | 1345.00 |
| 1085. | 12. | 814. | 258. | 6. | 234. | 174. | 121. | 146. | 1345.00 |
| 1.29 | 2.15 | 3.48 | 1.48 | 0.040 | 0.050 | 0.050 | 0.000 | 1344.00 | 9970.23 |
| 0.006898 | 1010. | 1010. | 1230. | 4 | 0 | 0 | 0.00 | 629.77 | 10600.00 |

*SECNO 1.561

3470 ENCROACHMENT STATIONS= 9960.0 10600.0 TYPE= 1 TARGET= 640.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.56 | 2.69 | 1348.69 | 0.00 | 0.00 | 1348.73 | 0.04 | 2.40 | 0.01 | 1347.00 |
| 1085. | 16. | 235. | 833. | 12. | 110. | 608. | 130. | 156. | 1347.00 |
| 1.43 | 1.42 | 2.15 | 1.37 | 0.040 | 0.050 | 0.050 | 0.000 | 1346.00 | 9976.28 |
| 0.001836 | 750. | 750. | 750. | 6 | 0 | 0 | 0.00 | 623.72 | 10600.00 |

*SECNO 1.712

3470 ENCROACHMENT STATIONS= 9980.0 10600.0 TYPE= 1 TARGET= 620.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.71 | 1.13 | 1351.03 | 0.00 | 0.00 | 1351.09 | 0.06 | 2.36 | 0.01 | 1351.00 |
| 1085. | 0. | 676. | 409. | 0. | 374. | 197. | 143. | 169. | 1350.00 |
| 1.55 | 0.02 | 1.81 | 2.08 | 0.040 | 0.050 | 0.050 | 0.000 | 1349.90 | 9994.73 |
| 0.004384 | 790. | 790. | 930. | 4 | 0 | 0 | 0.00 | 605.27 | 10600.00 |

*SECNO 1.860

3470 ENCROACHMENT STATIONS= 9940.0 10600.0 TYPE= 1 TARGET= 660.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.86 | 1.81 | 1353.81 | 0.00 | 0.00 | 1353.87 | 0.06 | 2.78 | 0.00 | 1353.00 |
| 1085. | 7. | 1034. | 45. | 6. | 535. | 50. | 154. | 179. | 1353.00 |
| 1.67 | 1.11 | 1.93 | 0.89 | 0.040 | 0.050 | 0.050 | 0.000 | 1352.00 | 9960.65 |
| 0.002924 | 780. | 780. | 800. | 4 | 0 | 0 | 0.00 | 542.34 | 10502.99 |

CCHV= 0.300 CEHV= 0.500
*SECNO 1.939
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.94 | 0.81 | 1357.21 | 1357.21 | 0.00 | 1357.44 | 0.23 | 1.24 | 0.09 | 1356.80 |
| 1358. | 269. | 1089. | 0. | 82. | 271. | 0. | 158. | 184. | 1357.40 |
| 1.69 | 3.27 | 4.03 | 0.00 | 0.015 | 0.015 | 0.000 | 0.000 | 1356.40 | 9455.96 |
| 0.004032 | 210. | 370. | 550. | 20 | 18 | 0 | 0.00 | 762.43 | 10218.39 |

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

FLOW DISTRIBUTION FOR SECNO= 1.94 CWSEL= 1357.21

STA= 9456. 9580. 9690. 10270.
PER Q= 5.9 13.9 80.2
AREA= 31.6 50.5 270.6
VEL= 2.5 3.7 4.0

CCHV= 0.100 CEHV= 0.300
*SECNO 2.053
3280 CROSS SECTION 2.05 EXTENDED 0.11 FEET

3470 ENCROACHMENT STATIONS= 9970.0 10545.0 TYPE= 1 TARGET= 575.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.05 | 3.40 | 1358.10 | 0.00 | 0.00 | 1358.15 | 0.04 | 0.68 | 0.02 | 1356.00 |
| 1358. | 26. | 357. | 975. | 22. | 166. | 644. | 163. | 191. | 1356.00 |
| 1.76 | 1.17 | 2.16 | 1.51 | 0.040 | 0.040 | 0.040 | 0.000 | 1354.70 | 9970.00 |
| 0.000873 | 600. | 450. | 320. | 3 | 0 | 0 | 0.00 | 575.00 | 10545.00 |

FLOW DISTRIBUTION FOR SECNO= 2.05 CWSEL= 1358.10

STA= 9970. 9990. 10050. 10220. 10470. 10545.
PER Q= 1.9 26.3 47.7 24.0 0.2
AREA= 22.2 165.5 358.5 277.2 8.2
VEL= 1.2 2.2 1.8 1.2 0.2

*SECNO 2.218

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.22 | 1.72 | 1359.72 | 0.00 | 0.00 | 1359.97 | 0.25 | 1.77 | 0.06 | 1359.00 |
| 1172. | 5. | 1167. | 0. | 2. | 288. | 0. | 174. | 200. | 1360.00 |
| 1.82 | 2.25 | 4.06 | 0.00 | 0.040 | 0.040 | 0.000 | 0.000 | 1358.00 | 9983.75 |
| 0.014278 | 850. | 845. | 880. | 2 | 0 | 0 | 0.00 | 335.46 | 10319.21 |

FLOW DISTRIBUTION FOR SECNO= 2.22 CWSEL= 1359.72

STA= 9984. 9990. 10370.
PER Q= 0.4 99.6
AREA= 2.3 287.6
VEL= 2.2 4.1

*SECNO 2.343

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.34 | 1.21 | 1363.21 | 0.00 | 0.00 | 1363.26 | 0.05 | 3.26 | 0.02 | 1362.00 |
| 1172. | 7. | 97. | 1068. | 5. | 48. | 606. | 182. | 209. | 1362.00 |
| 1.93 | 1.27 | 2.02 | 1.76 | 0.040 | 0.040 | 0.040 | 0.000 | 1362.00 | 9981.41 |
| 0.002320 | 660. | 660. | 730. | 6 | 0 | 0 | 0.00 | 816.42 | 10797.84 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| *SECNO 2.559 | | | | | | | | | |
| 2.56 | 3.05 | 1367.05 | 0.00 | 0.00 | 1367.23 | 0.18 | 3.94 | 0.04 | 1366.00 |
| 1172. | 8. | 474. | 691. | 4. | 103. | 308. | 196. | 227. | 1366.00 |
| 2.03 | 1.85 | 4.60 | 2.24 | 0.040 | 0.040 | 0.040 | 0.000 | 1364.00 | 9972.15 |
| 0.005878 | 1125. | 1125. | 1125. | 7 | 0 | 0 | 0.00 | 539.29 | 10511.45 |
| CCHV= 0.100 CEHV= 0.300 | | | | | | | | | |
| *SECNO 2.795 | | | | | | | | | |
| 2.80 | 4.43 | 1369.63 | 0.00 | 0.00 | 1369.67 | 0.04 | 2.42 | 0.01 | 1366.00 |
| 1172. | 62. | 375. | 735. | 37. | 161. | 770. | 216. | 247. | 1366.00 |
| 2.27 | 1.69 | 2.32 | 0.95 | 0.040 | 0.050 | 0.050 | 0.000 | 1365.20 | 9949.81 |
| 0.000953 | 1250. | 1250. | 1250. | 4 | 0 | 0 | 0.00 | 860.50 | 10810.30 |
| *SECNO 2.947 | | | | | | | | | |
| 2.95 | 4.88 | 1370.88 | 0.00 | 0.00 | 1371.06 | 0.18 | 1.35 | 0.04 | 1368.00 |
| 1172. | 80. | 607. | 484. | 28. | 136. | 354. | 229. | 261. | 1368.00 |
| 2.34 | 2.88 | 4.48 | 1.37 | 0.040 | 0.050 | 0.050 | 0.000 | 1366.00 | 9965.64 |
| 0.003759 | 800. | 800. | 800. | 3 | 0 | 0 | 0.00 | 678.76 | 10644.40 |
| *SECNO 3.136 | | | | | | | | | |
| 3.14 | 3.27 | 1374.27 | 0.00 | 0.00 | 1374.36 | 0.10 | 3.29 | 0.01 | 1371.00 |
| 1172. | 69. | 434. | 669. | 25. | 132. | 388. | 242. | 275. | 1372.00 |
| 2.46 | 2.74 | 3.29 | 1.73 | 0.040 | 0.050 | 0.050 | 0.000 | 1371.00 | 9969.59 |
| 0.002910 | 1000. | 1000. | 1000. | 3 | 0 | 0 | 0.00 | 550.62 | 10520.20 |
| *SECNO 3.305 | | | | | | | | | |
| 3.31 | 2.74 | 1377.74 | 0.00 | 0.00 | 1377.86 | 0.12 | 3.49 | 0.01 | 1376.00 |
| 1172. | 9. | 426. | 737. | 4. | 112. | 398. | 252. | 289. | 1376.00 |
| 2.56 | 2.41 | 3.79 | 1.85 | 0.040 | 0.050 | 0.050 | 0.000 | 1375.00 | 9975.64 |
| 0.005558 | 890. | 890. | 890. | 4 | 0 | 0 | 0.00 | 749.44 | 10725.08 |
| *SECNO 3.551 | | | | | | | | | |
| 3.55 | 4.71 | 1381.71 | 0.00 | 0.00 | 1381.77 | 0.06 | 3.91 | 0.01 | 1378.00 |
| 1172. | 97. | 362. | 713. | 40. | 122. | 613. | 272. | 311. | 1380.00 |
| 2.76 | 2.41 | 2.96 | 1.16 | 0.040 | 0.050 | 0.050 | 0.000 | 1377.00 | 9968.34 |
| 0.001880 | 1300. | 1300. | 1300. | 6 | 0 | 0 | 0.00 | 772.15 | 10740.49 |

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


*SECNO 3.676
     3.68      4.30  1383.10      0.00      0.00  1383.19      0.09      1.41      0.01  1380.00
    1172.       28.      449.      695.       12.      130.      532.      283.      323.   1380.00
     2.84      2.31      3.46      1.31     0.040     0.050     0.050     0.000  1378.80  9972.11
 0.002376      670.      670.      670.         3         0         0      0.00   745.29 10717.40


*SECNO 3.892
     3.89      4.63  1386.63      0.00      0.00  1386.85      0.23      3.62      0.04  1384.00
     828.       48.      584.      196.       15.      133.      174.      296.      340.   1386.00
     2.93      3.16      4.39      1.12     0.040     0.050     0.050     0.000  1382.00  9973.31
 0.005227     1140.     1140.     1140.         3         0         0      0.00   551.23 10524.54


CCHV=   0.100 CEHV=   0.300
*SECNO 4.123

3470 ENCROACHMENT STATIONS=    9560.0   10960.0  TYPE=     1  TARGET=    1400.000
     4.12      1.23  1390.03      0.00      0.00  1390.04      0.02      3.17      0.02100000.00
     828.        0.      287.      541.        0.      334.      461.      311.      367.   1390.00
     3.25      0.00      0.86      1.17     0.000     0.050     0.035     0.000  1388.80  9560.00
 0.001551     1270.     1235.     1200.         4         0         0      0.00  1400.00 10960.00


*SECNO 4.230

3470 ENCROACHMENT STATIONS=    9300.0   10900.0  TYPE=     1  TARGET=    1600.000
     4.23      0.55  1391.55      0.00      0.00  1391.58      0.03      1.53      0.00  1391.00
     828.       139.      212.      478.      240.      204.      305.      324.      390.   1391.40
     3.40      0.58      1.04      1.57     0.100     0.050     0.035     0.000  1391.00  9300.00
 0.003385      800.      650.      700.         3         0         0      0.00  1509.18 10809.18


CCHV=   0.300 CEHV=   0.500
*SECNO 4.341
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     4.34      0.55  1394.55  1394.55      0.00  1394.70      0.15      2.05      0.06  1394.50
     828.        1.      827.        1.        1.      267.        1.      330.      405.   1394.50
     3.45      0.58      3.10      0.58     0.015     0.015     0.015     0.000  1394.00  9545.76
 0.004928      580.      490.      520.         3         5         0      0.00   982.09 10527.85
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0.100 CEHV=   0.300
*SECNO 4.616

3470 ENCROACHMENT STATIONS=    9850.0   11250.0  TYPE=     1  TARGET=    1400.000
     4.62      1.55  1395.95     0.00      0.00  1395.96     0.01      1.25      0.01  1396.00
     828.       0.     654.      174.       0.     834.      538.      349.      432.   1395.00
     3.85      0.00     0.78     0.32     0.000    0.050    0.100     0.000  1394.40  9933.24
 0.000558    1000.    1000.     1000.        6        0        0      0.00  1316.76 11250.00


*SECNO 4.637
     4.64      1.19  1396.49     0.00      0.00  1396.57     0.08      0.59      0.02  1398.00
     828.       0.     118.      710.       0.      31.      372.      356.      440.   1395.50
     3.89      0.00     3.84     1.91     0.000    0.050    0.100     0.000  1395.30  9966.92
 0.026374       75.     110.      550.        2        0        0      0.00   608.82 10575.74


CCHV=   0.100 CEHV=   0.300
*SECNO 4.748
     4.75      1.55  1397.55     0.00      0.00  1397.58     0.03      1.00      0.01  1398.00
     828.       0.     205.      623.       0.     132.      463.      360.      444.   1396.00
     3.97      0.00     1.55     1.35     0.000    0.035    0.040     0.000  1396.00  9969.02
 0.000925      630.     600.      330.        7        0        0      0.00   489.09 10458.12


*SECNO 4.924
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     4.92      0.91  1400.91  1400.91     0.00  1401.14     0.24      2.51      0.06  1401.00
     828.       0.     828.       0.       0.     213.       0.      369.      455.   1401.00
     4.04      0.00     3.89     0.00     0.000    0.035    0.000     0.000  1400.00  9977.27
 0.024036      930.     930.     1040.       20       14        0      0.00   468.17 10445.44


*SECNO 5.038
     5.04      1.36  1403.36     0.00      0.00  1403.39     0.03      2.23      0.02  1403.00
     828.       0.     815.      13.        0.     561.      29.       375.      464.   1403.00
     4.16      0.44     1.45     0.45     0.040    0.035    0.040     0.000  1402.00  9982.77
 0.001439      600.     600.      630.        8        0        0      0.00   821.19 10803.96
```

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

*SECNO 5.170
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 9970.0 10500.0 TYPE= 1 TARGET= 530.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.17 | 0.86 | 1406.86 | 1406.86 | 0.00 | 1407.08 | 0.22 | 2.43 | 0.06 | 1407.00 |
| 828. | 0. | 386. | 442. | 0. | 83. | 163. | 381. | 475. | 1406.70 |
| 4.21 | 0.00 | 4.68 | 2.70 | 0.000 | 0.035 | 0.040 | 0.000 | 1406.00 | 9991.42 |
| 0.017540 | 700. | 700. | 700. | 20 | 14 | 0 | 0.00 | 508.58 | 10500.00 |

*SECNO 5.375

3470 ENCROACHMENT STATIONS= 9955.0 10800.0 TYPE= 1 TARGET= 845.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.37 | 2.73 | 1410.73 | 0.00 | 0.00 | 1410.77 | 0.04 | 3.67 | 0.02 | 1409.00 |
| 828. | 22. | 252. | 554. | 18. | 101. | 496. | 393. | 492. | 1409.50 |
| 4.41 | 1.23 | 2.48 | 1.12 | 0.040 | 0.035 | 0.040 | 0.000 | 1408.00 | 9969.13 |
| 0.001331 | 1080. | 1080. | 1150. | 11 | 0 | 0 | 0.00 | 830.86 | 10800.00 |

*SECNO 5.523

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.52 | 1.61 | 1412.61 | 0.00 | 0.00 | 1412.82 | 0.20 | 2.00 | 0.05 | 1412.00 |
| 828. | 1. | 753. | 74. | 1. | 201. | 53. | 400. | 503. | 1412.00 |
| 4.47 | 1.37 | 3.75 | 1.39 | 0.040 | 0.035 | 0.040 | 0.000 | 1411.00 | 9936.92 |
| 0.006733 | 780. | 780. | 790. | 4 | 0 | 0 | 0.00 | 355.55 | 10292.47 |

CCHV= 0.300 CEHV= 0.500
*SECNO 5.631

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.63 | 2.63 | 1412.93 | 0.00 | 0.00 | 1412.94 | 0.01 | 0.06 | 0.06 | 1412.00 |
| 828. | 17. | 797. | 14. | 53. | 1014. | 43. | 410. | 511. | 1412.00 |
| 4.69 | 0.32 | 0.79 | 0.32 | 0.015 | 0.015 | 0.015 | 0.000 | 1410.30 | 9616.70 |
| 0.000029 | 340. | 600. | 800. | 3 | 0 | 0 | 0.00 | 776.17 | 10392.87 |

CCHV= 0.100 CEHV= 0.300
*SECNO 5.864
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.86 | 1.54 | 1414.54 | 1414.54 | 0.00 | 1414.77 | 0.23 | 0.08 | 0.07 | 1414.00 |
| 393. | 3. | 390. | 0. | 1. | 101. | 0. | 427. | 526. | 1415.00 |
| 4.78 | 2.53 | 3.84 | 0.00 | 0.040 | 0.035 | 0.000 | 0.000 | 1413.00 | 9970.25 |
| 0.026663 | 1410. | 1230. | 1050. | 20 | 14 | 0 | 0.00 | 250.60 | 10220.85 |

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

*SECNO 6.047
3280 CROSS SECTION 6.05 EXTENDED 0.83 FEET

3470 ENCROACHMENT STATIONS= 9960.0 10770.0 TYPE= 1 TARGET= 810.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.05 | 2.83 | 1418.83 | 0.00 | 0.00 | 1418.91 | 0.08 | 4.12 | 0.01 | 1417.00 |
| 393. | 18. | 211. | 164. | 13. | 70. | 157. | 431. | 533. | 1417.00 |
| 4.91 | 1.41 | 3.03 | 1.05 | 0.040 | 0.035 | 0.040 | 0.000 | 1416.00 | 9976.31 |
| 0.001655 | 970. | 970. | 980. | 8 | 0 | 0 | 0.00 | 368.09 | 10344.40 |

*SECNO 6.259
3280 CROSS SECTION 6.26 EXTENDED 0.08 FEET

3470 ENCROACHMENT STATIONS= 9965.0 10510.0 TYPE= 1 TARGET= 545.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.26 | 2.08 | 1422.08 | 0.00 | 0.00 | 1422.31 | 0.24 | 3.36 | 0.05 | 1421.00 |
| 393. | 9. | 228. | 156. | 5. | 47. | 73. | 435. | 540. | 1421.00 |
| 4.99 | 2.05 | 4.81 | 2.14 | 0.040 | 0.035 | 0.040 | 0.000 | 1420.00 | 9986.49 |
| 0.007012 | 1120. | 1120. | 1120. | 6 | 0 | 0 | 0.00 | 177.53 | 10164.02 |

*SECNO 6.472

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.47 | 3.51 | 1425.51 | 0.00 | 0.00 | 1425.67 | 0.16 | 3.35 | 0.01 | 1423.00 |
| 393. | 57. | 270. | 66. | 27. | 75. | 34. | 439. | 543. | 1423.00 |
| 5.10 | 2.10 | 3.59 | 1.92 | 0.040 | 0.035 | 0.040 | 0.000 | 1422.00 | 9970.74 |
| 0.001646 | 1120. | 1120. | 1120. | 5 | 0 | 0 | 0.00 | 73.17 | 10043.91 |

*SECNO 6.672

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.67 | 2.59 | 1428.59 | 0.00 | 0.00 | 1429.14 | 0.55 | 3.35 | 0.12 | 1427.00 |
| 393. | 31. | 332. | 31. | 11. | 52. | 11. | 441. | 544. | 1427.00 |
| 5.15 | 2.91 | 6.35 | 2.91 | 0.040 | 0.035 | 0.040 | 0.000 | 1426.00 | 9976.75 |
| 0.008401 | 1060. | 1060. | 1060. | 3 | 0 | 0 | 0.00 | 51.50 | 10028.25 |

*SECNO 6.811

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.81 | 2.84 | 1431.84 | 0.00 | 0.00 | 1432.02 | 0.17 | 2.84 | 0.04 | 1430.00 |
| 393. | 19. | 332. | 42. | 11. | 94. | 26. | 443. | 545. | 1430.00 |
| 5.21 | 1.65 | 3.54 | 1.66 | 0.040 | 0.035 | 0.040 | 0.000 | 1429.00 | 9967.70 |
| 0.002233 | 730. | 730. | 730. | 4 | 0 | 0 | 0.00 | 79.97 | 10047.67 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| *SECNO 7.019 | | | | | | | | | |
| 7.02 | 2.94 | 1434.94 | 0.00 | 0.00 | 1435.27 | 0.34 | 3.21 | 0.05 | 1433.00 |
| 393. | 27. | 354. | 12. | 12. | 73. | 5. | 446. | 547. | 1433.00 |
| 5.28 | 2.27 | 4.84 | 2.21 | 0.040 | 0.035 | 0.040 | 0.000 | 1432.00 | 9977.71 |
| 0.003972 | 1100. | 1100. | 1100. | 3 | 0 | 0 | 0.00 | 47.83 | 10025.54 |
| *SECNO 7.201 | | | | | | | | | |
| 7.20 | 1.55 | 1439.55 | 0.00 | 0.00 | 1439.70 | 0.15 | 4.41 | 0.02 | 1441.00 |
| 393. | 0. | 214. | 179. | 0. | 58. | 78. | 448. | 549. | 1438.00 |
| 5.36 | 0.00 | 3.67 | 2.29 | 0.000 | 0.035 | 0.040 | 0.000 | 1438.00 | 10044.52 |
| 0.005369 | 960. | 960. | 960. | 3 | 0 | 0 | 0.00 | 146.07 | 10190.59 |
| *SECNO 7.455 | | | | | | | | | |
| 7.45 | 1.61 | 1443.61 | 0.00 | 0.00 | 1443.68 | 0.07 | 3.97 | 0.01 | 1443.00 |
| 393. | 1. | 382. | 10. | 1. | 175. | 14. | 453. | 554. | 1443.00 |
| 5.54 | 0.72 | 2.19 | 0.73 | 0.040 | 0.035 | 0.040 | 0.000 | 1442.00 | 9976.73 |
| 0.001878 | 1340. | 1340. | 1340. | 5 | 0 | 0 | 0.00 | 184.01 | 10160.74 |

*SECNO 7.519
3280 CROSS SECTION 7.52 EXTENDED 0.40 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 9970.0 10050.0 TYPE= 1 TARGET= 80.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.52 | 1.40 | 1446.40 | 1446.40 | 0.00 | 1446.86 | 0.46 | 1.48 | 0.12 | 1446.00 |
| 393. | 0. | 393. | 0. | 0. | 72. | 0. | 454. | 555. | 100000.00 |
| 5.55 | 0.00 | 5.46 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 1445.00 | 9970.00 |
| 0.019308 | 340. | 340. | 340. | 20 | 15 | 0 | 0.00 | 80.00 | 10050.00 |

THIS RUN EXECUTED: 06/08/1990 10:53:26.42

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-YEAR FLOODPLAIN DEL

SUMMARY PRINTOUT

| | SECNO | Q | CWSEL | CRIWS | VCH | XLCH | STCHL | STCHR | STENCL | STENCR | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 0.038 | 1085.00 | 1321.27 | 1321.27 | 4.01 | 0.00 | 9950.00 | 10062.00 | 9900.00 | 11100.00 | 9907.68 | 11100.00 |
| | 0.199 | 1085.00 | 1323.47 | 0.00 | 1.21 | 880.00 | 9990.00 | 10045.00 | 9960.00 | 11020.00 | 9980.87 | 11020.00 |
| | 0.407 | 1085.00 | 1326.71 | 0.00 | 2.40 | 1100.00 | 9980.00 | 10575.00 | 9960.00 | 11000.00 | 9985.85 | 11000.00 |
| | 0.646 | 1085.00 | 1331.15 | 0.00 | 0.89 | 1250.00 | 9970.00 | 10125.00 | 0.00 | 0.00 | 9754.18 | 11076.96 |
| * | 0.672 | 1085.00 | 1333.04 | 0.00 | 0.59 | 160.00 | 9984.20 | 10015.80 | 9725.00 | 11160.00 | 9725.00 | 11160.00 |
| | 0.681 | 1085.00 | 1333.04 | 0.00 | 0.86 | 50.00 | 9975.00 | 10025.00 | 9700.00 | 11140.00 | 9837.76 | 11140.00 |
| * | 0.785 | 1085.00 | 1334.21 | 1334.21 | 4.12 | 500.00 | 9985.00 | 10430.00 | 9950.00 | 10600.00 | 9981.84 | 10564.21 |
| | 0.843 | 1085.00 | 1336.00 | 0.00 | 1.49 | 370.00 | 9990.00 | 10395.00 | 9975.00 | 10600.00 | 9983.42 | 10600.00 |
| | 1.078 | 1085.00 | 1339.29 | 0.00 | 2.14 | 1240.00 | 9990.00 | 10580.00 | 9970.00 | 10600.00 | 9987.13 | 10600.00 |
| | 1.227 | 1085.00 | 1342.27 | 0.00 | 1.57 | 790.00 | 9980.00 | 10840.00 | 9950.00 | 10600.00 | 9968.11 | 10600.00 |
| | 1.419 | 1085.00 | 1346.17 | 0.00 | 3.48 | 1010.00 | 9980.00 | 10120.00 | 9950.00 | 10600.00 | 9970.23 | 10600.00 |
| | 1.561 | 1085.00 | 1348.69 | 0.00 | 2.15 | 750.00 | 9990.00 | 10040.00 | 9960.00 | 10600.00 | 9976.28 | 10600.00 |
| | 1.712 | 1085.00 | 1351.03 | 0.00 | 1.81 | 790.00 | 9995.00 | 10420.00 | 9980.00 | 10600.00 | 9994.73 | 10600.00 |
| | 1.860 | 1085.00 | 1353.81 | 0.00 | 1.93 | 780.00 | 9975.00 | 10380.00 | 9940.00 | 10600.00 | 9960.65 | 10502.99 |
| * | 1.939 | 1358.00 | 1357.21 | 1357.21 | 4.03 | 370.00 | 9690.00 | 10270.00 | 0.00 | 0.00 | 9455.96 | 10218.39 |
| | 2.053 | 1358.00 | 1358.10 | 0.00 | 2.16 | 450.00 | 9990.00 | 10050.00 | 9970.00 | 10545.00 | 9970.00 | 10545.00 |
| | 2.218 | 1172.00 | 1359.72 | 0.00 | 4.06 | 845.00 | 9990.00 | 10370.00 | 0.00 | 0.00 | 9983.75 | 10319.21 |

| | SECNO | Q | CWSEL | CRIWS | VCH | XLCH | STCHL | STCHR | STENCL | STENCR | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.343 | 1172.00 | 1363.21 | 0.00 | 2.02 | 660.00 | 9990.00 | 10030.00 | 0.00 | 0.00 | 9981.41 | 10797.84 |
| | 2.559 | 1172.00 | 1367.05 | 0.00 | 4.60 | 1125.00 | 9980.00 | 10030.00 | 0.00 | 0.00 | 9972.15 | 10511.45 |
| | 2.795 | 1172.00 | 1369.63 | 0.00 | 2.32 | 1250.00 | 9970.00 | 10010.00 | 0.00 | 0.00 | 9949.81 | 10810.30 |
| | 2.947 | 1172.00 | 1370.88 | 0.00 | 4.48 | 800.00 | 9985.00 | 10020.00 | 0.00 | 0.00 | 9965.64 | 10644.40 |
| | 3.136 | 1172.00 | 1374.27 | 0.00 | 3.29 | 1000.00 | 9985.00 | 10030.00 | 0.00 | 0.00 | 9969.59 | 10520.20 |
| | 3.305 | 1172.00 | 1377.74 | 0.00 | 3.79 | 890.00 | 9980.00 | 10030.00 | 0.00 | 0.00 | 9975.64 | 10725.08 |
| | 3.551 | 1172.00 | 1381.71 | 0.00 | 2.96 | 1300.00 | 9990.00 | 10025.00 | 0.00 | 0.00 | 9968.34 | 10740.49 |
| | 3.676 | 1172.00 | 1383.10 | 0.00 | 3.46 | 670.00 | 9980.00 | 10015.00 | 0.00 | 0.00 | 9972.11 | 10717.40 |
| | 3.892 | 828.00 | 1386.63 | 0.00 | 4.39 | 1140.00 | 9985.00 | 10030.00 | 0.00 | 0.00 | 9973.31 | 10524.54 |
| | 4.123 | 828.00 | 1390.03 | 0.00 | 0.86 | 1235.00 | 9440.00 | 10090.00 | 9560.00 | 10960.00 | 9560.00 | 10960.00 |
| | 4.230 | 828.00 | 1391.55 | 0.00 | 1.04 | 650.00 | 9740.00 | 10180.00 | 9300.00 | 10900.00 | 9300.00 | 10809.18 |
| * | 4.341 | 828.00 | 1394.55 | 1394.55 | 3.10 | 490.00 | 9585.00 | 10480.00 | 0.00 | 0.00 | 9545.76 | 10527.85 |
| | 4.616 | 828.00 | 1395.95 | 0.00 | 0.78 | 1000.00 | 9930.00 | 10640.00 | 9850.00 | 11250.00 | 9933.24 | 11250.00 |
| | 4.637 | 828.00 | 1396.49 | 0.00 | 3.84 | 110.00 | 9925.00 | 10010.00 | 0.00 | 0.00 | 9966.92 | 10575.74 |
| | 4.748 | 828.00 | 1397.55 | 0.00 | 1.55 | 600.00 | 9960.00 | 10070.00 | 0.00 | 0.00 | 9969.02 | 10458.12 |
| * | 4.924 | 828.00 | 1400.91 | 1400.91 | 3.89 | 930.00 | 9975.00 | 10490.00 | 0.00 | 0.00 | 9977.27 | 10445.44 |
| | 5.038 | 828.00 | 1403.36 | 0.00 | 1.45 | 600.00 | 9985.00 | 10640.00 | 0.00 | 0.00 | 9982.77 | 10803.96 |
| * | 5.170 | 828.00 | 1406.86 | 1406.86 | 4.68 | 700.00 | 9990.00 | 10100.00 | 9970.00 | 10500.00 | 9991.42 | 10500.00 |
| | 5.375 | 828.00 | 1410.73 | 0.00 | 2.48 | 1080.00 | 9990.00 | 10040.00 | 9955.00 | 10800.00 | 9969.13 | 10800.00 |
| | 5.523 | 828.00 | 1412.61 | 0.00 | 3.75 | 780.00 | 9940.00 | 10120.00 | 0.00 | 0.00 | 9936.92 | 10292.47 |
| | 5.631 | 828.00 | 1412.93 | 0.00 | 0.79 | 600.00 | 9730.00 | 10300.00 | 0.00 | 0.00 | 9616.70 | 10392.87 |
| * | 5.864 | 393.00 | 1414.54 | 1414.54 | 3.84 | 1230.00 | 9975.00 | 10390.00 | 0.00 | 0.00 | 9970.25 | 10220.85 |
| | 6.047 | 393.00 | 1418.83 | 0.00 | 3.03 | 970.00 | 9990.00 | 10020.00 | 9960.00 | 10770.00 | 9976.31 | 10344.40 |
| | 6.259 | 393.00 | 1422.08 | 0.00 | 4.81 | 1120.00 | 9995.00 | 10025.00 | 9965.00 | 10510.00 | 9986.49 | 10164.02 |
| | 6.472 | 393.00 | 1425.51 | 0.00 | 3.59 | 1120.00 | 9990.00 | 10015.00 | 0.00 | 0.00 | 9970.74 | 10043.91 |
| | 6.672 | 393.00 | 1428.59 | 0.00 | 6.35 | 1060.00 | 9990.00 | 10015.00 | 0.00 | 0.00 | 9976.75 | 10028.25 |

| | SECNO | Q | CWSEL | CRIWS | VCH | XLCH | STCHL | STCHR | STENCL | STENCR | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6.811 | 393.00 | 1431.84 | 0.00 | 3.54 | 730.00 | 9980.00 | 10020.00 | 0.00 | 0.00 | 9967.70 | 10047.67 |
| | 7.019 | 393.00 | 1434.94 | 0.00 | 4.84 | 1100.00 | 9990.00 | 10020.00 | 0.00 | 0.00 | 9977.71 | 10025.54 |
| | 7.201 | 393.00 | 1439.55 | 0.00 | 3.67 | 960.00 | 9980.00 | 10090.00 | 0.00 | 0.00 | 10044.52 | 10190.59 |
| | 7.455 | 393.00 | 1443.61 | 0.00 | 2.19 | 1340.00 | 9980.00 | 10115.00 | 0.00 | 0.00 | 9976.73 | 10160.74 |
| * | 7.519 | 393.00 | 1446.40 | 1446.40 | 5.46 | 340.00 | 9970.00 | 10050.00 | 9970.00 | 10050.00 | 9970.00 | 10050.00 |

100-YEAR FLOODPLAIN DEL

SUMMARY PRINTOUT

| | SECNO | QLOB | QCH | QROB | VLOB | VCH | VROB | TELMX | CWSEL | DIFWSX | TOPWID | ELMIN | ALPHA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 0.038 | 23.86 | 704.39 | 356.75 | 1.75 | 4.01 | 1.25 | 1321.00 | 1321.27 | 0.00 | 1192.32 | 1319.20 | 2.10 |
| | 0.199 | 6.28 | 96.93 | 981.78 | 0.94 | 1.21 | 0.98 | 1322.70 | 1323.47 | 2.20 | 1039.13 | 1322.00 | 1.01 |
| | 0.407 | 0.00 | 357.19 | 727.81 | 0.00 | 2.40 | 3.31 | 1328.00 | 1326.71 | 3.24 | 815.26 | 1326.00 | 1.07 |
| | 0.646 | 221.15 | 106.29 | 757.56 | 1.32 | 0.89 | 1.02 | 1331.60 | 1331.15 | 4.45 | 1285.10 | 1330.00 | 1.04 |
| * | 0.672 | 0.10 | 61.67 | 1023.23 | 0.06 | 0.59 | 0.55 | 1330.40 | 1333.04 | 1.89 | 1210.26 | 1328.90 | 1.00 |
| | 0.681 | 48.12 | 44.53 | 992.35 | 0.68 | 0.86 | 0.86 | 1332.00 | 1333.04 | 0.00 | 1302.24 | 1332.00 | 1.01 |
| * | 0.785 | 0.56 | 1024.98 | 59.45 | 1.69 | 4.12 | 2.14 | 1336.00 | 1334.21 | 1.17 | 582.37 | 1333.00 | 1.06 |
| | 0.843 | 2.96 | 912.27 | 169.77 | 0.89 | 1.49 | 1.00 | 1338.00 | 1336.00 | 1.79 | 616.58 | 1334.00 | 1.06 |
| | 1.078 | 0.33 | 1079.12 | 5.54 | 0.81 | 2.14 | 1.00 | 1340.00 | 1339.29 | 3.28 | 612.87 | 1338.00 | 1.01 |
| | 1.227 | 6.19 | 1078.81 | 0.00 | 1.15 | 1.57 | 0.00 | 1344.00 | 1342.27 | 2.99 | 631.89 | 1340.50 | 1.00 |
| | 1.419 | 12.33 | 814.44 | 258.23 | 2.15 | 3.48 | 1.48 | 1346.00 | 1346.17 | 3.90 | 629.77 | 1344.00 | 1.40 |
| | 1.561 | 16.44 | 235.31 | 833.24 | 1.42 | 2.15 | 1.37 | 1350.00 | 1348.69 | 2.52 | 623.72 | 1346.00 | 1.12 |
| | 1.712 | 0.00 | 675.96 | 409.04 | 0.02 | 1.81 | 2.08 | 1352.00 | 1351.03 | 2.34 | 605.27 | 1349.90 | 1.01 |
| | 1.860 | 6.51 | 1033.77 | 44.72 | 1.11 | 1.93 | 0.89 | 1356.00 | 1353.81 | 2.78 | 542.34 | 1352.00 | 1.07 |
| * | 1.939 | 268.62 | 1089.38 | 0.00 | 3.27 | 4.03 | 0.00 | 1360.10 | 1357.21 | 3.39 | 762.43 | 1356.40 | 1.02 |
| | 2.053 | 25.90 | 357.01 | 975.09 | 1.17 | 2.16 | 1.51 | 1358.00 | 1358.10 | 0.89 | 575.00 | 1354.70 | 1.09 |
| | 2.218 | 5.10 | 1166.90 | 0.00 | 2.25 | 4.06 | 0.00 | 1360.00 | 1359.72 | 1.62 | 335.46 | 1358.00 | 1.00 |
| | 2.343 | 6.54 | 97.33 | 1068.12 | 1.27 | 2.02 | 1.76 | 1364.80 | 1363.21 | 3.49 | 816.42 | 1362.00 | 1.01 |
| | 2.559 | 7.71 | 473.77 | 690.52 | 1.85 | 4.60 | 2.24 | 1368.00 | 1367.05 | 3.85 | 539.29 | 1364.00 | 1.45 |
| | 2.795 | 62.03 | 375.08 | 734.89 | 1.69 | 2.32 | 0.95 | 1371.40 | 1369.63 | 2.58 | 860.50 | 1365.20 | 1.67 |
| | 2.947 | 80.21 | 607.33 | 484.46 | 2.88 | 4.48 | 1.37 | 1373.20 | 1370.88 | 1.25 | 678.76 | 1366.00 | 2.28 |
| | 3.136 | 68.97 | 433.72 | 669.31 | 2.74 | 3.29 | 1.73 | 1376.30 | 1374.27 | 3.39 | 550.62 | 1371.00 | 1.33 |
| | 3.305 | 9.13 | 425.63 | 737.24 | 2.41 | 3.79 | 1.85 | 1380.00 | 1377.74 | 3.47 | 749.44 | 1375.00 | 1.43 |
| | 3.551 | 96.96 | 362.26 | 712.78 | 2.41 | 2.96 | 1.16 | 1384.00 | 1381.71 | 3.97 | 772.15 | 1377.00 | 1.76 |

| | SECNO | QLOB | QCH | QROB | VLOB | VCH | VROB | TELMX | CWSEL | DIFWSX | TOPWID | ELMIN | ALPHA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.676 | 28.29 | 448.54 | 695.16 | 2.31 | 3.46 | 1.31 | 1385.90 | 1383.10 | 1.39 | 745.29 | 1378.80 | 1.89 |
| | 3.892 | 48.35 | 583.61 | 196.04 | 3.16 | 4.39 | 1.12 | 1389.00 | 1386.63 | 3.52 | 551.23 | 1382.00 | 2.20 |
| | 4.123 | 0.00 | 287.29 | 540.71 | 0.00 | 0.86 | 1.17 | 1391.00 | 1390.03 | 3.40 | 1400.00 | 1388.80 | 1.06 |
| | 4.230 | 138.60 | 211.64 | 477.76 | 0.58 | 1.04 | 1.57 | 1392.00 | 1391.55 | 1.52 | 1509.18 | 1391.00 | 1.43 |
| * | 4.341 | 0.54 | 826.80 | 0.66 | 0.58 | 3.10 | 0.58 | 1394.90 | 1394.55 | 3.00 | 982.09 | 1394.00 | 1.01 |
| | 4.616 | 0.00 | 654.14 | 173.86 | 0.00 | 0.78 | 0.32 | 1398.00 | 1395.95 | 1.41 | 1316.76 | 1394.40 | 1.39 |
| | 4.637 | 0.00 | 117.58 | 710.41 | 0.00 | 3.84 | 1.91 | 1399.50 | 1396.49 | 0.54 | 608.82 | 1395.30 | 1.23 |
| | 4.748 | 0.00 | 204.74 | 623.26 | 0.00 | 1.55 | 1.35 | 1400.60 | 1397.55 | 1.06 | 489.09 | 1396.00 | 1.01 |
| * | 4.924 | 0.00 | 828.00 | 0.00 | 0.00 | 3.89 | 0.00 | 1403.20 | 1400.91 | 3.36 | 468.17 | 1400.00 | 1.00 |
| | 5.038 | 0.18 | 814.78 | 13.04 | 0.44 | 1.45 | 0.45 | 1406.00 | 1403.36 | 2.45 | 821.19 | 1402.00 | 1.06 |
| * | 5.170 | 0.00 | 386.21 | 441.79 | 0.00 | 4.68 | 2.70 | 1408.00 | 1406.86 | 3.50 | 508.58 | 1406.00 | 1.25 |
| | 5.375 | 22.14 | 251.60 | 554.26 | 1.23 | 2.48 | 1.12 | 1412.00 | 1410.73 | 3.87 | 830.86 | 1408.00 | 1.52 |
| | 5.523 | 1.30 | 752.86 | 73.84 | 1.37 | 3.75 | 1.39 | 1413.00 | 1412.61 | 1.89 | 355.55 | 1411.00 | 1.23 |
| | 5.631 | 16.90 | 797.25 | 13.85 | 0.32 | 0.79 | 0.32 | 1414.50 | 1412.93 | 0.31 | 776.17 | 1410.30 | 1.08 |
| * | 5.864 | 3.26 | 389.73 | 0.00 | 2.53 | 3.84 | 0.00 | 1416.80 | 1414.54 | 1.62 | 250.60 | 1413.00 | 1.00 |
| | 6.047 | 17.68 | 211.25 | 164.07 | 1.41 | 3.03 | 1.05 | 1418.00 | 1418.83 | 4.28 | 368.09 | 1416.00 | 2.03 |
| | 6.259 | 9.40 | 227.50 | 156.10 | 2.05 | 4.81 | 2.14 | 1422.00 | 1422.08 | 3.25 | 177.53 | 1420.00 | 1.54 |
| | 6.472 | 56.89 | 270.04 | 66.07 | 2.10 | 3.59 | 1.92 | 1428.90 | 1425.51 | 3.43 | 73.17 | 1422.00 | 1.22 |
| | 6.672 | 30.65 | 331.71 | 30.65 | 2.91 | 6.35 | 2.91 | 1432.40 | 1428.59 | 3.08 | 51.50 | 1426.00 | 1.23 |
| | 6.811 | 18.73 | 331.87 | 42.40 | 1.65 | 3.54 | 1.66 | 1434.50 | 1431.84 | 3.25 | 79.97 | 1429.00 | 1.22 |
| | 7.019 | 27.09 | 354.07 | 11.85 | 2.27 | 4.84 | 2.21 | 1440.00 | 1434.94 | 3.09 | 47.83 | 1432.00 | 1.14 |
| | 7.201 | 0.00 | 214.43 | 178.57 | 0.00 | 3.67 | 2.29 | 1441.60 | 1439.55 | 4.61 | 146.07 | 1438.00 | 1.17 |
| | 7.455 | 0.72 | 382.11 | 10.17 | 0.72 | 2.19 | 0.73 | 1448.50 | 1443.61 | 4.06 | 184.01 | 1442.00 | 1.09 |
| * | 7.519 | 0.00 | 393.00 | 0.00 | 0.00 | 5.46 | 0.00 | 1446.00 | 1446.40 | 2.79 | 80.00 | 1445.00 | 1.00 |

100-YEAR FLOODPLAIN DEL

SUMMARY PRINTOUT

| | SECNO | XLCH | K*CHSL | EG | HV | HL | OLOSS | 10K*S | VOL | DEPTH | K*XNL | K*XNCH | K*XNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 0.038 | 0.00 | 0.00 | 1321.45 | 0.17 | 0.00 | 0.00 | 100.08 | 0.00 | 2.07 | 40.00 | 50.00 | 50.00 |
| | 0.199 | 880.00 | 3.18 | 1323.49 | 0.02 | 2.02 | 0.02 | 9.95 | 15.83 | 1.47 | 40.00 | 50.00 | 50.00 |
| | 0.407 | 1100.00 | 3.64 | 1326.85 | 0.14 | 3.33 | 0.04 | 260.34 | 35.99 | 0.71 | 0.00 | 50.00 | 50.00 |
| | 0.646 | 1250.00 | 3.20 | 1331.17 | 0.02 | 4.31 | 0.01 | 12.87 | 56.05 | 1.15 | 40.00 | 50.00 | 50.00 |
| * | 0.672 | 160.00 | -6.87 | 1333.04 | 0.00 | 1.87 | 0.00 | 0.12 | 62.02 | 4.14 | 14.00 | 14.00 | 14.00 |
| | 0.681 | 50.00 | 62.00 | 1333.05 | 0.01 | 0.00 | 0.00 | 7.99 | 63.88 | 1.04 | 40.00 | 50.00 | 50.00 |
| * | 0.785 | 500.00 | 2.00 | 1334.46 | 0.25 | 1.29 | 0.07 | 417.77 | 73.46 | 1.21 | 40.00 | 50.00 | 50.00 |
| | 0.843 | 370.00 | 2.70 | 1336.03 | 0.03 | 1.55 | 0.02 | 14.60 | 78.05 | 2.00 | 40.00 | 50.00 | 50.00 |
| | 1.078 | 1240.00 | 3.23 | 1339.36 | 0.07 | 3.31 | 0.01 | 64.00 | 96.42 | 1.29 | 40.00 | 50.00 | 50.00 |
| | 1.227 | 790.00 | 3.16 | 1342.31 | 0.04 | 2.95 | 0.00 | 24.42 | 107.32 | 1.77 | 40.00 | 50.00 | 0.00 |
| | 1.419 | 1010.00 | 3.47 | 1346.32 | 0.15 | 3.98 | 0.03 | 68.98 | 120.58 | 2.17 | 40.00 | 50.00 | 50.00 |
| | 1.561 | 750.00 | 2.67 | 1348.73 | 0.04 | 2.40 | 0.01 | 18.36 | 130.42 | 2.69 | 40.00 | 50.00 | 50.00 |
| | 1.712 | 790.00 | 4.94 | 1351.09 | 0.06 | 2.36 | 0.01 | 43.84 | 143.49 | 1.13 | 40.00 | 50.00 | 50.00 |
| | 1.860 | 780.00 | 2.69 | 1353.87 | 0.06 | 2.78 | 0.00 | 29.24 | 153.95 | 1.81 | 40.00 | 50.00 | 50.00 |
| * | 1.939 | 370.00 | 11.89 | 1357.44 | 0.23 | 1.24 | 0.09 | 40.32 | 157.90 | 0.81 | 15.00 | 15.00 | 0.00 |
| | 2.053 | 450.00 | -3.78 | 1358.15 | 0.04 | 0.68 | 0.02 | 8.73 | 163.24 | 3.40 | 40.00 | 40.00 | 40.00 |
| | 2.218 | 845.00 | 3.91 | 1359.97 | 0.25 | 1.77 | 0.06 | 142.78 | 174.37 | 1.72 | 40.00 | 40.00 | 0.00 |
| | 2.343 | 660.00 | 6.06 | 1363.26 | 0.05 | 3.26 | 0.02 | 23.20 | 182.05 | 1.21 | 40.00 | 40.00 | 40.00 |
| | 2.559 | 1125.00 | 1.78 | 1367.23 | 0.18 | 3.94 | 0.04 | 58.78 | 195.92 | 3.05 | 40.00 | 40.00 | 40.00 |
| | 2.795 | 1250.00 | 0.96 | 1369.67 | 0.04 | 2.42 | 0.01 | 9.53 | 215.77 | 4.43 | 40.00 | 50.00 | 50.00 |
| | 2.947 | 800.00 | 1.00 | 1371.06 | 0.18 | 1.35 | 0.04 | 37.59 | 229.41 | 4.88 | 40.00 | 50.00 | 50.00 |
| | 3.136 | 1000.00 | 5.00 | 1374.36 | 0.10 | 3.29 | 0.01 | 29.10 | 241.60 | 3.27 | 40.00 | 50.00 | 50.00 |
| | 3.305 | 890.00 | 4.49 | 1377.86 | 0.12 | 3.49 | 0.01 | 55.58 | 252.42 | 2.74 | 40.00 | 50.00 | 50.00 |
| | 3.551 | 1300.00 | 1.54 | 1381.77 | 0.06 | 3.91 | 0.01 | 18.80 | 271.66 | 4.71 | 40.00 | 50.00 | 50.00 |

| | SECNO | XLCH | K*CHSL | EG | HV | HL | OLOSS | 10K*S | VOL | DEPTH | K*XNL | K*XNCH | K*XNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.676 | 670.00 | 2.69 | 1383.19 | 0.09 | 1.41 | 0.01 | 23.76 | 282.81 | 4.30 | 40.00 | 50.00 | 50.00 |
| | 3.892 | 1140.00 | 2.81 | 1386.85 | 0.23 | 3.62 | 0.04 | 52.27 | 295.84 | 4.63 | 40.00 | 50.00 | 50.00 |
| | 4.123 | 1235.00 | 5.51 | 1390.04 | 0.02 | 3.17 | 0.02 | 15.51 | 311.44 | 1.23 | 0.00 | 50.00 | 35.00 |
| | 4.230 | 650.00 | 3.38 | 1391.58 | 0.03 | 1.53 | 0.00 | 33.85 | 323.81 | 0.55 | 100.00 | 50.00 | 35.00 |
| * | 4.341 | 490.00 | 6.12 | 1394.70 | 0.15 | 2.05 | 0.06 | 49.28 | 329.89 | 0.55 | 15.00 | 15.00 | 15.00 |
| | 4.616 | 1000.00 | 0.40 | 1395.96 | 0.01 | 1.25 | 0.01 | 5.58 | 348.73 | 1.55 | 0.00 | 50.00 | 100.00 |
| | 4.637 | 110.00 | 8.18 | 1396.57 | 0.08 | 0.59 | 0.02 | 263.74 | 355.56 | 1.19 | 0.00 | 50.00 | 100.00 |
| | 4.748 | 600.00 | 1.17 | 1397.58 | 0.03 | 1.00 | 0.01 | 9.25 | 359.85 | 1.55 | 0.00 | 35.00 | 40.00 |
| * | 4.924 | 930.00 | 4.30 | 1401.14 | 0.24 | 2.51 | 0.06 | 240.36 | 369.06 | 0.91 | 0.00 | 35.00 | 0.00 |
| | 5.038 | 600.00 | 3.33 | 1403.39 | 0.03 | 2.23 | 0.02 | 14.39 | 374.60 | 1.36 | 40.00 | 35.00 | 40.00 |
| * | 5.170 | 700.00 | 5.71 | 1407.08 | 0.22 | 2.43 | 0.06 | 175.40 | 381.32 | 0.86 | 0.00 | 35.00 | 40.00 |
| | 5.375 | 1080.00 | 1.85 | 1410.77 | 0.04 | 3.67 | 0.02 | 13.31 | 392.54 | 2.73 | 40.00 | 35.00 | 40.00 |
| | 5.523 | 780.00 | 3.85 | 1412.82 | 0.20 | 2.00 | 0.05 | 67.33 | 400.40 | 1.61 | 40.00 | 35.00 | 40.00 |
| | 5.631 | 600.00 | -1.17 | 1412.94 | 0.01 | 0.06 | 0.06 | 0.29 | 409.86 | 2.63 | 15.00 | 15.00 | 15.00 |
| * | 5.864 | 1230.00 | 2.20 | 1414.77 | 0.23 | 0.08 | 0.07 | 266.63 | 427.00 | 1.54 | 40.00 | 35.00 | 0.00 |
| | 6.047 | 970.00 | 3.09 | 1418.91 | 0.08 | 4.12 | 0.01 | 16.55 | 430.82 | 2.83 | 40.00 | 35.00 | 40.00 |
| | 6.259 | 1120.00 | 3.57 | 1422.31 | 0.24 | 3.36 | 0.05 | 70.12 | 435.50 | 2.08 | 40.00 | 35.00 | 40.00 |
| | 6.472 | 1120.00 | 1.79 | 1425.67 | 0.16 | 3.35 | 0.01 | 16.46 | 438.86 | 3.51 | 40.00 | 35.00 | 40.00 |
| | 6.672 | 1060.00 | 3.77 | 1429.14 | 0.55 | 3.35 | 0.12 | 84.01 | 441.42 | 2.59 | 40.00 | 35.00 | 40.00 |
| | 6.811 | 730.00 | 4.11 | 1432.02 | 0.17 | 2.84 | 0.04 | 22.33 | 443.13 | 2.84 | 40.00 | 35.00 | 40.00 |
| | 7.019 | 1100.00 | 2.73 | 1435.27 | 0.34 | 3.21 | 0.05 | 39.72 | 445.92 | 2.94 | 40.00 | 35.00 | 40.00 |
| | 7.201 | 960.00 | 6.25 | 1439.70 | 0.15 | 4.41 | 0.02 | 53.69 | 448.42 | 1.55 | 0.00 | 35.00 | 40.00 |
| | 7.455 | 1340.00 | 2.99 | 1443.68 | 0.07 | 3.97 | 0.01 | 18.78 | 453.43 | 1.61 | 40.00 | 35.00 | 40.00 |
| * | 7.519 | 340.00 | 8.82 | 1446.86 | 0.46 | 1.48 | 0.12 | 193.08 | 454.45 | 1.40 | 0.00 | 35.00 | 0.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION  SECNO=     0.038  PROFILE= 1  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=     0.672  PROFILE= 1  HYDRAULIC JUMP D.S.

CAUTION  SECNO=     0.785  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     0.785  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=     1.939  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.939  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     1.939  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     4.341  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.341  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=     4.924  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.924  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     4.924  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     5.170  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.170  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.170  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     5.864  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.864  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.864  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     7.519  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     7.519  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     7.519  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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# Appendix D

# APPENDIX D

# DUPLICATE EFFECTIVE HYDRAULIC MODELS

## (HEC-2 and HEC-RAS models for main channel only)

```
T1       FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD
T2       QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**
T3       100-YEAR FLOODPLAIN DELINEATION   REVISED: JUNE 1990
J1   -10       2       0              -1                          1321.30
J2    -1              -1
J3    38      43       1       2      26      39      21      22      27      28
J3    53      54              38      13      14      15      55      26      56
J3    63       1      51       4      42      57              38      39      33
J3     3      10      11      12       5       7       8      16      17      18
J5    +1
NC 0.040   0.050   0.050     0.1     0.3
QT     1    1085
ET            9.1                                                    9900.0 11100.0
X1 0.038      11  9950.0 10062.0
GR1325.4  9900.0  1321.1  9908.0  1320.8  9925.0  1321.1  9950.0  1321.0  9955.0
GR1319.7  9975.0  1319.2 10000.0  1319.2 10025.0  1319.5 10048.0  1321.0 10062.0
GR1321.0 11100.0
ET            9.1                                                    9960.0 11020.0
X1 0.199      16  9990.0 10045.0     880     880     880
X3     0  1322.0
GR1325.0  9835.0  1322.0  9840.0  1322.0  9880.0  1322.0  9945.0  1324.0  9950.0
GR1326.8  9960.0  1322.0  9990.0  1320.0 10000.0  1322.0 10045.0  1322.8 10350.0
GR1322.5 10710.0  1322.0 10910.0  1322.2 11020.0  1322.0 11150.0  1322.3 11360.0
GR1322.7 11760.0
ET            9.1                                                    9960.0 11000.0
X1 0.407      20  9980.0 10575.0    1100    1220    1100
GR1328.0  9840.0  1326.7  9860.0  1326.0  9905.0  1325.6  9925.0  1326.0  9940.0
GR1328.0  9950.0  1329.6  9960.0  1327.0  9980.0  1326.0 10000.0  1327.0 10575.0
GR1326.0 10680.0  1326.0 10730.0  1326.2 10880.0  1326.1 11000.0  1326.0 11100.0
GR1325.9 11200.0  1326.0 11270.0  1325.7 11600.0  1326.0 11900.0  1328.0 12000.0
X1 0.646      24  9970.0 10125.0    1250    1250    1250
X3    10  1330.0
GR1331.6  9750.0  1329.3  9765.0  1330.0  9780.0  1330.8  9800.0  1330.0  9830.0
GR1329.6  9840.0  1330.0  9850.0  1332.0  9860.0  1333.5  9875.0  1332.0  9885.0
GR1330.0  9905.0  1329.7  9925.0  1330.0  9950.0  1330.2  9960.0  1330.0  9970.0
GR1328.5 10000.0  1330.0 10005.0  1331.0 10125.0  1330.7 10270.0  1331.0 10400.0
GR1330.0 10555.0  1330.0 10780.0  1330.0 11000.0  1332.4 11160.0
NC 0.014   0.014   0.014     0.3     0.5
ET            9.1                                                    9725.0 11160.0
SB  1.25     2.4    2.83       0    33.7     3.7   120.0       0  1328.9  1328.8
X1 0.672      19  9984.2 10015.8     170     175     160
X2     0       0       1  1332.0  1334.0
X3    10
BT    -7  9725.0  1335.0  1333.0  9910.0  1335.5  1333.5  9984.2  1333.2  1332.9
BT       10015.8  1333.0  1332.9 10265.0  1334.0  1332.0 10750.0  1333.0  1331.0
BT       11160.0  1332.4  1331.0
GR1333.0  9725.0  1333.5  9910.0  1332.9  9983.2  1332.9  9984.2  1328.9  9984.3
GR1328.9  9994.1  1332.9  9994.2  1332.9  9995.0  1328.9  9995.1  1328.9 10004.9
GR1332.9 10005.0  1332.9 10005.8  1328.9 10015.0  1328.9 10015.7  1332.9 10015.8
GR1332.9 10016.8  1332.0 10265.0  1331.0 10750.0  1330.4 11160.0
NC 0.040   0.050   0.050     0.1     0.3
ET            9.1                                                    9700.0 11140.0
X1 0.681      13  9975.0 10025.0      50      50      50
X3    10  1332.0
GR1332.0  9365.0  1333.2  9525.0  1334.0  9670.0  1335.2  9700.0  1334.0  9710.0
GR1332.0  9975.0  1330.0  9995.0  1329.0 10000.0  1330.0 10015.0  1332.0 10025.0
GR1332.0 10160.0  1332.0 10875.0  1332.0 11140.0
ET            9.1                                                    9950.0 10600.0
X1 0.785      13  9985.0 10430.0     480     550     500
GR1333.5  9580.0  1333.0  9735.0  1333.0  9810.0  1334.0  9930.0  1336.3  9950.0
GR1336.0  9955.0  1334.0  9985.0  1333.0 10000.0  1333.5 10080.0  1334.0 10430.0
GR1334.0 10500.0  1334.0 10560.0  1336.0 10600.0
ET            9.1                                                    9975.0 10600.0
X1 0.843      13  9990.0 10395.0     375     405     370
GR1334.0  9785.0  1333.9  9800.0  1335.3  9830.0  1334.0  9870.0  1334.0  9955.0
GR1336.0  9960.0  1337.3  9975.0  1335.0  9990.0  1334.0 10000.0  1335.0 10395.0
GR1335.5 10680.0  1336.0 10860.0  1338.0 10920.0
ET            9.1                                                    9970.0 10600.0
X1 1.078      14  9990.0 10580.0    1240    1215    1240
GR1338.0  9625.0  1338.0  9800.0  1340.0  9830.0  1338.0  9875.0  1337.4  9910.0
GR1338.0  9945.0  1340.0  9955.0  1341.0  9970.0  1339.0  9990.0  1338.0 10000.0
GR1338.0 10080.0  1339.0 10580.0  1340.0 11610.0  1340.0 11690.0
ET            9.1                                                    9950.0 10600.0
X1 1.227      16  9980.0 10840.0     790     850     790
GR1343.0  9815.0  1342.0  9840.0  1340.0  9900.0  1339.5  9920.0  1340.0  9925.0
GR1342.0  9935.0  1344.0  9945.0  1344.8  9950.0  1342.0  9970.0  1341.5  9980.0
GR1340.5 10000.0  1341.0 10105.0  1341.5 10600.0  1341.5 10840.0  1342.0 11290.0
GR1344.0 12150.0
ET            9.1                                                    9950.0 10600.0
X1 1.419      17  9980.0 10120.0    1010    1230    1010
GR1348.2  9810.0  1345.0  9835.0  1345.3  9875.0  1344.0  9910.0  1344.0  9920.0
GR1346.0  9930.0  1348.0  9940.0  1348.6  9950.0  1345.0  9980.0  1344.0 10000.0
GR1345.0 10120.0  1346.0 10220.0  1346.1 10310.0  1346.0 10400.0  1345.5 10600.0
GR1345.0 10950.0  1346.0 11230.0
ET            9.1                                                    9960.0 10600.0
X1 1.561      14  9990.0 10040.0     750     750     750
GR1350.5  9820.0  1347.9  9840.0  1347.2  9870.0  1346.0  9920.0  1346.0  9935.0
GR1348.0  9940.0  1350.0  9950.0  1350.7  9960.0  1347.0  9990.0  1346.0 10000.0
GR1347.0 10040.0  1348.0 10480.0  1348.0 11050.0  1350.0 12620.0
ET            9.1                                                    9980.0 10600.0
X1 1.712      15  9995.0 10420.0     790     930     790
GR1351.5  9840.0  1350.0  9860.0  1349.0  9870.0  1350.0  9925.0  1349.0  9945.0
GR1350.0  9955.0  1352.0  9970.0  1352.9  9980.0  1351.0  9995.0  1350.0 10000.0
GR1350.3 10200.0  1350.0 10420.0  1349.9 10550.0  1350.0 10680.0  1352.0 11625.0
ET            9.1                                                    9940.0 10600.0
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X1 1.860      12  9975.0 10380.0     780     800     780
GR1353.0  9810.0  1351.0  9840.0  1352.0  9855.0  1354.0  9880.0  1354.8  9920.0
GR1355.0  9940.0  1353.0  9975.0  1352.0 10000.0  1353.0 10380.0  1354.0 10530.0
GR1355.0 10640.0  1356.0 11220.0
NC 0.015   0.015   0.015     0.3     0.5
QT     1    1358
X1 1.939      11  9690.0 10270.0     210     550     370
X2                                                              15
GR1360.1  8780.0  1359.2  8985.0  1358.3  9190.0  1356.7  9580.0  1356.8  9690.0
GR1356.7  9800.0  1356.4 10000.0  1357.4 10270.0  1358.6 10595.0  1359.6 10925.0
GR1360.7 11260.0
NC 0.040   0.040   0.040     0.1     0.3
ET           9.1                                        9970.0 10545.0
X1 2.053      17  9990.0 10050.0     600     320     450
X2                                                              15
GR1356.0  9600.0  1355.0  9680.0  1354.0  9790.0  1354.0  9805.0  1356.0  9830.0
GR1354.0  9850.0  1352.0  9870.0  1352.0  9935.0  1354.0  9950.0  1356.0  9955.0
GR1358.0  9970.0  1356.0  9990.0  1354.7 10000.0  1356.0 10050.0  1356.0 10220.0
GR1358.0 10470.0  1358.0 10545.0
QT     1    1172
X1 2.218       7  9990.0 10370.0     850     880     845
X2                                                              15
GR1361.9  9965.0  1359.0  9990.0  1358.0 10000.0  1360.0 10370.0  1360.0 11000.0
GR1361.6 11010.0  1360.0 12100.0
X1 2.343       8  9990.0 10030.0     660     730     660
X3     0  1362.0
GR1364.8  9970.0  1362.0  9990.0  1360.0 10000.0  1362.0 10030.0  1362.0 10340.0
GR1363.0 10650.0  1364.0 11380.0  1364.9 11500.0
X1 2.559       7  9980.0 10030.0    1125    1125    1125
GR1368.7  9960.0  1366.0  9980.0  1364.0 10000.0  1366.0 10030.0  1366.0 10130.0
GR1368.0 10850.0  1368.0 12260.0
NC 0.040   0.050   0.050     0.1     0.3
X1 2.795       8  9970.0 10010.0    1250    1250    1250
X3     0  1365.2
GR1371.4  9940.0  1366.0  9970.0  1363.5 10000.0  1366.0 10010.0  1368.0 10020.0
GR1368.0 10140.0  1370.0 10960.0  1372.0 11740.0
X1 2.947       9  9985.0 10020.0     800     800     800
GR1373.2  9950.0  1368.0  9985.0  1366.0 10000.0  1368.0 10020.0  1370.0 10030.0
GR1370.0 10180.0  1372.0 11240.0  1374.0 11770.0  1376.0 12200.0
X1 3.136      10  9985.0 10030.0    1000    1000    1000
X3     0  1371.0
GR1376.3  9960.0  1370.0  9985.0  1366.5 10000.0  1372.0 10030.0  1374.0 10300.0
GR1374.0 10420.0  1376.0 11170.0  1376.0 11250.0  1376.0 11530.0  1378.0 12000.0
X1 3.305       9  9980.0 10030.0     890     890     890
X3     0  1375.0
GR1380.2  9960.0  1380.0  9970.0  1376.0  9980.0  1373.0 10000.0  1376.0 10030.0
GR1377.0 10190.0  1378.0 10910.0  1380.0 11840.0  1380.0 12230.0
X1 3.551       6  9990.0 10025.0    1300    1300    1300
GR1384.0  9955.0  1378.0  9990.0  1377.0 10000.0  1380.0 10025.0  1382.0 10860.0
GR1384.0 12100.0
X1 3.676       9  9980.0 10015.0     670     670     670
GR1385.9  9965.0  1380.0  9980.0  1378.8 10000.0  1380.0 10015.0  1382.0 10025.0
GR1382.0 10050.0  1382.0 10260.0  1384.0 11090.0  1386.0 12210.0
QT     1     828
X1 3.892       9  9985.0 10030.0    1140    1140    1140
GR1389.6  9960.0  1384.0  9985.0  1382.0 10000.0  1386.0 10030.0  1386.0 10100.0
GR1386.8 10650.0  1387.0 11150.0  1388.0 11540.0  1389.0 12125.0
NC 0.100   0.035   0.050     0.1     0.3
ET           9.1                                        9560.0 10960.0
X1 4.123      12  9440.0 10090.0    1270    1200    1235
GR1393.1  9440.0  1388.0  9475.0  1390.0  9530.0  1390.0  9560.0  1388.8 10000.0
GR1390.0 10090.0  1390.0 10120.0  1389.4 10300.0  1389.3 10800.0  1390.0 10960.0
GR1390.0 11330.0  1391.0 12450.0
ET           9.1                                        9300.0 10900.0
X1 4.230       8  9740.0 10180.0     800     700     650
GR1392.0  9045.0  1391.0  9250.0  1391.0  9740.0  1391.0 10000.0  1391.4 10180.0
GR1391.0 10225.0  1391.0 10700.0  1392.0 10900.0
NC 0.015   0.015   0.015     0.3     0.5
X1 4.341       8  9585.0 10480.0     580     520     490
GR1399.5  8420.0  1398.0  8610.0  1396.0  8830.0  1395.0  9175.0  1394.5  9585.0
GR1394.0 10000.0  1394.5 10480.0  1394.9 10880.0
NC 0.040   0.100   0.050     0.1     0.3
ET           9.1                                        9850.0 11250.0
X1 4.616       9  9930.0 10640.0    1000    1000    1000
GR1399.5  9850.0  1396.0  9930.0  1395.0 10000.0  1394.4 10100.0  1395.0 10640.0
GR1395.1 11130.0  1396.0 12030.0  1396.0 12440.0  1398.0 12560.0
X1 4.637       7  9925.0 10010.0      75     550     110
GR1399.5  9880.0  1398.0  9925.0  1395.3 10000.0  1395.5 10010.0  1396.0 10480.0
GR1398.0 10870.0  1400.0 11320.0
NC 0.040   0.040   0.035     0.1     0.3
X1 4.748       8  9960.0 10070.0     630     330     600
GR1400.6  9950.0  1398.0  9960.0  1396.0 10000.0  1396.0 10070.0  1396.0 10280.0
GR1398.0 10510.0  1400.0 11400.0  1402.0 12720.0
X1 4.924       8  9975.0 10490.0     930    1040     930
GR1403.2  9960.0  1401.0  9975.0  1400.0 10000.0  1401.0 10490.0  1402.0 10760.0
GR1402.0 11000.0  1404.0 12280.0  1404.5 12820.0
X1 5.038       8  9985.0 10640.0     600     630     600
GR1406.2  9965.0  1403.0  9985.0  1402.0 10000.0  1403.0 10640.0  1404.0 11100.0
GR1404.0 11475.0  1406.0 11485.0  1406.0 11800.0
ET           9.1                                        9970.0 10500.0
X1 5.170      10  9990.0 10100.0     700     700     700
GR1409.6  9970.0  1408.0  9985.0  1407.0  9990.0  1406.0 10000.0  1406.0 10080.0
GR1406.7 10100.0  1406.2 10500.0  1406.0 10740.0  1406.0 11460.0  1408.0 11920.0
ET           9.1                                        9955.0 10800.0
X1 5.375       9  9990.0 10040.0    1080    1150    1080
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GR1411.9  9955.0  1409.0  9990.0  1408.0 10000.0  1409.5 10040.0  1410.0 10350.0
GR1410.6 10800.0  1410.0 11310.0  1411.0 12250.0  1412.0 12755.0
X1 5.523       8  9940.0 10120.0     780     790     780
GR1414.2  9920.0  1414.0  9930.0  1412.0  9940.0  1411.0 10000.0  1412.0 10120.0
GR1413.0 10400.0  1413.0 10860.0  1413.0 11365.0
NC 0.015   0.015   0.015     0.3     0.5
X1 5.631       8  9730.0 10300.0     340     800     600
GR1414.5  9425.0  1412.0  9730.0  1410.3 10000.0  1412.0 10300.0  1414.0 10500.0
GR1415.0 10870.0  1416.0 11010.0  1416.0 11525.0
QT     1     393
NC 0.040   0.040   0.035     0.1     0.3
X1 5.864       8  9975.0 10390.0    1410    1050    1230
GR1418.0  9940.0  1414.0  9975.0  1413.0 10000.0  1414.0 10020.0  1415.0 10390.0
GR1416.0 10745.0  1417.0 11120.0  1416.8 11350.0
ET             9.1                                              9960.0 10770.0
X1 6.047       9  9990.0 10020.0     970     980     970
GR1421.0  9960.0  1417.0  9990.0  1416.0 10000.0  1417.0 10020.0  1418.0 10045.0
GR1420.0 10770.0  1420.0 11670.0  1418.0 11685.0  1418.0 11850.0
ET             9.1                                              9965.0 10510.0
X1 6.259       9  9995.0 10025.0    1120    1120    1120
GR1424.8  9965.0  1421.0  9995.0  1420.0 10000.0  1421.0 10025.0  1422.0 10150.0
GR1424.0 10510.0  1424.0 12010.0  1422.0 12025.0  1422.0 12560.0
X1 6.472      10  9990.0 10015.0    1120    1120    1120
GR1428.9  9950.0  1424.0  9980.0  1423.0  9990.0  1422.0 10000.0  1423.0 10015.0
GR1424.0 10025.0  1426.0 10050.0  1426.0 10545.0  1430.0 11095.0  1430.0 12100.0
X1 6.672       7  9990.0 10015.0    1060    1060    1060
GR1432.4  9945.0  1427.0  9990.0  1426.0 10000.0  1427.0 10015.0  1430.0 10040.0
GR1432.0 11160.0  1434.0 12135.0
X1 6.811      10  9980.0 10020.0     730     730     730
GR1434.5  9950.0  1430.0  9980.0  1429.0 10000.0  1430.0 10020.0  1432.0 10050.0
GR1432.0 10630.0  1434.0 10725.0  1434.0 11315.0  1434.0 11395.0  1436.0 12150.0
X1 7.019      10  9990.0 10020.0    1100    1100    1100
GR1440.1  9945.0  1433.0  9990.0  1432.0 10000.0  1433.0 10020.0  1440.0 10040.0
GR1436.0 10070.0  1436.0 10310.0  1438.0 10890.0  1440.0 10905.0  1440.0 12710.0
X1 7.201       8  9980.0 10090.0     960     960     960
X3     0  1438.0
GR1441.6  9960.0  1441.0  9980.0  1440.0 10000.0  1440.0 10040.0  1434.0 10060.0
GR1438.0 10090.0  1440.0 10220.0  1442.0 10810.0
X1 7.455      10  9980.0 10115.0    1340    1340    1340
GR1448.6  9950.0  1443.0  9980.0  1442.0 10000.0  1442.0 10050.0  1443.0 10115.0
GR1444.0 10190.0  1446.0 11235.0  1446.5 11400.0  1448.0 11990.0  1448.5 12300.0
ET             9.1                                              9970.0 10050.0
X1 7.519       7  9970.0 10050.0     340     340     340
GR1449.2  9920.0  1448.0  9960.0  1446.0  9970.0  1445.0 10000.0  1446.0 10050.0
GR1446.0 11300.0  1446.0 11640.0
EJ


ER
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1*******************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    21OCT98    TIME   17:15:54  *
 *******************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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1
    21OCT98      17:15:54                                                                    PAGE    1


                                                                  THIS RUN EXECUTED 21OCT98    17:15:54
 ************************************
  HEC-2 WATER SURFACE PROFILES

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

 T1       FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD
 T2       QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**
 T3       100-YEAR FLOODPLAIN DELINEATION   REVISED: JUNE 1990

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -10         2         0                  -1                                  1321.30

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      -1                  -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43          1         2        26        39        21        22        27        28
      53        54                   38        13        14        15        55        26        56
      63         1         51         4        42        57                  38        39        33
       3        10         11        12         5         7         8        16        17        18

 J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

      +1


1
    21OCT98      17:15:54                                                                    PAGE    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


 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .038
 3280 CROSS SECTION       .04 EXTENDED       .27 FEET

 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9900.0   11100.0  TYPE=      1  TARGET=     1200.000
       .038      2.07   1321.27   1321.27       .00   1321.45       .17       .00       .00   1321.10
     1085.0      23.9     704.4     356.8      13.6     175.6     284.5        .0        .0   1321.00
        .00      1.75      4.01      1.25      .040      .050      .050      .000   1319.20   9907.68
    .010008        0.        0.        0.         0         5         0       .00   1192.32  11100.00


 *SECNO  .199
 3280 CROSS SECTION       .20 EXTENDED       .76 FEET

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.17

 3470 ENCROACHMENT STATIONS=     9960.0   11020.0  TYPE=      1  TARGET=     1060.000
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .199 | 1.47 | 1323.47 | .00 | .00 | 1323.49 | .02 | 2.02 | .02 | 1322.00 |
| 1085.0 | 6.3 | 96.9 | 981.8 | 6.7 | 80.3 | 1006.9 | 15.8 | 22.5 | 1322.00 |
| .25 | .94 | 1.21 | .98 | .040 | .050 | .050 | .000 | 1322.00 | 9980.87 |
| .000995 | 880. | 880. | 880. | 6 | 0 | 0 | .00 | 1039.13 | 11020.00 |

*SECNO .407

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .20

3470 ENCROACHMENT STATIONS= 9960.0 11000.0 TYPE= 1 TARGET= 1040.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .407 | 1.11 | 1326.71 | .00 | .00 | 1326.85 | .14 | 3.33 | .04 | 1327.00 |
| 1085.0 | .0 | 357.1 | 727.9 | .0 | 148.7 | 219.5 | 36.0 | 47.8 | 1327.00 |
| .36 | .00 | 2.40 | 3.32 | .000 | .050 | .050 | .000 | 1325.60 | 9985.86 |
| .026114 | 1100. | 1100. | 1220. | 4 | 0 | 0 | .00 | 814.92 | 11000.00 |

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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 |

*SECNO .646

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.51

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .646 | 1.15 | 1331.15 | .00 | .00 | 1331.17 | .02 | 4.30 | .01 | 1330.00 |
| 1085.0 | 226.0 | 105.6 | 753.4 | 170.3 | 118.6 | 741.0 | 56.0 | 78.0 | 1331.00 |
| .68 | 1.33 | .89 | 1.02 | .040 | .050 | .050 | .000 | 1330.00 | 9752.92 |
| .001285 | 1250. | 1250. | 1250. | 9 | 0 | 0 | .00 | 1286.16 | 11076.80 |

CCHV= .300 CEHV= .500

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1330.79 , NOT 1331.15 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 2.40 | 2.83 | .00 | 33.70 | 3.70 | 120.00 | .00 | 1328.90 | 1328.80 |

*SECNO .672
PRESS FLOW BECAUSE EGLWC OF 1342.85 EXCEEDS 1.5 DEPTH

3265 DIVIDED FLOW

3280 CROSS SECTION .67 EXTENDED 2.64 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 10.37

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 1334.20 | 1342.85 | .00 | 233. | 855. | 120. | 93. | 1332.00 | 1334.00 | 448. |

3470 ENCROACHMENT STATIONS= 9725.0 11160.0 TYPE= 1 TARGET= 1435.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .672 | 4.14 | 1333.04 | .00 | .00 | 1333.04 | .00 | 1.88 | .00 | 1332.90 |
| 1085.0 | .1 | 61.7 | 1023.2 | 1.7 | 105.1 | 1855.8 | 62.0 | 83.0 | 1332.90 |
| .77 | .06 | .59 | .55 | .014 | .014 | .014 | .000 | 1328.90 | 9725.00 |
| .000012 | 170. | 160. | 175. | 0 | 0 | 6 | .00 | 1209.96 | 11160.00 |

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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 |

CCHV= .100 CEHV= .300
*SECNO .681
3280 CROSS SECTION .68 EXTENDED 1.04 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .12

```
3470 ENCROACHMENT STATIONS=     9700.0   11140.0  TYPE=      1  TARGET=     1440.000
      .681      1.04   1333.04       .00       .00   1333.05       .01       .00       .00   1332.00
    1085.0      48.1      44.5     992.4      71.0      51.8    1154.3      63.9      84.4   1332.00
      .78       .68       .86       .86      .040      .050      .050      .000   1332.00   9837.83
   .000800       50.       50.       50.         2         0         0       .00   1302.17  11140.00


*SECNO  .785
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9950.0   10600.0  TYPE=      1  TARGET=      650.000
      .785      1.21   1334.21   1334.21       .00   1334.46       .25      1.29       .07   1334.00
    1085.0        .6    1025.0      59.5        .3     248.7      27.8      73.4      95.9   1334.00
      .82      1.69      4.12      2.14      .040      .050      .050      .000   1333.00   9981.84
   .041777       480.      500.      550.        19        11         0       .00    582.37  10564.21


*SECNO  .843

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.34


3470 ENCROACHMENT STATIONS=     9975.0   10600.0  TYPE=      1  TARGET=      625.000
      .843      2.11   1336.01       .00       .00   1336.04       .03      1.55       .02   1335.00
    1085.0       3.0     912.4     169.6       3.3     610.4     169.6      78.0     101.1   1335.00
      .89       .89      1.49      1.00      .040      .050      .050      .000   1333.90   9983.43
   .001464       375.      370.      405.         5         0         0       .00    616.57  10600.00


*SECNO 1.078

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

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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


3470 ENCROACHMENT STATIONS=     9970.0   10600.0  TYPE=      1  TARGET=      630.000
     1.078      1.89   1339.29       .00       .00   1339.37       .07      3.32       .01   1339.00
    1085.0        .3    1079.1       5.6        .4     504.4       5.5      96.4     118.6   1339.00
      1.05       .81      2.14      1.00      .040      .050      .050      .000   1337.40   9987.13
   .006387      1240.     1240.     1215.         7         0         0       .00    612.87  10600.00


*SECNO 1.227

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.62


3470 ENCROACHMENT STATIONS=     9950.0   10600.0  TYPE=      1  TARGET=      650.000
     1.227      2.77   1342.27       .00       .00   1342.31       .04      2.94       .00   1341.50
    1085.0       6.2    1078.8        .0        5.4     687.3        .0     107.3     129.9 100000.00
      1.19      1.15      1.57       .00      .040      .050      .000      .000   1339.50   9968.10
   .002436       790.      790.      850.         4         0         0       .00    631.90  10600.00


*SECNO 1.419
3280 CROSS SECTION       1.42 EXTENDED       .17 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


3470 ENCROACHMENT STATIONS=     9950.0   10600.0  TYPE=      1  TARGET=      650.000
     1.419      2.17   1346.17       .00       .00   1346.32       .15      3.98       .03   1345.00
    1085.0      12.3      815.0     257.7       5.7     234.0     173.4     120.6     145.7   1345.00
      1.29      2.15      3.48      1.49      .040      .050      .050      .000   1344.00   9970.24
   .006920      1010.     1010.     1230.         4         0         0       .00    629.76  10600.00


*SECNO 1.561

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.94


3470 ENCROACHMENT STATIONS=     9960.0   10600.0  TYPE=      1  TARGET=      640.000
     1.561      2.69   1348.69       .00       .00   1348.73       .04      2.40       .01   1347.00
    1085.0      16.4      235.3     833.3      11.6     109.6     607.7     130.4     156.5   1347.00
      1.43      1.42      2.15      1.37      .040      .050      .050      .000   1346.00   9976.28
   .001834       750.      750.      750.         6         0         0       .00    623.72  10600.00


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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 |

*SECNO 1.712

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

3470 ENCROACHMENT STATIONS= 9980.0 10600.0 TYPE= 1 TARGET= 620.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.712 | 2.04 | 1351.04 | .00 | .00 | 1351.10 | .06 | 2.36 | .01 | 1351.00 |
| 1085.0 | .0 | 675.7 | 409.3 | .0 | 372.9 | 196.2 | 143.5 | 168.8 | 1350.00 |
| 1.55 | .02 | 1.81 | 2.09 | .000 | .050 | .050 | .000 | 1349.00 | 9994.75 |
| .004426 | 790. | 790. | 930. | 4 | 0 | 0 | .00 | 605.25 | 10600.00 |

*SECNO 1.860

3470 ENCROACHMENT STATIONS= 9940.0 10600.0 TYPE= 1 TARGET= 660.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.860 | 2.82 | 1353.82 | .00 | .00 | 1353.88 | .06 | 2.78 | .00 | 1353.00 |
| 1085.0 | 6.6 | 1033.5 | 45.0 | 5.9 | 535.8 | 50.8 | 153.9 | 179.2 | 1353.00 |
| 1.67 | 1.11 | 1.93 | .89 | .040 | .050 | .050 | .000 | 1351.00 | 9960.60 |
| .002901 | 780. | 780. | 800. | 5 | 0 | 0 | .00 | 542.83 | 10503.43 |

CCHV= .300 CEHV= .500
*SECNO 1.939
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.939 | .81 | 1357.21 | 1357.21 | .00 | 1357.44 | .23 | 1.22 | .09 | 1356.80 |
| 1358.0 | 269.7 | 1088.3 | .0 | 83.1 | 272.9 | .0 | 157.9 | 184.5 | 1357.40 |
| 1.69 | 3.25 | 3.99 | .00 | .015 | .015 | .000 | .000 | 1356.40 | 9454.89 |
| .003922 | 210. | 370. | 550. | 20 | 14 | 0 | .00 | 764.68 | 10219.57 |

FLOW DISTRIBUTION FOR SECNO= 1.94 CWSEL= 1357.21

| STA= | 9455. | 9580. | 9690. | 10270. |
|---|---|---|---|---|
| PER Q= | 5.9 | 13.9 | 80.1 | |
| AREA= | 32.1 | 51.0 | 272.9 | |
| VEL= | 2.5 | 3.7 | 4.0 | |
| DEPTH= | .3 | .5 | .5 | |

CCHV= .100 CEHV= .300

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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 |

*SECNO 2.053
3280 CROSS SECTION 2.05 EXTENDED .10 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.11

3470 ENCROACHMENT STATIONS= 9970.0 10545.0 TYPE= 1 TARGET= 575.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.053 | 6.10 | 1358.10 | .00 | .00 | 1358.14 | .05 | .68 | .02 | 1356.00 |
| 1358.0 | 25.8 | 357.5 | 974.6 | 22.1 | 165.3 | 641.7 | 163.2 | 191.1 | 1356.00 |
| 1.76 | 1.17 | 2.16 | 1.52 | .040 | .040 | .040 | .000 | 1352.00 | 9970.00 |
| .000880 | 600. | 450. | 320. | 3 | 0 | 0 | .00 | 575.00 | 10545.00 |

FLOW DISTRIBUTION FOR SECNO= 2.05 CWSEL= 1358.10

| STA= | 9970. | 9990. | 10050. | 10220. | 10470. | 10545. |
|---|---|---|---|---|---|---|
| PER Q= | 1.9 | 26.3 | 47.7 | 23.9 | .1 | |
| AREA= | 22.1 | 165.3 | 357.8 | 276.1 | 7.8 | |
| VEL= | 1.2 | 2.2 | 1.8 | 1.2 | .2 | |
| DEPTH= | 1.1 | 2.8 | 2.1 | 1.1 | .1 | |

*SECNO 2.218

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .22

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.218 | 1.72 | 1359.72 | .00 | .00 | 1359.98 | .25 | 1.77 | .06 | 1359.00 |
| 1172.0 | 5.2 | 1166.8 | .0 | 2.3 | 289.6 | .0 | 174.4 | 200.2 | 1360.00 |
| 1.82 | 2.24 | 4.03 | .00 | .040 | .040 | .000 | .000 | 1358.00 | 9983.69 |
| .014018 | 850. | 845. | 880. | 2 | 0 | 0 | .00 | 336.62 | 10320.32 |

FLOW DISTRIBUTION FOR SECNO= 2.22 CWSEL= 1359.72

| STA= | 9984. | 9990. | 10370. |
|---|---|---|---|
| PER Q= | .4 | 99.6 | |
| AREA= | 2.3 | 289.6 | |

```
    VEL=      2.2       4.0
  DEPTH=       .4        .9

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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


*SECNO 2.343

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.45

     2.343      1.20   1363.20       .00        .00   1363.25        .05       3.26        .02   1362.00
    1172.0       6.5      97.4    1068.1        5.1      48.0      604.2      182.0      209.5   1362.00
      1.93      1.27      2.03       1.77       .040       .040       .040       .000   1362.00   9981.42
   .002334      660.      660.       730.          5          0          0        .00    815.17  10796.59


*SECNO 2.559

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

     2.559      3.06   1367.06    1366.85        .00   1367.24        .18       3.95        .04   1366.00
    1172.0       7.7      473.4      690.9        4.2      103.0      308.5      195.9      227.0   1366.00
      2.03      1.85       4.60       2.24       .040       .040       .040       .000   1364.00   9972.14
   .005860      1125.     1125.      1125.         13         14          0        .00    539.65  10511.80


CCHV=     .100 CEHV=     .300
*SECNO 2.795

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.50

     2.795      4.40   1369.60       .00        .00   1369.64        .04       2.39        .01   1366.00
    1172.0      60.3      409.6      702.2       36.2      171.2      749.2      215.6      246.9   1366.00
      2.26      1.67       2.39       .94       .040       .050       .050       .000   1365.20   9949.96
   .000936      1250.     1250.      1250.          4          0          0        .00    849.39  10799.34


*SECNO 2.947

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

     2.947      4.85   1370.85       .00        .00   1371.05        .19       1.36        .05   1368.00
    1172.0      80.8      619.4      471.8       27.4      134.8      338.6      229.0      260.9   1368.00
      2.33      2.95       4.59       1.39       .040       .050       .050       .000   1366.00   9965.80
   .003993      800.      800.       800.          3          0          0        .00    665.65  10631.46


*SECNO 3.136
     3.136      3.21   1374.21       .00        .00   1374.32        .10       3.26        .01   1371.00
    1172.0      107.0      471.4      593.6       33.2      141.9      361.6      240.9      274.6   1372.00
      2.44      3.22       3.32       1.64       .040       .050       .050       .000   1371.00   9968.28
   .002711      1000.     1000.      1000.          4          0          0        .00    531.64  10499.93


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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


*SECNO 3.305

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

     3.305      2.65   1377.65       .00        .00   1377.81        .16       3.47        .02   1376.00
    1172.0       8.3      527.7      636.1        3.4      124.2      336.3      251.1      287.0   1376.00
      2.53      2.43       4.25       1.89       .040       .050       .050       .000   1375.00   9975.87
   .006097      890.      890.       890.          4          0          0        .00    682.41  10658.28


*SECNO 3.551

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.83

     3.551      4.73   1381.73       .00        .00   1381.79        .06       3.97        .01   1378.00
    1172.0      96.4      359.3      716.3       40.5      122.9      621.8      269.7      308.8   1380.00
      2.73      2.38       2.92       1.15       .040       .050       .050       .000   1377.00   9968.27
   .001828      1300.     1300.      1300.          7          0          0        .00    777.32  10745.58


*SECNO 3.676
     3.676      4.30   1383.10       .00        .00   1383.19        .09       1.39        .01   1380.00
    1172.0      28.3      449.1      694.6       12.2      129.5      531.1      281.0      320.5   1380.00
      2.82      2.32       3.47       1.31       .040       .050       .050       .000   1378.80   9972.12
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    .002385      670.      670.      670.         3         0         0       .00    744.68  10716.79

 *SECNO 3.892

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

      3.892      4.63   1386.63       .00       .00   1386.85       .22      3.62       .04   1384.00
      828.0      48.3     582.8     196.8      15.3     132.9     175.2     294.0     337.5   1386.00
       2.90      3.16      4.39      1.12      .040      .050      .050      .000   1382.00   9973.31
    .005203     1140.     1140.     1140.         3         0         0       .00    552.41  10525.72


 CCHV=     .100 CEHV=     .300
 *SECNO 4.123

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.83

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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


 3470 ENCROACHMENT STATIONS=     9560.0   10960.0  TYPE=      1  TARGET=     1400.000
      4.123      2.03   1390.03       .00       .00   1390.04       .02      3.17       .02 100000.00
      828.0        .0     287.3     540.7        .0     333.8     460.9     309.6     364.6   1390.00
       3.22       .00       .86      1.17      .000      .050      .035      .000   1388.00   9560.00
    .001554     1270.     1235.     1200.         8         0         0       .00   1400.00  10960.00


 *SECNO 4.230

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


 3470 ENCROACHMENT STATIONS=     9300.0   10900.0  TYPE=      1  TARGET=     1600.000
      4.230       .55   1391.55       .00       .00   1391.58       .03      1.53       .00   1391.00
      828.0     138.6     211.7     477.7     240.5     204.5     305.1     322.0     387.9   1391.40
       3.38       .58      1.04      1.57      .100      .050      .035      .000   1391.00   9300.00
    .003369      800.      650.      700.         3         0         0       .00   1509.33  10809.33


 CCHV=     .300 CEHV=     .500
 *SECNO 4.341
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      4.341       .55   1394.55   1394.55       .00   1394.70       .15      2.02       .06   1394.50
      828.0        .6     826.7        .7        1.0     268.4        1.2     328.1     402.7   1394.50
       3.42       .59      3.08       .59      .015      .015      .015      .000   1394.00   9544.06
    .004814      580.      490.      520.         3         5         0       .00    985.86  10529.92


 CCHV=     .100 CEHV=     .300
 *SECNO 4.616

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.93


 3470 ENCROACHMENT STATIONS=     9850.0   11250.0  TYPE=      1  TARGET=     1400.000
      4.616      1.55   1395.95       .00       .00   1395.96       .01      1.25       .01   1396.00
      828.0        .0     654.3     173.7        .0     832.8     536.9     346.9     429.1   1395.00
       3.82       .00       .79       .32      .000      .050      .100      .000   1394.40   9933.38
    .000561     1000.     1000.     1000.         6         0         0       .00   1316.62  11250.00


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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


 *SECNO 4.637

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .15

      4.637      1.19   1396.49       .00       .00   1396.57       .08       .59       .02   1398.00
      828.0        .0     117.6     710.4        .0      30.6     371.8     353.7     437.5   1395.50
       3.87       .00      3.84      1.91      .000      .050      .100      .000   1395.30   9966.92
    .026360       75.      110.      550.         2         0         0       .00    608.85  10575.76


 CCHV=     .100 CEHV=     .300
 *SECNO 4.748

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.34
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     4.748      1.55   1397.55       .00       .00   1397.58       .03      1.00       .01   1398.00
     828.0        .0     204.7     623.3        .0     132.4     463.2     358.0     442.1   1396.00
      3.94       .00      1.55      1.35      .000      .035      .040      .000   1396.00   9969.02
   .000924      630.      600.      330.         7         0         0       .00    489.11  10458.13


*SECNO 4.924
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     4.924       .91   1400.91   1400.91       .00   1401.14       .24      2.51       .06   1401.00
     828.0        .0     828.0        .0        .0     212.8        .0     367.2     452.8   1401.00
      4.01       .00      3.89       .00      .000      .035      .000      .000   1400.00   9977.27
   .024036      930.      930.     1040.        20        14         0       .00    468.17  10445.44


*SECNO 5.038

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.09

     5.038      1.36   1403.36       .00       .00   1403.39       .03      2.23       .02   1403.00
     828.0        .2     814.8      13.0        .4     561.0      29.2     372.8     461.7   1403.00
      4.13       .44      1.45       .45      .040      .035      .040      .000   1402.00   9982.77
   .001439      600.      600.      630.         8         0         0       .00    821.19  10803.96


*SECNO 5.170
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
1
   21OCT98      17:15:54                                                                        PAGE   12

    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


3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9970.0   10500.0  TYPE=      1  TARGET=      530.000
     5.170       .86   1406.86   1406.86       .00   1407.08       .22      2.43       .06   1407.00
     828.0        .0     386.2     441.8        .0      82.5     163.3     379.5     472.4   1406.70
      4.18       .00      4.68      2.70      .000      .035      .040      .000   1406.00   9991.42
   .017540      700.      700.      700.        20        14         0       .00    508.58  10500.00


*SECNO 5.375

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.63


3470 ENCROACHMENT STATIONS=     9955.0   10800.0  TYPE=      1  TARGET=      845.000
     5.375      2.73   1410.73       .00       .00   1410.77       .04      3.67       .02   1409.00
     828.0      22.1     251.6     554.3      18.0     101.4     496.5     390.7     490.0   1409.50
      4.39      1.23      2.48      1.12      .040      .035      .040      .000   1408.00   9969.13
   .001331     1080.     1080.     1150.        11         0         0       .00    830.86  10800.00


*SECNO 5.523

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44

     5.523      1.61   1412.61       .00       .00   1412.82       .20      2.00       .05   1412.00
     828.0       1.3     752.9      73.8        .9     200.9      53.1     398.6     500.7   1412.00
      4.45      1.37      3.75      1.39      .040      .035      .040      .000   1411.00   9936.92
   .006733      780.      780.      790.         4         0         0       .00    355.55  10292.47


CCHV=     .300 CEHV=     .500
*SECNO 5.631

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 15.18

     5.631      2.63   1412.93       .00       .00   1412.94       .01       .06       .06   1412.00
     828.0      16.9     797.2      13.9      52.6    1013.9      43.1     408.0     508.7   1412.00
      4.67       .32       .79       .32      .015      .015      .015      .000   1410.30   9616.70
   .000029      340.      600.      800.         3         0         0       .00    776.17  10392.87


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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


CCHV=     .100 CEHV=     .300
*SECNO 5.864
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
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 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      5.864      1.54   1414.54   1414.54       .00   1414.77       .23       .08       .07   1414.00
      393.0       3.3     389.7        .0       1.3     101.4        .0     425.2     523.3   1415.00
       4.76      2.53      3.84       .00      .040      .035      .000      .000   1413.00   9970.25
     .026663     1410.     1230.     1050.        20        14         0       .00    250.60  10220.85


 *SECNO 6.047
 3280 CROSS SECTION      6.05 EXTENDED       .83 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.01


 3470 ENCROACHMENT STATIONS=     9960.0   10770.0  TYPE=      1  TARGET=      810.000
      6.047      2.83   1418.83       .00       .00   1418.91       .08      4.12       .01   1417.00
      393.0      17.7     211.3     164.1      12.5      69.8     156.8     429.0     530.2   1417.00
       4.88      1.41      3.03      1.05      .040      .035      .040      .000   1416.00   9976.31
     .001655     970.      970.      980.         8         0         0       .00    368.09  10344.40


 *SECNO 6.259
 3280 CROSS SECTION      6.26 EXTENDED       .08 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49


 3470 ENCROACHMENT STATIONS=     9965.0   10510.0  TYPE=      1  TARGET=      545.000
      6.259      2.08   1422.08       .00       .00   1422.31       .24      3.36       .05   1421.00
      393.0       9.4     227.5     156.1       4.6      47.3      72.8     433.7     537.2   1421.00
       4.97      2.05      4.81      2.14      .040      .035      .040      .000   1420.00   9986.49
     .007012     1120.     1120.     1120.         6         0         0       .00    177.53  10164.02


 *SECNO 6.472

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06

1
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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


      6.472      3.51   1425.51       .00       .00   1425.67       .16      3.35       .01   1423.00
      393.0      56.9     270.0      66.1      27.1      75.3      34.4     437.0     540.5   1423.00
       5.07      2.10      3.59      1.92      .040      .035      .040      .000   1422.00   9970.74
     .001646     1120.     1120.     1120.         5         0         0       .00     73.17  10043.91


 *SECNO 6.672

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44

      6.672      2.59   1428.59       .00       .00   1429.14       .55      3.35       .12   1427.00
      393.0      30.6     331.7      30.6      10.5      52.3      10.5     439.6     542.0   1427.00
       5.12      2.91      6.35      2.91      .040      .035      .040      .000   1426.00   9976.75
     .008401     1060.     1060.     1060.         3         0         0       .00     51.50  10028.25


 *SECNO 6.811

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.94

      6.811      2.84   1431.84       .00       .00   1432.02       .17      2.84       .04   1430.00
      393.0      18.7     331.9      42.4      11.3      93.8      25.5     441.3     543.1   1430.00
       5.18      1.65      3.54      1.66      .040      .035      .040      .000   1429.00   9967.70
     .002233     730.      730.      730.         4         0         0       .00     79.97  10047.67


 *SECNO 7.019
      7.019      2.94   1434.94       .00       .00   1435.27       .34      3.21       .05   1433.00
      393.0      27.1     354.1      11.8      11.9      73.2       5.4     444.1     544.7   1433.00
       5.25      2.27      4.84      2.21      .040      .035      .040      .000   1432.00   9977.71
     .003972     1100.     1100.     1100.         3         0         0       .00     47.83  10025.54


 *SECNO 7.201
      7.201      1.45   1439.45       .00       .00   1439.61       .16      4.32       .02   1441.00
      393.0        .0     247.6     145.4        .0      66.1      67.8     446.6     546.8   1438.00
       5.33       .00      3.75      2.14       .000      .035      .040      .000   1438.00   10041.85
     .005138     960.      960.      960.         3         0         0       .00    142.05  10183.90


 *SECNO 7.455
1
    21OCT98      17:15:54                                                                                PAGE   15
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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 |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.61

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.455 | 1.59 | 1443.59 | .00 | .00 | 1443.67 | .08 | 4.05 | .01 | 1443.00 |
| 393.0 | .7 | 382.8 | 9.6 | .9 | 172.1 | 13.0 | 451.5 | 551.8 | 1443.00 |
| 5.50 | .72 | 2.22 | .73 | .040 | .035 | .040 | .000 | 1442.00 | 9976.84 |
| .001987 | 1340. | 1340. | 1340. | 5 | 0 | 0 | .00 | 182.37 | 10159.21 |

*SECNO 7.519
3280 CROSS SECTION 7.52 EXTENDED .40 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 9970.0 10050.0 TYPE= 1 TARGET= 80.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.519 | 1.40 | 1446.40 | 1446.40 | .00 | 1446.86 | .46 | 1.55 | .12 | 1446.00 |
| 393.0 | .0 | 393.0 | .0 | .0 | 72.0 | .0 | 452.5 | 552.8 | 100000.00 |
| 5.52 | .00 | 5.46 | .00 | .000 | .035 | .000 | .000 | 1445.00 | 9970.00 |
| .019308 | 340. | 340. | 340. | 20 | 15 | 0 | .00 | 80.00 | 10050.00 |





**********
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 FLOODPLAIN DEL

SUMMARY PRINTOUT

| | SECNO | Q | CWSEL | CRIWS | VCH | XLCH | STCHL | STCHR | STENCL | STENCR | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | .038 | 1085.00 | 1321.27 | 1321.27 | 4.01 | .00 | 9950.00 | 10062.00 | 9900.00 | 11100.00 | 9907.68 | 11100.00 |
| * | .199 | 1085.00 | 1323.47 | .00 | 1.21 | 880.00 | 9990.00 | 10045.00 | 9960.00 | 11020.00 | 9980.87 | 11020.00 |
| * | .407 | 1085.00 | 1326.71 | .00 | 2.40 | 1100.00 | 9980.00 | 10575.00 | 9960.00 | 11000.00 | 9985.86 | 11000.00 |
| * | .646 | 1085.00 | 1331.15 | .00 | .89 | 1250.00 | 9970.00 | 10125.00 | .00 | .00 | 9752.92 | 11076.80 |
| * | .672 | 1085.00 | 1333.04 | .00 | .59 | 160.00 | 9984.20 | 10015.80 | 9725.00 | 11160.00 | 9725.00 | 11160.00 |
| * | .681 | 1085.00 | 1333.04 | .00 | .86 | 50.00 | 9975.00 | 10025.00 | 9700.00 | 11140.00 | 9837.83 | 11140.00 |
| * | .785 | 1085.00 | 1334.21 | 1334.21 | 4.12 | 500.00 | 9985.00 | 10430.00 | 9950.00 | 10600.00 | 9981.84 | 10564.21 |
| * | .843 | 1085.00 | 1336.01 | .00 | 1.49 | 370.00 | 9990.00 | 10395.00 | 9975.00 | 10600.00 | 9983.43 | 10600.00 |
| * | 1.078 | 1085.00 | 1339.29 | .00 | 2.14 | 1240.00 | 9990.00 | 10580.00 | 9970.00 | 10600.00 | 9987.13 | 10600.00 |
| * | 1.227 | 1085.00 | 1342.27 | .00 | 1.57 | 790.00 | 9980.00 | 10840.00 | 9950.00 | 10600.00 | 9968.10 | 10600.00 |
| * | 1.419 | 1085.00 | 1346.17 | .00 | 3.48 | 1010.00 | 9980.00 | 10120.00 | 9950.00 | 10600.00 | 9970.24 | 10600.00 |
| * | 1.561 | 1085.00 | 1348.69 | .00 | 2.15 | 750.00 | 9990.00 | 10040.00 | 9960.00 | 10600.00 | 9976.28 | 10600.00 |
| * | 1.712 | 1085.00 | 1351.04 | .00 | 1.81 | 790.00 | 9995.00 | 10420.00 | 9980.00 | 10600.00 | 9994.75 | 10600.00 |
| | 1.860 | 1085.00 | 1353.82 | .00 | 1.93 | 780.00 | 9975.00 | 10380.00 | 9940.00 | 10600.00 | 9960.60 | 10503.43 |
| * | 1.939 | 1358.00 | 1357.21 | 1357.21 | 3.99 | 370.00 | 9690.00 | 10270.00 | .00 | .00 | 9454.89 | 10219.57 |
| * | 2.053 | 1358.00 | 1358.10 | .00 | 2.16 | 450.00 | 9990.00 | 10050.00 | 9970.00 | 10545.00 | 9970.00 | 10545.00 |
| * | 2.218 | 1172.00 | 1359.72 | .00 | 4.03 | 845.00 | 9990.00 | 10370.00 | .00 | .00 | 9983.69 | 10320.32 |



| | SECNO | Q | CWSEL | CRIWS | VCH | XLCH | STCHL | STCHR | STENCL | STENCR | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 2.343 | 1172.00 | 1363.20 | .00 | 2.03 | 660.00 | 9990.00 | 10030.00 | .00 | .00 | 9981.42 | 10796.59 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 2.559 | 1172.00 | 1367.06 | 1366.85 | 4.60 | 1125.00 | 9980.00 | 10030.00 | .00 | .00 | 9972.14 | 10511.80 |
| * | 2.795 | 1172.00 | 1369.60 | .00 | 2.39 | 1250.00 | 9970.00 | 10010.00 | .00 | .00 | 9949.96 | 10799.34 |
| * | 2.947 | 1172.00 | 1370.85 | .00 | 4.59 | 800.00 | 9985.00 | 10020.00 | .00 | .00 | 9965.80 | 10631.46 |
| | 3.136 | 1172.00 | 1374.21 | .00 | 3.32 | 1000.00 | 9985.00 | 10030.00 | .00 | .00 | 9968.28 | 10499.93 |
| * | 3.305 | 1172.00 | 1377.65 | .00 | 4.25 | 890.00 | 9980.00 | 10030.00 | .00 | .00 | 9975.87 | 10658.28 |
| * | 3.551 | 1172.00 | 1381.73 | .00 | 2.92 | 1300.00 | 9990.00 | 10025.00 | .00 | .00 | 9968.27 | 10745.58 |
| | 3.676 | 1172.00 | 1383.10 | .00 | 3.47 | 670.00 | 9980.00 | 10015.00 | .00 | .00 | 9972.12 | 10716.79 |
| * | 3.892 | 828.00 | 1386.63 | .00 | 4.39 | 1140.00 | 9985.00 | 10030.00 | .00 | .00 | 9973.31 | 10525.72 |
| * | 4.123 | 828.00 | 1390.03 | .00 | .86 | 1235.00 | 9440.00 | 10090.00 | 9560.00 | 10960.00 | 9560.00 | 10960.00 |
| * | 4.230 | 828.00 | 1391.55 | .00 | 1.04 | 650.00 | 9740.00 | 10180.00 | 9300.00 | 10900.00 | 9300.00 | 10809.33 |
| * | 4.341 | 828.00 | 1394.55 | 1394.55 | 3.08 | 490.00 | 9585.00 | 10480.00 | .00 | .00 | 9544.06 | 10529.92 |
| * | 4.616 | 828.00 | 1395.95 | .00 | .79 | 1000.00 | 9930.00 | 10640.00 | 9850.00 | 11250.00 | 9933.38 | 11250.00 |
| * | 4.637 | 828.00 | 1396.49 | .00 | 3.84 | 110.00 | 9925.00 | 10010.00 | .00 | .00 | 9966.92 | 10575.76 |
| * | 4.748 | 828.00 | 1397.55 | .00 | 1.55 | 600.00 | 9960.00 | 10070.00 | .00 | .00 | 9969.02 | 10458.13 |
| * | 4.924 | 828.00 | 1400.91 | 1400.91 | 3.89 | 930.00 | 9975.00 | 10490.00 | .00 | .00 | 9977.27 | 10445.44 |
| * | 5.038 | 828.00 | 1403.36 | .00 | 1.45 | 600.00 | 9985.00 | 10640.00 | .00 | .00 | 9982.77 | 10803.96 |
| * | 5.170 | 828.00 | 1406.86 | 1406.86 | 4.68 | 700.00 | 9990.00 | 10100.00 | 9970.00 | 10500.00 | 9991.42 | 10500.00 |
| * | 5.375 | 828.00 | 1410.73 | .00 | 2.48 | 1080.00 | 9990.00 | 10040.00 | 9955.00 | 10800.00 | 9969.13 | 10800.00 |
| * | 5.523 | 828.00 | 1412.61 | .00 | 3.75 | 780.00 | 9940.00 | 10120.00 | .00 | .00 | 9936.92 | 10292.47 |
| * | 5.631 | 828.00 | 1412.93 | .00 | .79 | 600.00 | 9730.00 | 10300.00 | .00 | .00 | 9616.70 | 10392.87 |
| * | 5.864 | 393.00 | 1414.54 | 1414.54 | 3.84 | 1230.00 | 9975.00 | 10390.00 | .00 | .00 | 9970.25 | 10220.85 |
| * | 6.047 | 393.00 | 1418.83 | .00 | 3.03 | 970.00 | 9990.00 | 10020.00 | 9960.00 | 10770.00 | 9976.31 | 10344.40 |
| * | 6.259 | 393.00 | 1422.08 | .00 | 4.81 | 1120.00 | 9995.00 | 10025.00 | 9965.00 | 10510.00 | 9986.49 | 10164.02 |
| * | 6.472 | 393.00 | 1425.51 | .00 | 3.59 | 1120.00 | 9990.00 | 10015.00 | .00 | .00 | 9970.74 | 10043.91 |
| * | 6.672 | 393.00 | 1428.59 | .00 | 6.35 | 1060.00 | 9990.00 | 10015.00 | .00 | .00 | 9976.75 | 10028.25 |



| | SECNO | Q | CWSEL | CRIWS | VCH | XLCH | STCHL | STCHR | STENCL | STENCR | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 6.811 | 393.00 | 1431.84 | .00 | 3.54 | 730.00 | 9980.00 | 10020.00 | .00 | .00 | 9967.70 | 10047.67 |
| | 7.019 | 393.00 | 1434.94 | .00 | 4.84 | 1100.00 | 9990.00 | 10020.00 | .00 | .00 | 9977.71 | 10025.54 |
| | 7.201 | 393.00 | 1439.45 | .00 | 3.75 | 960.00 | 9980.00 | 10090.00 | .00 | .00 | 10041.85 | 10183.90 |
| * | 7.455 | 393.00 | 1443.59 | .00 | 2.22 | 1340.00 | 9980.00 | 10115.00 | .00 | .00 | 9976.84 | 10159.21 |
| * | 7.519 | 393.00 | 1446.40 | 1446.40 | 5.46 | 340.00 | 9970.00 | 10050.00 | 9970.00 | 10050.00 | 9970.00 | 10050.00 |



100-YEAR FLOODPLAIN DEL

SUMMARY PRINTOUT

| | SECNO | QLOB | QCH | QROB | VLOB | VCH | VROB | TELMX | CWSEL | DIFWSX | TOPWID | ELMIN | ALPHA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | .038 | 23.86 | 704.39 | 356.75 | 1.75 | 4.01 | 1.25 | 1321.00 | 1321.27 | .00 | 1192.32 | 1319.20 | 2.10 |
| * | .199 | 6.28 | 96.93 | 981.78 | .94 | 1.21 | .98 | 1322.70 | 1323.47 | 2.20 | 1039.13 | 1322.00 | 1.01 |
| * | .407 | .00 | 357.08 | 727.92 | .00 | 2.40 | 3.32 | 1328.00 | 1326.71 | 3.24 | 814.92 | 1325.60 | 1.07 |
| * | .646 | 225.96 | 105.62 | 753.42 | 1.33 | .89 | 1.02 | 1331.60 | 1331.15 | 4.44 | 1286.16 | 1330.00 | 1.05 |
| * | .672 | .10 | 61.68 | 1023.22 | .06 | .59 | .55 | 1330.40 | 1333.04 | 1.89 | 1209.96 | 1328.90 | 1.00 |
| * | .681 | 48.10 | 44.53 | 992.37 | .68 | .86 | .86 | 1332.00 | 1333.04 | .00 | 1302.17 | 1332.00 | 1.01 |
| * | .785 | .56 | 1024.98 | 59.45 | 1.69 | 4.12 | 2.14 | 1336.00 | 1334.21 | 1.18 | 582.37 | 1333.00 | 1.06 |
| * | .843 | 2.95 | 912.42 | 169.63 | .89 | 1.49 | 1.00 | 1338.00 | 1336.01 | 1.80 | 616.57 | 1333.90 | 1.06 |
| * | 1.078 | .33 | 1079.11 | 5.56 | .81 | 2.14 | 1.00 | 1340.00 | 1339.29 | 3.29 | 612.87 | 1337.40 | 1.01 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 1.227 | 6.20 | 1078.80 | .00 | 1.15 | 1.57 | .00 | 1344.00 | 1342.27 | 2.98 | 631.90 | 1339.50 | 1.00 |
| * | 1.419 | 12.32 | 814.97 | 257.71 | 2.15 | 3.48 | 1.49 | 1346.00 | 1346.17 | 3.90 | 629.76 | 1344.00 | 1.40 |
| * | 1.561 | 16.44 | 235.26 | 833.29 | 1.42 | 2.15 | 1.37 | 1350.00 | 1348.69 | 2.52 | 623.72 | 1346.00 | 1.12 |
| * | 1.712 | .00 | 675.70 | 409.30 | .02 | 1.81 | 2.09 | 1352.00 | 1351.04 | 2.35 | 605.25 | 1349.00 | 1.01 |
| | 1.860 | 6.55 | 1033.48 | 44.97 | 1.11 | 1.93 | .89 | 1356.00 | 1353.82 | 2.78 | 542.83 | 1351.00 | 1.07 |
| * | 1.939 | 269.74 | 1088.26 | .00 | 3.25 | 3.99 | .00 | 1360.10 | 1357.21 | 3.39 | 764.68 | 1356.40 | 1.02 |
| * | 2.053 | 25.84 | 357.54 | 974.63 | 1.17 | 2.16 | 1.52 | 1358.00 | 1358.10 | .88 | 575.00 | 1352.00 | 1.09 |
| * | 2.218 | 5.16 | 1166.83 | .00 | 2.24 | 4.03 | .00 | 1360.00 | 1359.72 | 1.63 | 336.62 | 1358.00 | 1.00 |
| * | 2.343 | 6.54 | 97.39 | 1068.08 | 1.27 | 2.03 | 1.77 | 1364.80 | 1363.20 | 3.48 | 815.17 | 1362.00 | 1.01 |
| * | 2.559 | 7.72 | 473.41 | 690.87 | 1.85 | 4.60 | 2.24 | 1368.00 | 1367.06 | 3.86 | 539.65 | 1364.00 | 1.45 |
| * | 2.795 | 60.28 | 409.57 | 702.15 | 1.67 | 2.39 | .94 | 1371.40 | 1369.60 | 2.54 | 849.39 | 1365.20 | 1.78 |
| * | 2.947 | 80.81 | 619.41 | 471.78 | 2.95 | 4.59 | 1.39 | 1373.20 | 1370.85 | 1.25 | 665.65 | 1366.00 | 2.29 |
| | 3.136 | 106.96 | 471.39 | 593.65 | 3.22 | 3.32 | 1.64 | 1376.30 | 1374.21 | 3.36 | 531.64 | 1371.00 | 1.42 |
| * | 3.305 | 8.27 | 527.68 | 636.05 | 2.43 | 4.25 | 1.89 | 1380.00 | 1377.65 | 3.44 | 682.41 | 1375.00 | 1.58 |
| * | 3.551 | 96.44 | 359.29 | 716.27 | 2.38 | 2.92 | 1.15 | 1384.00 | 1381.73 | 4.08 | 777.32 | 1377.00 | 1.75 |

1



| | SECNO | QLOB | QCH | QROB | VLOB | VCH | VROB | TELMX | CWSEL | DIFWSX | TOPWID | ELMIN | ALPHA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.676 | 28.31 | 449.07 | 694.62 | 2.32 | 3.47 | 1.31 | 1385.90 | 1383.10 | 1.37 | 744.68 | 1378.80 | 1.89 |
| * | 3.892 | 48.33 | 582.83 | 196.85 | 3.16 | 4.39 | 1.12 | 1389.00 | 1386.63 | 3.53 | 552.41 | 1382.00 | 2.20 |
| * | 4.123 | .00 | 287.31 | 540.69 | .00 | .86 | 1.17 | 1391.00 | 1390.03 | 3.40 | 1400.00 | 1388.00 | 1.06 |
| * | 4.230 | 138.57 | 211.69 | 477.74 | .58 | 1.04 | 1.57 | 1392.00 | 1391.55 | 1.52 | 1509.33 | 1391.00 | 1.43 |
| * | 4.341 | .60 | 826.67 | .73 | .59 | 3.08 | .59 | 1394.90 | 1394.55 | 3.00 | 985.86 | 1394.00 | 1.01 |
| * | 4.616 | .00 | 654.29 | 173.71 | .00 | .79 | .32 | 1398.00 | 1395.95 | 1.40 | 1316.62 | 1394.40 | 1.39 |
| * | 4.637 | .00 | 117.58 | 710.42 | .00 | 3.84 | 1.91 | 1399.50 | 1396.49 | .54 | 608.85 | 1395.30 | 1.23 |
| * | 4.748 | .00 | 204.74 | 623.26 | .00 | 1.55 | 1.35 | 1400.60 | 1397.55 | 1.06 | 489.11 | 1396.00 | 1.01 |
| * | 4.924 | .00 | 828.00 | .00 | .00 | 3.89 | .00 | 1403.20 | 1400.91 | 3.36 | 468.17 | 1400.00 | 1.00 |
| * | 5.038 | .18 | 814.78 | 13.04 | .44 | 1.45 | .45 | 1406.00 | 1403.36 | 2.45 | 821.19 | 1402.00 | 1.06 |
| * | 5.170 | .00 | 386.21 | 441.79 | .00 | 4.68 | 2.70 | 1408.00 | 1406.86 | 3.50 | 508.58 | 1406.00 | 1.25 |
| * | 5.375 | 22.14 | 251.60 | 554.26 | 1.23 | 2.48 | 1.12 | 1412.00 | 1410.73 | 3.87 | 830.86 | 1408.00 | 1.52 |
| * | 5.523 | 1.30 | 752.86 | 73.84 | 1.37 | 3.75 | 1.39 | 1413.00 | 1412.61 | 1.89 | 355.55 | 1411.00 | 1.23 |
| * | 5.631 | 16.90 | 797.25 | 13.85 | .32 | .79 | .32 | 1414.50 | 1412.93 | .31 | 776.17 | 1410.30 | 1.08 |
| * | 5.864 | 3.26 | 389.73 | .00 | 2.53 | 3.84 | .00 | 1416.80 | 1414.54 | 1.62 | 250.60 | 1413.00 | 1.00 |
| * | 6.047 | 17.68 | 211.25 | 164.07 | 1.41 | 3.03 | 1.05 | 1418.00 | 1418.83 | 4.28 | 368.09 | 1416.00 | 2.03 |
| * | 6.259 | 9.40 | 227.50 | 156.10 | 2.05 | 4.81 | 2.14 | 1422.00 | 1422.08 | 3.25 | 177.53 | 1420.00 | 1.54 |
| * | 6.472 | 56.89 | 270.04 | 66.07 | 2.10 | 3.59 | 1.92 | 1428.90 | 1425.51 | 3.43 | 73.17 | 1422.00 | 1.22 |
| * | 6.672 | 30.65 | 331.71 | 30.65 | 2.91 | 6.35 | 2.91 | 1432.40 | 1428.59 | 3.08 | 51.50 | 1426.00 | 1.23 |
| * | 6.811 | 18.73 | 331.87 | 42.40 | 1.65 | 3.54 | 1.66 | 1434.50 | 1431.84 | 3.25 | 79.97 | 1429.00 | 1.22 |
| | 7.019 | 27.09 | 354.07 | 11.85 | 2.27 | 4.84 | 2.21 | 1440.00 | 1434.94 | 3.09 | 47.83 | 1432.00 | 1.14 |
| | 7.201 | .00 | 247.62 | 145.38 | .00 | 3.75 | 2.14 | 1441.60 | 1439.45 | 4.51 | 142.05 | 1438.00 | 1.22 |
| * | 7.455 | .67 | 382.77 | 9.56 | .72 | 2.22 | .73 | 1448.50 | 1443.59 | 4.15 | 182.37 | 1442.00 | 1.08 |
| * | 7.519 | .00 | 393.00 | .00 | .00 | 5.46 | .00 | 1446.00 | 1446.40 | 2.81 | 80.00 | 1445.00 | 1.00 |

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100-YEAR FLOODPLAIN DEL

SUMMARY PRINTOUT

| SECNO | XLCH | K*CHSL | EG | HV | HL | OLOSS | 10*KS | VOL | DEPTH | K*XNL | K*XNCH | K*XNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | .038 | .00 | .00 | 1321.45 | .17 | .00 | .00 | 100.08 | .00 | 2.07 | 40.00 | 50.00 | 50.00 |
| * | .199 | 880.00 | 3.18 | 1323.49 | .02 | 2.02 | .02 | 9.95 | 15.83 | 1.47 | 40.00 | 50.00 | 50.00 |
| * | .407 | 1100.00 | 3.27 | 1326.85 | .14 | 3.33 | .04 | 261.14 | 35.99 | 1.11 | .00 | 50.00 | 50.00 |
| * | .646 | 1250.00 | 3.52 | 1331.17 | .02 | 4.30 | .01 | 12.85 | 56.05 | 1.15 | 40.00 | 50.00 | 50.00 |
| * | .672 | 160.00 | -6.87 | 1333.04 | .00 | 1.88 | .00 | .12 | 62.01 | 4.14 | 14.00 | 14.00 | 14.00 |
| * | .681 | 50.00 | 62.00 | 1333.05 | .01 | .00 | .00 | 8.00 | 63.87 | 1.04 | 40.00 | 50.00 | 50.00 |
| * | .785 | 500.00 | 2.00 | 1334.46 | .25 | 1.29 | .07 | 417.77 | 73.45 | 1.21 | 40.00 | 50.00 | 50.00 |
| * | .843 | 370.00 | 2.43 | 1336.04 | .03 | 1.55 | .02 | 14.64 | 78.03 | 2.11 | 40.00 | 50.00 | 50.00 |
| * | 1.078 | 1240.00 | 2.82 | 1339.37 | .07 | 3.32 | .01 | 63.87 | 96.39 | 1.89 | 40.00 | 50.00 | 50.00 |
| * | 1.227 | 790.00 | 2.66 | 1342.31 | .04 | 2.94 | .00 | 24.36 | 107.31 | 2.77 | 40.00 | 50.00 | .00 |
| * | 1.419 | 1010.00 | 4.46 | 1346.32 | .15 | 3.98 | .03 | 69.20 | 120.56 | 2.17 | 40.00 | 50.00 | 50.00 |
| * | 1.561 | 750.00 | 2.67 | 1348.73 | .04 | 2.40 | .01 | 18.34 | 130.40 | 2.69 | 40.00 | 50.00 | 50.00 |
| * | 1.712 | 790.00 | 3.80 | 1351.10 | .06 | 2.36 | .01 | 44.26 | 143.46 | 2.04 | .00 | 50.00 | 50.00 |
| | 1.860 | 780.00 | 2.56 | 1353.88 | .06 | 2.78 | .00 | 29.01 | 153.92 | 2.82 | 40.00 | 50.00 | 50.00 |
| * | 1.939 | 370.00 | 14.59 | 1357.44 | .23 | 1.22 | .09 | 39.22 | 157.89 | .81 | 15.00 | 15.00 | .00 |
| * | 2.053 | 450.00 | -9.78 | 1358.14 | .05 | .68 | .02 | 8.80 | 163.23 | 6.10 | 40.00 | 40.00 | 40.00 |
| * | 2.218 | 845.00 | 7.10 | 1359.98 | .25 | 1.77 | .06 | 140.18 | 174.36 | 1.72 | 40.00 | 40.00 | .00 |
| * | 2.343 | 660.00 | 6.06 | 1363.25 | .05 | 3.26 | .02 | 23.34 | 182.04 | 1.20 | 40.00 | 40.00 | 40.00 |
| * | 2.559 | 1125.00 | 1.78 | 1367.24 | .18 | 3.95 | .04 | 58.60 | 195.90 | 3.06 | 40.00 | 40.00 | 40.00 |
| * | 2.795 | 1250.00 | .96 | 1369.64 | .04 | 2.39 | .01 | 9.36 | 215.59 | 4.40 | 40.00 | 50.00 | 50.00 |
| * | 2.947 | 800.00 | 1.00 | 1371.05 | .19 | 1.36 | .05 | 39.93 | 228.97 | 4.85 | 40.00 | 50.00 | 50.00 |
| | 3.136 | 1000.00 | 5.00 | 1374.32 | .10 | 3.26 | .01 | 27.11 | 240.88 | 3.21 | 40.00 | 50.00 | 50.00 |
| * | 3.305 | 890.00 | 4.49 | 1377.81 | .16 | 3.47 | .02 | 60.97 | 251.10 | 2.65 | 40.00 | 50.00 | 50.00 |
| * | 3.551 | 1300.00 | 1.54 | 1381.79 | .06 | 3.97 | .01 | 18.28 | 269.74 | 4.73 | 40.00 | 50.00 | 50.00 |



| | SECNO | XLCH | K*CHSL | EG | HV | HL | OLOSS | 10*KS | VOL | DEPTH | K*XNL | K*XNCH | K*XNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.676 | 670.00 | 2.69 | 1383.19 | .09 | 1.39 | .01 | 23.85 | 280.96 | 4.30 | 40.00 | 50.00 | 50.00 |
| * | 3.892 | 1140.00 | 2.81 | 1386.85 | .22 | 3.62 | .04 | 52.03 | 293.99 | 4.63 | 40.00 | 50.00 | 50.00 |
| * | 4.123 | 1235.00 | 4.86 | 1390.04 | .02 | 3.17 | .02 | 15.54 | 309.59 | 2.03 | .00 | 50.00 | 35.00 |
| * | 4.230 | 650.00 | 4.62 | 1391.58 | .03 | 1.53 | .00 | 33.69 | 321.97 | .55 | 100.00 | 50.00 | 35.00 |
| * | 4.341 | 490.00 | 6.12 | 1394.70 | .15 | 2.02 | .06 | 48.14 | 328.07 | .55 | 15.00 | 15.00 | 15.00 |
| * | 4.616 | 1000.00 | .40 | 1395.96 | .01 | 1.25 | .01 | 5.61 | 346.90 | 1.55 | .00 | 50.00 | 100.00 |
| * | 4.637 | 110.00 | 8.18 | 1396.57 | .08 | .59 | .02 | 263.60 | 353.72 | 1.19 | .00 | 50.00 | 100.00 |
| * | 4.748 | 600.00 | 1.17 | 1397.58 | .03 | 1.00 | .01 | 9.24 | 358.01 | 1.55 | .00 | 35.00 | 40.00 |
| * | 4.924 | 930.00 | 4.30 | 1401.14 | .24 | 2.51 | .06 | 240.36 | 367.22 | .91 | .00 | 35.00 | .00 |
| * | 5.038 | 600.00 | 3.33 | 1403.39 | .03 | 2.23 | .02 | 14.39 | 372.77 | 1.36 | 40.00 | 35.00 | 40.00 |
| * | 5.170 | 700.00 | 5.71 | 1407.08 | .22 | 2.43 | .06 | 175.40 | 379.49 | .86 | .00 | 35.00 | 40.00 |
| * | 5.375 | 1080.00 | 1.85 | 1410.77 | .04 | 3.67 | .02 | 13.31 | 390.70 | 2.73 | 40.00 | 35.00 | 40.00 |
| * | 5.523 | 780.00 | 3.85 | 1412.82 | .20 | 2.00 | .05 | 67.33 | 398.56 | 1.61 | 40.00 | 35.00 | 40.00 |
| * | 5.631 | 600.00 | -1.17 | 1412.94 | .01 | .06 | .06 | .29 | 408.02 | 2.63 | 15.00 | 15.00 | 15.00 |
| * | 5.864 | 1230.00 | 2.20 | 1414.77 | .23 | .08 | .07 | 266.63 | 425.16 | 1.54 | 40.00 | 35.00 | .00 |
| * | 6.047 | 970.00 | 3.09 | 1418.91 | .08 | 4.12 | .01 | 16.55 | 428.98 | 2.83 | 40.00 | 35.00 | 40.00 |
| * | 6.259 | 1120.00 | 3.57 | 1422.31 | .24 | 3.36 | .05 | 70.12 | 433.66 | 2.08 | 40.00 | 35.00 | 40.00 |
| * | 6.472 | 1120.00 | 1.79 | 1425.67 | .16 | 3.35 | .01 | 16.46 | 437.02 | 3.51 | 40.00 | 35.00 | 40.00 |
| * | 6.672 | 1060.00 | 3.77 | 1429.14 | .55 | 3.35 | .12 | 84.01 | 439.58 | 2.59 | 40.00 | 35.00 | 40.00 |
| * | 6.811 | 730.00 | 4.11 | 1432.02 | .17 | 2.84 | .04 | 22.33 | 441.29 | 2.84 | 40.00 | 35.00 | 40.00 |
| | 7.019 | 1100.00 | 2.73 | 1435.27 | .34 | 3.21 | .05 | 39.72 | 444.08 | 2.94 | 40.00 | 35.00 | 40.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7.201 | 960.00 | 6.25 | 1439.61 | .16 | 4.32 | .02 | 51.38 | 446.55 | 1.45 | .00 | 35.00 | 40.00 |
| * | 7.455 | 1340.00 | 2.99 | 1443.67 | .08 | 4.05 | .01 | 19.87 | 451.47 | 1.59 | 40.00 | 35.00 | 40.00 |
| * | 7.519 | 340.00 | 8.82 | 1446.86 | .46 | 1.55 | .12 | 193.08 | 452.48 | 1.40 | .00 | 35.00 | .00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= .038 PROFILE= 1 CRITICAL DEPTH ASSUMED

WARNING SECNO= .199 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= .407 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= .646 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= .672 PROFILE= 1 HYDRAULIC JUMP D.S.
WARNING SECNO= .672 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= .681 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= .785 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .785 PROFILE= 1 MINIMUM SPECIFIC ENERGY

WARNING SECNO= .843 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1.078 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1.227 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1.419 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1.561 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1.712 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 1.939 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.939 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.939 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 2.053 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2.218 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2.343 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2.559 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2.795 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2.947 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 3.305 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 3.551 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 3.892 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 4.123 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

1



WARNING SECNO= 4.230 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 4.341 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4.341 PROFILE= 1 MINIMUM SPECIFIC ENERGY

WARNING SECNO= 4.616 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 4.637 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 4.748 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 4.924 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4.924 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4.924 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 5.038 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 5.170 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5.170 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 5.170 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 5.375 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=      5.523  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      5.631  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      5.864  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      5.864  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      5.864  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      6.047  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      6.259  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      6.472  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      6.672  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      6.811  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      7.455  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      7.519  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.519  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.519  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Duplicate effective model using HEC-RAS
Project File : dupeffm.prj
Run Date and Time: 10/22/98 10:57:18 AM

Project in English units

Project Description:
FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD

QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**

100-YEAR FLOODPLAIN DELINEATION
REVISED: JUNE 1990

PLAN DATA

Plan Title: Imported Plan 01
Plan File : g:\HASAN\ritten\dup\hec-ras\dupeffm.p01

Geometry Title: Imported Geom 01
Geometry File : g:\HASAN\ritten\dup\hec-ras\dupeffm.g01

Flow Title : Imported Flow 01
Flow File : g:\HASAN\ritten\dup\hec-ras\dupeffm.f01

Plan Summary Information:
Number of: Cross Sections = 48 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 1

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = RIVER-1 Reach = Reach-1

| RS | Profile | Method | Value1 | Value2 |
|---|---|---|---|---|
| 7.519 | PF#2 | 1 | 9970 | 10050 |
| 6.259 | PF#2 | 1 | 9965 | 10510 |
| 6.047 | PF#2 | 1 | 9960 | 10700 |
| 5.375 | PF#2 | 1 | 9955 | 10800 |
| 5.17 | PF#2 | 1 | 9970 | 10500 |
| 4.616 | PF#2 | 1 | 9850 | 11250 |
| 4.23 | PF#2 | 1 | 9300 | 10900 |
| 4.123 | PF#2 | 1 | 9560 | 10960 |
| 2.053 | PF#2 | 1 | 9970 | 10545 |
| 1.86 | PF#2 | 1 | 9940 | 10600 |
| 1.712 | PF#2 | 1 | 9980 | 10600 |
| 1.561 | PF#2 | 1 | 9960 | 10600 |
| 1.419 | PF#2 | 1 | 9950 | 10600 |
| 1.227 | PF#2 | 1 | 9950 | 10600 |
| 1.078 | PF#2 | 1 | 9970 | 10600 |
| 0.843 | PF#2 | 1 | 9975 | 10600 |
| 0.785 | PF#2 | 1 | 9950 | 10600 |
| 0.681 | PF#2 | 1 | 9700 | 11140 |
| 0.672 | PF#2 | 1 | 9725 | 11160 |
| 0.407 | PF#2 | 1 | 9960 | 11000 |
| 0.199 | PF#2 | 1 | 9960 | 11020 |
| 0.038 | PF#2 | 1 | 9900 | 11100 |

FLOW DATA

Flow Title: Imported Flow 01
Flow File : g:\HASAN\ritten\dup\hec-ras\dupeffm.f01

Flow Data (cfs)

| River | Reach | RS | PF#1 | PF#2 |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | 7.519 | 393 | 393 |
| RIVER-1 | Reach-1 | 5.631 | 828 | 828 |
| RIVER-1 | Reach-1 | 3.676 | 1172 | 1172 |
| RIVER-1 | Reach-1 | 2.053 | 1358 | 1358 |

| | | | | |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | 1.86 | 1085 | 1085 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | PF#1 | | Known WS = 1321 |
| RIVER-1 | Reach-1 | PF#2 | | Known WS = 1321 |

GEOMETRY DATA

Geometry Title: Imported Geom 01
Geometry File : g:\HASAN\ritten\dup\hec-ras\dupeffm.g01

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.519

INPUT
Description:
Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9920 | 1449.2 | 9960 | 1448 | 9970 | 1446 | 10000 | 1445 | 10050 | 1446 |
| 11300 | 1446 | 11640 | 1446 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9920 | .04 | 9970 | .035 | 10050 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9970 | 10050 | 340 | 340 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.455

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9950 | 1448.6 | 9980 | 1443 | 10000 | 1442 | 10050 | 1442 | 10115 | 1443 |
| 10190 | 1444 | 11235 | 1446 | 11400 | 1446.5 | 11990 | 1448 | 12300 | 1448.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9950 | .04 | 9980 | .035 | 10115 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9980 | 10115 | 1340 | 1340 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.201

INPUT
Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9960 | 1441.6 | 9980 | 1441 | 10000 | 1440 | 10040 | 1440 | 10060 | 1434 |
| 10090 | 1438 | 10220 | 1440 | 10810 | 1442 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9960 | .04 | 9980 | .035 | 10090 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9980 | 10090 | 960 | 960 | .1 | .3 |

Ineffective Flow num= 0

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.019

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9945 | 1440.1 | 9990 | 1433 | 10000 | 1432 | 10020 | 1433 | 10040 | 1440 |
| 10070 | 1436 | 10310 | 1436 | 10890 | 1438 | 10905 | 1440 | 12710 | 1440 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9945 | .04 | 9990 | .035 | 10020 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9990 | 10020 | 1100 | 1100 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 6.811

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9950 | 1434.5 | 9980 | 1430 | 10000 | 1429 | 10020 | 1430 | 10050 | 1432 |
| 10630 | 1432 | 10725 | 1434 | 11315 | 1434 | 11395 | 1434 | 12150 | 1436 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9950 | .04 | 9980 | .035 | 10020 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9980 | 10020 | 730 | 730 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 6.672

INPUT
Description:
Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9945 | 1432.4 | 9990 | 1427 | 10000 | 1426 | 10015 | 1427 | 10040 | 1430 |
| 11160 | 1432 | 12135 | 1434 | | | | | | |

```
Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9945     .04    9990    .035   10015     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10015             1060    1060    1060             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 6.472

INPUT
Description:
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9950  1428.9    9980    1424    9990    1423   10000    1422   10015    1423
   10025    1424   10050    1426   10545    1426   11095    1430   12100    1430

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9950     .04    9990    .035   10015     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10015             1120    1120    1120             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 6.259

INPUT
Description:
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9965  1424.8    9995    1421   10000    1420   10025    1421   10150    1422
   10510    1424   12010    1424   12025    1422   12560    1422

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9965     .04    9995    .035   10025     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9995   10025             1120    1120    1120             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 6.047

INPUT
Description:
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9960    1421    9990    1417   10000    1416   10020    1417   10045    1418
   10770    1420   11670    1420   11685    1418   11850    1418

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9960     .04    9990    .035   10020     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10020              970     970     980             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 5.864

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9940    1418    9975    1414   10000    1413   10020    1414   10390    1415
   10745    1416   11120    1417   11350  1416.8

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9940     .04    9975    .035   10390     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9975   10390             1410    1230    1050             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 5.631

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9425  1414.5    9730    1412   10000  1410.3   10300    1412   10500    1414
   10870    1415   11010    1416   11525    1416

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9425    .015    9730    .015   10300    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9730   10300              340     600     800             .3      .5

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 5.523

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9920  1414.2    9930    1414    9940    1412   10000    1411   10120    1412
   10400    1413   10860    1413   11365    1413

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9920     .04    9940    .035   10120     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9940   10120              780     780     790             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 5.375

INPUT
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Description:
Station Elevation Data    num=       9
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9955   1411.9     9990     1409    10000     1408    10040   1409.5    10350     1410
   10800   1410.6    11310     1410    12250     1411    12755     1412

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9955      .04     9990     .035    10040      .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10040             1080    1080    1150             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 5.17

INPUT
Description:
Station Elevation Data    num=      10
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9970   1409.6     9985     1408     9990     1407    10000     1406    10080     1406
   10100   1406.7    10500   1406.2    10740     1406    11460     1406    11920     1408

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9970      .04     9990     .035    10100      .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10100              700     700     700             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 5.038

INPUT
Description:
Station Elevation Data    num=       8
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9965   1406.2     9985     1403    10000     1402    10640     1403    11100     1404
   11475     1404    11485     1406    11800     1406

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9965      .04     9985     .035    10640      .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9985   10640              600     600     630             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.924

INPUT
Description:
Station Elevation Data    num=       8
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9960   1403.2     9975     1401    10000     1400    10490     1401    10760     1402
   11000     1402    12280     1404    12820   1404.5

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9960      .04     9975     .035    10490      .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9975   10490              930     930    1040             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.748

INPUT
Description:
Station Elevation Data    num=       8
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9950   1400.6     9960     1398    10000     1396    10070     1396    10280     1396
   10510     1398    11400     1400    12720     1402

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9950      .04     9960     .035    10070      .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9960   10070              630     600     330             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.637

INPUT
Description:
Station Elevation Data    num=       7
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9880   1399.5     9925     1398    10000   1395.3    10010   1395.5    10480     1396
   10870     1398    11320     1400

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9880      .04     9925      .05    10010       .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9925   10010                75     110     550             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.616

INPUT
Description:
Station Elevation Data    num=       9
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9850   1399.5     9930     1396    10000     1395    10100   1394.4    10640     1395
   11130   1395.1    12030     1396    12440     1396    12560     1398

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9850      .04     9930      .05    10640       .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9930   10640              1000    1000    1000             .1      .3
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CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 4.341

INPUT
Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 8420 | 1399.5 | 8610 | 1398 | 8830 | 1396 | 9175 | 1395 | 9585 | 1394.5 |
| 10000 | 1394 | 10480 | 1394.5 | 10880 | 1394.9 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 8420 | .015 | 9585 | .015 | 10480 | .015 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9585 | 10480 | 580 | 490 | 520 | .3 | .5 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 4.23

INPUT
Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9045 | 1392 | 9250 | 1391 | 9740 | 1391 | 10000 | 1391 | 10180 | 1391.4 |
| 10225 | 1391 | 10700 | 1391 | 10900 | 1392 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9045 | .1 | 9740 | .05 | 10180 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9740 | 10180 | 800 | 650 | 700 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 4.123

INPUT
Description:
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9440 | 1393.1 | 9475 | 1388 | 9530 | 1390 | 9560 | 1390 | 10000 | 1388.8 |
| 10090 | 1390 | 10120 | 1390 | 10300 | 1389.4 | 10800 | 1389.3 | 10960 | 1390 |
| 11330 | 1390 | 12450 | 1391 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9440 | .1 | 9440 | .05 | 10090 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9440 | 10090 | 1270 | 1235 | 1200 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 3.892

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9960 | 1389.6 | 9985 | 1384 | 10000 | 1382 | 10030 | 1386 | 10100 | 1386 |
| 10650 | 1386.8 | 11150 | 1387 | 11540 | 1388 | 12125 | 1389 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9960 | .04 | 9985 | .05 | 10030 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9985 | 10030 | 1140 | 1140 | 1140 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 3.676

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9965 | 1385.9 | 9980 | 1380 | 10000 | 1378.8 | 10015 | 1380 | 10025 | 1382 |
| 10050 | 1382 | 10260 | 1382 | 11090 | 1384 | 12210 | 1386 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9965 | .04 | 9980 | .05 | 10015 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9980 | 10015 | 670 | 670 | 670 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 3.551

INPUT
Description:
Station Elevation Data num= 6

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9955 | 1384 | 9990 | 1378 | 10000 | 1377 | 10025 | 1380 | 10860 | 1382 |
| 12100 | 1384 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9955 | .04 | 9990 | .05 | 10025 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 9990 | 10025 | 1300 | 1300 | 1300 | .1 | .3 |

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 3.305

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9960 | 1380.2 | 9970 | 1380 | 9980 | 1376 | 10000 | 1373 | 10030 | 1376 |
| 10190 | 1377 | 10910 | 1378 | 11840 | 1380 | 12230 | 1380 | | |

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Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9960     .04    9980     .05   10030     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9980   10030              890     890     890             .1      .3
Ineffective Flow     num=       0


CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 3.136

INPUT
Description:
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9960  1376.3    9985    1370   10000  1366.5   10030    1372   10300    1374
   10420    1374   11170    1376   11250    1376   11530    1376   12000    1378

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9960     .04    9985     .05   10030     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9985   10030             1000    1000    1000             .1      .3
Ineffective Flow     num=       0


CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 2.947

INPUT
Description:
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9950  1373.2    9985    1368   10000    1366   10020    1368   10030    1370
   10180    1370   11240    1372   11770    1374   12200    1376

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9950     .04    9985     .05   10020     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9985   10020              800     800     800             .1      .3

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 2.795

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9940  1371.4    9970    1366   10000  1363.5   10010    1366   10020    1368
   10140    1368   10960    1370   11740    1372

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9940     .04    9970     .05   10010     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9970   10010             1250    1250    1250             .1      .3
Ineffective Flow     num=       0


CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 2.559

INPUT
Description:
Station Elevation Data    num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9960  1368.7    9980    1366   10000    1364   10030    1366   10130    1366
   10850    1368   12260    1368

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9960     .04    9980     .04   10030     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9980   10030             1125    1125    1125             .1      .3

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 2.343

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9970  1364.8    9990    1362   10000    1360   10030    1362   10340    1362
   10650    1363   11380    1364   11500  1364.9

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9970     .04    9990     .04   10030     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10030              660     660     730             .1      .3
Ineffective Flow     num=       0


CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 2.218

INPUT
Description:
Station Elevation Data    num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9965  1361.9    9990    1359   10000    1358   10370    1360   11000    1360
   11010  1361.6   12100    1360

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9965     .04    9990     .04   10370     .04
```

```
 Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9990   10370               850     845     880             .1      .3

 CROSS SECTION           RIVER: RIVER-1
 REACH: Reach-1             RS: 2.053

 INPUT
 Description:
 Station Elevation Data    num=      17
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     9600    1356    9680    1355    9790    1354    9805    1354    9830    1356
     9850    1354    9870    1352    9935    1352    9950    1354    9955    1356
     9970    1358    9990    1356   10000  1354.7   10050    1356   10220    1356
    10470    1358   10545    1358

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
     9600     .04    9990     .04   10050     .04

 Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9990   10050               600     450     320             .1      .3

 CROSS SECTION           RIVER: RIVER-1
 REACH: Reach-1             RS: 1.939

 INPUT
 Description:
 Station Elevation Data    num=      11
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     8780  1360.1    8985  1359.2    9190  1358.3    9580  1356.7    9690  1356.8
     9800  1356.7   10000  1356.4   10270  1357.4   10595  1358.6   10925  1359.6
    11260  1360.7

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
     8780    .015    9690    .015   10270    .015

 Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9690   10270               210     370     550             .3      .5

 CROSS SECTION           RIVER: RIVER-1
 REACH: Reach-1             RS: 1.86

 INPUT
 Description:
 Station Elevation Data    num=      12
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     9810    1353    9840    1351    9855    1352    9880    1354    9920  1354.8
     9940    1355    9975    1353   10000    1352   10380    1353   10530    1354
    10640    1355   11220    1356

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
     9810     .04    9975     .05   10380     .05

 Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9975   10380               780     780     800             .1      .3

 CROSS SECTION           RIVER: RIVER-1
 REACH: Reach-1             RS: 1.712

 INPUT
 Description:
 Station Elevation Data    num=      15
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     9840  1351.5    9860    1350    9870    1349    9925    1350    9945    1349
     9955    1350    9970    1352    9980  1352.9    9995    1351   10000    1350
    10200  1350.3   10420    1350   10550  1349.9   10680    1350   11625    1352

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
     9840     .04    9995     .05   10420     .05

 Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9995   10420               790     790     930             .1      .3

 CROSS SECTION           RIVER: RIVER-1
 REACH: Reach-1             RS: 1.561

 INPUT
 Description:
 Station Elevation Data    num=      14
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     9820  1350.5    9840  1347.9    9870  1347.2    9920    1346    9935    1346
     9940    1348    9950    1350    9960  1350.7    9990    1347   10000    1346
    10040    1347   10480    1348   11050    1348   12620    1350

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
     9820     .04    9990     .05   10040     .05

 Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9990   10040               750     750     750             .1      .3

 CROSS SECTION           RIVER: RIVER-1
 REACH: Reach-1             RS: 1.419

 INPUT
 Description:
 Station Elevation Data    num=      17
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     9810  1348.2    9835    1345    9875  1345.3    9910    1344    9920    1344
     9930    1346    9940    1348    9950  1348.6    9980    1345   10000    1344
    10120    1345   10220    1346   10310  1346.1   10400    1346   10600  1345.5
    10950    1345   11230    1346

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
     9810     .04    9980     .05   10120     .05

 Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9980   10120              1010    1010    1230             .1      .3

 CROSS SECTION           RIVER: RIVER-1
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REACH: Reach-1            RS: 1.227

INPUT
Description:
Station Elevation Data    num=      16
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     9815     1343     9840     1342     9900     1340     9920   1339.5     9925     1340
     9935     1342     9945     1344     9950   1344.8     9970     1342     9980   1341.5
    10000   1340.5    10105     1341    10600   1341.5    10840   1341.5    11290     1342
    12150     1344

Manning's n Values        num=       3
      Sta    n Val      Sta    n Val      Sta    n Val
     9815      .04     9980      .05    10840      .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9980   10840               790     790     850             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 1.078

INPUT
Description:
Station Elevation Data    num=      14
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     9625     1338     9800     1338     9830     1340     9875     1338     9910   1337.4
     9945     1338     9955     1340     9970     1341     9990     1339    10000     1338
    10080     1338    10580     1339    11610     1340    11690     1340

Manning's n Values        num=       3
      Sta    n Val      Sta    n Val      Sta    n Val
     9625      .04     9990      .05    10580      .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10580               1240    1240    1215             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 0.843

INPUT
Description:
Station Elevation Data    num=      13
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     9785     1334     9800   1333.9     9830   1335.3     9870     1334     9955     1334
     9960     1336     9975   1337.3     9990     1335    10000     1334    10395     1335
    10680   1335.5    10860     1336    10920     1338

Manning's n Values        num=       3
      Sta    n Val      Sta    n Val      Sta    n Val
     9785      .04     9990      .05    10395      .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10395               375     370     405             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 0.785

INPUT
Description:
Station Elevation Data    num=      13
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     9580   1333.5     9735     1333     9810     1333     9930     1334     9950   1336.3
     9955     1336     9985     1334    10000     1333    10080   1333.5    10430     1334
    10500     1334    10560     1334    10600     1336

Manning's n Values        num=       3
      Sta    n Val      Sta    n Val      Sta    n Val
     9580      .04     9985      .05    10430      .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9985   10430               480     500     550             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 0.681

INPUT
Description:
Station Elevation Data    num=      13
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     9365     1332     9525   1333.2     9670     1334     9700   1335.2     9710     1334
     9975     1332     9995     1330    10000     1329    10015     1330    10025     1332
    10160     1332    10875     1332    11140     1332

Manning's n Values        num=       3
      Sta    n Val      Sta    n Val      Sta    n Val
     9365      .04     9975      .05    10025      .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9975   10025                50      50      50             .1      .3
Ineffective Flow     num=       0


CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 0.672

INPUT
Description:
Station Elevation Data    num=      19
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     9725     1333     9910   1333.5   9983.2   1332.9   9984.2   1332.9   9984.3   1328.9
   9994.1   1328.9   9994.2   1332.9     9995   1332.9   9995.1   1328.9 10004.9   1328.9
    10005   1332.9 10005.8   1332.9    10015   1328.9 10015.7   1328.9 10015.8   1332.9
 10016.8   1332.9    10265     1332    10750     1331    11160   1330.4

Manning's n Values        num=       3
      Sta    n Val      Sta    n Val      Sta    n Val
     9725     .014   9984.2     .014 10015.8     .014

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9984.2 10015.8               170     160     175             .3      .5
Ineffective Flow     num=       0


BRIDGE                 RIVER: RIVER-1
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REACH: Reach-1            RS: 0.659

INPUT
Description: Bridge #1

Distance from Upstream XS =       0
Deck/Roadway Width        =     160
Weir Coefficient          =    2.83
Bridge Deck/Roadway Skew  =
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    9725     1335    1333    9910  1335.5  1333.5  9984.2  1333.2  1332.9
 10015.8     1333  1332.9   10265    1334    1332   10750    1333    1331
   11160  1332.4    1331

Upstream Bridge Cross Section Data
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9725    1333    9910  1333.5  9983.2  1332.9  9984.2  1332.9  9984.3  1328.9
  9994.1  1328.9  9994.2  1332.9    9995  1332.9  9995.1  1328.9 10004.9  1328.9
   10005  1332.9 10005.8  1332.9   10015  1328.9 10015.7  1328.9 10015.8  1332.9
 10016.8  1332.9   10265    1332   10750    1331   11160  1330.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9725    .014  9984.2    .014 10015.8    .014

Bank Sta: Left   Right    Coeff Contr.   Expan.
        9984.2 10015.8             .3       .5
Ineffective Flow     num=       0


Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    9725     1335    1333    9910  1335.5  1333.5  9984.2  1333.2  1332.9
 10015.8     1333  1332.9   10265    1334    1332   10750    1333    1331
   11160  1332.4    1331

Downstream Bridge Cross Section Data
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9750  1331.6    9765  1329.3    9780    1330    9800  1330.8    9830    1330
    9840  1329.6    9850    1330    9860    1332    9875  1333.5    9885    1332
    9905    1330    9925  1329.7    9950    1330    9960  1330.2    9970    1330
   10000  1328.5   10005    1330   10125    1331   10270  1330.7   10400    1331
   10555    1330   10780    1330   11000    1330   11160  1332.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9750     .04    9970     .05   10125     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
          9970   10125             .1       .3
Ineffective Flow     num=       0


Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =    1334
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  1

Pier Data
Pier Station     Upstream=   10000    Downstream= 10047.5
Upstream     num=       2
    Width   Elev    Width   Elev
      3.7  1328.9     3.7    1332
Downstream     num=       2
    Width   Elev    Width   Elev
      3.7  1328.5     3.7    1332

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Yarnell                KVal =    1.25
Selected Low Flow Methods = Yarnell

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =.6454972
           Max Low Cord                =    1332

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the downstream end
       Criteria to check for pressure flow = Upstream water surface

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 0.646

INPUT
Description:
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9750  1331.6    9765  1329.3    9780    1330    9800  1330.8    9830    1330
    9840  1329.6    9850    1330    9860    1332    9875  1333.5    9885    1332
    9905    1330    9925  1329.7    9950    1330    9960  1330.2    9970    1330
   10000  1328.5   10005    1330   10125    1331   10270  1330.7   10400    1331
   10555    1330   10780    1330   11000    1330   11160  1332.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9750     .04    9970     .05   10125     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
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          9970   10125              1250    1250    1250             .1       .3
Ineffective Flow     num=       0


CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 0.407

INPUT
Description:
Station Elevation Data    num=      20
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9840     1328     9860   1326.7     9905     1326     9925   1325.6     9940     1326
    9950     1328     9960   1329.6     9980     1327    10000     1326    10575     1327
   10680     1326    10730     1326    10880   1326.2    11000   1326.1    11100     1326
   11200   1325.9    11270     1326    11600   1325.7    11900     1326    12000     1328

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9840     .04     9980     .05    10575     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9980   10575             1100    1100    1220             .1       .3

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 0.199

INPUT
Description:
Station Elevation Data    num=      16
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9835     1325     9840     1322     9880     1322     9945     1322     9950     1324
    9960   1326.8     9990     1322    10000     1320    10045     1322    10350   1322.8
   10710   1322.5    10910     1322    11020   1322.2    11150     1322    11360   1322.3
   11760   1322.7

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9835     .04     9990     .05    10045     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10045              880     880     880             .1       .3
Ineffective Flow     num=       0


CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 0.038

INPUT
Description:
Station Elevation Data    num=      11
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9900   1325.4     9908   1321.1     9925   1320.8     9950   1321.1     9955     1321
    9975   1319.7    10000   1319.2    10025   1319.2    10048   1319.5    10062     1321
   11100     1321

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9900     .04     9950     .05    10062     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9950   10062               0       0       0             .1       .3


SUMMARY OF MANNING'S N VALUES

River:RIVER-1

      Reach          River Sta.       n1        n2        n3

 Reach-1               7.519            .04      .035      .04
 Reach-1               7.455            .04      .035      .04
 Reach-1               7.201            .04      .035      .04
 Reach-1               7.019            .04      .035      .04
 Reach-1               6.811            .04      .035      .04
 Reach-1               6.672            .04      .035      .04
 Reach-1               6.472            .04      .035      .04
 Reach-1               6.259            .04      .035      .04
 Reach-1               6.047            .04      .035      .04
 Reach-1               5.864            .04      .035      .04
 Reach-1               5.631           .015      .015     .015
 Reach-1               5.523            .04      .035      .04
 Reach-1               5.375            .04      .035      .04
 Reach-1               5.17             .04      .035      .04
 Reach-1               5.038            .04      .035      .04
 Reach-1               4.924            .04      .035      .04
 Reach-1               4.748            .04      .035      .04
 Reach-1               4.637            .04       .05       .1
 Reach-1               4.616            .04       .05       .1
 Reach-1               4.341           .015      .015     .015
 Reach-1               4.23              .1       .05      .035
 Reach-1               4.123             .1       .05      .035
 Reach-1               3.892            .04       .05       .05
 Reach-1               3.676            .04       .05       .05
 Reach-1               3.551            .04       .05       .05
 Reach-1               3.305            .04       .05       .05
 Reach-1               3.136            .04       .05       .05
 Reach-1               2.947            .04       .05       .05
 Reach-1               2.795            .04       .05       .05
 Reach-1               2.559            .04       .04       .04
 Reach-1               2.343            .04       .04       .04
 Reach-1               2.218            .04       .04       .04
 Reach-1               2.053            .04       .04       .04
 Reach-1               1.939           .015      .015     .015
 Reach-1               1.86             .04       .05       .05
 Reach-1               1.712            .04       .05       .05
 Reach-1               1.561            .04       .05       .05
 Reach-1               1.419            .04       .05       .05
 Reach-1               1.227            .04       .05       .05
 Reach-1               1.078            .04       .05       .05
 Reach-1               0.843            .04       .05       .05
 Reach-1               0.785            .04       .05       .05
 Reach-1               0.681            .04       .05       .05
 Reach-1               0.672           .014      .014      .014
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| | | | | |
|---|---|---|---|---|
| Reach-1 | 0.659 | Bridge | | |
| Reach-1 | 0.646 | .04 | .05 | .05 |
| Reach-1 | 0.407 | .04 | .05 | .05 |
| Reach-1 | 0.199 | .04 | .05 | .05 |
| Reach-1 | 0.038 | .04 | .05 | .05 |

SUMMARY OF REACH LENGTHS

River: RIVER-1

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach-1 | 7.519 | 340 | 340 | 340 |
| Reach-1 | 7.455 | 1340 | 1340 | 1340 |
| Reach-1 | 7.201 | 960 | 960 | 960 |
| Reach-1 | 7.019 | 1100 | 1100 | 1100 |
| Reach-1 | 6.811 | 730 | 730 | 730 |
| Reach-1 | 6.672 | 1060 | 1060 | 1060 |
| Reach-1 | 6.472 | 1120 | 1120 | 1120 |
| Reach-1 | 6.259 | 1120 | 1120 | 1120 |
| Reach-1 | 6.047 | 970 | 970 | 980 |
| Reach-1 | 5.864 | 1410 | 1230 | 1050 |
| Reach-1 | 5.631 | 340 | 600 | 800 |
| Reach-1 | 5.523 | 780 | 780 | 790 |
| Reach-1 | 5.375 | 1080 | 1080 | 1150 |
| Reach-1 | 5.17 | 700 | 700 | 700 |
| Reach-1 | 5.038 | 600 | 600 | 630 |
| Reach-1 | 4.924 | 930 | 930 | 1040 |
| Reach-1 | 4.748 | 630 | 600 | 330 |
| Reach-1 | 4.637 | 75 | 110 | 550 |
| Reach-1 | 4.616 | 1000 | 1000 | 1000 |
| Reach-1 | 4.341 | 580 | 490 | 520 |
| Reach-1 | 4.23 | 800 | 650 | 700 |
| Reach-1 | 4.123 | 1270 | 1235 | 1200 |
| Reach-1 | 3.892 | 1140 | 1140 | 1140 |
| Reach-1 | 3.676 | 670 | 670 | 670 |
| Reach-1 | 3.551 | 1300 | 1300 | 1300 |
| Reach-1 | 3.305 | 890 | 890 | 890 |
| Reach-1 | 3.136 | 1000 | 1000 | 1000 |
| Reach-1 | 2.947 | 800 | 800 | 800 |
| Reach-1 | 2.795 | 1250 | 1250 | 1250 |
| Reach-1 | 2.559 | 1125 | 1125 | 1125 |
| Reach-1 | 2.343 | 660 | 660 | 730 |
| Reach-1 | 2.218 | 850 | 845 | 880 |
| Reach-1 | 2.053 | 600 | 450 | 320 |
| Reach-1 | 1.939 | 210 | 370 | 550 |
| Reach-1 | 1.86 | 780 | 780 | 800 |
| Reach-1 | 1.712 | 790 | 790 | 930 |
| Reach-1 | 1.561 | 750 | 750 | 750 |
| Reach-1 | 1.419 | 1010 | 1010 | 1230 |
| Reach-1 | 1.227 | 790 | 790 | 850 |
| Reach-1 | 1.078 | 1240 | 1240 | 1215 |
| Reach-1 | 0.843 | 375 | 370 | 405 |
| Reach-1 | 0.785 | 480 | 500 | 550 |
| Reach-1 | 0.681 | 50 | 50 | 50 |
| Reach-1 | 0.672 | 170 | 160 | 175 |
| Reach-1 | 0.659 | Bridge | | |
| Reach-1 | 0.646 | 1250 | 1250 | 1250 |
| Reach-1 | 0.407 | 1100 | 1100 | 1220 |
| Reach-1 | 0.199 | 880 | 880 | 880 |
| Reach-1 | 0.038 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach-1 | 7.519 | .1 | .3 |
| Reach-1 | 7.455 | .1 | .3 |
| Reach-1 | 7.201 | .1 | .3 |
| Reach-1 | 7.019 | .1 | .3 |
| Reach-1 | 6.811 | .1 | .3 |
| Reach-1 | 6.672 | .1 | .3 |
| Reach-1 | 6.472 | .1 | .3 |
| Reach-1 | 6.259 | .1 | .3 |
| Reach-1 | 6.047 | .1 | .3 |
| Reach-1 | 5.864 | .1 | .3 |
| Reach-1 | 5.631 | .3 | .5 |
| Reach-1 | 5.523 | .1 | .3 |
| Reach-1 | 5.375 | .1 | .3 |
| Reach-1 | 5.17 | .1 | .3 |
| Reach-1 | 5.038 | .1 | .3 |
| Reach-1 | 4.924 | .1 | .3 |
| Reach-1 | 4.748 | .1 | .3 |
| Reach-1 | 4.637 | .1 | .3 |
| Reach-1 | 4.616 | .1 | .3 |
| Reach-1 | 4.341 | .3 | .5 |
| Reach-1 | 4.23 | .1 | .3 |
| Reach-1 | 4.123 | .1 | .3 |
| Reach-1 | 3.892 | .1 | .3 |
| Reach-1 | 3.676 | .1 | .3 |
| Reach-1 | 3.551 | .1 | .3 |
| Reach-1 | 3.305 | .1 | .3 |
| Reach-1 | 3.136 | .1 | .3 |
| Reach-1 | 2.947 | .1 | .3 |
| Reach-1 | 2.795 | .1 | .3 |
| Reach-1 | 2.559 | .1 | .3 |
| Reach-1 | 2.343 | .1 | .3 |
| Reach-1 | 2.218 | .1 | .3 |
| Reach-1 | 2.053 | .1 | .3 |
| Reach-1 | 1.939 | .3 | .5 |
| Reach-1 | 1.86 | .1 | .3 |
| Reach-1 | 1.712 | .1 | .3 |
| Reach-1 | 1.561 | .1 | .3 |
| Reach-1 | 1.419 | .1 | .3 |
| Reach-1 | 1.227 | .1 | .3 |
| Reach-1 | 1.078 | .1 | .3 |

| | | | | |
|---|---|---|---|---|
| Reach-1 | 0.843 | | .1 | .3 |
| Reach-1 | 0.785 | | .1 | .3 |
| Reach-1 | 0.681 | | .1 | .3 |
| Reach-1 | 0.672 | | .3 | .5 |
| Reach-1 | 0.659 | Bridge | | |
| Reach-1 | 0.646 | | .1 | .3 |
| Reach-1 | 0.407 | | .1 | .3 |
| Reach-1 | 0.199 | | .1 | .3 |
| Reach-1 | 0.038 | | .1 | .3 |

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X      X    X       X
X     X  X        X    X       X   X     X    X       X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: Duplicate effective model using HEC-RAS
Project File : dupeffm.prj
Run Date and Time: 10/22/98 10:57:18 AM

Project in English units

Project Description:
FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD

QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**

100-YEAR FLOODPLAIN DELINEATION
REVISED: JUNE 1990

Profile Output Table - Standard Table 1

| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 0.038 | 1085.00 | 1319.20 | 1321.27 | 1321.27 | 1321.45 | 0.010174 | 4.04 | 470.25 | 1192.32 | 0.57 |
| Reach-1 | 0.038 | 1085.00 | 1319.20 | 1321.27 | 1321.27 | 1321.45 | 0.010174 | 4.04 | 470.25 | 1192.32 | 0.57 |
| Reach-1 | 0.199 | 1085.00 | 1320.00 | 1323.09 | 1322.54 | 1323.10 | 0.000756 | 1.33 | 1434.38 | 1886.30 | 0.16 |
| Reach-1 | 0.199 | 1085.00 | 1320.00 | 1323.40 | 1322.73 | 1323.42 | 0.000939 | 1.63 | 1086.01 | 1038.75 | 0.19 |
| Reach-1 | 0.407 | 1085.00 | 1326.00 | 1326.23 | 1326.23 | 1326.36 | 0.043053 | 1.45 | 378.09 | 1441.02 | 0.76 |
| Reach-1 | 0.407 | 1085.00 | 1326.00 | 1326.64 | 1326.63 | 1326.84 | 0.040790 | 2.81 | 314.90 | 767.75 | 0.87 |
| Reach-1 | 0.646 | 1085.00 | 1328.50 | 1331.10 | 1330.41 | 1331.12 | 0.001315 | 0.99 | 1010.39 | 1281.81 | 0.19 |
| Reach-1 | 0.646 | 1085.00 | 1328.50 | 1331.13 | 1330.41 | 1331.15 | 0.001177 | 0.96 | 1050.18 | 1284.54 | 0.18 |
| Reach-1 | 0.659 | Bridge | | | | | | | | | |
| Reach-1 | 0.672 | 1085.00 | 1328.90 | 1333.58 | 1331.27 | 1333.58 | 0.000005 | 0.42 | 2681.43 | 1435.00 | 0.04 |
| Reach-1 | 0.672 | 1085.00 | 1328.90 | 1333.58 | 1331.27 | 1333.58 | 0.000005 | 0.42 | 2680.03 | 1435.00 | 0.04 |
| Reach-1 | 0.681 | 1085.00 | 1329.00 | 1333.58 | | 1333.58 | 0.000139 | 0.75 | 2254.54 | 1602.95 | 0.07 |
| Reach-1 | 0.681 | 1085.00 | 1329.00 | 1333.58 | | 1333.58 | 0.000159 | 0.80 | 2083.01 | 1374.05 | 0.08 |
| Reach-1 | 0.785 | 1085.00 | 1333.00 | 1333.87 | 1333.87 | 1334.11 | 0.023627 | 2.01 | 307.78 | 683.80 | 0.66 |
| Reach-1 | 0.785 | 1085.00 | 1333.00 | 1334.23 | 1334.23 | 1334.46 | 0.035752 | 3.92 | 291.08 | 583.22 | 0.91 |
| Reach-1 | 0.843 | 1085.00 | 1334.00 | 1335.62 | | 1335.66 | 0.001599 | 1.28 | 798.43 | 911.34 | 0.21 |
| Reach-1 | 0.843 | 1085.00 | 1334.00 | 1335.99 | | 1336.03 | 0.001510 | 1.51 | 775.74 | 616.49 | 0.22 |
| Reach-1 | 1.078 | 1085.00 | 1338.00 | 1338.90 | | 1338.99 | 0.005375 | 1.41 | 541.00 | 824.76 | 0.34 |
| Reach-1 | 1.078 | 1085.00 | 1338.00 | 1339.30 | | 1339.37 | 0.006047 | 2.10 | 518.96 | 613.01 | 0.40 |
| Reach-1 | 1.227 | 1085.00 | 1340.50 | 1341.94 | 1341.66 | 1341.98 | 0.002832 | 1.23 | 798.34 | 1356.13 | 0.26 |
| Reach-1 | 1.227 | 1085.00 | 1340.50 | 1342.26 | | 1342.30 | 0.002492 | 1.58 | 687.97 | 631.84 | 0.27 |
| Reach-1 | 1.419 | 1085.00 | 1344.00 | 1345.78 | | 1345.86 | 0.004846 | 2.44 | 595.07 | 1007.85 | 0.38 |
| Reach-1 | 1.419 | 1085.00 | 1344.00 | 1346.18 | | 1346.32 | 0.006821 | 3.46 | 415.98 | 629.80 | 0.47 |
| Reach-1 | 1.561 | 1085.00 | 1346.00 | 1348.27 | | 1348.32 | 0.002397 | 2.13 | 764.96 | 1387.84 | 0.28 |
| Reach-1 | 1.561 | 1085.00 | 1346.00 | 1348.69 | | 1348.73 | 0.001839 | 2.15 | 728.36 | 623.71 | 0.26 |
| Reach-1 | 1.712 | 1085.00 | 1350.00 | 1350.75 | | 1350.80 | 0.003697 | 1.28 | 715.81 | 1147.41 | 0.29 |
| Reach-1 | 1.712 | 1085.00 | 1350.00 | 1351.04 | | 1351.10 | 0.004301 | 1.80 | 574.11 | 605.31 | 0.34 |
| Reach-1 | 1.86 | 1085.00 | 1352.00 | 1353.56 | 1353.10 | 1353.63 | 0.003534 | 1.84 | 548.58 | 563.33 | 0.31 |
| Reach-1 | 1.86 | 1085.00 | 1352.00 | 1353.81 | | 1353.87 | 0.002977 | 1.94 | 587.31 | 541.24 | 0.30 |
| Reach-1 | 1.939 | 1358.00 | 1356.40 | 1357.21 | 1357.21 | 1357.44 | 0.004048 | 4.03 | 352.14 | 762.11 | 0.99 |
| Reach-1 | 1.939 | 1358.00 | 1356.40 | 1357.21 | 1357.21 | 1357.44 | 0.003992 | 4.01 | 353.82 | 763.24 | 0.99 |
| Reach-1 | 2.053 | 1358.00 | 1354.70 | 1357.60 | 1354.31 | 1357.62 | 0.000096 | 0.63 | 1811.35 | 813.69 | 0.07 |
| Reach-1 | 2.053 | 1358.00 | 1354.70 | 1358.10 | 1356.88 | 1358.15 | 0.000886 | 2.17 | 827.12 | 575.00 | 0.23 |
| Reach-1 | 2.218 | 1172.00 | 1358.00 | 1359.54 | 1359.54 | 1359.94 | 0.025862 | 5.07 | 232.03 | 300.20 | 1.01 |
| Reach-1 | 2.218 | 1172.00 | 1358.00 | 1359.74 | | 1359.99 | 0.013785 | 4.00 | 293.78 | 337.69 | 0.75 |
| Reach-1 | 2.343 | 1172.00 | 1360.00 | 1363.18 | 1362.65 | 1363.23 | 0.001914 | 2.72 | 679.08 | 798.43 | 0.32 |
| Reach-1 | 2.343 | 1172.00 | 1360.00 | 1363.12 | 1362.65 | 1363.18 | 0.002298 | 2.93 | 634.49 | 756.14 | 0.35 |
| Reach-1 | 2.559 | 1172.00 | 1364.00 | 1366.96 | | 1367.20 | 0.008163 | 5.24 | 362.30 | 501.98 | 0.66 |
| Reach-1 | 2.559 | 1172.00 | 1364.00 | 1367.04 | | 1367.23 | 0.006256 | 4.72 | 404.65 | 532.07 | 0.58 |
| Reach-1 | 2.795 | 1172.00 | 1363.50 | 1369.58 | 1367.77 | 1369.62 | 0.000850 | 2.46 | 954.09 | 836.76 | 0.20 |
| Reach-1 | 2.795 | 1172.00 | 1363.50 | 1369.55 | 1367.77 | 1369.60 | 0.000896 | 2.51 | 930.86 | 825.14 | 0.20 |
| Reach-1 | 2.947 | 1172.00 | 1366.00 | 1370.78 | | 1371.02 | 0.004721 | 4.94 | 457.11 | 629.49 | 0.45 |
| Reach-1 | 2.947 | 1172.00 | 1366.00 | 1370.80 | | 1371.02 | 0.004551 | 4.86 | 466.47 | 637.41 | 0.44 |
| Reach-1 | 3.136 | 1172.00 | 1366.50 | 1373.79 | | 1373.96 | 0.002015 | 3.79 | 465.30 | 302.25 | 0.30 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 3.136 | 1172.00 | 1366.50 | 1373.78 | | 1373.95 | 0.002042 | 3.81 | 462.03 | 300.75 | 0.30 |
| Reach-1 | 3.305 | 1172.00 | 1373.00 | 1377.27 | 1377.27 | 1377.69 | 0.010649 | 6.01 | 288.33 | 404.68 | 0.64 |
| Reach-1 | 3.305 | 1172.00 | 1373.00 | 1377.27 | 1377.27 | 1377.69 | 0.010649 | 6.01 | 288.33 | 404.68 | 0.64 |
| Reach-1 | 3.551 | 1172.00 | 1377.00 | 1381.81 | | 1381.86 | 0.001510 | 2.70 | 852.42 | 813.08 | 0.25 |
| Reach-1 | 3.551 | 1172.00 | 1377.00 | 1381.81 | | 1381.86 | 0.001510 | 2.70 | 852.42 | 813.08 | 0.25 |
| Reach-1 | 3.676 | 1172.00 | 1378.80 | 1383.07 | | 1383.17 | 0.002562 | 3.57 | 651.81 | 732.80 | 0.33 |
| Reach-1 | 3.676 | 1172.00 | 1378.80 | 1383.07 | | 1383.17 | 0.002562 | 3.57 | 651.81 | 732.80 | 0.33 |
| Reach-1 | 3.892 | 828.00 | 1382.00 | 1386.66 | | 1386.86 | 0.004650 | 4.19 | 346.87 | 581.13 | 0.43 |
| Reach-1 | 3.892 | 828.00 | 1382.00 | 1386.66 | | 1386.86 | 0.004650 | 4.19 | 346.87 | 581.13 | 0.43 |
| Reach-1 | 4.123 | 828.00 | 1388.00 | 1389.99 | 1389.55 | 1390.00 | 0.001642 | 0.89 | 802.29 | 1425.11 | 0.20 |
| Reach-1 | 4.123 | 828.00 | 1388.80 | 1390.02 | | 1390.04 | 0.001655 | 0.88 | 779.11 | 1400.00 | 0.20 |
| Reach-1 | 4.23 | 828.00 | 1391.00 | 1391.54 | 1391.27 | 1391.57 | 0.003206 | 1.01 | 804.45 | 1670.50 | 0.26 |
| Reach-1 | 4.23 | 828.00 | 1391.00 | 1391.56 | 1391.28 | 1391.58 | 0.003151 | 1.02 | 765.65 | 1511.38 | 0.26 |
| Reach-1 | 4.341 | 828.00 | 1394.00 | 1394.55 | 1394.55 | 1394.70 | 0.004935 | 3.10 | 268.54 | 981.87 | 1.00 |
| Reach-1 | 4.341 | 828.00 | 1394.00 | 1394.55 | 1394.55 | 1394.70 | 0.004935 | 3.10 | 268.54 | 981.87 | 1.00 |
| Reach-1 | 4.616 | 828.00 | 1394.40 | 1395.93 | 1395.09 | 1395.94 | 0.000545 | 0.76 | 1591.02 | 2023.98 | 0.13 |
| Reach-1 | 4.616 | 828.00 | 1394.40 | 1395.95 | 1395.09 | 1395.96 | 0.000559 | 0.78 | 1371.99 | 1316.74 | 0.13 |
| Reach-1 | 4.637 | 828.00 | 1395.30 | 1396.47 | | 1396.55 | 0.029509 | 4.01 | 387.71 | 603.44 | 0.85 |
| Reach-1 | 4.637 | 828.00 | 1395.30 | 1396.49 | | 1396.57 | 0.026584 | 3.85 | 401.32 | 608.44 | 0.81 |
| Reach-1 | 4.748 | 828.00 | 1396.00 | 1397.55 | | 1397.58 | 0.000929 | 1.55 | 594.70 | 488.84 | 0.24 |
| Reach-1 | 4.748 | 828.00 | 1396.00 | 1397.55 | | 1397.58 | 0.000927 | 1.55 | 595.06 | 488.94 | 0.24 |
| Reach-1 | 4.924 | 828.00 | 1400.00 | 1400.92 | 1400.92 | 1401.14 | 0.023195 | 3.84 | 215.66 | 471.31 | 1.00 |
| Reach-1 | 4.924 | 828.00 | 1400.00 | 1400.92 | 1400.92 | 1401.14 | 0.023195 | 3.84 | 215.66 | 471.31 | 1.00 |
| Reach-1 | 5.038 | 828.00 | 1402.00 | 1403.35 | | 1403.39 | 0.001454 | 1.46 | 588.49 | 820.00 | 0.28 |
| Reach-1 | 5.038 | 828.00 | 1402.00 | 1403.35 | | 1403.39 | 0.001454 | 1.46 | 588.49 | 820.00 | 0.28 |
| Reach-1 | 5.17 | 828.00 | 1406.00 | 1406.29 | 1406.29 | 1406.42 | 0.032599 | 3.24 | 295.10 | 1192.58 | 1.09 |
| Reach-1 | 5.17 | 828.00 | 1406.00 | 1406.86 | 1406.86 | 1407.08 | 0.017718 | 4.70 | 245.03 | 508.57 | 0.95 |
| Reach-1 | 5.375 | 828.00 | 1408.00 | 1410.59 | 1410.29 | 1410.62 | 0.001386 | 2.41 | 803.51 | 1865.90 | 0.31 |
| Reach-1 | 5.375 | 828.00 | 1408.00 | 1410.73 | 1410.29 | 1410.77 | 0.001331 | 2.48 | 616.04 | 830.87 | 0.31 |
| Reach-1 | 5.523 | 828.00 | 1411.00 | 1412.58 | 1412.39 | 1412.80 | 0.007521 | 3.89 | 243.97 | 346.64 | 0.66 |
| Reach-1 | 5.523 | 828.00 | 1411.00 | 1412.62 | 1412.39 | 1412.82 | 0.006713 | 3.74 | 255.24 | 355.79 | 0.62 |
| Reach-1 | 5.631 | 828.00 | 1410.30 | 1412.92 | | 1412.93 | 0.000030 | 0.79 | 1101.93 | 773.98 | 0.10 |
| Reach-1 | 5.631 | 828.00 | 1410.30 | 1412.93 | | 1412.94 | 0.000029 | 0.79 | 1108.83 | 775.96 | 0.10 |
| Reach-1 | 5.864 | 393.00 | 1413.00 | 1414.56 | 1414.56 | 1414.77 | 0.024110 | 3.69 | 106.95 | 256.89 | 1.00 |
| Reach-1 | 5.864 | 393.00 | 1413.00 | 1414.56 | 1414.56 | 1414.77 | 0.024110 | 3.69 | 106.95 | 256.89 | 1.00 |
| Reach-1 | 6.047 | 393.00 | 1416.00 | 1418.62 | 1418.32 | 1418.69 | 0.001580 | 2.78 | 275.76 | 462.29 | 0.34 |
| Reach-1 | 6.047 | 393.00 | 1416.00 | 1418.81 | 1418.32 | 1418.90 | 0.001725 | 3.08 | 234.07 | 363.03 | 0.36 |
| Reach-1 | 6.259 | 393.00 | 1420.00 | 1422.00 | | 1422.31 | 0.009410 | 5.38 | 111.45 | 162.89 | 0.77 |
| Reach-1 | 6.259 | 393.00 | 1420.00 | 1422.09 | 1422.00 | 1422.32 | 0.006646 | 4.71 | 127.35 | 180.30 | 0.66 |
| Reach-1 | 6.472 | 393.00 | 1422.00 | 1425.59 | | 1425.73 | 0.001482 | 3.46 | 142.46 | 74.58 | 0.35 |
| Reach-1 | 6.472 | 393.00 | 1422.00 | 1425.50 | | 1425.66 | 0.001682 | 3.61 | 135.76 | 72.89 | 0.37 |
| Reach-1 | 6.672 | 393.00 | 1426.00 | 1428.51 | | 1429.12 | 0.009708 | 6.66 | 69.46 | 50.24 | 0.83 |
| Reach-1 | 6.672 | 393.00 | 1426.00 | 1428.60 | | 1429.14 | 0.008195 | 6.30 | 74.02 | 51.73 | 0.76 |
| Reach-1 | 6.811 | 393.00 | 1429.00 | 1431.88 | | 1432.04 | 0.002120 | 3.48 | 133.20 | 80.66 | 0.40 |
| Reach-1 | 6.811 | 393.00 | 1429.00 | 1431.84 | | 1432.01 | 0.002257 | 3.55 | 130.16 | 79.83 | 0.41 |
| Reach-1 | 7.019 | 393.00 | 1432.00 | 1434.91 | | 1435.26 | 0.004123 | 4.90 | 89.26 | 47.60 | 0.56 |
| Reach-1 | 7.019 | 393.00 | 1432.00 | 1434.94 | | 1435.28 | 0.003963 | 4.84 | 90.51 | 47.84 | 0.55 |
| Reach-1 | 7.201 | 393.00 | 1434.00 | 1438.32 | | 1438.55 | 0.002887 | 3.88 | 103.98 | 65.15 | 0.45 |
| Reach-1 | 7.201 | 393.00 | 1434.00 | 1438.30 | | 1438.54 | 0.002950 | 3.91 | 103.01 | 64.12 | 0.46 |
| Reach-1 | 7.455 | 393.00 | 1442.00 | 1443.31 | 1442.95 | 1443.44 | 0.004756 | 2.91 | 137.77 | 159.69 | 0.52 |
| Reach-1 | 7.455 | 393.00 | 1442.00 | 1443.31 | 1442.95 | 1443.44 | 0.004655 | 2.89 | 138.77 | 160.19 | 0.51 |
| Reach-1 | 7.519 | 393.00 | 1445.00 | 1446.15 | 1446.15 | 1446.22 | 0.009418 | 3.08 | 284.89 | 1670.73 | 0.68 |
| Reach-1 | 7.519 | 393.00 | 1445.00 | 1446.41 | 1446.41 | 1446.86 | 0.018875 | 5.42 | 72.47 | 80.00 | 1.00 |

Profile Output Table - Standard Table 2

| Reach | River Sta | E.G. Elev (ft) | W.S. Elev (ft) | Vel Head (ft) | Frctn Loss (ft) | C & E Loss (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Top Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 0.038 | 1321.45 | 1321.27 | 0.17 | | | 23.71 | 707.97 | 353.32 | 1192.32 |
| Reach-1 | 0.038 | 1321.45 | 1321.27 | 0.17 | | | 23.71 | 707.97 | 353.32 | 1192.32 |
| Reach-1 | 0.199 | 1323.10 | 1323.09 | 0.01 | 1.63 | 0.02 | 126.91 | 152.47 | 805.61 | 1886.30 |
| Reach-1 | 0.199 | 1323.42 | 1323.40 | 0.02 | 1.96 | 0.02 | 5.45 | 214.88 | 864.67 | 1038.75 |
| Reach-1 | 0.407 | 1326.36 | 1326.23 | 0.13 | 2.30 | 0.01 | 68.55 | 22.17 | 994.28 | 1441.02 |
| Reach-1 | 0.407 | 1326.84 | 1326.64 | 0.20 | 3.36 | 0.05 | | 341.67 | 743.33 | 767.75 |
| Reach-1 | 0.646 | 1331.12 | 1331.10 | 0.02 | 4.75 | 0.01 | 253.53 | 136.07 | 695.40 | 1281.81 |
| Reach-1 | 0.646 | 1331.15 | 1331.13 | 0.02 | 4.30 | 0.02 | 251.36 | 136.35 | 697.29 | 1284.54 |
| Reach-1 | 0.659 | Bridge | | | | | | | | |
| Reach-1 | 0.672 | 1333.58 | 1333.58 | 0.00 | | | 10.43 | 51.07 | 1023.50 | 1435.00 |
| Reach-1 | 0.672 | 1333.58 | 1333.58 | 0.00 | | | 10.39 | 51.09 | 1023.52 | 1435.00 |
| Reach-1 | 0.681 | 1333.58 | 1333.58 | 0.00 | 0.00 | 0.00 | 130.73 | 119.58 | 834.69 | 1602.95 |
| Reach-1 | 0.681 | 1333.58 | 1333.58 | 0.00 | 0.00 | 0.00 | 65.86 | 127.78 | 891.36 | 1374.05 |
| Reach-1 | 0.785 | 1334.11 | 1333.87 | 0.24 | 0.24 | 0.07 | 879.86 | 205.14 | | 683.80 |
| Reach-1 | 0.785 | 1334.46 | 1334.23 | 0.23 | 0.29 | 0.07 | 0.70 | 1018.19 | 66.11 | 583.22 |
| Reach-1 | 0.843 | 1335.66 | 1335.62 | 0.04 | 1.53 | 0.02 | 438.49 | 581.42 | 65.09 | 911.34 |
| Reach-1 | 0.843 | 1336.03 | 1335.99 | 0.03 | 1.54 | 0.02 | 2.90 | 914.06 | 168.03 | 616.49 |
| Reach-1 | 1.078 | 1338.99 | 1338.90 | 0.08 | 3.32 | 0.01 | 689.58 | 395.42 | | 824.76 |
| Reach-1 | 1.078 | 1339.37 | 1339.30 | 0.07 | 3.33 | 0.01 | 0.37 | 1078.76 | 5.87 | 613.01 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 1.227 | 1341.98 | 1341.94 | 0.04 | 2.99 | 0.00 | 310.55 | 724.74 | 49.71 | 1356.13 |
| Reach-1 | 1.227 | 1342.30 | 1342.26 | 0.04 | 2.92 | 0.00 | 6.11 | 1078.89 | | 631.84 |
| Reach-1 | 1.419 | 1345.86 | 1345.78 | 0.07 | 3.86 | 0.01 | 253.34 | 439.08 | 392.58 | 1007.85 |
| Reach-1 | 1.419 | 1346.32 | 1346.18 | 0.15 | 3.99 | 0.03 | 12.35 | 812.59 | 260.06 | 629.80 |
| Reach-1 | 1.561 | 1348.32 | 1348.27 | 0.05 | 2.47 | 0.00 | 375.01 | 188.58 | 521.41 | 1387.84 |
| Reach-1 | 1.561 | 1348.73 | 1348.69 | 0.04 | 2.39 | 0.01 | 16.44 | 235.39 | 833.17 | 623.71 |
| Reach-1 | 1.712 | 1350.80 | 1350.75 | 0.05 | 2.47 | 0.00 | 316.65 | 322.56 | 445.79 | 1147.41 |
| Reach-1 | 1.712 | 1351.10 | 1351.04 | 0.06 | 2.36 | 0.01 | 0.00 | 676.47 | 408.52 | 605.31 |
| Reach-1 | 1.86 | 1353.63 | 1353.56 | 0.07 | 2.83 | 0.01 | 278.49 | 788.71 | 17.80 | 563.33 |
| Reach-1 | 1.86 | 1353.87 | 1353.81 | 0.06 | 2.77 | 0.00 | 6.43 | 1034.40 | 44.16 | 541.24 |
| Reach-1 | 1.939 | 1357.44 | 1357.21 | 0.24 | 1.28 | 0.08 | 268.46 | 1089.54 | | 762.11 |
| Reach-1 | 1.939 | 1357.44 | 1357.21 | 0.23 | 1.24 | 0.09 | 269.03 | 1088.97 | | 763.24 |
| Reach-1 | 2.053 | 1357.62 | 1357.60 | 0.01 | 0.15 | 0.02 | 1086.64 | 84.60 | 186.76 | 813.69 |
| Reach-1 | 2.053 | 1358.15 | 1358.10 | 0.05 | 0.68 | 0.02 | 25.79 | 357.95 | 974.26 | 575.00 |
| Reach-1 | 2.218 | 1359.94 | 1359.54 | 0.40 | 0.26 | 0.12 | 3.17 | 1168.83 | | 300.20 |
| Reach-1 | 2.218 | 1359.99 | 1359.74 | 0.25 | 1.78 | 0.06 | 5.22 | 1166.78 | | 337.69 |
| Reach-1 | 2.343 | 1363.23 | 1363.18 | 0.05 | 3.26 | 0.03 | 5.62 | 236.87 | 929.50 | 798.43 |
| Reach-1 | 2.343 | 1363.18 | 1363.12 | 0.06 | 3.18 | 0.02 | 5.39 | 248.26 | 918.35 | 756.14 |
| Reach-1 | 2.559 | 1367.20 | 1366.96 | 0.24 | 3.91 | 0.06 | 6.94 | 513.14 | 651.92 | 501.98 |
| Reach-1 | 2.559 | 1367.23 | 1367.04 | 0.19 | 4.01 | 0.04 | 7.56 | 480.97 | 683.46 | 532.07 |
| Reach-1 | 2.795 | 1369.62 | 1369.58 | 0.05 | 2.40 | 0.02 | 56.15 | 474.65 | 641.21 | 836.76 |
| Reach-1 | 2.795 | 1369.60 | 1369.55 | 0.05 | 2.36 | 0.01 | 56.46 | 482.67 | 632.88 | 825.14 |
| Reach-1 | 2.947 | 1371.02 | 1370.78 | 0.23 | 1.34 | 0.06 | 82.43 | 653.91 | 435.66 | 629.49 |
| Reach-1 | 2.947 | 1371.02 | 1370.80 | 0.22 | 1.37 | 0.05 | 82.08 | 646.20 | 443.72 | 637.41 |
| Reach-1 | 3.136 | 1373.96 | 1373.79 | 0.17 | 2.94 | 0.01 | 71.50 | 830.95 | 269.55 | 302.25 |
| Reach-1 | 3.136 | 1373.95 | 1373.78 | 0.17 | 2.92 | 0.01 | 71.44 | 833.53 | 267.04 | 300.75 |
| Reach-1 | 3.305 | 1377.69 | 1377.27 | 0.42 | 3.48 | 0.08 | 5.39 | 831.60 | 335.01 | 404.68 |
| Reach-1 | 3.305 | 1377.69 | 1377.27 | 0.42 | 3.52 | 0.08 | 5.39 | 831.60 | 335.01 | 404.68 |
| Reach-1 | 3.551 | 1381.86 | 1381.81 | 0.05 | 4.14 | 0.04 | 93.04 | 339.66 | 739.31 | 813.08 |
| Reach-1 | 3.551 | 1381.86 | 1381.81 | 0.05 | 4.14 | 0.04 | 93.04 | 339.66 | 739.31 | 813.08 |
| Reach-1 | 3.676 | 1383.17 | 1383.07 | 0.10 | 1.29 | 0.01 | 28.63 | 459.45 | 683.92 | 732.80 |
| Reach-1 | 3.676 | 1383.17 | 1383.07 | 0.10 | 1.29 | 0.01 | 28.63 | 459.45 | 683.92 | 732.80 |
| Reach-1 | 3.892 | 1386.86 | 1386.66 | 0.20 | 3.66 | 0.03 | 47.64 | 563.90 | 216.46 | 581.13 |
| Reach-1 | 3.892 | 1386.86 | 1386.66 | 0.20 | 3.66 | 0.03 | 47.64 | 563.90 | 216.46 | 581.13 |
| Reach-1 | 4.123 | 1390.00 | 1389.99 | 0.02 | 3.13 | 0.02 | | 338.35 | 489.65 | 1425.11 |
| Reach-1 | 4.123 | 1390.04 | 1390.02 | 0.02 | 3.16 | 0.02 | | 287.81 | 540.19 | 1400.00 |
| Reach-1 | 4.23 | 1391.57 | 1391.54 | 0.02 | 1.56 | 0.00 | 160.39 | 204.88 | 462.73 | 1670.50 |
| Reach-1 | 4.23 | 1391.58 | 1391.56 | 0.03 | 1.54 | 0.00 | 138.22 | 212.30 | 477.47 | 1511.38 |
| Reach-1 | 4.341 | 1394.70 | 1394.55 | 0.15 | 1.99 | 0.06 | 0.54 | 826.80 | 0.66 | 981.87 |
| Reach-1 | 4.341 | 1394.70 | 1394.55 | 0.15 | 1.97 | 0.06 | 0.54 | 826.80 | 0.66 | 981.87 |
| Reach-1 | 4.616 | 1395.94 | 1395.93 | 0.01 | 1.22 | 0.01 | | 624.73 | 203.27 | 2023.98 |
| Reach-1 | 4.616 | 1395.96 | 1395.95 | 0.01 | 1.25 | 0.01 | | 654.16 | 173.84 | 1316.74 |
| Reach-1 | 4.637 | 1396.55 | 1396.47 | 0.09 | 0.59 | 0.02 | | 118.69 | 709.31 | 603.44 |
| Reach-1 | 4.637 | 1396.57 | 1396.49 | 0.08 | 0.59 | 0.02 | | 117.66 | 710.34 | 608.44 |
| Reach-1 | 4.748 | 1397.58 | 1397.55 | 0.03 | 1.02 | 0.01 | | 204.76 | 623.24 | 488.84 |
| Reach-1 | 4.748 | 1397.58 | 1397.55 | 0.03 | 1.00 | 0.01 | | 204.75 | 623.25 | 488.94 |
| Reach-1 | 4.924 | 1401.14 | 1400.92 | 0.23 | 2.51 | 0.06 | | 828.00 | | 471.31 |
| Reach-1 | 4.924 | 1401.14 | 1400.92 | 0.23 | 2.50 | 0.06 | | 828.00 | | 471.31 |
| Reach-1 | 5.038 | 1403.39 | 1403.35 | 0.03 | 2.22 | 0.02 | 0.17 | 814.97 | 12.86 | 820.00 |
| Reach-1 | 5.038 | 1403.39 | 1403.35 | 0.03 | 2.22 | 0.02 | 0.17 | 814.97 | 12.86 | 820.00 |
| Reach-1 | 5.17 | 1406.42 | 1406.29 | 0.12 | 2.50 | 0.02 | | 81.07 | 746.93 | 1192.58 |
| Reach-1 | 5.17 | 1407.08 | 1406.86 | 0.22 | 2.46 | 0.06 | | 386.85 | 441.15 | 508.57 |
| Reach-1 | 5.375 | 1410.62 | 1410.59 | 0.03 | 4.19 | 0.01 | 17.92 | 227.15 | 582.92 | 1865.90 |
| Reach-1 | 5.375 | 1410.77 | 1410.73 | 0.04 | 3.68 | 0.02 | 22.14 | 251.56 | 554.30 | 830.87 |
| Reach-1 | 5.523 | 1412.80 | 1412.58 | 0.22 | 2.13 | 0.06 | 1.20 | 758.88 | 67.92 | 346.64 |
| Reach-1 | 5.523 | 1412.82 | 1412.62 | 0.20 | 2.00 | 0.05 | 1.30 | 752.69 | 74.01 | 355.79 |
| Reach-1 | 5.631 | 1412.93 | 1412.92 | 0.01 | 0.06 | 0.06 | 16.59 | 797.81 | 13.60 | 773.98 |
| Reach-1 | 5.631 | 1412.94 | 1412.93 | 0.01 | 0.06 | 0.06 | 16.87 | 797.30 | 13.83 | 775.96 |
| Reach-1 | 5.864 | 1414.77 | 1414.56 | 0.21 | 0.08 | 0.06 | 3.36 | 389.64 | | 256.89 |
| Reach-1 | 5.864 | 1414.77 | 1414.56 | 0.21 | 0.08 | 0.06 | 3.36 | 389.64 | | 256.89 |
| Reach-1 | 6.047 | 1418.69 | 1418.62 | 0.06 | 3.90 | 0.01 | 12.59 | 177.09 | 203.32 | 462.29 |
| Reach-1 | 6.047 | 1418.90 | 1418.81 | 0.09 | 4.12 | 0.01 | 17.69 | 213.51 | 161.81 | 363.03 |
| Reach-1 | 6.259 | 1422.31 | 1422.00 | 0.31 | 3.55 | 0.07 | 8.91 | 242.21 | 141.88 | 162.89 |
| Reach-1 | 6.259 | 1422.32 | 1422.09 | 0.23 | 3.38 | 0.04 | 9.49 | 224.93 | 158.59 | 180.30 |
| Reach-1 | 6.472 | 1425.73 | 1425.59 | 0.14 | 3.41 | 0.02 | 58.02 | 267.04 | 67.93 | 74.58 |
| Reach-1 | 6.472 | 1425.66 | 1425.50 | 0.16 | 3.33 | 0.01 | 56.66 | 270.67 | 65.68 | 72.89 |
| Reach-1 | 6.672 | 1429.12 | 1428.51 | 0.61 | 3.25 | 0.14 | 28.91 | 335.19 | 28.91 | 50.24 |
| Reach-1 | 6.672 | 1429.14 | 1428.60 | 0.54 | 3.37 | 0.11 | 30.95 | 331.10 | 30.95 | 51.73 |
| Reach-1 | 6.811 | 1432.04 | 1431.88 | 0.16 | 2.87 | 0.04 | 19.10 | 330.67 | 43.23 | 80.66 |
| Reach-1 | 6.811 | 1432.01 | 1431.84 | 0.17 | 2.83 | 0.04 | 18.66 | 332.11 | 42.23 | 79.83 |
| Reach-1 | 7.019 | 1435.26 | 1434.91 | 0.34 | 3.16 | 0.05 | 26.67 | 354.67 | 11.66 | 47.60 |
| Reach-1 | 7.019 | 1435.28 | 1434.94 | 0.33 | 3.21 | 0.05 | 27.11 | 354.03 | 11.86 | 47.84 |
| Reach-1 | 7.201 | 1438.55 | 1438.32 | 0.23 | 3.28 | 0.01 | | 391.06 | 1.94 | 65.15 |
| Reach-1 | 7.201 | 1438.54 | 1438.30 | 0.24 | 3.25 | 0.01 | | 391.27 | 1.73 | 64.12 |
| Reach-1 | 7.455 | 1443.44 | 1443.31 | 0.13 | 4.87 | 0.01 | 0.18 | 390.21 | 2.60 | 159.69 |
| Reach-1 | 7.455 | 1443.44 | 1443.31 | 0.13 | 4.89 | 0.01 | 0.19 | 390.09 | 2.71 | 160.19 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 7.519 | 1446.22 | 1446.15 | 0.07 | 2.21 | 0.01 | 0.03 | 159.33 | 233.64 | 1670.73 |
| Reach-1 | 7.519 | 1446.86 | 1446.41 | 0.46 | 2.83 | 0.10 | | 393.00 | | 80.00 |

# Appendix E

# APPENDIX E

# RITTENHOUSE ROAD CHANNEL AS-BUILT PLANS

**(rolled separately)**

# Appendix F

# APPENDIX F

# DELINEATED FLOODPLAIN/FLOODWAY

**(rolled separately)**

# Appendix G

# APPENDIX G

# DETAILED HEC-RAS INPUT/OUTPUT

# (post-project condition)

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Rittenhouse Channel - revised & interp
Project File : final.prj
Run Date and Time: 11/23/98 2:44:28 PM

Project in English units

Project Description:
Rittenhouse channel CLOMR for improved channel - revised cross sections at Sossaman Dr.

PLAN DATA

Plan Title: Rittenhouse Channel
Plan File : g:\HASAN\ritten\HEC-RAS\final\final.p01

Geometry Title: Rittenhouse channel
Geometry File : g:\HASAN\ritten\HEC-RAS\final\final.g01

Flow Title : Rittenhouse Channel
Flow File : g:\HASAN\ritten\HEC-RAS\final\final.f01

Plan Description:
100 yr storm flows

Plan Summary Information:
Number of: Cross Sections = 339 Mulitple Openings = 1
Culverts = 2 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = Rittenhouse Chan Reach = Main Channel

| RS | Profile | Method | Value1 | Value2 |
|---|---|---|---|---|
| 23278.81 | PF#2 | 4 | 1 | |
| 23257.56 | PF#2 | 4 | 1 | |
| 23239.31 | PF#2 | 4 | 1 | |
| 23238.31 | PF#2 | 4 | 1 | |
| 23159.6* | PF#2 | 4 | 1 | |
| 23081.00 | PF#2 | 4 | 1 | |
| 23080.00 | PF#2 | 4 | 1 | |
| 23060.00 | PF#2 | 4 | 1 | |
| 23010.00 | PF#2 | 4 | 1 | |
| 23009.00 | PF#2 | 4 | 1 | |
| 22931.7* | PF#2 | 4 | 1 | |
| 22854.5* | PF#2 | 4 | 1 | |
| 22777.2* | PF#2 | 4 | 1 | |
| 22700.00 | PF#2 | 4 | 1 | |
| 22605.2* | PF#2 | 4 | 1 | |
| 22510.5* | PF#2 | 4 | 1 | |
| 22415.7* | PF#2 | 4 | 1 | |
| 22321.00 | PF#2 | 4 | 1 | |
| 22320.00 | PF#2 | 4 | 1 | |
| 22300.00 | PF#2 | 4 | 1 | |
| 22250.00 | PF#2 | 4 | 1 | |
| 22249.00 | PF#2 | 4 | 1 | |
| 22157.5* | PF#2 | 4 | 1 | |
| 22066.* | PF#2 | 4 | 1 | |
| 21974.5* | PF#2 | 4 | 1 | |

| | | |
|---|---|---|
| 21883.* PF#2 | 4 | 1 |
| 21791.5*PF#2 | 4 | 1 |
| 21700.00PF#2 | 4 | 1 |
| 21604.2*PF#2 | 4 | 1 |
| 21508.4*PF#2 | 4 | 1 |
| 21412.6*PF#2 | 4 | 1 |
| 21316.8*PF#2 | 4 | 1 |
| 21221.00PF#2 | 4 | 1 |
| 21220.00PF#2 | 4 | 1 |
| 21200.00PF#2 | 4 | 1 |
| 21150.00PF#2 | 4 | 1 |
| 21149.00PF#2 | 4 | 1 |
| 21059.2*PF#2 | 4 | 1 |
| 20969.4*PF#2 | 4 | 1 |
| 20879.6*PF#2 | 4 | 1 |
| 20789.8*PF#2 | 4 | 1 |
| 20700.00PF#2 | 4 | 1 |
| 20610.5*PF#2 | 4 | 1 |
| 20521.1*PF#2 | 4 | 1 |
| 20431.69PF#2 | 4 | 1 |
| 20379.70PF#2 | 4 | 1 |
| 20300.00PF#2 | 4 | 1 |
| 20270.61PF#2 | 4 | 1 |
| 20180.4*PF#2 | 4 | 1 |
| 20090.2*PF#2 | 4 | 1 |
| 20000.00PF#2 | 4 | 1 |
| 19900.3*PF#2 | 4 | 1 |
| 19800.6*PF#2 | 4 | 1 |
| 19701.00PF#2 | 4 | 1 |
| 19700.00PF#2 | 4 | 1 |
| 19680.00PF#2 | 4 | 1 |
| 19630.00PF#2 | 4 | 1 |
| 19629.00PF#2 | 4 | 1 |
| 19536.1*PF#2 | 4 | 1 |
| 19443.2*PF#2 | 4 | 1 |
| 19350.3*PF#2 | 4 | 1 |
| 19257.4*PF#2 | 4 | 1 |
| 19164.5*PF#2 | 4 | 1 |
| 19071.6*PF#2 | 4 | 1 |
| 18978.7*PF#2 | 4 | 1 |
| 18885.8*PF#2 | 4 | 1 |
| 18792.9*PF#2 | 4 | 1 |
| 18700.00PF#2 | 4 | 1 |
| 18661.00PF#2 | 4 | 1 |
| 18660.00PF#2 | 4 | 1 |
| 18640.00PF#2 | 4 | 1 |
| 18590.00PF#2 | 4 | 1 |
| 18589.00PF#2 | 4 | 1 |
| 18490.2*PF#2 | 4 | 1 |
| 18391.4*PF#2 | 4 | 1 |
| 18292.6*PF#2 | 4 | 1 |
| 18193.8*PF#2 | 4 | 1 |
| 18095.1*PF#2 | 4 | 1 |
| 17996.3*PF#2 | 4 | 1 |
| 17897.5*PF#2 | 4 | 1 |
| 17798.7*PF#2 | 4 | 1 |
| 17700.00PF#2 | 4 | 1 |
| 17620.3*PF#2 | 4 | 1 |
| 17540.6*PF#2 | 4 | 1 |
| 17461.00PF#2 | 4 | 1 |
| 17460.00PF#2 | 4 | 1 |
| 17440.00PF#2 | 4 | 1 |
| 17390.00PF#2 | 4 | 1 |
| 17389.00PF#2 | 4 | 1 |
| 17296.4*PF#2 | 4 | 1 |
| 17203.8*PF#2 | 4 | 1 |
| 17111.2*PF#2 | 4 | 1 |
| 17018.7*PF#2 | 4 | 1 |
| 16926.1*PF#2 | 4 | 1 |
| 16833.5*PF#2 | 4 | 1 |
| 16741.00PF#2 | 4 | 1 |
| 16740.00PF#2 | 4 | 1 |
| 16720.00PF#2 | 4 | 1 |
| 16675.00PF#2 | 4 | 1 |
| 16674.00PF#2 | 4 | 1 |
| 16576.6*PF#2 | 4 | 1 |
| 16479.2*PF#2 | 4 | 1 |
| 16381.8*PF#2 | 4 | 1 |
| 16284.4*PF#2 | 4 | 1 |
| 16187.* PF#2 | 4 | 1 |
| 16089.6*PF#2 | 4 | 1 |
| 15992.2*PF#2 | 4 | 1 |
| 15894.8*PF#2 | 4 | 1 |
| 15797.4*PF#2 | 4 | 1 |
| 15700.00PF#2 | 4 | 1 |
| 15600.* PF#2 | 4 | 1 |
| 15500.* PF#2 | 4 | 1 |
| 15400.* PF#2 | 4 | 1 |
| 15300.* PF#2 | 4 | 1 |
| 15200.* PF#2 | 4 | 1 |
| 15100.* PF#2 | 4 | 1 |
| 15000.* PF#2 | 4 | 1 |
| 14900.* PF#2 | 4 | 1 |
| 14800.* PF#2 | 4 | 1 |
| 14700.00PF#2 | 4 | 1 |

| | | |
|---|---|---|
| 14615.2*PF#2 | 4 | 1 |
| 14530.5*PF#2 | 4 | 1 |
| 14445.7*PF#2 | 4 | 1 |
| 14361.00PF#2 | 4 | 1 |
| 14360.00PF#2 | 4 | 1 |
| 14340.00PF#2 | 4 | 1 |
| 14290.00PF#2 | 4 | 1 |
| 14289.00PF#2 | 4 | 1 |
| 14190.8*PF#2 | 4 | 1 |
| 14092.6*PF#2 | 4 | 1 |
| 13994.5*PF#2 | 4 | 1 |
| 13896.3*PF#2 | 4 | 1 |
| 13798.1*PF#2 | 4 | 1 |
| 13700.00PF#2 | 4 | 1 |
| 13600.1*PF#2 | 4 | 1 |
| 13500.3*PF#2 | 4 | 1 |
| 13400.5*PF#2 | 4 | 1 |
| 13300.6*PF#2 | 4 | 1 |
| 13200.8*PF#2 | 4 | 1 |
| 13101.00PF#2 | 4 | 1 |
| 13100.00PF#2 | 4 | 1 |
| 13080.00PF#2 | 4 | 1 |
| 13030.00PF#2 | 4 | 1 |
| 13029.00PF#2 | 4 | 1 |
| 12946.7*PF#2 | 4 | 1 |
| 12864.5*PF#2 | 4 | 1 |
| 12782.2*PF#2 | 4 | 1 |
| 12700.  PF#2 | 4 | 1 |
| 12613.6*PF#2 | 4 | 1 |
| 12527.3*PF#2 | 4 | 1 |
| 12441.00PF#2 | 4 | 1 |
| 12440.00PF#2 | 4 | 1 |
| 12420.00PF#2 | 4 | 1 |
| 12370   PF#2 | 4 | 1 |
| 12369.00PF#2 | 4 | 1 |
| 12282.5*PF#2 | 4 | 1 |
| 12196.* PF#2 | 4 | 1 |
| 12109.5*PF#2 | 4 | 1 |
| 12023.* PF#2 | 4 | 1 |
| 11936.5*PF#2 | 4 | 1 |
| 11850.00PF#2 | 4 | 1 |
| 11765.4*PF#2 | 4 | 1 |
| 11680.94PF#2 | 4 | 1 |
| 11585.00PF#2 | 4 | 1 |
| 11547.53PF#2 | 4 | 1 |
| 11536.53PF#2 | 4 | 1 |
| 11510.53PF#2 | 4 | 1 |
| 11496.8 PF#2 | 4 | 1 |
| 11490.00PF#2 | 4 | 1 |
| 11483.87PF#2 | 4 | 1 |
| 11480.7 PF#2 | 4 | 1 |
| 11369.81PF#2 | 4 | 1 |
| 11346.23PF#2 | 4 | 1 |
| 11300.00PF#2 | 4 | 1 |
| 11291.50PF#2 | 4 | 1 |
| 11200.00PF#2 | 4 | 1 |
| 11100.00PF#2 | 4 | 1 |
| 11003.3*PF#2 | 4 | 1 |
| 10906.6*PF#2 | 4 | 1 |
| 10810.00PF#2 | 4 | 1 |
| 10805.41PF#2 | 4 | 1 |
| 10791.41PF#2 | 4 | 1 |
| 10780.41PF#2 | 4 | 1 |
| 10777.41PF#2 | 4 | 1 |
| 10687.00PF#2 | 4 | 1 |
| 10637.41PF#2 | 4 | 1 |
| 10627.41PF#2 | 4 | 1 |
| 10600   PF#2 | 4 | 1 |
| 10516.* PF#2 | 4 | 1 |
| 10432.* PF#2 | 4 | 1 |
| 10348.* PF#2 | 4 | 1 |
| 10264.00PF#2 | 4 | 1 |
| 10263.00PF#2 | 4 | 1 |
| 10243   PF#2 | 4 | 1 |
| 10193   PF#2 | 4 | 1 |
| 10183.00PF#2 | 4 | 1 |
| 10182.00PF#2 | 4 | 1 |
| 10085.6*PF#2 | 4 | 1 |
| 9989.2* PF#2 | 4 | 1 |
| 9892.8* PF#2 | 4 | 1 |
| 9796.4* PF#2 | 4 | 1 |
| 9700    PF#2 | 4 | 1 |
| 9609.14*PF#2 | 4 | 1 |
| 9518.28*PF#2 | 4 | 1 |
| 9427.42*PF#2 | 4 | 1 |
| 9336.57*PF#2 | 4 | 1 |
| 9245.71*PF#2 | 4 | 1 |
| 9154.85*PF#2 | 4 | 1 |
| 9064.00 PF#2 | 4 | 1 |
| 9063.00 PF#2 | 4 | 1 |
| 9043    PF#2 | 4 | 1 |
| 8993    PF#2 | 4 | 1 |
| 8983.00 PF#2 | 4 | 1 |
| 8982.00 PF#2 | 4 | 1 |
| 8888.*  PF#2 | 4 | 1 |

| | | | |
|---|---|---|---|
| 8794.* | PF#2 | 4 | 1 |
| 8700 | PF#2 | 4 | 1 |
| 8609.14* | PF#2 | 4 | 1 |
| 8518.28* | PF#2 | 4 | 1 |
| 8427.42* | PF#2 | 4 | 1 |
| 8336.57* | PF#2 | 4 | 1 |
| 8245.71* | PF#2 | 4 | 1 |
| 8154.85* | PF#2 | 4 | 1 |
| 8064.00 | PF#2 | 4 | 1 |
| 8063.00 | PF#2 | 4 | 1 |
| 8043 | PF#2 | 4 | 1 |
| 7993 | PF#2 | 4 | 1 |
| 7983 | PF#2 | 4 | 1 |
| 7982.00 | PF#2 | 4 | 1 |
| 7888.* | PF#2 | 4 | 1 |
| 7794.* | PF#2 | 4 | 1 |
| 7700 | PF#2 | 4 | 1 |
| 7600.8* | PF#2 | 4 | 1 |
| 7501.6* | PF#2 | 4 | 1 |
| 7402.4* | PF#2 | 4 | 1 |
| 7303.2* | PF#2 | 4 | 1 |
| 7204.00 | PF#2 | 4 | 1 |
| 7203.00 | PF#2 | 4 | 1 |
| 7183 | PF#2 | 4 | 1 |
| 7133 | PF#2 | 4 | 1 |
| 7123.00 | PF#2 | 4 | 1 |
| 7122.00 | PF#2 | 4 | 1 |
| 7037.6* | PF#2 | 4 | 1 |
| 6953.2* | PF#2 | 4 | 1 |
| 6868.8* | PF#2 | 4 | 1 |
| 6784.4* | PF#2 | 4 | 1 |
| 6700 | PF#2 | 4 | 1 |
| 6600.* | PF#2 | 4 | 1 |
| 6500.* | PF#2 | 4 | 1 |
| 6400.* | PF#2 | 4 | 1 |
| 6300.* | PF#2 | 4 | 1 |
| 6200.* | PF#2 | 4 | 1 |
| 6100.* | PF#2 | 4 | 1 |
| 6000.* | PF#2 | 4 | 1 |
| 5900.* | PF#2 | 4 | 1 |
| 5800.* | PF#2 | 4 | 1 |
| 5700 | PF#2 | 4 | 1 |
| 5684.00 | PF#2 | 4 | 1 |
| 5683.00 | PF#2 | 4 | 1 |
| 5663 | PF#2 | 4 | 1 |
| 5613 | PF#2 | 4 | 1 |
| 5603.00 | PF#2 | 4 | 1 |
| 5602.00 | PF#2 | 4 | 1 |
| 5518.5* | PF#2 | 4 | 1 |
| 5435.* | PF#2 | 4 | 1 |
| 5351.5* | PF#2 | 4 | 1 |
| 5268.* | PF#2 | 4 | 1 |
| 5184.5* | PF#2 | 4 | 1 |
| 5101 | PF#2 | 4 | 1 |
| 5100 | PF#2 | 4 | 1 |
| 5000 | PF#2 | 4 | 1 |
| 4931.32* | PF#2 | 4 | 1 |
| 4862.65 | PF#2 | 4 | 1 |
| 4845.83 | PF#2 | 4 | 1 |
| 4772.91* | PF#2 | 4 | 1 |
| 4700 | PF#2 | 4 | 1 |
| 4654.00 | PF#2 | 4 | 1 |
| 4628.58 | PF#2 | 4 | 1 |
| 4568.58 | PF#2 | 4 | 1 |
| 4508.58 | PF#2 | 4 | 1 |
| 4445.62 | PF#2 | 4 | 1 |
| 4345.62 | PF#2 | 4 | 1 |
| 4245.62 | PF#2 | 4 | 1 |
| 4226.18 | PF#2 | 4 | 1 |
| 4214.18 | PF#2 | 4 | 1 |
| 4213.18 | PF#2 | 4 | 1 |
| 4133.00 | PF#2 | 4 | 1 |
| 4130.52 | PF#2 | 4 | 1 |
| 4107.43 | PF#2 | 4 | 1 |
| 4091.43 | PF#2 | 4 | 1 |
| 4063.43 | PF#2 | 4 | 1 |
| 4062.43 | PF#2 | 4 | 1 |
| 3982.14* | PF#2 | 4 | 1 |
| 3901.85* | PF#2 | 4 | 1 |
| 3821.57* | PF#2 | 4 | 1 |
| 3741.28* | PF#2 | 4 | 1 |
| 3661.00 | PF#2 | 4 | 1 |
| 3660.00 | PF#2 | 4 | 1 |
| 3640.00 | PF#2 | 4 | 1 |
| 3590.00 | PF#2 | 4 | 1 |
| 3580.00 | PF#2 | 4 | 1 |
| 3579.00 | PF#2 | 4 | 1 |
| 3483.66* | PF#2 | 4 | 1 |
| 3388.33* | PF#2 | 4 | 1 |
| 3293.* | PF#2 | 4 | 1 |
| 3197.66* | PF#2 | 4 | 1 |
| 3102.33* | PF#2 | 4 | 1 |
| 3007.* | PF#2 | 4 | 1 |
| 2911.66* | PF#2 | 4 | 1 |
| 2816.33* | PF#2 | 4 | 1 |

| | | |
|---|---|---|
| 2721.00 PF#2 | 4 | 1 |
| 2720.00 PF#2 | 4 | 1 |
| 2700.00 PF#2 | 4 | 1 |
| 2645.00 PF#2 | 4 | 1 |
| 2635.00 PF#2 | 4 | 1 |
| 2634.00 PF#2 | 4 | 1 |
| 2554.20*PF#2 | 4 | 1 |
| 2474.41*PF#2 | 4 | 1 |
| 2394.62*PF#2 | 4 | 1 |
| 2314.84 PF#2 | 4 | 1 |
| 2216.89*PF#2 | 4 | 1 |
| 2118.94*PF#2 | 4 | 1 |
| 2021.00 PF#2 | 4 | 1 |
| 2020.00 PF#2 | 4 | 1 |
| 2000.00 PF#2 | 4 | 1 |
| 1945.00 PF#2 | 4 | 1 |
| 1935.00 PF#2 | 4 | 1 |
| 1934.00 PF#2 | 4 | 1 |
| 1839.08*PF#2 | 4 | 1 |
| 1744.16*PF#2 | 4 | 1 |
| 1649.24*PF#2 | 4 | 1 |
| 1554.32*PF#2 | 4 | 1 |
| 1459.40*PF#2 | 4 | 1 |
| 1364.49 PF#2 | 4 | 1 |
| 1273.90*PF#2 | 4 | 1 |
| 1183.32*PF#2 | 4 | 1 |
| 1092.74*PF#2 | 4 | 1 |
| 1002.16*PF#2 | 4 | 1 |
| 911.581*PF#2 | 4 | 1 |
| 821.00 PF#2 | 4 | 1 |
| 820.00 PF#2 | 4 | 1 |
| 800.00 PF#2 | 4 | 1 |

FLOW DATA

Flow Title: Rittenhouse Channel
Flow File : g:\HASAN\ritten\HEC-RAS\final\final.f01

Flow Data (cfs)

| River | Reach | RS | PF#1 | PF#2 |
|---|---|---|---|---|
| Rittenhouse Chan | Main Channel | 23278.81 | 516 | 516 |
| Rittenhouse Chan | Main Channel | 20379.70 | 505 | 505 |
| Rittenhouse Chan | Main Channel | 16741.00 | 813 | 813 |
| Rittenhouse Chan | Main Channel | 11510.53 | 1053 | 1053 |
| Rittenhouse Chan | Main Channel | 4214.18 | 1047 | 1047 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Rittenhouse Chan | Main Channel | PF#1 | | Critical |
| Rittenhouse Chan | Main Channel | PF#2 | | Known WS = 1316.9 |

SUMMARY OF MANNING'S N VALUES

River:Rittenhouse Chan

| Reach | River Sta. | n1 | n2 | n3 | n4 |
|---|---|---|---|---|---|
| Main Channel | 23278.81 | .035 | .035 | .035 | |
| Main Channel | 23257.56 | .035 | .035 | .035 | |
| Main Channel | 23239.31 | .035 | .035 | .035 | |
| Main Channel | 23238.31 | .035 | .027 | .035 | |
| Main Channel | 23159.6* | .035 | .027 | .035 | |
| Main Channel | 23081.00 | .035 | .027 | .035 | |
| Main Channel | 23080.00 | .035 | .035 | .035 | |
| Main Channel | 23060.00 | .035 | .035 | .035 | |
| Main Channel | 23010.00 | .035 | .035 | .035 | |
| Main Channel | 23009.00 | .035 | .027 | .035 | |
| Main Channel | 22931.7* | .035 | .027 | .035 | |
| Main Channel | 22854.5* | .035 | .027 | .035 | |
| Main Channel | 22777.2* | .035 | .027 | .035 | |
| Main Channel | 22700.00 | .035 | .027 | .035 | |
| Main Channel | 22605.2* | .035 | .027 | .035 | |
| Main Channel | 22510.5* | .035 | .027 | .035 | |
| Main Channel | 22415.7* | .035 | .027 | .035 | |
| Main Channel | 22321.00 | .035 | .027 | .035 | |
| Main Channel | 22320.00 | .035 | .035 | .035 | |
| Main Channel | 22300.00 | .035 | .035 | .035 | |
| Main Channel | 22250.00 | .035 | .035 | .035 | |
| Main Channel | 22249.00 | .035 | .027 | .035 | |
| Main Channel | 22157.5* | .035 | .027 | .035 | |
| Main Channel | 22066.* | .035 | .027 | .035 | |
| Main Channel | 21974.5* | .035 | .027 | .035 | |
| Main Channel | 21883.* | .035 | .027 | .035 | |
| Main Channel | 21791.5* | .035 | .027 | .035 | |
| Main Channel | 21700.00 | .035 | .027 | .035 | |
| Main Channel | 21604.2* | .035 | .027 | .035 | |

| | | | | |
|---|---|---|---|---|
| Main Channel | 21508.4* | .035 | .027 | .035 |
| Main Channel | 21412.6* | .035 | .027 | .035 |
| Main Channel | 21316.8* | .035 | .027 | .035 |
| Main Channel | 21221.00 | .035 | .027 | .035 |
| Main Channel | 21220.00 | .035 | .035 | .035 |
| Main Channel | 21200.00 | .035 | .035 | .035 |
| Main Channel | 21150.00 | .035 | .035 | .035 |
| Main Channel | 21149.00 | .035 | .027 | .035 |
| Main Channel | 21059.2* | .035 | .027 | .035 |
| Main Channel | 20969.4* | .035 | .027 | .035 |
| Main Channel | 20879.6* | .035 | .027 | .035 |
| Main Channel | 20789.8* | .035 | .027 | .035 |
| Main Channel | 20700.00 | .035 | .027 | .035 |
| Main Channel | 20610.5* | .035 | .027 | .035 |
| Main Channel | 20521.1* | .035 | .027 | .035 |
| Main Channel | 20431.69 | .035 | .027 | .035 |
| Main Channel | 20379.70 | .035 | .027 | .035 |
| Main Channel | 20300.00 | .035 | .027 | .035 |
| Main Channel | 20270.61 | .035 | .027 | .035 |
| Main Channel | 20180.4* | .035 | .027 | .035 |
| Main Channel | 20090.2* | .035 | .027 | .035 |
| Main Channel | 20000.00 | .035 | .027 | .035 |
| Main Channel | 19900.3* | .035 | .027 | .035 |
| Main Channel | 19800.6* | .035 | .027 | .035 |
| Main Channel | 19701.00 | .035 | .027 | .035 |
| Main Channel | 19700.00 | .035 | .035 | .035 |
| Main Channel | 19680.00 | .035 | .035 | .035 |
| Main Channel | 19630.00 | .035 | .035 | .035 |
| Main Channel | 19629.00 | .035 | .027 | .035 |
| Main Channel | 19536.1* | .035 | .027 | .035 |
| Main Channel | 19443.2* | .035 | .027 | .035 |
| Main Channel | 19350.3* | .035 | .027 | .035 |
| Main Channel | 19257.4* | .035 | .027 | .035 |
| Main Channel | 19164.5* | .035 | .027 | .035 |
| Main Channel | 19071.6* | .035 | .027 | .035 |
| Main Channel | 18978.7* | .035 | .027 | .035 |
| Main Channel | 18885.8* | .035 | .027 | .035 |
| Main Channel | 18792.9* | .035 | .027 | .035 |
| Main Channel | 18700.00 | .035 | .027 | .035 |
| Main Channel | 18661.00 | .035 | .027 | .035 |
| Main Channel | 18660.00 | .035 | .035 | .035 |
| Main Channel | 18640.00 | .035 | .035 | .035 |
| Main Channel | 18590.00 | .035 | .035 | .035 |
| Main Channel | 18589.00 | .035 | .027 | .035 |
| Main Channel | 18490.2* | .035 | .027 | .035 |
| Main Channel | 18391.4* | .035 | .027 | .035 |
| Main Channel | 18292.6* | .035 | .027 | .035 |
| Main Channel | 18193.8* | .035 | .027 | .035 |
| Main Channel | 18095.1* | .035 | .027 | .035 |
| Main Channel | 17996.3* | .035 | .027 | .035 |
| Main Channel | 17897.5* | .035 | .027 | .035 |
| Main Channel | 17798.7* | .035 | .027 | .035 |
| Main Channel | 17700.00 | .035 | .027 | .035 |
| Main Channel | 17620.3* | .035 | .027 | .035 |
| Main Channel | 17540.6* | .035 | .027 | .035 |
| Main Channel | 17461.00 | .035 | .027 | .035 |
| Main Channel | 17460.00 | .035 | .035 | .035 |
| Main Channel | 17440.00 | .035 | .035 | .035 |
| Main Channel | 17390.00 | .035 | .035 | .035 |
| Main Channel | 17389.00 | .035 | .027 | .035 |
| Main Channel | 17296.4* | .035 | .027 | .035 |
| Main Channel | 17203.8* | .035 | .027 | .035 |
| Main Channel | 17111.2* | .035 | .027 | .035 |
| Main Channel | 17018.7* | .035 | .027 | .035 |
| Main Channel | 16926.1* | .035 | .027 | .035 |
| Main Channel | 16833.5* | .035 | .027 | .035 |
| Main Channel | 16741.00 | .035 | .027 | .035 |
| Main Channel | 16740.00 | .035 | .035 | .035 |
| Main Channel | 16720.00 | .035 | .035 | .035 |
| Main Channel | 16675.00 | .035 | .035 | .035 |
| Main Channel | 16674.00 | .035 | .027 | .035 |
| Main Channel | 16576.6* | .035 | .027 | .035 |
| Main Channel | 16479.2* | .035 | .027 | .035 |
| Main Channel | 16381.8* | .035 | .027 | .035 |
| Main Channel | 16284.4* | .035 | .027 | .035 |
| Main Channel | 16187.* | .035 | .027 | .035 |
| Main Channel | 16089.6* | .035 | .027 | .035 |
| Main Channel | 15992.2* | .035 | .027 | .035 |
| Main Channel | 15894.8* | .035 | .027 | .035 |
| Main Channel | 15797.4* | .035 | .027 | .035 |
| Main Channel | 15700.00 | .035 | .027 | .035 |
| Main Channel | 15600.* | .035 | .027 | .035 |
| Main Channel | 15500.* | .035 | .027 | .035 |
| Main Channel | 15400.* | .035 | .027 | .035 |
| Main Channel | 15300.* | .035 | .027 | .035 |
| Main Channel | 15200.* | .035 | .027 | .035 |
| Main Channel | 15100.* | .035 | .027 | .035 |
| Main Channel | 15000.* | .035 | .027 | .035 |
| Main Channel | 14900.* | .035 | .027 | .035 |
| Main Channel | 14800.* | .035 | .027 | .035 |
| Main Channel | 14700.00 | .035 | .027 | .035 |
| Main Channel | 14615.2* | .035 | .027 | .035 |
| Main Channel | 14530.5* | .035 | .027 | .035 |
| Main Channel | 14445.7* | .035 | .027 | .035 |
| Main Channel | 14361.00 | .035 | .027 | .035 |

| | | | | |
|---|---|---|---|---|
| Main Channel | 14360.00 | .035 | .035 | .035 |
| Main Channel | 14340.00 | .035 | .035 | .035 |
| Main Channel | 14290.00 | .035 | .035 | .035 |
| Main Channel | 14289.00 | .035 | .027 | .035 |
| Main Channel | 14190.8* | .035 | .027 | .035 |
| Main Channel | 14092.6* | .035 | .027 | .035 |
| Main Channel | 13994.5* | .035 | .027 | .035 |
| Main Channel | 13896.3* | .035 | .027 | .035 |
| Main Channel | 13798.1* | .035 | .027 | .035 |
| Main Channel | 13700.00 | .035 | .027 | .035 |
| Main Channel | 13600.1* | .035 | .027 | .035 |
| Main Channel | 13500.3* | .035 | .027 | .035 |
| Main Channel | 13400.5* | .035 | .027 | .035 |
| Main Channel | 13300.6* | .035 | .027 | .035 |
| Main Channel | 13200.8* | .035 | .027 | .035 |
| Main Channel | 13101.00 | .035 | .027 | .035 |
| Main Channel | 13100.00 | .035 | .035 | .035 |
| Main Channel | 13080.00 | .035 | .035 | .035 |
| Main Channel | 13030.00 | .035 | .035 | .035 |
| Main Channel | 13029.00 | .035 | .027 | .035 |
| Main Channel | 12946.7* | .035 | .029 | .035 |
| Main Channel | 12864.5* | .035 | .031 | .035 |
| Main Channel | 12782.2* | .035 | .033 | .035 |
| Main Channel | 12700. | .035 | .035 | .035 |
| Main Channel | 12613.6* | .035 | .032 | .035 |
| Main Channel | 12527.3* | .035 | .03 | .035 |
| Main Channel | 12441.00 | .035 | .027 | .035 |
| Main Channel | 12440.00 | .035 | .035 | .035 |
| Main Channel | 12420.00 | .035 | .035 | .035 |
| Main Channel | 12370 | .035 | .035 | .035 |
| Main Channel | 12369.00 | .035 | .027 | .035 |
| Main Channel | 12282.5* | .035 | .027 | .035 |
| Main Channel | 12196.* | .035 | .027 | .035 |
| Main Channel | 12109.5* | .035 | .027 | .035 |
| Main Channel | 12023.* | .035 | .027 | .035 |
| Main Channel | 11936.5* | .035 | .027 | .035 |
| Main Channel | 11850.00 | .035 | .027 | .035 |
| Main Channel | 11765.4* | .035 | .027 | .035 |
| Main Channel | 11680.94 | .035 | .027 | .035 |
| Main Channel | 11585.00 | .035 | .027 | .035 |
| Main Channel | 11547.53 | .035 | .035 | .035 |
| Main Channel | 11536.53 | .035 | .035 | .035 |
| Main Channel | 11510.53 | .035 | .035 | .035 |
| Main Channel | 11496.8 | .035 | .035 | .035 |
| Main Channel | 11490.00 | .035 | .035 | .035 |
| Main Channel | 11483.87 | .035 | .035 | .035 |
| Main Channel | 11480.7 | Culvert | | |
| Main Channel | 11369.81 | .035 | .035 | .035 |
| Main Channel | 11346.23 | .035 | .035 | .035 |
| Main Channel | 11300.00 | .035 | .035 | .035 |
| Main Channel | 11291.50 | .035 | .027 | .035 |
| Main Channel | 11200.00 | .035 | .027 | .035 |
| Main Channel | 11100.00 | .035 | .027 | .035 |
| Main Channel | 11003.3* | .035 | .027 | .035 |
| Main Channel | 10906.6* | .035 | .027 | .035 |
| Main Channel | 10810.00 | .035 | .027 | .035 |
| Main Channel | 10805.41 | .035 | .035 | .035 |
| Main Channel | 10791.41 | .035 | .035 | .035 |
| Main Channel | 10780.41 | .035 | .035 | .035 |
| Main Channel | 10777.41 | Culvert | | |
| Main Channel | 10687.00 | .035 | .035 | .035 |
| Main Channel | 10637.41 | .035 | .035 | .035 |
| Main Channel | 10627.41 | .035 | .035 | .035 |
| Main Channel | 10600 | .035 | .027 | .035 |
| Main Channel | 10516.* | .035 | .027 | .035 |
| Main Channel | 10432.* | .035 | .027 | .035 |
| Main Channel | 10348.* | .035 | .027 | .035 |
| Main Channel | 10264.00 | .035 | .027 | .035 |
| Main Channel | 10263.00 | .035 | .035 | .035 |
| Main Channel | 10243 | .035 | .027 | .035 |
| Main Channel | 10193 | .035 | .035 | .035 |
| Main Channel | 10183.00 | .035 | .035 | .035 |
| Main Channel | 10182.00 | .035 | .027 | .035 |
| Main Channel | 10085.6* | .035 | .027 | .035 |
| Main Channel | 9989.2* | .035 | .027 | .035 |
| Main Channel | 9892.8* | .035 | .027 | .035 |
| Main Channel | 9796.4* | .035 | .027 | .035 |
| Main Channel | 9700 | .035 | .027 | .035 |
| Main Channel | 9609.14* | .035 | .027 | .035 |
| Main Channel | 9518.28* | .035 | .027 | .035 |
| Main Channel | 9427.42* | .035 | .027 | .035 |
| Main Channel | 9336.57* | .035 | .027 | .035 |
| Main Channel | 9245.71* | .035 | .027 | .035 |
| Main Channel | 9154.85* | .035 | .027 | .035 |
| Main Channel | 9064.00 | .035 | .027 | .035 |
| Main Channel | 9063.00 | .035 | .035 | .035 |
| Main Channel | 9043 | .035 | .027 | .035 |
| Main Channel | 8993 | .035 | .035 | .035 |
| Main Channel | 8983.00 | .035 | .035 | .035 |
| Main Channel | 8982.00 | .035 | .027 | .035 |
| Main Channel | 8888.* | .035 | .027 | .035 |
| Main Channel | 8794.* | .035 | .027 | .035 |
| Main Channel | 8700 | .035 | .027 | .035 |
| Main Channel | 8609.14* | .035 | .027 | .035 |
| Main Channel | 8518.28* | .035 | .027 | .035 |

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|---|---|---|---|---|---|
| Main Channel | 8427.42* | .035 | .027 | .035 | |
| Main Channel | 8336.57* | .035 | .027 | .035 | |
| Main Channel | 8245.71* | .035 | .027 | .035 | |
| Main Channel | 8154.85* | .035 | .027 | .035 | |
| Main Channel | 8064.00 | .035 | .027 | .035 | |
| Main Channel | 8063.00 | .035 | .035 | .035 | |
| Main Channel | 8043 | .035 | .035 | .035 | |
| Main Channel | 7993 | .035 | .035 | .035 | |
| Main Channel | 7983 | .035 | .035 | .035 | |
| Main Channel | 7982.00 | .035 | .027 | .035 | |
| Main Channel | 7888.* | .035 | .027 | .035 | |
| Main Channel | 7794.* | .035 | .027 | .035 | |
| Main Channel | 7700 | .035 | .027 | .035 | |
| Main Channel | 7600.8* | .035 | .027 | .035 | |
| Main Channel | 7501.6* | .035 | .027 | .035 | |
| Main Channel | 7402.4* | .035 | .027 | .035 | |
| Main Channel | 7303.2* | .035 | .027 | .035 | |
| Main Channel | 7204.00 | .035 | .027 | .035 | |
| Main Channel | 7203.00 | .035 | .035 | .035 | |
| Main Channel | 7183 | .035 | .035 | .035 | |
| Main Channel | 7133 | .035 | .035 | .035 | |
| Main Channel | 7123.00 | .035 | .035 | .035 | |
| Main Channel | 7122.00 | .035 | .027 | .035 | |
| Main Channel | 7037.6* | .035 | .027 | .035 | |
| Main Channel | 6953.2* | .035 | .027 | .035 | |
| Main Channel | 6868.8* | .035 | .027 | .035 | |
| Main Channel | 6784.4* | .035 | .027 | .035 | |
| Main Channel | 6700 | .035 | .027 | .035 | |
| Main Channel | 6600.* | .035 | .027 | .035 | |
| Main Channel | 6500.* | .035 | .027 | .035 | |
| Main Channel | 6400.* | .035 | .027 | .035 | |
| Main Channel | 6300.* | .035 | .027 | .035 | |
| Main Channel | 6200.* | .035 | .027 | .035 | |
| Main Channel | 6100.* | .035 | .027 | .035 | |
| Main Channel | 6000.* | .035 | .027 | .035 | |
| Main Channel | 5900.* | .035 | .027 | .035 | |
| Main Channel | 5800.* | .035 | .027 | .035 | |
| Main Channel | 5700 | .035 | .027 | .035 | |
| Main Channel | 5684.00 | .035 | .027 | .035 | |
| Main Channel | 5683.00 | .035 | .035 | .035 | |
| Main Channel | 5663 | .035 | .035 | .035 | |
| Main Channel | 5613 | .035 | .035 | .035 | |
| Main Channel | 5603.00 | .035 | .035 | .035 | |
| Main Channel | 5602.00 | .035 | .027 | .035 | |
| Main Channel | 5518.5* | .035 | .027 | .035 | |
| Main Channel | 5435.* | .035 | .027 | .035 | |
| Main Channel | 5351.5* | .035 | .027 | .035 | |
| Main Channel | 5268.* | .035 | .027 | .035 | |
| Main Channel | 5184.5* | .035 | .027 | .035 | |
| Main Channel | 5101 | .035 | .027 | .035 | |
| Main Channel | 5100 | .035 | .027 | .035 | |
| Main Channel | 5000 | .035 | .027 | .035 | |
| Main Channel | 4931.32* | .035 | .027 | .035 | |
| Main Channel | 4862.65 | .035 | .027 | .035 | |
| Main Channel | 4845.83 | .035 | .027 | .035 | |
| Main Channel | 4772.91* | .035 | .027 | .035 | |
| Main Channel | 4700 | .035 | .027 | .035 | |
| Main Channel | 4654.00 | .035 | .027 | .035 | |
| Main Channel | 4628.58 | .035 | .027 | .035 | |
| Main Channel | 4568.58 | .035 | .027 | .035 | |
| Main Channel | 4508.58 | .035 | .027 | .035 | .035 |
| Main Channel | 4445.62 | .035 | .027 | .035 | .035 |
| Main Channel | 4345.62 | .035 | .027 | .035 | .035 |
| Main Channel | 4245.62 | .035 | .035 | .035 | |
| Main Channel | 4226.18 | .035 | .035 | .035 | |
| Main Channel | 4214.18 | .035 | .035 | .035 | |
| Main Channel | 4213.18 | Mult Open | | | |
| Main Channel | 4133.00 | .035 | .035 | .035 | |
| Main Channel | 4130.52 | .035 | .035 | .035 | |
| Main Channel | 4107.43 | .035 | .035 | .035 | |
| Main Channel | 4091.43 | .035 | .035 | .035 | |
| Main Channel | 4063.43 | .035 | .035 | .035 | |
| Main Channel | 4062.43 | .035 | .027 | .035 | |
| Main Channel | 3982.14* | .035 | .027 | .035 | |
| Main Channel | 3901.85* | .035 | .027 | .035 | |
| Main Channel | 3821.57* | .035 | .027 | .035 | |
| Main Channel | 3741.28* | .035 | .027 | .035 | |
| Main Channel | 3661.00 | .035 | .027 | .035 | |
| Main Channel | 3660.00 | .035 | .035 | .035 | |
| Main Channel | 3640.00 | .035 | .035 | .035 | |
| Main Channel | 3590.00 | .035 | .035 | .035 | |
| Main Channel | 3580.00 | .035 | .035 | .035 | |
| Main Channel | 3579.00 | .035 | .027 | .035 | |
| Main Channel | 3483.66* | .035 | .027 | .035 | |
| Main Channel | 3388.33* | .035 | .027 | .035 | |
| Main Channel | 3293.* | .035 | .027 | .035 | |
| Main Channel | 3197.66* | .035 | .027 | .035 | |
| Main Channel | 3102.33* | .035 | .027 | .035 | |
| Main Channel | 3007.* | .035 | .027 | .035 | |
| Main Channel | 2911.66* | .035 | .027 | .035 | |
| Main Channel | 2816.33* | .035 | .027 | .035 | |
| Main Channel | 2721.00 | .035 | .027 | .035 | |
| Main Channel | 2720.00 | .035 | .035 | .035 | |
| Main Channel | 2700.00 | .035 | .027 | .035 | |
| Main Channel | 2645.00 | .035 | .035 | .035 | |

| | | | | |
|---|---|---|---|---|
| Main Channel | 2635.00 | .035 | .035 | .035 |
| Main Channel | 2634.00 | .035 | .027 | .035 |
| Main Channel | 2554.20* | .035 | .027 | .035 |
| Main Channel | 2474.41* | .035 | .027 | .035 |
| Main Channel | 2394.62* | .035 | .027 | .035 |
| Main Channel | 2314.84 | .035 | .027 | .035 |
| Main Channel | 2216.89* | .035 | .027 | .035 |
| Main Channel | 2118.94* | .035 | .027 | .035 |
| Main Channel | 2021.00 | .035 | .027 | .035 |
| Main Channel | 2020.00 | .035 | .035 | .035 |
| Main Channel | 2000.00 | .035 | .035 | .035 |
| Main Channel | 1945.00 | .035 | .035 | .035 |
| Main Channel | 1935.00 | .035 | .035 | .035 |
| Main Channel | 1934.00 | .035 | .027 | .035 |
| Main Channel | 1839.08* | .035 | .027 | .035 |
| Main Channel | 1744.16* | .035 | .027 | .035 |
| Main Channel | 1649.24* | .035 | .027 | .035 |
| Main Channel | 1554.32* | .035 | .027 | .035 |
| Main Channel | 1459.40* | .035 | .027 | .035 |
| Main Channel | 1364.49 | .035 | .027 | .035 |
| Main Channel | 1273.90* | .035 | .027 | .035 |
| Main Channel | 1183.32* | .035 | .027 | .035 |
| Main Channel | 1092.74* | .035 | .027 | .035 |
| Main Channel | 1002.16* | .035 | .027 | .035 |
| Main Channel | 911.581* | .035 | .027 | .035 |
| Main Channel | 821.00 | .035 | .027 | .035 |
| Main Channel | 820.00 | .035 | .035 | .035 |
| Main Channel | 800.00 | .035 | .035 | .035 |

SUMMARY OF REACH LENGTHS

River: Rittenhouse Chan

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Main Channel | 23278.81 | 21.25 | 21.25 | 21.25 |
| Main Channel | 23257.56 | 18.25 | 18.25 | 18.25 |
| Main Channel | 23239.31 | 1 | 1 | 1 |
| Main Channel | 23238.31 | 78.65 | 78.65 | 78.65 |
| Main Channel | 23159.6* | 78.65 | 78.65 | 78.65 |
| Main Channel | 23081.00 | 1 | 1 | 1 |
| Main Channel | 23080.00 | 20 | 20 | 20 |
| Main Channel | 23060.00 | 50 | 50 | 50 |
| Main Channel | 23010.00 | 1 | 1 | 1 |
| Main Channel | 23009.00 | 77.25 | 77.25 | 77.25 |
| Main Channel | 22931.7* | 77.25 | 77.25 | 77.25 |
| Main Channel | 22854.5* | 77.25 | 77.25 | 77.25 |
| Main Channel | 22777.2* | 77.25 | 77.25 | 77.25 |
| Main Channel | 22700.00 | 94.75 | 94.75 | 94.75 |
| Main Channel | 22605.2* | 94.75 | 94.75 | 94.75 |
| Main Channel | 22510.5* | 94.75 | 94.75 | 94.75 |
| Main Channel | 22415.7* | 94.75 | 94.75 | 94.75 |
| Main Channel | 22321.00 | 1 | 1 | 1 |
| Main Channel | 22320.00 | 20 | 20 | 20 |
| Main Channel | 22300.00 | 50 | 50 | 50 |
| Main Channel | 22250.00 | 1 | 1 | 1 |
| Main Channel | 22249.00 | 91.5 | 91.5 | 91.5 |
| Main Channel | 22157.5* | 91.5 | 91.5 | 91.5 |
| Main Channel | 22066.* | 91.5 | 91.5 | 91.5 |
| Main Channel | 21974.5* | 91.5 | 91.5 | 91.5 |
| Main Channel | 21883.* | 91.5 | 91.5 | 91.5 |
| Main Channel | 21791.5* | 91.5 | 91.5 | 91.5 |
| Main Channel | 21700.00 | 95.8 | 95.8 | 95.8 |
| Main Channel | 21604.2* | 95.8 | 95.8 | 95.8 |
| Main Channel | 21508.4* | 95.8 | 95.8 | 95.8 |
| Main Channel | 21412.6* | 95.8 | 95.8 | 95.8 |
| Main Channel | 21316.8* | 95.8 | 95.8 | 95.8 |
| Main Channel | 21221.00 | 1 | 1 | 1 |
| Main Channel | 21220.00 | 20 | 20 | 20 |
| Main Channel | 21200.00 | 50 | 50 | 50 |
| Main Channel | 21150.00 | 1 | 1 | 1 |
| Main Channel | 21149.00 | 89.8 | 89.8 | 89.8 |
| Main Channel | 21059.2* | 89.8 | 89.8 | 89.8 |
| Main Channel | 20969.4* | 89.8 | 89.8 | 89.8 |
| Main Channel | 20879.6* | 89.8 | 89.8 | 89.8 |
| Main Channel | 20789.8* | 89.8 | 89.8 | 89.8 |
| Main Channel | 20700.00 | 89.44 | 89.44 | 89.44 |
| Main Channel | 20610.5* | 89.44 | 89.44 | 89.44 |
| Main Channel | 20521.1* | 89.44 | 89.44 | 89.44 |
| Main Channel | 20431.69 | 63 | 51.99 | 40 |
| Main Channel | 20379.70 | 92.2 | 79.7 | 75.93 |
| Main Channel | 20300.00 | 34 | 29.39 | 28 |
| Main Channel | 20270.61 | 90.33 | 90.2 | 89 |
| Main Channel | 20180.4* | 90.33 | 90.2 | 89 |
| Main Channel | 20090.2* | 90.33 | 90.2 | 89 |
| Main Channel | 20000.00 | 99.67 | 99.67 | 99.67 |
| Main Channel | 19900.3* | 99.67 | 99.67 | 99.67 |
| Main Channel | 19800.6* | 99.67 | 99.67 | 99.67 |
| Main Channel | 19701.00 | 1 | 1 | 1 |
| Main Channel | 19700.00 | 20 | 20 | 20 |
| Main Channel | 19680.00 | 50 | 50 | 50 |
| Main Channel | 19630.00 | 1 | 1 | 1 |

| | | | | |
|---|---|---|---|---|
| Main Channel | 19629.00 | 92.9 | 92.9 | 92.9 |
| Main Channel | 19536.1* | 92.9 | 92.9 | 92.9 |
| Main Channel | 19443.2* | 92.9 | 92.9 | 92.9 |
| Main Channel | 19350.3* | 92.9 | 92.9 | 92.9 |
| Main Channel | 19257.4* | 92.9 | 92.9 | 92.9 |
| Main Channel | 19164.5* | 92.9 | 92.9 | 92.9 |
| Main Channel | 19071.6* | 92.9 | 92.9 | 92.9 |
| Main Channel | 18978.7* | 92.9 | 92.9 | 92.9 |
| Main Channel | 18885.8* | 92.9 | 92.9 | 92.9 |
| Main Channel | 18792.9* | 92.9 | 92.9 | 92.9 |
| Main Channel | 18700.00 | 39 | 39 | 39 |
| Main Channel | 18661.00 | 1 | 1 | 1 |
| Main Channel | 18660.00 | 20 | 20 | 20 |
| Main Channel | 18640.00 | 50 | 50 | 50 |
| Main Channel | 18590.00 | 1 | 1 | 1 |
| Main Channel | 18589.00 | 98.78 | 98.78 | 98.78 |
| Main Channel | 18490.2* | 98.78 | 98.78 | 98.78 |
| Main Channel | 18391.4* | 98.78 | 98.78 | 98.78 |
| Main Channel | 18292.6* | 98.78 | 98.78 | 98.78 |
| Main Channel | 18193.8* | 98.78 | 98.78 | 98.78 |
| Main Channel | 18095.1* | 98.78 | 98.78 | 98.78 |
| Main Channel | 17996.3* | 98.78 | 98.78 | 98.78 |
| Main Channel | 17897.5* | 98.78 | 98.78 | 98.78 |
| Main Channel | 17798.7* | 98.78 | 98.78 | 98.78 |
| Main Channel | 17700.00 | 79.67 | 79.67 | 79.67 |
| Main Channel | 17620.3* | 79.67 | 79.67 | 79.67 |
| Main Channel | 17540.6* | 79.67 | 79.67 | 79.67 |
| Main Channel | 17461.00 | 1 | 1 | 1 |
| Main Channel | 17460.00 | 20 | 20 | 20 |
| Main Channel | 17440.00 | 50 | 50 | 50 |
| Main Channel | 17390.00 | 1 | 1 | 1 |
| Main Channel | 17389.00 | 92.57 | 92.57 | 92.57 |
| Main Channel | 17296.4* | 92.57 | 92.57 | 92.57 |
| Main Channel | 17203.8* | 92.57 | 92.57 | 92.57 |
| Main Channel | 17111.2* | 92.57 | 92.57 | 92.57 |
| Main Channel | 17018.7* | 92.57 | 92.57 | 92.57 |
| Main Channel | 16926.1* | 92.57 | 92.57 | 92.57 |
| Main Channel | 16833.5* | 92.57 | 92.57 | 92.57 |
| Main Channel | 16741.00 | 1 | 1 | 1 |
| Main Channel | 16740.00 | 20 | 20 | 20 |
| Main Channel | 16720.00 | 45 | 45 | 45 |
| Main Channel | 16675.00 | 1 | 1 | 1 |
| Main Channel | 16674.00 | 97.4 | 97.4 | 97.4 |
| Main Channel | 16576.6* | 97.4 | 97.4 | 97.4 |
| Main Channel | 16479.2* | 97.4 | 97.4 | 97.4 |
| Main Channel | 16381.8* | 97.4 | 97.4 | 97.4 |
| Main Channel | 16284.4* | 97.4 | 97.4 | 97.4 |
| Main Channel | 16187.* | 97.4 | 97.4 | 97.4 |
| Main Channel | 16089.6* | 97.4 | 97.4 | 97.4 |
| Main Channel | 15992.2* | 97.4 | 97.4 | 97.4 |
| Main Channel | 15894.8* | 97.4 | 97.4 | 97.4 |
| Main Channel | 15797.4* | 97.4 | 97.4 | 97.4 |
| Main Channel | 15700.00 | 100 | 100 | 100 |
| Main Channel | 15600.* | 100 | 100 | 100 |
| Main Channel | 15500.* | 100 | 100 | 100 |
| Main Channel | 15400.* | 100 | 100 | 100 |
| Main Channel | 15300.* | 100 | 100 | 100 |
| Main Channel | 15200.* | 100 | 100 | 100 |
| Main Channel | 15100.* | 100 | 100 | 100 |
| Main Channel | 15000.* | 100 | 100 | 100 |
| Main Channel | 14900.* | 100 | 100 | 100 |
| Main Channel | 14800.* | 100 | 100 | 100 |
| Main Channel | 14700.00 | 84.75 | 84.75 | 84.75 |
| Main Channel | 14615.2* | 84.75 | 84.75 | 84.75 |
| Main Channel | 14530.5* | 84.75 | 84.75 | 84.75 |
| Main Channel | 14445.7* | 84.75 | 84.75 | 84.75 |
| Main Channel | 14361.00 | 1 | 1 | 1 |
| Main Channel | 14360.00 | 20 | 20 | 20 |
| Main Channel | 14340.00 | 50 | 50 | 50 |
| Main Channel | 14290.00 | 1 | 1 | 1 |
| Main Channel | 14289.00 | 98.17 | 98.17 | 98.17 |
| Main Channel | 14190.8* | 98.17 | 98.17 | 98.17 |
| Main Channel | 14092.6* | 98.17 | 98.17 | 98.17 |
| Main Channel | 13994.5* | 98.17 | 98.17 | 98.17 |
| Main Channel | 13896.3* | 98.17 | 98.17 | 98.17 |
| Main Channel | 13798.1* | 98.17 | 98.17 | 98.17 |
| Main Channel | 13700.00 | 99.83 | 99.83 | 99.83 |
| Main Channel | 13600.1* | 99.83 | 99.83 | 99.83 |
| Main Channel | 13500.3* | 99.83 | 99.83 | 99.83 |
| Main Channel | 13400.5* | 99.83 | 99.83 | 99.83 |
| Main Channel | 13300.6* | 99.83 | 99.83 | 99.83 |
| Main Channel | 13200.8* | 99.83 | 99.83 | 99.83 |
| Main Channel | 13101.00 | 1 | 1 | 1 |
| Main Channel | 13100.00 | 20 | 20 | 20 |
| Main Channel | 13080.00 | 50 | 50 | 50 |
| Main Channel | 13030.00 | 1 | 1 | 1 |
| Main Channel | 13029.00 | 82.25 | 82.25 | 82.25 |
| Main Channel | 12946.7* | 82.25 | 82.25 | 82.25 |
| Main Channel | 12864.5* | 82.25 | 82.25 | 82.25 |
| Main Channel | 12782.2* | 82.25 | 82.25 | 82.25 |
| Main Channel | 12700. | 86.33 | 86.33 | 86.33 |
| Main Channel | 12613.6* | 86.33 | 86.33 | 86.33 |
| Main Channel | 12527.3* | 86.33 | 86.33 | 86.33 |
| Main Channel | 12441.00 | 1 | 1 | 1 |
| Main Channel | 12440.00 | 20 | 20 | 20 |

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|---|---|---|---|---|
| Main Channel | 12420.00 | 50 | 50 | 50 |
| Main Channel | 12370 | 1 | 1 | 1 |
| Main Channel | 12369.00 | 86.5 | 86.5 | 86.5 |
| Main Channel | 12282.5* | 86.5 | 86.5 | 86.5 |
| Main Channel | 12196.* | 86.5 | 86.5 | 86.5 |
| Main Channel | 12109.5* | 86.5 | 86.5 | 86.5 |
| Main Channel | 12023.* | 86.5 | 86.5 | 86.5 |
| Main Channel | 11936.5* | 86.5 | 86.5 | 86.5 |
| Main Channel | 11850.00 | 93.5 | 84.5 | 72.5 |
| Main Channel | 11765.4* | 93.5 | 84.5 | 72.5 |
| Main Channel | 11680.94 | 95.94 | 95.94 | 95.94 |
| Main Channel | 11585.00 | 37.47 | 37.47 | 32 |
| Main Channel | 11547.53 | 11 | 11 | 8 |
| Main Channel | 11536.53 | 26 | 26 | 22 |
| Main Channel | 11510.53 | 16.8 | 13.73 | 18.8 |
| Main Channel | 11496.8 | 9.33 | 6.8 | 17.33 |
| Main Channel | 11490.00 | 11.2 | 6.13 | 20.8 |
| Main Channel | 11483.87 | 114.06 | 114.06 | 114.06 |
| Main Channel | 11480.7 | Culvert | | |
| Main Channel | 11369.81 | 16 | 23.64 | 36 |
| Main Channel | 11346.23 | 50.67 | 46.23 | 50.67 |
| Main Channel | 11300.00 | 9 | 8.5 | 9 |
| Main Channel | 11291.50 | 95 | 91.5 | 91.5 |
| Main Channel | 11200.00 | 100 | 100 | 100 |
| Main Channel | 11100.00 | 96.67 | 96.67 | 96.67 |
| Main Channel | 11003.3* | 96.67 | 96.67 | 96.67 |
| Main Channel | 10906.6* | 96.67 | 96.67 | 96.67 |
| Main Channel | 10810.00 | 4.59 | 4.59 | 4.59 |
| Main Channel | 10805.41 | 19.88 | 14 | 19.88 |
| Main Channel | 10791.41 | 16.88 | 11 | 16.88 |
| Main Channel | 10780.41 | 93.41 | 93.41 | 93.41 |
| Main Channel | 10777.41 | Culvert | | |
| Main Channel | 10687.00 | 69.09 | 49.59 | 53.59 |
| Main Channel | 10637.41 | 10 | 10 | 10 |
| Main Channel | 10627.41 | 29 | 27.41 | 23 |
| Main Channel | 10600 | 84 | 84 | 84 |
| Main Channel | 10516.* | 84 | 84 | 84 |
| Main Channel | 10432.* | 84 | 84 | 84 |
| Main Channel | 10348.* | 84 | 84 | 84 |
| Main Channel | 10264.00 | 1 | 1 | 1 |
| Main Channel | 10263.00 | 20 | 20 | 20 |
| Main Channel | 10243 | 50 | 50 | 50 |
| Main Channel | 10193 | 10 | 10 | 10 |
| Main Channel | 10183.00 | 1 | 1 | 1 |
| Main Channel | 10182.00 | 96.4 | 96.4 | 96.4 |
| Main Channel | 10085.6* | 96.4 | 96.4 | 96.4 |
| Main Channel | 9989.2* | 96.4 | 96.4 | 96.4 |
| Main Channel | 9892.8* | 96.4 | 96.4 | 96.4 |
| Main Channel | 9796.4* | 96.4 | 96.4 | 96.4 |
| Main Channel | 9700 | 90.86 | 90.86 | 90.86 |
| Main Channel | 9609.14* | 90.86 | 90.86 | 90.86 |
| Main Channel | 9518.28* | 90.86 | 90.86 | 90.86 |
| Main Channel | 9427.42* | 90.86 | 90.86 | 90.86 |
| Main Channel | 9336.57* | 90.86 | 90.86 | 90.86 |
| Main Channel | 9245.71* | 90.86 | 90.86 | 90.86 |
| Main Channel | 9154.85* | 90.86 | 90.86 | 90.86 |
| Main Channel | 9064.00 | 1 | 1 | 1 |
| Main Channel | 9063.00 | 20 | 20 | 20 |
| Main Channel | 9043 | 50 | 50 | 50 |
| Main Channel | 8993 | 10 | 10 | 10 |
| Main Channel | 8983.00 | 1 | 1 | 1 |
| Main Channel | 8982.00 | 94 | 94 | 94 |
| Main Channel | 8888.* | 94 | 94 | 94 |
| Main Channel | 8794.* | 94 | 94 | 94 |
| Main Channel | 8700 | 90.86 | 90.86 | 90.86 |
| Main Channel | 8609.14* | 90.86 | 90.86 | 90.86 |
| Main Channel | 8518.28* | 90.86 | 90.86 | 90.86 |
| Main Channel | 8427.42* | 90.86 | 90.86 | 90.86 |
| Main Channel | 8336.57* | 90.86 | 90.86 | 90.86 |
| Main Channel | 8245.71* | 90.86 | 90.86 | 90.86 |
| Main Channel | 8154.85* | 90.86 | 90.86 | 90.86 |
| Main Channel | 8064.00 | 1 | 1 | 1 |
| Main Channel | 8063.00 | 20 | 20 | 20 |
| Main Channel | 8043 | 50 | 50 | 50 |
| Main Channel | 7993 | 10 | 10 | 10 |
| Main Channel | 7983 | 1 | 1 | 1 |
| Main Channel | 7982.00 | 94 | 94 | 94 |
| Main Channel | 7888.* | 94 | 94 | 94 |
| Main Channel | 7794.* | 94 | 94 | 94 |
| Main Channel | 7700 | 99.2 | 99.2 | 99.2 |
| Main Channel | 7600.8* | 99.2 | 99.2 | 99.2 |
| Main Channel | 7501.6* | 99.2 | 99.2 | 99.2 |
| Main Channel | 7402.4* | 99.2 | 99.2 | 99.2 |
| Main Channel | 7303.2* | 99.2 | 99.2 | 99.2 |
| Main Channel | 7204.00 | 1 | 1 | 1 |
| Main Channel | 7203.00 | 20 | 20 | 20 |
| Main Channel | 7183 | 50 | 50 | 50 |
| Main Channel | 7133 | 10 | 10 | 10 |
| Main Channel | 7123.00 | 1 | 1 | 1 |
| Main Channel | 7122.00 | 84.4 | 84.4 | 84.4 |
| Main Channel | 7037.6* | 84.4 | 84.4 | 84.4 |
| Main Channel | 6953.2* | 84.4 | 84.4 | 84.4 |
| Main Channel | 6868.8* | 84.4 | 84.4 | 84.4 |
| Main Channel | 6784.4* | 84.4 | 84.4 | 84.4 |
| Main Channel | 6700 | 100 | 100 | 100 |

| | | | | |
|---|---|---|---|---|
| Main Channel | 6600.* | 100 | 100 | 100 |
| Main Channel | 6500.* | 100 | 100 | 100 |
| Main Channel | 6400.* | 100 | 100 | 100 |
| Main Channel | 6300.* | 100 | 100 | 100 |
| Main Channel | 6200.* | 100 | 100 | 100 |
| Main Channel | 6100.* | 100 | 100 | 100 |
| Main Channel | 6000.* | 100 | 100 | 100 |
| Main Channel | 5900.* | 100 | 100 | 100 |
| Main Channel | 5800.* | 100 | 100 | 100 |
| Main Channel | 5700 | 16 | 16 | 16 |
| Main Channel | 5684.00 | 1 | 1 | 1 |
| Main Channel | 5683.00 | 20 | 20 | 20 |
| Main Channel | 5663 | 50 | 50 | 50 |
| Main Channel | 5613 | 10 | 10 | 10 |
| Main Channel | 5603.00 | 1 | 1 | 1 |
| Main Channel | 5602.00 | 83.5 | 83.5 | 83.5 |
| Main Channel | 5518.5* | 83.5 | 83.5 | 83.5 |
| Main Channel | 5435.* | 83.5 | 83.5 | 83.5 |
| Main Channel | 5351.5* | 83.5 | 83.5 | 83.5 |
| Main Channel | 5268.* | 83.5 | 83.5 | 83.5 |
| Main Channel | 5184.5* | 83.5 | 83.5 | 83.5 |
| Main Channel | 5101 | 1 | 1 | 1 |
| Main Channel | 5100 | 100 | 100 | 185 |
| Main Channel | 5000 | 71.5 | 68.68 | 81.5 |
| Main Channel | 4931.32* | 71.5 | 68.68 | 81.5 |
| Main Channel | 4862.65 | 16.82 | 16.82 | 16.82 |
| Main Channel | 4845.83 | 90 | 72.92 | 5.5 |
| Main Channel | 4772.91* | 90 | 72.92 | 5.5 |
| Main Channel | 4700 | 60 | 46 | 54 |
| Main Channel | 4654.00 | 20 | 25.42 | 85 |
| Main Channel | 4628.58 | 50 | 60 | 170 |
| Main Channel | 4568.58 | 42 | 60 | 122 |
| Main Channel | 4508.58 | 25 | 63 | 80 |
| Main Channel | 4445.62 | 50 | 100 | 120 |
| Main Channel | 4345.62 | 51 | 100 | 116 |
| Main Channel | 4245.62 | 20.44 | 19.44 | 19.44 |
| Main Channel | 4226.18 | 12 | 12 | 12 |
| Main Channel | 4214.18 | 81.18 | 81.18 | 81.18 |
| Main Channel | 4213.18 | Mult Open | | |
| Main Channel | 4133.00 | 2.48 | 2.48 | 2.48 |
| Main Channel | 4130.52 | 31.5 | 23.09 | 5 |
| Main Channel | 4107.43 | 33.1 | 16 | 5.3 |
| Main Channel | 4091.43 | 29.3 | 28 | 28 |
| Main Channel | 4063.43 | 1 | 1 | 1 |
| Main Channel | 4062.43 | 80.29 | 80.29 | 80.29 |
| Main Channel | 3982.14* | 80.29 | 80.29 | 80.29 |
| Main Channel | 3901.85* | 80.29 | 80.29 | 80.29 |
| Main Channel | 3821.57* | 80.29 | 80.29 | 80.29 |
| Main Channel | 3741.28* | 80.29 | 80.29 | 80.29 |
| Main Channel | 3661.00 | 1 | 1 | 1 |
| Main Channel | 3660.00 | 20 | 20 | 20 |
| Main Channel | 3640.00 | 50 | 50 | 50 |
| Main Channel | 3590.00 | 10 | 10 | 10 |
| Main Channel | 3580.00 | 1 | 1 | 1 |
| Main Channel | 3579.00 | 95.33 | 95.33 | 95.33 |
| Main Channel | 3483.66* | 95.33 | 95.33 | 95.33 |
| Main Channel | 3388.33* | 95.33 | 95.33 | 95.33 |
| Main Channel | 3293.* | 95.33 | 95.33 | 95.33 |
| Main Channel | 3197.66* | 95.33 | 95.33 | 95.33 |
| Main Channel | 3102.33* | 95.33 | 95.33 | 95.33 |
| Main Channel | 3007.* | 95.33 | 95.33 | 95.33 |
| Main Channel | 2911.66* | 95.33 | 95.33 | 95.33 |
| Main Channel | 2816.33* | 95.33 | 95.33 | 95.33 |
| Main Channel | 2721.00 | 1 | 1 | 1 |
| Main Channel | 2720.00 | 20 | 20 | 20 |
| Main Channel | 2700.00 | 55 | 55 | 55 |
| Main Channel | 2645.00 | 10 | 10 | 10 |
| Main Channel | 2635.00 | 1 | 1 | 1 |
| Main Channel | 2634.00 | 79.79 | 79.79 | 79.79 |
| Main Channel | 2554.20* | 79.79 | 79.79 | 79.79 |
| Main Channel | 2474.41* | 79.79 | 79.79 | 79.79 |
| Main Channel | 2394.62* | 79.79 | 79.79 | 79.79 |
| Main Channel | 2314.84 | 99.24 | 97.95 | 98.93 |
| Main Channel | 2216.89* | 99.24 | 97.95 | 98.93 |
| Main Channel | 2118.94* | 99.24 | 97.95 | 98.93 |
| Main Channel | 2021.00 | 1 | 1 | 1 |
| Main Channel | 2020.00 | 18 | 20 | 22 |
| Main Channel | 2000.00 | 54 | 55 | 57 |
| Main Channel | 1945.00 | 10 | 10 | 10 |
| Main Channel | 1935.00 | 1 | 1 | 1 |
| Main Channel | 1934.00 | 95.52 | 94.92 | 94.29 |
| Main Channel | 1839.08* | 95.52 | 94.92 | 94.29 |
| Main Channel | 1744.16* | 95.52 | 94.92 | 94.29 |
| Main Channel | 1649.24* | 95.52 | 94.92 | 94.29 |
| Main Channel | 1554.32* | 95.52 | 94.92 | 94.29 |
| Main Channel | 1459.40* | 95.52 | 94.92 | 94.29 |
| Main Channel | 1364.49 | 90.58 | 90.58 | 90.58 |
| Main Channel | 1273.90* | 90.58 | 90.58 | 90.58 |
| Main Channel | 1183.32* | 90.58 | 90.58 | 90.58 |
| Main Channel | 1092.74* | 90.58 | 90.58 | 90.58 |
| Main Channel | 1002.16* | 90.58 | 90.58 | 90.58 |
| Main Channel | 911.581* | 90.58 | 90.58 | 90.58 |
| Main Channel | 821.00 | 1 | 1 | 1 |
| Main Channel | 820.00 | 20 | 20 | 20 |
| Main Channel | 800.00 | | | |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Rittenhouse Chan

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Main Channel | 23278.81 | .1 | .3 |
| Main Channel | 23257.56 | .1 | .3 |
| Main Channel | 23239.31 | .1 | .3 |
| Main Channel | 23238.31 | .1 | .3 |
| Main Channel | 23159.6* | .1 | .3 |
| Main Channel | 23081.00 | .1 | .3 |
| Main Channel | 23080.00 | .1 | .3 |
| Main Channel | 23060.00 | .1 | .3 |
| Main Channel | 23010.00 | .1 | .3 |
| Main Channel | 23009.00 | .1 | .3 |
| Main Channel | 22931.7* | .1 | .3 |
| Main Channel | 22854.5* | .1 | .3 |
| Main Channel | 22777.2* | .1 | .3 |
| Main Channel | 22700.00 | .1 | .3 |
| Main Channel | 22605.2* | .1 | .3 |
| Main Channel | 22510.5* | .1 | .3 |
| Main Channel | 22415.7* | .1 | .3 |
| Main Channel | 22321.00 | .1 | .3 |
| Main Channel | 22320.00 | .1 | .3 |
| Main Channel | 22300.00 | .1 | .3 |
| Main Channel | 22250.00 | .1 | .3 |
| Main Channel | 22249.00 | .1 | .3 |
| Main Channel | 22157.5* | .1 | .3 |
| Main Channel | 22066.* | .1 | .3 |
| Main Channel | 21974.5* | .1 | .3 |
| Main Channel | 21883.* | .1 | .3 |
| Main Channel | 21791.5* | .1 | .3 |
| Main Channel | 21700.00 | .1 | .3 |
| Main Channel | 21604.2* | .1 | .3 |
| Main Channel | 21508.4* | .1 | .3 |
| Main Channel | 21412.6* | .1 | .3 |
| Main Channel | 21316.8* | .1 | .3 |
| Main Channel | 21221.00 | .1 | .3 |
| Main Channel | 21220.00 | .1 | .3 |
| Main Channel | 21200.00 | .1 | .3 |
| Main Channel | 21150.00 | .1 | .3 |
| Main Channel | 21149.00 | .1 | .3 |
| Main Channel | 21059.2* | .1 | .3 |
| Main Channel | 20969.4* | .1 | .3 |
| Main Channel | 20879.6* | .1 | .3 |
| Main Channel | 20789.8* | .1 | .3 |
| Main Channel | 20700.00 | .1 | .3 |
| Main Channel | 20610.5* | .1 | .3 |
| Main Channel | 20521.1* | .1 | .3 |
| Main Channel | 20431.69 | .1 | .3 |
| Main Channel | 20379.70 | .1 | .3 |
| Main Channel | 20300.00 | .1 | .3 |
| Main Channel | 20270.61 | .1 | .3 |
| Main Channel | 20180.4* | .1 | .3 |
| Main Channel | 20090.2* | .1 | .3 |
| Main Channel | 20000.00 | .1 | .3 |
| Main Channel | 19900.3* | .1 | .3 |
| Main Channel | 19800.6* | .1 | .3 |
| Main Channel | 19701.00 | .1 | .3 |
| Main Channel | 19700.00 | .1 | .3 |
| Main Channel | 19680.00 | .1 | .3 |
| Main Channel | 19630.00 | .1 | .3 |
| Main Channel | 19629.00 | .1 | .3 |
| Main Channel | 19536.1* | .1 | .3 |
| Main Channel | 19443.2* | .1 | .3 |
| Main Channel | 19350.3* | .1 | .3 |
| Main Channel | 19257.4* | .1 | .3 |
| Main Channel | 19164.5* | .1 | .3 |
| Main Channel | 19071.6* | .1 | .3 |
| Main Channel | 18978.7* | .1 | .3 |
| Main Channel | 18885.8* | .1 | .3 |
| Main Channel | 18792.9* | .1 | .3 |
| Main Channel | 18700.00 | .1 | .3 |
| Main Channel | 18661.00 | .1 | .3 |
| Main Channel | 18660.00 | .1 | .3 |
| Main Channel | 18640.00 | .1 | .3 |
| Main Channel | 18590.00 | .1 | .3 |
| Main Channel | 18589.00 | .1 | .3 |
| Main Channel | 18490.2* | .1 | .3 |
| Main Channel | 18391.4* | .1 | .3 |
| Main Channel | 18292.6* | .1 | .3 |
| Main Channel | 18193.8* | .1 | .3 |
| Main Channel | 18095.1* | .1 | .3 |
| Main Channel | 17996.3* | .1 | .3 |
| Main Channel | 17897.5* | .1 | .3 |
| Main Channel | 17798.7* | .1 | .3 |
| Main Channel | 17700.00 | .1 | .3 |
| Main Channel | 17620.3* | .1 | .3 |
| Main Channel | 17540.6* | .1 | .3 |
| Main Channel | 17461.00 | .1 | .3 |

| | | | | |
|---|---|---|---|---|
| Main Channel | 17460.00 | | .1 | .3 |
| Main Channel | 17440.00 | | .1 | .3 |
| Main Channel | 17390.00 | | .1 | .3 |
| Main Channel | 17389.00 | | .1 | .3 |
| Main Channel | 17296.4* | | .1 | .3 |
| Main Channel | 17203.8* | | .1 | .3 |
| Main Channel | 17111.2* | | .1 | .3 |
| Main Channel | 17018.7* | | .1 | .3 |
| Main Channel | 16926.1* | | .1 | .3 |
| Main Channel | 16833.5* | | .1 | .3 |
| Main Channel | 16741.00 | | .1 | .3 |
| Main Channel | 16740.00 | | .1 | .3 |
| Main Channel | 16720.00 | | .1 | .3 |
| Main Channel | 16675.00 | | .1 | .3 |
| Main Channel | 16674.00 | | .1 | .3 |
| Main Channel | 16576.6* | | .1 | .3 |
| Main Channel | 16479.2* | | .1 | .3 |
| Main Channel | 16381.8* | | .1 | .3 |
| Main Channel | 16284.4* | | .1 | .3 |
| Main Channel | 16187.* | | .1 | .3 |
| Main Channel | 16089.6* | | .1 | .3 |
| Main Channel | 15992.2* | | .1 | .3 |
| Main Channel | 15894.8* | | .1 | .3 |
| Main Channel | 15797.4* | | .1 | .3 |
| Main Channel | 15700.00 | | .1 | .3 |
| Main Channel | 15600.* | | .1 | .3 |
| Main Channel | 15500.* | | .1 | .3 |
| Main Channel | 15400.* | | .1 | .3 |
| Main Channel | 15300.* | | .1 | .3 |
| Main Channel | 15200.* | | .1 | .3 |
| Main Channel | 15100.* | | .1 | .3 |
| Main Channel | 15000.* | | .1 | .3 |
| Main Channel | 14900.* | | .1 | .3 |
| Main Channel | 14800.* | | .1 | .3 |
| Main Channel | 14700.00 | | .1 | .3 |
| Main Channel | 14615.2* | | .1 | .3 |
| Main Channel | 14530.5* | | .1 | .3 |
| Main Channel | 14445.7* | | .1 | .3 |
| Main Channel | 14361.00 | | .1 | .3 |
| Main Channel | 14360.00 | | .1 | .3 |
| Main Channel | 14340.00 | | .1 | .3 |
| Main Channel | 14290.00 | | .1 | .3 |
| Main Channel | 14289.00 | | .1 | .3 |
| Main Channel | 14190.8* | | .1 | .3 |
| Main Channel | 14092.6* | | .1 | .3 |
| Main Channel | 13994.5* | | .1 | .3 |
| Main Channel | 13896.3* | | .1 | .3 |
| Main Channel | 13798.1* | | .1 | .3 |
| Main Channel | 13700.00 | | .1 | .3 |
| Main Channel | 13600.1* | | .1 | .3 |
| Main Channel | 13500.3* | | .1 | .3 |
| Main Channel | 13400.5* | | .1 | .3 |
| Main Channel | 13300.6* | | .1 | .3 |
| Main Channel | 13200.8* | | .1 | .3 |
| Main Channel | 13101.00 | | .1 | .3 |
| Main Channel | 13100.00 | | .1 | .3 |
| Main Channel | 13080.00 | | .1 | .3 |
| Main Channel | 13030.00 | | .1 | .3 |
| Main Channel | 13029.00 | | .1 | .3 |
| Main Channel | 12946.7* | | .1 | .3 |
| Main Channel | 12864.5* | | .1 | .3 |
| Main Channel | 12782.2* | | .1 | .3 |
| Main Channel | 12700. | | .1 | .3 |
| Main Channel | 12613.6* | | .1 | .3 |
| Main Channel | 12527.3* | | .1 | .3 |
| Main Channel | 12441.00 | | .1 | .3 |
| Main Channel | 12440.00 | | .1 | .3 |
| Main Channel | 12420.00 | | .1 | .3 |
| Main Channel | 12370 | | .1 | .3 |
| Main Channel | 12369.00 | | .1 | .3 |
| Main Channel | 12282.5* | | .1 | .3 |
| Main Channel | 12196.* | | .1 | .3 |
| Main Channel | 12109.5* | | .1 | .3 |
| Main Channel | 12023.* | | .1 | .3 |
| Main Channel | 11936.5* | | .1 | .3 |
| Main Channel | 11850.00 | | .1 | .3 |
| Main Channel | 11765.4* | | .1 | .3 |
| Main Channel | 11680.94 | | .1 | .3 |
| Main Channel | 11585.00 | | .1 | .3 |
| Main Channel | 11547.53 | | .1 | .3 |
| Main Channel | 11536.53 | | .1 | .3 |
| Main Channel | 11510.53 | | .1 | .3 |
| Main Channel | 11496.8 | | .1 | .3 |
| Main Channel | 11490.00 | | .6 | .8 |
| Main Channel | 11483.87 | | .6 | .8 |
| Main Channel | 11480.7 | Culvert | | |
| Main Channel | 11369.81 | | .6 | .8 |
| Main Channel | 11346.23 | | .6 | .8 |
| Main Channel | 11300.00 | | .1 | .3 |
| Main Channel | 11291.50 | | .1 | .3 |
| Main Channel | 11200.00 | | .1 | .3 |
| Main Channel | 11100.00 | | .1 | .3 |
| Main Channel | 11003.3* | | .1 | .3 |
| Main Channel | 10906.6* | | .1 | .3 |
| Main Channel | 10810.00 | | .1 | .3 |

| | | | |
|---|---|---|---|
| Main Channel | 10805.41 | .6 | .8 |
| Main Channel | 10791.41 | .6 | .8 |
| Main Channel | 10780.41 | .6 | .8 |
| Main Channel | 10777.41 | Culvert | |
| Main Channel | 10687.00 | .6 | .8 |
| Main Channel | 10637.41 | .1 | .3 |
| Main Channel | 10627.41 | .1 | .3 |
| Main Channel | 10600 | .1 | .3 |
| Main Channel | 10516.* | .1 | .3 |
| Main Channel | 10432.* | .1 | .3 |
| Main Channel | 10348.* | .1 | .3 |
| Main Channel | 10264.00 | .1 | .3 |
| Main Channel | 10263.00 | .1 | .3 |
| Main Channel | 10243 | .1 | .3 |
| Main Channel | 10193 | .1 | .3 |
| Main Channel | 10183.00 | .1 | .3 |
| Main Channel | 10182.00 | .1 | .3 |
| Main Channel | 10085.6* | .1 | .3 |
| Main Channel | 9989.2* | .1 | .3 |
| Main Channel | 9892.8* | .1 | .3 |
| Main Channel | 9796.4* | .1 | .3 |
| Main Channel | 9700 | .1 | .3 |
| Main Channel | 9609.14* | .1 | .3 |
| Main Channel | 9518.28* | .1 | .3 |
| Main Channel | 9427.42* | .1 | .3 |
| Main Channel | 9336.57* | .1 | .3 |
| Main Channel | 9245.71* | .1 | .3 |
| Main Channel | 9154.85* | .1 | .3 |
| Main Channel | 9064.00 | .1 | .3 |
| Main Channel | 9063.00 | .1 | .3 |
| Main Channel | 9043 | .1 | .3 |
| Main Channel | 8993 | .1 | .3 |
| Main Channel | 8983.00 | .1 | .3 |
| Main Channel | 8982.00 | .1 | .3 |
| Main Channel | 8888.* | .1 | .3 |
| Main Channel | 8794.* | .1 | .3 |
| Main Channel | 8700 | .1 | .3 |
| Main Channel | 8609.14* | .1 | .3 |
| Main Channel | 8518.28* | .1 | .3 |
| Main Channel | 8427.42* | .1 | .3 |
| Main Channel | 8336.57* | .1 | .3 |
| Main Channel | 8245.71* | .1 | .3 |
| Main Channel | 8154.85* | .1 | .3 |
| Main Channel | 8064.00 | .1 | .3 |
| Main Channel | 8063.00 | .1 | .3 |
| Main Channel | 8043 | .1 | .3 |
| Main Channel | 7993 | .1 | .3 |
| Main Channel | 7983 | .1 | .3 |
| Main Channel | 7982.00 | .1 | .3 |
| Main Channel | 7888.* | .1 | .3 |
| Main Channel | 7794.* | .1 | .3 |
| Main Channel | 7700 | .1 | .3 |
| Main Channel | 7600.8* | .1 | .3 |
| Main Channel | 7501.6* | .1 | .3 |
| Main Channel | 7402.4* | .1 | .3 |
| Main Channel | 7303.2* | .1 | .3 |
| Main Channel | 7204.00 | .1 | .3 |
| Main Channel | 7203.00 | .1 | .3 |
| Main Channel | 7183 | .1 | .3 |
| Main Channel | 7133 | .1 | .3 |
| Main Channel | 7123.00 | .1 | .3 |
| Main Channel | 7122.00 | .1 | .3 |
| Main Channel | 7037.6* | .1 | .3 |
| Main Channel | 6953.2* | .1 | .3 |
| Main Channel | 6868.8* | .1 | .3 |
| Main Channel | 6784.4* | .1 | .3 |
| Main Channel | 6700 | .1 | .3 |
| Main Channel | 6600.* | .1 | .3 |
| Main Channel | 6500.* | .1 | .3 |
| Main Channel | 6400.* | .1 | .3 |
| Main Channel | 6300.* | .1 | .3 |
| Main Channel | 6200.* | .1 | .3 |
| Main Channel | 6100.* | .1 | .3 |
| Main Channel | 6000.* | .1 | .3 |
| Main Channel | 5900.* | .1 | .3 |
| Main Channel | 5800.* | .1 | .3 |
| Main Channel | 5700 | .1 | .3 |
| Main Channel | 5684.00 | .1 | .3 |
| Main Channel | 5683.00 | .1 | .3 |
| Main Channel | 5663 | .1 | .3 |
| Main Channel | 5613 | .1 | .3 |
| Main Channel | 5603.00 | .1 | .3 |
| Main Channel | 5602.00 | .1 | .3 |
| Main Channel | 5518.5* | .1 | .3 |
| Main Channel | 5435.* | .1 | .3 |
| Main Channel | 5351.5* | .1 | .3 |
| Main Channel | 5268.* | .1 | .3 |
| Main Channel | 5184.5* | .1 | .3 |
| Main Channel | 5101 | .1 | .3 |
| Main Channel | 5100 | .1 | .3 |
| Main Channel | 5000 | .1 | .3 |
| Main Channel | 4931.32* | .1 | .3 |
| Main Channel | 4862.65 | .1 | .3 |
| Main Channel | 4845.83 | .1 | .3 |
| Main Channel | 4772.91* | .1 | .3 |

| | | | | |
|---|---|---|---|---|
| Main Channel | 4700 | | .1 | .3 |
| Main Channel | 4654.00 | | .1 | .3 |
| Main Channel | 4628.58 | | .1 | .3 |
| Main Channel | 4568.58 | | .1 | .3 |
| Main Channel | 4508.58 | | .1 | .3 |
| Main Channel | 4445.62 | | .1 | .3 |
| Main Channel | 4345.62 | | .1 | .3 |
| Main Channel | 4245.62 | | .1 | .3 |
| Main Channel | 4226.18 | | .6 | .8 |
| Main Channel | 4214.18 | | .6 | .8 |
| Main Channel | 4213.18 | Mult Open | | |
| Main Channel | 4133.00 | | .6 | .8 |
| Main Channel | 4130.52 | | .6 | .8 |
| Main Channel | 4107.43 | | .6 | .8 |
| Main Channel | 4091.43 | | .1 | .3 |
| Main Channel | 4063.43 | | .1 | .3 |
| Main Channel | 4062.43 | | .1 | .3 |
| Main Channel | 3982.14* | | .1 | .3 |
| Main Channel | 3901.85* | | .1 | .3 |
| Main Channel | 3821.57* | | .1 | .3 |
| Main Channel | 3741.28* | | .1 | .3 |
| Main Channel | 3661.00 | | .1 | .3 |
| Main Channel | 3660.00 | | .1 | .3 |
| Main Channel | 3640.00 | | .1 | .3 |
| Main Channel | 3590.00 | | .1 | .3 |
| Main Channel | 3580.00 | | .1 | .3 |
| Main Channel | 3579.00 | | .1 | .3 |
| Main Channel | 3483.66* | | .1 | .3 |
| Main Channel | 3388.33* | | .1 | .3 |
| Main Channel | 3293.* | | .1 | .3 |
| Main Channel | 3197.66* | | .1 | .3 |
| Main Channel | 3102.33* | | .1 | .3 |
| Main Channel | 3007.* | | .1 | .3 |
| Main Channel | 2911.66* | | .1 | .3 |
| Main Channel | 2816.33* | | .1 | .3 |
| Main Channel | 2721.00 | | .1 | .3 |
| Main Channel | 2720.00 | | .1 | .3 |
| Main Channel | 2700.00 | | .1 | .3 |
| Main Channel | 2645.00 | | .1 | .3 |
| Main Channel | 2635.00 | | .1 | .3 |
| Main Channel | 2634.00 | | .1 | .3 |
| Main Channel | 2554.20* | | .1 | .3 |
| Main Channel | 2474.41* | | .1 | .3 |
| Main Channel | 2394.62* | | .1 | .3 |
| Main Channel | 2314.84 | | .1 | .3 |
| Main Channel | 2216.89* | | .1 | .3 |
| Main Channel | 2118.94* | | .1 | .3 |
| Main Channel | 2021.00 | | .1 | .3 |
| Main Channel | 2020.00 | | .1 | .3 |
| Main Channel | 2000.00 | | .1 | .3 |
| Main Channel | 1945.00 | | .1 | .3 |
| Main Channel | 1935.00 | | .1 | .3 |
| Main Channel | 1934.00 | | .1 | .3 |
| Main Channel | 1839.08* | | .1 | .3 |
| Main Channel | 1744.16* | | .1 | .3 |
| Main Channel | 1649.24* | | .1 | .3 |
| Main Channel | 1554.32* | | .1 | .3 |
| Main Channel | 1459.40* | | .1 | .3 |
| Main Channel | 1364.49 | | .1 | .3 |
| Main Channel | 1273.90* | | .1 | .3 |
| Main Channel | 1183.32* | | .1 | .3 |
| Main Channel | 1092.74* | | .1 | .3 |
| Main Channel | 1002.16* | | .1 | .3 |
| Main Channel | 911.581* | | .1 | .3 |
| Main Channel | 821.00 | | .1 | .3 |
| Main Channel | 820.00 | | .1 | .3 |
| Main Channel | 800.00 | | .1 | .3 |

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X      X    X       X
X     X  X        X    X       X   X     X    X       X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: Rittenhouse Channel - revised & interp
Project File : final.prj
Run Date and Time: 11/23/98 2:44:28 PM

Project in English units

Project Description:
Rittenhouse channel CLOMR for improved channel - revised cross sections at
Sossaman Dr.

GEOMETRY DATA

Geometry Title: Rittenhouse channel
Geometry File : g:\HASAN\ritten\HEC-RAS\final\final.g01

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 23278.81

INPUT
Description: Just upstream of drop #7-22 & Ellsworth Rd.
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 990 | 1393.01 | 991.75 | 1393.01 | 991.75 | 1385.18 | 995 | 1384.37 | 1000 | 1384.37 |
| 1005 | 1384.37 | 1008.25 | 1385.18 | 1008.25 | 1393.01 | 1010 | 1393.01 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 990 | .035 | 991.75 | .035 | 1008.25 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 991.75 | 1008.25 | 21.25 | 21.25 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 23257.56

INPUT
Description: Riprap area of drop #7-22 & Ellsworth Rd.
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 975 | 1393 | 980 | 1392.65 | 980 | 1388.11 | 995 | 1384.36 | 1000 | 1384.36 |
| 1005 | 1384.36 | 1020 | 1388.11 | 1020 | 1392.65 | 1025 | 1393 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 975 | .035 | 980 | .035 | 1020 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 980 | 1020 | 18.25 | 18.25 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 23239.31

INPUT
Description: Downstream riprap area of drop #7-22 & Ellsworth Rd.
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 935 | 1392.31 | 966.2 | 1392.3 | 966.2 | 1391.55 | 995 | 1384.35 | 1000 | 1384.35 |
| 1005 | 1384.35 | 1033.8 | 1391.55 | 1033.8 | 1392.3 | 1045.8 | 1392.31 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 935 | .035 | 966.2 | .035 | 1033.8 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 966.2 | 1033.8 | 1 | 1 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 23238.31

INPUT
Description: Natural channel downstream of drop #7-22 & Ellsworth Rd.

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1392.31   942.2 1391.46   946.2 1389.46   950.2 1391.46   954.2 1391.96
   966.2 1391.46     995 1384.26    1000 1384.26    1005 1384.26  1033.8 1391.46
  1045.8 1392.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             78.65   78.65   78.65            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 23159.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1392.31   942.2 1391.46   946.2 1389.46   950.2 1391.46   954.2 1391.96
   966.2 1391.46     995 1384.26    1000 1384.26    1005 1384.26  1033.8 1391.46
  1045.8 1392.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             78.65   78.65   78.65            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 23081.00

INPUT
Description: Natural channel Upstream of drop structure #7-21
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1392.31   942.2 1391.46   946.2 1389.46   950.2 1391.46   954.2 1391.96
   966.2 1391.46     995 1384.26    1000 1384.26    1005 1384.26  1033.8 1391.46
  1045.8 1392.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8               1       1       1            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 23080.00

INPUT
Description: Upstream riprap area of drop structure #7-21
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1392.32   942.2 1391.47   946.2 1389.47   950.2 1391.47   954.2 1391.97
   966.2 1391.47     995 1384.27    1000 1384.27    1005 1384.27  1033.8 1391.47
  1045.8 1392.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              20      20      20            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 23060.00

INPUT
Description: Upstream of drop structure #7-21
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1392.31   942.2 1391.46   946.2 1389.46   950.2 1391.46   954.2 1391.96
   966.2 1391.46     995 1384.26    1000 1384.26    1005 1384.26  1033.8 1391.46
  1045.8 1392.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              50      50      50            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 23010.00

INPUT
Description: Downstream riprap area of drop structure #7-21
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.28   942.2 1388.43   946.2 1386.43   950.2 1388.43   954.2 1388.93
   966.2 1388.43     995 1381.23    1000 1381.23    1005 1381.23  1033.8 1388.43
  1045.8 1389.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 1       1       1            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 23009.00

INPUT
Description: Natural channel downstream of drop structure #7-21
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.28   942.2 1388.43   946.2 1386.43   950.2 1388.43   954.2 1388.93
   966.2 1388.43     995 1381.23    1000 1381.23    1005 1381.23  1033.8 1388.43
  1045.8 1389.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           77.25   77.25   77.25            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22931.7*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.24   942.2 1388.39   946.2 1386.39   950.2 1388.39   954.2 1388.89
   966.2 1388.39     995 1381.19    1000 1381.19    1005 1381.19  1033.8 1388.39
  1045.8 1389.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           77.25   77.25   77.25            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22854.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.21   942.2 1388.35   946.2 1386.35   950.2 1388.35   954.2 1388.85
   966.2 1388.35     995 1381.16    1000 1381.16    1005 1381.16  1033.8 1388.35
  1045.8 1389.21

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           77.25   77.25   77.25            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22777.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.17   942.2 1388.32   946.2 1386.32   950.2 1388.32   954.2 1388.82
   966.2 1388.32     995 1381.12    1000 1381.12    1005 1381.12  1033.8 1388.32
  1045.8 1389.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           77.25   77.25   77.25            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22700.00

INPUT
Description: End of Sheet 29
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.13   942.2 1388.28   946.2 1386.28   950.2 1388.28   954.2 1388.78
   966.2 1388.28     995 1381.08    1000 1381.08    1005 1381.08  1033.8 1388.28
  1045.8 1389.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             94.75   94.75   94.75            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22605.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.08   942.2 1388.23   946.2 1386.23   950.2 1388.23   954.2 1388.73
   966.2 1388.23     995 1381.03    1000 1381.03    1005 1381.03  1033.8 1388.23
  1045.8 1389.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             94.75   94.75   94.75            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22510.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1389.03   942.2 1388.19   946.2 1386.19   950.2 1388.19   954.2 1388.69
   966.2 1388.19     995 1380.98    1000 1380.98    1005 1380.98  1033.8 1388.19
  1045.8 1389.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             94.75   94.75   94.75            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22415.7*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1388.99   942.2 1388.14   946.2 1386.14   950.2 1388.14   954.2 1388.64
   966.2 1388.14     995 1380.94    1000 1380.94    1005 1380.94  1033.8 1388.14
  1045.8 1388.99

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             94.75   94.75   94.75            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22321.00

INPUT
Description: Natural channel Upstream of drop structure #7-20
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1388.94   942.2 1388.09   946.2 1386.09   950.2 1388.09   954.2 1388.59
   966.2 1388.09     995 1380.89    1000 1380.89    1005 1380.89  1033.8 1388.09
  1045.8 1388.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                1       1       1            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22320.00

INPUT
Description: Upstream riprap area of drop structure #7-20
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1388.94   942.2 1388.09   946.2 1386.09   950.2 1388.09   954.2 1388.59
   966.2 1388.09     995 1380.89    1000 1380.89    1005 1380.89  1033.8 1388.09
  1045.8 1388.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 20      20      20             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22300.00

INPUT
Description: Upstream of drop structure #7-20
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1388.93   942.2 1388.08   946.2 1386.08   950.2 1388.08   954.2 1388.58
   966.2 1388.08     995 1380.88    1000 1380.88    1005 1380.88  1033.8 1388.08
  1045.8 1388.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 50      50      50             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22250.00

INPUT
Description: Downstream riprap area of drop structure #7-20
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935  1385.9   942.2 1385.05   946.2 1383.05   950.2 1385.05   954.2 1385.55
   966.2 1385.05     995 1377.85    1000 1377.85    1005 1377.85  1033.8 1385.05
  1045.8  1385.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                  1       1       1             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22249.00

INPUT
Description: Natural channel downstream of drop structure #7-20
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935  1385.9   942.2 1385.05   946.2 1383.05   950.2 1385.05   954.2 1385.55
   966.2 1385.05     995 1377.85    1000 1377.85    1005 1377.85  1033.8 1385.05
  1045.8  1385.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                91.5    91.5    91.5             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22157.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.85   942.2 1385.01   946.2 1383.01   950.2 1385.01   954.2 1385.51
   966.2 1385.01     995  1377.8    1000  1377.8    1005  1377.8  1033.8 1385.01
  1045.8 1385.85

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                91.5    91.5    91.5             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 22066.*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.81   942.2 1384.96   946.2 1382.96   950.2 1384.96   954.2 1385.46
   966.2 1384.96     995 1377.76    1000 1377.76    1005 1377.76  1033.8 1384.96
  1045.8 1385.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             91.5    91.5    91.5             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21974.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.77   942.2 1384.92   946.2 1382.92   950.2 1384.92   954.2 1385.42
   966.2 1384.92     995 1377.71    1000 1377.71    1005 1377.71  1033.8 1384.92
  1045.8 1385.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             91.5    91.5    91.5             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21883.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.72   942.2 1384.87   946.2 1382.87   950.2 1384.87   954.2 1385.37
   966.2 1384.87     995 1377.67    1000 1377.67    1005 1377.67  1033.8 1384.87
  1045.8 1385.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             91.5    91.5    91.5             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21791.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.68   942.2 1384.83   946.2 1382.83   950.2 1384.83   954.2 1385.33
   966.2 1384.83     995 1377.62    1000 1377.62    1005 1377.62  1033.8 1384.83
  1045.8 1385.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             91.5    91.5    91.5             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21700.00

INPUT
Description: End of Sheet 28
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.63   942.2 1384.78   946.2 1382.78   950.2 1384.78   954.2 1385.28
   966.2 1384.78     995 1377.58    1000 1377.58    1005 1377.58  1033.8 1384.78
  1045.8 1385.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             95.8    95.8    95.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21604.2*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.58   942.2 1384.73   946.2 1382.73   950.2 1384.73   954.2 1385.23
   966.2 1384.73     995 1377.53    1000 1377.53    1005 1377.53  1033.8 1384.73
  1045.8 1385.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              95.8    95.8    95.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21508.4*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.53   942.2 1384.68   946.2 1382.68   950.2 1384.68   954.2 1385.18
   966.2 1384.68     995 1377.48    1000 1377.48    1005 1377.48  1033.8 1384.68
  1045.8 1385.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              95.8    95.8    95.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21412.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.49   942.2 1384.64   946.2 1382.64   950.2 1384.64   954.2 1385.14
   966.2 1384.64     995 1377.44    1000 1377.44    1005 1377.44  1033.8 1384.64
  1045.8 1385.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              95.8    95.8    95.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21316.8*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.44   942.2 1384.59   946.2 1382.59   950.2 1384.59   954.2 1385.09
   966.2 1384.59     995 1377.39    1000 1377.39    1005 1377.39  1033.8 1384.59
  1045.8 1385.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              95.8    95.8    95.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21221.00

INPUT
Description: Natural Channel Upstream of drop strucure #7-19
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1385.39   942.2 1384.54   946.2 1382.54   950.2 1384.54   954.2 1385.04
   966.2 1384.54     995 1377.34    1000 1377.34    1005 1377.34  1033.8 1384.54
  1045.8 1385.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                1       1       1             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21220.00

INPUT
Description: Upstream riprap area of drop strucure #7-19
```

```
Station Elevation Data    num=      11
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     935 1385.39   942.2 1384.54   946.2 1382.54   950.2 1384.54   954.2 1385.04
   966.2 1384.54     995 1377.34    1000 1377.34    1005 1377.34  1033.8 1384.54
  1045.8 1385.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 20      20      20            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21200.00

INPUT
Description: Upstream of drop strucure #7-19
Station Elevation Data    num=      11
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     935 1385.38   942.2 1384.53   946.2 1382.53   950.2 1384.53   954.2 1385.03
   966.2 1384.53     995 1377.33    1000 1377.33    1005 1377.33  1033.8 1384.53
  1045.8 1385.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 50      50      50            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21150.00

INPUT
Description: Downstream riprap area of drop strucure #7-19
Station Elevation Data    num=      11
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     935 1382.35   942.2  1381.5   946.2  1379.5   950.2  1381.5   954.2    1382
   966.2  1381.5     995  1374.3    1000  1374.3    1005  1374.3  1033.8  1381.5
  1045.8 1382.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                   1       1       1            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21149.00

INPUT
Description: Natural channel downstream of drop strucure #7-19
Station Elevation Data    num=      11
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     935 1382.35   942.2  1381.5   946.2  1379.5   950.2  1381.5   954.2    1382
   966.2  1381.5     995  1374.3    1000  1374.3    1005  1374.3  1033.8  1381.5
  1045.8 1382.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                89.8    89.8    89.8            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 21059.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
     935 1382.31   942.2 1381.46   946.2 1379.46   950.2 1381.46   954.2 1381.96
   966.2 1381.46     995 1374.26    1000 1374.26    1005 1374.26  1033.8 1381.46
  1045.8 1382.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                89.8    89.8    89.8            .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20969.4*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1382.26   942.2 1381.41   946.2 1379.41   950.2 1381.41   954.2 1381.91
   966.2 1381.41     995 1374.21    1000 1374.21    1005 1374.21  1033.8 1381.41
  1045.8 1382.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             89.8    89.8    89.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20879.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1382.22   942.2 1381.37   946.2 1379.37   950.2 1381.37   954.2 1381.87
   966.2 1381.37     995 1374.17    1000 1374.17    1005 1374.17  1033.8 1381.37
  1045.8 1382.22

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             89.8    89.8    89.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20789.8*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1382.17   942.2 1381.32   946.2 1379.32   950.2 1381.32   954.2 1381.82
   966.2 1381.32     995 1374.12    1000 1374.12    1005 1374.12  1033.8 1381.32
  1045.8 1382.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             89.8    89.8    89.8             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20700.00

INPUT
Description: End of Sheet 27 - Reach 7
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1382.13   942.2 1381.28   946.2 1379.28   950.2 1381.28   954.2 1381.78
   966.2 1381.28     995 1374.08    1000 1374.08    1005 1374.08  1033.8 1381.28
  1045.8 1382.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            89.44   89.44   89.44             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20610.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1382.09   942.2 1381.24   946.2 1379.24   950.2 1381.24   954.2 1381.74
   966.2 1381.24     995 1374.04    1000 1374.04    1005 1374.04  1033.8 1381.24
  1045.8 1382.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            89.44   89.44   89.44             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20521.1*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935 1382.04   942.2 1381.19   946.2 1379.19   950.2 1381.19   954.2 1381.69
   966.2 1381.19     995 1373.99    1000 1373.99    1005 1373.99  1033.8 1381.19
  1045.8 1382.04

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             89.44   89.44   89.44             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20431.69

INPUT
Description: Downstream end of Reach 7
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     935    1382   942.2 1381.15   946.2 1379.15   950.2 1381.15   954.2 1381.65
   966.2 1381.15     995 1373.95    1000 1373.95    1005 1373.95  1033.8 1381.15
  1045.8    1382

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     935    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                63   51.99      40             .1       .3
Left Levee      Station=   954.2      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20379.70

INPUT
Description: Transistion area -upstream end of riprapped side inlet
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.84   954.2 1381.48   966.2 1380.98     995 1373.78    1000 1373.78
    1005 1373.78  1033.8 1380.98  1037.8 1380.98  1041.8 1378.98  1045.8 1380.98
  1052.8 1381.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035    1005    .027  1045.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.2    79.7   75.93             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20300.00

INPUT
Description: Transistion area - downstream end of riprapped side inlet
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1381.8   954.2 1381.44   966.2 1380.94     995 1373.74    1000 1373.74
    1005 1373.74  1033.8 1380.94  1037.8 1380.94  1041.8 1378.94  1045.8 1380.94
  1052.8  1381.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035    1005    .027  1045.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                34   29.39      28             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20270.61

INPUT
Description: Upstream end of reach 6
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.79   954.2 1381.43   966.2 1380.93     995 1373.73    1000 1373.73
    1005 1373.73  1033.8 1380.93  1037.8 1380.93  1041.8 1378.93  1045.8 1380.93
  1052.8 1381.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             90.33    90.2      89             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20180.4*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.79   954.2 1381.43   966.2 1380.93     995 1373.73    1000 1373.73
    1005 1373.73  1033.8 1380.93  1037.8 1380.93  1041.8 1378.93  1045.8 1380.93
  1052.8 1381.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            90.33    90.2      89             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20090.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.79   954.2 1381.43   966.2 1380.93     995 1373.73    1000 1373.73
    1005 1373.73  1033.8 1380.93  1037.8 1380.93  1041.8 1378.93  1045.8 1380.93
  1052.8 1381.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            90.33    90.2      89             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 20000.00

INPUT
Description: Downstream end of bend
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.79   954.2 1381.43   966.2 1380.93     995 1373.73    1000 1373.73
    1005 1373.73  1033.8 1380.93  1037.8 1380.93  1041.8 1378.93  1045.8 1380.93
  1052.8 1381.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            99.67   99.67   99.67             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19900.3*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.74   954.2 1381.38   966.2 1380.88     995 1373.68    1000 1373.68
    1005 1373.68  1033.8 1380.88  1037.8 1380.88  1041.8 1378.88  1045.8 1380.88
  1052.8 1381.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            99.67   99.67   99.67             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19800.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.69   954.2 1381.33   966.2 1380.83     995 1373.63    1000 1373.63
    1005 1373.63  1033.8 1380.83  1037.8 1380.83  1041.8 1378.83  1045.8 1380.83
  1052.8 1381.69

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            99.67   99.67   99.67             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19701.00

INPUT
Description: Natural Channel Upstream from Drop Structure #6-18
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.64   954.2 1381.28   966.2 1380.78     995 1373.58    1000 1373.58
    1005 1373.58  1033.8 1380.78  1037.8 1380.78  1041.8 1378.78  1045.8 1380.78
  1052.8 1381.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19700.00

INPUT
Description: Upstream riprap area from Drop Structure #6-18
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.64   954.2 1381.28   966.2 1380.78     995 1373.58    1000 1373.58
    1005 1373.58  1033.8 1380.78  1037.8 1380.78  1041.8 1378.78  1045.8 1380.78
  1052.8 1381.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                20      20      20             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19680.00

INPUT
Description: Upstream from Drop Structure #6-18
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1381.63   954.2 1381.27   966.2 1380.77     995 1373.57    1000 1373.57
    1005 1373.57  1033.8 1380.77  1037.8 1380.77  1041.8 1378.77  1045.8 1380.77
  1052.8 1381.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                50      50      50             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19630.00

INPUT
Description: Downstream riprap area from Drop Structure #6-18
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.61   954.2 1378.25   966.2 1377.75     995 1370.55    1000 1370.55
    1005 1370.55  1033.8 1377.75  1037.8 1377.75  1041.8 1375.75  1045.8 1377.75
  1052.8 1378.61

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19629.00

INPUT
Description: Natural Channel downstream from Drop Structure #6-18
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.61   954.2 1378.25   966.2 1377.75     995 1370.55    1000 1370.55
    1005 1370.55  1033.8 1377.75  1037.8 1377.75  1041.8 1375.75  1045.8 1377.75
  1052.8 1378.61

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19536.1*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.56   954.2  1378.2   966.2  1377.7     995  1370.5    1000  1370.5
    1005  1370.5  1033.8  1377.7  1037.8  1377.7  1041.8  1375.7  1045.8  1377.7
  1052.8 1378.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19443.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.52   954.2 1378.16   966.2 1377.66     995 1370.46    1000 1370.46
    1005 1370.46  1033.8 1377.66  1037.8 1377.66  1041.8 1375.66  1045.8 1377.66
  1052.8 1378.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19350.3*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.47   954.2 1378.11   966.2 1377.61     995 1370.41    1000 1370.41
    1005 1370.41  1033.8 1377.61  1037.8 1377.61  1041.8 1375.61  1045.8 1377.61
  1052.8 1378.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19257.4*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.42   954.2 1378.06   966.2 1377.56     995 1370.36    1000 1370.36
    1005 1370.36  1033.8 1377.56  1037.8 1377.56  1041.8 1375.56  1045.8 1377.56
  1052.8 1378.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19164.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.38   954.2 1378.02   966.2 1377.52     995 1370.31    1000 1370.31
    1005 1370.31  1033.8 1377.52  1037.8 1377.52  1041.8 1375.52  1045.8 1377.52
  1052.8 1378.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 19071.6*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.33   954.2 1377.97   966.2 1377.47     995 1370.27    1000 1370.27
    1005 1370.27  1033.8 1377.47  1037.8 1377.47  1041.8 1375.47  1045.8 1377.47
  1052.8 1378.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18978.7*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.28   954.2 1377.92   966.2 1377.42     995 1370.22    1000 1370.22
    1005 1370.22  1033.8 1377.42  1037.8 1377.42  1041.8 1375.42  1045.8 1377.42
  1052.8 1378.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18885.8*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.23   954.2 1377.87   966.2 1377.37     995 1370.17    1000 1370.17
    1005 1370.17  1033.8 1377.37  1037.8 1377.37  1041.8 1375.37  1045.8 1377.37
  1052.8 1378.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18792.9*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.19   954.2 1377.83   966.2 1377.33     995 1370.13    1000 1370.13
    1005 1370.13  1033.8 1377.33  1037.8 1377.33  1041.8 1375.33  1045.8 1377.33
  1052.8 1378.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             92.9    92.9    92.9             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18700.00

INPUT
Description: End of Sheet #25
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.14   954.2 1377.78   966.2 1377.28     995 1370.08    1000 1370.08
    1005 1370.08  1033.8 1377.28  1037.8 1377.28  1041.8 1375.28  1045.8 1377.28
  1052.8 1378.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8               39      39      39             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18661.00

INPUT
Description: Natural channel upstream of drop #6-17
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.12   954.2 1377.76   966.2 1377.26     995 1370.06    1000 1370.06
    1005 1370.06  1033.8 1377.26  1037.8 1377.26  1041.8 1375.26  1045.8 1377.26
  1052.8 1378.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                  1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18660.00

INPUT
Description: Upstream riprap area of drop #6-17
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.12   954.2 1377.76   966.2 1377.26     995 1370.06    1000 1370.06
    1005 1370.06  1033.8 1377.26  1037.8 1377.26  1041.8 1375.26  1045.8 1377.26
  1052.8 1378.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 20      20      20             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18640.00

INPUT
Description: Upstream of drop #6-17
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1378.11   954.2 1377.75   966.2 1377.25     995 1370.05    1000 1370.05
    1005 1370.05  1033.8 1377.25  1037.8 1377.25  1041.8 1375.25  1045.8 1377.25
  1052.8 1378.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 50      50      50             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18590.00

INPUT
Description: Downstream riprap area of drop #6-17
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1375.09   954.2 1374.73   966.2 1374.23     995 1367.03    1000 1367.03
    1005 1367.03  1033.8 1374.23  1037.8 1374.23  1041.8 1372.23  1045.8 1374.23
  1052.8 1375.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                  1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18589.00

INPUT
Description: Natural channel downstream of drop #6-17
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1375.09   954.2 1374.73   966.2 1374.23     995 1367.03    1000 1367.03
    1005 1367.03  1033.8 1374.23  1037.8 1374.23  1041.8 1372.23  1045.8 1374.23
  1052.8 1375.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18490.2*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1375.04   954.2 1374.68   966.2 1374.18     995 1366.98    1000 1366.98
    1005 1366.98  1033.8 1374.18  1037.8 1374.18  1041.8 1372.18  1045.8 1374.18
  1052.8 1375.04

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18391.4*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.99   954.2 1374.63   966.2 1374.13     995 1366.93    1000 1366.93
    1005 1366.93  1033.8 1374.13  1037.8 1374.13  1041.8 1372.13  1045.8 1374.13
  1052.8 1374.99

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18292.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.94   954.2 1374.58   966.2 1374.08     995 1366.88    1000 1366.88
    1005 1366.88  1033.8 1374.08  1037.8 1374.08  1041.8 1372.08  1045.8 1374.08
  1052.8 1374.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18193.8*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.89   954.2 1374.53   966.2 1374.03     995 1366.83    1000 1366.83
    1005 1366.83  1033.8 1374.03  1037.8 1374.03  1041.8 1372.03  1045.8 1374.03
  1052.8 1374.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 18095.1*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.84   954.2 1374.48   966.2 1373.98     995 1366.78    1000 1366.78
    1005 1366.78  1033.8 1373.98  1037.8 1373.98  1041.8 1371.98  1045.8 1373.98
  1052.8 1374.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17996.3*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.79   954.2 1374.43   966.2 1373.93     995 1366.73    1000 1366.73
    1005 1366.73  1033.8 1373.93  1037.8 1373.93  1041.8 1371.93  1045.8 1373.93
  1052.8 1374.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17897.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.74   954.2 1374.38   966.2 1373.88     995 1366.68    1000 1366.68
    1005 1366.68  1033.8 1373.88  1037.8 1373.88  1041.8 1371.88  1045.8 1373.88
  1052.8 1374.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17798.7*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.69   954.2 1374.33   966.2 1373.83     995 1366.63    1000 1366.63
    1005 1366.63  1033.8 1373.83  1037.8 1373.83  1041.8 1371.83  1045.8 1373.83
  1052.8 1374.69

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.78   98.78   98.78             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17700.00

INPUT
Description: End of sheet #24
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.64   954.2 1374.28   966.2 1373.78     995 1366.58    1000 1366.58
    1005 1366.58  1033.8 1373.78  1037.8 1373.78  1041.8 1371.78  1045.8 1373.78
  1052.8 1374.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            79.67   79.67   79.67             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17620.3*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1374.6   954.2 1374.24   966.2 1373.74     995 1366.54    1000 1366.54
    1005 1366.54  1033.8 1373.74  1037.8 1373.74  1041.8 1371.74  1045.8 1373.74
  1052.8  1374.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            79.67   79.67   79.67             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17540.6*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.56   954.2  1374.2   966.2  1373.7     995  1366.5    1000  1366.5
    1005  1366.5  1033.8  1373.7  1037.8  1373.7  1041.8  1371.7  1045.8  1373.7
  1052.8 1374.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              79.67   79.67   79.67            .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17461.00

INPUT
Description: Natural channel Upstream of drop structure #6-16
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.52   954.2 1374.16   966.2 1373.66     995 1366.46    1000 1366.46
    1005 1366.46  1033.8 1373.66  1037.8 1373.66  1041.8 1371.66  1045.8 1373.66
  1052.8 1374.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                1       1       1            .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17460.00

INPUT
Description: Upstream riprap area of drop structure #6-16
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.52   954.2 1374.16   966.2 1373.66     995 1366.46    1000 1366.46
    1005 1366.46  1033.8 1373.66  1037.8 1373.66  1041.8 1371.66  1045.8 1373.66
  1052.8 1374.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                20      20      20            .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17440.00

INPUT
Description: Upstream of drop structure #6-16
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1374.51   954.2 1374.15   966.2 1373.65     995 1366.45    1000 1366.45
    1005 1366.45  1033.8 1373.65  1037.8 1373.65  1041.8 1371.65  1045.8 1373.65
  1052.8 1374.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                50      50      50            .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17390.00

INPUT
Description: Downstream riprap area of drop structure #6-16
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.48   954.2 1371.12   966.2 1370.62     995 1363.42    1000 1363.42
    1005 1363.42  1033.8 1370.62  1037.8 1370.62  1041.8 1368.62  1045.8 1370.62
  1052.8 1371.48

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                1       1       1            .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17389.00

INPUT
Description: Natural channel downstream of drop structure #6-16
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.48   954.2 1371.12   966.2 1370.62     995 1363.42    1000 1363.42
    1005 1363.42  1033.8 1370.62  1037.8 1370.62  1041.8 1368.62  1045.8 1370.62
  1052.8 1371.48

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            92.57   92.57   92.57             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17296.4*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.43   954.2 1371.07   966.2 1370.57     995 1363.37    1000 1363.37
    1005 1363.37  1033.8 1370.57  1037.8 1370.57  1041.8 1368.57  1045.8 1370.57
  1052.8 1371.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            92.57   92.57   92.57             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17203.8*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.39   954.2 1371.03   966.2 1370.53     995 1363.33    1000 1363.33
    1005 1363.33  1033.8 1370.53  1037.8 1370.53  1041.8 1368.53  1045.8 1370.53
  1052.8 1371.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            92.57   92.57   92.57             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17111.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.34   954.2 1370.98   966.2 1370.48     995 1363.28    1000 1363.28
    1005 1363.28  1033.8 1370.48  1037.8 1370.48  1041.8 1368.48  1045.8 1370.48
  1052.8 1371.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            92.57   92.57   92.57             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 17018.7*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1371.3   954.2 1370.94   966.2 1370.44     995 1363.24    1000 1363.24
    1005 1363.24  1033.8 1370.44  1037.8 1370.44  1041.8 1368.44  1045.8 1370.44
  1052.8  1371.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            92.57   92.57   92.57             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16926.1*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.25   954.2 1370.89   966.2 1370.39     995 1363.19    1000 1363.19
    1005 1363.19  1033.8 1370.39  1037.8 1370.39  1041.8 1368.39  1045.8 1370.39
  1052.8 1371.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            92.57   92.57   92.57             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16833.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.21   954.2 1370.85   966.2 1370.35     995 1363.15    1000 1363.15
    1005 1363.15  1033.8 1370.35  1037.8 1370.35  1041.8 1368.35  1045.8 1370.35
  1052.8 1371.21

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            92.57   92.57   92.57             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16741.00

INPUT
Description: Natural channel Upstream of drop structure #6-15
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.16   954.2  1370.8   966.2  1370.3     995  1363.1    1000  1363.1
    1005  1363.1  1033.8  1370.3  1037.8  1370.3  1041.8  1368.3  1045.8  1370.3
  1052.8 1371.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16740.00

INPUT
Description: Upstream riprap area of drop structure #6-15
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.16   954.2  1370.8   966.2  1370.3     995  1363.1    1000  1363.1
    1005  1363.1  1033.8  1370.3  1037.8  1370.3  1041.8  1368.3  1045.8  1370.3
  1052.8 1371.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                20      20      20             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16720.00

INPUT
Description: Upstream of drop structure #6-15
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1371.15   954.2 1370.79   966.2 1370.29     995 1363.09    1000 1363.09
    1005 1363.09  1033.8 1370.29  1037.8 1370.29  1041.8 1368.29  1045.8 1370.29
  1052.8 1371.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                45      45      45             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16675.00

INPUT
Description: Downstream riprap area of drop structure #6-15
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1368.13   954.2 1367.77   966.2 1367.27     995 1360.07    1000 1360.07
    1005 1360.07  1033.8 1367.27  1037.8 1367.27  1041.8 1365.27  1045.8 1367.27
  1052.8 1368.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16674.00

INPUT
Description: Natural channel downstream of drop structure #6-15
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1368.13   954.2 1367.77   966.2 1367.27     995 1360.07    1000 1360.07
    1005 1360.07  1033.8 1367.27  1037.8 1367.27  1041.8 1365.27  1045.8 1367.27
  1052.8 1368.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16576.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1368.08   954.2 1367.72   966.2 1367.22     995 1360.02    1000 1360.02
    1005 1360.02  1033.8 1367.22  1037.8 1367.22  1041.8 1365.22  1045.8 1367.22
  1052.8 1368.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16479.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1368.03   954.2 1367.67   966.2 1367.17     995 1359.97    1000 1359.97
    1005 1359.97  1033.8 1367.17  1037.8 1367.17  1041.8 1365.17  1045.8 1367.17
  1052.8 1368.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16381.8*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.98   954.2 1367.62   966.2 1367.12     995 1359.92    1000 1359.92
    1005 1359.92  1033.8 1367.12  1037.8 1367.12  1041.8 1365.12  1045.8 1367.12
  1052.8 1367.98

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16284.4*

INPUT
Description:
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```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.93   954.2 1367.57   966.2 1367.07     995 1359.87    1000 1359.87
    1005 1359.87  1033.8 1367.07  1037.8 1367.07  1041.8 1365.07  1045.8 1367.07
  1052.8 1367.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16187.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.89   954.2 1367.53   966.2 1367.03     995 1359.82    1000 1359.82
    1005 1359.82  1033.8 1367.03  1037.8 1367.03  1041.8 1365.03  1045.8 1367.03
  1052.8 1367.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 16089.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.84   954.2 1367.48   966.2 1366.98     995 1359.78    1000 1359.78
    1005 1359.78  1033.8 1366.98  1037.8 1366.98  1041.8 1364.98  1045.8 1366.98
  1052.8 1367.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15992.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.79   954.2 1367.43   966.2 1366.93     995 1359.73    1000 1359.73
    1005 1359.73  1033.8 1366.93  1037.8 1366.93  1041.8 1364.93  1045.8 1366.93
  1052.8 1367.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15894.8*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.74   954.2 1367.38   966.2 1366.88     995 1359.68    1000 1359.68
    1005 1359.68  1033.8 1366.88  1037.8 1366.88  1041.8 1364.88  1045.8 1366.88
  1052.8 1367.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15797.4*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.69   954.2 1367.33   966.2 1366.83     995 1359.63    1000 1359.63
    1005 1359.63  1033.8 1366.83  1037.8 1366.83  1041.8 1364.83  1045.8 1366.83
  1052.8 1367.69

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             97.4    97.4    97.4             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15700.00

INPUT
Description: End of sheet 22
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.64   954.2 1367.28   966.2 1366.78     995 1359.58    1000 1359.58
    1005 1359.58  1033.8 1366.78  1037.8 1366.78  1041.8 1364.78  1045.8 1366.78
  1052.8 1367.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15600.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.59   954.2 1367.23   966.2 1366.73     995 1359.53    1000 1359.53
    1005 1359.53  1033.8 1366.73  1037.8 1366.73  1041.8 1364.73  1045.8 1366.73
  1052.8 1367.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15500.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.54   954.2 1367.18   966.2 1366.68     995 1359.48    1000 1359.48
    1005 1359.48  1033.8 1366.68  1037.8 1366.68  1041.8 1364.68  1045.8 1366.68
  1052.8 1367.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15400.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.49   954.2 1367.13   966.2 1366.63     995 1359.43    1000 1359.43
    1005 1359.43  1033.8 1366.63  1037.8 1366.63  1041.8 1364.63  1045.8 1366.63
  1052.8 1367.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15300.*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.44   954.2 1367.08   966.2 1366.58     995 1359.38    1000 1359.38
    1005 1359.38  1033.8 1366.58  1037.8 1366.58  1041.8 1364.58  1045.8 1366.58
  1052.8 1367.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15200.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.39   954.2 1367.03   966.2 1366.53     995 1359.33    1000 1359.33
    1005 1359.33  1033.8 1366.53  1037.8 1366.53  1041.8 1364.53  1045.8 1366.53
  1052.8 1367.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15100.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.34   954.2 1366.98   966.2 1366.48     995 1359.28    1000 1359.28
    1005 1359.28  1033.8 1366.48  1037.8 1366.48  1041.8 1364.48  1045.8 1366.48
  1052.8 1367.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 15000.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.29   954.2 1366.93   966.2 1366.43     995 1359.23    1000 1359.23
    1005 1359.23  1033.8 1366.43  1037.8 1366.43  1041.8 1364.43  1045.8 1366.43
  1052.8 1367.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14900.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.24   954.2 1366.88   966.2 1366.38     995 1359.18    1000 1359.18
    1005 1359.18  1033.8 1366.38  1037.8 1366.38  1041.8 1364.38  1045.8 1366.38
  1052.8 1367.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14800.*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.19   954.2 1366.83   966.2 1366.33     995 1359.13    1000 1359.13
    1005 1359.13  1033.8 1366.33  1037.8 1366.33  1041.8 1364.33  1045.8 1366.33
  1052.8 1367.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             100     100     100             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14700.00

INPUT
Description: End of sheet 21
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.14   954.2 1366.78   966.2 1366.28     995 1359.08    1000 1359.08
    1005 1359.08  1033.8 1366.28  1037.8 1366.28  1041.8 1364.28  1045.8 1366.28
  1052.8 1367.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            84.75   84.75   84.75             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14615.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1367.1   954.2 1366.74   966.2 1366.24     995 1359.04    1000 1359.04
    1005 1359.04  1033.8 1366.24  1037.8 1366.24  1041.8 1364.24  1045.8 1366.24
  1052.8  1367.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            84.75   84.75   84.75             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14530.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.05   954.2  1366.7   966.2  1366.2     995 1358.99    1000 1358.99
    1005 1358.99  1033.8  1366.2  1037.8  1366.2  1041.8  1364.2  1045.8  1366.2
  1052.8 1367.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            84.75   84.75   84.75             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14445.7*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1367.01   954.2 1366.65   966.2 1366.15     995 1358.95    1000 1358.95
    1005 1358.95  1033.8 1366.15  1037.8 1366.15  1041.8 1364.15  1045.8 1366.15
  1052.8 1367.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            84.75   84.75   84.75             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14361.00

INPUT
Description: Natural Channel Upstream of drop structure #6-14
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1366.97   954.2 1366.61   966.2 1366.11     995 1358.91    1000 1358.91
    1005 1358.91  1033.8 1366.11  1037.8 1366.11  1041.8 1364.11  1045.8 1366.11
  1052.8 1366.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8               1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14360.00

INPUT
Description: Upstream riprap area of drop structure #6-14
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1366.97   954.2 1366.61   966.2 1366.11     995 1358.91    1000 1358.91
    1005 1358.91  1033.8 1366.11  1037.8 1366.11  1041.8 1364.11  1045.8 1366.11
  1052.8 1366.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              20      20      20             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14340.00

INPUT
Description: Upstream of drop structure #6-14
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1366.96   954.2  1366.6   966.2  1366.1     995  1358.9    1000  1358.9
    1005  1358.9  1033.8  1366.1  1037.8  1366.1  1041.8  1364.1  1045.8  1366.1
  1052.8 1366.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              50      50      50             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14290.00

INPUT
Description: Downstream riprap area of drop structure #6-14
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.93   954.2 1363.57   966.2 1363.07     995 1355.87    1000 1355.87
    1005 1355.87  1033.8 1363.07  1037.8 1363.07  1041.8 1361.07  1045.8 1363.07
  1052.8 1363.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8               1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14289.00

INPUT
Description: Natural channel downstream from drop #6-14
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.93   954.2 1363.57   966.2 1363.07     995 1355.87    1000 1355.87
    1005 1355.87  1033.8 1363.07  1037.8 1363.07  1041.8 1361.07  1045.8 1363.07
  1052.8 1363.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.17   98.17   98.17             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14190.8*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.88   954.2 1363.52   966.2 1363.02     995 1355.82    1000 1355.82
    1005 1355.82  1033.8 1363.02  1037.8 1363.02  1041.8 1361.02  1045.8 1363.02
  1052.8 1363.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.17   98.17   98.17             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 14092.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.83   954.2 1363.47   966.2 1362.97     995 1355.77    1000 1355.77
    1005 1355.77  1033.8 1362.97  1037.8 1362.97  1041.8 1360.97  1045.8 1362.97
  1052.8 1363.83

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.17   98.17   98.17             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13994.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.79   954.2 1363.43   966.2 1362.93     995 1355.72    1000 1355.72
    1005 1355.72  1033.8 1362.93  1037.8 1362.93  1041.8 1360.93  1045.8 1362.93
  1052.8 1363.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.17   98.17   98.17             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13896.3*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.74   954.2 1363.38   966.2 1362.88     995 1355.68    1000 1355.68
    1005 1355.68  1033.8 1362.88  1037.8 1362.88  1041.8 1360.88  1045.8 1362.88
  1052.8 1363.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.17   98.17   98.17             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13798.1*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.69   954.2 1363.33   966.2 1362.83     995 1355.63    1000 1355.63
    1005 1355.63  1033.8 1362.83  1037.8 1362.83  1041.8 1360.83  1045.8 1362.83
  1052.8 1363.69

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            98.17   98.17   98.17             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13700.00

INPUT
Description: End of sheet 20
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.64   954.2 1363.28   966.2 1362.78     995 1355.58    1000 1355.58
    1005 1355.58  1033.8 1362.78  1037.8 1362.78  1041.8 1360.78  1045.8 1362.78
  1052.8 1363.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           99.83   99.83   99.83             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13600.1*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.59   954.2 1363.23   966.2 1362.73     995 1355.53    1000 1355.53
    1005 1355.53  1033.8 1362.73  1037.8 1362.73  1041.8 1360.73  1045.8 1362.73
  1052.8 1363.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           99.83   99.83   99.83             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13500.3*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.54   954.2 1363.18   966.2 1362.68     995 1355.48    1000 1355.48
    1005 1355.48  1033.8 1362.68  1037.8 1362.68  1041.8 1360.68  1045.8 1362.68
  1052.8 1363.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           99.83   99.83   99.83             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13400.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.49   954.2 1363.13   966.2 1362.63     995 1355.43    1000 1355.43
    1005 1355.43  1033.8 1362.63  1037.8 1362.63  1041.8 1360.63  1045.8 1362.63
  1052.8 1363.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           99.83   99.83   99.83             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13300.6*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.44   954.2 1363.08   966.2 1362.58     995 1355.38    1000 1355.38
    1005 1355.38  1033.8 1362.58  1037.8 1362.58  1041.8 1360.58  1045.8 1362.58
  1052.8 1363.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           99.83   99.83   99.83             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13200.8*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.39   954.2 1363.03   966.2 1362.53     995 1355.33    1000 1355.33
    1005 1355.33  1033.8 1362.53  1037.8 1362.53  1041.8 1360.53  1045.8 1362.53
  1052.8 1363.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8           99.83   99.83   99.83             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13101.00

INPUT
Description: Natural channel Upstream of Drop structure #6-13
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.34   954.2 1362.98   966.2 1362.48     995 1355.28    1000 1355.28
    1005 1355.28  1033.8 1362.48  1037.8 1362.48  1041.8 1360.48  1045.8 1362.48
  1052.8 1363.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13100.00

INPUT
Description: Upstream riprap area for Drop structure #6-13
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.34   954.2 1362.98   966.2 1362.48     995 1355.28    1000 1355.28
    1005 1355.28  1033.8 1362.48  1037.8 1362.48  1041.8 1360.48  1045.8 1362.48
  1052.8 1363.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                20      20      20             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13080.00

INPUT
Description: Upstream Drop structure #6-13
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1363.33   954.2 1362.97   966.2 1362.47     995 1355.27    1000 1355.27
    1005 1355.27  1033.8 1362.47  1037.8 1362.47  1041.8 1360.47  1045.8 1362.47
  1052.8 1363.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                50      50      50             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13030.00

INPUT
Description: Downstream end of riprap for Drop structure #6-13
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.16   954.2  1359.8   966.2  1359.3     995  1352.1    1000  1352.1
    1005  1352.1  1033.8  1359.3  1037.8  1359.3  1041.8  1357.3  1045.8  1359.3
  1052.8 1360.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 13029.00

INPUT
Description: Natural channel downstream of Drop structure #6-13
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.16   954.2  1359.8   966.2  1359.3     995  1352.1    1000  1352.1
    1005  1352.1  1033.8  1359.3  1037.8  1359.3  1041.8  1357.3  1045.8  1359.3
  1052.8 1360.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            82.25   82.25   82.25             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12946.7*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.16   954.2  1359.8   966.2  1359.3     995 1352.09    1000 1352.09
    1005 1352.09  1033.8  1359.3  1037.8  1359.3  1041.8  1357.3  1045.8  1359.3
  1052.8 1360.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .029  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            82.25   82.25   82.25             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12864.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.15   954.2 1359.79   966.2 1359.29     995 1352.09    1000 1352.09
    1005 1352.09  1033.8 1359.29  1037.8 1359.29  1041.8 1357.29  1045.8 1359.29
  1052.8 1360.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .031  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            82.25   82.25   82.25             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12782.2*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.15   954.2 1359.79   966.2 1359.29     995 1352.08    1000 1352.08
    1005 1352.08  1033.8 1359.29  1037.8 1359.29  1041.8 1357.29  1045.8 1359.29
  1052.8 1360.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .033  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            82.25   82.25   82.25             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12700.

INPUT
Description: End of sheet 19,  x-sect. #6
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.14   954.2 1359.78   966.2 1359.28     995 1352.08    1000 1352.08
    1005 1352.08  1033.8 1359.28  1037.8 1359.28  1041.8 1357.28  1045.8 1359.28
  1052.8 1360.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            86.33   86.33   86.33             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12613.6*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1360.1   954.2 1359.74   966.2 1359.24     995 1352.04    1000 1352.04
    1005 1352.04  1033.8 1359.24  1037.8 1359.24  1041.8 1357.24  1045.8 1359.24
  1052.8  1360.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .032  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            86.33   86.33   86.33             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12527.3*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.05   954.2 1359.69   966.2 1359.19     995 1351.99    1000 1351.99
    1005 1351.99  1033.8 1359.19  1037.8 1359.19  1041.8 1357.19  1045.8 1359.19
  1052.8 1360.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2     .03  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            86.33   86.33   86.33             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12441.00

INPUT
Description: Natural Channel Upstream of drop structure #6-12
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.01   954.2 1359.65   966.2 1359.15     995 1351.95    1000 1351.95
    1005 1351.95  1033.8 1359.15  1037.8 1359.15  1041.8 1357.15  1045.8 1359.15
  1052.8 1360.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                 1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12440.00

INPUT
Description: Upstream end of riprap area of drop structure #6-12
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1360.01   954.2 1359.65   966.2 1359.15     995 1351.95    1000 1351.95
    1005 1351.95  1033.8 1359.15  1037.8 1359.15  1041.8 1357.15  1045.8 1359.15
  1052.8 1360.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                20      20      20             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12420.00

INPUT
Description: Upstream of drop structure #6-12
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2    1360   954.2 1359.64   966.2 1359.14     995 1351.94    1000 1351.94
    1005 1351.94  1033.8 1359.14  1037.8 1359.14  1041.8 1357.14  1045.8 1359.14
  1052.8    1360

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8                50      50      50             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12370

INPUT
Description: Downstream riprap area of drop structure #6-12
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1358.5   954.2 1356.68   966.2 1356.18     995 1348.98    1000 1348.98
    1005 1348.98  1033.8 1356.18  1037.8 1356.18  1041.8 1354.18  1045.8 1356.18
  1052.8  1358.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .035  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8               1       1       1             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12369.00

INPUT
Description: Natural channel Downstream of drop structure #6-12
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1358.5   954.2 1356.68   966.2 1356.18     995 1348.98    1000 1348.98
    1005 1348.98  1033.8 1356.18  1037.8 1356.18  1041.8 1354.18  1045.8 1356.18
  1052.8  1358.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              86.5    86.5    86.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12282.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1358.33   954.2 1356.62   966.2 1356.12     995 1348.93    1000 1348.93
    1005 1348.93  1033.8 1356.12  1037.8 1356.12  1041.8 1354.12  1045.8 1356.12
  1052.8 1358.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              86.5    86.5    86.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12196.*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1358.17   954.2 1356.57   966.2 1356.07     995 1348.87    1000 1348.87
    1005 1348.87  1033.8 1356.07  1037.8 1356.07  1041.8 1354.07  1045.8 1356.07
  1052.8 1358.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              86.5    86.5    86.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12109.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2    1358   954.2 1356.52   966.2 1356.02     995 1348.81    1000 1348.81
    1005 1348.81  1033.8 1356.02  1037.8 1356.02  1041.8 1354.02  1045.8 1356.02
  1052.8    1358

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8              86.5    86.5    86.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 12023.*

INPUT
Description:
```

```
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1357.83   954.2 1356.46   966.2 1355.96     995 1348.76    1000 1348.76
    1005 1348.76  1033.8 1355.96  1037.8 1355.96  1041.8 1353.96  1045.8 1355.96
  1052.8 1357.83

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             86.5    86.5    86.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11936.5*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2 1357.67   954.2 1356.41   966.2 1355.91     995 1348.71    1000 1348.71
    1005 1348.71  1033.8 1355.91  1037.8 1355.91  1041.8 1353.91  1045.8 1355.91
  1052.8 1357.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             86.5    86.5    86.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11850.00

INPUT
Description: Upstream of curved section - x-sect #6
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1357.5   954.2 1356.35   966.2 1355.85     995 1348.65    1000 1348.65
    1005 1348.65  1033.8 1355.85  1037.8 1355.85  1041.8 1353.85  1045.8 1355.85
  1052.8  1357.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             93.5    84.5    72.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11765.4*

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1357.5   954.2 1356.31   966.2 1355.81     995 1348.61    1000 1348.61
    1005 1348.61  1033.8 1355.81  1037.8 1355.81  1041.8 1353.81  1045.8 1355.81
  1052.8  1357.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8             93.5    84.5    72.5             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11680.94

INPUT
Description: Begin of channel transition - X-sect #5
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   947.2  1357.5   954.2 1356.27   966.2 1355.77     995 1348.57    1000 1348.57
    1005 1348.57  1033.8 1355.77  1037.8 1355.77  1041.8 1353.77  1045.8 1355.77
  1052.8  1357.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   947.2    .035   966.2    .027  1033.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.2  1033.8            95.94   95.94   95.94             .1       .3
Right Levee     Station=  1037.8      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11585.00

INPUT
Description: Upstream of Germann and riprap area - x-sect #5
```

```
 Station Elevation Data    num=       8
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    940.4 1357.03   946.4 1356.42   958.4 1355.92     984 1348.51    1000 1348.51
     1004 1348.51    1012 1348.51  1041.6 1355.76

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
    940.4    .035   958.4    .027  1041.6    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.4  1041.6            37.47   37.47      32            .1       .3

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 11547.53

 INPUT
 Description: Upstream of Germann - begin of riprap section
 Station Elevation Data    num=       8
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    940.4    1356   946.4  1355.4   958.4  1354.9     984 1348.49    1000 1348.49
     1004 1347.49    1012 1347.49  1041.6 1355.74

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
    940.4    .035   958.4    .035  1041.6    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.4  1041.6              11      11       8            .1       .3

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 11536.53

 INPUT
 Description: Upstream of Germann - end of R. bank before prop. channel.
 Station Elevation Data    num=       9
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    940.4    1356   946.4 1355.39   958.4 1354.89     984 1348.49    1000 1348.49
     1004 1347.49    1012 1347.49  1041.6 1355.74  1074.6 1355.74

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
    940.4    .035   958.4    .035  1041.6    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.4  1041.6              26      26      22            .1       .3

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 11510.53

 INPUT
 Description: 4th x-sect from culvert at Germann Rd.
 Station Elevation Data    num=      10
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      950    1357     960 1356.75    9601354.677    9841348.477   10001348.477
    10041347.477  1012.81347.477  1031.21347.479  1050.8 1353.62  1050.8 1356.75

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
      950    .035     960    .035  1050.8    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           960  1050.8             16.8   13.73    18.8            .1       .3

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 11496.8

 INPUT
 Description: 3rd x-sect upstream from culverts at Germann Rd.
 Station Elevation Data    num=      11
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      965  1356.5   972.8 1356.11   972.81351.535  985.331348.468    9921348.468
    997.11347.468    10001347.468  1012.81347.468 1029.331347.475 1038.33 1350.97
  1038.33 1356.27

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
      965    .035   972.8    .035 1038.33    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          972.8 1038.33             9.33     6.8   17.33            .1       .3

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 11490.00

 INPUT
 Description: 2 x-sects upstream from Culvert at Germann Rd.
 Station Elevation Data    num=      12
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      975    1356   979.2 1355.53   979.2  1350.2  985.871348.415    9881348.415
    992.81347.465    10001347.465  1012.81347.465 1021.87 1347.47    1032 1349.01
     1032 1355.91    1035    1356

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
      975    .035   979.2    .035    1032    .035
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         979.2    1032             11.2    6.13    20.8            .6       .8

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11483.87

INPUT
Description: Just upstream from culverts at Germann Rd.
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  987.25    1355  987.25 1347.46    1000 1347.46 1012.75 1347.46 1012.75    1355

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  987.25    .035  987.25    .035 1012.75    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        987.25 1012.75           114.06  114.06  114.06            .6       .8

CULVERT                RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11480.7

INPUT
Description: Culverts at Germann Rd. 3 - 8'x6' for 108'
Distance from Upstream XS =   43.53
Deck/Roadway Width        =      36
Weir Coefficient          =     2.6
Bridge Deck/Roadway Skew  =
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     981    1357            1015    1357

Upstream Bridge Cross Section Data
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  987.25    1355  987.25 1347.46    1000 1347.46 1012.75 1347.46 1012.75    1355

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  987.25    .035  987.25    .035 1012.75    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
        987.25 1012.75            .6       .8

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     981    1357            1015    1357

Downstream Bridge Cross Section Data
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  987.25 1354.95  987.25 1347.41    1000 1347.41 1012.75 1347.41 1012.75 1354.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  987.25    .035  987.25    .035 1012.75    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
        987.25 1012.75            .6       .8

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Germann Rd.          Box       6       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
              3.17     108       .012                  .2                1
Number of Barrels =  3
Upstream   Elevation =  1347.46
Centerline Stations
    Sta.    Sta.    Sta.
  991.25    1000 1008.75
Downstream Elevation =  1347.41
Centerline Stations
    Sta.    Sta.    Sta.
  991.25    1000 1008.75

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11369.81

INPUT
Description: Just downstream from culverts at Germann Rd.
```

```
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  987.25 1354.95  987.25 1347.41    1000 1347.41 1012.75 1347.41 1012.75 1354.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  987.25    .035  987.25    .035 1012.75    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        987.25 1012.75               16   23.64      36            .6       .8

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11346.23

INPUT
Description: Riprap begins to bend toward Germann Rd.
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     970    1355   974.4 1354.91   974.4  1347.8  976.53  1347.4    1000  1347.4
    1013  1347.4  1016.5 1348.17  1016.5 1354.88    1020    1355

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     970    .035   974.4    .035  1016.5    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         974.4  1016.5            50.67   46.23   50.67            .6       .8

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11300.00

INPUT
Description: Downstream end of riprap, downstream of Germann Rd.
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     960    1355   966.7 1354.79     9841348.384     9961348.384    10001347.384
   10131347.384  1036.5 1353.25  1036.5 1354.79    1040    1355

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     960    .035   966.7    .035  1036.5    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         966.7  1036.5                9     8.5       9            .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11291.50

INPUT
Description: Downstream end of riprap, downstream of Germann Rd.
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4 1355.84   946.4 1355.27   958.4 1354.77     984 1348.38    1000 1348.38
    1004 1347.38    1012 1347.38  1041.6 1354.77  1047.6 1354.77  1060.6 1356.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6                95    91.5    91.5            .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11200.00

INPUT
Description: Between Sossaman Rd. and Germann Rd - regular channel
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4  1355.8   946.4 1355.23   958.4 1354.73     984 1348.34    1000 1348.34
    1004 1347.34    1012 1347.34  1041.6 1354.73  1045.6 1354.73  1049.6 1352.73
  1053.6 1354.73  1060.6  1356.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6               100     100     100            .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11100.00

INPUT
Description: Between Sossaman Rd. and Germann Rd - regular channel
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4 1355.79   946.4 1355.22   958.4 1354.72     984 1348.33    1000 1348.33
    1004 1347.33    1012 1347.33  1041.6 1354.72  1045.6 1354.72  1049.6 1352.72
  1053.6 1354.72  1060.6 1356.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .027  1041.6    .035
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6            96.67   96.67   96.67             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 11003.3*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4 1355.53   946.4 1355.15   958.4 1354.67     984 1348.28    1000 1348.28
    1004 1347.28    1012 1347.28  1041.6 1354.67  1045.6 1354.67  1049.6 1352.67
  1053.6 1354.67  1060.6 1355.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6            96.67   96.67   96.67             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10906.6*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4 1355.26   946.4 1355.07   958.4 1354.63     984 1348.23    1000 1348.23
    1004 1347.23    1012 1347.23  1041.6 1354.63  1045.6 1354.63  1049.6 1352.63
  1053.6 1354.63  1060.6 1355.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6            96.67   96.67   96.67             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10810.00

INPUT
Description: Upstream of Sossaman Rd. - regular channel
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4    1355   946.4    1355   958.4 1354.58     984 1348.18    1000 1348.18
    1004 1347.18    1012 1347.18  1041.6 1354.58  1045.6 1354.58  1049.6 1352.58
  1053.6 1354.58  1060.6    1355

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6              4.59    4.59    4.59             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10805.41

INPUT
Description: X-sect at upstream end of (wingwall area) upstream of Soss.
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     955 1354.65     960 1354.65    9601353.457   989.31348.124   10001348.124
   10041347.124   10121347.124    1040 1354.12    1040 1354.65    1045 1354.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     955    .035     960    .035    1040    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           960    1040            19.88      14   19.88             .6       .8

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10791.41

INPUT
Description: X-sect halfway in transition (wingwall area) upstream of Soss.
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     970 1354.65   974.9 1354.65   974.91350.917   985.31348.317   990.71348.317
   995.51347.117   10001347.117    10121347.117  1025.61353.517  1025.6 1354.65
    1030 1354.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     970    .035   974.9    .035  1025.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
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```
         974.9  1025.6            16.88      11   16.88             .6       .8

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10780.41

INPUT
Description: Cross-sect just upstream of culverts at Sossaman Rd.
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   986.5 1354.65   986.5 1347.11    1000 1347.11  1013.5 1347.11  1013.5 1354.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   986.5    .035   986.5    .035  1013.5    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         986.5  1013.5            93.41   93.41   93.41             .6       .8

CULVERT                RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10777.41

INPUT
Description: Sossaman Rd.
Distance from Upstream XS =    14.1
Deck/Roadway Width        =    43.5
Weir Coefficient          =     2.6
Bridge Deck/Roadway Skew  =
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   986.5    1355          1013.5    1355

Upstream Bridge Cross Section Data
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   986.5 1354.65   986.5 1347.11    1000 1347.11  1013.5 1347.11  1013.5 1354.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   986.5    .035   986.5    .035  1013.5    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
         986.5  1013.5             .6       .8

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   986.5    1355          1013.5    1355

Downstream Bridge Cross Section Data
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   986.5  1354.5   986.5 1347.08    1000 1347.08  1013.5 1347.08  1013.5  1354.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   986.5    .035   986.5    .035  1013.5    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
         986.5  1013.5             .6       .8

Upstream Embankment side slope             =       0 horiz. to 1.0 vertical
Downstream Embankment side slope           =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Sossaman            Box       6       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  3      90       .012                  .2                1
Number of Barrels =  3
Upstream   Elevation =  1347.11
Centerline Stations
    Sta.    Sta.    Sta.
     991    1000    1009
Downstream Elevation =  1347.08
Centerline Stations
    Sta.    Sta.    Sta.
     991    1000    1009

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10687.00

INPUT
Description: Cross-sect just downstream of culverts at Sossaman Rd.
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
   986.5  1354.5   986.5 1347.08    1000 1347.08  1013.5 1347.08  1013.5  1354.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   986.5    .035   986.5    .035  1013.5    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         986.5  1013.5           69.09   49.59   53.59             .6       .8

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10637.41

INPUT
Description: Stilling area of drop structure 4-11 at Sossaman Rd
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     938    1353     941  1352.5     947 1351.94     959 1351.44     984 1345.04
    1000 1345.04    1004 1344.04    1012 1344.04  1041.6 1351.44  1045.6 1351.44
  1049.6 1349.44  1053.6 1351.44  1060.6    1353

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     938    .035     959    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          959  1041.6             10      10      10             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10627.41

INPUT
Description: Beginning of riprap area for drop structure 4-11
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4  1352.5   946.4 1351.94   958.4 1351.44     984 1345.04    1000 1345.04
    1004 1344.04    1012 1344.04  1041.6 1351.44  1045.6 1351.44  1049.6 1349.44
  1053.6 1351.44  1060.6    1353

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6             29   27.41      23             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10600

INPUT
Description: Natural channel downstream of drop structure 4-11
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.4 1352.48   946.4 1351.92   958.4 1351.42     984 1345.02    1000 1345.02
    1004 1344.02    1012 1344.02  1041.6 1351.42  1045.6 1351.42  1049.6 1349.42
  1053.6 1351.42  1060.6 1352.98

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.4    .035   958.4    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.4  1041.6             84      84      84             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10516.*

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  940.45 1352.87  946.45 1351.87  958.45 1351.37  983.93 1344.99  984.02 1344.97
  999.99 1344.97    1000 1344.97    1004 1343.97    1012 1343.97  1041.6 1351.37
  1045.6 1351.37  1049.6 1349.37  1053.6 1351.37  1060.6 1353.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  940.45    .035  958.45    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        958.45  1041.6             84      84      84             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10432.*

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.5 1353.26   946.5 1351.82   958.5 1351.32  983.96 1344.93  984.04 1344.92
  999.99 1344.92 1000.01 1344.92    1004 1343.92    1012 1343.92  1041.6 1351.32
  1045.6 1351.32  1049.6 1349.32  1053.6 1351.32  1060.6 1353.51
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.5    .035   958.5    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.5  1041.6               84      84      84             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10348.*

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  940.55 1353.64  946.55 1351.77  958.55 1351.27  983.98 1344.88  984.07 1344.87
    1000 1344.87 1000.01 1344.87    1004 1343.87    1012 1343.87  1041.6 1351.27
  1045.6 1351.27  1049.6 1349.27  1053.6 1351.27  1060.6 1353.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  940.55    .035  958.55    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        958.55  1041.6               84      84      84             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10264.00

INPUT
Description: Natural channel Upstream of drop structure 4-10
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1354.03   946.6 1351.72   958.6 1351.22     984 1344.82    1000 1344.82
    1004 1343.82    1012 1343.82  1041.6 1351.22  1045.6 1351.22  1049.6 1349.22
  1053.6 1351.22  1060.6 1354.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                 1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10263.00

INPUT
Description: Upstream riprap area of drop structure 4-10
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1354.03   946.6 1351.72   958.6 1351.22     984 1344.82    1000 1344.82
    1004 1343.82    1012 1343.82  1041.6 1351.22  1045.6 1351.22  1049.6 1349.22
  1053.6 1351.22  1060.6 1354.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                20      20      20             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10243

INPUT
Description: Upstream of drop structure 4-10
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1354.02   946.6 1351.71   958.6 1351.21     984 1344.81    1000 1344.81
    1004 1343.81    1012 1343.81  1041.6 1351.21  1045.6 1351.21  1049.6 1349.21
  1053.6 1351.21  1060.6 1354.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                50      50      50             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10193

INPUT
Description: Downstream of drop structure 4-10
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1351   946.6 1348.69   958.6 1348.19     984 1341.79    1000 1341.79
    1004 1340.79    1012 1340.79  1041.6 1348.19  1045.6 1348.19  1049.6 1346.19
  1053.6 1348.19  1060.6    1351
```

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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6               10      10      10             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10183.00

INPUT
Description: Downstream riprap area of drop structure 4-10
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1351   946.6 1348.69   958.6 1348.19     984 1341.79    1000 1341.79
    1004 1340.79    1012 1340.79  1041.6 1348.19  1045.6 1348.19  1049.6 1346.19
  1053.6 1348.19  1060.6    1351

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                 1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10182.00

INPUT
Description: Natural Channel Downstream of drop structure 4-10
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1351   946.6 1348.69   958.6 1348.19     984 1341.79    1000 1341.79
    1004 1340.79    1012 1340.79  1041.6 1348.19  1045.6 1348.19  1049.6 1346.19
  1053.6 1348.19  1060.6    1351

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                96.4    96.4    96.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 10085.6*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1350.67   946.6 1348.65   958.6 1348.15     984 1341.75    1000 1341.75
    1004 1340.75    1012 1340.75  1041.6 1348.15  1045.6 1348.15  1049.6 1346.15
  1053.6 1348.15  1060.6 1350.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                96.4    96.4    96.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9989.2*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1350.35   946.6 1348.61   958.6 1348.11     984 1341.71    1000 1341.71
    1004 1340.71    1012 1340.71  1041.6 1348.11  1045.6 1348.11  1049.6 1346.11
  1053.6 1348.11  1060.6 1350.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                96.4    96.4    96.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9892.8*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1350.02   946.6 1348.56   958.6 1348.06     984 1341.66    1000 1341.66
    1004 1340.66    1012 1340.66  1041.6 1348.06  1045.6 1348.06  1049.6 1346.06
  1053.6 1348.06  1060.6 1350.02
```

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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             96.4    96.4    96.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9796.4*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1349.7   946.6 1348.52   958.6 1348.02     984 1341.62    1000 1341.62
    1004 1340.62    1012 1340.62  1041.6 1348.02  1045.6 1348.02  1049.6 1346.02
  1053.6 1348.02  1060.6  1349.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             96.4    96.4    96.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9700

INPUT
Description: End of Sheet 16
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.37   946.6 1348.48   958.6 1347.98     984 1341.58    1000 1341.58
    1004 1340.58    1012 1340.58  1041.6 1347.98  1045.6 1347.98  1049.6 1345.98
  1053.6 1347.98  1060.6 1349.37

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             90.86   90.86   90.86            .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9609.14*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.32   946.6 1348.43   958.6 1347.93     984 1341.53    1000 1341.53
    1004 1340.53    1012 1340.53  1041.6 1347.93  1045.6 1347.93  1049.6 1345.93
  1053.6 1347.93  1060.6 1349.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             90.86   90.86   90.86            .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9518.28*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.27   946.6 1348.38   958.6 1347.88     984 1341.48    1000 1341.48
    1004 1340.48    1012 1340.48  1041.6 1347.88  1045.6 1347.88  1049.6 1345.88
  1053.6 1347.88  1060.6 1349.27

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             90.86   90.86   90.86            .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9427.42*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.22   946.6 1348.33   958.6 1347.83     984 1341.43    1000 1341.43
    1004 1340.43    1012 1340.43  1041.6 1347.83  1045.6 1347.83  1049.6 1345.83
  1053.6 1347.83  1060.6 1349.22
```

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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9336.57*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.16   946.6 1348.27   958.6 1347.77     984 1341.37    1000 1341.37
    1004 1340.37    1012 1340.37  1041.6 1347.77  1045.6 1347.77  1049.6 1345.77
  1053.6 1347.77  1060.6 1349.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9245.71*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.11   946.6 1348.22   958.6 1347.72     984 1341.32    1000 1341.32
    1004 1340.32    1012 1340.32  1041.6 1347.72  1045.6 1347.72  1049.6 1345.72
  1053.6 1347.72  1060.6 1349.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9154.85*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.06   946.6 1348.17   958.6 1347.67     984 1341.27    1000 1341.27
    1004 1340.27    1012 1340.27  1041.6 1347.67  1045.6 1347.67  1049.6 1345.67
  1053.6 1347.67  1060.6 1349.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9064.00

INPUT
Description: Natural channel Upstream riprap area of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.01   946.6 1348.12   958.6 1347.62     984 1341.22    1000 1341.22
    1004 1340.22    1012 1340.22  1041.6 1347.62  1045.6 1347.62  1049.6 1345.62
  1053.6 1347.62  1060.6 1349.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                 1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9063.00

INPUT
Description: Upstream riprap area of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.01   946.6 1348.12   958.6 1347.62     984 1341.22    1000 1341.22
    1004 1340.22    1012 1340.22  1041.6 1347.62  1045.6 1347.62  1049.6 1345.62
  1053.6 1347.62  1060.6 1349.01
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.6  1041.6             96.4    96.4    96.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9796.4*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1349.7   946.6 1348.52   958.6 1348.02     984 1341.62    1000 1341.62
    1004 1340.62    1012 1340.62  1041.6 1348.02  1045.6 1348.02  1049.6 1346.02
  1053.6 1348.02  1060.6  1349.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.6  1041.6             96.4    96.4    96.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9700

INPUT
Description: End of Sheet 16
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.37   946.6 1348.48   958.6 1347.98     984 1341.58    1000 1341.58
    1004 1340.58    1012 1340.58  1041.6 1347.98  1045.6 1347.98  1049.6 1345.98
  1053.6 1347.98  1060.6 1349.37

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.6  1041.6             90.86   90.86   90.86            .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9609.14*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.32   946.6 1348.43   958.6 1347.93     984 1341.53    1000 1341.53
    1004 1340.53    1012 1340.53  1041.6 1347.93  1045.6 1347.93  1049.6 1345.93
  1053.6 1347.93  1060.6 1349.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.6  1041.6             90.86   90.86   90.86            .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9518.28*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.27   946.6 1348.38   958.6 1347.88     984 1341.48    1000 1341.48
    1004 1340.48    1012 1340.48  1041.6 1347.88  1045.6 1347.88  1049.6 1345.88
  1053.6 1347.88  1060.6 1349.27

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          958.6  1041.6             90.86   90.86   90.86            .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9427.42*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.22   946.6 1348.33   958.6 1347.83     984 1341.43    1000 1341.43
    1004 1340.43    1012 1340.43  1041.6 1347.83  1045.6 1347.83  1049.6 1345.83
  1053.6 1347.83  1060.6 1349.22
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9336.57*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.16   946.6 1348.27   958.6 1347.77     984 1341.37    1000 1341.37
    1004 1340.37    1012 1340.37  1041.6 1347.77  1045.6 1347.77  1049.6 1345.77
  1053.6 1347.77  1060.6 1349.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9245.71*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.11   946.6 1348.22   958.6 1347.72     984 1341.32    1000 1341.32
    1004 1340.32    1012 1340.32  1041.6 1347.72  1045.6 1347.72  1049.6 1345.72
  1053.6 1347.72  1060.6 1349.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9154.85*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.06   946.6 1348.17   958.6 1347.67     984 1341.27    1000 1341.27
    1004 1340.27    1012 1340.27  1041.6 1347.67  1045.6 1347.67  1049.6 1345.67
  1053.6 1347.67  1060.6 1349.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9064.00

INPUT
Description: Natural channel Upstream riprap area of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.01   946.6 1348.12   958.6 1347.62     984 1341.22    1000 1341.22
    1004 1340.22    1012 1340.22  1041.6 1347.62  1045.6 1347.62  1049.6 1345.62
  1053.6 1347.62  1060.6 1349.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                 1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9063.00

INPUT
Description: Upstream riprap area of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1349.01   946.6 1348.12   958.6 1347.62     984 1341.22    1000 1341.22
    1004 1340.22    1012 1340.22  1041.6 1347.62  1045.6 1347.62  1049.6 1345.62
  1053.6 1347.62  1060.6 1349.01
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              20      20      20             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 9043

INPUT
Description: Upstream of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1349   946.6 1348.11   958.6 1347.61     984 1341.21    1000 1341.21
    1004 1340.21    1012 1340.21  1041.6 1347.61  1045.6 1347.61  1049.6 1345.61
  1053.6 1347.61  1060.6    1349

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              50      50      50             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8993

INPUT
Description: Downstream of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1347   946.6 1345.09   958.6 1344.59     984 1338.19    1000 1338.19
    1004 1337.19    1012 1337.19  1041.6 1344.59  1045.6 1344.59  1049.6 1342.59
  1053.6 1344.59  1060.6    1347

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              10      10      10             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8983.00

INPUT
Description: Downstream riprap area of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1347   946.6 1345.09   958.6 1344.59     984 1338.19    1000 1338.19
    1004 1337.19    1012 1337.19  1041.6 1344.59  1045.6 1344.59  1049.6 1342.59
  1053.6 1344.59  1060.6    1347

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6               1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8982.00

INPUT
Description: Natural Channel Downstream of drop structure 4-9
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1347   946.6 1345.09   958.6 1344.59     984 1338.19    1000 1338.19
    1004 1337.19    1012 1337.19  1041.6 1344.59  1045.6 1344.59  1049.6 1342.59
  1053.6 1344.59  1060.6    1347

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              94      94      94             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8888.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1346.67   946.6 1345.05   958.6 1344.55     984 1338.15    1000 1338.15
    1004 1337.15    1012 1337.15  1041.6 1344.55  1045.6 1344.55  1049.6 1342.55
  1053.6 1344.55  1060.6 1346.67
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              94      94      94             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8794.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1346.33   946.6 1345.02   958.6 1344.52     984 1338.12    1000 1338.12
    1004 1337.12    1012 1337.12  1041.6 1344.52  1045.6 1344.52  1049.6 1342.52
  1053.6 1344.52  1060.6 1346.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              94      94      94             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8700

INPUT
Description: End of Sheet 15
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1346   946.6 1344.98   958.6 1344.48     984 1338.08    1000 1338.08
    1004 1337.08    1012 1337.08  1041.6 1344.48  1045.6 1344.48  1049.6 1342.48
  1053.6 1344.48  1060.6    1346

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8609.14*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.86   946.6 1344.93   958.6 1344.43     984 1338.03    1000 1338.03
    1004 1337.03    1012 1337.03  1041.6 1344.43  1045.6 1344.43  1049.6 1342.43
  1053.6 1344.43  1060.6 1345.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8518.28*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.72   946.6 1344.88   958.6 1344.38     984 1337.98    1000 1337.98
    1004 1336.98    1012 1336.98  1041.6 1344.38  1045.6 1344.38  1049.6 1342.38
  1053.6 1344.38  1060.6 1345.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8427.42*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.58   946.6 1344.83   958.6 1344.33     984 1337.93    1000 1337.93
    1004 1336.93    1012 1336.93  1041.6 1344.33  1045.6 1344.33  1049.6 1342.33
  1053.6 1344.33  1060.6 1345.58
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8336.57*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.43   946.6 1344.77   958.6 1344.27     984 1337.87    1000 1337.87
    1004 1336.87    1012 1336.87  1041.6 1344.27  1045.6 1344.27  1049.6 1342.27
  1053.6 1344.27  1060.6 1345.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8245.71*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.29   946.6 1344.72   958.6 1344.22     984 1337.82    1000 1337.82
    1004 1336.82    1012 1336.82  1041.6 1344.22  1045.6 1344.22  1049.6 1342.22
  1053.6 1344.22  1060.6 1345.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8154.85*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.15   946.6 1344.67   958.6 1344.17     984 1337.77    1000 1337.77
    1004 1336.77    1012 1336.77  1041.6 1344.17  1045.6 1344.17  1049.6 1342.17
  1053.6 1344.17  1060.6 1345.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6            90.86   90.86   90.86             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8064.00

INPUT
Description: Natural Channel Upstream of drop structure 4-8
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.01   946.6 1344.62   958.6 1344.12     984 1337.72    1000 1337.72
    1004 1336.72    1012 1336.72  1041.6 1344.12  1045.6 1344.12  1049.6 1342.12
  1053.6 1344.12  1060.6 1345.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                 1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8063.00

INPUT
Description: Upstream riprap area of drop structure 4-8
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1345.01   946.6 1344.62   958.6 1344.12     984 1337.72    1000 1337.72
    1004 1336.72    1012 1336.72  1041.6 1344.12  1045.6 1344.12  1049.6 1342.12
  1053.6 1344.12  1060.6 1345.01
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              20      20      20             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 8043

INPUT
Description: Upstream of drop structure 4-8
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1345   946.6 1344.61   958.6 1344.11     984 1337.71    1000 1337.71
    1004 1336.71    1012 1336.71  1041.6 1344.11  1045.6 1344.11  1049.6 1342.11
  1053.6 1344.11  1060.6    1345

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              50      50      50             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7993

INPUT
Description: Downstream of drop structure 4-8
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1344   946.6 1341.59   958.6 1341.09     984 1334.69    1000 1334.69
    1004 1333.69    1012 1333.69  1041.6 1341.09  1045.6 1341.09  1049.6 1339.09
  1053.6 1341.09  1060.6    1344

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              10      10      10             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7983

INPUT
Description: Downstream riprap area of drop structure 4-8
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1344   946.6 1341.59   958.6 1341.09     984 1334.69    1000 1334.69
    1004 1333.69    1012 1333.69  1041.6 1341.09  1045.6 1341.09  1049.6 1339.09
  1053.6 1341.09  1060.6    1344

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6               1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7982.00

INPUT
Description: Natural Channel Downstream of drop structure 4-8
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1344   946.6 1341.59   958.6 1341.09     984 1334.69    1000 1334.69
    1004 1333.69    1012 1333.69  1041.6 1341.09  1045.6 1341.09  1049.6 1339.09
  1053.6 1341.09  1060.6    1344

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              94      94      94             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7888.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1343.43   946.6 1341.55   958.6 1341.05     984 1334.65    1000 1334.65
    1004 1333.65    1012 1333.65  1041.6 1341.05  1045.6 1341.05  1049.6 1339.05
  1053.6 1341.05  1060.6  1343.1
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                94      94      94             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7794.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1342.87   946.6 1341.52   958.6 1341.02     984 1334.62    1000 1334.62
    1004 1333.62    1012 1333.62  1041.6 1341.02  1045.6 1341.02  1049.6 1339.02
  1053.6 1341.02  1060.6  1342.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                94      94      94             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7700

INPUT
Description: End of Sheet 14
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1342.3   946.6 1341.48   958.6 1340.98     984 1334.58    1000 1334.58
    1004 1333.58    1012 1333.58  1041.6 1340.98  1045.6 1340.98  1049.6 1338.98
  1053.6 1340.98  1060.6  1341.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              99.2    99.2    99.2             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7600.8*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1342.24   946.6 1341.42   958.6 1340.92     984 1334.52    1000 1334.52
    1004 1333.52    1012 1333.52  1041.6 1340.92  1045.6 1340.92  1049.6 1338.92
  1053.6 1340.92  1060.6 1341.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              99.2    99.2    99.2             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7501.6*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1342.18   946.6 1341.36   958.6 1340.86     984 1334.46    1000 1334.46
    1004 1333.46    1012 1333.46  1041.6 1340.86  1045.6 1340.86  1049.6 1338.86
  1053.6 1340.86  1060.6 1341.18

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              99.2    99.2    99.2             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7402.4*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1342.13   946.6 1341.31   958.6 1340.81     984 1334.41    1000 1334.41
    1004 1333.41    1012 1333.41  1041.6 1340.81  1045.6 1340.81  1049.6 1338.81
  1053.6 1340.81  1060.6 1341.13
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             99.2    99.2    99.2             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7303.2*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1342.07   946.6 1341.25   958.6 1340.75     984 1334.35    1000 1334.35
    1004 1333.35    1012 1333.35  1041.6 1340.75  1045.6 1340.75  1049.6 1338.75
  1053.6 1340.75  1060.6 1341.07

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             99.2    99.2    99.2             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7204.00

INPUT
Description: Natural Channel Upstream of Drop structure 4-7
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1342.01   946.6 1341.19   958.6 1340.69     984 1334.29    1000 1334.29
    1004 1333.29    1012 1333.29  1041.6 1340.69  1045.6 1340.69  1049.6 1338.69
  1053.6 1340.69  1060.6 1341.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6               1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7203.00

INPUT
Description: Upstream riprap area of Drop structure 4-7
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1342.01   946.6 1341.19   958.6 1340.69     984 1334.29    1000 1334.29
    1004 1333.29    1012 1333.29  1041.6 1340.69  1045.6 1340.69  1049.6 1338.69
  1053.6 1340.69  1060.6 1341.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              20      20      20             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7183

INPUT
Description: Upstream of Drop structure 4-7
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1342   946.6 1341.18   958.6 1340.68     984 1334.28    1000 1334.28
    1004 1333.28    1012 1333.28  1041.6 1340.68  1045.6 1340.68  1049.6 1338.68
  1053.6 1340.68  1060.6    1341

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              50      50      50             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7133

INPUT
Description: Downstream of Drop structure 4-7
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1340   946.6 1338.16   958.6 1337.66     984 1331.26    1000 1331.26
    1004 1330.26    1012 1330.26  1041.6 1337.66  1045.6 1337.66  1049.6 1335.66
  1053.6 1337.66  1060.6    1340
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              10      10       10             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7123.00

INPUT
Description: Downstream riprap area of Drop structure 4-7
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1340   946.6 1338.16   958.6 1337.66     984 1331.26    1000 1331.26
    1004 1330.26    1012 1330.26  1041.6 1337.66  1045.6 1337.66  1049.6 1335.66
  1053.6 1337.66  1060.6    1340

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                1       1        1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7122.00

INPUT
Description: Natural channel Downstream of Drop structure 4-7
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1340   946.6 1338.16   958.6 1337.66     984 1331.26    1000 1331.26
    1004 1330.26    1012 1330.26  1041.6 1337.66  1045.6 1337.66  1049.6 1335.66
  1053.6 1337.66  1060.6    1340

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              84.4    84.4    84.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 7037.6*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1339.8   946.6 1338.12   958.6 1337.62     984 1331.22    1000 1331.22
    1004 1330.22    1012 1330.22  1041.6 1337.62  1045.6 1337.62  1049.6 1335.62
  1053.6 1337.62  1060.6  1339.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              84.4    84.4    84.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6953.2*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1339.6   946.6 1338.09   958.6 1337.59     984 1331.19    1000 1331.19
    1004 1330.19    1012 1330.19  1041.6 1337.59  1045.6 1337.59  1049.6 1335.59
  1053.6 1337.59  1060.6  1339.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              84.4    84.4    84.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6868.8*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1339.4   946.6 1338.05   958.6 1337.55     984 1331.15    1000 1331.15
    1004 1330.15    1012 1330.15  1041.6 1337.55  1045.6 1337.55  1049.6 1335.55
  1053.6 1337.55  1060.6  1339.4
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             84.4    84.4    84.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6784.4*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1339.2   946.6 1338.02   958.6 1337.52     984 1331.12    1000 1331.12
    1004 1330.12    1012 1330.12  1041.6 1337.52  1045.6 1337.52  1049.6 1335.52
  1053.6 1337.52  1060.6  1339.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             84.4    84.4    84.4             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6700

INPUT
Description: End of Sheet 13
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1339   946.6 1337.98   958.6 1337.48     984 1331.08    1000 1331.08
    1004 1330.08    1012 1330.08  1041.6 1337.48  1045.6 1337.48  1049.6 1335.48
  1053.6 1337.48  1060.6    1339

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6600.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.9   946.6 1337.93   958.6 1337.43     984 1331.03    1000 1331.03
    1004 1330.03    1012 1330.03  1041.6 1337.43  1045.6 1337.43  1049.6 1335.43
  1053.6 1337.43  1060.6  1338.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6500.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.8   946.6 1337.88   958.6 1337.38     984 1330.98    1000 1330.98
    1004 1329.98    1012 1329.98  1041.6 1337.38  1045.6 1337.38  1049.6 1335.38
  1053.6 1337.38  1060.6  1338.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6400.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.7   946.6 1337.83   958.6 1337.33     984 1330.93    1000 1330.93
    1004 1329.93    1012 1329.93  1041.6 1337.33  1045.6 1337.33  1049.6 1335.33
  1053.6 1337.33  1060.6  1338.7
```

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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6300.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.6   946.6 1337.78   958.6 1337.28     984 1330.88    1000 1330.88
    1004 1329.88    1012 1329.88  1041.6 1337.28  1045.6 1337.28  1049.6 1335.28
  1053.6 1337.28  1060.6  1338.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6200.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.5   946.6 1337.73   958.6 1337.23     984 1330.83    1000 1330.83
    1004 1329.83    1012 1329.83  1041.6 1337.23  1045.6 1337.23  1049.6 1335.23
  1053.6 1337.23  1060.6  1338.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6100.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.4   946.6 1337.68   958.6 1337.18     984 1330.78    1000 1330.78
    1004 1329.78    1012 1329.78  1041.6 1337.18  1045.6 1337.18  1049.6 1335.18
  1053.6 1337.18  1060.6  1338.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 6000.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.3   946.6 1337.63   958.6 1337.13     984 1330.73    1000 1330.73
    1004 1329.73    1012 1329.73  1041.6 1337.13  1045.6 1337.13  1049.6 1335.13
  1053.6 1337.13  1060.6  1338.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5900.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.2   946.6 1337.58   958.6 1337.08     984 1330.68    1000 1330.68
    1004 1329.68    1012 1329.68  1041.6 1337.08  1045.6 1337.08  1049.6 1335.08
  1053.6 1337.08  1060.6  1338.2
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5800.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6  1338.1   946.6 1337.53   958.6 1337.03     984 1330.63    1000 1330.63
    1004 1329.63    1012 1329.63  1041.6 1337.03  1045.6 1337.03  1049.6 1335.03
  1053.6 1337.03  1060.6  1338.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6              100     100     100             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5700

INPUT
Description: End of Sheet 12
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1338   946.6 1337.48   958.6 1336.98     984 1330.58    1000 1330.58
    1004 1329.58    1012 1329.58  1041.6 1336.98  1045.6 1336.98  1049.6 1334.98
  1053.6 1336.98  1060.6    1338

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6               16      16      16             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5684.00

INPUT
Description: Natural Channel Upstream of drop structure 4-6
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1338.01   946.6 1337.43   958.6 1336.93     984 1330.53    1000 1330.53
    1004 1329.53    1012 1329.53  1041.6 1336.93  1045.6 1336.93  1049.6 1334.93
  1053.6 1336.93  1060.6 1338.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5683.00

INPUT
Description: Upstream riprap area of drop structure 4-6
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6 1338.01   946.6 1337.43   958.6 1336.93     984 1330.53    1000 1330.53
    1004 1329.53    1012 1329.53  1041.6 1336.93  1045.6 1336.93  1049.6 1334.93
  1053.6 1336.93  1060.6 1338.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6               20      20      20             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5663

INPUT
Description: Upstream of drop structure 4-6
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1338   946.6 1337.42   958.6 1336.92     984 1330.52    1000 1330.52
    1004 1329.52    1012 1329.52  1041.6 1336.92  1045.6 1336.92  1049.6 1334.92
  1053.6 1336.92  1060.6    1338
```

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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                50      50      50             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5613

INPUT
Description: Downstream of drop structure 4-6
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6  1334.4   958.6  1333.9     984  1327.5    1000  1327.5
    1004  1326.5    1012  1326.5  1041.6  1333.9  1045.6  1333.9  1049.6  1331.9
  1053.6  1333.9  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                10      10      10             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5603.00

INPUT
Description: Downstream riprap area of drop structure 4-6
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6  1334.4   958.6  1333.9     984  1327.5    1000  1327.5
    1004  1326.5    1012  1326.5  1041.6  1333.9  1045.6  1333.9  1049.6  1331.9
  1053.6  1333.9  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .035  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                 1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5602.00

INPUT
Description: Natural Channel Downstream of drop structure 4-6
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6  1334.4   958.6  1333.9     984  1327.5    1000  1327.5
    1004  1326.5    1012  1326.5  1041.6  1333.9  1045.6  1333.9  1049.6  1331.9
  1053.6  1333.9  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                83.5    83.5    83.5             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5518.5*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6 1334.36   958.6 1333.86     984 1327.46    1000 1327.46
    1004 1326.46    1012 1326.46  1041.6 1333.86  1045.6 1333.86  1049.6 1331.86
  1053.6 1333.86  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                83.5    83.5    83.5             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5435.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6 1334.33   958.6 1333.83     984 1327.43    1000 1327.43
    1004 1326.43    1012 1326.43  1041.6 1333.83  1045.6 1333.83  1049.6 1331.83
  1053.6 1333.83  1060.6    1335
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             83.5    83.5    83.5             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5351.5*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6 1334.29   958.6 1333.79     984  1327.4    1000  1327.4
    1004  1326.4    1012  1326.4  1041.6 1333.79  1045.6 1333.79  1049.6 1331.79
  1053.6 1333.79  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             83.5    83.5    83.5             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5268.*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6 1334.26   958.6 1333.76     984 1327.36    1000 1327.36
    1004 1326.36    1012 1326.36  1041.6 1333.76  1045.6 1333.76  1049.6 1331.76
  1053.6 1333.76  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             83.5    83.5    83.5             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5184.5*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6 1334.22   958.6 1333.72     984 1327.33    1000 1327.33
    1004 1326.33    1012 1326.33  1041.6 1333.72  1045.6 1333.72  1049.6 1331.72
  1053.6 1333.72  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6             83.5    83.5    83.5             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5101

INPUT
Description: Beginning of Reach 4
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   940.6    1335   946.6 1334.19   958.6 1333.69     984 1327.29    1000 1327.29
    1004 1326.29    1012 1326.29  1041.6 1333.69  1045.6 1333.69  1049.6 1331.69
  1053.6 1333.69  1060.6    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   940.6    .035   958.6    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         958.6  1041.6                1       1       1             .1       .3
Right Levee     Station=  1045.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5100

INPUT
Description: End of Reach 3
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     941 1335.05     947 1334.05     959 1333.69     985 1327.29    1000 1327.29
    1004 1326.29    1012 1326.29    1016 1327.29  1041.6 1333.69  1053.6 1333.69
  1060.6    1334
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     941    .035     959    .027  1041.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           959  1041.6              100     100     185             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 5000

INPUT
Description: Cross-Section 5000
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     941    1335     947    1334     959 1333.63     985 1327.24    1000 1327.24
    1004 1326.24    1012 1326.24    1016 1327.24    1136 1327.24    1195 1333.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     941    .035     959    .027    1195    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           959    1195             71.5   68.68    81.5             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4931.32*

INPUT
Description:
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     941    1335     947 1334.03     959  1333.6     985 1327.21    1000 1327.21
    1004 1326.21    1012 1326.21 1015.14 1326.99  1017.5 1327.21 1182.42 1327.21
 1224.99 1328.88  1263.5  1333.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     941    .035     959    .027  1263.5    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           959  1263.5             71.5   68.68    81.5             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4862.65

INPUT
Description: Cross-Section 4862.65
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     941    1335     947 1334.07     959 1333.57     985 1327.17    1000 1327.17
    1004 1326.17    1012 1326.17    1016 1327.17    1283 1327.17    1332 1333.57

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     941    .035     959    .027    1332    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           959    1332           16.82   16.82   16.82             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4845.83

INPUT
Description: Cross-Section 4845.83
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     941    1335     947 1334.07     959 1333.57     985 1327.17    1000 1327.17
    1004 1326.17    1012 1326.17    1016 1327.17    1283 1327.17    1332 1333.57

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     941    .035     959    .027    1332    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           959    1332             90   72.92     5.5             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4772.91*

INPUT
Description:
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     914  1335.5     920 1334.03     932 1333.53  953.82 1328.66   973.6 1327.14
   997.6 1327.14 1001.09 1326.86    1004 1326.14    1012 1326.14 1015.92 1327.12
 1016.08 1327.14  1288.5 1327.14 1299.28 1327.82  1338.5 1333.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     914    .035     932    .027  1338.5    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           932  1338.5             90   72.92     5.5             .1       .3
```

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 4700

INPUT
Description: Station on page 10 - phase I
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 887 | 1336 | 893 | 1334 | 905 | 1333.5 | 935 | 1327.1 | 1000 | 1327.1 |
| 1004 | 1326.1 | 1012 | 1326.1 | 1016 | 1327.1 | 1305 | 1327.1 | 1345 | 1333.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 887 | .035 | 905 | .027 | 1345 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 905 | 1345 | 60 | 46 | 54 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 4654.00

INPUT
Description: X-sect within ponding area
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 847 | 1335 | 853 | 1334.03 | 865 | 1333.5 | 896 | 1327.06 | 1000 | 1327.06 |
| 1004 | 1326.06 | 1012 | 1326.06 | 1016 | 1327.06 | 1300 | 1327.06 | 1368 | 1333.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 847 | .035 | 865 | .027 | 1368 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 865 | 1368 | 20 | 25.42 | 85 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 4628.58

INPUT
Description: X-sect within ponding area
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 847 | 1335 | 853 | 1334 | 865 | 1333.5 | 896 | 1327.03 | 1000 | 1327.03 |
| 1004 | 1326.03 | 1012 | 1326.03 | 1016 | 1327.03 | 1228 | 1327.03 | 1292 | 1333.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 847 | .035 | 865 | .027 | 1292 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 865 | 1292 | 50 | 60 | 170 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 4568.58

INPUT
Description: Extended ponding area in the Right bank
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 822 | 1335 | 828 | 1334 | 840 | 1333.5 | 870 | 1327 | 1000 | 1327 |
| 1004 | 1326 | 1012 | 1326 | 1016 | 1327 | 1096 | 1327 | 1144 | 1333.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 822 | .035 | 840 | .027 | 1144 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 840 | 1144 | 42 | 60 | 122 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 4508.58

INPUT
Description: Beginning of Reach 3
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 810.16 | 1335 | 816.16 | 1334 | 828.16 | 1333.5 | 854.16 | 1326.97 | 989.16 | 1326.97 |
| 1000 | 1326.97 | 1004 | 1325.97 | 1012 | 1325.97 | 1016 | 1326.97 | 1043.16 | 1326.97 |
| 1043.16 | 1333.5 | 1049.16 | 1335 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 810.16 | .035 | 828.16 | .027 | 989.16 | .035 | 1043.16 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 828.16 | 1043.16 | 25 | 63 | 80 | .1 | .3 |

CROSS SECTION RIVER: Rittenhouse Chan
REACH: Main Channel RS: 4445.62

INPUT
Description: 200 ft upstream from Power Road. - curved area
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 810.16 | 1335.05 | 816.16 | 1334.25 | 828.16 | 1333.75 | 854.16 | 1327.97 | 989.16 | 1326.97 |
| 1000 | 1326.97 | 1004 | 1325.97 | 1012 | 1325.97 | 1016 | 1326.97 | 1043.16 | 1326.97 |

```
 1043.16 1333.42 1049.16 1335.05

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  810.16    .035  828.16    .027  989.16    .035 1043.16    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        828.16 1043.16               50     100     120             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4345.62

INPUT
Description: Middle cross-section of reach 2
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  810.16    1335  816.16  1334.2  828.16  1333.7  854.16 1327.92  989.16 1326.92
    1000 1326.92    1004 1325.92    1012 1325.92    1016 1326.92 1043.16 1326.92
 1043.16 1333.37 1049.16    1335

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  810.16    .035  828.16    .027  989.16    .035 1043.16    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        828.16 1043.16               51     100     116             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4245.62

INPUT
Description: Beginning of Reach 2 - upstream of Power Rd.
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  964.26 1334.67  989.33 1325.87    1000 1325.87    1008 1325.87    1009  1328.6
 1043.16  1328.6 1043.16 1334.67 1049.16    1335

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  964.26    .035  964.26    .035 1043.16    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        964.26 1043.16            20.44   19.44   19.44             .1       .3

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4226.18

INPUT
Description: Upstream of Power Rd, end of transistion area
Station Elevation Data    num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  983.47 1334.67  995.471325.865    10001325.865    10081325.865    1009  1328.7
    1044  1328.7    1044 1334.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  983.47    .035  983.47    .035    1044    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        983.47    1044               12      12      12             .6       .8

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4214.18

INPUT
Description: Just upstream of culverts at Power Road.
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  985.33 1334.67  985.33 1325.86    1008 1325.86    1009  1328.8    1044  1328.8
    1044 1334.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  985.33    .035  985.33    .035    1044    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        985.33    1044            81.18   81.18   81.18             .6       .8

MULTIPLE OPENING       RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 4213.18

INPUT
Description: Culverts at Power Rd.  3-6'x6'x79' new and 3-10'x4'79 old
Distance from Upstream XS =   21.87
Deck/Roadway Width        =    33.7
Weir Coefficient          =     2.6
Bridge Deck/Roadway Skew  =
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     984    1335            1045    1335

Upstream Bridge Cross Section Data
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
   985.33 1334.67  985.33 1325.86    1008 1325.86    1009  1328.8    1044  1328.8
     1044 1334.67

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
   985.33    .035  985.33    .035    1044    .035

 Bank Sta: Left   Right    Coeff Contr.   Expan.
         985.33    1044            .6       .8

 Downstream  Deck/Roadway Coordinates
     num=        2
      Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      984    1335            1045    1335

 Downstream Bridge Cross Section Data
 Station Elevation Data    num=       4
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   985.33  1334.6  985.33 1325.62    1044 1325.62    1044  1334.6

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
   985.33    .035  985.33    .035    1044    .035

 Bank Sta: Left   Right    Coeff Contr.   Expan.
         985.33    1044            .6       .8

 Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
 Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow =     .95
 Elevation at which weir flow begins         =
 Energy head used in spillway design         =
 Spillway height used in design              =
 Weir crest shape                            = Broad Crested

 Number of Culverts =  2

 Culvert Name      Shape      Rise    Span
 Power - new           Box       6       6
 FHWA Chart # 8 - flared wingwalls
 FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
 Solution Criteria = Highest U.S. EG
 Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                   1   79.46       .012                  .2                1
 Number of Barrels =  3
 Upstream   Elevation =  1325.82
 Centerline Stations
     Sta.    Sta.    Sta.
   989.83  997.33 1004.83
 Downstream Elevation =  1325.62
 Centerline Stations
     Sta.    Sta.    Sta.
   989.83  997.33 1004.83

 Culvert Name      Shape      Rise    Span
 Power - old           Box       4      10
 FHWA Chart # 8 - flared wingwalls
 FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
 Solution Criteria = Highest U.S. EG
 Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                   1    79.5       .012                  .2                1
 Number of Barrels =  3
 Upstream   Elevation =  1328.8
 Centerline Stations
     Sta.    Sta.    Sta.
   1014.5    1026  1037.5
 Downstream Elevation =  1328.56
 Centerline Stations
     Sta.    Sta.    Sta.
   1014.5    1026  1037.5

 Multiple Opening Stagnation Limits

                        Upstream              Downstream

   Opening Type    Sta. Left  Sta. Right   Sta. Left  Sta. Right

  Culvert Group          985        1010         985        1010
  Culvert Group         1006        1045        1006        1045


 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 4133.00

 INPUT
 Description: Just downstream of culverts at Power Road. (before drop)
 Station Elevation Data    num=       4
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   985.33  1334.6  985.33 1325.62    1044 1325.62    1044  1334.6

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
   985.33    .035  985.33    .035    1044    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
```

```
        985.33    1044             2.48    2.48    2.48             .6       .8

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 4130.52

 INPUT
 Description: Just downstream of drop at Power Road.
 Station Elevation Data    num=       4
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   985.33  1334.6  985.33 1322.41    1044 1322.41    1044  1334.6

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
   985.33    .035  985.33    .035    1044    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        985.33    1044             31.5   23.09       5             .6       .8

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 4107.43

 INPUT
 Description: @ 26' downstream from Power Rd.
 Station Elevation Data    num=       7
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   972.57  1333.6   977.9 1323.41     996 1323.41    1000 1322.41  1013.3 1322.41
     1032 1323.41  1032.4  1332.4

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
   972.57    .035  972.57    .035  1032.4    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        972.57  1032.4             33.1      16     5.3             .6       .8

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 4091.43

 INPUT
 Description: Rip rap area before Power Rd. - 1 x-section downstream
 Station Elevation Data    num=       7
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    951.4 1332.65     977  1323.4    1000  1323.4    1004  1322.4    1030  1322.4
     1039 1324.65    1039 1332.65

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
    951.4    .035   951.4    .035    1039    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4    1039             29.3      28      28             .1       .3

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 4063.43

 INPUT
 Description: End of Reach #1 downstream of drop structure 1-5
 Station Elevation Data    num=      13
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    933.4 1331.13   939.4 1330.29   951.4 1329.79     977 1323.39    1000 1323.39
     1007 1323.39    1010 1322.39    1019 1322.39  1048.6 1329.79  1052.6 1329.79
   1056.6 1327.79  1060.6 1329.79  1068.6 1331.13

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
    933.4    .035   951.4    .035  1048.6    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6               1       1       1             .1       .3
 Right Levee     Station=  1052.6      Elevation=

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 4062.43

 INPUT
 Description: Natural Channel downstream of drop structure 1-5
 Station Elevation Data    num=      13
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    933.4 1331.13   939.4 1330.29   951.4 1329.79     977 1323.39    1000 1323.39
     1007 1323.39    1010 1322.39    1019 1322.39  1048.6 1329.79  1052.6 1329.79
   1056.6 1327.79  1060.6 1329.79  1068.6 1331.13

 Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
    933.4    .035   951.4    .027  1048.6    .035

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6             80.29   80.29   80.29             .1       .3
 Right Levee     Station=  1052.6      Elevation=

 CROSS SECTION          RIVER: Rittenhouse Chan
 REACH: Main Channel       RS: 3982.14*

 INPUT
 Description:
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1331.09   939.4 1330.25   951.4 1329.75     977 1323.35    1000 1323.35
    1007 1323.35    1010 1322.35    1019 1322.35  1048.6 1329.75  1052.6 1329.75
  1056.6 1327.75  1060.6 1329.75  1068.6 1331.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           80.29   80.29   80.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3901.85*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1331.05   939.4 1330.21   951.4 1329.71     977 1323.31    1000 1323.31
    1007 1323.31    1010 1322.31    1019 1322.31  1048.6 1329.71  1052.6 1329.71
  1056.6 1327.71  1060.6 1329.71  1068.6 1331.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           80.29   80.29   80.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3821.57*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1331.01   939.4 1330.17   951.4 1329.67     977 1323.27    1000 1323.27
    1007 1323.27    1010 1322.27    1019 1322.27  1048.6 1329.67  1052.6 1329.67
  1056.6 1327.67  1060.6 1329.67  1068.6 1331.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           80.29   80.29   80.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3741.28*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1330.97   939.4 1330.13   951.4 1329.63     977 1323.23    1000 1323.23
    1007 1323.23    1010 1322.23    1019 1322.23  1048.6 1329.63  1052.6 1329.63
  1056.6 1327.63  1060.6 1329.63  1068.6 1330.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           80.29   80.29   80.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3661.00

INPUT
Description: Natural Channel Upstream of drop structure 1-4
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1330.93   939.4 1330.09   951.4 1329.59     977 1323.19    1000 1323.19
    1007 1323.19    1010 1322.19    1019 1322.19  1048.6 1329.59  1052.6 1329.59
  1056.6 1327.59  1060.6 1329.59  1068.6 1330.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                1       1       1             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3660.00

INPUT
Description: Upstream riprap area of drop structure 1-4
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1330.93   939.4 1330.09   951.4 1329.59     977 1323.19    1000 1323.19
    1007 1323.19    1010 1322.19    1019 1322.19  1048.6 1329.59  1052.6 1329.59
  1056.6 1327.59  1060.6 1329.59  1068.6 1330.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6              20      20      20             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3640.00

INPUT
Description: Upstream of drop structure 1-4
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1330.92   939.4 1330.08   951.4 1329.58     977 1323.18    1000 1323.18
    1007 1323.18    1010 1322.18    1019 1322.18  1048.6 1329.58  1052.6 1329.58
  1056.6 1327.58  1060.6 1329.58  1068.6 1330.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6              50      50      50             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3590.00

INPUT
Description: Downstream of drop structure 1-4
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1329   939.4 1327.06   951.4 1326.56     977 1320.16    1000 1320.16
    1007 1320.16    1010 1319.16    1019 1319.16  1048.6 1326.56  1052.6 1326.56
  1056.6 1324.56  1060.6 1326.56  1068.6    1329

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6              10      10      10             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3580.00

INPUT
Description: Downstream riprap area of drop structure 1-4
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1329   939.4 1327.06   951.4 1326.56     977 1320.16    1000 1320.16
    1007 1320.16    1010 1319.16    1019 1319.16  1048.6 1326.56  1052.6 1326.56
  1056.6 1324.56  1060.6 1326.56  1068.6    1329

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6               1       1       1             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3579.00

INPUT
Description: Natural channel downstream of drop structure 1-4
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1329   939.4 1327.06   951.4 1326.56     977 1320.16    1000 1320.16
    1007 1320.16    1010 1319.16    1019 1319.16  1048.6 1326.56  1052.6 1326.56
  1056.6 1324.56  1060.6 1326.56  1068.6    1329

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6            95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3483.66*

INPUT
Description:
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1328.78   939.4 1327.01   951.4 1326.51     977 1320.11    1000 1320.11
    1007 1320.11    1010 1319.11    1019 1319.11  1048.6 1326.51  1052.6 1326.51
  1056.6 1324.51  1060.6 1326.51  1068.6 1328.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3388.33*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1328.56   939.4 1326.96   951.4 1326.46     977 1320.06    1000 1320.06
    1007 1320.06    1010 1319.06    1019 1319.06  1048.6 1326.46  1052.6 1326.46
  1056.6 1324.46  1060.6 1326.46  1068.6 1328.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3293.*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1328.34   939.4 1326.91   951.4 1326.41     977 1320.01    1000 1320.01
    1007 1320.01    1010 1319.01    1019 1319.01  1048.6 1326.41  1052.6 1326.41
  1056.6 1324.41  1060.6 1326.41  1068.6 1328.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3197.66*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1328.12   939.4 1326.86   951.4 1326.36     977 1319.96    1000 1319.96
    1007 1319.96    1010 1318.96    1019 1318.96  1048.6 1326.36  1052.6 1326.36
  1056.6 1324.36  1060.6 1326.36  1068.6 1328.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3102.33*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1327.89   939.4 1326.82   951.4 1326.32     977 1319.92    1000 1319.92
    1007 1319.92    1010 1318.92    1019 1318.92  1048.6 1326.32  1052.6 1326.32
  1056.6 1324.32  1060.6 1326.32  1068.6 1327.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 3007.*

INPUT
Description:
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1327.67   939.4 1326.77   951.4 1326.27     977 1319.87    1000 1319.87
    1007 1319.87    1010 1318.87    1019 1318.87  1048.6 1326.27  1052.6 1326.27
  1056.6 1324.27  1060.6 1326.27  1068.6 1327.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2911.66*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1327.45   939.4 1326.72   951.4 1326.22     977 1319.82    1000 1319.82
    1007 1319.82    1010 1318.82    1019 1318.82  1048.6 1326.22  1052.6 1326.22
  1056.6 1324.22  1060.6 1326.22  1068.6 1327.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2816.33*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1327.23   939.4 1326.67   951.4 1326.17     977 1319.77    1000 1319.77
    1007 1319.77    1010 1318.77    1019 1318.77  1048.6 1326.17  1052.6 1326.17
  1056.6 1324.17  1060.6 1326.17  1068.6 1327.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.33   95.33   95.33             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2721.00

INPUT
Description: Natural channel Upstream of drop structure 1-3
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1327.01   939.4 1326.62   951.4 1326.12     977 1319.72    1000 1319.72
    1007 1319.72    1010 1318.72    1019 1318.72  1048.6 1326.12  1052.6 1326.12
  1056.6 1324.12  1060.6 1326.12  1068.6 1327.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6             1       1       1             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2720.00

INPUT
Description: Upstream riprap area of drop structure 1-3
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1327.01   939.4 1326.62   951.4 1326.12     977 1319.72    1000 1319.72
    1007 1319.72    1010 1318.72    1019 1318.72  1048.6 1326.12  1052.6 1326.12
  1056.6 1324.12  1060.6 1326.12  1068.6 1327.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6            20      20      20             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2700.00

INPUT
Description: Upstream of drop structure 1-3
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1327   939.4 1326.61   951.4 1326.11     977 1319.71    1000 1319.71
    1007 1319.71    1010 1318.71    1019 1318.71  1048.6 1326.11  1052.6 1326.11
  1056.6 1324.11  1060.6 1326.11  1068.6    1327

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                 55      55      55             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2645.00

INPUT
Description: Downstream of drop structure 1-3
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1325   939.4 1323.58   951.4 1323.08     977 1316.68    1000 1316.68
    1007 1316.68    1010 1315.68    1019 1315.68  1048.6 1323.08  1052.6 1323.08
  1056.6 1321.08  1060.6 1323.08  1068.6    1325

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                 10      10      10             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2635.00

INPUT
Description: Downstream end of riprap area of drop structure 1-3
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1325   939.4 1323.58   951.4 1323.08     977 1316.68    1000 1316.68
    1007 1316.68    1010 1315.68    1019 1315.68  1048.6 1323.08  1052.6 1323.08
  1056.6 1321.08  1060.6 1323.08  1068.6    1325

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                  1       1       1             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2634.00

INPUT
Description: Natural Channel Downstream of drop structure 1-3
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1325   939.4 1323.58   951.4 1323.08     977 1316.68    1000 1316.68
    1007 1316.68    1010 1315.68    1019 1315.68  1048.6 1323.08  1052.6 1323.08
  1056.6 1321.08  1060.6 1323.08  1068.6    1325

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                79.79   79.79   79.79             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2554.20*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1325   939.4 1323.54   951.4 1323.04     977 1316.64    1000 1316.64
    1007 1316.64    1010 1315.64    1019 1315.64  1048.6 1323.04  1052.6 1323.04
  1056.6 1321.04  1060.6 1323.04  1068.6    1325

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                79.79   79.79   79.79             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2474.41*

INPUT
Description:
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1325   939.4  1323.5   951.4    1323     977  1316.6    1000  1316.6
    1007  1316.6    1010  1315.6    1019  1315.6  1048.6    1323  1052.6    1323
  1056.6    1321  1060.6    1323  1068.6    1325

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6            79.79   79.79   79.79             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2394.62*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1325   939.4 1323.46   951.4 1322.96     977 1316.56    1000 1316.56
    1007 1316.56    1010 1315.56    1019 1315.56  1048.6 1322.96  1052.6 1322.96
  1056.6 1320.96  1060.6 1322.96  1068.6    1325

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6            79.79   79.79   79.79             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2314.84

INPUT
Description: End of curved section
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1325   939.4 1323.42   951.4 1322.92     977 1316.52    1000 1316.52
    1007 1316.52    1010 1315.52    1019 1315.52  1048.6 1322.92  1052.6 1322.92
  1056.6 1320.92  1060.6 1322.92  1068.6    1325

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6            99.24   97.95   98.93             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2216.89*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1324.67   939.4 1323.37   951.4 1322.87     977 1316.47    1000 1316.47
    1007 1316.47    1010 1315.47    1019 1315.47  1048.6 1322.87  1052.6 1322.87
  1056.6 1320.87  1060.6 1322.87  1068.6 1324.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6            99.24   97.95   98.93             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2118.94*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1324.34   939.4 1323.32   951.4 1322.82     977 1316.42    1000 1316.42
    1007 1316.42    1010 1315.42    1019 1315.42  1048.6 1322.82  1052.6 1322.82
  1056.6 1320.82  1060.6 1322.82  1068.6 1324.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6            99.24   97.95   98.93             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2021.00

INPUT
Description: Natural Channel Upstream of drop structure 1-2
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1324.01   939.4 1323.27   951.4 1322.77     977 1316.37    1000 1316.37
    1007 1316.37    1010 1315.37    1019 1315.37  1048.6 1322.77  1052.6 1322.77
  1056.6 1320.77  1060.6 1322.77  1068.6 1324.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                1       1       1             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2020.00

INPUT
Description: Upstream riprap area of drop structure 1-2
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1324.01   939.4 1323.27   951.4 1322.77     977 1316.37    1000 1316.37
    1007 1316.37    1010 1315.37    1019 1315.37  1048.6 1322.77  1052.6 1322.77
  1056.6 1320.77  1060.6 1322.77  1068.6 1324.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                18      20      22             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 2000.00

INPUT
Description: Upstream of drop structure 1-2
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1324   939.4 1323.26   951.4 1322.76     977 1316.36    1000 1316.36
    1007 1316.36    1010 1315.36    1019 1315.36  1048.6 1322.76  1052.6 1322.76
  1056.6 1320.76  1060.6 1322.76  1068.6    1324

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                54      55      57             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1945.00

INPUT
Description: Downstream of drop structure 1-2
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1322   939.4 1321.23   951.4 1320.73     977 1314.33    1000 1314.33
    1007 1314.33    1010 1313.33    1019 1313.33  1048.6 1320.73  1052.6 1320.73
  1056.6 1318.73  1060.6 1320.73  1068.6    1322

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                10      10      10             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1935.00

INPUT
Description: Downstream riprap area of drop structure 1-2
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1322   939.4 1321.23   951.4 1320.73     977 1314.33    1000 1314.33
    1007 1314.33    1010 1313.33    1019 1313.33  1048.6 1320.73  1052.6 1320.73
  1056.6 1318.73  1060.6 1320.73  1068.6    1322

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6                1       1       1             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1934.00

INPUT
Description: Natural Channel Downstream of drop structure 1-2
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1322   939.4 1321.23   951.4 1320.73     977 1314.33    1000 1314.33
    1007 1314.33    1010 1313.33    1019 1313.33  1048.6 1320.73  1052.6 1320.73
  1056.6 1318.73  1060.6 1320.73  1068.6    1322

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.52   94.92   94.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1839.08*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.88   939.4 1321.18   951.4 1320.68     977 1314.28    1000 1314.28
    1007 1314.28    1010 1313.28    1019 1313.28  1048.6 1320.68  1052.6 1320.68
  1056.6 1318.68  1060.6 1320.68  1068.6 1321.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.52   94.92   94.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1744.16*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.76   939.4 1321.13   951.4 1320.63     977 1314.23    1000 1314.23
    1007 1314.23    1010 1313.23    1019 1313.23  1048.6 1320.63  1052.6 1320.63
  1056.6 1318.63  1060.6 1320.63  1068.6 1321.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.52   94.92   94.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1649.24*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.64   939.4 1321.08   951.4 1320.58     977 1314.19    1000 1314.19
    1007 1314.19    1010 1313.19    1019 1313.19  1048.6 1320.58  1052.6 1320.58
  1056.6 1318.58  1060.6 1320.58  1068.6 1321.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.52   94.92   94.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1554.32*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.52   939.4 1321.04   951.4 1320.54     977 1314.14    1000 1314.14
    1007 1314.14    1010 1313.14    1019 1313.14  1048.6 1320.54  1052.6 1320.54
  1056.6 1318.54  1060.6 1320.54  1068.6 1321.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.52   94.92   94.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1459.40*

INPUT
Description:
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4  1321.4   939.4 1320.99   951.4 1320.49     977 1314.09    1000 1314.09
    1007 1314.09    1010 1313.09    1019 1313.09  1048.6 1320.49  1052.6 1320.49
  1056.6 1318.49  1060.6 1320.49  1068.6  1321.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           95.52   94.92   94.29             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1364.49

INPUT
Description: Beginning of curved section
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.28   939.4 1320.94   951.4 1320.44     977 1314.04    1000 1314.04
    1007 1314.04    1010 1313.04    1019 1313.04  1048.6 1320.44  1052.6 1320.44
  1056.6 1318.44  1060.6 1320.44  1068.6 1321.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           90.58   90.58   90.58             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1273.90*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.23   939.4  1320.9   951.4  1320.4     977 1313.99    1000 1313.99
    1007 1313.99    1010 1312.99    1019 1312.99  1048.6  1320.4  1052.6  1320.4
  1056.6  1318.4  1060.6  1320.4  1068.6 1321.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           90.58   90.58   90.58             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1183.32*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.19   939.4 1320.85   951.4 1320.35     977 1313.95    1000 1313.95
    1007 1313.95    1010 1312.95    1019 1312.95  1048.6 1320.35  1052.6 1320.35
  1056.6 1318.35  1060.6 1320.35  1068.6 1321.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           90.58   90.58   90.58             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1092.74*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.15   939.4 1320.81   951.4 1320.31     977 1313.91    1000 1313.91
    1007 1313.91    1010 1312.91    1019 1312.91  1048.6 1320.31  1052.6 1320.31
  1056.6 1318.31  1060.6 1320.31  1068.6 1321.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6           90.58   90.58   90.58             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 1002.16*

INPUT
Description:
```

```
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4  1321.1   939.4 1320.76   951.4 1320.26     977 1313.86    1000 1313.86
    1007 1313.86    1010 1312.86    1019 1312.86  1048.6 1320.26  1052.6 1320.26
  1056.6 1318.26  1060.6 1320.26  1068.6  1321.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6             90.58   90.58   90.58             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 911.581*

INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.06   939.4 1320.72   951.4 1320.22     977 1313.82    1000 1313.82
    1007 1313.82    1010 1312.82    1019 1312.82  1048.6 1320.22  1052.6 1320.22
  1056.6 1318.22  1060.6 1320.22  1068.6 1321.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6             90.58   90.58   90.58             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 821.00

INPUT
Description: Natural Channel Upstream of Drop structure #1-1
Drop structure 1-1
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.01   939.4 1320.67   951.4 1320.17     977 1313.77    1000 1313.77
    1007 1313.77    1010 1312.77    1019 1312.77  1048.6 1320.17  1052.6 1320.17
  1056.6 1318.17  1060.6 1320.17  1068.6 1321.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .027  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6               1       1       1             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 820.00

INPUT
Description: Upstream riprap area of Drop structure #1-1
Drop structure 1-1
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4 1321.01   939.4 1320.67   951.4 1320.17     977 1313.77    1000 1313.77
    1007 1313.77    1010 1312.77    1019 1312.77  1048.6 1320.17  1052.6 1320.17
  1056.6 1318.17  1060.6 1320.17  1068.6 1321.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         951.4  1048.6               20      20      20             .1       .3
Right Levee     Station=  1052.6      Elevation=

CROSS SECTION          RIVER: Rittenhouse Chan
REACH: Main Channel       RS: 800.00

INPUT
Description: Before confluence (drop structure) with EMF US drop 1-1
Drop
            structure 1-1
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   933.4    1321   939.4 1320.66   951.4 1320.16     977 1313.76    1000 1313.76
    1007 1313.76    1010 1312.76    1019 1312.76  1048.6 1320.16  1052.6 1320.16
  1056.6 1318.16  1060.6 1320.16  1068.6    1321

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   933.4    .035   951.4    .035  1048.6    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
         951.4  1048.6             .1       .3
Right Levee     Station=  1052.6      Elevation=
```

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X    X    X    X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Rittenhouse Channel - revised & interp
Project File : final.prj
Run Date and Time: 11/23/98 2:44:28 PM

Project in English units

Project Description:
Rittenhouse channel CLOMR for improved channel - revised cross sections at Sossaman Dr.

Profile Output Table - Standard Table 1

| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 800.00 | 1047.00 | 1312.76 | 1315.90 | 1315.90 | 1316.92 | 0.014332 | 8.12 | 128.97 | 63.08 | 1.00 |
| Main Channel | 800.00 | 1047.00 | 1312.76 | 1316.90 | 1315.90 | 1317.34 | 0.004152 | 5.33 | 196.38 | 71.12 | 0.57 |
| Main Channel | 820.00 | 1047.00 | 1312.77 | 1316.57 | 1315.89 | 1317.14 | 0.006076 | 6.07 | 172.40 | 68.37 | 0.67 |
| Main Channel | 820.00 | 1047.00 | 1312.77 | 1317.01 | 1315.89 | 1317.42 | 0.003728 | 5.14 | 203.78 | 71.95 | 0.54 |
| Main Channel | 821.00 | 1047.00 | 1312.77 | 1316.57 | 1315.90 | 1317.14 | 0.003596 | 6.06 | 172.71 | 68.41 | 0.67 |
| Main Channel | 821.00 | 1047.00 | 1312.77 | 1317.02 | 1315.90 | 1317.43 | 0.002212 | 5.13 | 203.99 | 71.97 | 0.54 |
| Main Channel | 911.581* | 1047.00 | 1312.82 | 1316.99 | 1315.94 | 1317.42 | 0.002406 | 5.28 | 198.20 | 71.32 | 0.56 |
| Main Channel | 911.581* | 1047.00 | 1312.82 | 1317.25 | 1315.94 | 1317.61 | 0.001835 | 4.81 | 217.58 | 73.47 | 0.49 |
| Main Channel | 1002.16* | 1047.00 | 1312.86 | 1317.25 | 1315.99 | 1317.62 | 0.001916 | 4.89 | 214.33 | 73.11 | 0.50 |
| Main Channel | 1002.16* | 1047.00 | 1312.86 | 1317.45 | 1315.99 | 1317.77 | 0.001585 | 4.57 | 228.86 | 74.68 | 0.46 |
| Main Channel | 1092.74* | 1047.00 | 1312.91 | 1317.45 | 1316.03 | 1317.78 | 0.001656 | 4.64 | 225.41 | 74.31 | 0.47 |
| Main Channel | 1092.74* | 1047.00 | 1312.91 | 1317.61 | 1316.03 | 1317.91 | 0.001430 | 4.41 | 237.19 | 75.57 | 0.44 |
| Main Channel | 1183.32* | 1047.00 | 1312.95 | 1317.62 | 1316.08 | 1317.93 | 0.001464 | 4.45 | 235.24 | 75.36 | 0.44 |
| Main Channel | 1183.32* | 1047.00 | 1312.95 | 1317.75 | 1316.08 | 1318.03 | 0.001300 | 4.27 | 245.16 | 76.41 | 0.42 |
| Main Channel | 1273.90* | 1047.00 | 1312.99 | 1317.77 | 1316.11 | 1318.06 | 0.001327 | 4.30 | 243.35 | 76.18 | 0.42 |
| Main Channel | 1273.90* | 1047.00 | 1312.99 | 1317.88 | 1316.11 | 1318.15 | 0.001201 | 4.16 | 251.92 | 77.08 | 0.41 |
| Main Channel | 1364.49 | 1047.00 | 1313.04 | 1317.90 | 1316.17 | 1318.17 | 0.001233 | 4.19 | 249.71 | 76.89 | 0.41 |
| Main Channel | 1364.49 | 1047.00 | 1313.04 | 1318.00 | 1316.17 | 1318.26 | 0.001131 | 4.07 | 257.28 | 77.67 | 0.39 |
| Main Channel | 1459.40* | 1047.00 | 1313.09 | 1318.03 | 1316.22 | 1318.29 | 0.001152 | 4.10 | 255.66 | 77.50 | 0.40 |
| Main Channel | 1459.40* | 1047.00 | 1313.09 | 1318.11 | 1316.22 | 1318.36 | 0.001069 | 3.99 | 262.37 | 78.19 | 0.38 |
| Main Channel | 1554.32* | 1047.00 | 1313.14 | 1318.15 | 1316.26 | 1318.40 | 0.001087 | 4.01 | 260.91 | 78.04 | 0.39 |
| Main Channel | 1554.32* | 1047.00 | 1313.14 | 1318.22 | 1316.26 | 1318.46 | 0.001018 | 3.92 | 266.93 | 78.66 | 0.38 |
| Main Channel | 1649.24* | 1047.00 | 1313.19 | 1318.26 | 1316.31 | 1318.50 | 0.001031 | 3.94 | 265.77 | 78.58 | 0.38 |
| Main Channel | 1649.24* | 1047.00 | 1313.19 | 1318.32 | 1316.31 | 1318.56 | 0.000973 | 3.86 | 271.22 | 79.13 | 0.37 |
| Main Channel | 1744.16* | 1047.00 | 1313.23 | 1318.36 | 1316.36 | 1318.59 | 0.000977 | 3.87 | 270.77 | 79.05 | 0.37 |
| Main Channel | 1744.16* | 1047.00 | 1313.23 | 1318.42 | 1316.36 | 1318.65 | 0.000928 | 3.80 | 275.72 | 79.55 | 0.36 |
| Main Channel | 1839.08* | 1047.00 | 1313.28 | 1318.46 | 1316.40 | 1318.68 | 0.000939 | 3.81 | 274.56 | 79.43 | 0.36 |
| Main Channel | 1839.08* | 1047.00 | 1313.28 | 1318.52 | 1316.40 | 1318.73 | 0.000896 | 3.75 | 279.10 | 79.88 | 0.35 |
| Main Channel | 1934.00 | 1047.00 | 1313.33 | 1318.55 | 1316.46 | 1318.77 | 0.000906 | 3.77 | 278.05 | 79.78 | 0.36 |
| Main Channel | 1934.00 | 1047.00 | 1313.33 | 1318.60 | 1316.46 | 1318.82 | 0.000868 | 3.71 | 282.22 | 80.20 | 0.35 |
| Main Channel | 1935.00 | 1047.00 | 1313.33 | 1318.55 | 1316.45 | 1318.77 | 0.001520 | 3.76 | 278.13 | 79.79 | 0.36 |
| Main Channel | 1935.00 | 1047.00 | 1313.33 | 1318.61 | 1316.45 | 1318.82 | 0.001457 | 3.71 | 282.31 | 80.21 | 0.35 |
| Main Channel | 1945.00 | 1047.00 | 1313.33 | 1318.57 | 1316.46 | 1318.79 | 0.001500 | 3.75 | 279.46 | 79.92 | 0.35 |
| Main Channel | 1945.00 | 1047.00 | 1313.33 | 1318.62 | 1316.46 | 1318.83 | 0.001438 | 3.69 | 283.59 | 80.33 | 0.35 |
| Main Channel | 2000.00 | 1047.00 | 1315.36 | 1318.51 | 1318.51 | 1319.52 | 0.014123 | 8.08 | 129.61 | 63.16 | 0.99 |
| Main Channel | 2000.00 | 1047.00 | 1315.36 | 1318.51 | 1318.51 | 1319.52 | 0.014123 | 8.08 | 129.61 | 63.16 | 0.99 |
| Main Channel | 2020.00 | 1047.00 | 1315.37 | 1319.16 | 1318.49 | 1319.74 | 0.006094 | 6.08 | 172.22 | 68.35 | 0.67 |
| Main Channel | 2020.00 | 1047.00 | 1315.37 | 1319.16 | 1318.49 | 1319.74 | 0.006094 | 6.08 | 172.22 | 68.35 | 0.67 |
| Main Channel | 2021.00 | 1047.00 | 1315.37 | 1319.17 | 1318.50 | 1319.74 | 0.003607 | 6.07 | 172.54 | 68.39 | 0.67 |
| Main Channel | 2021.00 | 1047.00 | 1315.37 | 1319.17 | 1318.50 | 1319.74 | 0.003607 | 6.07 | 172.54 | 68.39 | 0.67 |
| Main Channel | 2118.94* | 1047.00 | 1315.42 | 1319.61 | 1318.54 | 1320.04 | 0.002344 | 5.24 | 199.97 | 71.52 | 0.55 |
| Main Channel | 2118.94* | 1047.00 | 1315.42 | 1319.61 | 1318.54 | 1320.04 | 0.002344 | 5.24 | 199.97 | 71.52 | 0.55 |
| Main Channel | 2216.89* | 1047.00 | 1315.47 | 1319.88 | 1318.60 | 1320.25 | 0.001872 | 4.85 | 216.05 | 73.30 | 0.50 |
| Main Channel | 2216.89* | 1047.00 | 1315.47 | 1319.88 | 1318.60 | 1320.25 | 0.001872 | 4.85 | 216.05 | 73.30 | 0.50 |
| Main Channel | 2314.84 | 1047.00 | 1315.52 | 1320.09 | 1318.64 | 1320.42 | 0.001604 | 4.59 | 227.90 | 74.58 | 0.46 |
| Main Channel | 2314.84 | 1047.00 | 1315.52 | 1320.09 | 1318.64 | 1320.42 | 0.001604 | 4.59 | 227.90 | 74.58 | 0.46 |
| Main Channel | 2394.62* | 1047.00 | 1315.56 | 1320.24 | 1318.69 | 1320.54 | 0.001454 | 4.44 | 235.82 | 75.43 | 0.44 |
| Main Channel | 2394.62* | 1047.00 | 1315.56 | 1320.24 | 1318.69 | 1320.54 | 0.001454 | 4.44 | 235.82 | 75.43 | 0.44 |
| Main Channel | 2474.41* | 1047.00 | 1315.60 | 1320.37 | 1318.72 | 1320.66 | 0.001339 | 4.32 | 242.63 | 76.15 | 0.43 |
| Main Channel | 2474.41* | 1047.00 | 1315.60 | 1320.37 | 1318.72 | 1320.66 | 0.001339 | 4.32 | 242.63 | 76.15 | 0.43 |
| Main Channel | 2554.20* | 1047.00 | 1315.64 | 1320.49 | 1318.77 | 1320.76 | 0.001248 | 4.21 | 248.62 | 76.77 | 0.41 |
| Main Channel | 2554.20* | 1047.00 | 1315.64 | 1320.49 | 1318.77 | 1320.76 | 0.001248 | 4.21 | 248.62 | 76.77 | 0.41 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 2634.00 | 1047.00 | 1315.68 | 1320.60 | 1318.80 | 1320.86 | 0.001174 | 4.12 | 253.95 | 77.33 | 0.40 |
| Main Channel | 2634.00 | 1047.00 | 1315.68 | 1320.60 | 1318.80 | 1320.86 | 0.001174 | 4.12 | 253.95 | 77.33 | 0.40 |
| Main Channel | 2635.00 | 1047.00 | 1315.68 | 1320.60 | 1318.81 | 1320.86 | 0.001971 | 4.12 | 254.06 | 77.34 | 0.40 |
| Main Channel | 2635.00 | 1047.00 | 1315.68 | 1320.60 | 1318.81 | 1320.86 | 0.001971 | 4.12 | 254.06 | 77.34 | 0.40 |
| Main Channel | 2645.00 | 1047.00 | 1315.68 | 1320.62 | 1318.80 | 1320.88 | 0.001934 | 4.09 | 255.76 | 77.51 | 0.40 |
| Main Channel | 2645.00 | 1047.00 | 1315.68 | 1320.62 | 1318.80 | 1320.88 | 0.001934 | 4.09 | 255.76 | 77.51 | 0.40 |
| Main Channel | 2700.00 | 1047.00 | 1318.71 | 1321.84 | 1321.84 | 1322.87 | 0.008632 | 8.15 | 128.46 | 63.02 | 1.01 |
| Main Channel | 2700.00 | 1047.00 | 1318.71 | 1321.84 | 1321.84 | 1322.87 | 0.008632 | 8.15 | 128.46 | 63.02 | 1.01 |
| Main Channel | 2720.00 | 1047.00 | 1318.72 | 1322.47 | 1321.85 | 1323.06 | 0.006450 | 6.20 | 168.93 | 67.96 | 0.69 |
| Main Channel | 2720.00 | 1047.00 | 1318.72 | 1322.47 | 1321.85 | 1323.06 | 0.006450 | 6.20 | 168.93 | 67.96 | 0.69 |
| Main Channel | 2721.00 | 1047.00 | 1318.72 | 1322.47 | 1321.84 | 1323.06 | 0.003816 | 6.19 | 169.26 | 68.00 | 0.69 |
| Main Channel | 2721.00 | 1047.00 | 1318.72 | 1322.47 | 1321.84 | 1323.06 | 0.003816 | 6.19 | 169.26 | 68.00 | 0.69 |
| Main Channel | 2816.33* | 1047.00 | 1318.77 | 1322.93 | 1321.90 | 1323.37 | 0.002417 | 5.29 | 197.88 | 71.29 | 0.56 |
| Main Channel | 2816.33* | 1047.00 | 1318.77 | 1322.93 | 1321.90 | 1323.37 | 0.002417 | 5.29 | 197.88 | 71.29 | 0.56 |
| Main Channel | 2911.66* | 1047.00 | 1318.82 | 1323.21 | 1321.94 | 1323.58 | 0.001921 | 4.89 | 214.14 | 73.09 | 0.50 |
| Main Channel | 2911.66* | 1047.00 | 1318.82 | 1323.21 | 1321.94 | 1323.58 | 0.001921 | 4.89 | 214.14 | 73.09 | 0.50 |
| Main Channel | 3007.* | 1047.00 | 1318.87 | 1323.42 | 1322.00 | 1323.75 | 0.001643 | 4.63 | 226.01 | 74.38 | 0.47 |
| Main Channel | 3007.* | 1047.00 | 1318.87 | 1323.42 | 1322.00 | 1323.75 | 0.001643 | 4.63 | 226.01 | 74.38 | 0.47 |
| Main Channel | 3102.33* | 1047.00 | 1318.92 | 1323.59 | 1322.04 | 1323.90 | 0.001460 | 4.45 | 235.49 | 75.39 | 0.44 |
| Main Channel | 3102.33* | 1047.00 | 1318.92 | 1323.59 | 1322.04 | 1323.90 | 0.001460 | 4.45 | 235.49 | 75.39 | 0.44 |
| Main Channel | 3197.66* | 1047.00 | 1318.96 | 1323.75 | 1322.09 | 1324.04 | 0.001313 | 4.29 | 244.28 | 76.32 | 0.42 |
| Main Channel | 3197.66* | 1047.00 | 1318.96 | 1323.75 | 1322.09 | 1324.04 | 0.001313 | 4.29 | 244.28 | 76.32 | 0.42 |
| Main Channel | 3293.* | 1047.00 | 1319.01 | 1323.89 | 1322.13 | 1324.16 | 0.001216 | 4.17 | 250.92 | 77.01 | 0.41 |
| Main Channel | 3293.* | 1047.00 | 1319.01 | 1323.89 | 1322.13 | 1324.16 | 0.001216 | 4.17 | 250.92 | 77.01 | 0.41 |
| Main Channel | 3388.33* | 1047.00 | 1319.06 | 1324.01 | 1322.19 | 1324.27 | 0.001138 | 4.08 | 256.75 | 77.61 | 0.40 |
| Main Channel | 3388.33* | 1047.00 | 1319.06 | 1324.01 | 1322.19 | 1324.27 | 0.001138 | 4.08 | 256.75 | 77.61 | 0.40 |
| Main Channel | 3483.66* | 1047.00 | 1319.11 | 1324.13 | 1322.23 | 1324.38 | 0.001075 | 4.00 | 261.94 | 78.15 | 0.38 |
| Main Channel | 3483.66* | 1047.00 | 1319.11 | 1324.13 | 1322.23 | 1324.38 | 0.001075 | 4.00 | 261.94 | 78.15 | 0.38 |
| Main Channel | 3579.00 | 1047.00 | 1319.16 | 1324.24 | 1322.29 | 1324.48 | 0.001022 | 3.93 | 266.58 | 78.62 | 0.38 |
| Main Channel | 3579.00 | 1047.00 | 1319.16 | 1324.24 | 1322.29 | 1324.48 | 0.001022 | 3.93 | 266.58 | 78.62 | 0.38 |
| Main Channel | 3580.00 | 1047.00 | 1319.16 | 1324.24 | 1322.28 | 1324.48 | 0.001715 | 3.93 | 266.68 | 78.63 | 0.38 |
| Main Channel | 3580.00 | 1047.00 | 1319.16 | 1324.24 | 1322.28 | 1324.48 | 0.001715 | 3.93 | 266.68 | 78.63 | 0.38 |
| Main Channel | 3590.00 | 1047.00 | 1319.16 | 1324.26 | 1322.29 | 1324.49 | 0.001688 | 3.90 | 268.17 | 78.78 | 0.37 |
| Main Channel | 3590.00 | 1047.00 | 1319.16 | 1324.26 | 1322.29 | 1324.49 | 0.001688 | 3.90 | 268.17 | 78.78 | 0.37 |
| Main Channel | 3640.00 | 1047.00 | 1322.18 | 1325.29 | 1325.29 | 1326.34 | 0.014798 | 8.21 | 127.60 | 62.91 | 1.02 |
| Main Channel | 3640.00 | 1047.00 | 1322.18 | 1325.29 | 1325.29 | 1326.34 | 0.014798 | 8.21 | 127.60 | 62.91 | 1.02 |
| Main Channel | 3660.00 | 1047.00 | 1322.19 | 1326.00 | 1325.31 | 1326.57 | 0.005983 | 6.04 | 173.31 | 68.48 | 0.67 |
| Main Channel | 3660.00 | 1047.00 | 1322.19 | 1326.00 | 1325.31 | 1326.57 | 0.005983 | 6.04 | 173.31 | 68.48 | 0.67 |
| Main Channel | 3661.00 | 1047.00 | 1322.19 | 1326.00 | 1325.32 | 1326.57 | 0.003542 | 6.03 | 173.62 | 68.51 | 0.67 |
| Main Channel | 3661.00 | 1047.00 | 1322.19 | 1326.00 | 1325.32 | 1326.57 | 0.003542 | 6.03 | 173.62 | 68.51 | 0.67 |
| Main Channel | 3741.28* | 1047.00 | 1322.23 | 1326.38 | 1325.35 | 1326.82 | 0.002454 | 5.32 | 196.85 | 71.17 | 0.56 |
| Main Channel | 3741.28* | 1047.00 | 1322.23 | 1326.38 | 1325.35 | 1326.82 | 0.002454 | 5.32 | 196.85 | 71.17 | 0.56 |
| Main Channel | 3821.57* | 1047.00 | 1322.27 | 1326.62 | 1325.40 | 1327.00 | 0.001995 | 4.95 | 211.36 | 72.79 | 0.51 |
| Main Channel | 3821.57* | 1047.00 | 1322.27 | 1326.62 | 1325.40 | 1327.00 | 0.001995 | 4.95 | 211.36 | 72.79 | 0.51 |
| Main Channel | 3901.85* | 1047.00 | 1322.31 | 1326.81 | 1325.43 | 1327.15 | 0.001724 | 4.71 | 222.31 | 73.98 | 0.48 |
| Main Channel | 3901.85* | 1047.00 | 1322.31 | 1326.81 | 1325.43 | 1327.15 | 0.001724 | 4.71 | 222.31 | 73.98 | 0.48 |
| Main Channel | 3982.14* | 1047.00 | 1322.35 | 1326.97 | 1325.48 | 1327.29 | 0.001539 | 4.53 | 231.21 | 74.94 | 0.45 |
| Main Channel | 3982.14* | 1047.00 | 1322.35 | 1326.97 | 1325.48 | 1327.29 | 0.001539 | 4.53 | 231.21 | 74.94 | 0.45 |
| Main Channel | 4062.43 | 1047.00 | 1322.39 | 1327.11 | 1325.51 | 1327.41 | 0.001403 | 4.39 | 238.71 | 75.73 | 0.44 |
| Main Channel | 4062.43 | 1047.00 | 1322.39 | 1327.11 | 1325.51 | 1327.41 | 0.001403 | 4.39 | 238.71 | 75.73 | 0.44 |
| Main Channel | 4063.43 | 1047.00 | 1322.39 | 1327.11 | 1325.52 | 1327.41 | 0.002354 | 4.38 | 238.85 | 75.75 | 0.44 |
| Main Channel | 4063.43 | 1047.00 | 1322.39 | 1327.11 | 1325.52 | 1327.41 | 0.002354 | 4.38 | 238.85 | 75.75 | 0.44 |
| Main Channel | 4091.43 | 1047.00 | 1322.40 | 1327.26 | | 1327.46 | 0.001271 | 3.65 | 286.51 | 72.67 | 0.32 |
| Main Channel | 4091.43 | 1047.00 | 1322.40 | 1327.26 | | 1327.46 | 0.001271 | 3.65 | 286.51 | 72.67 | 0.32 |
| Main Channel | 4107.43 | 1047.00 | 1322.41 | 1327.26 | | 1327.56 | 0.001824 | 4.41 | 237.20 | 56.29 | 0.38 |
| Main Channel | 4107.43 | 1047.00 | 1322.41 | 1327.26 | | 1327.56 | 0.001824 | 4.41 | 237.20 | 56.29 | 0.38 |
| Main Channel | 4130.52 | 1047.00 | 1322.41 | 1327.47 | | 1327.66 | 0.000985 | 3.53 | 296.63 | 58.67 | 0.28 |
| Main Channel | 4130.52 | 1047.00 | 1322.41 | 1327.47 | | 1327.66 | 0.000985 | 3.53 | 296.63 | 58.67 | 0.28 |
| Main Channel | 4133.00 | 1047.00 | 1325.62 | 1327.76 | 1327.76 | 1328.84 | 0.015339 | 8.33 | 125.63 | 58.67 | 1.00 |
| Main Channel | 4133.00 | 1047.00 | 1325.62 | 1327.76 | 1327.76 | 1328.84 | 0.015339 | 8.33 | 125.63 | 58.67 | 1.00 |
| Main Channel | 4213.18 | Mult Open | | | | | | | | | |
| Main Channel | 4214.18 | 1047.00 | 1325.86 | 1331.07 | 1329.79 | 1331.49 | 0.003538 | 5.20 | 201.48 | 58.67 | 0.49 |
| Main Channel | 4214.18 | 1047.00 | 1325.86 | 1331.07 | 1329.79 | 1331.49 | 0.003538 | 5.20 | 201.48 | 58.67 | 0.49 |
| Main Channel | 4226.18 | 1053.00 | 1325.86 | 1331.09 | | 1331.68 | 0.005347 | 6.14 | 171.61 | 55.65 | 0.62 |
| Main Channel | 4226.18 | 1053.00 | 1325.86 | 1331.09 | | 1331.68 | 0.005347 | 6.14 | 171.61 | 55.65 | 0.62 |
| Main Channel | 4245.62 | 1053.00 | 1325.87 | 1331.50 | | 1331.77 | 0.001909 | 4.15 | 253.49 | 69.86 | 0.38 |
| Main Channel | 4245.62 | 1053.00 | 1325.87 | 1331.50 | | 1331.77 | 0.001909 | 4.15 | 253.49 | 69.86 | 0.38 |
| Main Channel | 4345.62 | 1053.00 | 1325.92 | 1331.79 | | 1331.81 | 0.000077 | 1.17 | 898.82 | 206.41 | 0.10 |
| Main Channel | 4345.62 | 1053.00 | 1325.92 | 1331.79 | | 1331.81 | 0.000077 | 1.17 | 898.82 | 206.41 | 0.10 |
| Main Channel | 4445.62 | 1053.00 | 1325.97 | 1331.80 | | 1331.82 | 0.000079 | 1.18 | 890.08 | 206.22 | 0.10 |
| Main Channel | 4445.62 | 1053.00 | 1325.97 | 1331.80 | | 1331.82 | 0.000079 | 1.18 | 890.08 | 206.22 | 0.10 |
| Main Channel | 4508.58 | 1053.00 | 1325.97 | 1331.81 | | 1331.82 | 0.000059 | 1.08 | 972.70 | 208.26 | 0.09 |
| Main Channel | 4508.58 | 1053.00 | 1325.97 | 1331.81 | | 1331.82 | 0.000059 | 1.08 | 972.70 | 208.26 | 0.09 |
| Main Channel | 4568.58 | 1053.00 | 1326.00 | 1331.82 | | 1331.83 | 0.000034 | 0.85 | 1239.87 | 283.80 | 0.07 |
| Main Channel | 4568.58 | 1053.00 | 1326.00 | 1331.82 | | 1331.83 | 0.000034 | 0.85 | 1239.87 | 283.80 | 0.07 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 4628.58 | 1053.00 | 1326.03 | 1331.82 | | 1331.83 | 0.000016 | 0.59 | 1772.61 | 402.40 | 0.05 |
| Main Channel | 4628.58 | 1053.00 | 1326.03 | 1331.82 | | 1331.83 | 0.000016 | 0.59 | 1772.61 | 402.40 | 0.05 |
| Main Channel | 4654.00 | 1053.00 | 1326.06 | 1331.83 | | 1331.83 | 0.000011 | 0.50 | 2112.40 | 477.28 | 0.04 |
| Main Channel | 4654.00 | 1053.00 | 1326.06 | 1331.83 | | 1331.83 | 0.000011 | 0.50 | 2112.40 | 477.28 | 0.04 |
| Main Channel | 4700 | 1053.00 | 1326.10 | 1331.83 | | 1331.83 | 0.000014 | 0.56 | 1883.05 | 421.70 | 0.05 |
| Main Channel | 4700 | 1053.00 | 1326.10 | 1331.83 | | 1331.83 | 0.000014 | 0.56 | 1883.05 | 421.70 | 0.05 |
| Main Channel | 4772.91* | 1053.00 | 1326.14 | 1331.83 | | 1331.83 | 0.000018 | 0.62 | 1690.39 | 387.17 | 0.05 |
| Main Channel | 4772.91* | 1053.00 | 1326.14 | 1331.83 | | 1331.83 | 0.000018 | 0.62 | 1690.39 | 387.17 | 0.05 |
| Main Channel | 4845.83 | 1053.00 | 1326.17 | 1331.83 | | 1331.83 | 0.000022 | 0.69 | 1526.99 | 352.58 | 0.06 |
| Main Channel | 4845.83 | 1053.00 | 1326.17 | 1331.83 | | 1331.83 | 0.000022 | 0.69 | 1526.99 | 352.58 | 0.06 |
| Main Channel | 4862.65 | 1053.00 | 1326.17 | 1331.83 | | 1331.84 | 0.000022 | 0.69 | 1527.12 | 352.58 | 0.06 |
| Main Channel | 4862.65 | 1053.00 | 1326.17 | 1331.83 | | 1331.84 | 0.000022 | 0.69 | 1527.12 | 352.58 | 0.06 |
| Main Channel | 4931.32* | 1053.00 | 1326.21 | 1331.83 | | 1331.84 | 0.000041 | 0.91 | 1163.20 | 282.81 | 0.08 |
| Main Channel | 4931.32* | 1053.00 | 1326.21 | 1331.83 | | 1331.84 | 0.000041 | 0.91 | 1163.20 | 282.81 | 0.08 |
| Main Channel | 5000 | 1053.00 | 1326.24 | 1331.82 | | 1331.85 | 0.000082 | 1.25 | 843.50 | 211.95 | 0.11 |
| Main Channel | 5000 | 1053.00 | 1326.24 | 1331.82 | | 1331.85 | 0.000082 | 1.25 | 843.50 | 211.95 | 0.11 |
| Main Channel | 5100 | 1053.00 | 1326.29 | 1331.61 | | 1331.97 | 0.001521 | 4.75 | 221.48 | 65.87 | 0.46 |
| Main Channel | 5100 | 1053.00 | 1326.29 | 1331.61 | | 1331.97 | 0.001521 | 4.75 | 221.48 | 65.87 | 0.46 |
| Main Channel | 5101 | 1053.00 | 1326.29 | 1331.63 | 1329.87 | 1331.97 | 0.001444 | 4.66 | 225.94 | 66.59 | 0.45 |
| Main Channel | 5101 | 1053.00 | 1326.29 | 1331.63 | 1329.87 | 1331.97 | 0.001444 | 4.66 | 225.94 | 66.59 | 0.45 |
| Main Channel | 5184.5* | 1053.00 | 1326.33 | 1331.77 | 1329.91 | 1332.09 | 0.001333 | 4.53 | 232.56 | 67.41 | 0.43 |
| Main Channel | 5184.5* | 1053.00 | 1326.33 | 1331.77 | 1329.91 | 1332.09 | 0.001333 | 4.53 | 232.56 | 67.41 | 0.43 |
| Main Channel | 5268.* | 1053.00 | 1326.36 | 1331.89 | 1329.94 | 1332.19 | 0.001236 | 4.41 | 238.88 | 68.12 | 0.41 |
| Main Channel | 5268.* | 1053.00 | 1326.36 | 1331.89 | 1329.94 | 1332.19 | 0.001236 | 4.41 | 238.88 | 68.12 | 0.41 |
| Main Channel | 5351.5* | 1053.00 | 1326.40 | 1332.01 | 1329.98 | 1332.30 | 0.001165 | 4.31 | 244.11 | 68.77 | 0.40 |
| Main Channel | 5351.5* | 1053.00 | 1326.40 | 1332.01 | 1329.98 | 1332.30 | 0.001165 | 4.31 | 244.11 | 68.77 | 0.40 |
| Main Channel | 5435.* | 1053.00 | 1326.43 | 1332.11 | 1330.01 | 1332.39 | 0.001098 | 4.22 | 249.31 | 69.33 | 0.39 |
| Main Channel | 5435.* | 1053.00 | 1326.43 | 1332.11 | 1330.01 | 1332.39 | 0.001098 | 4.22 | 249.31 | 69.33 | 0.39 |
| Main Channel | 5518.5* | 1053.00 | 1326.46 | 1332.22 | 1330.04 | 1332.48 | 0.001040 | 4.14 | 254.26 | 69.89 | 0.38 |
| Main Channel | 5518.5* | 1053.00 | 1326.46 | 1332.22 | 1330.04 | 1332.48 | 0.001040 | 4.14 | 254.26 | 69.89 | 0.38 |
| Main Channel | 5602.00 | 1053.00 | 1326.50 | 1332.31 | 1330.08 | 1332.57 | 0.000998 | 4.08 | 258.00 | 70.32 | 0.38 |
| Main Channel | 5602.00 | 1053.00 | 1326.50 | 1332.31 | 1330.08 | 1332.57 | 0.000998 | 4.08 | 258.00 | 70.32 | 0.38 |
| Main Channel | 5603.00 | 1053.00 | 1326.50 | 1332.31 | 1330.08 | 1332.57 | 0.001676 | 4.08 | 258.09 | 70.33 | 0.38 |
| Main Channel | 5603.00 | 1053.00 | 1326.50 | 1332.31 | 1330.08 | 1332.57 | 0.001676 | 4.08 | 258.09 | 70.33 | 0.38 |
| Main Channel | 5613 | 1053.00 | 1326.50 | 1332.33 | 1330.08 | 1332.58 | 0.001653 | 4.06 | 259.39 | 70.47 | 0.37 |
| Main Channel | 5613 | 1053.00 | 1326.50 | 1332.33 | 1330.08 | 1332.58 | 0.001653 | 4.06 | 259.39 | 70.47 | 0.37 |
| Main Channel | 5663 | 1053.00 | 1329.52 | 1333.12 | 1333.12 | 1334.27 | 0.013681 | 8.60 | 122.37 | 52.75 | 1.00 |
| Main Channel | 5663 | 1053.00 | 1329.52 | 1333.12 | 1333.12 | 1334.27 | 0.013681 | 8.60 | 122.37 | 52.75 | 1.00 |
| Main Channel | 5683.00 | 1053.00 | 1329.53 | 1333.84 | 1333.11 | 1334.50 | 0.006195 | 6.51 | 161.73 | 58.40 | 0.69 |
| Main Channel | 5683.00 | 1053.00 | 1329.53 | 1333.84 | 1333.11 | 1334.50 | 0.006195 | 6.51 | 161.73 | 58.40 | 0.69 |
| Main Channel | 5684.00 | 1053.00 | 1329.53 | 1333.85 | 1333.11 | 1334.50 | 0.003669 | 6.50 | 162.00 | 58.43 | 0.69 |
| Main Channel | 5684.00 | 1053.00 | 1329.53 | 1333.85 | 1333.11 | 1334.50 | 0.003669 | 6.50 | 162.00 | 58.43 | 0.69 |
| Main Channel | 5700 | 1053.00 | 1329.58 | 1333.91 | 1333.16 | 1334.56 | 0.003637 | 6.48 | 162.51 | 58.50 | 0.69 |
| Main Channel | 5700 | 1053.00 | 1329.58 | 1333.91 | 1333.16 | 1334.56 | 0.003637 | 6.48 | 162.51 | 58.50 | 0.69 |
| Main Channel | 5800.* | 1053.00 | 1329.63 | 1334.38 | 1333.21 | 1334.87 | 0.002411 | 5.60 | 188.07 | 61.89 | 0.57 |
| Main Channel | 5800.* | 1053.00 | 1329.63 | 1334.38 | 1333.21 | 1334.87 | 0.002411 | 5.60 | 188.07 | 61.89 | 0.57 |
| Main Channel | 5900.* | 1053.00 | 1329.68 | 1334.67 | 1333.26 | 1335.09 | 0.001936 | 5.18 | 203.38 | 63.83 | 0.51 |
| Main Channel | 5900.* | 1053.00 | 1329.68 | 1334.67 | 1333.26 | 1335.09 | 0.001936 | 5.18 | 203.38 | 63.83 | 0.51 |
| Main Channel | 6000.* | 1053.00 | 1329.73 | 1334.90 | 1333.31 | 1335.27 | 0.001663 | 4.90 | 214.79 | 65.24 | 0.48 |
| Main Channel | 6000.* | 1053.00 | 1329.73 | 1334.90 | 1333.31 | 1335.27 | 0.001663 | 4.90 | 214.79 | 65.24 | 0.48 |
| Main Channel | 6100.* | 1053.00 | 1329.78 | 1335.09 | 1333.36 | 1335.43 | 0.001479 | 4.70 | 223.99 | 66.35 | 0.45 |
| Main Channel | 6100.* | 1053.00 | 1329.78 | 1335.09 | 1333.36 | 1335.43 | 0.001479 | 4.70 | 223.99 | 66.35 | 0.45 |
| Main Channel | 6200.* | 1053.00 | 1329.83 | 1335.26 | 1333.41 | 1335.58 | 0.001346 | 4.54 | 231.73 | 67.27 | 0.43 |
| Main Channel | 6200.* | 1053.00 | 1329.83 | 1335.26 | 1333.41 | 1335.58 | 0.001346 | 4.54 | 231.73 | 67.27 | 0.43 |
| Main Channel | 6300.* | 1053.00 | 1329.88 | 1335.41 | 1333.46 | 1335.71 | 0.001243 | 4.42 | 238.42 | 68.06 | 0.42 |
| Main Channel | 6300.* | 1053.00 | 1329.88 | 1335.41 | 1333.46 | 1335.71 | 0.001243 | 4.42 | 238.42 | 68.06 | 0.42 |
| Main Channel | 6400.* | 1053.00 | 1329.93 | 1335.54 | 1333.51 | 1335.83 | 0.001162 | 4.31 | 244.30 | 68.75 | 0.40 |
| Main Channel | 6400.* | 1053.00 | 1329.93 | 1335.54 | 1333.51 | 1335.83 | 0.001162 | 4.31 | 244.30 | 68.75 | 0.40 |
| Main Channel | 6500.* | 1053.00 | 1329.98 | 1335.67 | 1333.56 | 1335.94 | 0.001095 | 4.22 | 249.56 | 69.35 | 0.39 |
| Main Channel | 6500.* | 1053.00 | 1329.98 | 1335.67 | 1333.56 | 1335.94 | 0.001095 | 4.22 | 249.56 | 69.35 | 0.39 |
| Main Channel | 6600.* | 1053.00 | 1330.03 | 1335.79 | 1333.61 | 1336.05 | 0.001039 | 4.14 | 254.28 | 69.90 | 0.38 |
| Main Channel | 6600.* | 1053.00 | 1330.03 | 1335.79 | 1333.61 | 1336.05 | 0.001039 | 4.14 | 254.28 | 69.90 | 0.38 |
| Main Channel | 6700 | 1053.00 | 1330.08 | 1335.90 | 1333.66 | 1336.15 | 0.000992 | 4.07 | 258.58 | 70.38 | 0.37 |
| Main Channel | 6700 | 1053.00 | 1330.08 | 1335.90 | 1333.66 | 1336.15 | 0.000992 | 4.07 | 258.58 | 70.38 | 0.37 |
| Main Channel | 6784.4* | 1053.00 | 1330.12 | 1335.99 | 1333.70 | 1336.24 | 0.000956 | 4.02 | 262.09 | 70.78 | 0.37 |
| Main Channel | 6784.4* | 1053.00 | 1330.12 | 1335.99 | 1333.70 | 1336.24 | 0.000956 | 4.02 | 262.09 | 70.78 | 0.37 |
| Main Channel | 6868.8* | 1053.00 | 1330.15 | 1336.07 | 1333.73 | 1336.32 | 0.000916 | 3.96 | 266.15 | 71.24 | 0.36 |
| Main Channel | 6868.8* | 1053.00 | 1330.15 | 1336.07 | 1333.73 | 1336.32 | 0.000916 | 3.96 | 266.15 | 71.24 | 0.36 |
| Main Channel | 6953.2* | 1053.00 | 1330.19 | 1336.16 | 1333.77 | 1336.39 | 0.000888 | 3.91 | 269.16 | 71.57 | 0.36 |
| Main Channel | 6953.2* | 1053.00 | 1330.19 | 1336.16 | 1333.77 | 1336.39 | 0.000888 | 3.91 | 269.16 | 71.57 | 0.36 |
| Main Channel | 7037.6* | 1053.00 | 1330.22 | 1336.24 | 1333.80 | 1336.47 | 0.000856 | 3.86 | 272.78 | 71.97 | 0.35 |
| Main Channel | 7037.6* | 1053.00 | 1330.22 | 1336.24 | 1333.80 | 1336.47 | 0.000856 | 3.86 | 272.78 | 71.97 | 0.35 |
| Main Channel | 7122.00 | 1053.00 | 1330.26 | 1336.31 | 1333.84 | 1336.54 | 0.000834 | 3.82 | 275.36 | 72.26 | 0.35 |
| Main Channel | 7122.00 | 1053.00 | 1330.26 | 1336.31 | 1333.84 | 1336.54 | 0.000834 | 3.82 | 275.36 | 72.26 | 0.35 |
| Main Channel | 7123.00 | 1053.00 | 1330.26 | 1336.31 | 1333.84 | 1336.54 | 0.001400 | 3.82 | 275.44 | 72.27 | 0.35 |
| Main Channel | 7123.00 | 1053.00 | 1330.26 | 1336.31 | 1333.84 | 1336.54 | 0.001400 | 3.82 | 275.44 | 72.27 | 0.35 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 7133 | 1053.00 | 1330.26 | 1336.33 | 1333.84 | 1336.55 | 0.001384 | 3.81 | 276.54 | 72.39 | 0.34 |
| Main Channel | 7133 | 1053.00 | 1330.26 | 1336.33 | 1333.84 | 1336.55 | 0.001384 | 3.81 | 276.54 | 72.39 | 0.34 |
| Main Channel | 7183 | 1053.00 | 1333.28 | 1336.89 | 1336.89 | 1338.03 | 0.013607 | 8.59 | 122.60 | 52.79 | 0.99 |
| Main Channel | 7183 | 1053.00 | 1333.28 | 1336.89 | 1336.89 | 1338.03 | 0.013607 | 8.59 | 122.60 | 52.79 | 0.99 |
| Main Channel | 7203.00 | 1053.00 | 1333.29 | 1337.60 | 1336.87 | 1338.26 | 0.006204 | 6.51 | 161.64 | 58.39 | 0.69 |
| Main Channel | 7203.00 | 1053.00 | 1333.29 | 1337.60 | 1336.87 | 1338.26 | 0.006204 | 6.51 | 161.64 | 58.39 | 0.69 |
| Main Channel | 7204.00 | 1053.00 | 1333.29 | 1337.61 | 1336.87 | 1338.26 | 0.003674 | 6.50 | 161.92 | 58.42 | 0.69 |
| Main Channel | 7204.00 | 1053.00 | 1333.29 | 1337.61 | 1336.87 | 1338.26 | 0.003674 | 6.50 | 161.92 | 58.42 | 0.69 |
| Main Channel | 7303.2* | 1053.00 | 1333.35 | 1338.08 | 1336.93 | 1338.57 | 0.002456 | 5.64 | 186.84 | 61.73 | 0.57 |
| Main Channel | 7303.2* | 1053.00 | 1333.35 | 1338.08 | 1336.93 | 1338.57 | 0.002456 | 5.64 | 186.84 | 61.73 | 0.57 |
| Main Channel | 7402.4* | 1053.00 | 1333.41 | 1338.38 | 1336.99 | 1338.80 | 0.001985 | 5.22 | 201.59 | 63.60 | 0.52 |
| Main Channel | 7402.4* | 1053.00 | 1333.41 | 1338.38 | 1336.99 | 1338.80 | 0.001985 | 5.22 | 201.59 | 63.60 | 0.52 |
| Main Channel | 7501.6* | 1053.00 | 1333.46 | 1338.61 | 1337.04 | 1338.99 | 0.001696 | 4.94 | 213.27 | 65.05 | 0.48 |
| Main Channel | 7501.6* | 1053.00 | 1333.46 | 1338.61 | 1337.04 | 1338.99 | 0.001696 | 4.94 | 213.27 | 65.05 | 0.48 |
| Main Channel | 7600.8* | 1053.00 | 1333.52 | 1338.80 | 1337.10 | 1339.15 | 0.001519 | 4.75 | 221.84 | 66.09 | 0.46 |
| Main Channel | 7600.8* | 1053.00 | 1333.52 | 1338.80 | 1337.10 | 1339.15 | 0.001519 | 4.75 | 221.84 | 66.09 | 0.46 |
| Main Channel | 7700 | 1053.00 | 1333.58 | 1338.97 | 1337.16 | 1339.29 | 0.001390 | 4.60 | 229.02 | 66.95 | 0.44 |
| Main Channel | 7700 | 1053.00 | 1333.58 | 1338.97 | 1337.16 | 1339.29 | 0.001390 | 4.60 | 229.02 | 66.95 | 0.44 |
| Main Channel | 7794.* | 1053.00 | 1333.62 | 1339.11 | 1337.20 | 1339.42 | 0.001276 | 4.46 | 236.22 | 67.80 | 0.42 |
| Main Channel | 7794.* | 1053.00 | 1333.62 | 1339.11 | 1337.20 | 1339.42 | 0.001276 | 4.46 | 236.22 | 67.80 | 0.42 |
| Main Channel | 7888.* | 1053.00 | 1333.65 | 1339.25 | 1337.23 | 1339.54 | 0.001174 | 4.33 | 243.36 | 68.64 | 0.40 |
| Main Channel | 7888.* | 1053.00 | 1333.65 | 1339.25 | 1337.23 | 1339.54 | 0.001174 | 4.33 | 243.36 | 68.64 | 0.40 |
| Main Channel | 7982.00 | 1053.00 | 1333.69 | 1339.37 | 1337.27 | 1339.65 | 0.001102 | 4.23 | 248.96 | 69.29 | 0.39 |
| Main Channel | 7982.00 | 1053.00 | 1333.69 | 1339.37 | 1337.27 | 1339.65 | 0.001102 | 4.23 | 248.96 | 69.29 | 0.39 |
| Main Channel | 7983 | 1053.00 | 1333.69 | 1339.37 | 1337.27 | 1339.65 | 0.001850 | 4.23 | 249.06 | 69.30 | 0.39 |
| Main Channel | 7983 | 1053.00 | 1333.69 | 1339.37 | 1337.27 | 1339.65 | 0.001850 | 4.23 | 249.06 | 69.30 | 0.39 |
| Main Channel | 7993 | 1053.00 | 1333.69 | 1339.39 | 1337.27 | 1339.67 | 0.001821 | 4.20 | 250.49 | 69.46 | 0.39 |
| Main Channel | 7993 | 1053.00 | 1333.69 | 1339.39 | 1337.27 | 1339.67 | 0.001821 | 4.20 | 250.49 | 69.46 | 0.39 |
| Main Channel | 8043 | 1053.00 | 1336.71 | 1340.32 | 1340.32 | 1341.46 | 0.013631 | 8.59 | 122.53 | 52.78 | 0.99 |
| Main Channel | 8043 | 1053.00 | 1336.71 | 1340.32 | 1340.32 | 1341.46 | 0.013631 | 8.59 | 122.53 | 52.78 | 0.99 |
| Main Channel | 8063.00 | 1053.00 | 1336.72 | 1341.03 | 1340.30 | 1341.69 | 0.006201 | 6.51 | 161.68 | 58.39 | 0.69 |
| Main Channel | 8063.00 | 1053.00 | 1336.72 | 1341.03 | 1340.30 | 1341.69 | 0.006201 | 6.51 | 161.68 | 58.39 | 0.69 |
| Main Channel | 8064.00 | 1053.00 | 1336.72 | 1341.04 | 1340.30 | 1341.69 | 0.003672 | 6.50 | 161.95 | 58.43 | 0.69 |
| Main Channel | 8064.00 | 1053.00 | 1336.72 | 1341.04 | 1340.30 | 1341.69 | 0.003672 | 6.50 | 161.95 | 58.43 | 0.69 |
| Main Channel | 8154.85* | 1053.00 | 1336.77 | 1341.48 | 1340.35 | 1341.98 | 0.002500 | 5.67 | 185.67 | 61.58 | 0.58 |
| Main Channel | 8154.85* | 1053.00 | 1336.77 | 1341.48 | 1340.35 | 1341.98 | 0.002500 | 5.67 | 185.67 | 61.58 | 0.58 |
| Main Channel | 8245.71* | 1053.00 | 1336.82 | 1341.76 | 1340.40 | 1342.19 | 0.002026 | 5.26 | 200.11 | 63.42 | 0.52 |
| Main Channel | 8245.71* | 1053.00 | 1336.82 | 1341.76 | 1340.40 | 1342.19 | 0.002026 | 5.26 | 200.11 | 63.42 | 0.52 |
| Main Channel | 8336.57* | 1053.00 | 1336.87 | 1341.98 | 1340.45 | 1342.37 | 0.001750 | 4.99 | 210.89 | 64.76 | 0.49 |
| Main Channel | 8336.57* | 1053.00 | 1336.87 | 1341.98 | 1340.45 | 1342.37 | 0.001750 | 4.99 | 210.89 | 64.76 | 0.49 |
| Main Channel | 8427.42* | 1053.00 | 1336.93 | 1342.16 | 1340.51 | 1342.52 | 0.001579 | 4.81 | 218.80 | 65.73 | 0.46 |
| Main Channel | 8427.42* | 1053.00 | 1336.93 | 1342.16 | 1340.51 | 1342.52 | 0.001579 | 4.81 | 218.80 | 65.73 | 0.46 |
| Main Channel | 8518.28* | 1053.00 | 1336.98 | 1342.32 | 1340.56 | 1342.66 | 0.001438 | 4.65 | 226.26 | 66.62 | 0.45 |
| Main Channel | 8518.28* | 1053.00 | 1336.98 | 1342.32 | 1340.56 | 1342.66 | 0.001438 | 4.65 | 226.26 | 66.62 | 0.45 |
| Main Channel | 8609.14* | 1053.00 | 1337.03 | 1342.47 | 1340.61 | 1342.79 | 0.001330 | 4.53 | 232.68 | 67.39 | 0.43 |
| Main Channel | 8609.14* | 1053.00 | 1337.03 | 1342.47 | 1340.61 | 1342.79 | 0.001330 | 4.53 | 232.68 | 67.39 | 0.43 |
| Main Channel | 8700 | 1053.00 | 1337.08 | 1342.60 | 1340.66 | 1342.91 | 0.001244 | 4.42 | 238.33 | 68.05 | 0.42 |
| Main Channel | 8700 | 1053.00 | 1337.08 | 1342.60 | 1340.66 | 1342.91 | 0.001244 | 4.42 | 238.33 | 68.05 | 0.42 |
| Main Channel | 8794.* | 1053.00 | 1337.12 | 1342.73 | 1340.70 | 1343.02 | 0.001160 | 4.31 | 244.44 | 68.76 | 0.40 |
| Main Channel | 8794.* | 1053.00 | 1337.12 | 1342.73 | 1340.70 | 1343.02 | 0.001160 | 4.31 | 244.44 | 68.76 | 0.40 |
| Main Channel | 8888.* | 1053.00 | 1337.15 | 1342.85 | 1340.73 | 1343.13 | 0.001081 | 4.20 | 250.72 | 69.49 | 0.39 |
| Main Channel | 8888.* | 1053.00 | 1337.15 | 1342.85 | 1340.73 | 1343.13 | 0.001081 | 4.20 | 250.72 | 69.49 | 0.39 |
| Main Channel | 8982.00 | 1053.00 | 1337.19 | 1342.96 | 1340.77 | 1343.23 | 0.001024 | 4.12 | 255.65 | 70.05 | 0.38 |
| Main Channel | 8982.00 | 1053.00 | 1337.19 | 1342.96 | 1340.77 | 1343.23 | 0.001024 | 4.12 | 255.65 | 70.05 | 0.38 |
| Main Channel | 8983.00 | 1053.00 | 1337.19 | 1342.97 | 1340.77 | 1343.23 | 0.001719 | 4.12 | 255.74 | 70.06 | 0.38 |
| Main Channel | 8983.00 | 1053.00 | 1337.19 | 1342.97 | 1340.77 | 1343.23 | 0.001719 | 4.12 | 255.74 | 70.06 | 0.38 |
| Main Channel | 8993 | 1053.00 | 1337.19 | 1342.99 | 1340.77 | 1343.25 | 0.001694 | 4.10 | 257.08 | 70.21 | 0.38 |
| Main Channel | 8993 | 1053.00 | 1337.19 | 1342.99 | 1340.77 | 1343.25 | 0.001694 | 4.10 | 257.08 | 70.21 | 0.38 |
| Main Channel | 9043 | 1053.00 | 1340.21 | 1343.82 | 1343.82 | 1344.96 | 0.008097 | 8.59 | 122.60 | 52.79 | 0.99 |
| Main Channel | 9043 | 1053.00 | 1340.21 | 1343.82 | 1343.82 | 1344.96 | 0.008097 | 8.59 | 122.60 | 52.79 | 0.99 |
| Main Channel | 9063.00 | 1053.00 | 1340.22 | 1344.47 | 1343.80 | 1345.16 | 0.006623 | 6.67 | 157.95 | 57.88 | 0.71 |
| Main Channel | 9063.00 | 1053.00 | 1340.22 | 1344.47 | 1343.80 | 1345.16 | 0.006623 | 6.67 | 157.95 | 57.88 | 0.71 |
| Main Channel | 9064.00 | 1053.00 | 1340.22 | 1344.47 | 1343.80 | 1345.16 | 0.003921 | 6.65 | 158.24 | 57.92 | 0.71 |
| Main Channel | 9064.00 | 1053.00 | 1340.22 | 1344.47 | 1343.80 | 1345.16 | 0.003921 | 6.65 | 158.24 | 57.92 | 0.71 |
| Main Channel | 9154.85* | 1053.00 | 1340.27 | 1344.95 | 1343.85 | 1345.46 | 0.002565 | 5.72 | 183.98 | 61.36 | 0.58 |
| Main Channel | 9154.85* | 1053.00 | 1340.27 | 1344.95 | 1343.85 | 1345.46 | 0.002565 | 5.72 | 183.98 | 61.36 | 0.58 |
| Main Channel | 9245.71* | 1053.00 | 1340.32 | 1345.24 | 1343.90 | 1345.68 | 0.002060 | 5.29 | 198.92 | 63.27 | 0.53 |
| Main Channel | 9245.71* | 1053.00 | 1340.32 | 1345.24 | 1343.90 | 1345.68 | 0.002060 | 5.29 | 198.92 | 63.27 | 0.53 |
| Main Channel | 9336.57* | 1053.00 | 1340.37 | 1345.47 | 1343.95 | 1345.86 | 0.001772 | 5.02 | 209.95 | 64.64 | 0.49 |
| Main Channel | 9336.57* | 1053.00 | 1340.37 | 1345.47 | 1343.95 | 1345.86 | 0.001772 | 5.02 | 209.95 | 64.64 | 0.49 |
| Main Channel | 9427.42* | 1053.00 | 1340.43 | 1345.65 | 1344.01 | 1346.01 | 0.001595 | 4.83 | 218.02 | 65.63 | 0.47 |
| Main Channel | 9427.42* | 1053.00 | 1340.43 | 1345.65 | 1344.01 | 1346.01 | 0.001595 | 4.83 | 218.02 | 65.63 | 0.47 |
| Main Channel | 9518.28* | 1053.00 | 1340.48 | 1345.81 | 1344.06 | 1346.15 | 0.001450 | 4.67 | 225.58 | 66.54 | 0.45 |
| Main Channel | 9518.28* | 1053.00 | 1340.48 | 1345.81 | 1344.06 | 1346.15 | 0.001450 | 4.67 | 225.58 | 66.54 | 0.45 |
| Main Channel | 9609.14* | 1053.00 | 1340.53 | 1345.96 | 1344.11 | 1346.28 | 0.001340 | 4.54 | 232.08 | 67.32 | 0.43 |
| Main Channel | 9609.14* | 1053.00 | 1340.53 | 1345.96 | 1344.11 | 1346.28 | 0.001340 | 4.54 | 232.08 | 67.32 | 0.43 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 9700 | 1053.00 | 1340.58 | 1346.10 | 1344.16 | 1346.40 | 0.001252 | 4.43 | 237.79 | 67.99 | 0.42 |
| Main Channel | 9700 | 1053.00 | 1340.58 | 1346.10 | 1344.16 | 1346.40 | 0.001252 | 4.43 | 237.79 | 67.99 | 0.42 |
| Main Channel | 9796.4* | 1053.00 | 1340.62 | 1346.23 | 1344.20 | 1346.52 | 0.001163 | 4.31 | 244.19 | 68.74 | 0.40 |
| Main Channel | 9796.4* | 1053.00 | 1340.62 | 1346.23 | 1344.20 | 1346.52 | 0.001163 | 4.31 | 244.19 | 68.74 | 0.40 |
| Main Channel | 9892.8* | 1053.00 | 1340.66 | 1346.35 | 1344.24 | 1346.63 | 0.001091 | 4.21 | 249.92 | 69.40 | 0.39 |
| Main Channel | 9892.8* | 1053.00 | 1340.66 | 1346.35 | 1344.24 | 1346.63 | 0.001091 | 4.21 | 249.92 | 69.40 | 0.39 |
| Main Channel | 9989.2* | 1053.00 | 1340.71 | 1346.47 | 1344.29 | 1346.73 | 0.001039 | 4.14 | 254.31 | 69.90 | 0.38 |
| Main Channel | 9989.2* | 1053.00 | 1340.71 | 1346.47 | 1344.29 | 1346.73 | 0.001039 | 4.14 | 254.31 | 69.90 | 0.38 |
| Main Channel | 10085.6* | 1053.00 | 1340.75 | 1346.57 | 1344.33 | 1346.83 | 0.000987 | 4.06 | 259.10 | 70.44 | 0.37 |
| Main Channel | 10085.6* | 1053.00 | 1340.75 | 1346.57 | 1344.33 | 1346.83 | 0.000987 | 4.06 | 259.10 | 70.44 | 0.37 |
| Main Channel | 10182.00 | 1053.00 | 1340.79 | 1346.68 | 1344.37 | 1346.92 | 0.000942 | 4.00 | 263.51 | 70.94 | 0.37 |
| Main Channel | 10182.00 | 1053.00 | 1340.79 | 1346.68 | 1344.37 | 1346.92 | 0.000942 | 4.00 | 263.51 | 70.94 | 0.37 |
| Main Channel | 10183.00 | 1053.00 | 1340.79 | 1346.68 | 1344.37 | 1346.93 | 0.001581 | 3.99 | 263.59 | 70.95 | 0.37 |
| Main Channel | 10183.00 | 1053.00 | 1340.79 | 1346.68 | 1344.37 | 1346.93 | 0.001581 | 3.99 | 263.59 | 70.95 | 0.37 |
| Main Channel | 10193 | 1053.00 | 1340.79 | 1346.70 | 1344.37 | 1346.94 | 0.001561 | 3.98 | 264.82 | 71.09 | 0.36 |
| Main Channel | 10193 | 1053.00 | 1340.79 | 1346.70 | 1344.37 | 1346.94 | 0.001561 | 3.98 | 264.82 | 71.09 | 0.36 |
| Main Channel | 10243 | 1053.00 | 1343.81 | 1347.40 | 1347.40 | 1348.56 | 0.008292 | 8.66 | 121.59 | 52.64 | 1.00 |
| Main Channel | 10243 | 1053.00 | 1343.81 | 1347.40 | 1347.40 | 1348.56 | 0.008292 | 8.66 | 121.59 | 52.64 | 1.00 |
| Main Channel | 10263.00 | 1053.00 | 1343.82 | 1348.07 | 1347.40 | 1348.76 | 0.006575 | 6.65 | 158.35 | 57.94 | 0.71 |
| Main Channel | 10263.00 | 1053.00 | 1343.82 | 1348.07 | 1347.40 | 1348.76 | 0.006575 | 6.65 | 158.35 | 57.94 | 0.71 |
| Main Channel | 10264.00 | 1053.00 | 1343.82 | 1348.08 | 1347.40 | 1348.76 | 0.003893 | 6.64 | 158.64 | 57.98 | 0.71 |
| Main Channel | 10264.00 | 1053.00 | 1343.82 | 1348.08 | 1347.40 | 1348.76 | 0.003893 | 6.64 | 158.64 | 57.98 | 0.71 |
| Main Channel | 10348.* | 1053.00 | 1343.87 | 1348.53 | 1347.45 | 1349.05 | 0.002628 | 5.77 | 182.42 | 61.18 | 0.59 |
| Main Channel | 10348.* | 1053.00 | 1343.87 | 1348.53 | 1347.45 | 1349.05 | 0.002628 | 5.77 | 182.42 | 61.18 | 0.59 |
| Main Channel | 10432.* | 1053.00 | 1343.92 | 1348.81 | 1347.50 | 1349.25 | 0.002128 | 5.35 | 196.72 | 63.04 | 0.53 |
| Main Channel | 10432.* | 1053.00 | 1343.92 | 1348.81 | 1347.50 | 1349.25 | 0.002128 | 5.35 | 196.72 | 63.04 | 0.53 |
| Main Channel | 10516.* | 1053.00 | 1343.97 | 1349.02 | 1347.55 | 1349.42 | 0.001839 | 5.08 | 207.25 | 64.38 | 0.50 |
| Main Channel | 10516.* | 1053.00 | 1343.97 | 1349.02 | 1347.55 | 1349.42 | 0.001839 | 5.08 | 207.25 | 64.38 | 0.50 |
| Main Channel | 10600 | 1053.00 | 1344.02 | 1349.20 | 1347.60 | 1349.57 | 0.001644 | 4.88 | 215.80 | 65.46 | 0.47 |
| Main Channel | 10600 | 1053.00 | 1344.02 | 1349.20 | 1347.60 | 1349.57 | 0.001644 | 4.88 | 215.80 | 65.46 | 0.47 |
| Main Channel | 10627.41 | 1053.00 | 1344.04 | 1349.27 | 1347.62 | 1349.63 | 0.002653 | 4.81 | 218.96 | 65.84 | 0.46 |
| Main Channel | 10627.41 | 1053.00 | 1344.04 | 1349.27 | 1347.62 | 1349.63 | 0.002653 | 4.81 | 218.96 | 65.84 | 0.46 |
| Main Channel | 10637.41 | 1053.00 | 1344.04 | 1349.30 | 1347.63 | 1349.66 | 0.002600 | 4.78 | 220.10 | 65.69 | 0.46 |
| Main Channel | 10637.41 | 1053.00 | 1344.04 | 1349.30 | 1347.63 | 1349.66 | 0.002600 | 4.78 | 220.10 | 65.69 | 0.46 |
| Main Channel | 10687.00 | 1053.00 | 1347.08 | 1350.69 | 1350.69 | 1352.50 | 0.016093 | 10.82 | 97.36 | 27.00 | 1.00 |
| Main Channel | 10687.00 | 1053.00 | 1347.08 | 1350.69 | 1350.69 | 1352.50 | 0.016093 | 10.82 | 97.36 | 27.00 | 1.00 |
| Main Channel | 10777.41 | Culvert | | | | | | | | | |
| Main Channel | 10780.41 | 1053.00 | 1347.11 | 1352.68 | 1350.72 | 1353.44 | 0.004374 | 7.01 | 150.30 | 27.00 | 0.52 |
| Main Channel | 10780.41 | 1053.00 | 1347.11 | 1352.68 | 1350.72 | 1353.44 | 0.004374 | 7.01 | 150.30 | 27.00 | 0.52 |
| Main Channel | 10791.41 | 1053.00 | 1347.12 | 1353.45 | | 1353.75 | 0.001449 | 4.35 | 242.34 | 50.56 | 0.35 |
| Main Channel | 10791.41 | 1053.00 | 1347.12 | 1353.45 | | 1353.75 | 0.001449 | 4.35 | 242.34 | 50.56 | 0.35 |
| Main Channel | 10805.41 | 1053.00 | 1347.12 | 1353.64 | | 1353.83 | 0.001119 | 3.47 | 303.75 | 78.08 | 0.31 |
| Main Channel | 10805.41 | 1053.00 | 1347.12 | 1353.64 | | 1353.83 | 0.001119 | 3.47 | 303.75 | 78.08 | 0.31 |
| Main Channel | 10810.00 | 1053.00 | 1347.18 | 1353.65 | 1350.78 | 1353.83 | 0.000621 | 3.43 | 306.63 | 75.75 | 0.30 |
| Main Channel | 10810.00 | 1053.00 | 1347.18 | 1353.65 | 1350.78 | 1353.83 | 0.000621 | 3.43 | 306.63 | 75.75 | 0.30 |
| Main Channel | 10906.6* | 1053.00 | 1347.23 | 1353.71 | 1350.81 | 1353.89 | 0.000616 | 3.43 | 307.43 | 75.83 | 0.30 |
| Main Channel | 10906.6* | 1053.00 | 1347.23 | 1353.71 | 1350.81 | 1353.89 | 0.000616 | 3.43 | 307.43 | 75.83 | 0.30 |
| Main Channel | 11003.3* | 1053.00 | 1347.28 | 1353.77 | 1350.86 | 1353.95 | 0.000611 | 3.41 | 308.38 | 75.98 | 0.30 |
| Main Channel | 11003.3* | 1053.00 | 1347.28 | 1353.77 | 1350.86 | 1353.95 | 0.000611 | 3.41 | 308.38 | 75.98 | 0.30 |
| Main Channel | 11100.00 | 1053.00 | 1347.33 | 1353.83 | 1350.91 | 1354.01 | 0.000608 | 3.41 | 309.08 | 76.06 | 0.30 |
| Main Channel | 11100.00 | 1053.00 | 1347.33 | 1353.83 | 1350.91 | 1354.01 | 0.000608 | 3.41 | 309.08 | 76.06 | 0.30 |
| Main Channel | 11200.00 | 1053.00 | 1347.34 | 1353.89 | 1350.92 | 1354.07 | 0.000585 | 3.36 | 313.26 | 76.49 | 0.29 |
| Main Channel | 11200.00 | 1053.00 | 1347.34 | 1353.89 | 1350.92 | 1354.07 | 0.000585 | 3.36 | 313.26 | 76.49 | 0.29 |
| Main Channel | 11291.50 | 1053.00 | 1347.38 | 1353.95 | | 1354.12 | 0.000580 | 3.35 | 314.35 | 76.61 | 0.29 |
| Main Channel | 11291.50 | 1053.00 | 1347.38 | 1353.95 | | 1354.12 | 0.000580 | 3.35 | 314.35 | 76.61 | 0.29 |
| Main Channel | 11300.00 | 1053.00 | 1347.38 | 1353.94 | | 1354.13 | 0.000948 | 3.47 | 303.27 | 67.52 | 0.29 |
| Main Channel | 11300.00 | 1053.00 | 1347.38 | 1353.94 | | 1354.13 | 0.000948 | 3.47 | 303.27 | 67.52 | 0.29 |
| Main Channel | 11346.23 | 1053.00 | 1347.40 | 1353.98 | | 1354.21 | 0.000930 | 3.83 | 275.25 | 42.10 | 0.26 |
| Main Channel | 11346.23 | 1053.00 | 1347.40 | 1353.98 | | 1354.21 | 0.000930 | 3.83 | 275.25 | 42.10 | 0.26 |
| Main Channel | 11369.81 | 1053.00 | 1347.41 | 1353.94 | | 1354.56 | 0.003157 | 6.33 | 166.47 | 25.50 | 0.44 |
| Main Channel | 11369.81 | 1053.00 | 1347.41 | 1353.94 | | 1354.56 | 0.003157 | 6.33 | 166.47 | 25.50 | 0.44 |
| Main Channel | 11480.7 | Culvert | | | | | | | | | |
| Main Channel | 11483.87 | 1053.00 | 1347.46 | 1354.60 | 1351.20 | 1355.12 | 0.002443 | 5.78 | 182.04 | 25.50 | 0.38 |
| Main Channel | 11483.87 | 1053.00 | 1347.46 | 1354.60 | 1351.20 | 1355.12 | 0.002443 | 5.78 | 182.04 | 25.50 | 0.38 |
| Main Channel | 11490.00 | 1053.00 | 1347.46 | 1355.25 | | 1355.37 | 0.000378 | 2.72 | 386.61 | 52.80 | 0.18 |
| Main Channel | 11490.00 | 1053.00 | 1347.46 | 1355.25 | | 1355.37 | 0.000378 | 2.72 | 386.61 | 52.80 | 0.18 |
| Main Channel | 11496.8 | 1053.00 | 1347.47 | 1355.29 | | 1355.37 | 0.000266 | 2.31 | 455.64 | 65.53 | 0.15 |
| Main Channel | 11496.8 | 1053.00 | 1347.47 | 1355.29 | | 1355.37 | 0.000266 | 2.31 | 455.64 | 65.53 | 0.15 |
| Main Channel | 11510.53 | 1053.00 | 1347.48 | 1355.32 | | 1355.38 | 0.000214 | 1.97 | 535.18 | 90.80 | 0.14 |
| Main Channel | 11510.53 | 1053.00 | 1347.48 | 1355.32 | | 1355.38 | 0.000214 | 1.97 | 535.18 | 90.80 | 0.14 |
| Main Channel | 11536.53 | 813.00 | 1347.49 | 1355.32 | | 1355.38 | 0.000274 | 2.01 | 406.46 | 92.04 | 0.16 |
| Main Channel | 11536.53 | 813.00 | 1347.49 | 1355.32 | | 1355.38 | 0.000277 | 2.01 | 404.23 | 81.70 | 0.16 |
| Main Channel | 11547.53 | 813.00 | 1347.49 | 1355.32 | | 1355.39 | 0.000274 | 2.01 | 406.51 | 91.88 | 0.16 |
| Main Channel | 11547.53 | 813.00 | 1347.49 | 1355.32 | | 1355.39 | 0.000276 | 2.01 | 404.35 | 81.71 | 0.16 |
| Main Channel | 11585.00 | 813.00 | 1348.51 | 1355.32 | | 1355.40 | 0.000219 | 2.22 | 365.72 | 79.35 | 0.18 |
| Main Channel | 11585.00 | 813.00 | 1348.51 | 1355.32 | | 1355.40 | 0.000219 | 2.22 | 365.73 | 79.36 | 0.18 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 11680.94 | 813.00 | 1348.57 | 1355.29 | 1352.30 | 1355.46 | 0.000600 | 3.28 | 248.02 | 63.78 | 0.29 |
| Main Channel | 11680.94 | 813.00 | 1348.57 | 1355.29 | 1352.30 | 1355.46 | 0.000600 | 3.28 | 248.02 | 63.78 | 0.29 |
| Main Channel | 11765.4* | 813.00 | 1348.61 | 1355.34 | 1352.34 | 1355.51 | 0.000596 | 3.27 | 248.73 | 63.87 | 0.29 |
| Main Channel | 11765.4* | 813.00 | 1348.61 | 1355.34 | 1352.34 | 1355.51 | 0.000596 | 3.27 | 248.74 | 63.87 | 0.29 |
| Main Channel | 11850.00 | 813.00 | 1348.65 | 1355.40 | 1352.38 | 1355.56 | 0.000591 | 3.26 | 249.43 | 63.96 | 0.29 |
| Main Channel | 11850.00 | 813.00 | 1348.65 | 1355.40 | 1352.38 | 1355.56 | 0.000591 | 3.26 | 249.44 | 63.96 | 0.29 |
| Main Channel | 11936.5* | 813.00 | 1348.71 | 1355.45 | 1352.44 | 1355.61 | 0.000595 | 3.27 | 248.87 | 63.89 | 0.29 |
| Main Channel | 11936.5* | 813.00 | 1348.71 | 1355.45 | 1352.44 | 1355.61 | 0.000595 | 3.27 | 248.87 | 63.89 | 0.29 |
| Main Channel | 12023.* | 813.00 | 1348.76 | 1355.50 | 1352.49 | 1355.66 | 0.000594 | 3.27 | 248.96 | 63.90 | 0.29 |
| Main Channel | 12023.* | 813.00 | 1348.76 | 1355.50 | 1352.49 | 1355.66 | 0.000594 | 3.27 | 248.97 | 63.90 | 0.29 |
| Main Channel | 12109.5* | 813.00 | 1348.81 | 1355.55 | 1352.55 | 1355.71 | 0.000595 | 3.27 | 248.78 | 63.84 | 0.29 |
| Main Channel | 12109.5* | 813.00 | 1348.81 | 1355.55 | 1352.55 | 1355.71 | 0.000595 | 3.27 | 248.79 | 63.84 | 0.29 |
| Main Channel | 12196.* | 813.00 | 1348.87 | 1355.60 | 1352.60 | 1355.77 | 0.000597 | 3.27 | 248.51 | 63.85 | 0.29 |
| Main Channel | 12196.* | 813.00 | 1348.87 | 1355.60 | 1352.60 | 1355.77 | 0.000597 | 3.27 | 248.52 | 63.85 | 0.29 |
| Main Channel | 12282.5* | 813.00 | 1348.93 | 1355.65 | 1352.66 | 1355.82 | 0.000599 | 3.27 | 248.25 | 63.86 | 0.29 |
| Main Channel | 12282.5* | 813.00 | 1348.93 | 1355.65 | 1352.66 | 1355.82 | 0.000599 | 3.27 | 248.26 | 63.86 | 0.29 |
| Main Channel | 12369.00 | 813.00 | 1348.98 | 1355.70 | 1352.71 | 1355.87 | 0.000600 | 3.28 | 248.10 | 63.79 | 0.29 |
| Main Channel | 12369.00 | 813.00 | 1348.98 | 1355.70 | 1352.71 | 1355.87 | 0.000600 | 3.28 | 248.11 | 63.79 | 0.29 |
| Main Channel | 12370 | 813.00 | 1348.98 | 1355.70 | 1352.71 | 1355.87 | 0.001007 | 3.28 | 248.15 | 63.80 | 0.29 |
| Main Channel | 12370 | 813.00 | 1348.98 | 1355.71 | 1352.71 | 1355.87 | 0.001007 | 3.28 | 248.16 | 63.80 | 0.29 |
| Main Channel | 12420.00 | 813.00 | 1351.94 | 1355.69 | 1355.69 | 1356.86 | 0.013805 | 8.67 | 93.78 | 40.01 | 1.00 |
| Main Channel | 12420.00 | 813.00 | 1351.94 | 1355.69 | 1355.69 | 1356.86 | 0.013805 | 8.67 | 93.78 | 40.01 | 1.00 |
| Main Channel | 12440.00 | 813.00 | 1351.95 | 1356.44 | 1355.68 | 1357.09 | 0.006305 | 6.48 | 125.38 | 45.89 | 0.69 |
| Main Channel | 12440.00 | 813.00 | 1351.95 | 1356.44 | 1355.68 | 1357.09 | 0.006305 | 6.48 | 125.38 | 45.89 | 0.69 |
| Main Channel | 12441.00 | 813.00 | 1351.95 | 1356.44 | 1355.68 | 1357.09 | 0.003735 | 6.47 | 125.60 | 45.93 | 0.69 |
| Main Channel | 12441.00 | 813.00 | 1351.95 | 1356.44 | 1355.68 | 1357.09 | 0.003735 | 6.47 | 125.60 | 45.93 | 0.69 |
| Main Channel | 12527.3* | 813.00 | 1351.99 | 1356.92 | 1355.72 | 1357.40 | 0.003041 | 5.55 | 146.60 | 49.45 | 0.57 |
| Main Channel | 12527.3* | 813.00 | 1351.99 | 1356.92 | 1355.72 | 1357.40 | 0.003041 | 5.55 | 146.60 | 49.45 | 0.57 |
| Main Channel | 12613.6* | 813.00 | 1352.04 | 1357.26 | 1355.77 | 1357.65 | 0.002682 | 5.05 | 161.15 | 51.75 | 0.50 |
| Main Channel | 12613.6* | 813.00 | 1352.04 | 1357.26 | 1355.77 | 1357.65 | 0.002682 | 5.05 | 161.15 | 51.75 | 0.50 |
| Main Channel | 12700. | 813.00 | 1352.08 | 1357.55 | 1355.81 | 1357.89 | 0.002594 | 4.66 | 174.43 | 53.77 | 0.46 |
| Main Channel | 12700. | 813.00 | 1352.08 | 1357.55 | 1355.81 | 1357.89 | 0.002594 | 4.66 | 174.43 | 53.77 | 0.46 |
| Main Channel | 12782.2* | 813.00 | 1352.08 | 1357.78 | 1355.82 | 1358.07 | 0.001916 | 4.35 | 186.82 | 55.54 | 0.42 |
| Main Channel | 12782.2* | 813.00 | 1352.08 | 1357.78 | 1355.82 | 1358.07 | 0.001916 | 4.35 | 186.82 | 55.54 | 0.42 |
| Main Channel | 12864.5* | 813.00 | 1352.09 | 1357.95 | 1355.82 | 1358.22 | 0.001490 | 4.15 | 195.87 | 56.87 | 0.39 |
| Main Channel | 12864.5* | 813.00 | 1352.09 | 1357.95 | 1355.82 | 1358.22 | 0.001490 | 4.15 | 195.87 | 56.87 | 0.39 |
| Main Channel | 12946.7* | 813.00 | 1352.09 | 1358.08 | 1355.83 | 1358.33 | 0.001183 | 4.00 | 203.10 | 57.84 | 0.38 |
| Main Channel | 12946.7* | 813.00 | 1352.09 | 1358.08 | 1355.83 | 1358.33 | 0.001183 | 4.00 | 203.10 | 57.84 | 0.38 |
| Main Channel | 13029.00 | 813.00 | 1352.10 | 1358.18 | 1355.83 | 1358.42 | 0.000955 | 3.90 | 208.63 | 58.63 | 0.36 |
| Main Channel | 13029.00 | 813.00 | 1352.10 | 1358.18 | 1355.83 | 1358.42 | 0.000955 | 3.90 | 208.63 | 58.63 | 0.36 |
| Main Channel | 13030.00 | 813.00 | 1352.10 | 1358.18 | 1355.83 | 1358.42 | 0.001603 | 3.90 | 208.70 | 58.64 | 0.36 |
| Main Channel | 13030.00 | 813.00 | 1352.10 | 1358.18 | 1355.83 | 1358.42 | 0.001603 | 3.90 | 208.70 | 58.64 | 0.36 |
| Main Channel | 13080.00 | 813.00 | 1355.27 | 1359.02 | 1359.02 | 1360.19 | 0.013762 | 8.66 | 93.89 | 40.03 | 1.00 |
| Main Channel | 13080.00 | 813.00 | 1355.27 | 1359.02 | 1359.02 | 1360.19 | 0.013762 | 8.66 | 93.89 | 40.03 | 1.00 |
| Main Channel | 13100.00 | 813.00 | 1355.28 | 1359.77 | 1359.01 | 1360.42 | 0.006310 | 6.49 | 125.34 | 45.89 | 0.69 |
| Main Channel | 13100.00 | 813.00 | 1355.28 | 1359.77 | 1359.01 | 1360.42 | 0.006310 | 6.49 | 125.34 | 45.89 | 0.69 |
| Main Channel | 13101.00 | 813.00 | 1355.28 | 1359.77 | 1359.01 | 1360.42 | 0.003738 | 6.48 | 125.56 | 45.92 | 0.69 |
| Main Channel | 13101.00 | 813.00 | 1355.28 | 1359.77 | 1359.01 | 1360.42 | 0.003738 | 6.48 | 125.56 | 45.92 | 0.69 |
| Main Channel | 13200.8* | 813.00 | 1355.33 | 1360.26 | 1359.06 | 1360.74 | 0.002465 | 5.55 | 146.55 | 49.44 | 0.57 |
| Main Channel | 13200.8* | 813.00 | 1355.33 | 1360.26 | 1359.06 | 1360.74 | 0.002465 | 5.55 | 146.55 | 49.44 | 0.57 |
| Main Channel | 13300.6* | 813.00 | 1355.38 | 1360.56 | 1359.11 | 1360.97 | 0.001974 | 5.11 | 159.16 | 51.45 | 0.51 |
| Main Channel | 13300.6* | 813.00 | 1355.38 | 1360.56 | 1359.11 | 1360.97 | 0.001974 | 5.11 | 159.16 | 51.45 | 0.51 |
| Main Channel | 13400.5* | 813.00 | 1355.43 | 1360.79 | 1359.16 | 1361.15 | 0.001691 | 4.82 | 168.60 | 52.89 | 0.48 |
| Main Channel | 13400.5* | 813.00 | 1355.43 | 1360.79 | 1359.16 | 1361.15 | 0.001691 | 4.82 | 168.60 | 52.89 | 0.48 |
| Main Channel | 13500.3* | 813.00 | 1355.48 | 1360.98 | 1359.21 | 1361.31 | 0.001502 | 4.61 | 176.23 | 54.03 | 0.45 |
| Main Channel | 13500.3* | 813.00 | 1355.48 | 1360.98 | 1359.21 | 1361.31 | 0.001502 | 4.61 | 176.23 | 54.03 | 0.45 |
| Main Channel | 13600.1* | 813.00 | 1355.53 | 1361.15 | 1359.26 | 1361.46 | 0.001364 | 4.45 | 182.66 | 54.98 | 0.43 |
| Main Channel | 13600.1* | 813.00 | 1355.53 | 1361.15 | 1359.26 | 1361.46 | 0.001364 | 4.45 | 182.66 | 54.98 | 0.43 |
| Main Channel | 13700.00 | 813.00 | 1355.58 | 1361.30 | 1359.31 | 1361.59 | 0.001258 | 4.32 | 188.23 | 55.78 | 0.41 |
| Main Channel | 13700.00 | 813.00 | 1355.58 | 1361.30 | 1359.31 | 1361.59 | 0.001258 | 4.32 | 188.23 | 55.78 | 0.41 |
| Main Channel | 13798.1* | 813.00 | 1355.63 | 1361.44 | 1359.36 | 1361.71 | 0.001176 | 4.21 | 193.00 | 56.46 | 0.40 |
| Main Channel | 13798.1* | 813.00 | 1355.63 | 1361.44 | 1359.36 | 1361.71 | 0.001176 | 4.21 | 193.00 | 56.46 | 0.40 |
| Main Channel | 13896.3* | 813.00 | 1355.68 | 1361.56 | 1359.41 | 1361.83 | 0.001110 | 4.12 | 197.25 | 57.06 | 0.39 |
| Main Channel | 13896.3* | 813.00 | 1355.68 | 1361.56 | 1359.41 | 1361.83 | 0.001110 | 4.12 | 197.25 | 57.06 | 0.39 |
| Main Channel | 13994.5* | 813.00 | 1355.72 | 1361.68 | 1359.46 | 1361.93 | 0.001047 | 4.03 | 201.53 | 57.62 | 0.38 |
| Main Channel | 13994.5* | 813.00 | 1355.72 | 1361.68 | 1359.46 | 1361.93 | 0.001047 | 4.03 | 201.53 | 57.62 | 0.38 |
| Main Channel | 14092.6* | 813.00 | 1355.77 | 1361.79 | 1359.50 | 1362.03 | 0.000998 | 3.96 | 205.22 | 58.17 | 0.37 |
| Main Channel | 14092.6* | 813.00 | 1355.77 | 1361.79 | 1359.50 | 1362.03 | 0.000998 | 3.96 | 205.22 | 58.17 | 0.37 |
| Main Channel | 14190.8* | 813.00 | 1355.82 | 1361.90 | 1359.55 | 1362.13 | 0.000958 | 3.90 | 208.38 | 58.60 | 0.36 |
| Main Channel | 14190.8* | 813.00 | 1355.82 | 1361.90 | 1359.55 | 1362.13 | 0.000958 | 3.90 | 208.38 | 58.60 | 0.36 |
| Main Channel | 14289.00 | 813.00 | 1355.87 | 1361.99 | 1359.60 | 1362.22 | 0.000923 | 3.85 | 211.28 | 59.00 | 0.36 |
| Main Channel | 14289.00 | 813.00 | 1355.87 | 1361.99 | 1359.60 | 1362.22 | 0.000923 | 3.85 | 211.28 | 59.00 | 0.36 |
| Main Channel | 14290.00 | 813.00 | 1355.87 | 1362.00 | 1359.60 | 1362.23 | 0.001549 | 3.85 | 211.35 | 59.01 | 0.36 |
| Main Channel | 14290.00 | 813.00 | 1355.87 | 1362.00 | 1359.60 | 1362.23 | 0.001549 | 3.85 | 211.35 | 59.01 | 0.36 |
| Main Channel | 14340.00 | 813.00 | 1358.90 | 1362.65 | 1362.65 | 1363.82 | 0.013764 | 8.66 | 93.88 | 40.03 | 1.00 |
| Main Channel | 14340.00 | 813.00 | 1358.90 | 1362.65 | 1362.65 | 1363.82 | 0.013764 | 8.66 | 93.88 | 40.03 | 1.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 14360.00 | 813.00 | 1358.91 | 1363.40 | 1362.64 | 1364.05 | 0.006310 | 6.49 | 125.34 | 45.89 | 0.69 |
| Main Channel | 14360.00 | 813.00 | 1358.91 | 1363.40 | 1362.64 | 1364.05 | 0.006310 | 6.49 | 125.34 | 45.89 | 0.69 |
| Main Channel | 14361.00 | 813.00 | 1358.91 | 1363.40 | 1362.64 | 1364.05 | 0.003738 | 6.48 | 125.56 | 45.92 | 0.69 |
| Main Channel | 14361.00 | 813.00 | 1358.91 | 1363.40 | 1362.64 | 1364.05 | 0.003738 | 6.48 | 125.56 | 45.92 | 0.69 |
| Main Channel | 14445.7* | 813.00 | 1358.95 | 1363.83 | 1362.68 | 1364.33 | 0.002571 | 5.63 | 144.28 | 49.08 | 0.58 |
| Main Channel | 14445.7* | 813.00 | 1358.95 | 1363.83 | 1362.68 | 1364.33 | 0.002571 | 5.63 | 144.28 | 49.08 | 0.58 |
| Main Channel | 14530.5* | 813.00 | 1358.99 | 1364.11 | 1362.73 | 1364.53 | 0.002088 | 5.22 | 155.83 | 50.89 | 0.53 |
| Main Channel | 14530.5* | 813.00 | 1358.99 | 1364.11 | 1362.73 | 1364.53 | 0.002088 | 5.22 | 155.83 | 50.89 | 0.53 |
| Main Channel | 14615.2* | 813.00 | 1359.04 | 1364.32 | 1362.77 | 1364.70 | 0.001812 | 4.95 | 164.31 | 52.24 | 0.49 |
| Main Channel | 14615.2* | 813.00 | 1359.04 | 1364.32 | 1362.77 | 1364.70 | 0.001812 | 4.95 | 164.31 | 52.24 | 0.49 |
| Main Channel | 14700.00 | 813.00 | 1359.08 | 1364.50 | 1362.81 | 1364.85 | 0.001610 | 4.73 | 171.71 | 53.36 | 0.47 |
| Main Channel | 14700.00 | 813.00 | 1359.08 | 1364.50 | 1362.81 | 1364.85 | 0.001610 | 4.73 | 171.71 | 53.36 | 0.47 |
| Main Channel | 14800.* | 813.00 | 1359.13 | 1364.68 | 1362.86 | 1365.00 | 0.001443 | 4.55 | 178.84 | 54.42 | 0.44 |
| Main Channel | 14800.* | 813.00 | 1359.13 | 1364.68 | 1362.86 | 1365.00 | 0.001443 | 4.55 | 178.84 | 54.42 | 0.44 |
| Main Channel | 14900.* | 813.00 | 1359.18 | 1364.84 | 1362.91 | 1365.14 | 0.001320 | 4.40 | 184.91 | 55.31 | 0.42 |
| Main Channel | 14900.* | 813.00 | 1359.18 | 1364.84 | 1362.91 | 1365.14 | 0.001320 | 4.40 | 184.91 | 55.31 | 0.42 |
| Main Channel | 15000.* | 813.00 | 1359.23 | 1364.99 | 1362.96 | 1365.27 | 0.001223 | 4.27 | 190.22 | 56.07 | 0.41 |
| Main Channel | 15000.* | 813.00 | 1359.23 | 1364.99 | 1362.96 | 1365.27 | 0.001223 | 4.27 | 190.22 | 56.07 | 0.41 |
| Main Channel | 15100.* | 813.00 | 1359.28 | 1365.12 | 1363.01 | 1365.39 | 0.001146 | 4.17 | 194.91 | 56.73 | 0.40 |
| Main Channel | 15100.* | 813.00 | 1359.28 | 1365.12 | 1363.01 | 1365.39 | 0.001146 | 4.17 | 194.91 | 56.73 | 0.40 |
| Main Channel | 15200.* | 813.00 | 1359.33 | 1365.25 | 1363.06 | 1365.50 | 0.001082 | 4.08 | 199.12 | 57.32 | 0.39 |
| Main Channel | 15200.* | 813.00 | 1359.33 | 1365.25 | 1363.06 | 1365.50 | 0.001082 | 4.08 | 199.12 | 57.32 | 0.39 |
| Main Channel | 15300.* | 813.00 | 1359.38 | 1365.36 | 1363.11 | 1365.61 | 0.001028 | 4.01 | 202.93 | 57.85 | 0.38 |
| Main Channel | 15300.* | 813.00 | 1359.38 | 1365.36 | 1363.11 | 1365.61 | 0.001028 | 4.01 | 202.93 | 57.85 | 0.38 |
| Main Channel | 15400.* | 813.00 | 1359.43 | 1365.47 | 1363.16 | 1365.71 | 0.000983 | 3.94 | 206.39 | 58.33 | 0.37 |
| Main Channel | 15400.* | 813.00 | 1359.43 | 1365.47 | 1363.16 | 1365.71 | 0.000983 | 3.94 | 206.39 | 58.33 | 0.37 |
| Main Channel | 15500.* | 813.00 | 1359.48 | 1365.58 | 1363.21 | 1365.81 | 0.000943 | 3.88 | 209.56 | 58.76 | 0.36 |
| Main Channel | 15500.* | 813.00 | 1359.48 | 1365.58 | 1363.21 | 1365.81 | 0.000943 | 3.88 | 209.56 | 58.76 | 0.36 |
| Main Channel | 15600.* | 813.00 | 1359.53 | 1365.67 | 1363.26 | 1365.90 | 0.000909 | 3.83 | 212.49 | 59.16 | 0.36 |
| Main Channel | 15600.* | 813.00 | 1359.53 | 1365.67 | 1363.26 | 1365.90 | 0.000909 | 3.83 | 212.49 | 59.16 | 0.36 |
| Main Channel | 15700.00 | 813.00 | 1359.58 | 1365.77 | 1363.31 | 1365.99 | 0.000878 | 3.78 | 215.20 | 59.52 | 0.35 |
| Main Channel | 15700.00 | 813.00 | 1359.58 | 1365.77 | 1363.31 | 1365.99 | 0.000878 | 3.78 | 215.20 | 59.52 | 0.35 |
| Main Channel | 15797.4* | 813.00 | 1359.63 | 1365.86 | 1363.36 | 1366.08 | 0.000853 | 3.74 | 217.56 | 59.84 | 0.35 |
| Main Channel | 15797.4* | 813.00 | 1359.63 | 1365.86 | 1363.36 | 1366.08 | 0.000853 | 3.74 | 217.56 | 59.84 | 0.35 |
| Main Channel | 15894.8* | 813.00 | 1359.68 | 1365.95 | 1363.41 | 1366.16 | 0.000830 | 3.70 | 219.76 | 60.13 | 0.34 |
| Main Channel | 15894.8* | 813.00 | 1359.68 | 1365.95 | 1363.41 | 1366.16 | 0.000830 | 3.70 | 219.76 | 60.13 | 0.34 |
| Main Channel | 15992.2* | 813.00 | 1359.73 | 1366.03 | 1363.46 | 1366.24 | 0.000810 | 3.67 | 221.82 | 60.41 | 0.34 |
| Main Channel | 15992.2* | 813.00 | 1359.73 | 1366.03 | 1363.46 | 1366.24 | 0.000810 | 3.67 | 221.82 | 60.41 | 0.34 |
| Main Channel | 16089.6* | 813.00 | 1359.78 | 1366.11 | 1363.51 | 1366.32 | 0.000791 | 3.63 | 223.75 | 60.66 | 0.33 |
| Main Channel | 16089.6* | 813.00 | 1359.78 | 1366.11 | 1363.51 | 1366.32 | 0.000791 | 3.63 | 223.75 | 60.66 | 0.33 |
| Main Channel | 16187.* | 813.00 | 1359.82 | 1366.19 | 1363.56 | 1366.39 | 0.000770 | 3.60 | 225.99 | 60.92 | 0.33 |
| Main Channel | 16187.* | 813.00 | 1359.82 | 1366.19 | 1363.56 | 1366.39 | 0.000770 | 3.60 | 225.99 | 60.92 | 0.33 |
| Main Channel | 16284.4* | 813.00 | 1359.87 | 1366.27 | 1363.60 | 1366.47 | 0.000753 | 3.57 | 227.87 | 61.20 | 0.33 |
| Main Channel | 16284.4* | 813.00 | 1359.87 | 1366.27 | 1363.60 | 1366.47 | 0.000753 | 3.57 | 227.87 | 61.20 | 0.33 |
| Main Channel | 16381.8* | 813.00 | 1359.92 | 1366.35 | 1363.65 | 1366.54 | 0.000740 | 3.54 | 229.38 | 61.40 | 0.32 |
| Main Channel | 16381.8* | 813.00 | 1359.92 | 1366.35 | 1363.65 | 1366.54 | 0.000740 | 3.54 | 229.38 | 61.40 | 0.32 |
| Main Channel | 16479.2* | 813.00 | 1359.97 | 1366.42 | 1363.70 | 1366.61 | 0.000728 | 3.52 | 230.83 | 61.59 | 0.32 |
| Main Channel | 16479.2* | 813.00 | 1359.97 | 1366.42 | 1363.70 | 1366.61 | 0.000728 | 3.52 | 230.83 | 61.59 | 0.32 |
| Main Channel | 16576.6* | 813.00 | 1360.02 | 1366.49 | 1363.75 | 1366.68 | 0.000716 | 3.50 | 232.20 | 61.77 | 0.32 |
| Main Channel | 16576.6* | 813.00 | 1360.02 | 1366.49 | 1363.75 | 1366.68 | 0.000716 | 3.50 | 232.20 | 61.77 | 0.32 |
| Main Channel | 16674.00 | 813.00 | 1360.07 | 1366.56 | 1363.80 | 1366.75 | 0.000706 | 3.48 | 233.49 | 61.93 | 0.32 |
| Main Channel | 16674.00 | 813.00 | 1360.07 | 1366.56 | 1363.80 | 1366.75 | 0.000706 | 3.48 | 233.49 | 61.93 | 0.32 |
| Main Channel | 16675.00 | 813.00 | 1360.07 | 1366.56 | 1363.80 | 1366.75 | 0.001185 | 3.48 | 233.54 | 61.94 | 0.32 |
| Main Channel | 16675.00 | 813.00 | 1360.07 | 1366.56 | 1363.80 | 1366.75 | 0.001185 | 3.48 | 233.54 | 61.94 | 0.32 |
| Main Channel | 16720.00 | 813.00 | 1363.09 | 1366.84 | 1366.84 | 1368.01 | 0.013805 | 8.67 | 93.78 | 40.01 | 1.00 |
| Main Channel | 16720.00 | 813.00 | 1363.09 | 1366.84 | 1366.84 | 1368.01 | 0.013805 | 8.67 | 93.78 | 40.01 | 1.00 |
| Main Channel | 16740.00 | 813.00 | 1363.10 | 1367.59 | 1366.83 | 1368.24 | 0.006305 | 6.48 | 125.38 | 45.89 | 0.69 |
| Main Channel | 16740.00 | 813.00 | 1363.10 | 1367.59 | 1366.83 | 1368.24 | 0.006305 | 6.48 | 125.38 | 45.89 | 0.69 |
| Main Channel | 16741.00 | 813.00 | 1363.10 | 1367.59 | 1366.83 | 1368.24 | 0.003735 | 6.47 | 125.60 | 45.93 | 0.69 |
| Main Channel | 16741.00 | 813.00 | 1363.10 | 1367.59 | 1366.83 | 1368.24 | 0.003735 | 6.47 | 125.60 | 45.93 | 0.69 |
| Main Channel | 16833.5* | 505.00 | 1363.15 | 1368.30 | 1366.09 | 1368.45 | 0.000786 | 3.21 | 157.34 | 51.16 | 0.32 |
| Main Channel | 16833.5* | 505.00 | 1363.15 | 1368.30 | 1366.09 | 1368.45 | 0.000786 | 3.21 | 157.34 | 51.16 | 0.32 |
| Main Channel | 16926.1* | 505.00 | 1363.19 | 1368.37 | 1366.13 | 1368.53 | 0.000762 | 3.17 | 159.17 | 51.45 | 0.32 |
| Main Channel | 16926.1* | 505.00 | 1363.19 | 1368.37 | 1366.13 | 1368.53 | 0.000762 | 3.17 | 159.17 | 51.45 | 0.32 |
| Main Channel | 17018.7* | 505.00 | 1363.24 | 1368.44 | 1366.18 | 1368.60 | 0.000748 | 3.15 | 160.28 | 51.62 | 0.32 |
| Main Channel | 17018.7* | 505.00 | 1363.24 | 1368.44 | 1366.18 | 1368.60 | 0.000748 | 3.15 | 160.28 | 51.62 | 0.32 |
| Main Channel | 17111.2* | 505.00 | 1363.28 | 1368.51 | 1366.22 | 1368.67 | 0.000727 | 3.12 | 161.92 | 51.87 | 0.31 |
| Main Channel | 17111.2* | 505.00 | 1363.28 | 1368.51 | 1366.22 | 1368.67 | 0.000727 | 3.12 | 161.92 | 51.87 | 0.31 |
| Main Channel | 17203.8* | 505.00 | 1363.33 | 1368.58 | 1366.27 | 1368.73 | 0.000716 | 3.10 | 162.88 | 52.02 | 0.31 |
| Main Channel | 17203.8* | 505.00 | 1363.33 | 1368.58 | 1366.27 | 1368.73 | 0.000716 | 3.10 | 162.88 | 52.02 | 0.31 |
| Main Channel | 17296.4* | 505.00 | 1363.37 | 1368.65 | 1366.31 | 1368.80 | 0.000699 | 3.07 | 164.32 | 52.24 | 0.31 |
| Main Channel | 17296.4* | 505.00 | 1363.37 | 1368.65 | 1366.31 | 1368.80 | 0.000699 | 3.07 | 164.32 | 52.24 | 0.31 |
| Main Channel | 17389.00 | 505.00 | 1363.42 | 1368.72 | 1366.36 | 1368.86 | 0.000690 | 3.06 | 165.13 | 52.36 | 0.30 |
| Main Channel | 17389.00 | 505.00 | 1363.42 | 1368.72 | 1366.36 | 1368.86 | 0.000690 | 3.06 | 165.13 | 52.36 | 0.30 |
| Main Channel | 17390.00 | 505.00 | 1363.42 | 1368.72 | 1366.36 | 1368.86 | 0.001159 | 3.06 | 165.17 | 52.37 | 0.30 |
| Main Channel | 17390.00 | 505.00 | 1363.42 | 1368.72 | 1366.36 | 1368.86 | 0.001159 | 3.06 | 165.17 | 52.37 | 0.30 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 17440.00 | 505.00 | 1366.45 | 1369.40 | 1369.40 | 1370.36 | 0.014845 | 7.86 | 64.26 | 33.59 | 1.00 |
| Main Channel | 17440.00 | 505.00 | 1366.45 | 1369.40 | 1369.40 | 1370.36 | 0.014845 | 7.86 | 64.26 | 33.59 | 1.00 |
| Main Channel | 17460.00 | 505.00 | 1366.46 | 1370.08 | 1369.40 | 1370.58 | 0.006223 | 5.70 | 88.54 | 38.94 | 0.67 |
| Main Channel | 17460.00 | 505.00 | 1366.46 | 1370.08 | 1369.40 | 1370.58 | 0.006223 | 5.70 | 88.54 | 38.94 | 0.67 |
| Main Channel | 17461.00 | 505.00 | 1366.46 | 1370.08 | 1369.40 | 1370.59 | 0.003682 | 5.69 | 88.72 | 38.98 | 0.66 |
| Main Channel | 17461.00 | 505.00 | 1366.46 | 1370.08 | 1369.40 | 1370.59 | 0.003682 | 5.69 | 88.72 | 38.98 | 0.66 |
| Main Channel | 17540.6* | 505.00 | 1366.50 | 1370.46 | 1369.44 | 1370.84 | 0.002505 | 4.94 | 102.31 | 41.68 | 0.56 |
| Main Channel | 17540.6* | 505.00 | 1366.50 | 1370.46 | 1369.44 | 1370.84 | 0.002505 | 4.94 | 102.31 | 41.68 | 0.56 |
| Main Channel | 17620.3* | 505.00 | 1366.54 | 1370.70 | 1369.48 | 1371.02 | 0.002019 | 4.56 | 110.83 | 43.28 | 0.50 |
| Main Channel | 17620.3* | 505.00 | 1366.54 | 1370.70 | 1369.48 | 1371.02 | 0.002019 | 4.56 | 110.83 | 43.28 | 0.50 |
| Main Channel | 17700.00 | 505.00 | 1366.58 | 1370.89 | 1369.52 | 1371.18 | 0.001733 | 4.31 | 117.28 | 44.46 | 0.47 |
| Main Channel | 17700.00 | 505.00 | 1366.58 | 1370.89 | 1369.52 | 1371.18 | 0.001733 | 4.31 | 117.28 | 44.46 | 0.47 |
| Main Channel | 17798.7* | 505.00 | 1366.63 | 1371.08 | 1369.57 | 1371.34 | 0.001504 | 4.08 | 123.62 | 45.59 | 0.44 |
| Main Channel | 17798.7* | 505.00 | 1366.63 | 1371.08 | 1369.57 | 1371.34 | 0.001504 | 4.08 | 123.62 | 45.59 | 0.44 |
| Main Channel | 17897.5* | 505.00 | 1366.68 | 1371.24 | 1369.62 | 1371.48 | 0.001346 | 3.92 | 128.83 | 46.49 | 0.41 |
| Main Channel | 17897.5* | 505.00 | 1366.68 | 1371.24 | 1369.62 | 1371.48 | 0.001346 | 3.92 | 128.83 | 46.49 | 0.41 |
| Main Channel | 17996.3* | 505.00 | 1366.73 | 1371.39 | 1369.67 | 1371.61 | 0.001229 | 3.79 | 133.24 | 47.24 | 0.40 |
| Main Channel | 17996.3* | 505.00 | 1366.73 | 1371.39 | 1369.67 | 1371.61 | 0.001229 | 3.79 | 133.24 | 47.24 | 0.40 |
| Main Channel | 18095.1* | 505.00 | 1366.78 | 1371.52 | 1369.72 | 1371.73 | 0.001139 | 3.68 | 137.06 | 47.89 | 0.38 |
| Main Channel | 18095.1* | 505.00 | 1366.78 | 1371.52 | 1369.72 | 1371.73 | 0.001139 | 3.68 | 137.06 | 47.89 | 0.38 |
| Main Channel | 18193.8* | 505.00 | 1366.83 | 1371.64 | 1369.77 | 1371.84 | 0.001067 | 3.60 | 140.43 | 48.44 | 0.37 |
| Main Channel | 18193.8* | 505.00 | 1366.83 | 1371.64 | 1369.77 | 1371.84 | 0.001067 | 3.60 | 140.43 | 48.44 | 0.37 |
| Main Channel | 18292.6* | 505.00 | 1366.88 | 1371.75 | 1369.82 | 1371.94 | 0.001008 | 3.52 | 143.42 | 48.94 | 0.36 |
| Main Channel | 18292.6* | 505.00 | 1366.88 | 1371.75 | 1369.82 | 1371.94 | 0.001008 | 3.52 | 143.42 | 48.94 | 0.36 |
| Main Channel | 18391.4* | 505.00 | 1366.93 | 1371.85 | 1369.87 | 1372.04 | 0.000959 | 3.46 | 146.12 | 49.38 | 0.35 |
| Main Channel | 18391.4* | 505.00 | 1366.93 | 1371.85 | 1369.87 | 1372.04 | 0.000959 | 3.46 | 146.12 | 49.38 | 0.35 |
| Main Channel | 18490.2* | 505.00 | 1366.98 | 1371.95 | 1369.92 | 1372.13 | 0.000917 | 3.40 | 148.57 | 49.77 | 0.35 |
| Main Channel | 18490.2* | 505.00 | 1366.98 | 1371.95 | 1369.92 | 1372.13 | 0.000917 | 3.40 | 148.57 | 49.77 | 0.35 |
| Main Channel | 18589.00 | 505.00 | 1367.03 | 1372.05 | 1369.97 | 1372.22 | 0.000881 | 3.35 | 150.79 | 50.13 | 0.34 |
| Main Channel | 18589.00 | 505.00 | 1367.03 | 1372.05 | 1369.97 | 1372.22 | 0.000881 | 3.35 | 150.79 | 50.13 | 0.34 |
| Main Channel | 18590.00 | 505.00 | 1367.03 | 1372.05 | 1369.97 | 1372.22 | 0.001479 | 3.35 | 150.84 | 50.14 | 0.34 |
| Main Channel | 18590.00 | 505.00 | 1367.03 | 1372.05 | 1369.97 | 1372.22 | 0.001479 | 3.35 | 150.84 | 50.14 | 0.34 |
| Main Channel | 18640.00 | 505.00 | 1370.05 | 1373.00 | 1373.00 | 1373.96 | 0.014845 | 7.86 | 64.26 | 33.59 | 1.00 |
| Main Channel | 18640.00 | 505.00 | 1370.05 | 1373.00 | 1373.00 | 1373.96 | 0.014845 | 7.86 | 64.26 | 33.59 | 1.00 |
| Main Channel | 18660.00 | 505.00 | 1370.06 | 1373.68 | 1373.00 | 1374.18 | 0.006223 | 5.70 | 88.54 | 38.94 | 0.67 |
| Main Channel | 18660.00 | 505.00 | 1370.06 | 1373.68 | 1373.00 | 1374.18 | 0.006223 | 5.70 | 88.54 | 38.94 | 0.67 |
| Main Channel | 18661.00 | 505.00 | 1370.06 | 1373.68 | 1373.00 | 1374.19 | 0.003682 | 5.69 | 88.72 | 38.98 | 0.66 |
| Main Channel | 18661.00 | 505.00 | 1370.06 | 1373.68 | 1373.00 | 1374.19 | 0.003682 | 5.69 | 88.72 | 38.98 | 0.66 |
| Main Channel | 18700.00 | 505.00 | 1370.08 | 1373.90 | 1373.02 | 1374.32 | 0.002937 | 5.24 | 96.46 | 40.54 | 0.60 |
| Main Channel | 18700.00 | 505.00 | 1370.08 | 1373.90 | 1373.02 | 1374.32 | 0.002937 | 5.24 | 96.46 | 40.54 | 0.60 |
| Main Channel | 18792.9* | 505.00 | 1370.13 | 1374.23 | 1373.07 | 1374.57 | 0.002161 | 4.67 | 108.07 | 42.77 | 0.52 |
| Main Channel | 18792.9* | 505.00 | 1370.13 | 1374.23 | 1373.07 | 1374.57 | 0.002161 | 4.67 | 108.07 | 42.77 | 0.52 |
| Main Channel | 18885.8* | 505.00 | 1370.17 | 1374.46 | 1373.11 | 1374.75 | 0.001766 | 4.34 | 116.48 | 44.31 | 0.47 |
| Main Channel | 18885.8* | 505.00 | 1370.17 | 1374.46 | 1373.11 | 1374.75 | 0.001766 | 4.34 | 116.48 | 44.31 | 0.47 |
| Main Channel | 18978.7* | 505.00 | 1370.22 | 1374.64 | 1373.16 | 1374.91 | 0.001542 | 4.12 | 122.49 | 45.38 | 0.44 |
| Main Channel | 18978.7* | 505.00 | 1370.22 | 1374.64 | 1373.16 | 1374.91 | 0.001542 | 4.12 | 122.49 | 45.38 | 0.44 |
| Main Channel | 19071.6* | 505.00 | 1370.27 | 1374.80 | 1373.21 | 1375.04 | 0.001386 | 3.96 | 127.43 | 46.25 | 0.42 |
| Main Channel | 19071.6* | 505.00 | 1370.27 | 1374.80 | 1373.21 | 1375.04 | 0.001386 | 3.96 | 127.43 | 46.25 | 0.42 |
| Main Channel | 19164.5* | 505.00 | 1370.31 | 1374.94 | 1373.25 | 1375.17 | 0.001259 | 3.83 | 132.02 | 47.00 | 0.40 |
| Main Channel | 19164.5* | 505.00 | 1370.31 | 1374.94 | 1373.25 | 1375.17 | 0.001259 | 3.83 | 132.02 | 47.00 | 0.40 |
| Main Channel | 19257.4* | 505.00 | 1370.36 | 1375.07 | 1373.30 | 1375.28 | 0.001169 | 3.72 | 135.75 | 47.66 | 0.39 |
| Main Channel | 19257.4* | 505.00 | 1370.36 | 1375.07 | 1373.30 | 1375.28 | 0.001169 | 3.72 | 135.75 | 47.66 | 0.39 |
| Main Channel | 19350.3* | 505.00 | 1370.41 | 1375.18 | 1373.35 | 1375.39 | 0.001099 | 3.64 | 138.90 | 48.19 | 0.38 |
| Main Channel | 19350.3* | 505.00 | 1370.41 | 1375.18 | 1373.35 | 1375.39 | 0.001099 | 3.64 | 138.90 | 48.19 | 0.38 |
| Main Channel | 19443.2* | 505.00 | 1370.46 | 1375.29 | 1373.40 | 1375.49 | 0.001041 | 3.56 | 141.72 | 48.66 | 0.37 |
| Main Channel | 19443.2* | 505.00 | 1370.46 | 1375.29 | 1373.40 | 1375.49 | 0.001041 | 3.56 | 141.72 | 48.66 | 0.37 |
| Main Channel | 19536.1* | 505.00 | 1370.50 | 1375.40 | 1373.44 | 1375.58 | 0.000982 | 3.49 | 144.80 | 49.16 | 0.36 |
| Main Channel | 19536.1* | 505.00 | 1370.50 | 1375.40 | 1373.44 | 1375.58 | 0.000982 | 3.49 | 144.80 | 49.16 | 0.36 |
| Main Channel | 19629.00 | 505.00 | 1370.55 | 1375.49 | 1373.49 | 1375.67 | 0.000942 | 3.43 | 147.05 | 49.53 | 0.35 |
| Main Channel | 19629.00 | 505.00 | 1370.55 | 1375.49 | 1373.49 | 1375.67 | 0.000942 | 3.43 | 147.05 | 49.53 | 0.35 |
| Main Channel | 19630.00 | 505.00 | 1370.55 | 1375.49 | 1373.49 | 1375.68 | 0.001582 | 3.43 | 147.11 | 49.54 | 0.35 |
| Main Channel | 19630.00 | 505.00 | 1370.55 | 1375.49 | 1373.49 | 1375.68 | 0.001582 | 3.43 | 147.11 | 49.54 | 0.35 |
| Main Channel | 19680.00 | 505.00 | 1373.57 | 1376.52 | 1376.52 | 1377.48 | 0.014842 | 7.86 | 64.26 | 33.59 | 1.00 |
| Main Channel | 19680.00 | 505.00 | 1373.57 | 1376.52 | 1376.52 | 1377.48 | 0.014842 | 7.86 | 64.26 | 33.59 | 1.00 |
| Main Channel | 19700.00 | 505.00 | 1373.58 | 1377.20 | 1376.52 | 1377.70 | 0.006224 | 5.70 | 88.53 | 38.94 | 0.67 |
| Main Channel | 19700.00 | 505.00 | 1373.58 | 1377.20 | 1376.52 | 1377.70 | 0.006224 | 5.70 | 88.53 | 38.94 | 0.67 |
| Main Channel | 19701.00 | 505.00 | 1373.58 | 1377.20 | 1376.52 | 1377.71 | 0.003683 | 5.69 | 88.72 | 38.98 | 0.66 |
| Main Channel | 19701.00 | 505.00 | 1373.58 | 1377.20 | 1376.52 | 1377.71 | 0.003683 | 5.69 | 88.72 | 38.98 | 0.66 |
| Main Channel | 19800.6* | 505.00 | 1373.63 | 1377.65 | 1376.57 | 1378.01 | 0.002349 | 4.82 | 104.79 | 42.15 | 0.54 |
| Main Channel | 19800.6* | 505.00 | 1373.63 | 1377.65 | 1376.57 | 1378.01 | 0.002349 | 4.82 | 104.79 | 42.15 | 0.54 |
| Main Channel | 19900.3* | 505.00 | 1373.68 | 1377.92 | 1376.62 | 1378.22 | 0.001858 | 4.42 | 114.29 | 43.92 | 0.48 |
| Main Channel | 19900.3* | 505.00 | 1373.68 | 1377.92 | 1376.62 | 1378.22 | 0.001858 | 4.42 | 114.29 | 43.92 | 0.48 |
| Main Channel | 20000.00 | 505.00 | 1373.73 | 1378.13 | 1376.67 | 1378.40 | 0.001581 | 4.16 | 121.35 | 45.18 | 0.45 |
| Main Channel | 20000.00 | 505.00 | 1373.73 | 1378.13 | 1376.67 | 1378.40 | 0.001581 | 4.16 | 121.35 | 45.18 | 0.45 |
| Main Channel | 20090.2* | 505.00 | 1373.73 | 1378.29 | 1376.67 | 1378.53 | 0.001343 | 3.92 | 128.92 | 46.50 | 0.41 |
| Main Channel | 20090.2* | 505.00 | 1373.73 | 1378.29 | 1376.67 | 1378.53 | 0.001343 | 3.92 | 128.92 | 46.50 | 0.41 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 20180.4* | 505.00 | 1373.73 | 1378.43 | 1376.67 | 1378.65 | 0.001177 | 3.73 | 135.40 | 47.61 | 0.39 |
| Main Channel | 20180.4* | 505.00 | 1373.73 | 1378.43 | 1376.67 | 1378.65 | 0.001177 | 3.73 | 135.40 | 47.61 | 0.39 |
| Main Channel | 20270.61 | 505.00 | 1373.73 | 1378.55 | 1376.67 | 1378.75 | 0.001052 | 3.58 | 141.14 | 48.56 | 0.37 |
| Main Channel | 20270.61 | 505.00 | 1373.73 | 1378.55 | 1376.67 | 1378.75 | 0.001052 | 3.58 | 141.14 | 48.56 | 0.37 |
| Main Channel | 20300.00 | 505.00 | 1373.74 | 1378.59 | 1376.68 | 1378.79 | 0.001430 | 3.54 | 142.62 | 48.80 | 0.37 |
| Main Channel | 20300.00 | 505.00 | 1373.74 | 1378.59 | 1376.68 | 1378.79 | 0.001430 | 3.54 | 142.62 | 48.80 | 0.37 |
| Main Channel | 20379.70 | 505.00 | 1373.78 | 1378.71 | 1376.72 | 1378.90 | 0.001327 | 3.44 | 146.61 | 49.46 | 0.35 |
| Main Channel | 20379.70 | 505.00 | 1373.78 | 1378.71 | 1376.72 | 1378.90 | 0.001327 | 3.44 | 146.61 | 49.46 | 0.35 |
| Main Channel | 20431.69 | 516.00 | 1373.95 | 1378.76 | 1376.92 | 1378.97 | 0.001112 | 3.67 | 140.52 | 48.46 | 0.38 |
| Main Channel | 20431.69 | 516.00 | 1373.95 | 1378.76 | 1376.92 | 1378.97 | 0.001112 | 3.67 | 140.52 | 48.46 | 0.38 |
| Main Channel | 20521.1* | 516.00 | 1373.99 | 1378.86 | 1376.96 | 1379.06 | 0.001046 | 3.59 | 143.77 | 48.99 | 0.37 |
| Main Channel | 20521.1* | 516.00 | 1373.99 | 1378.86 | 1376.96 | 1379.06 | 0.001046 | 3.59 | 143.77 | 48.99 | 0.37 |
| Main Channel | 20610.5* | 516.00 | 1374.04 | 1378.96 | 1377.01 | 1379.16 | 0.001000 | 3.53 | 146.15 | 49.38 | 0.36 |
| Main Channel | 20610.5* | 516.00 | 1374.04 | 1378.96 | 1377.01 | 1379.16 | 0.001000 | 3.53 | 146.15 | 49.38 | 0.36 |
| Main Channel | 20700.00 | 516.00 | 1374.08 | 1379.06 | 1377.05 | 1379.24 | 0.000952 | 3.47 | 148.88 | 49.82 | 0.35 |
| Main Channel | 20700.00 | 516.00 | 1374.08 | 1379.06 | 1377.05 | 1379.24 | 0.000952 | 3.47 | 148.88 | 49.82 | 0.35 |
| Main Channel | 20789.8* | 516.00 | 1374.12 | 1379.15 | 1377.09 | 1379.33 | 0.000910 | 3.41 | 151.40 | 50.22 | 0.35 |
| Main Channel | 20789.8* | 516.00 | 1374.12 | 1379.15 | 1377.09 | 1379.33 | 0.000910 | 3.41 | 151.40 | 50.22 | 0.35 |
| Main Channel | 20879.6* | 516.00 | 1374.17 | 1379.23 | 1377.14 | 1379.41 | 0.000882 | 3.37 | 153.15 | 50.50 | 0.34 |
| Main Channel | 20879.6* | 516.00 | 1374.17 | 1379.23 | 1377.14 | 1379.41 | 0.000882 | 3.37 | 153.15 | 50.50 | 0.34 |
| Main Channel | 20969.4* | 516.00 | 1374.21 | 1379.32 | 1377.18 | 1379.49 | 0.000849 | 3.32 | 155.35 | 50.85 | 0.33 |
| Main Channel | 20969.4* | 516.00 | 1374.21 | 1379.32 | 1377.18 | 1379.49 | 0.000849 | 3.32 | 155.35 | 50.85 | 0.33 |
| Main Channel | 21059.2* | 516.00 | 1374.26 | 1379.39 | 1377.23 | 1379.56 | 0.000828 | 3.29 | 156.77 | 51.07 | 0.33 |
| Main Channel | 21059.2* | 516.00 | 1374.26 | 1379.39 | 1377.23 | 1379.56 | 0.000828 | 3.29 | 156.77 | 51.07 | 0.33 |
| Main Channel | 21149.00 | 516.00 | 1374.30 | 1379.47 | 1377.27 | 1379.64 | 0.000802 | 3.25 | 158.69 | 51.37 | 0.33 |
| Main Channel | 21149.00 | 516.00 | 1374.30 | 1379.47 | 1377.27 | 1379.64 | 0.000802 | 3.25 | 158.69 | 51.37 | 0.33 |
| Main Channel | 21150.00 | 516.00 | 1374.30 | 1379.47 | 1377.27 | 1379.64 | 0.001346 | 3.25 | 158.74 | 51.38 | 0.33 |
| Main Channel | 21150.00 | 516.00 | 1374.30 | 1379.47 | 1377.27 | 1379.64 | 0.001346 | 3.25 | 158.74 | 51.38 | 0.33 |
| Main Channel | 21200.00 | 516.00 | 1377.33 | 1380.32 | 1380.32 | 1381.28 | 0.014658 | 7.87 | 65.59 | 33.90 | 1.00 |
| Main Channel | 21200.00 | 516.00 | 1377.33 | 1380.32 | 1380.32 | 1381.28 | 0.014658 | 7.87 | 65.59 | 33.90 | 1.00 |
| Main Channel | 21220.00 | 516.00 | 1377.34 | 1380.99 | 1380.31 | 1381.50 | 0.006244 | 5.74 | 89.85 | 39.21 | 0.67 |
| Main Channel | 21220.00 | 516.00 | 1377.34 | 1380.99 | 1380.31 | 1381.50 | 0.006244 | 5.74 | 89.85 | 39.21 | 0.67 |
| Main Channel | 21221.00 | 516.00 | 1377.34 | 1381.00 | 1380.31 | 1381.51 | 0.003695 | 5.73 | 90.03 | 39.25 | 0.67 |
| Main Channel | 21221.00 | 516.00 | 1377.34 | 1381.00 | 1380.31 | 1381.51 | 0.003695 | 5.73 | 90.03 | 39.25 | 0.67 |
| Main Channel | 21316.8* | 516.00 | 1377.39 | 1381.43 | 1380.36 | 1381.80 | 0.002391 | 4.88 | 105.77 | 42.34 | 0.54 |
| Main Channel | 21316.8* | 516.00 | 1377.39 | 1381.43 | 1380.36 | 1381.80 | 0.002391 | 4.88 | 105.77 | 42.34 | 0.54 |
| Main Channel | 21412.6* | 516.00 | 1377.44 | 1381.70 | 1380.41 | 1382.01 | 0.001900 | 4.48 | 115.17 | 44.08 | 0.49 |
| Main Channel | 21412.6* | 516.00 | 1377.44 | 1381.70 | 1380.41 | 1382.01 | 0.001900 | 4.48 | 115.17 | 44.08 | 0.49 |
| Main Channel | 21508.4* | 516.00 | 1377.48 | 1381.91 | 1380.45 | 1382.18 | 0.001603 | 4.21 | 122.67 | 45.42 | 0.45 |
| Main Channel | 21508.4* | 516.00 | 1377.48 | 1381.91 | 1380.45 | 1382.18 | 0.001603 | 4.21 | 122.67 | 45.42 | 0.45 |
| Main Channel | 21604.2* | 516.00 | 1377.53 | 1382.08 | 1380.50 | 1382.33 | 0.001424 | 4.03 | 128.18 | 46.38 | 0.43 |
| Main Channel | 21604.2* | 516.00 | 1377.53 | 1382.08 | 1380.50 | 1382.33 | 0.001424 | 4.03 | 128.18 | 46.38 | 0.43 |
| Main Channel | 21700.00 | 516.00 | 1377.58 | 1382.23 | 1380.55 | 1382.46 | 0.001294 | 3.89 | 132.82 | 47.17 | 0.41 |
| Main Channel | 21700.00 | 516.00 | 1377.58 | 1382.23 | 1380.55 | 1382.46 | 0.001294 | 3.89 | 132.82 | 47.17 | 0.41 |
| Main Channel | 21791.5* | 516.00 | 1377.62 | 1382.36 | 1380.59 | 1382.58 | 0.001192 | 3.77 | 136.91 | 47.83 | 0.39 |
| Main Channel | 21791.5* | 516.00 | 1377.62 | 1382.36 | 1380.59 | 1382.58 | 0.001192 | 3.77 | 136.91 | 47.83 | 0.39 |
| Main Channel | 21883.* | 516.00 | 1377.67 | 1382.47 | 1380.64 | 1382.68 | 0.001117 | 3.68 | 140.26 | 48.42 | 0.38 |
| Main Channel | 21883.* | 516.00 | 1377.67 | 1382.47 | 1380.64 | 1382.68 | 0.001117 | 3.68 | 140.26 | 48.42 | 0.38 |
| Main Channel | 21974.5* | 516.00 | 1377.71 | 1382.58 | 1380.68 | 1382.78 | 0.001050 | 3.60 | 143.51 | 48.92 | 0.37 |
| Main Channel | 21974.5* | 516.00 | 1377.71 | 1382.58 | 1380.68 | 1382.78 | 0.001050 | 3.60 | 143.51 | 48.92 | 0.37 |
| Main Channel | 22066.* | 516.00 | 1377.76 | 1382.68 | 1380.73 | 1382.88 | 0.001000 | 3.53 | 146.19 | 49.39 | 0.36 |
| Main Channel | 22066.* | 516.00 | 1377.76 | 1382.68 | 1380.73 | 1382.88 | 0.001000 | 3.53 | 146.19 | 49.39 | 0.36 |
| Main Channel | 22157.5* | 516.00 | 1377.80 | 1382.78 | 1380.77 | 1382.97 | 0.000951 | 3.47 | 148.86 | 49.78 | 0.35 |
| Main Channel | 22157.5* | 516.00 | 1377.80 | 1382.78 | 1380.77 | 1382.97 | 0.000951 | 3.47 | 148.86 | 49.78 | 0.35 |
| Main Channel | 22249.00 | 516.00 | 1377.85 | 1382.87 | 1380.82 | 1383.05 | 0.000915 | 3.42 | 151.07 | 50.17 | 0.35 |
| Main Channel | 22249.00 | 516.00 | 1377.85 | 1382.87 | 1380.82 | 1383.05 | 0.000915 | 3.42 | 151.07 | 50.17 | 0.35 |
| Main Channel | 22250.00 | 516.00 | 1377.85 | 1382.87 | 1380.82 | 1383.05 | 0.001536 | 3.41 | 151.13 | 50.18 | 0.35 |
| Main Channel | 22250.00 | 516.00 | 1377.85 | 1382.87 | 1380.82 | 1383.05 | 0.001536 | 3.41 | 151.13 | 50.18 | 0.35 |
| Main Channel | 22300.00 | 516.00 | 1380.88 | 1383.87 | 1383.87 | 1384.83 | 0.014573 | 7.85 | 65.73 | 33.94 | 0.99 |
| Main Channel | 22300.00 | 516.00 | 1380.88 | 1383.87 | 1383.87 | 1384.83 | 0.014573 | 7.85 | 65.73 | 33.94 | 0.99 |
| Main Channel | 22320.00 | 516.00 | 1380.89 | 1384.54 | 1383.86 | 1385.05 | 0.006251 | 5.75 | 89.81 | 39.20 | 0.67 |
| Main Channel | 22320.00 | 516.00 | 1380.89 | 1384.54 | 1383.86 | 1385.05 | 0.006251 | 5.75 | 89.81 | 39.20 | 0.67 |
| Main Channel | 22321.00 | 516.00 | 1380.89 | 1384.55 | 1383.86 | 1385.06 | 0.003699 | 5.73 | 90.00 | 39.24 | 0.67 |
| Main Channel | 22321.00 | 516.00 | 1380.89 | 1384.55 | 1383.86 | 1385.06 | 0.003699 | 5.73 | 90.00 | 39.24 | 0.67 |
| Main Channel | 22415.7* | 516.00 | 1380.94 | 1384.98 | 1383.91 | 1385.35 | 0.002401 | 4.89 | 105.60 | 42.30 | 0.54 |
| Main Channel | 22415.7* | 516.00 | 1380.94 | 1384.98 | 1383.91 | 1385.35 | 0.002401 | 4.89 | 105.60 | 42.30 | 0.54 |
| Main Channel | 22510.5* | 516.00 | 1380.98 | 1385.25 | 1383.95 | 1385.56 | 0.001891 | 4.47 | 115.33 | 44.08 | 0.49 |
| Main Channel | 22510.5* | 516.00 | 1380.98 | 1385.25 | 1383.95 | 1385.56 | 0.001891 | 4.47 | 115.33 | 44.08 | 0.49 |
| Main Channel | 22605.2* | 516.00 | 1381.03 | 1385.45 | 1384.00 | 1385.73 | 0.001616 | 4.22 | 122.29 | 45.35 | 0.45 |
| Main Channel | 22605.2* | 516.00 | 1381.03 | 1385.45 | 1384.00 | 1385.73 | 0.001616 | 4.22 | 122.29 | 45.35 | 0.45 |
| Main Channel | 22700.00 | 516.00 | 1381.08 | 1385.62 | 1384.05 | 1385.87 | 0.001436 | 4.04 | 127.79 | 46.31 | 0.43 |
| Main Channel | 22700.00 | 516.00 | 1381.08 | 1385.62 | 1384.05 | 1385.87 | 0.001436 | 4.04 | 127.79 | 46.31 | 0.43 |
| Main Channel | 22777.2* | 516.00 | 1381.12 | 1385.74 | 1384.09 | 1385.98 | 0.001325 | 3.92 | 131.64 | 46.97 | 0.41 |
| Main Channel | 22777.2* | 516.00 | 1381.12 | 1385.74 | 1384.09 | 1385.98 | 0.001325 | 3.92 | 131.64 | 46.97 | 0.41 |
| Main Channel | 22854.5* | 516.00 | 1381.16 | 1385.85 | 1384.13 | 1386.08 | 0.001235 | 3.82 | 135.18 | 47.60 | 0.40 |
| Main Channel | 22854.5* | 516.00 | 1381.16 | 1385.85 | 1384.13 | 1386.08 | 0.001235 | 3.82 | 135.18 | 47.60 | 0.40 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 22931.7* | 516.00 | 1381.19 | 1385.96 | 1384.16 | 1386.17 | 0.001153 | 3.72 | 138.62 | 48.14 | 0.39 |
| Main Channel | 22931.7* | 516.00 | 1381.19 | 1385.96 | 1384.16 | 1386.17 | 0.001153 | 3.72 | 138.62 | 48.14 | 0.39 |
| Main Channel | 23009.00 | 516.00 | 1381.23 | 1386.05 | 1384.20 | 1386.26 | 0.001095 | 3.65 | 141.31 | 48.59 | 0.38 |
| Main Channel | 23009.00 | 516.00 | 1381.23 | 1386.05 | 1384.20 | 1386.26 | 0.001095 | 3.65 | 141.31 | 48.59 | 0.38 |
| Main Channel | 23010.00 | 516.00 | 1381.23 | 1386.06 | 1384.20 | 1386.26 | 0.001838 | 3.65 | 141.38 | 48.60 | 0.38 |
| Main Channel | 23010.00 | 516.00 | 1381.23 | 1386.06 | 1384.20 | 1386.26 | 0.001838 | 3.65 | 141.38 | 48.60 | 0.38 |
| Main Channel | 23060.00 | 516.00 | 1384.26 | 1387.25 | 1387.25 | 1388.21 | 0.014575 | 7.85 | 65.73 | 33.94 | 0.99 |
| Main Channel | 23060.00 | 516.00 | 1384.26 | 1387.25 | 1387.25 | 1388.21 | 0.014575 | 7.85 | 65.73 | 33.94 | 0.99 |
| Main Channel | 23080.00 | 516.00 | 1384.27 | 1387.92 | 1387.24 | 1388.43 | 0.006251 | 5.75 | 89.81 | 39.20 | 0.67 |
| Main Channel | 23080.00 | 516.00 | 1384.27 | 1387.92 | 1387.24 | 1388.43 | 0.006251 | 5.75 | 89.81 | 39.20 | 0.67 |
| Main Channel | 23081.00 | 516.00 | 1384.26 | 1387.93 | 1387.23 | 1388.43 | 0.003634 | 5.70 | 90.59 | 39.36 | 0.66 |
| Main Channel | 23081.00 | 516.00 | 1384.26 | 1387.93 | 1387.23 | 1388.43 | 0.003634 | 5.70 | 90.59 | 39.36 | 0.66 |
| Main Channel | 23159.6* | 516.00 | 1384.26 | 1388.31 | 1387.23 | 1388.68 | 0.002374 | 4.87 | 106.04 | 42.39 | 0.54 |
| Main Channel | 23159.6* | 516.00 | 1384.26 | 1388.31 | 1387.23 | 1388.68 | 0.002374 | 4.87 | 106.04 | 42.39 | 0.54 |
| Main Channel | 23238.31 | 516.00 | 1384.26 | 1388.54 | 1387.23 | 1388.85 | 0.001860 | 4.44 | 116.10 | 44.24 | 0.48 |
| Main Channel | 23238.31 | 516.00 | 1384.26 | 1388.54 | 1387.23 | 1388.85 | 0.001860 | 4.44 | 116.10 | 44.24 | 0.48 |
| Main Channel | 23239.31 | 516.00 | 1384.35 | 1388.52 | | 1388.86 | 0.003487 | 4.63 | 111.47 | 43.40 | 0.51 |
| Main Channel | 23239.31 | 516.00 | 1384.35 | 1388.52 | | 1388.86 | 0.003487 | 4.63 | 111.47 | 43.40 | 0.51 |
| Main Channel | 23257.56 | 516.00 | 1384.36 | 1388.60 | | 1388.92 | 0.003067 | 4.56 | 113.16 | 40.00 | 0.48 |
| Main Channel | 23257.56 | 516.00 | 1384.36 | 1388.60 | | 1388.92 | 0.003067 | 4.56 | 113.16 | 40.00 | 0.48 |
| Main Channel | 23278.81 | 516.00 | 1384.37 | 1388.10 | | 1389.29 | 0.011783 | 8.75 | 58.98 | 16.50 | 0.82 |
| Main Channel | 23278.81 | 516.00 | 1384.37 | 1388.10 | | 1389.29 | 0.011783 | 8.75 | 58.98 | 16.50 | 0.82 |

Profile Output Table - Standard Table 2

| Reach | River Sta | E.G. Elev (ft) | W.S. Elev (ft) | Vel Head (ft) | Frctn Loss (ft) | C & E Loss (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Top Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 800.00 | 1316.92 | 1315.90 | 1.02 | | | | 1047.00 | | 63.08 |
| Main Channel | 800.00 | 1317.34 | 1316.90 | 0.44 | | | | 1047.00 | | 71.12 |
| Main Channel | 820.00 | 1317.14 | 1316.57 | 0.57 | 0.18 | 0.04 | | 1047.00 | | 68.37 |
| Main Channel | 820.00 | 1317.42 | 1317.01 | 0.41 | 0.08 | 0.00 | | 1047.00 | | 71.95 |
| Main Channel | 821.00 | 1317.14 | 1316.57 | 0.57 | 0.00 | 0.00 | | 1047.00 | | 68.41 |
| Main Channel | 821.00 | 1317.43 | 1317.02 | 0.41 | 0.00 | 0.00 | | 1047.00 | | 71.97 |
| Main Channel | 911.581* | 1317.42 | 1316.99 | 0.43 | 0.26 | 0.01 | | 1047.00 | | 71.32 |
| Main Channel | 911.581* | 1317.61 | 1317.25 | 0.36 | 0.18 | 0.00 | | 1047.00 | | 73.47 |
| Main Channel | 1002.16* | 1317.62 | 1317.25 | 0.37 | 0.19 | 0.01 | | 1047.00 | | 73.11 |
| Main Channel | 1002.16* | 1317.77 | 1317.45 | 0.32 | 0.15 | 0.00 | | 1047.00 | | 74.68 |
| Main Channel | 1092.74* | 1317.78 | 1317.45 | 0.33 | 0.16 | 0.00 | | 1047.00 | | 74.31 |
| Main Channel | 1092.74* | 1317.91 | 1317.61 | 0.30 | 0.14 | 0.00 | | 1047.00 | | 75.57 |
| Main Channel | 1183.32* | 1317.93 | 1317.62 | 0.31 | 0.14 | 0.00 | | 1047.00 | | 75.36 |
| Main Channel | 1183.32* | 1318.03 | 1317.75 | 0.28 | 0.12 | 0.00 | | 1047.00 | | 76.41 |
| Main Channel | 1273.90* | 1318.06 | 1317.77 | 0.29 | 0.13 | 0.00 | | 1047.00 | | 76.18 |
| Main Channel | 1273.90* | 1318.15 | 1317.88 | 0.27 | 0.11 | 0.00 | | 1047.00 | | 77.08 |
| Main Channel | 1364.49 | 1318.17 | 1317.90 | 0.27 | 0.12 | 0.00 | | 1047.00 | | 76.89 |
| Main Channel | 1364.49 | 1318.26 | 1318.00 | 0.26 | 0.11 | 0.00 | | 1047.00 | | 77.67 |
| Main Channel | 1459.40* | 1318.29 | 1318.03 | 0.26 | 0.11 | 0.00 | | 1047.00 | | 77.50 |
| Main Channel | 1459.40* | 1318.36 | 1318.11 | 0.25 | 0.10 | 0.00 | | 1047.00 | | 78.19 |
| Main Channel | 1554.32* | 1318.40 | 1318.15 | 0.25 | 0.11 | 0.00 | | 1047.00 | | 78.04 |
| Main Channel | 1554.32* | 1318.46 | 1318.22 | 0.24 | 0.10 | 0.00 | | 1047.00 | | 78.66 |
| Main Channel | 1649.24* | 1318.50 | 1318.26 | 0.24 | 0.10 | 0.00 | | 1047.00 | | 78.58 |
| Main Channel | 1649.24* | 1318.56 | 1318.32 | 0.23 | 0.09 | 0.00 | | 1047.00 | | 79.13 |
| Main Channel | 1744.16* | 1318.59 | 1318.36 | 0.23 | 0.10 | 0.00 | | 1047.00 | | 79.05 |
| Main Channel | 1744.16* | 1318.65 | 1318.42 | 0.22 | 0.09 | 0.00 | | 1047.00 | | 79.55 |
| Main Channel | 1839.08* | 1318.68 | 1318.46 | 0.23 | 0.09 | 0.00 | | 1047.00 | | 79.43 |
| Main Channel | 1839.08* | 1318.73 | 1318.52 | 0.22 | 0.09 | 0.00 | | 1047.00 | | 79.88 |
| Main Channel | 1934.00 | 1318.77 | 1318.55 | 0.22 | 0.09 | 0.00 | | 1047.00 | | 79.78 |
| Main Channel | 1934.00 | 1318.82 | 1318.60 | 0.21 | 0.08 | 0.00 | | 1047.00 | | 80.20 |
| Main Channel | 1935.00 | 1318.77 | 1318.55 | 0.22 | 0.00 | 0.00 | | 1047.00 | | 79.79 |
| Main Channel | 1935.00 | 1318.82 | 1318.61 | 0.21 | 0.00 | 0.00 | | 1047.00 | | 80.21 |
| Main Channel | 1945.00 | 1318.79 | 1318.57 | 0.22 | 0.02 | 0.00 | | 1047.00 | | 79.92 |
| Main Channel | 1945.00 | 1318.83 | 1318.62 | 0.21 | 0.01 | 0.00 | | 1047.00 | | 80.33 |
| Main Channel | 2000.00 | 1319.52 | 1318.51 | 1.01 | 0.19 | 0.24 | | 1047.00 | | 63.16 |
| Main Channel | 2000.00 | 1319.52 | 1318.51 | 1.01 | 0.18 | 0.24 | | 1047.00 | | 63.16 |
| Main Channel | 2020.00 | 1319.74 | 1319.16 | 0.57 | 0.18 | 0.04 | | 1047.00 | | 68.35 |
| Main Channel | 2020.00 | 1319.74 | 1319.16 | 0.57 | 0.18 | 0.04 | | 1047.00 | | 68.35 |
| Main Channel | 2021.00 | 1319.74 | 1319.17 | 0.57 | 0.00 | 0.00 | | 1047.00 | | 68.39 |
| Main Channel | 2021.00 | 1319.74 | 1319.17 | 0.57 | 0.00 | 0.00 | | 1047.00 | | 68.39 |
| Main Channel | 2118.94* | 1320.04 | 1319.61 | 0.43 | 0.28 | 0.01 | | 1047.00 | | 71.52 |
| Main Channel | 2118.94* | 1320.04 | 1319.61 | 0.43 | 0.28 | 0.01 | | 1047.00 | | 71.52 |
| Main Channel | 2216.89* | 1320.25 | 1319.88 | 0.36 | 0.20 | 0.01 | | 1047.00 | | 73.30 |
| Main Channel | 2216.89* | 1320.25 | 1319.88 | 0.36 | 0.20 | 0.01 | | 1047.00 | | 73.30 |
| Main Channel | 2314.84 | 1320.42 | 1320.09 | 0.33 | 0.17 | 0.00 | | 1047.00 | | 74.58 |
| Main Channel | 2314.84 | 1320.42 | 1320.09 | 0.33 | 0.17 | 0.00 | | 1047.00 | | 74.58 |
| Main Channel | 2394.62* | 1320.54 | 1320.24 | 0.31 | 0.12 | 0.00 | | 1047.00 | | 75.43 |
| Main Channel | 2394.62* | 1320.54 | 1320.24 | 0.31 | 0.12 | 0.00 | | 1047.00 | | 75.43 |
| Main Channel | 2474.41* | 1320.66 | 1320.37 | 0.29 | 0.11 | 0.00 | | 1047.00 | | 76.15 |
| Main Channel | 2474.41* | 1320.66 | 1320.37 | 0.29 | 0.11 | 0.00 | | 1047.00 | | 76.15 |

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| Main Channel | 2554.20* | 1320.76 | 1320.49 | 0.28 | 0.10 | 0.00 | 1047.00 | 76.77 |
| Main Channel | 2554.20* | 1320.76 | 1320.49 | 0.28 | 0.10 | 0.00 | 1047.00 | 76.77 |
| Main Channel | 2634.00 | 1320.86 | 1320.60 | 0.26 | 0.10 | 0.00 | 1047.00 | 77.33 |
| Main Channel | 2634.00 | 1320.86 | 1320.60 | 0.26 | 0.10 | 0.00 | 1047.00 | 77.33 |
| Main Channel | 2635.00 | 1320.86 | 1320.60 | 0.26 | 0.00 | 0.00 | 1047.00 | 77.34 |
| Main Channel | 2635.00 | 1320.86 | 1320.60 | 0.26 | 0.00 | 0.00 | 1047.00 | 77.34 |
| Main Channel | 2645.00 | 1320.88 | 1320.62 | 0.26 | 0.02 | 0.00 | 1047.00 | 77.51 |
| Main Channel | 2645.00 | 1320.88 | 1320.62 | 0.26 | 0.02 | 0.00 | 1047.00 | 77.51 |
| Main Channel | 2700.00 | 1322.87 | 1321.84 | 1.03 | 0.20 | 0.23 | 1047.00 | 63.02 |
| Main Channel | 2700.00 | 1322.87 | 1321.84 | 1.03 | 0.20 | 0.23 | 1047.00 | 63.02 |
| Main Channel | 2720.00 | 1323.06 | 1322.47 | 0.60 | 0.15 | 0.04 | 1047.00 | 67.96 |
| Main Channel | 2720.00 | 1323.06 | 1322.47 | 0.60 | 0.15 | 0.04 | 1047.00 | 67.96 |
| Main Channel | 2721.00 | 1323.06 | 1322.47 | 0.59 | 0.00 | 0.00 | 1047.00 | 68.00 |
| Main Channel | 2721.00 | 1323.06 | 1322.47 | 0.59 | 0.00 | 0.00 | 1047.00 | 68.00 |
| Main Channel | 2816.33* | 1323.37 | 1322.93 | 0.43 | 0.29 | 0.02 | 1047.00 | 71.29 |
| Main Channel | 2816.33* | 1323.37 | 1322.93 | 0.43 | 0.29 | 0.02 | 1047.00 | 71.29 |
| Main Channel | 2911.66* | 1323.58 | 1323.21 | 0.37 | 0.20 | 0.01 | 1047.00 | 73.09 |
| Main Channel | 2911.66* | 1323.58 | 1323.21 | 0.37 | 0.20 | 0.01 | 1047.00 | 73.09 |
| Main Channel | 3007.* | 1323.75 | 1323.42 | 0.33 | 0.17 | 0.00 | 1047.00 | 74.38 |
| Main Channel | 3007.* | 1323.75 | 1323.42 | 0.33 | 0.17 | 0.00 | 1047.00 | 74.38 |
| Main Channel | 3102.33* | 1323.90 | 1323.59 | 0.31 | 0.15 | 0.00 | 1047.00 | 75.39 |
| Main Channel | 3102.33* | 1323.90 | 1323.59 | 0.31 | 0.15 | 0.00 | 1047.00 | 75.39 |
| Main Channel | 3197.66* | 1324.04 | 1323.75 | 0.29 | 0.13 | 0.00 | 1047.00 | 76.32 |
| Main Channel | 3197.66* | 1324.04 | 1323.75 | 0.29 | 0.13 | 0.00 | 1047.00 | 76.32 |
| Main Channel | 3293.* | 1324.16 | 1323.89 | 0.27 | 0.12 | 0.00 | 1047.00 | 77.01 |
| Main Channel | 3293.* | 1324.16 | 1323.89 | 0.27 | 0.12 | 0.00 | 1047.00 | 77.01 |
| Main Channel | 3388.33* | 1324.27 | 1324.01 | 0.26 | 0.11 | 0.00 | 1047.00 | 77.61 |
| Main Channel | 3388.33* | 1324.27 | 1324.01 | 0.26 | 0.11 | 0.00 | 1047.00 | 77.61 |
| Main Channel | 3483.66* | 1324.38 | 1324.13 | 0.25 | 0.11 | 0.00 | 1047.00 | 78.15 |
| Main Channel | 3483.66* | 1324.38 | 1324.13 | 0.25 | 0.11 | 0.00 | 1047.00 | 78.15 |
| Main Channel | 3579.00 | 1324.48 | 1324.24 | 0.24 | 0.10 | 0.00 | 1047.00 | 78.62 |
| Main Channel | 3579.00 | 1324.48 | 1324.24 | 0.24 | 0.10 | 0.00 | 1047.00 | 78.62 |
| Main Channel | 3580.00 | 1324.48 | 1324.24 | 0.24 | 0.00 | 0.00 | 1047.00 | 78.63 |
| Main Channel | 3580.00 | 1324.48 | 1324.24 | 0.24 | 0.00 | 0.00 | 1047.00 | 78.63 |
| Main Channel | 3590.00 | 1324.49 | 1324.26 | 0.24 | 0.02 | 0.00 | 1047.00 | 78.78 |
| Main Channel | 3590.00 | 1324.49 | 1324.26 | 0.24 | 0.02 | 0.00 | 1047.00 | 78.78 |
| Main Channel | 3640.00 | 1326.34 | 1325.29 | 1.05 | 0.19 | 0.24 | 1047.00 | 62.91 |
| Main Channel | 3640.00 | 1326.34 | 1325.29 | 1.05 | 0.19 | 0.24 | 1047.00 | 62.91 |
| Main Channel | 3660.00 | 1326.57 | 1326.00 | 0.57 | 0.18 | 0.05 | 1047.00 | 68.48 |
| Main Channel | 3660.00 | 1326.57 | 1326.00 | 0.57 | 0.18 | 0.05 | 1047.00 | 68.48 |
| Main Channel | 3661.00 | 1326.57 | 1326.00 | 0.56 | 0.00 | 0.00 | 1047.00 | 68.51 |
| Main Channel | 3661.00 | 1326.57 | 1326.00 | 0.56 | 0.00 | 0.00 | 1047.00 | 68.51 |
| Main Channel | 3741.28* | 1326.82 | 1326.38 | 0.44 | 0.23 | 0.01 | 1047.00 | 71.17 |
| Main Channel | 3741.28* | 1326.82 | 1326.38 | 0.44 | 0.23 | 0.01 | 1047.00 | 71.17 |
| Main Channel | 3821.57* | 1327.00 | 1326.62 | 0.38 | 0.18 | 0.01 | 1047.00 | 72.79 |
| Main Channel | 3821.57* | 1327.00 | 1326.62 | 0.38 | 0.18 | 0.01 | 1047.00 | 72.79 |
| Main Channel | 3901.85* | 1327.15 | 1326.81 | 0.34 | 0.15 | 0.00 | 1047.00 | 73.98 |
| Main Channel | 3901.85* | 1327.15 | 1326.81 | 0.34 | 0.15 | 0.00 | 1047.00 | 73.98 |
| Main Channel | 3982.14* | 1327.29 | 1326.97 | 0.32 | 0.13 | 0.00 | 1047.00 | 74.94 |
| Main Channel | 3982.14* | 1327.29 | 1326.97 | 0.32 | 0.13 | 0.00 | 1047.00 | 74.94 |
| Main Channel | 4062.43 | 1327.41 | 1327.11 | 0.30 | 0.12 | 0.00 | 1047.00 | 75.73 |
| Main Channel | 4062.43 | 1327.41 | 1327.11 | 0.30 | 0.12 | 0.00 | 1047.00 | 75.73 |
| Main Channel | 4063.43 | 1327.41 | 1327.11 | 0.30 | 0.00 | 0.00 | 1047.00 | 75.75 |
| Main Channel | 4063.43 | 1327.41 | 1327.11 | 0.30 | 0.00 | 0.00 | 1047.00 | 75.75 |
| Main Channel | 4091.43 | 1327.46 | 1327.26 | 0.21 | 0.05 | 0.01 | 1047.00 | 72.67 |
| Main Channel | 4091.43 | 1327.46 | 1327.26 | 0.21 | 0.05 | 0.01 | 1047.00 | 72.67 |
| Main Channel | 4107.43 | 1327.56 | 1327.26 | 0.30 | 0.02 | 0.08 | 1047.00 | 56.29 |
| Main Channel | 4107.43 | 1327.56 | 1327.26 | 0.30 | 0.02 | 0.08 | 1047.00 | 56.29 |
| Main Channel | 4130.52 | 1327.66 | 1327.47 | 0.19 | 0.03 | 0.07 | 1047.00 | 58.67 |
| Main Channel | 4130.52 | 1327.66 | 1327.47 | 0.19 | 0.03 | 0.07 | 1047.00 | 58.67 |
| Main Channel | 4133.00 | 1328.84 | 1327.76 | 1.08 | 0.01 | 0.71 | 1047.00 | 58.67 |
| Main Channel | 4133.00 | 1328.84 | 1327.76 | 1.08 | 0.01 | 0.71 | 1047.00 | 58.67 |
| Main Channel | 4213.18 | Mult Open | | | | | | |
| Main Channel | 4214.18 | 1331.49 | 1331.07 | 0.42 | | | 1047.00 | 58.67 |
| Main Channel | 4214.18 | 1331.49 | 1331.07 | 0.42 | | | 1047.00 | 58.67 |
| Main Channel | 4226.18 | 1331.68 | 1331.09 | 0.58 | 0.05 | 0.13 | 1053.00 | 55.65 |
| Main Channel | 4226.18 | 1331.68 | 1331.09 | 0.58 | 0.05 | 0.13 | 1053.00 | 55.65 |
| Main Channel | 4245.62 | 1331.77 | 1331.50 | 0.27 | 0.06 | 0.03 | 1053.00 | 69.86 |
| Main Channel | 4245.62 | 1331.77 | 1331.50 | 0.27 | 0.06 | 0.03 | 1053.00 | 69.86 |
| Main Channel | 4345.62 | 1331.81 | 1331.79 | 0.02 | 0.02 | 0.02 | 1053.00 | 206.41 |
| Main Channel | 4345.62 | 1331.81 | 1331.79 | 0.02 | 0.02 | 0.02 | 1053.00 | 206.41 |
| Main Channel | 4445.62 | 1331.82 | 1331.80 | 0.02 | 0.01 | 0.00 | 1053.00 | 206.22 |
| Main Channel | 4445.62 | 1331.82 | 1331.80 | 0.02 | 0.01 | 0.00 | 1053.00 | 206.22 |
| Main Channel | 4508.58 | 1331.82 | 1331.81 | 0.02 | 0.00 | 0.00 | 1053.00 | 208.26 |
| Main Channel | 4508.58 | 1331.82 | 1331.81 | 0.02 | 0.00 | 0.00 | 1053.00 | 208.26 |

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| Main Channel | 4568.58 | 1331.83 | 1331.82 | 0.01 | 0.00 | 0.00 | 1053.00 | 283.80 |
| Main Channel | 4568.58 | 1331.83 | 1331.82 | 0.01 | 0.00 | 0.00 | 1053.00 | 283.80 |
| Main Channel | 4628.58 | 1331.83 | 1331.82 | 0.01 | 0.00 | 0.00 | 1053.00 | 402.40 |
| Main Channel | 4628.58 | 1331.83 | 1331.82 | 0.01 | 0.00 | 0.00 | 1053.00 | 402.40 |
| Main Channel | 4654.00 | 1331.83 | 1331.83 | 0.00 | 0.00 | 0.00 | 1053.00 | 477.28 |
| Main Channel | 4654.00 | 1331.83 | 1331.83 | 0.00 | 0.00 | 0.00 | 1053.00 | 477.28 |
| Main Channel | 4700 | 1331.83 | 1331.83 | 0.00 | 0.00 | 0.00 | 1053.00 | 421.70 |
| Main Channel | 4700 | 1331.83 | 1331.83 | 0.00 | 0.00 | 0.00 | 1053.00 | 421.70 |
| Main Channel | 4772.91* | 1331.83 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 387.17 |
| Main Channel | 4772.91* | 1331.83 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 387.17 |
| Main Channel | 4845.83 | 1331.83 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 352.58 |
| Main Channel | 4845.83 | 1331.83 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 352.58 |
| Main Channel | 4862.65 | 1331.84 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 352.58 |
| Main Channel | 4862.65 | 1331.84 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 352.58 |
| Main Channel | 4931.32* | 1331.84 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 282.81 |
| Main Channel | 4931.32* | 1331.84 | 1331.83 | 0.01 | 0.00 | 0.00 | 1053.00 | 282.81 |
| Main Channel | 5000 | 1331.85 | 1331.82 | 0.02 | 0.00 | 0.00 | 1053.00 | 211.95 |
| Main Channel | 5000 | 1331.85 | 1331.82 | 0.02 | 0.00 | 0.00 | 1053.00 | 211.95 |
| Main Channel | 5100 | 1331.97 | 1331.61 | 0.35 | 0.02 | 0.10 | 1053.00 | 65.87 |
| Main Channel | 5100 | 1331.97 | 1331.61 | 0.35 | 0.02 | 0.10 | 1053.00 | 65.87 |
| Main Channel | 5101 | 1331.97 | 1331.63 | 0.34 | 0.00 | 0.00 | 1053.00 | 66.59 |
| Main Channel | 5101 | 1331.97 | 1331.63 | 0.34 | 0.00 | 0.00 | 1053.00 | 66.59 |
| Main Channel | 5184.5* | 1332.09 | 1331.77 | 0.32 | 0.12 | 0.00 | 1053.00 | 67.41 |
| Main Channel | 5184.5* | 1332.09 | 1331.77 | 0.32 | 0.12 | 0.00 | 1053.00 | 67.41 |
| Main Channel | 5268.* | 1332.19 | 1331.89 | 0.30 | 0.11 | 0.00 | 1053.00 | 68.12 |
| Main Channel | 5268.* | 1332.19 | 1331.89 | 0.30 | 0.11 | 0.00 | 1053.00 | 68.12 |
| Main Channel | 5351.5* | 1332.30 | 1332.01 | 0.29 | 0.10 | 0.00 | 1053.00 | 68.77 |
| Main Channel | 5351.5* | 1332.30 | 1332.01 | 0.29 | 0.10 | 0.00 | 1053.00 | 68.77 |
| Main Channel | 5435.* | 1332.39 | 1332.11 | 0.28 | 0.09 | 0.00 | 1053.00 | 69.33 |
| Main Channel | 5435.* | 1332.39 | 1332.11 | 0.28 | 0.09 | 0.00 | 1053.00 | 69.33 |
| Main Channel | 5518.5* | 1332.48 | 1332.22 | 0.27 | 0.09 | 0.00 | 1053.00 | 69.89 |
| Main Channel | 5518.5* | 1332.48 | 1332.22 | 0.27 | 0.09 | 0.00 | 1053.00 | 69.89 |
| Main Channel | 5602.00 | 1332.57 | 1332.31 | 0.26 | 0.09 | 0.00 | 1053.00 | 70.32 |
| Main Channel | 5602.00 | 1332.57 | 1332.31 | 0.26 | 0.09 | 0.00 | 1053.00 | 70.32 |
| Main Channel | 5603.00 | 1332.57 | 1332.31 | 0.26 | 0.00 | 0.00 | 1053.00 | 70.33 |
| Main Channel | 5603.00 | 1332.57 | 1332.31 | 0.26 | 0.00 | 0.00 | 1053.00 | 70.33 |
| Main Channel | 5613 | 1332.58 | 1332.33 | 0.26 | 0.02 | 0.00 | 1053.00 | 70.47 |
| Main Channel | 5613 | 1332.58 | 1332.33 | 0.26 | 0.02 | 0.00 | 1053.00 | 70.47 |
| Main Channel | 5663 | 1334.27 | 1333.12 | 1.15 | 0.18 | 0.27 | 1053.00 | 52.75 |
| Main Channel | 5663 | 1334.27 | 1333.12 | 1.15 | 0.18 | 0.27 | 1053.00 | 52.75 |
| Main Channel | 5683.00 | 1334.50 | 1333.84 | 0.66 | 0.18 | 0.05 | 1053.00 | 58.40 |
| Main Channel | 5683.00 | 1334.50 | 1333.84 | 0.66 | 0.18 | 0.05 | 1053.00 | 58.40 |
| Main Channel | 5684.00 | 1334.50 | 1333.85 | 0.66 | 0.00 | 0.00 | 1053.00 | 58.43 |
| Main Channel | 5684.00 | 1334.50 | 1333.85 | 0.66 | 0.00 | 0.00 | 1053.00 | 58.43 |
| Main Channel | 5700 | 1334.56 | 1333.91 | 0.65 | 0.06 | 0.00 | 1053.00 | 58.50 |
| Main Channel | 5700 | 1334.56 | 1333.91 | 0.65 | 0.06 | 0.00 | 1053.00 | 58.50 |
| Main Channel | 5800.* | 1334.87 | 1334.38 | 0.49 | 0.29 | 0.02 | 1053.00 | 61.89 |
| Main Channel | 5800.* | 1334.87 | 1334.38 | 0.49 | 0.29 | 0.02 | 1053.00 | 61.89 |
| Main Channel | 5900.* | 1335.09 | 1334.67 | 0.42 | 0.22 | 0.01 | 1053.00 | 63.83 |
| Main Channel | 5900.* | 1335.09 | 1334.67 | 0.42 | 0.22 | 0.01 | 1053.00 | 63.83 |
| Main Channel | 6000.* | 1335.27 | 1334.90 | 0.37 | 0.18 | 0.00 | 1053.00 | 65.24 |
| Main Channel | 6000.* | 1335.27 | 1334.90 | 0.37 | 0.18 | 0.00 | 1053.00 | 65.24 |
| Main Channel | 6100.* | 1335.43 | 1335.09 | 0.34 | 0.16 | 0.00 | 1053.00 | 66.35 |
| Main Channel | 6100.* | 1335.43 | 1335.09 | 0.34 | 0.16 | 0.00 | 1053.00 | 66.35 |
| Main Channel | 6200.* | 1335.58 | 1335.26 | 0.32 | 0.14 | 0.00 | 1053.00 | 67.27 |
| Main Channel | 6200.* | 1335.58 | 1335.26 | 0.32 | 0.14 | 0.00 | 1053.00 | 67.27 |
| Main Channel | 6300.* | 1335.71 | 1335.41 | 0.30 | 0.13 | 0.00 | 1053.00 | 68.06 |
| Main Channel | 6300.* | 1335.71 | 1335.41 | 0.30 | 0.13 | 0.00 | 1053.00 | 68.06 |
| Main Channel | 6400.* | 1335.83 | 1335.54 | 0.29 | 0.12 | 0.00 | 1053.00 | 68.75 |
| Main Channel | 6400.* | 1335.83 | 1335.54 | 0.29 | 0.12 | 0.00 | 1053.00 | 68.75 |
| Main Channel | 6500.* | 1335.94 | 1335.67 | 0.28 | 0.11 | 0.00 | 1053.00 | 69.35 |
| Main Channel | 6500.* | 1335.94 | 1335.67 | 0.28 | 0.11 | 0.00 | 1053.00 | 69.35 |
| Main Channel | 6600.* | 1336.05 | 1335.79 | 0.27 | 0.11 | 0.00 | 1053.00 | 69.90 |
| Main Channel | 6600.* | 1336.05 | 1335.79 | 0.27 | 0.11 | 0.00 | 1053.00 | 69.90 |
| Main Channel | 6700 | 1336.15 | 1335.90 | 0.26 | 0.10 | 0.00 | 1053.00 | 70.38 |
| Main Channel | 6700 | 1336.15 | 1335.90 | 0.26 | 0.10 | 0.00 | 1053.00 | 70.38 |
| Main Channel | 6784.4* | 1336.24 | 1335.99 | 0.25 | 0.08 | 0.00 | 1053.00 | 70.78 |
| Main Channel | 6784.4* | 1336.24 | 1335.99 | 0.25 | 0.08 | 0.00 | 1053.00 | 70.78 |
| Main Channel | 6868.8* | 1336.32 | 1336.07 | 0.24 | 0.08 | 0.00 | 1053.00 | 71.24 |
| Main Channel | 6868.8* | 1336.32 | 1336.07 | 0.24 | 0.08 | 0.00 | 1053.00 | 71.24 |
| Main Channel | 6953.2* | 1336.39 | 1336.16 | 0.24 | 0.08 | 0.00 | 1053.00 | 71.57 |
| Main Channel | 6953.2* | 1336.39 | 1336.16 | 0.24 | 0.08 | 0.00 | 1053.00 | 71.57 |
| Main Channel | 7037.6* | 1336.47 | 1336.24 | 0.23 | 0.07 | 0.00 | 1053.00 | 71.97 |
| Main Channel | 7037.6* | 1336.47 | 1336.24 | 0.23 | 0.07 | 0.00 | 1053.00 | 71.97 |
| Main Channel | 7122.00 | 1336.54 | 1336.31 | 0.23 | 0.07 | 0.00 | 1053.00 | 72.26 |
| Main Channel | 7122.00 | 1336.54 | 1336.31 | 0.23 | 0.07 | 0.00 | 1053.00 | 72.26 |

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| Main Channel | 7123.00 | 1336.54 | 1336.31 | 0.23 | 0.00 | 0.00 | 1053.00 | 72.27 |
| Main Channel | 7123.00 | 1336.54 | 1336.31 | 0.23 | 0.00 | 0.00 | 1053.00 | 72.27 |
| Main Channel | 7133 | 1336.55 | 1336.33 | 0.23 | 0.01 | 0.00 | 1053.00 | 72.39 |
| Main Channel | 7133 | 1336.55 | 1336.33 | 0.23 | 0.01 | 0.00 | 1053.00 | 72.39 |
| Main Channel | 7183 | 1338.03 | 1336.89 | 1.15 | 0.16 | 0.28 | 1053.00 | 52.79 |
| Main Channel | 7183 | 1338.03 | 1336.89 | 1.15 | 0.16 | 0.28 | 1053.00 | 52.79 |
| Main Channel | 7203.00 | 1338.26 | 1337.60 | 0.66 | 0.18 | 0.05 | 1053.00 | 58.39 |
| Main Channel | 7203.00 | 1338.26 | 1337.60 | 0.66 | 0.18 | 0.05 | 1053.00 | 58.39 |
| Main Channel | 7204.00 | 1338.26 | 1337.61 | 0.66 | 0.00 | 0.00 | 1053.00 | 58.42 |
| Main Channel | 7204.00 | 1338.26 | 1337.61 | 0.66 | 0.00 | 0.00 | 1053.00 | 58.42 |
| Main Channel | 7303.2* | 1338.57 | 1338.08 | 0.49 | 0.30 | 0.02 | 1053.00 | 61.73 |
| Main Channel | 7303.2* | 1338.57 | 1338.08 | 0.49 | 0.30 | 0.02 | 1053.00 | 61.73 |
| Main Channel | 7402.4* | 1338.80 | 1338.38 | 0.42 | 0.22 | 0.01 | 1053.00 | 63.60 |
| Main Channel | 7402.4* | 1338.80 | 1338.38 | 0.42 | 0.22 | 0.01 | 1053.00 | 63.60 |
| Main Channel | 7501.6* | 1338.99 | 1338.61 | 0.38 | 0.18 | 0.00 | 1053.00 | 65.05 |
| Main Channel | 7501.6* | 1338.99 | 1338.61 | 0.38 | 0.18 | 0.00 | 1053.00 | 65.05 |
| Main Channel | 7600.8* | 1339.15 | 1338.80 | 0.35 | 0.16 | 0.00 | 1053.00 | 66.09 |
| Main Channel | 7600.8* | 1339.15 | 1338.80 | 0.35 | 0.16 | 0.00 | 1053.00 | 66.09 |
| Main Channel | 7700 | 1339.29 | 1338.97 | 0.33 | 0.14 | 0.00 | 1053.00 | 66.95 |
| Main Channel | 7700 | 1339.29 | 1338.97 | 0.33 | 0.14 | 0.00 | 1053.00 | 66.95 |
| Main Channel | 7794.* | 1339.42 | 1339.11 | 0.31 | 0.13 | 0.00 | 1053.00 | 67.80 |
| Main Channel | 7794.* | 1339.42 | 1339.11 | 0.31 | 0.13 | 0.00 | 1053.00 | 67.80 |
| Main Channel | 7888.* | 1339.54 | 1339.25 | 0.29 | 0.11 | 0.00 | 1053.00 | 68.64 |
| Main Channel | 7888.* | 1339.54 | 1339.25 | 0.29 | 0.11 | 0.00 | 1053.00 | 68.64 |
| Main Channel | 7982.00 | 1339.65 | 1339.37 | 0.28 | 0.11 | 0.00 | 1053.00 | 69.29 |
| Main Channel | 7982.00 | 1339.65 | 1339.37 | 0.28 | 0.11 | 0.00 | 1053.00 | 69.29 |
| Main Channel | 7983 | 1339.65 | 1339.37 | 0.28 | 0.00 | 0.00 | 1053.00 | 69.30 |
| Main Channel | 7983 | 1339.65 | 1339.37 | 0.28 | 0.00 | 0.00 | 1053.00 | 69.30 |
| Main Channel | 7993 | 1339.67 | 1339.39 | 0.27 | 0.02 | 0.00 | 1053.00 | 69.46 |
| Main Channel | 7993 | 1339.67 | 1339.39 | 0.27 | 0.02 | 0.00 | 1053.00 | 69.46 |
| Main Channel | 8043 | 1341.46 | 1340.32 | 1.15 | 0.20 | 0.26 | 1053.00 | 52.78 |
| Main Channel | 8043 | 1341.46 | 1340.32 | 1.15 | 0.20 | 0.26 | 1053.00 | 52.78 |
| Main Channel | 8063.00 | 1341.69 | 1341.03 | 0.66 | 0.18 | 0.05 | 1053.00 | 58.39 |
| Main Channel | 8063.00 | 1341.69 | 1341.03 | 0.66 | 0.18 | 0.05 | 1053.00 | 58.39 |
| Main Channel | 8064.00 | 1341.69 | 1341.04 | 0.66 | 0.00 | 0.00 | 1053.00 | 58.43 |
| Main Channel | 8064.00 | 1341.69 | 1341.04 | 0.66 | 0.00 | 0.00 | 1053.00 | 58.43 |
| Main Channel | 8154.85* | 1341.98 | 1341.48 | 0.50 | 0.27 | 0.02 | 1053.00 | 61.58 |
| Main Channel | 8154.85* | 1341.98 | 1341.48 | 0.50 | 0.27 | 0.02 | 1053.00 | 61.58 |
| Main Channel | 8245.71* | 1342.19 | 1341.76 | 0.43 | 0.20 | 0.01 | 1053.00 | 63.42 |
| Main Channel | 8245.71* | 1342.19 | 1341.76 | 0.43 | 0.20 | 0.01 | 1053.00 | 63.42 |
| Main Channel | 8336.57* | 1342.37 | 1341.98 | 0.39 | 0.17 | 0.00 | 1053.00 | 64.76 |
| Main Channel | 8336.57* | 1342.37 | 1341.98 | 0.39 | 0.17 | 0.00 | 1053.00 | 64.76 |
| Main Channel | 8427.42* | 1342.52 | 1342.16 | 0.36 | 0.15 | 0.00 | 1053.00 | 65.73 |
| Main Channel | 8427.42* | 1342.52 | 1342.16 | 0.36 | 0.15 | 0.00 | 1053.00 | 65.73 |
| Main Channel | 8518.28* | 1342.66 | 1342.32 | 0.34 | 0.14 | 0.00 | 1053.00 | 66.62 |
| Main Channel | 8518.28* | 1342.66 | 1342.32 | 0.34 | 0.14 | 0.00 | 1053.00 | 66.62 |
| Main Channel | 8609.14* | 1342.79 | 1342.47 | 0.32 | 0.13 | 0.00 | 1053.00 | 67.39 |
| Main Channel | 8609.14* | 1342.79 | 1342.47 | 0.32 | 0.13 | 0.00 | 1053.00 | 67.39 |
| Main Channel | 8700 | 1342.91 | 1342.60 | 0.30 | 0.12 | 0.00 | 1053.00 | 68.05 |
| Main Channel | 8700 | 1342.91 | 1342.60 | 0.30 | 0.12 | 0.00 | 1053.00 | 68.05 |
| Main Channel | 8794.* | 1343.02 | 1342.73 | 0.29 | 0.11 | 0.00 | 1053.00 | 68.76 |
| Main Channel | 8794.* | 1343.02 | 1342.73 | 0.29 | 0.11 | 0.00 | 1053.00 | 68.76 |
| Main Channel | 8888.* | 1343.13 | 1342.85 | 0.27 | 0.11 | 0.00 | 1053.00 | 69.49 |
| Main Channel | 8888.* | 1343.13 | 1342.85 | 0.27 | 0.11 | 0.00 | 1053.00 | 69.49 |
| Main Channel | 8982.00 | 1343.23 | 1342.96 | 0.26 | 0.10 | 0.00 | 1053.00 | 70.05 |
| Main Channel | 8982.00 | 1343.23 | 1342.96 | 0.26 | 0.10 | 0.00 | 1053.00 | 70.05 |
| Main Channel | 8983.00 | 1343.23 | 1342.97 | 0.26 | 0.00 | 0.00 | 1053.00 | 70.06 |
| Main Channel | 8983.00 | 1343.23 | 1342.97 | 0.26 | 0.00 | 0.00 | 1053.00 | 70.06 |
| Main Channel | 8993 | 1343.25 | 1342.99 | 0.26 | 0.02 | 0.00 | 1053.00 | 70.21 |
| Main Channel | 8993 | 1343.25 | 1342.99 | 0.26 | 0.02 | 0.00 | 1053.00 | 70.21 |
| Main Channel | 9043 | 1344.96 | 1343.82 | 1.15 | 0.16 | 0.27 | 1053.00 | 52.79 |
| Main Channel | 9043 | 1344.96 | 1343.82 | 1.15 | 0.16 | 0.27 | 1053.00 | 52.79 |
| Main Channel | 9063.00 | 1345.16 | 1344.47 | 0.69 | 0.15 | 0.05 | 1053.00 | 57.88 |
| Main Channel | 9063.00 | 1345.16 | 1344.47 | 0.69 | 0.15 | 0.05 | 1053.00 | 57.88 |
| Main Channel | 9064.00 | 1345.16 | 1344.47 | 0.69 | 0.01 | 0.00 | 1053.00 | 57.92 |
| Main Channel | 9064.00 | 1345.16 | 1344.47 | 0.69 | 0.01 | 0.00 | 1053.00 | 57.92 |
| Main Channel | 9154.85* | 1345.46 | 1344.95 | 0.51 | 0.29 | 0.02 | 1053.00 | 61.36 |
| Main Channel | 9154.85* | 1345.46 | 1344.95 | 0.51 | 0.29 | 0.02 | 1053.00 | 61.36 |
| Main Channel | 9245.71* | 1345.68 | 1345.24 | 0.44 | 0.21 | 0.01 | 1053.00 | 63.27 |
| Main Channel | 9245.71* | 1345.68 | 1345.24 | 0.44 | 0.21 | 0.01 | 1053.00 | 63.27 |
| Main Channel | 9336.57* | 1345.86 | 1345.47 | 0.39 | 0.17 | 0.00 | 1053.00 | 64.64 |
| Main Channel | 9336.57* | 1345.86 | 1345.47 | 0.39 | 0.17 | 0.00 | 1053.00 | 64.64 |
| Main Channel | 9427.42* | 1346.01 | 1345.65 | 0.36 | 0.15 | 0.00 | 1053.00 | 65.63 |
| Main Channel | 9427.42* | 1346.01 | 1345.65 | 0.36 | 0.15 | 0.00 | 1053.00 | 65.63 |
| Main Channel | 9518.28* | 1346.15 | 1345.81 | 0.34 | 0.14 | 0.00 | 1053.00 | 66.54 |
| Main Channel | 9518.28* | 1346.15 | 1345.81 | 0.34 | 0.14 | 0.00 | 1053.00 | 66.54 |

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|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 9609.14* | 1346.28 | 1345.96 | 0.32 | 0.13 | 0.00 | | 1053.00 | 67.32 |
| Main Channel | 9609.14* | 1346.28 | 1345.96 | 0.32 | 0.13 | 0.00 | | 1053.00 | 67.32 |
| Main Channel | 9700 | 1346.40 | 1346.10 | 0.30 | 0.12 | 0.00 | | 1053.00 | 67.99 |
| Main Channel | 9700 | 1346.40 | 1346.10 | 0.30 | 0.12 | 0.00 | | 1053.00 | 67.99 |
| Main Channel | 9796.4* | 1346.52 | 1346.23 | 0.29 | 0.12 | 0.00 | | 1053.00 | 68.74 |
| Main Channel | 9796.4* | 1346.52 | 1346.23 | 0.29 | 0.12 | 0.00 | | 1053.00 | 68.74 |
| Main Channel | 9892.8* | 1346.63 | 1346.35 | 0.28 | 0.11 | 0.00 | | 1053.00 | 69.40 |
| Main Channel | 9892.8* | 1346.63 | 1346.35 | 0.28 | 0.11 | 0.00 | | 1053.00 | 69.40 |
| Main Channel | 9989.2* | 1346.73 | 1346.47 | 0.27 | 0.10 | 0.00 | | 1053.00 | 69.90 |
| Main Channel | 9989.2* | 1346.73 | 1346.47 | 0.27 | 0.10 | 0.00 | | 1053.00 | 69.90 |
| Main Channel | 10085.6* | 1346.83 | 1346.57 | 0.26 | 0.10 | 0.00 | | 1053.00 | 70.44 |
| Main Channel | 10085.6* | 1346.83 | 1346.57 | 0.26 | 0.10 | 0.00 | | 1053.00 | 70.44 |
| Main Channel | 10182.00 | 1346.92 | 1346.68 | 0.25 | 0.09 | 0.00 | | 1053.00 | 70.94 |
| Main Channel | 10182.00 | 1346.92 | 1346.68 | 0.25 | 0.09 | 0.00 | | 1053.00 | 70.94 |
| Main Channel | 10183.00 | 1346.93 | 1346.68 | 0.25 | 0.00 | 0.00 | | 1053.00 | 70.95 |
| Main Channel | 10183.00 | 1346.93 | 1346.68 | 0.25 | 0.00 | 0.00 | | 1053.00 | 70.95 |
| Main Channel | 10193 | 1346.94 | 1346.70 | 0.25 | 0.02 | 0.00 | | 1053.00 | 71.09 |
| Main Channel | 10193 | 1346.94 | 1346.70 | 0.25 | 0.02 | 0.00 | | 1053.00 | 71.09 |
| Main Channel | 10243 | 1348.56 | 1347.40 | 1.16 | 0.15 | 0.28 | | 1053.00 | 52.64 |
| Main Channel | 10243 | 1348.56 | 1347.40 | 1.16 | 0.15 | 0.28 | | 1053.00 | 52.64 |
| Main Channel | 10263.00 | 1348.76 | 1348.07 | 0.69 | 0.15 | 0.05 | | 1053.00 | 57.94 |
| Main Channel | 10263.00 | 1348.76 | 1348.07 | 0.69 | 0.15 | 0.05 | | 1053.00 | 57.94 |
| Main Channel | 10264.00 | 1348.76 | 1348.08 | 0.68 | 0.00 | 0.00 | | 1053.00 | 57.98 |
| Main Channel | 10264.00 | 1348.76 | 1348.08 | 0.68 | 0.00 | 0.00 | | 1053.00 | 57.98 |
| Main Channel | 10348.* | 1349.05 | 1348.53 | 0.52 | 0.27 | 0.02 | | 1053.00 | 61.18 |
| Main Channel | 10348.* | 1349.05 | 1348.53 | 0.52 | 0.27 | 0.02 | | 1053.00 | 61.18 |
| Main Channel | 10432.* | 1349.25 | 1348.81 | 0.44 | 0.20 | 0.01 | | 1053.00 | 63.04 |
| Main Channel | 10432.* | 1349.25 | 1348.81 | 0.44 | 0.20 | 0.01 | | 1053.00 | 63.04 |
| Main Channel | 10516.* | 1349.42 | 1349.02 | 0.40 | 0.17 | 0.00 | | 1053.00 | 64.38 |
| Main Channel | 10516.* | 1349.42 | 1349.02 | 0.40 | 0.17 | 0.00 | | 1053.00 | 64.38 |
| Main Channel | 10600 | 1349.57 | 1349.20 | 0.37 | 0.15 | 0.00 | | 1053.00 | 65.46 |
| Main Channel | 10600 | 1349.57 | 1349.20 | 0.37 | 0.15 | 0.00 | | 1053.00 | 65.46 |
| Main Channel | 10627.41 | 1349.63 | 1349.27 | 0.36 | 0.06 | 0.00 | | 1053.00 | 65.84 |
| Main Channel | 10627.41 | 1349.63 | 1349.27 | 0.36 | 0.06 | 0.00 | | 1053.00 | 65.84 |
| Main Channel | 10637.41 | 1349.66 | 1349.30 | 0.36 | 0.03 | 0.00 | | 1053.00 | 65.69 |
| Main Channel | 10637.41 | 1349.66 | 1349.30 | 0.36 | 0.03 | 0.00 | | 1053.00 | 65.69 |
| Main Channel | 10687.00 | 1352.50 | 1350.69 | 1.82 | 0.26 | 1.17 | | 1053.00 | 27.00 |
| Main Channel | 10687.00 | 1352.50 | 1350.69 | 1.82 | 0.26 | 1.17 | | 1053.00 | 27.00 |
| Main Channel | 10777.41 | Culvert | | | | | | | |
| Main Channel | 10780.41 | 1353.44 | 1352.68 | 0.76 | | | | 1053.00 | 27.00 |
| Main Channel | 10780.41 | 1353.44 | 1352.68 | 0.76 | | | | 1053.00 | 27.00 |
| Main Channel | 10791.41 | 1353.75 | 1353.45 | 0.29 | 0.03 | 0.28 | | 1053.00 | 50.56 |
| Main Channel | 10791.41 | 1353.75 | 1353.45 | 0.29 | 0.03 | 0.28 | | 1053.00 | 50.56 |
| Main Channel | 10805.41 | 1353.83 | 1353.64 | 0.19 | 0.02 | 0.06 | | 1053.00 | 78.08 |
| Main Channel | 10805.41 | 1353.83 | 1353.64 | 0.19 | 0.02 | 0.06 | | 1053.00 | 78.08 |
| Main Channel | 10810.00 | 1353.83 | 1353.65 | 0.18 | 0.00 | 0.00 | | 1053.00 | 75.75 |
| Main Channel | 10810.00 | 1353.83 | 1353.65 | 0.18 | 0.00 | 0.00 | | 1053.00 | 75.75 |
| Main Channel | 10906.6* | 1353.89 | 1353.71 | 0.18 | 0.06 | 0.00 | | 1053.00 | 75.83 |
| Main Channel | 10906.6* | 1353.89 | 1353.71 | 0.18 | 0.06 | 0.00 | | 1053.00 | 75.83 |
| Main Channel | 11003.3* | 1353.95 | 1353.77 | 0.18 | 0.06 | 0.00 | | 1053.00 | 75.98 |
| Main Channel | 11003.3* | 1353.95 | 1353.77 | 0.18 | 0.06 | 0.00 | | 1053.00 | 75.98 |
| Main Channel | 11100.00 | 1354.01 | 1353.83 | 0.18 | 0.06 | 0.00 | | 1053.00 | 76.06 |
| Main Channel | 11100.00 | 1354.01 | 1353.83 | 0.18 | 0.06 | 0.00 | | 1053.00 | 76.06 |
| Main Channel | 11200.00 | 1354.07 | 1353.89 | 0.18 | 0.06 | 0.00 | | 1053.00 | 76.49 |
| Main Channel | 11200.00 | 1354.07 | 1353.89 | 0.18 | 0.06 | 0.00 | | 1053.00 | 76.49 |
| Main Channel | 11291.50 | 1354.12 | 1353.95 | 0.17 | 0.05 | 0.00 | | 1053.00 | 76.61 |
| Main Channel | 11291.50 | 1354.12 | 1353.95 | 0.17 | 0.05 | 0.00 | | 1053.00 | 76.61 |
| Main Channel | 11300.00 | 1354.13 | 1353.94 | 0.19 | 0.01 | 0.00 | | 1053.00 | 67.52 |
| Main Channel | 11300.00 | 1354.13 | 1353.94 | 0.19 | 0.01 | 0.00 | | 1053.00 | 67.52 |
| Main Channel | 11346.23 | 1354.21 | 1353.98 | 0.23 | 0.04 | 0.03 | | 1053.00 | 42.10 |
| Main Channel | 11346.23 | 1354.21 | 1353.98 | 0.23 | 0.04 | 0.03 | | 1053.00 | 42.10 |
| Main Channel | 11369.81 | 1354.56 | 1353.94 | 0.62 | 0.04 | 0.32 | | 1053.00 | 25.50 |
| Main Channel | 11369.81 | 1354.56 | 1353.94 | 0.62 | 0.04 | 0.32 | | 1053.00 | 25.50 |
| Main Channel | 11480.7 | Culvert | | | | | | | |
| Main Channel | 11483.87 | 1355.12 | 1354.60 | 0.52 | | | | 1053.00 | 25.50 |
| Main Channel | 11483.87 | 1355.12 | 1354.60 | 0.52 | | | | 1053.00 | 25.50 |
| Main Channel | 11490.00 | 1355.37 | 1355.25 | 0.12 | 0.00 | 0.24 | | 1053.00 | 52.80 |
| Main Channel | 11490.00 | 1355.37 | 1355.25 | 0.12 | 0.00 | 0.24 | | 1053.00 | 52.80 |
| Main Channel | 11496.8 | 1355.37 | 1355.29 | 0.08 | 0.00 | 0.00 | | 1053.00 | 65.53 |
| Main Channel | 11496.8 | 1355.37 | 1355.29 | 0.08 | 0.00 | 0.00 | | 1053.00 | 65.53 |
| Main Channel | 11510.53 | 1355.38 | 1355.32 | 0.06 | 0.00 | 0.00 | | 1053.00 | 90.80 |
| Main Channel | 11510.53 | 1355.38 | 1355.32 | 0.06 | 0.00 | 0.00 | | 1053.00 | 90.80 |
| Main Channel | 11536.53 | 1355.38 | 1355.32 | 0.06 | 0.01 | 0.00 | 0.56 | 812.44 | 92.04 |
| Main Channel | 11536.53 | 1355.38 | 1355.32 | 0.06 | 0.01 | 0.00 | | 813.00 | 81.70 |
| Main Channel | 11547.53 | 1355.39 | 1355.32 | 0.06 | 0.00 | 0.00 | 0.54 | 812.46 | 91.88 |
| Main Channel | 11547.53 | 1355.39 | 1355.32 | 0.06 | 0.00 | 0.00 | | 813.00 | 81.71 |

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|---|---|---|---|---|---|---|---|---|
| Main Channel | 11585.00 | 1355.40 | 1355.32 | 0.08 | 0.01 | 0.00 | 813.00 | 79.35 |
| Main Channel | 11585.00 | 1355.40 | 1355.32 | 0.08 | 0.01 | 0.00 | 813.00 | 79.36 |
| Main Channel | 11680.94 | 1355.46 | 1355.29 | 0.17 | 0.03 | 0.03 | 813.00 | 63.78 |
| Main Channel | 11680.94 | 1355.46 | 1355.29 | 0.17 | 0.03 | 0.03 | 813.00 | 63.78 |
| Main Channel | 11765.4* | 1355.51 | 1355.34 | 0.17 | 0.05 | 0.00 | 813.00 | 63.87 |
| Main Channel | 11765.4* | 1355.51 | 1355.34 | 0.17 | 0.05 | 0.00 | 813.00 | 63.87 |
| Main Channel | 11850.00 | 1355.56 | 1355.40 | 0.16 | 0.05 | 0.00 | 813.00 | 63.96 |
| Main Channel | 11850.00 | 1355.56 | 1355.40 | 0.16 | 0.05 | 0.00 | 813.00 | 63.96 |
| Main Channel | 11936.5* | 1355.61 | 1355.45 | 0.17 | 0.05 | 0.00 | 813.00 | 63.89 |
| Main Channel | 11936.5* | 1355.61 | 1355.45 | 0.17 | 0.05 | 0.00 | 813.00 | 63.89 |
| Main Channel | 12023.* | 1355.66 | 1355.50 | 0.17 | 0.05 | 0.00 | 813.00 | 63.90 |
| Main Channel | 12023.* | 1355.66 | 1355.50 | 0.17 | 0.05 | 0.00 | 813.00 | 63.90 |
| Main Channel | 12109.5* | 1355.71 | 1355.55 | 0.17 | 0.05 | 0.00 | 813.00 | 63.84 |
| Main Channel | 12109.5* | 1355.71 | 1355.55 | 0.17 | 0.05 | 0.00 | 813.00 | 63.84 |
| Main Channel | 12196.* | 1355.77 | 1355.60 | 0.17 | 0.05 | 0.00 | 813.00 | 63.85 |
| Main Channel | 12196.* | 1355.77 | 1355.60 | 0.17 | 0.05 | 0.00 | 813.00 | 63.85 |
| Main Channel | 12282.5* | 1355.82 | 1355.65 | 0.17 | 0.05 | 0.00 | 813.00 | 63.86 |
| Main Channel | 12282.5* | 1355.82 | 1355.65 | 0.17 | 0.05 | 0.00 | 813.00 | 63.86 |
| Main Channel | 12369.00 | 1355.87 | 1355.70 | 0.17 | 0.05 | 0.00 | 813.00 | 63.79 |
| Main Channel | 12369.00 | 1355.87 | 1355.70 | 0.17 | 0.05 | 0.00 | 813.00 | 63.79 |
| Main Channel | 12370 | 1355.87 | 1355.70 | 0.17 | 0.00 | 0.00 | 813.00 | 63.80 |
| Main Channel | 12370 | 1355.87 | 1355.71 | 0.17 | 0.00 | 0.00 | 813.00 | 63.80 |
| Main Channel | 12420.00 | 1356.86 | 1355.69 | 1.17 | 0.12 | 0.30 | 813.00 | 40.01 |
| Main Channel | 12420.00 | 1356.86 | 1355.69 | 1.17 | 0.12 | 0.30 | 813.00 | 40.01 |
| Main Channel | 12440.00 | 1357.09 | 1356.44 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 12440.00 | 1357.09 | 1356.44 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 12441.00 | 1357.09 | 1356.44 | 0.65 | 0.00 | 0.00 | 813.00 | 45.93 |
| Main Channel | 12441.00 | 1357.09 | 1356.44 | 0.65 | 0.00 | 0.00 | 813.00 | 45.93 |
| Main Channel | 12527.3* | 1357.40 | 1356.92 | 0.48 | 0.29 | 0.02 | 813.00 | 49.45 |
| Main Channel | 12527.3* | 1357.40 | 1356.92 | 0.48 | 0.29 | 0.02 | 813.00 | 49.45 |
| Main Channel | 12613.6* | 1357.65 | 1357.26 | 0.40 | 0.25 | 0.01 | 813.00 | 51.75 |
| Main Channel | 12613.6* | 1357.65 | 1357.26 | 0.40 | 0.25 | 0.01 | 813.00 | 51.75 |
| Main Channel | 12700. | 1357.89 | 1357.55 | 0.34 | 0.23 | 0.01 | 813.00 | 53.77 |
| Main Channel | 12700. | 1357.89 | 1357.55 | 0.34 | 0.23 | 0.01 | 813.00 | 53.77 |
| Main Channel | 12782.2* | 1358.07 | 1357.78 | 0.29 | 0.18 | 0.00 | 813.00 | 55.54 |
| Main Channel | 12782.2* | 1358.07 | 1357.78 | 0.29 | 0.18 | 0.00 | 813.00 | 55.54 |
| Main Channel | 12864.5* | 1358.22 | 1357.95 | 0.27 | 0.14 | 0.00 | 813.00 | 56.87 |
| Main Channel | 12864.5* | 1358.22 | 1357.95 | 0.27 | 0.14 | 0.00 | 813.00 | 56.87 |
| Main Channel | 12946.7* | 1358.33 | 1358.08 | 0.25 | 0.11 | 0.00 | 813.00 | 57.84 |
| Main Channel | 12946.7* | 1358.33 | 1358.08 | 0.25 | 0.11 | 0.00 | 813.00 | 57.84 |
| Main Channel | 13029.00 | 1358.42 | 1358.18 | 0.24 | 0.09 | 0.00 | 813.00 | 58.63 |
| Main Channel | 13029.00 | 1358.42 | 1358.18 | 0.24 | 0.09 | 0.00 | 813.00 | 58.63 |
| Main Channel | 13030.00 | 1358.42 | 1358.18 | 0.24 | 0.00 | 0.00 | 813.00 | 58.64 |
| Main Channel | 13030.00 | 1358.42 | 1358.18 | 0.24 | 0.00 | 0.00 | 813.00 | 58.64 |
| Main Channel | 13080.00 | 1360.19 | 1359.02 | 1.16 | 0.18 | 0.28 | 813.00 | 40.03 |
| Main Channel | 13080.00 | 1360.19 | 1359.02 | 1.16 | 0.18 | 0.28 | 813.00 | 40.03 |
| Main Channel | 13100.00 | 1360.42 | 1359.77 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 13100.00 | 1360.42 | 1359.77 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 13101.00 | 1360.42 | 1359.77 | 0.65 | 0.00 | 0.00 | 813.00 | 45.92 |
| Main Channel | 13101.00 | 1360.42 | 1359.77 | 0.65 | 0.00 | 0.00 | 813.00 | 45.92 |
| Main Channel | 13200.8* | 1360.74 | 1360.26 | 0.48 | 0.30 | 0.02 | 813.00 | 49.44 |
| Main Channel | 13200.8* | 1360.74 | 1360.26 | 0.48 | 0.30 | 0.02 | 813.00 | 49.44 |
| Main Channel | 13300.6* | 1360.97 | 1360.56 | 0.41 | 0.22 | 0.01 | 813.00 | 51.45 |
| Main Channel | 13300.6* | 1360.97 | 1360.56 | 0.41 | 0.22 | 0.01 | 813.00 | 51.45 |
| Main Channel | 13400.5* | 1361.15 | 1360.79 | 0.36 | 0.18 | 0.00 | 813.00 | 52.89 |
| Main Channel | 13400.5* | 1361.15 | 1360.79 | 0.36 | 0.18 | 0.00 | 813.00 | 52.89 |
| Main Channel | 13500.3* | 1361.31 | 1360.98 | 0.33 | 0.16 | 0.00 | 813.00 | 54.03 |
| Main Channel | 13500.3* | 1361.31 | 1360.98 | 0.33 | 0.16 | 0.00 | 813.00 | 54.03 |
| Main Channel | 13600.1* | 1361.46 | 1361.15 | 0.31 | 0.14 | 0.00 | 813.00 | 54.98 |
| Main Channel | 13600.1* | 1361.46 | 1361.15 | 0.31 | 0.14 | 0.00 | 813.00 | 54.98 |
| Main Channel | 13700.00 | 1361.59 | 1361.30 | 0.29 | 0.13 | 0.00 | 813.00 | 55.78 |
| Main Channel | 13700.00 | 1361.59 | 1361.30 | 0.29 | 0.13 | 0.00 | 813.00 | 55.78 |
| Main Channel | 13798.1* | 1361.71 | 1361.44 | 0.28 | 0.12 | 0.00 | 813.00 | 56.46 |
| Main Channel | 13798.1* | 1361.71 | 1361.44 | 0.28 | 0.12 | 0.00 | 813.00 | 56.46 |
| Main Channel | 13896.3* | 1361.83 | 1361.56 | 0.26 | 0.11 | 0.00 | 813.00 | 57.06 |
| Main Channel | 13896.3* | 1361.83 | 1361.56 | 0.26 | 0.11 | 0.00 | 813.00 | 57.06 |
| Main Channel | 13994.5* | 1361.93 | 1361.68 | 0.25 | 0.11 | 0.00 | 813.00 | 57.62 |
| Main Channel | 13994.5* | 1361.93 | 1361.68 | 0.25 | 0.11 | 0.00 | 813.00 | 57.62 |
| Main Channel | 14092.6* | 1362.03 | 1361.79 | 0.24 | 0.10 | 0.00 | 813.00 | 58.17 |
| Main Channel | 14092.6* | 1362.03 | 1361.79 | 0.24 | 0.10 | 0.00 | 813.00 | 58.17 |
| Main Channel | 14190.8* | 1362.13 | 1361.90 | 0.24 | 0.10 | 0.00 | 813.00 | 58.60 |
| Main Channel | 14190.8* | 1362.13 | 1361.90 | 0.24 | 0.10 | 0.00 | 813.00 | 58.60 |
| Main Channel | 14289.00 | 1362.22 | 1361.99 | 0.23 | 0.09 | 0.00 | 813.00 | 59.00 |
| Main Channel | 14289.00 | 1362.22 | 1361.99 | 0.23 | 0.09 | 0.00 | 813.00 | 59.00 |
| Main Channel | 14290.00 | 1362.23 | 1362.00 | 0.23 | 0.00 | 0.00 | 813.00 | 59.01 |
| Main Channel | 14290.00 | 1362.23 | 1362.00 | 0.23 | 0.00 | 0.00 | 813.00 | 59.01 |

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| Main Channel | 14340.00 | 1363.82 | 1362.65 | 1.16 | 0.17 | 0.28 | 813.00 | 40.03 |
| Main Channel | 14340.00 | 1363.82 | 1362.65 | 1.16 | 0.17 | 0.28 | 813.00 | 40.03 |
| Main Channel | 14360.00 | 1364.05 | 1363.40 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 14360.00 | 1364.05 | 1363.40 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 14361.00 | 1364.05 | 1363.40 | 0.65 | 0.00 | 0.00 | 813.00 | 45.92 |
| Main Channel | 14361.00 | 1364.05 | 1363.40 | 0.65 | 0.00 | 0.00 | 813.00 | 45.92 |
| Main Channel | 14445.7* | 1364.33 | 1363.83 | 0.49 | 0.26 | 0.02 | 813.00 | 49.08 |
| Main Channel | 14445.7* | 1364.33 | 1363.83 | 0.49 | 0.26 | 0.02 | 813.00 | 49.08 |
| Main Channel | 14530.5* | 1364.53 | 1364.11 | 0.42 | 0.20 | 0.01 | 813.00 | 50.89 |
| Main Channel | 14530.5* | 1364.53 | 1364.11 | 0.42 | 0.20 | 0.01 | 813.00 | 50.89 |
| Main Channel | 14615.2* | 1364.70 | 1364.32 | 0.38 | 0.16 | 0.00 | 813.00 | 52.24 |
| Main Channel | 14615.2* | 1364.70 | 1364.32 | 0.38 | 0.16 | 0.00 | 813.00 | 52.24 |
| Main Channel | 14700.00 | 1364.85 | 1364.50 | 0.35 | 0.14 | 0.00 | 813.00 | 53.36 |
| Main Channel | 14700.00 | 1364.85 | 1364.50 | 0.35 | 0.14 | 0.00 | 813.00 | 53.36 |
| Main Channel | 14800.* | 1365.00 | 1364.68 | 0.32 | 0.15 | 0.00 | 813.00 | 54.42 |
| Main Channel | 14800.* | 1365.00 | 1364.68 | 0.32 | 0.15 | 0.00 | 813.00 | 54.42 |
| Main Channel | 14900.* | 1365.14 | 1364.84 | 0.30 | 0.14 | 0.00 | 813.00 | 55.31 |
| Main Channel | 14900.* | 1365.14 | 1364.84 | 0.30 | 0.14 | 0.00 | 813.00 | 55.31 |
| Main Channel | 15000.* | 1365.27 | 1364.99 | 0.28 | 0.13 | 0.00 | 813.00 | 56.07 |
| Main Channel | 15000.* | 1365.27 | 1364.99 | 0.28 | 0.13 | 0.00 | 813.00 | 56.07 |
| Main Channel | 15100.* | 1365.39 | 1365.12 | 0.27 | 0.12 | 0.00 | 813.00 | 56.73 |
| Main Channel | 15100.* | 1365.39 | 1365.12 | 0.27 | 0.12 | 0.00 | 813.00 | 56.73 |
| Main Channel | 15200.* | 1365.50 | 1365.25 | 0.26 | 0.11 | 0.00 | 813.00 | 57.32 |
| Main Channel | 15200.* | 1365.50 | 1365.25 | 0.26 | 0.11 | 0.00 | 813.00 | 57.32 |
| Main Channel | 15300.* | 1365.61 | 1365.36 | 0.25 | 0.11 | 0.00 | 813.00 | 57.85 |
| Main Channel | 15300.* | 1365.61 | 1365.36 | 0.25 | 0.11 | 0.00 | 813.00 | 57.85 |
| Main Channel | 15400.* | 1365.71 | 1365.47 | 0.24 | 0.10 | 0.00 | 813.00 | 58.33 |
| Main Channel | 15400.* | 1365.71 | 1365.47 | 0.24 | 0.10 | 0.00 | 813.00 | 58.33 |
| Main Channel | 15500.* | 1365.81 | 1365.58 | 0.23 | 0.10 | 0.00 | 813.00 | 58.76 |
| Main Channel | 15500.* | 1365.81 | 1365.58 | 0.23 | 0.10 | 0.00 | 813.00 | 58.76 |
| Main Channel | 15600.* | 1365.90 | 1365.67 | 0.23 | 0.09 | 0.00 | 813.00 | 59.16 |
| Main Channel | 15600.* | 1365.90 | 1365.67 | 0.23 | 0.09 | 0.00 | 813.00 | 59.16 |
| Main Channel | 15700.00 | 1365.99 | 1365.77 | 0.22 | 0.09 | 0.00 | 813.00 | 59.52 |
| Main Channel | 15700.00 | 1365.99 | 1365.77 | 0.22 | 0.09 | 0.00 | 813.00 | 59.52 |
| Main Channel | 15797.4* | 1366.08 | 1365.86 | 0.22 | 0.08 | 0.00 | 813.00 | 59.84 |
| Main Channel | 15797.4* | 1366.08 | 1365.86 | 0.22 | 0.08 | 0.00 | 813.00 | 59.84 |
| Main Channel | 15894.8* | 1366.16 | 1365.95 | 0.21 | 0.08 | 0.00 | 813.00 | 60.13 |
| Main Channel | 15894.8* | 1366.16 | 1365.95 | 0.21 | 0.08 | 0.00 | 813.00 | 60.13 |
| Main Channel | 15992.2* | 1366.24 | 1366.03 | 0.21 | 0.08 | 0.00 | 813.00 | 60.41 |
| Main Channel | 15992.2* | 1366.24 | 1366.03 | 0.21 | 0.08 | 0.00 | 813.00 | 60.41 |
| Main Channel | 16089.6* | 1366.32 | 1366.11 | 0.21 | 0.08 | 0.00 | 813.00 | 60.66 |
| Main Channel | 16089.6* | 1366.32 | 1366.11 | 0.21 | 0.08 | 0.00 | 813.00 | 60.66 |
| Main Channel | 16187.* | 1366.39 | 1366.19 | 0.20 | 0.08 | 0.00 | 813.00 | 60.92 |
| Main Channel | 16187.* | 1366.39 | 1366.19 | 0.20 | 0.08 | 0.00 | 813.00 | 60.92 |
| Main Channel | 16284.4* | 1366.47 | 1366.27 | 0.20 | 0.07 | 0.00 | 813.00 | 61.20 |
| Main Channel | 16284.4* | 1366.47 | 1366.27 | 0.20 | 0.07 | 0.00 | 813.00 | 61.20 |
| Main Channel | 16381.8* | 1366.54 | 1366.35 | 0.20 | 0.07 | 0.00 | 813.00 | 61.40 |
| Main Channel | 16381.8* | 1366.54 | 1366.35 | 0.20 | 0.07 | 0.00 | 813.00 | 61.40 |
| Main Channel | 16479.2* | 1366.61 | 1366.42 | 0.19 | 0.07 | 0.00 | 813.00 | 61.59 |
| Main Channel | 16479.2* | 1366.61 | 1366.42 | 0.19 | 0.07 | 0.00 | 813.00 | 61.59 |
| Main Channel | 16576.6* | 1366.68 | 1366.49 | 0.19 | 0.07 | 0.00 | 813.00 | 61.77 |
| Main Channel | 16576.6* | 1366.68 | 1366.49 | 0.19 | 0.07 | 0.00 | 813.00 | 61.77 |
| Main Channel | 16674.00 | 1366.75 | 1366.56 | 0.19 | 0.07 | 0.00 | 813.00 | 61.93 |
| Main Channel | 16674.00 | 1366.75 | 1366.56 | 0.19 | 0.07 | 0.00 | 813.00 | 61.93 |
| Main Channel | 16675.00 | 1366.75 | 1366.56 | 0.19 | 0.00 | 0.00 | 813.00 | 61.94 |
| Main Channel | 16675.00 | 1366.75 | 1366.56 | 0.19 | 0.00 | 0.00 | 813.00 | 61.94 |
| Main Channel | 16720.00 | 1368.01 | 1366.84 | 1.17 | 0.13 | 0.29 | 813.00 | 40.01 |
| Main Channel | 16720.00 | 1368.01 | 1366.84 | 1.17 | 0.13 | 0.29 | 813.00 | 40.01 |
| Main Channel | 16740.00 | 1368.24 | 1367.59 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 16740.00 | 1368.24 | 1367.59 | 0.65 | 0.18 | 0.05 | 813.00 | 45.89 |
| Main Channel | 16741.00 | 1368.24 | 1367.59 | 0.65 | 0.00 | 0.00 | 813.00 | 45.93 |
| Main Channel | 16741.00 | 1368.24 | 1367.59 | 0.65 | 0.00 | 0.00 | 813.00 | 45.93 |
| Main Channel | 16833.5* | 1368.45 | 1368.30 | 0.16 | 0.16 | 0.05 | 505.00 | 51.16 |
| Main Channel | 16833.5* | 1368.45 | 1368.30 | 0.16 | 0.16 | 0.05 | 505.00 | 51.16 |
| Main Channel | 16926.1* | 1368.53 | 1368.37 | 0.16 | 0.07 | 0.00 | 505.00 | 51.45 |
| Main Channel | 16926.1* | 1368.53 | 1368.37 | 0.16 | 0.07 | 0.00 | 505.00 | 51.45 |
| Main Channel | 17018.7* | 1368.60 | 1368.44 | 0.15 | 0.07 | 0.00 | 505.00 | 51.62 |
| Main Channel | 17018.7* | 1368.60 | 1368.44 | 0.15 | 0.07 | 0.00 | 505.00 | 51.62 |
| Main Channel | 17111.2* | 1368.67 | 1368.51 | 0.15 | 0.07 | 0.00 | 505.00 | 51.87 |
| Main Channel | 17111.2* | 1368.67 | 1368.51 | 0.15 | 0.07 | 0.00 | 505.00 | 51.87 |
| Main Channel | 17203.8* | 1368.73 | 1368.58 | 0.15 | 0.07 | 0.00 | 505.00 | 52.02 |
| Main Channel | 17203.8* | 1368.73 | 1368.58 | 0.15 | 0.07 | 0.00 | 505.00 | 52.02 |
| Main Channel | 17296.4* | 1368.80 | 1368.65 | 0.15 | 0.07 | 0.00 | 505.00 | 52.24 |
| Main Channel | 17296.4* | 1368.80 | 1368.65 | 0.15 | 0.07 | 0.00 | 505.00 | 52.24 |
| Main Channel | 17389.00 | 1368.86 | 1368.72 | 0.15 | 0.06 | 0.00 | 505.00 | 52.36 |
| Main Channel | 17389.00 | 1368.86 | 1368.72 | 0.15 | 0.06 | 0.00 | 505.00 | 52.36 |

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| Main Channel | 17390.00 | 1368.86 | 1368.72 | 0.15 | 0.00 | 0.00 | 505.00 | 52.37 |
| Main Channel | 17390.00 | 1368.86 | 1368.72 | 0.15 | 0.00 | 0.00 | 505.00 | 52.37 |
| Main Channel | 17440.00 | 1370.36 | 1369.40 | 0.96 | 0.14 | 0.24 | 505.00 | 33.59 |
| Main Channel | 17440.00 | 1370.36 | 1369.40 | 0.96 | 0.14 | 0.24 | 505.00 | 33.59 |
| Main Channel | 17460.00 | 1370.58 | 1370.08 | 0.51 | 0.18 | 0.04 | 505.00 | 38.94 |
| Main Channel | 17460.00 | 1370.58 | 1370.08 | 0.51 | 0.18 | 0.04 | 505.00 | 38.94 |
| Main Channel | 17461.00 | 1370.59 | 1370.08 | 0.50 | 0.00 | 0.00 | 505.00 | 38.98 |
| Main Channel | 17461.00 | 1370.59 | 1370.08 | 0.50 | 0.00 | 0.00 | 505.00 | 38.98 |
| Main Channel | 17540.6* | 1370.84 | 1370.46 | 0.38 | 0.24 | 0.01 | 505.00 | 41.68 |
| Main Channel | 17540.6* | 1370.84 | 1370.46 | 0.38 | 0.24 | 0.01 | 505.00 | 41.68 |
| Main Channel | 17620.3* | 1371.02 | 1370.70 | 0.32 | 0.18 | 0.01 | 505.00 | 43.28 |
| Main Channel | 17620.3* | 1371.02 | 1370.70 | 0.32 | 0.18 | 0.01 | 505.00 | 43.28 |
| Main Channel | 17700.00 | 1371.18 | 1370.89 | 0.29 | 0.15 | 0.00 | 505.00 | 44.46 |
| Main Channel | 17700.00 | 1371.18 | 1370.89 | 0.29 | 0.15 | 0.00 | 505.00 | 44.46 |
| Main Channel | 17798.7* | 1371.34 | 1371.08 | 0.26 | 0.16 | 0.00 | 505.00 | 45.59 |
| Main Channel | 17798.7* | 1371.34 | 1371.08 | 0.26 | 0.16 | 0.00 | 505.00 | 45.59 |
| Main Channel | 17897.5* | 1371.48 | 1371.24 | 0.24 | 0.14 | 0.00 | 505.00 | 46.49 |
| Main Channel | 17897.5* | 1371.48 | 1371.24 | 0.24 | 0.14 | 0.00 | 505.00 | 46.49 |
| Main Channel | 17996.3* | 1371.61 | 1371.39 | 0.22 | 0.13 | 0.00 | 505.00 | 47.24 |
| Main Channel | 17996.3* | 1371.61 | 1371.39 | 0.22 | 0.13 | 0.00 | 505.00 | 47.24 |
| Main Channel | 18095.1* | 1371.73 | 1371.52 | 0.21 | 0.12 | 0.00 | 505.00 | 47.89 |
| Main Channel | 18095.1* | 1371.73 | 1371.52 | 0.21 | 0.12 | 0.00 | 505.00 | 47.89 |
| Main Channel | 18193.8* | 1371.84 | 1371.64 | 0.20 | 0.11 | 0.00 | 505.00 | 48.44 |
| Main Channel | 18193.8* | 1371.84 | 1371.64 | 0.20 | 0.11 | 0.00 | 505.00 | 48.44 |
| Main Channel | 18292.6* | 1371.94 | 1371.75 | 0.19 | 0.10 | 0.00 | 505.00 | 48.94 |
| Main Channel | 18292.6* | 1371.94 | 1371.75 | 0.19 | 0.10 | 0.00 | 505.00 | 48.94 |
| Main Channel | 18391.4* | 1372.04 | 1371.85 | 0.19 | 0.10 | 0.00 | 505.00 | 49.38 |
| Main Channel | 18391.4* | 1372.04 | 1371.85 | 0.19 | 0.10 | 0.00 | 505.00 | 49.38 |
| Main Channel | 18490.2* | 1372.13 | 1371.95 | 0.18 | 0.09 | 0.00 | 505.00 | 49.77 |
| Main Channel | 18490.2* | 1372.13 | 1371.95 | 0.18 | 0.09 | 0.00 | 505.00 | 49.77 |
| Main Channel | 18589.00 | 1372.22 | 1372.05 | 0.17 | 0.09 | 0.00 | 505.00 | 50.13 |
| Main Channel | 18589.00 | 1372.22 | 1372.05 | 0.17 | 0.09 | 0.00 | 505.00 | 50.13 |
| Main Channel | 18590.00 | 1372.22 | 1372.05 | 0.17 | 0.00 | 0.00 | 505.00 | 50.14 |
| Main Channel | 18590.00 | 1372.22 | 1372.05 | 0.17 | 0.00 | 0.00 | 505.00 | 50.14 |
| Main Channel | 18640.00 | 1373.96 | 1373.00 | 0.96 | 0.17 | 0.24 | 505.00 | 33.59 |
| Main Channel | 18640.00 | 1373.96 | 1373.00 | 0.96 | 0.17 | 0.24 | 505.00 | 33.59 |
| Main Channel | 18660.00 | 1374.18 | 1373.68 | 0.51 | 0.18 | 0.04 | 505.00 | 38.94 |
| Main Channel | 18660.00 | 1374.18 | 1373.68 | 0.51 | 0.18 | 0.04 | 505.00 | 38.94 |
| Main Channel | 18661.00 | 1374.19 | 1373.68 | 0.50 | 0.00 | 0.00 | 505.00 | 38.98 |
| Main Channel | 18661.00 | 1374.19 | 1373.68 | 0.50 | 0.00 | 0.00 | 505.00 | 38.98 |
| Main Channel | 18700.00 | 1374.32 | 1373.90 | 0.43 | 0.13 | 0.01 | 505.00 | 40.54 |
| Main Channel | 18700.00 | 1374.32 | 1373.90 | 0.43 | 0.13 | 0.01 | 505.00 | 40.54 |
| Main Channel | 18792.9* | 1374.57 | 1374.23 | 0.34 | 0.23 | 0.01 | 505.00 | 42.77 |
| Main Channel | 18792.9* | 1374.57 | 1374.23 | 0.34 | 0.23 | 0.01 | 505.00 | 42.77 |
| Main Channel | 18885.8* | 1374.75 | 1374.46 | 0.29 | 0.18 | 0.00 | 505.00 | 44.31 |
| Main Channel | 18885.8* | 1374.75 | 1374.46 | 0.29 | 0.18 | 0.00 | 505.00 | 44.31 |
| Main Channel | 18978.7* | 1374.91 | 1374.64 | 0.26 | 0.15 | 0.00 | 505.00 | 45.38 |
| Main Channel | 18978.7* | 1374.91 | 1374.64 | 0.26 | 0.15 | 0.00 | 505.00 | 45.38 |
| Main Channel | 19071.6* | 1375.04 | 1374.80 | 0.24 | 0.14 | 0.00 | 505.00 | 46.25 |
| Main Channel | 19071.6* | 1375.04 | 1374.80 | 0.24 | 0.14 | 0.00 | 505.00 | 46.25 |
| Main Channel | 19164.5* | 1375.17 | 1374.94 | 0.23 | 0.12 | 0.00 | 505.00 | 47.00 |
| Main Channel | 19164.5* | 1375.17 | 1374.94 | 0.23 | 0.12 | 0.00 | 505.00 | 47.00 |
| Main Channel | 19257.4* | 1375.28 | 1375.07 | 0.21 | 0.11 | 0.00 | 505.00 | 47.66 |
| Main Channel | 19257.4* | 1375.28 | 1375.07 | 0.21 | 0.11 | 0.00 | 505.00 | 47.66 |
| Main Channel | 19350.3* | 1375.39 | 1375.18 | 0.21 | 0.11 | 0.00 | 505.00 | 48.19 |
| Main Channel | 19350.3* | 1375.39 | 1375.18 | 0.21 | 0.11 | 0.00 | 505.00 | 48.19 |
| Main Channel | 19443.2* | 1375.49 | 1375.29 | 0.20 | 0.10 | 0.00 | 505.00 | 48.66 |
| Main Channel | 19443.2* | 1375.49 | 1375.29 | 0.20 | 0.10 | 0.00 | 505.00 | 48.66 |
| Main Channel | 19536.1* | 1375.58 | 1375.40 | 0.19 | 0.09 | 0.00 | 505.00 | 49.16 |
| Main Channel | 19536.1* | 1375.58 | 1375.40 | 0.19 | 0.09 | 0.00 | 505.00 | 49.16 |
| Main Channel | 19629.00 | 1375.67 | 1375.49 | 0.18 | 0.09 | 0.00 | 505.00 | 49.53 |
| Main Channel | 19629.00 | 1375.67 | 1375.49 | 0.18 | 0.09 | 0.00 | 505.00 | 49.53 |
| Main Channel | 19630.00 | 1375.68 | 1375.49 | 0.18 | 0.00 | 0.00 | 505.00 | 49.54 |
| Main Channel | 19630.00 | 1375.68 | 1375.49 | 0.18 | 0.00 | 0.00 | 505.00 | 49.54 |
| Main Channel | 19680.00 | 1377.48 | 1376.52 | 0.96 | 0.18 | 0.23 | 505.00 | 33.59 |
| Main Channel | 19680.00 | 1377.48 | 1376.52 | 0.96 | 0.18 | 0.23 | 505.00 | 33.59 |
| Main Channel | 19700.00 | 1377.70 | 1377.20 | 0.51 | 0.18 | 0.04 | 505.00 | 38.94 |
| Main Channel | 19700.00 | 1377.70 | 1377.20 | 0.51 | 0.18 | 0.04 | 505.00 | 38.94 |
| Main Channel | 19701.00 | 1377.71 | 1377.20 | 0.50 | 0.00 | 0.00 | 505.00 | 38.98 |
| Main Channel | 19701.00 | 1377.71 | 1377.20 | 0.50 | 0.00 | 0.00 | 505.00 | 38.98 |
| Main Channel | 19800.6* | 1378.01 | 1377.65 | 0.36 | 0.29 | 0.01 | 505.00 | 42.15 |
| Main Channel | 19800.6* | 1378.01 | 1377.65 | 0.36 | 0.29 | 0.01 | 505.00 | 42.15 |
| Main Channel | 19900.3* | 1378.22 | 1377.92 | 0.30 | 0.21 | 0.01 | 505.00 | 43.92 |
| Main Channel | 19900.3* | 1378.22 | 1377.92 | 0.30 | 0.21 | 0.01 | 505.00 | 43.92 |
| Main Channel | 20000.00 | 1378.40 | 1378.13 | 0.27 | 0.17 | 0.00 | 505.00 | 45.18 |
| Main Channel | 20000.00 | 1378.40 | 1378.13 | 0.27 | 0.17 | 0.00 | 505.00 | 45.18 |

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| Main Channel | 20090.2* | 1378.53 | 1378.29 | 0.24 | 0.13 | 0.00 | 505.00 | 46.50 |
| Main Channel | 20090.2* | 1378.53 | 1378.29 | 0.24 | 0.13 | 0.00 | 505.00 | 46.50 |
| Main Channel | 20180.4* | 1378.65 | 1378.43 | 0.22 | 0.11 | 0.00 | 505.00 | 47.61 |
| Main Channel | 20180.4* | 1378.65 | 1378.43 | 0.22 | 0.11 | 0.00 | 505.00 | 47.61 |
| Main Channel | 20270.61 | 1378.75 | 1378.55 | 0.20 | 0.10 | 0.00 | 505.00 | 48.56 |
| Main Channel | 20270.61 | 1378.75 | 1378.55 | 0.20 | 0.10 | 0.00 | 505.00 | 48.56 |
| Main Channel | 20300.00 | 1378.79 | 1378.59 | 0.19 | 0.04 | 0.00 | 505.00 | 48.80 |
| Main Channel | 20300.00 | 1378.79 | 1378.59 | 0.19 | 0.04 | 0.00 | 505.00 | 48.80 |
| Main Channel | 20379.70 | 1378.90 | 1378.71 | 0.18 | 0.11 | 0.00 | 505.00 | 49.46 |
| Main Channel | 20379.70 | 1378.90 | 1378.71 | 0.18 | 0.11 | 0.00 | 505.00 | 49.46 |
| Main Channel | 20431.69 | 1378.97 | 1378.76 | 0.21 | 0.06 | 0.01 | 516.00 | 48.46 |
| Main Channel | 20431.69 | 1378.97 | 1378.76 | 0.21 | 0.06 | 0.01 | 516.00 | 48.46 |
| Main Channel | 20521.1* | 1379.06 | 1378.86 | 0.20 | 0.10 | 0.00 | 516.00 | 48.99 |
| Main Channel | 20521.1* | 1379.06 | 1378.86 | 0.20 | 0.10 | 0.00 | 516.00 | 48.99 |
| Main Channel | 20610.5* | 1379.16 | 1378.96 | 0.19 | 0.09 | 0.00 | 516.00 | 49.38 |
| Main Channel | 20610.5* | 1379.16 | 1378.96 | 0.19 | 0.09 | 0.00 | 516.00 | 49.38 |
| Main Channel | 20700.00 | 1379.24 | 1379.06 | 0.19 | 0.09 | 0.00 | 516.00 | 49.82 |
| Main Channel | 20700.00 | 1379.24 | 1379.06 | 0.19 | 0.09 | 0.00 | 516.00 | 49.82 |
| Main Channel | 20789.8* | 1379.33 | 1379.15 | 0.18 | 0.08 | 0.00 | 516.00 | 50.22 |
| Main Channel | 20789.8* | 1379.33 | 1379.15 | 0.18 | 0.08 | 0.00 | 516.00 | 50.22 |
| Main Channel | 20879.6* | 1379.41 | 1379.23 | 0.18 | 0.08 | 0.00 | 516.00 | 50.50 |
| Main Channel | 20879.6* | 1379.41 | 1379.23 | 0.18 | 0.08 | 0.00 | 516.00 | 50.50 |
| Main Channel | 20969.4* | 1379.49 | 1379.32 | 0.17 | 0.08 | 0.00 | 516.00 | 50.85 |
| Main Channel | 20969.4* | 1379.49 | 1379.32 | 0.17 | 0.08 | 0.00 | 516.00 | 50.85 |
| Main Channel | 21059.2* | 1379.56 | 1379.39 | 0.17 | 0.08 | 0.00 | 516.00 | 51.07 |
| Main Channel | 21059.2* | 1379.56 | 1379.39 | 0.17 | 0.08 | 0.00 | 516.00 | 51.07 |
| Main Channel | 21149.00 | 1379.64 | 1379.47 | 0.16 | 0.07 | 0.00 | 516.00 | 51.37 |
| Main Channel | 21149.00 | 1379.64 | 1379.47 | 0.16 | 0.07 | 0.00 | 516.00 | 51.37 |
| Main Channel | 21150.00 | 1379.64 | 1379.47 | 0.16 | 0.00 | 0.00 | 516.00 | 51.38 |
| Main Channel | 21150.00 | 1379.64 | 1379.47 | 0.16 | 0.00 | 0.00 | 516.00 | 51.38 |
| Main Channel | 21200.00 | 1381.28 | 1380.32 | 0.96 | 0.16 | 0.24 | 516.00 | 33.90 |
| Main Channel | 21200.00 | 1381.28 | 1380.32 | 0.96 | 0.16 | 0.24 | 516.00 | 33.90 |
| Main Channel | 21220.00 | 1381.50 | 1380.99 | 0.51 | 0.18 | 0.04 | 516.00 | 39.21 |
| Main Channel | 21220.00 | 1381.50 | 1380.99 | 0.51 | 0.18 | 0.04 | 516.00 | 39.21 |
| Main Channel | 21221.00 | 1381.51 | 1381.00 | 0.51 | 0.00 | 0.00 | 516.00 | 39.25 |
| Main Channel | 21221.00 | 1381.51 | 1381.00 | 0.51 | 0.00 | 0.00 | 516.00 | 39.25 |
| Main Channel | 21316.8* | 1381.80 | 1381.43 | 0.37 | 0.28 | 0.01 | 516.00 | 42.34 |
| Main Channel | 21316.8* | 1381.80 | 1381.43 | 0.37 | 0.28 | 0.01 | 516.00 | 42.34 |
| Main Channel | 21412.6* | 1382.01 | 1381.70 | 0.31 | 0.20 | 0.01 | 516.00 | 44.08 |
| Main Channel | 21412.6* | 1382.01 | 1381.70 | 0.31 | 0.20 | 0.01 | 516.00 | 44.08 |
| Main Channel | 21508.4* | 1382.18 | 1381.91 | 0.27 | 0.17 | 0.00 | 516.00 | 45.42 |
| Main Channel | 21508.4* | 1382.18 | 1381.91 | 0.27 | 0.17 | 0.00 | 516.00 | 45.42 |
| Main Channel | 21604.2* | 1382.33 | 1382.08 | 0.25 | 0.14 | 0.00 | 516.00 | 46.38 |
| Main Channel | 21604.2* | 1382.33 | 1382.08 | 0.25 | 0.14 | 0.00 | 516.00 | 46.38 |
| Main Channel | 21700.00 | 1382.46 | 1382.23 | 0.23 | 0.13 | 0.00 | 516.00 | 47.17 |
| Main Channel | 21700.00 | 1382.46 | 1382.23 | 0.23 | 0.13 | 0.00 | 516.00 | 47.17 |
| Main Channel | 21791.5* | 1382.58 | 1382.36 | 0.22 | 0.11 | 0.00 | 516.00 | 47.83 |
| Main Channel | 21791.5* | 1382.58 | 1382.36 | 0.22 | 0.11 | 0.00 | 516.00 | 47.83 |
| Main Channel | 21883.* | 1382.68 | 1382.47 | 0.21 | 0.11 | 0.00 | 516.00 | 48.42 |
| Main Channel | 21883.* | 1382.68 | 1382.47 | 0.21 | 0.11 | 0.00 | 516.00 | 48.42 |
| Main Channel | 21974.5* | 1382.78 | 1382.58 | 0.20 | 0.10 | 0.00 | 516.00 | 48.92 |
| Main Channel | 21974.5* | 1382.78 | 1382.58 | 0.20 | 0.10 | 0.00 | 516.00 | 48.92 |
| Main Channel | 22066.* | 1382.88 | 1382.68 | 0.19 | 0.09 | 0.00 | 516.00 | 49.39 |
| Main Channel | 22066.* | 1382.88 | 1382.68 | 0.19 | 0.09 | 0.00 | 516.00 | 49.39 |
| Main Channel | 22157.5* | 1382.97 | 1382.78 | 0.19 | 0.09 | 0.00 | 516.00 | 49.78 |
| Main Channel | 22157.5* | 1382.97 | 1382.78 | 0.19 | 0.09 | 0.00 | 516.00 | 49.78 |
| Main Channel | 22249.00 | 1383.05 | 1382.87 | 0.18 | 0.09 | 0.00 | 516.00 | 50.17 |
| Main Channel | 22249.00 | 1383.05 | 1382.87 | 0.18 | 0.09 | 0.00 | 516.00 | 50.17 |
| Main Channel | 22250.00 | 1383.05 | 1382.87 | 0.18 | 0.00 | 0.00 | 516.00 | 50.18 |
| Main Channel | 22250.00 | 1383.05 | 1382.87 | 0.18 | 0.00 | 0.00 | 516.00 | 50.18 |
| Main Channel | 22300.00 | 1384.83 | 1383.87 | 0.96 | 0.18 | 0.23 | 516.00 | 33.94 |
| Main Channel | 22300.00 | 1384.83 | 1383.87 | 0.96 | 0.18 | 0.23 | 516.00 | 33.94 |
| Main Channel | 22320.00 | 1385.05 | 1384.54 | 0.51 | 0.18 | 0.04 | 516.00 | 39.20 |
| Main Channel | 22320.00 | 1385.05 | 1384.54 | 0.51 | 0.18 | 0.04 | 516.00 | 39.20 |
| Main Channel | 22321.00 | 1385.06 | 1384.55 | 0.51 | 0.00 | 0.00 | 516.00 | 39.24 |
| Main Channel | 22321.00 | 1385.06 | 1384.55 | 0.51 | 0.00 | 0.00 | 516.00 | 39.24 |
| Main Channel | 22415.7* | 1385.35 | 1384.98 | 0.37 | 0.28 | 0.01 | 516.00 | 42.30 |
| Main Channel | 22415.7* | 1385.35 | 1384.98 | 0.37 | 0.28 | 0.01 | 516.00 | 42.30 |
| Main Channel | 22510.5* | 1385.56 | 1385.25 | 0.31 | 0.20 | 0.01 | 516.00 | 44.08 |
| Main Channel | 22510.5* | 1385.56 | 1385.25 | 0.31 | 0.20 | 0.01 | 516.00 | 44.08 |
| Main Channel | 22605.2* | 1385.73 | 1385.45 | 0.28 | 0.17 | 0.00 | 516.00 | 45.35 |
| Main Channel | 22605.2* | 1385.73 | 1385.45 | 0.28 | 0.17 | 0.00 | 516.00 | 45.35 |
| Main Channel | 22700.00 | 1385.87 | 1385.62 | 0.25 | 0.14 | 0.00 | 516.00 | 46.31 |
| Main Channel | 22700.00 | 1385.87 | 1385.62 | 0.25 | 0.14 | 0.00 | 516.00 | 46.31 |
| Main Channel | 22777.2* | 1385.98 | 1385.74 | 0.24 | 0.11 | 0.00 | 516.00 | 46.97 |
| Main Channel | 22777.2* | 1385.98 | 1385.74 | 0.24 | 0.11 | 0.00 | 516.00 | 46.97 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Main Channel | 22854.5* | 1386.08 | 1385.85 | 0.23 | 0.10 | 0.00 | 516.00 | 47.60 |
| Main Channel | 22854.5* | 1386.08 | 1385.85 | 0.23 | 0.10 | 0.00 | 516.00 | 47.60 |
| Main Channel | 22931.7* | 1386.17 | 1385.96 | 0.22 | 0.09 | 0.00 | 516.00 | 48.14 |
| Main Channel | 22931.7* | 1386.17 | 1385.96 | 0.22 | 0.09 | 0.00 | 516.00 | 48.14 |
| Main Channel | 23009.00 | 1386.26 | 1386.05 | 0.21 | 0.09 | 0.00 | 516.00 | 48.59 |
| Main Channel | 23009.00 | 1386.26 | 1386.05 | 0.21 | 0.09 | 0.00 | 516.00 | 48.59 |
| Main Channel | 23010.00 | 1386.26 | 1386.06 | 0.21 | 0.00 | 0.00 | 516.00 | 48.60 |
| Main Channel | 23010.00 | 1386.26 | 1386.06 | 0.21 | 0.00 | 0.00 | 516.00 | 48.60 |
| Main Channel | 23060.00 | 1388.21 | 1387.25 | 0.96 | 0.20 | 0.23 | 516.00 | 33.94 |
| Main Channel | 23060.00 | 1388.21 | 1387.25 | 0.96 | 0.20 | 0.23 | 516.00 | 33.94 |
| Main Channel | 23080.00 | 1388.43 | 1387.92 | 0.51 | 0.18 | 0.04 | 516.00 | 39.20 |
| Main Channel | 23080.00 | 1388.43 | 1387.92 | 0.51 | 0.18 | 0.04 | 516.00 | 39.20 |
| Main Channel | 23081.00 | 1388.43 | 1387.93 | 0.50 | 0.00 | 0.00 | 516.00 | 39.36 |
| Main Channel | 23081.00 | 1388.43 | 1387.93 | 0.50 | 0.00 | 0.00 | 516.00 | 39.36 |
| Main Channel | 23159.6* | 1388.68 | 1388.31 | 0.37 | 0.23 | 0.01 | 516.00 | 42.39 |
| Main Channel | 23159.6* | 1388.68 | 1388.31 | 0.37 | 0.23 | 0.01 | 516.00 | 42.39 |
| Main Channel | 23238.31 | 1388.85 | 1388.54 | 0.31 | 0.16 | 0.01 | 516.00 | 44.24 |
| Main Channel | 23238.31 | 1388.85 | 1388.54 | 0.31 | 0.16 | 0.01 | 516.00 | 44.24 |
| Main Channel | 23239.31 | 1388.86 | 1388.52 | 0.33 | 0.00 | 0.01 | 516.00 | 43.40 |
| Main Channel | 23239.31 | 1388.86 | 1388.52 | 0.33 | 0.00 | 0.01 | 516.00 | 43.40 |
| Main Channel | 23257.56 | 1388.92 | 1388.60 | 0.32 | 0.06 | 0.00 | 516.00 | 40.00 |
| Main Channel | 23257.56 | 1388.92 | 1388.60 | 0.32 | 0.06 | 0.00 | 516.00 | 40.00 |
| Main Channel | 23278.81 | 1389.29 | 1388.10 | 1.19 | 0.11 | 0.26 | 516.00 | 16.50 |
| Main Channel | 23278.81 | 1389.29 | 1388.10 | 1.19 | 0.11 | 0.26 | 516.00 | 16.50 |

Profile Output Table - Encroachment 1

| Reach | River Sta | W.S. Elev (ft) | Prof Delta WS (ft) | E.G. Elev (ft) | Top Wdth Act (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Enc Sta L (ft) | Ch Sta L (ft) | Ch Sta R (ft) | Enc Sta R (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 800.00 | 1315.90 | | 1316.92 | 63.08 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 800.00 | 1316.90 | 1.00 | 1317.34 | 71.12 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 820.00 | 1316.57 | | 1317.14 | 68.37 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 820.00 | 1317.01 | 0.45 | 1317.42 | 71.95 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 821.00 | 1316.57 | | 1317.14 | 68.41 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 821.00 | 1317.02 | 0.45 | 1317.43 | 71.97 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 911.581* | 1316.99 | | 1317.42 | 71.32 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 911.581* | 1317.25 | 0.27 | 1317.61 | 73.47 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1002.16* | 1317.25 | | 1317.62 | 73.11 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1002.16* | 1317.45 | 0.20 | 1317.77 | 74.68 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1092.74* | 1317.45 | | 1317.78 | 74.31 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1092.74* | 1317.61 | 0.16 | 1317.91 | 75.57 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1183.32* | 1317.62 | | 1317.93 | 75.36 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1183.32* | 1317.75 | 0.13 | 1318.03 | 76.41 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1273.90* | 1317.77 | | 1318.06 | 76.18 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1273.90* | 1317.88 | 0.11 | 1318.15 | 77.08 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1364.49 | 1317.90 | | 1318.17 | 76.89 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1364.49 | 1318.00 | 0.10 | 1318.26 | 77.67 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1459.40* | 1318.03 | | 1318.29 | 77.50 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1459.40* | 1318.11 | 0.09 | 1318.36 | 78.19 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1554.32* | 1318.15 | | 1318.40 | 78.04 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1554.32* | 1318.22 | 0.08 | 1318.46 | 78.66 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1649.24* | 1318.26 | | 1318.50 | 78.58 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1649.24* | 1318.32 | 0.07 | 1318.56 | 79.13 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1744.16* | 1318.36 | | 1318.59 | 79.05 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1744.16* | 1318.42 | 0.06 | 1318.65 | 79.55 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1839.08* | 1318.46 | | 1318.68 | 79.43 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1839.08* | 1318.52 | 0.06 | 1318.73 | 79.88 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1934.00 | 1318.55 | | 1318.77 | 79.78 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1934.00 | 1318.60 | 0.05 | 1318.82 | 80.20 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1935.00 | 1318.55 | | 1318.77 | 79.79 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1935.00 | 1318.61 | 0.05 | 1318.82 | 80.21 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 1945.00 | 1318.57 | | 1318.79 | 79.92 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 1945.00 | 1318.62 | 0.05 | 1318.83 | 80.33 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 2000.00 | 1318.51 | | 1319.52 | 63.16 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 2000.00 | 1318.51 | 0.00 | 1319.52 | 63.16 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 2020.00 | 1319.16 | | 1319.74 | 68.35 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 2020.00 | 1319.16 | 0.00 | 1319.74 | 68.35 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 2021.00 | 1319.17 | | 1319.74 | 68.39 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 2021.00 | 1319.17 | 0.00 | 1319.74 | 68.39 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 2118.94* | 1319.61 | | 1320.04 | 71.52 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 2118.94* | 1319.61 | 0.00 | 1320.04 | 71.52 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 2216.89* | 1319.88 | | 1320.25 | 73.30 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 2216.89* | 1319.88 | 0.00 | 1320.25 | 73.30 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 2314.84 | 1320.09 | | 1320.42 | 74.58 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 2314.84 | 1320.09 | 0.00 | 1320.42 | 74.58 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |
| Main Channel | 2394.62* | 1320.24 | | 1320.54 | 75.43 | | 1047.00 | | | 951.40 | 1048.60 | |
| Main Channel | 2394.62* | 1320.24 | 0.00 | 1320.54 | 75.43 | | 1047.00 | | 951.40 | 951.40 | 1048.60 | 1048.60 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 2474.41* | 1320.37 | | 1320.66 | 76.15 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2474.41* | 1320.37 | 0.00 | 1320.66 | 76.15 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2554.20* | 1320.49 | | 1320.76 | 76.77 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2554.20* | 1320.49 | 0.00 | 1320.76 | 76.77 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2634.00 | 1320.60 | | 1320.86 | 77.33 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2634.00 | 1320.60 | 0.00 | 1320.86 | 77.33 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2635.00 | 1320.60 | | 1320.86 | 77.34 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2635.00 | 1320.60 | 0.00 | 1320.86 | 77.34 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2645.00 | 1320.62 | | 1320.88 | 77.51 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2645.00 | 1320.62 | 0.00 | 1320.88 | 77.51 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2700.00 | 1321.84 | | 1322.87 | 63.02 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2700.00 | 1321.84 | 0.00 | 1322.87 | 63.02 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2720.00 | 1322.47 | | 1323.06 | 67.96 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2720.00 | 1322.47 | 0.00 | 1323.06 | 67.96 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2721.00 | 1322.47 | | 1323.06 | 68.00 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2721.00 | 1322.47 | 0.00 | 1323.06 | 68.00 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2816.33* | 1322.93 | | 1323.37 | 71.29 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2816.33* | 1322.93 | 0.00 | 1323.37 | 71.29 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 2911.66* | 1323.21 | | 1323.58 | 73.09 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 2911.66* | 1323.21 | 0.00 | 1323.58 | 73.09 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3007.* | 1323.42 | | 1323.75 | 74.38 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3007.* | 1323.42 | 0.00 | 1323.75 | 74.38 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3102.33* | 1323.59 | | 1323.90 | 75.39 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3102.33* | 1323.59 | 0.00 | 1323.90 | 75.39 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3197.66* | 1323.75 | | 1324.04 | 76.32 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3197.66* | 1323.75 | 0.00 | 1324.04 | 76.32 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3293.* | 1323.89 | | 1324.16 | 77.01 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3293.* | 1323.89 | 0.00 | 1324.16 | 77.01 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3388.33* | 1324.01 | | 1324.27 | 77.61 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3388.33* | 1324.01 | 0.00 | 1324.27 | 77.61 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3483.66* | 1324.13 | | 1324.38 | 78.15 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3483.66* | 1324.13 | 0.00 | 1324.38 | 78.15 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3579.00 | 1324.24 | | 1324.48 | 78.62 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3579.00 | 1324.24 | 0.00 | 1324.48 | 78.62 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3580.00 | 1324.24 | | 1324.48 | 78.63 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3580.00 | 1324.24 | 0.00 | 1324.48 | 78.63 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3590.00 | 1324.26 | | 1324.49 | 78.78 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3590.00 | 1324.26 | 0.00 | 1324.49 | 78.78 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3640.00 | 1325.29 | | 1326.34 | 62.91 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3640.00 | 1325.29 | 0.00 | 1326.34 | 62.91 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3660.00 | 1326.00 | | 1326.57 | 68.48 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3660.00 | 1326.00 | 0.00 | 1326.57 | 68.48 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3661.00 | 1326.00 | | 1326.57 | 68.51 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3661.00 | 1326.00 | 0.00 | 1326.57 | 68.51 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3741.28* | 1326.38 | | 1326.82 | 71.17 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3741.28* | 1326.38 | 0.00 | 1326.82 | 71.17 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3821.57* | 1326.62 | | 1327.00 | 72.79 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3821.57* | 1326.62 | 0.00 | 1327.00 | 72.79 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3901.85* | 1326.81 | | 1327.15 | 73.98 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3901.85* | 1326.81 | 0.00 | 1327.15 | 73.98 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 3982.14* | 1326.97 | | 1327.29 | 74.94 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 3982.14* | 1326.97 | 0.00 | 1327.29 | 74.94 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 4062.43 | 1327.11 | | 1327.41 | 75.73 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 4062.43 | 1327.11 | 0.00 | 1327.41 | 75.73 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 4063.43 | 1327.11 | | 1327.41 | 75.75 | 1047.00 | | 951.40 | 1048.60 | | |
| Main Channel | 4063.43 | 1327.11 | 0.00 | 1327.41 | 75.75 | 1047.00 | 951.40 | 951.40 | 1048.60 | 1048.60 | |
| Main Channel | 4091.43 | 1327.26 | | 1327.46 | 72.67 | 1047.00 | | 951.40 | 1039.00 | | |
| Main Channel | 4091.43 | 1327.26 | 0.00 | 1327.46 | 72.67 | 1047.00 | 951.40 | 951.40 | 1039.00 | 1039.00 | |
| Main Channel | 4107.43 | 1327.26 | | 1327.56 | 56.29 | 1047.00 | | 972.57 | 1032.40 | | |
| Main Channel | 4107.43 | 1327.26 | 0.00 | 1327.56 | 56.29 | 1047.00 | 972.57 | 972.57 | 1032.40 | 1032.40 | |
| Main Channel | 4130.52 | 1327.47 | | 1327.66 | 58.67 | 1047.00 | | 985.33 | 1044.00 | | |
| Main Channel | 4130.52 | 1327.47 | 0.00 | 1327.66 | 58.67 | 1047.00 | 985.33 | 985.33 | 1044.00 | 1044.00 | |
| Main Channel | 4133.00 | 1327.76 | | 1328.84 | 58.67 | 1047.00 | | 985.33 | 1044.00 | | |
| Main Channel | 4133.00 | 1327.76 | 0.00 | 1328.84 | 58.67 | 1047.00 | 985.33 | 985.33 | 1044.00 | 1044.00 | |
| Main Channel | 4213.18 | Mult Open | | | | | | | | | |
| Main Channel | 4214.18 | 1331.07 | | 1331.49 | 58.67 | 1047.00 | | 985.33 | 1044.00 | | |
| Main Channel | 4214.18 | 1331.07 | 0.00 | 1331.49 | 58.67 | 1047.00 | 985.33 | 985.33 | 1044.00 | 1044.00 | |
| Main Channel | 4226.18 | 1331.09 | | 1331.68 | 55.65 | 1053.00 | | 983.47 | 1044.00 | | |
| Main Channel | 4226.18 | 1331.09 | 0.00 | 1331.68 | 55.65 | 1053.00 | 983.47 | 983.47 | 1044.00 | 1044.00 | |
| Main Channel | 4245.62 | 1331.50 | | 1331.77 | 69.86 | 1053.00 | | 964.26 | 1043.16 | | |
| Main Channel | 4245.62 | 1331.50 | 0.00 | 1331.77 | 69.86 | 1053.00 | 964.26 | 964.26 | 1043.16 | 1043.16 | |
| Main Channel | 4345.62 | 1331.79 | | 1331.81 | 206.41 | 1053.00 | | 828.16 | 1043.16 | | |
| Main Channel | 4345.62 | 1331.79 | 0.00 | 1331.81 | 206.41 | 1053.00 | 828.16 | 828.16 | 1043.16 | 1043.16 | |
| Main Channel | 4445.62 | 1331.80 | | 1331.82 | 206.22 | 1053.00 | | 828.16 | 1043.16 | | |
| Main Channel | 4445.62 | 1331.80 | 0.00 | 1331.82 | 206.22 | 1053.00 | 828.16 | 828.16 | 1043.16 | 1043.16 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 4508.58 | 1331.81 | | 1331.82 | 208.26 | 1053.00 | | 828.16 | 1043.16 | | |
| Main Channel | 4508.58 | 1331.81 | 0.00 | 1331.82 | 208.26 | 1053.00 | 828.16 | 828.16 | 1043.16 | 1043.16 | |
| Main Channel | 4568.58 | 1331.82 | | 1331.83 | 283.80 | 1053.00 | | 840.00 | 1144.00 | | |
| Main Channel | 4568.58 | 1331.82 | 0.00 | 1331.83 | 283.80 | 1053.00 | 840.00 | 840.00 | 1144.00 | 1144.00 | |
| Main Channel | 4628.58 | 1331.82 | | 1331.83 | 402.40 | 1053.00 | | 865.00 | 1292.00 | | |
| Main Channel | 4628.58 | 1331.82 | 0.00 | 1331.83 | 402.40 | 1053.00 | 865.00 | 865.00 | 1292.00 | 1292.00 | |
| Main Channel | 4654.00 | 1331.83 | | 1331.83 | 477.28 | 1053.00 | | 865.00 | 1368.00 | | |
| Main Channel | 4654.00 | 1331.83 | 0.00 | 1331.83 | 477.28 | 1053.00 | 865.00 | 865.00 | 1368.00 | 1368.00 | |
| Main Channel | 4700 | 1331.83 | | 1331.83 | 421.70 | 1053.00 | | 905.00 | 1345.00 | | |
| Main Channel | 4700 | 1331.83 | 0.00 | 1331.83 | 421.70 | 1053.00 | 905.00 | 905.00 | 1345.00 | 1345.00 | |
| Main Channel | 4772.91* | 1331.83 | | 1331.83 | 387.17 | 1053.00 | | 932.00 | 1338.50 | | |
| Main Channel | 4772.91* | 1331.83 | 0.00 | 1331.83 | 387.17 | 1053.00 | 932.00 | 932.00 | 1338.50 | 1338.50 | |
| Main Channel | 4845.83 | 1331.83 | | 1331.83 | 352.58 | 1053.00 | | 959.00 | 1332.00 | | |
| Main Channel | 4845.83 | 1331.83 | 0.00 | 1331.83 | 352.58 | 1053.00 | 959.00 | 959.00 | 1332.00 | 1332.00 | |
| Main Channel | 4862.65 | 1331.83 | | 1331.84 | 352.58 | 1053.00 | | 959.00 | 1332.00 | | |
| Main Channel | 4862.65 | 1331.83 | 0.00 | 1331.84 | 352.58 | 1053.00 | 959.00 | 959.00 | 1332.00 | 1332.00 | |
| Main Channel | 4931.32* | 1331.83 | | 1331.84 | 282.81 | 1053.00 | | 959.00 | 1263.50 | | |
| Main Channel | 4931.32* | 1331.83 | 0.00 | 1331.84 | 282.81 | 1053.00 | 959.00 | 959.00 | 1263.50 | 1263.50 | |
| Main Channel | 5000 | 1331.82 | | 1331.85 | 211.95 | 1053.00 | | 959.00 | 1195.00 | | |
| Main Channel | 5000 | 1331.82 | 0.00 | 1331.85 | 211.95 | 1053.00 | 959.00 | 959.00 | 1195.00 | 1195.00 | |
| Main Channel | 5100 | 1331.61 | | 1331.97 | 65.87 | 1053.00 | | 959.00 | 1041.60 | | |
| Main Channel | 5100 | 1331.61 | 0.00 | 1331.97 | 65.87 | 1053.00 | 959.00 | 959.00 | 1041.60 | 1041.60 | |
| Main Channel | 5101 | 1331.63 | | 1331.97 | 66.59 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5101 | 1331.63 | 0.00 | 1331.97 | 66.59 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5184.5* | 1331.77 | | 1332.09 | 67.41 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5184.5* | 1331.77 | 0.00 | 1332.09 | 67.41 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5268.* | 1331.89 | | 1332.19 | 68.12 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5268.* | 1331.89 | 0.00 | 1332.19 | 68.12 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5351.5* | 1332.01 | | 1332.30 | 68.77 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5351.5* | 1332.01 | 0.00 | 1332.30 | 68.77 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5435.* | 1332.11 | | 1332.39 | 69.33 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5435.* | 1332.11 | 0.00 | 1332.39 | 69.33 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5518.5* | 1332.22 | | 1332.48 | 69.89 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5518.5* | 1332.22 | 0.00 | 1332.48 | 69.89 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5602.00 | 1332.31 | | 1332.57 | 70.32 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5602.00 | 1332.31 | 0.00 | 1332.57 | 70.32 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5603.00 | 1332.31 | | 1332.57 | 70.33 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5603.00 | 1332.31 | 0.00 | 1332.57 | 70.33 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5613 | 1332.33 | | 1332.58 | 70.47 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5613 | 1332.33 | 0.00 | 1332.58 | 70.47 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5663 | 1333.12 | | 1334.27 | 52.75 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5663 | 1333.12 | 0.00 | 1334.27 | 52.75 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5683.00 | 1333.84 | | 1334.50 | 58.40 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5683.00 | 1333.84 | 0.00 | 1334.50 | 58.40 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5684.00 | 1333.85 | | 1334.50 | 58.43 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5684.00 | 1333.85 | 0.00 | 1334.50 | 58.43 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5700 | 1333.91 | | 1334.56 | 58.50 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5700 | 1333.91 | 0.00 | 1334.56 | 58.50 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5800.* | 1334.38 | | 1334.87 | 61.89 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5800.* | 1334.38 | 0.00 | 1334.87 | 61.89 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 5900.* | 1334.67 | | 1335.09 | 63.83 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 5900.* | 1334.67 | 0.00 | 1335.09 | 63.83 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6000.* | 1334.90 | | 1335.27 | 65.24 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6000.* | 1334.90 | 0.00 | 1335.27 | 65.24 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6100.* | 1335.09 | | 1335.43 | 66.35 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6100.* | 1335.09 | 0.00 | 1335.43 | 66.35 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6200.* | 1335.26 | | 1335.58 | 67.27 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6200.* | 1335.26 | 0.00 | 1335.58 | 67.27 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6300.* | 1335.41 | | 1335.71 | 68.06 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6300.* | 1335.41 | 0.00 | 1335.71 | 68.06 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6400.* | 1335.54 | | 1335.83 | 68.75 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6400.* | 1335.54 | 0.00 | 1335.83 | 68.75 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6500.* | 1335.67 | | 1335.94 | 69.35 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6500.* | 1335.67 | 0.00 | 1335.94 | 69.35 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6600.* | 1335.79 | | 1336.05 | 69.90 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6600.* | 1335.79 | 0.00 | 1336.05 | 69.90 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6700 | 1335.90 | | 1336.15 | 70.38 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6700 | 1335.90 | 0.00 | 1336.15 | 70.38 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6784.4* | 1335.99 | | 1336.24 | 70.78 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6784.4* | 1335.99 | 0.00 | 1336.24 | 70.78 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6868.8* | 1336.07 | | 1336.32 | 71.24 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6868.8* | 1336.07 | 0.00 | 1336.32 | 71.24 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 6953.2* | 1336.16 | | 1336.39 | 71.57 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 6953.2* | 1336.16 | 0.00 | 1336.39 | 71.57 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |
| Main Channel | 7037.6* | 1336.24 | | 1336.47 | 71.97 | 1053.00 | | 958.60 | 1041.60 | | |
| Main Channel | 7037.6* | 1336.24 | 0.00 | 1336.47 | 71.97 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 7122.00 | 1336.31 | | 1336.54 | 72.26 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7122.00 | 1336.31 | 0.00 | 1336.54 | 72.26 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7123.00 | 1336.31 | | 1336.54 | 72.27 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7123.00 | 1336.31 | 0.00 | 1336.54 | 72.27 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7133 | 1336.33 | | 1336.55 | 72.39 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7133 | 1336.33 | 0.00 | 1336.55 | 72.39 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7183 | 1336.89 | | 1338.03 | 52.79 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7183 | 1336.89 | 0.00 | 1338.03 | 52.79 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7203.00 | 1337.60 | | 1338.26 | 58.39 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7203.00 | 1337.60 | 0.00 | 1338.26 | 58.39 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7204.00 | 1337.61 | | 1338.26 | 58.42 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7204.00 | 1337.61 | 0.00 | 1338.26 | 58.42 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7303.2* | 1338.08 | | 1338.57 | 61.73 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7303.2* | 1338.08 | 0.00 | 1338.57 | 61.73 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7402.4* | 1338.38 | | 1338.80 | 63.60 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7402.4* | 1338.38 | 0.00 | 1338.80 | 63.60 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7501.6* | 1338.61 | | 1338.99 | 65.05 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7501.6* | 1338.61 | 0.00 | 1338.99 | 65.05 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7600.8* | 1338.80 | | 1339.15 | 66.09 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7600.8* | 1338.80 | 0.00 | 1339.15 | 66.09 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7700 | 1338.97 | | 1339.29 | 66.95 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7700 | 1338.97 | 0.00 | 1339.29 | 66.95 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7794.* | 1339.11 | | 1339.42 | 67.80 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7794.* | 1339.11 | 0.00 | 1339.42 | 67.80 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7888.* | 1339.25 | | 1339.54 | 68.64 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7888.* | 1339.25 | 0.00 | 1339.54 | 68.64 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7982.00 | 1339.37 | | 1339.65 | 69.29 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7982.00 | 1339.37 | 0.00 | 1339.65 | 69.29 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7983 | 1339.37 | | 1339.65 | 69.30 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7983 | 1339.37 | 0.00 | 1339.65 | 69.30 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 7993 | 1339.39 | | 1339.67 | 69.46 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 7993 | 1339.39 | 0.00 | 1339.67 | 69.46 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8043 | 1340.32 | | 1341.46 | 52.78 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8043 | 1340.32 | 0.00 | 1341.46 | 52.78 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8063.00 | 1341.03 | | 1341.69 | 58.39 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8063.00 | 1341.03 | 0.00 | 1341.69 | 58.39 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8064.00 | 1341.04 | | 1341.69 | 58.43 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8064.00 | 1341.04 | 0.00 | 1341.69 | 58.43 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8154.85* | 1341.48 | | 1341.98 | 61.58 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8154.85* | 1341.48 | 0.00 | 1341.98 | 61.58 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8245.71* | 1341.76 | | 1342.19 | 63.42 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8245.71* | 1341.76 | 0.00 | 1342.19 | 63.42 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8336.57* | 1341.98 | | 1342.37 | 64.76 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8336.57* | 1341.98 | 0.00 | 1342.37 | 64.76 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8427.42* | 1342.16 | | 1342.52 | 65.73 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8427.42* | 1342.16 | 0.00 | 1342.52 | 65.73 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8518.28* | 1342.32 | | 1342.66 | 66.62 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8518.28* | 1342.32 | 0.00 | 1342.66 | 66.62 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8609.14* | 1342.47 | | 1342.79 | 67.39 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8609.14* | 1342.47 | 0.00 | 1342.79 | 67.39 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8700 | 1342.60 | | 1342.91 | 68.05 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8700 | 1342.60 | 0.00 | 1342.91 | 68.05 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8794.* | 1342.73 | | 1343.02 | 68.76 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8794.* | 1342.73 | 0.00 | 1343.02 | 68.76 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8888.* | 1342.85 | | 1343.13 | 69.49 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8888.* | 1342.85 | 0.00 | 1343.13 | 69.49 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8982.00 | 1342.96 | | 1343.23 | 70.05 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8982.00 | 1342.96 | 0.00 | 1343.23 | 70.05 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8983.00 | 1342.97 | | 1343.23 | 70.06 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8983.00 | 1342.97 | 0.00 | 1343.23 | 70.06 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 8993 | 1342.99 | | 1343.25 | 70.21 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 8993 | 1342.99 | 0.00 | 1343.25 | 70.21 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9043 | 1343.82 | | 1344.96 | 52.79 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9043 | 1343.82 | 0.00 | 1344.96 | 52.79 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9063.00 | 1344.47 | | 1345.16 | 57.88 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9063.00 | 1344.47 | 0.00 | 1345.16 | 57.88 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9064.00 | 1344.47 | | 1345.16 | 57.92 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9064.00 | 1344.47 | 0.00 | 1345.16 | 57.92 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9154.85* | 1344.95 | | 1345.46 | 61.36 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9154.85* | 1344.95 | 0.00 | 1345.46 | 61.36 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9245.71* | 1345.24 | | 1345.68 | 63.27 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9245.71* | 1345.24 | 0.00 | 1345.68 | 63.27 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9336.57* | 1345.47 | | 1345.86 | 64.64 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9336.57* | 1345.47 | 0.00 | 1345.86 | 64.64 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9427.42* | 1345.65 | | 1346.01 | 65.63 | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9427.42* | 1345.65 | 0.00 | 1346.01 | 65.63 | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 9518.28* | 1345.81 | | 1346.15 | 66.54 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9518.28* | 1345.81 | 0.00 | 1346.15 | 66.54 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9609.14* | 1345.96 | | 1346.28 | 67.32 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9609.14* | 1345.96 | 0.00 | 1346.28 | 67.32 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9700 | 1346.10 | | 1346.40 | 67.99 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9700 | 1346.10 | 0.00 | 1346.40 | 67.99 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9796.4* | 1346.23 | | 1346.52 | 68.74 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9796.4* | 1346.23 | 0.00 | 1346.52 | 68.74 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9892.8* | 1346.35 | | 1346.63 | 69.40 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9892.8* | 1346.35 | 0.00 | 1346.63 | 69.40 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 9989.2* | 1346.47 | | 1346.73 | 69.90 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 9989.2* | 1346.47 | 0.00 | 1346.73 | 69.90 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10085.6* | 1346.57 | | 1346.83 | 70.44 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 10085.6* | 1346.57 | 0.00 | 1346.83 | 70.44 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10182.00 | 1346.68 | | 1346.92 | 70.94 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 10182.00 | 1346.68 | 0.00 | 1346.92 | 70.94 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10183.00 | 1346.68 | | 1346.93 | 70.95 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 10183.00 | 1346.68 | 0.00 | 1346.93 | 70.95 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10193 | 1346.70 | | 1346.94 | 71.09 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 10193 | 1346.70 | 0.00 | 1346.94 | 71.09 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10243 | 1347.40 | | 1348.56 | 52.64 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 10243 | 1347.40 | 0.00 | 1348.56 | 52.64 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10263.00 | 1348.07 | | 1348.76 | 57.94 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 10263.00 | 1348.07 | 0.00 | 1348.76 | 57.94 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10264.00 | 1348.08 | | 1348.76 | 57.98 | | 1053.00 | | 958.60 | 1041.60 | |
| Main Channel | 10264.00 | 1348.08 | 0.00 | 1348.76 | 57.98 | | 1053.00 | 958.60 | 958.60 | 1041.60 | 1041.60 |
| Main Channel | 10348.* | 1348.53 | | 1349.05 | 61.18 | | 1053.00 | | 958.55 | 1041.60 | |
| Main Channel | 10348.* | 1348.53 | 0.00 | 1349.05 | 61.18 | | 1053.00 | 958.55 | 958.55 | 1041.60 | 1041.60 |
| Main Channel | 10432.* | 1348.81 | | 1349.25 | 63.04 | | 1053.00 | | 958.50 | 1041.60 | |
| Main Channel | 10432.* | 1348.81 | 0.00 | 1349.25 | 63.04 | | 1053.00 | 958.50 | 958.50 | 1041.60 | 1041.60 |
| Main Channel | 10516.* | 1349.02 | | 1349.42 | 64.38 | | 1053.00 | | 958.45 | 1041.60 | |
| Main Channel | 10516.* | 1349.02 | 0.00 | 1349.42 | 64.38 | | 1053.00 | 958.45 | 958.45 | 1041.60 | 1041.60 |
| Main Channel | 10600 | 1349.20 | | 1349.57 | 65.46 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 10600 | 1349.20 | 0.00 | 1349.57 | 65.46 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 10627.41 | 1349.27 | | 1349.63 | 65.84 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 10627.41 | 1349.27 | 0.00 | 1349.63 | 65.84 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 10637.41 | 1349.30 | | 1349.66 | 65.69 | | 1053.00 | | 959.00 | 1041.60 | |
| Main Channel | 10637.41 | 1349.30 | 0.00 | 1349.66 | 65.69 | | 1053.00 | 959.00 | 959.00 | 1041.60 | 1041.60 |
| Main Channel | 10687.00 | 1350.69 | | 1352.50 | 27.00 | | 1053.00 | | 986.50 | 1013.50 | |
| Main Channel | 10687.00 | 1350.69 | 0.00 | 1352.50 | 27.00 | | 1053.00 | 986.50 | 986.50 | 1013.50 | 1013.50 |
| Main Channel | 10777.41 | Culvert | | | | | | | | | |
| Main Channel | 10780.41 | 1352.68 | | 1353.44 | 27.00 | | 1053.00 | | 986.50 | 1013.50 | |
| Main Channel | 10780.41 | 1352.68 | 0.00 | 1353.44 | 27.00 | | 1053.00 | 986.50 | 986.50 | 1013.50 | 1013.50 |
| Main Channel | 10791.41 | 1353.45 | | 1353.75 | 50.56 | | 1053.00 | | 974.90 | 1025.60 | |
| Main Channel | 10791.41 | 1353.45 | 0.00 | 1353.75 | 50.56 | | 1053.00 | 974.90 | 974.90 | 1025.60 | 1025.60 |
| Main Channel | 10805.41 | 1353.64 | | 1353.83 | 78.08 | | 1053.00 | | 960.00 | 1040.00 | |
| Main Channel | 10805.41 | 1353.64 | 0.00 | 1353.83 | 78.08 | | 1053.00 | 960.00 | 960.00 | 1040.00 | 1040.00 |
| Main Channel | 10810.00 | 1353.65 | | 1353.83 | 75.75 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 10810.00 | 1353.65 | 0.00 | 1353.83 | 75.75 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 10906.6* | 1353.71 | | 1353.89 | 75.83 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 10906.6* | 1353.71 | 0.00 | 1353.89 | 75.83 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 11003.3* | 1353.77 | | 1353.95 | 75.98 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 11003.3* | 1353.77 | 0.00 | 1353.95 | 75.98 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 11100.00 | 1353.83 | | 1354.01 | 76.06 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 11100.00 | 1353.83 | 0.00 | 1354.01 | 76.06 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 11200.00 | 1353.89 | | 1354.07 | 76.49 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 11200.00 | 1353.89 | 0.00 | 1354.07 | 76.49 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 11291.50 | 1353.95 | | 1354.12 | 76.61 | | 1053.00 | | 958.40 | 1041.60 | |
| Main Channel | 11291.50 | 1353.95 | 0.00 | 1354.12 | 76.61 | | 1053.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |
| Main Channel | 11300.00 | 1353.94 | | 1354.13 | 67.52 | | 1053.00 | | 966.70 | 1036.50 | |
| Main Channel | 11300.00 | 1353.94 | 0.00 | 1354.13 | 67.52 | | 1053.00 | 966.70 | 966.70 | 1036.50 | 1036.50 |
| Main Channel | 11346.23 | 1353.98 | | 1354.21 | 42.10 | | 1053.00 | | 974.40 | 1016.50 | |
| Main Channel | 11346.23 | 1353.98 | 0.00 | 1354.21 | 42.10 | | 1053.00 | 974.40 | 974.40 | 1016.50 | 1016.50 |
| Main Channel | 11369.81 | 1353.94 | | 1354.56 | 25.50 | | 1053.00 | | 987.25 | 1012.75 | |
| Main Channel | 11369.81 | 1353.94 | 0.00 | 1354.56 | 25.50 | | 1053.00 | 987.25 | 987.25 | 1012.75 | 1012.75 |
| Main Channel | 11480.7 | Culvert | | | | | | | | | |
| Main Channel | 11483.87 | 1354.60 | | 1355.12 | 25.50 | | 1053.00 | | 987.25 | 1012.75 | |
| Main Channel | 11483.87 | 1354.60 | 0.00 | 1355.12 | 25.50 | | 1053.00 | 987.25 | 987.25 | 1012.75 | 1012.75 |
| Main Channel | 11490.00 | 1355.25 | | 1355.37 | 52.80 | | 1053.00 | | 979.20 | 1032.00 | |
| Main Channel | 11490.00 | 1355.25 | 0.00 | 1355.37 | 52.80 | | 1053.00 | 979.20 | 979.20 | 1032.00 | 1032.00 |
| Main Channel | 11496.8 | 1355.29 | | 1355.37 | 65.53 | | 1053.00 | | 972.80 | 1038.33 | |
| Main Channel | 11496.8 | 1355.29 | 0.00 | 1355.37 | 65.53 | | 1053.00 | 972.80 | 972.80 | 1038.33 | 1038.33 |
| Main Channel | 11510.53 | 1355.32 | | 1355.38 | 90.80 | | 1053.00 | | 960.00 | 1050.80 | |
| Main Channel | 11510.53 | 1355.32 | 0.00 | 1355.38 | 90.80 | | 1053.00 | 960.00 | 960.00 | 1050.80 | 1050.80 |
| Main Channel | 11536.53 | 1355.32 | | 1355.38 | 92.04 | 0.56 | 812.44 | | 958.40 | 1041.60 | |
| Main Channel | 11536.53 | 1355.32 | 0.00 | 1355.38 | 81.70 | | 813.00 | 958.40 | 958.40 | 1041.60 | 1041.60 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 11547.53 | 1355.32 | | 1355.39 | 91.88 | 0.54 | 812.46 | | 958.40 | 1041.60 | | |
| Main Channel | 11547.53 | 1355.32 | 0.00 | 1355.39 | 81.71 | | 813.00 | 958.40 | 958.40 | 1041.60 | 1041.60 | |
| Main Channel | 11585.00 | 1355.32 | | 1355.40 | 79.35 | | 813.00 | | 958.40 | 1041.60 | | |
| Main Channel | 11585.00 | 1355.32 | 0.00 | 1355.40 | 79.36 | | 813.00 | 958.40 | 958.40 | 1041.60 | 1041.60 | |
| Main Channel | 11680.94 | 1355.29 | | 1355.46 | 63.78 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 11680.94 | 1355.29 | 0.00 | 1355.46 | 63.78 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 11765.4* | 1355.34 | | 1355.51 | 63.87 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 11765.4* | 1355.34 | 0.00 | 1355.51 | 63.87 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 11850.00 | 1355.40 | | 1355.56 | 63.96 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 11850.00 | 1355.40 | 0.00 | 1355.56 | 63.96 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 11936.5* | 1355.45 | | 1355.61 | 63.89 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 11936.5* | 1355.45 | 0.00 | 1355.61 | 63.89 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12023.* | 1355.50 | | 1355.66 | 63.90 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12023.* | 1355.50 | 0.00 | 1355.66 | 63.90 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12109.5* | 1355.55 | | 1355.71 | 63.84 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12109.5* | 1355.55 | 0.00 | 1355.71 | 63.84 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12196.* | 1355.60 | | 1355.77 | 63.85 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12196.* | 1355.60 | 0.00 | 1355.77 | 63.85 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12282.5* | 1355.65 | | 1355.82 | 63.86 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12282.5* | 1355.65 | 0.00 | 1355.82 | 63.86 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12369.00 | 1355.70 | | 1355.87 | 63.79 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12369.00 | 1355.70 | 0.00 | 1355.87 | 63.79 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12370 | 1355.70 | | 1355.87 | 63.80 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12370 | 1355.71 | 0.00 | 1355.87 | 63.80 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12420.00 | 1355.69 | | 1356.86 | 40.01 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12420.00 | 1355.69 | 0.00 | 1356.86 | 40.01 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12440.00 | 1356.44 | | 1357.09 | 45.89 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12440.00 | 1356.44 | 0.00 | 1357.09 | 45.89 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12441.00 | 1356.44 | | 1357.09 | 45.93 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12441.00 | 1356.44 | 0.00 | 1357.09 | 45.93 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12527.3* | 1356.92 | | 1357.40 | 49.45 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12527.3* | 1356.92 | 0.00 | 1357.40 | 49.45 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12613.6* | 1357.26 | | 1357.65 | 51.75 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12613.6* | 1357.26 | 0.00 | 1357.65 | 51.75 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12700. | 1357.55 | | 1357.89 | 53.77 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12700. | 1357.55 | 0.00 | 1357.89 | 53.77 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12782.2* | 1357.78 | | 1358.07 | 55.54 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12782.2* | 1357.78 | 0.00 | 1358.07 | 55.54 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12864.5* | 1357.95 | | 1358.22 | 56.87 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12864.5* | 1357.95 | 0.00 | 1358.22 | 56.87 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 12946.7* | 1358.08 | | 1358.33 | 57.84 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 12946.7* | 1358.08 | 0.00 | 1358.33 | 57.84 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13029.00 | 1358.18 | | 1358.42 | 58.63 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13029.00 | 1358.18 | 0.00 | 1358.42 | 58.63 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13030.00 | 1358.18 | | 1358.42 | 58.64 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13030.00 | 1358.18 | 0.00 | 1358.42 | 58.64 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13080.00 | 1359.02 | | 1360.19 | 40.03 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13080.00 | 1359.02 | 0.00 | 1360.19 | 40.03 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13100.00 | 1359.77 | | 1360.42 | 45.89 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13100.00 | 1359.77 | 0.00 | 1360.42 | 45.89 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13101.00 | 1359.77 | | 1360.42 | 45.92 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13101.00 | 1359.77 | 0.00 | 1360.42 | 45.92 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13200.8* | 1360.26 | | 1360.74 | 49.44 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13200.8* | 1360.26 | 0.00 | 1360.74 | 49.44 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13300.6* | 1360.56 | | 1360.97 | 51.45 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13300.6* | 1360.56 | 0.00 | 1360.97 | 51.45 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13400.5* | 1360.79 | | 1361.15 | 52.89 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13400.5* | 1360.79 | 0.00 | 1361.15 | 52.89 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13500.3* | 1360.98 | | 1361.31 | 54.03 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13500.3* | 1360.98 | 0.00 | 1361.31 | 54.03 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13600.1* | 1361.15 | | 1361.46 | 54.98 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13600.1* | 1361.15 | 0.00 | 1361.46 | 54.98 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13700.00 | 1361.30 | | 1361.59 | 55.78 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13700.00 | 1361.30 | 0.00 | 1361.59 | 55.78 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13798.1* | 1361.44 | | 1361.71 | 56.46 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13798.1* | 1361.44 | 0.00 | 1361.71 | 56.46 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13896.3* | 1361.56 | | 1361.83 | 57.06 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13896.3* | 1361.56 | 0.00 | 1361.83 | 57.06 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 13994.5* | 1361.68 | | 1361.93 | 57.62 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 13994.5* | 1361.68 | 0.00 | 1361.93 | 57.62 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 14092.6* | 1361.79 | | 1362.03 | 58.17 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 14092.6* | 1361.79 | 0.00 | 1362.03 | 58.17 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 14190.8* | 1361.90 | | 1362.13 | 58.60 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 14190.8* | 1361.90 | 0.00 | 1362.13 | 58.60 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 14289.00 | 1361.99 | | 1362.22 | 59.00 | | 813.00 | | 966.20 | 1033.80 | | |
| Main Channel | 14289.00 | 1361.99 | 0.00 | 1362.22 | 59.00 | | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |

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| Main Channel | 14290.00 | 1362.00 | | 1362.23 | 59.01 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14290.00 | 1362.00 | 0.00 | 1362.23 | 59.01 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14340.00 | 1362.65 | | 1363.82 | 40.03 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14340.00 | 1362.65 | 0.00 | 1363.82 | 40.03 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14360.00 | 1363.40 | | 1364.05 | 45.89 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14360.00 | 1363.40 | 0.00 | 1364.05 | 45.89 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14361.00 | 1363.40 | | 1364.05 | 45.92 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14361.00 | 1363.40 | 0.00 | 1364.05 | 45.92 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14445.7* | 1363.83 | | 1364.33 | 49.08 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14445.7* | 1363.83 | 0.00 | 1364.33 | 49.08 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14530.5* | 1364.11 | | 1364.53 | 50.89 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14530.5* | 1364.11 | 0.00 | 1364.53 | 50.89 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14615.2* | 1364.32 | | 1364.70 | 52.24 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14615.2* | 1364.32 | 0.00 | 1364.70 | 52.24 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14700.00 | 1364.50 | | 1364.85 | 53.36 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14700.00 | 1364.50 | 0.00 | 1364.85 | 53.36 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14800.* | 1364.68 | | 1365.00 | 54.42 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14800.* | 1364.68 | 0.00 | 1365.00 | 54.42 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 14900.* | 1364.84 | | 1365.14 | 55.31 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 14900.* | 1364.84 | 0.00 | 1365.14 | 55.31 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15000.* | 1364.99 | | 1365.27 | 56.07 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15000.* | 1364.99 | 0.00 | 1365.27 | 56.07 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15100.* | 1365.12 | | 1365.39 | 56.73 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15100.* | 1365.12 | 0.00 | 1365.39 | 56.73 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15200.* | 1365.25 | | 1365.50 | 57.32 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15200.* | 1365.25 | 0.00 | 1365.50 | 57.32 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15300.* | 1365.36 | | 1365.61 | 57.85 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15300.* | 1365.36 | 0.00 | 1365.61 | 57.85 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15400.* | 1365.47 | | 1365.71 | 58.33 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15400.* | 1365.47 | 0.00 | 1365.71 | 58.33 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15500.* | 1365.58 | | 1365.81 | 58.76 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15500.* | 1365.58 | 0.00 | 1365.81 | 58.76 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15600.* | 1365.67 | | 1365.90 | 59.16 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15600.* | 1365.67 | 0.00 | 1365.90 | 59.16 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15700.00 | 1365.77 | | 1365.99 | 59.52 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15700.00 | 1365.77 | 0.00 | 1365.99 | 59.52 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15797.4* | 1365.86 | | 1366.08 | 59.84 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15797.4* | 1365.86 | 0.00 | 1366.08 | 59.84 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15894.8* | 1365.95 | | 1366.16 | 60.13 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15894.8* | 1365.95 | 0.00 | 1366.16 | 60.13 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 15992.2* | 1366.03 | | 1366.24 | 60.41 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 15992.2* | 1366.03 | 0.00 | 1366.24 | 60.41 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16089.6* | 1366.11 | | 1366.32 | 60.66 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16089.6* | 1366.11 | 0.00 | 1366.32 | 60.66 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16187.* | 1366.19 | | 1366.39 | 60.92 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16187.* | 1366.19 | 0.00 | 1366.39 | 60.92 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16284.4* | 1366.27 | | 1366.47 | 61.20 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16284.4* | 1366.27 | 0.00 | 1366.47 | 61.20 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16381.8* | 1366.35 | | 1366.54 | 61.40 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16381.8* | 1366.35 | 0.00 | 1366.54 | 61.40 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16479.2* | 1366.42 | | 1366.61 | 61.59 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16479.2* | 1366.42 | 0.00 | 1366.61 | 61.59 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16576.6* | 1366.49 | | 1366.68 | 61.77 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16576.6* | 1366.49 | 0.00 | 1366.68 | 61.77 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16674.00 | 1366.56 | | 1366.75 | 61.93 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16674.00 | 1366.56 | 0.00 | 1366.75 | 61.93 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16675.00 | 1366.56 | | 1366.75 | 61.94 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16675.00 | 1366.56 | 0.00 | 1366.75 | 61.94 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16720.00 | 1366.84 | | 1368.01 | 40.01 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16720.00 | 1366.84 | 0.00 | 1368.01 | 40.01 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16740.00 | 1367.59 | | 1368.24 | 45.89 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16740.00 | 1367.59 | 0.00 | 1368.24 | 45.89 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16741.00 | 1367.59 | | 1368.24 | 45.93 | 813.00 | | 966.20 | 1033.80 | |
| Main Channel | 16741.00 | 1367.59 | 0.00 | 1368.24 | 45.93 | 813.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16833.5* | 1368.30 | | 1368.45 | 51.16 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 16833.5* | 1368.30 | 0.00 | 1368.45 | 51.16 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 16926.1* | 1368.37 | | 1368.53 | 51.45 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 16926.1* | 1368.37 | 0.00 | 1368.53 | 51.45 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17018.7* | 1368.44 | | 1368.60 | 51.62 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17018.7* | 1368.44 | 0.00 | 1368.60 | 51.62 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17111.2* | 1368.51 | | 1368.67 | 51.87 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17111.2* | 1368.51 | 0.00 | 1368.67 | 51.87 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17203.8* | 1368.58 | | 1368.73 | 52.02 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17203.8* | 1368.58 | 0.00 | 1368.73 | 52.02 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17296.4* | 1368.65 | | 1368.80 | 52.24 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17296.4* | 1368.65 | 0.00 | 1368.80 | 52.24 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |

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| Main Channel | 17389.00 | 1368.72 | | 1368.86 | 52.36 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17389.00 | 1368.72 | 0.00 | 1368.86 | 52.36 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17390.00 | 1368.72 | | 1368.86 | 52.37 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17390.00 | 1368.72 | 0.00 | 1368.86 | 52.37 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17440.00 | 1369.40 | | 1370.36 | 33.59 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17440.00 | 1369.40 | 0.00 | 1370.36 | 33.59 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17460.00 | 1370.08 | | 1370.58 | 38.94 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17460.00 | 1370.08 | 0.00 | 1370.58 | 38.94 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17461.00 | 1370.08 | | 1370.59 | 38.98 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17461.00 | 1370.08 | 0.00 | 1370.59 | 38.98 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17540.6* | 1370.46 | | 1370.84 | 41.68 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17540.6* | 1370.46 | 0.00 | 1370.84 | 41.68 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17620.3* | 1370.70 | | 1371.02 | 43.28 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17620.3* | 1370.70 | 0.00 | 1371.02 | 43.28 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17700.00 | 1370.89 | | 1371.18 | 44.46 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17700.00 | 1370.89 | 0.00 | 1371.18 | 44.46 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17798.7* | 1371.08 | | 1371.34 | 45.59 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17798.7* | 1371.08 | 0.00 | 1371.34 | 45.59 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17897.5* | 1371.24 | | 1371.48 | 46.49 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17897.5* | 1371.24 | 0.00 | 1371.48 | 46.49 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 17996.3* | 1371.39 | | 1371.61 | 47.24 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 17996.3* | 1371.39 | 0.00 | 1371.61 | 47.24 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18095.1* | 1371.52 | | 1371.73 | 47.89 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18095.1* | 1371.52 | 0.00 | 1371.73 | 47.89 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18193.8* | 1371.64 | | 1371.84 | 48.44 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18193.8* | 1371.64 | 0.00 | 1371.84 | 48.44 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18292.6* | 1371.75 | | 1371.94 | 48.94 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18292.6* | 1371.75 | 0.00 | 1371.94 | 48.94 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18391.4* | 1371.85 | | 1372.04 | 49.38 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18391.4* | 1371.85 | 0.00 | 1372.04 | 49.38 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18490.2* | 1371.95 | | 1372.13 | 49.77 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18490.2* | 1371.95 | 0.00 | 1372.13 | 49.77 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18589.00 | 1372.05 | | 1372.22 | 50.13 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18589.00 | 1372.05 | 0.00 | 1372.22 | 50.13 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18590.00 | 1372.05 | | 1372.22 | 50.14 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18590.00 | 1372.05 | 0.00 | 1372.22 | 50.14 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18640.00 | 1373.00 | | 1373.96 | 33.59 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18640.00 | 1373.00 | 0.00 | 1373.96 | 33.59 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18660.00 | 1373.68 | | 1374.18 | 38.94 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18660.00 | 1373.68 | 0.00 | 1374.18 | 38.94 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18661.00 | 1373.68 | | 1374.19 | 38.98 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18661.00 | 1373.68 | 0.00 | 1374.19 | 38.98 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18700.00 | 1373.90 | | 1374.32 | 40.54 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18700.00 | 1373.90 | 0.00 | 1374.32 | 40.54 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18792.9* | 1374.23 | | 1374.57 | 42.77 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18792.9* | 1374.23 | 0.00 | 1374.57 | 42.77 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18885.8* | 1374.46 | | 1374.75 | 44.31 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18885.8* | 1374.46 | 0.00 | 1374.75 | 44.31 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 18978.7* | 1374.64 | | 1374.91 | 45.38 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 18978.7* | 1374.64 | 0.00 | 1374.91 | 45.38 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19071.6* | 1374.80 | | 1375.04 | 46.25 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19071.6* | 1374.80 | 0.00 | 1375.04 | 46.25 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19164.5* | 1374.94 | | 1375.17 | 47.00 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19164.5* | 1374.94 | 0.00 | 1375.17 | 47.00 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19257.4* | 1375.07 | | 1375.28 | 47.66 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19257.4* | 1375.07 | 0.00 | 1375.28 | 47.66 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19350.3* | 1375.18 | | 1375.39 | 48.19 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19350.3* | 1375.18 | 0.00 | 1375.39 | 48.19 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19443.2* | 1375.29 | | 1375.49 | 48.66 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19443.2* | 1375.29 | 0.00 | 1375.49 | 48.66 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19536.1* | 1375.40 | | 1375.58 | 49.16 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19536.1* | 1375.40 | 0.00 | 1375.58 | 49.16 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19629.00 | 1375.49 | | 1375.67 | 49.53 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19629.00 | 1375.49 | 0.00 | 1375.67 | 49.53 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19630.00 | 1375.49 | | 1375.68 | 49.54 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19630.00 | 1375.49 | 0.00 | 1375.68 | 49.54 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19680.00 | 1376.52 | | 1377.48 | 33.59 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19680.00 | 1376.52 | 0.00 | 1377.48 | 33.59 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19700.00 | 1377.20 | | 1377.70 | 38.94 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19700.00 | 1377.20 | 0.00 | 1377.70 | 38.94 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19701.00 | 1377.20 | | 1377.71 | 38.98 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19701.00 | 1377.20 | 0.00 | 1377.71 | 38.98 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19800.6* | 1377.65 | | 1378.01 | 42.15 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19800.6* | 1377.65 | 0.00 | 1378.01 | 42.15 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 19900.3* | 1377.92 | | 1378.22 | 43.92 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 19900.3* | 1377.92 | 0.00 | 1378.22 | 43.92 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |

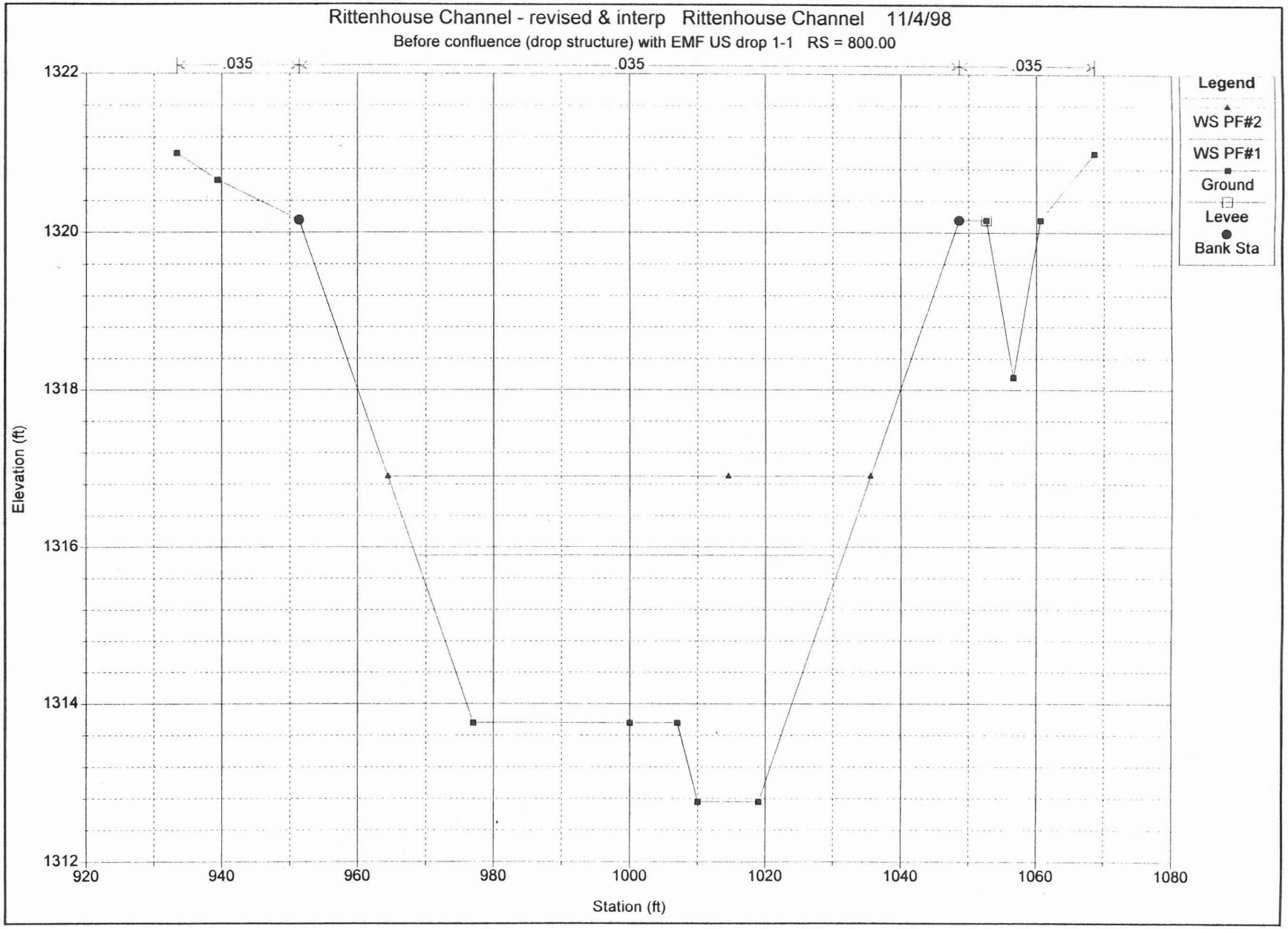
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 20000.00 | 1378.13 | | 1378.40 | 45.18 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 20000.00 | 1378.13 | 0.00 | 1378.40 | 45.18 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20090.2* | 1378.29 | | 1378.53 | 46.50 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 20090.2* | 1378.29 | 0.00 | 1378.53 | 46.50 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20180.4* | 1378.43 | | 1378.65 | 47.61 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 20180.4* | 1378.43 | 0.00 | 1378.65 | 47.61 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20270.61 | 1378.55 | | 1378.75 | 48.56 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 20270.61 | 1378.55 | 0.00 | 1378.75 | 48.56 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20300.00 | 1378.59 | | 1378.79 | 48.80 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 20300.00 | 1378.59 | 0.00 | 1378.79 | 48.80 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20379.70 | 1378.71 | | 1378.90 | 49.46 | 505.00 | | 966.20 | 1033.80 | |
| Main Channel | 20379.70 | 1378.71 | 0.00 | 1378.90 | 49.46 | 505.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20431.69 | 1378.76 | | 1378.97 | 48.46 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 20431.69 | 1378.76 | 0.00 | 1378.97 | 48.46 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20521.1* | 1378.86 | | 1379.06 | 48.99 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 20521.1* | 1378.86 | 0.00 | 1379.06 | 48.99 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20610.5* | 1378.96 | | 1379.16 | 49.38 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 20610.5* | 1378.96 | 0.00 | 1379.16 | 49.38 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20700.00 | 1379.06 | | 1379.24 | 49.82 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 20700.00 | 1379.06 | 0.00 | 1379.24 | 49.82 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20789.8* | 1379.15 | | 1379.33 | 50.22 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 20789.8* | 1379.15 | 0.00 | 1379.33 | 50.22 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20879.6* | 1379.23 | | 1379.41 | 50.50 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 20879.6* | 1379.23 | 0.00 | 1379.41 | 50.50 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 20969.4* | 1379.32 | | 1379.49 | 50.85 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 20969.4* | 1379.32 | 0.00 | 1379.49 | 50.85 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21059.2* | 1379.39 | | 1379.56 | 51.07 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21059.2* | 1379.39 | 0.00 | 1379.56 | 51.07 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21149.00 | 1379.47 | | 1379.64 | 51.37 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21149.00 | 1379.47 | 0.00 | 1379.64 | 51.37 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21150.00 | 1379.47 | | 1379.64 | 51.38 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21150.00 | 1379.47 | 0.00 | 1379.64 | 51.38 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21200.00 | 1380.32 | | 1381.28 | 33.90 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21200.00 | 1380.32 | 0.00 | 1381.28 | 33.90 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21220.00 | 1380.99 | | 1381.50 | 39.21 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21220.00 | 1380.99 | 0.00 | 1381.50 | 39.21 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21221.00 | 1381.00 | | 1381.51 | 39.25 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21221.00 | 1381.00 | 0.00 | 1381.51 | 39.25 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21316.8* | 1381.43 | | 1381.80 | 42.34 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21316.8* | 1381.43 | 0.00 | 1381.80 | 42.34 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21412.6* | 1381.70 | | 1382.01 | 44.08 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21412.6* | 1381.70 | 0.00 | 1382.01 | 44.08 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21508.4* | 1381.91 | | 1382.18 | 45.42 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21508.4* | 1381.91 | 0.00 | 1382.18 | 45.42 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21604.2* | 1382.08 | | 1382.33 | 46.38 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21604.2* | 1382.08 | 0.00 | 1382.33 | 46.38 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21700.00 | 1382.23 | | 1382.46 | 47.17 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21700.00 | 1382.23 | 0.00 | 1382.46 | 47.17 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21791.5* | 1382.36 | | 1382.58 | 47.83 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21791.5* | 1382.36 | 0.00 | 1382.58 | 47.83 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21883.* | 1382.47 | | 1382.68 | 48.42 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21883.* | 1382.47 | 0.00 | 1382.68 | 48.42 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 21974.5* | 1382.58 | | 1382.78 | 48.92 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 21974.5* | 1382.58 | 0.00 | 1382.78 | 48.92 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22066.* | 1382.68 | | 1382.88 | 49.39 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22066.* | 1382.68 | 0.00 | 1382.88 | 49.39 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22157.5* | 1382.78 | | 1382.97 | 49.78 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22157.5* | 1382.78 | 0.00 | 1382.97 | 49.78 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22249.00 | 1382.87 | | 1383.05 | 50.17 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22249.00 | 1382.87 | 0.00 | 1383.05 | 50.17 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22250.00 | 1382.87 | | 1383.05 | 50.18 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22250.00 | 1382.87 | 0.00 | 1383.05 | 50.18 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22300.00 | 1383.87 | | 1384.83 | 33.94 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22300.00 | 1383.87 | 0.00 | 1384.83 | 33.94 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22320.00 | 1384.54 | | 1385.05 | 39.20 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22320.00 | 1384.54 | 0.00 | 1385.05 | 39.20 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22321.00 | 1384.55 | | 1385.06 | 39.24 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22321.00 | 1384.55 | 0.00 | 1385.06 | 39.24 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22415.7* | 1384.98 | | 1385.35 | 42.30 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22415.7* | 1384.98 | 0.00 | 1385.35 | 42.30 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22510.5* | 1385.25 | | 1385.56 | 44.08 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22510.5* | 1385.25 | 0.00 | 1385.56 | 44.08 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22605.2* | 1385.45 | | 1385.73 | 45.35 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22605.2* | 1385.45 | 0.00 | 1385.73 | 45.35 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |
| Main Channel | 22700.00 | 1385.62 | | 1385.87 | 46.31 | 516.00 | | 966.20 | 1033.80 | |
| Main Channel | 22700.00 | 1385.62 | 0.00 | 1385.87 | 46.31 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 |

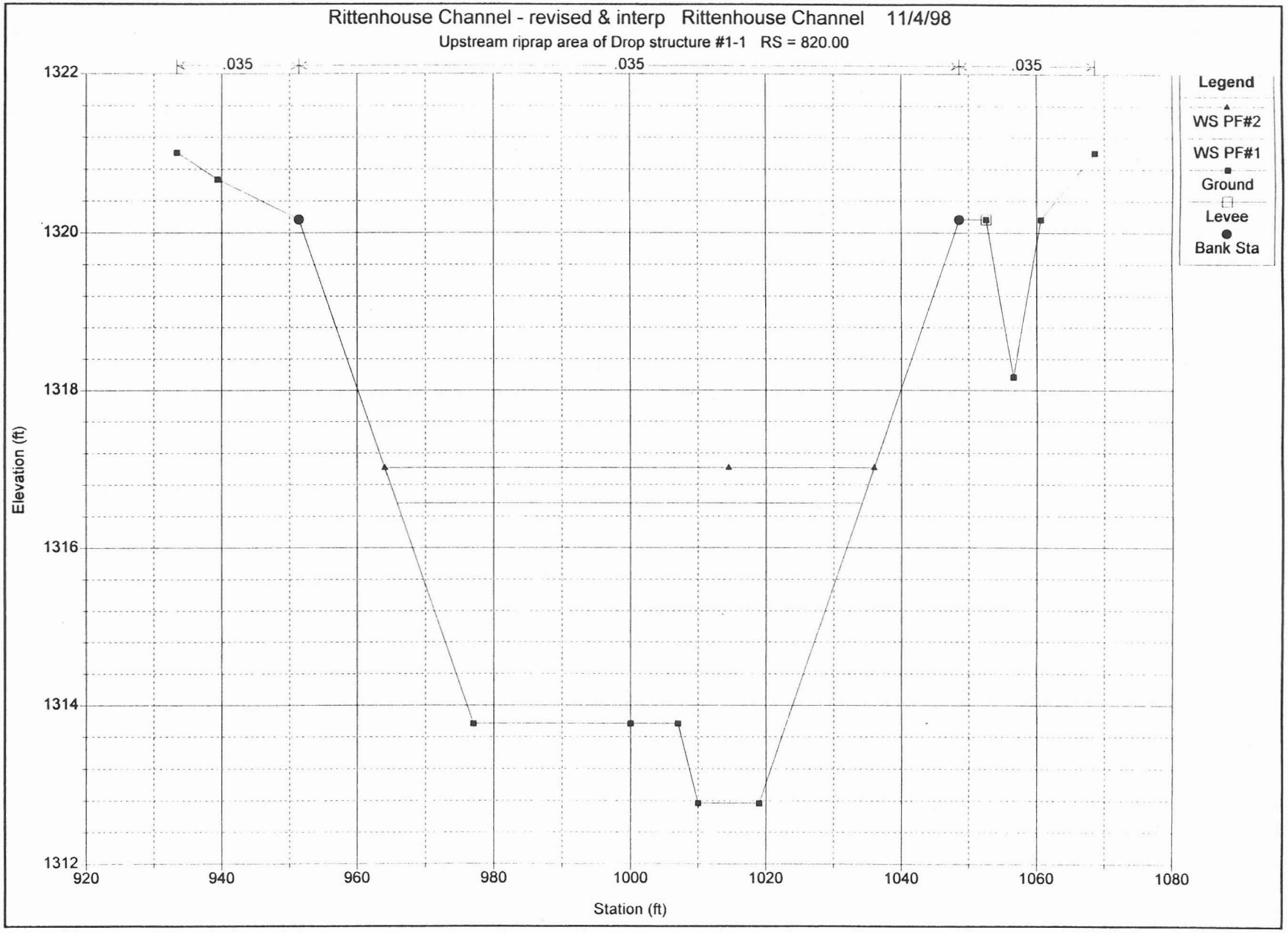
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Channel | 22777.2* | 1385.74 | | 1385.98 | 46.97 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 22777.2* | 1385.74 | 0.00 | 1385.98 | 46.97 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 22854.5* | 1385.85 | | 1386.08 | 47.60 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 22854.5* | 1385.85 | 0.00 | 1386.08 | 47.60 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 22931.7* | 1385.96 | | 1386.17 | 48.14 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 22931.7* | 1385.96 | 0.00 | 1386.17 | 48.14 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23009.00 | 1386.05 | | 1386.26 | 48.59 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23009.00 | 1386.05 | 0.00 | 1386.26 | 48.59 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23010.00 | 1386.06 | | 1386.26 | 48.60 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23010.00 | 1386.06 | 0.00 | 1386.26 | 48.60 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23060.00 | 1387.25 | | 1388.21 | 33.94 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23060.00 | 1387.25 | 0.00 | 1388.21 | 33.94 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23080.00 | 1387.92 | | 1388.43 | 39.20 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23080.00 | 1387.92 | 0.00 | 1388.43 | 39.20 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23081.00 | 1387.93 | | 1388.43 | 39.36 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23081.00 | 1387.93 | 0.00 | 1388.43 | 39.36 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23159.6* | 1388.31 | | 1388.68 | 42.39 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23159.6* | 1388.31 | 0.00 | 1388.68 | 42.39 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23238.31 | 1388.54 | | 1388.85 | 44.24 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23238.31 | 1388.54 | 0.00 | 1388.85 | 44.24 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23239.31 | 1388.52 | | 1388.86 | 43.40 | 516.00 | | 966.20 | 1033.80 | | |
| Main Channel | 23239.31 | 1388.52 | 0.00 | 1388.86 | 43.40 | 516.00 | 966.20 | 966.20 | 1033.80 | 1033.80 | |
| Main Channel | 23257.56 | 1388.60 | | 1388.92 | 40.00 | 516.00 | | 980.00 | 1020.00 | | |
| Main Channel | 23257.56 | 1388.60 | 0.00 | 1388.92 | 40.00 | 516.00 | 980.00 | 980.00 | 1020.00 | 1020.00 | |
| Main Channel | 23278.81 | 1388.10 | | 1389.29 | 16.50 | 516.00 | | 991.75 | 1008.25 | | |
| Main Channel | 23278.81 | 1388.10 | 0.00 | 1389.29 | 16.50 | 516.00 | 991.75 | 991.75 | 1008.25 | 1008.25 | |

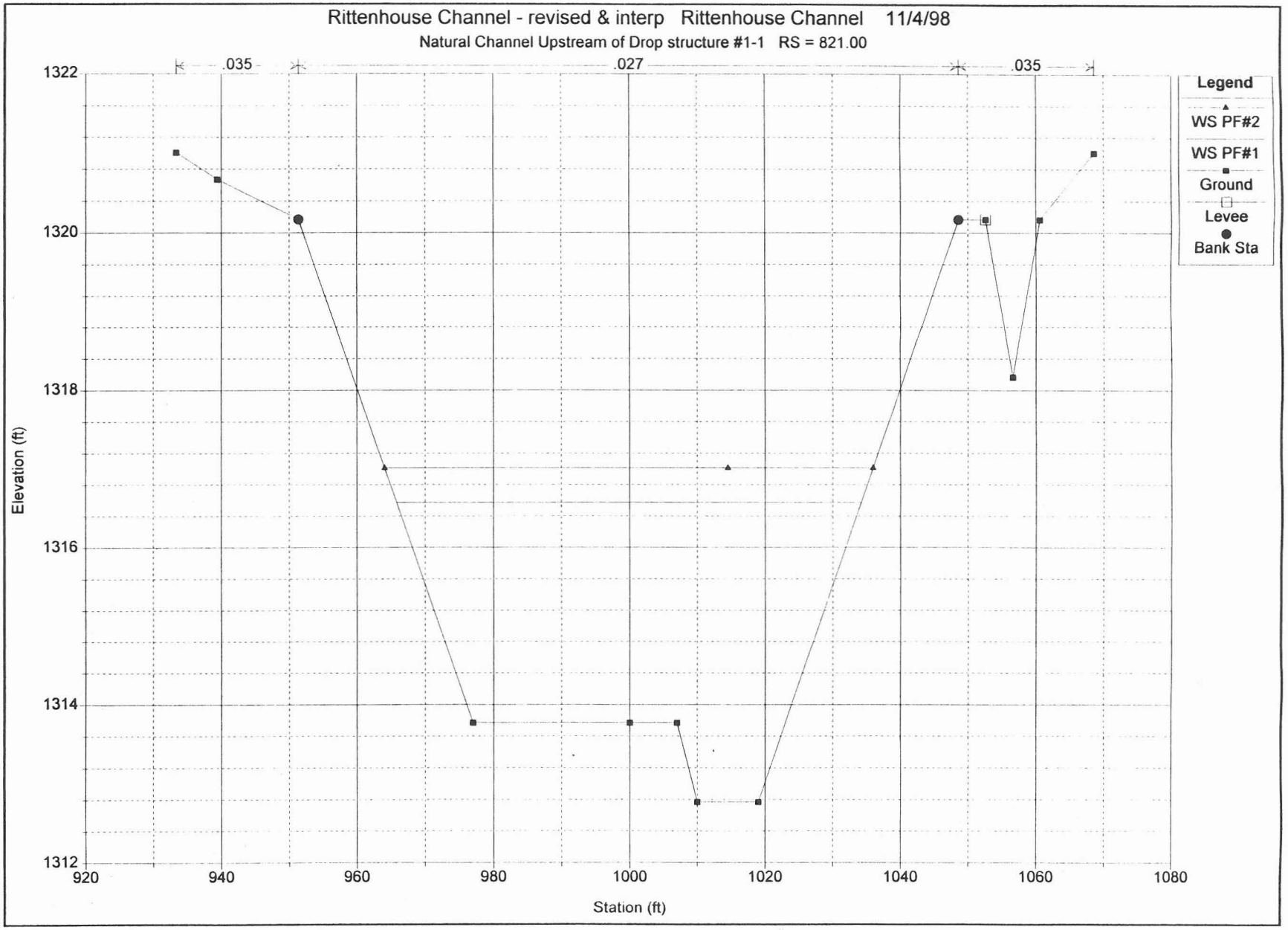
# Appendix H

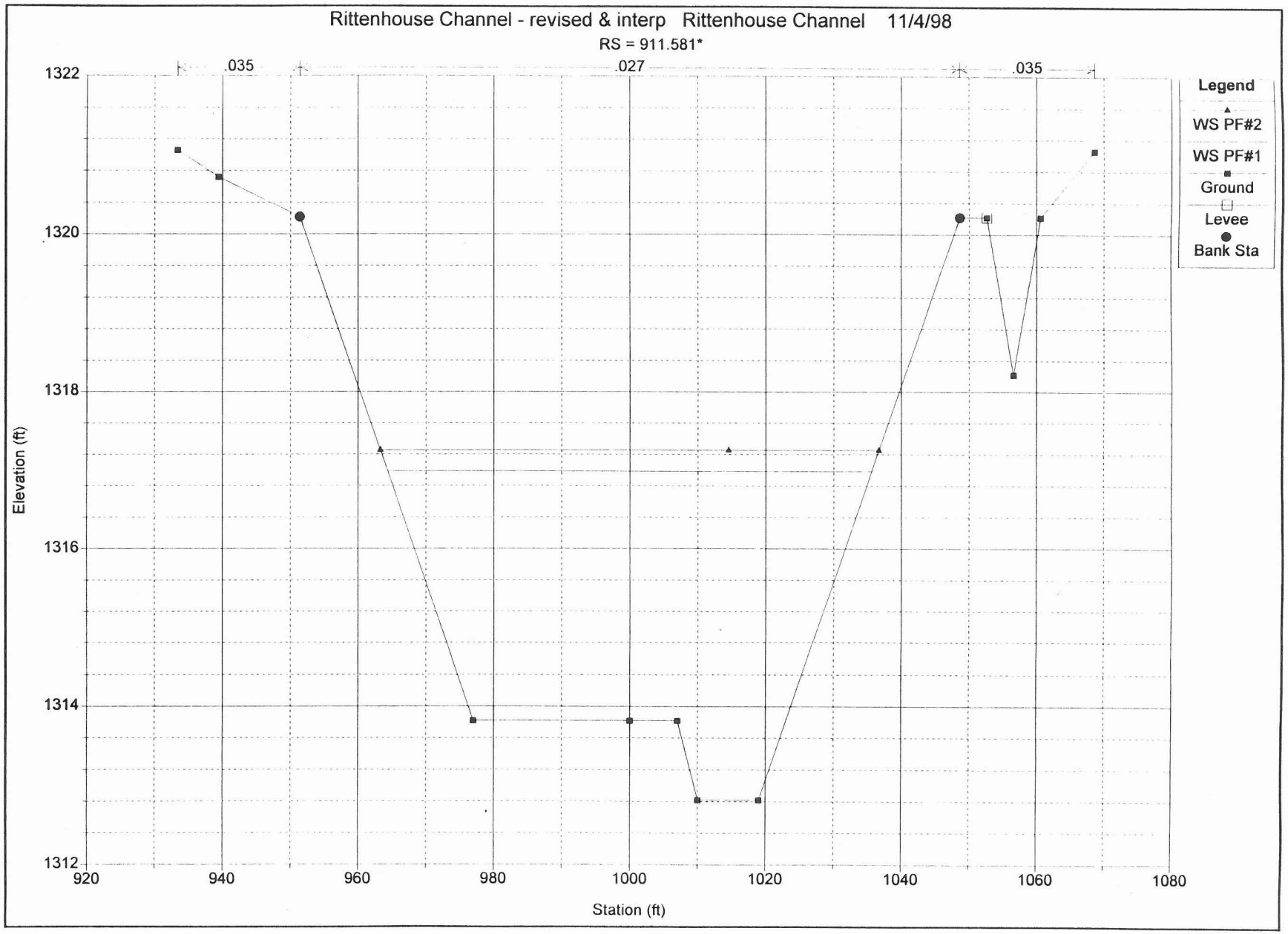
# APPENDIX H

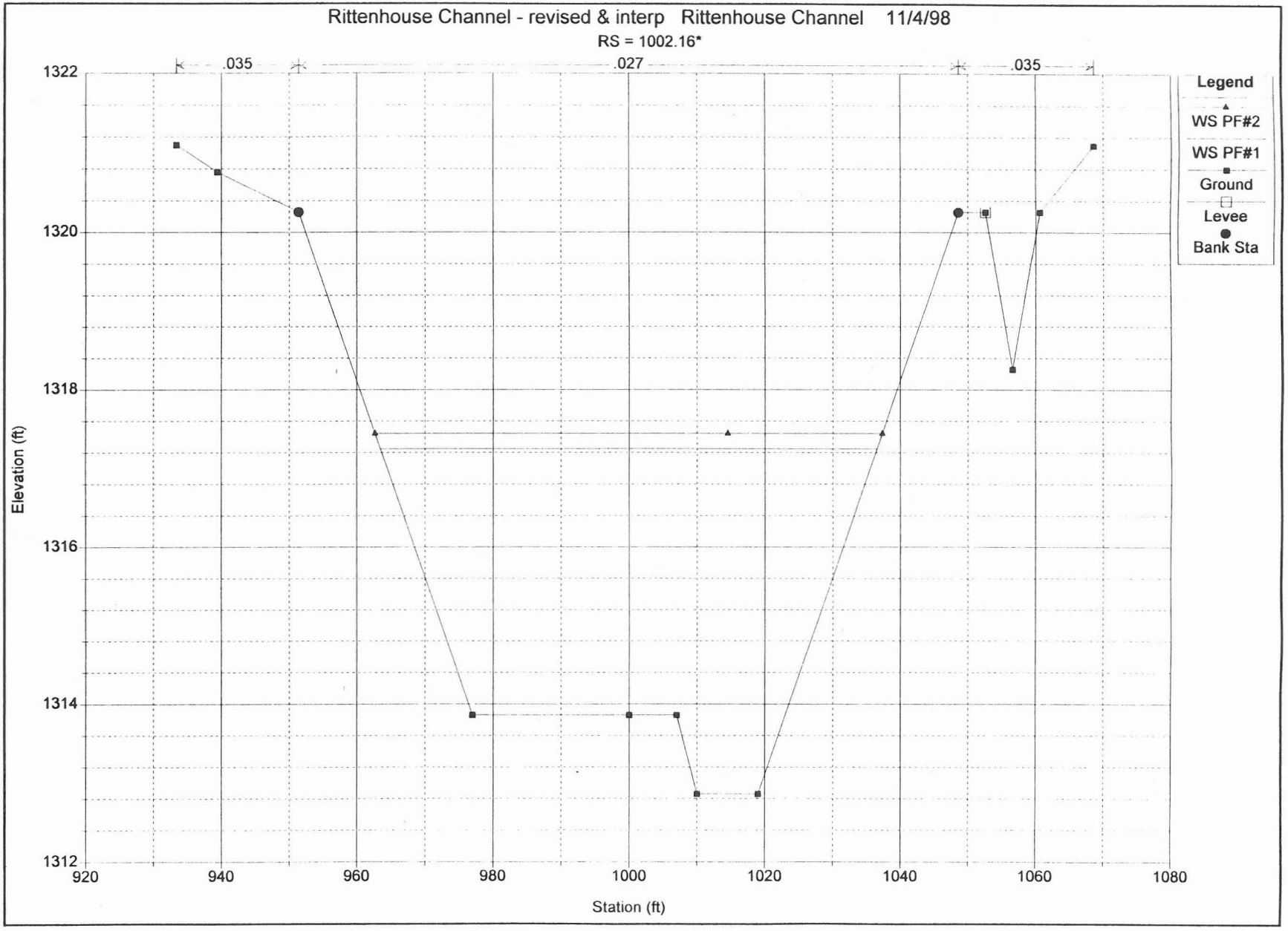
# CROSS-SECTION PLOTS

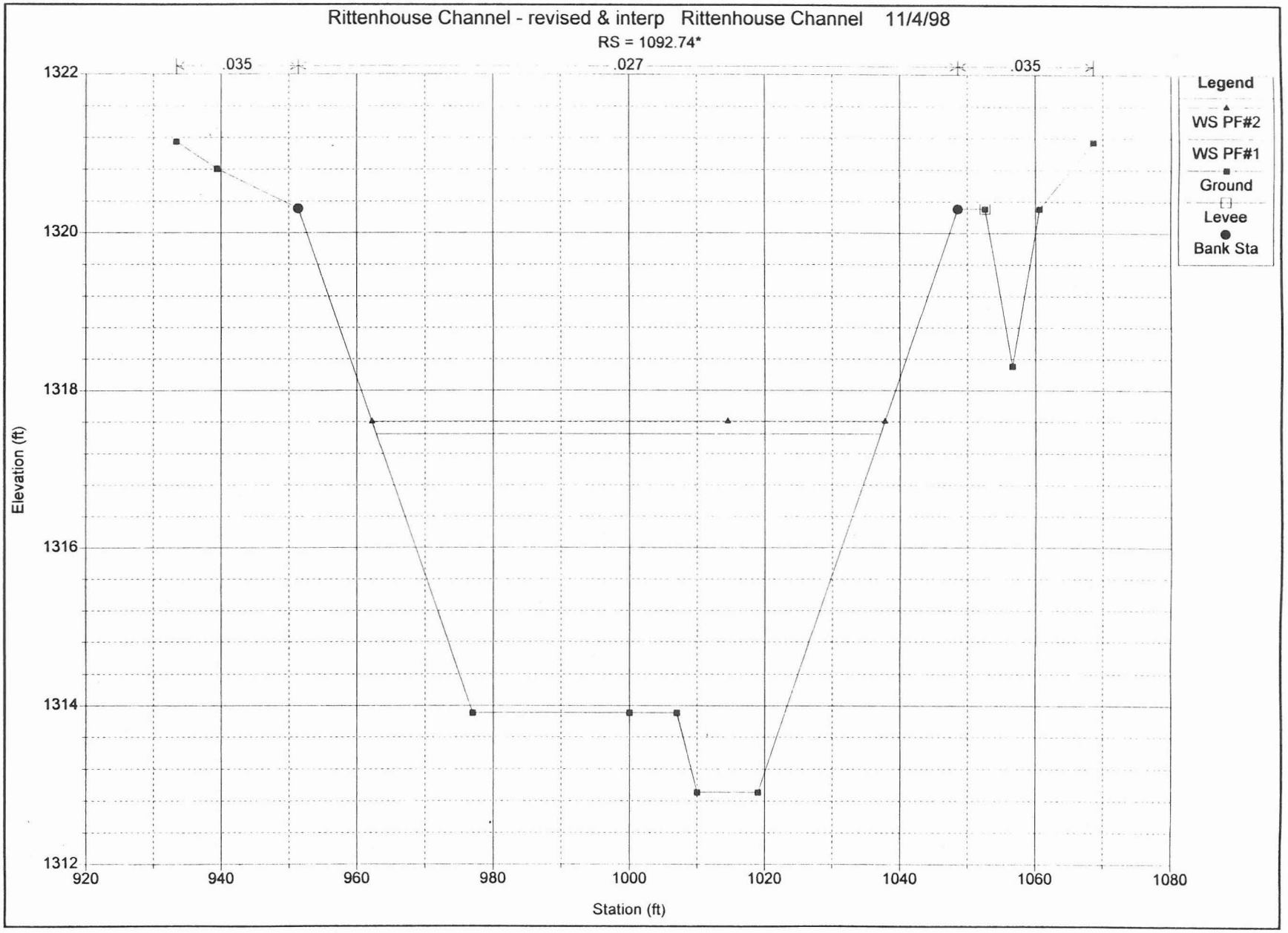

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Before confluence (drop structure) with EMF US drop 1-1 RS = 800.00
.035
.035
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

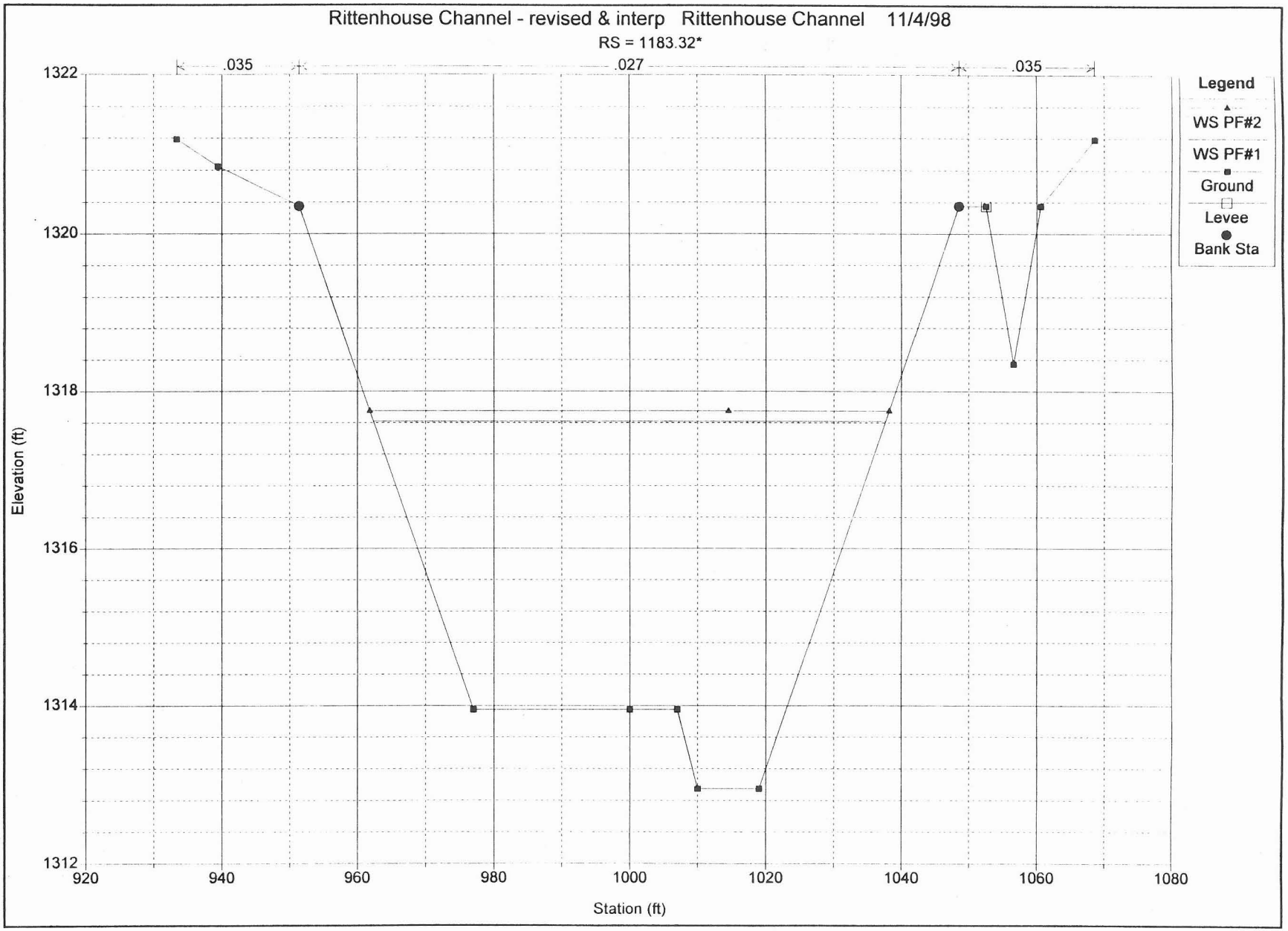

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of Drop structure #1-1 RS = 820.00
.035
.035
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

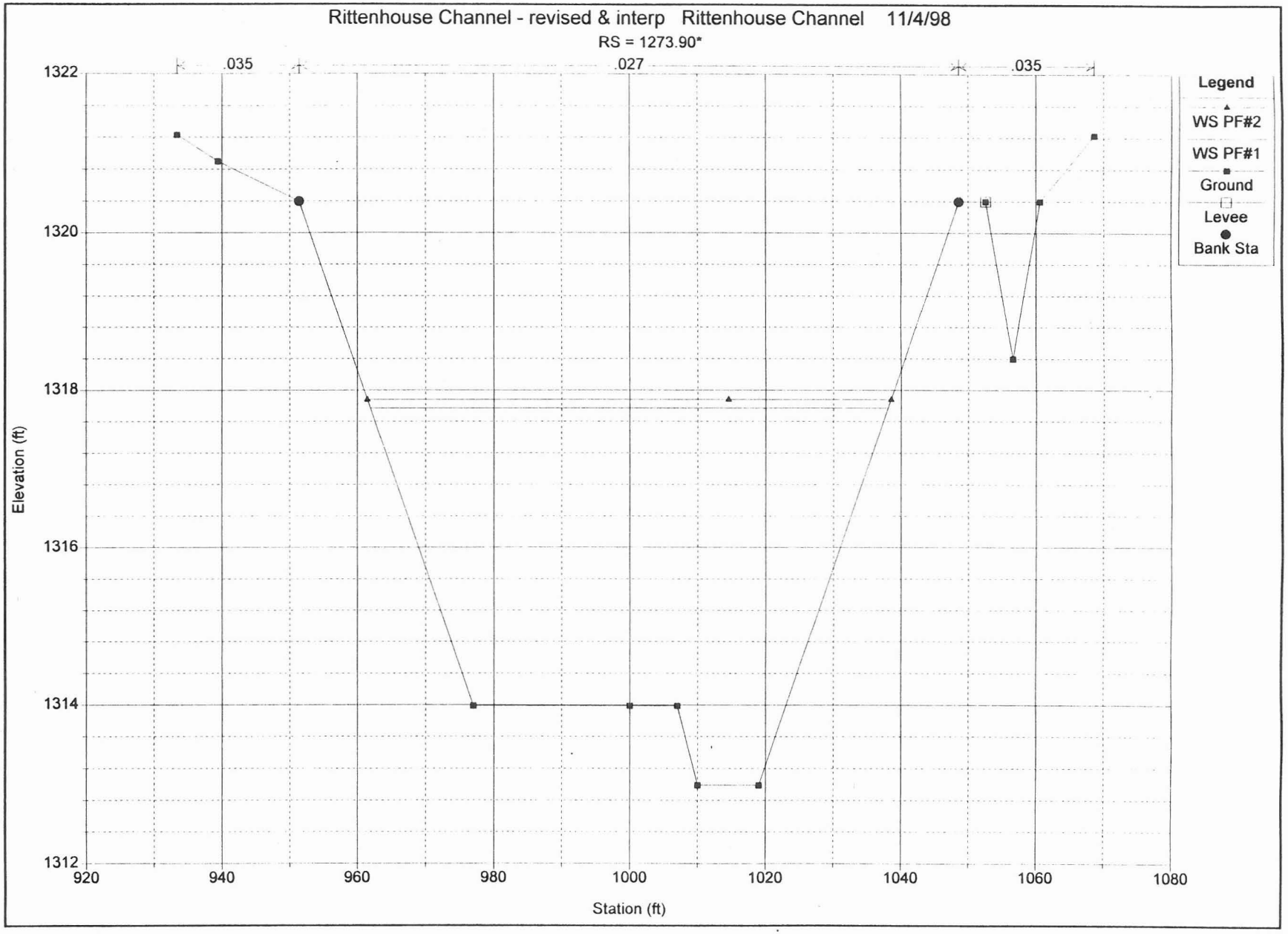

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of Drop structure #1-1 RS = 821.00
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

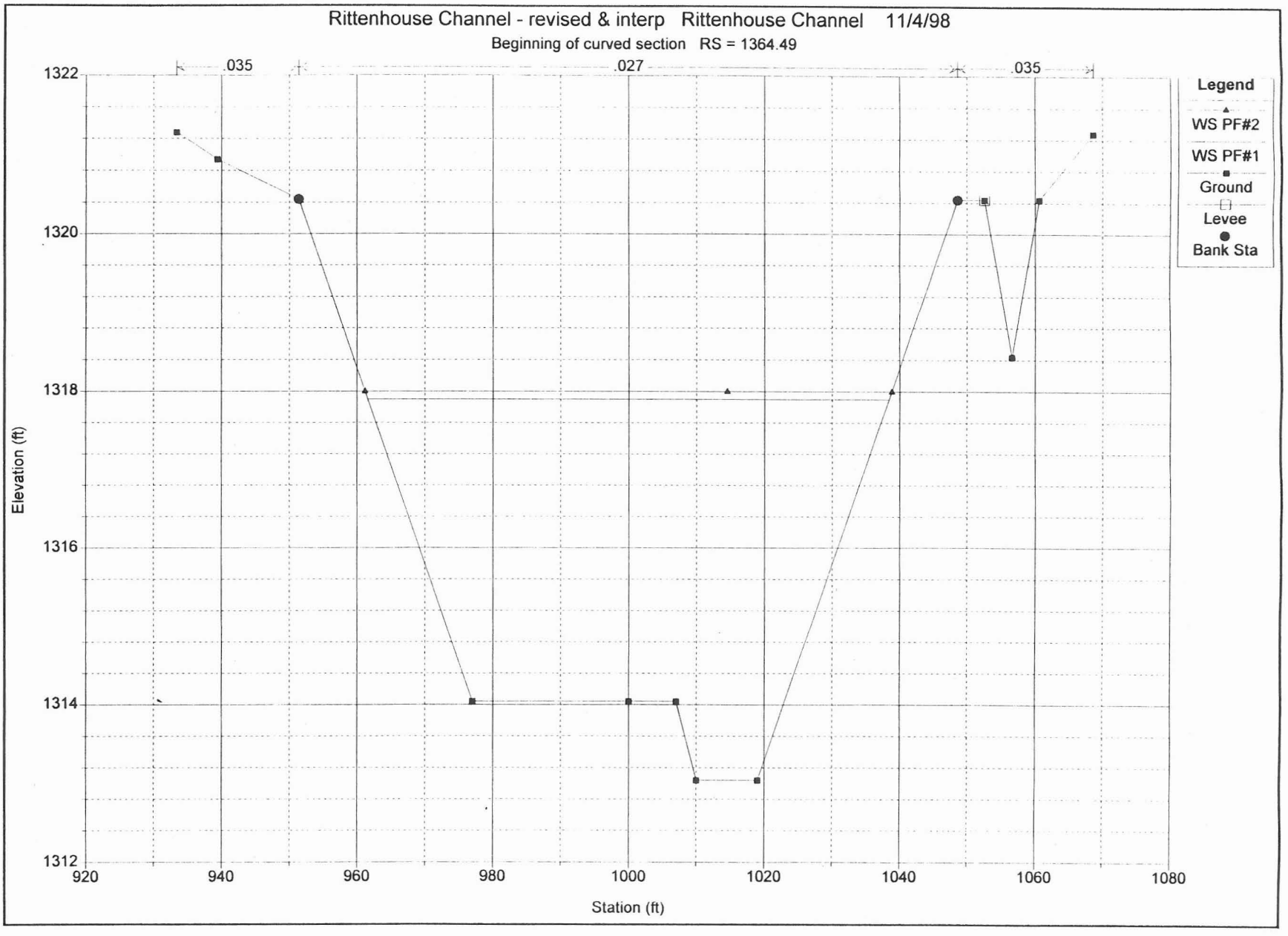

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 911.581*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

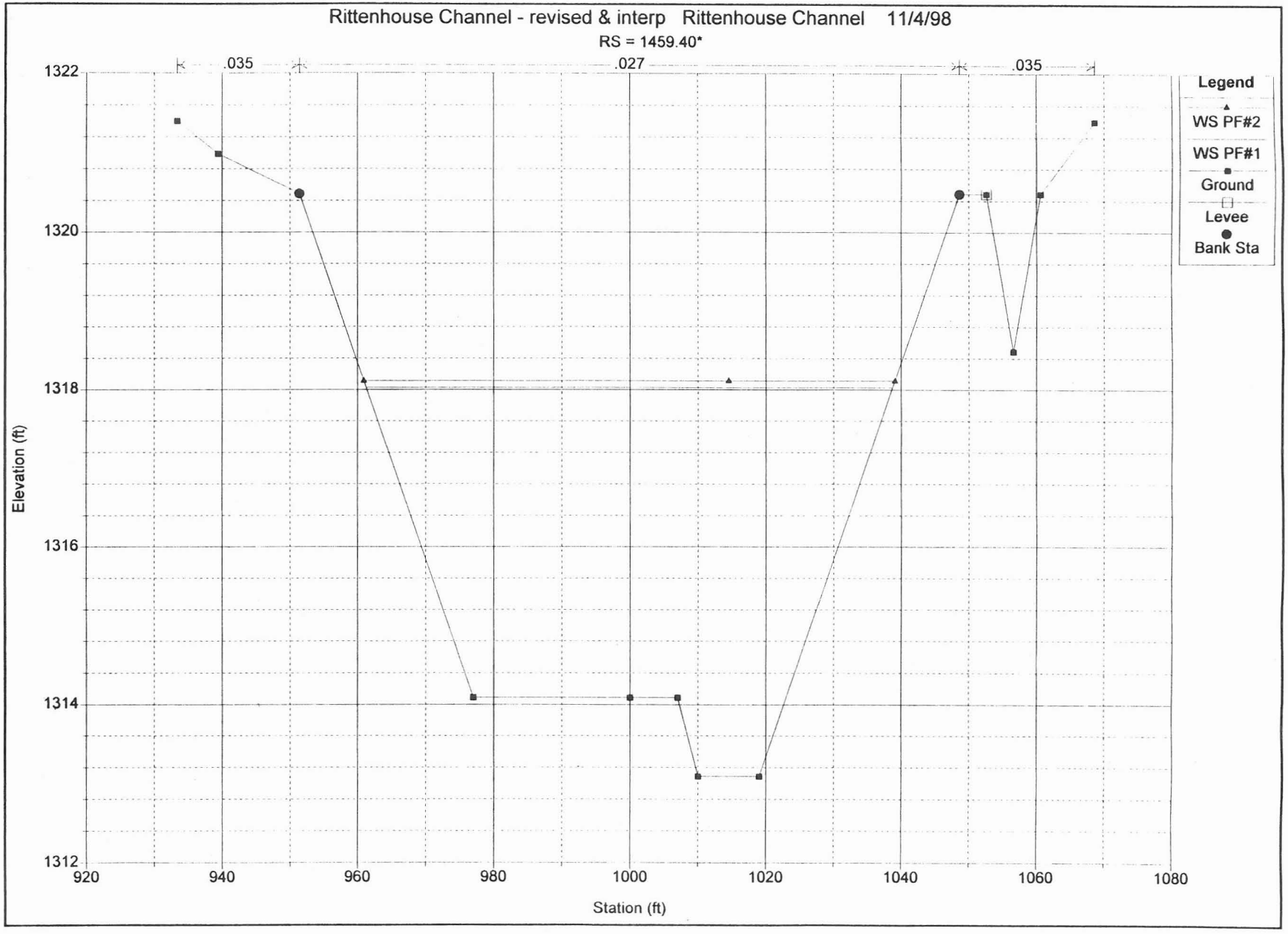

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1002.16*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

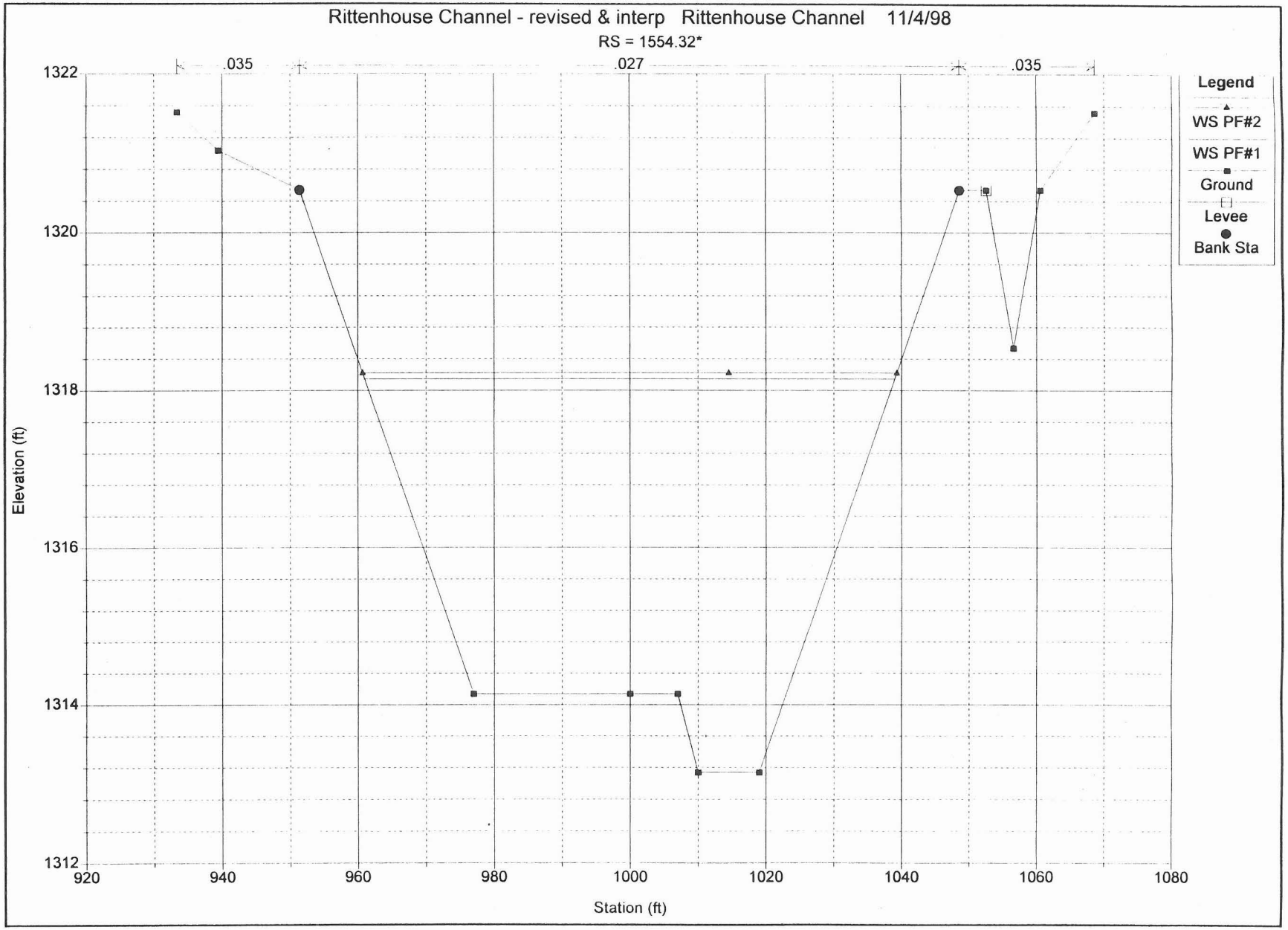

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1092.74*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

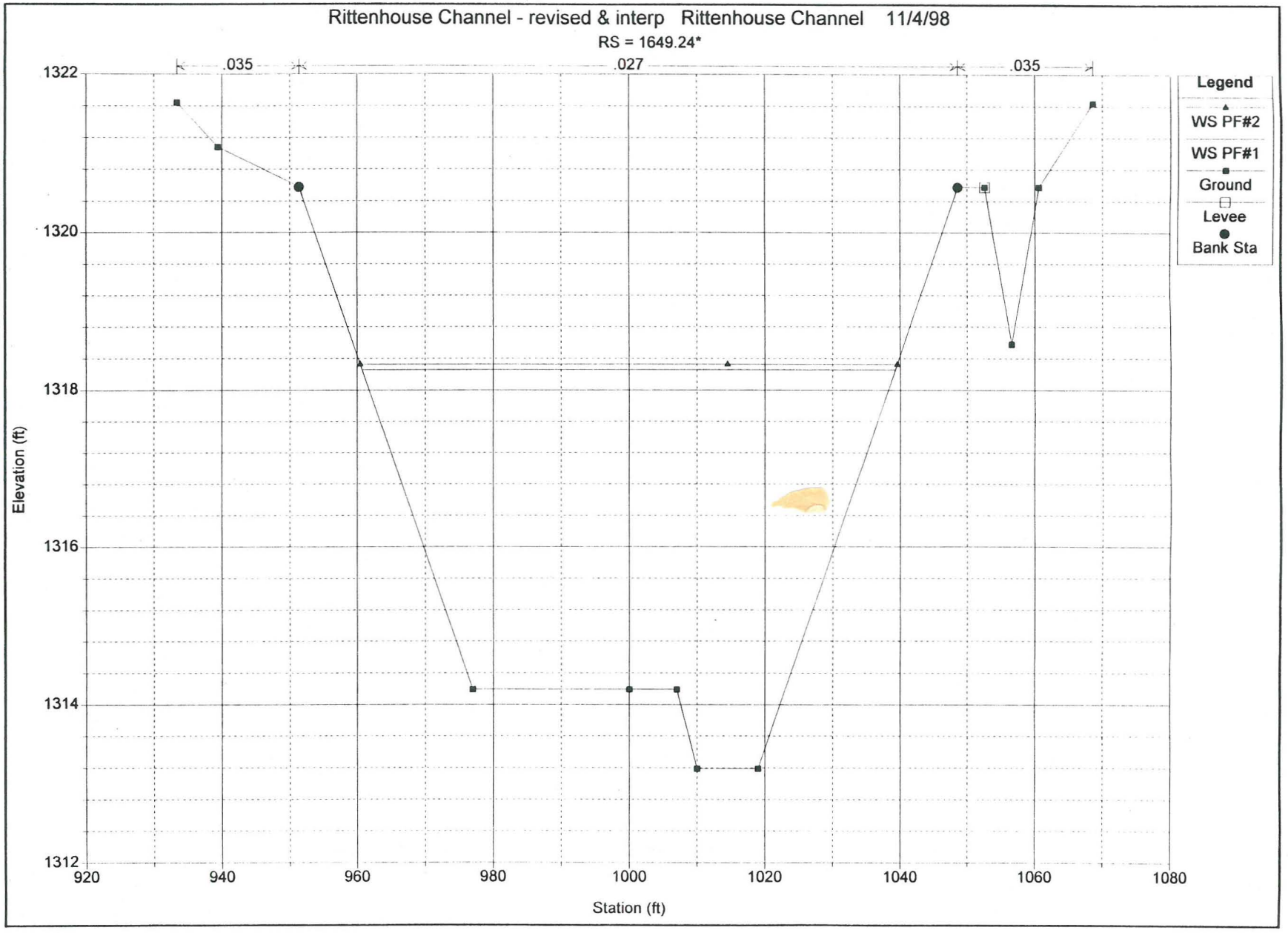

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1183.32*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

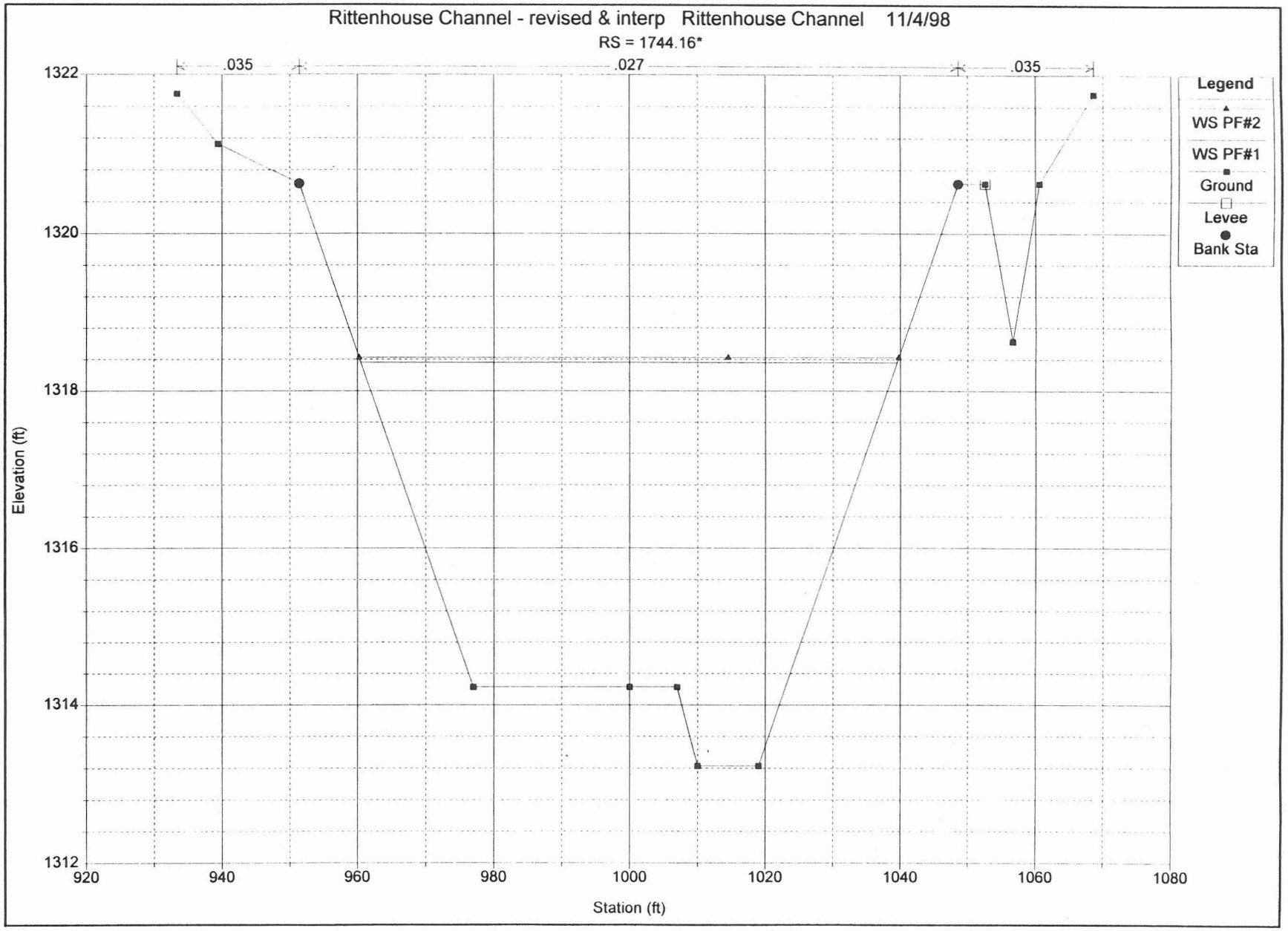

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1273.90*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

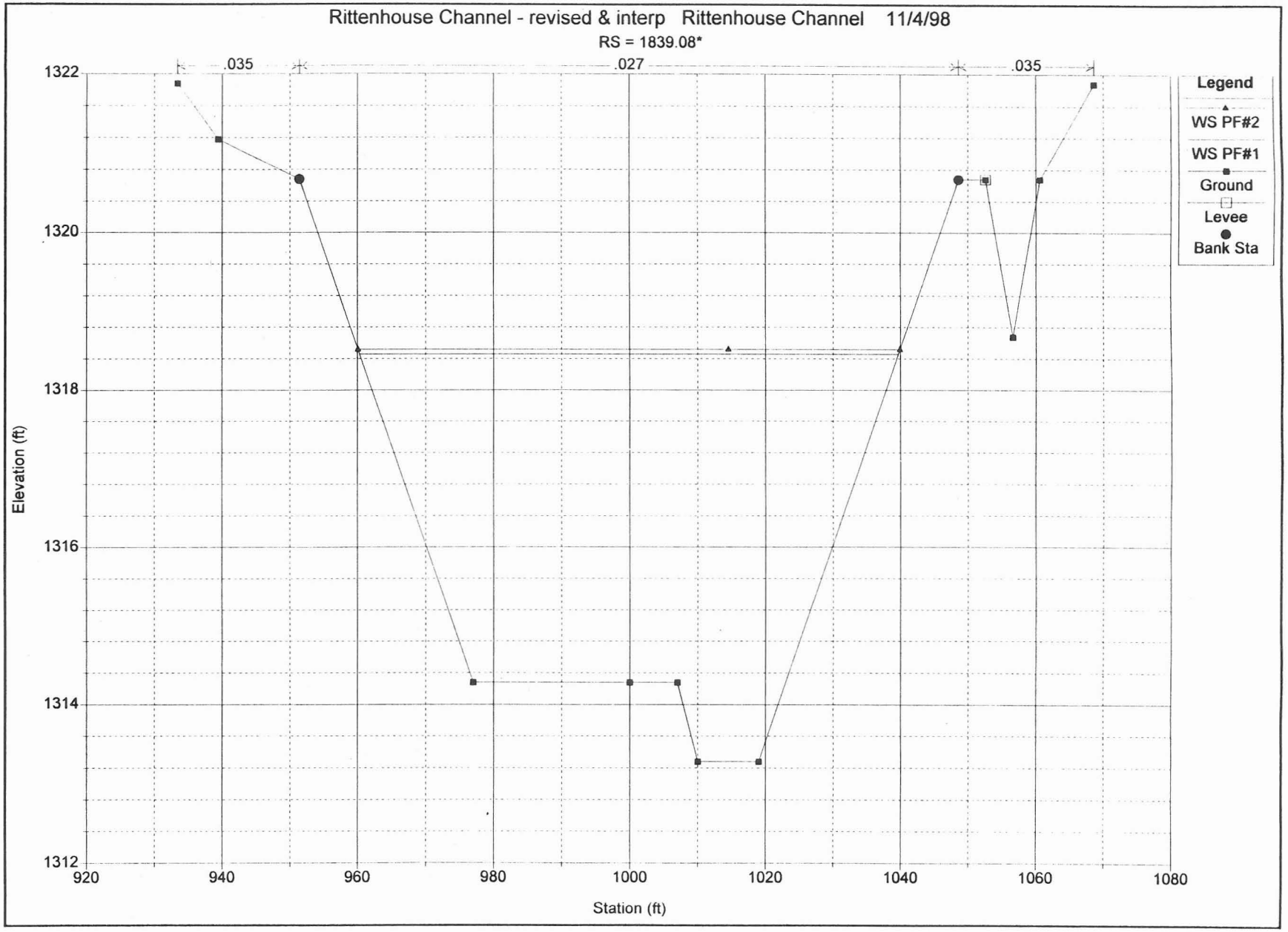

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Beginning of curved section RS = 1364.49
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

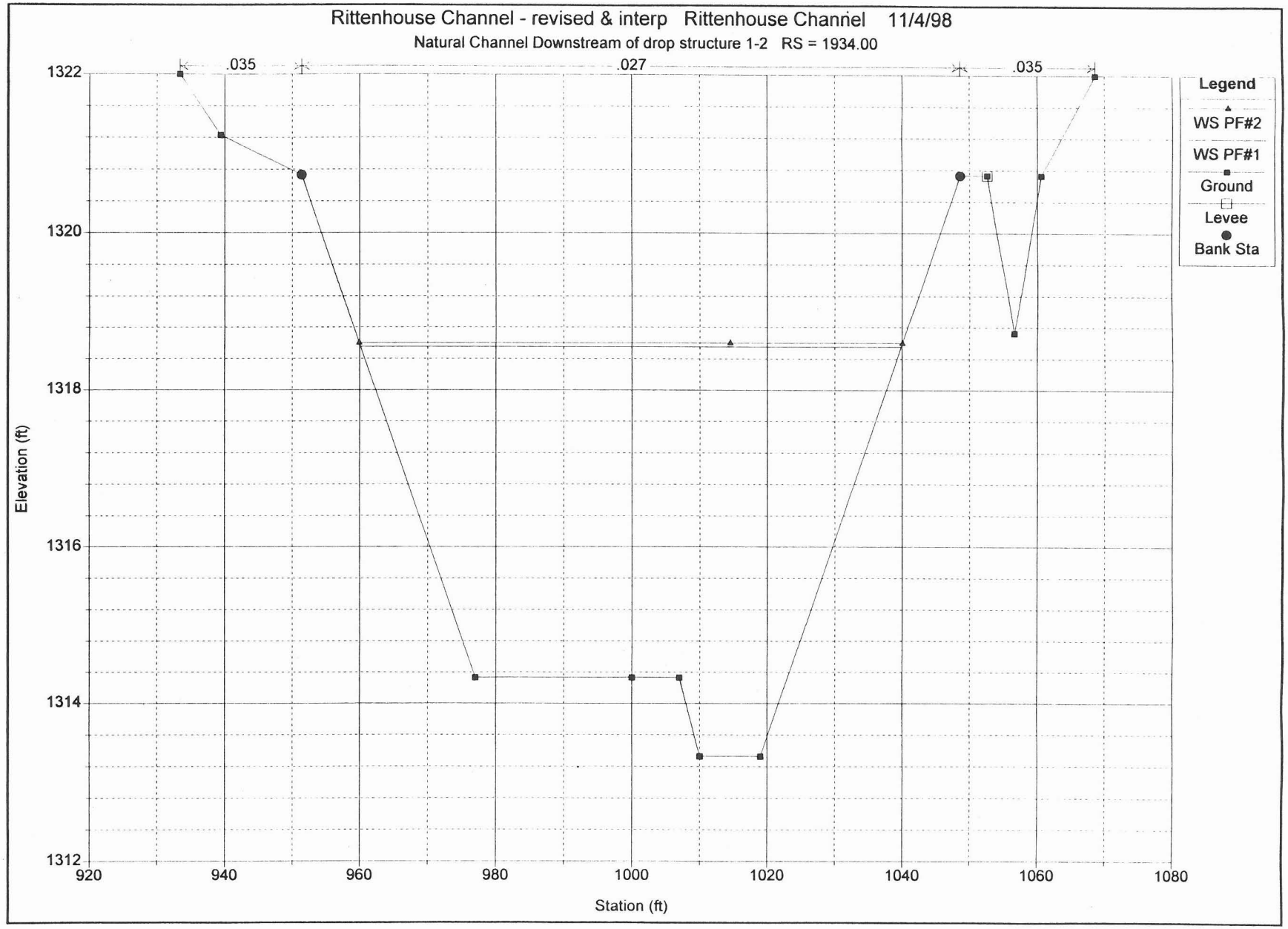

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1459.40*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

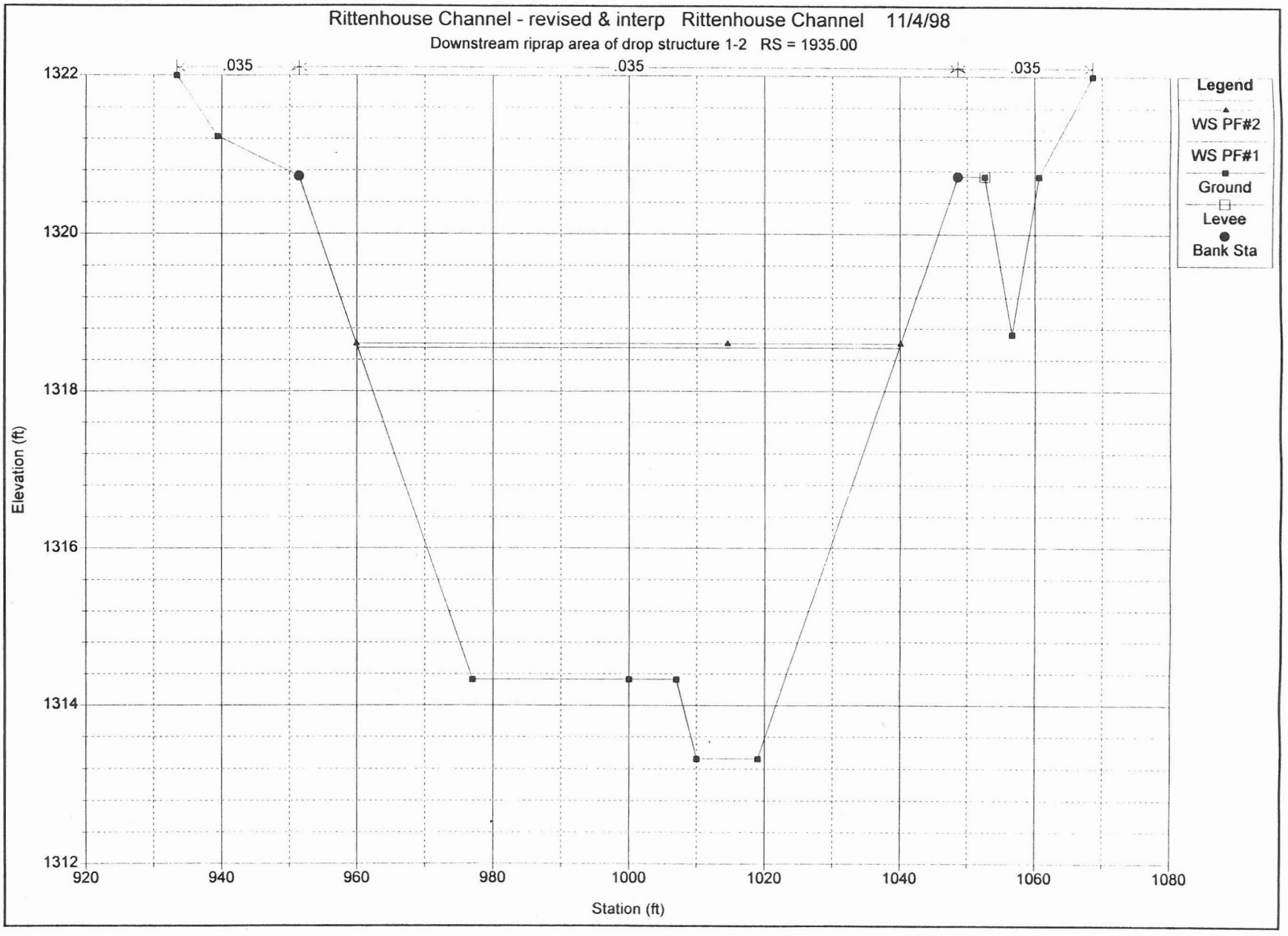

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1554.32*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

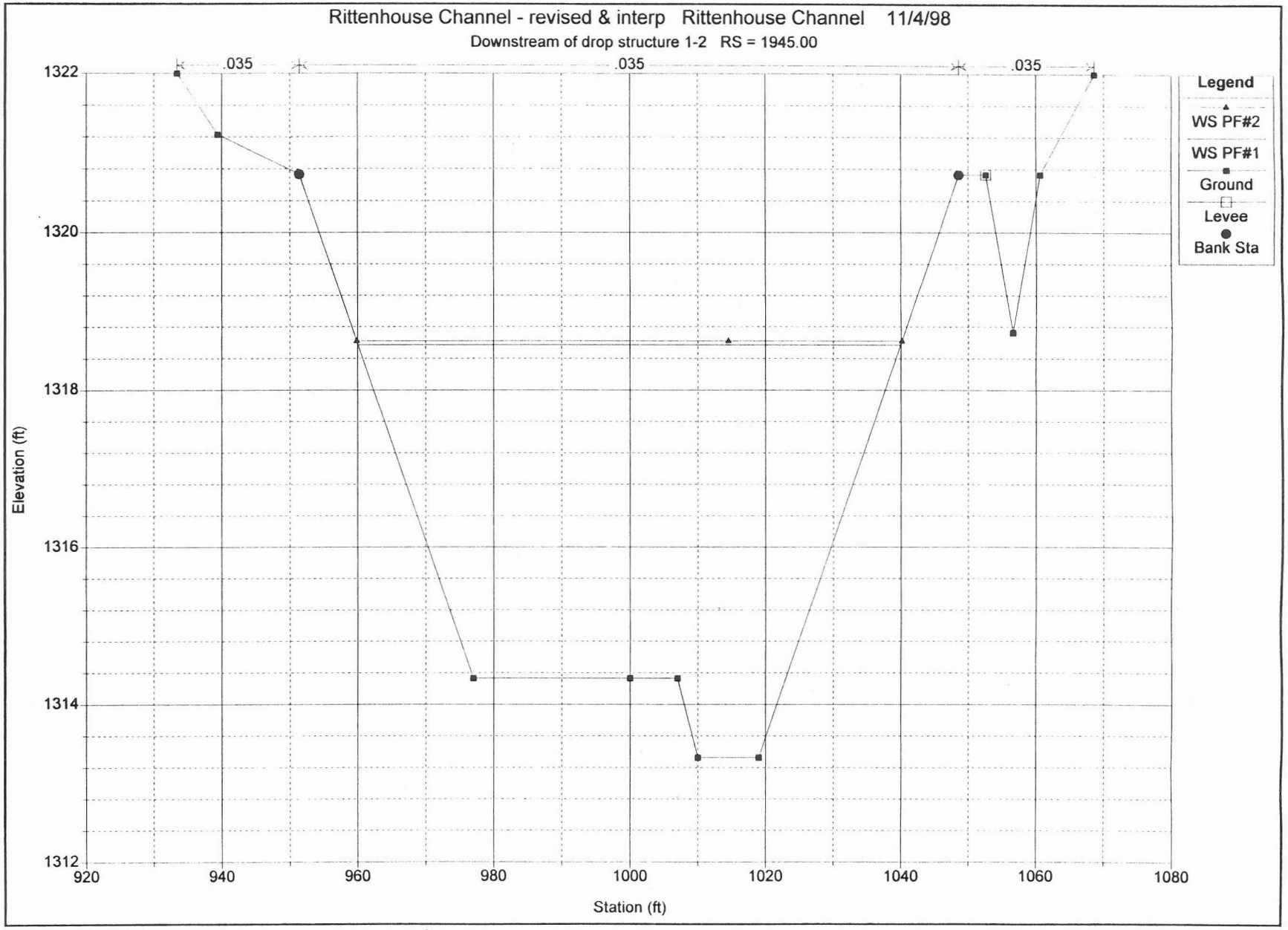

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1649.24*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

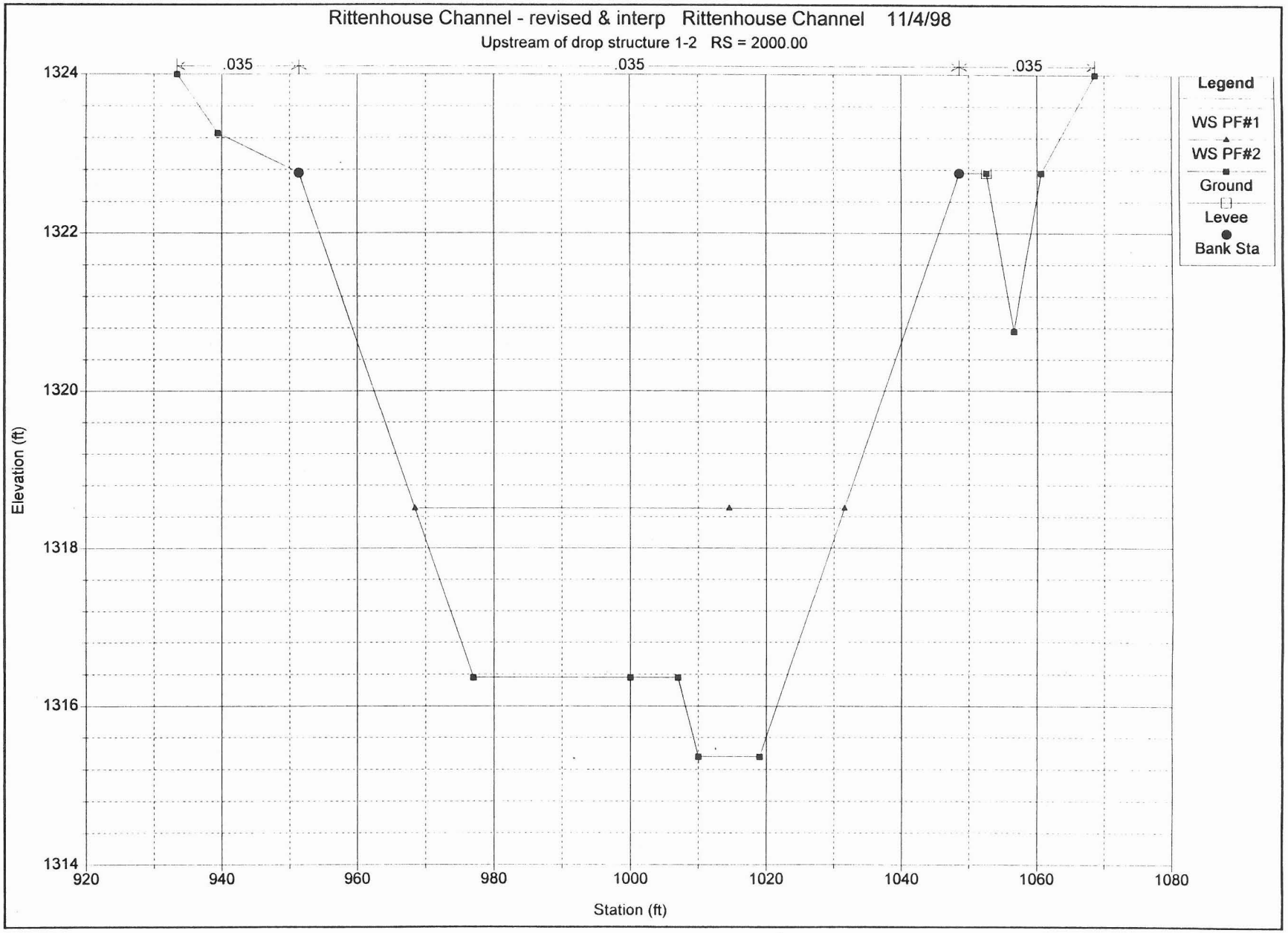

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1744.16*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

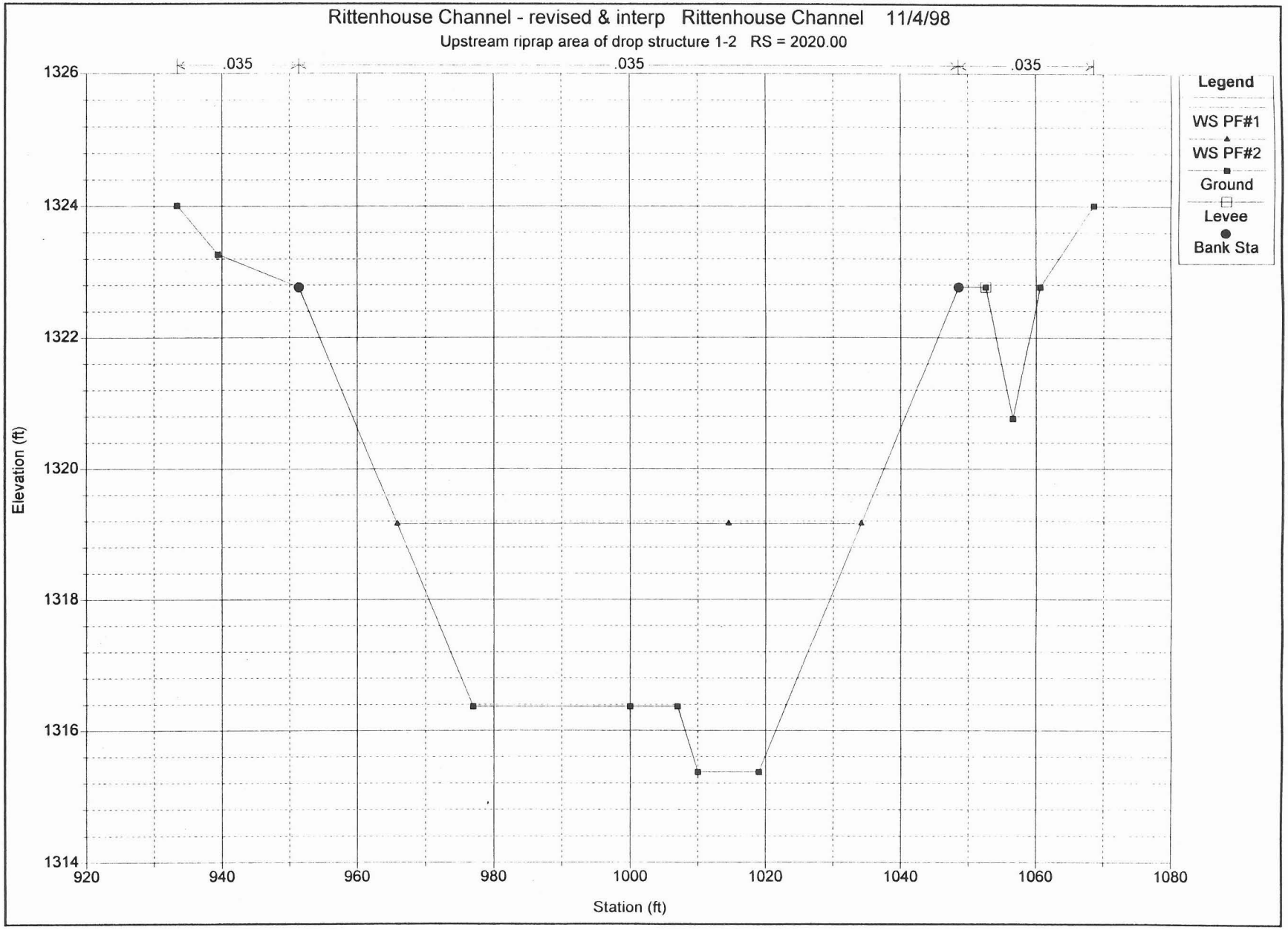

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 1839.08*
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

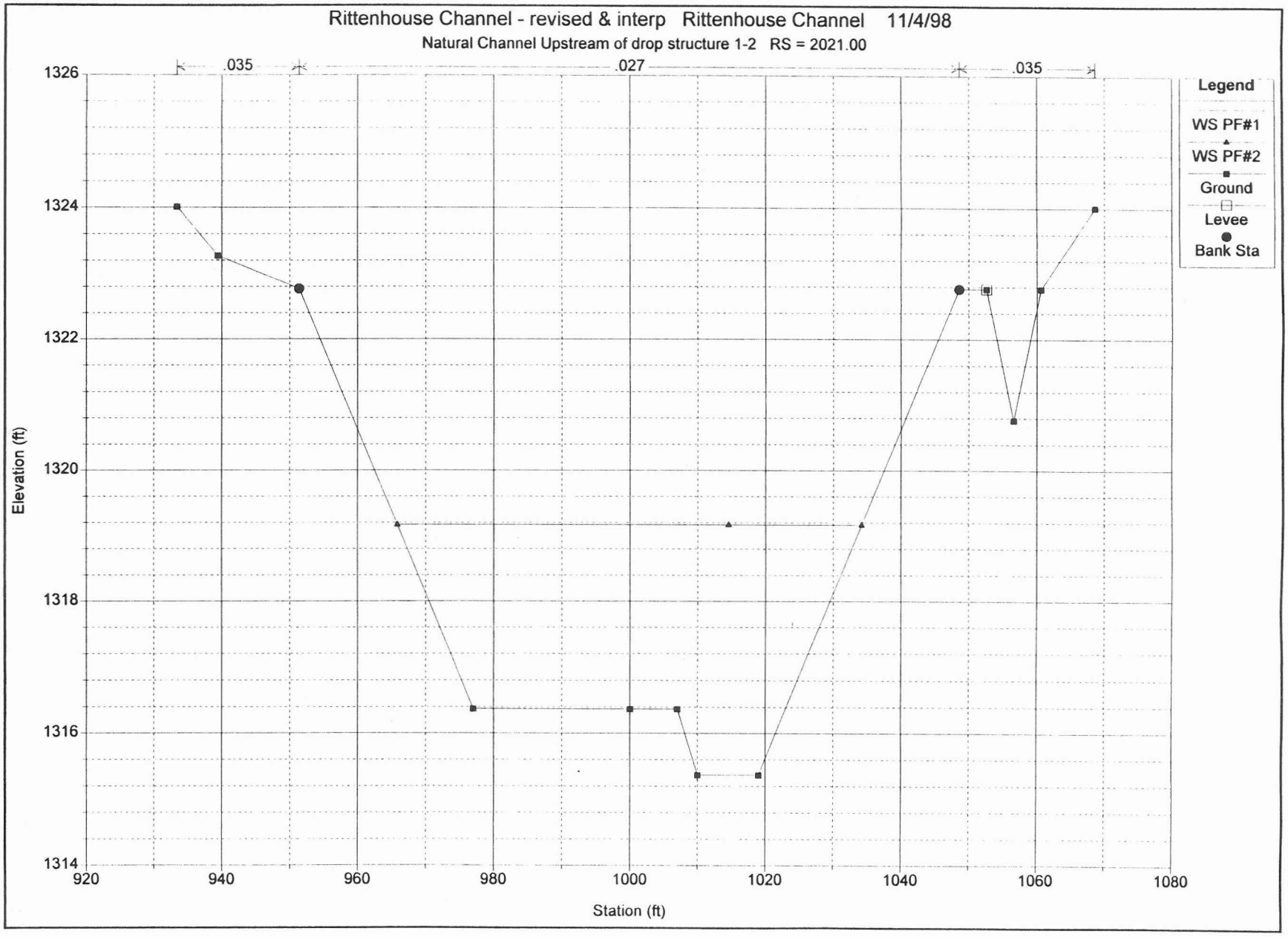

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Downstream of drop structure 1-2 RS = 1934.00
.035
.027
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

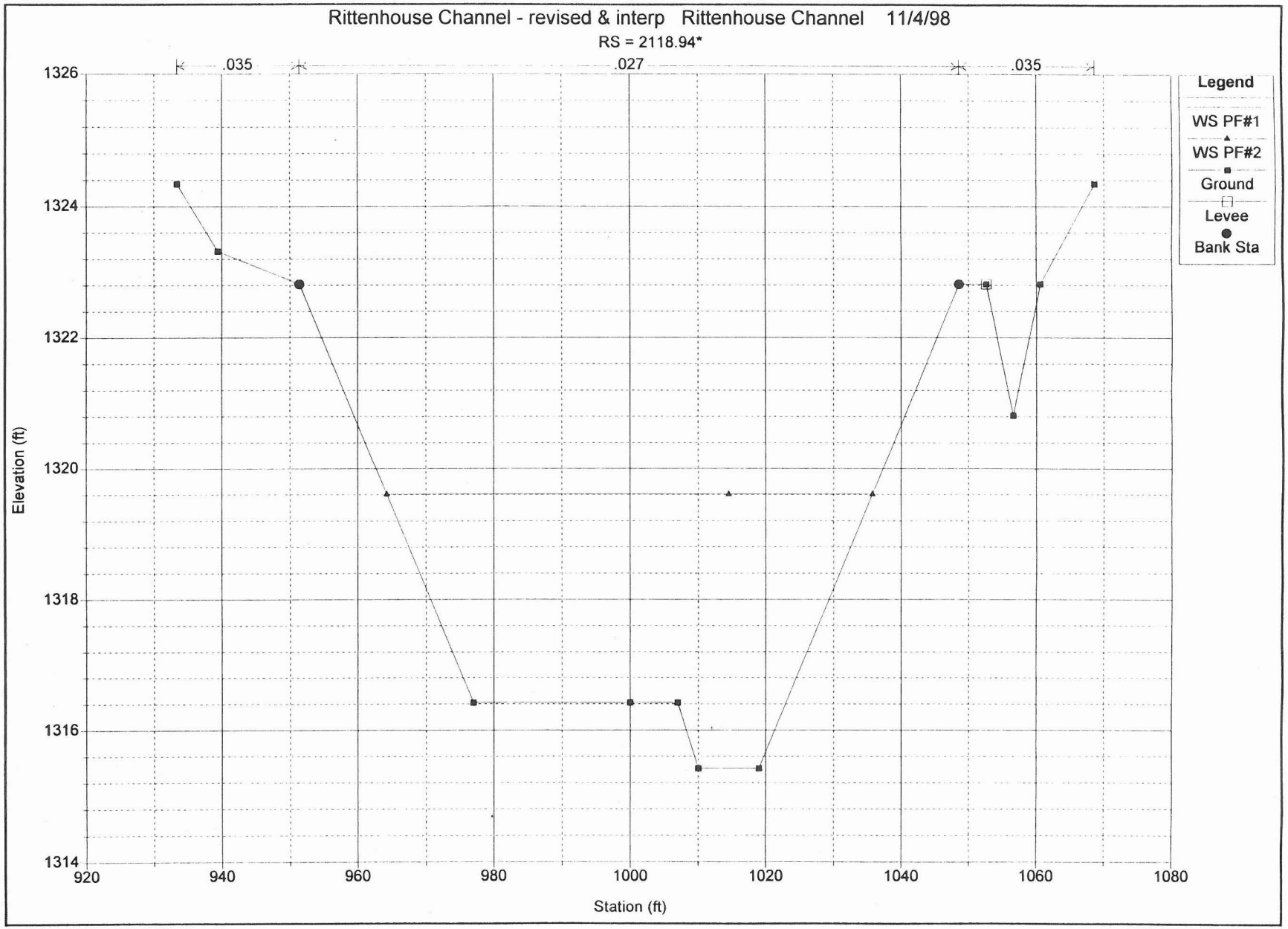

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure 1-2 RS = 1935.00
.035
.035
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

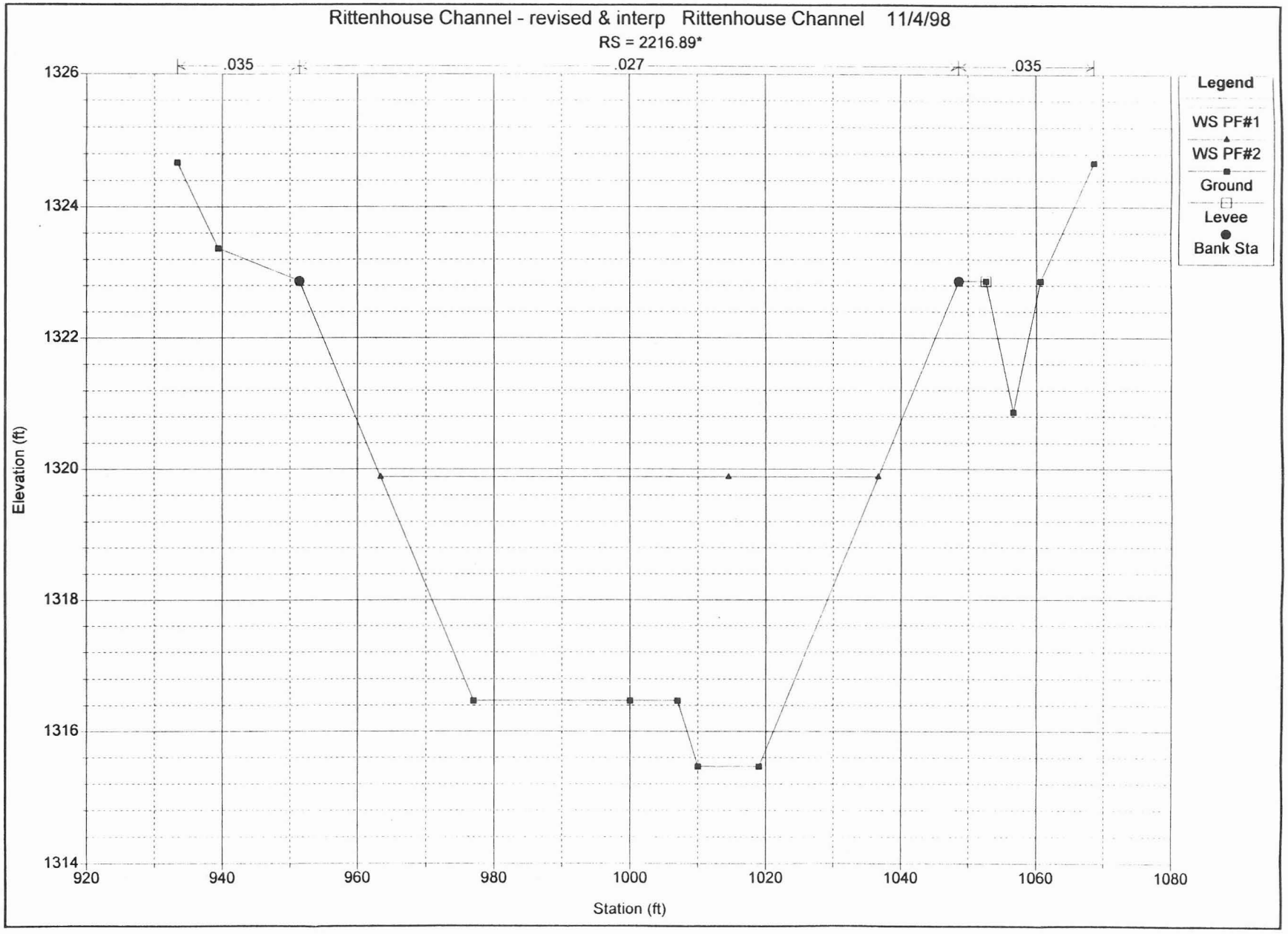

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of drop structure 1-2 RS = 1945.00
.035
.035
.035
Legend
WS PF#2
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

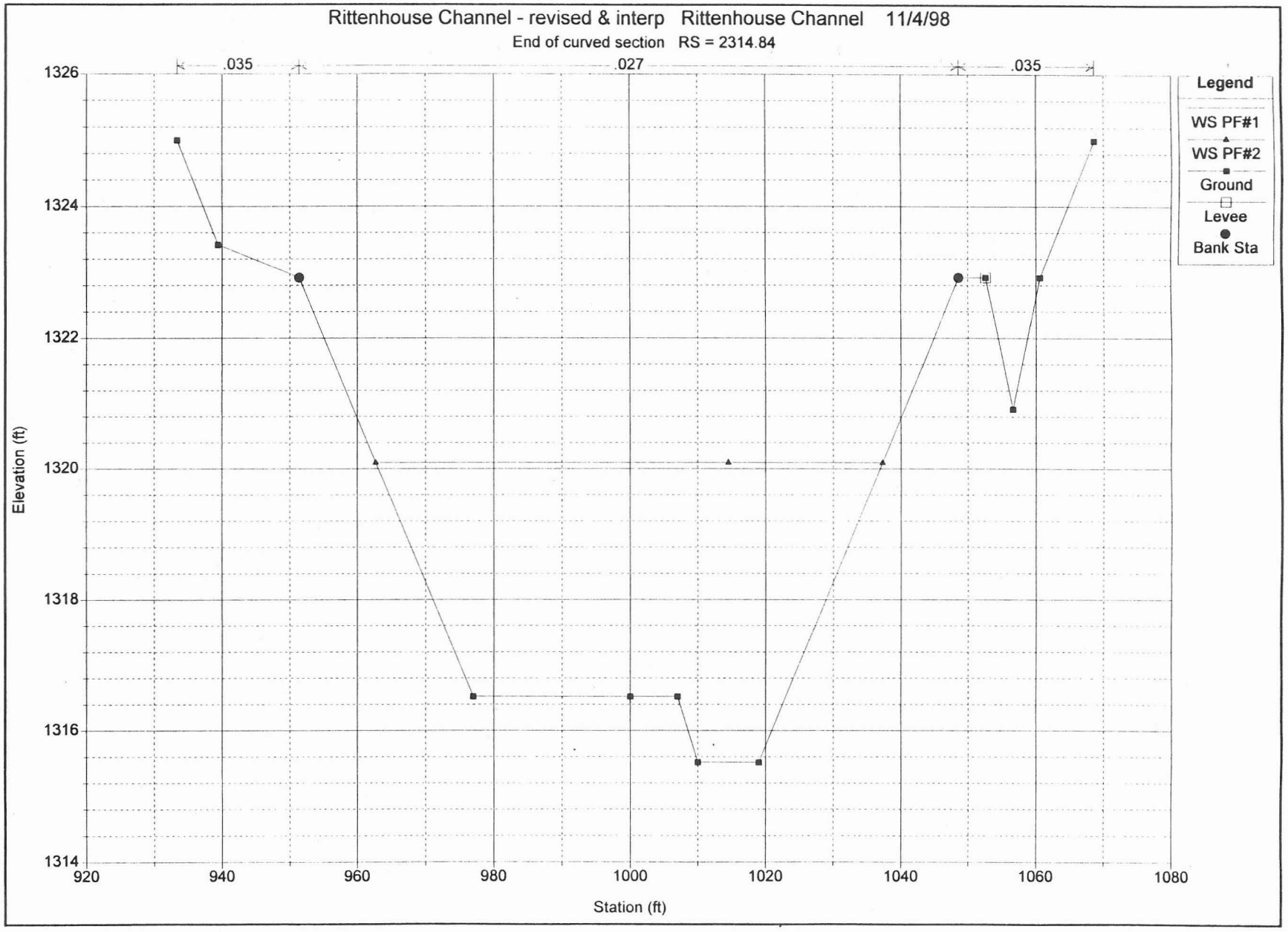

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure 1-2 RS = 2000.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

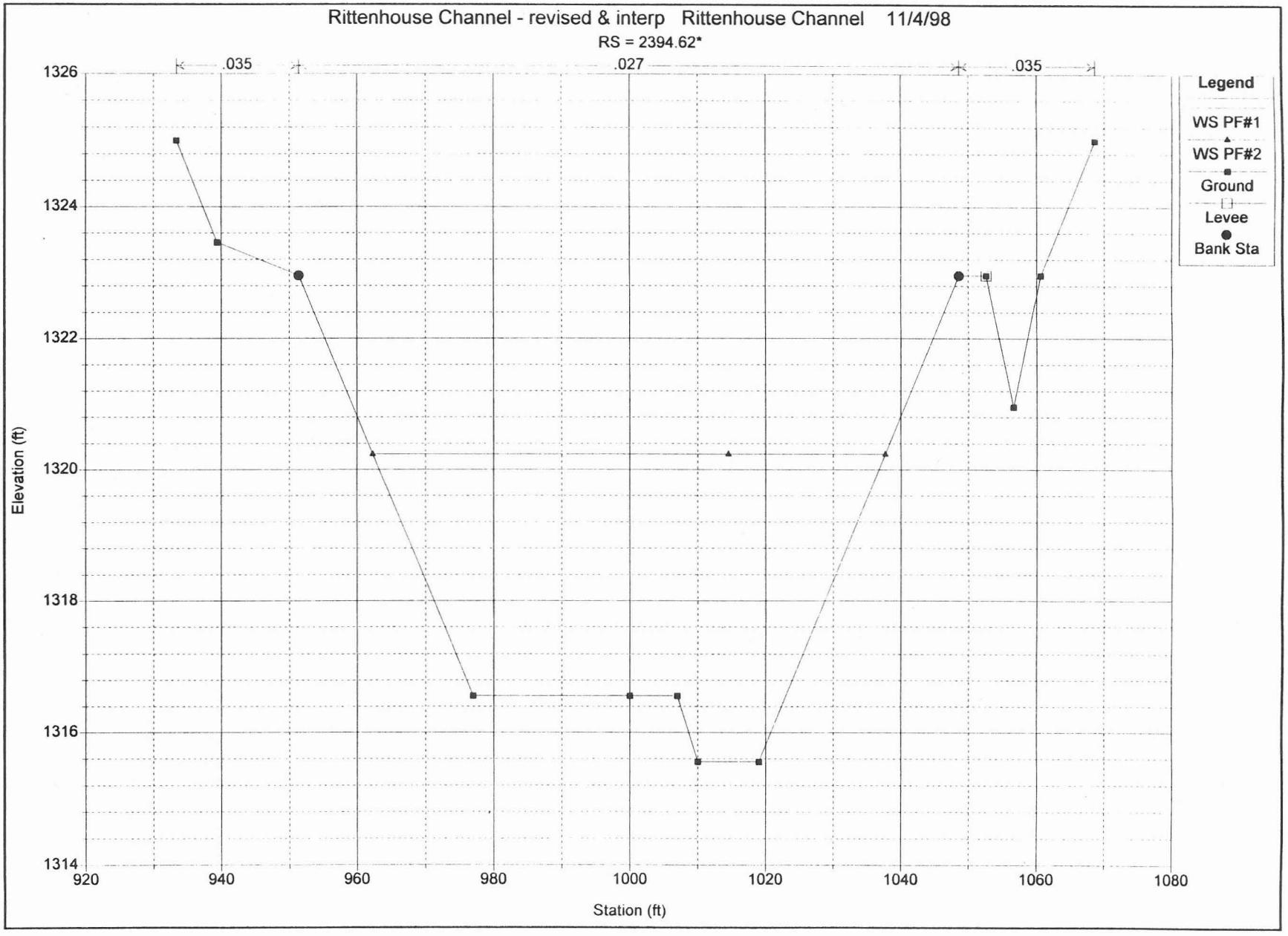

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure 1-2 RS = 2020.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

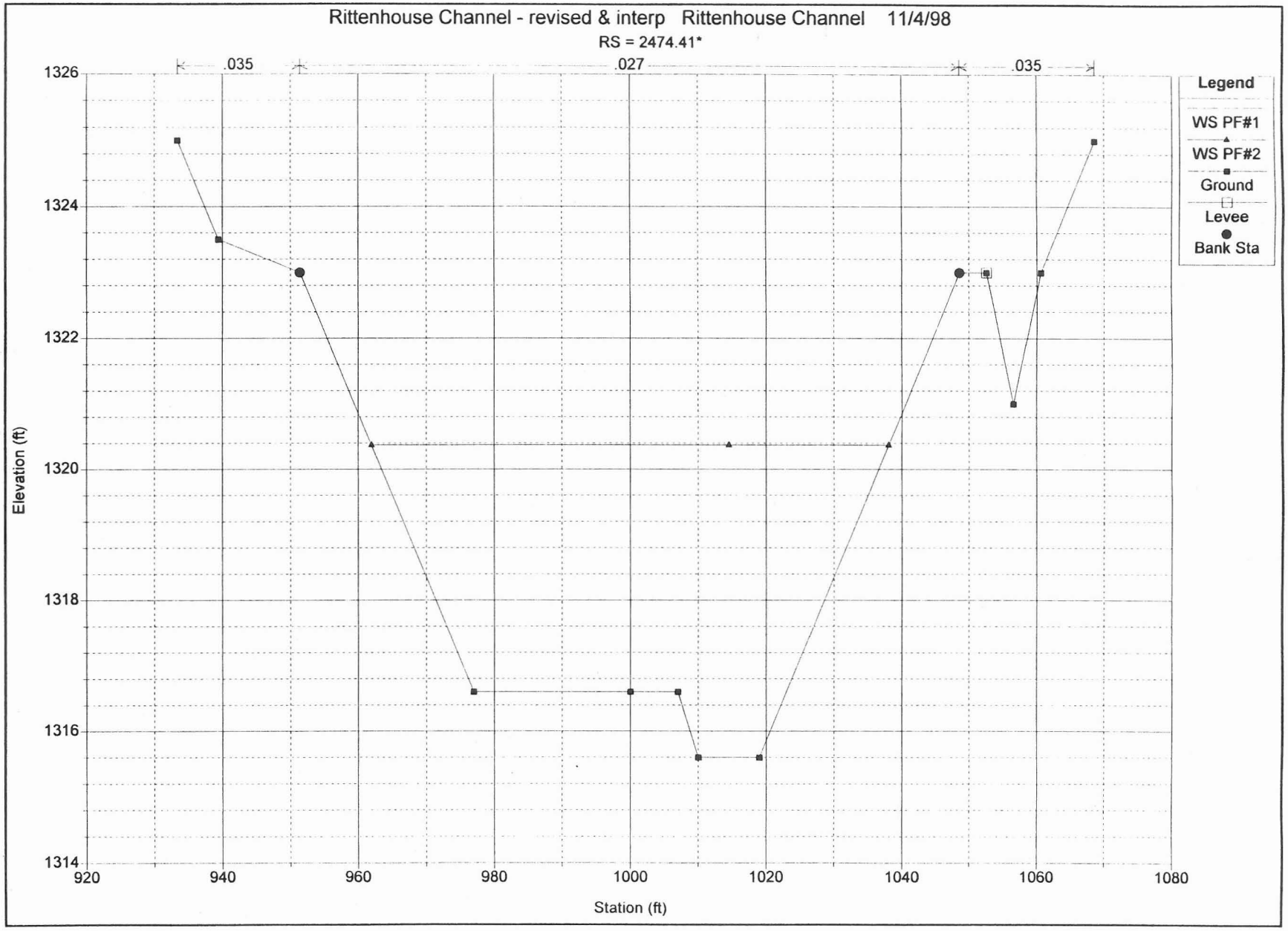

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of drop structure 1-2 RS = 2021.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

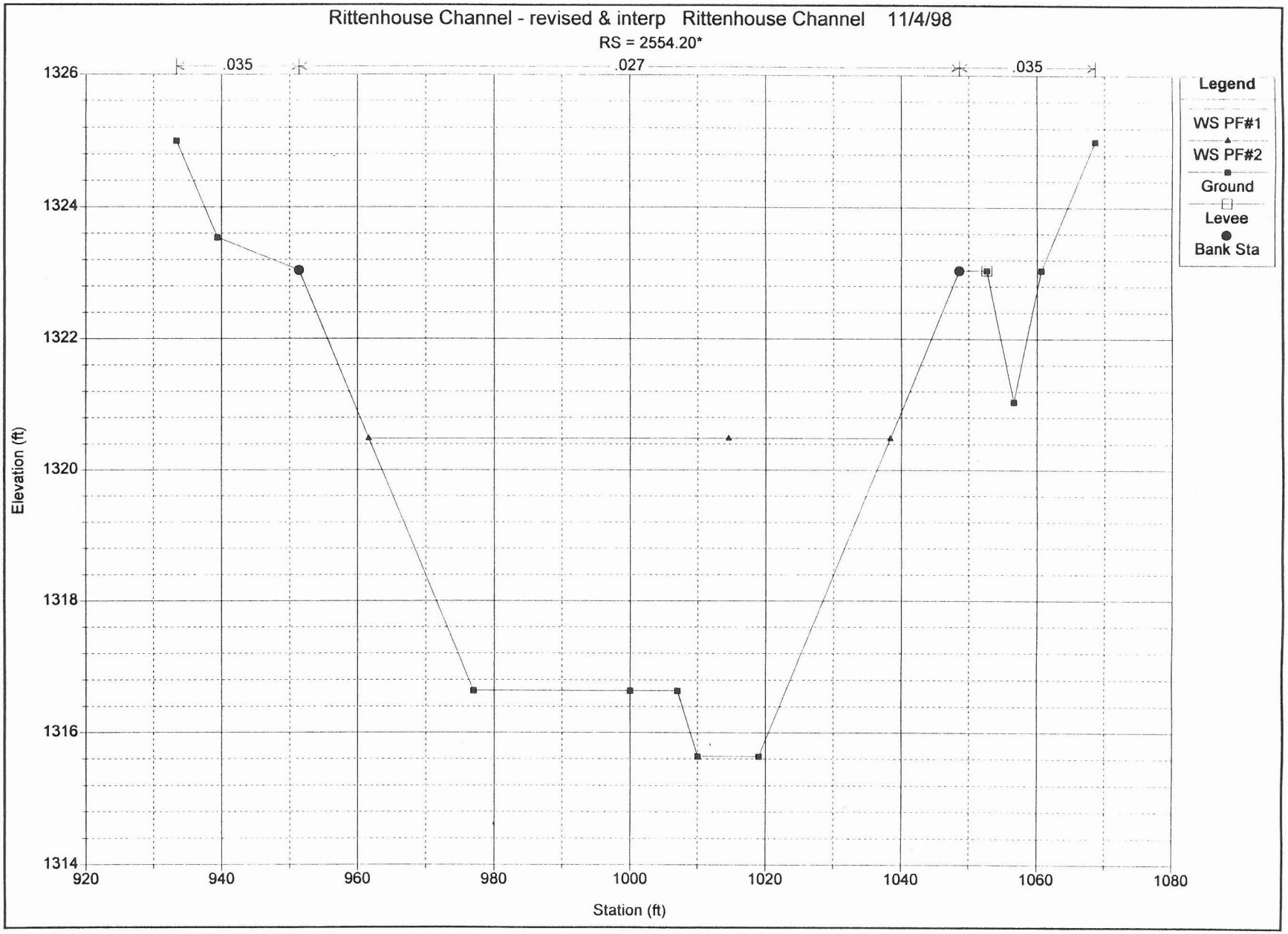

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 2118.94*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

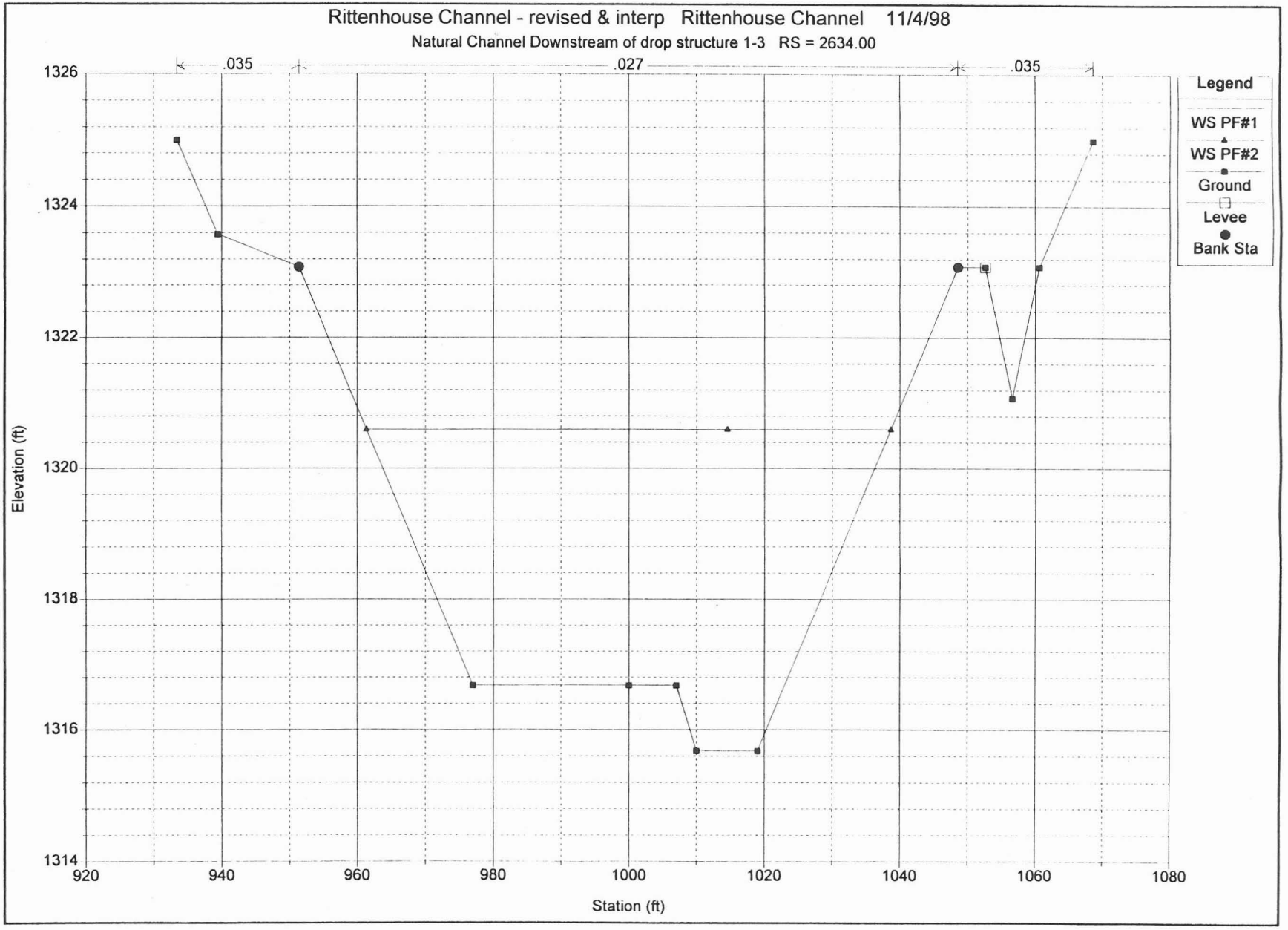

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 2216.89*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

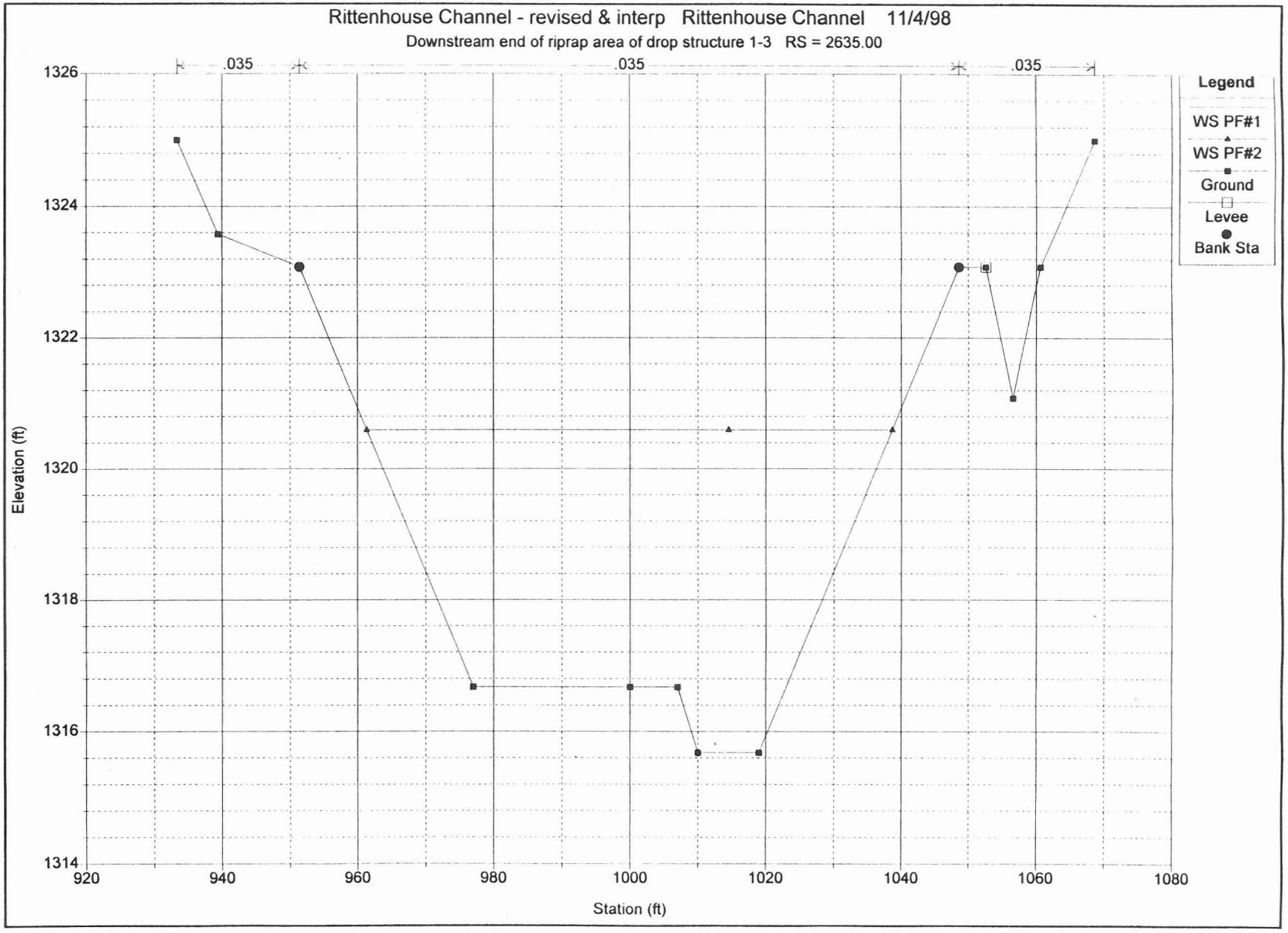

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of curved section RS = 2314.84
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

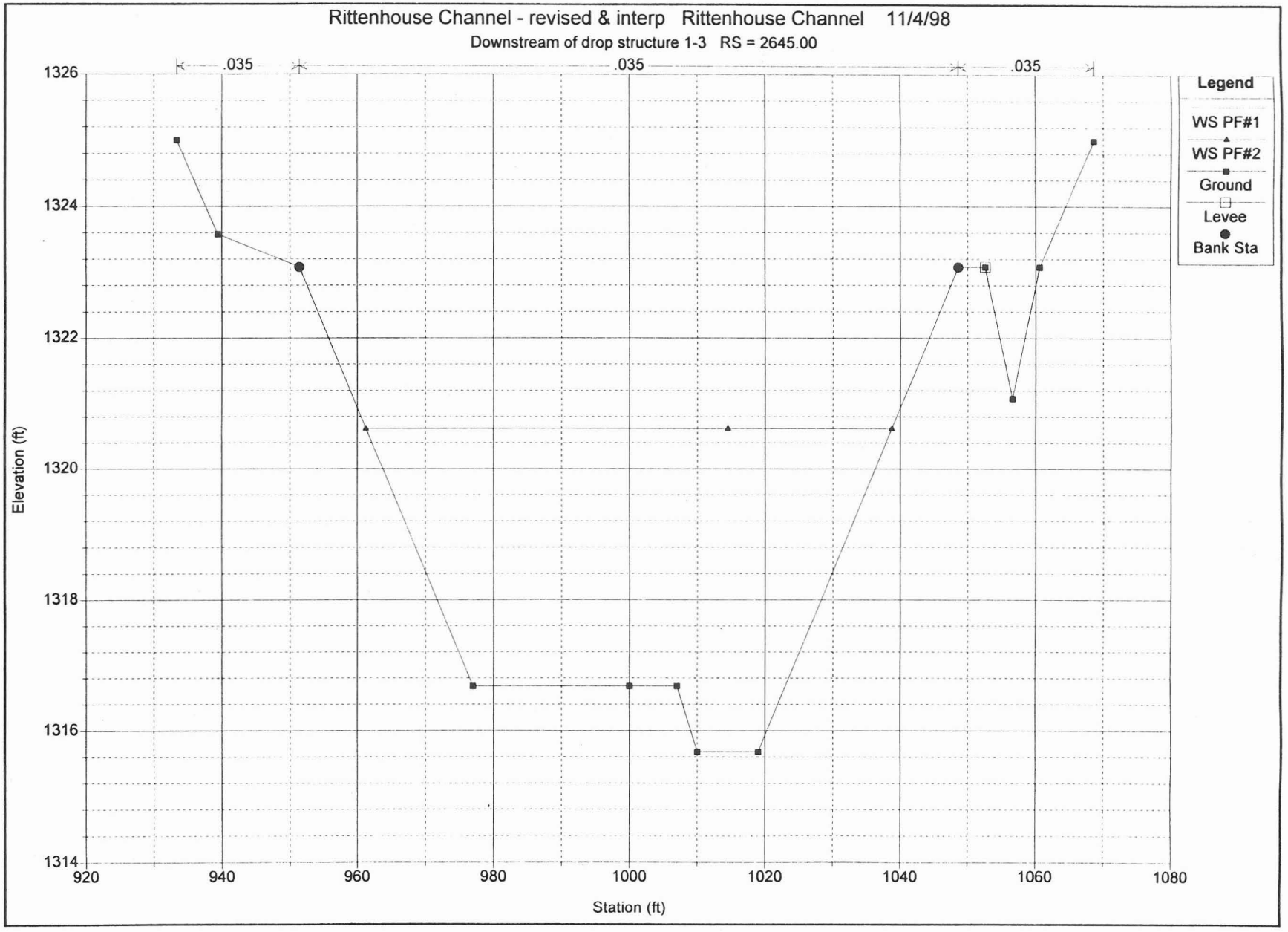

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 2394.62*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

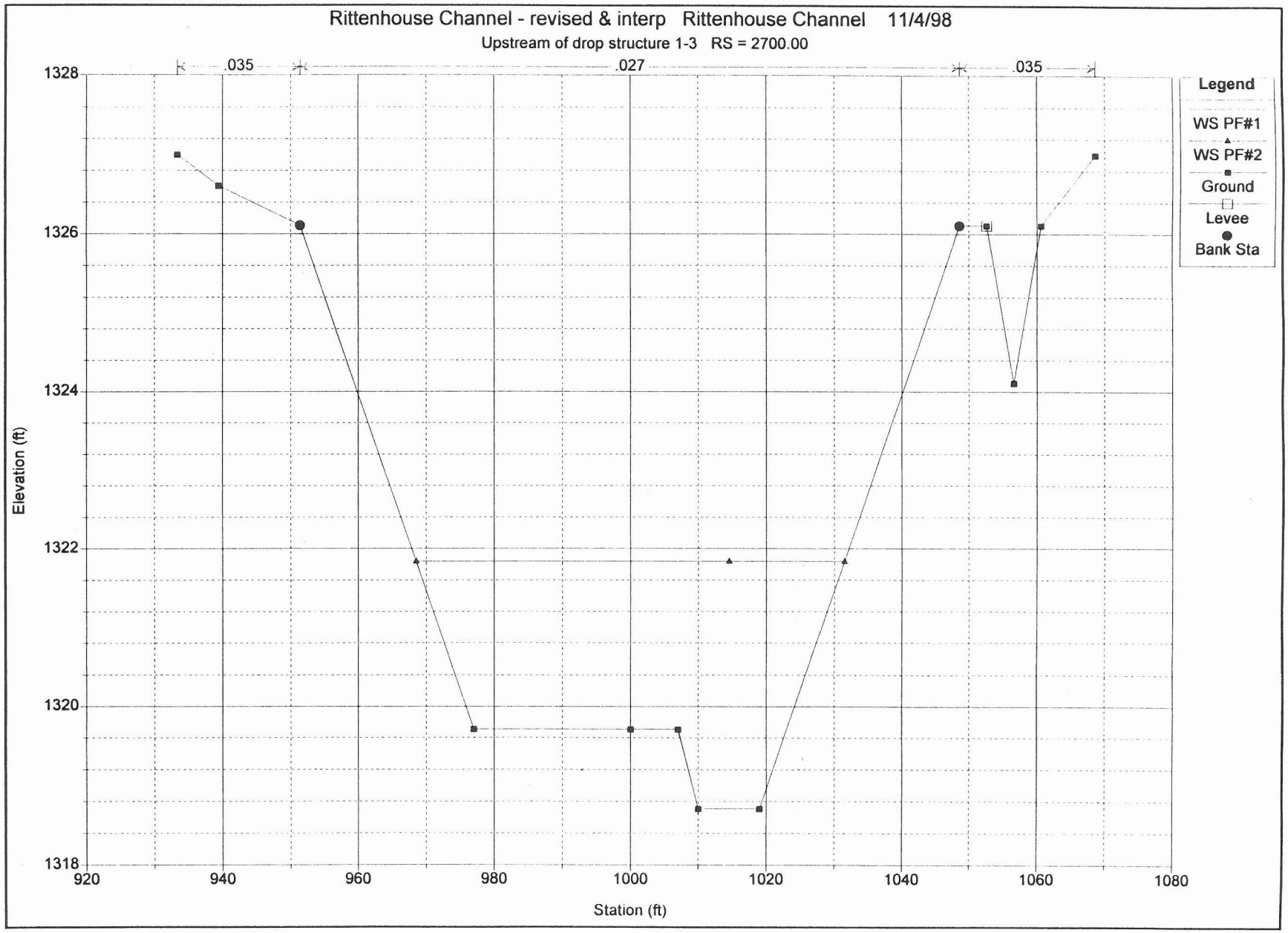

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 2474.41*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

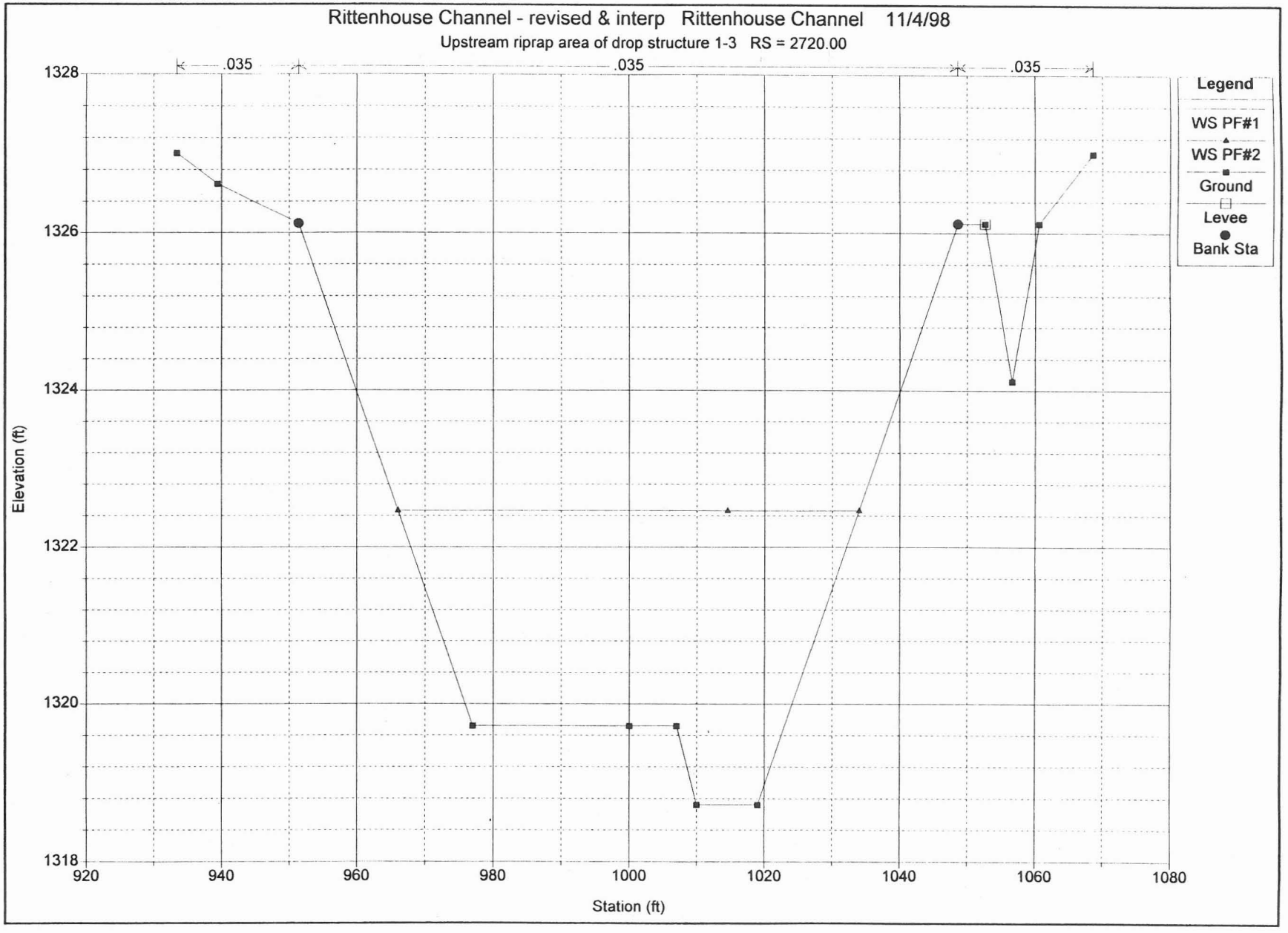

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 2554.20*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

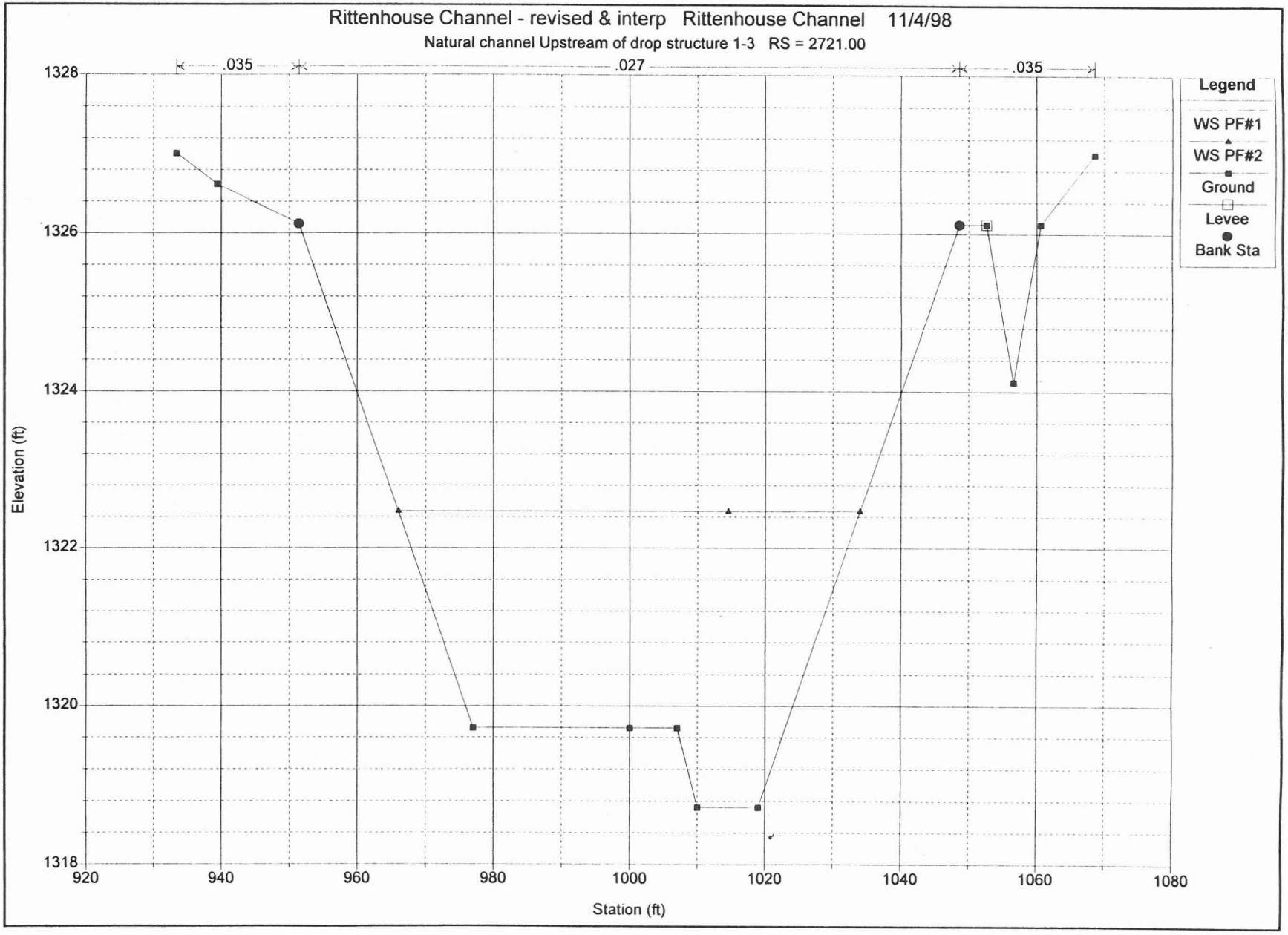

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Downstream of drop structure 1-3 RS = 2634.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

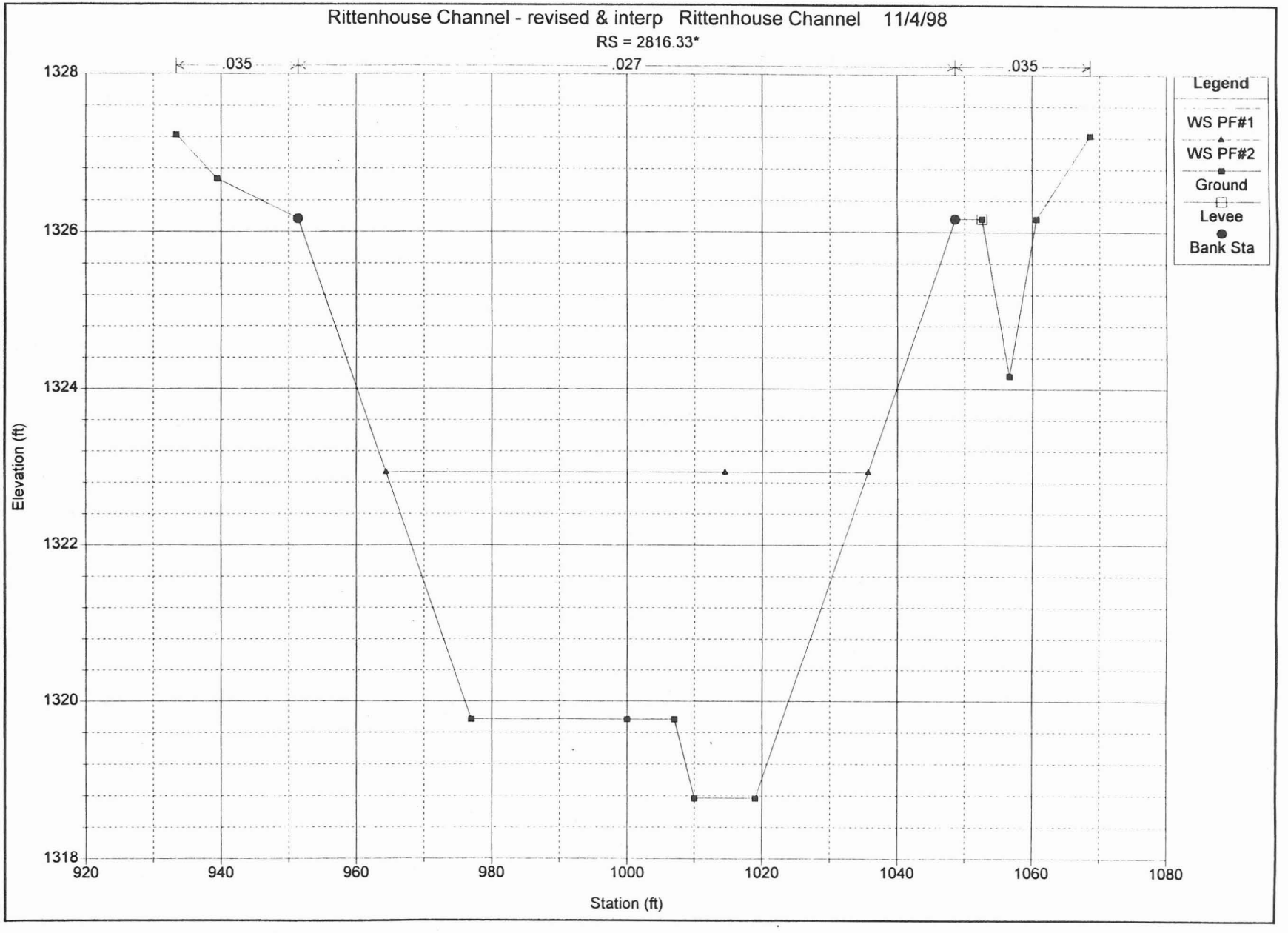

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream end of riprap area of drop structure 1-3 RS = 2635.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

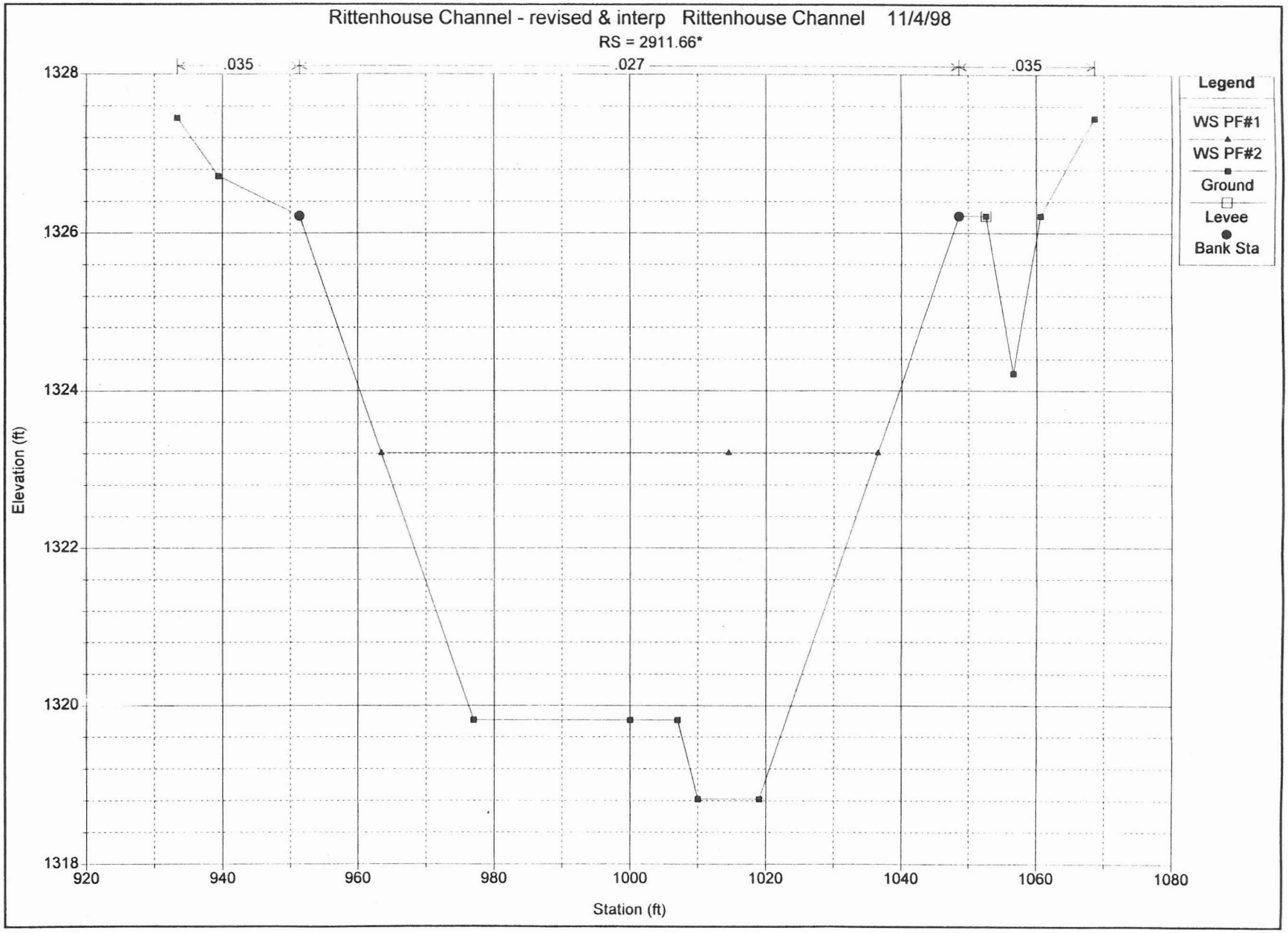

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of drop structure 1-3 RS = 2645.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

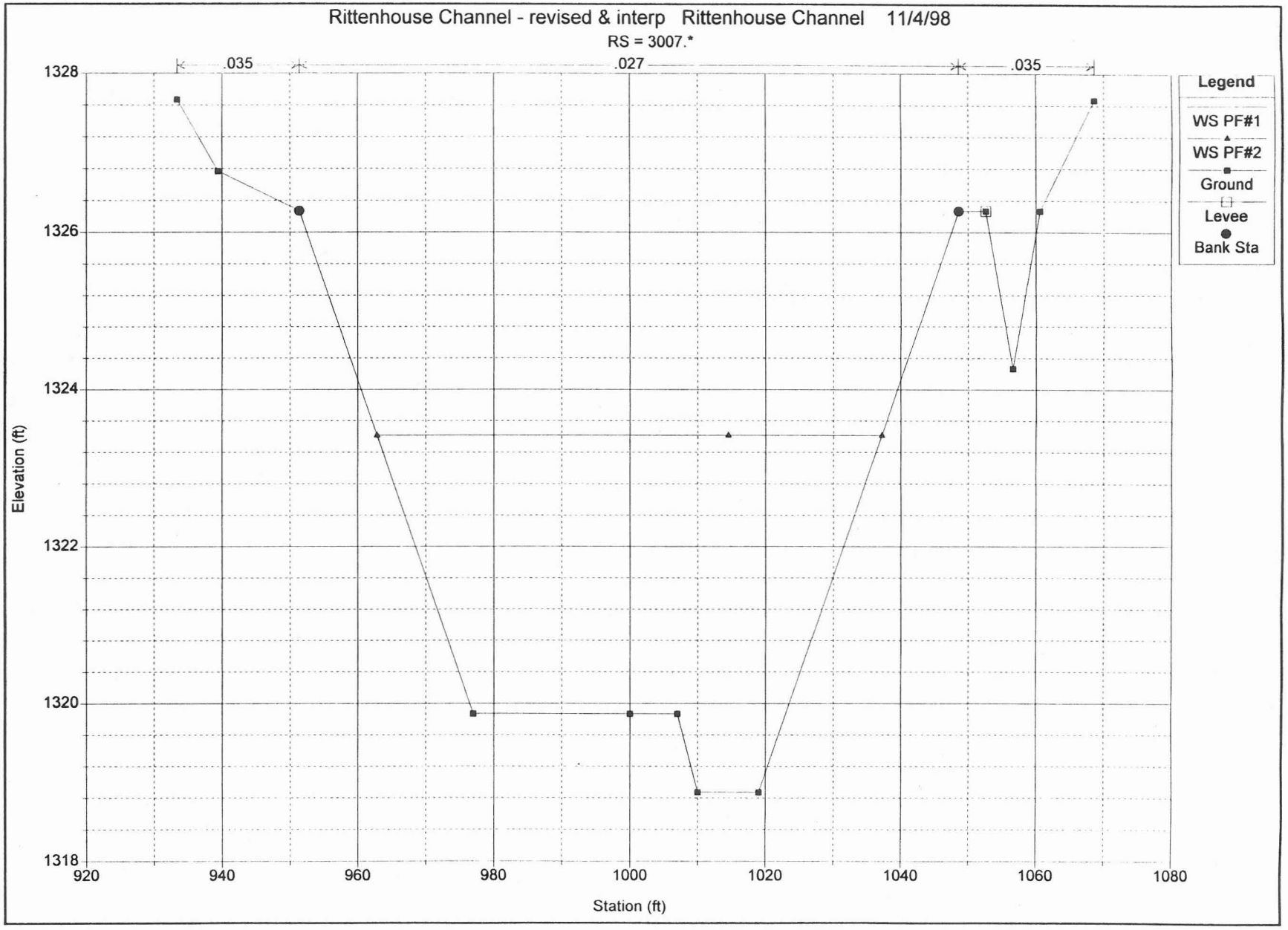

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure 1-3 RS = 2700.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

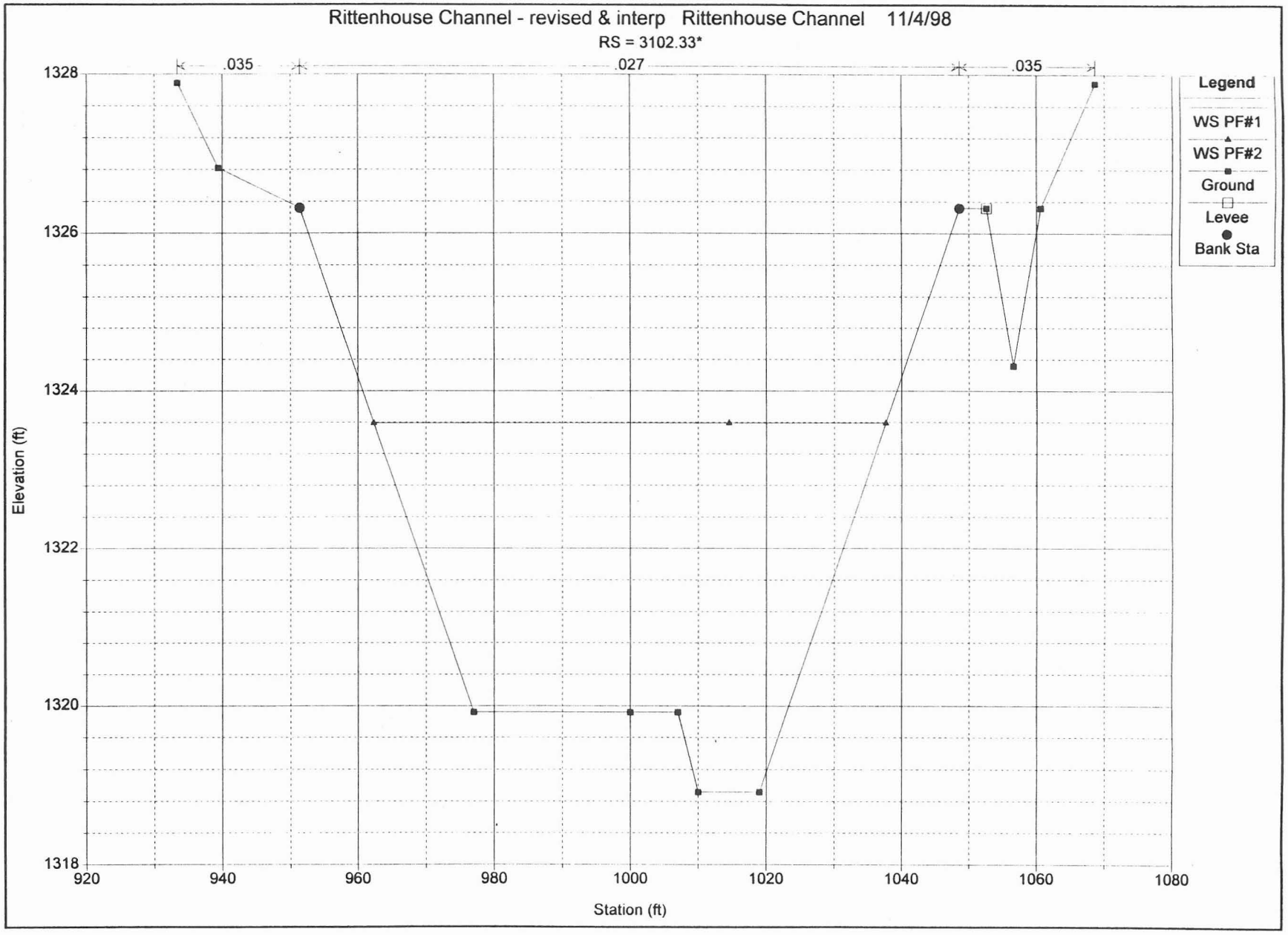

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure 1-3 RS = 2720.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

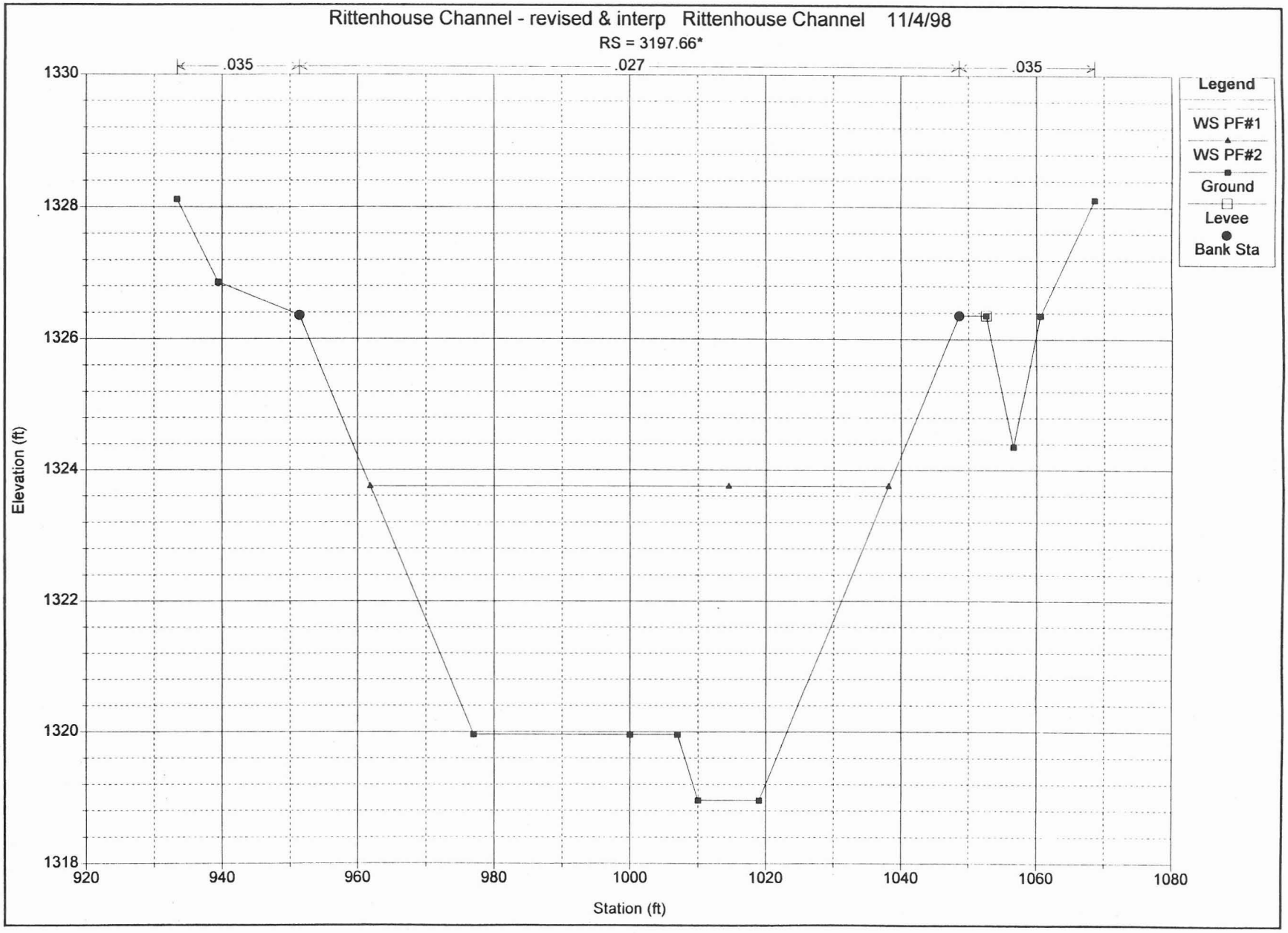

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel Upstream of drop structure 1-3 RS = 2721.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

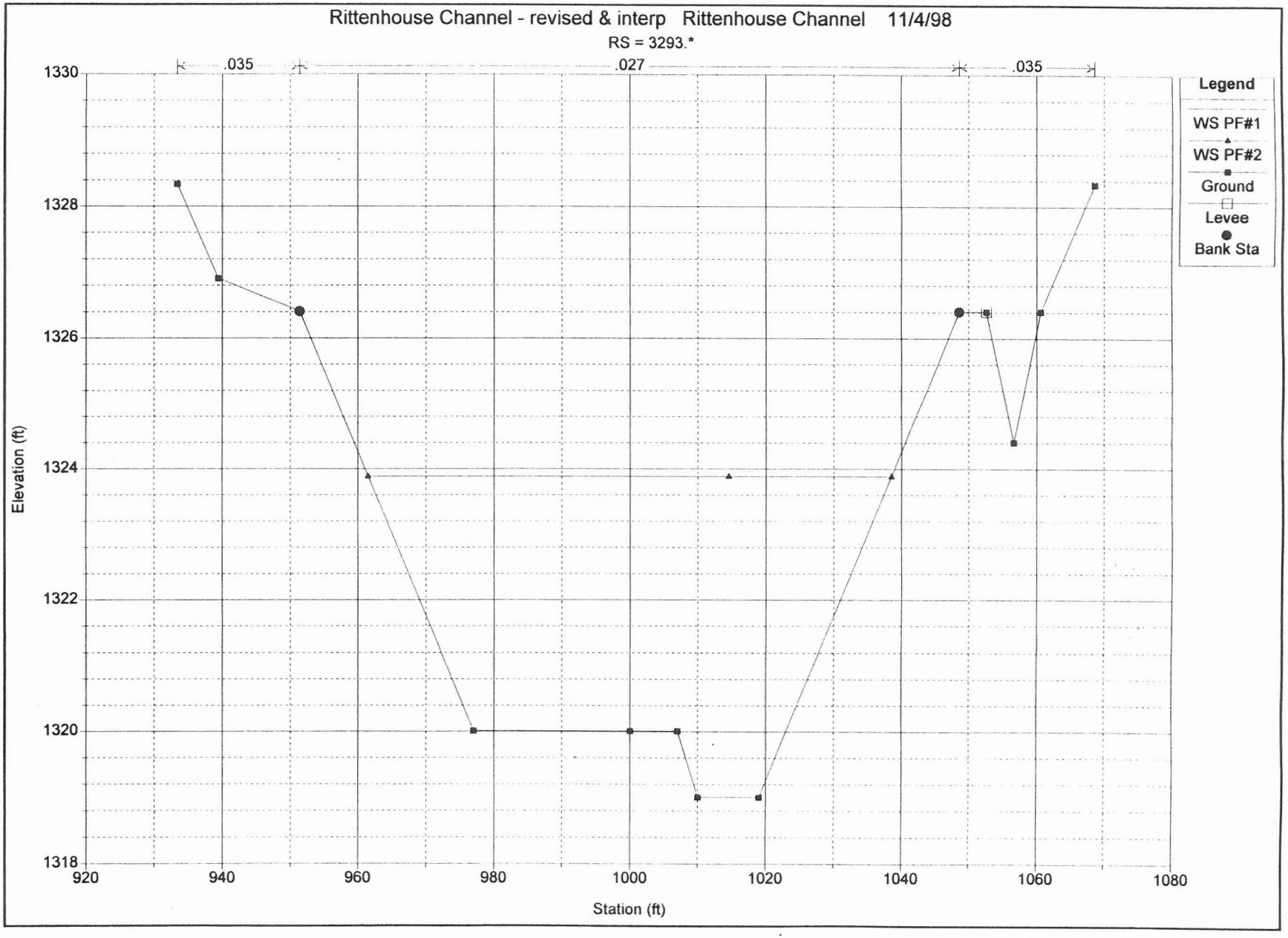

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 2816.33*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

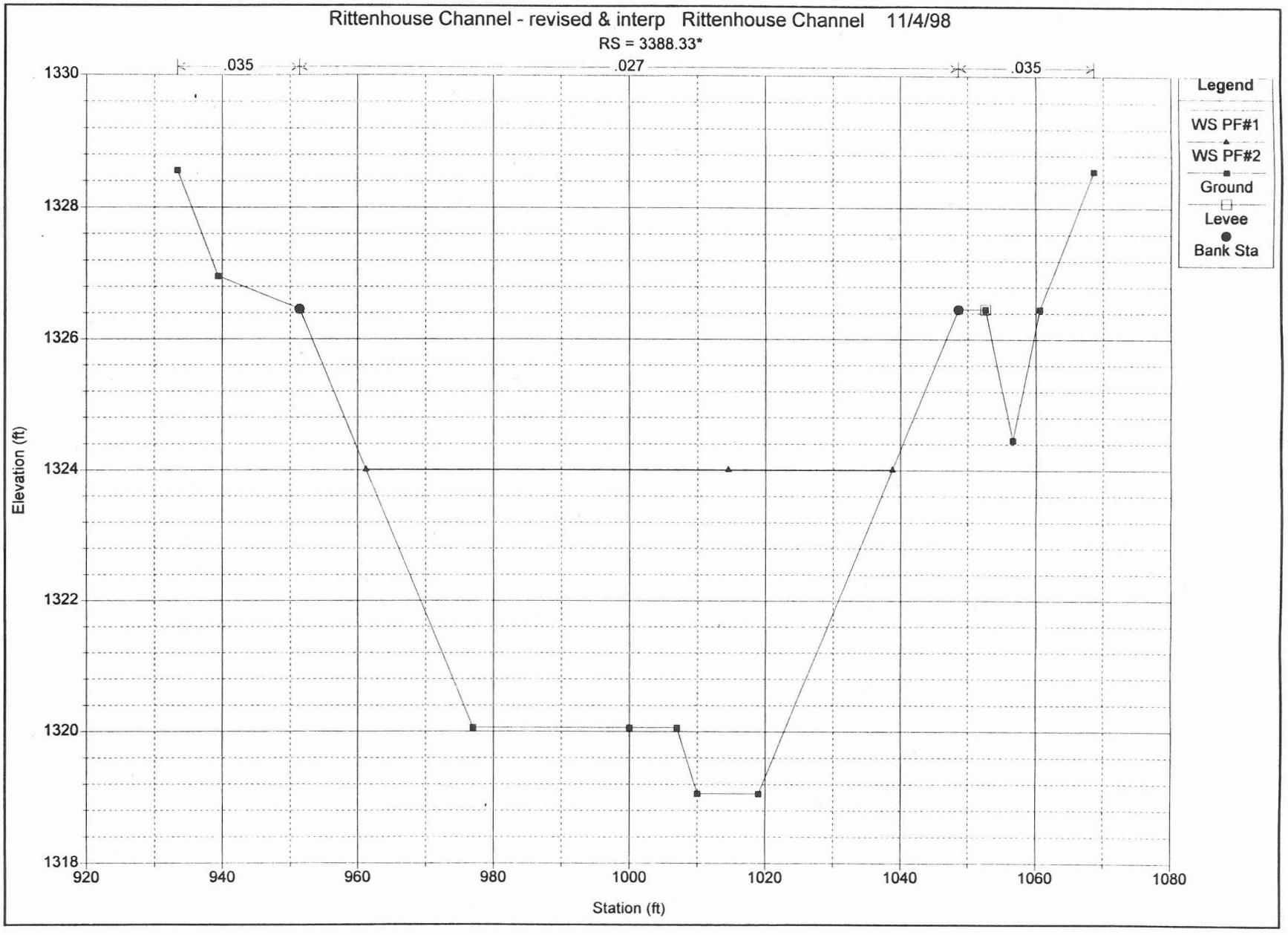

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 2911.66*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

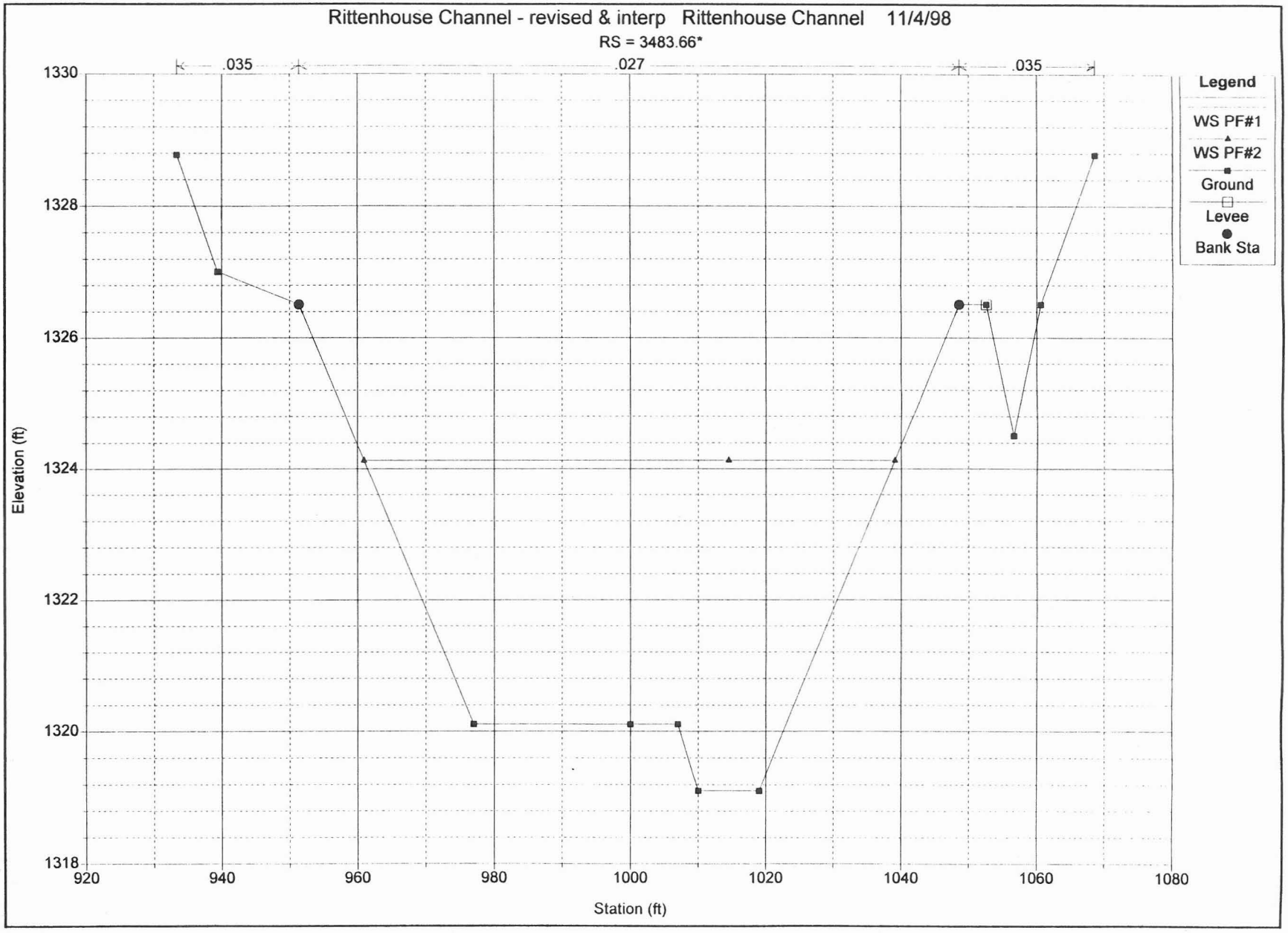

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3007.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

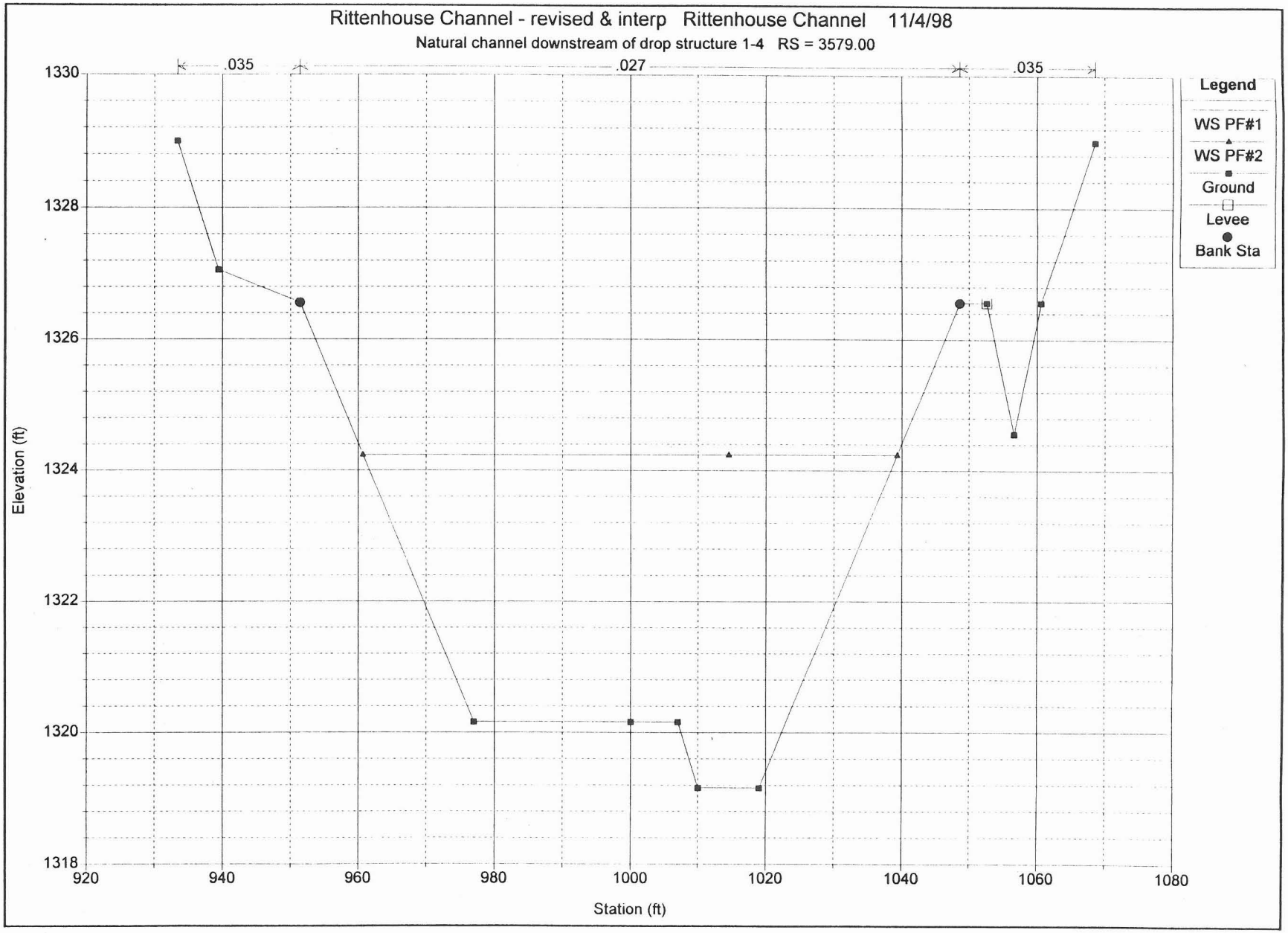

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3102.33*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

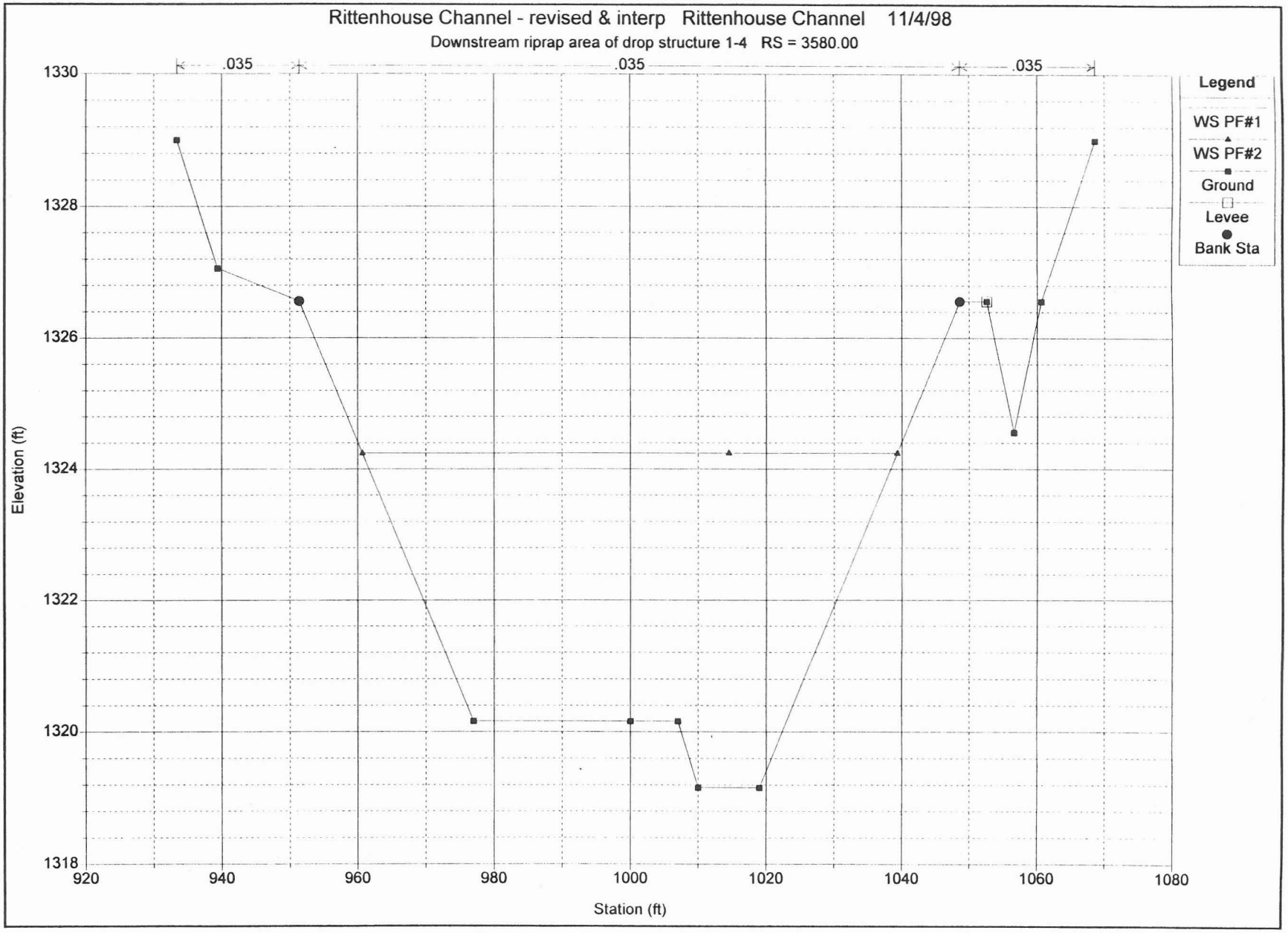

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3197.66*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

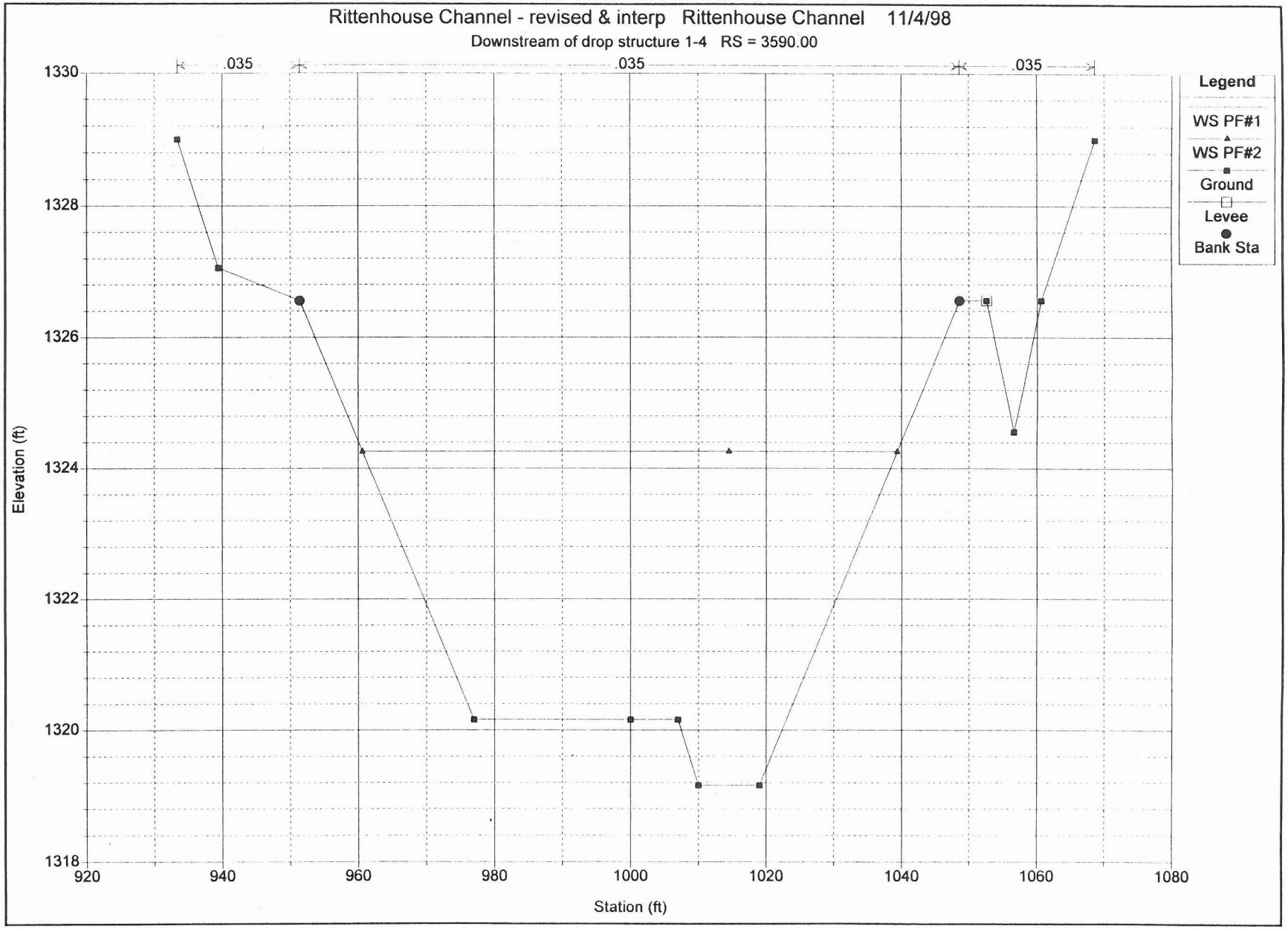

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3293.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

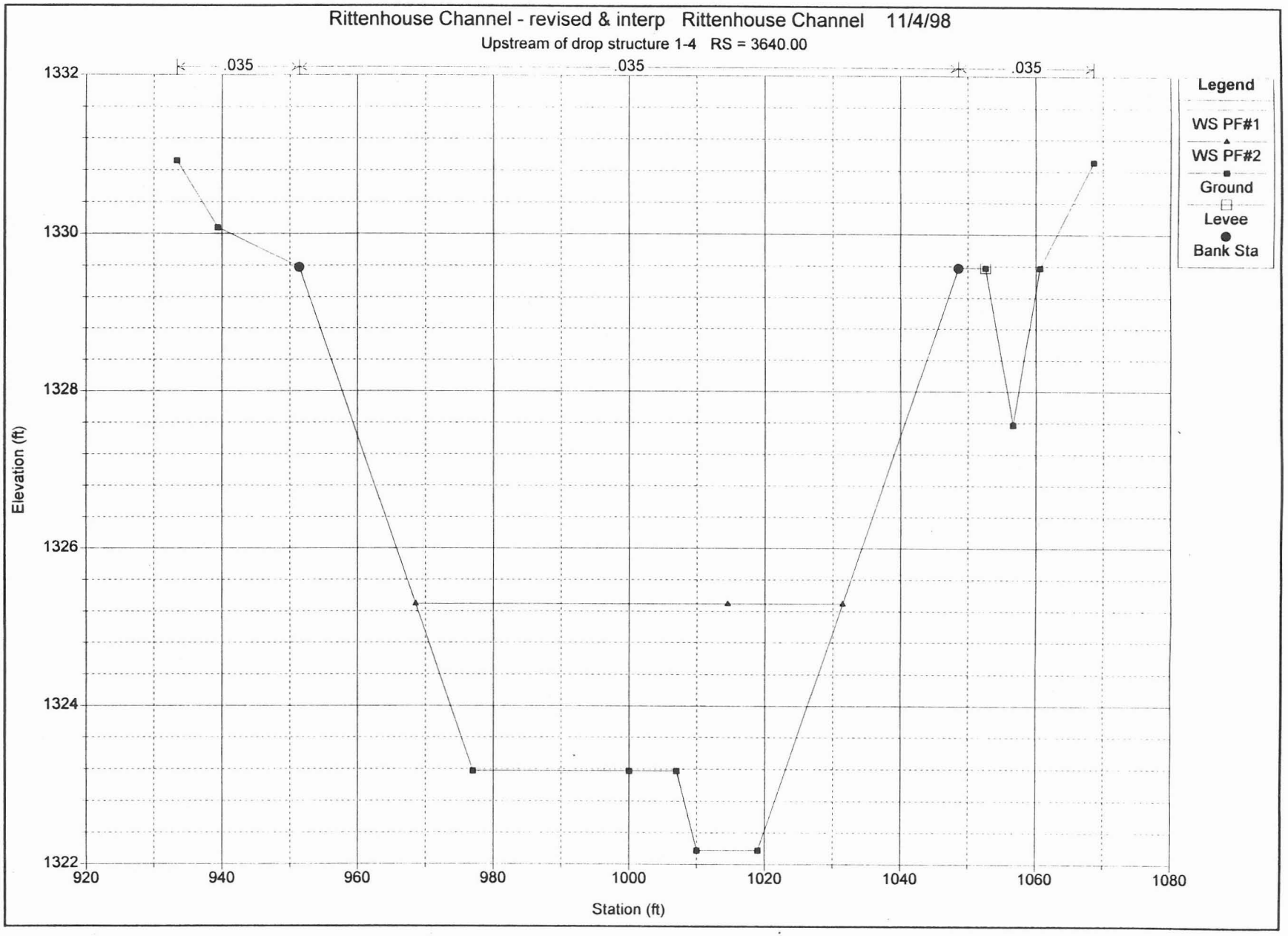

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3388.33*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

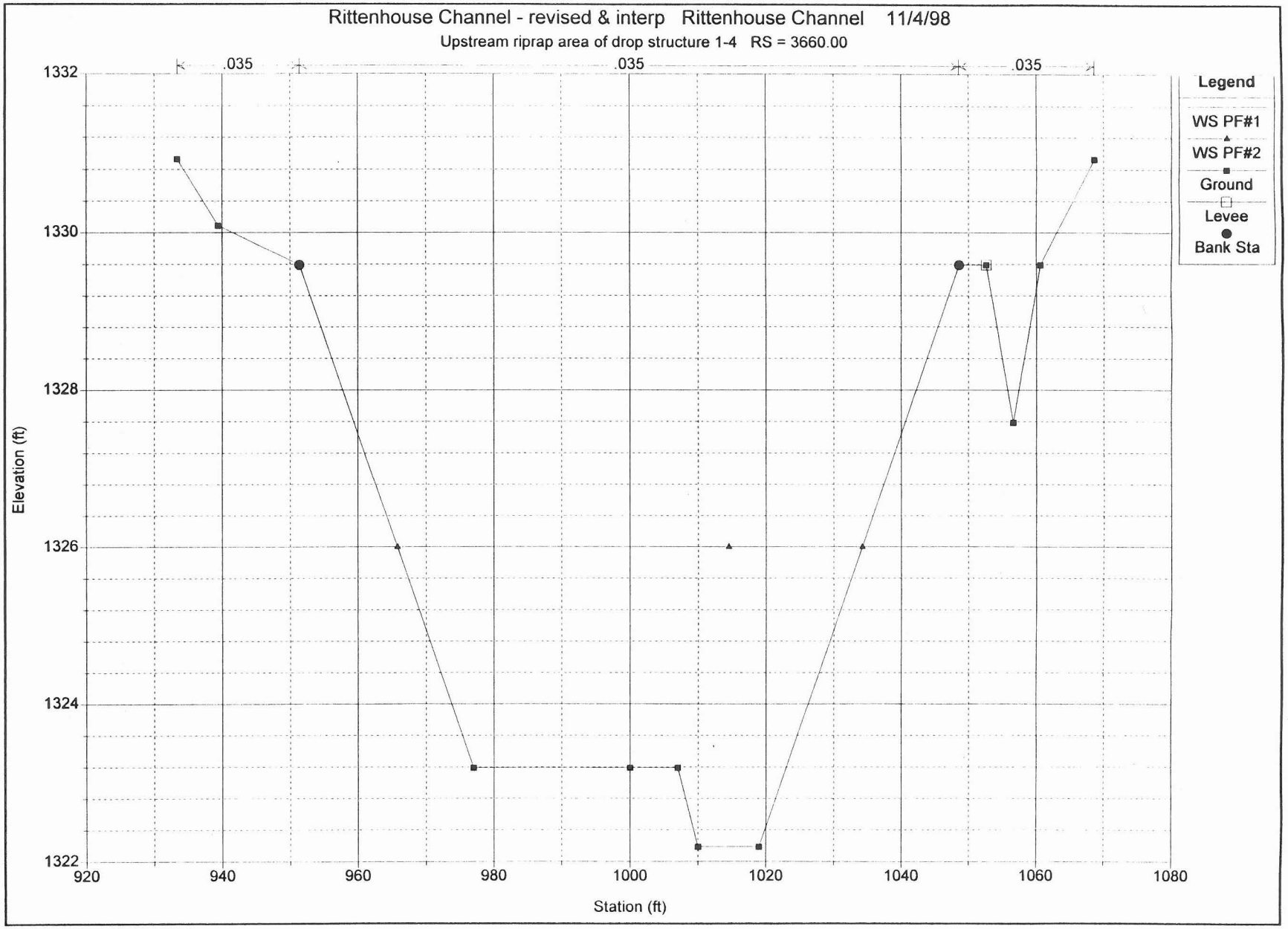

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3483.66*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

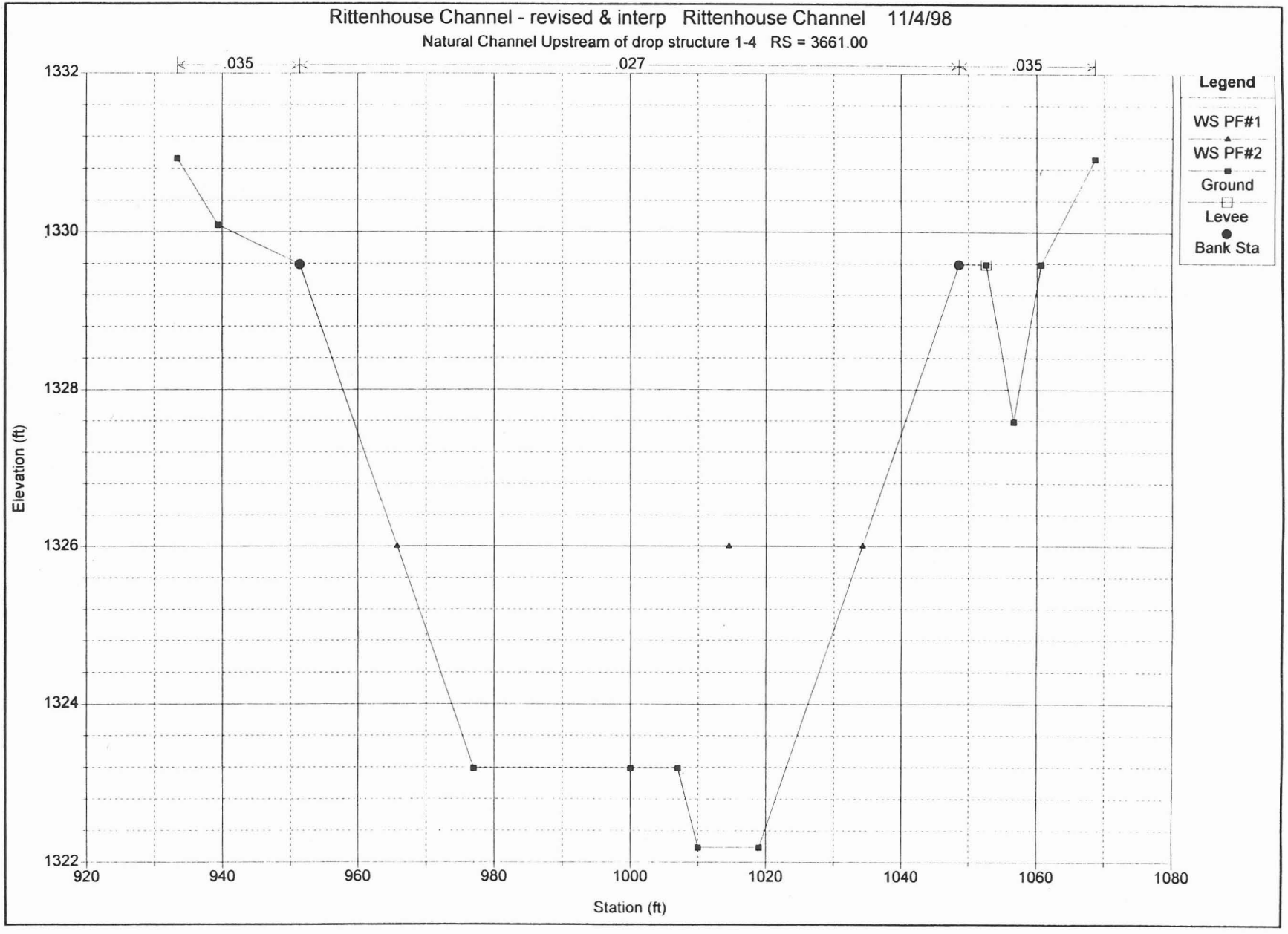

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel downstream of drop structure 1-4 RS = 3579.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

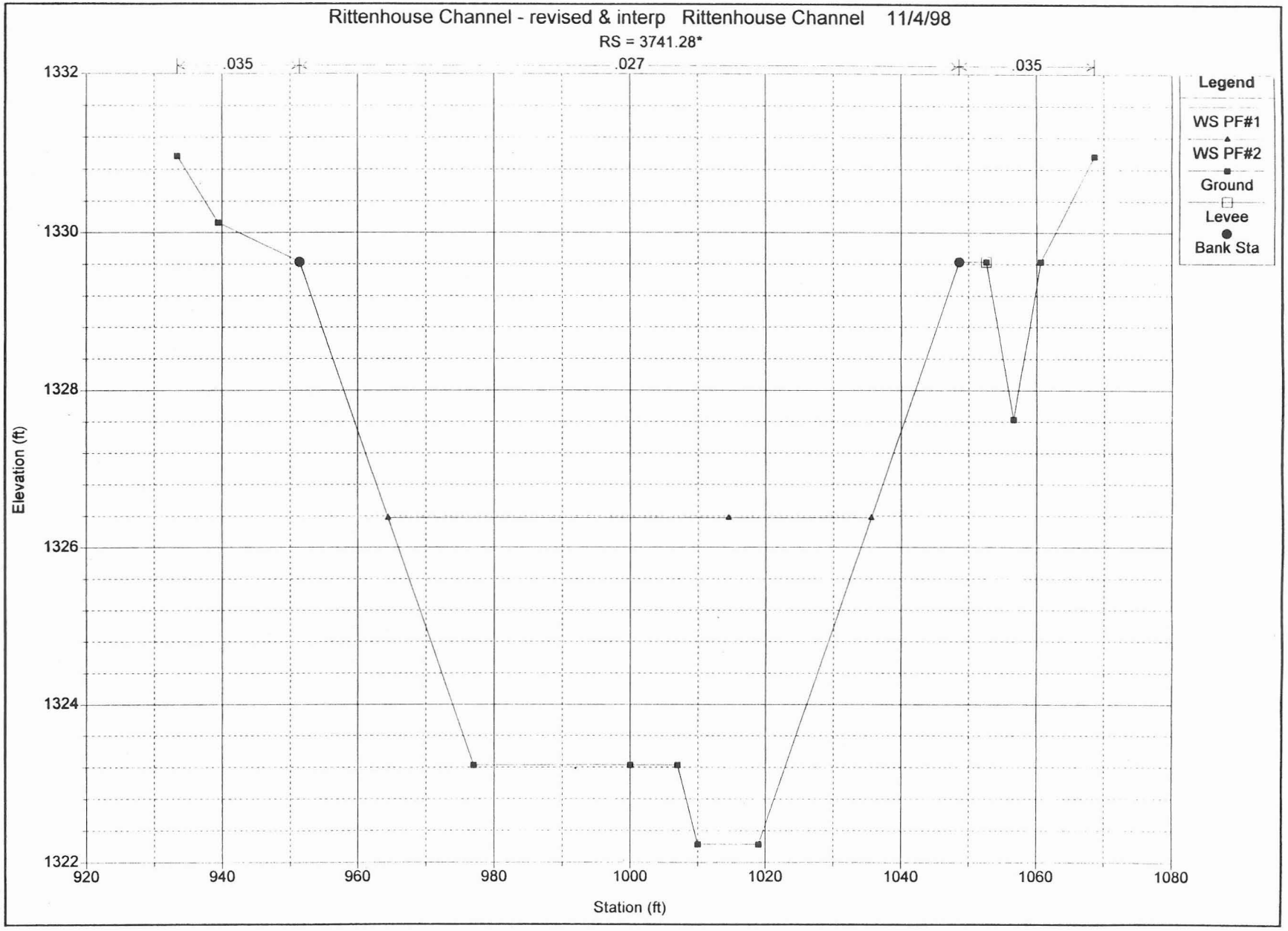

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure 1-4 RS = 3580.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

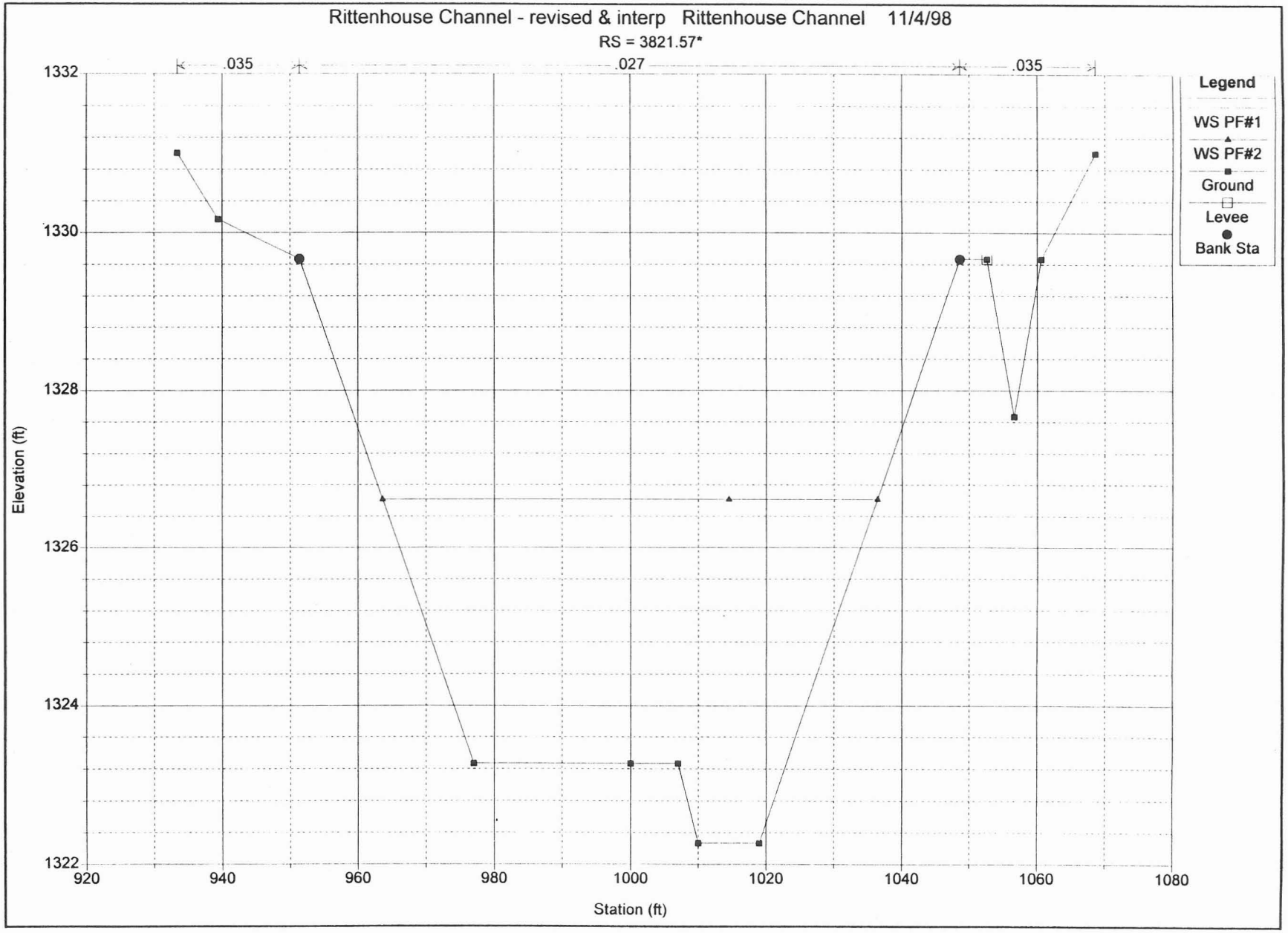

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of drop structure 1-4 RS = 3590.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

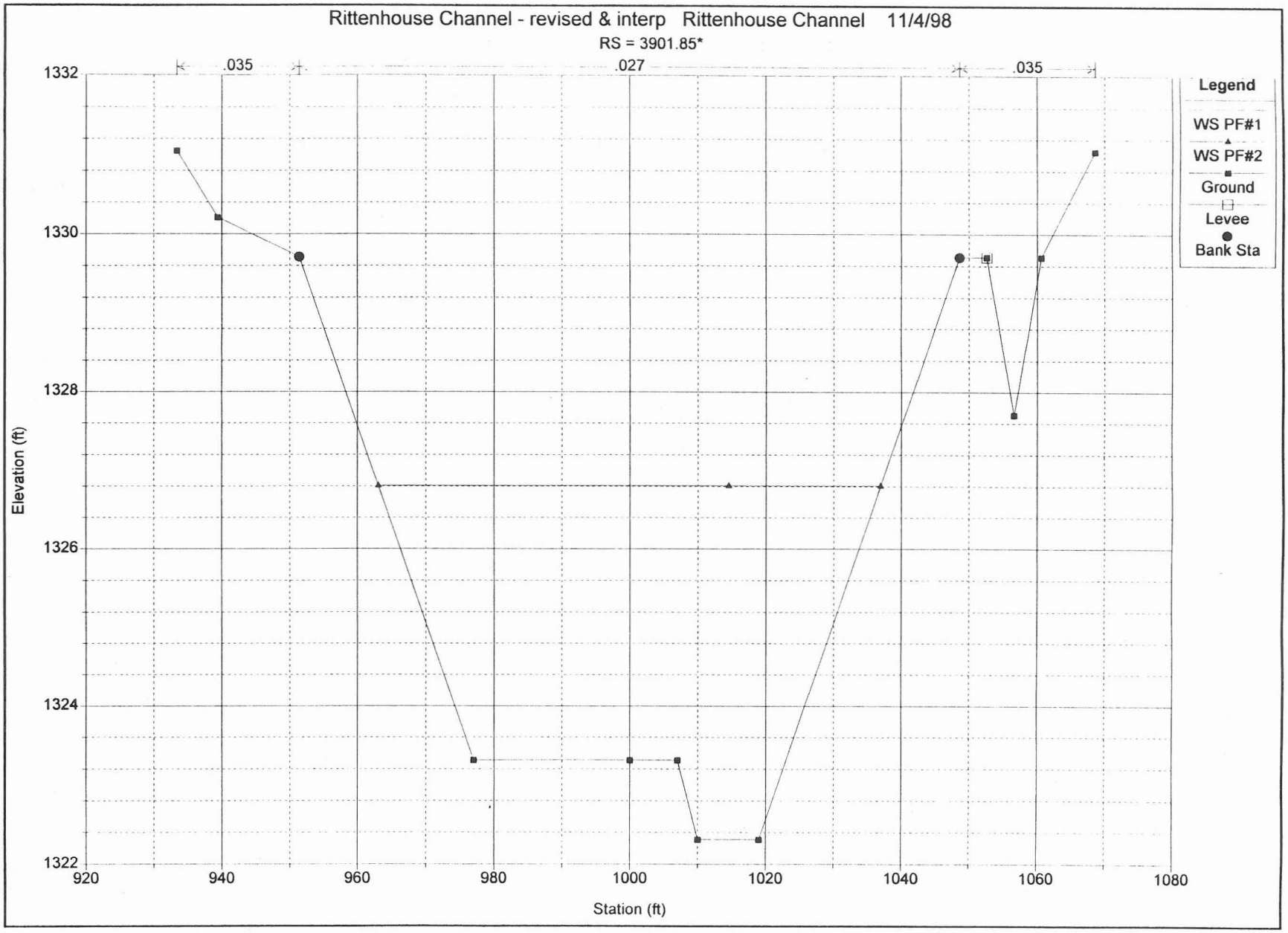

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure 1-4 RS = 3640.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

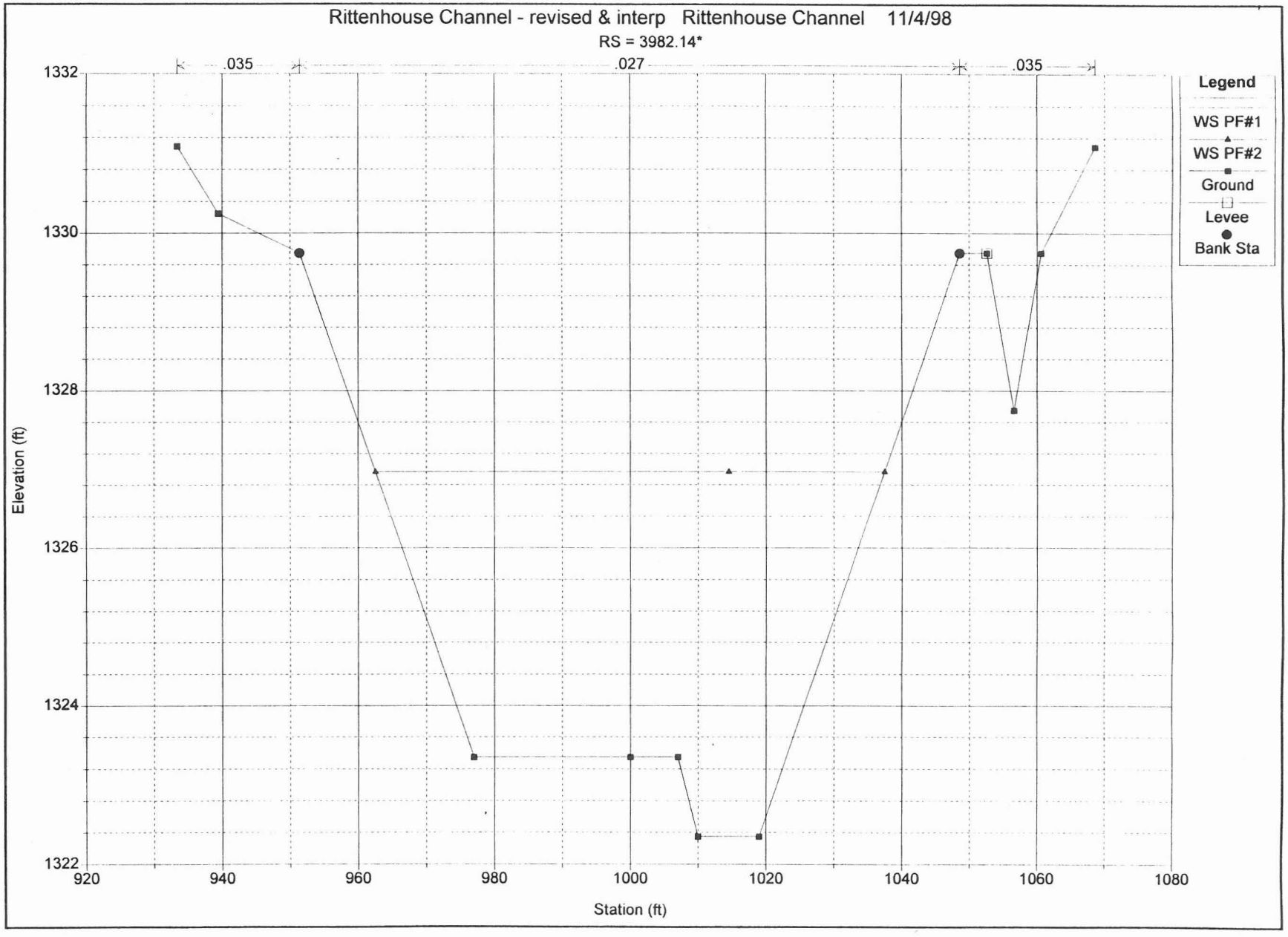

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure 1-4 RS = 3660.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

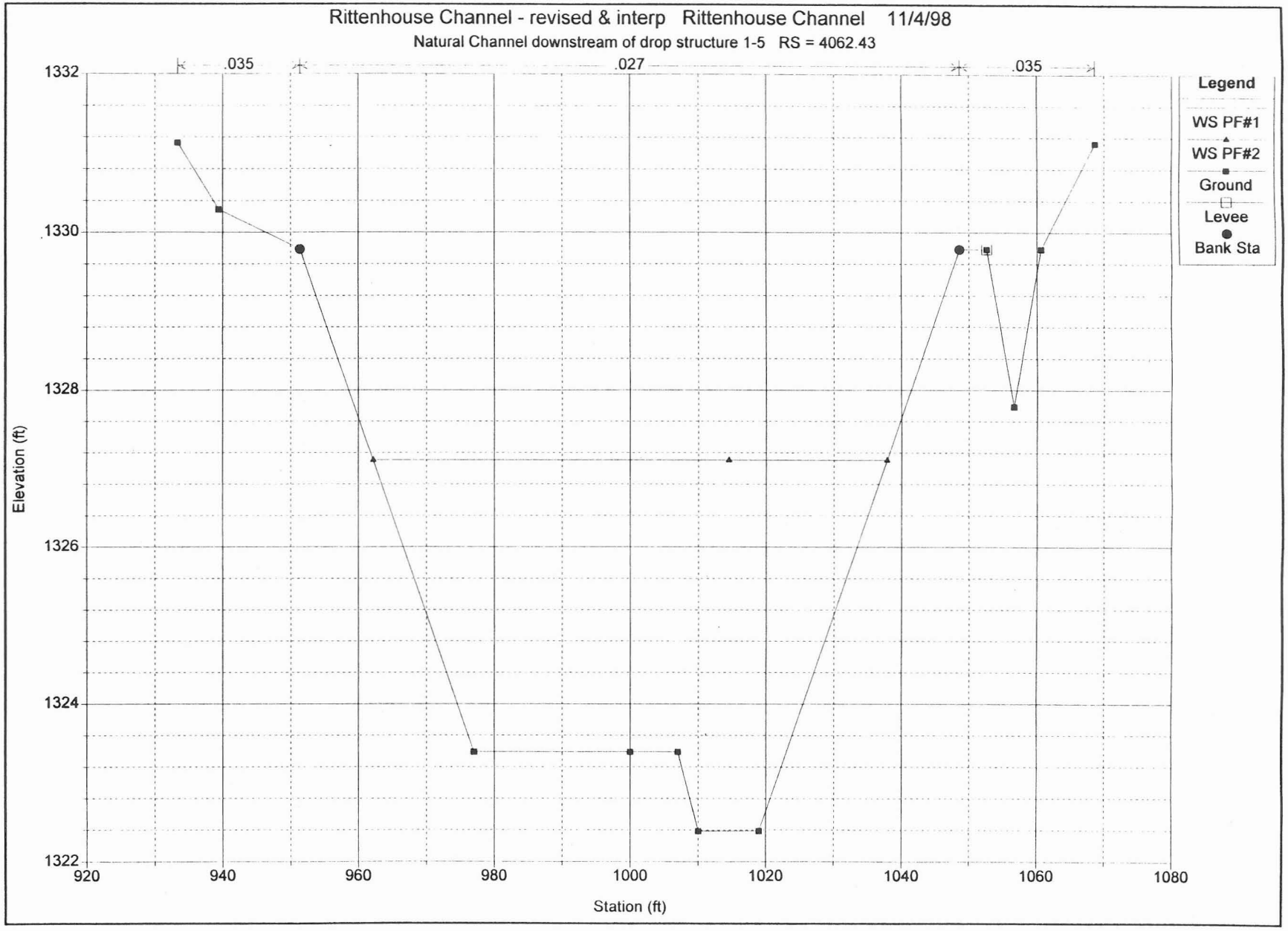

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of drop structure 1-4 RS = 3661.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

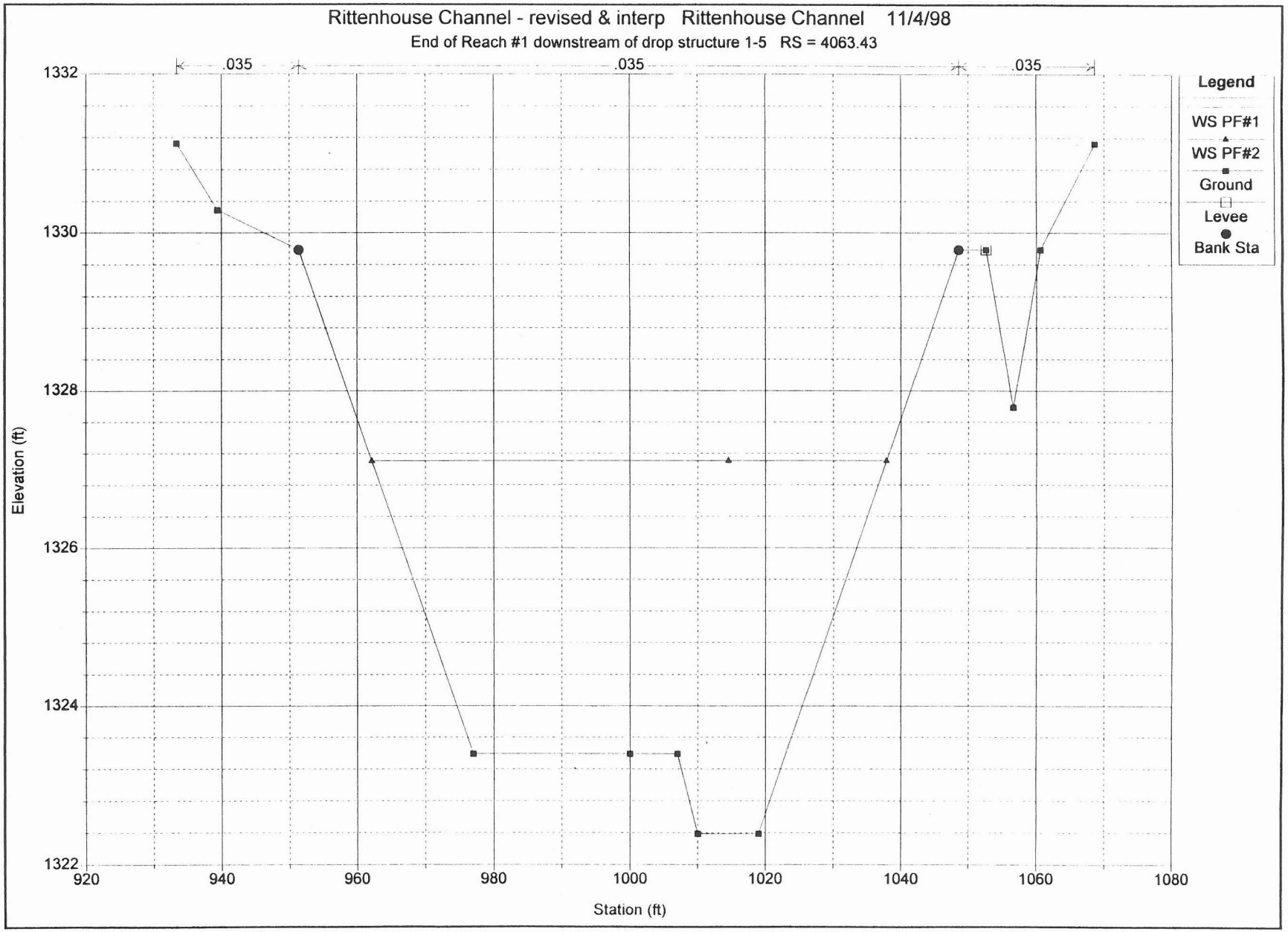

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3741.28*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

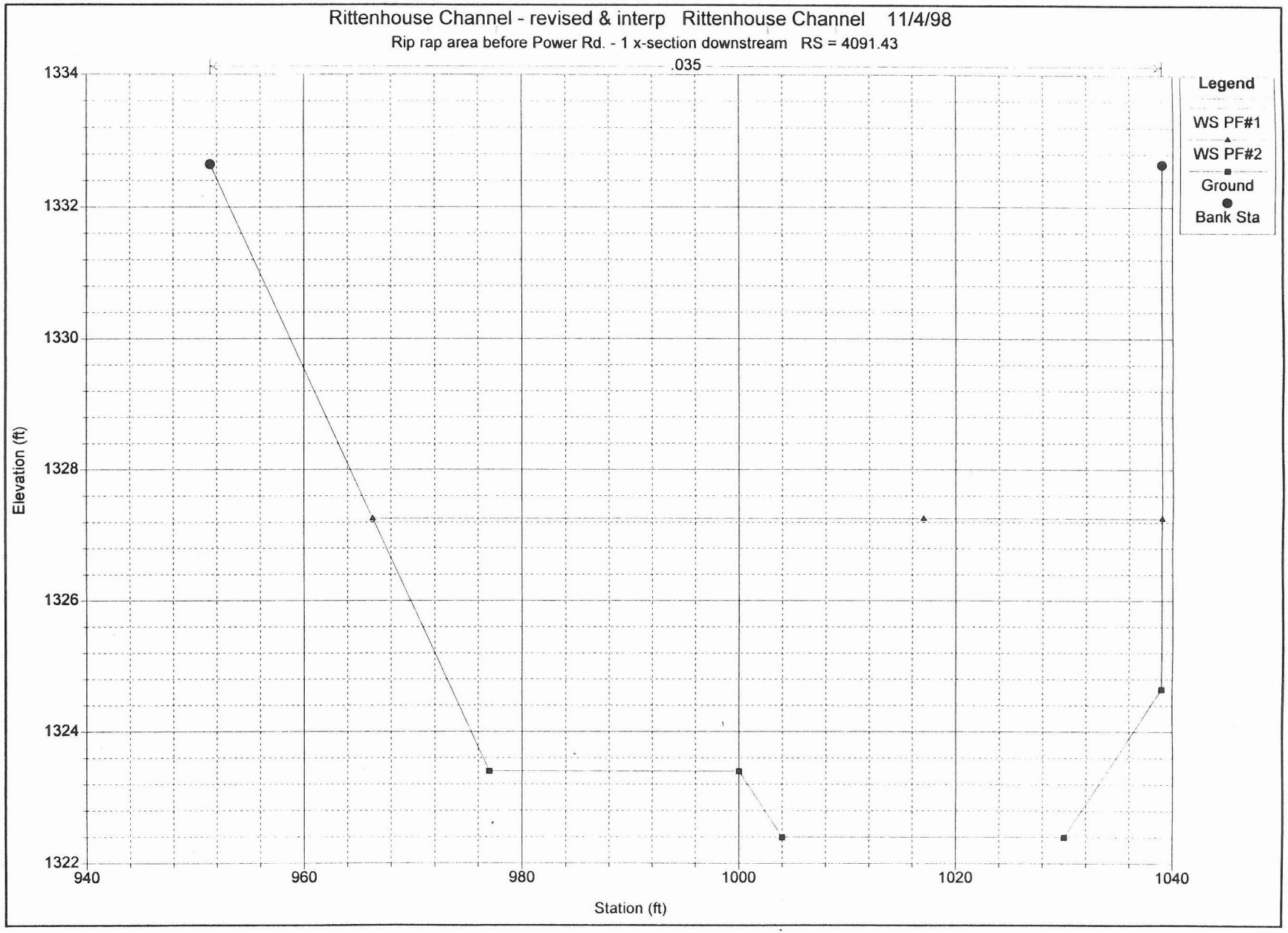

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3821.57*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

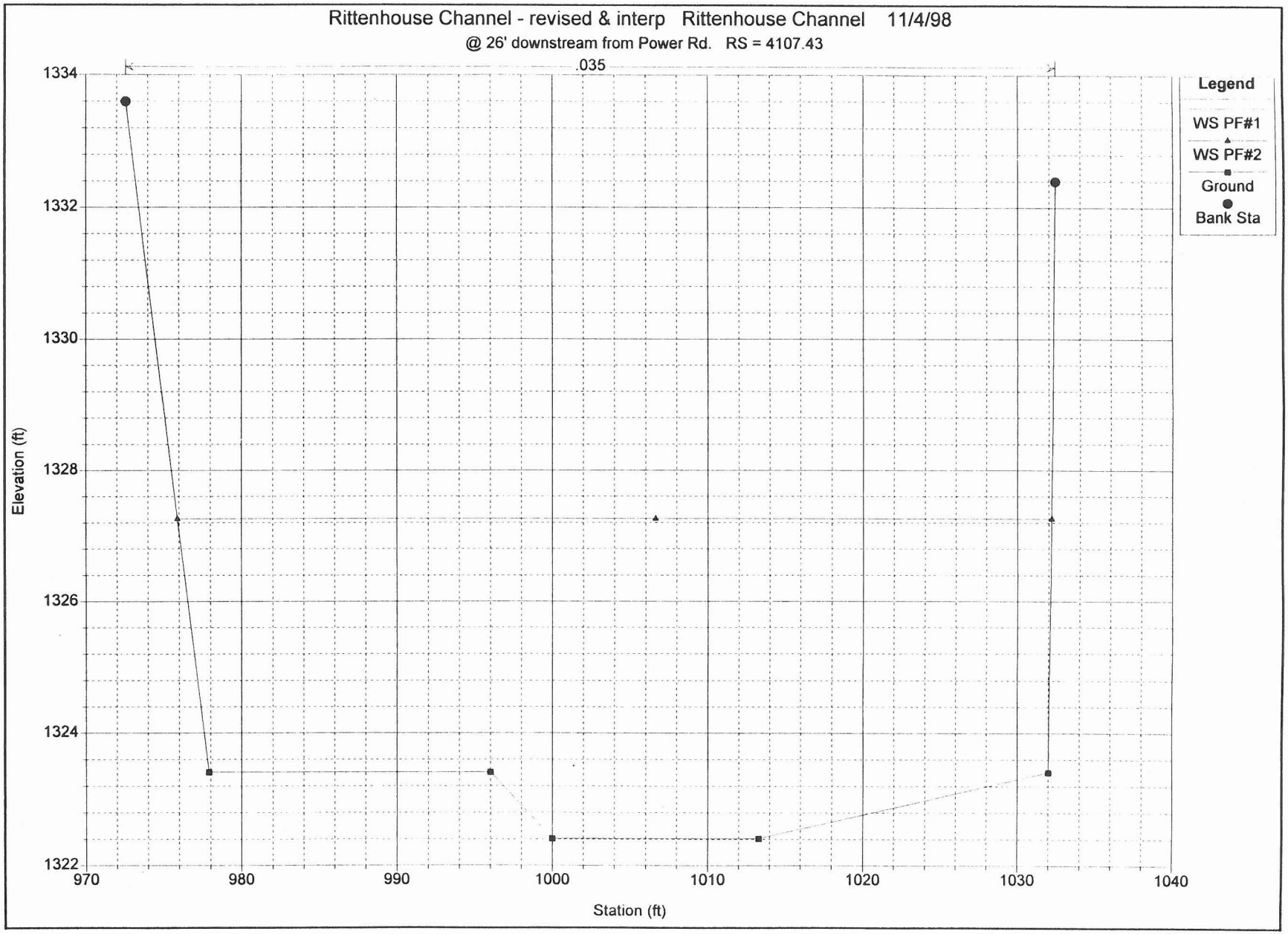

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3901.85*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

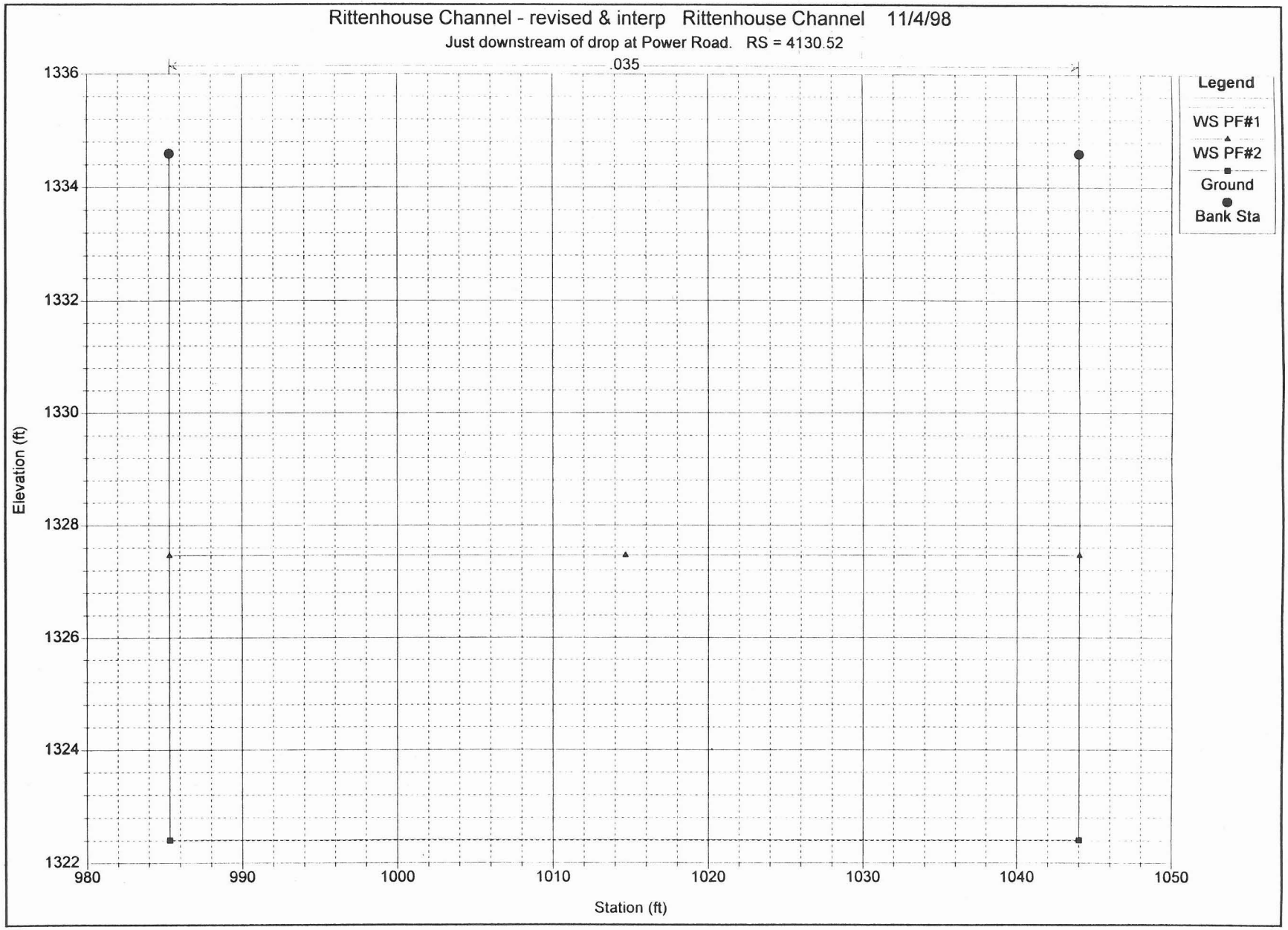

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 3982.14*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

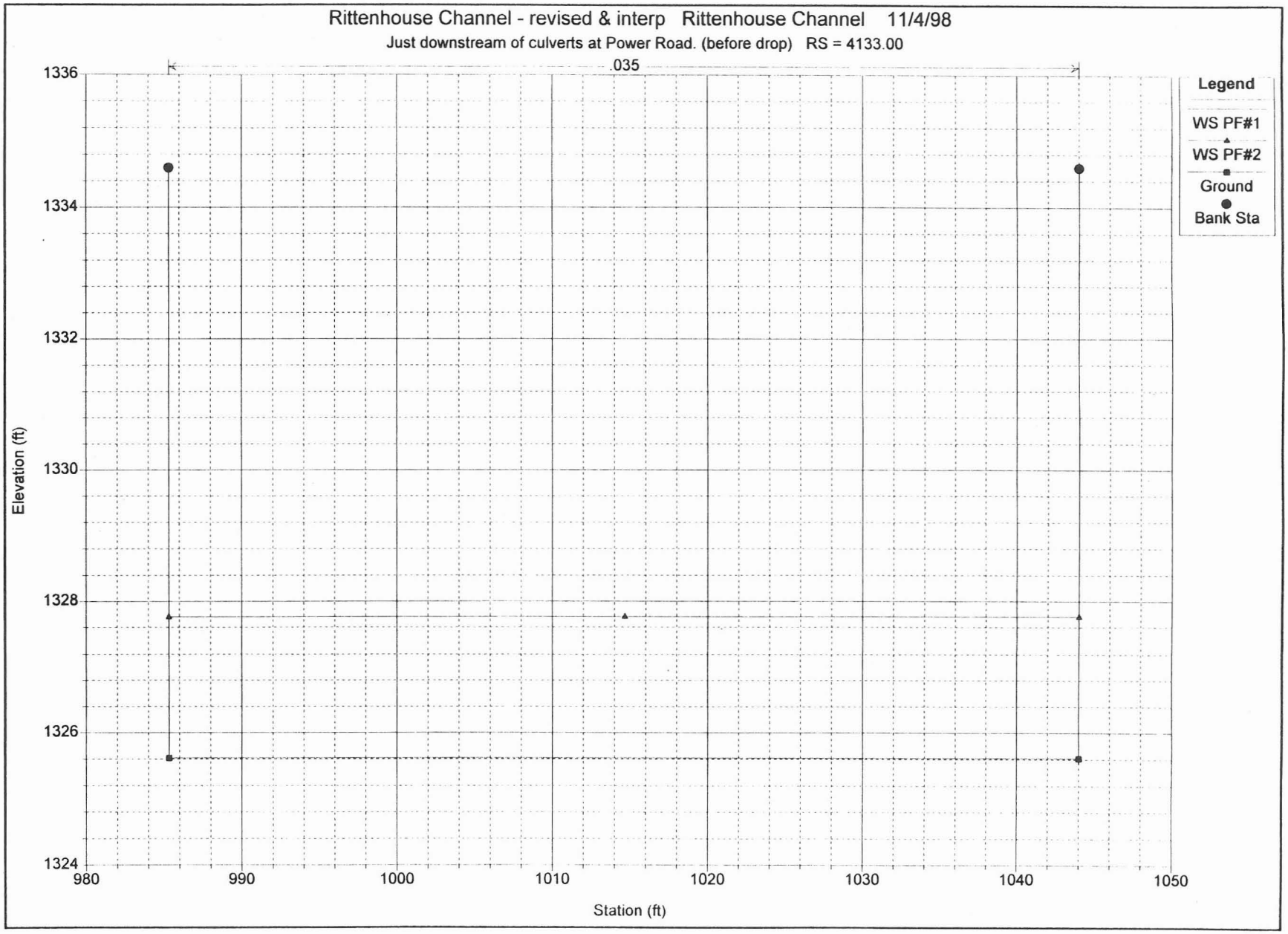

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel downstream of drop structure 1-5 RS = 4062.43
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

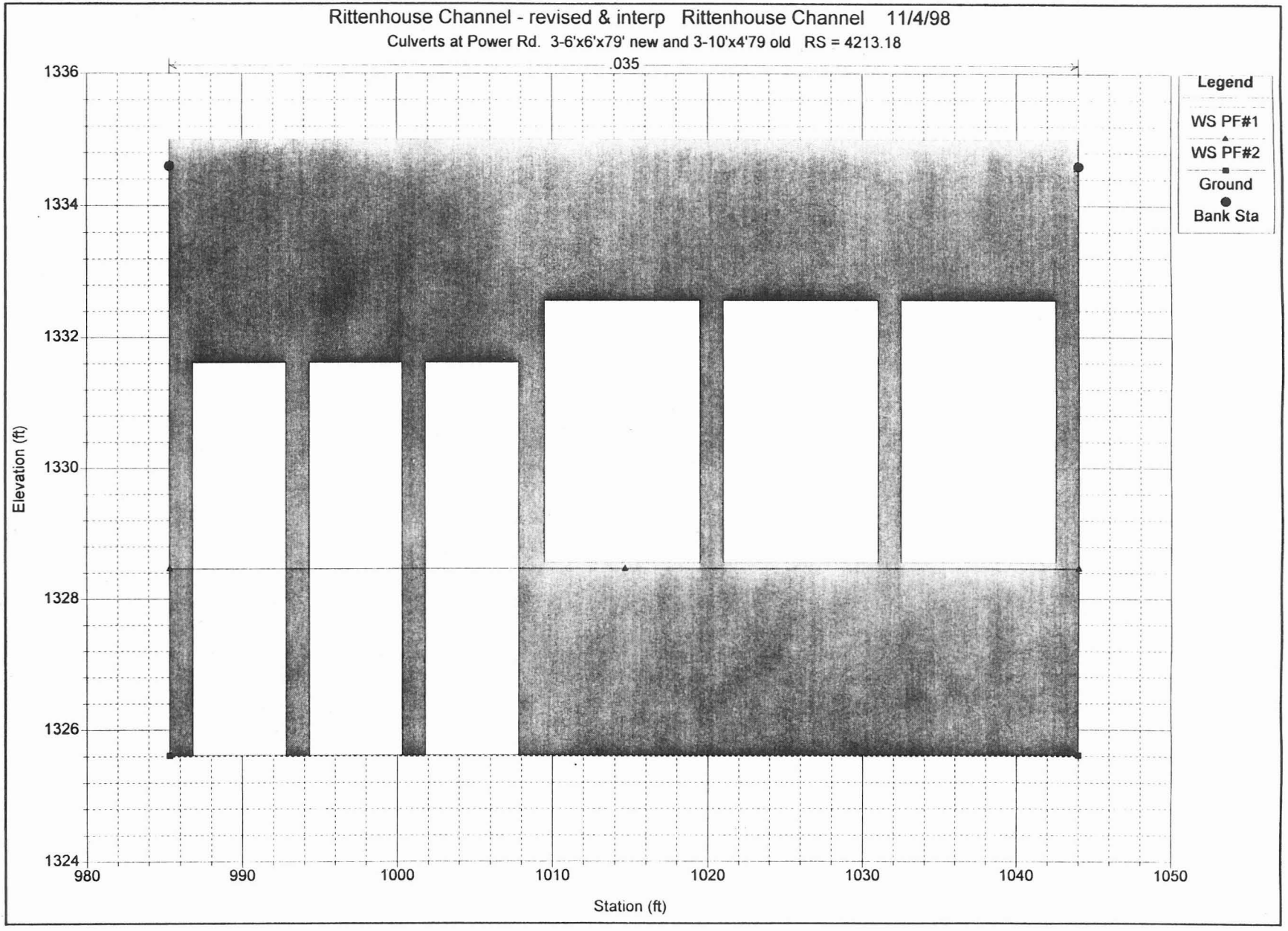

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of Reach #1 downstream of drop structure 1-5 RS = 4063.43
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1332
1330
1328
1326
1324
1322
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

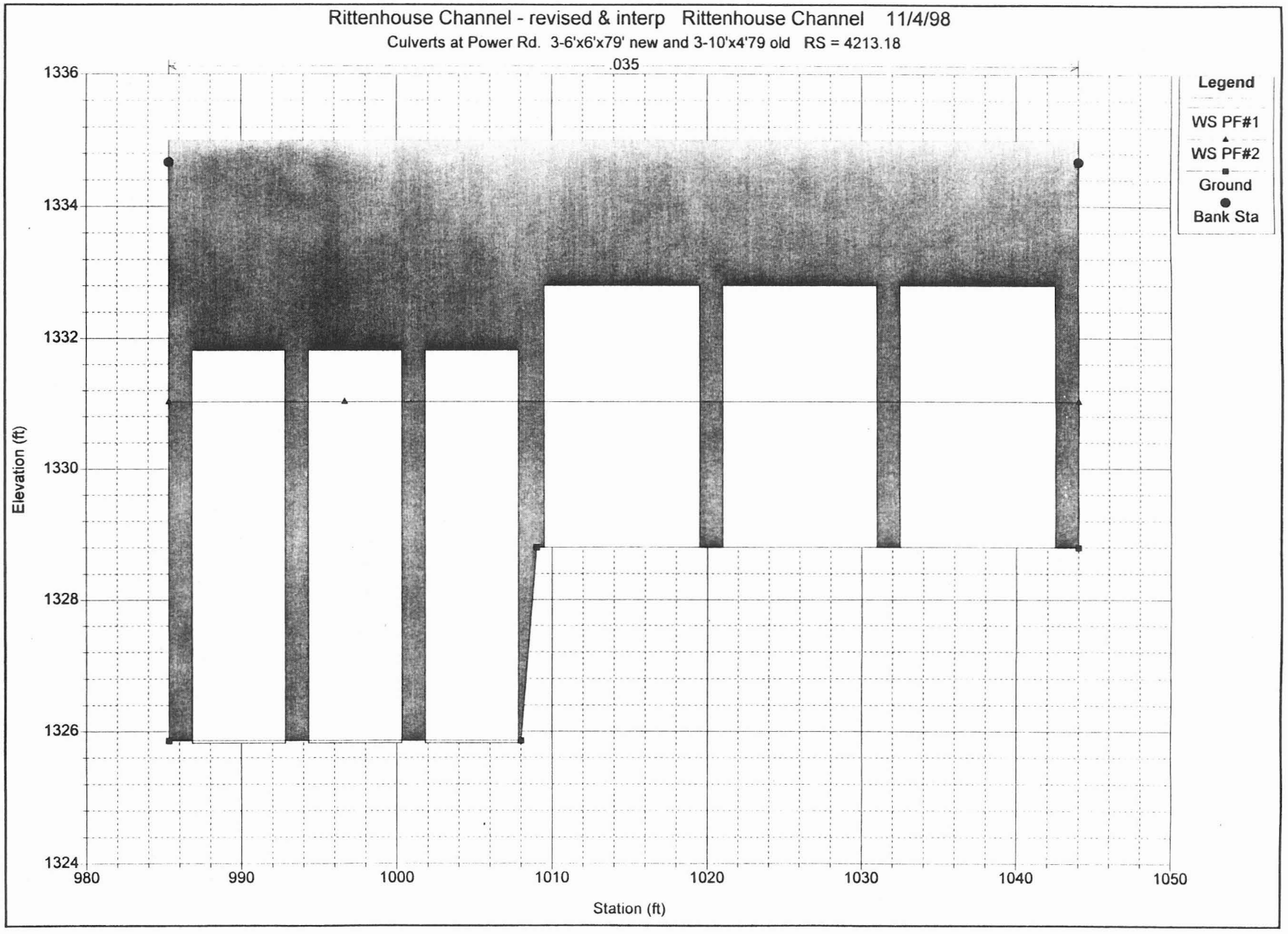

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Rip rap area before Power Rd. - 1 x-section downstream RS = 4091.43
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
940
960
980
1000
1020
1040
Station (ft)

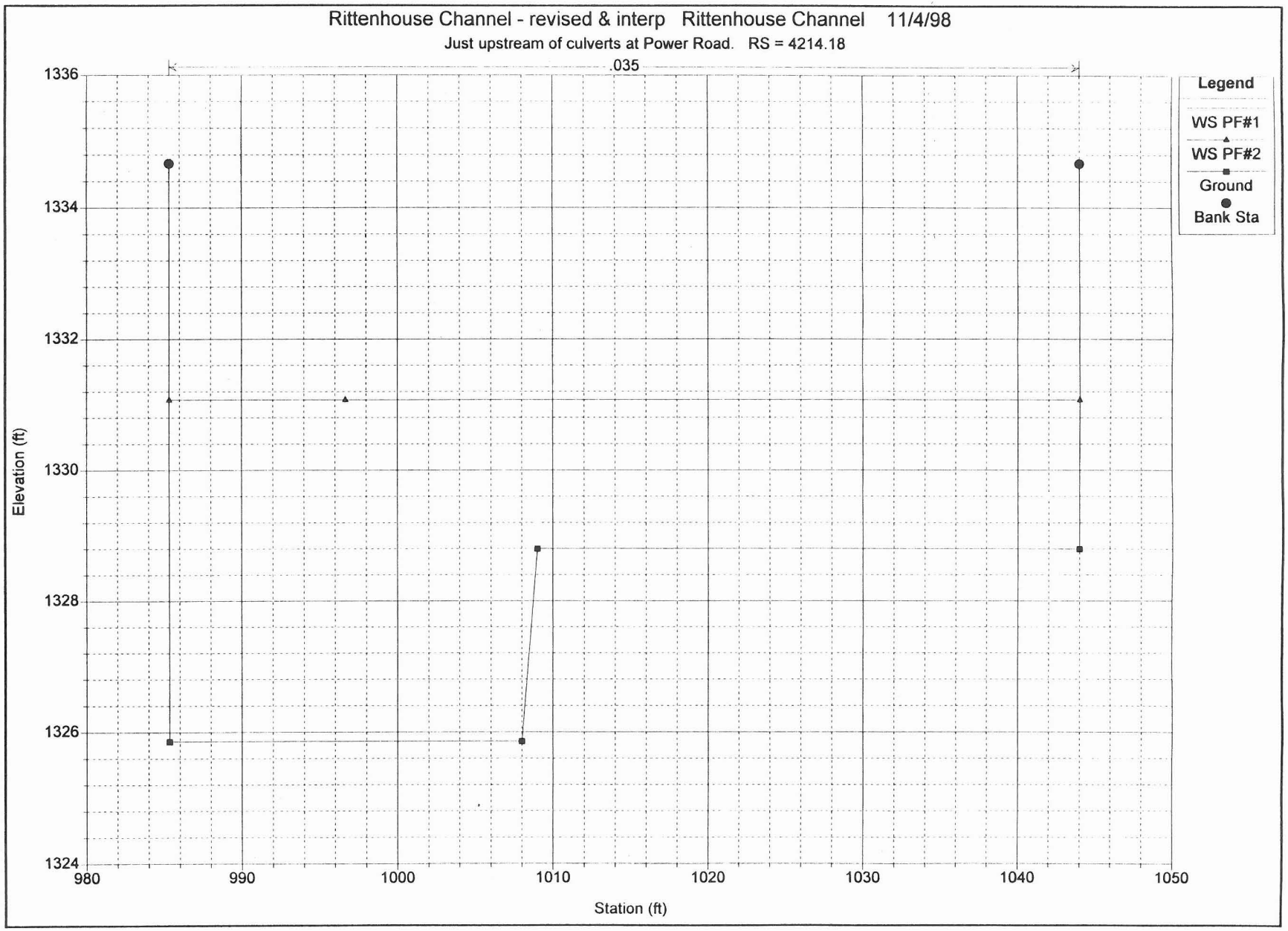

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
@ 26' downstream from Power Rd. RS = 4107.43
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
970
980
990
1000
1010
1020
1030
1040
Station (ft)

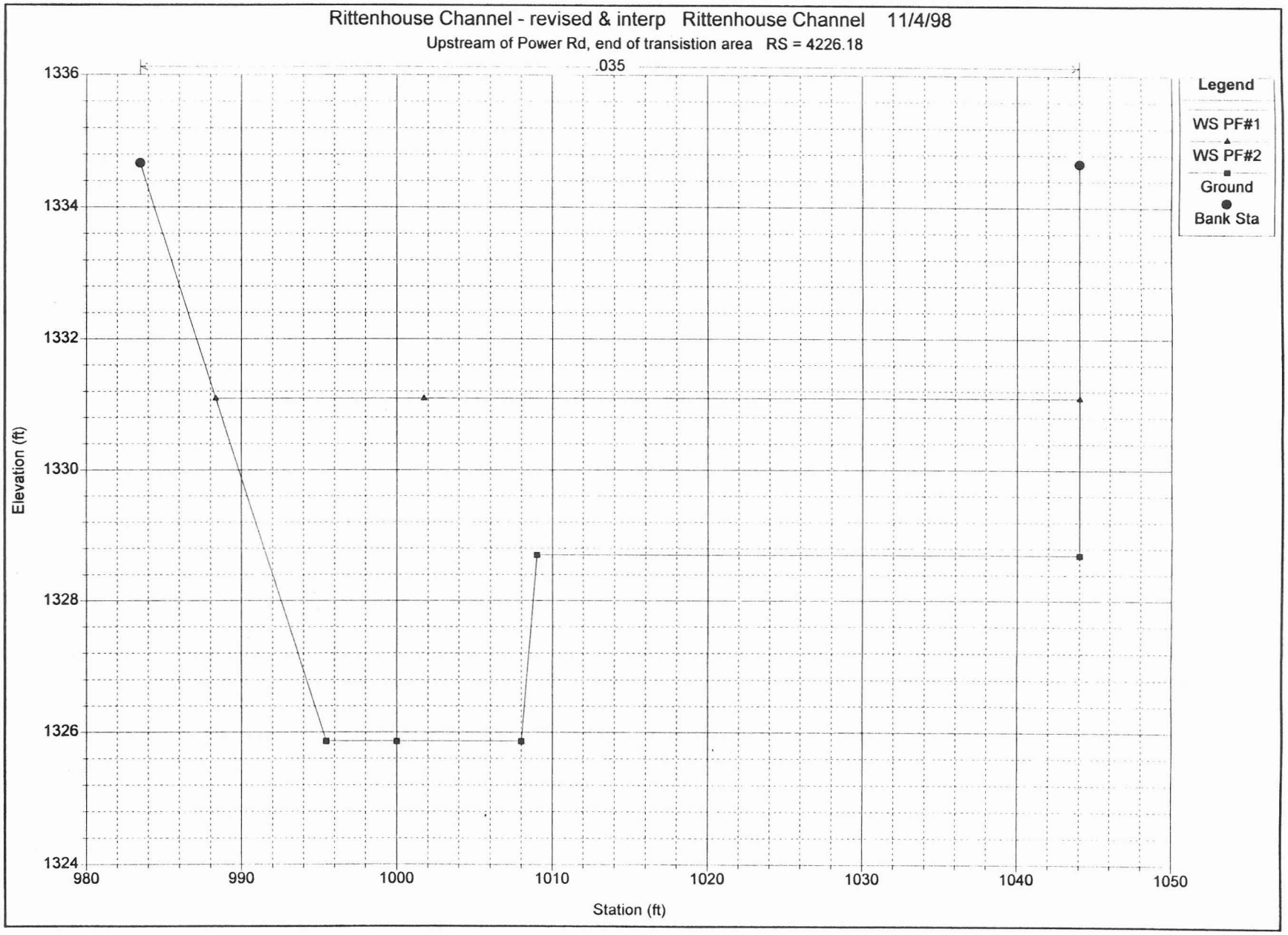

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Just downstream of drop at Power Road. RS = 4130.52
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
980
990
1000
1010
1020
1030
1040
1050
Station (ft)

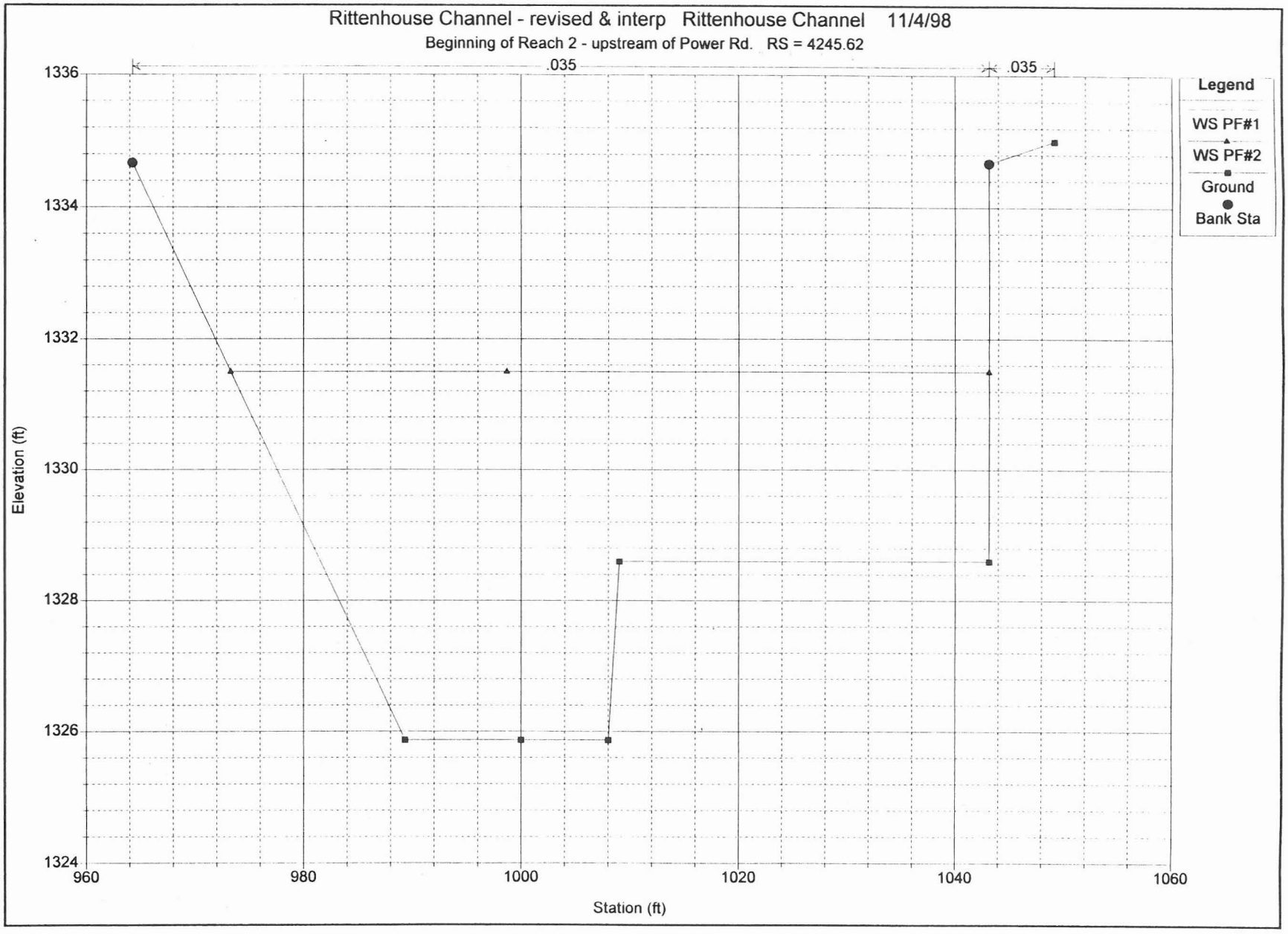

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Just downstream of culverts at Power Road. (before drop) RS = 4133.00
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
980
990
1000
1010
1020
1030
1040
1050
Station (ft)

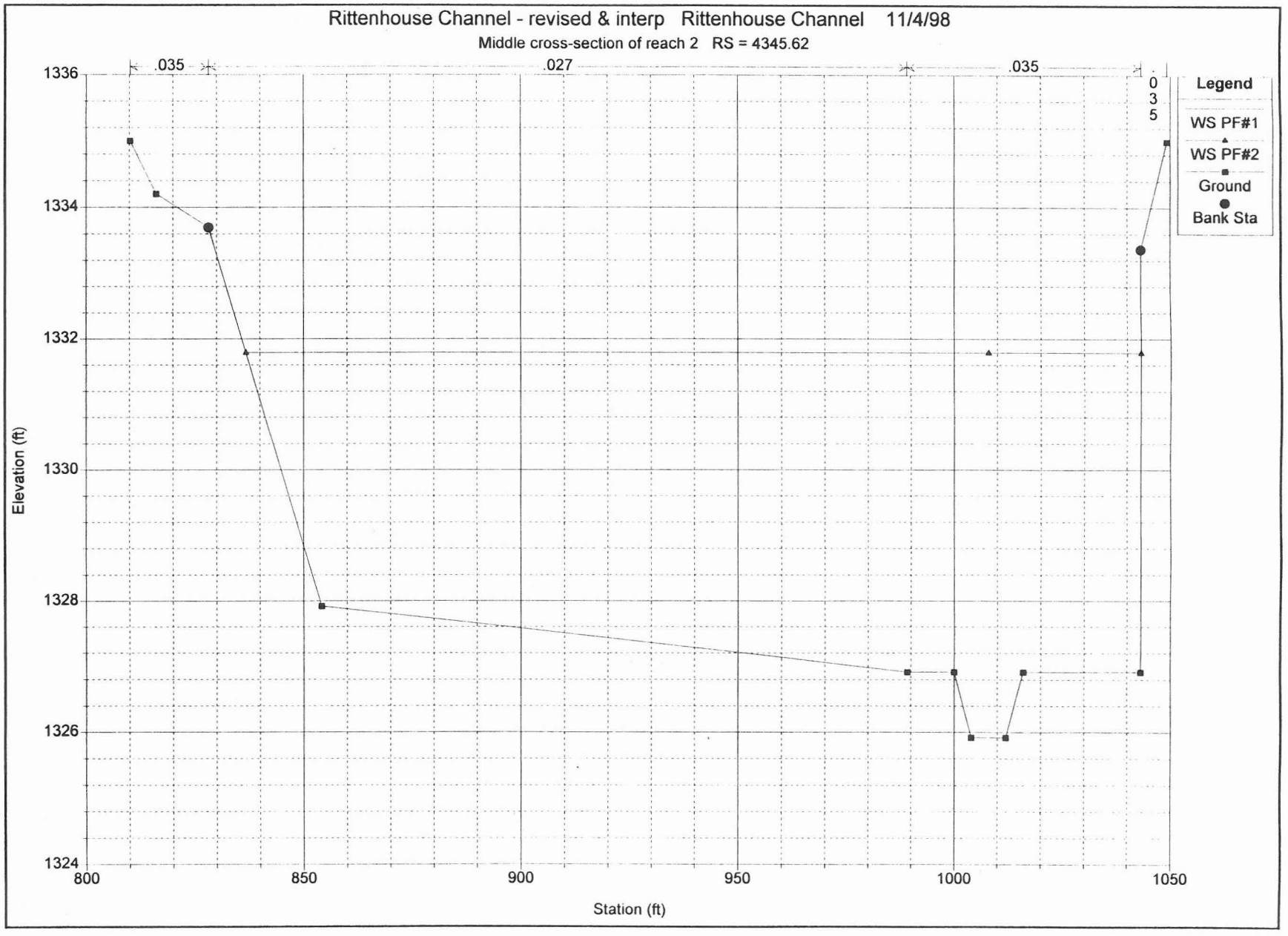

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Culverts at Power Rd. 3-6'x6'x79' new and 3-10'x4'79 old RS = 4213.18
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
980
990
1000
1010
1020
1030
1040
1050
Station (ft)

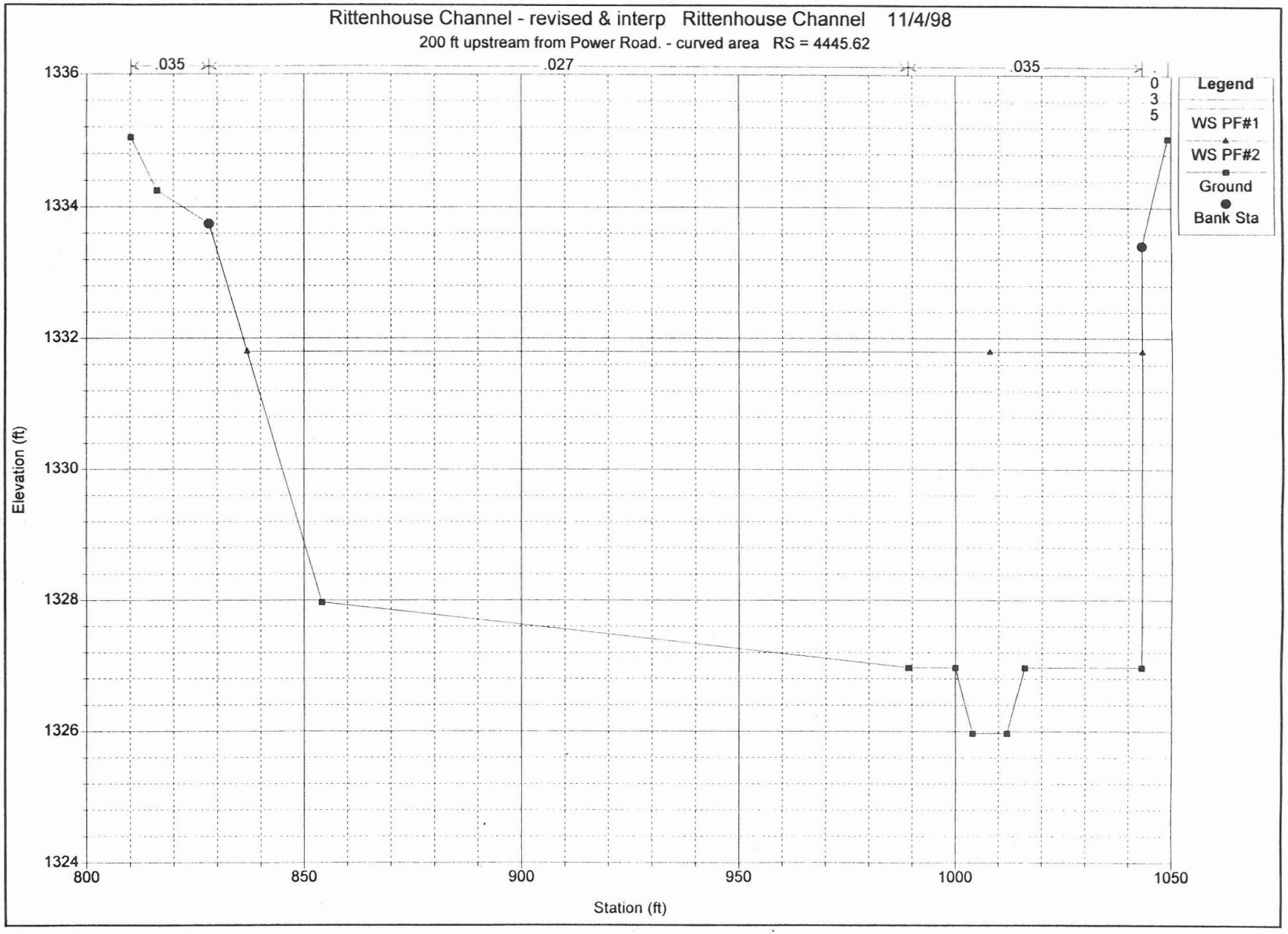

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Culverts at Power Rd. 3-6'x6'x79' new and 3-10'x4'79 old RS = 4213.18
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
980
990
1000
1010
1020
1030
1040
1050
Station (ft)

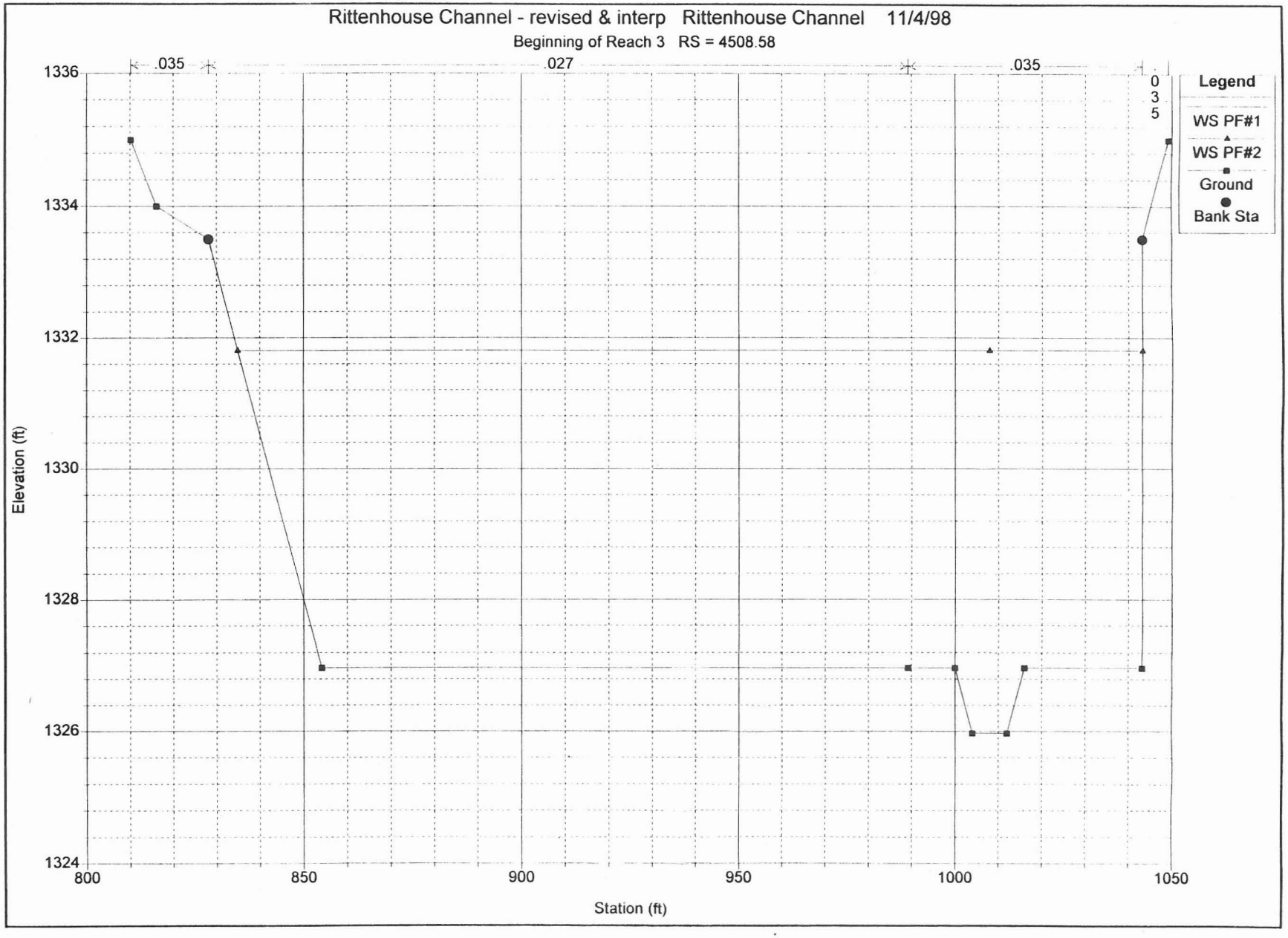

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Just upstream of culverts at Power Road. RS = 4214.18
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
980
990
1000
1010
1020
1030
1040
1050
Station (ft)

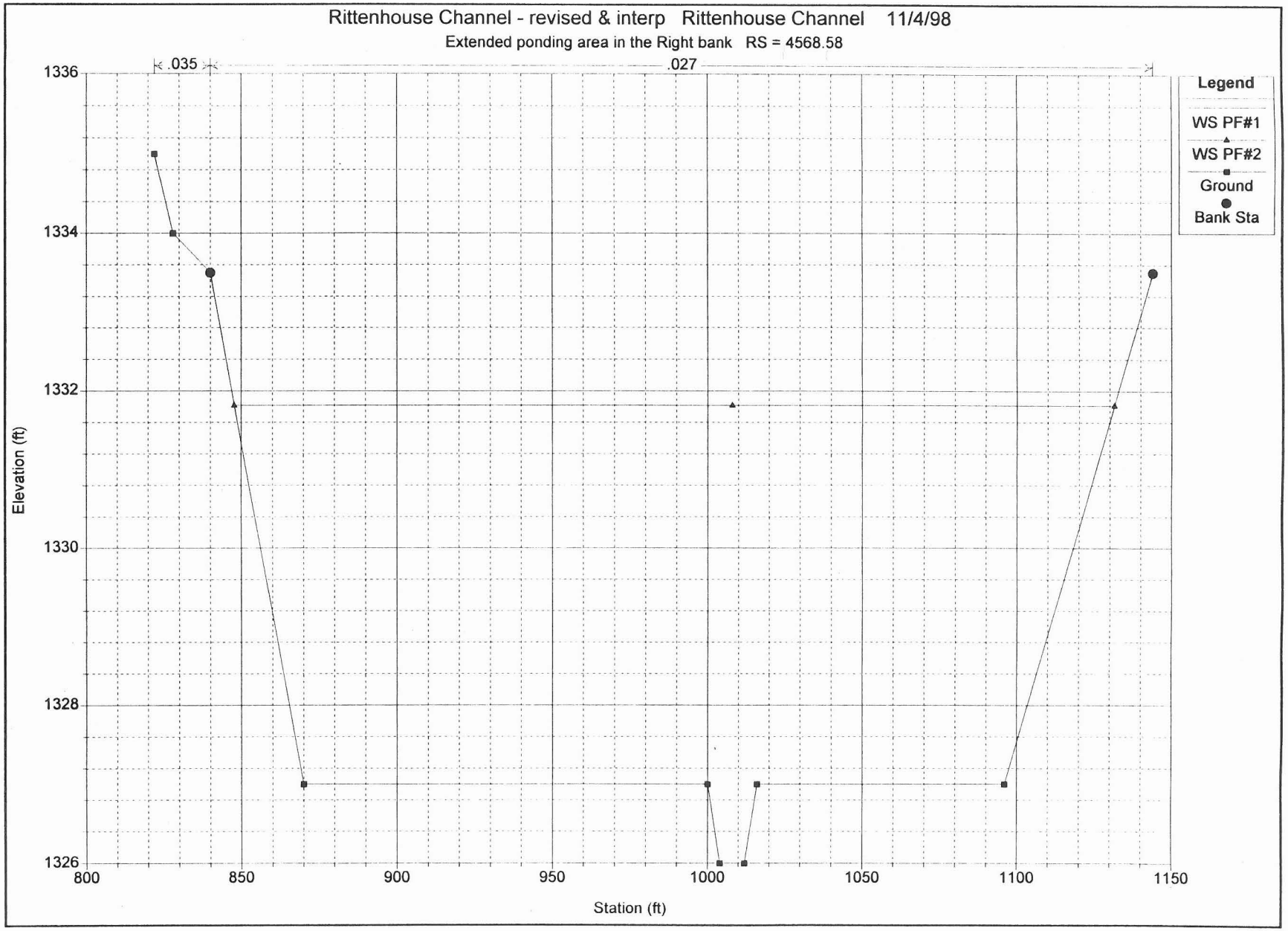

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of Power Rd, end of transistion area RS = 4226.18
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
980
990
1000
1010
1020
1030
1040
1050
Station (ft)

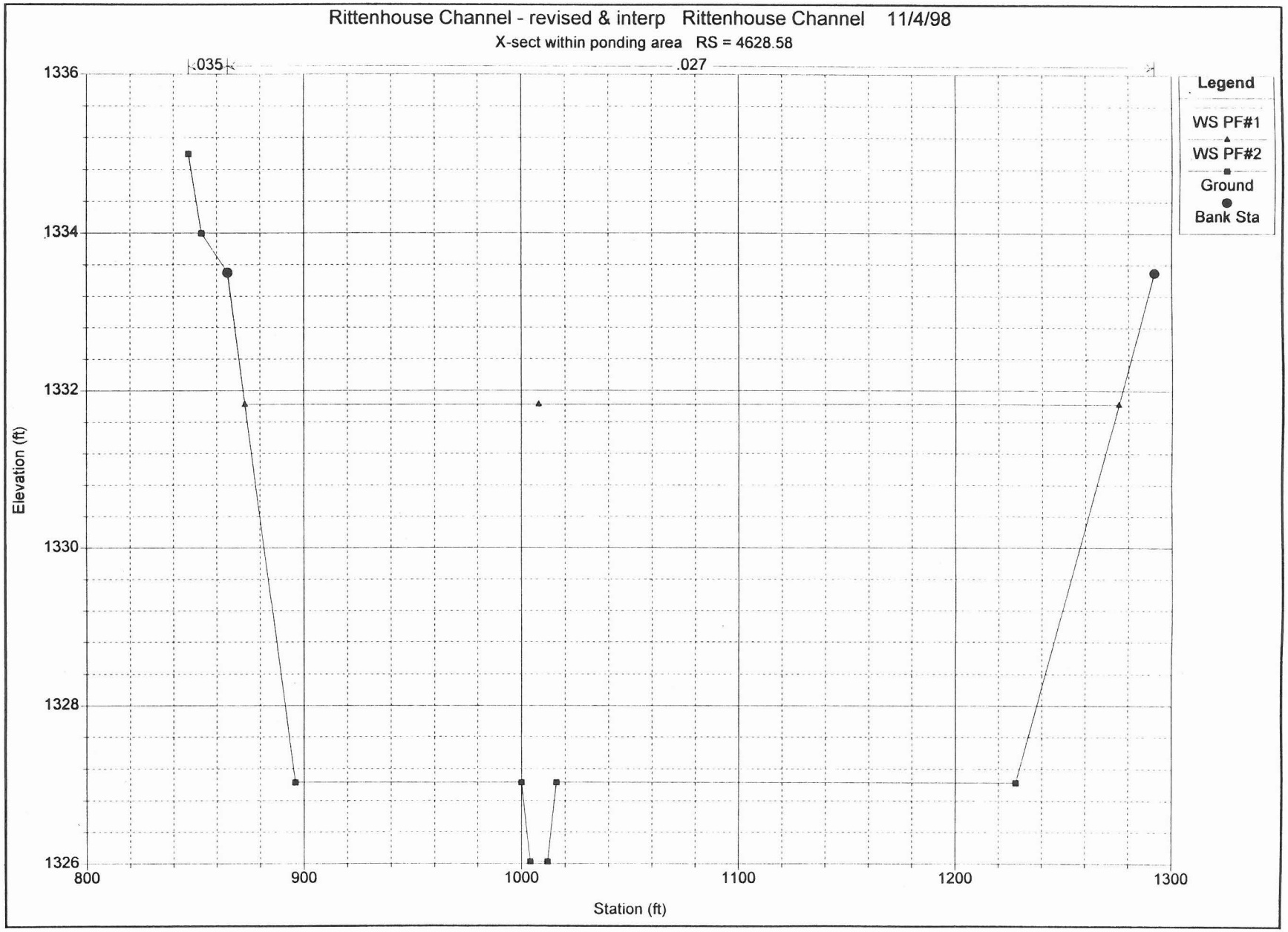

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Beginning of Reach 2 - upstream of Power Rd. RS = 4245.62
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
960
980
1000
1020
1040
1060
Station (ft)

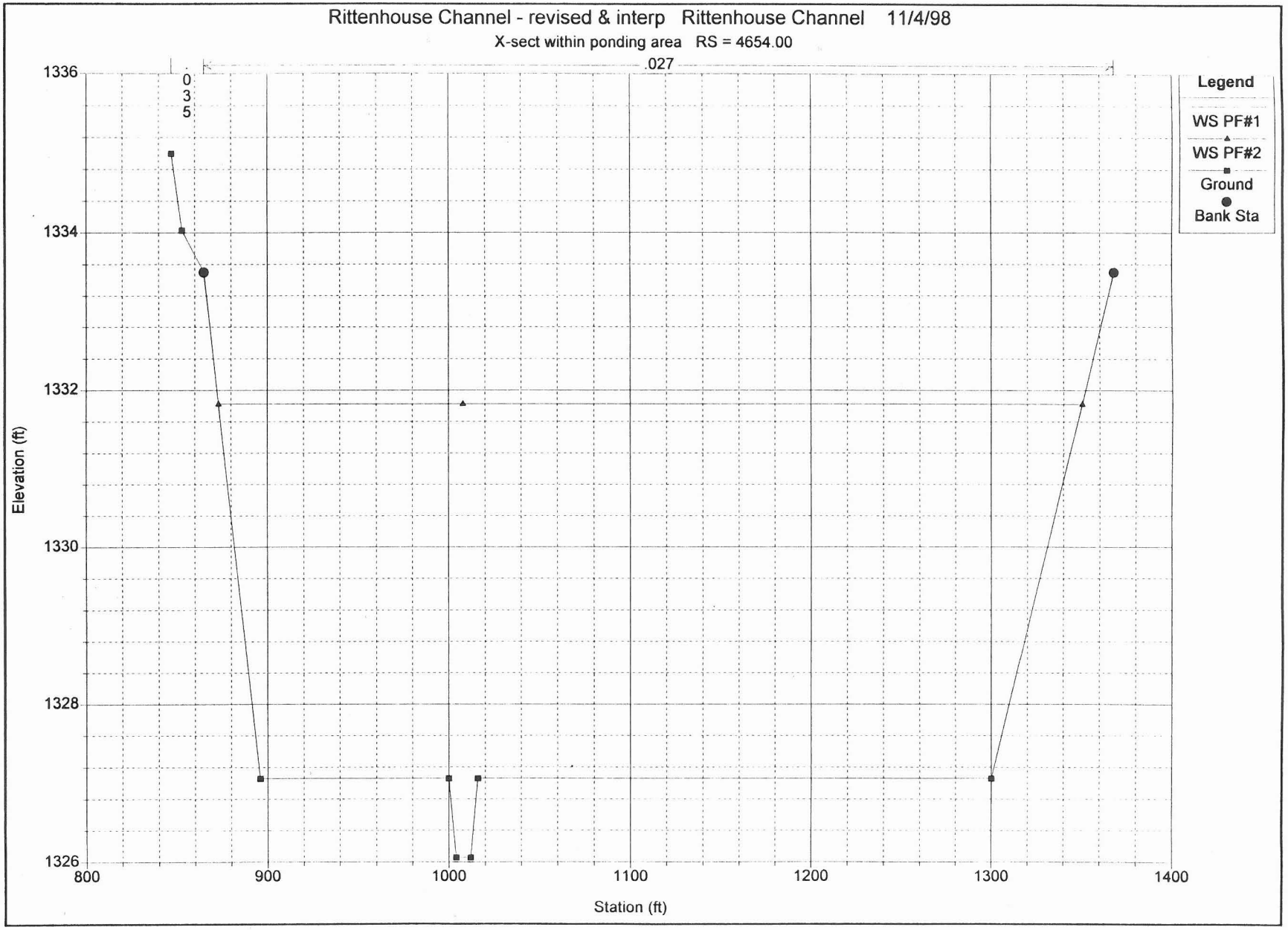

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Middle cross-section of reach 2 RS = 4345.62
.035
.027
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
800
850
900
950
1000
1050
Station (ft)

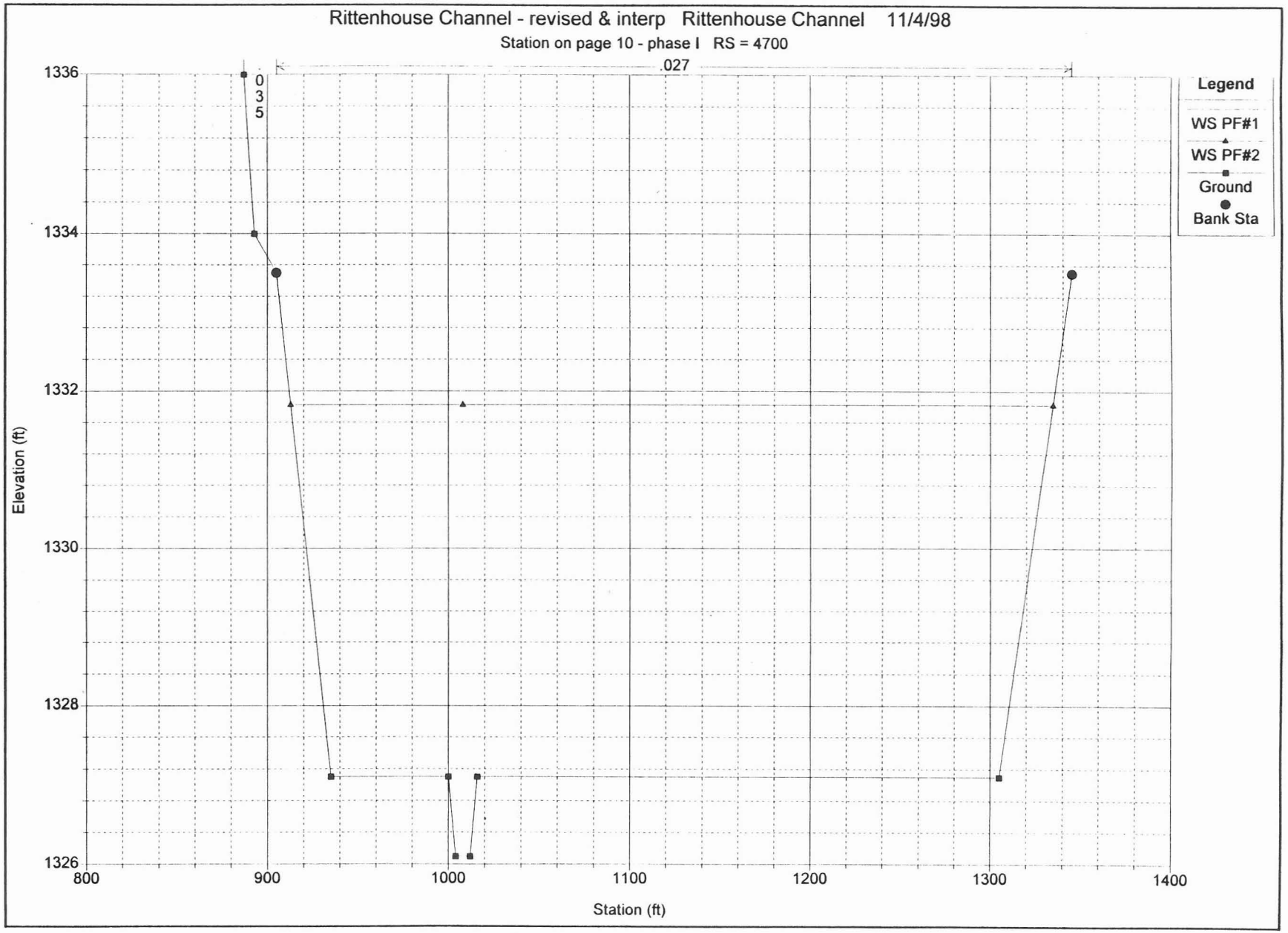

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
200 ft upstream from Power Road. - curved area RS = 4445.62
.035
.027
.035
0
3
5
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
800
850
900
950
1000
1050
Station (ft)

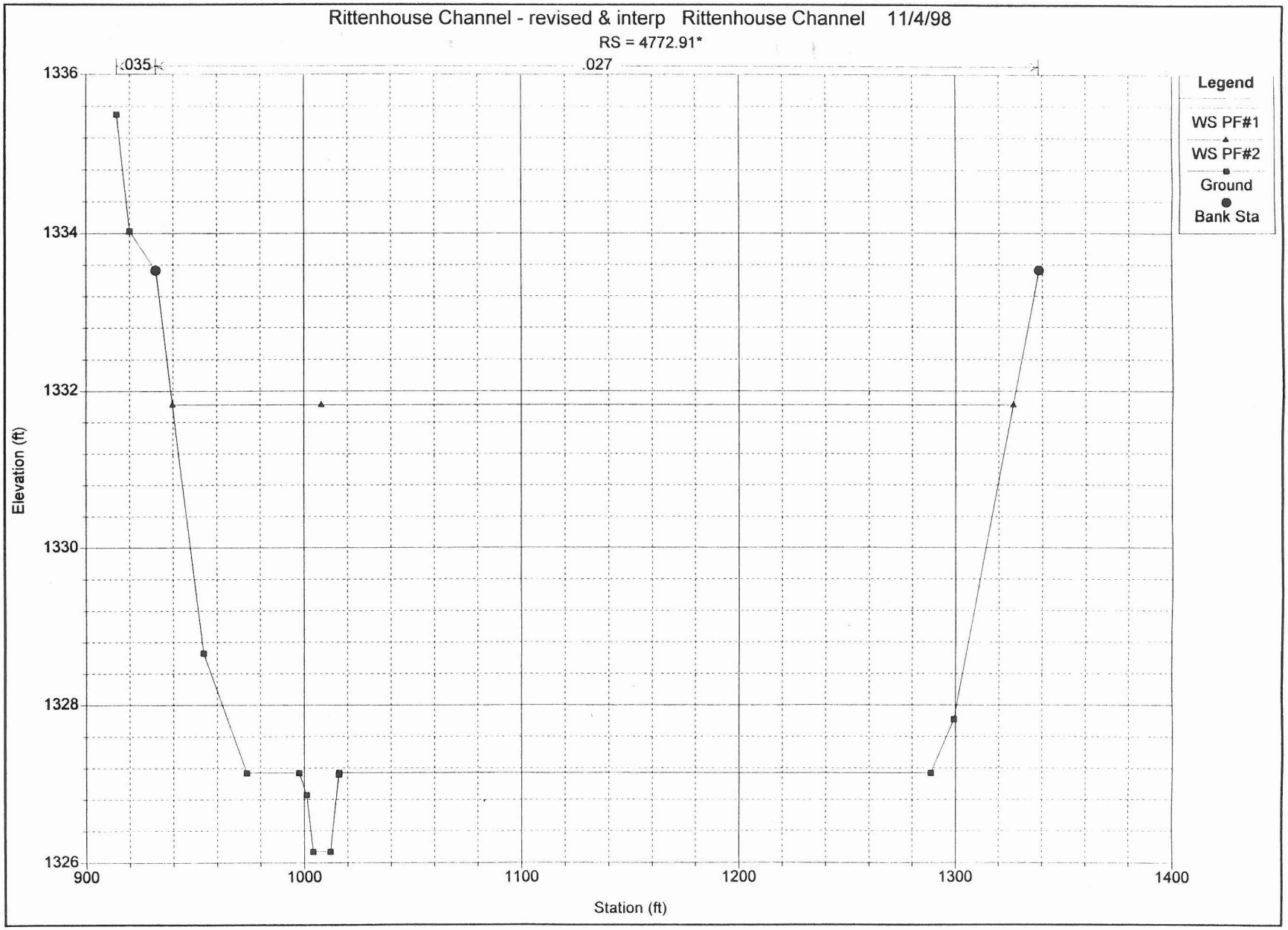

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Beginning of Reach 3 RS = 4508.58
.035
.027
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
800
850
900
950
1000
1050
Station (ft)

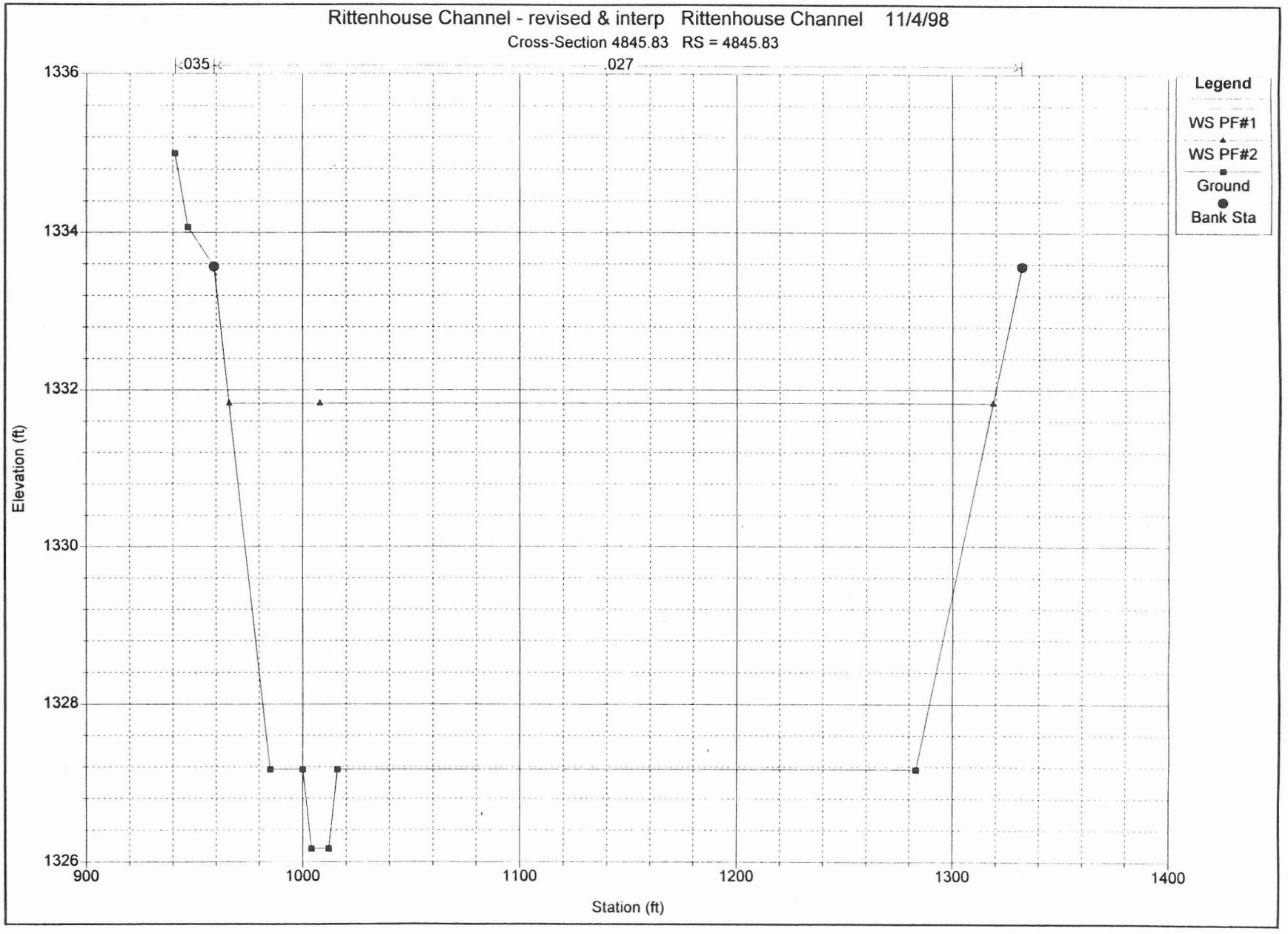

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Extended ponding area in the Right bank RS = 4568.58
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
800
850
900
950
1000
1050
1100
1150
Station (ft)

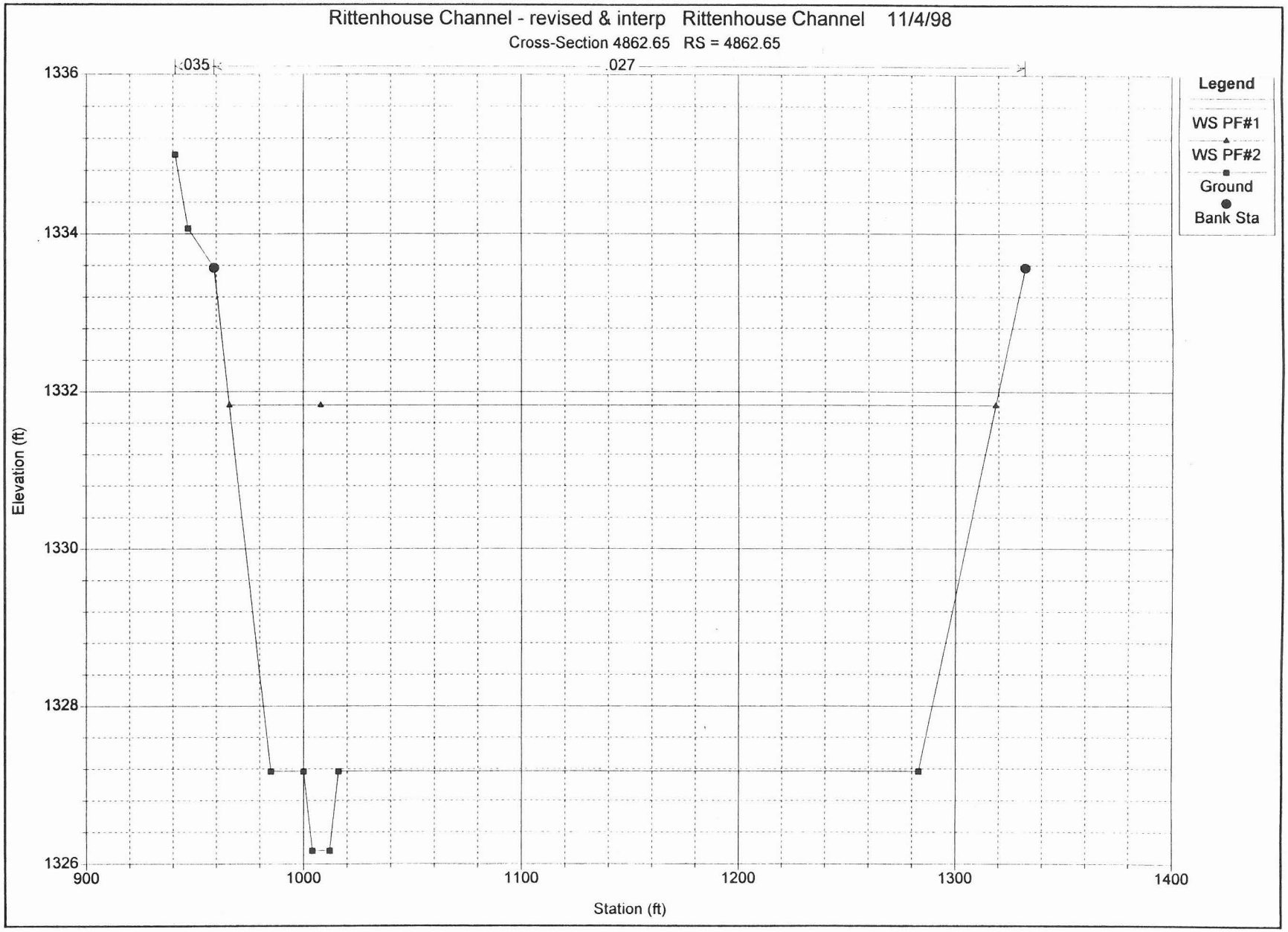

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
X-sect within ponding area RS = 4628.58
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
800
900
1000
1100
1200
1300
Station (ft)

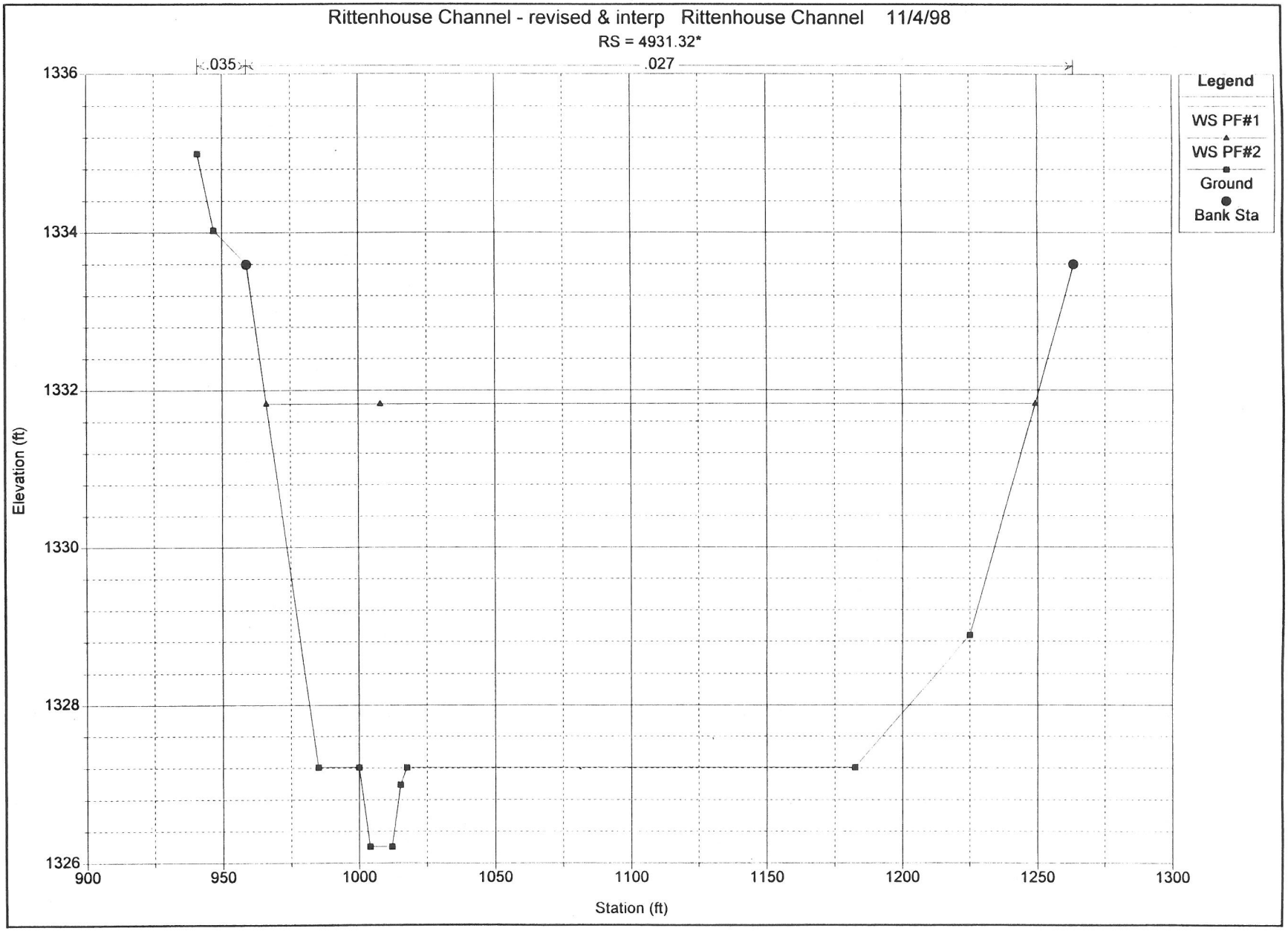

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
X-sect within ponding area RS = 4654.00
.027
0
3
5
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
800
900
1000
1100
1200
1300
1400
Station (ft)

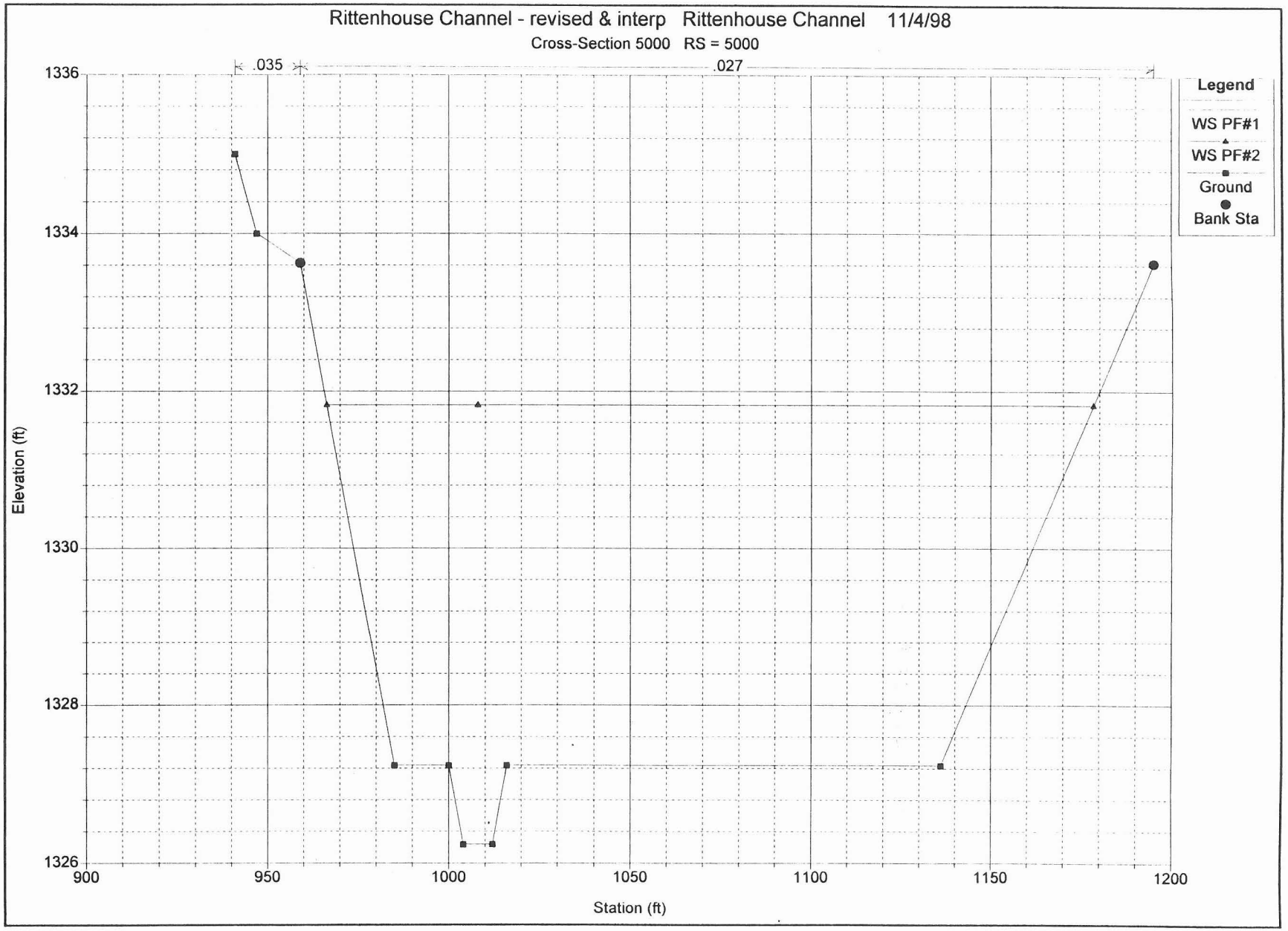

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Station on page 10 - phase I RS = 4700
.027
0
3
5
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
800
900
1000
1100
1200
1300
1400
Station (ft)

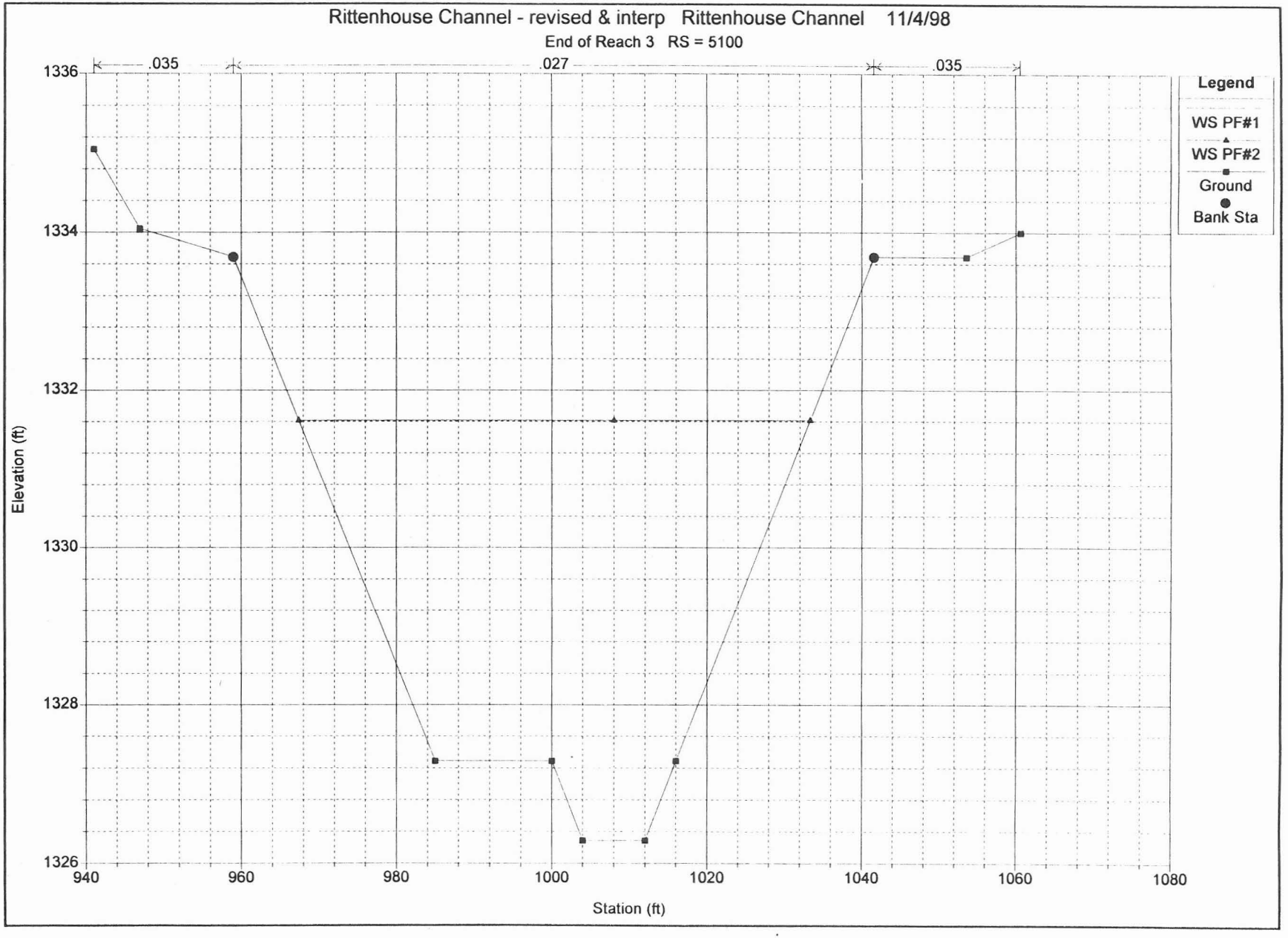

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 4772.91*
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
900
1000
1100
1200
1300
1400
Station (ft)

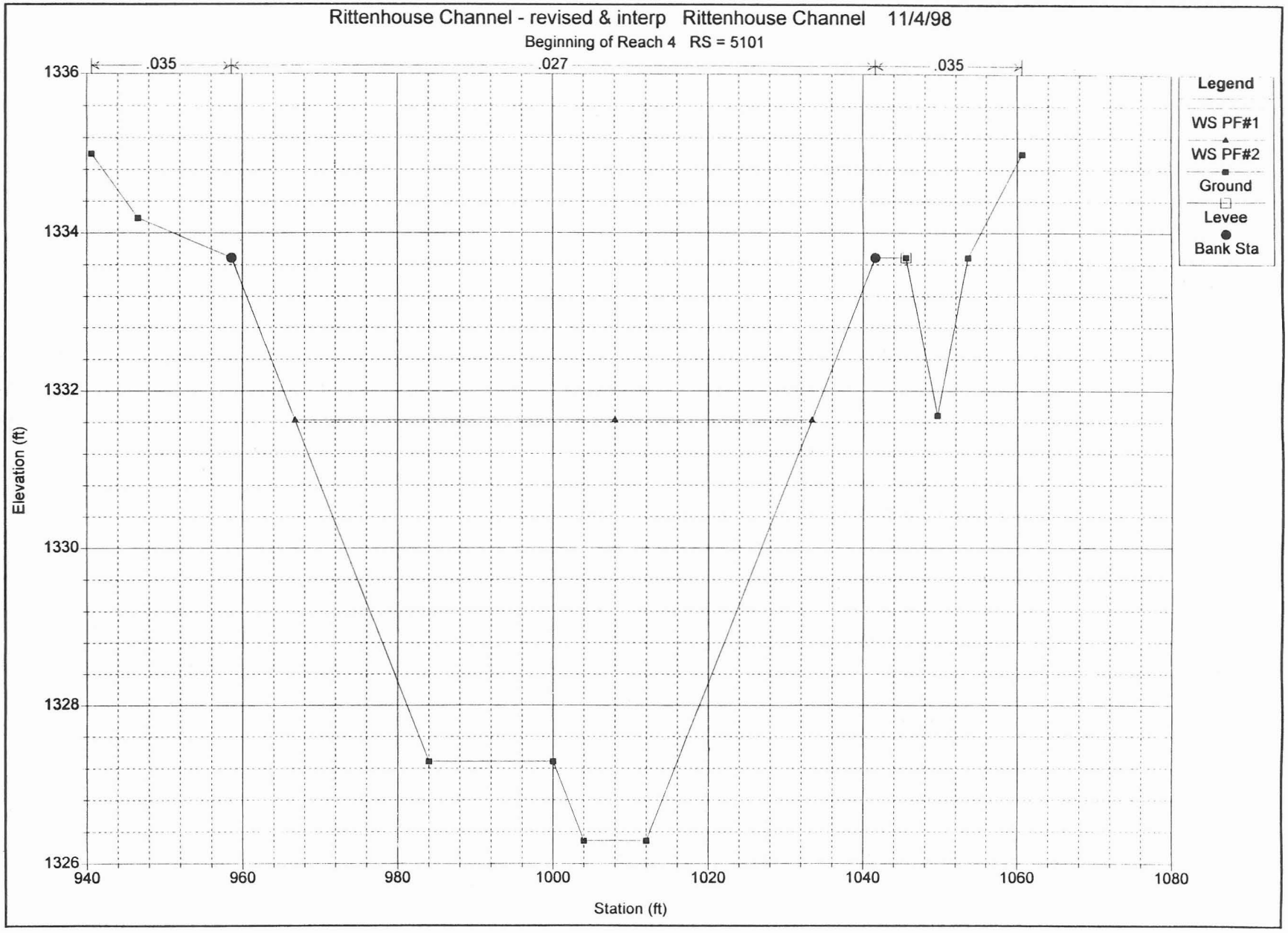

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Cross-Section 4845.83 RS = 4845.83
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
900
1000
1100
1200
1300
1400
Station (ft)

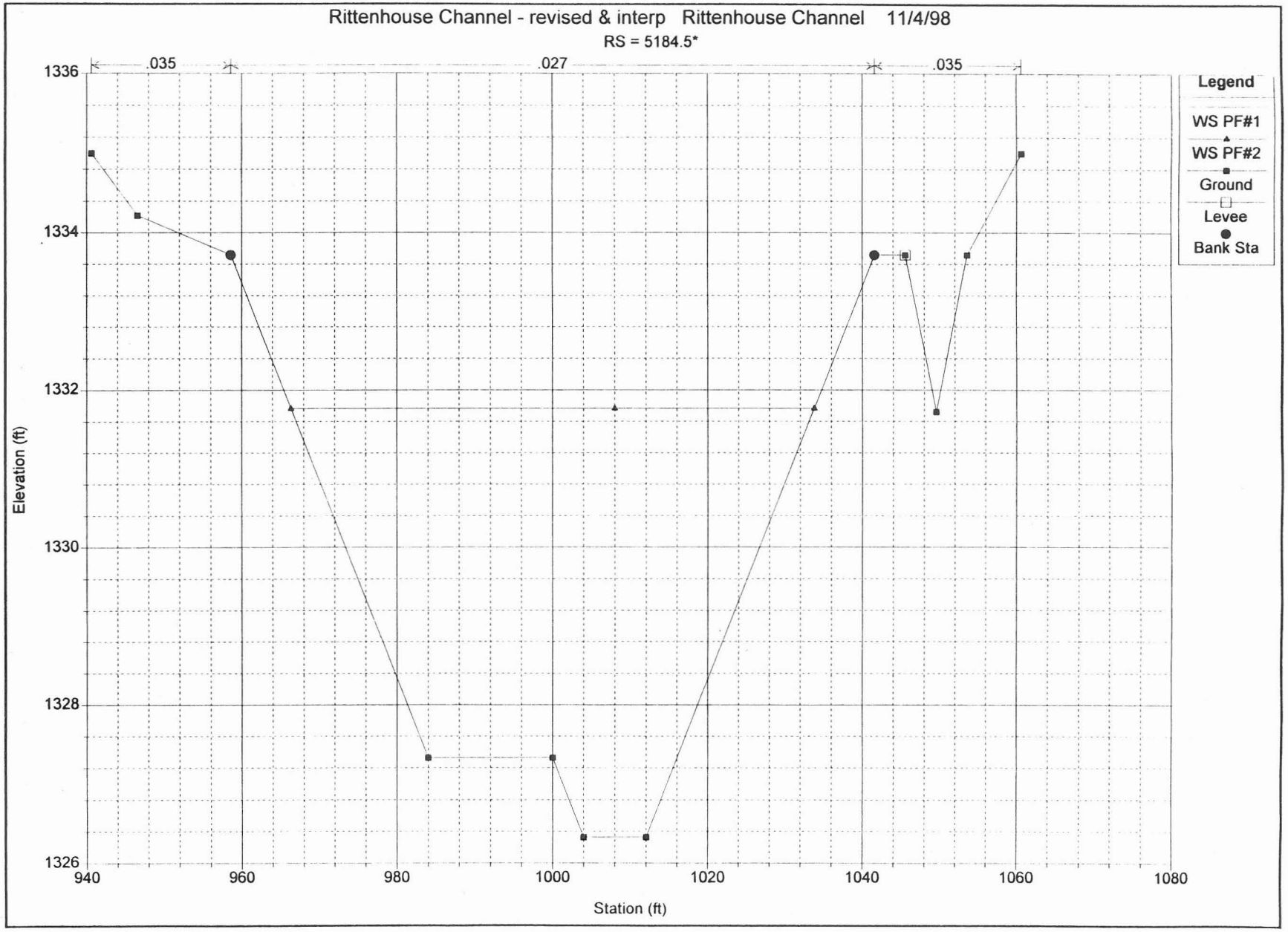

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Cross-Section 4862.65 RS = 4862.65
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
900
1000
1100
1200
1300
1400
Station (ft)

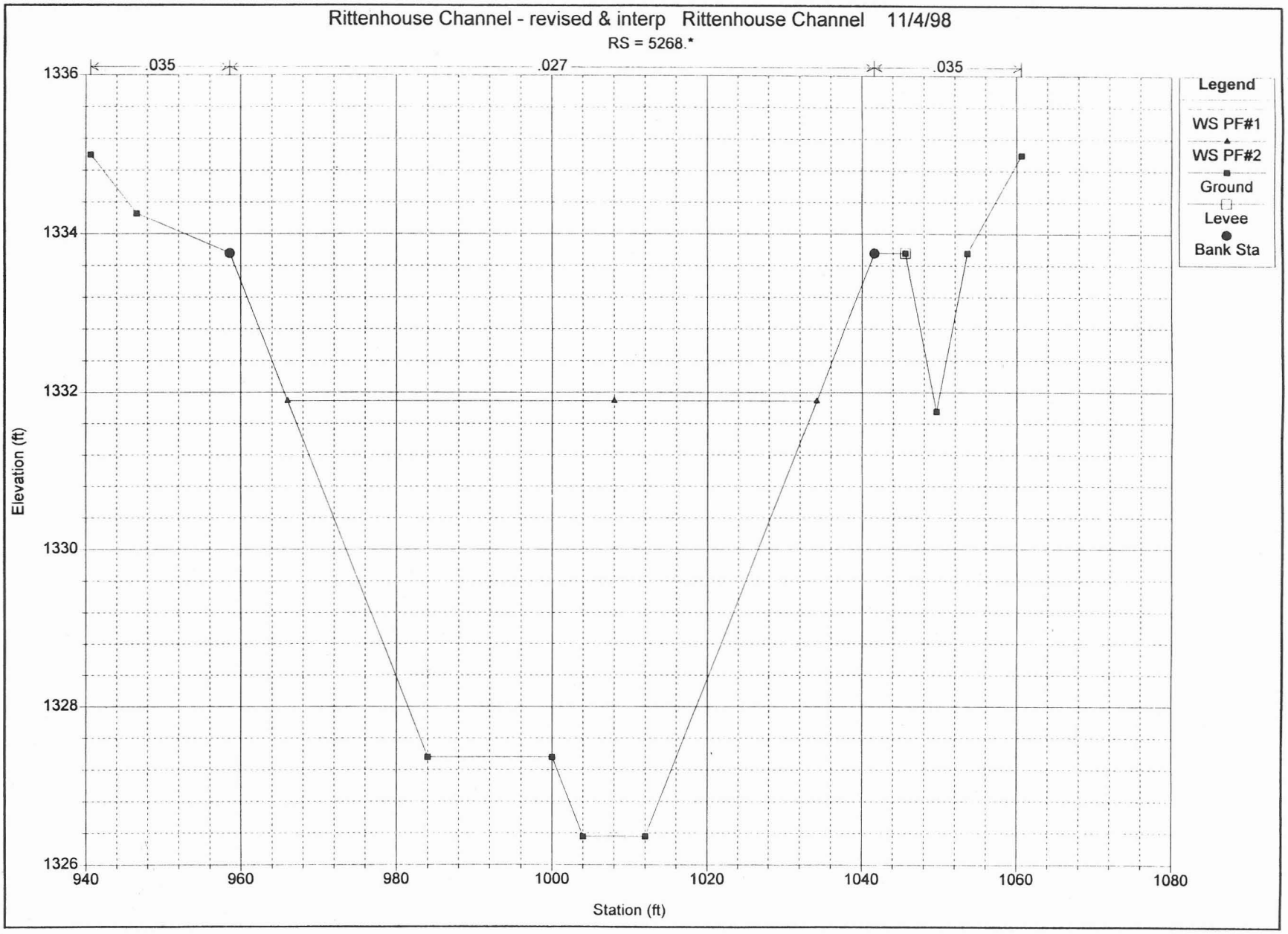

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 4931.32*
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
Station (ft)
1336
1334
1332
1330
1328
1326
900
950
1000
1050
1100
1150
1200
1250
1300

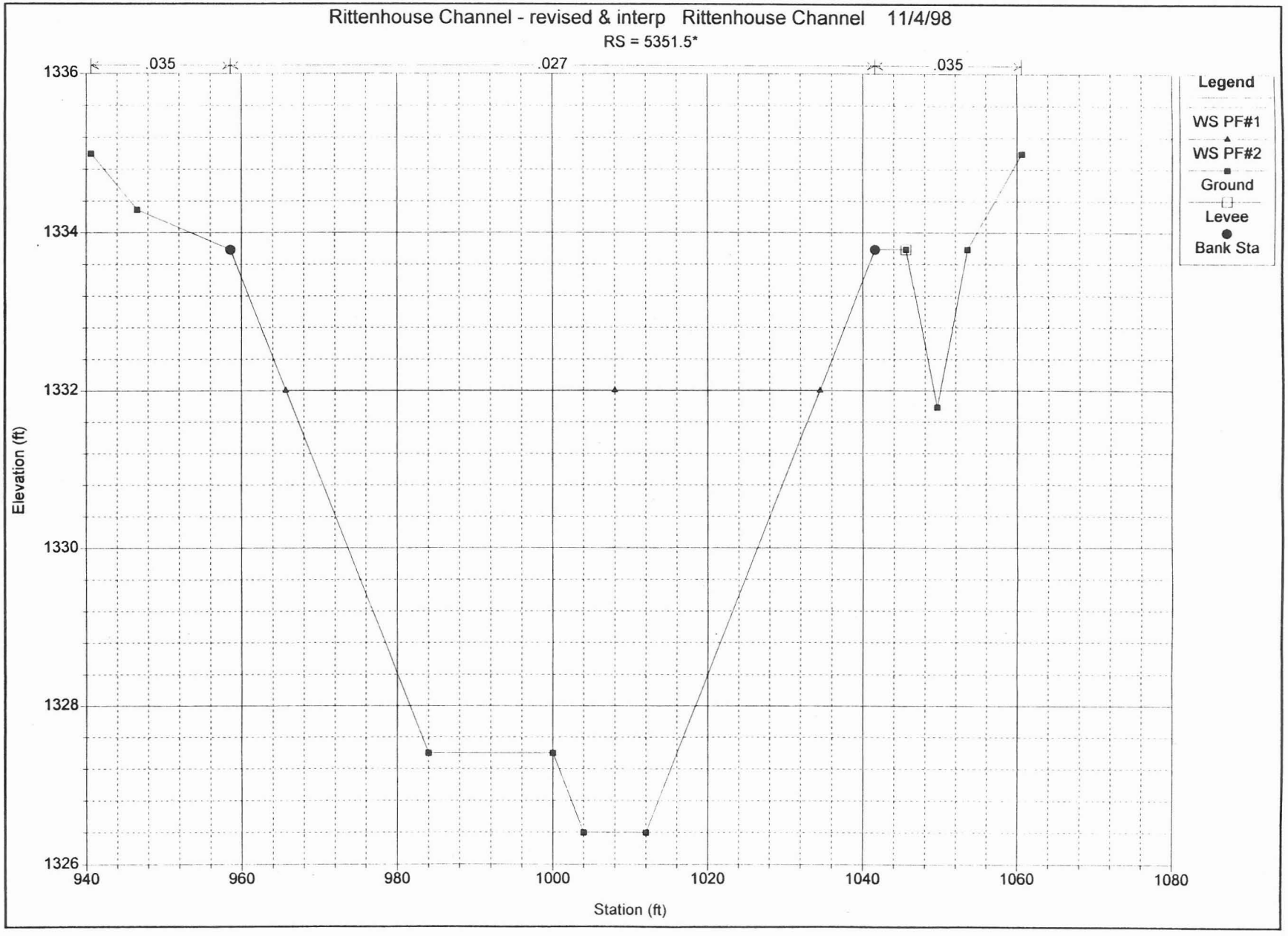

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Cross-Section 5000 RS = 5000
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
900
950
1000
1050
1100
1150
1200
Station (ft)

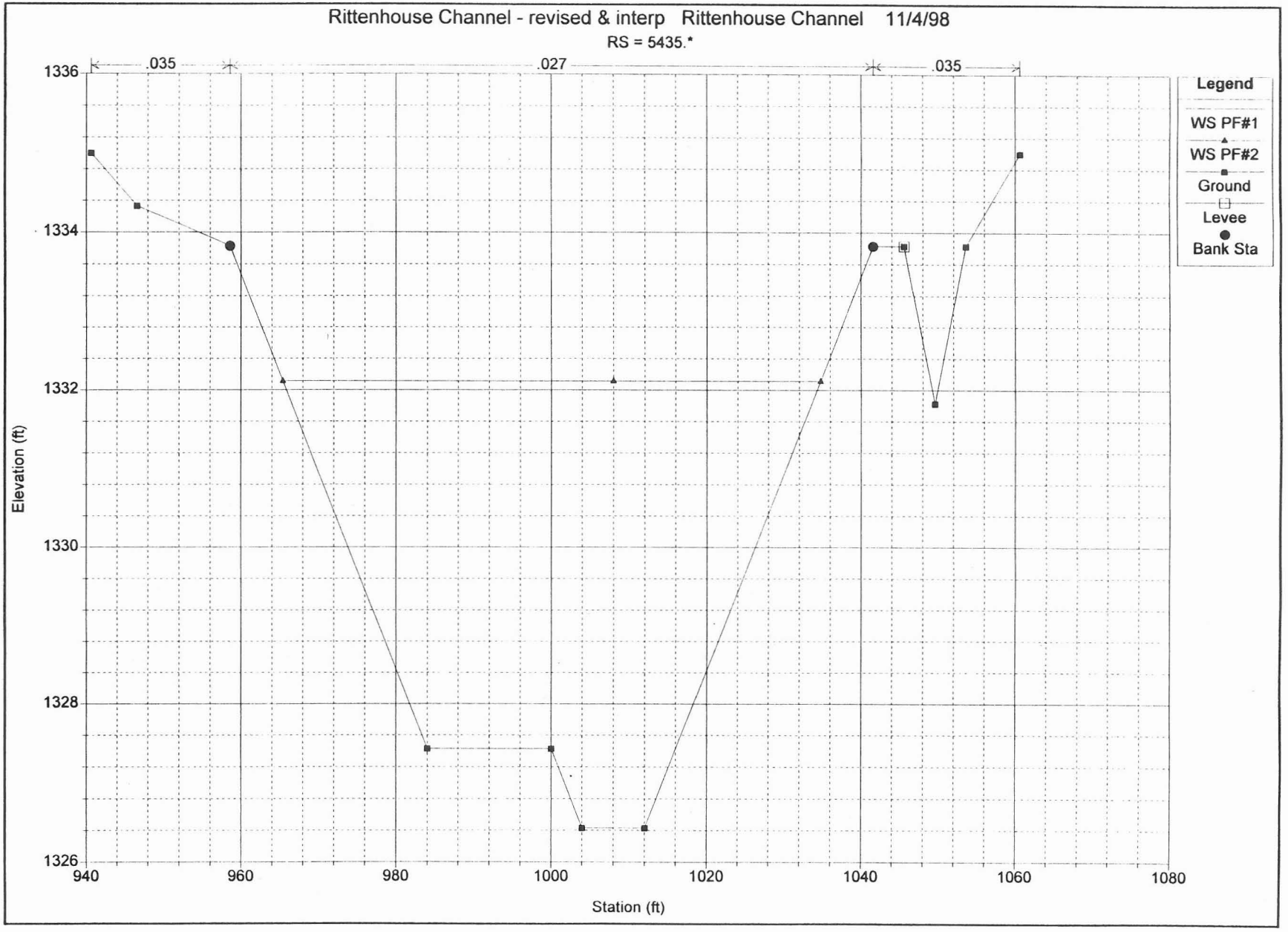

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of Reach 3 RS = 5100
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
1336
1334
1332
1330
1328
1326
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)

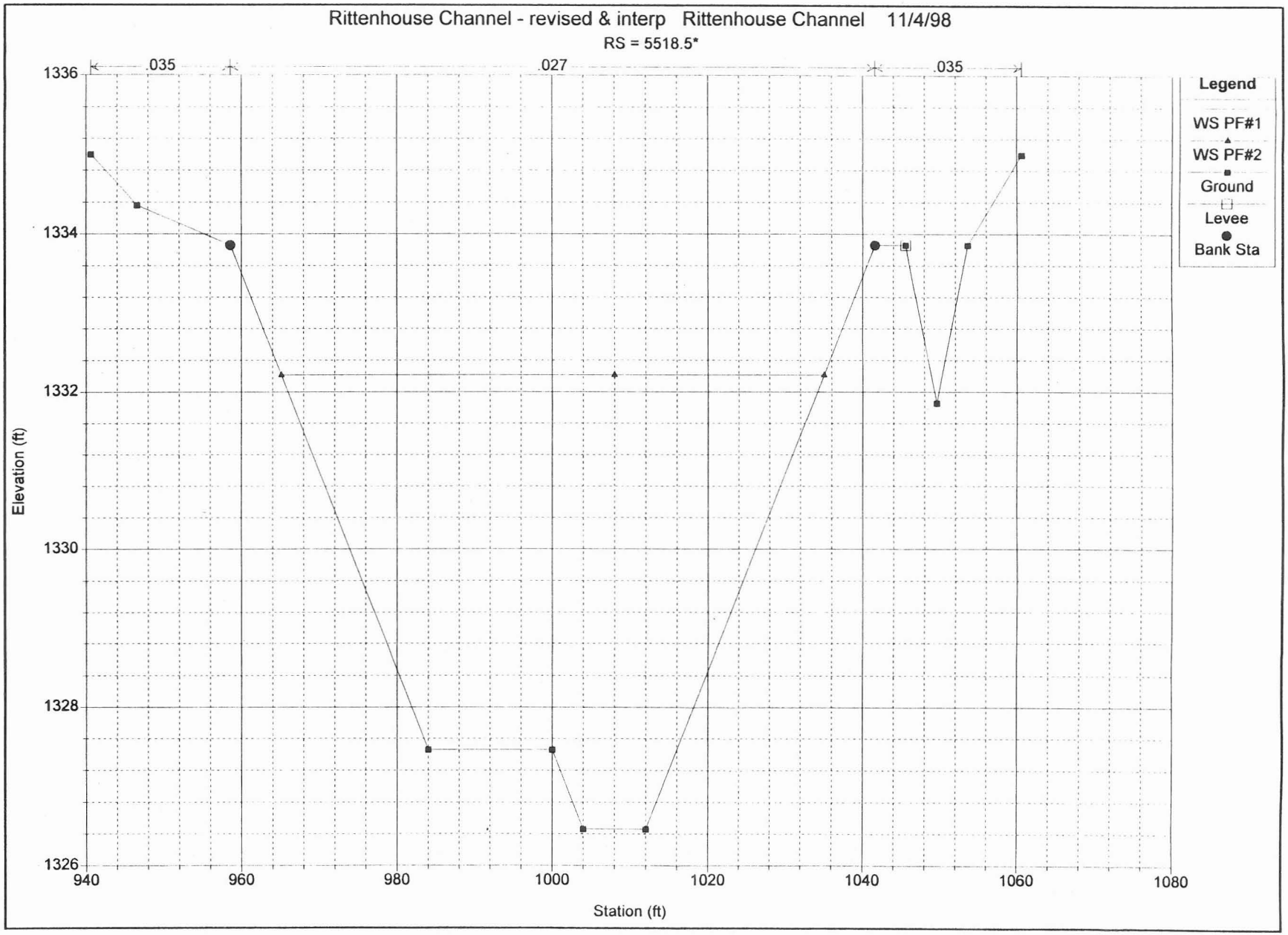

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Beginning of Reach 4 RS = 5101
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
940
960
980
1000
1020
1040
1060
1080
Station (ft)

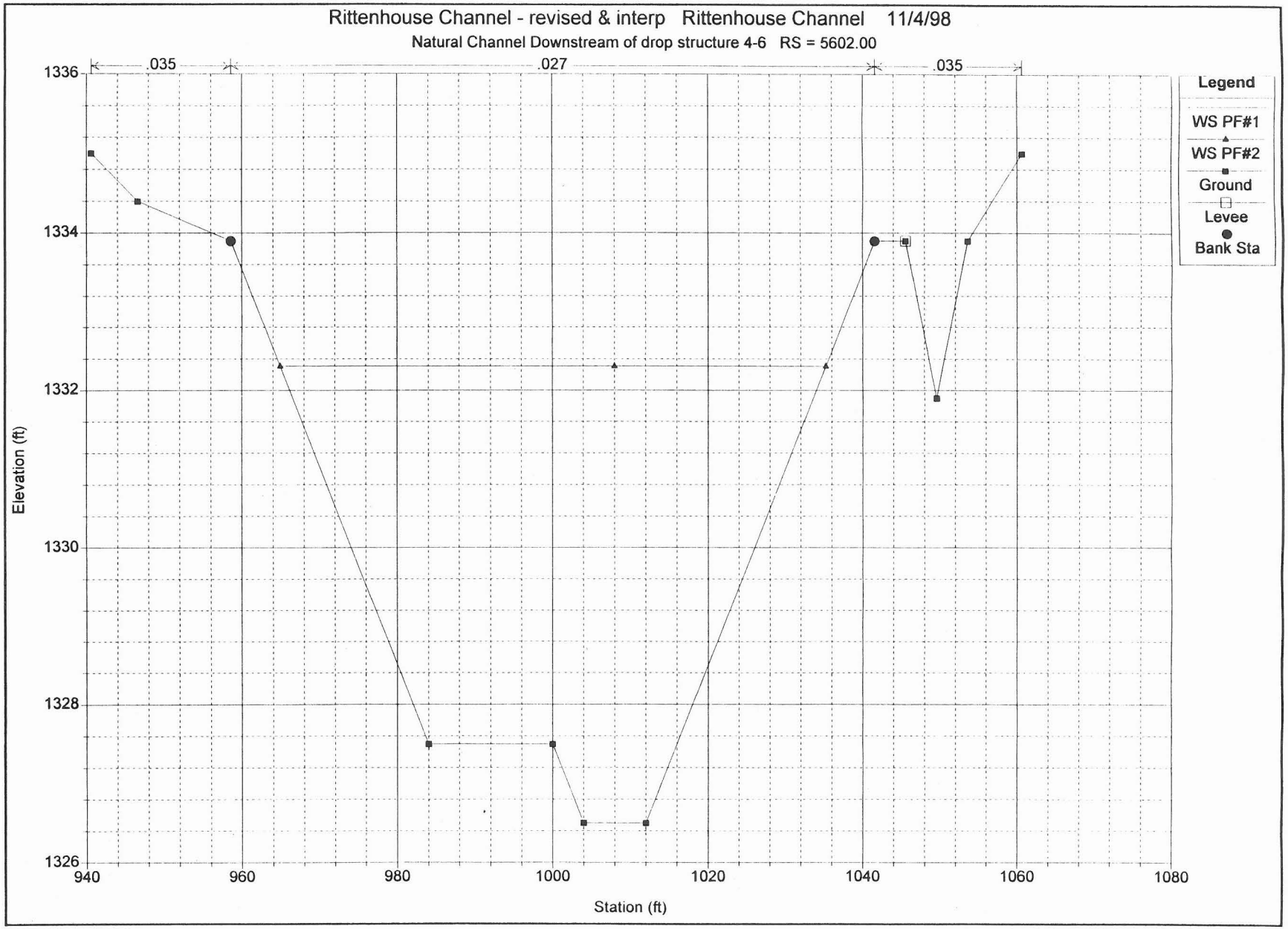

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 5184.5*
.035
.027
.035
1336
1334
1332
1330
1328
1326
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

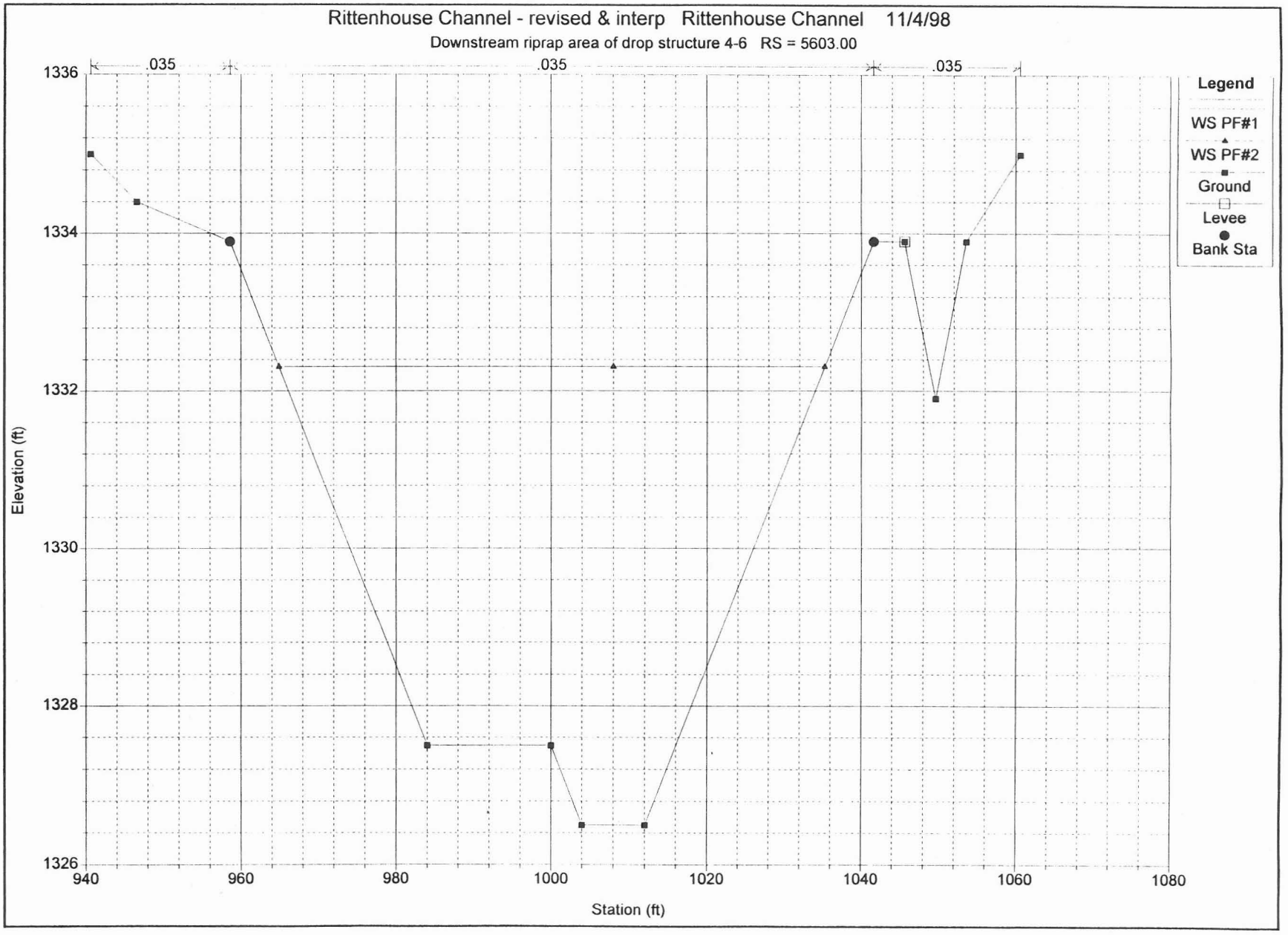

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 5268.*
.035
.027
.035
1336
1334
1332
1330
1328
1326
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

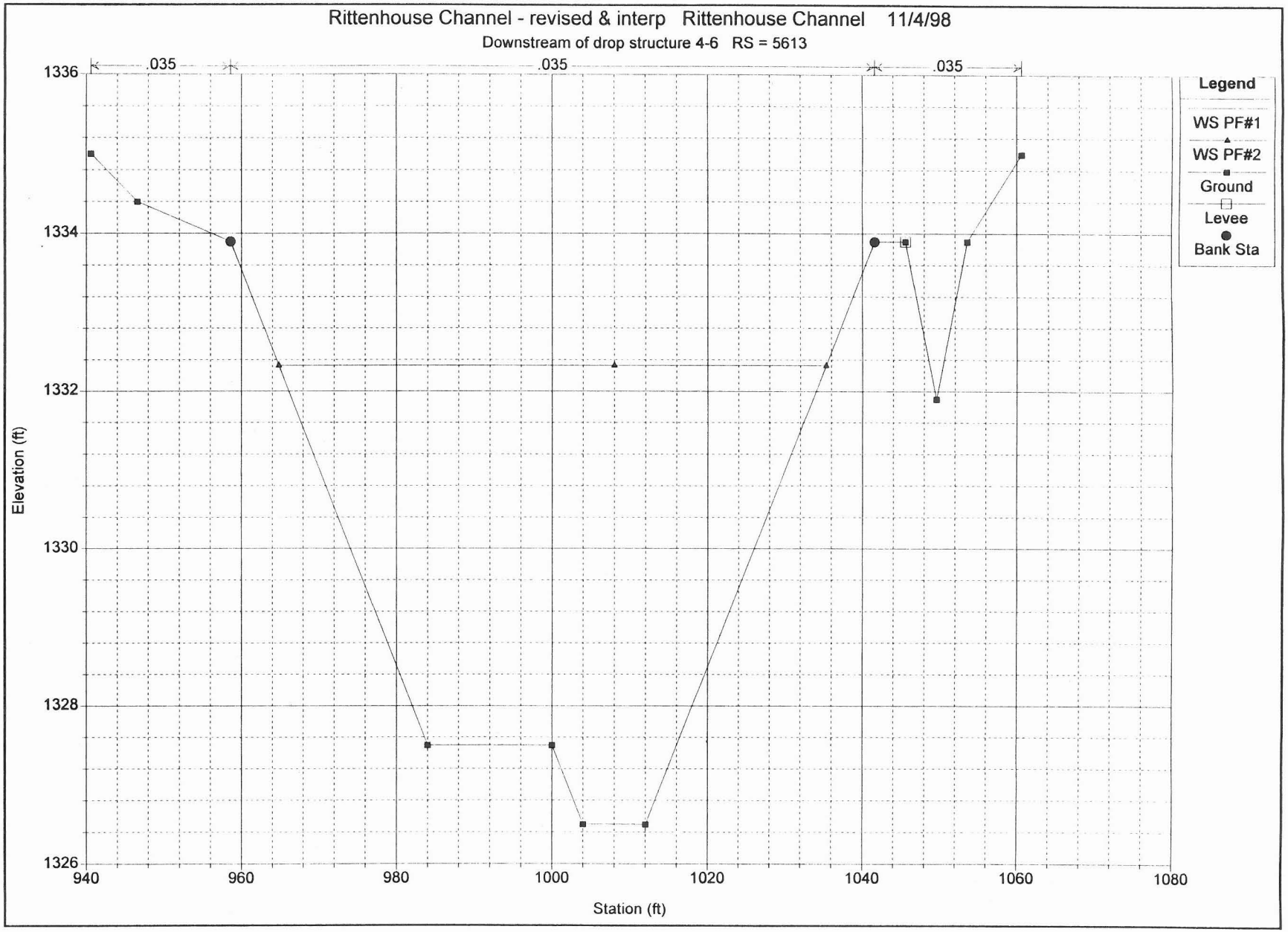

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 5351.5*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
940
960
980
1000
1020
1040
1060
1080
Station (ft)

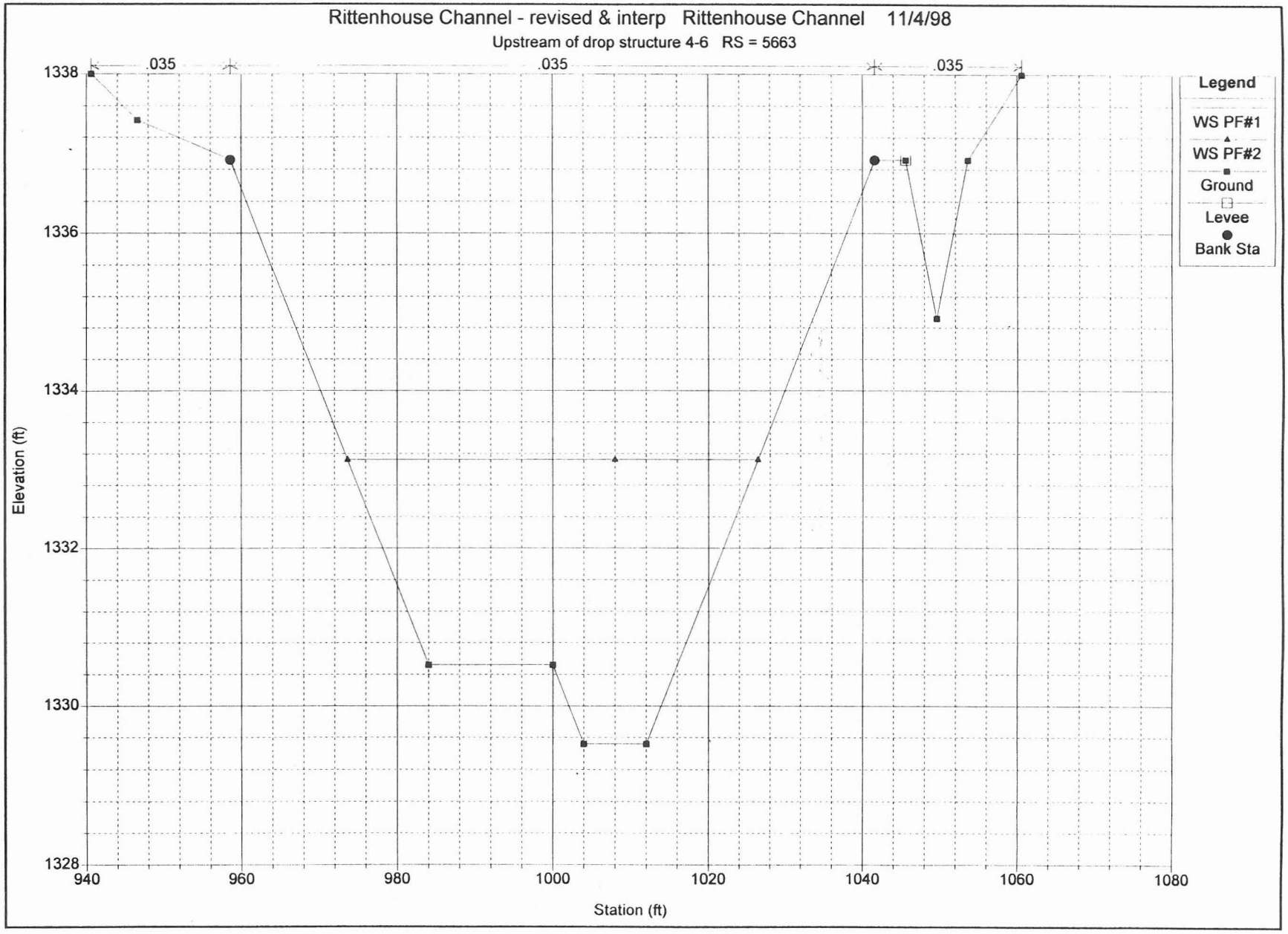

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 5435.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
940
960
980
1000
1020
1040
1060
1080
Station (ft)

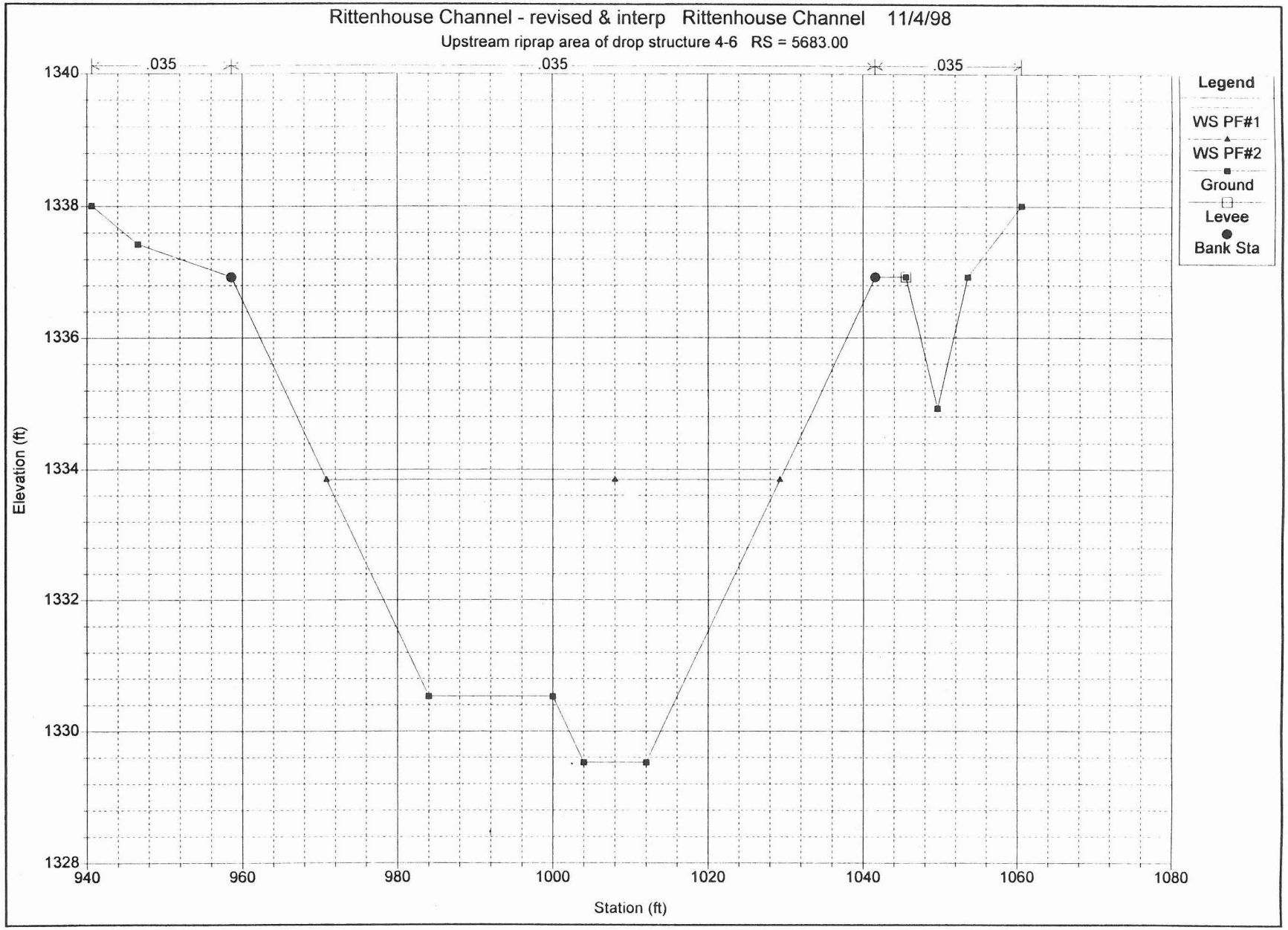

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 5518.5*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
940
960
980
1000
1020
1040
1060
1080
Station (ft)

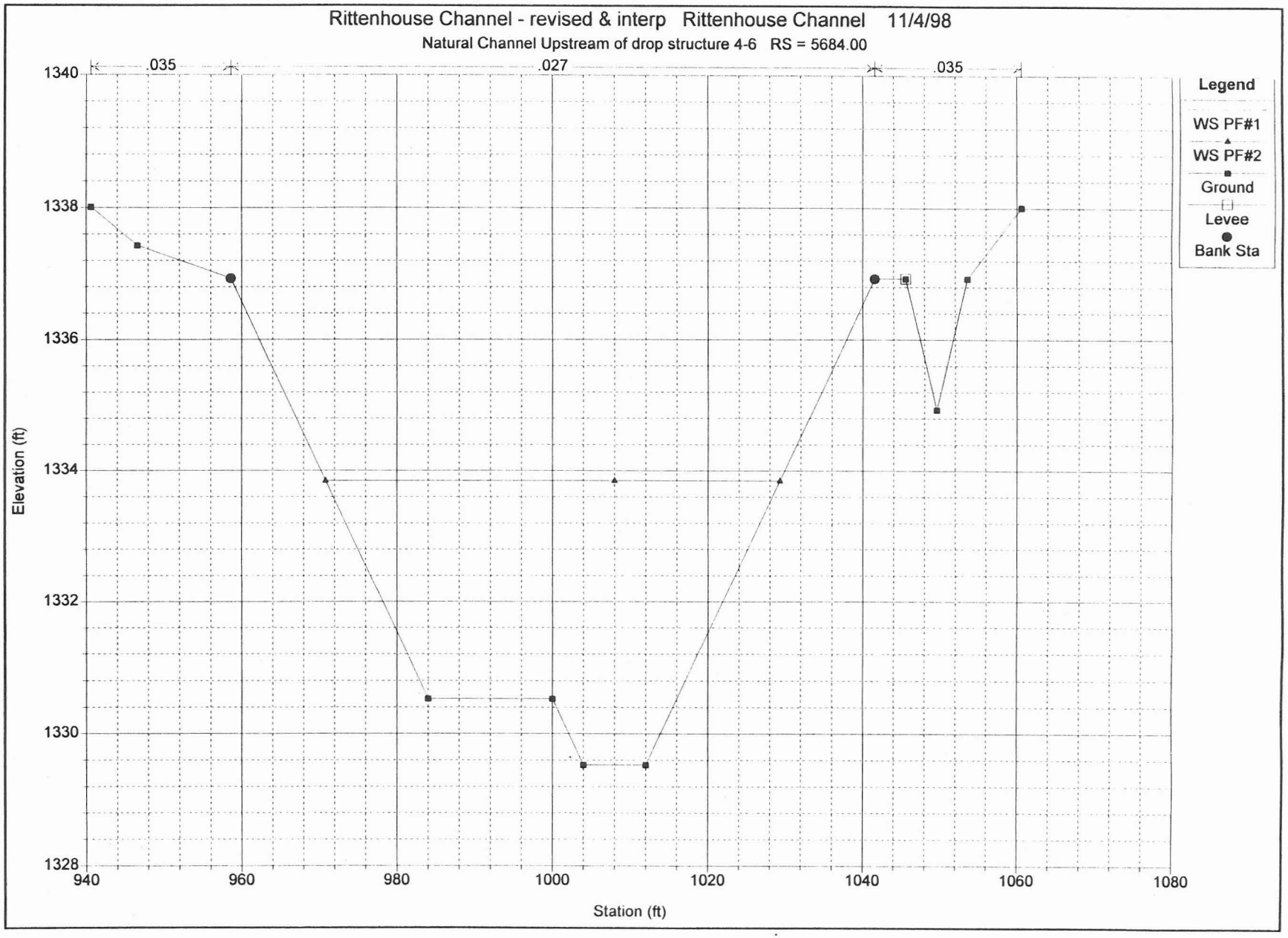

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Downstream of drop structure 4-6 RS = 5602.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
940
960
980
1000
1020
1040
1060
1080
Station (ft)

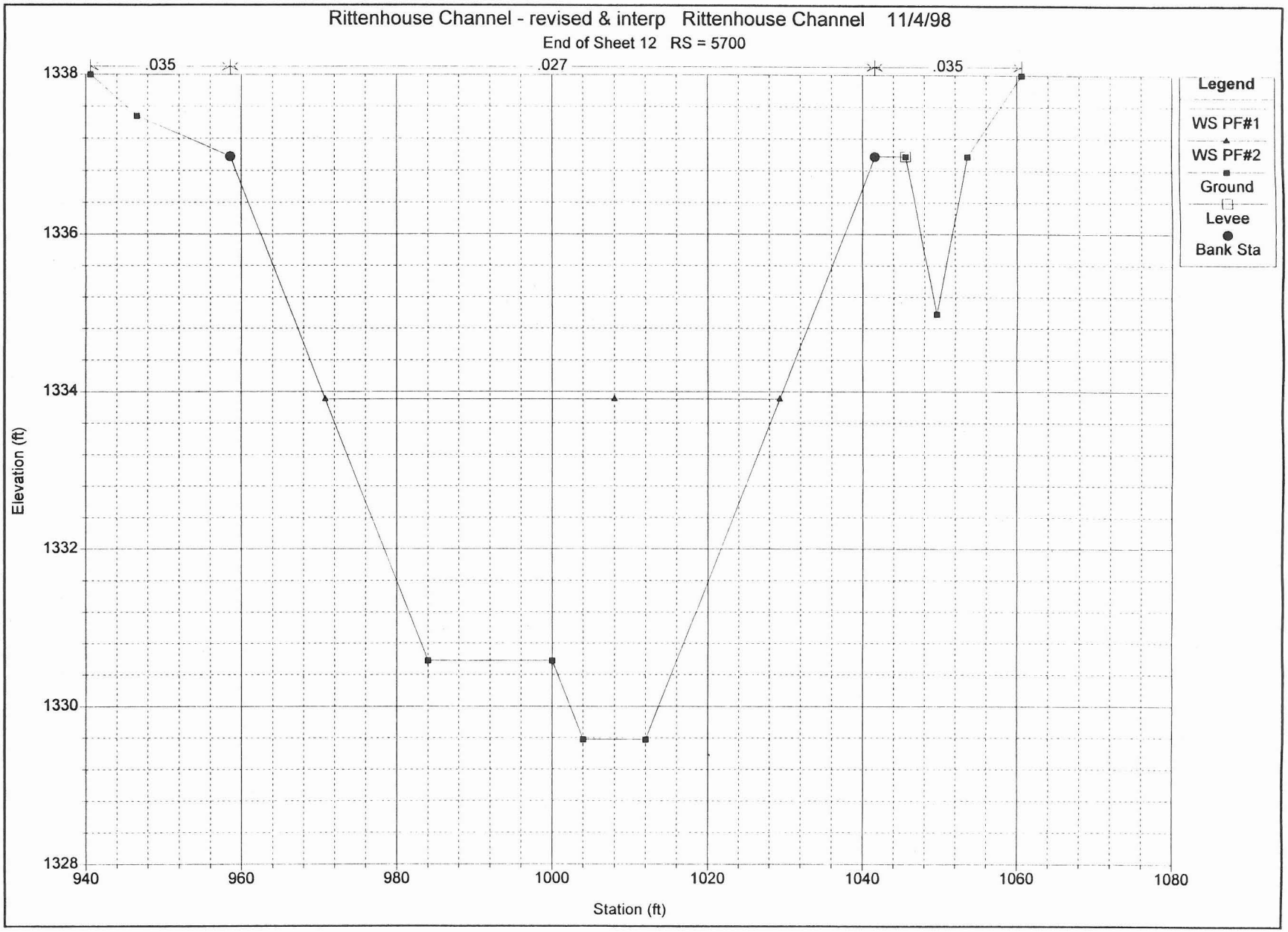

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure 4-6 RS = 5603.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
940
960
980
1000
1020
1040
1060
1080
Station (ft)

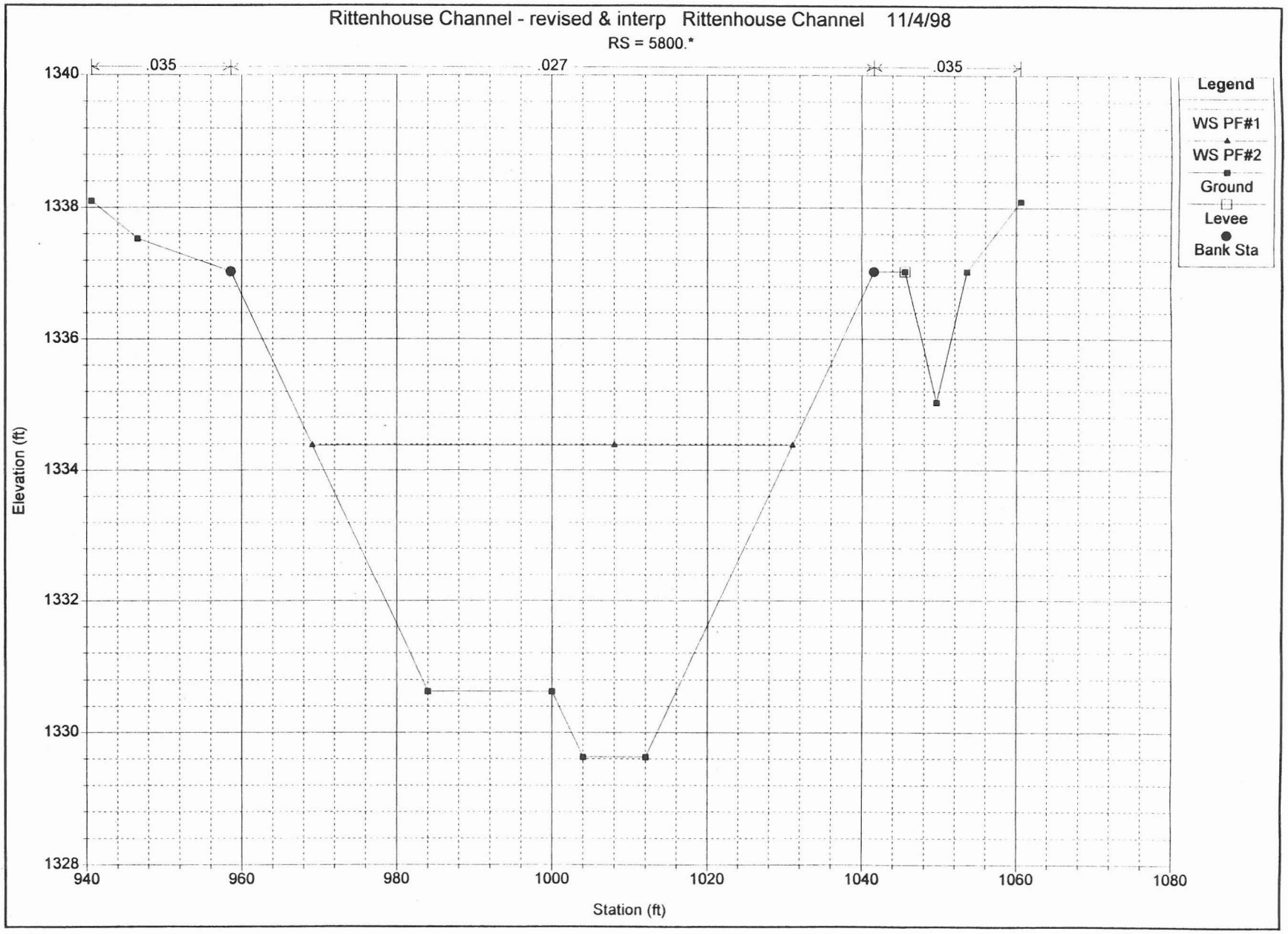

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of drop structure 4-6 RS = 5613
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
940
960
980
1000
1020
1040
1060
1080
Station (ft)

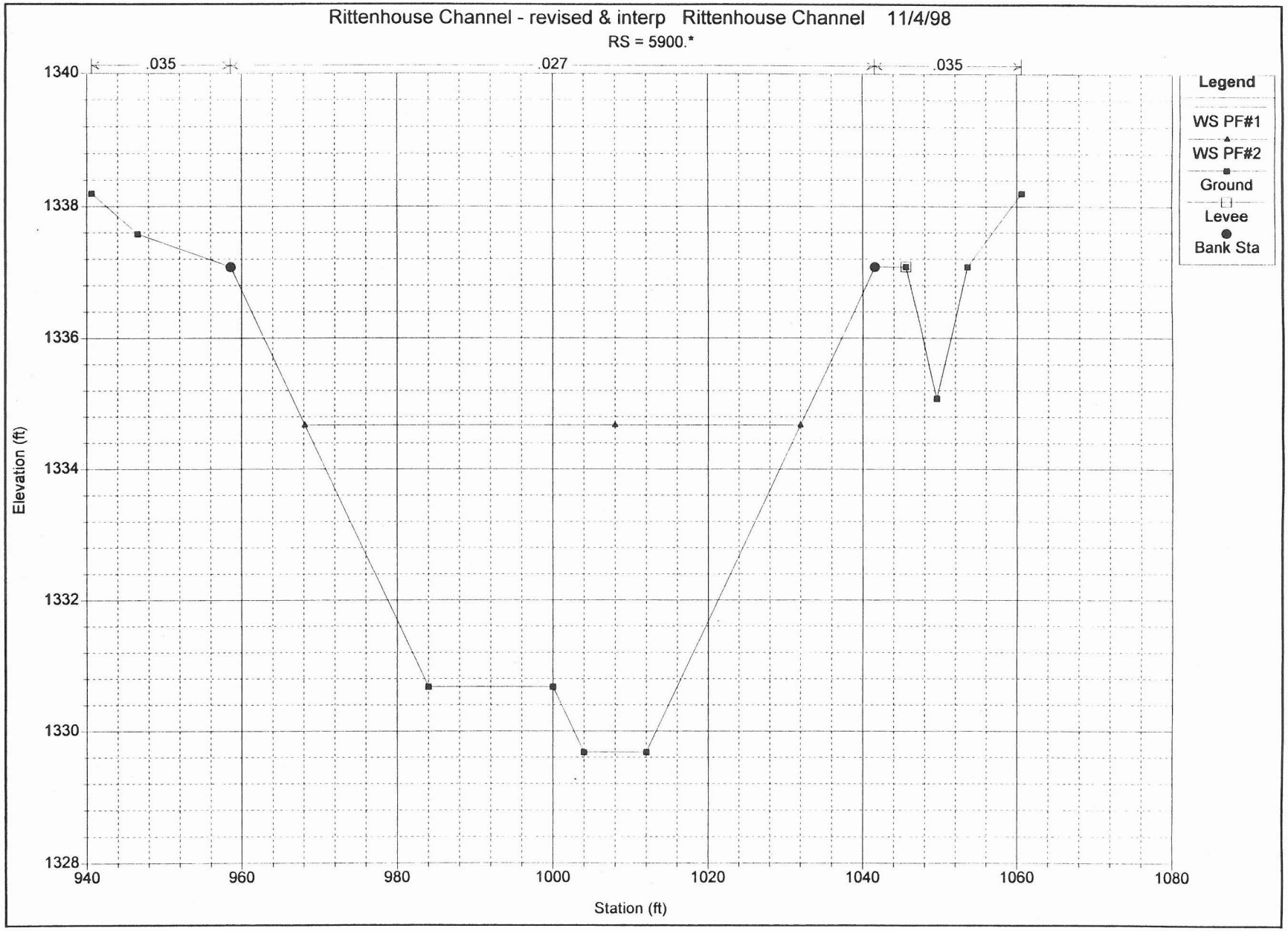

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure 4-6 RS = 5663
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

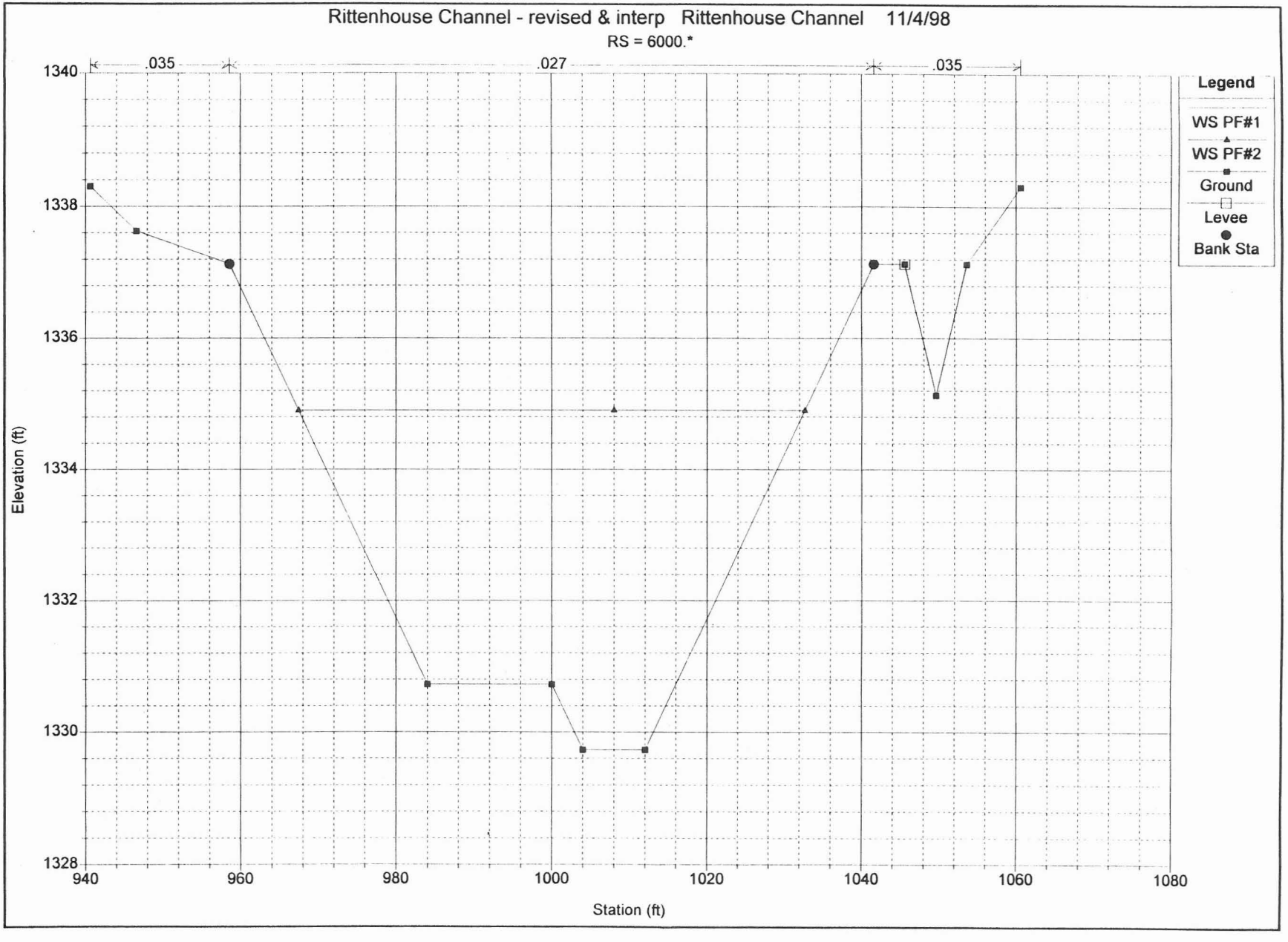

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure 4-6 RS = 5683.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

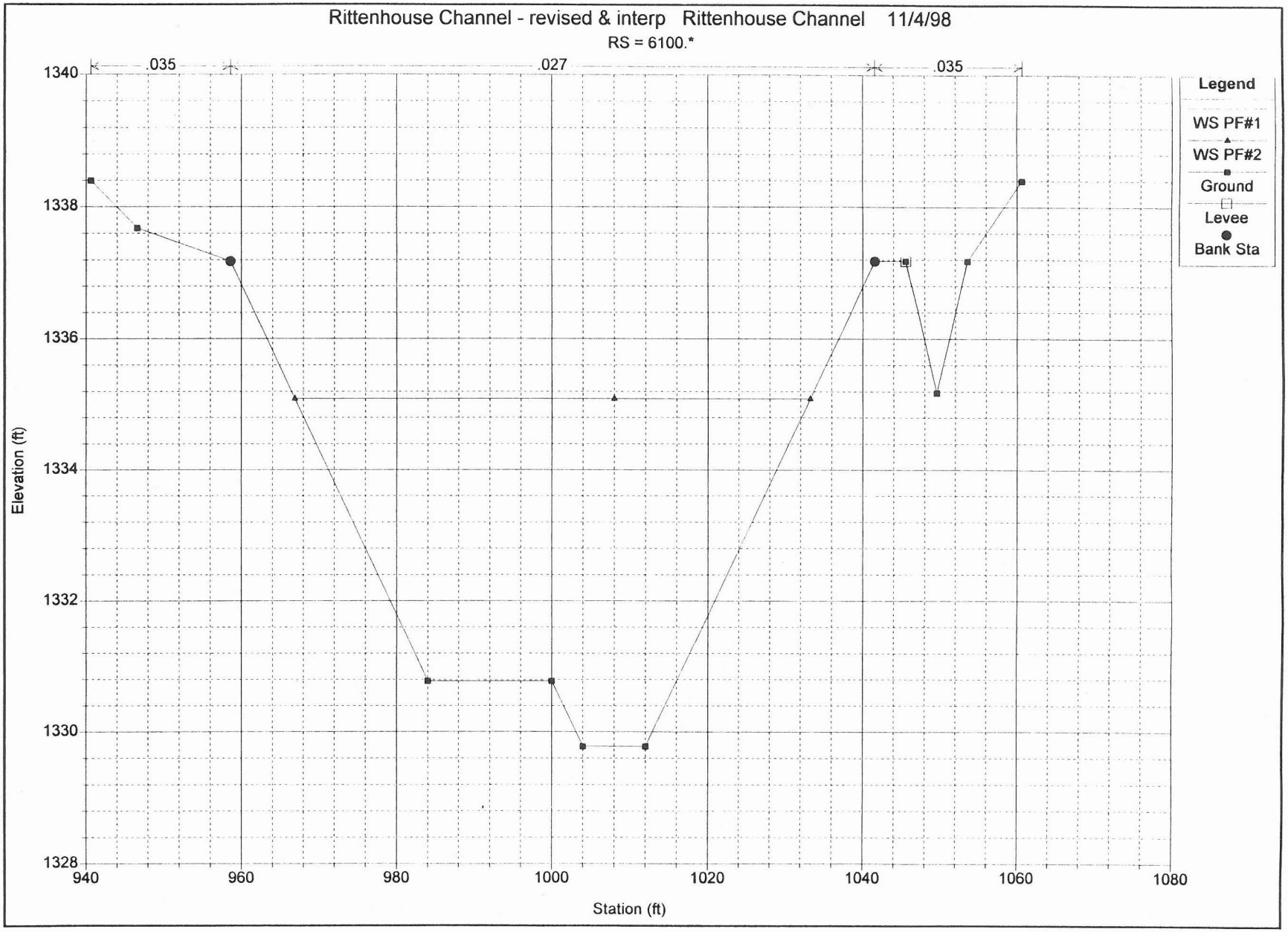

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of drop structure 4-6 RS = 5684.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

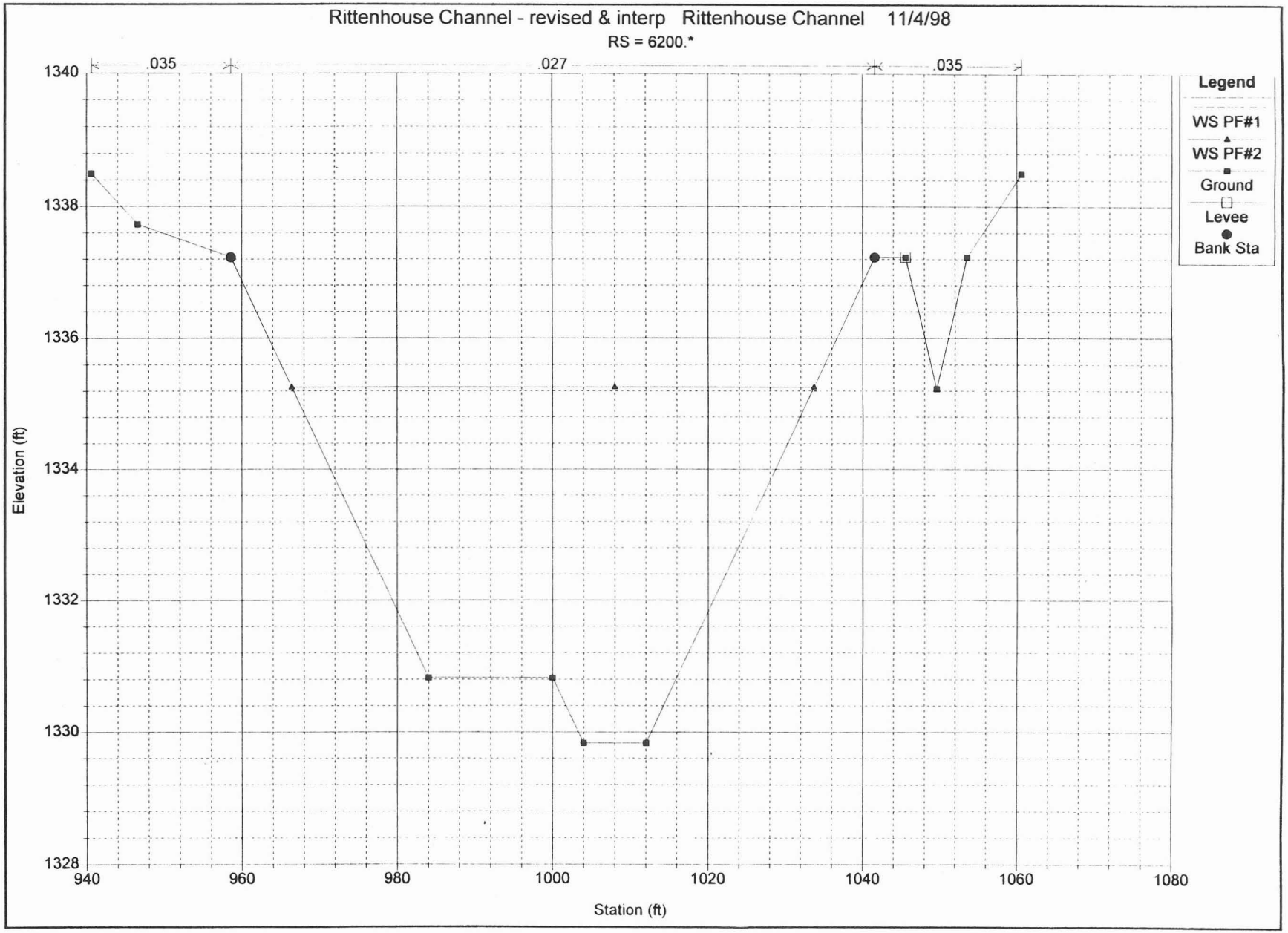

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of Sheet 12 RS = 5700
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

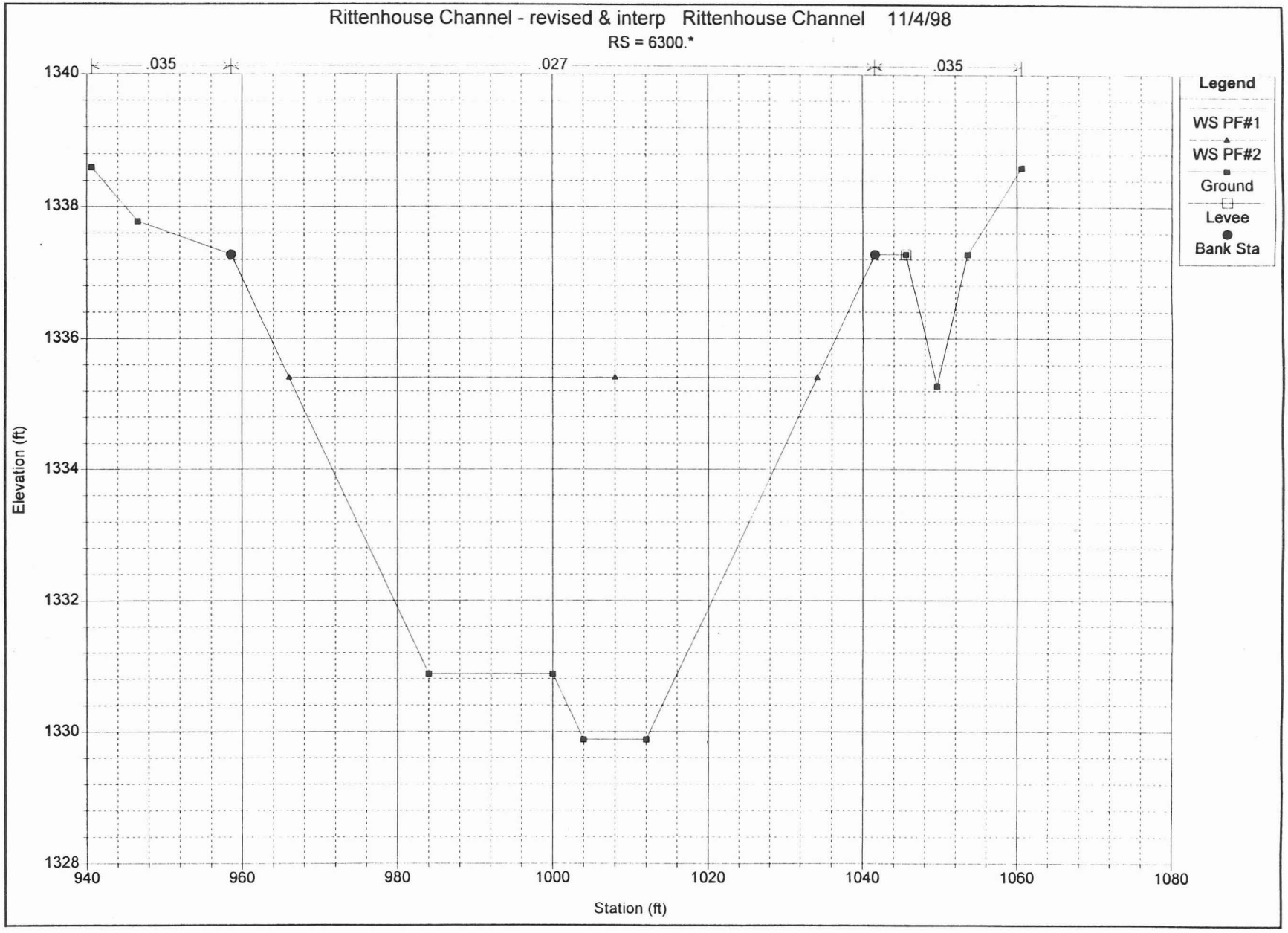

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 5800.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

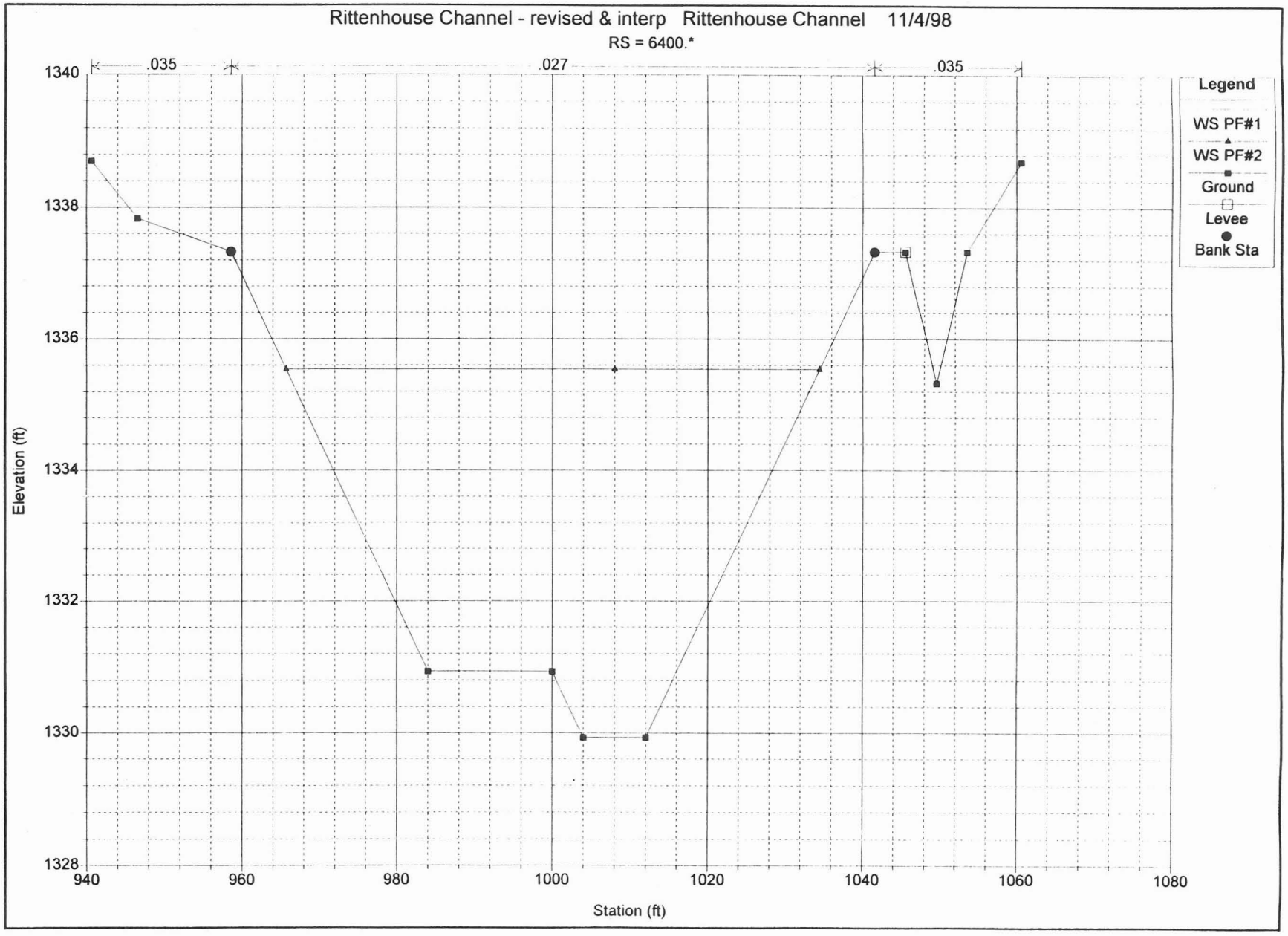

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 5900.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

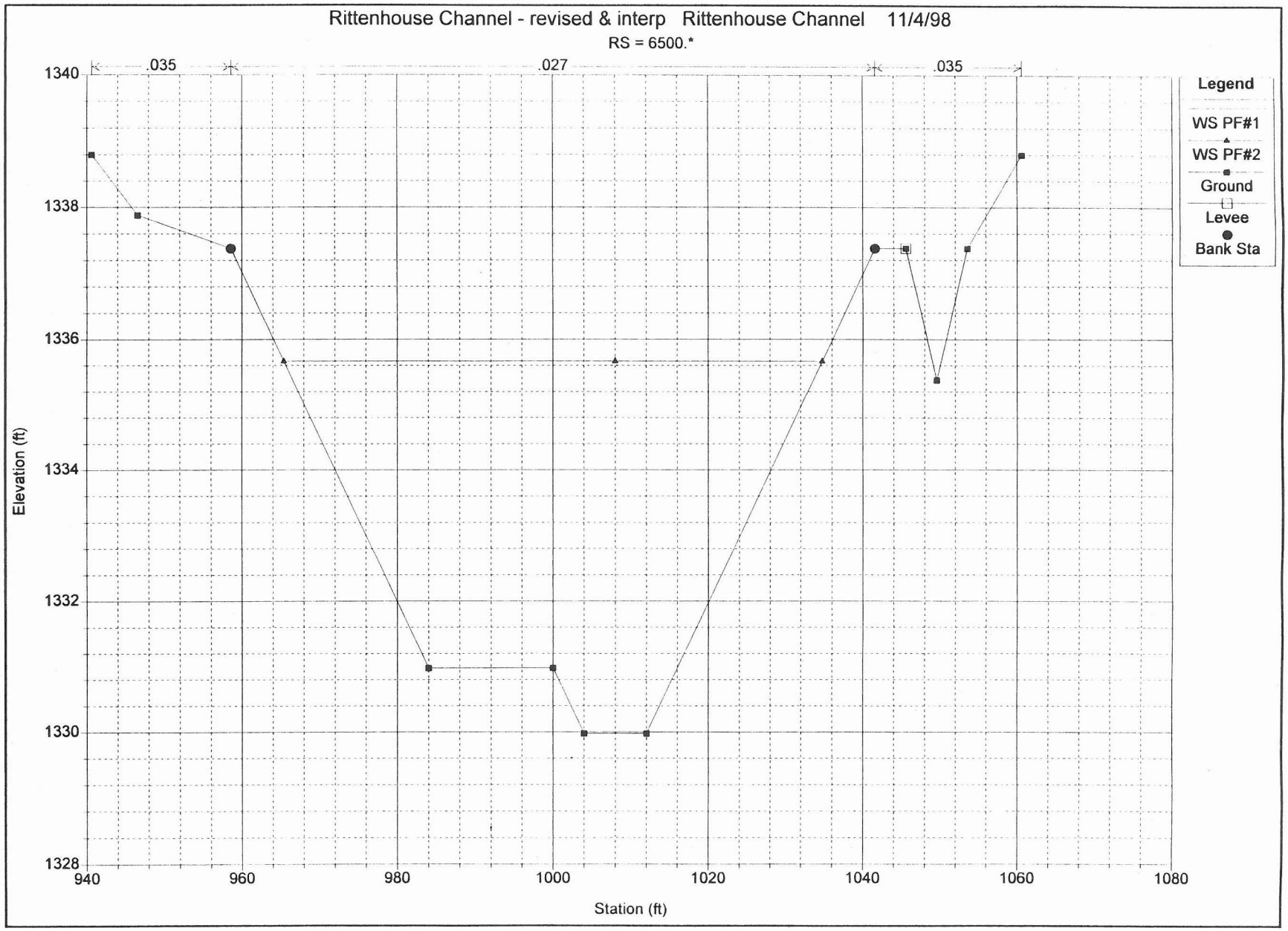

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6000.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

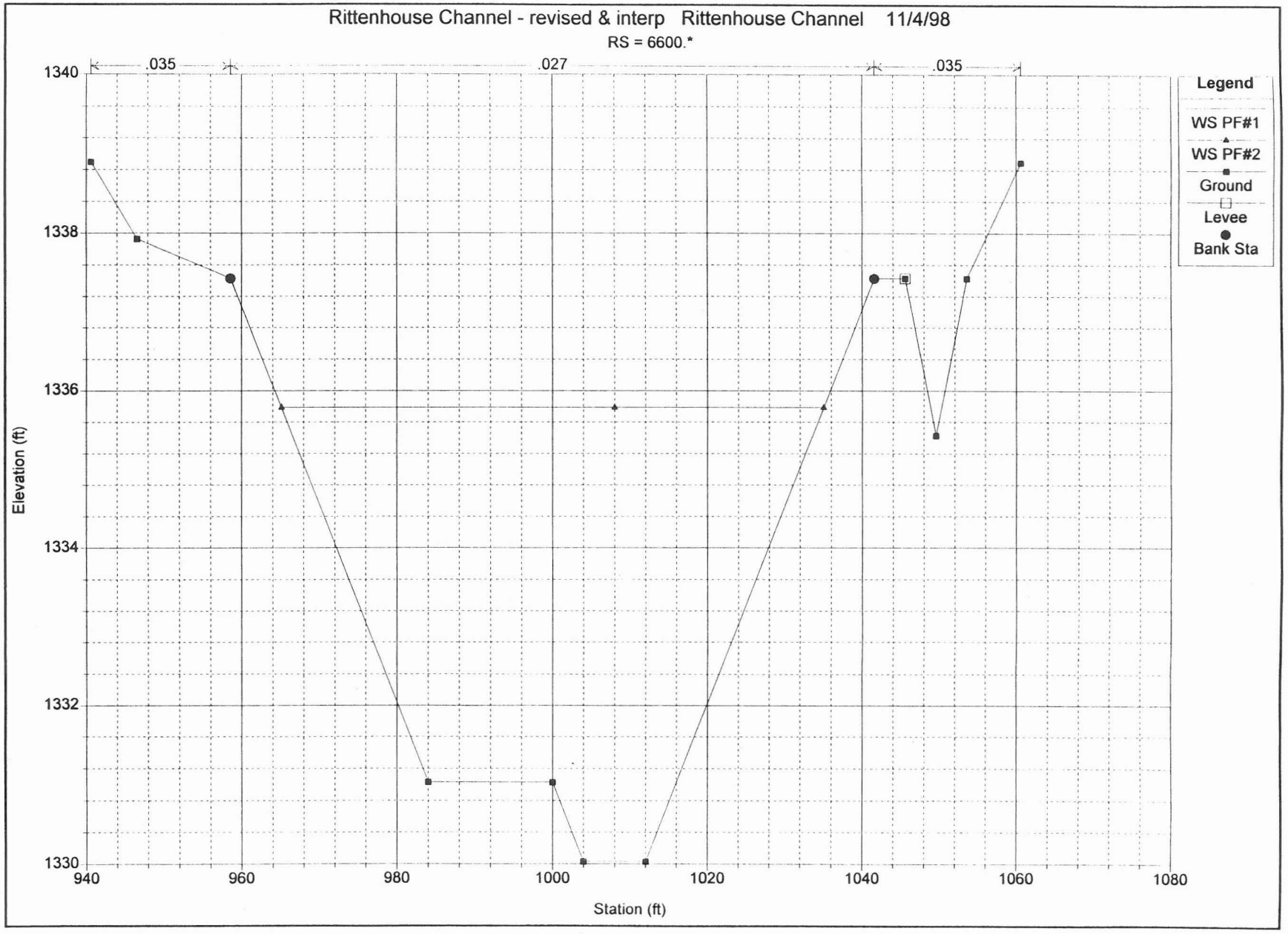

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6100.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

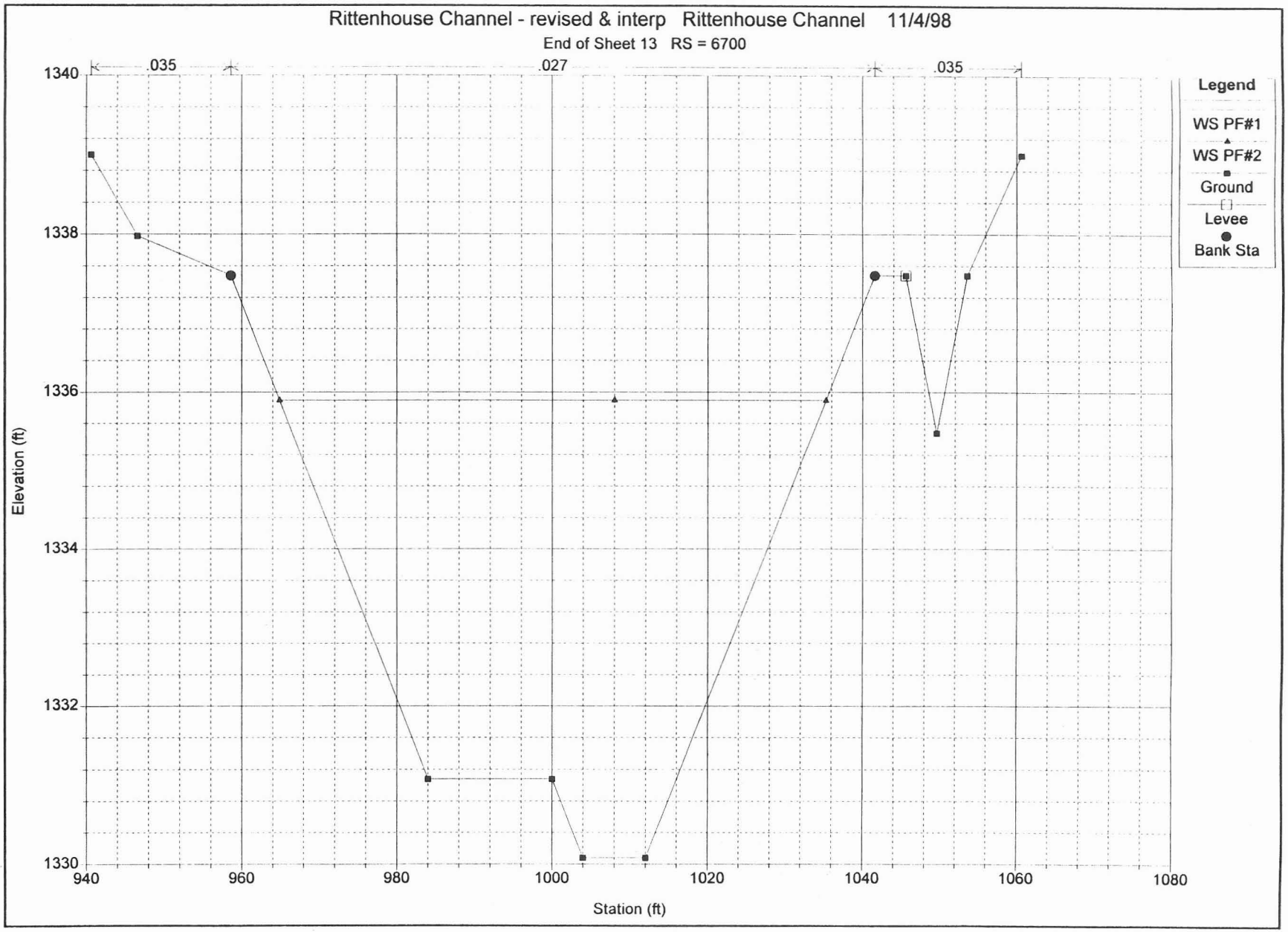

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6200.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

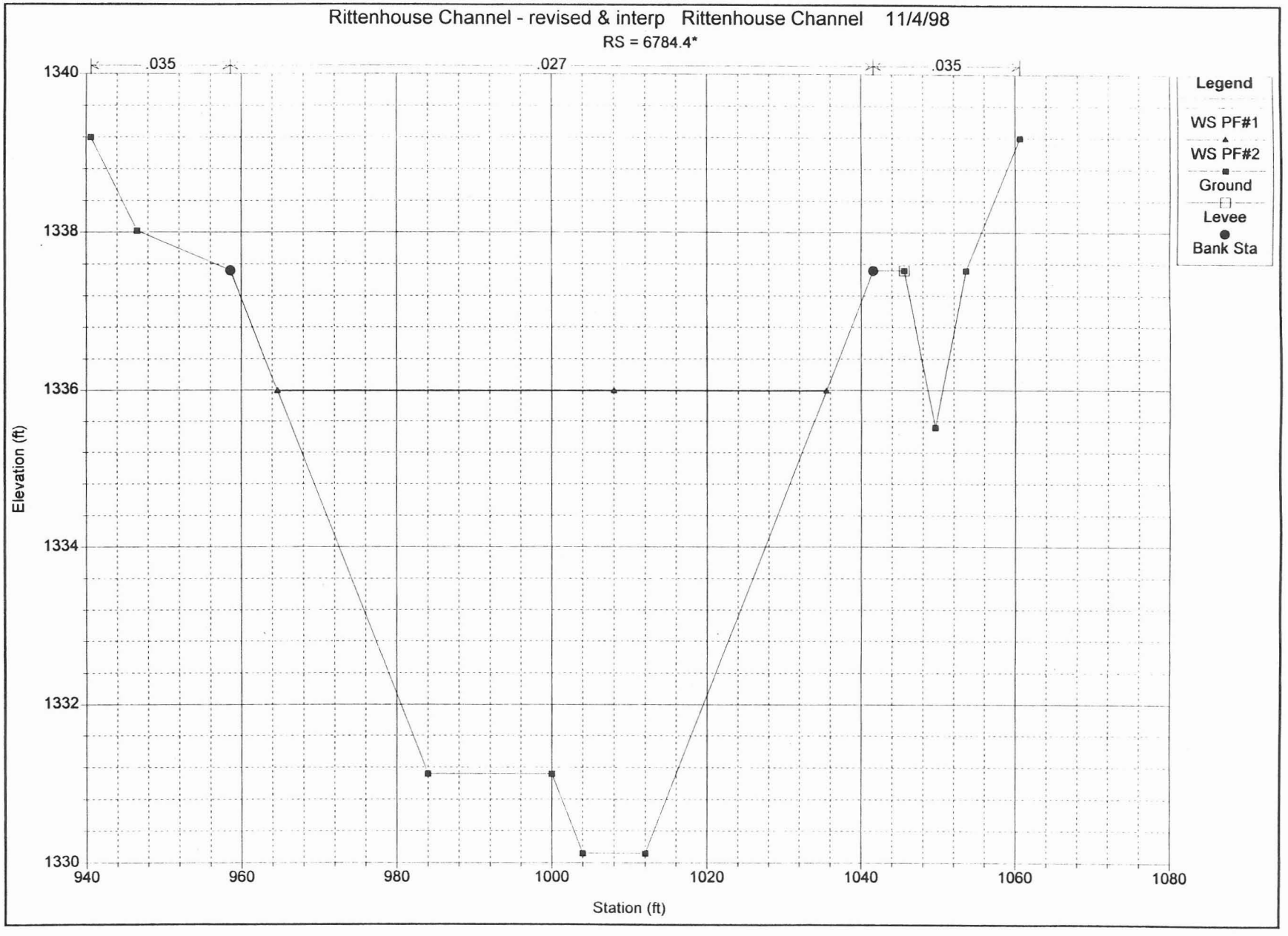

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6300.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

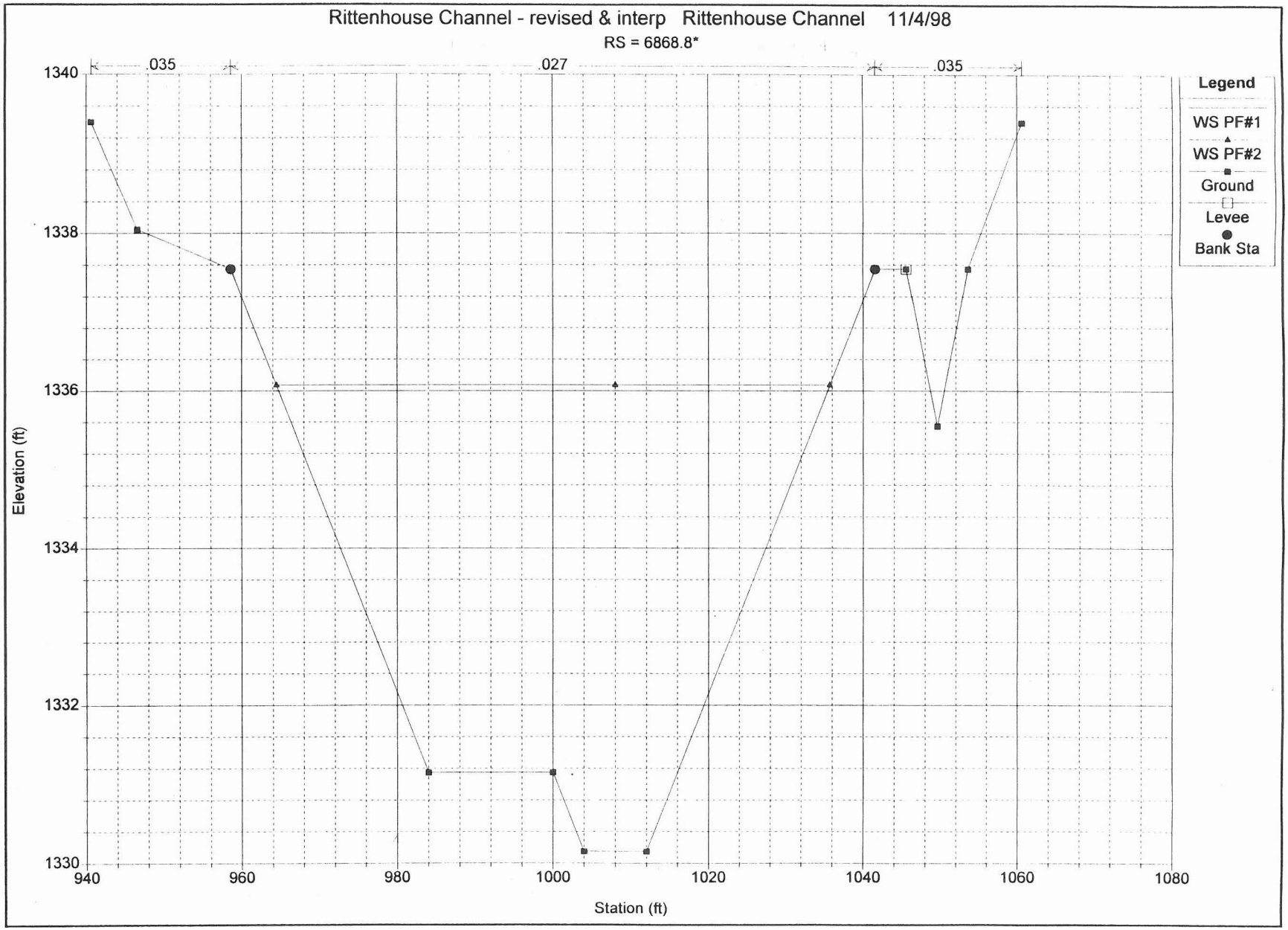

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6400.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

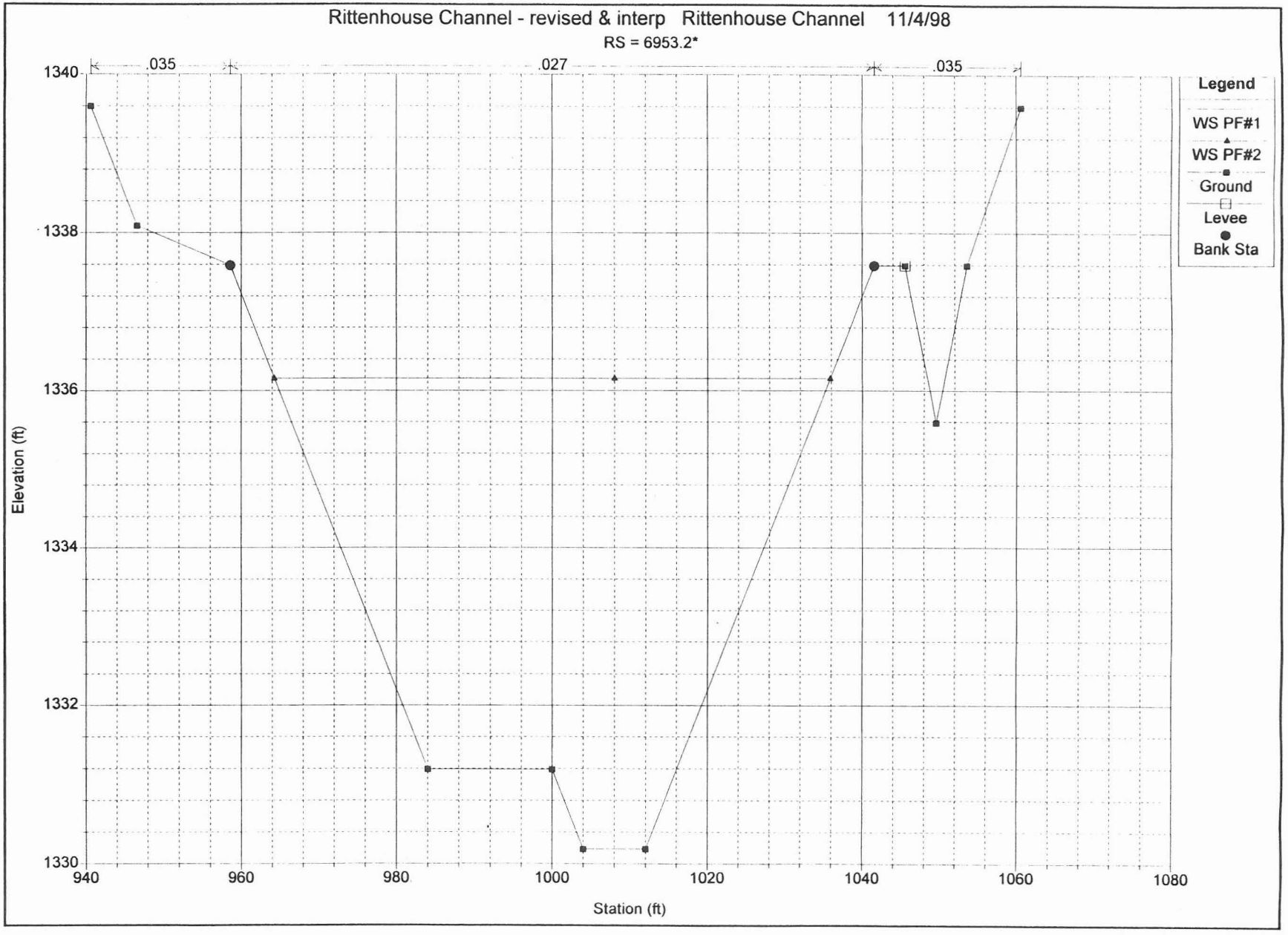

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6500.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
940
960
980
1000
1020
1040
1060
1080
Station (ft)

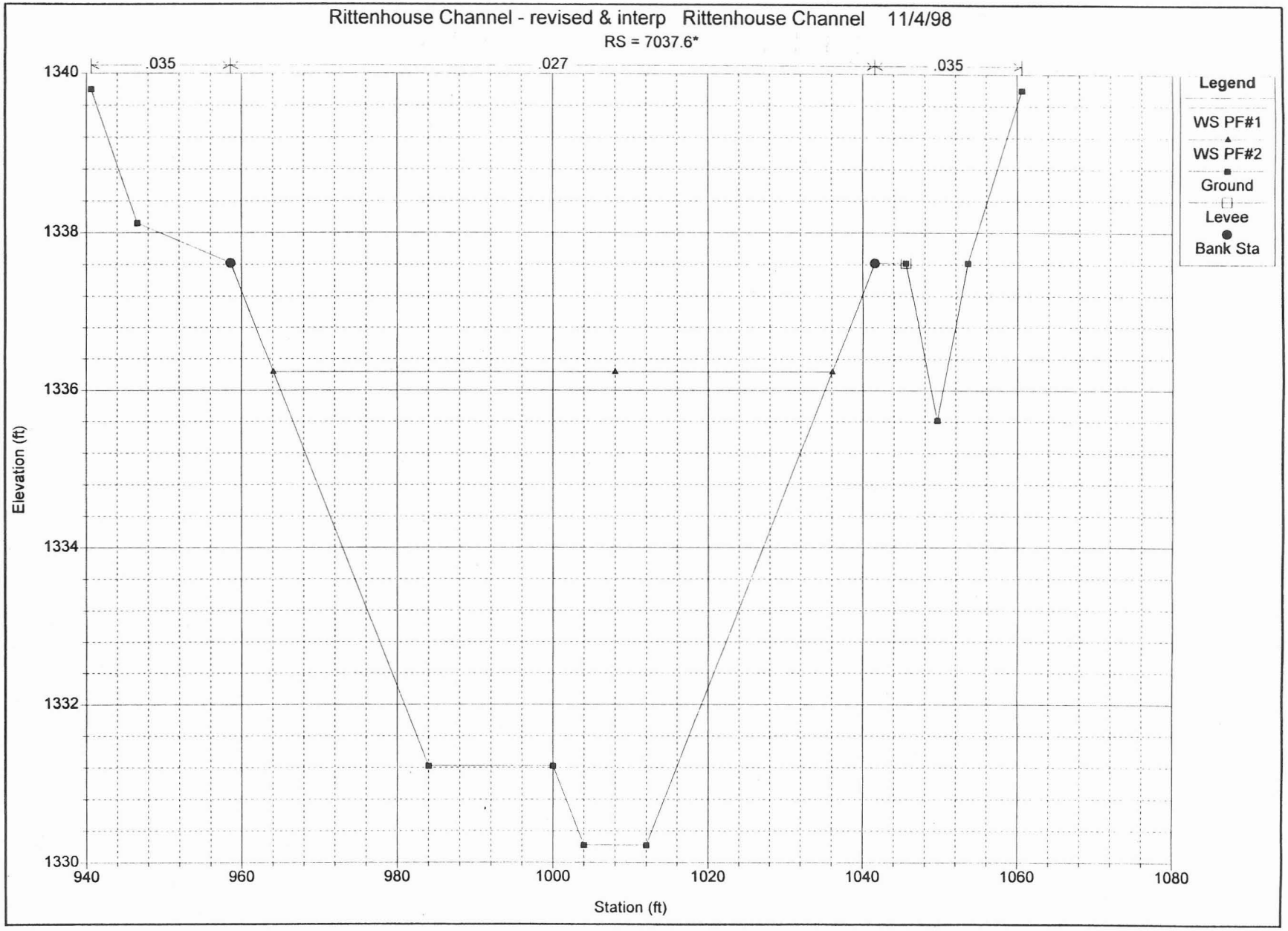

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6600.*
.035
.027
.035
1340
1338
1336
1334
1332
1330
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

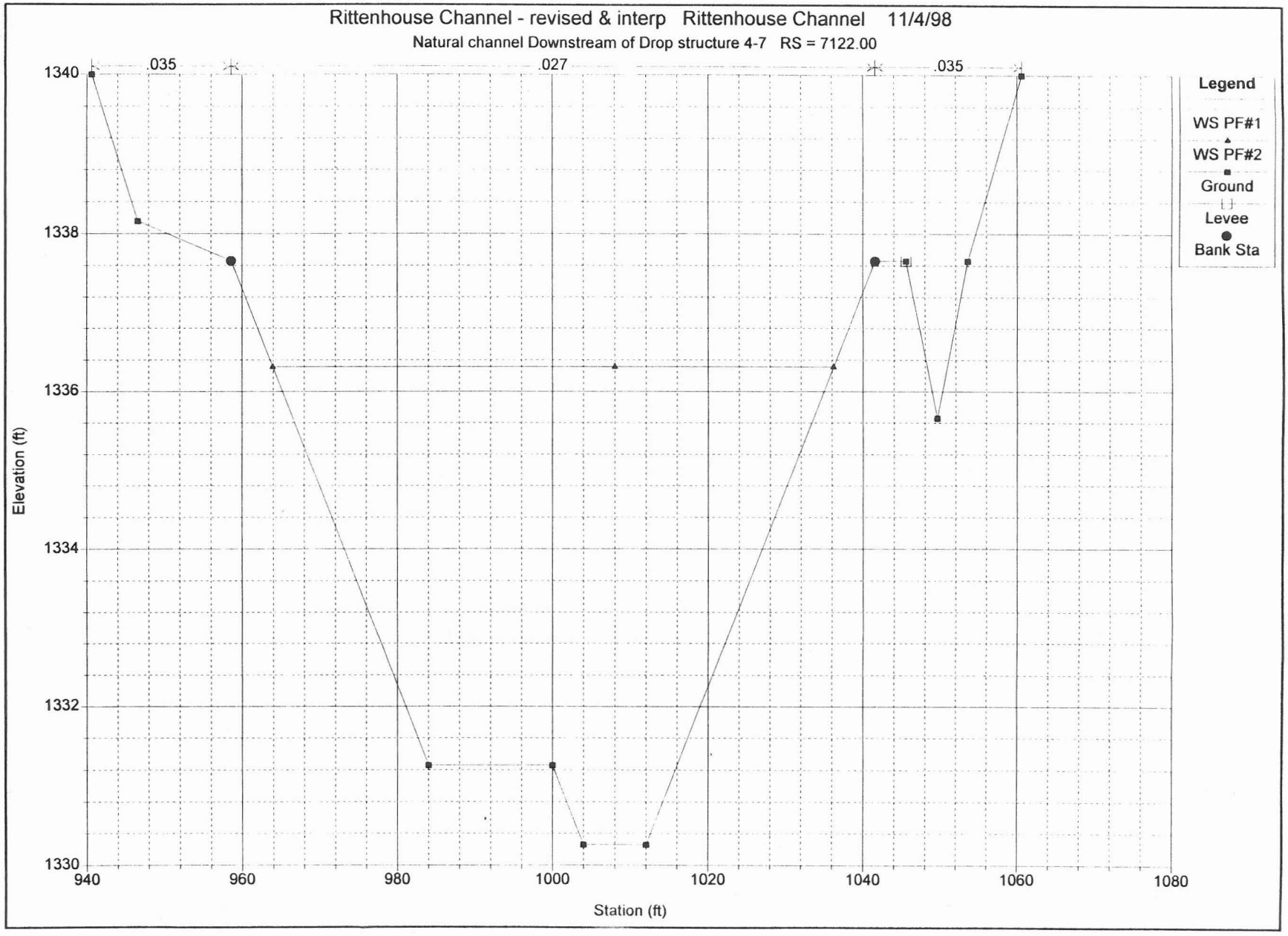

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of Sheet 13 RS = 6700
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

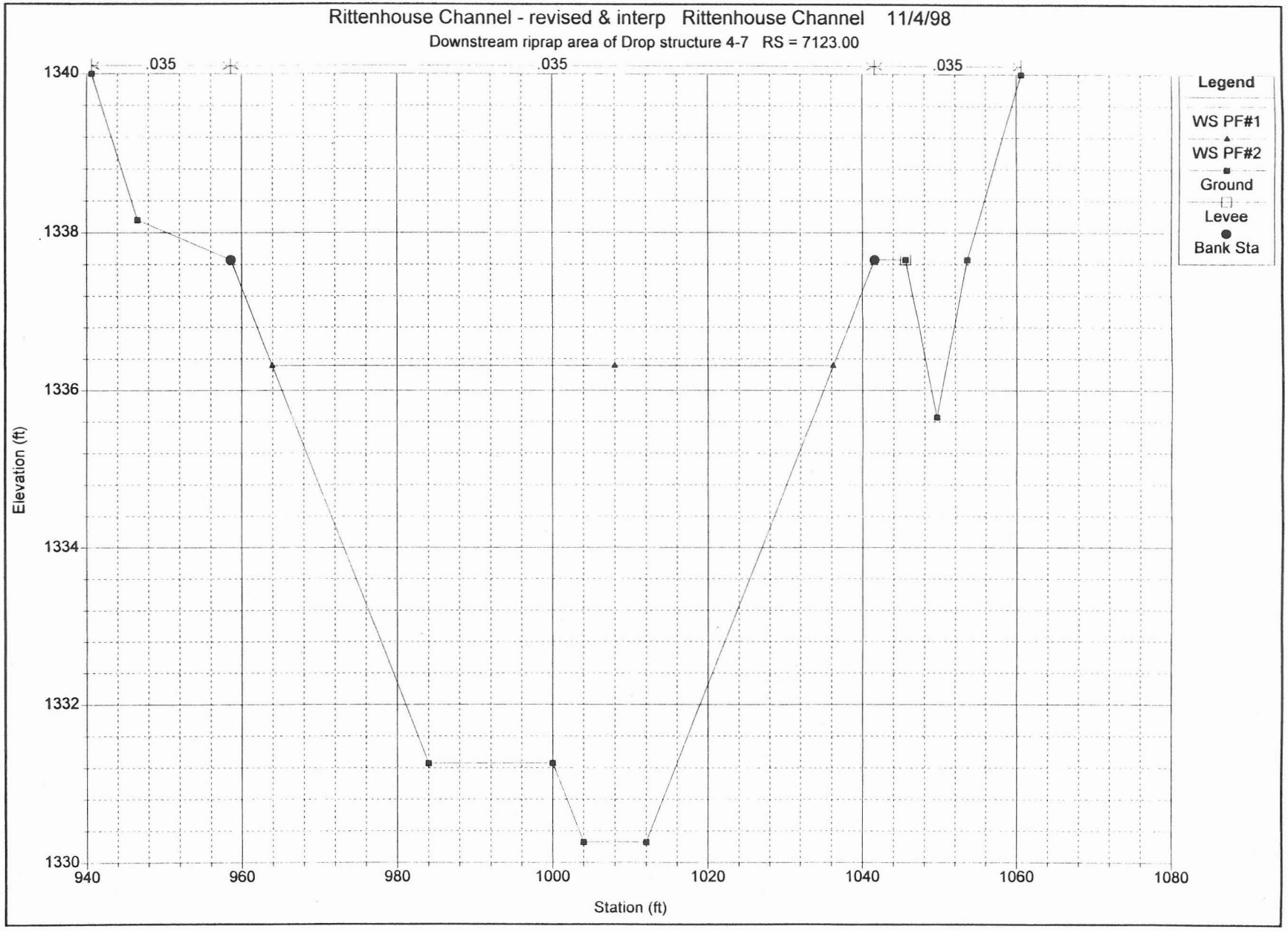

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6784.4*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

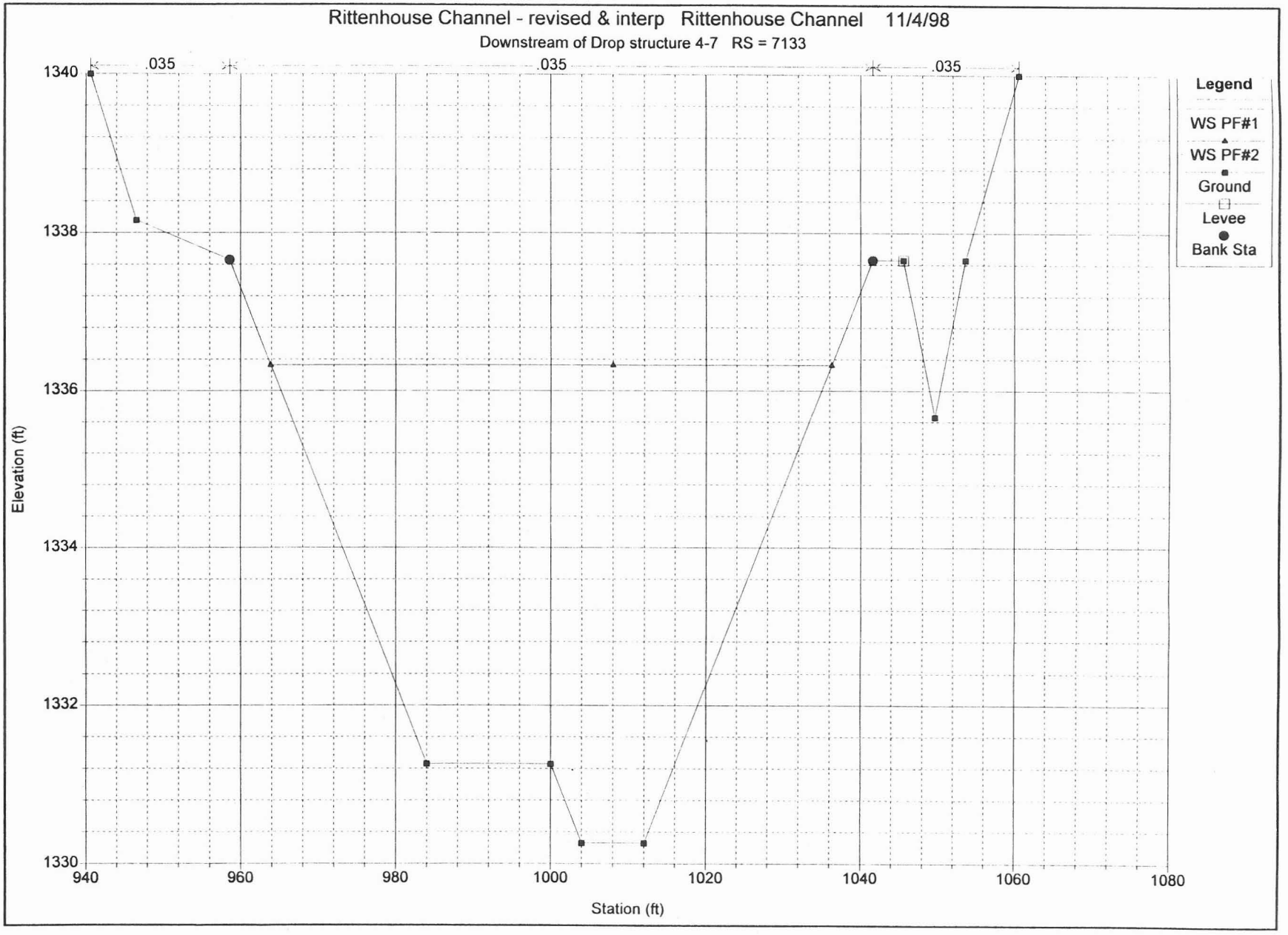

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6868.8*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

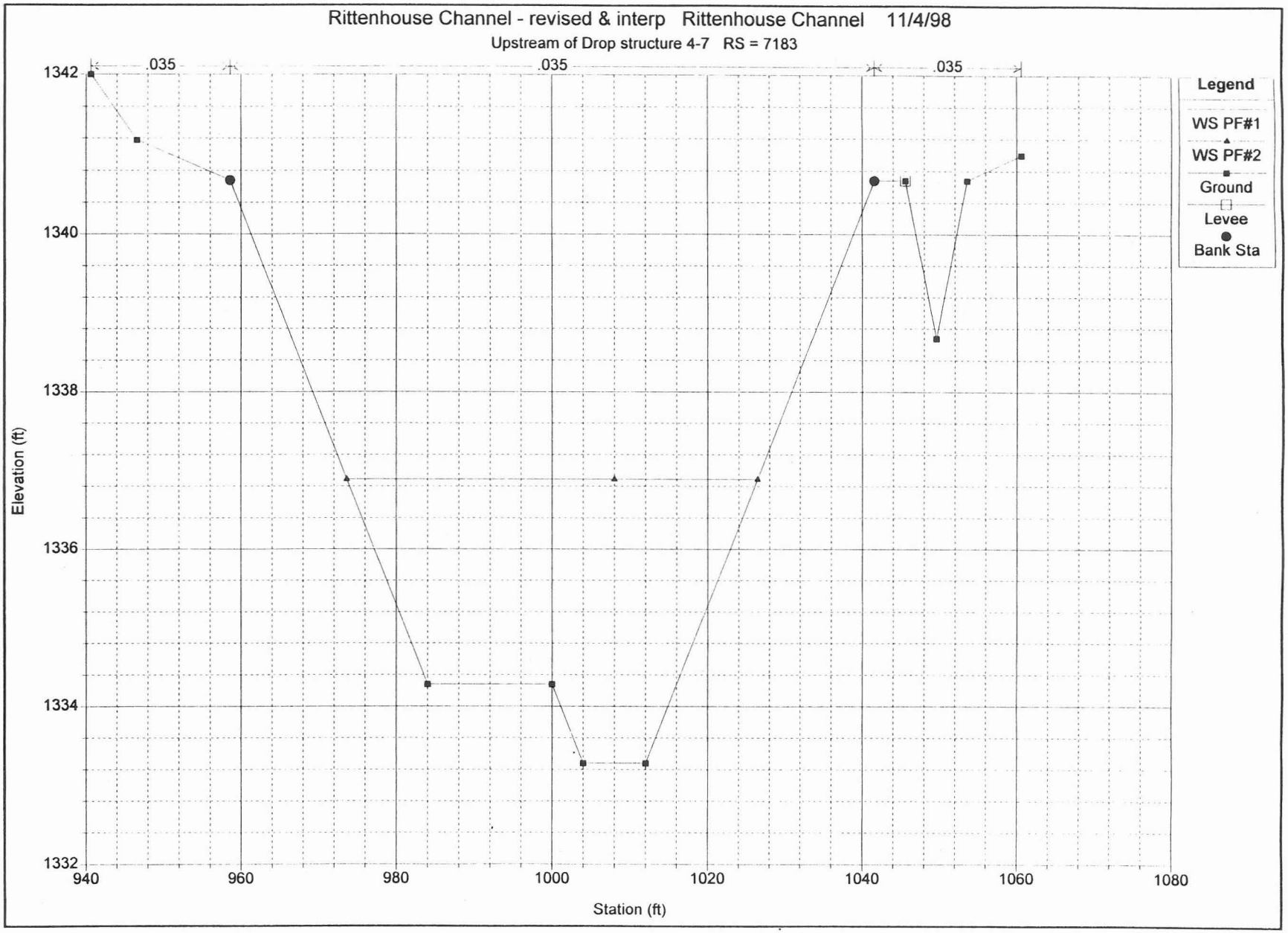

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 6953.2*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

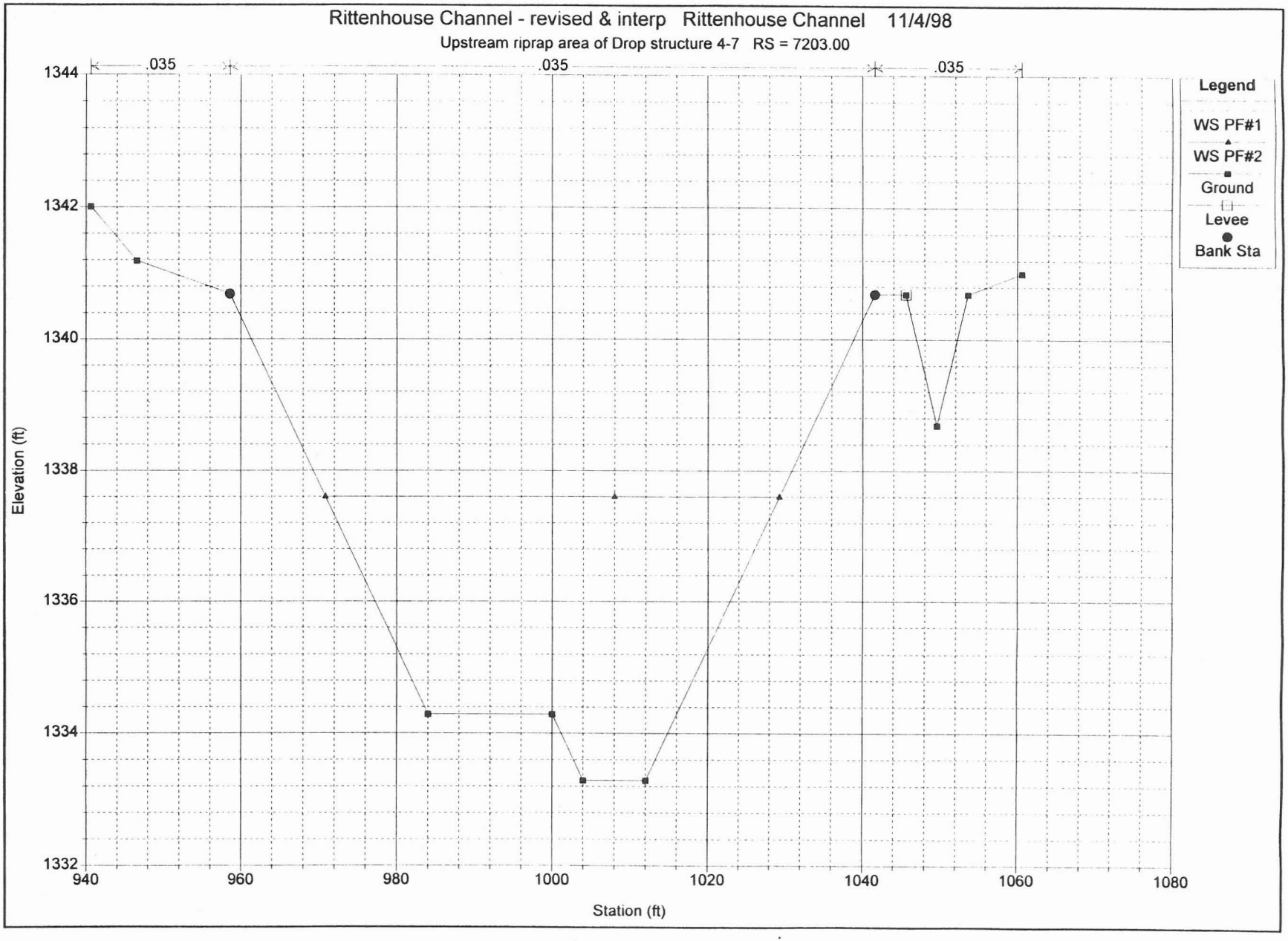

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 7037.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

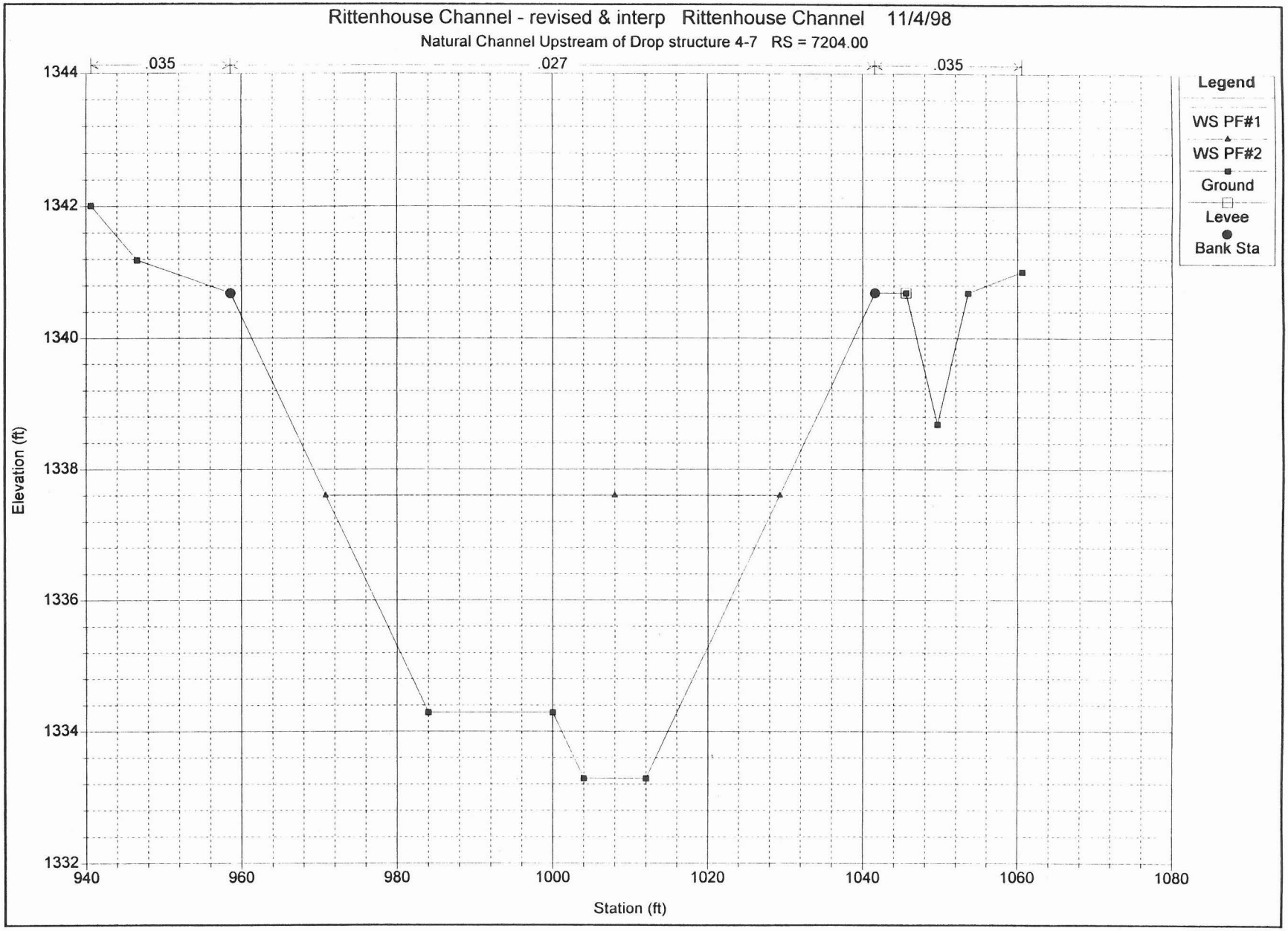

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel Downstream of Drop structure 4-7 RS = 7122.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

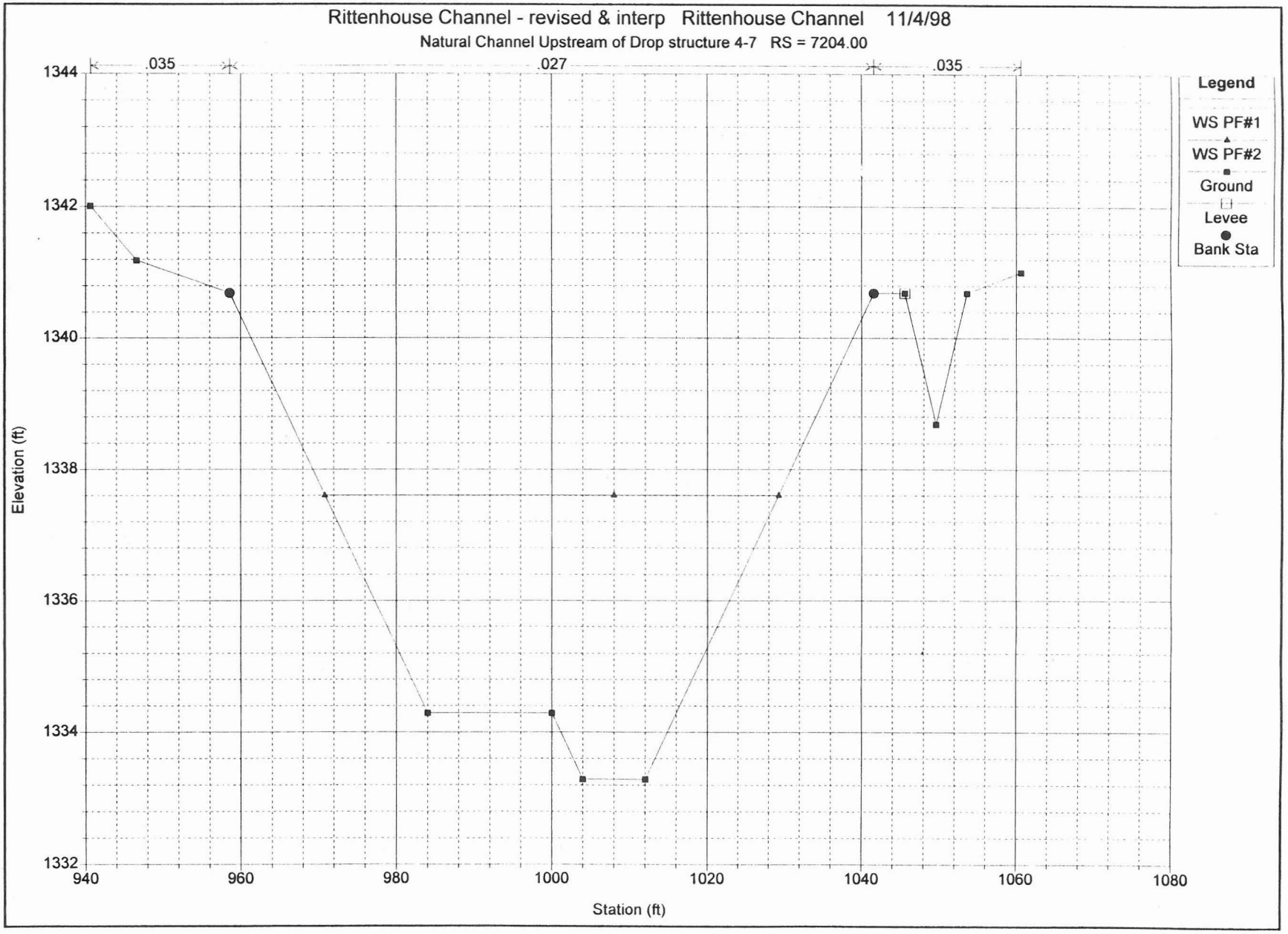

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of Drop structure 4-7 RS = 7123.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

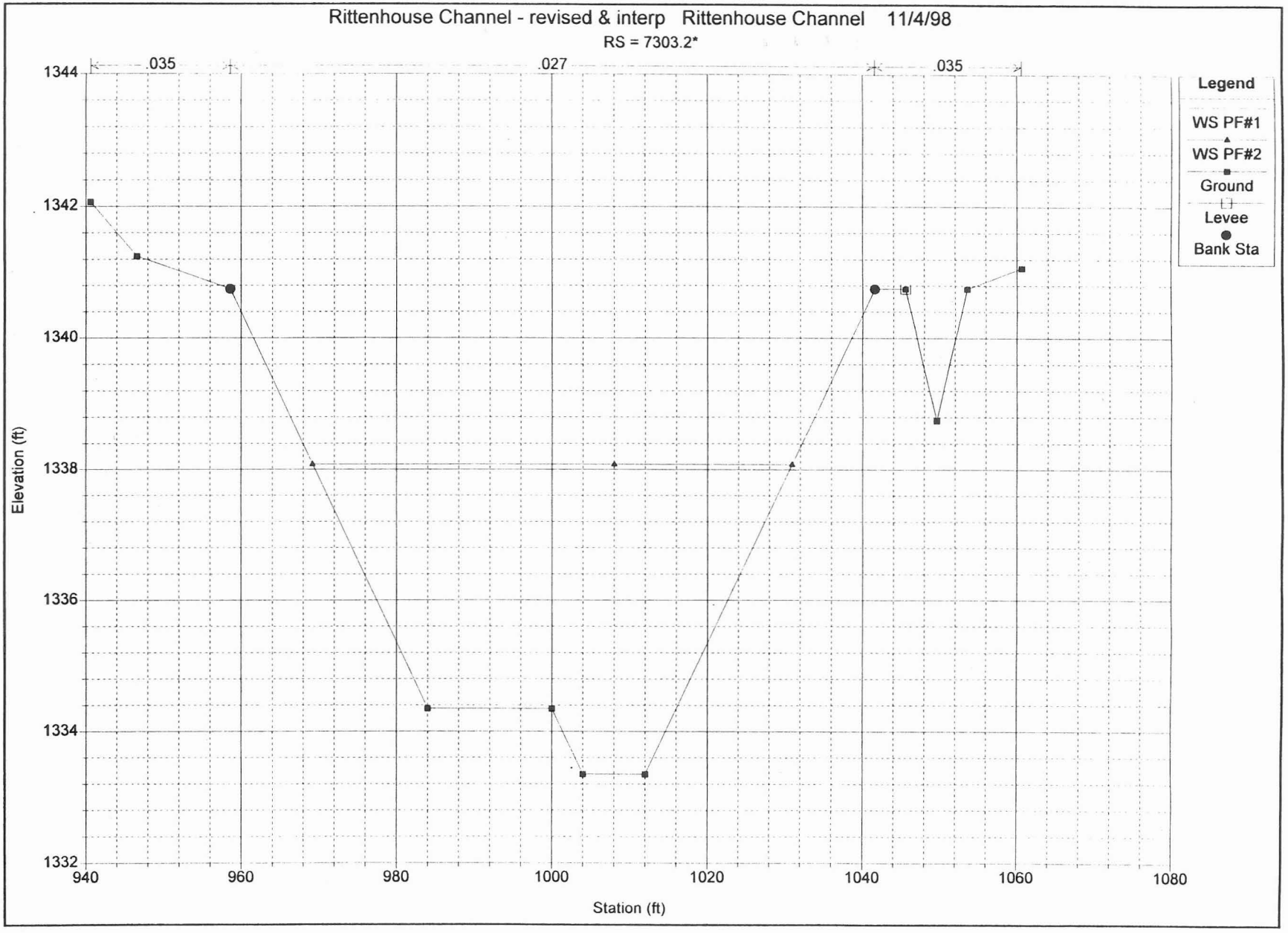

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of Drop structure 4-7 RS = 7133
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
940
960
980
1000
1020
1040
1060
1080
Station (ft)

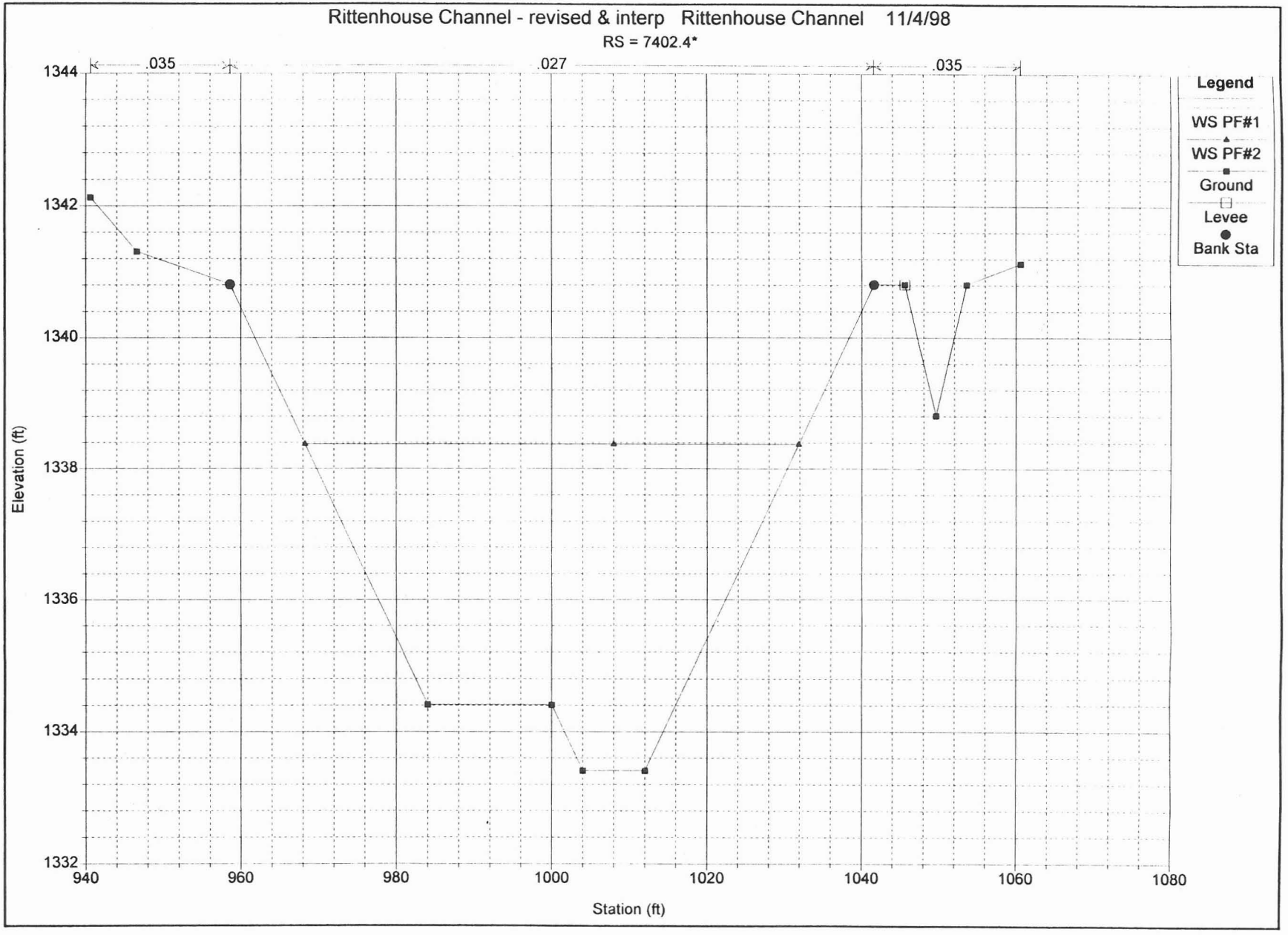

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of Drop structure 4-7 RS = 7183
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

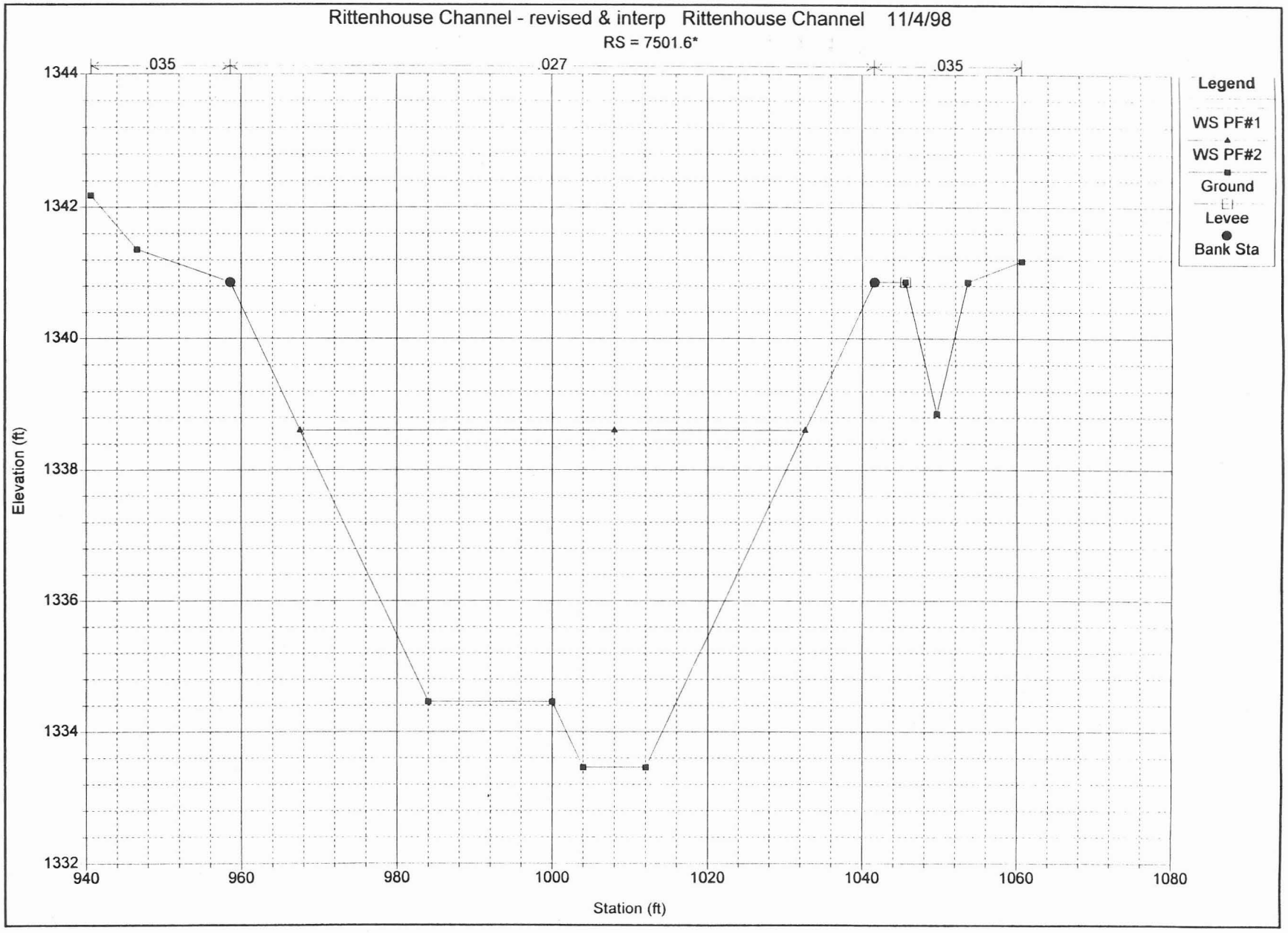

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of Drop structure 4-7 RS = 7203.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

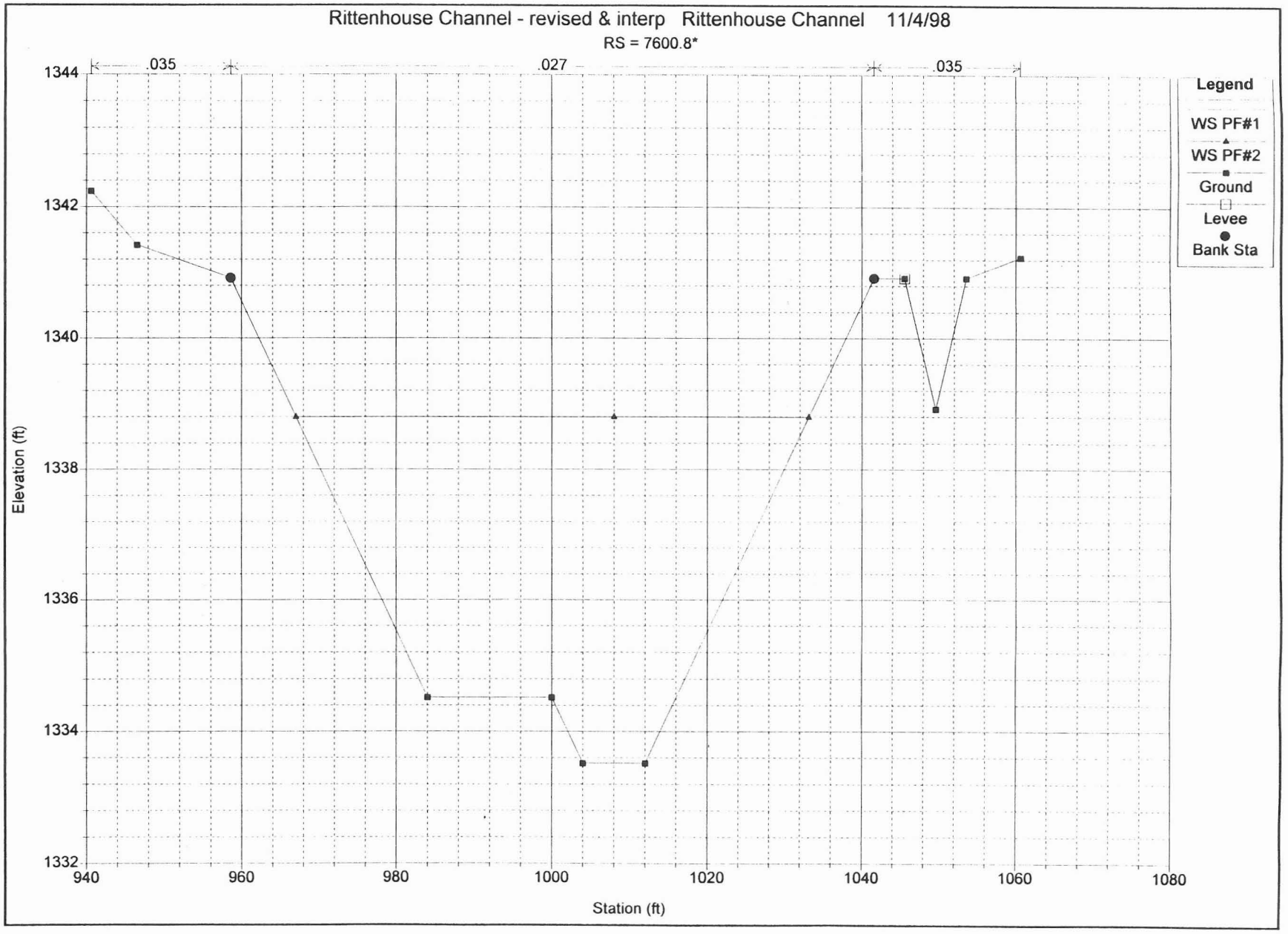

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of Drop structure 4-7 RS = 7204.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

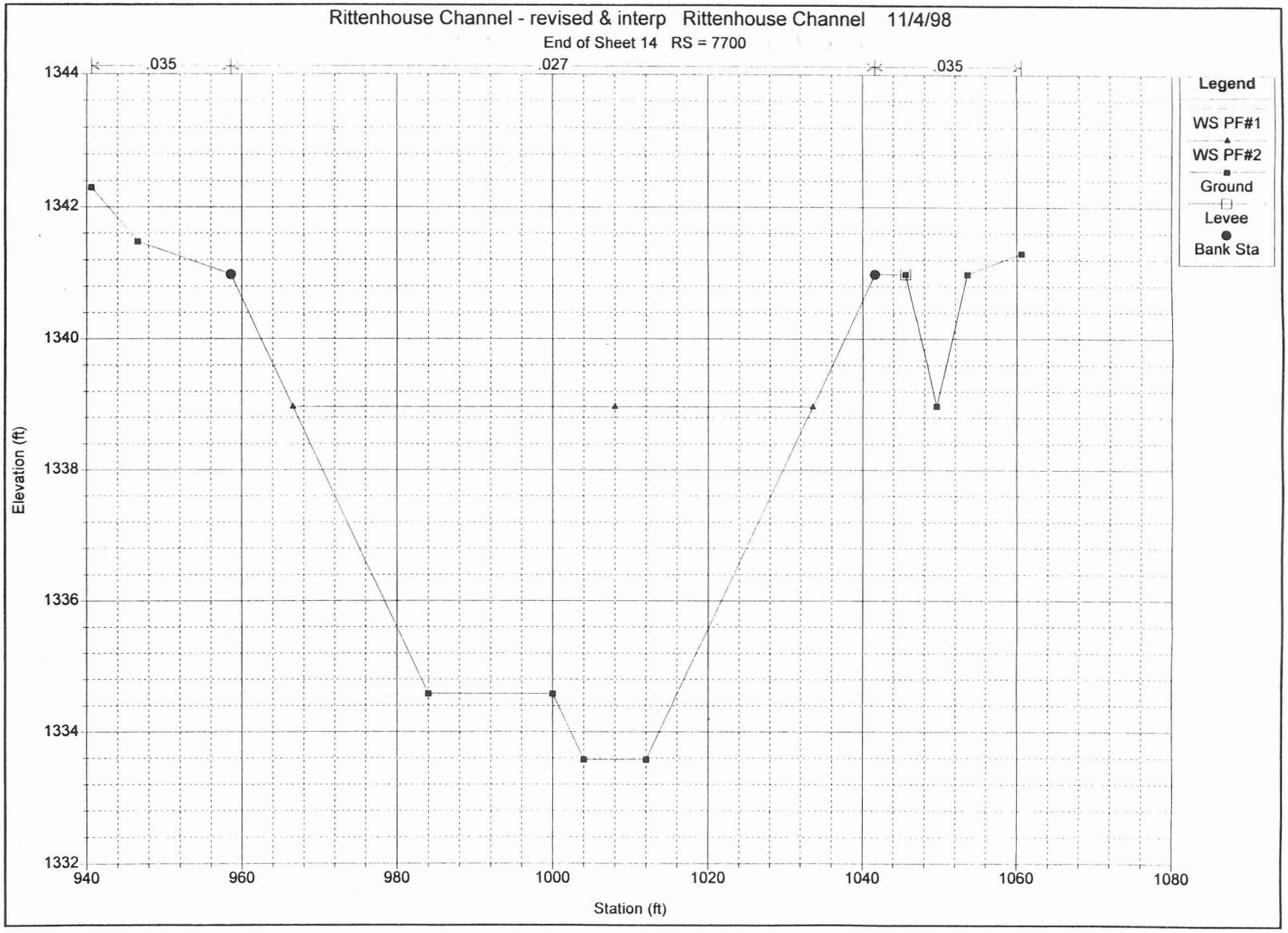

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of Drop structure 4-7 RS = 7204.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

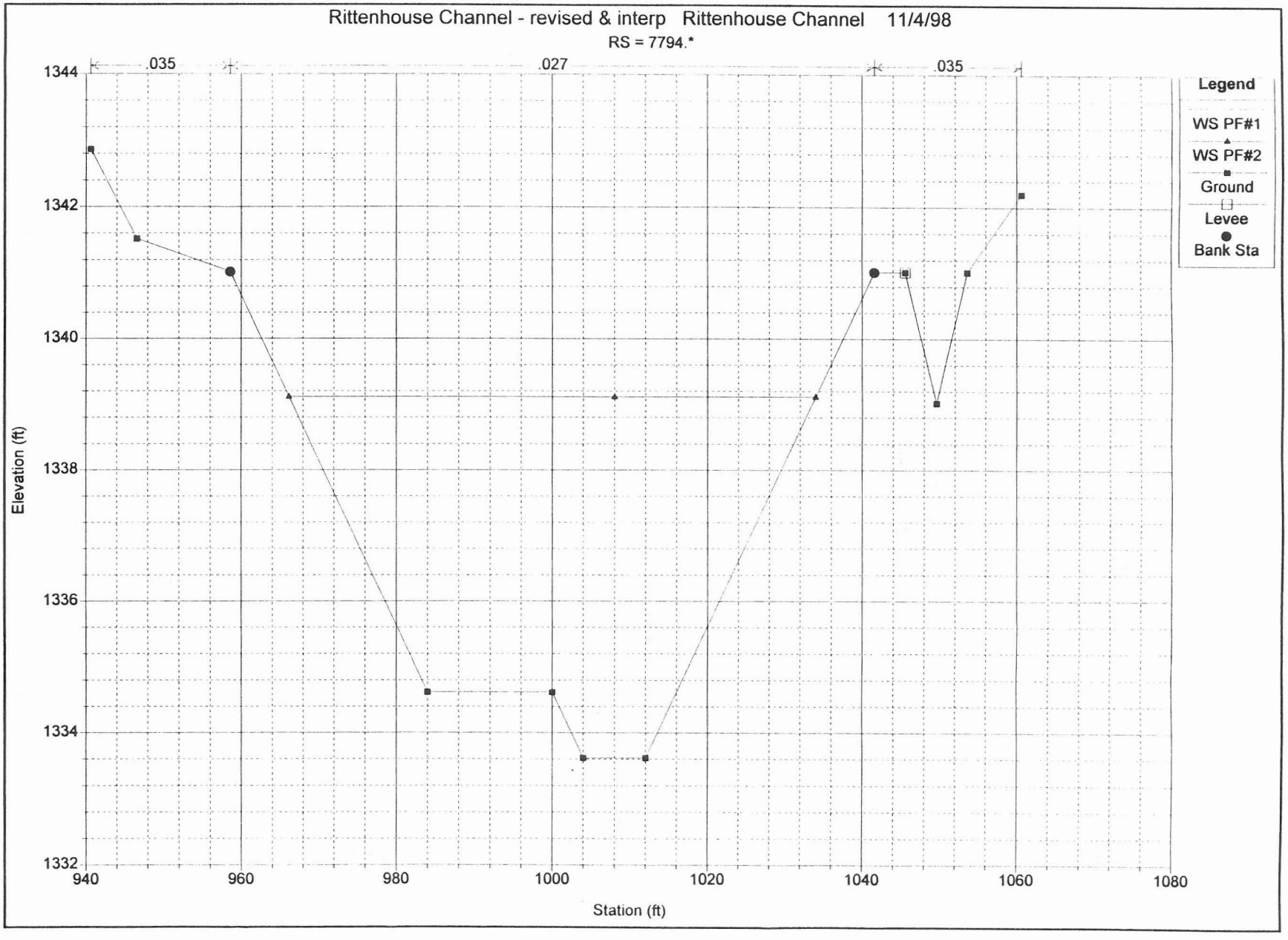

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 7303.2*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

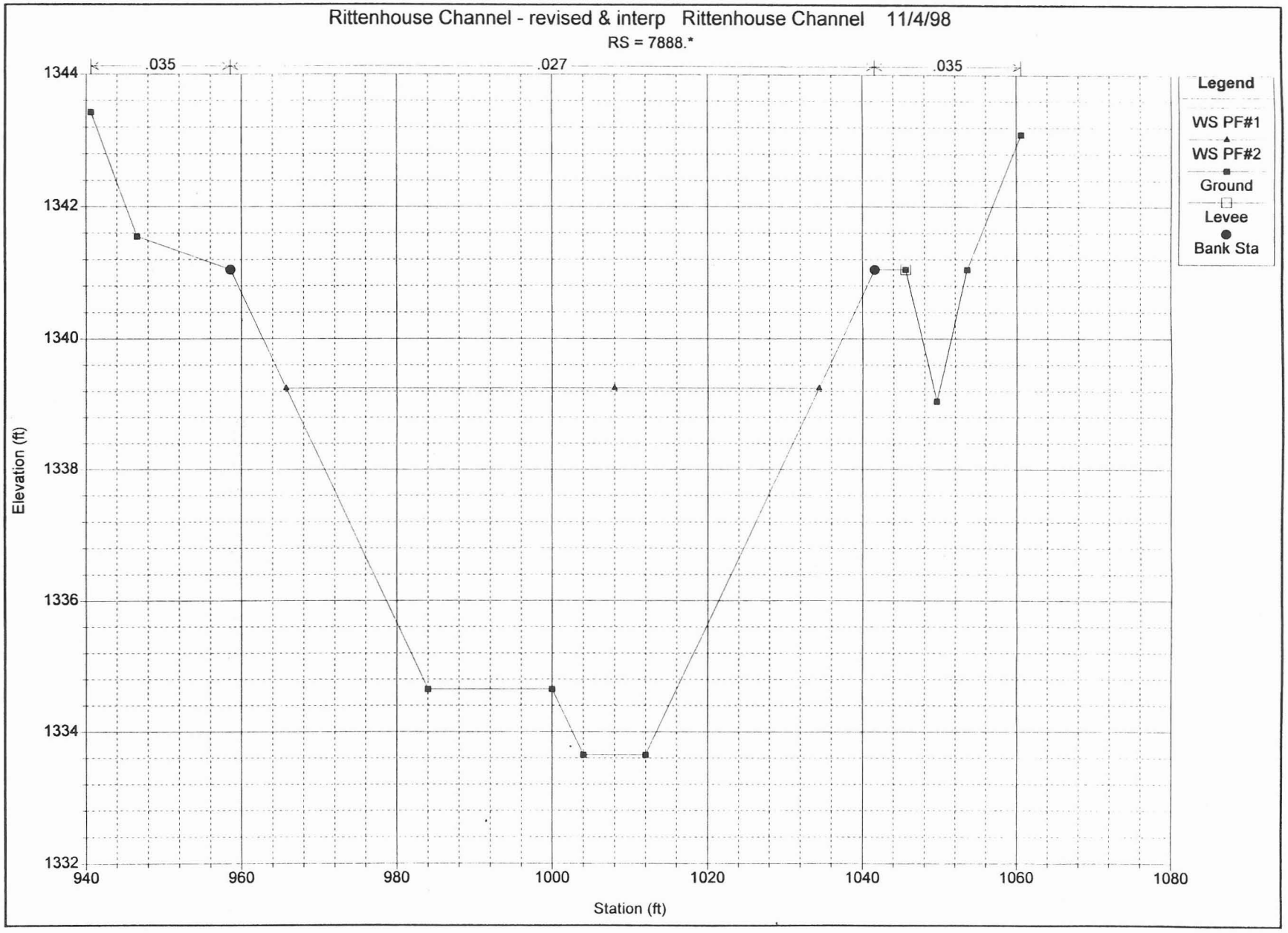

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 7402.4*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

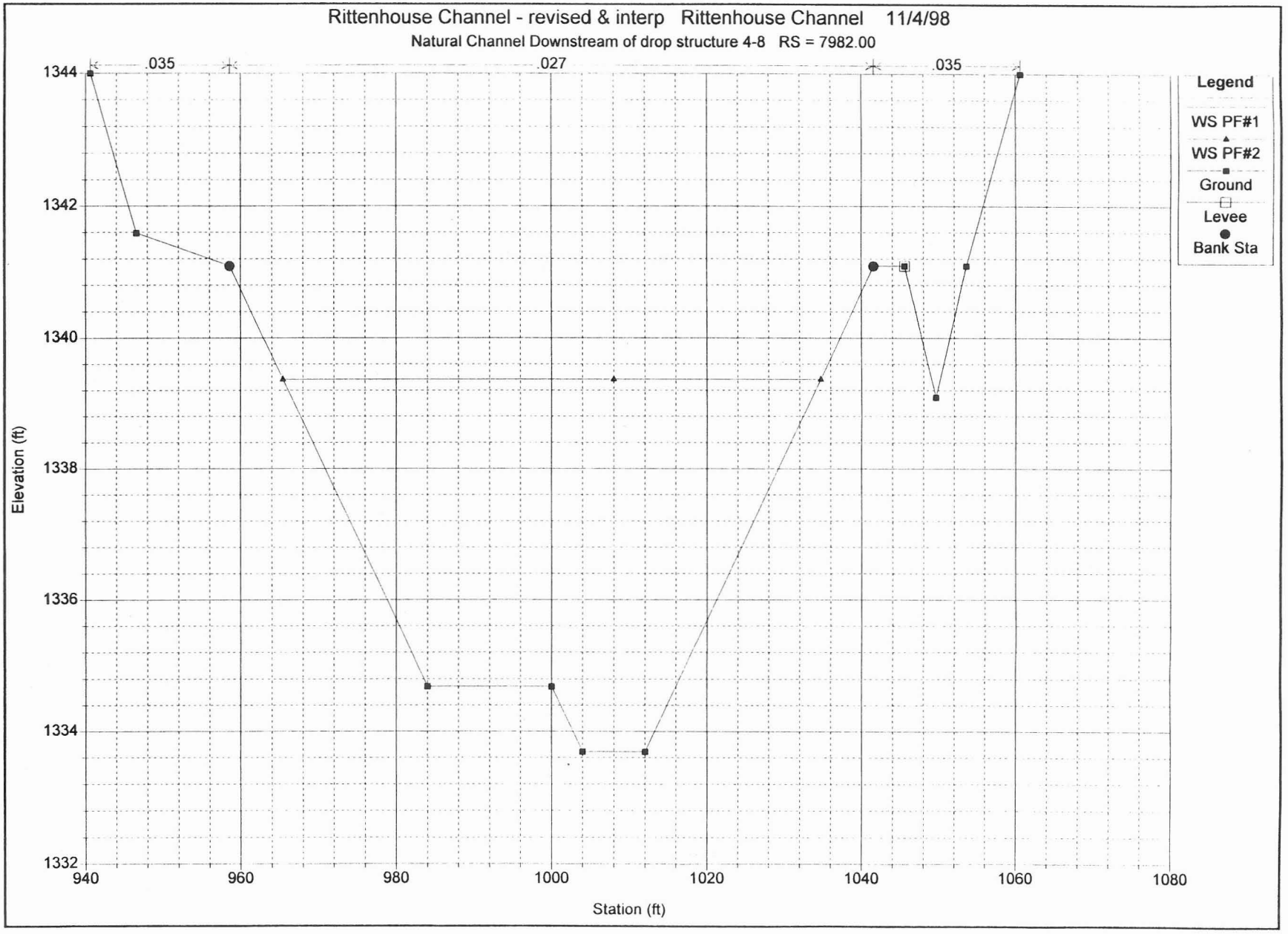

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 7501.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

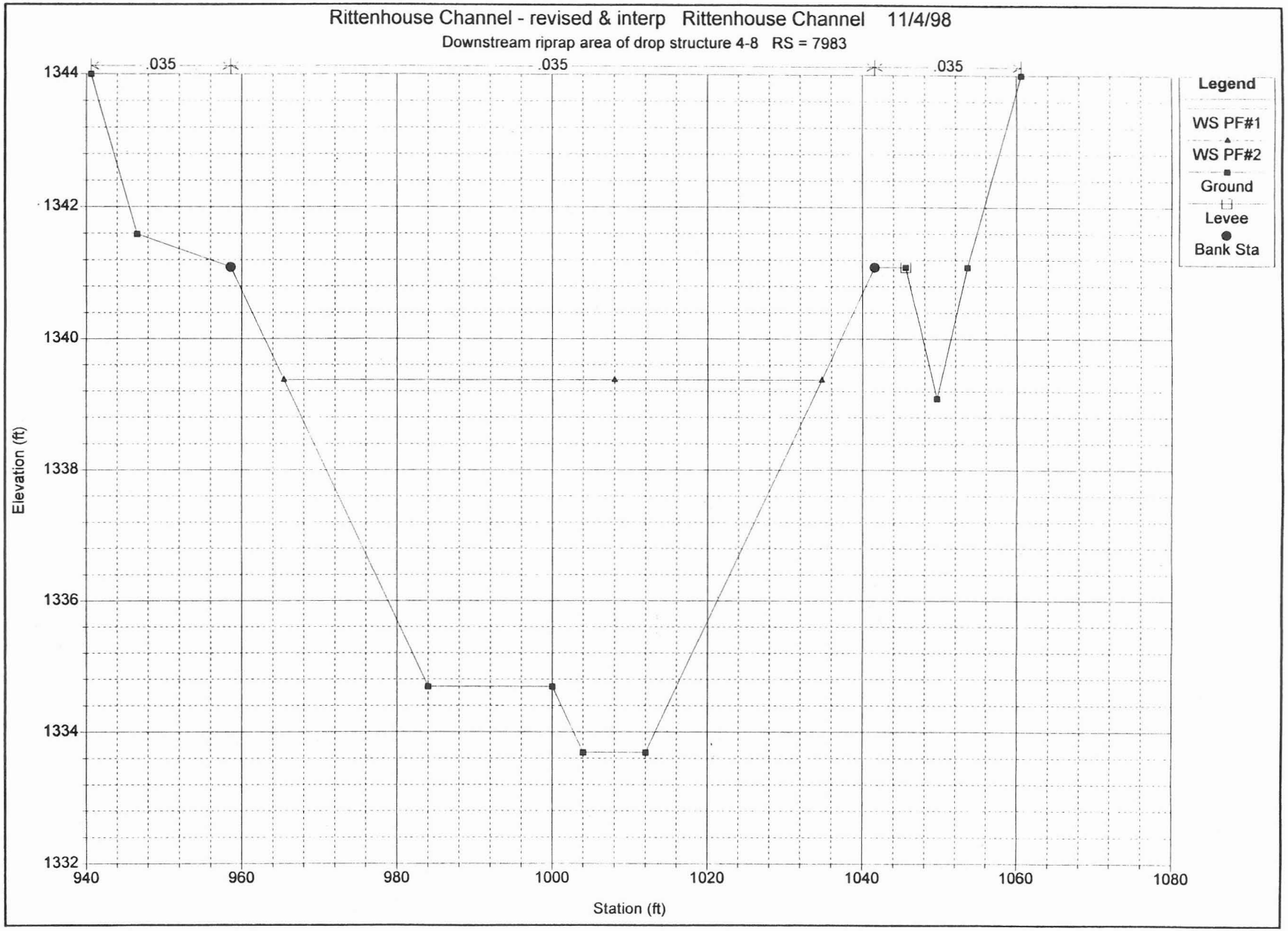

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 7600.8*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

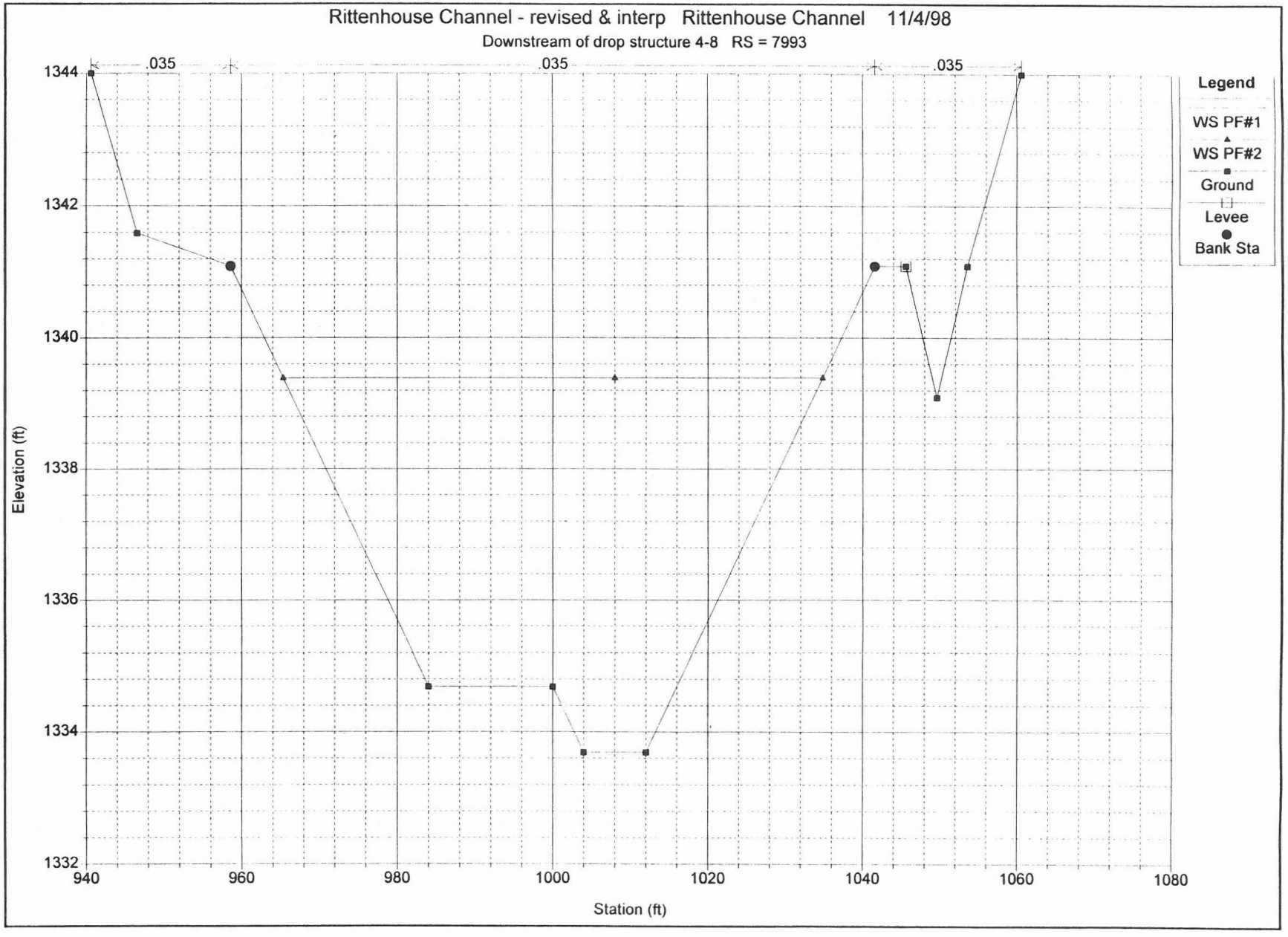

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of Sheet 14 RS = 7700
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

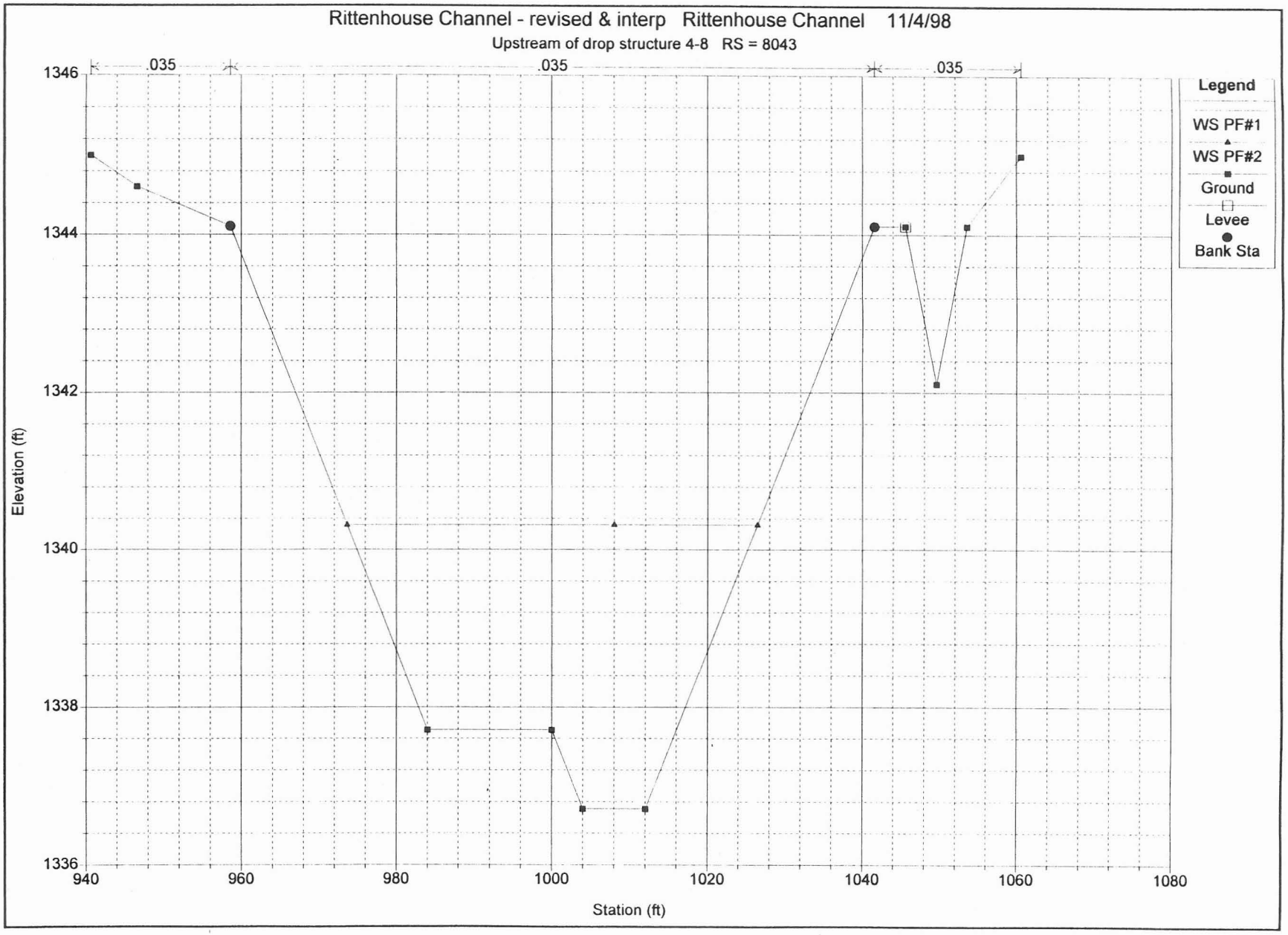

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 7794.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

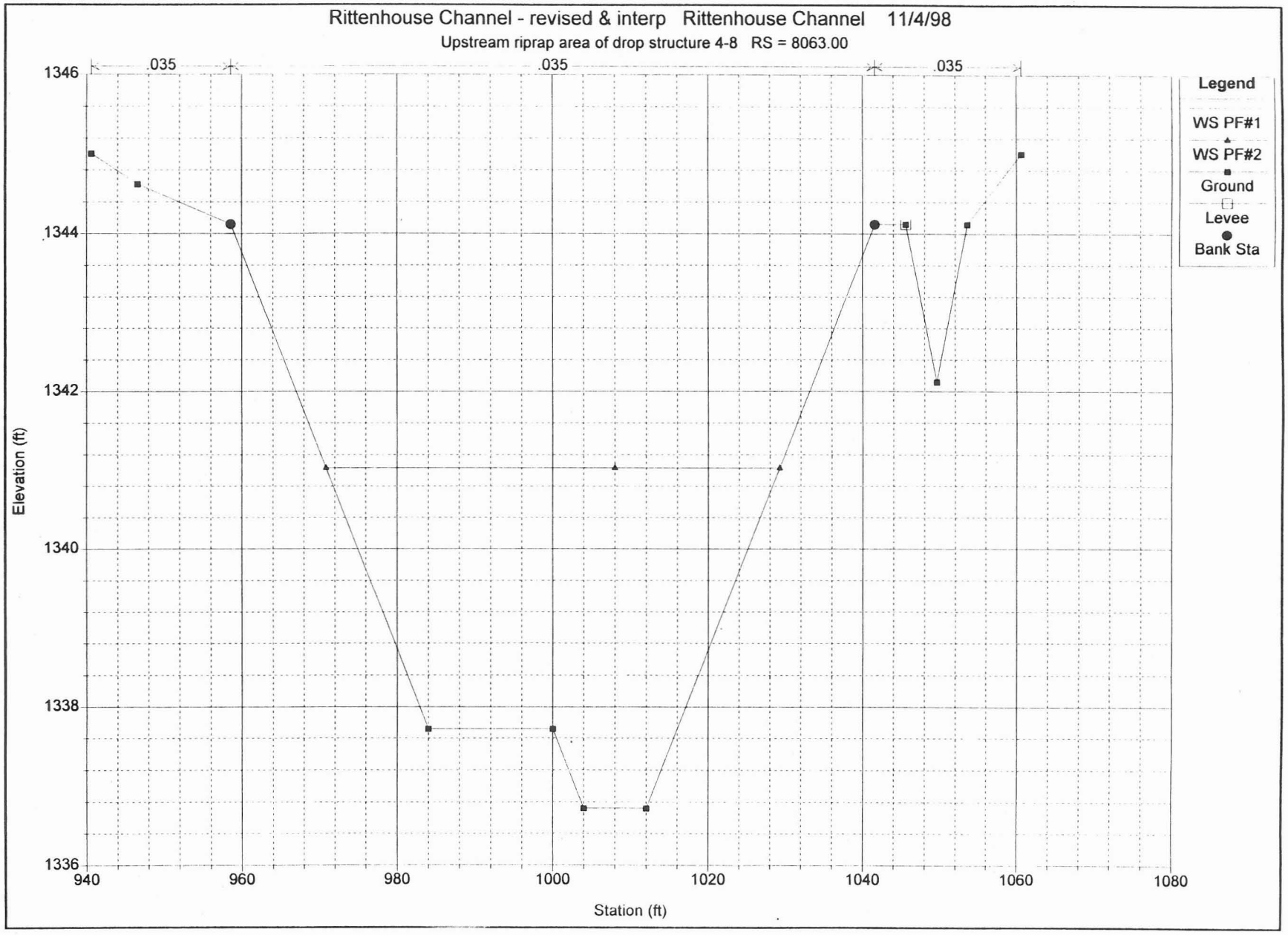

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 7888.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

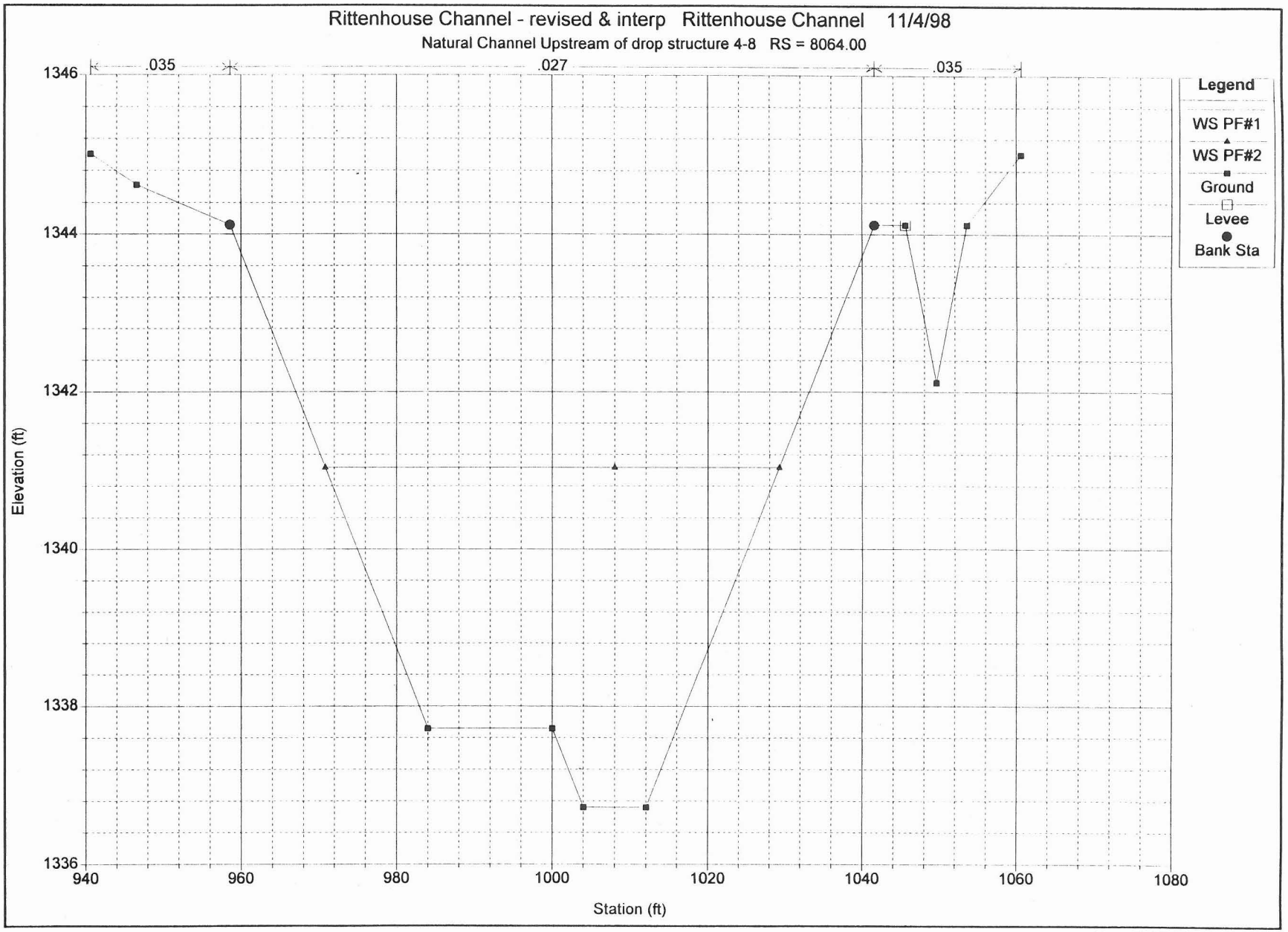

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Downstream of drop structure 4-8 RS = 7982.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

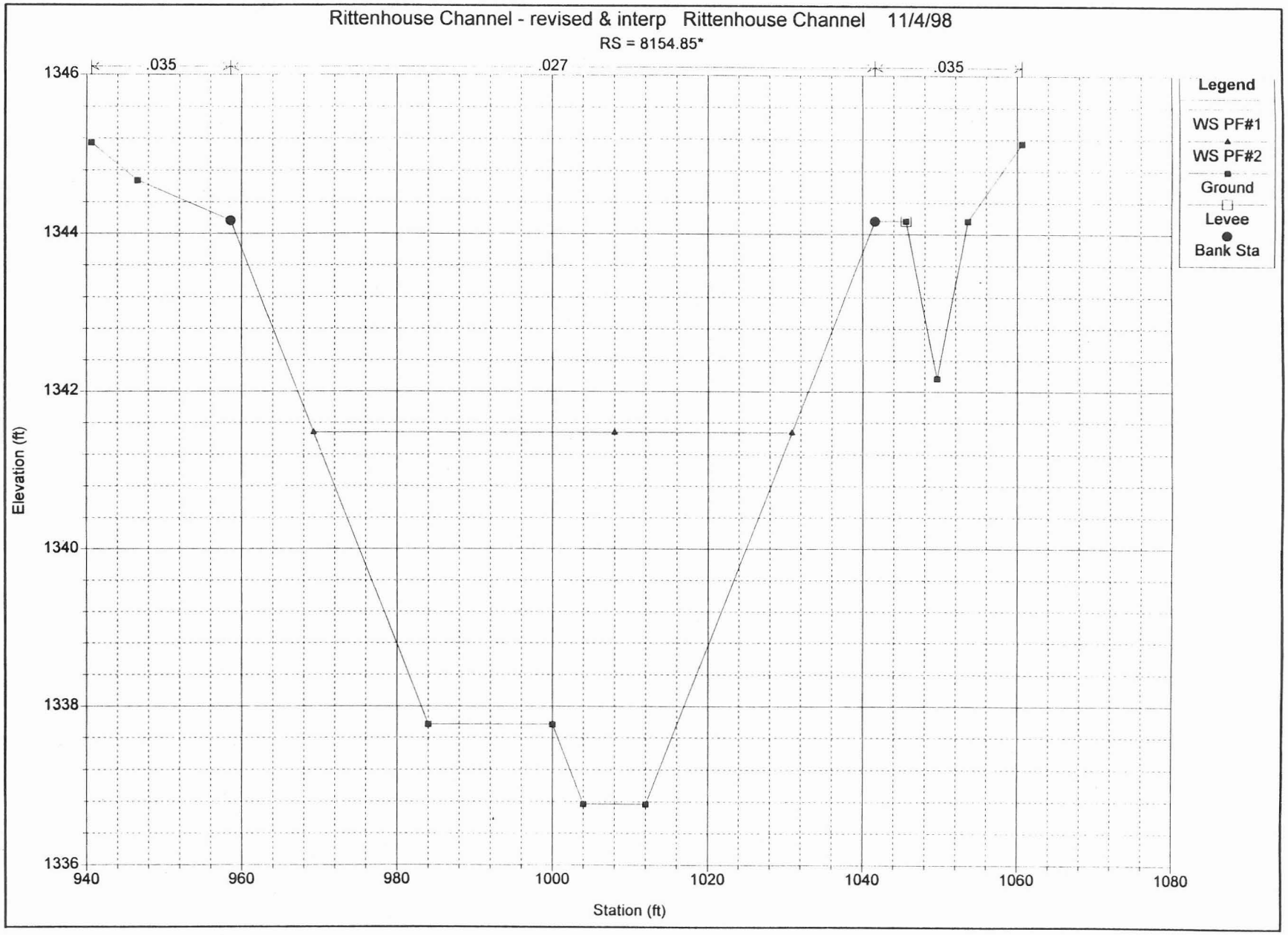

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure 4-8 RS = 7983
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

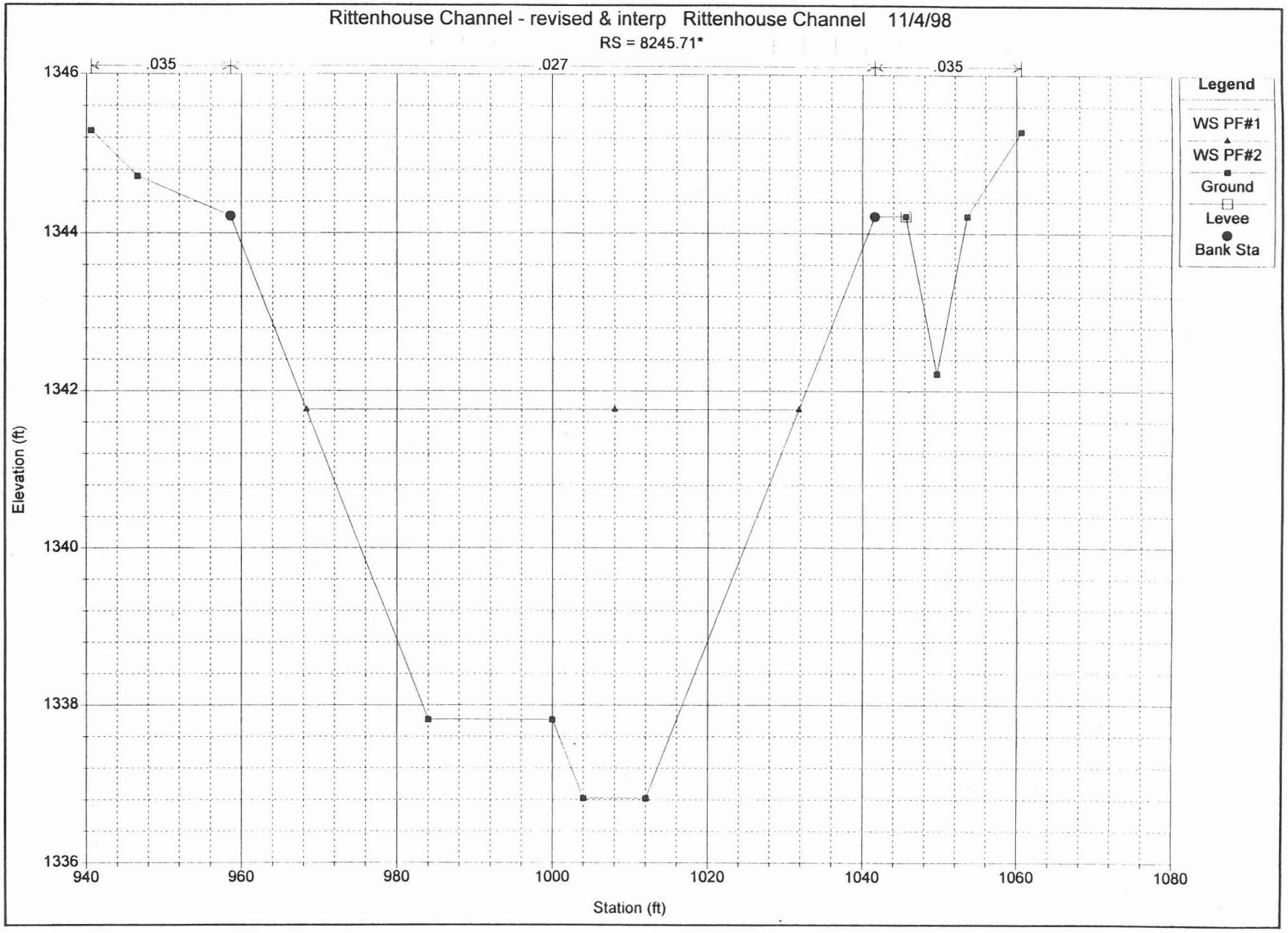

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of drop structure 4-8 RS = 7993
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
940
960
980
1000
1020
1040
1060
1080
Station (ft)

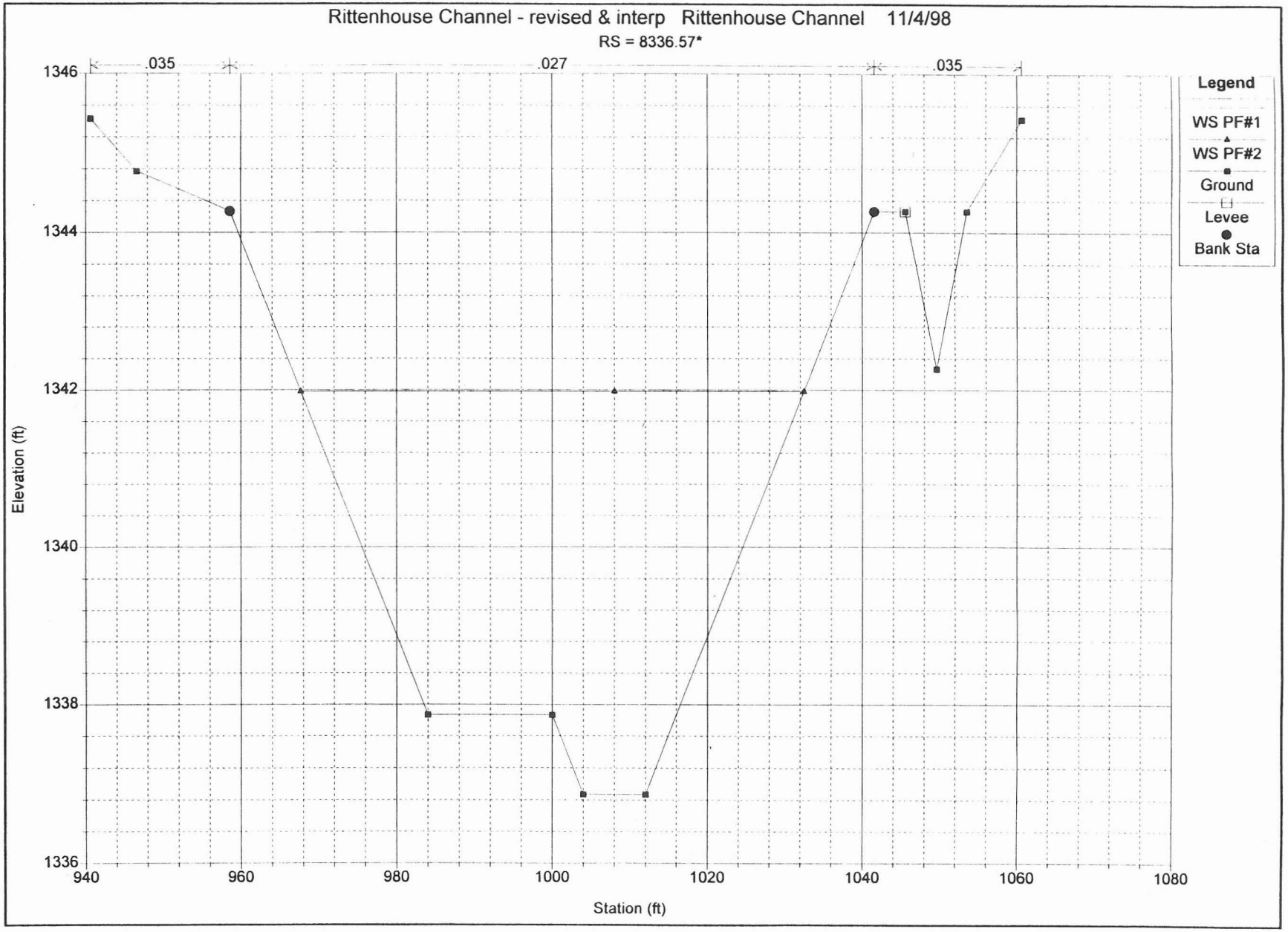

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure 4-8 RS = 8043
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)

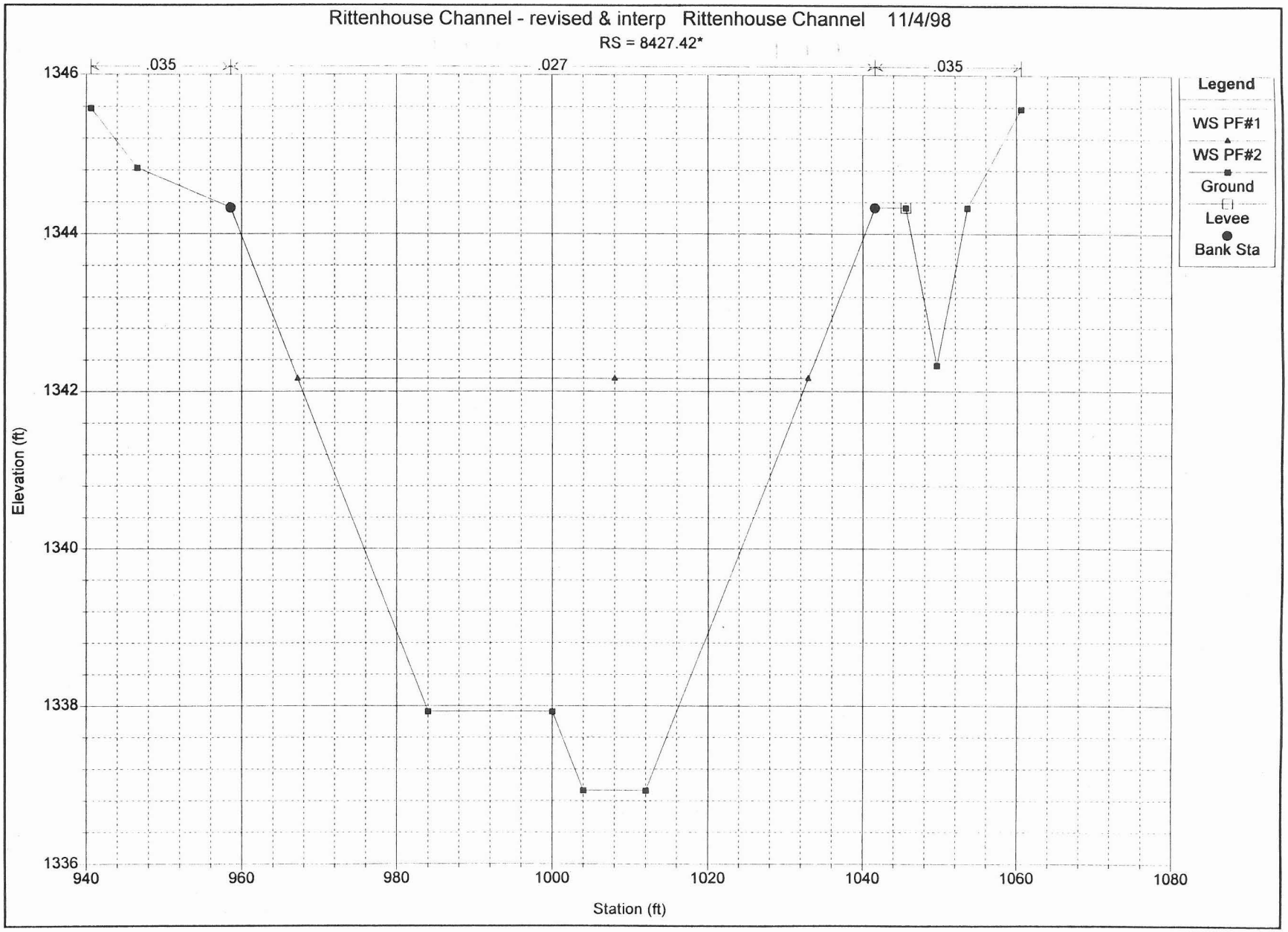

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure 4-8 RS = 8063.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)

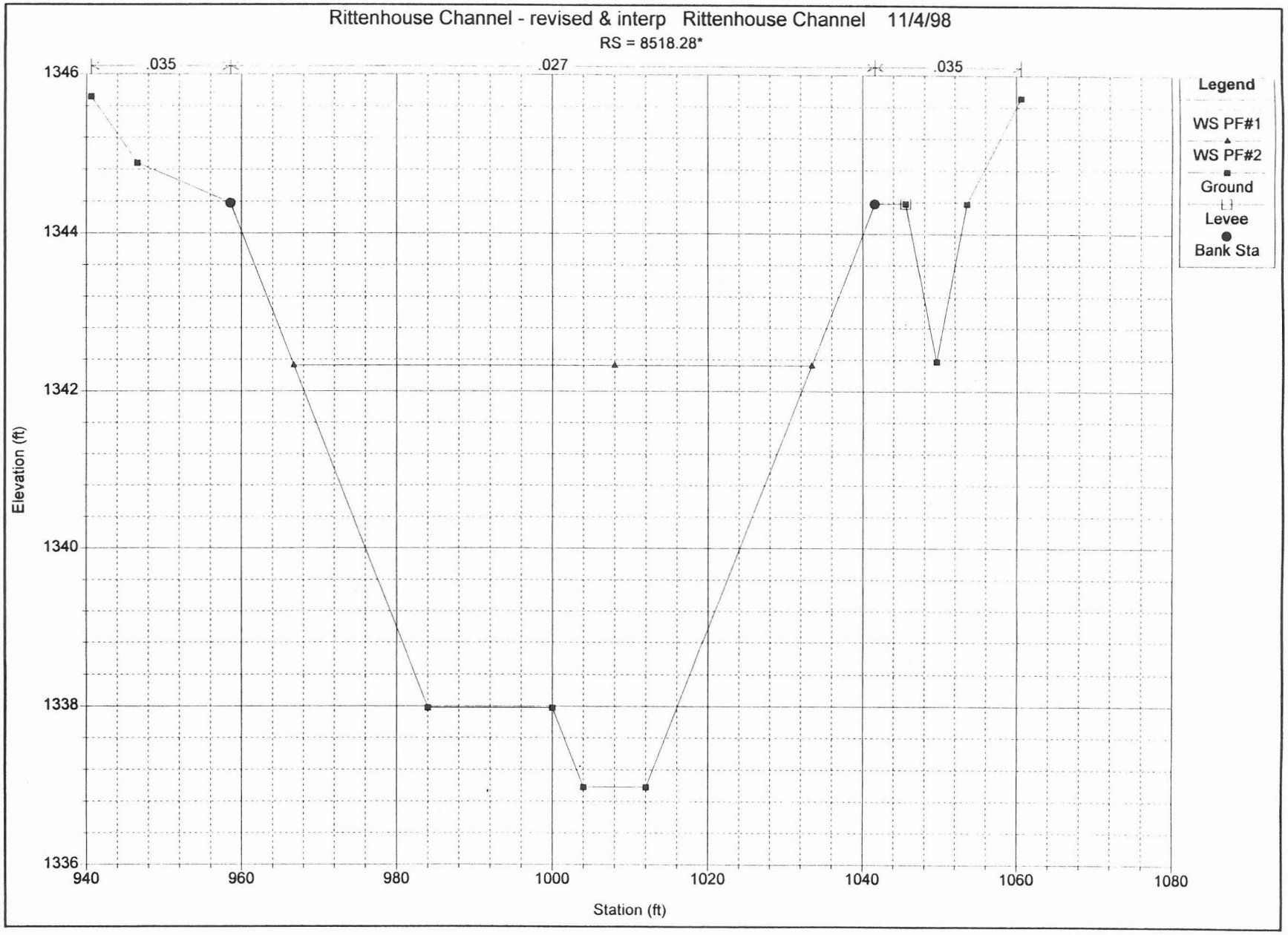

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of drop structure 4-8 RS = 8064.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)

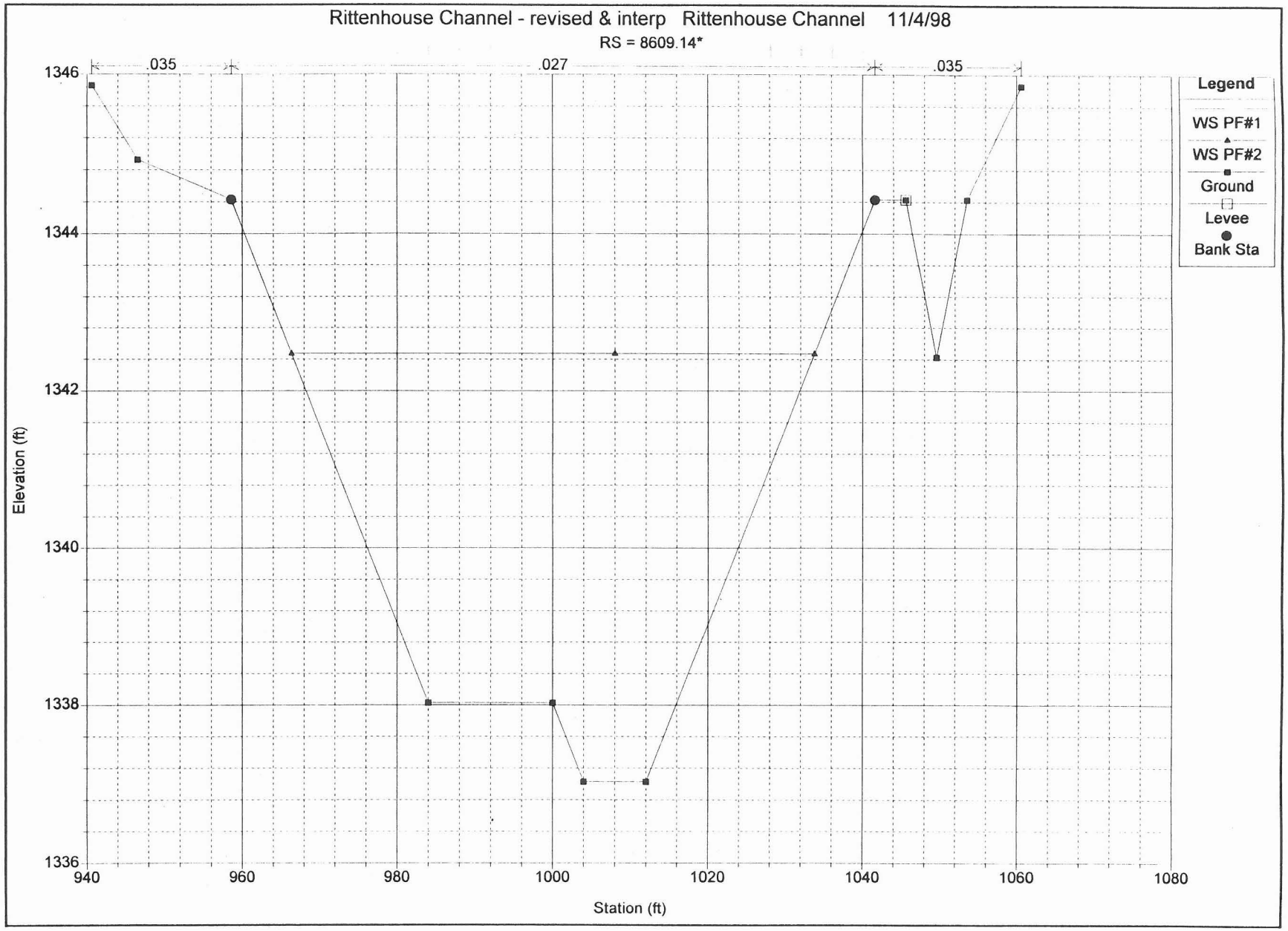

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8154.85*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)

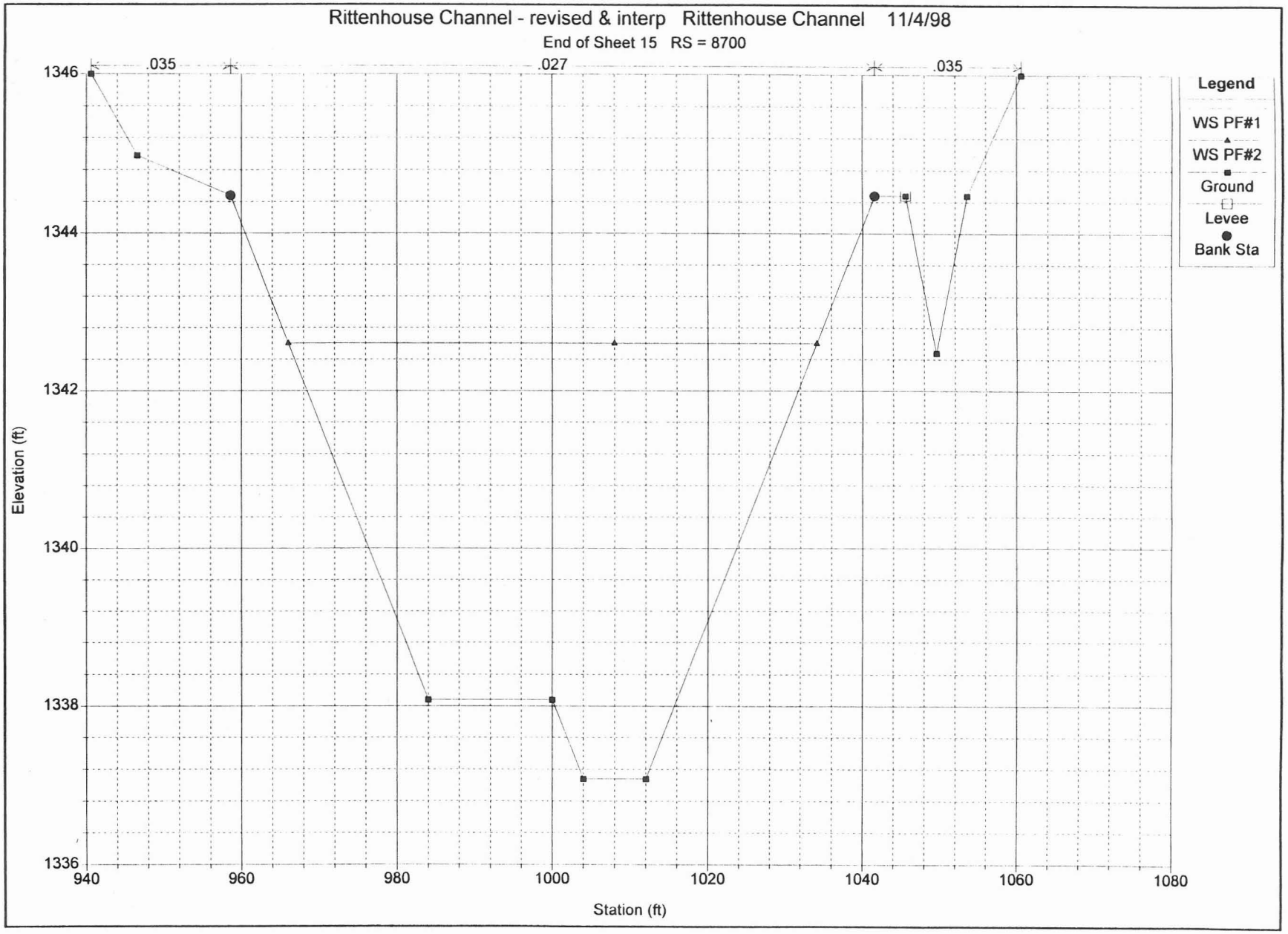

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8245.71*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)

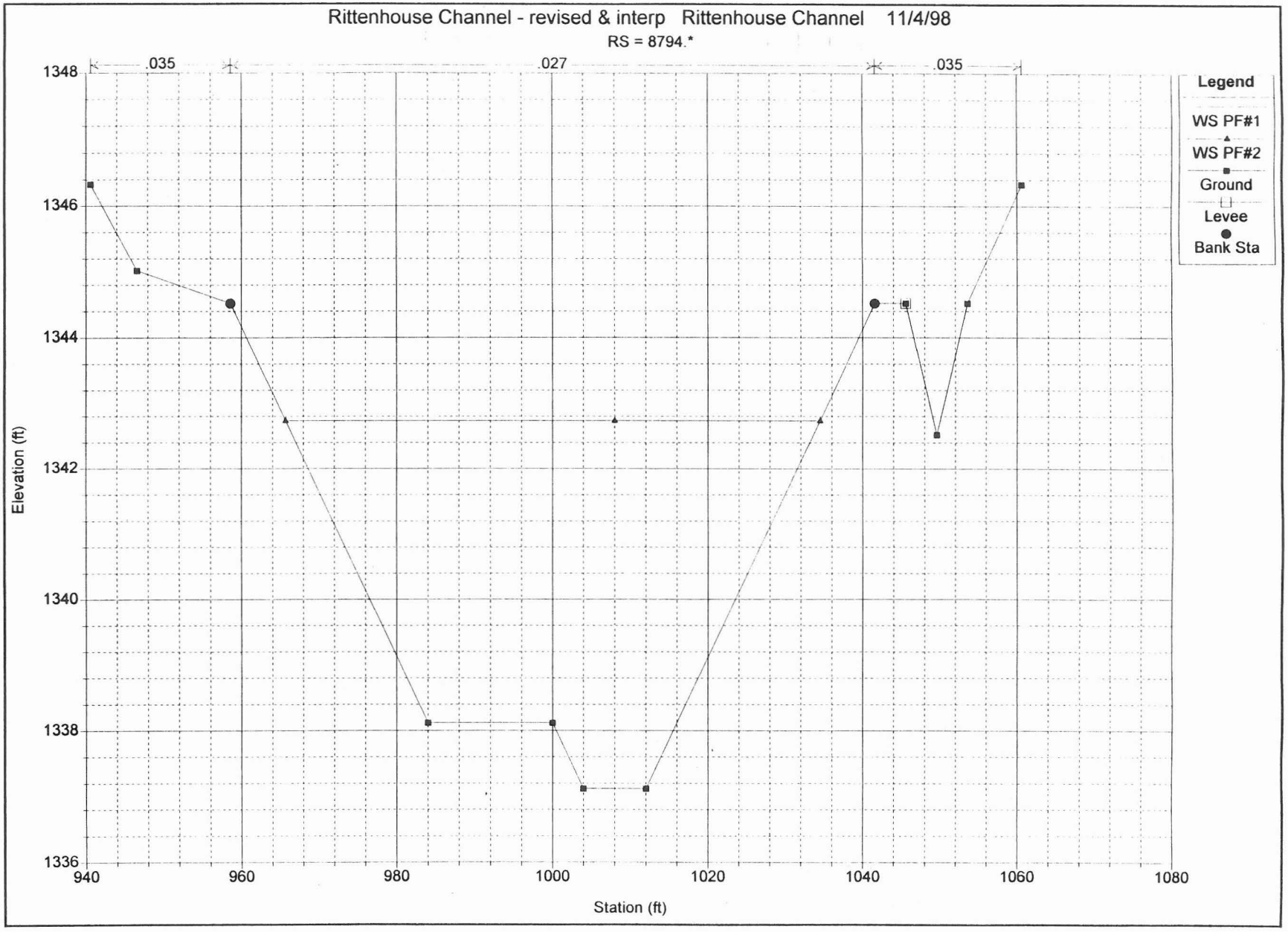

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8336.57*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)

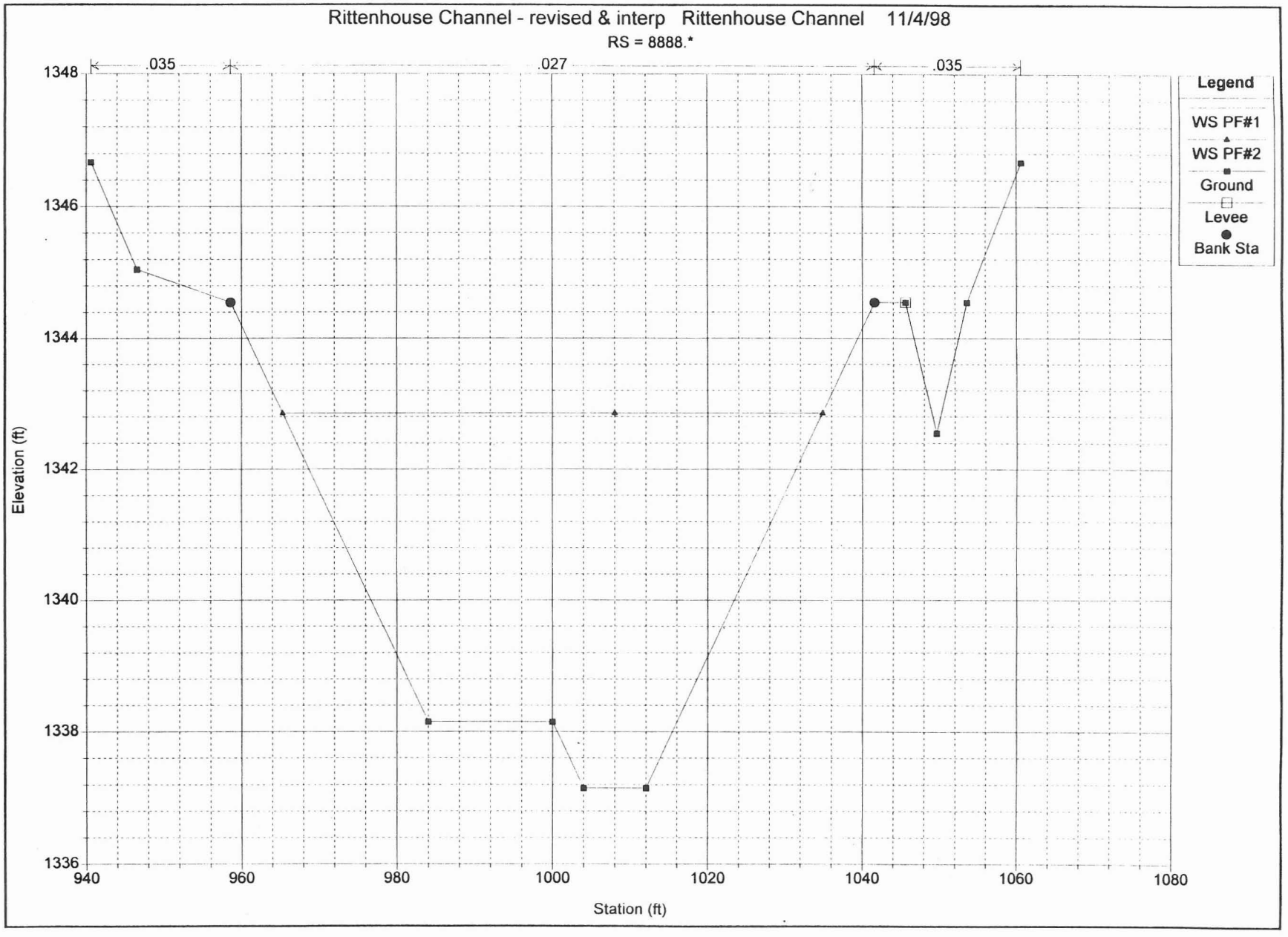

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8427.42*
.035
.027
.035
1346
1344
1342
1340
1338
1336
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

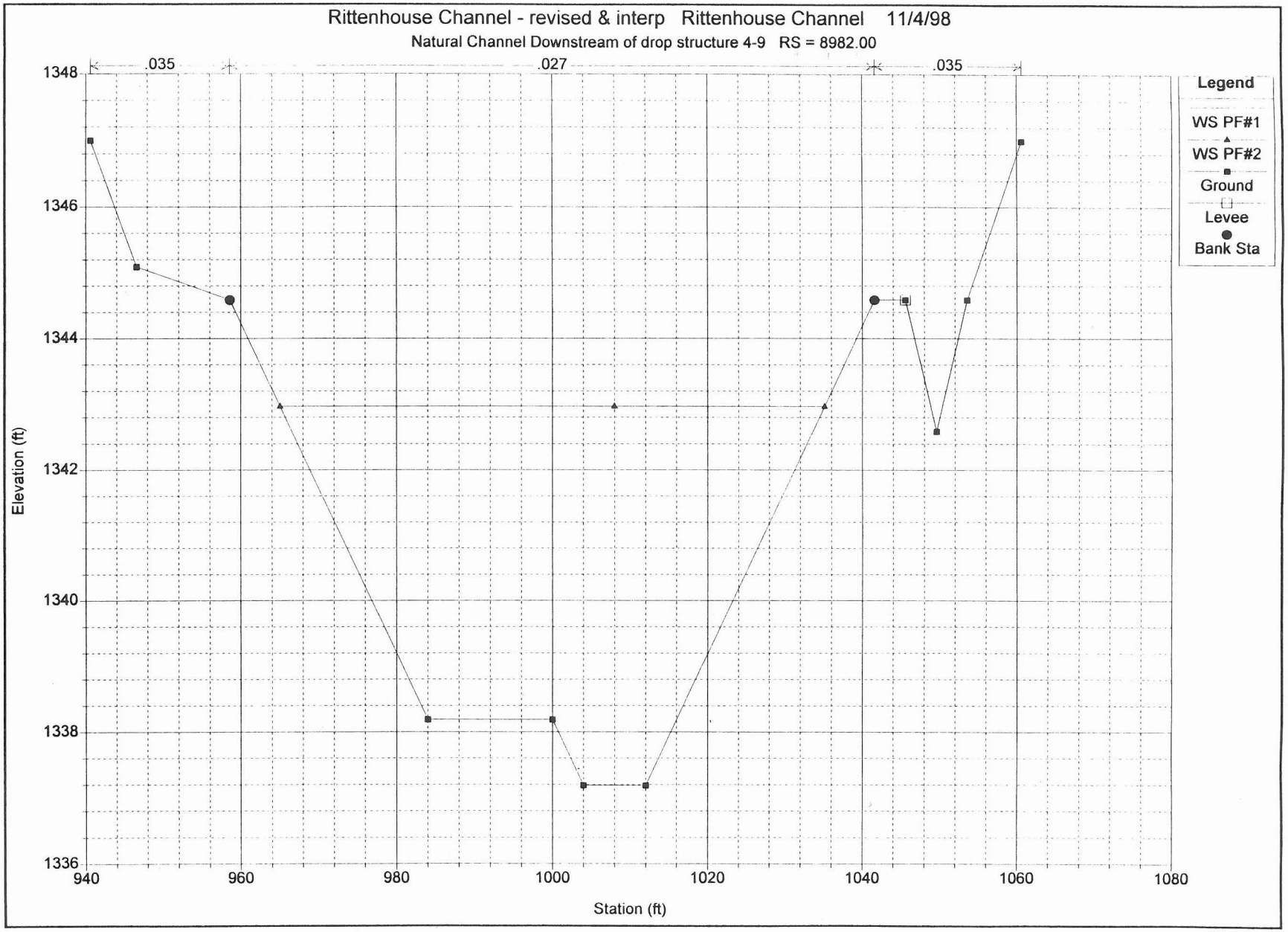

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8518.28*
.035
.027
.035
1346
1344
1342
1340
1338
1336
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

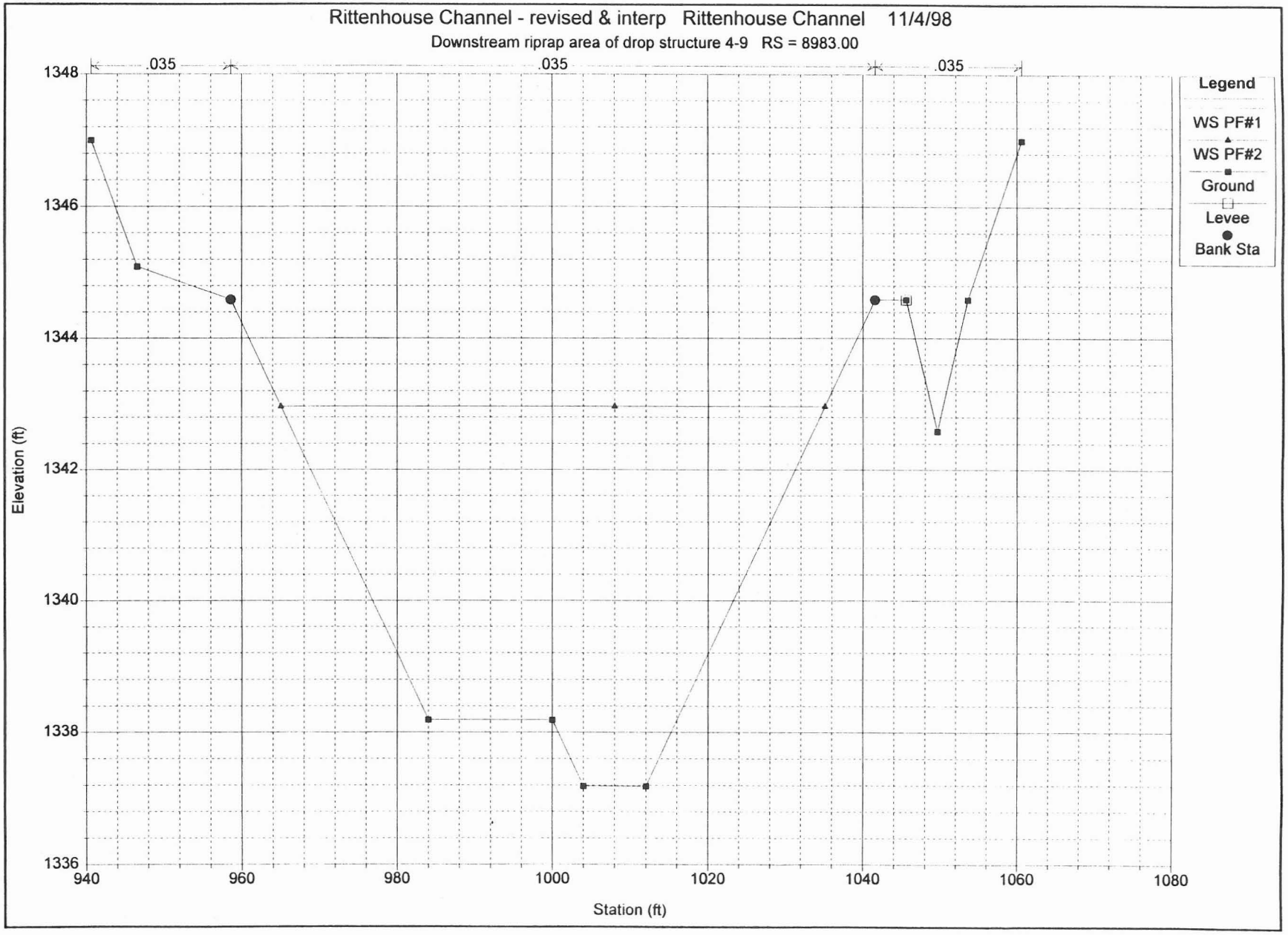

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8609.14*
.035
.027
.035
1346
1344
1342
1340
1338
1336
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

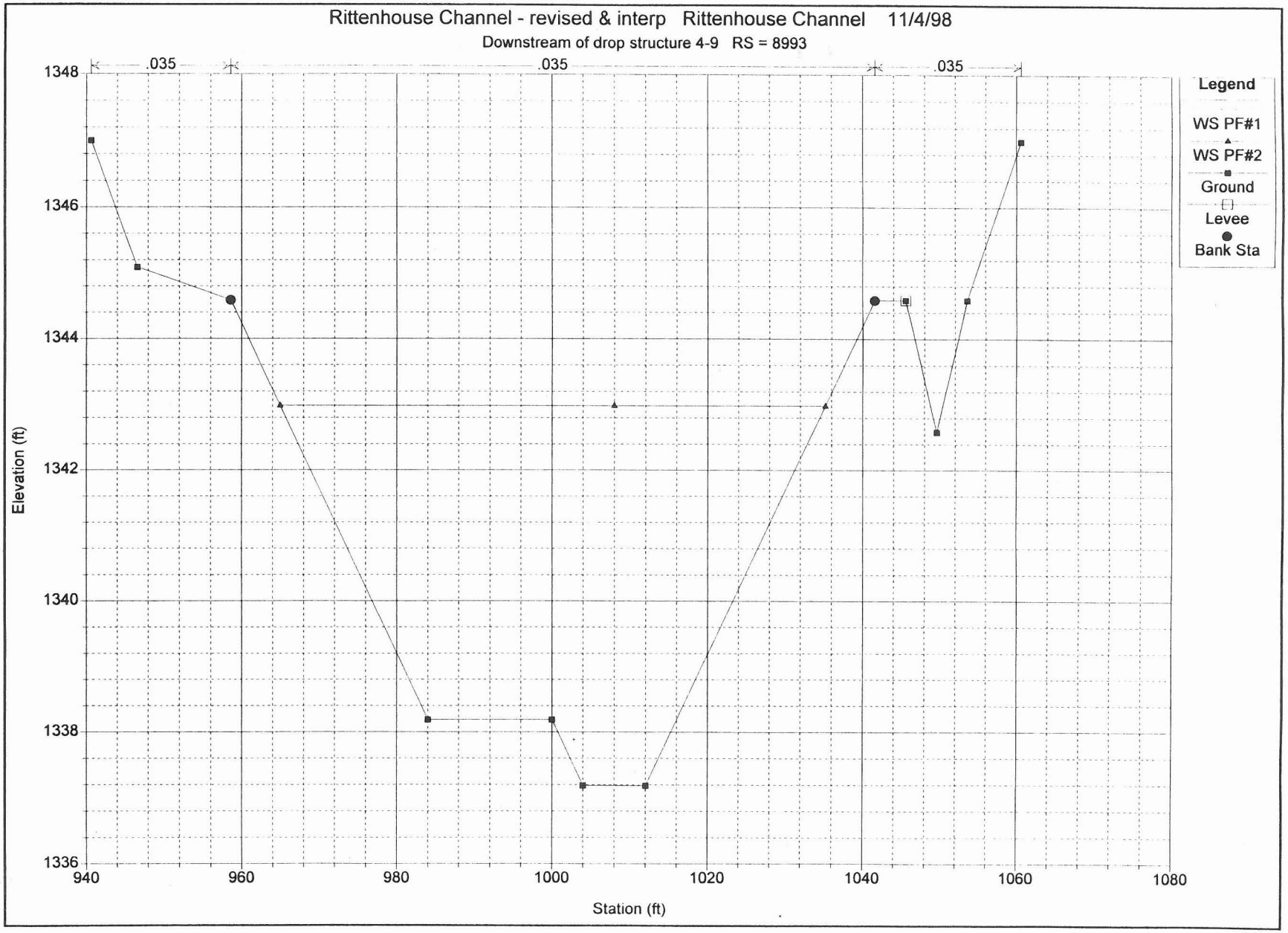

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of Sheet 15 RS = 8700
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8794.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 8888.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Downstream of drop structure 4-9 RS = 8982.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure 4-9 RS = 8983.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of drop structure 4-9 RS = 8993
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1348
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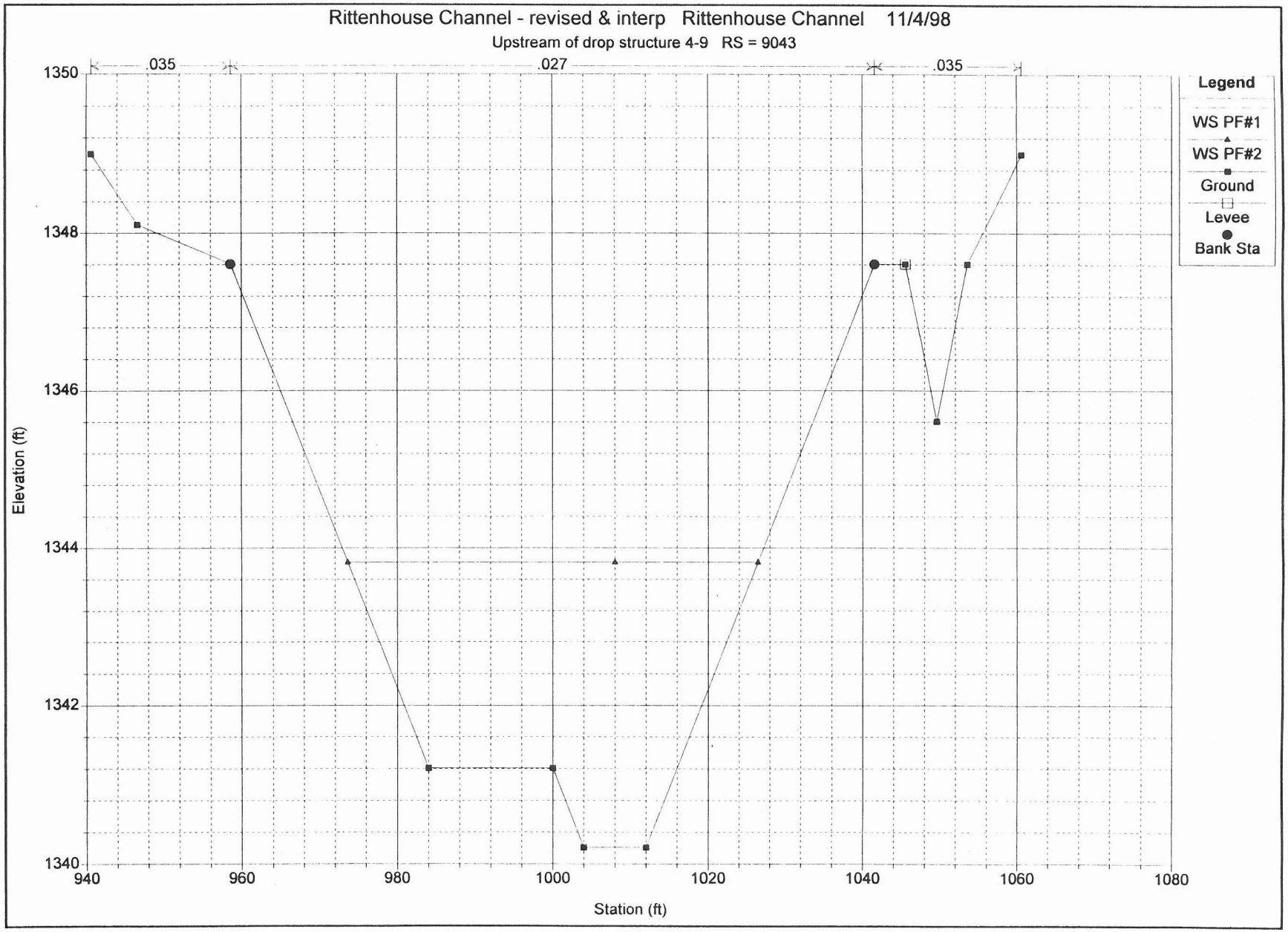
1342
1340
1338
1336
940
960
980
1000
1020
1040
1060
1080
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure 4-9 RS = 9043
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
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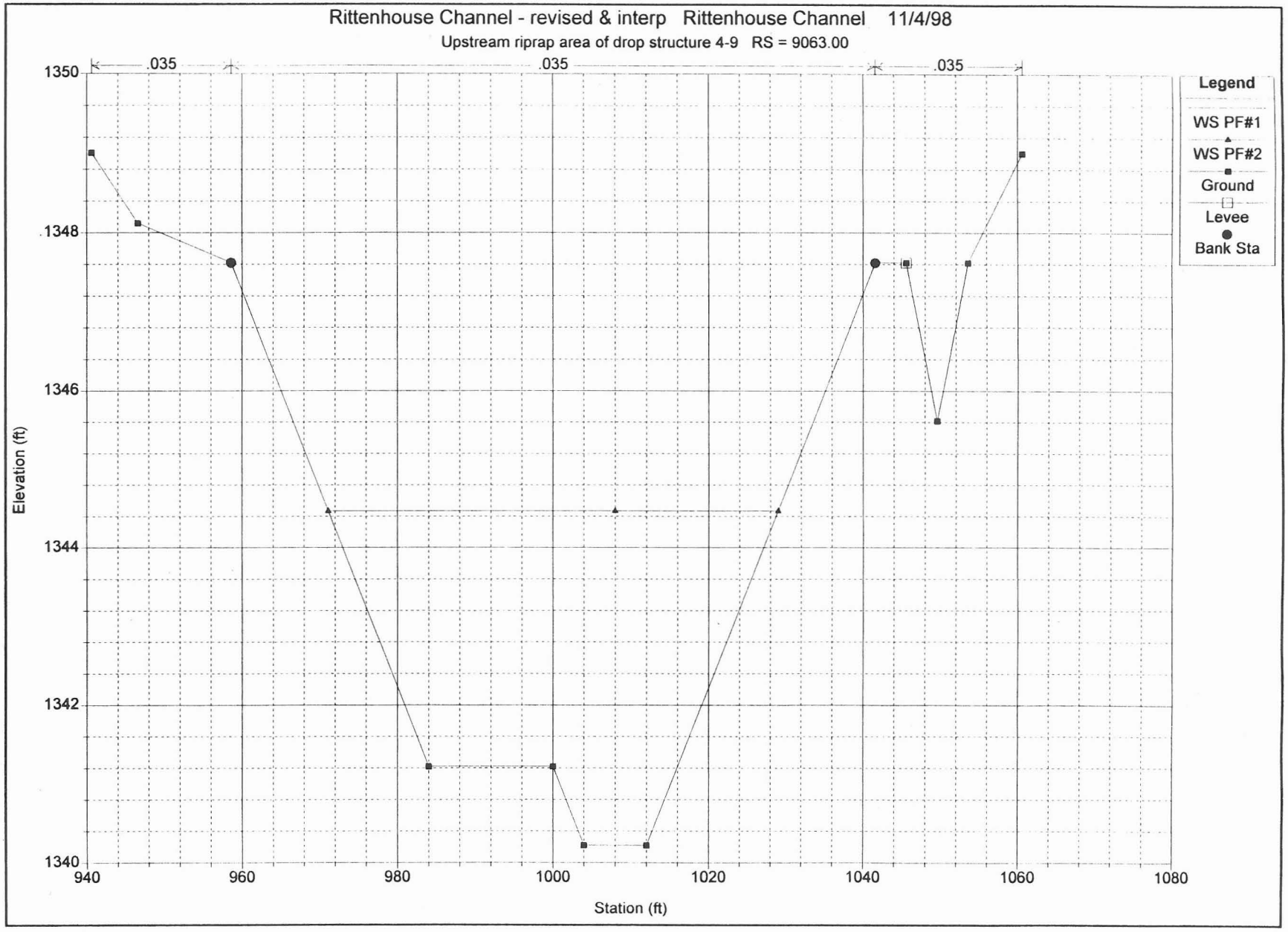
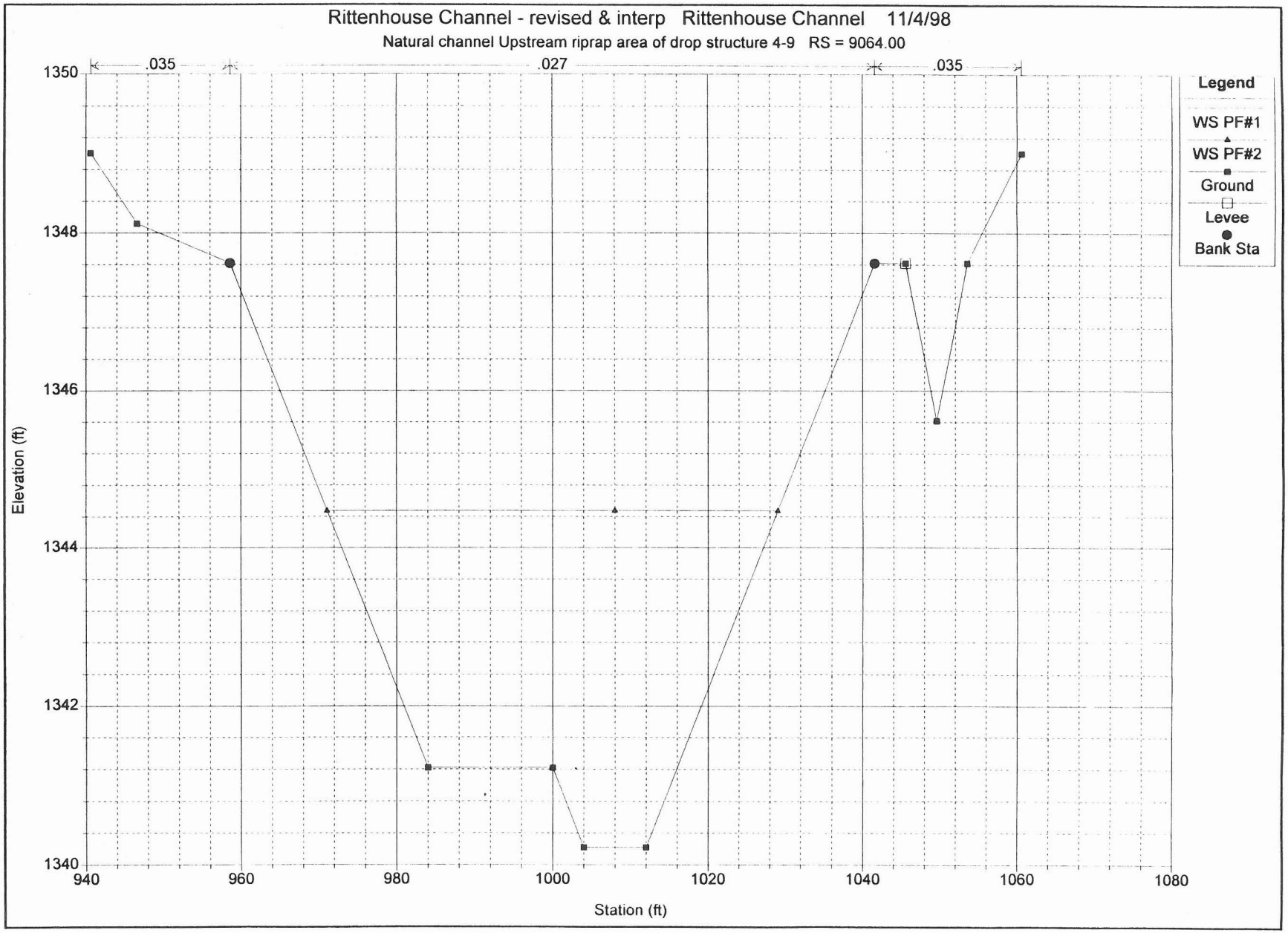
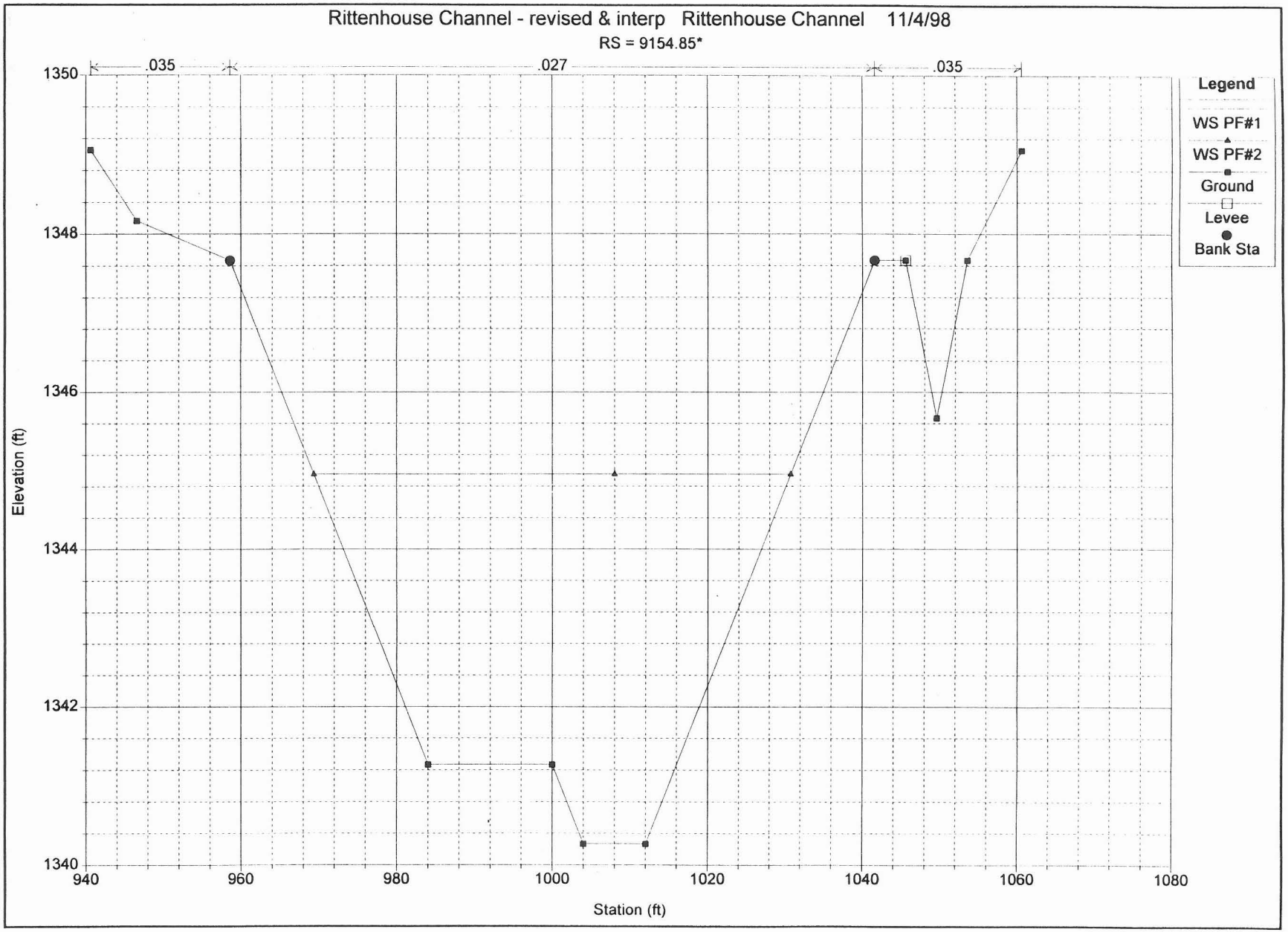
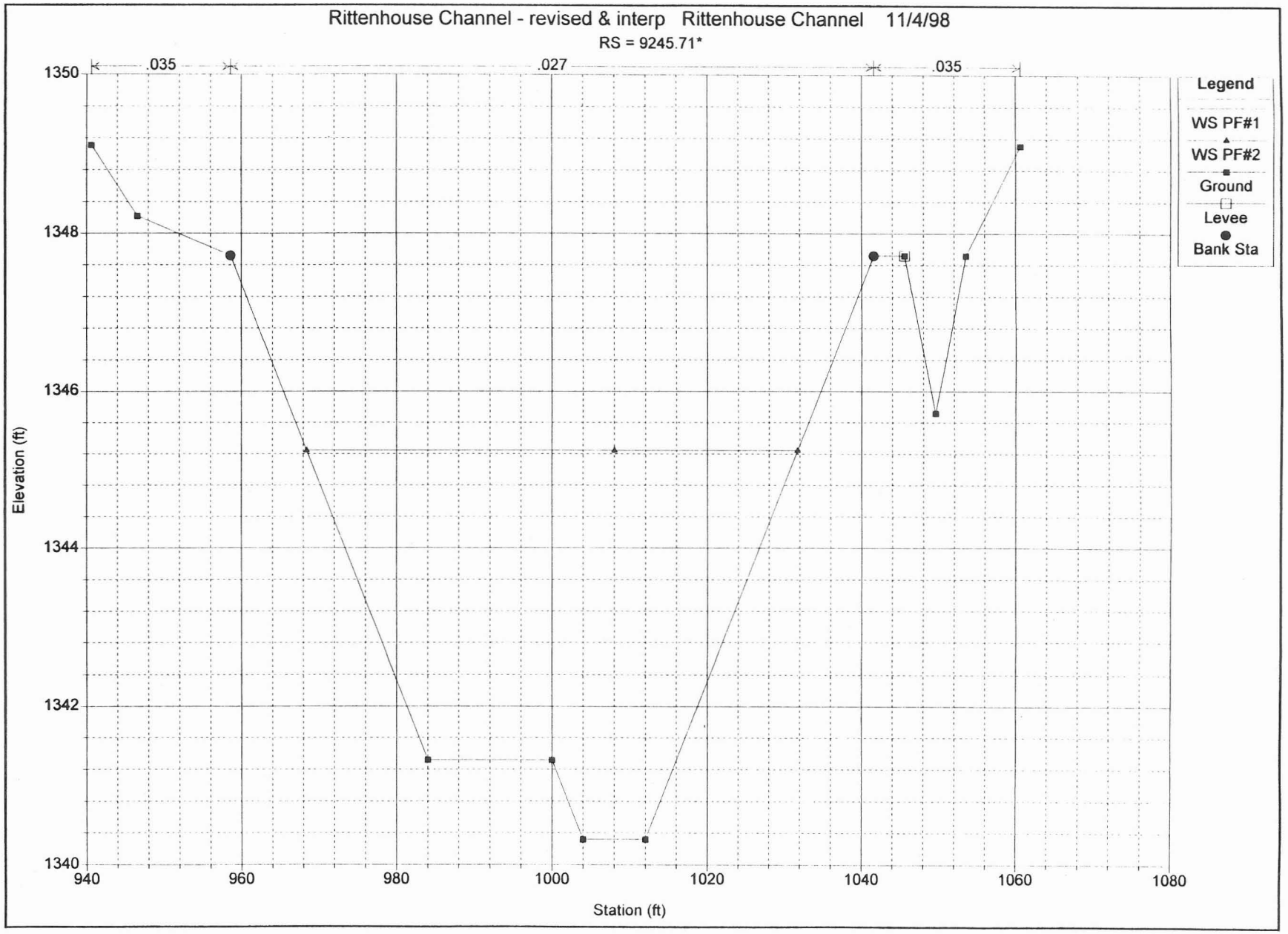
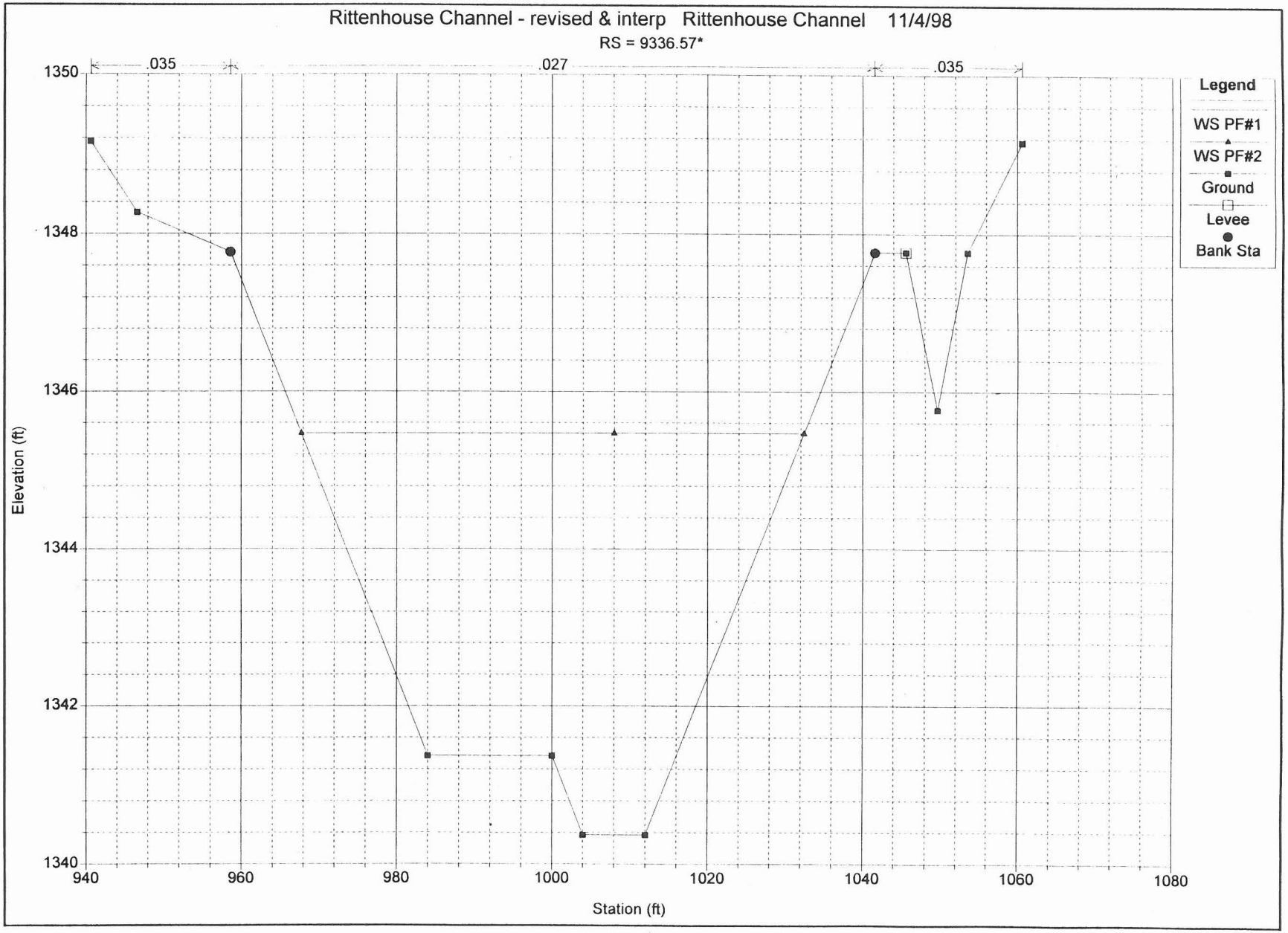
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

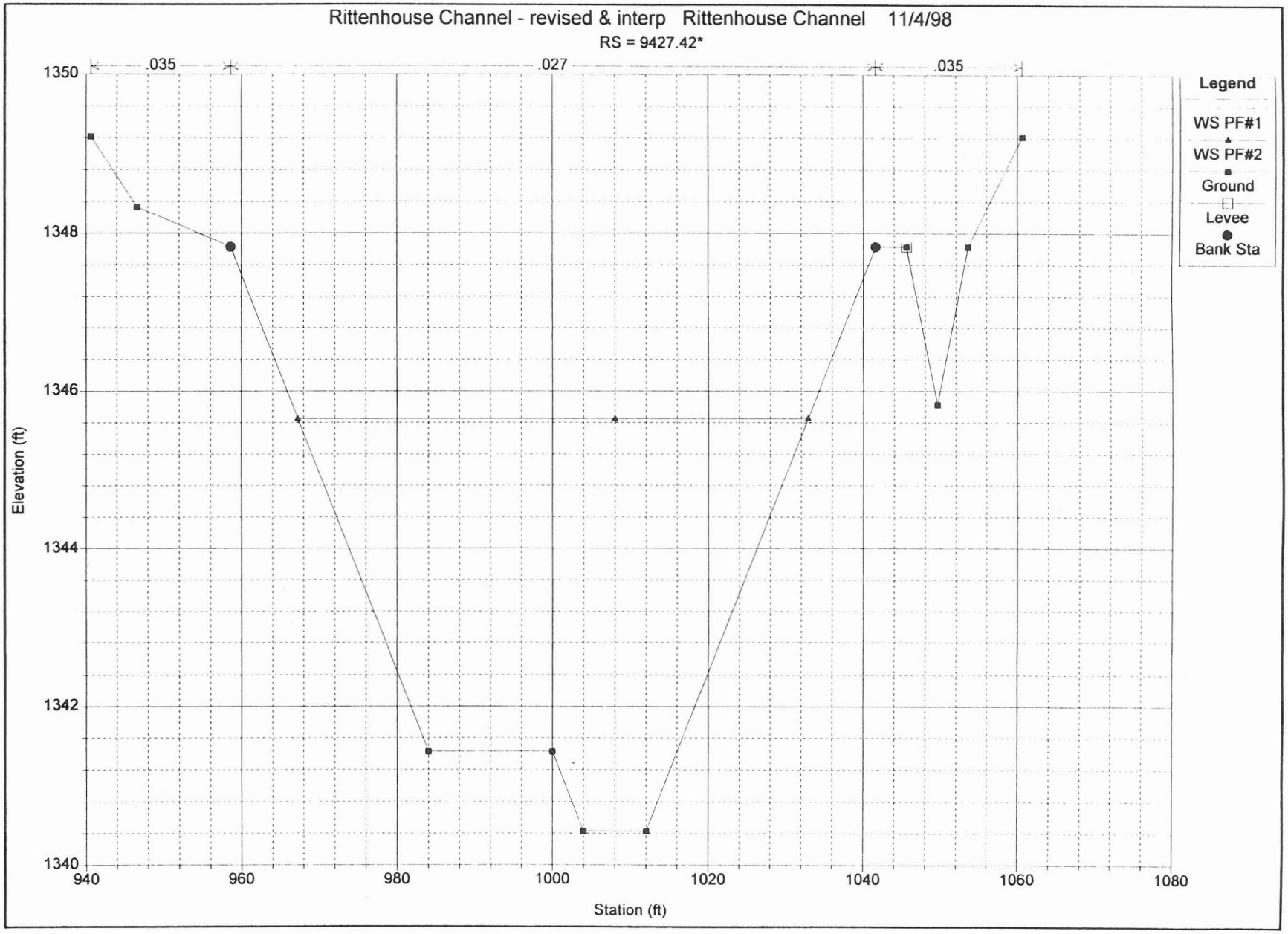

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure 4-9 RS = 9063.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

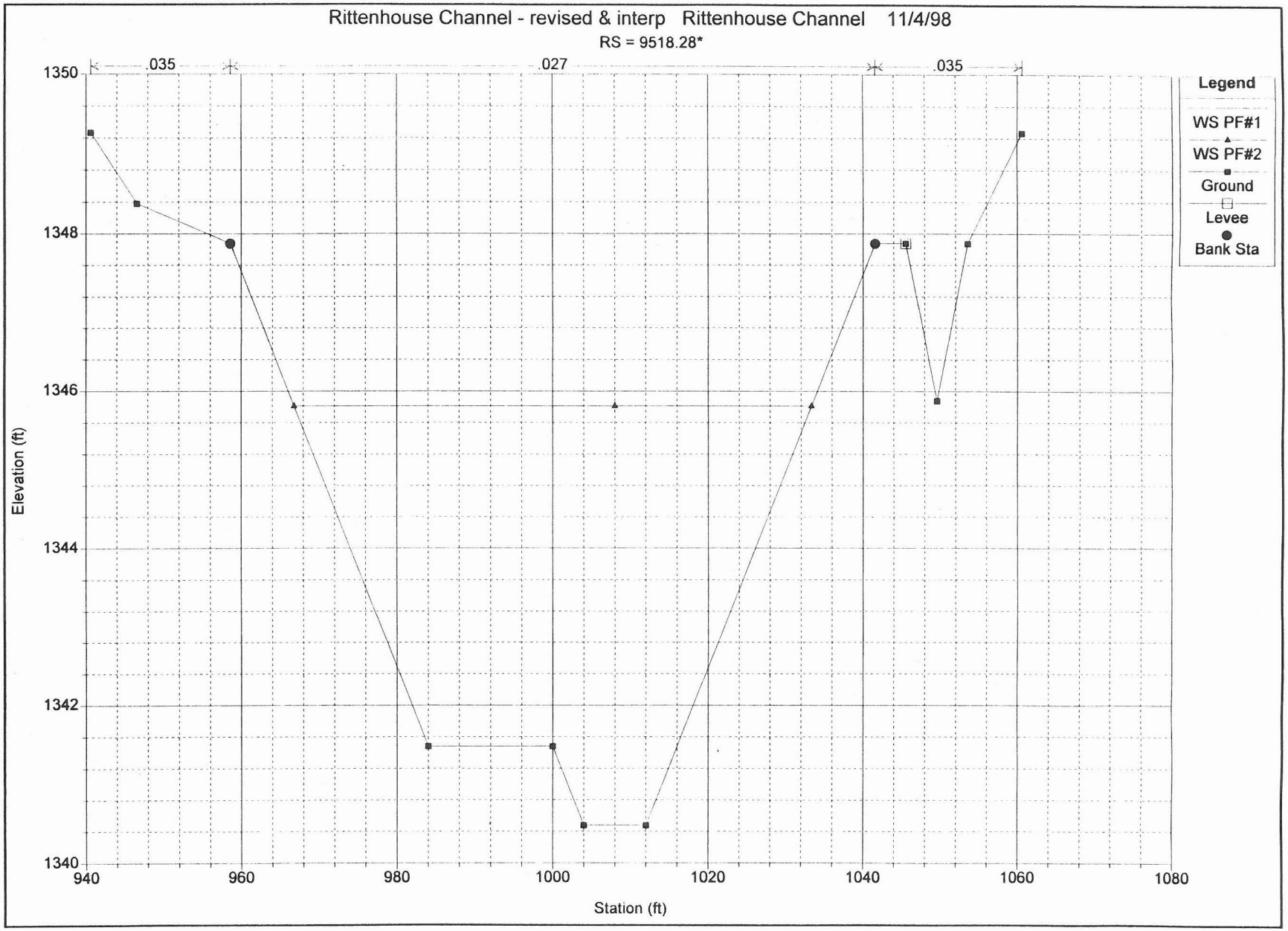

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel Upstream riprap area of drop structure 4-9 RS = 9064.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

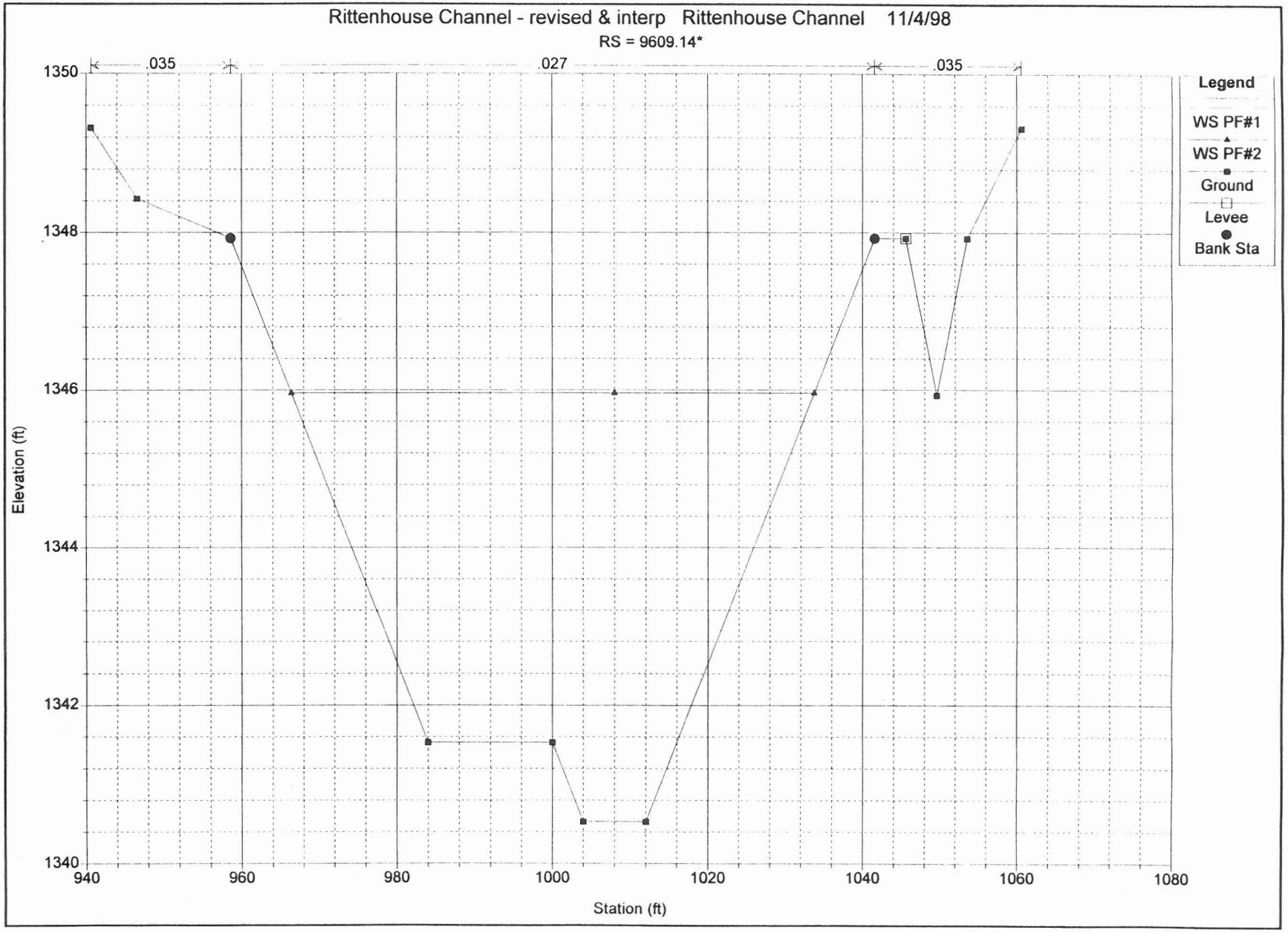

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9154.85*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

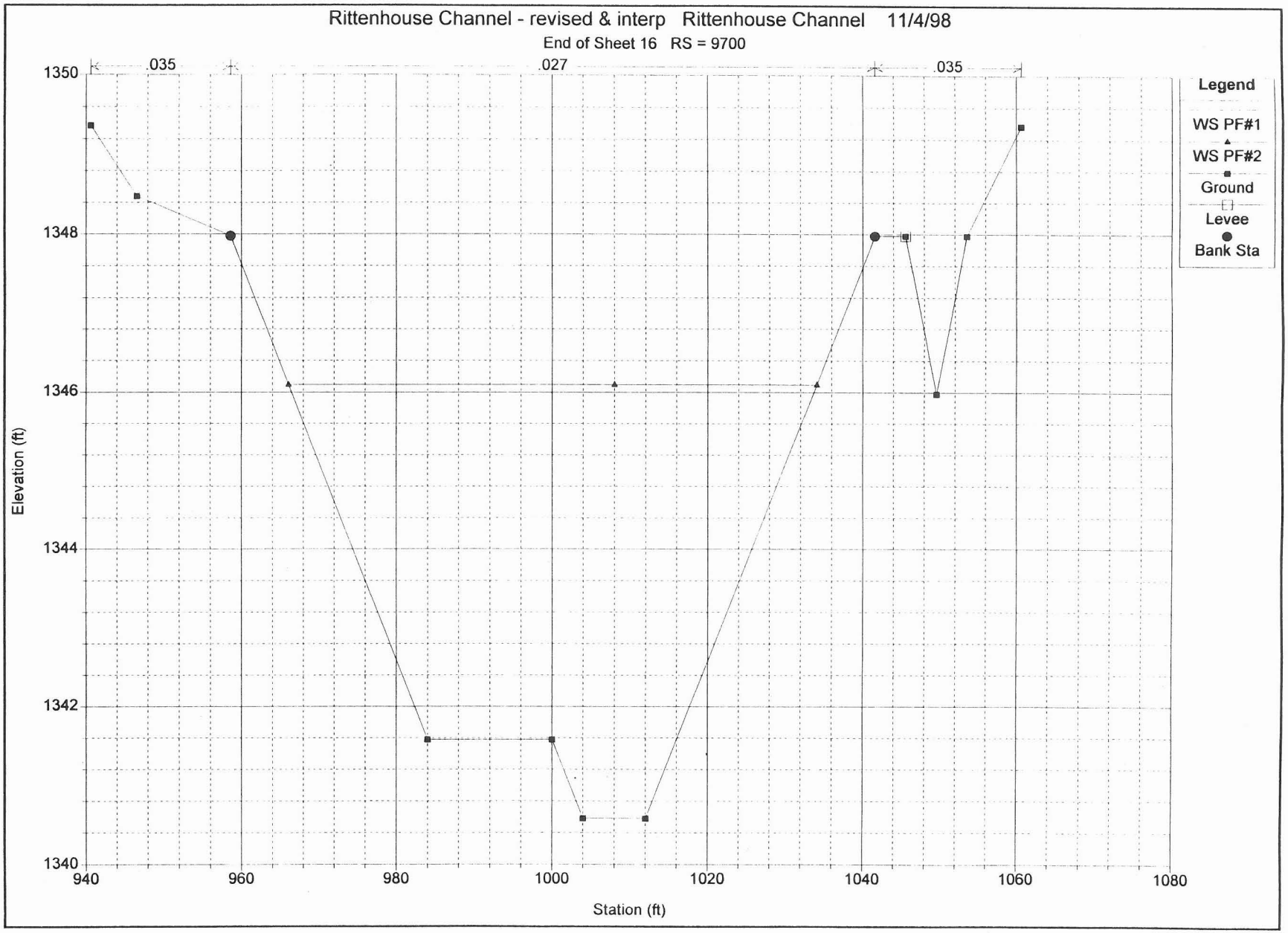

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9245.71*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

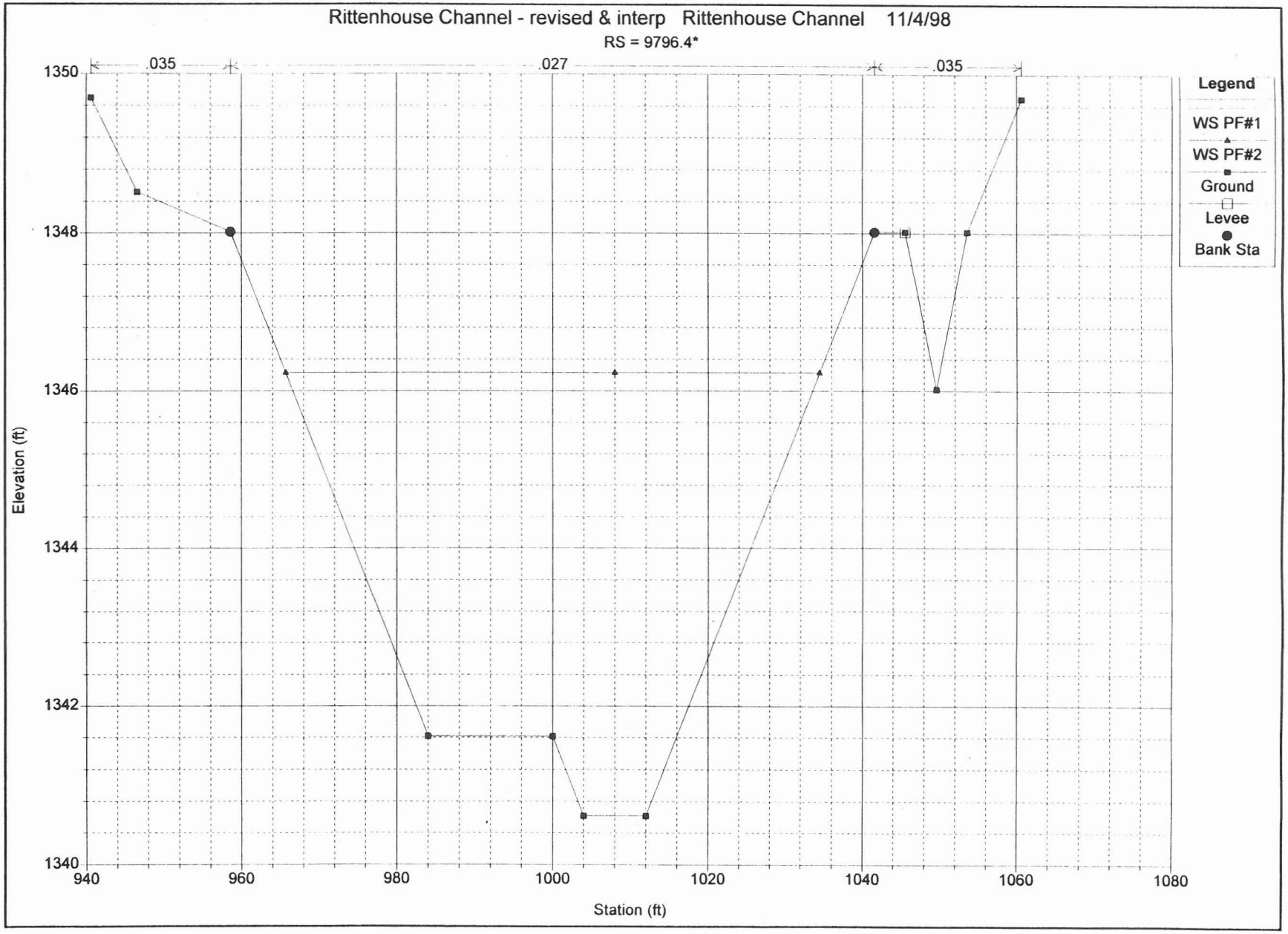

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9336.57*
.035
.027
.035
1350
1348
1346
1344
1342
1340
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

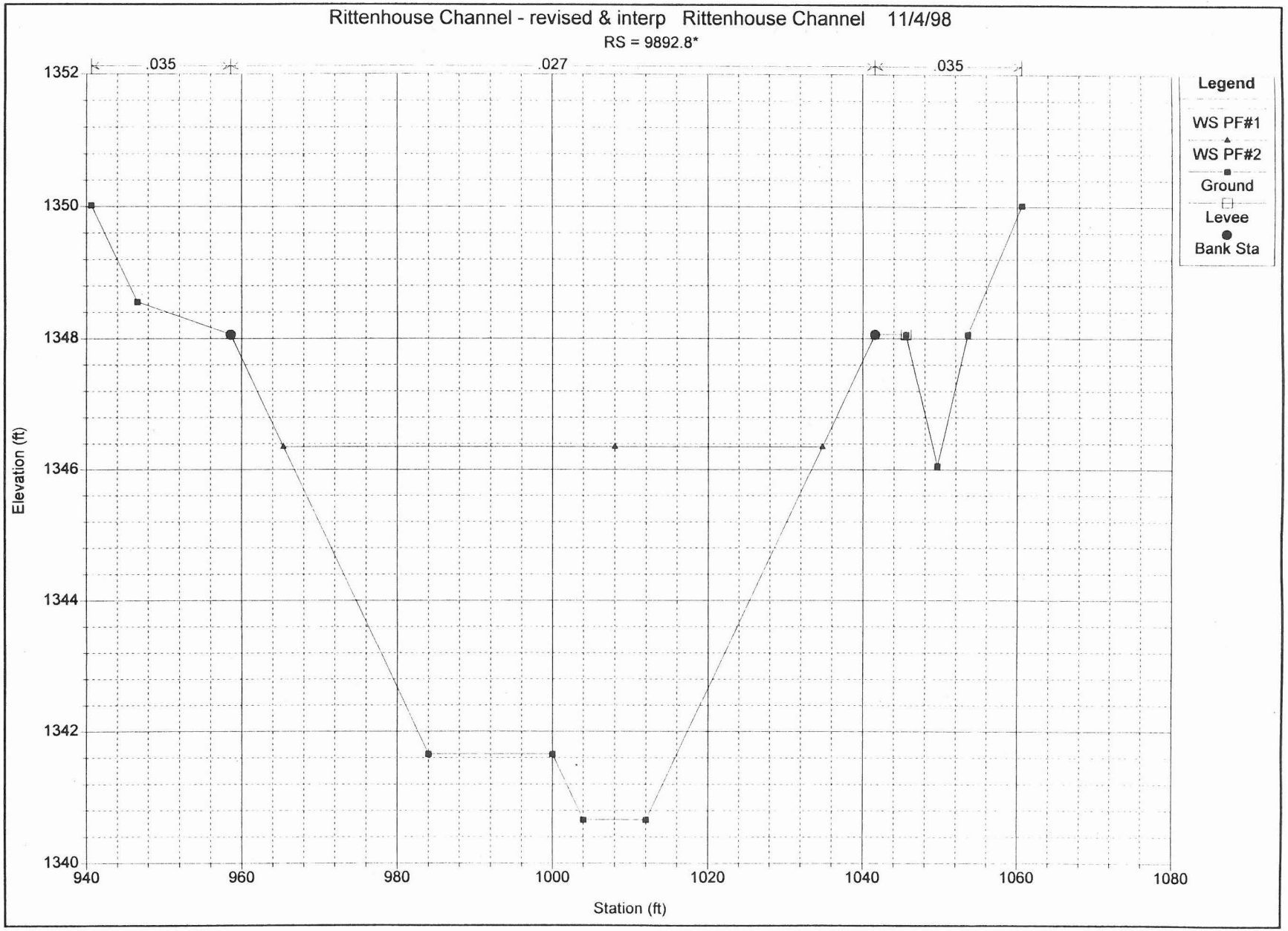

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9427.42*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

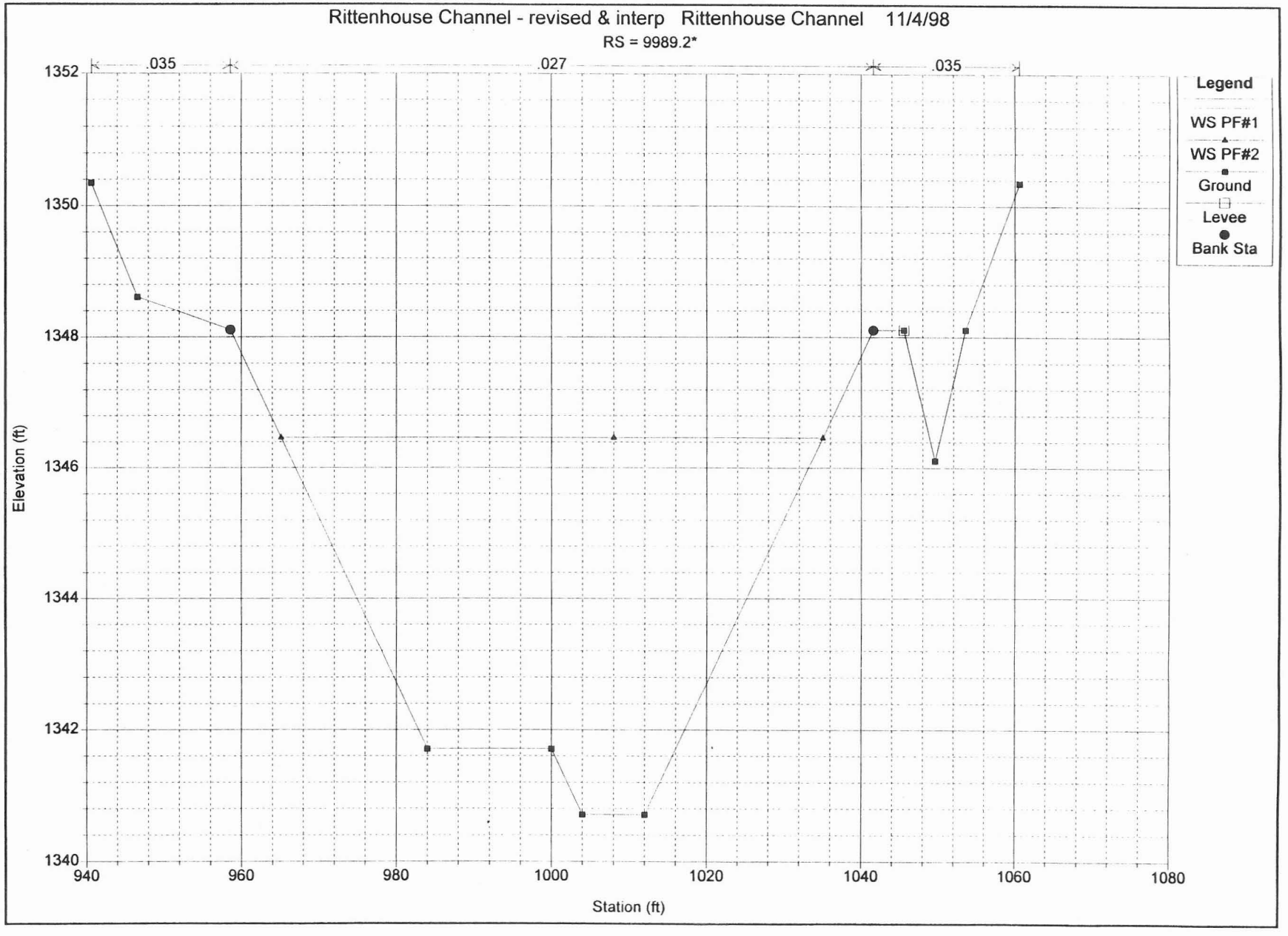

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9518.28*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

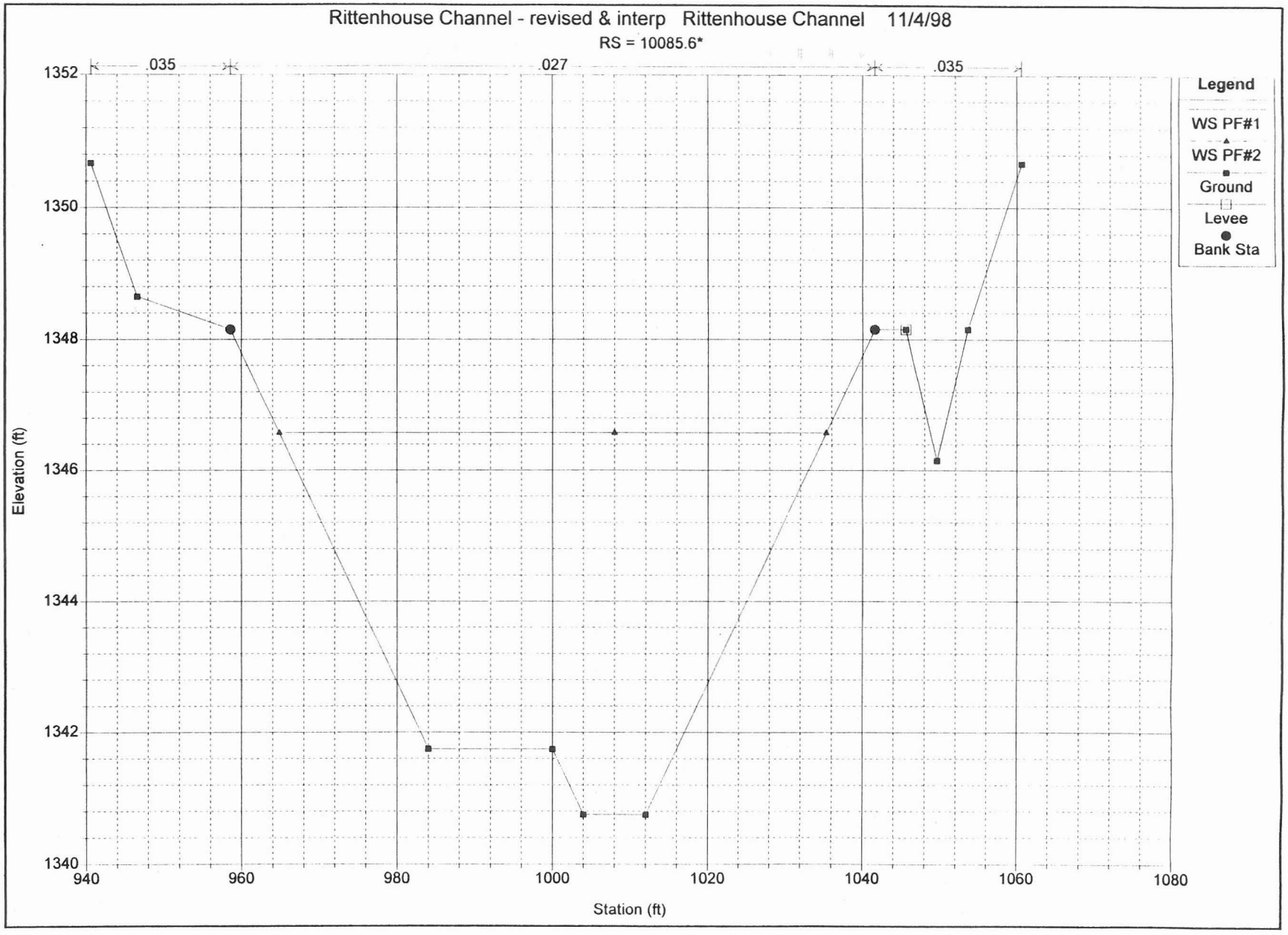

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9609.14*
.035
.027
.035
1350
1348
1346
1344
1342
1340
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

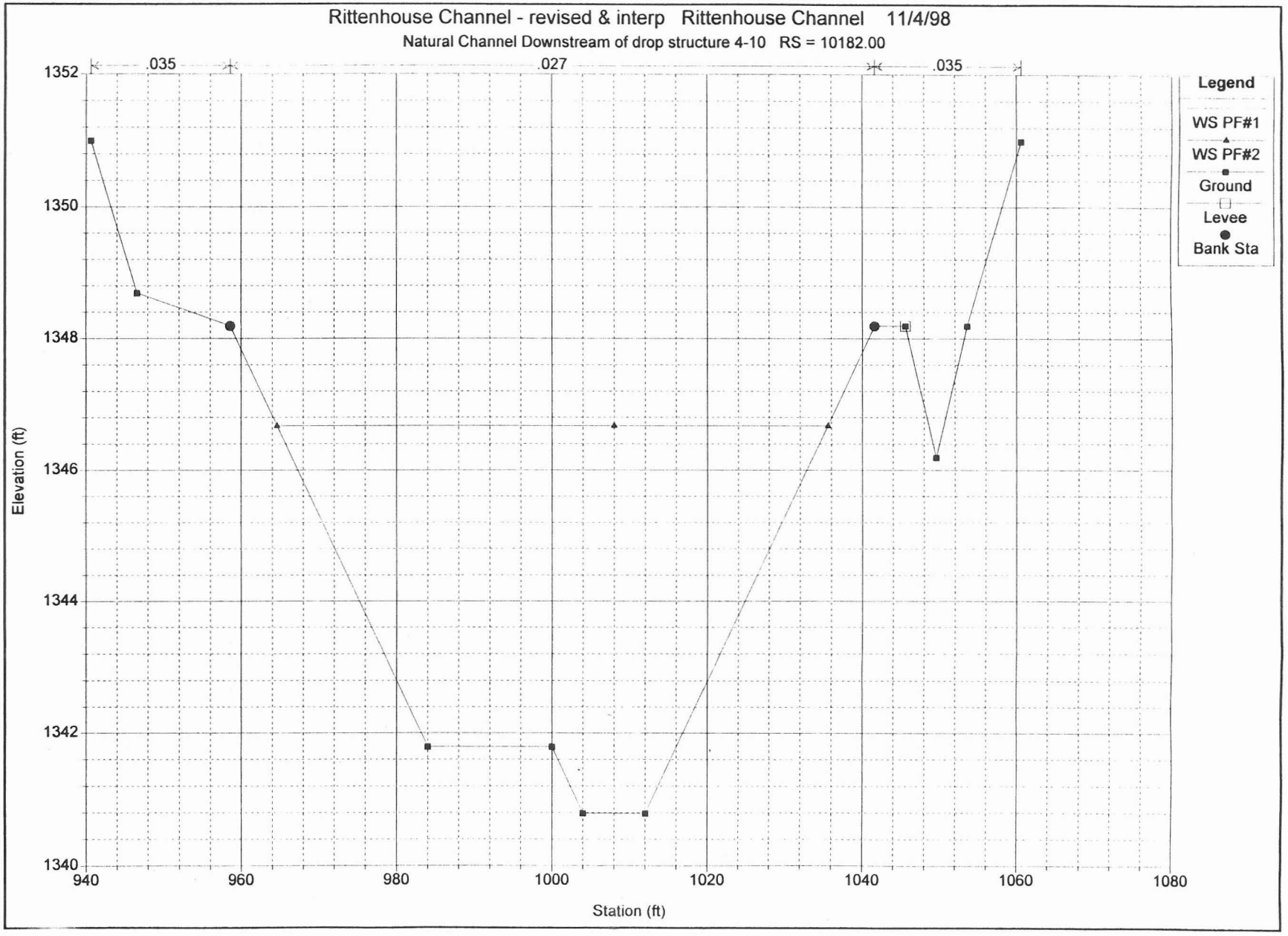

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of Sheet 16 RS = 9700
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
1350
1348
1346
1344
1342
1340
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)

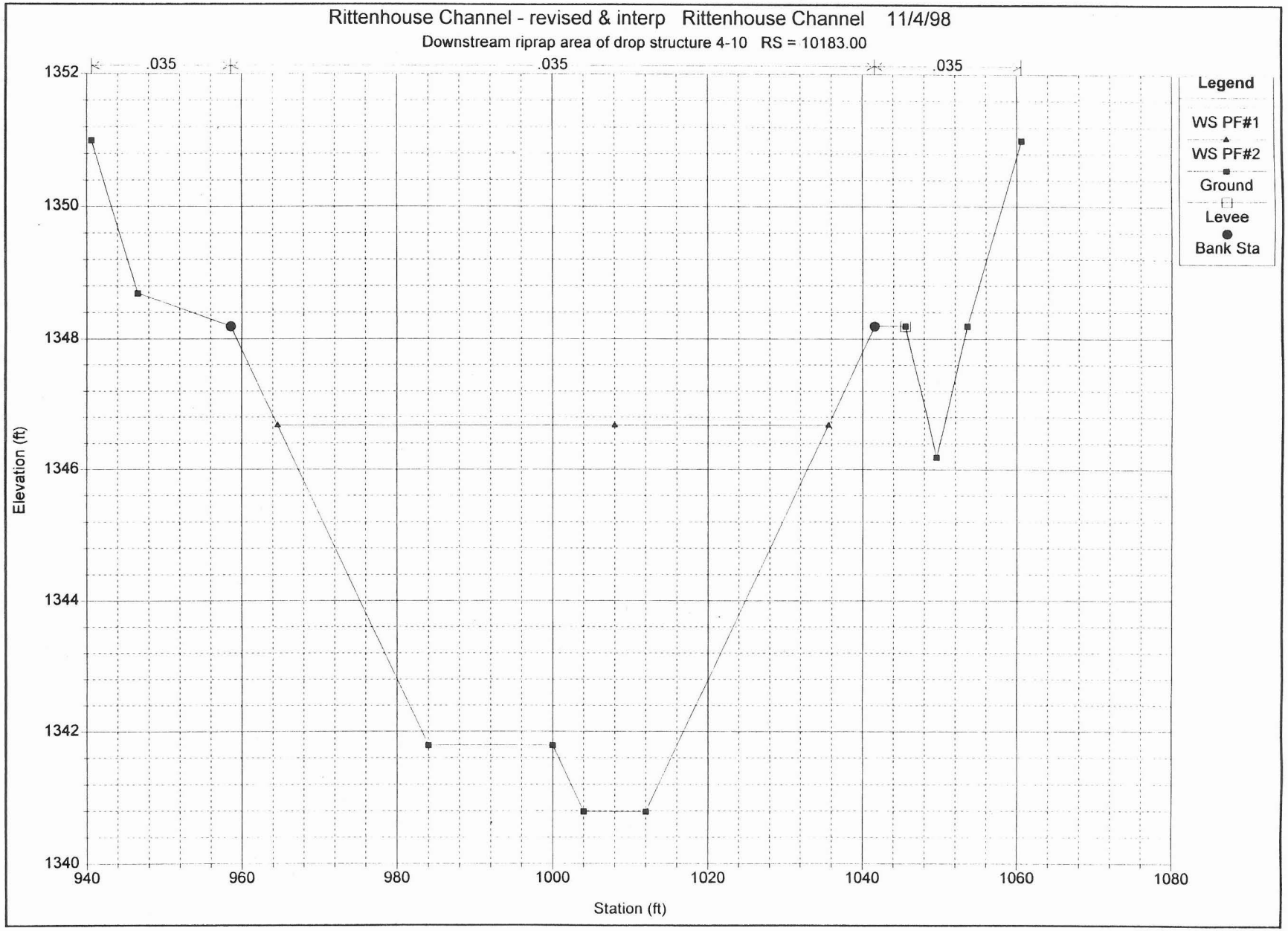

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9796.4*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

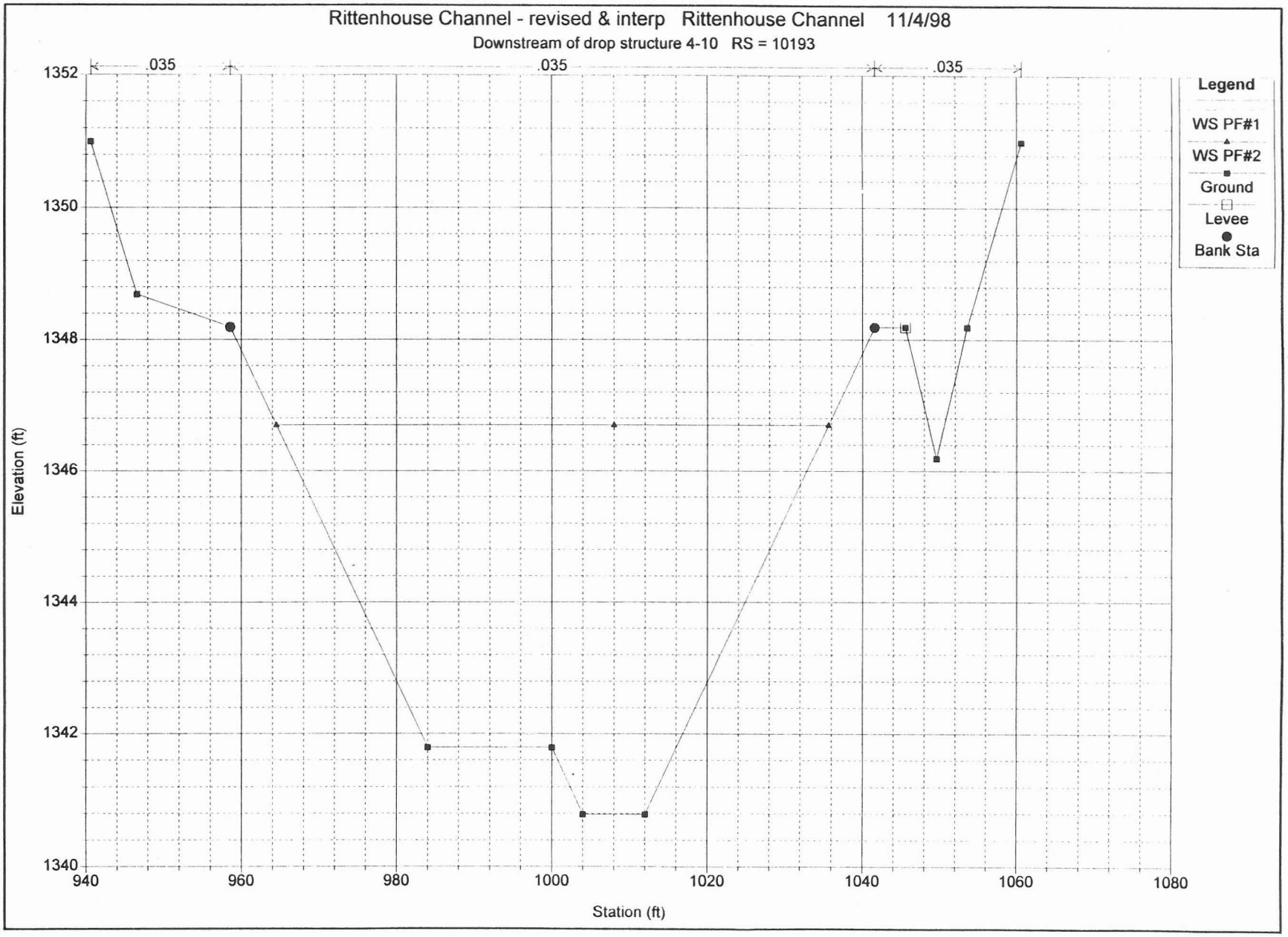

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9892.8*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1352
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

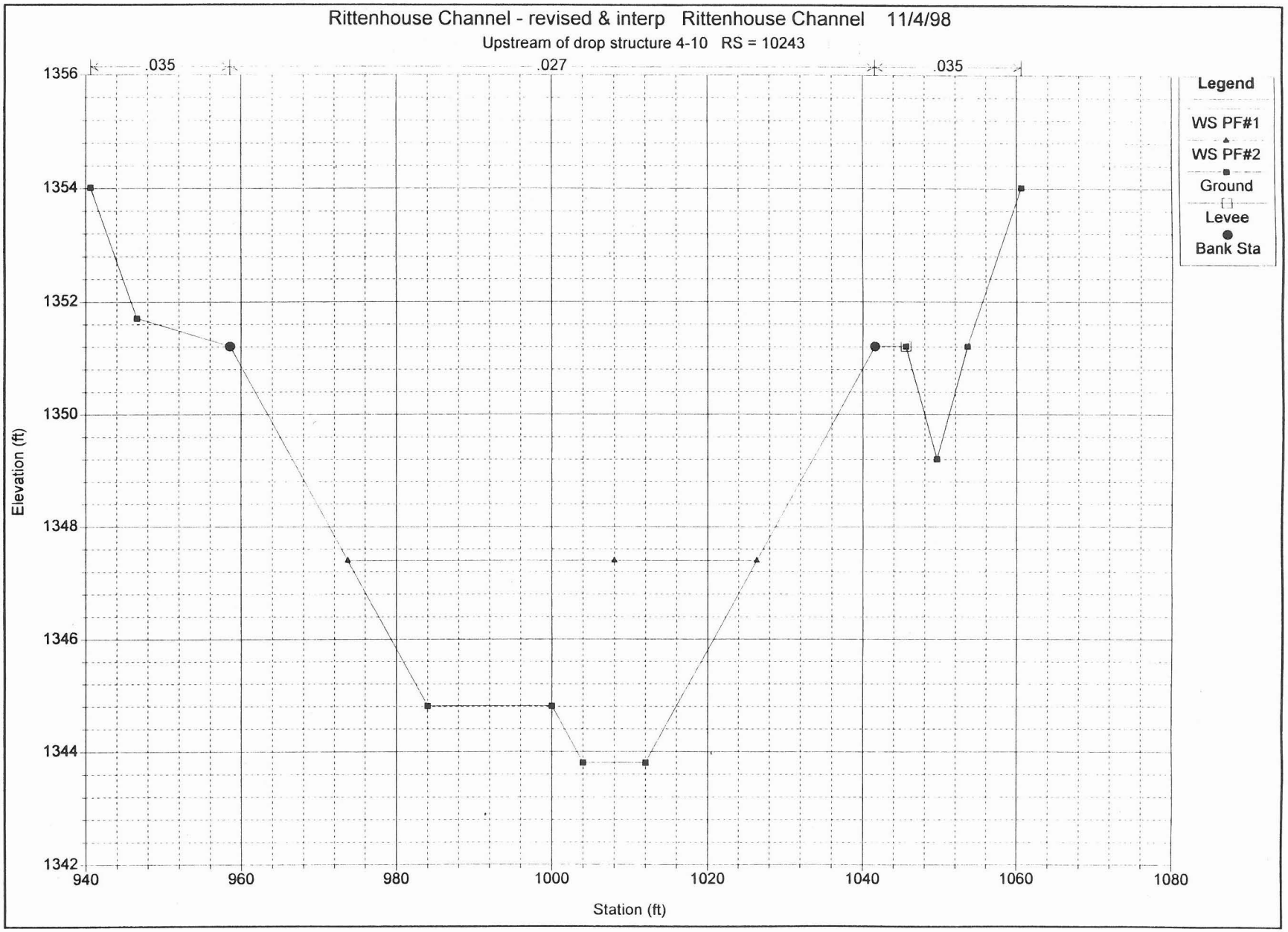

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 9989.2*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1352
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

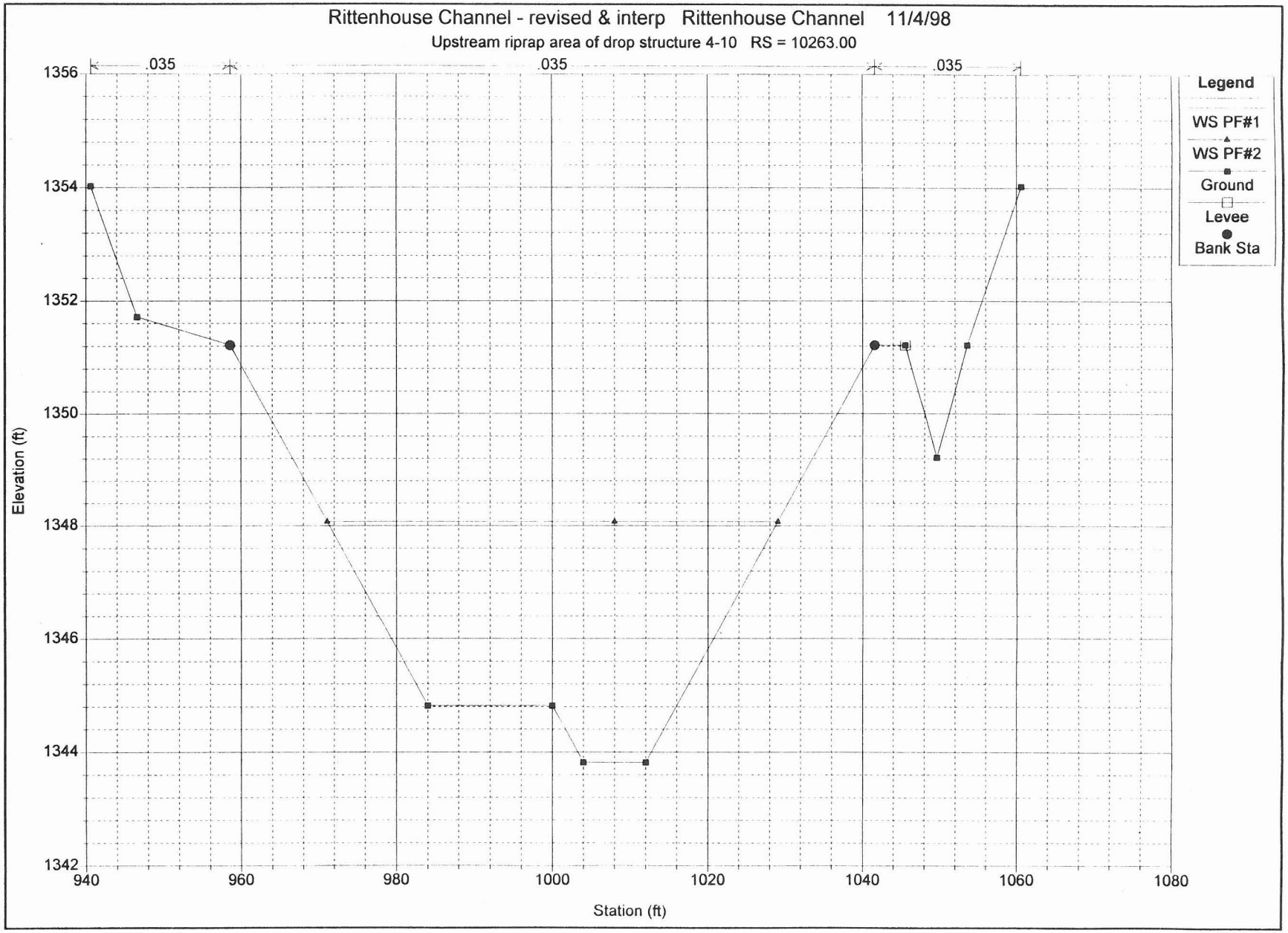

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 10085.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1352
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

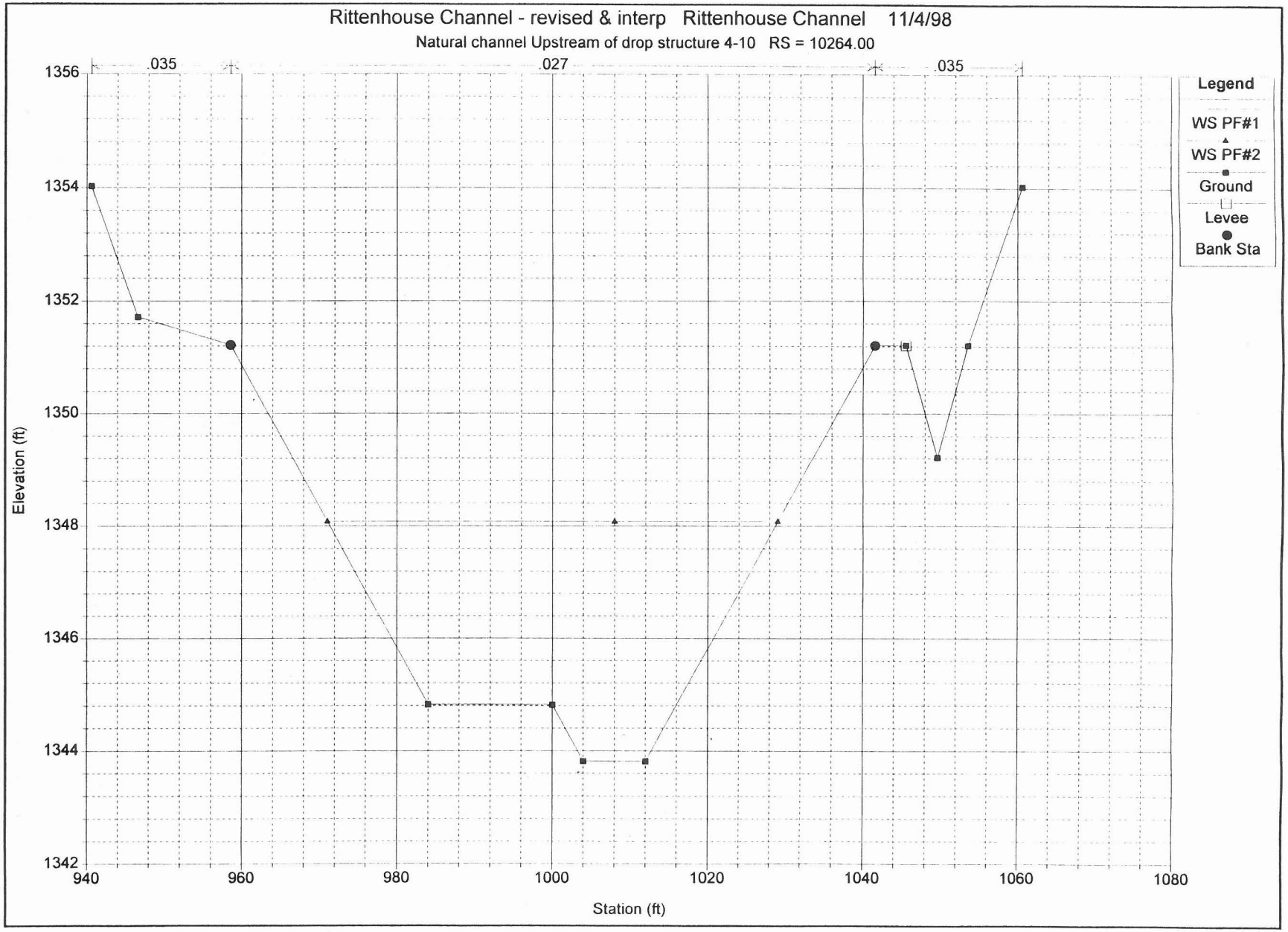

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Downstream of drop structure 4-10 RS = 10182.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1352
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

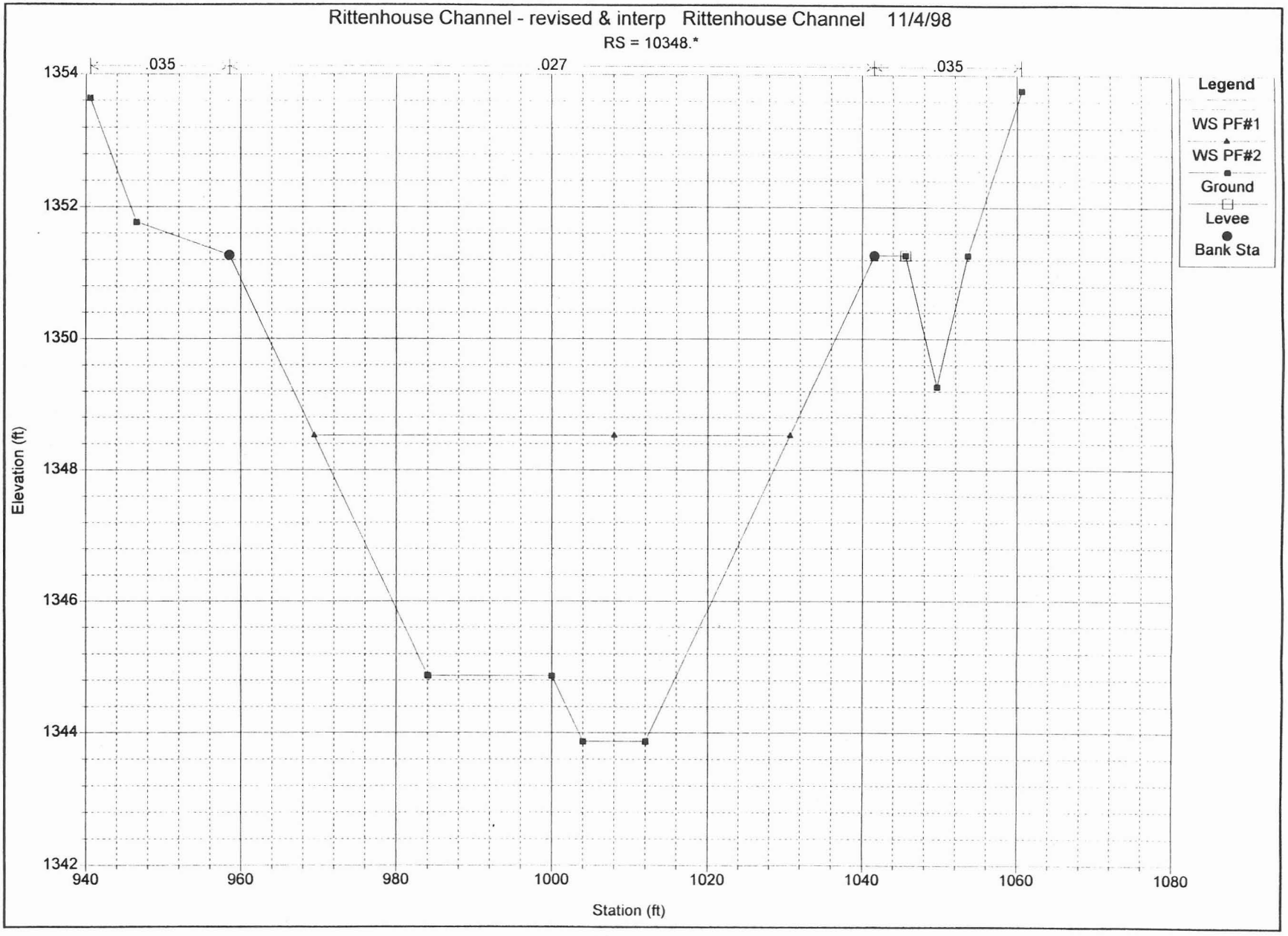

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure 4-10 RS = 10183.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1352
1350
1348
1346
1344
1342
1340
940
960
980
1000
1020
1040
1060
1080
Station (ft)

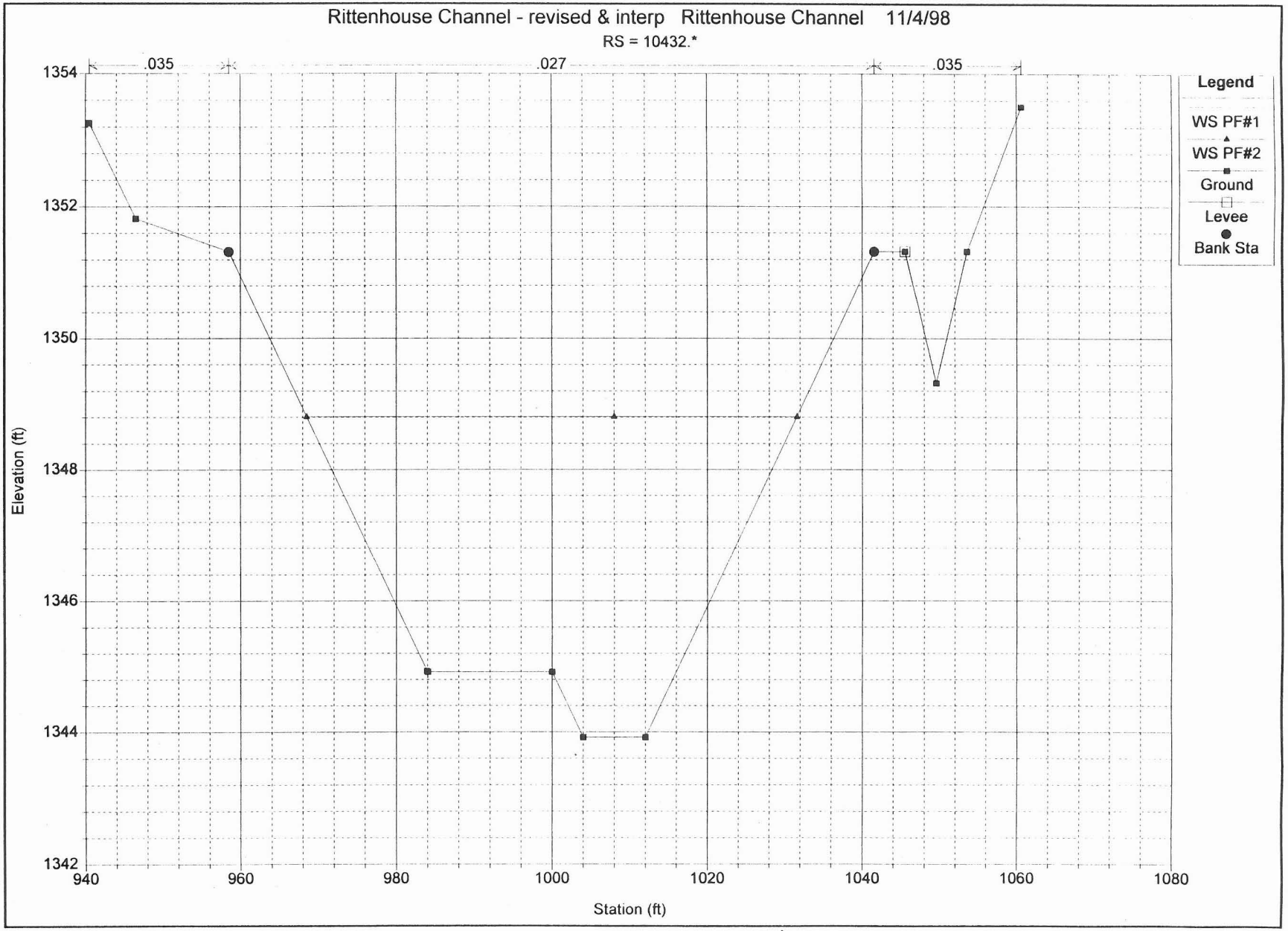

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream of drop structure 4-10 RS = 10193
.035
.035
.035
1352
1350
1348
1346
1344
1342
1340
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

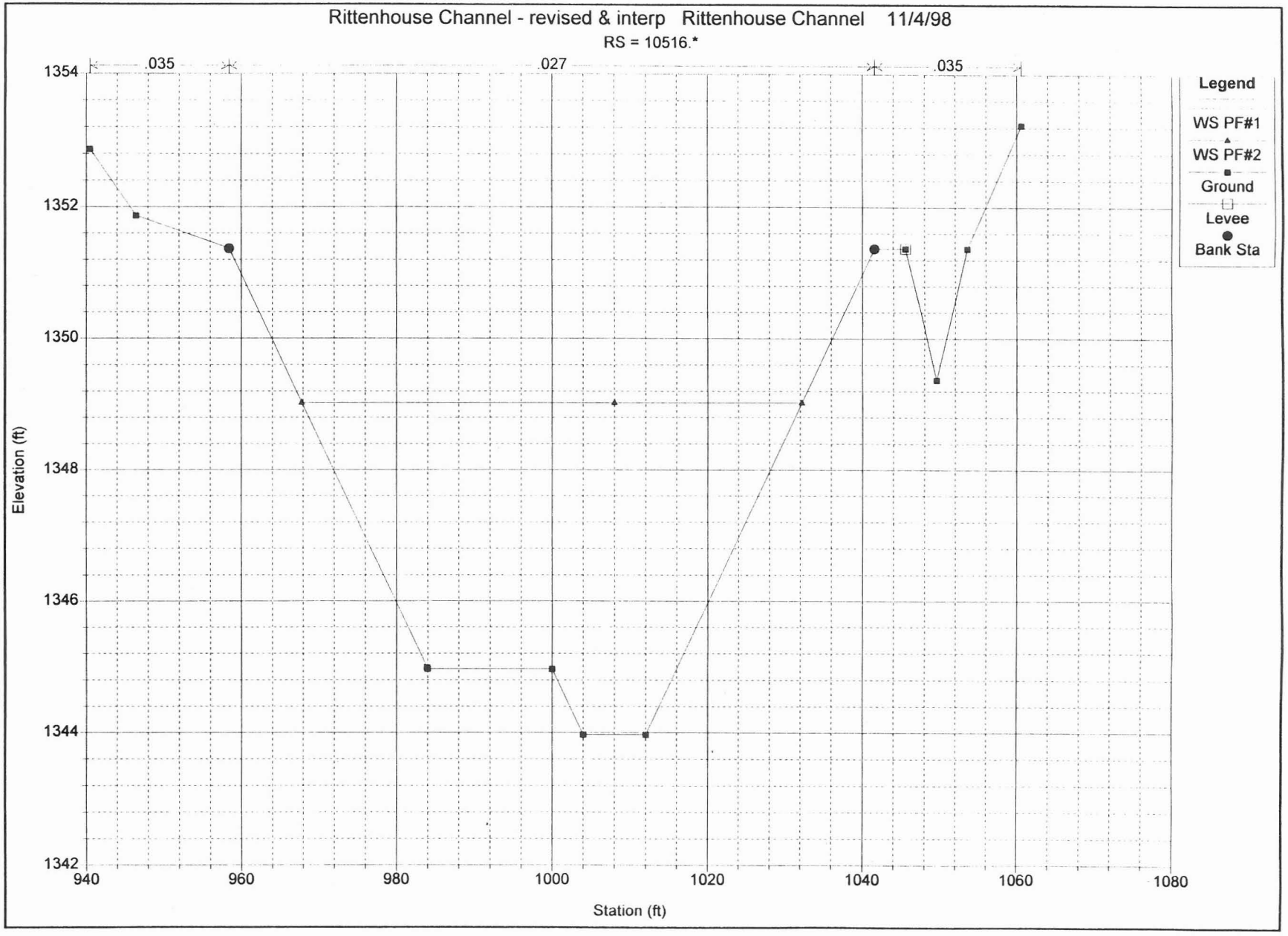

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure 4-10 RS = 10243
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
1344
1342
940
960
980
1000
1020
1040
1060
1080
Station (ft)

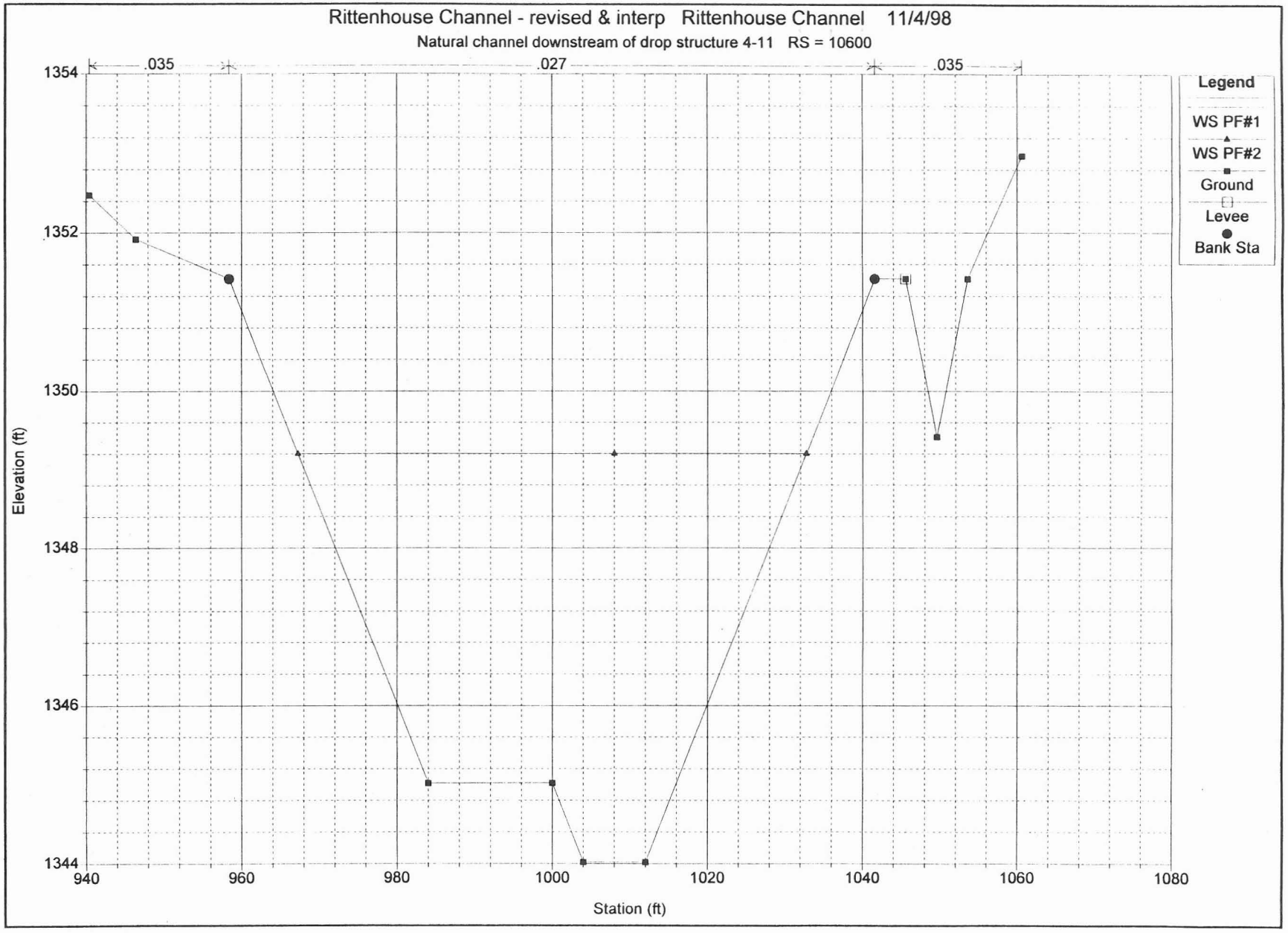

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure 4-10 RS = 10263.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
1344
1342
940
960
980
1000
1020
1040
1060
1080
Station (ft)

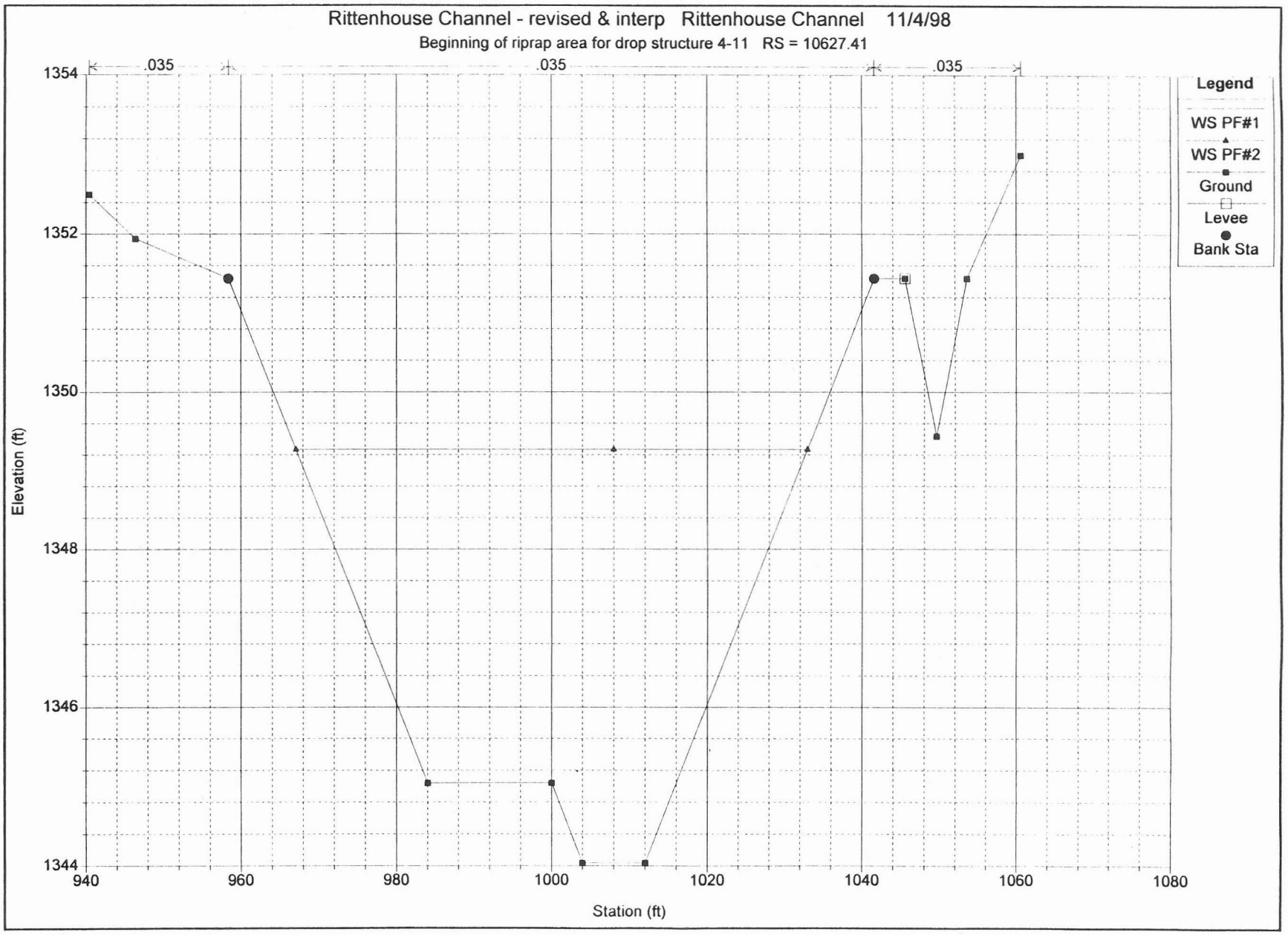

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel Upstream of drop structure 4-10 RS = 10264.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
1344
1342
940
960
980
1000
1020
1040
1060
1080
Station (ft)

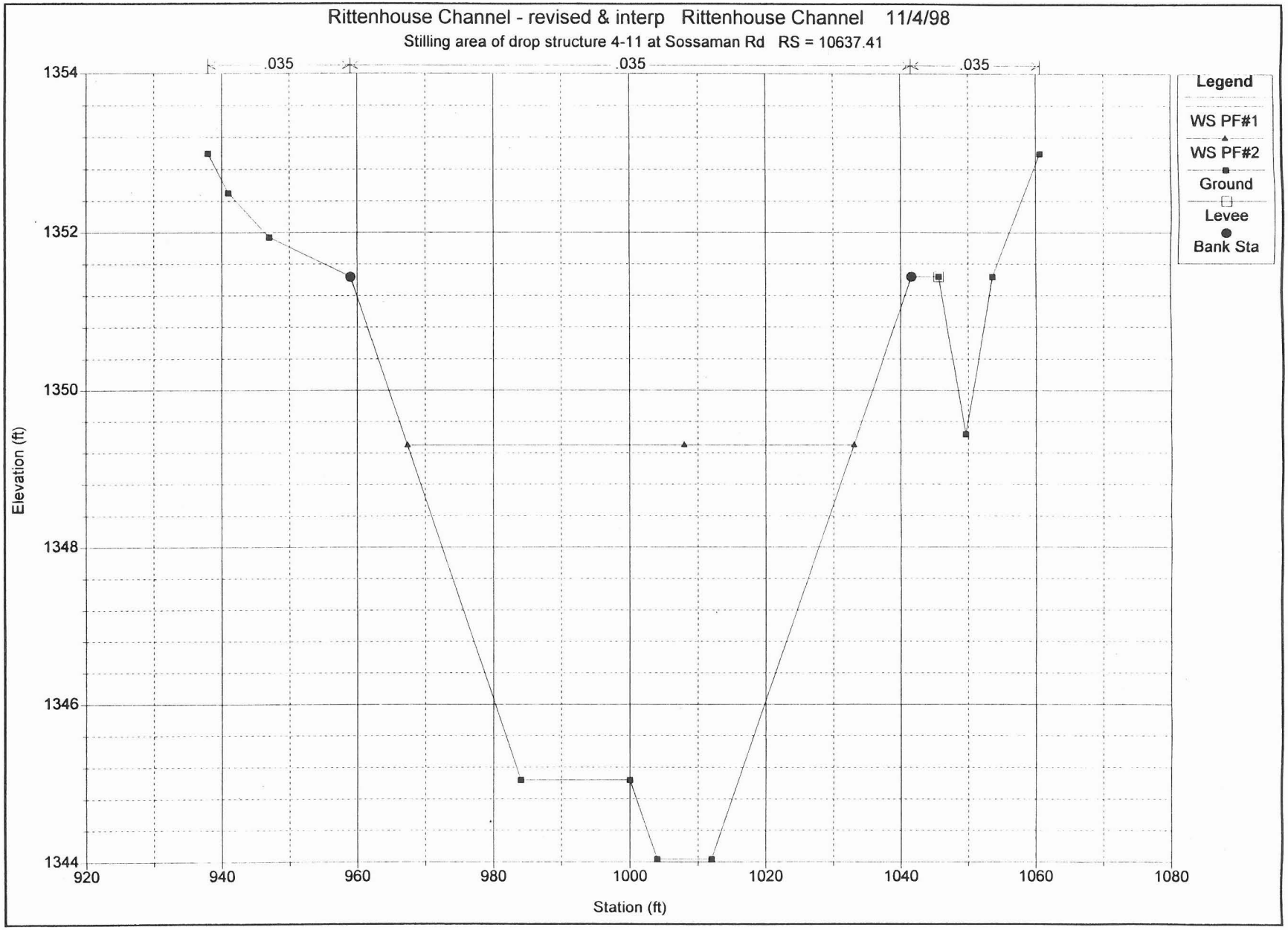

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 10348.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1354
1352
1350
1348
1346
1344
1342
940
960
980
1000
1020
1040
1060
1080
Station (ft)

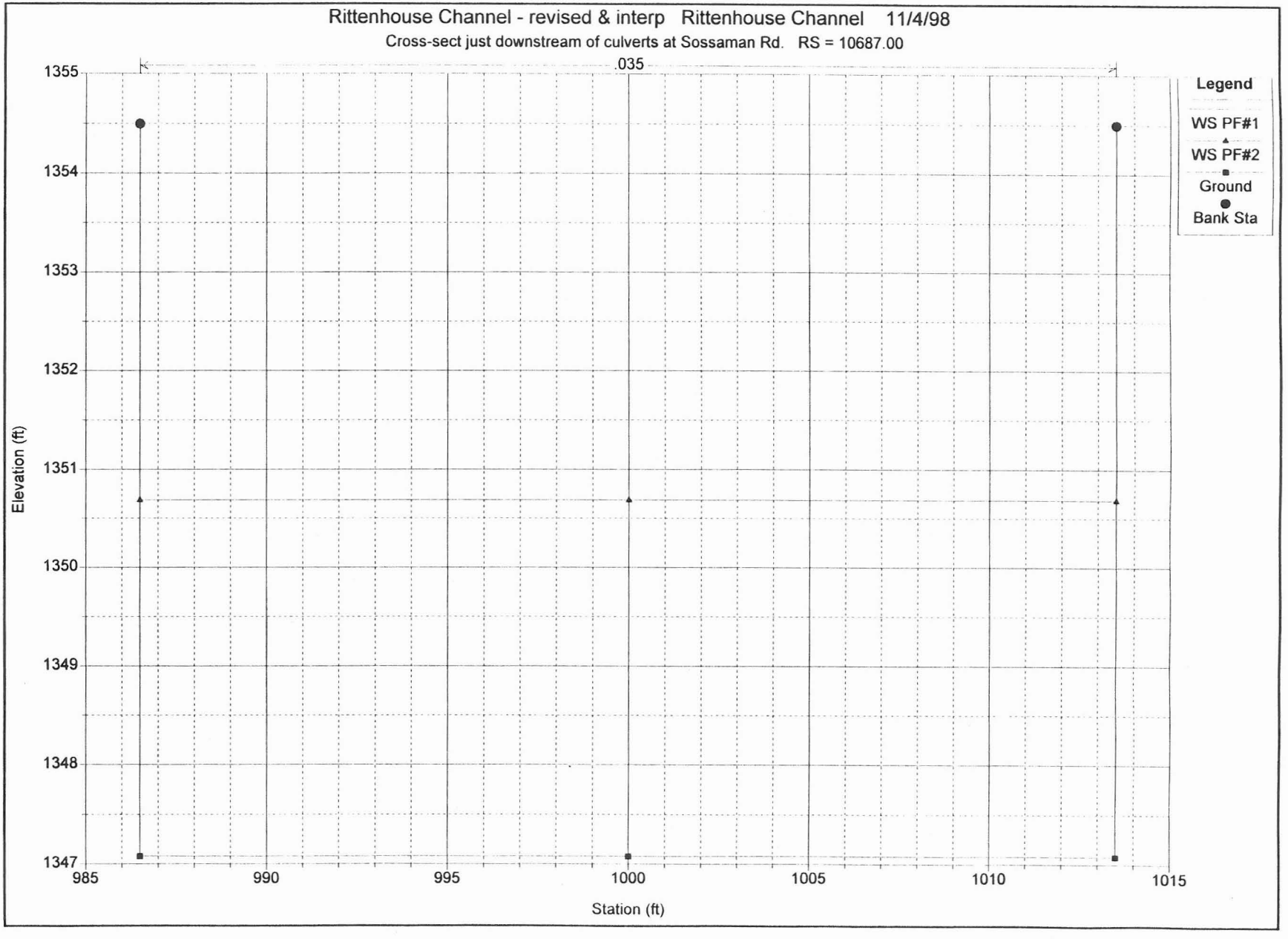

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 10432.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1354
1352
1350
1348
1346
1344
1342
940
960
980
1000
1020
1040
1060
1080
Station (ft)

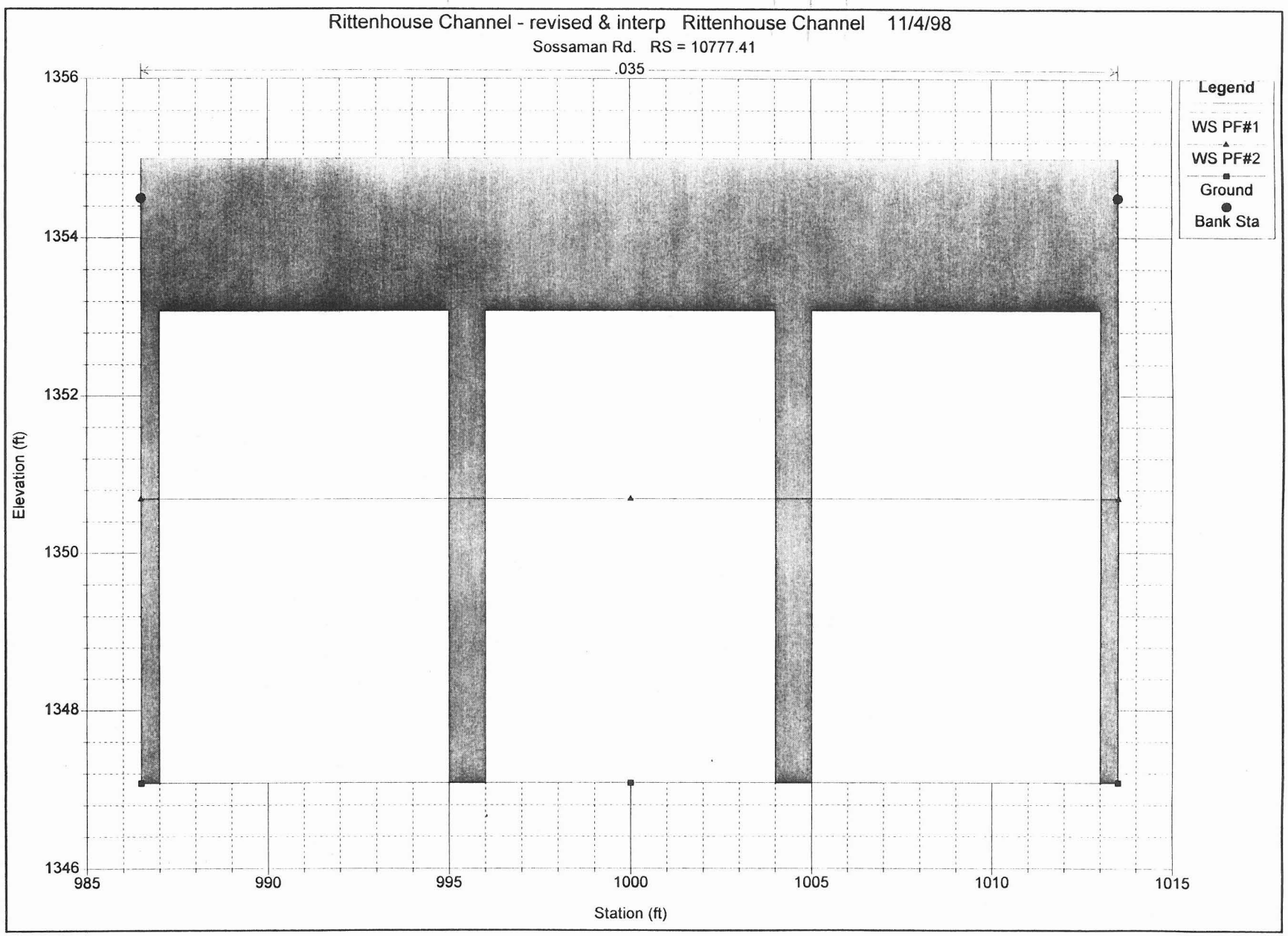

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 10516.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1354
1352
1350
1348
1346
1344
1342
940
960
980
1000
1020
1040
1060
1080
Station (ft)

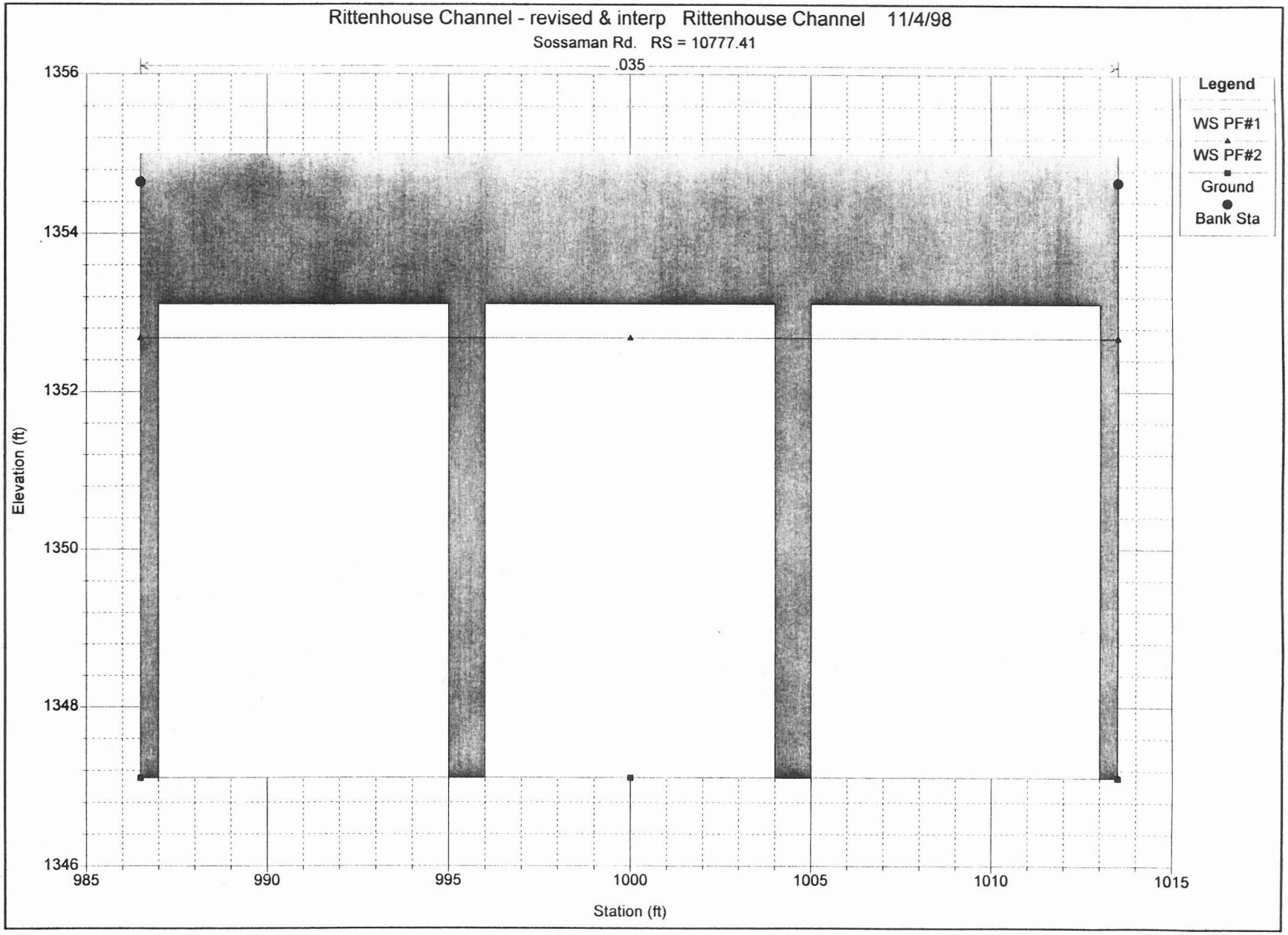

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel downstream of drop structure 4-11 RS = 10600
.035
.027
.035
1354
1352
1350
1348
1346
1344
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

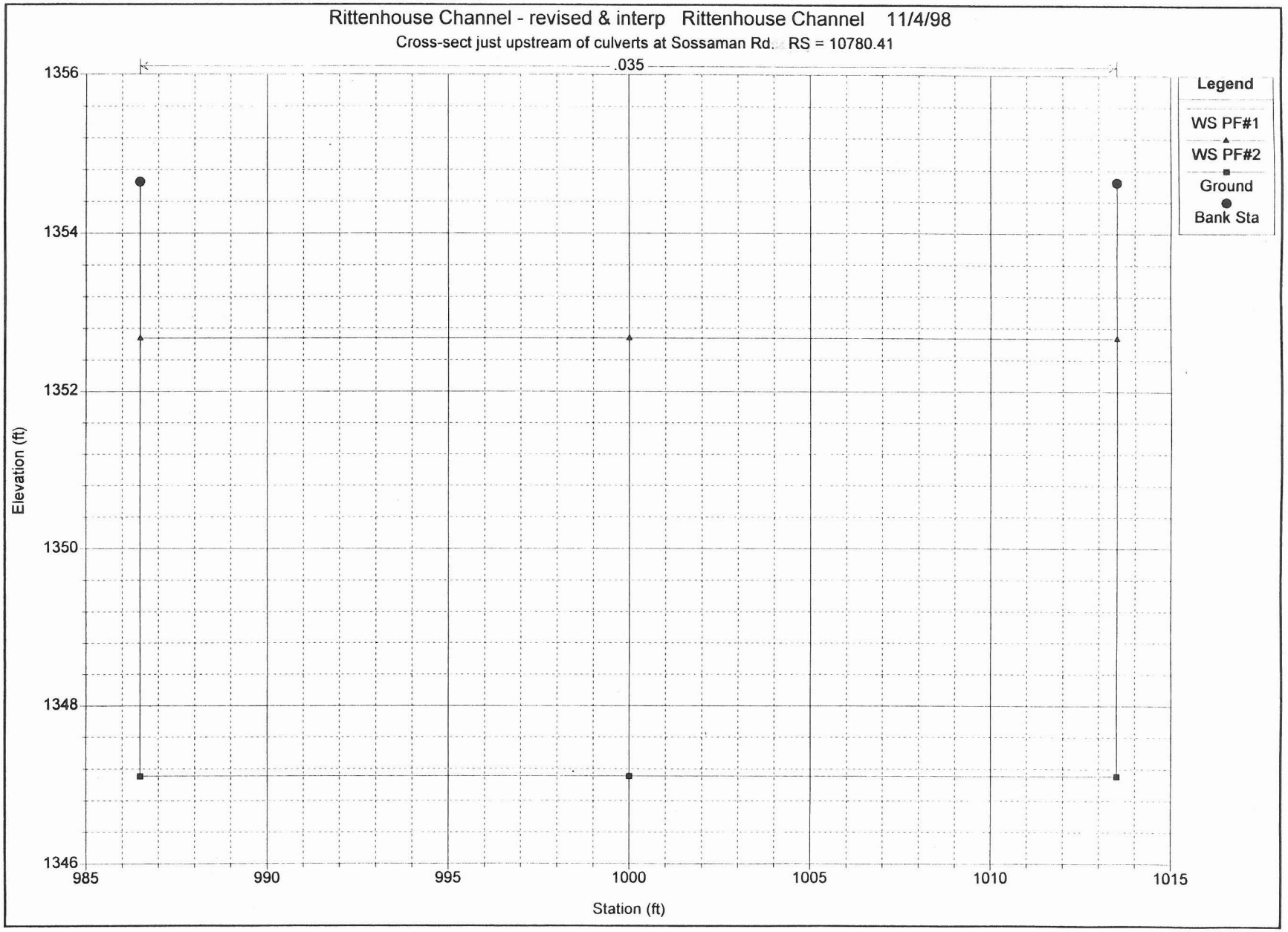

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Beginning of riprap area for drop structure 4-11 RS = 10627.41
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1354
1352
1350
1348
1346
1344
940
960
980
1000
1020
1040
1060
1080
Station (ft)

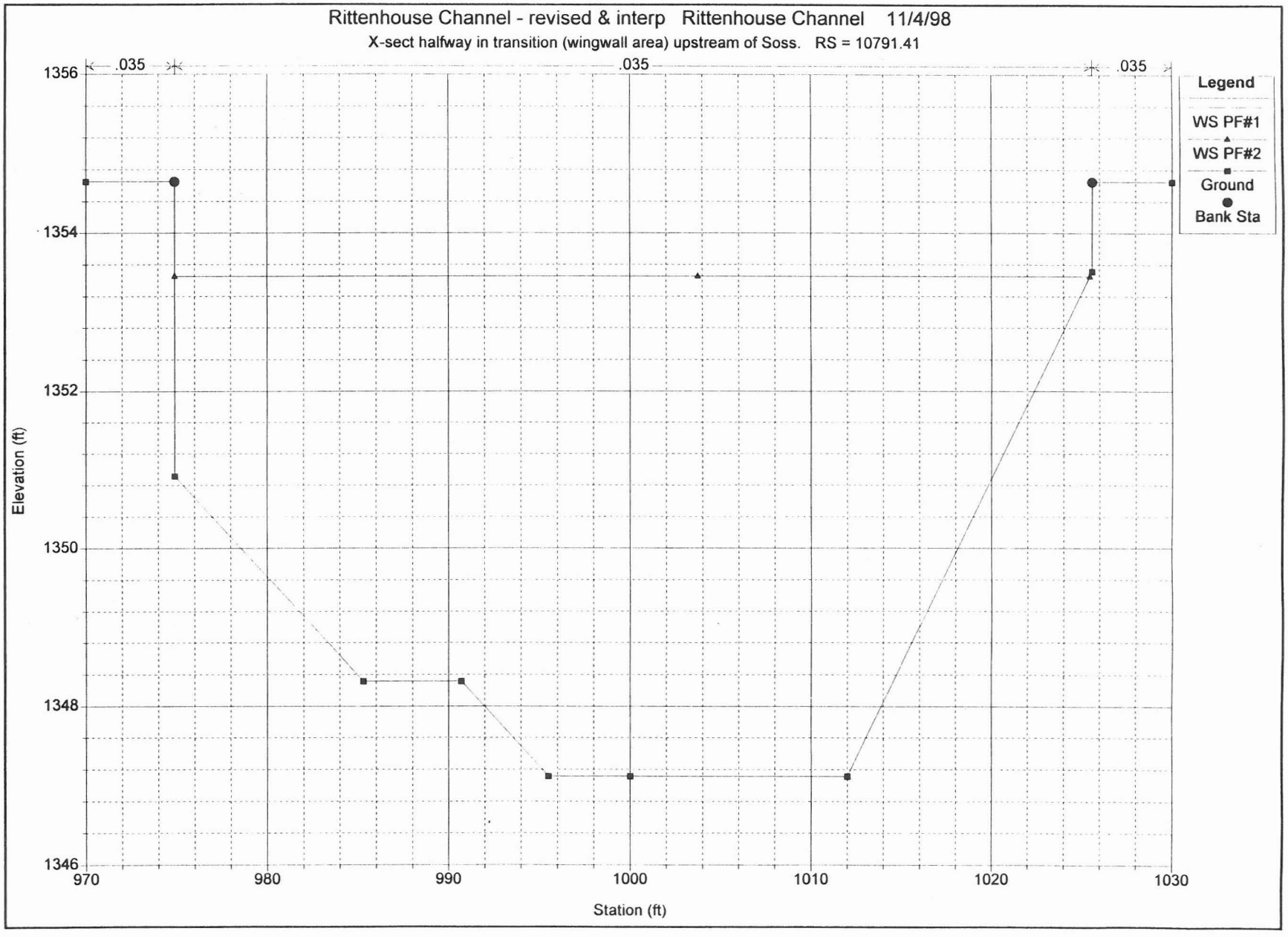

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Stilling area of drop structure 4-11 at Sossaman Rd RS = 10637.41
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1354
1352
1350
1348
1346
1344
920
940
960
980
1000
1020
1040
1060
1080
Station (ft)

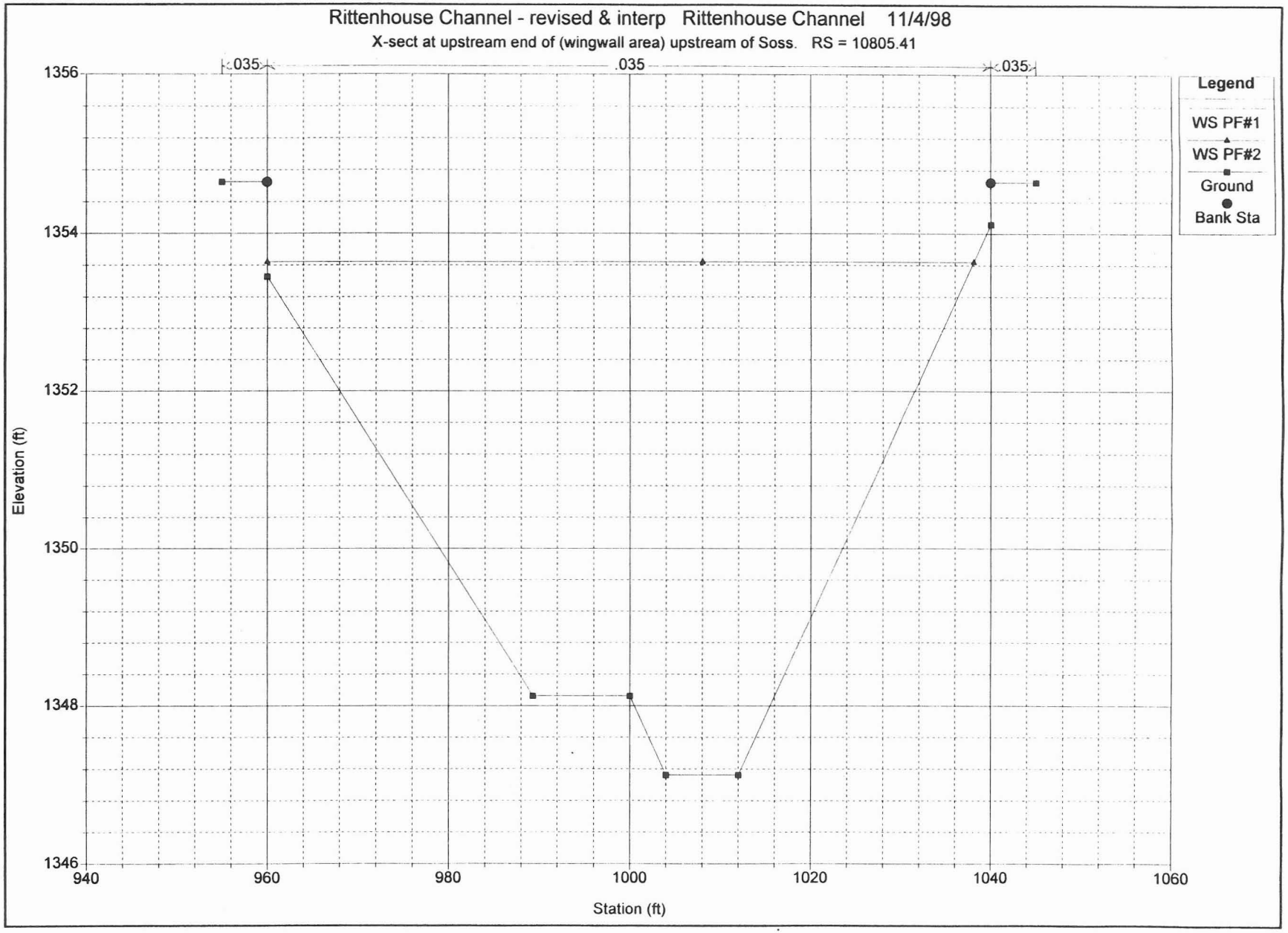

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Cross-sect just downstream of culverts at Sossaman Rd. RS = 10687.00
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1355
1354
1353
1352
1351
1350
1349
1348
1347
985
990
995
1000
1005
1010
1015
Station (ft)

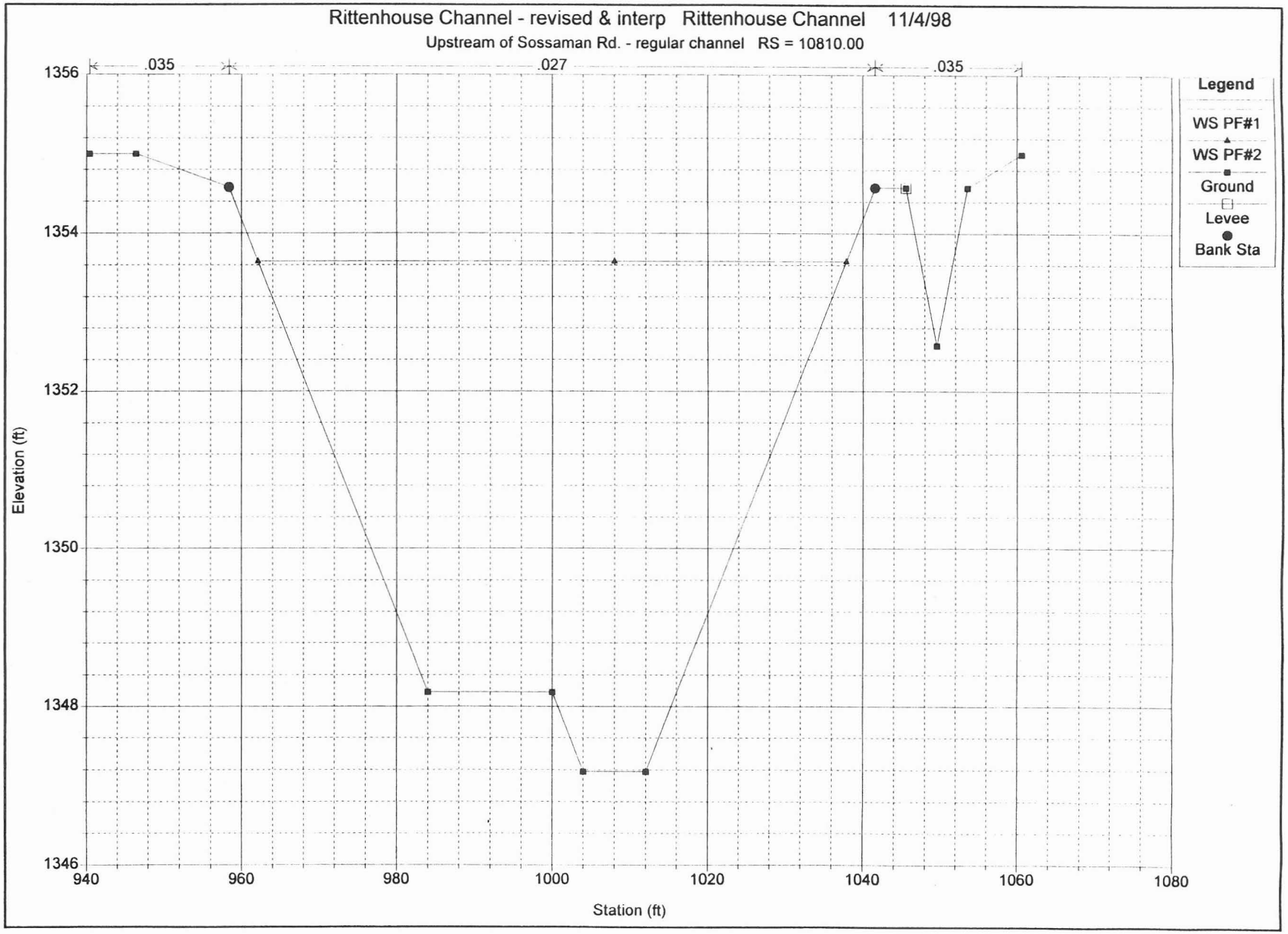

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Sossaman Rd. RS = 10777.41
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
985
990
995
1000
1005
1010
1015
Station (ft)

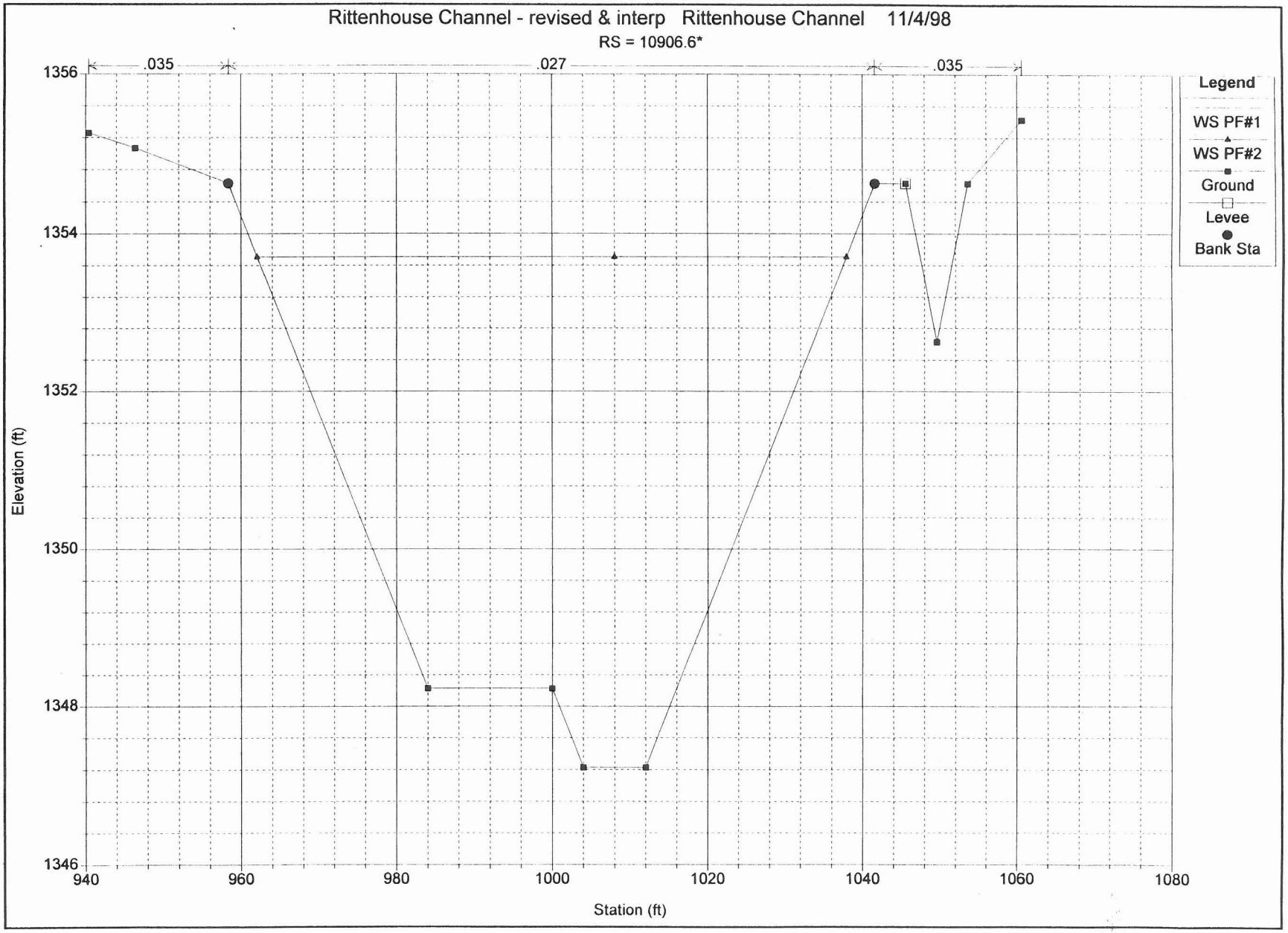

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Sossaman Rd. RS = 10777.41
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
985
990
995
1000
1005
1010
1015
Station (ft)

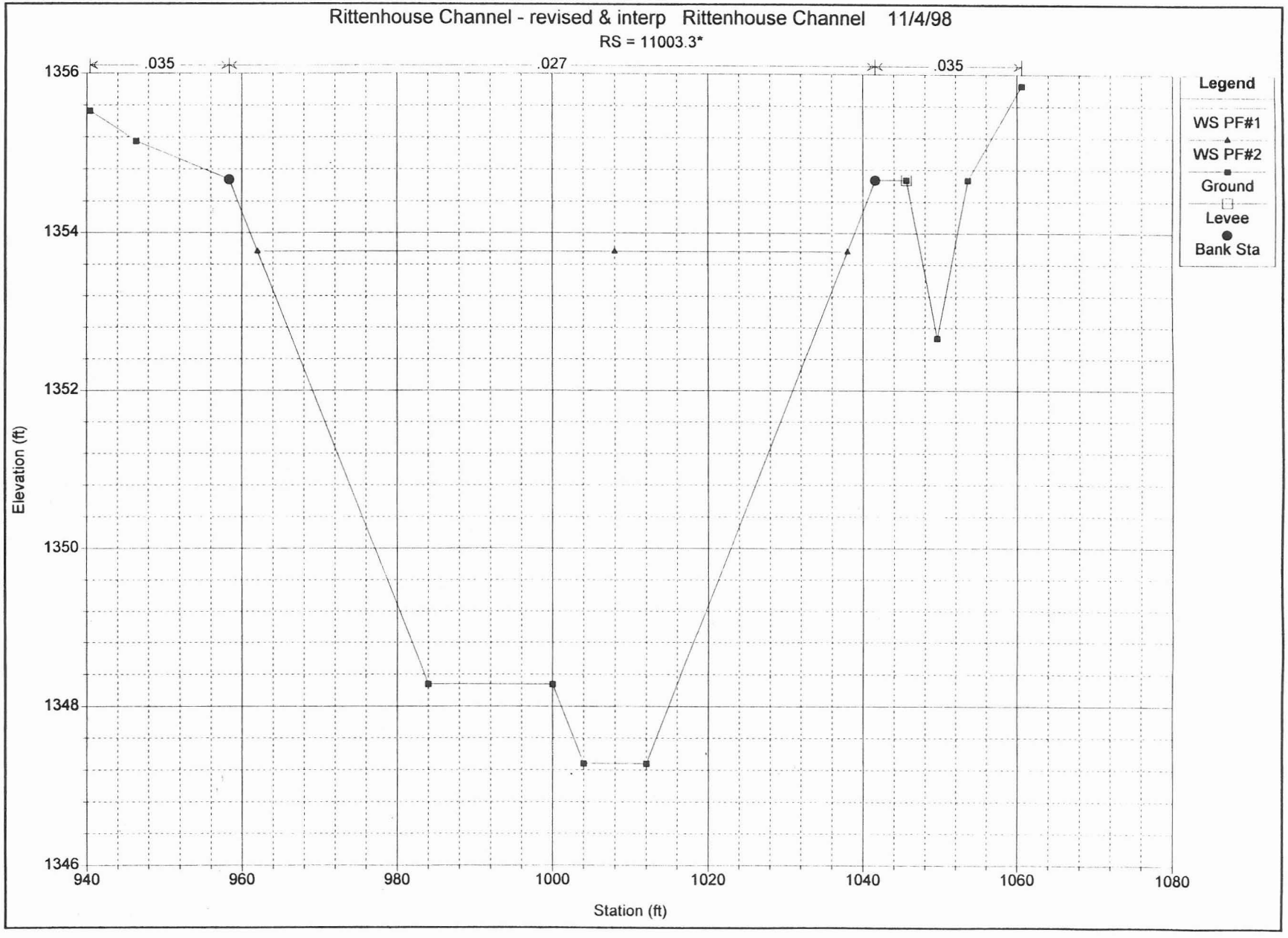

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Cross-sect just upstream of culverts at Sossaman Rd. RS = 10780.41
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
985
990
995
1000
1005
1010
1015
Station (ft)

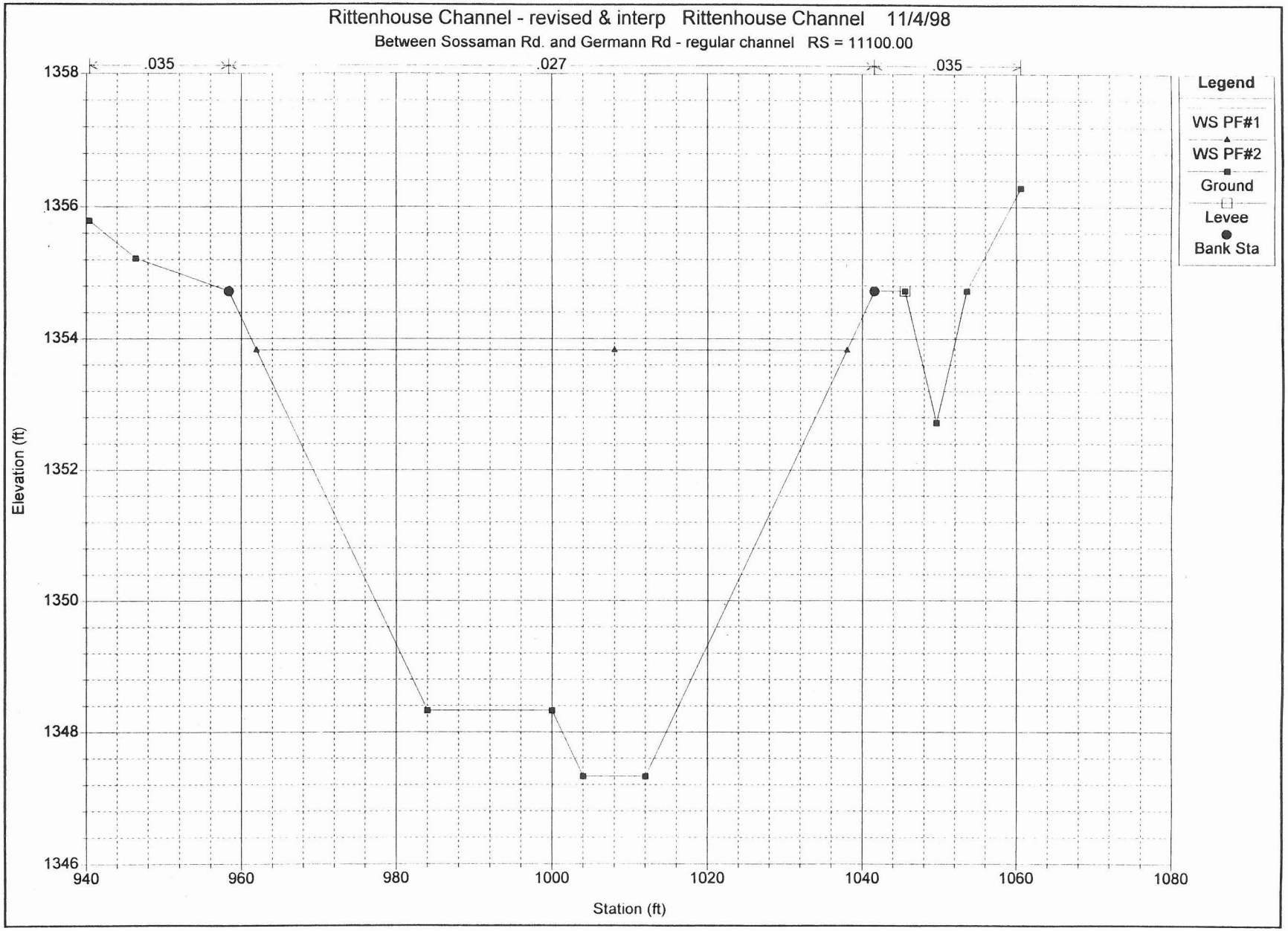

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
X-sect halfway in transition (wingwall area) upstream of Soss. RS = 10791.41
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
970
980
990
1000
1010
1020
1030
Station (ft)

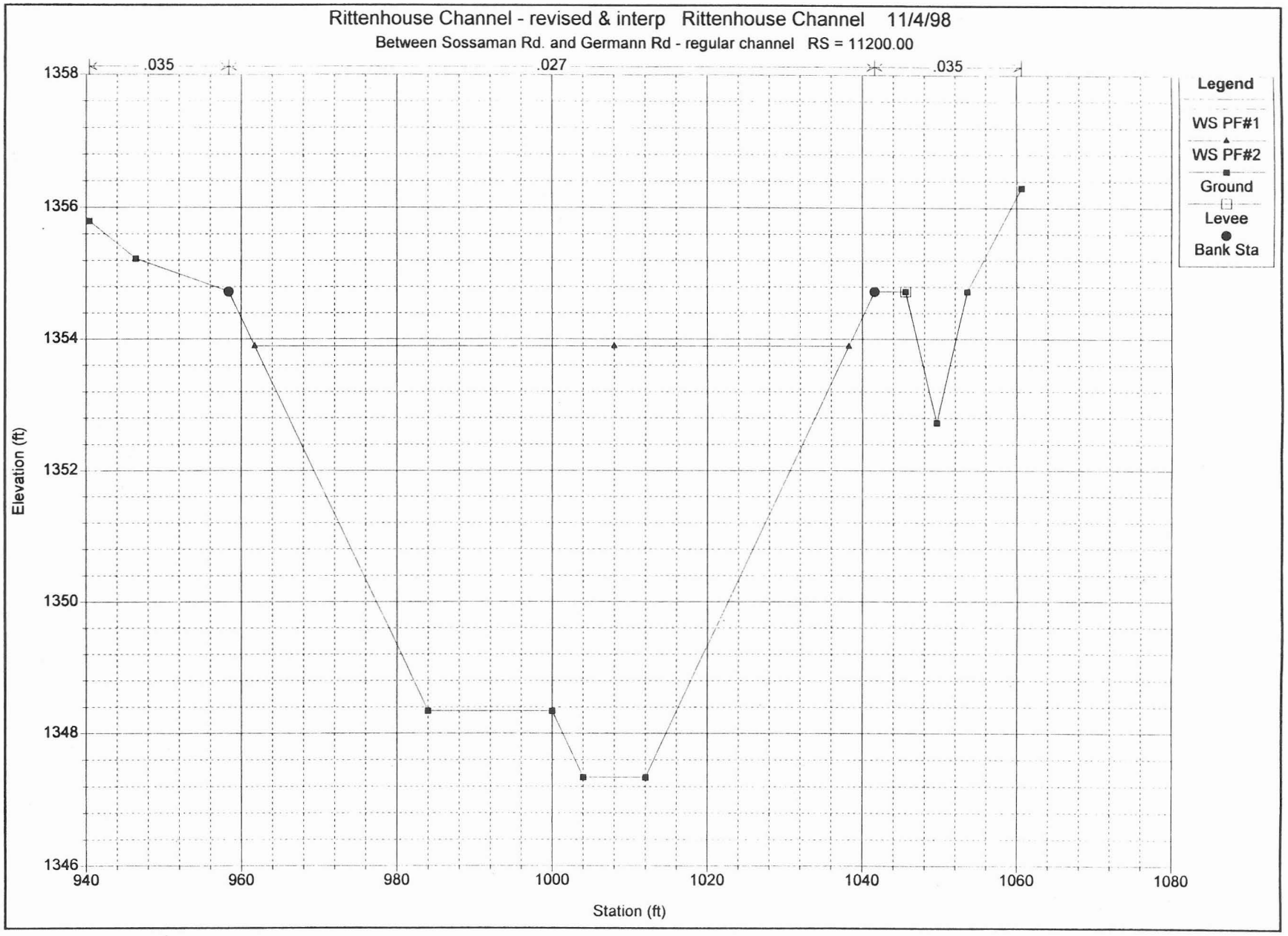

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
X-sect at upstream end of (wingwall area) upstream of Soss. RS = 10805.41
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
Station (ft)

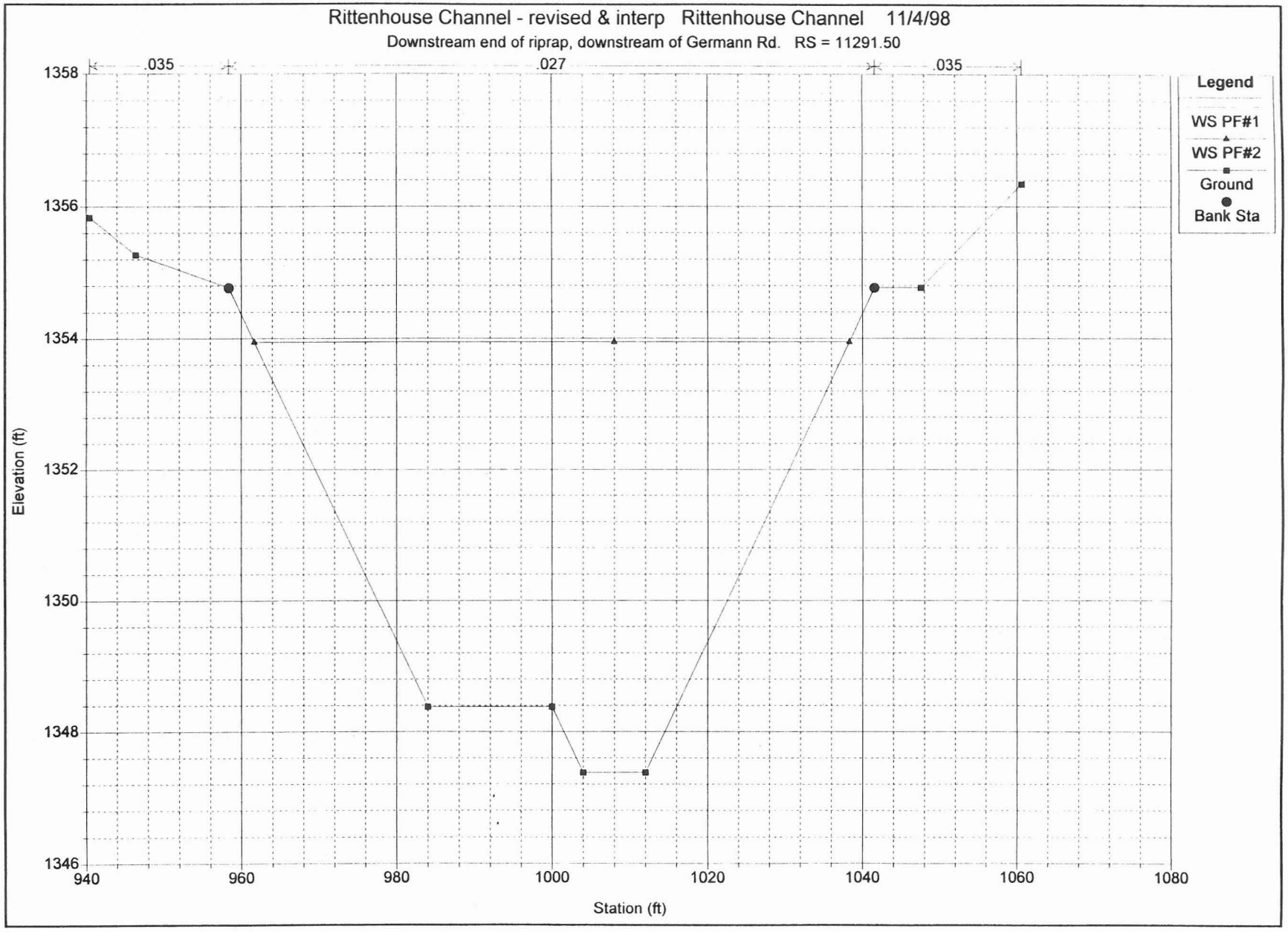

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of Sossaman Rd. - regular channel RS = 10810.00
.035
.027
.035
1356
1354
1352
1350
1348
1346
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

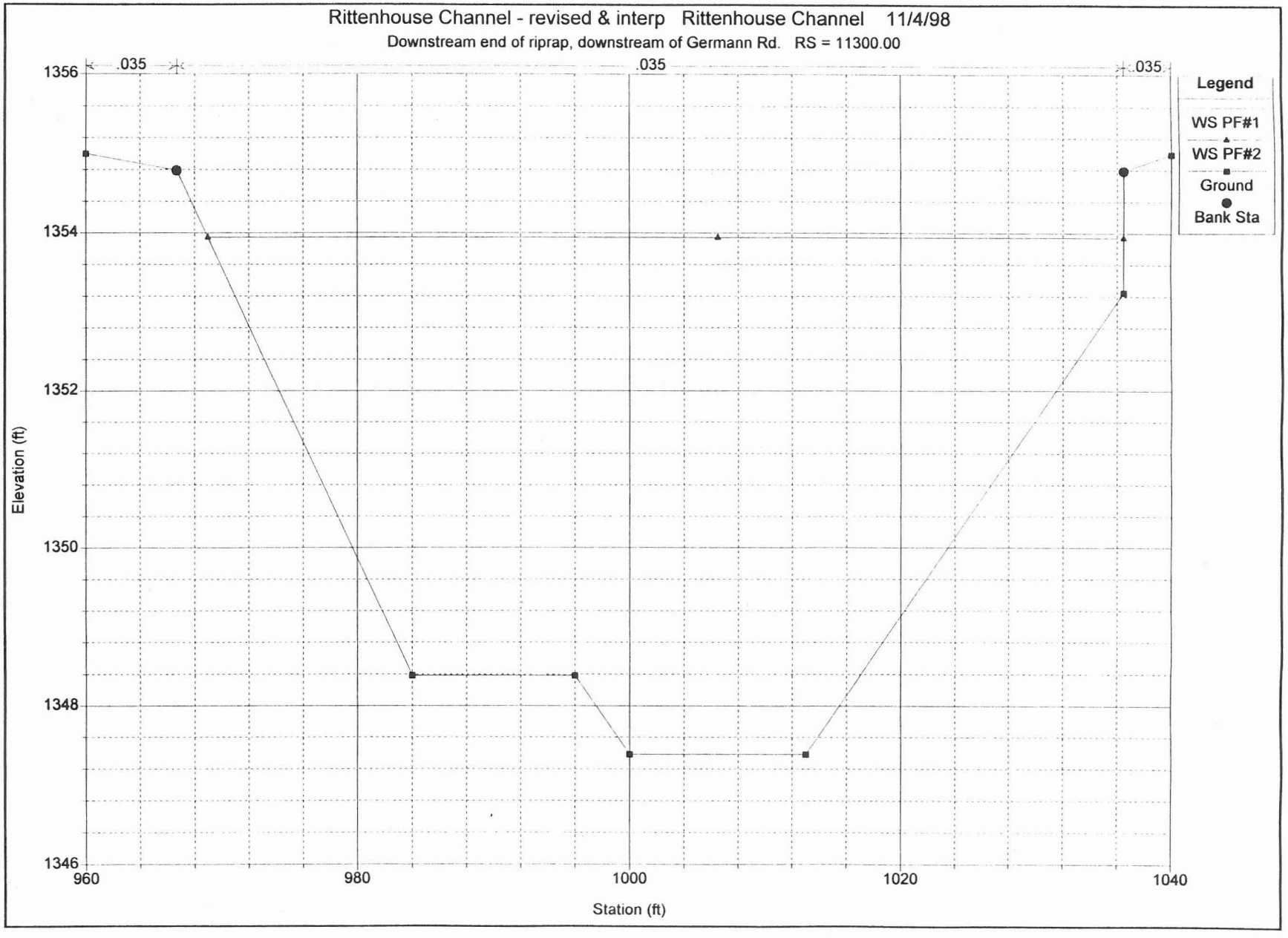

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 10906.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
1080
Station (ft)

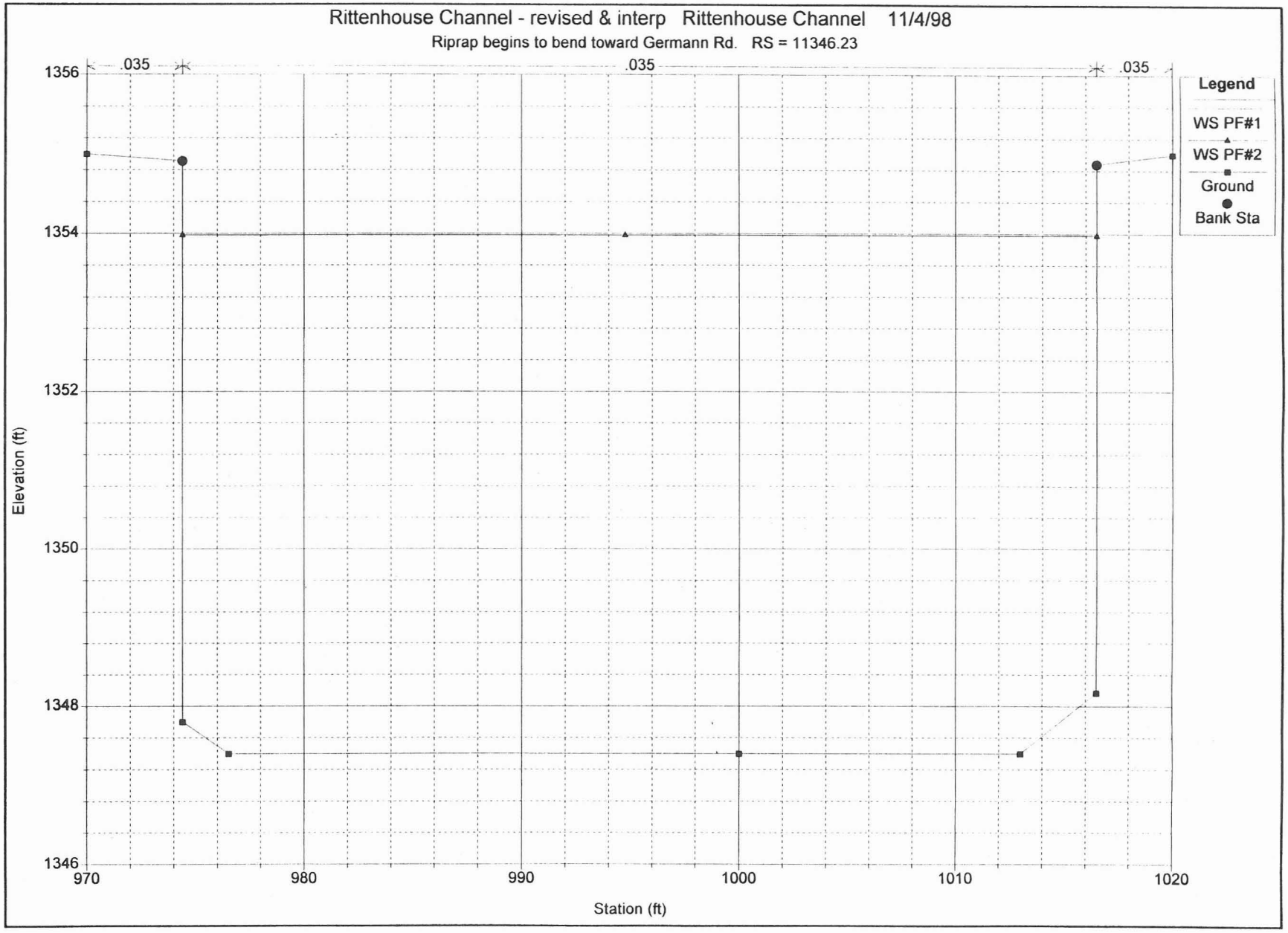

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 11003.3*
.035
.027
.035
1356
1354
1352
1350
1348
1346
Elevation (ft)
940
960
980
1000
1020
1040
1060
1080
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

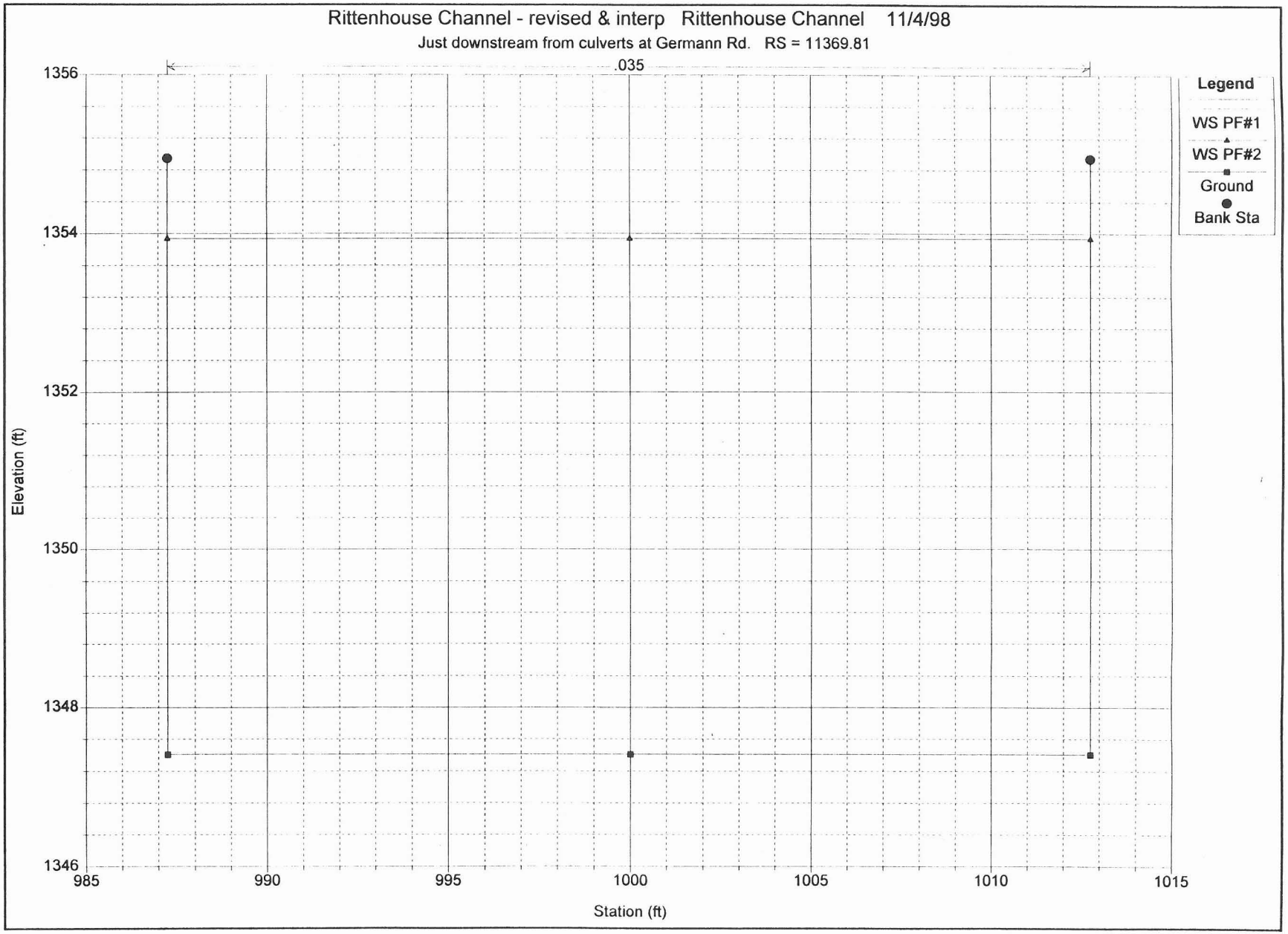

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Between Sossaman Rd. and Germann Rd - regular channel RS = 11100.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
1080
Station (ft)

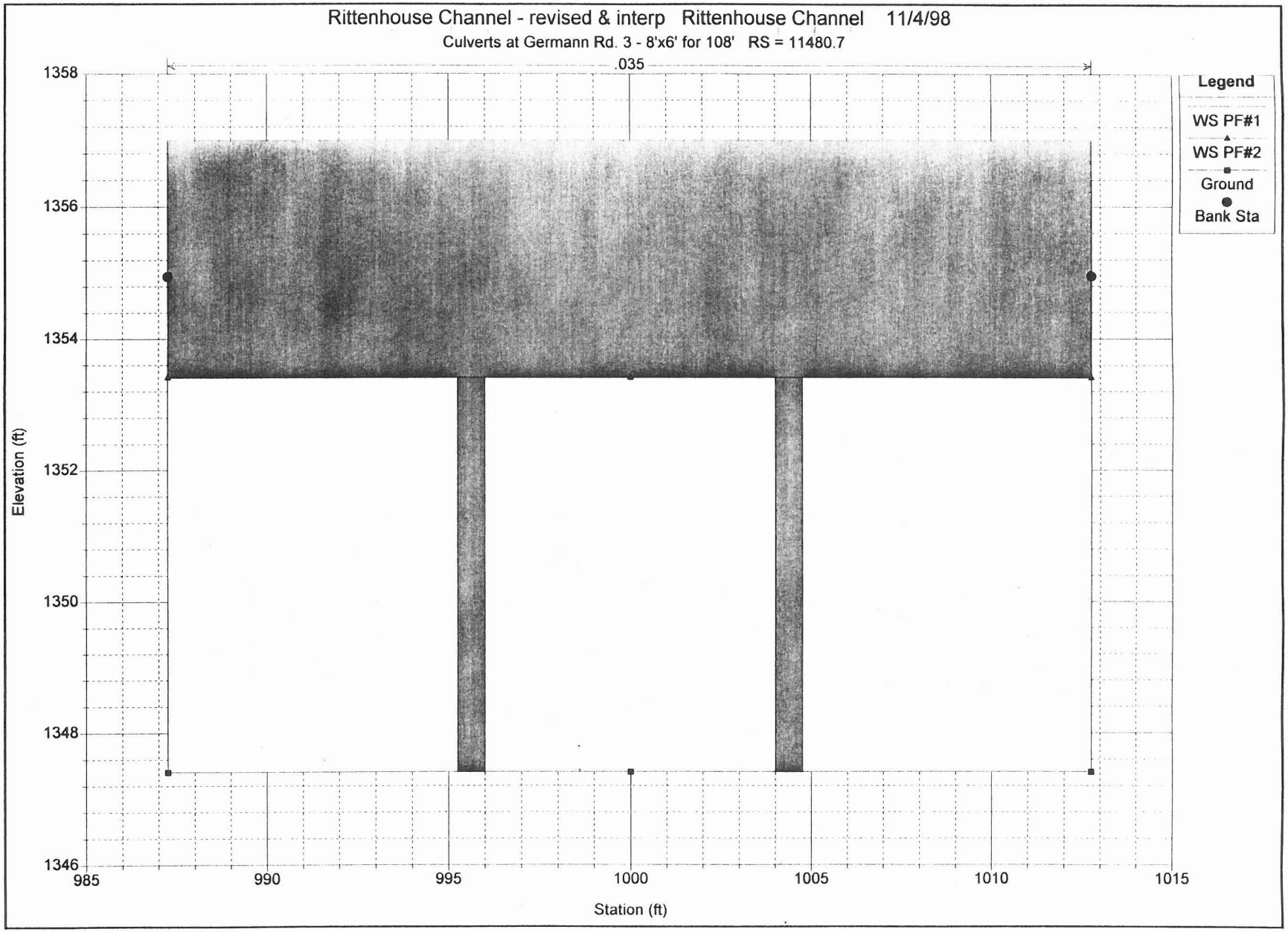

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Between Sossaman Rd. and Germann Rd - regular channel RS = 11200.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
1080
Station (ft)

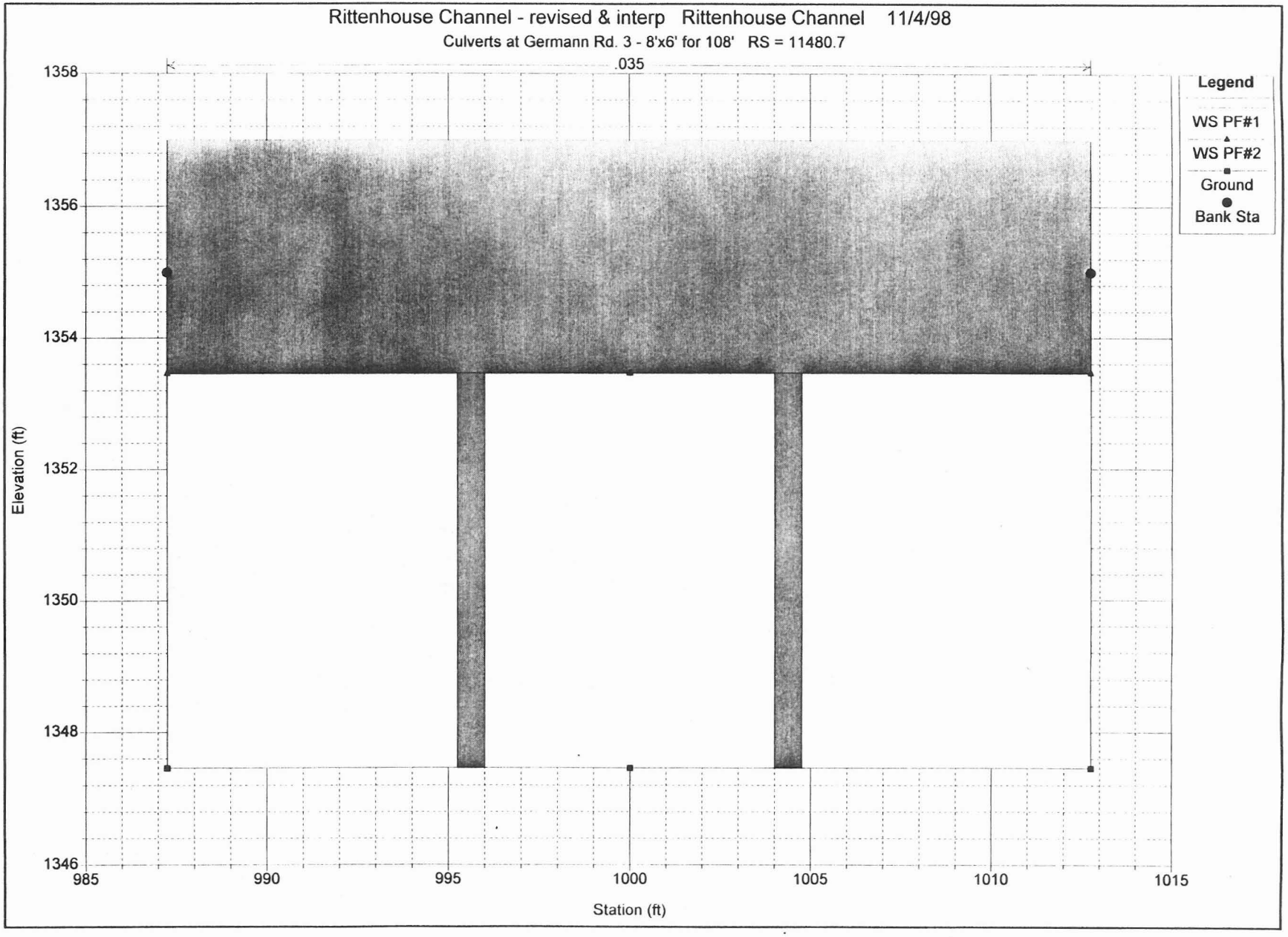

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream end of riprap, downstream of Germann Rd. RS = 11291.50
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
1080
Station (ft)

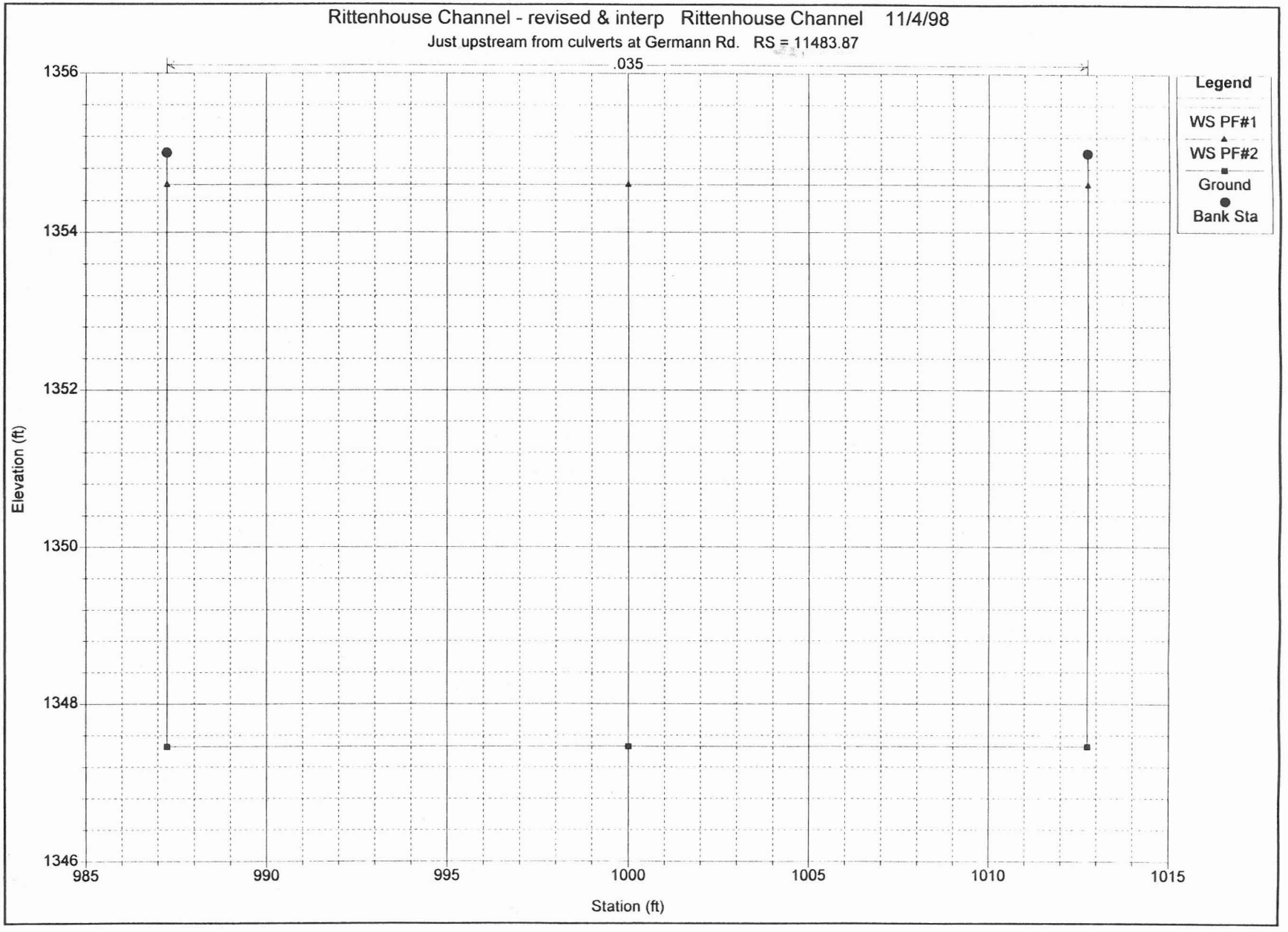

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream end of riprap, downstream of Germann Rd. RS = 11300.00
.035
.035
.035
1356
1354
1352
1350
1348
1346
Elevation (ft)
960
980
1000
1020
1040
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Bank Sta

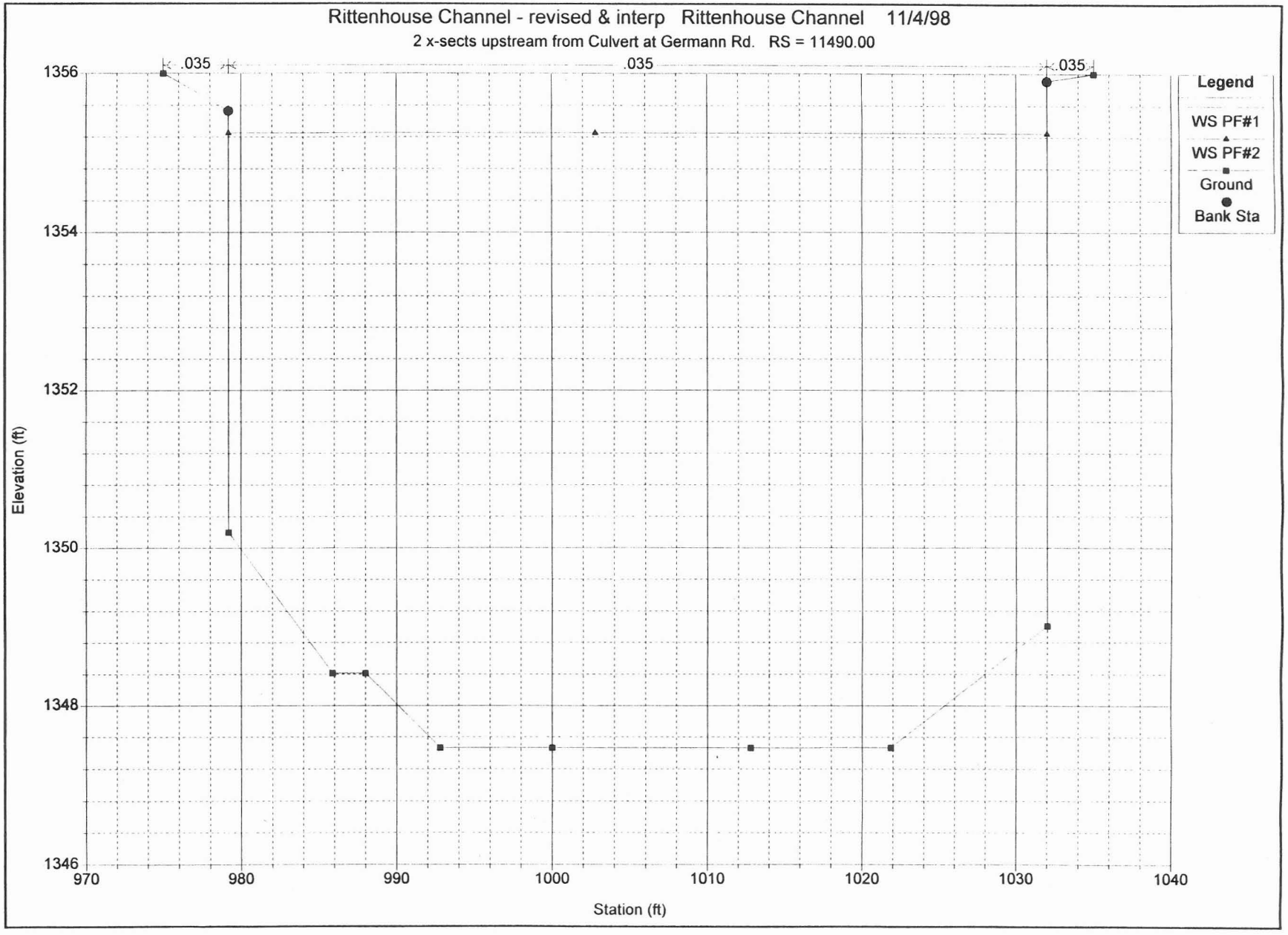

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Riprap begins to bend toward Germann Rd. RS = 11346.23
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
970
980
990
1000
1010
1020
Station (ft)

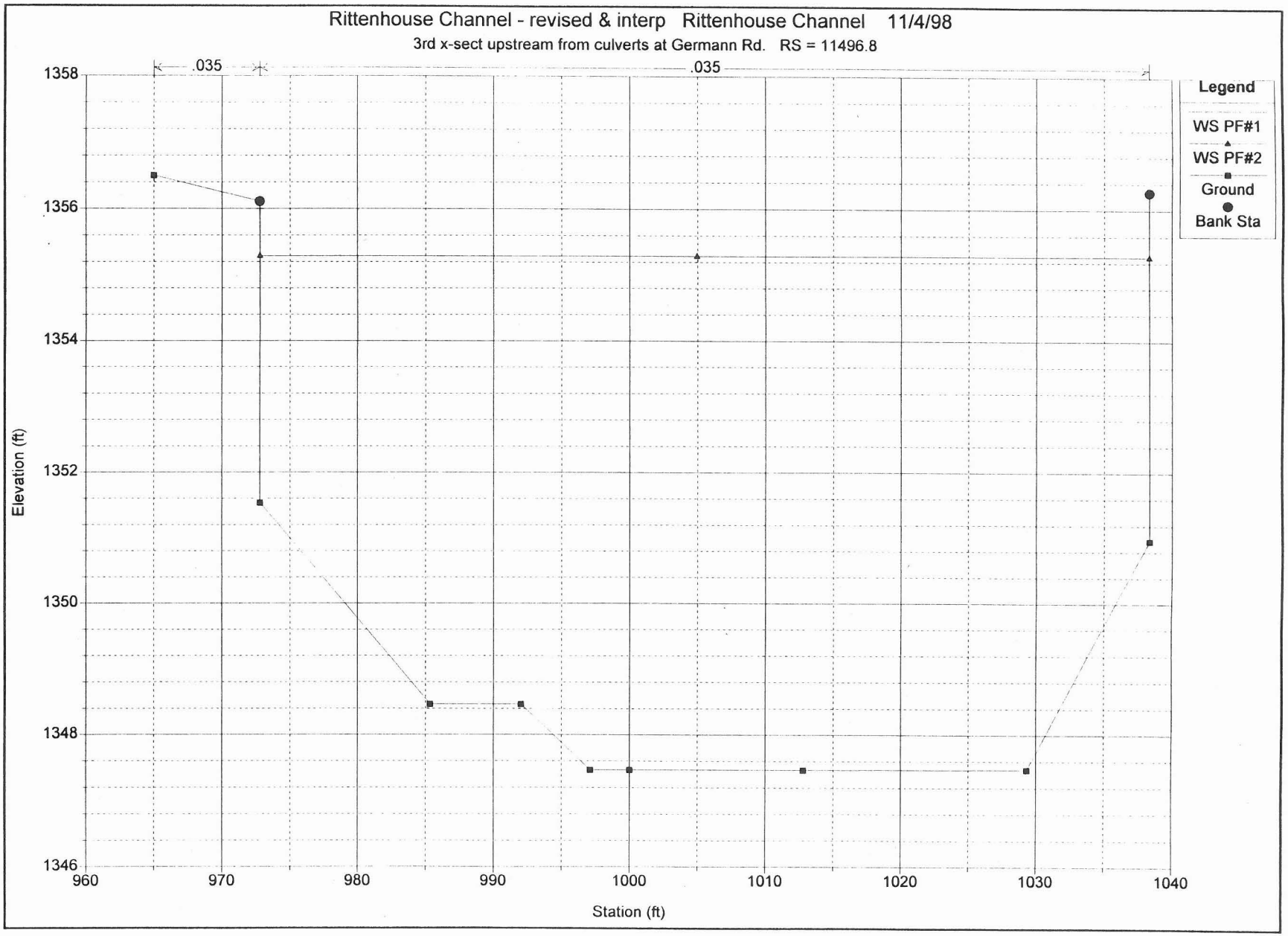

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Just downstream from culverts at Germann Rd. RS = 11369.81
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
985
990
995
1000
1005
1010
1015
Station (ft)

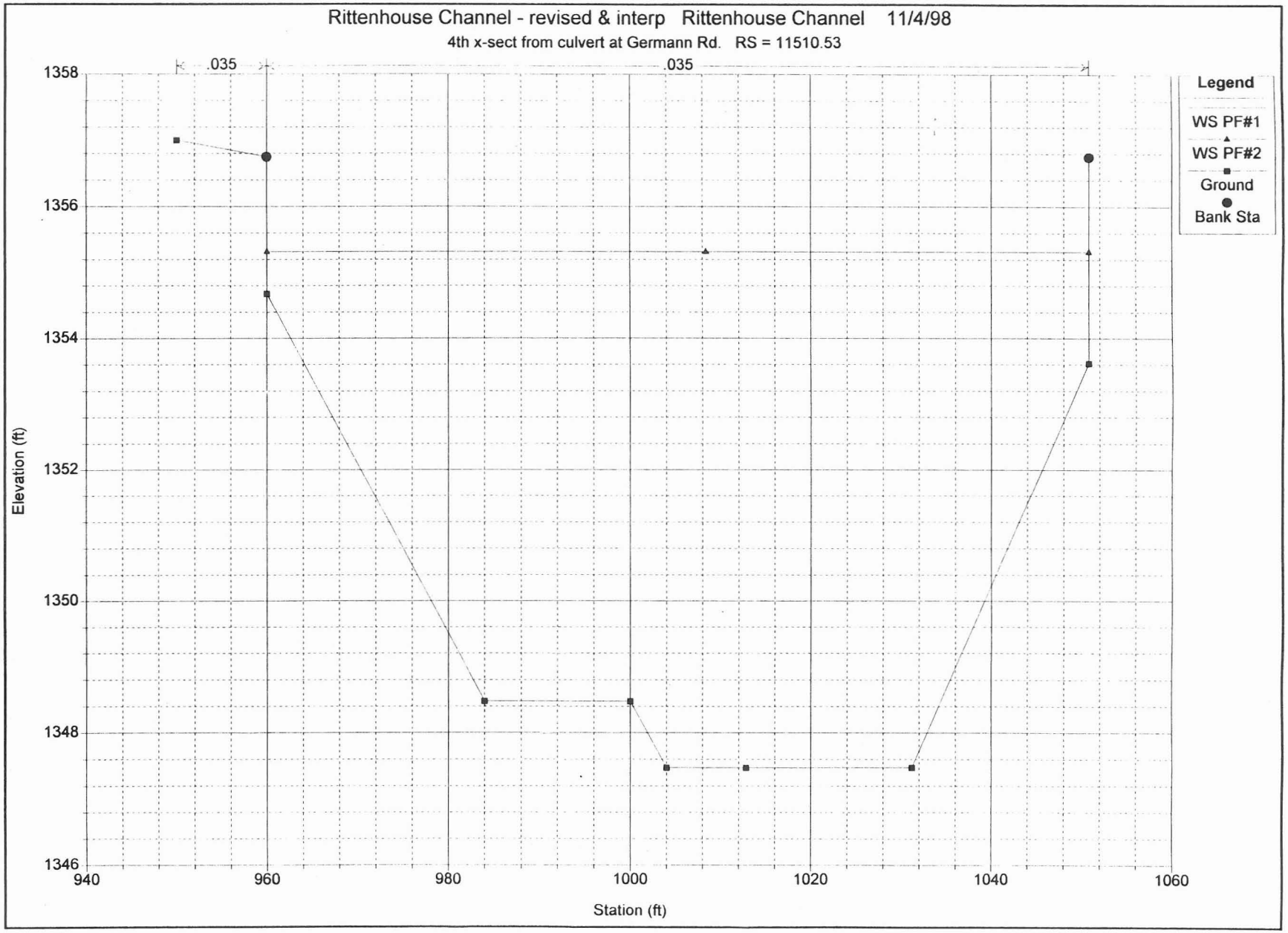

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Culverts at Germann Rd. 3 - 8'x6' for 108' RS = 11480.7
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
1346
985
990
995
1000
1005
1010
1015
Station (ft)

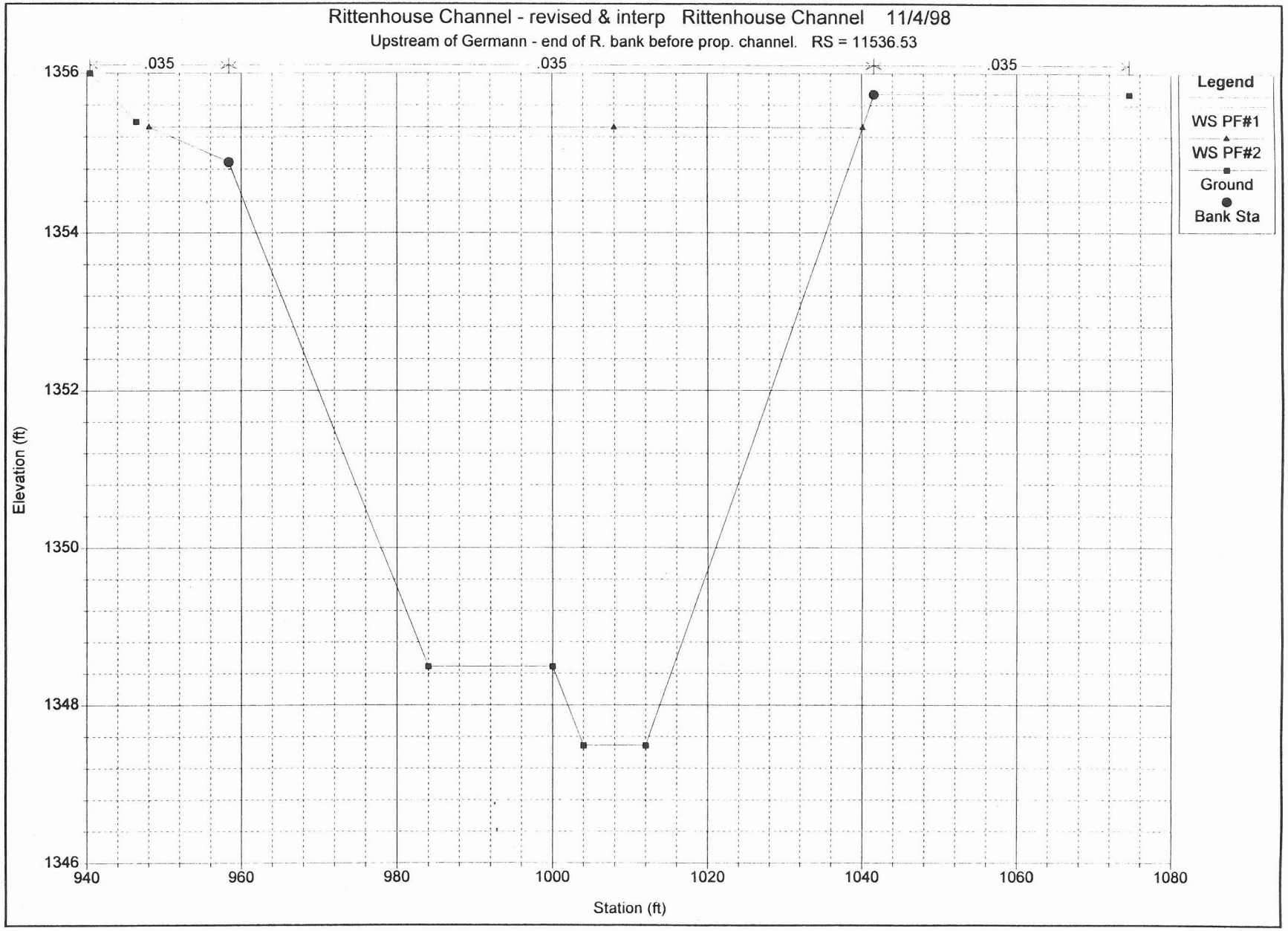

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Culverts at Germann Rd. 3 - 8'x6' for 108' RS = 11480.7
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
1346
985
990
995
1000
1005
1010
1015
Station (ft)

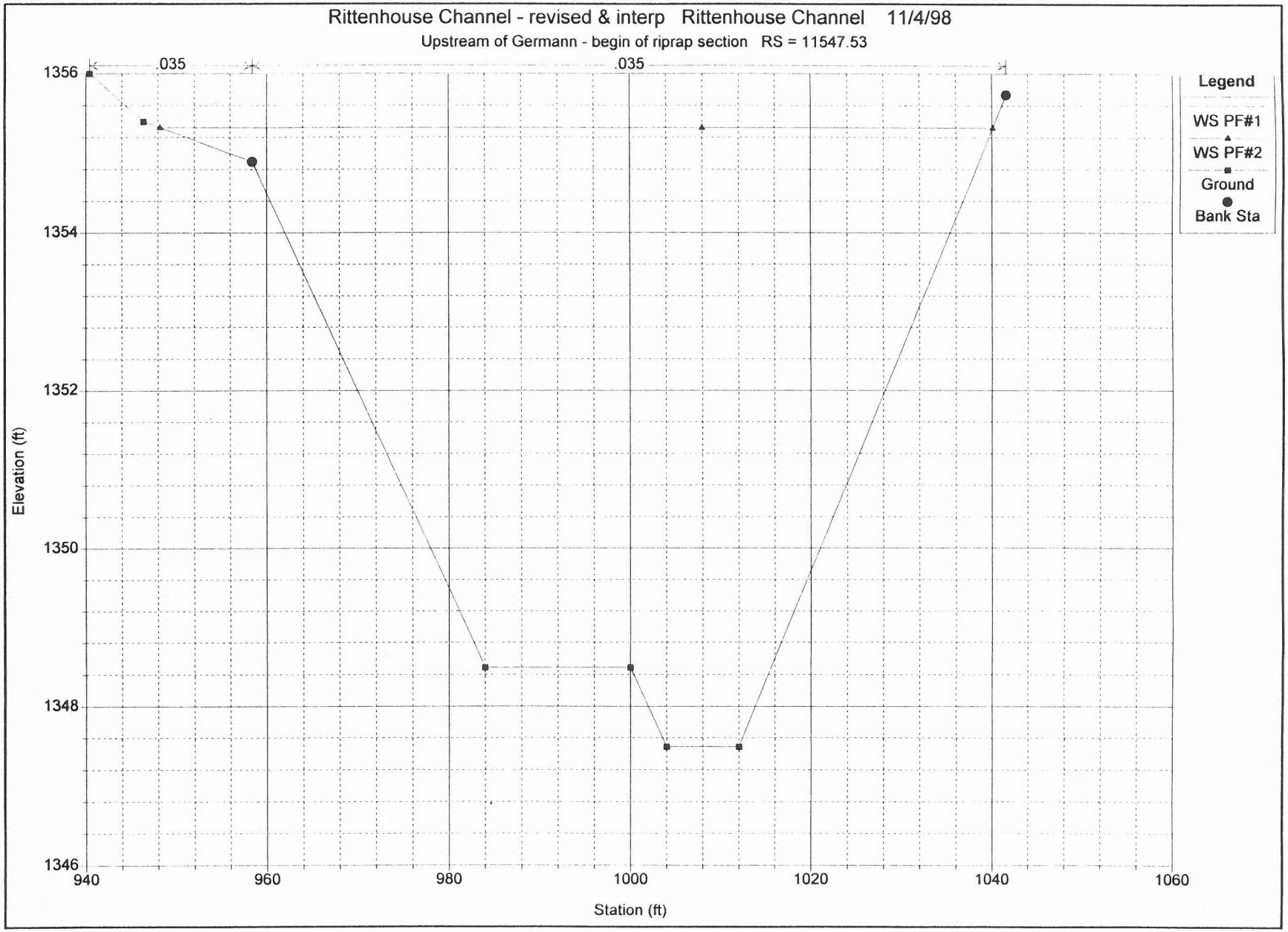

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Just upstream from culverts at Germann Rd. RS = 11483.87
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
985
990
995
1000
1005
1010
1015
Station (ft)

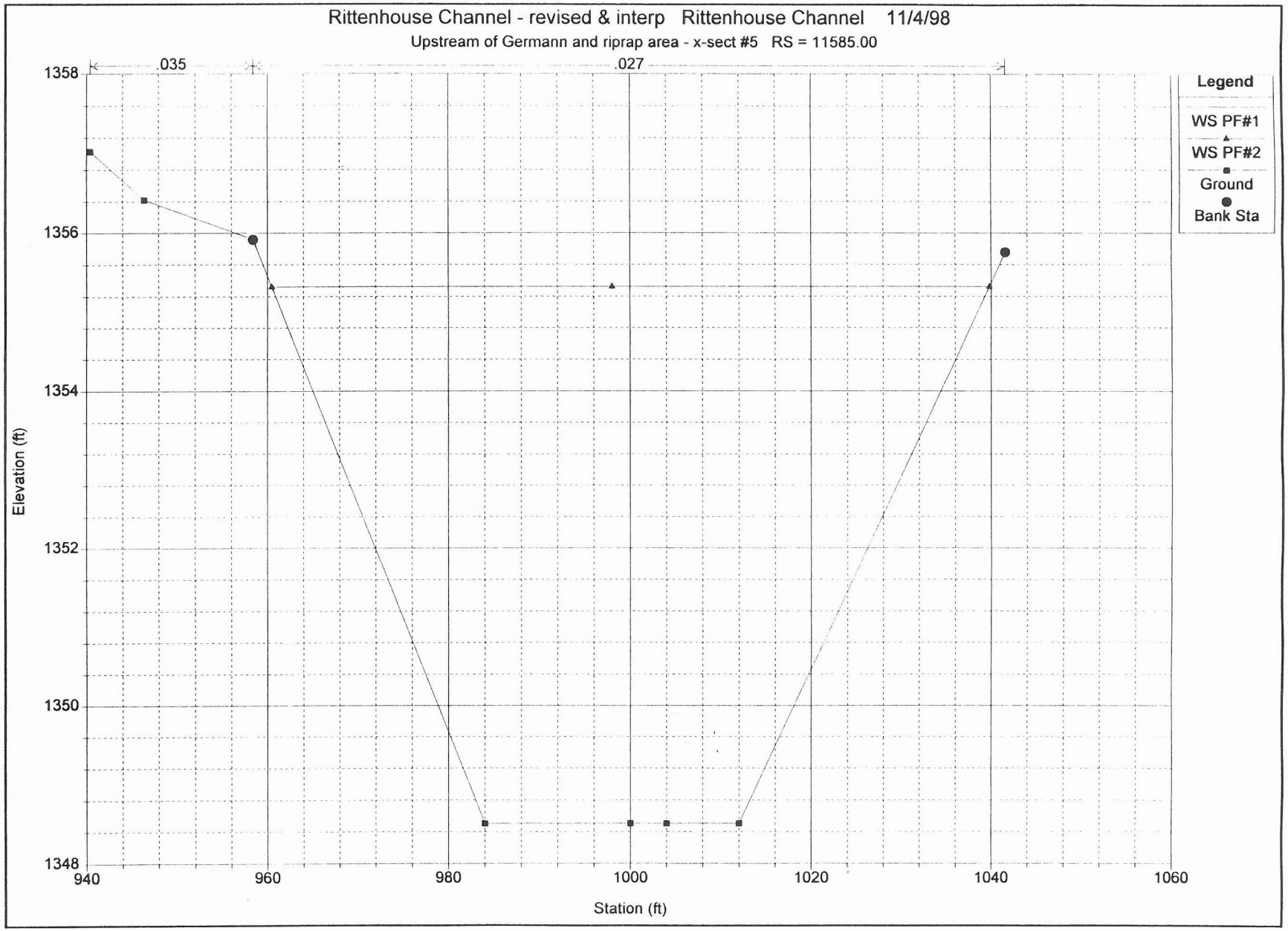

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
2 x-sects upstream from Culvert at Germann Rd. RS = 11490.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
970
980
990
1000
1010
1020
1030
1040
Station (ft)

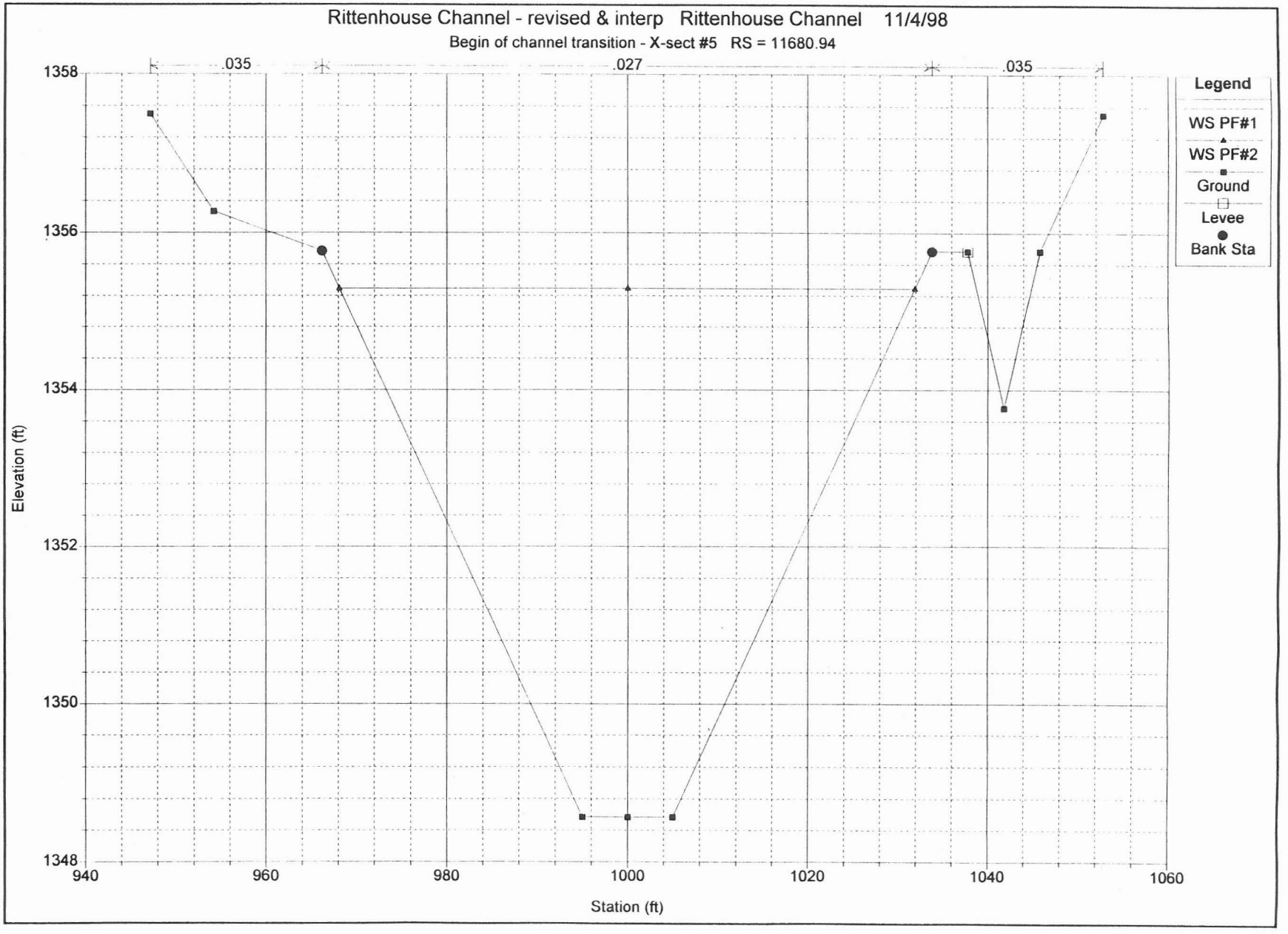

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
3rd x-sect upstream from culverts at Germann Rd. RS = 11496.8
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
1346
960
970
980
990
1000
1010
1020
1030
1040
Station (ft)

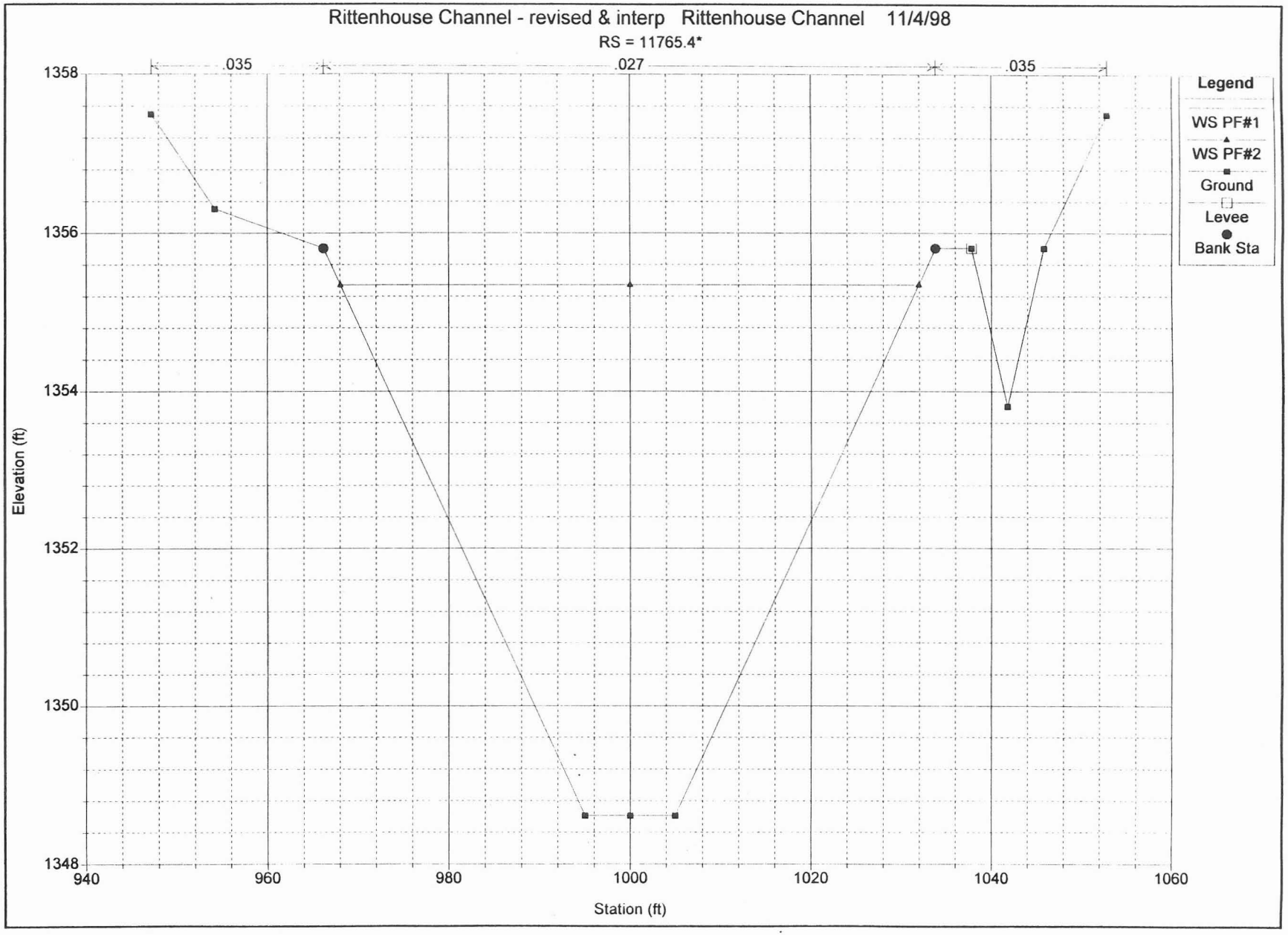

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
4th x-sect from culvert at Germann Rd. RS = 11510.53
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
Station (ft)

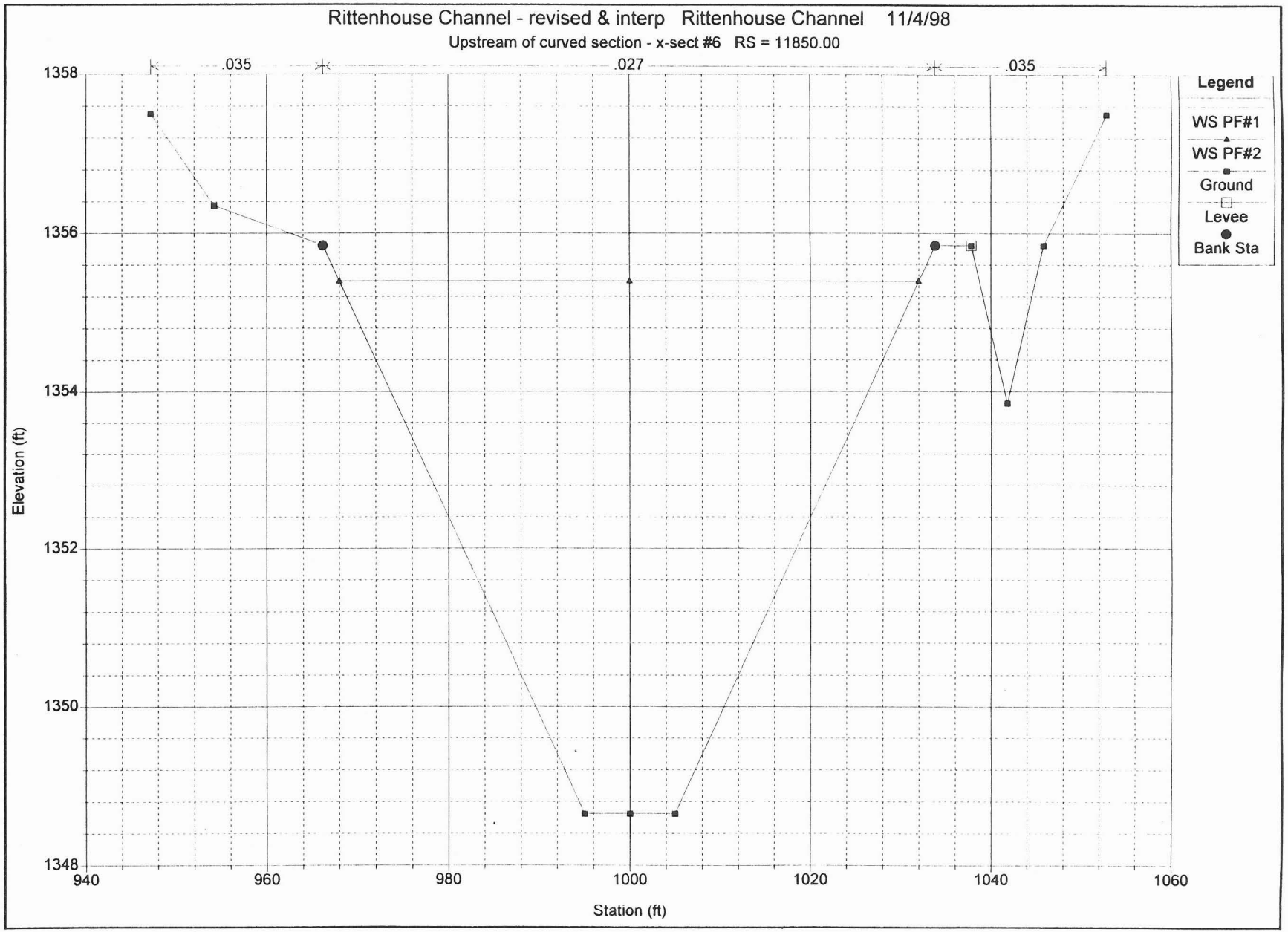

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of Germann - end of R. bank before prop. channel. RS = 11536.53
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
1080
Station (ft)

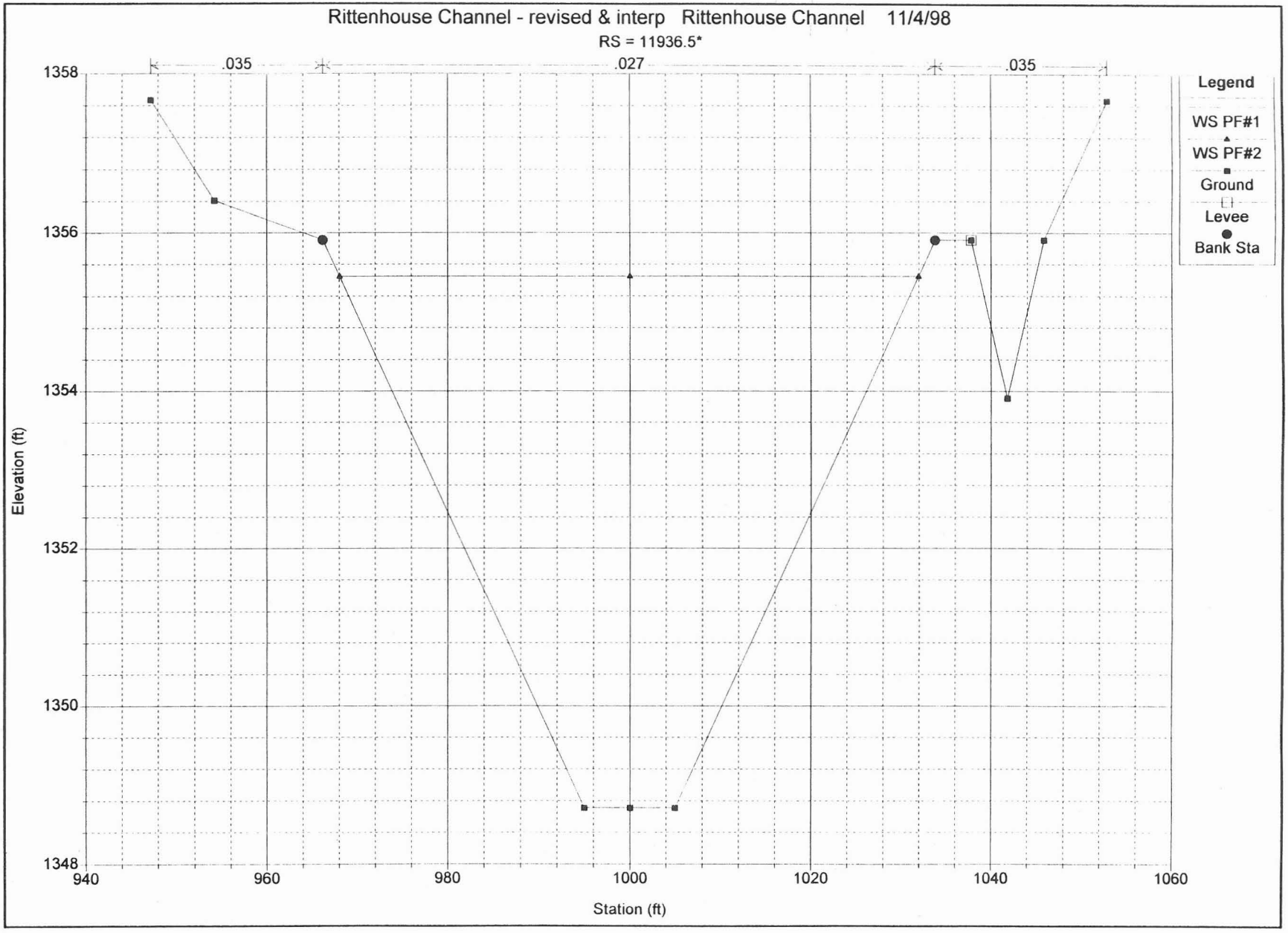

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of Germann - begin of riprap section RS = 11547.53
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1356
1354
1352
1350
1348
1346
940
960
980
1000
1020
1040
1060
Station (ft)

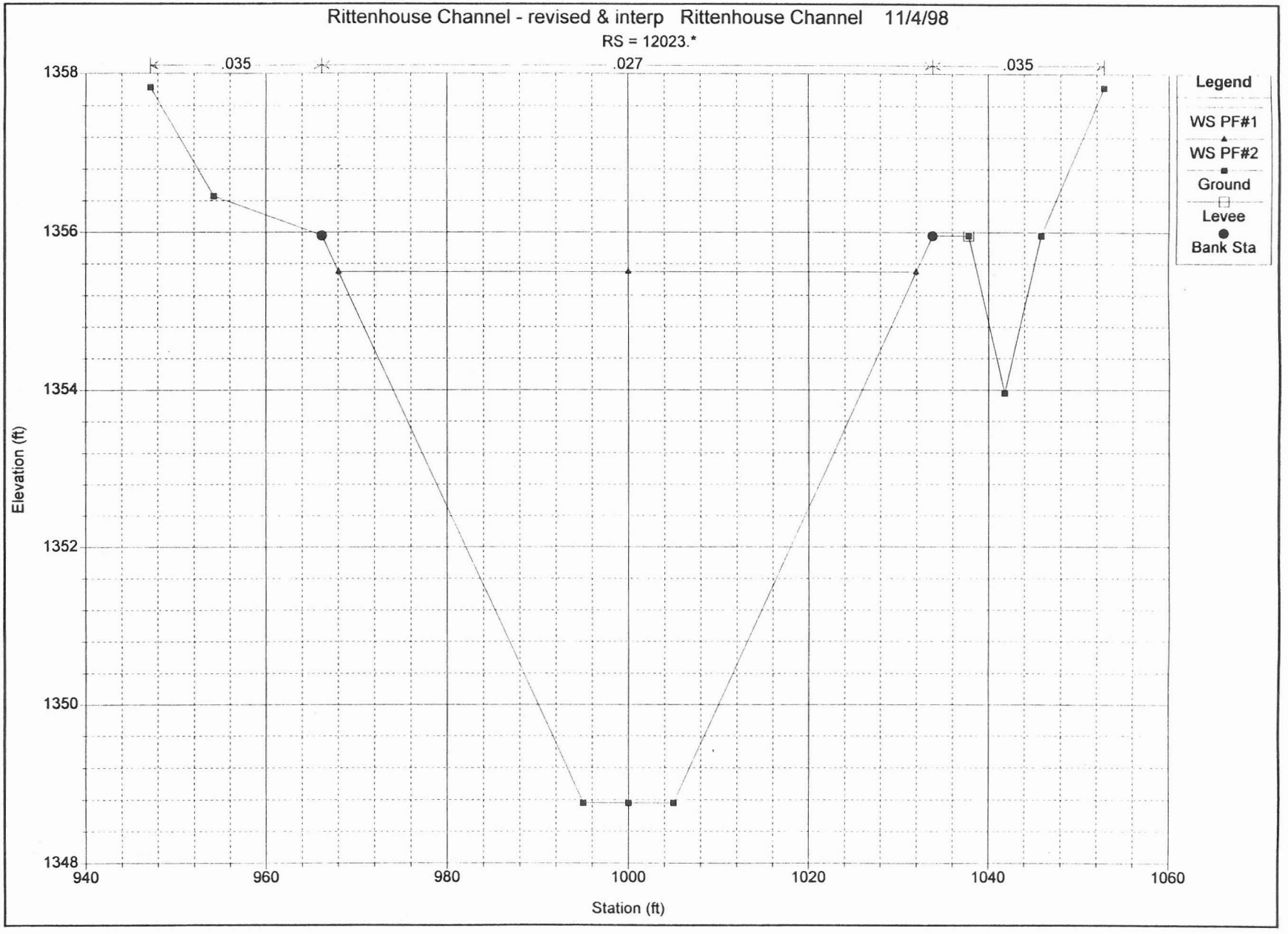

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of Germann and riprap area - x-sect #5 RS = 11585.00
.035
.027
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

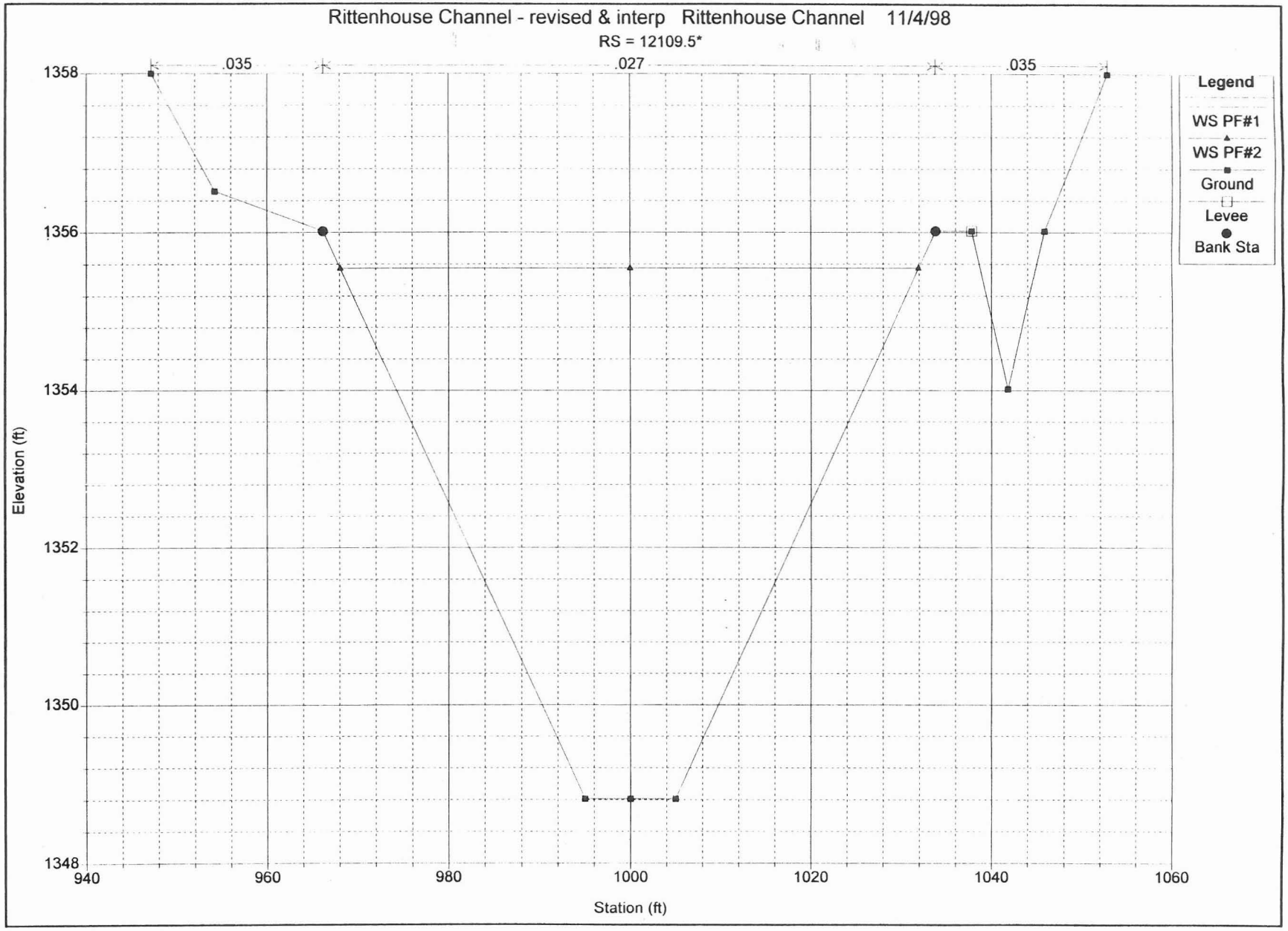

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Begin of channel transition - X-sect #5 RS = 11680.94
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

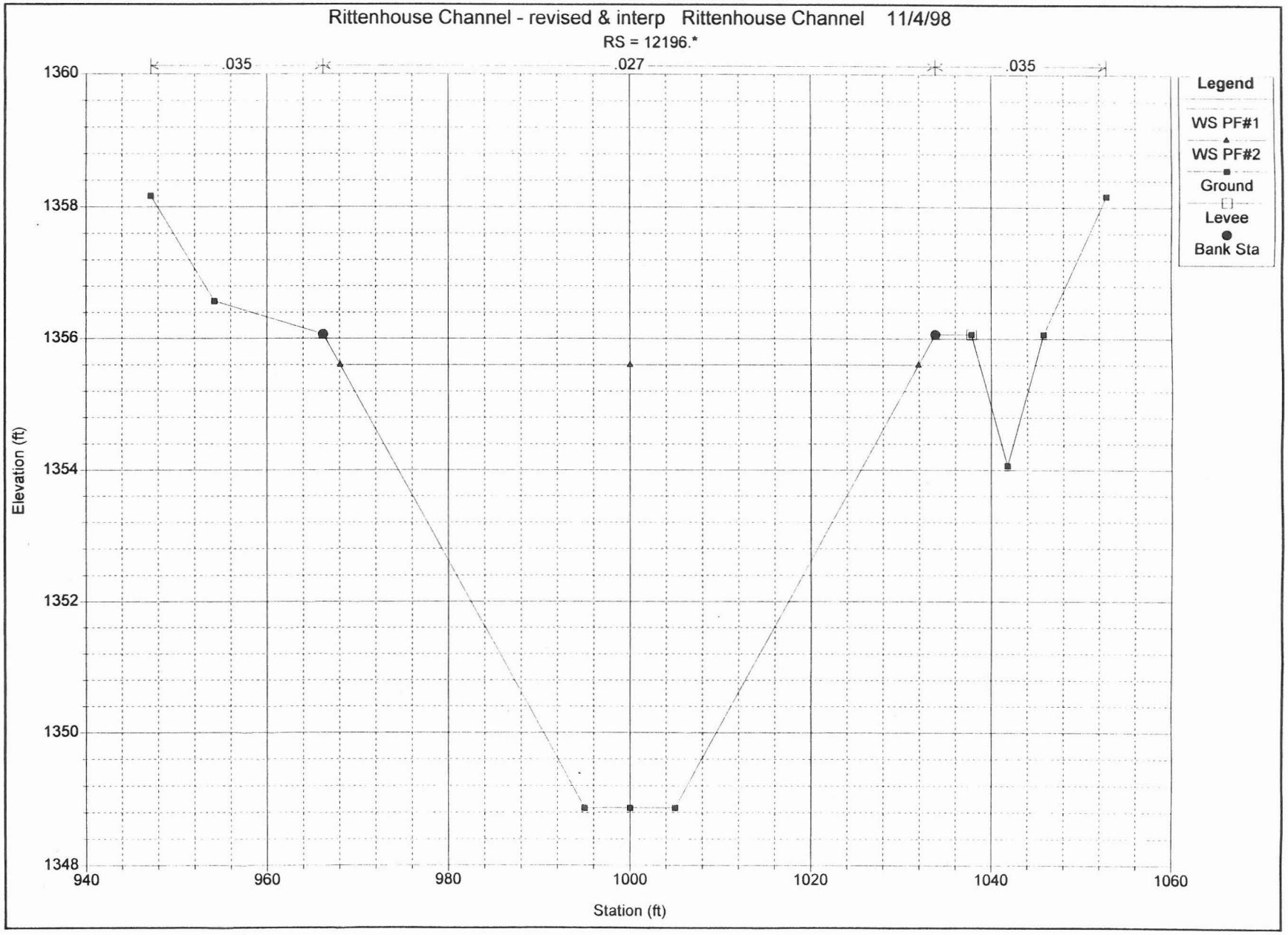

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 11765.4*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

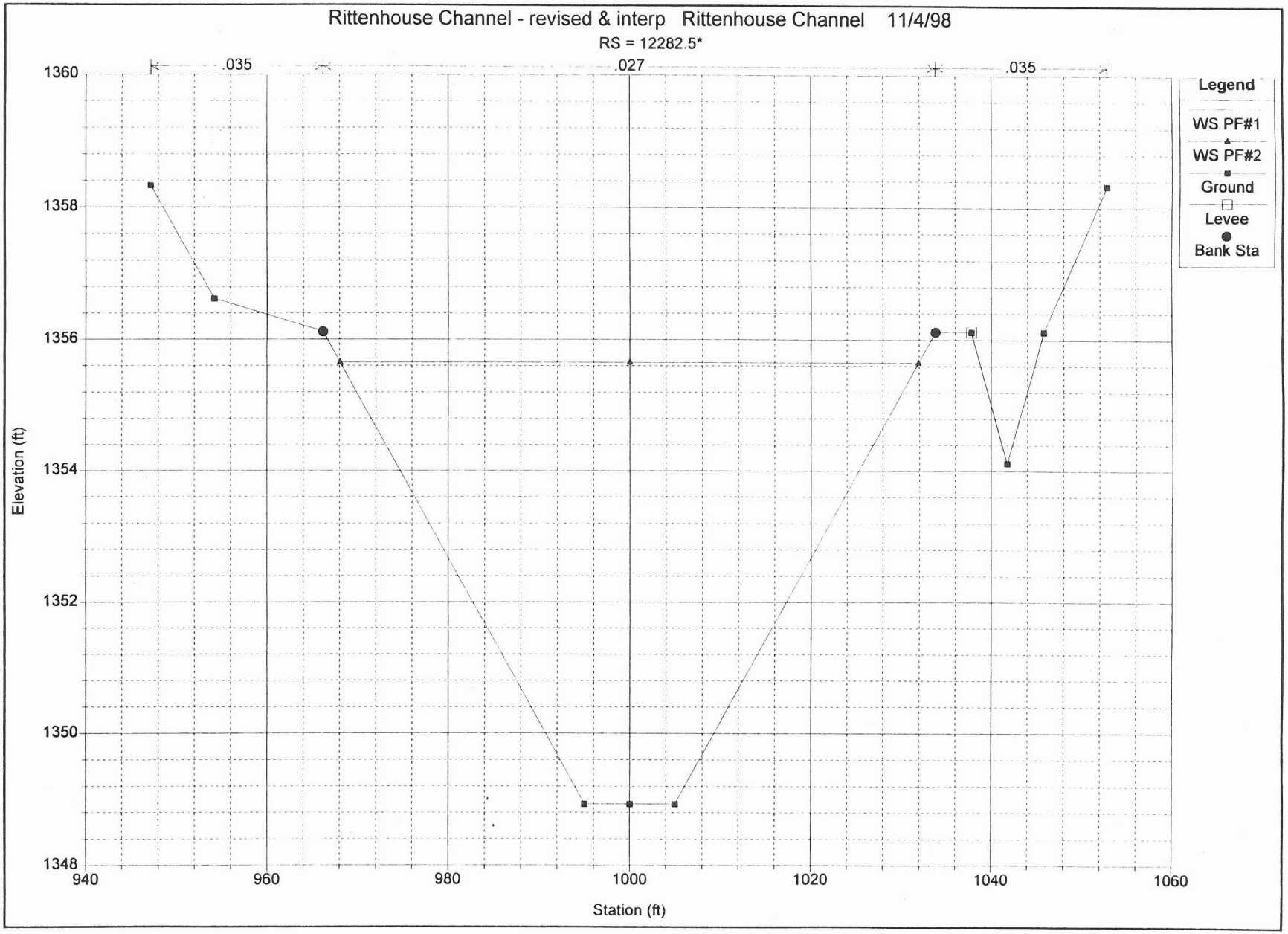

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of curved section - x-sect #6 RS = 11850.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

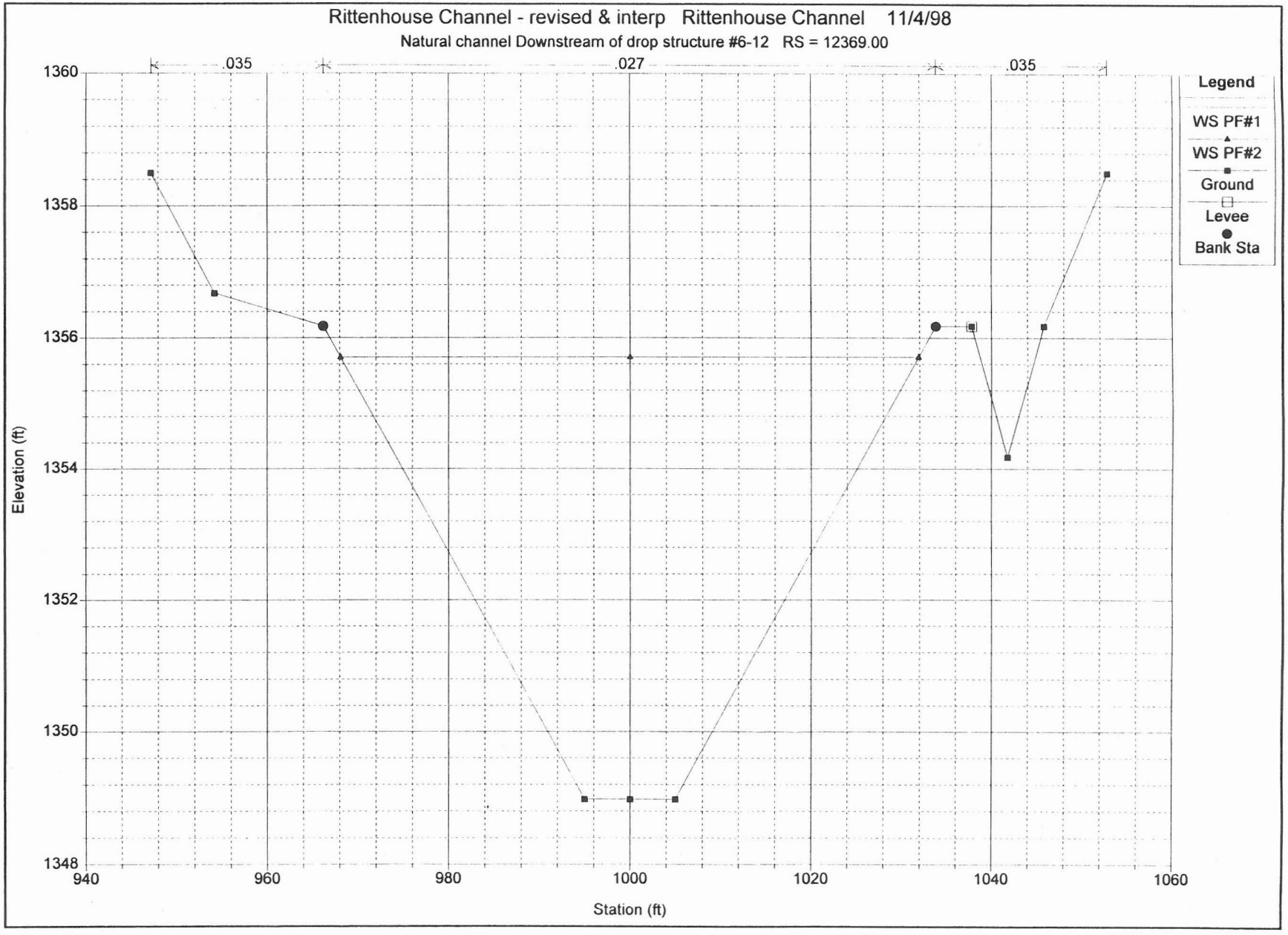

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 11936.5*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

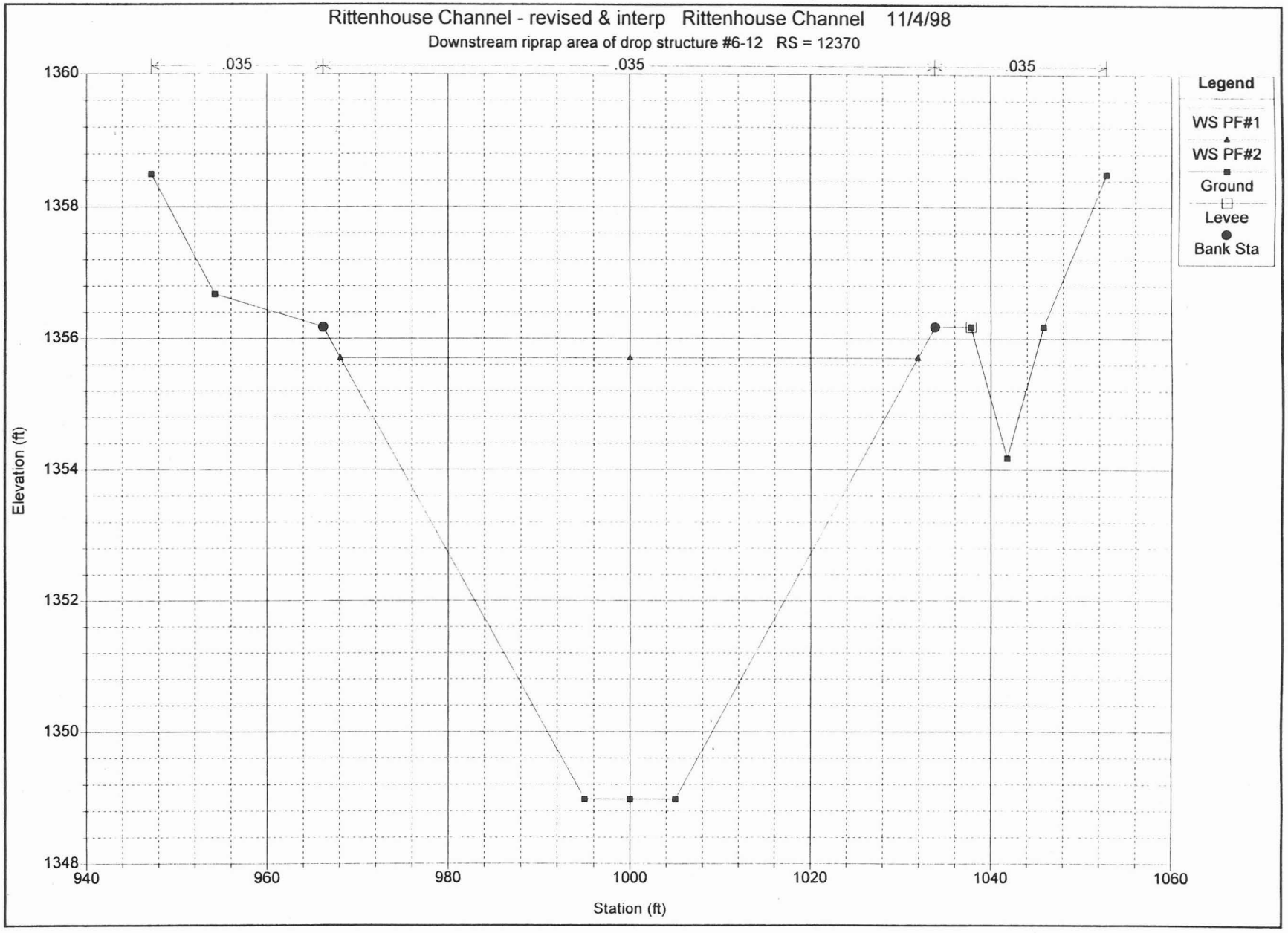

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12023.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

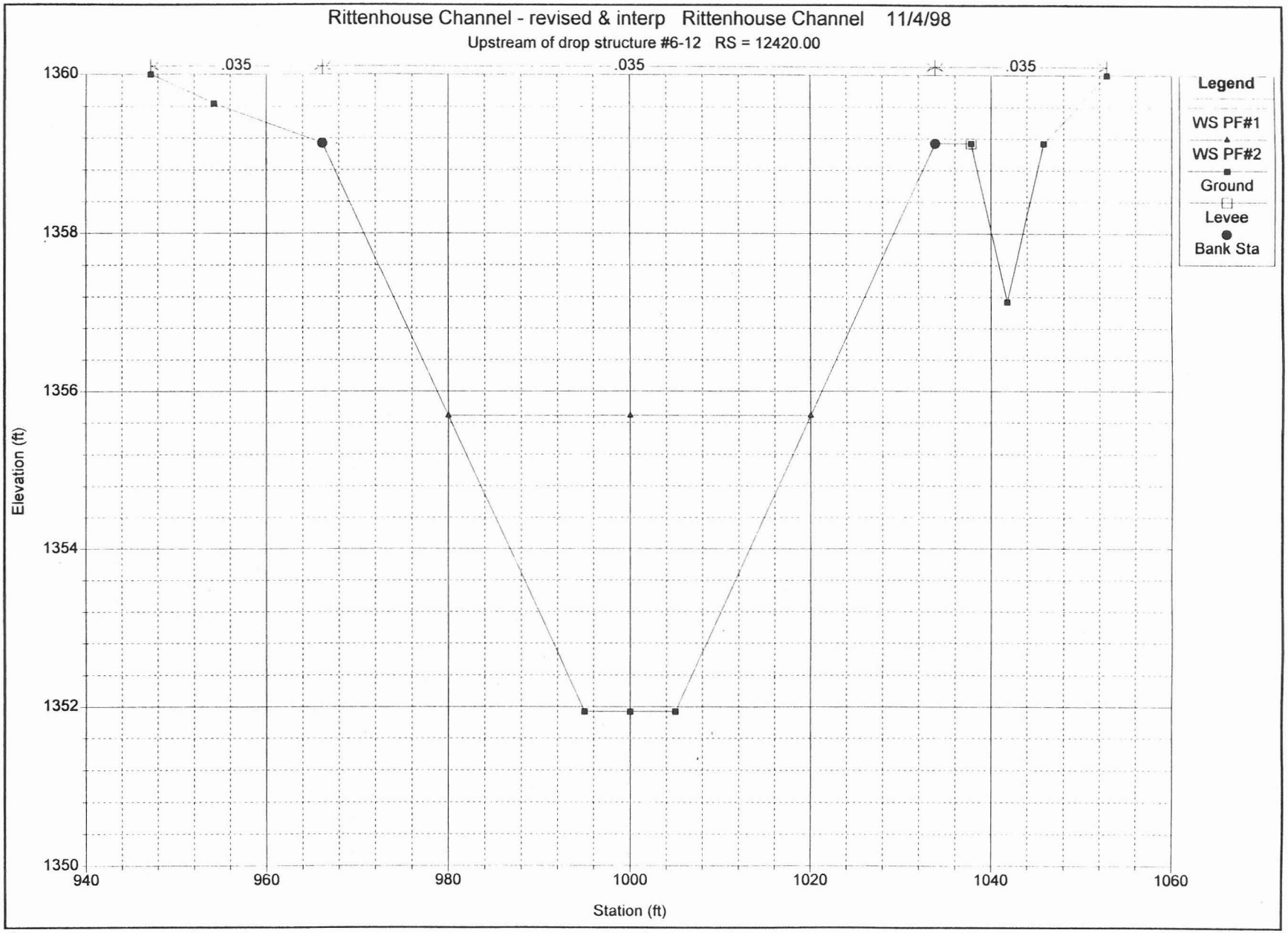

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12109.5*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

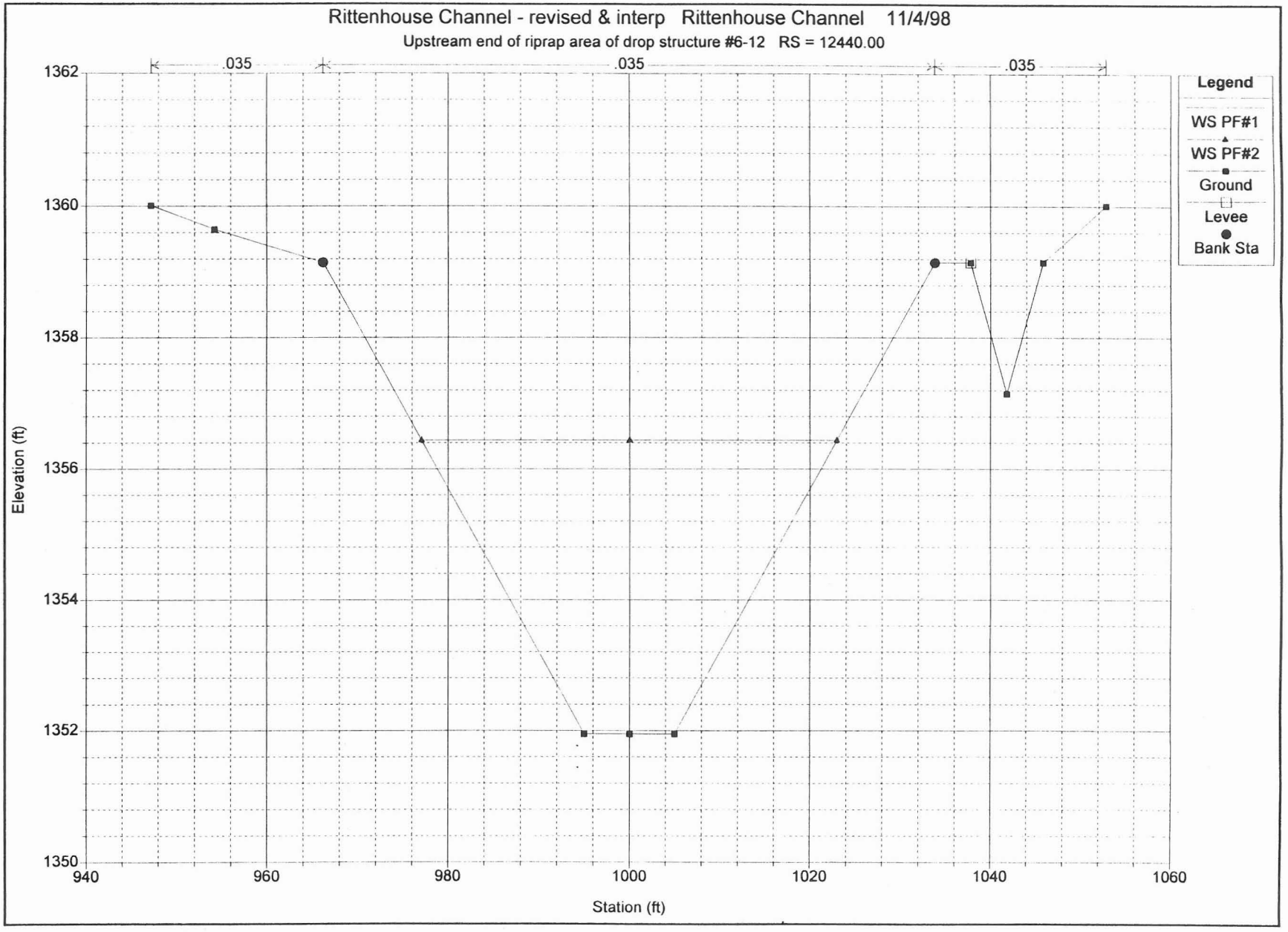

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12196.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1360
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

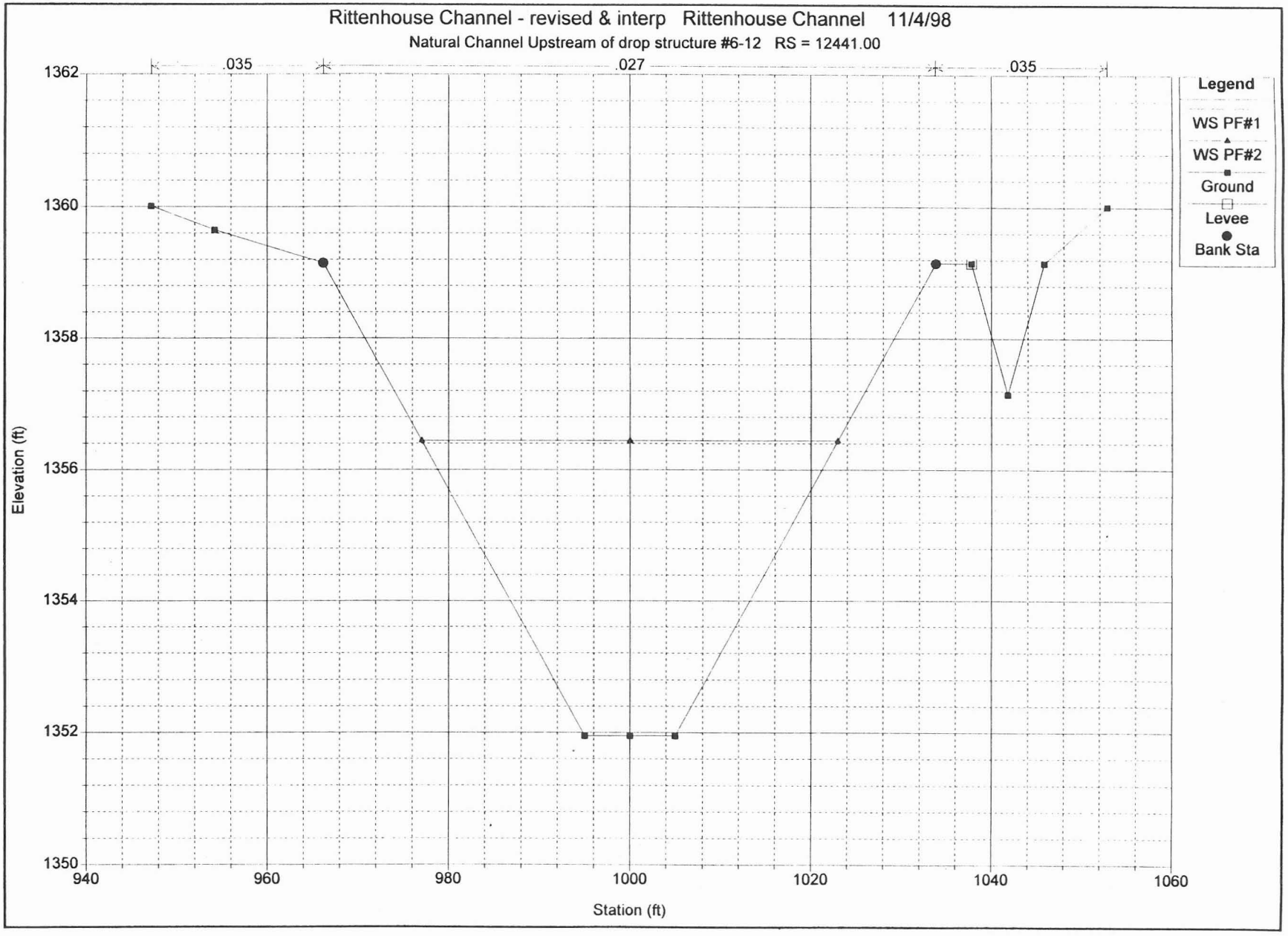

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12282.5*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1360
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

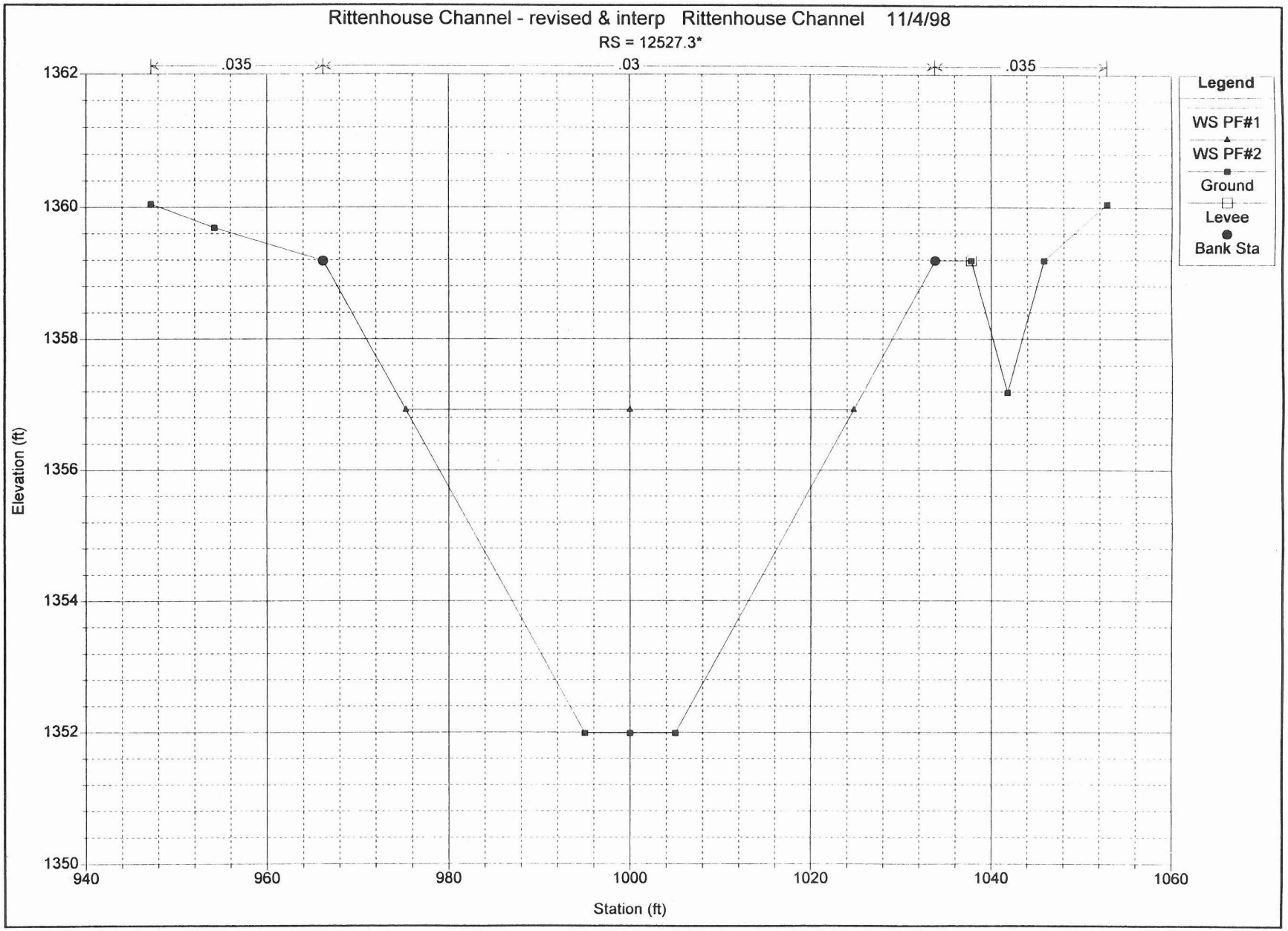

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel Downstream of drop structure #6-12 RS = 12369.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1360
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

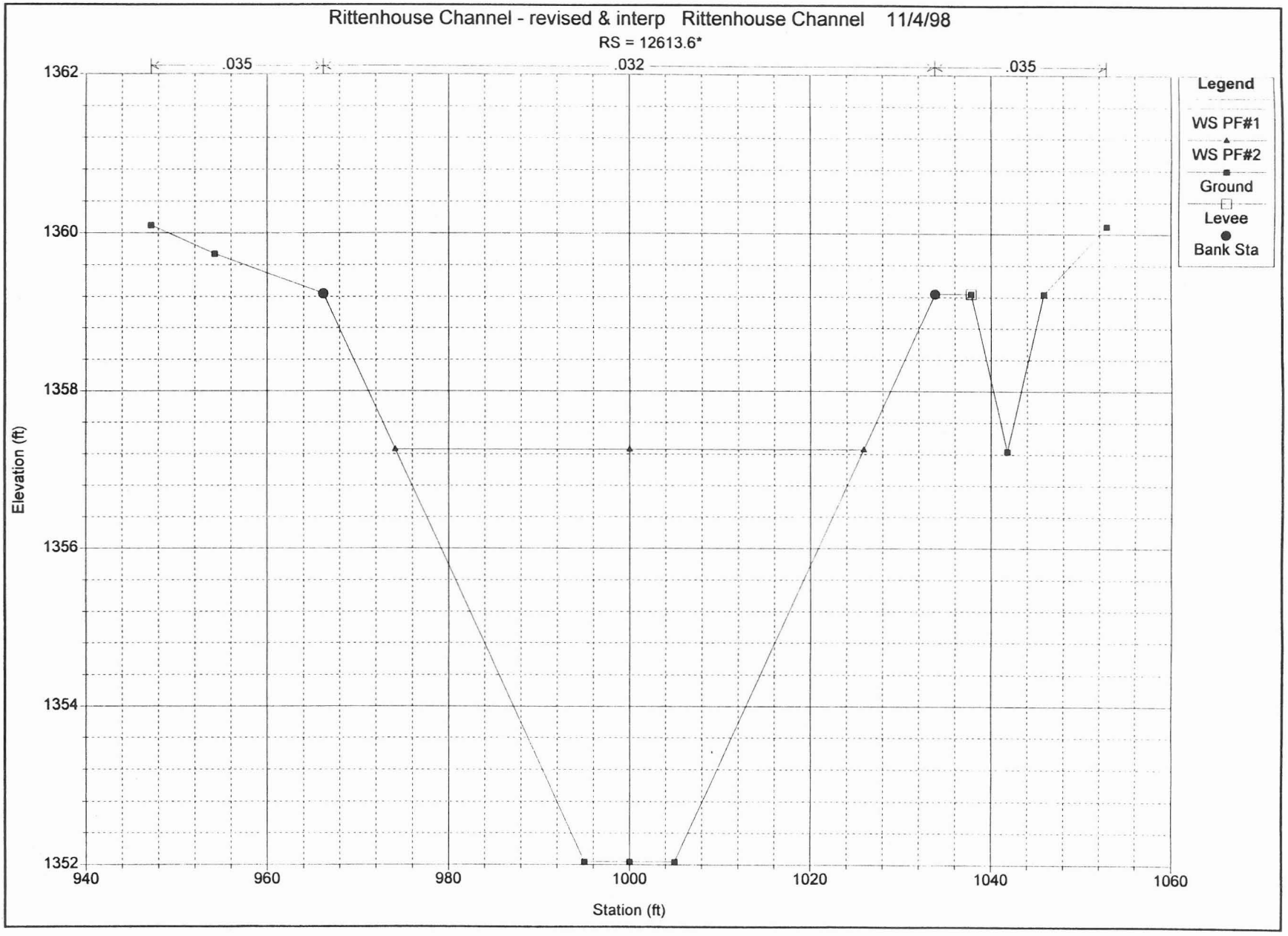

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure #6-12 RS = 12370
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1360
1358
1356
1354
1352
1350
1348
940
960
980
1000
1020
1040
1060
Station (ft)

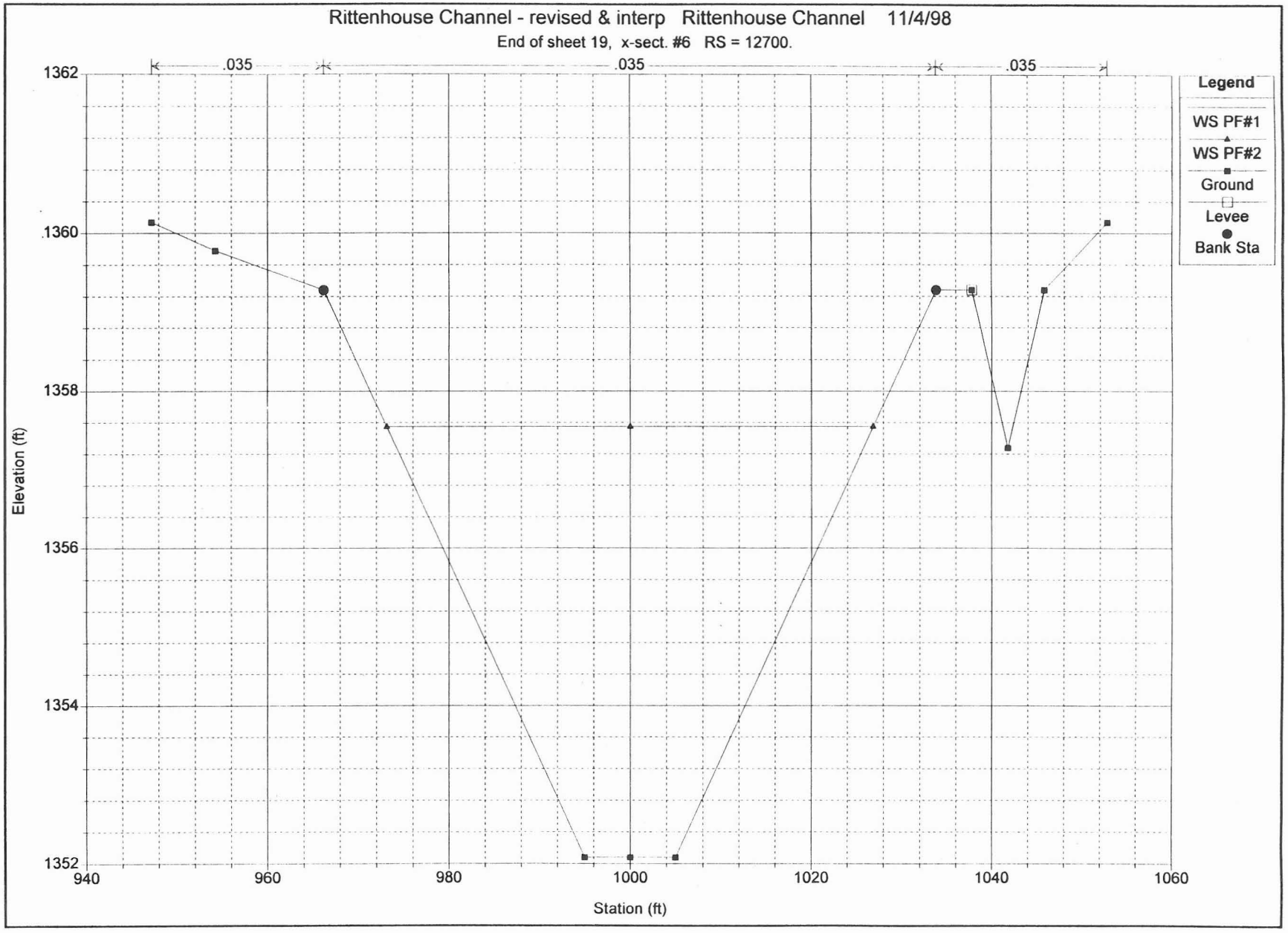

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure #6-12 RS = 12420.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1360
1358
1356
1354
1352
1350
940
960
980
1000
1020
1040
1060
Station (ft)

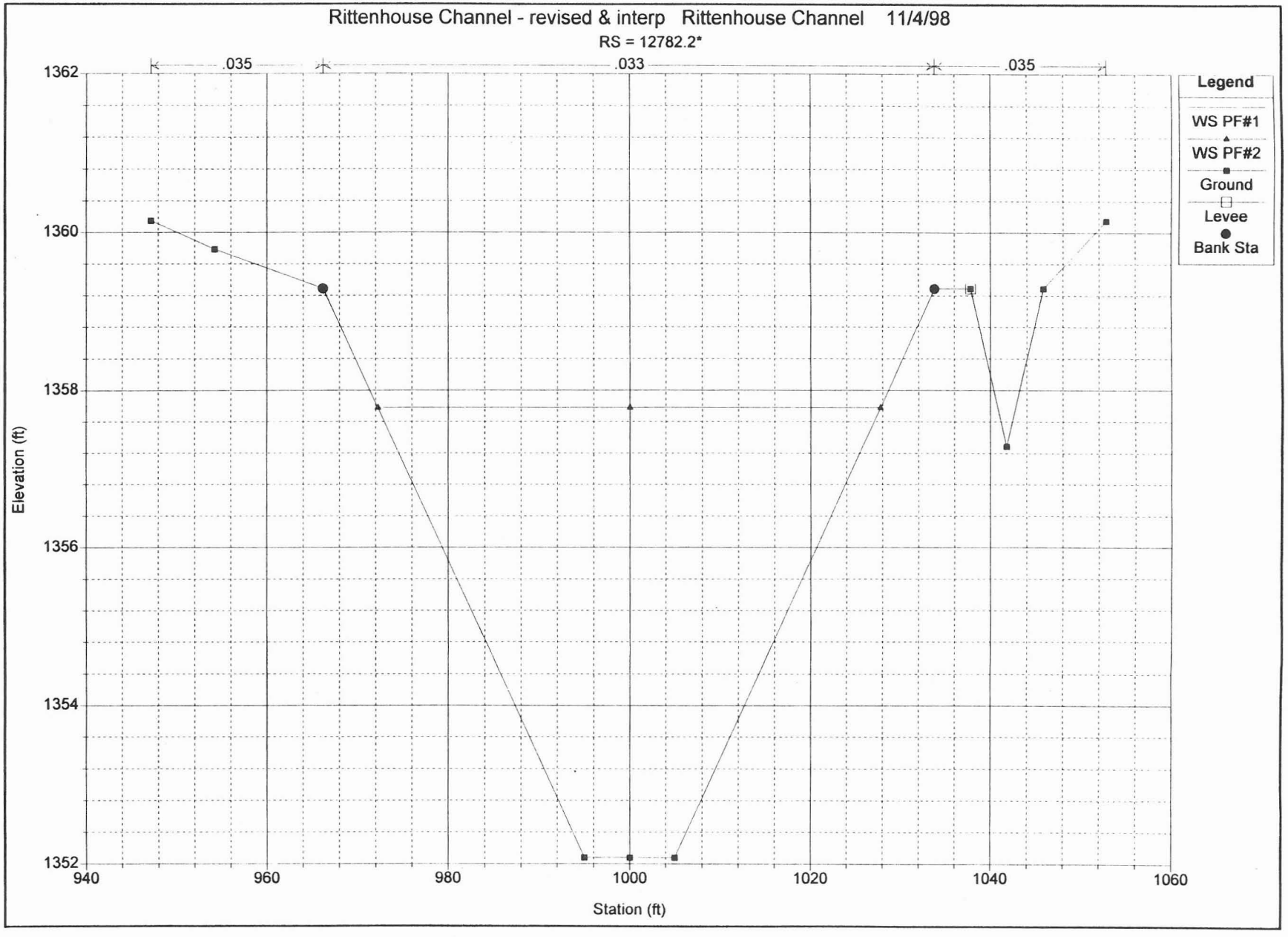

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream end of riprap area of drop structure #6-12 RS = 12440.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
1350
940
960
980
1000
1020
1040
1060
Station (ft)

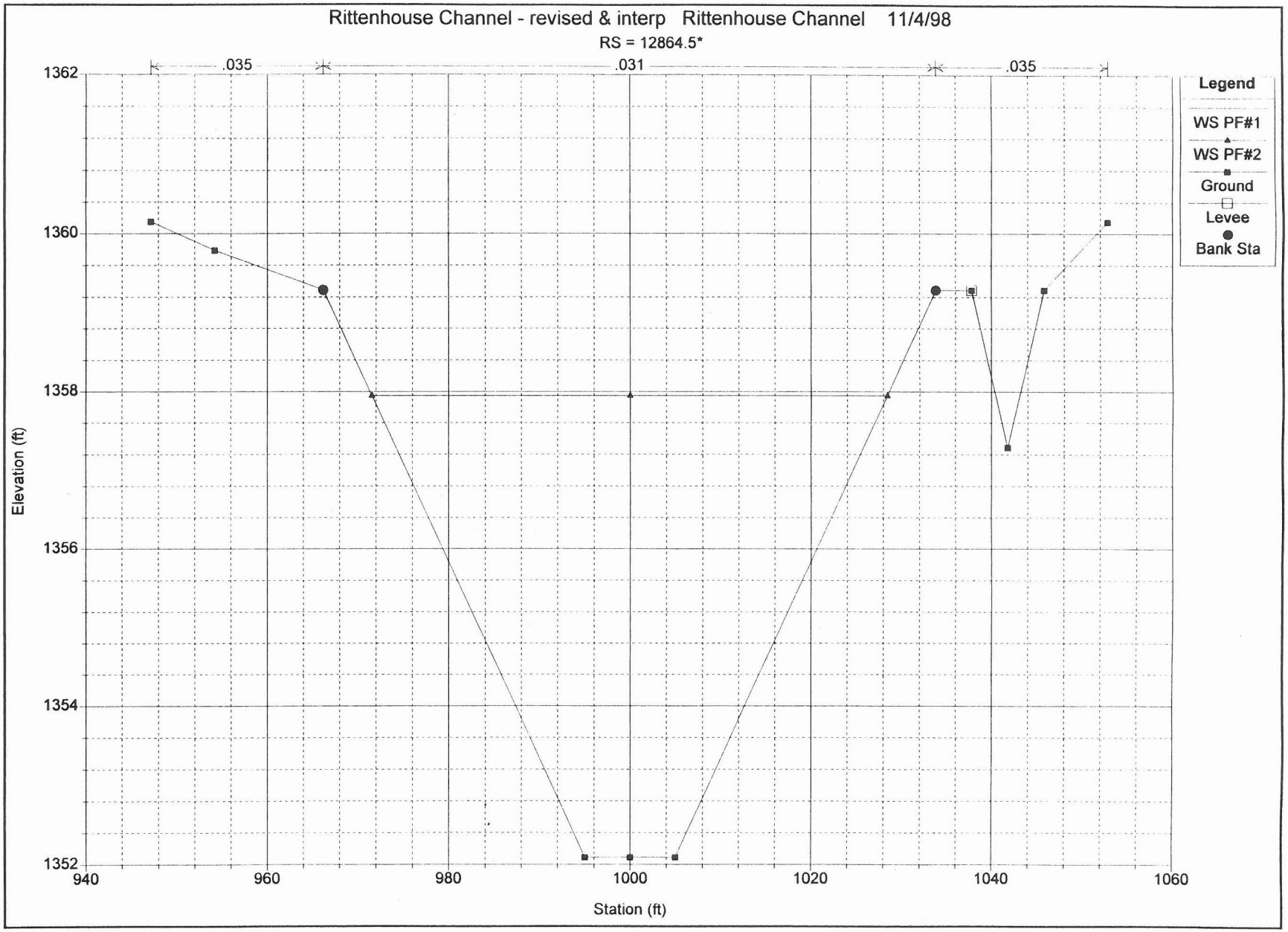

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of drop structure #6-12 RS = 12441.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
1350
940
960
980
1000
1020
1040
1060
Station (ft)

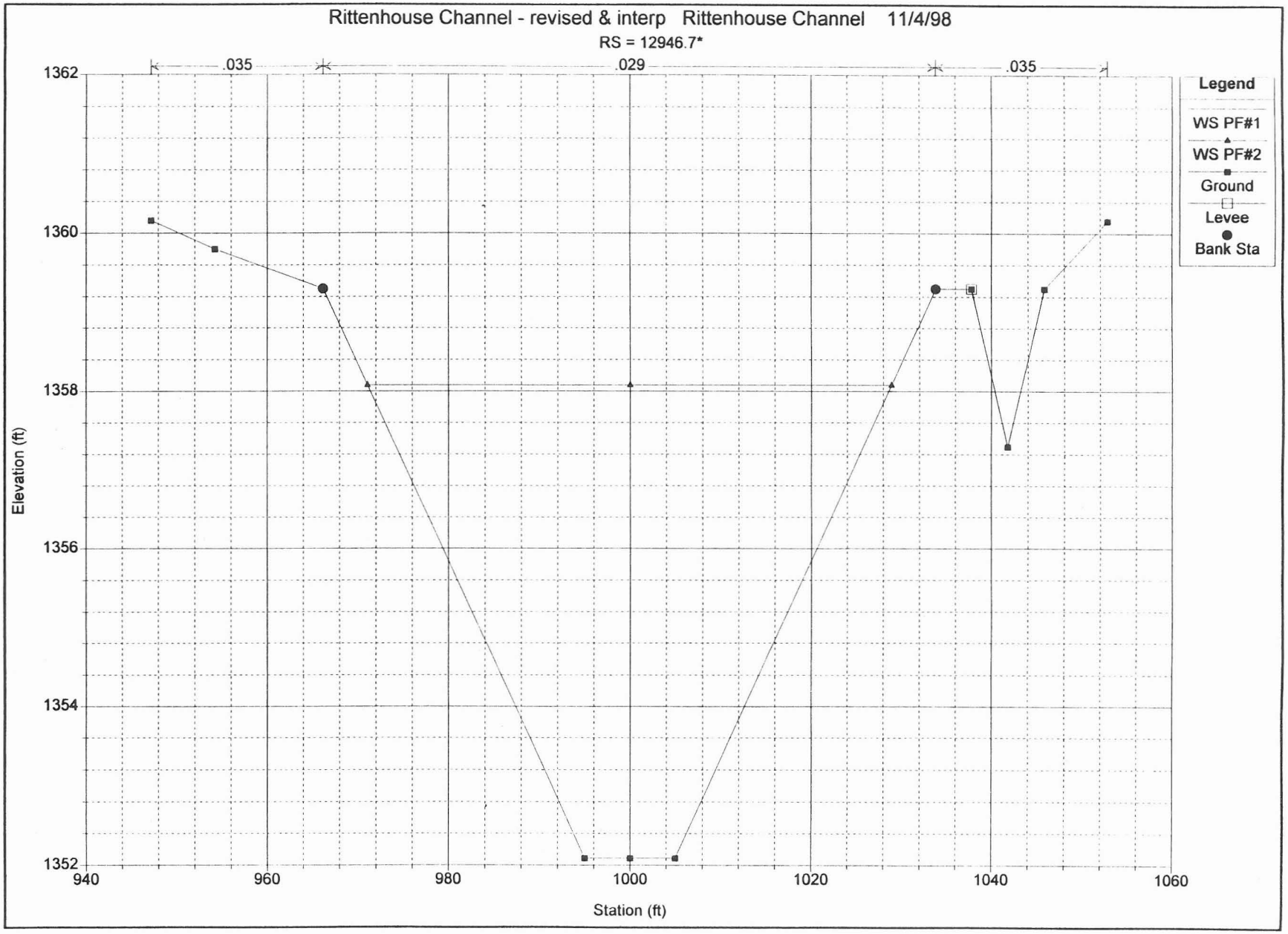

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12527.3*
.035
.03
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
1350
940
960
980
1000
1020
1040
1060
Station (ft)

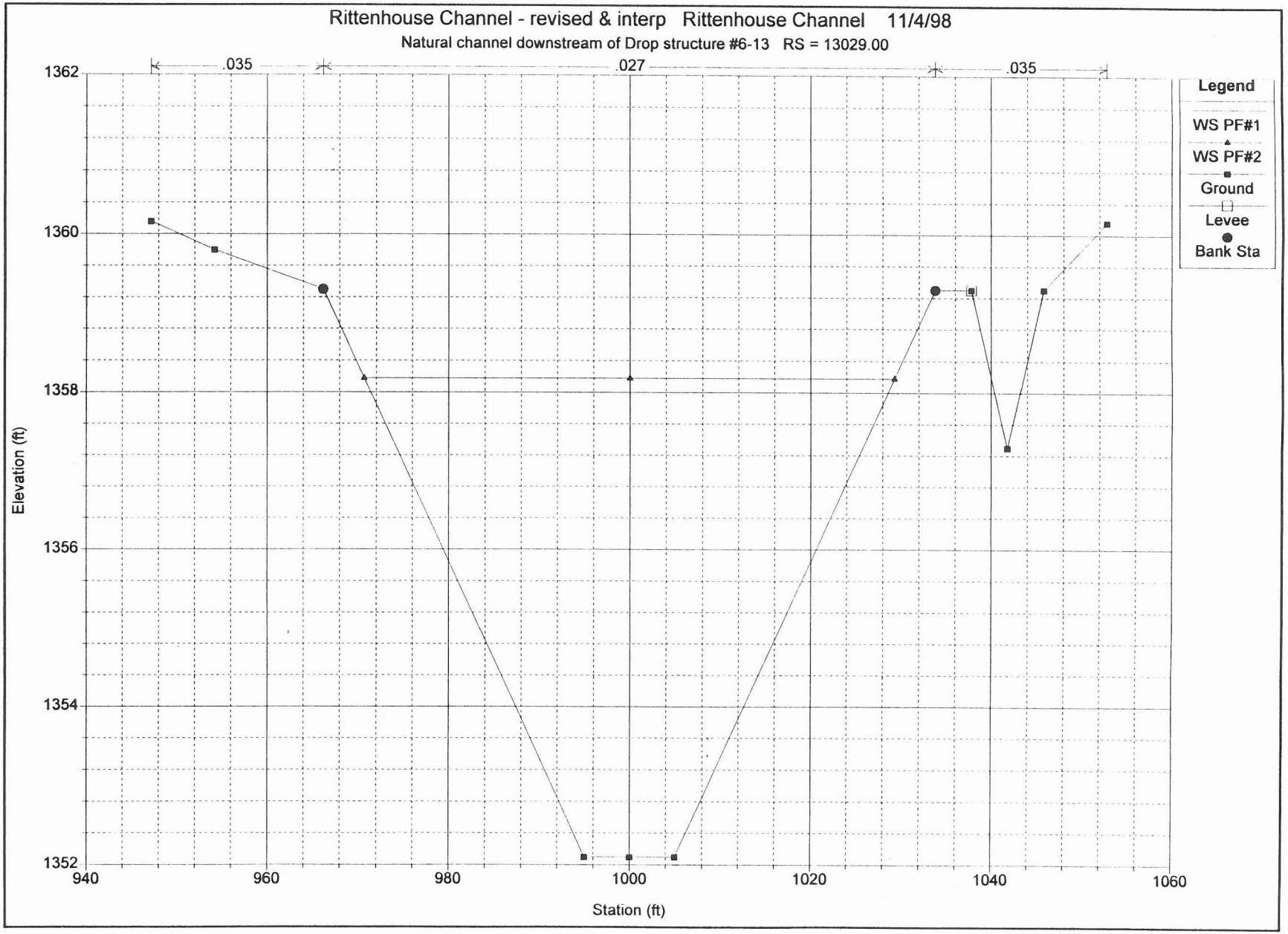

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12613.6*
.035
.032
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
940
960
980
1000
1020
1040
1060
Station (ft)

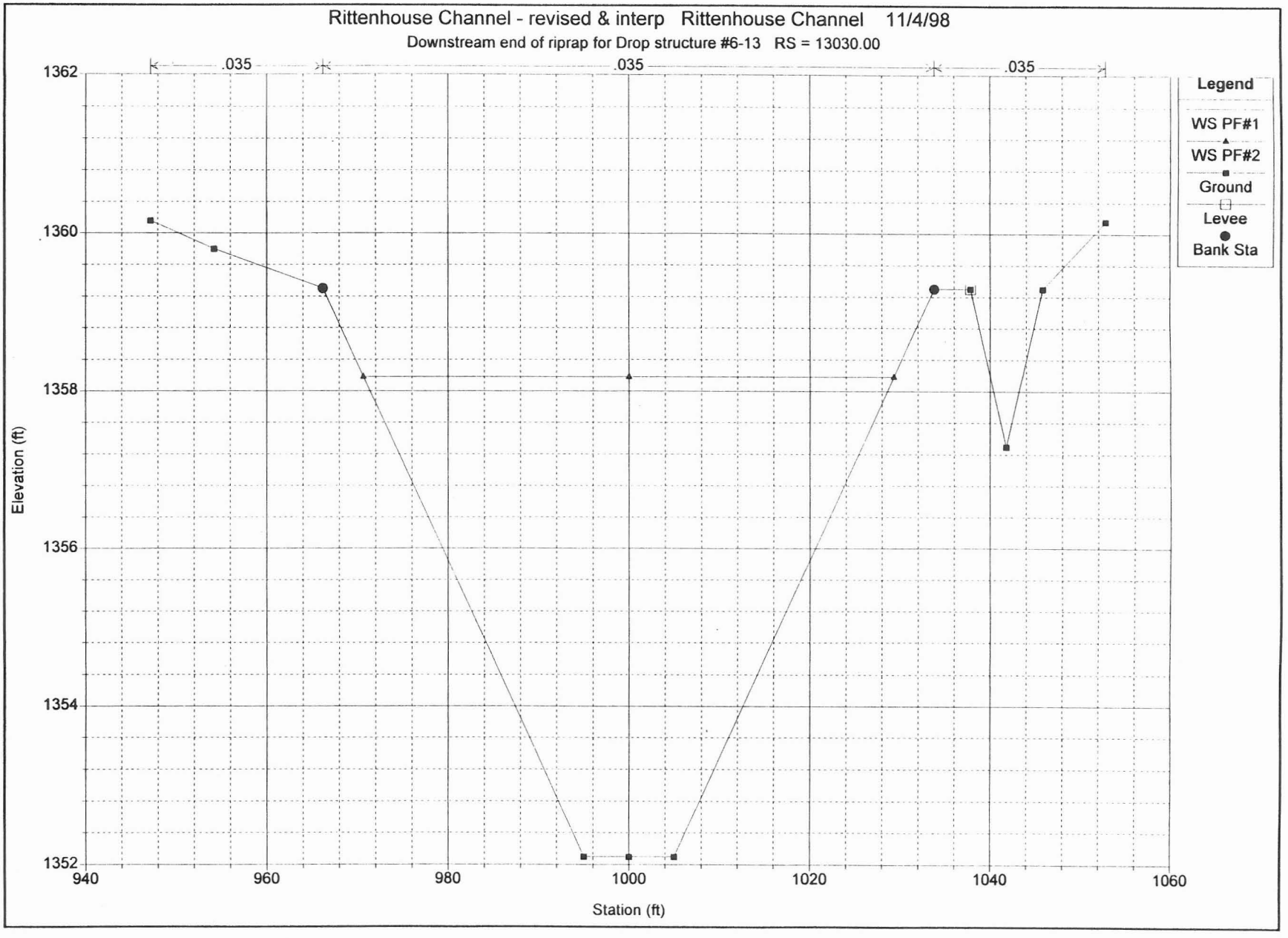

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of sheet 19, x-sect. #6 RS = 12700.
.035
.035
.035
1362
1360
1358
1356
1354
1352
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

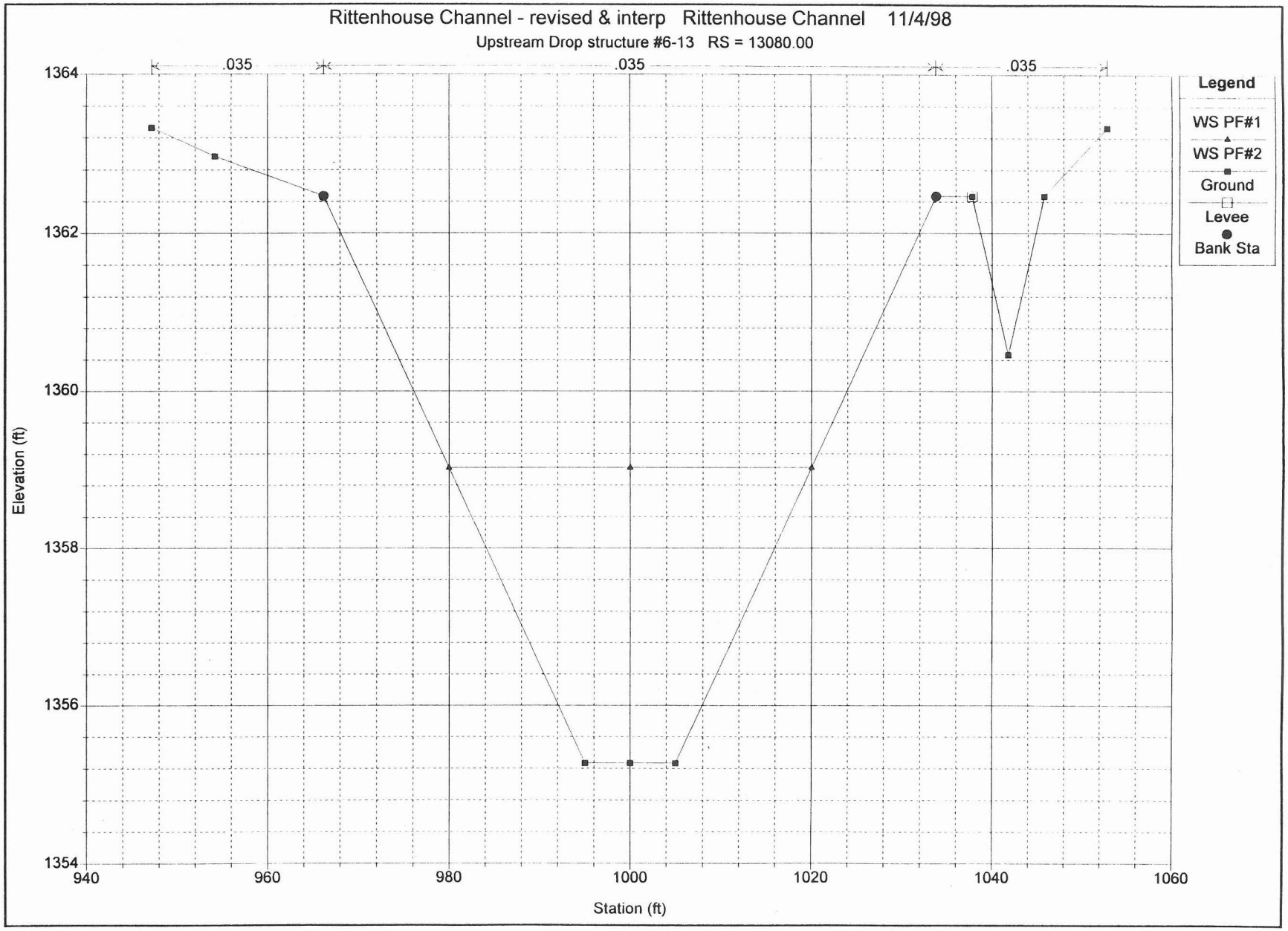

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12782.2*
.035
.033
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
940
960
980
1000
1020
1040
1060
Station (ft)

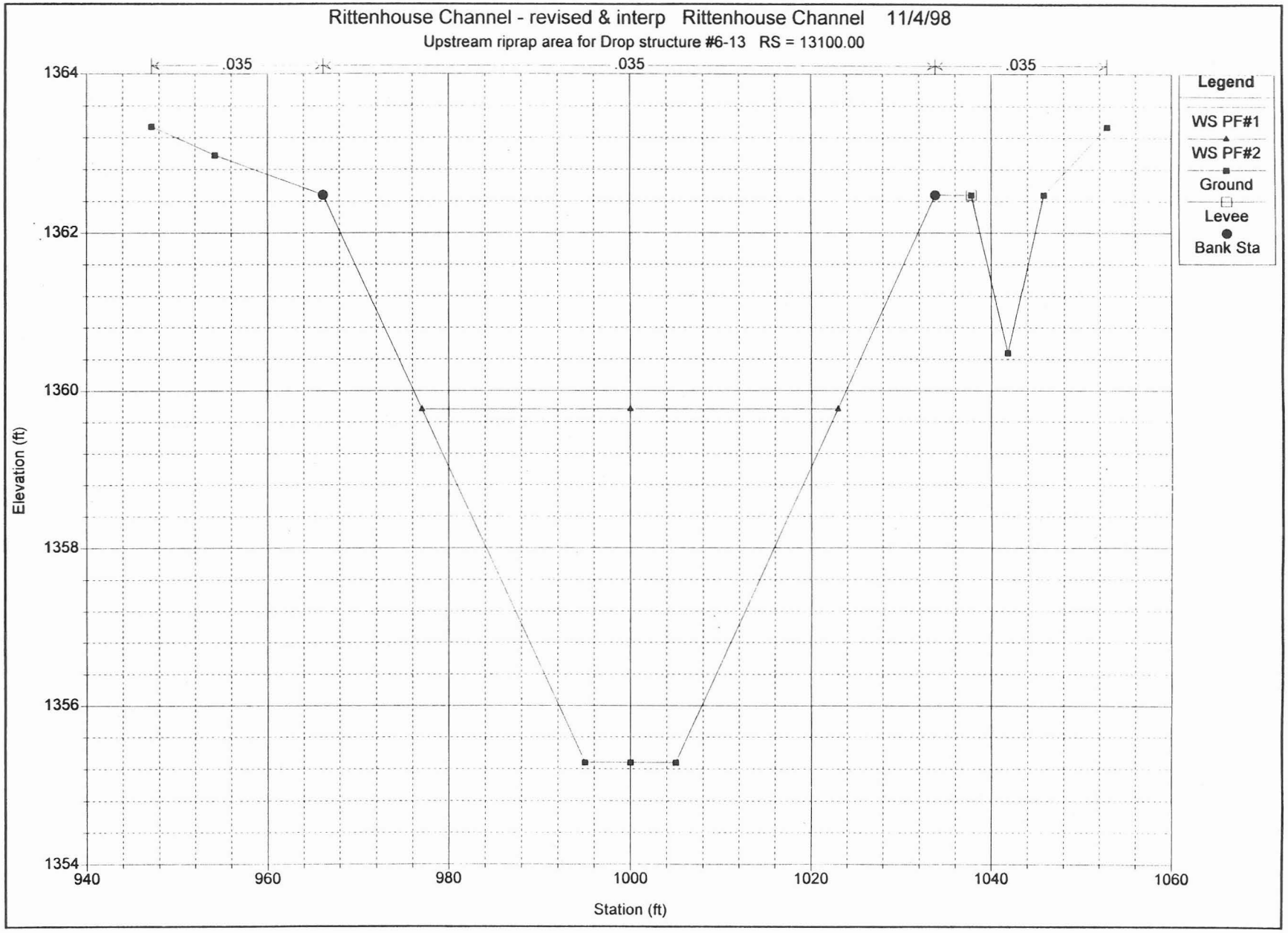

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12864.5*
.035
.031
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
940
960
980
1000
1020
1040
1060
Station (ft)

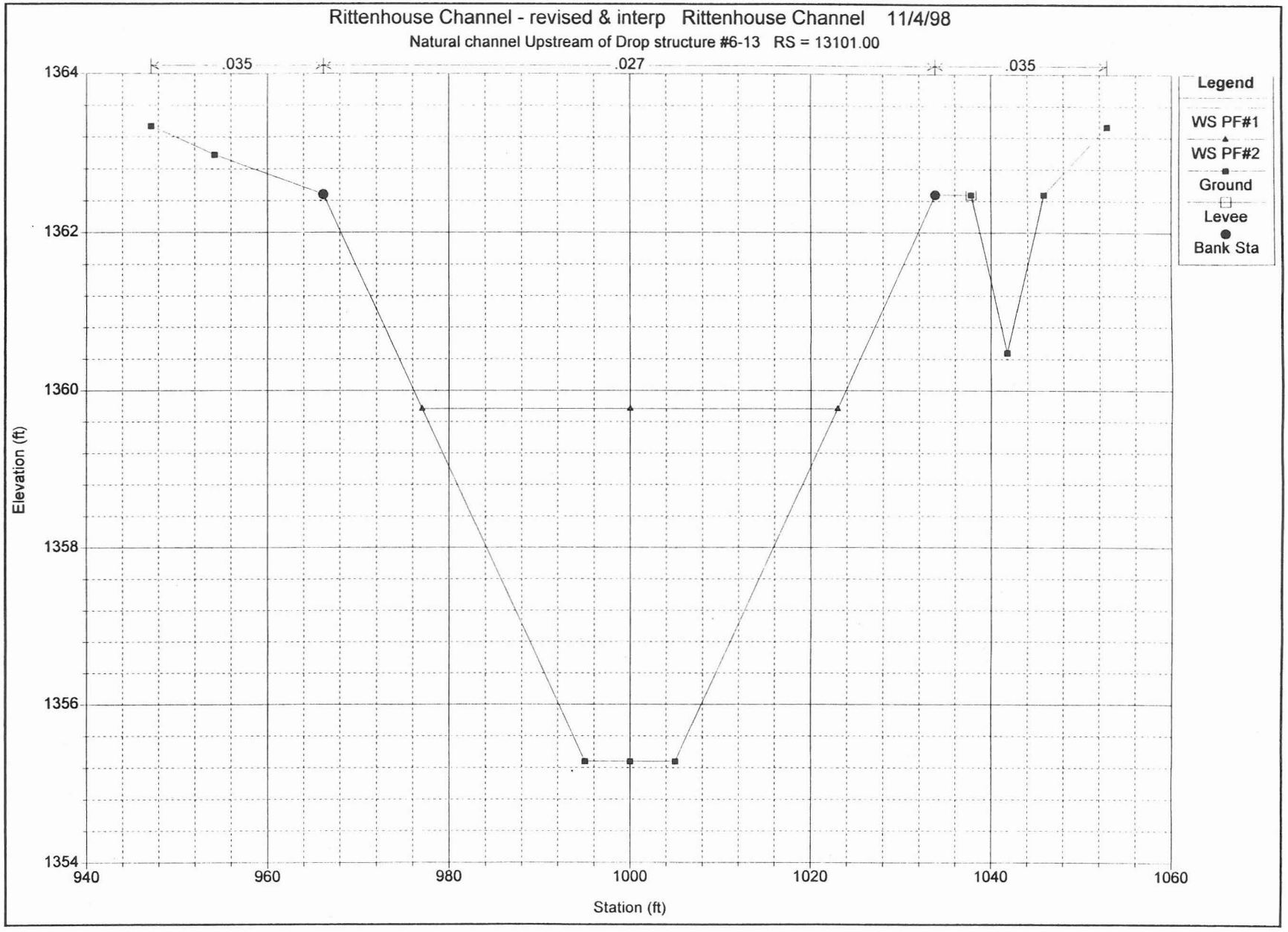

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 12946.7*
.035
.029
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
940
960
980
1000
1020
1040
1060
Station (ft)

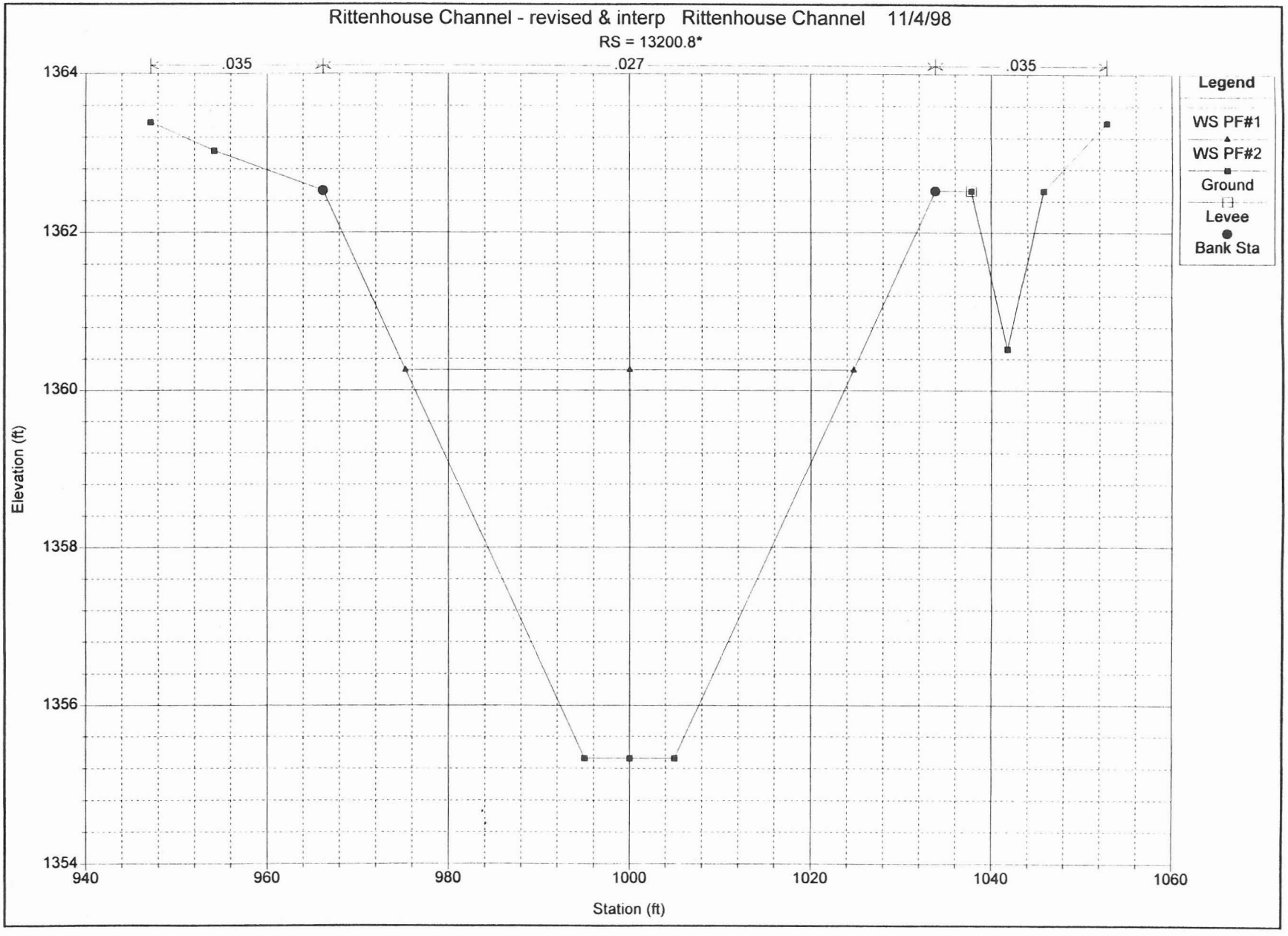

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel downstream of Drop structure #6-13 RS = 13029.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
940
960
980
1000
1020
1040
1060
Station (ft)

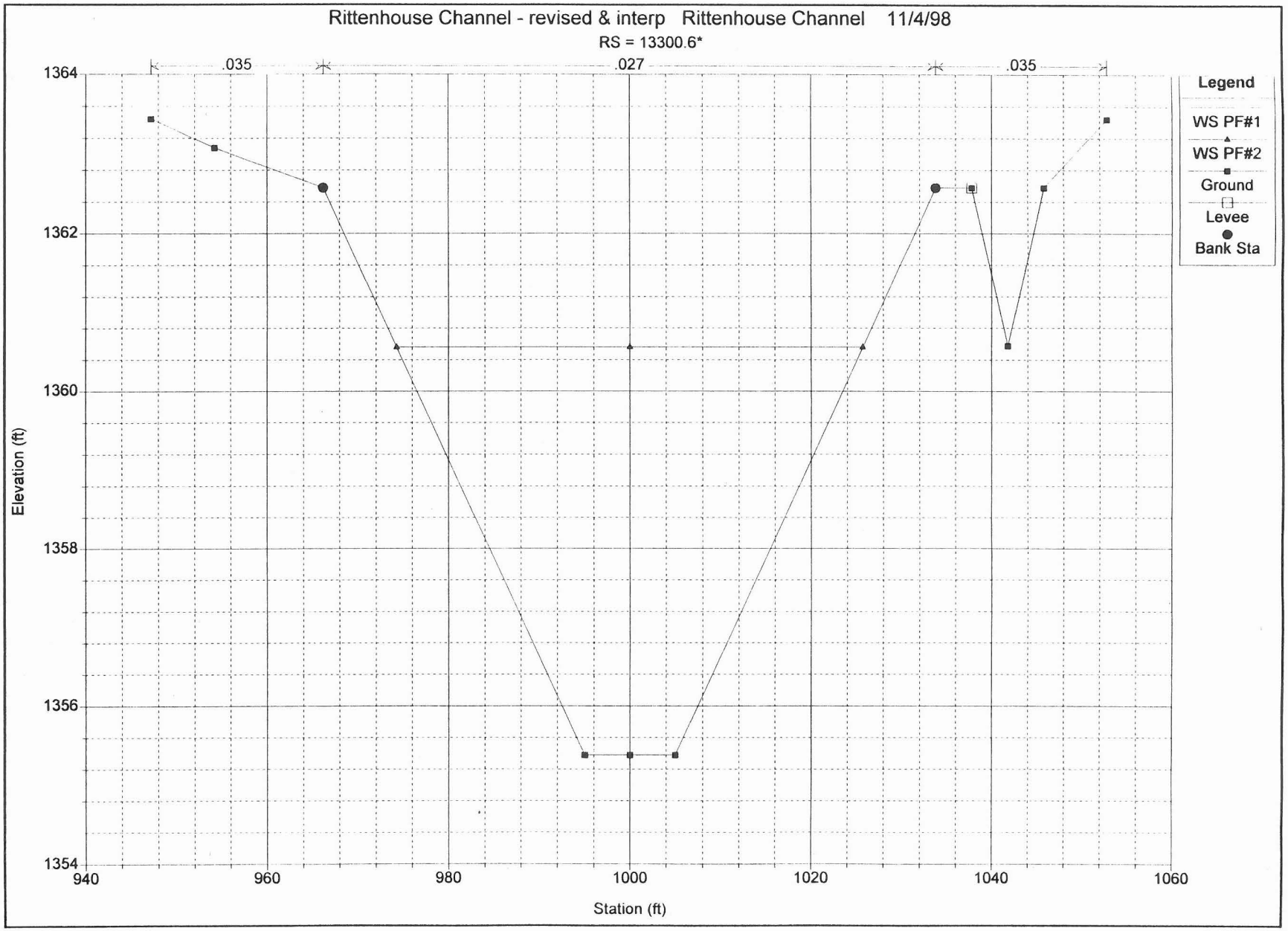

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream end of riprap for Drop structure #6-13 RS = 13030.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
940
960
980
1000
1020
1040
1060
Station (ft)

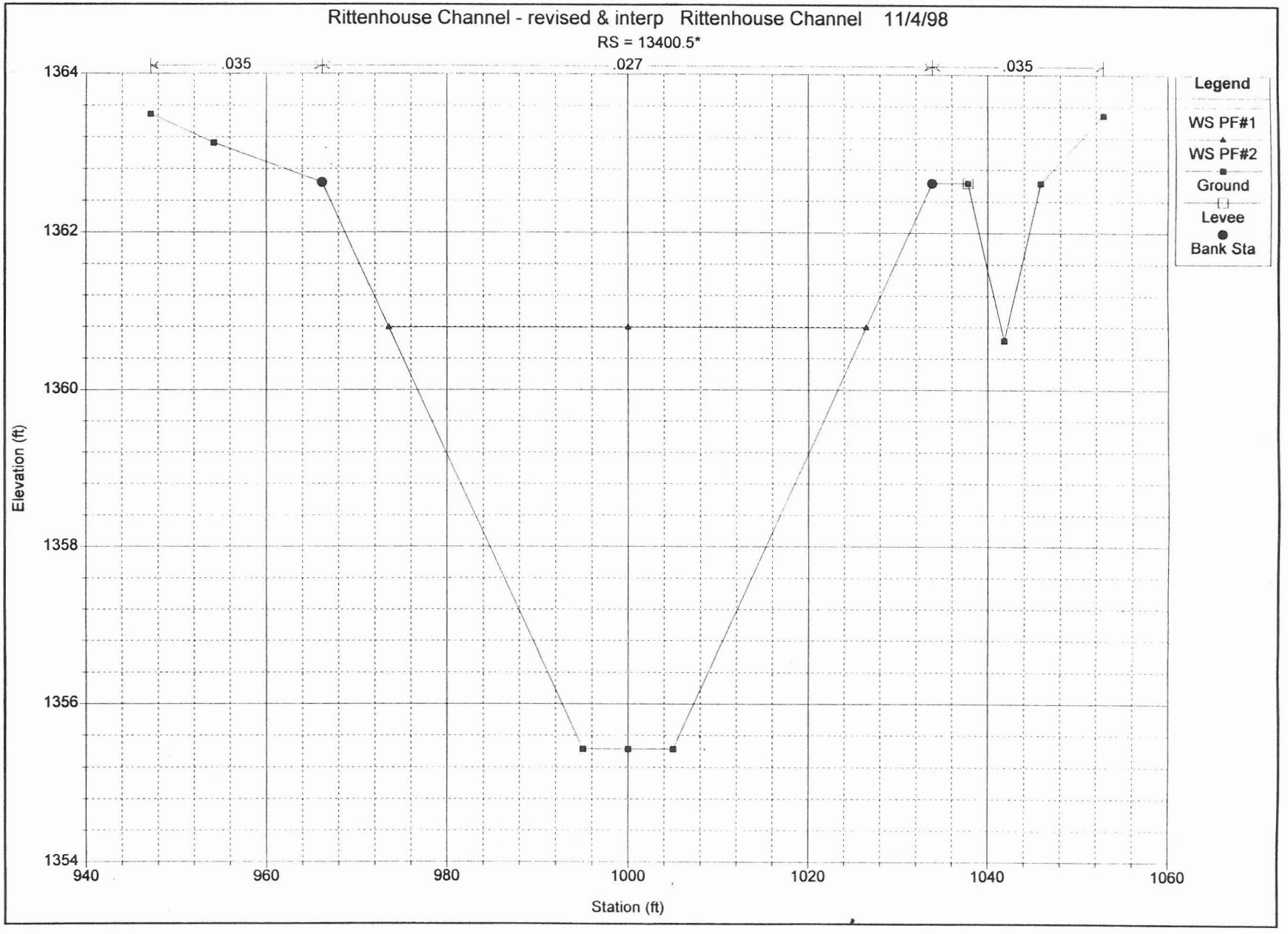

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream Drop structure #6-13 RS = 13080.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

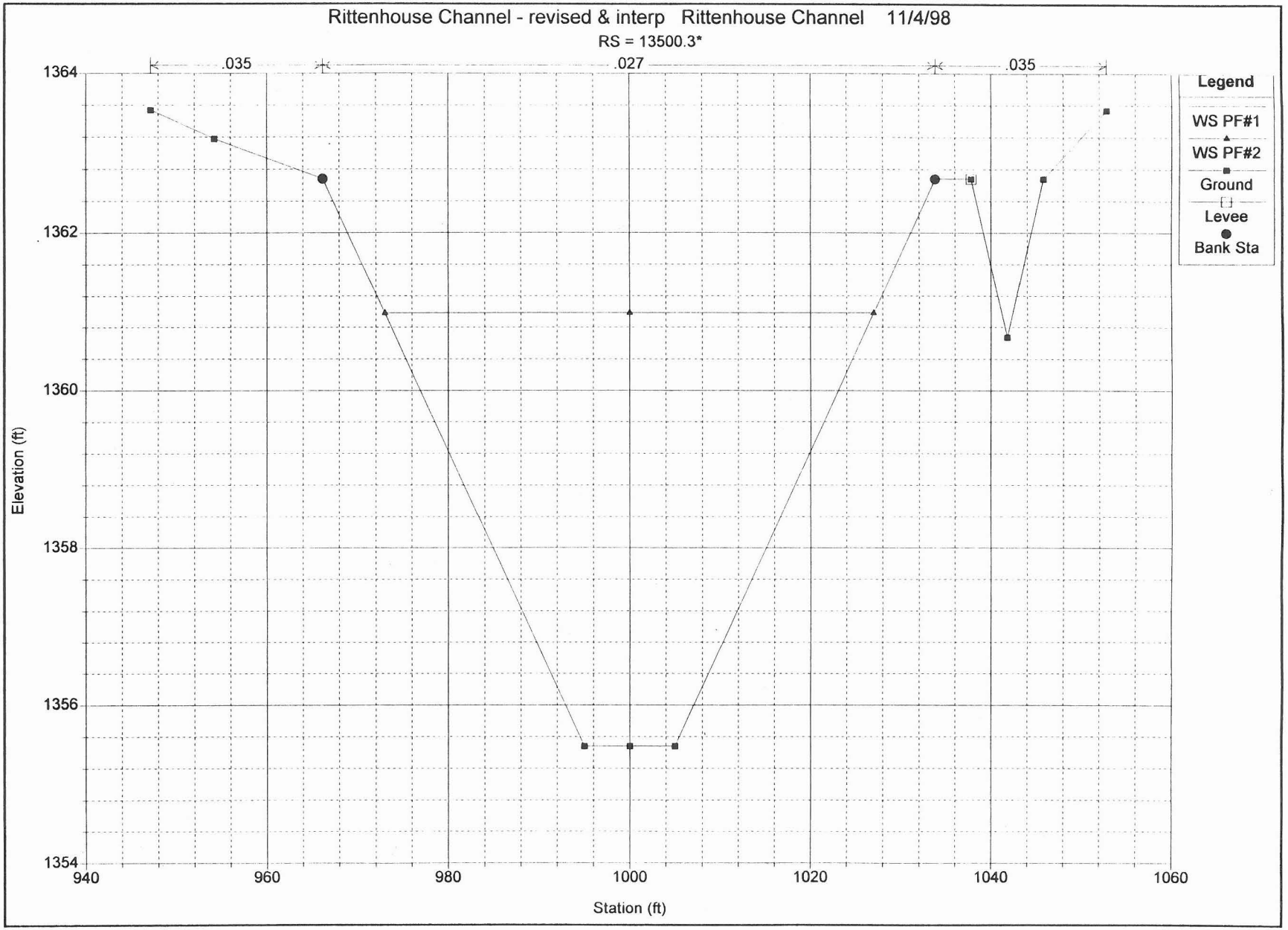

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area for Drop structure #6-13 RS = 13100.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

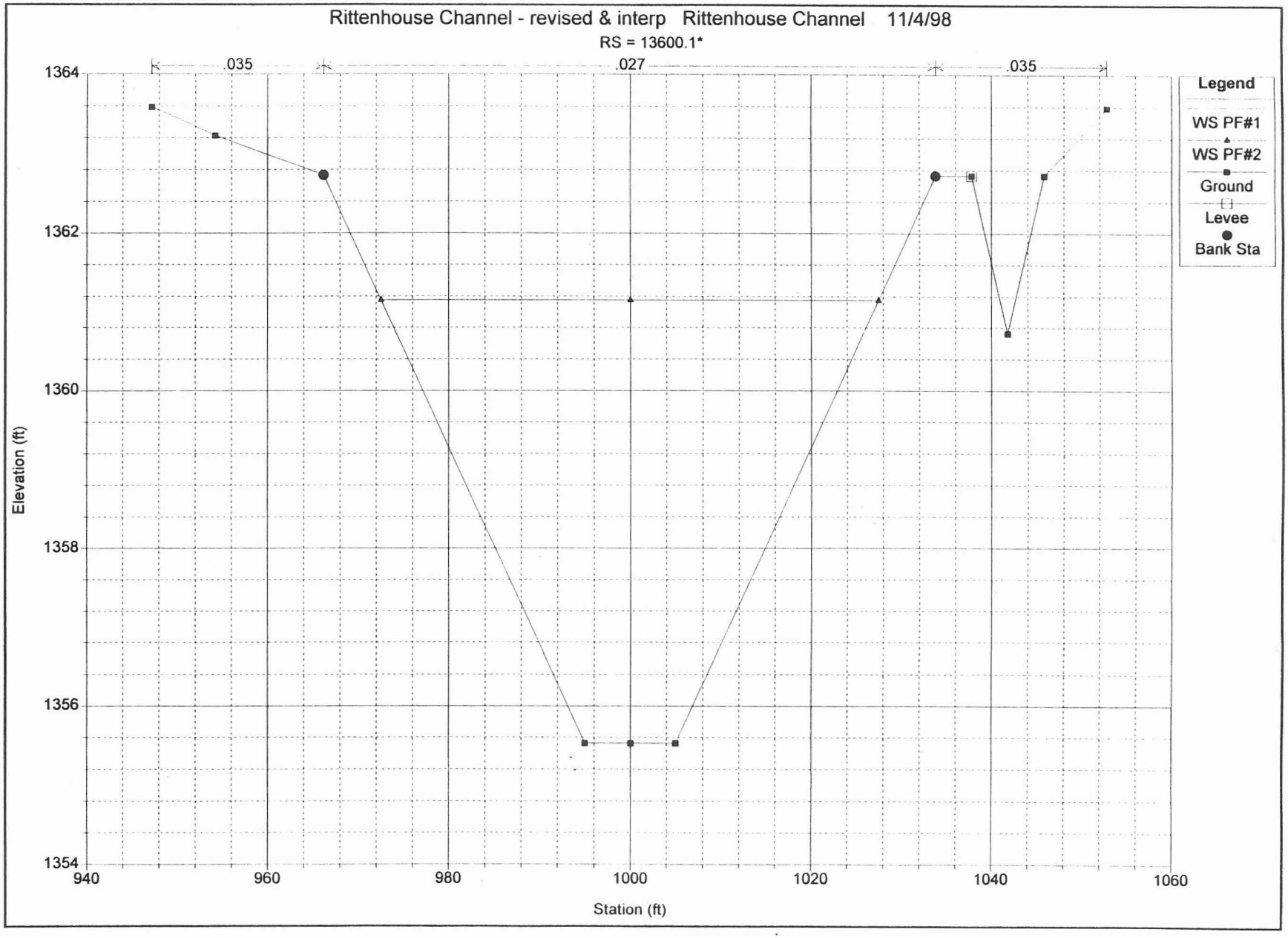

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel Upstream of Drop structure #6-13 RS = 13101.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

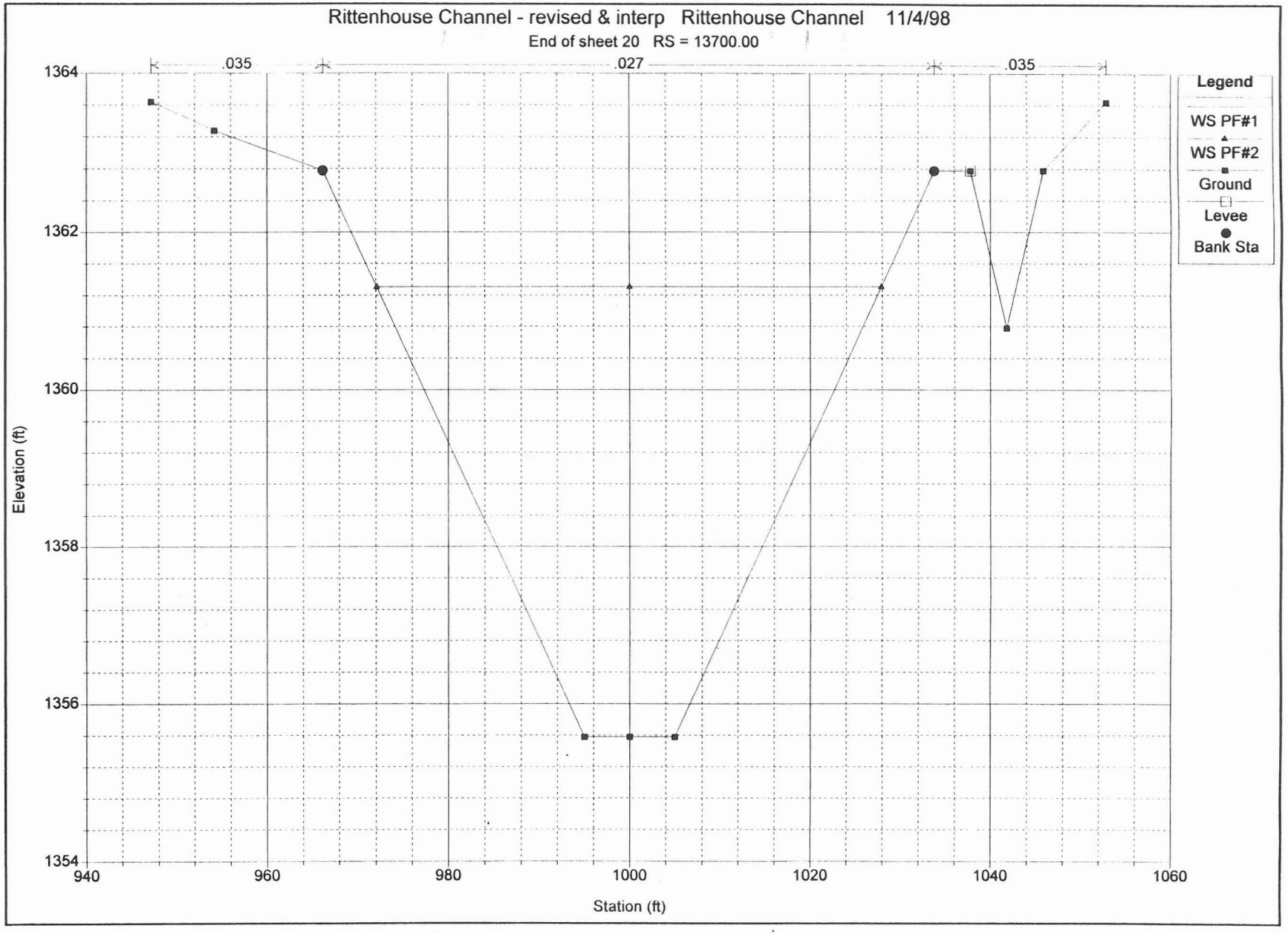

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13200.8*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

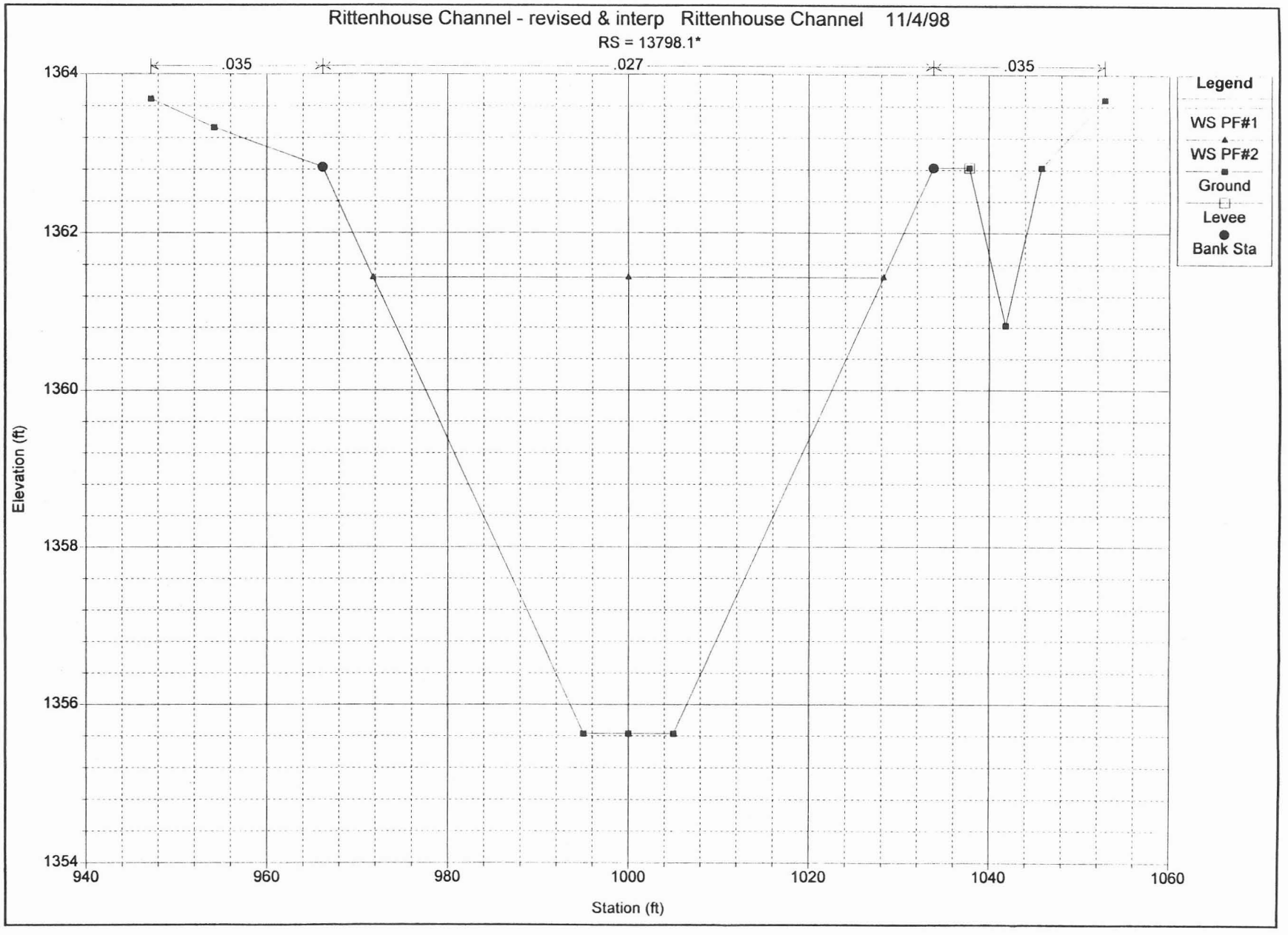

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13300.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

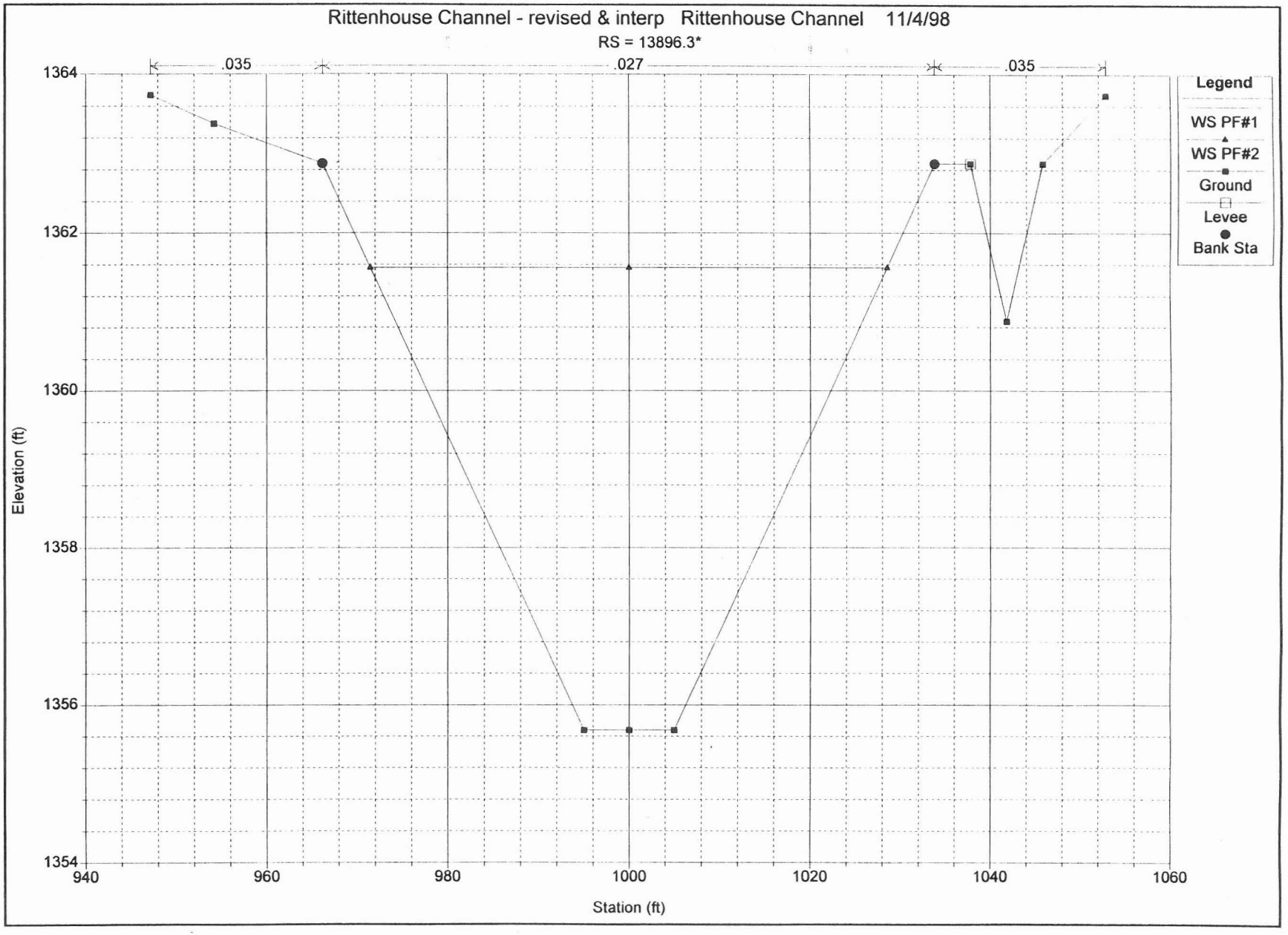

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13400.5*
.035
.027
.035
1364
1362
1360
1358
1356
1354
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

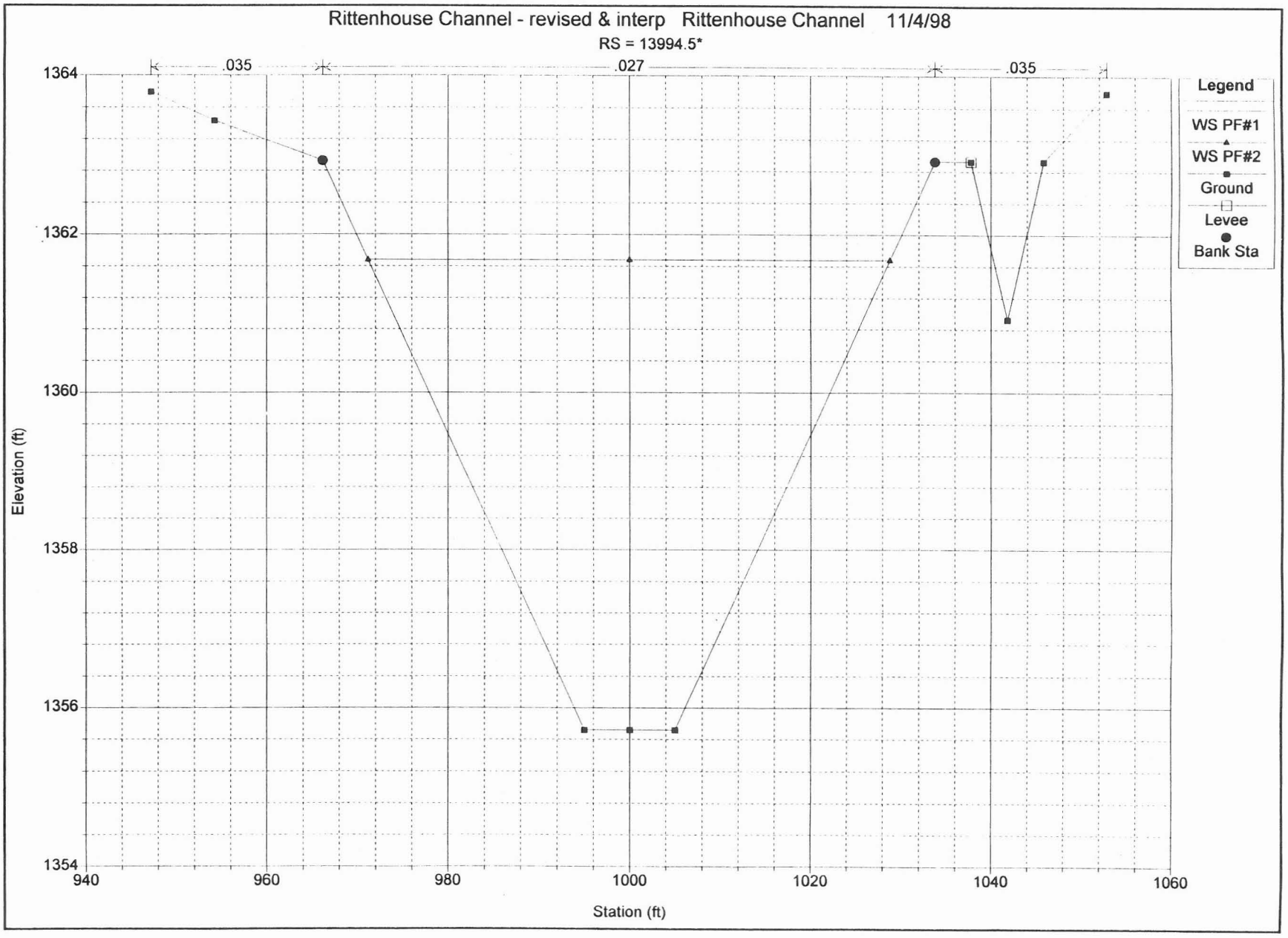

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13500.3*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

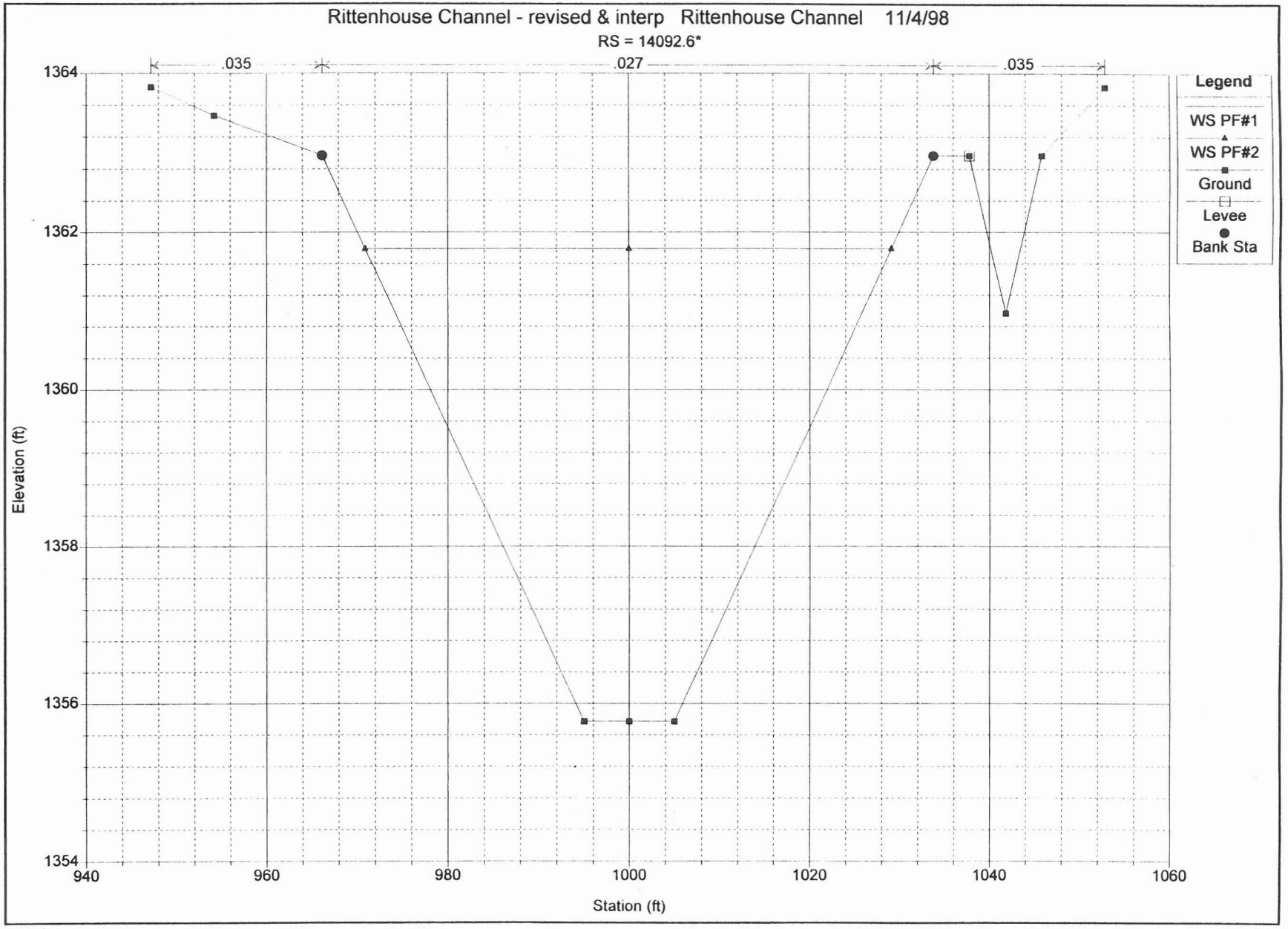

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13600.1*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

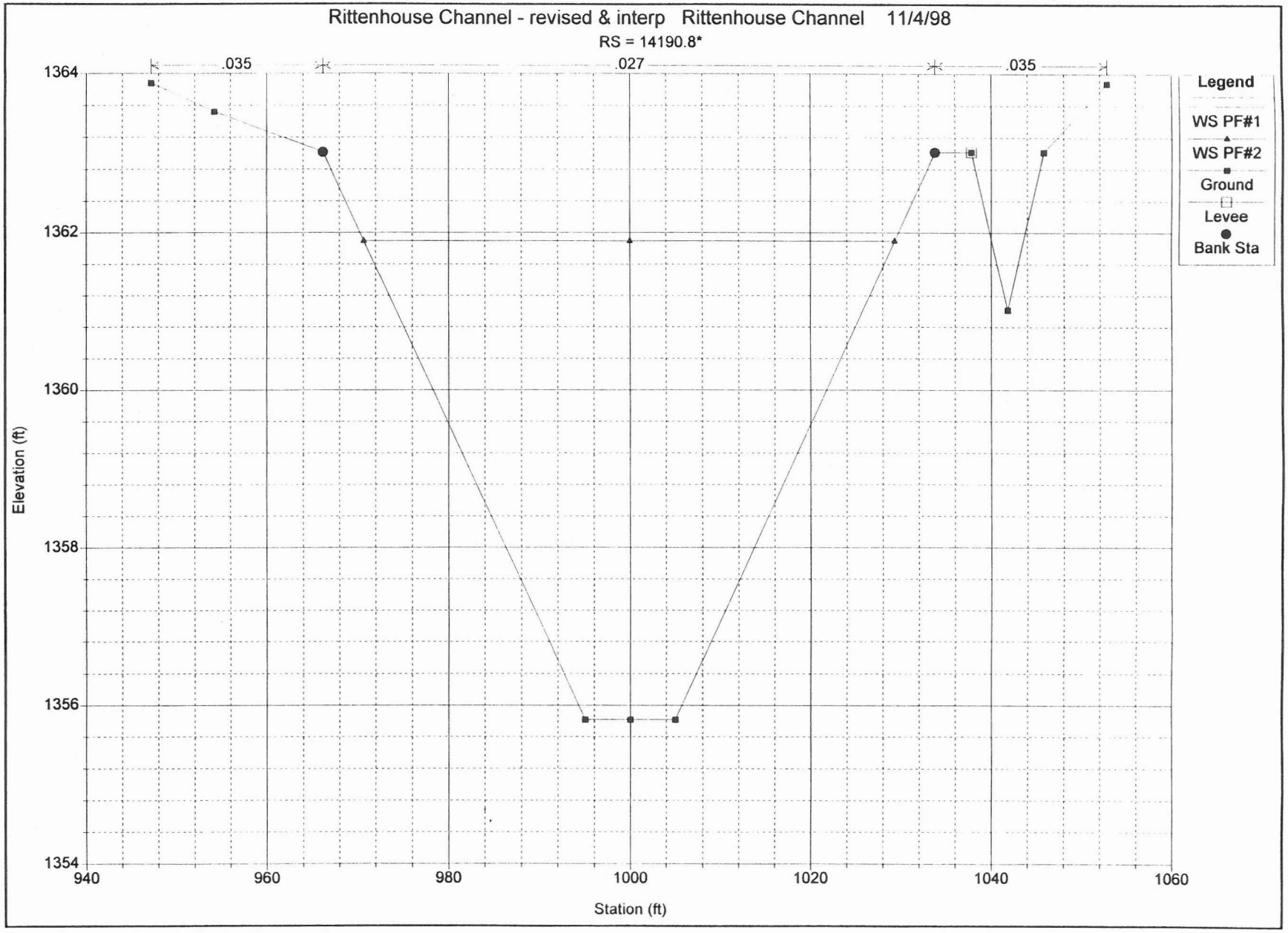

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of sheet 20 RS = 13700.00
.035
.027
.035
1364
1362
1360
1358
1356
1354
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

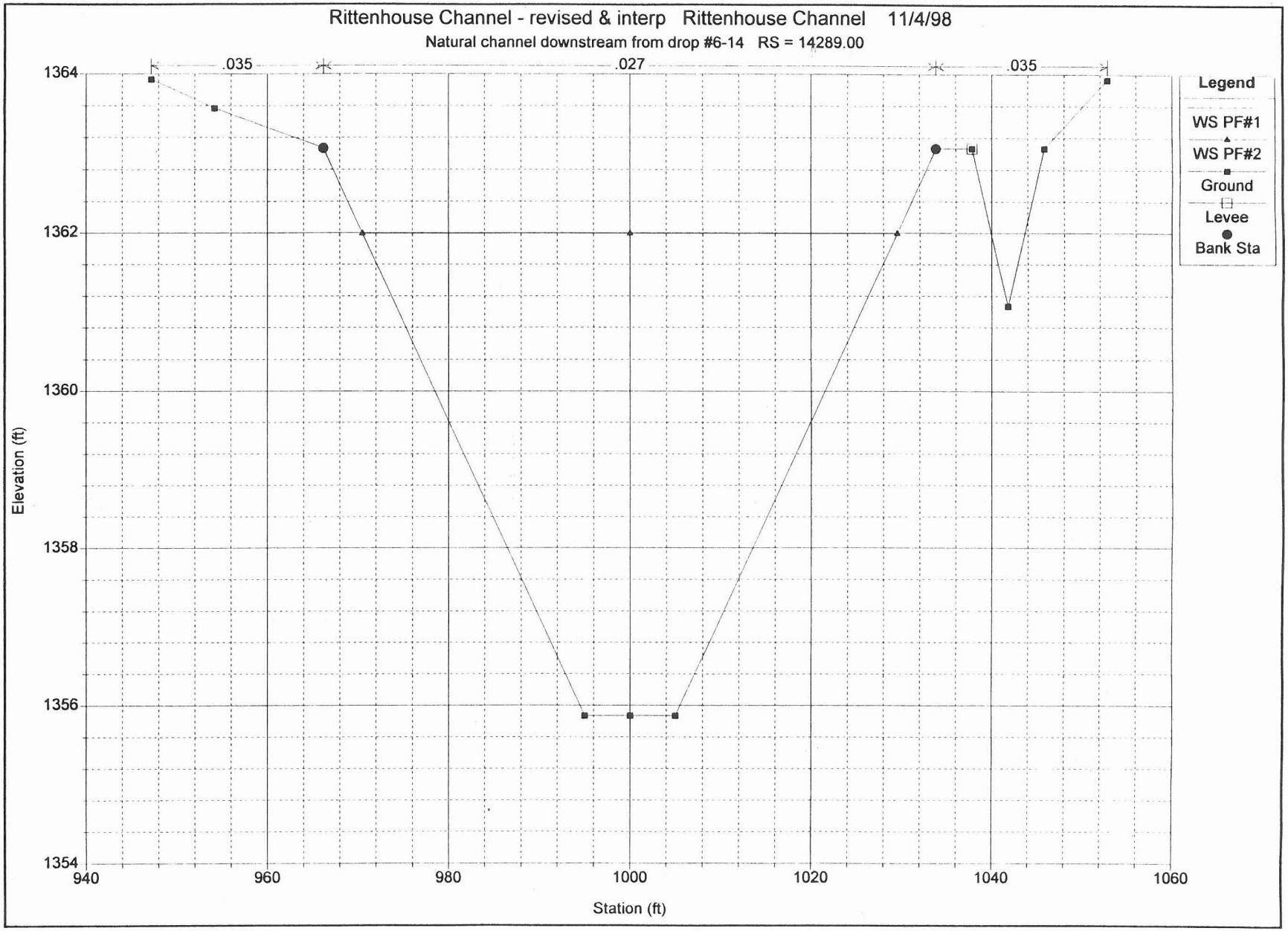

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13798.1*
.035
.027
.035
1364
1362
1360
1358
1356
1354
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

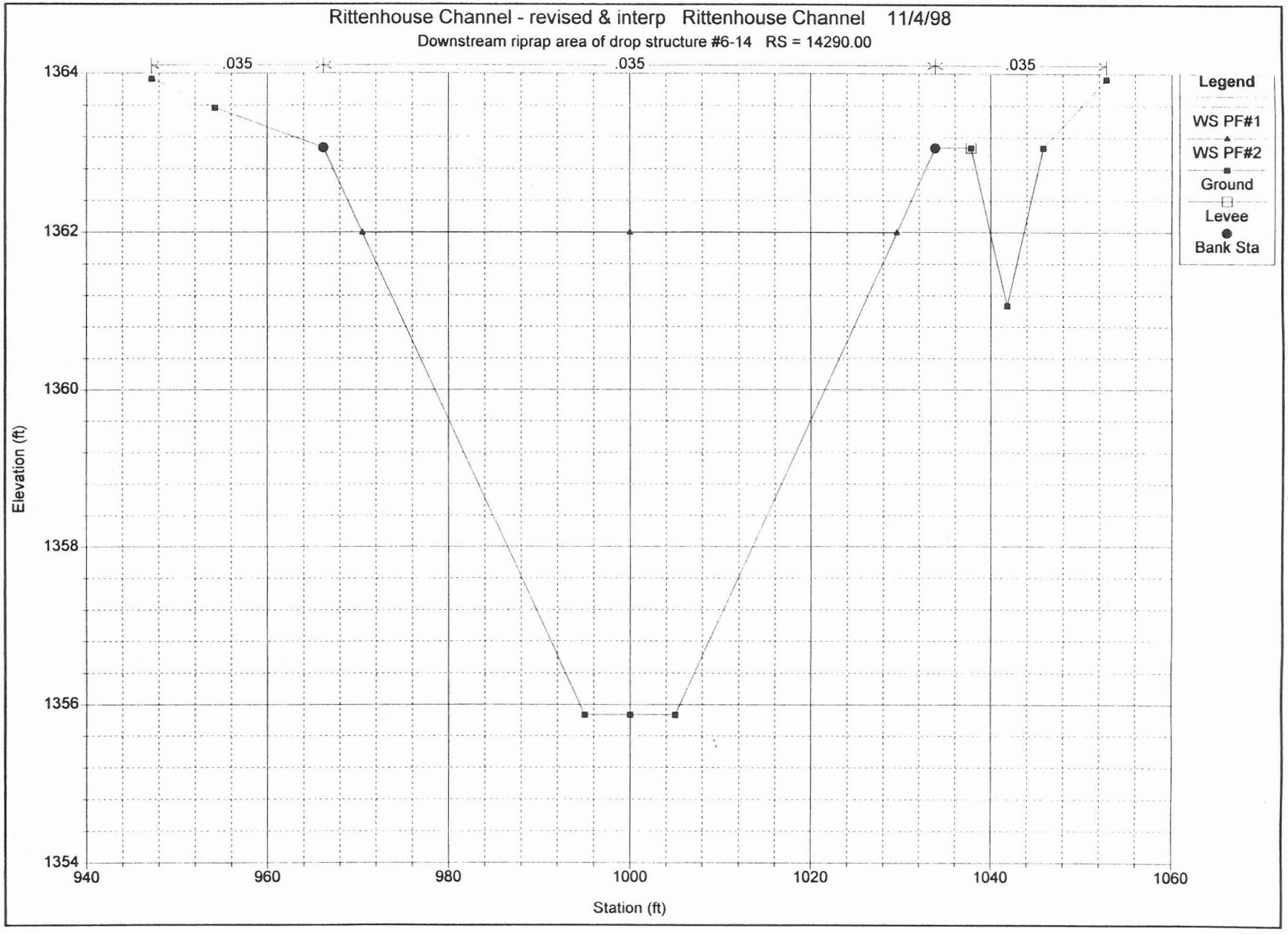

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13896.3*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

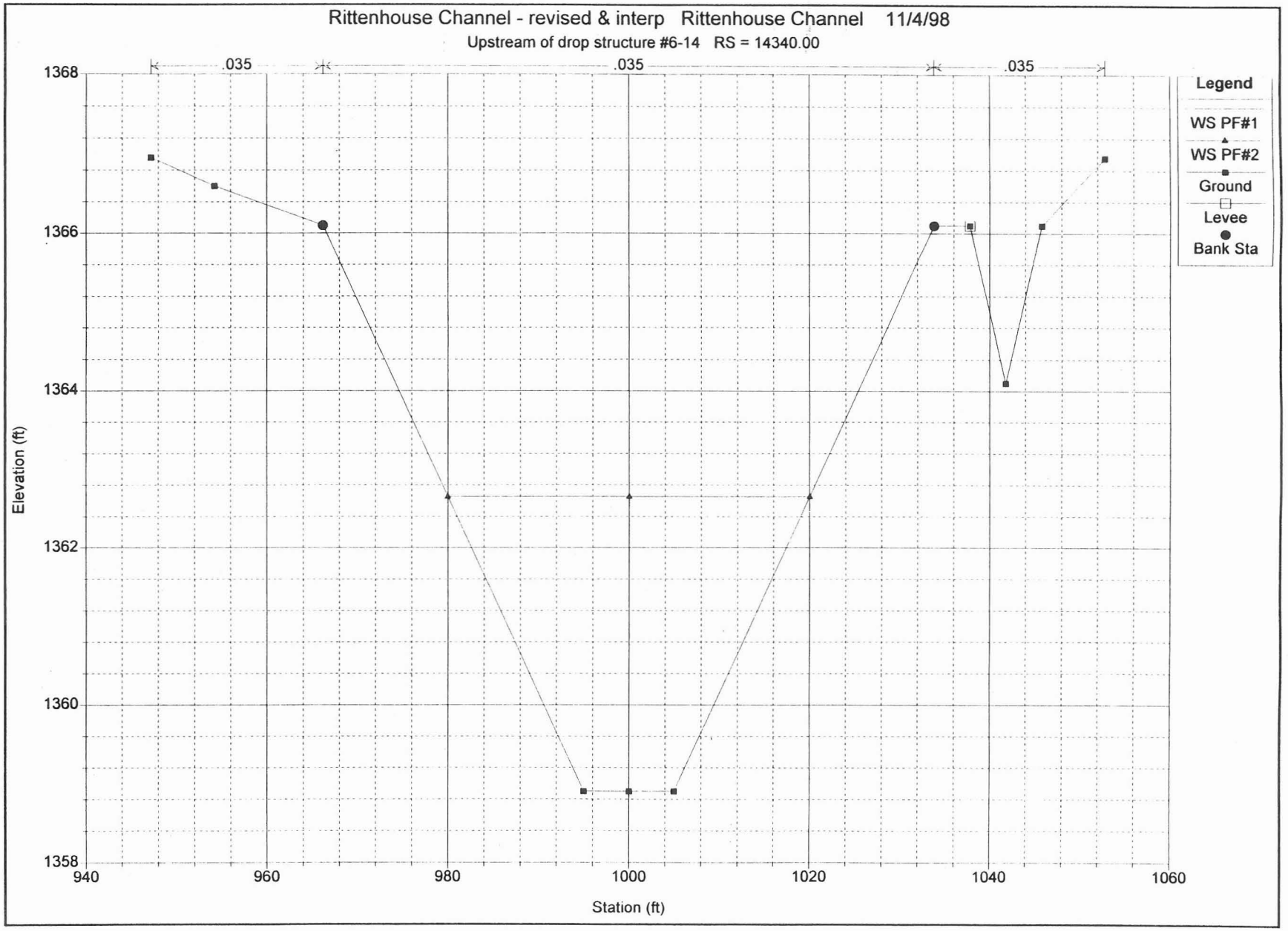

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 13994.5*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

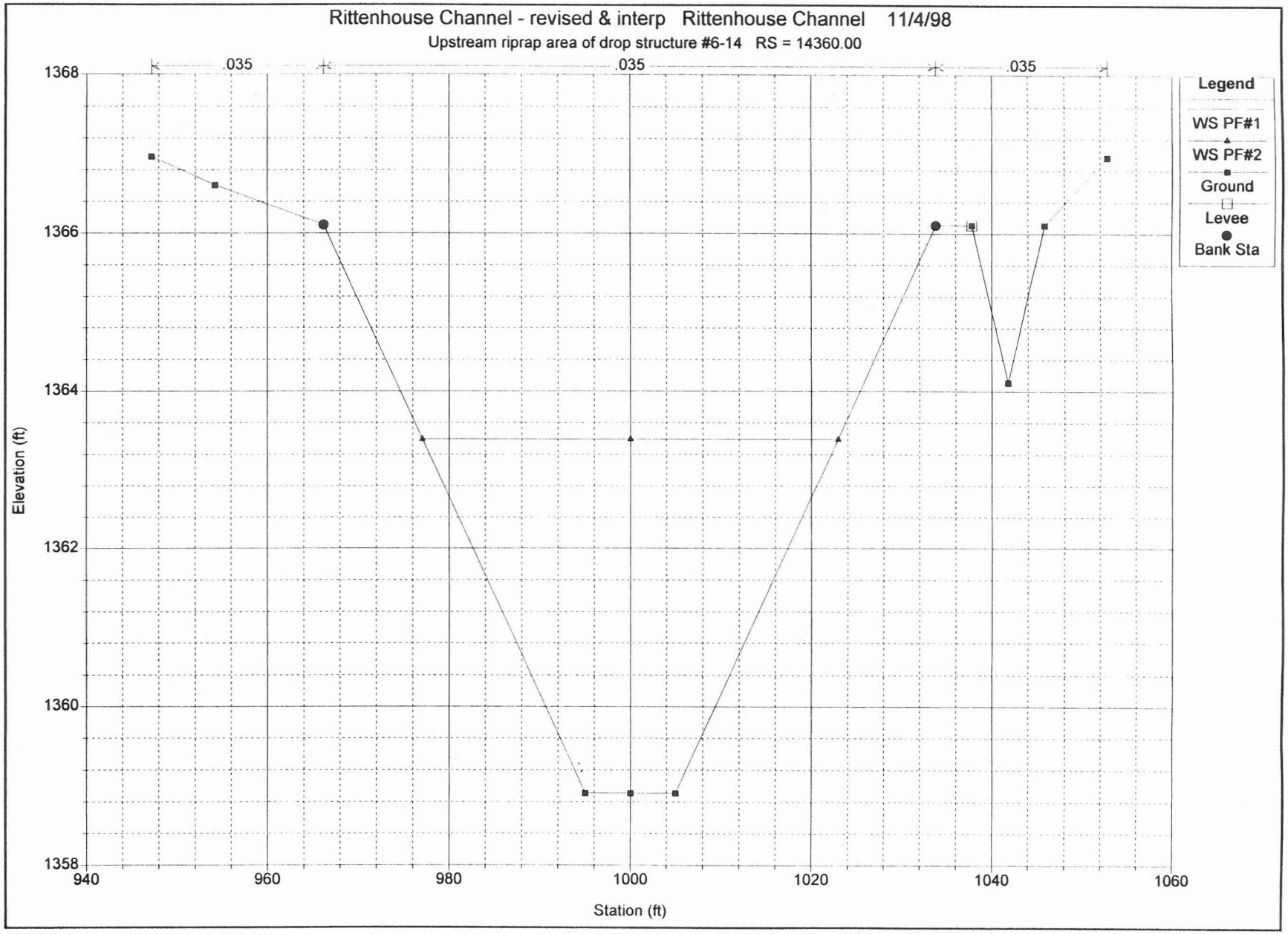

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14092.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

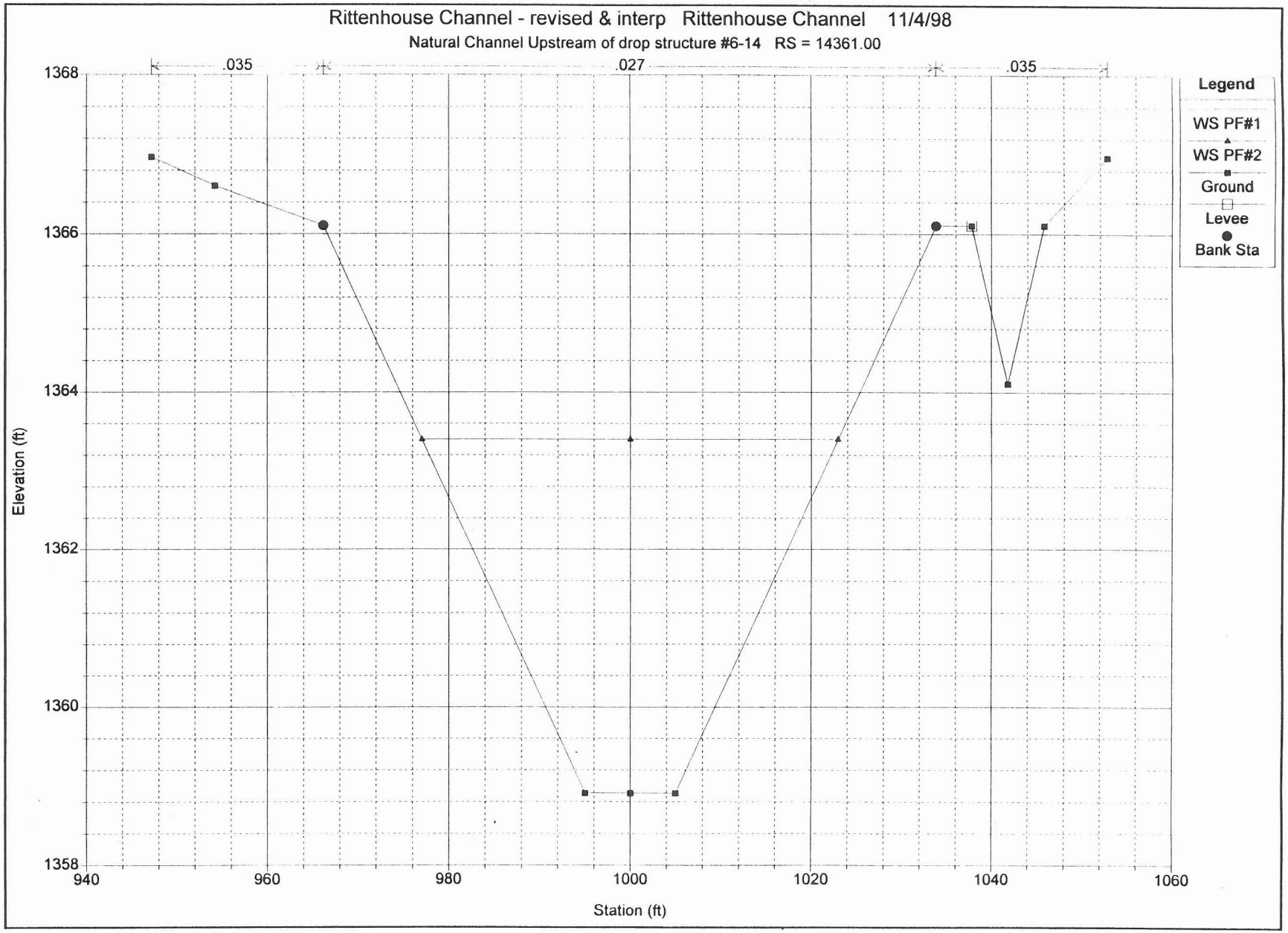

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14190.8*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
1364
1362
1360
1358
1356
1354
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

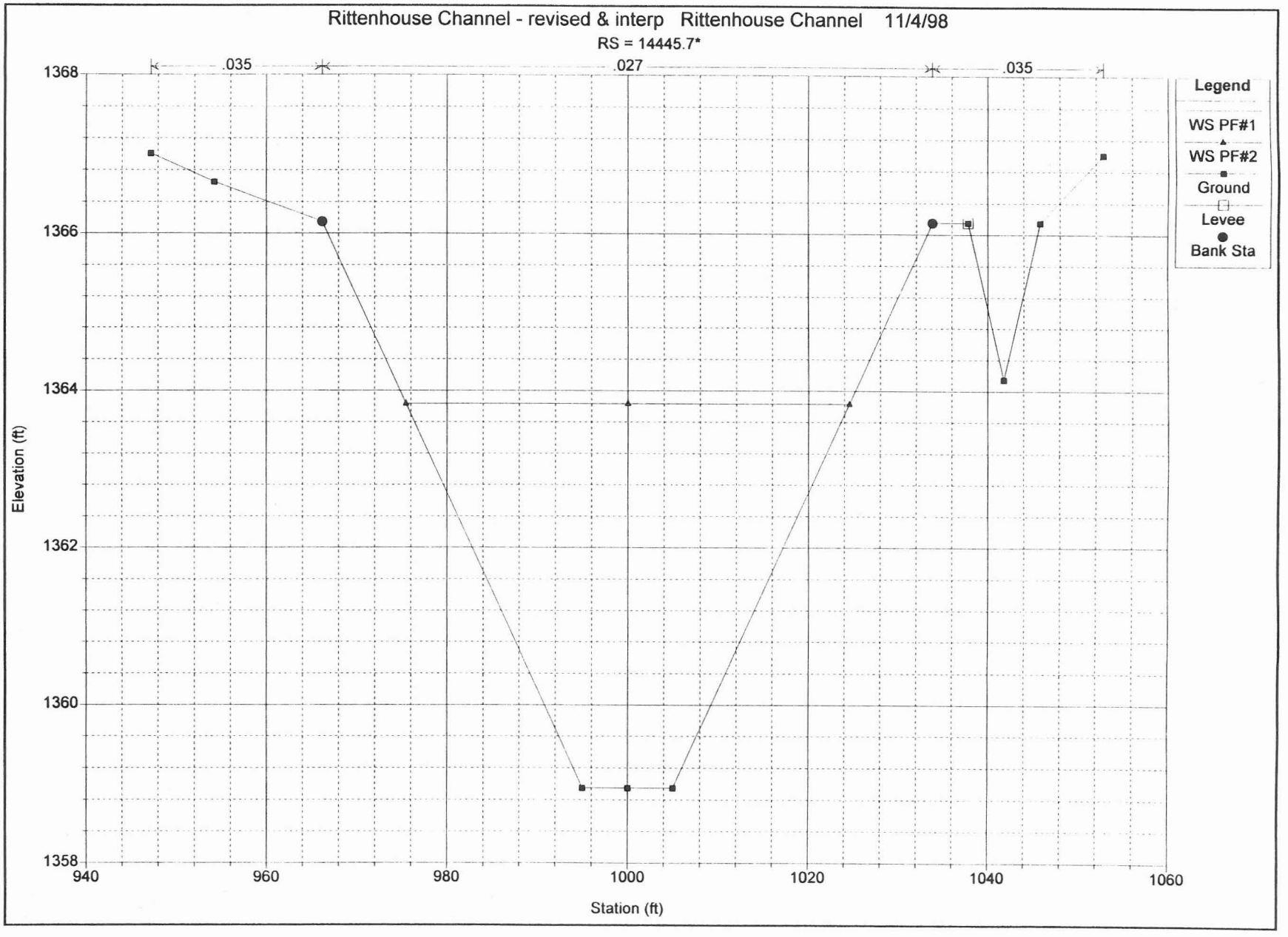

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel downstream from drop #6-14 RS = 14289.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

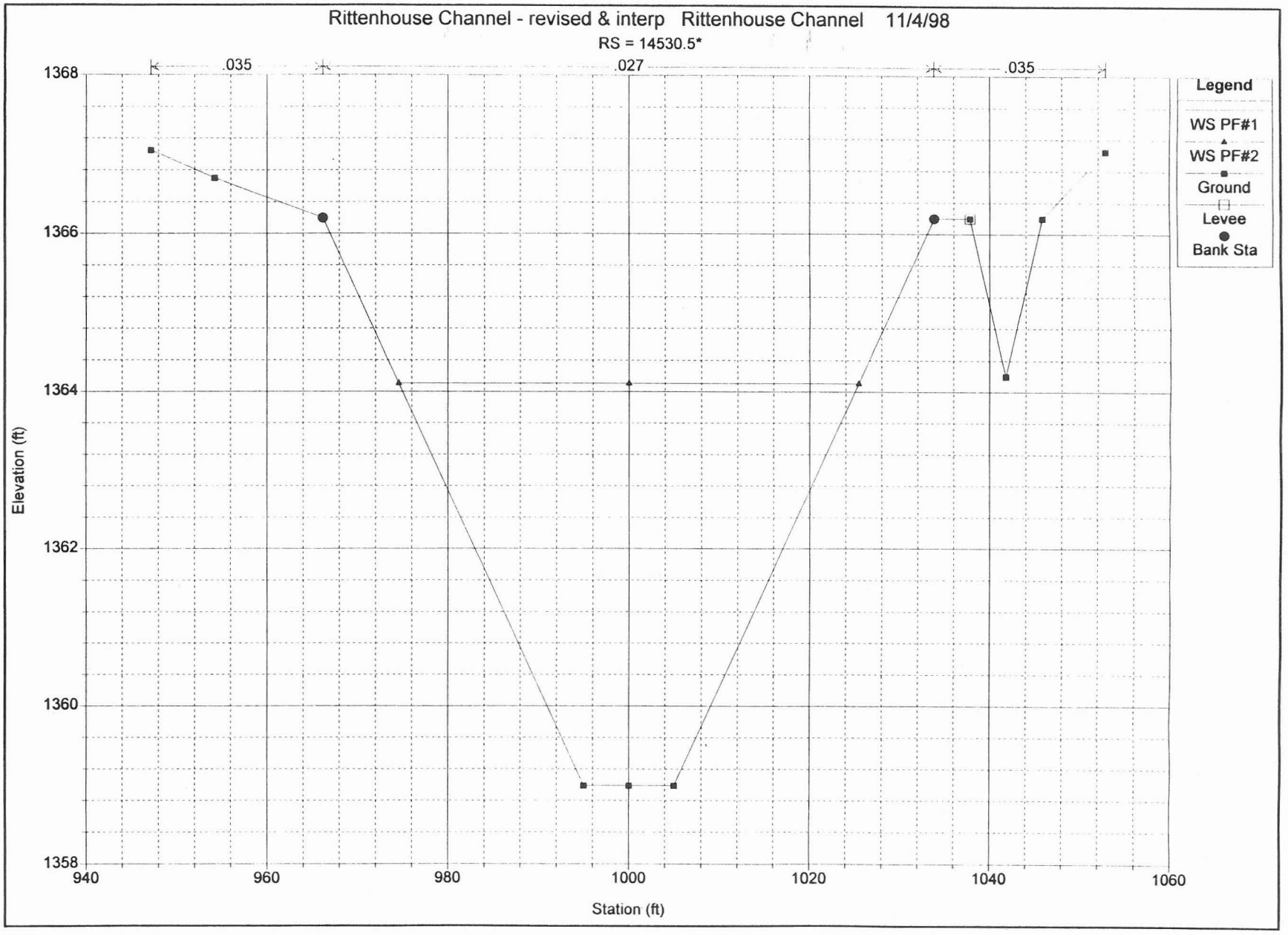

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure #6-14 RS = 14290.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
940
960
980
1000
1020
1040
1060
Station (ft)

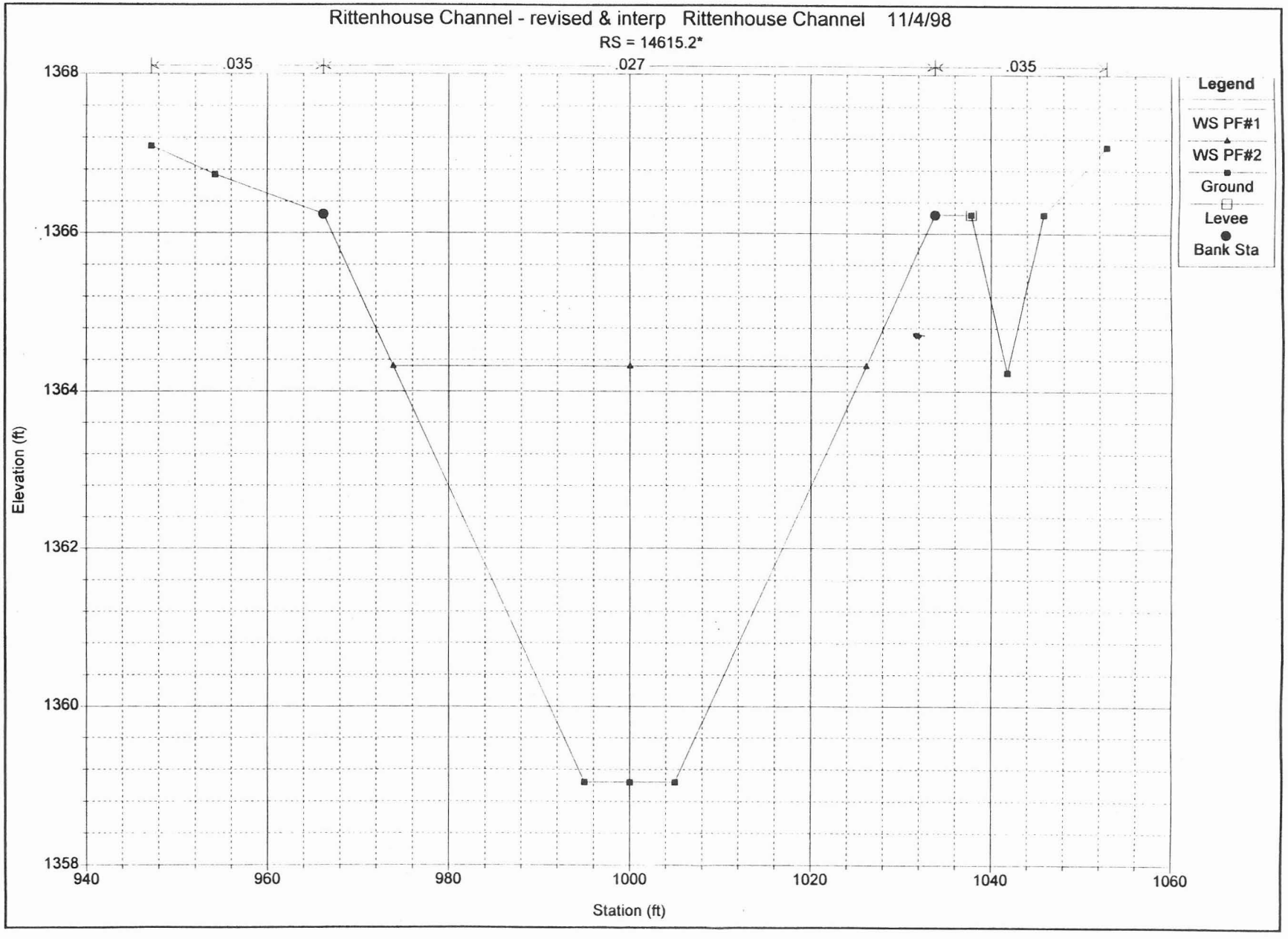

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream of drop structure #6-14 RS = 14340.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

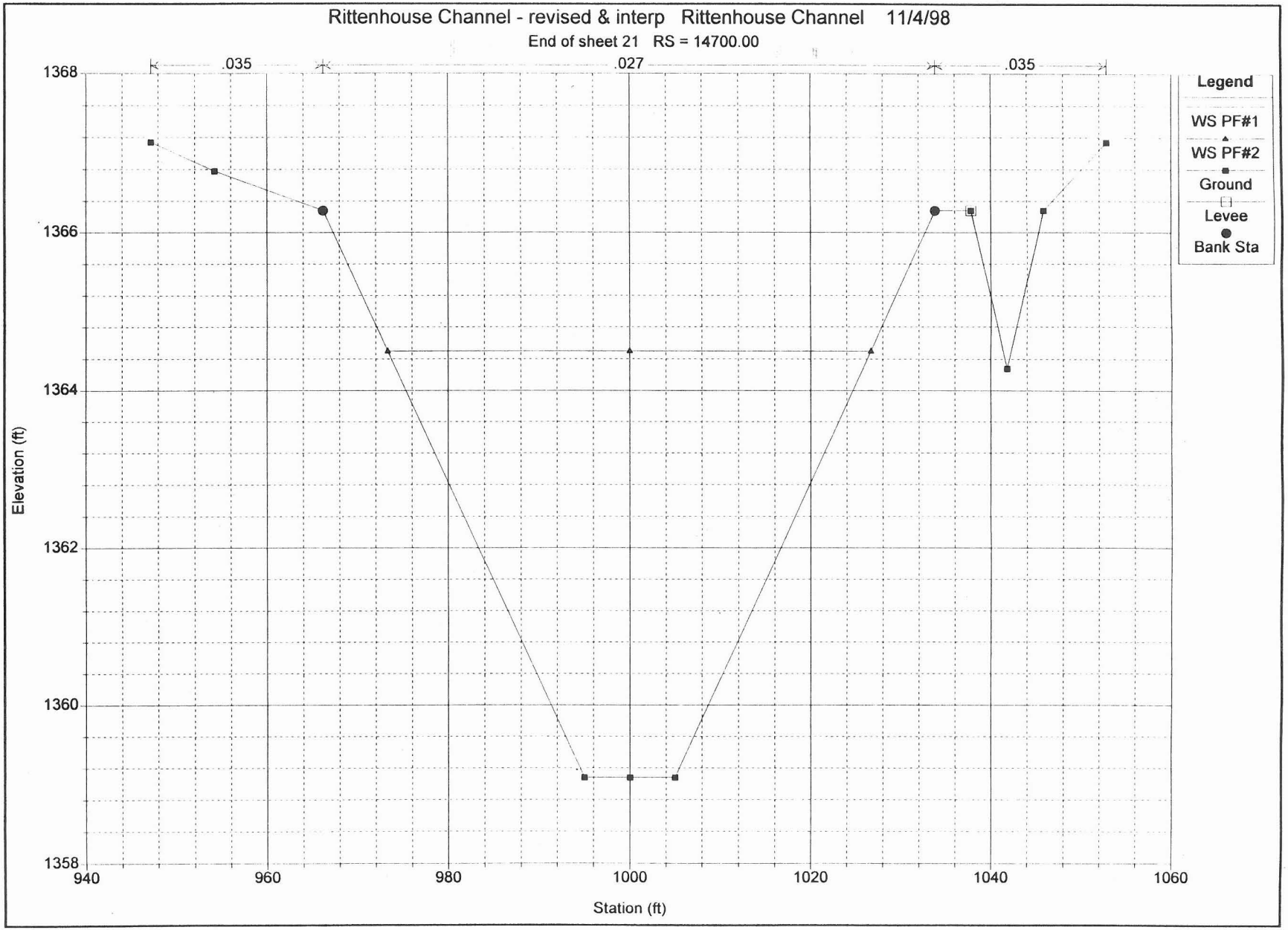

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Upstream riprap area of drop structure #6-14 RS = 14360.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

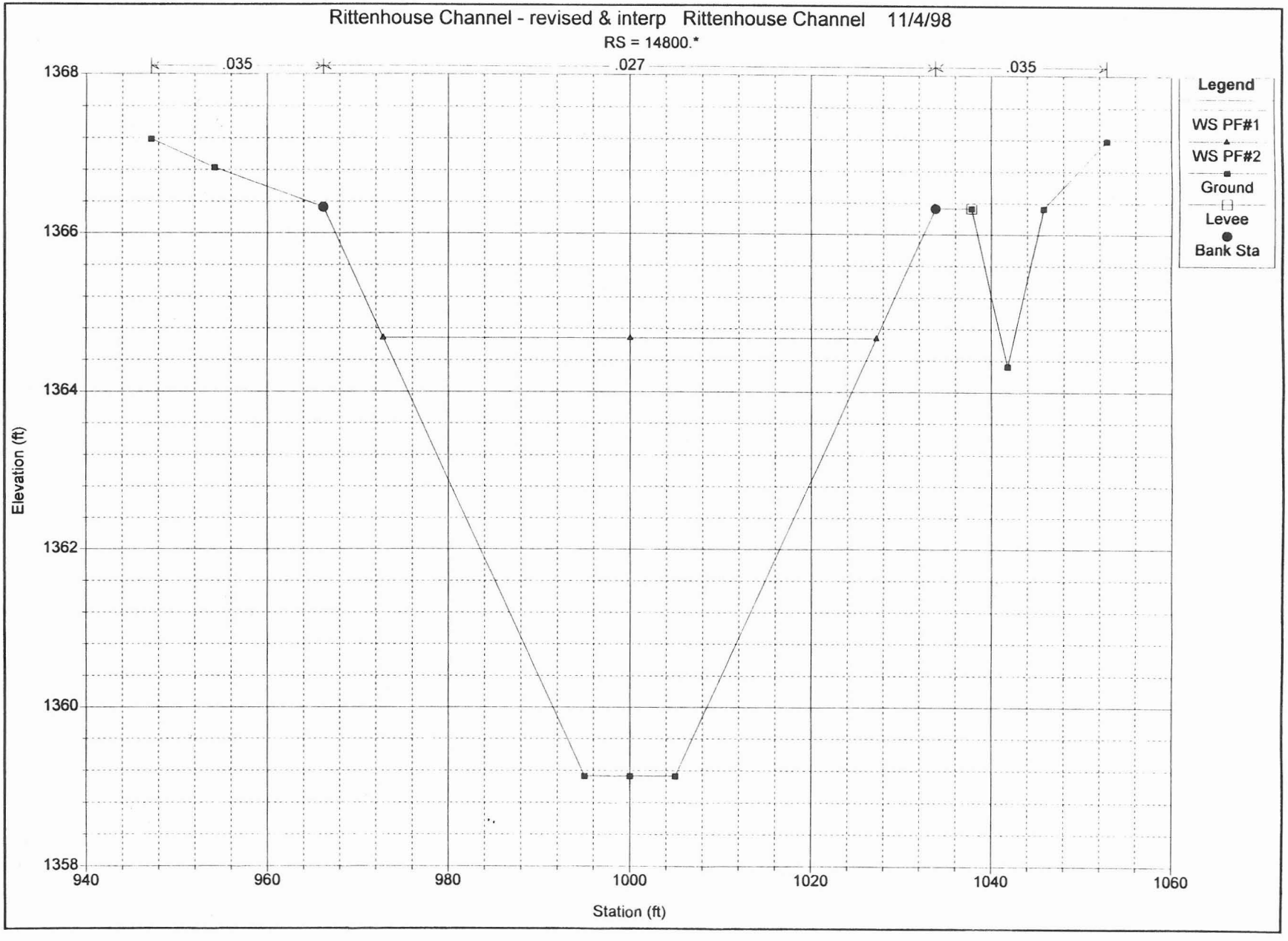

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural Channel Upstream of drop structure #6-14 RS = 14361.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

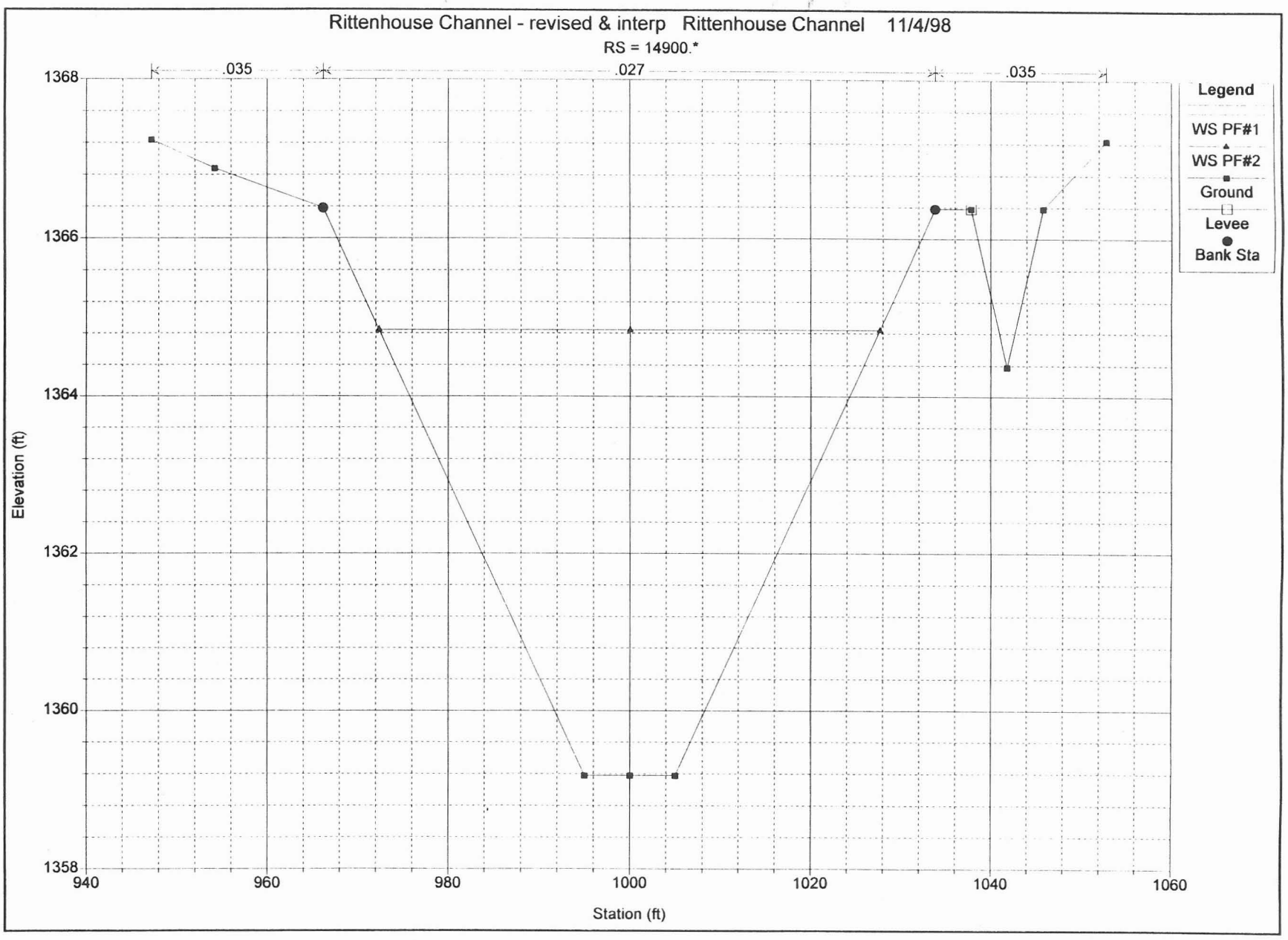

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14445.7*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

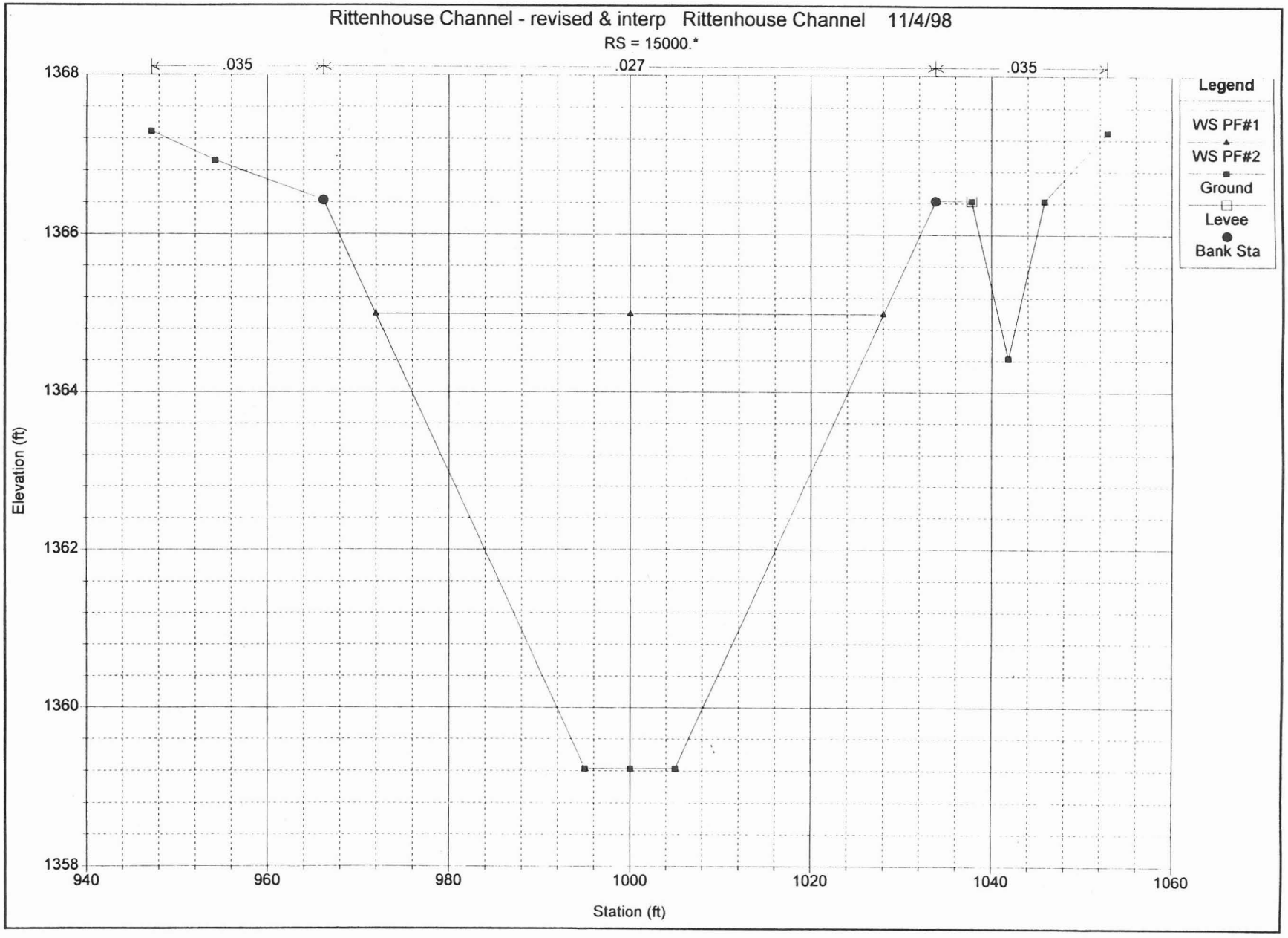

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14530.5*
.035
.027
.035
1368
1366
1364
1362
1360
1358
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

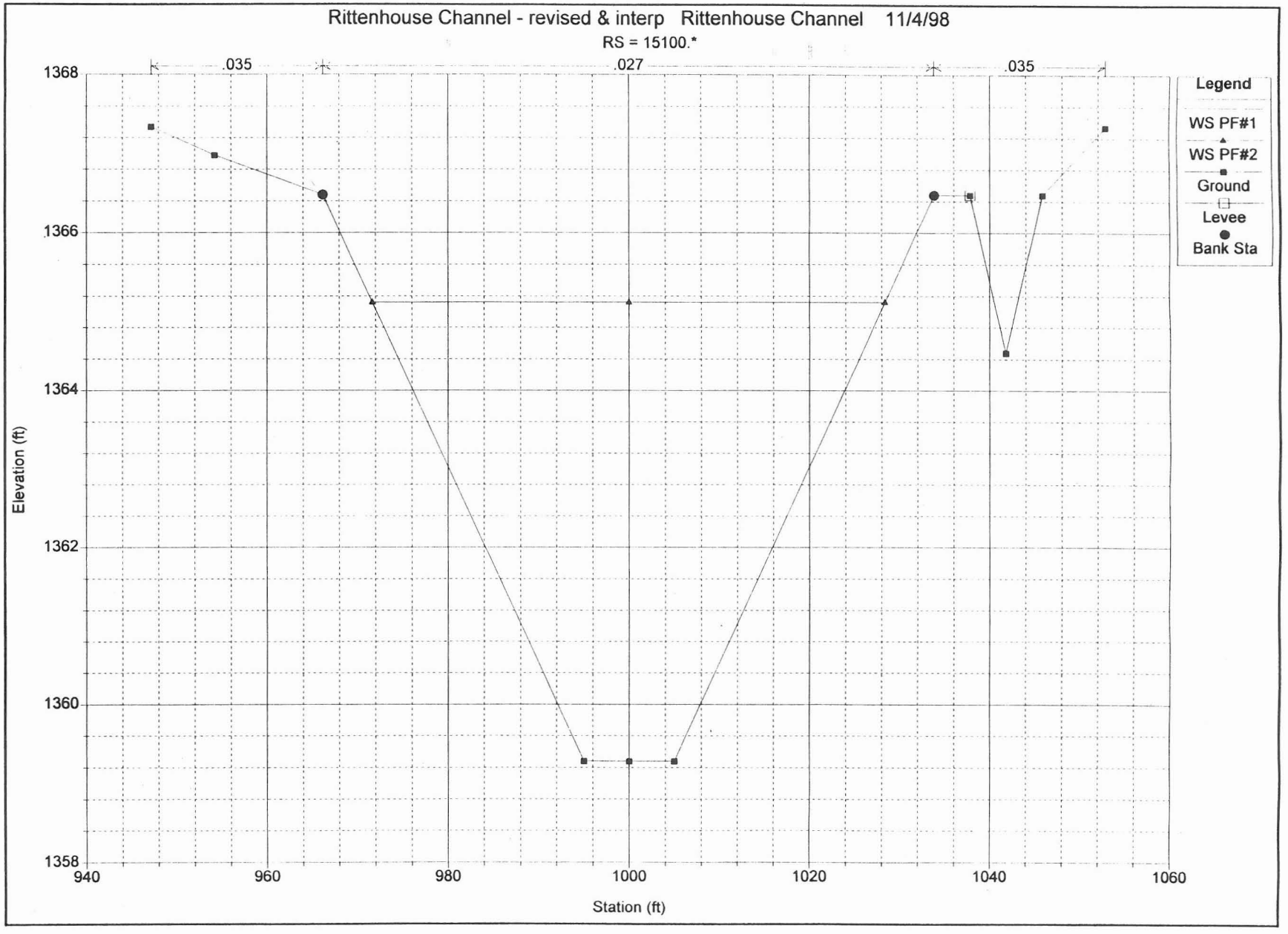

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14615.2*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

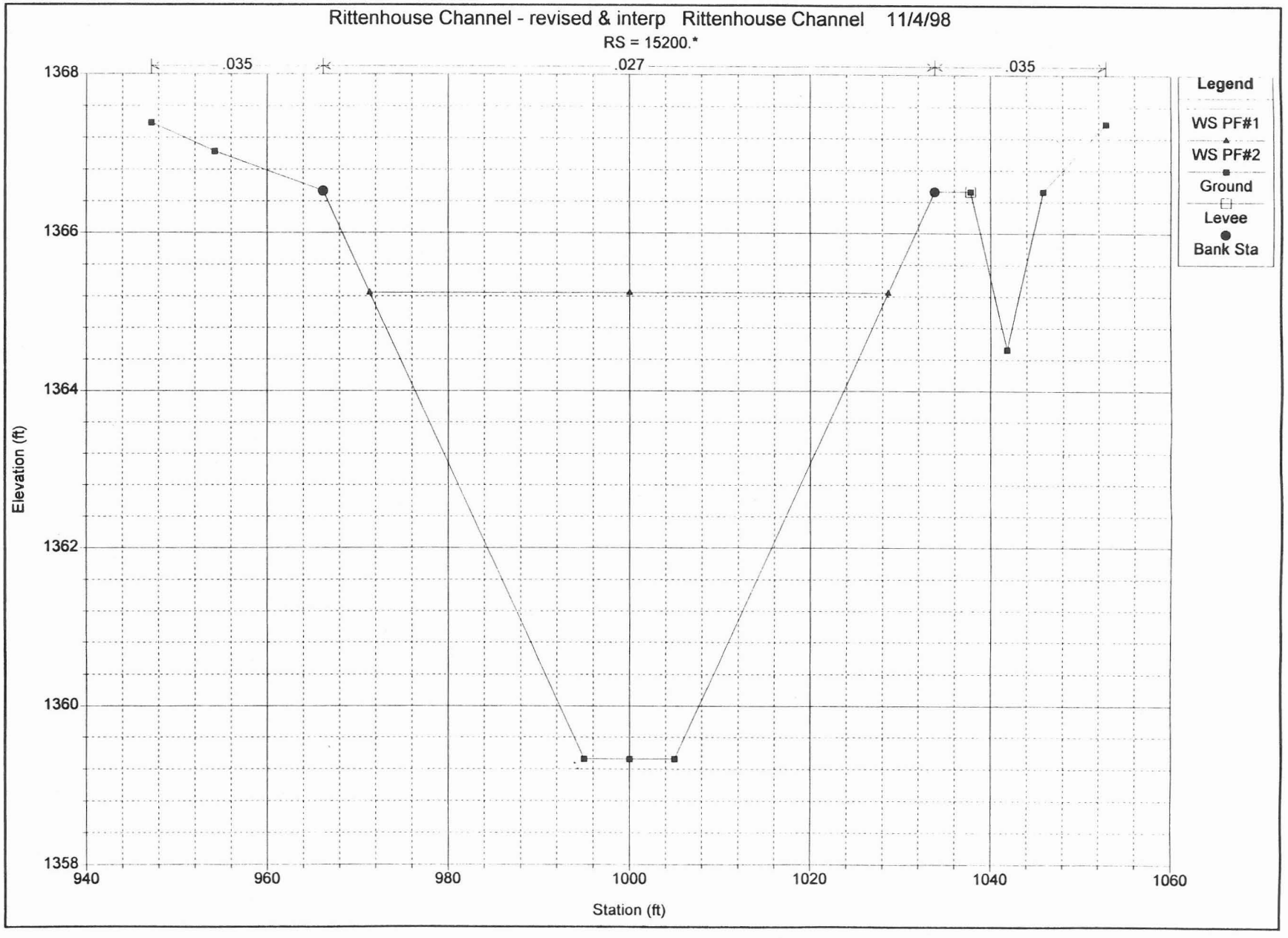

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of sheet 21 RS = 14700.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
1368
1366
1364
1362
1360
1358
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

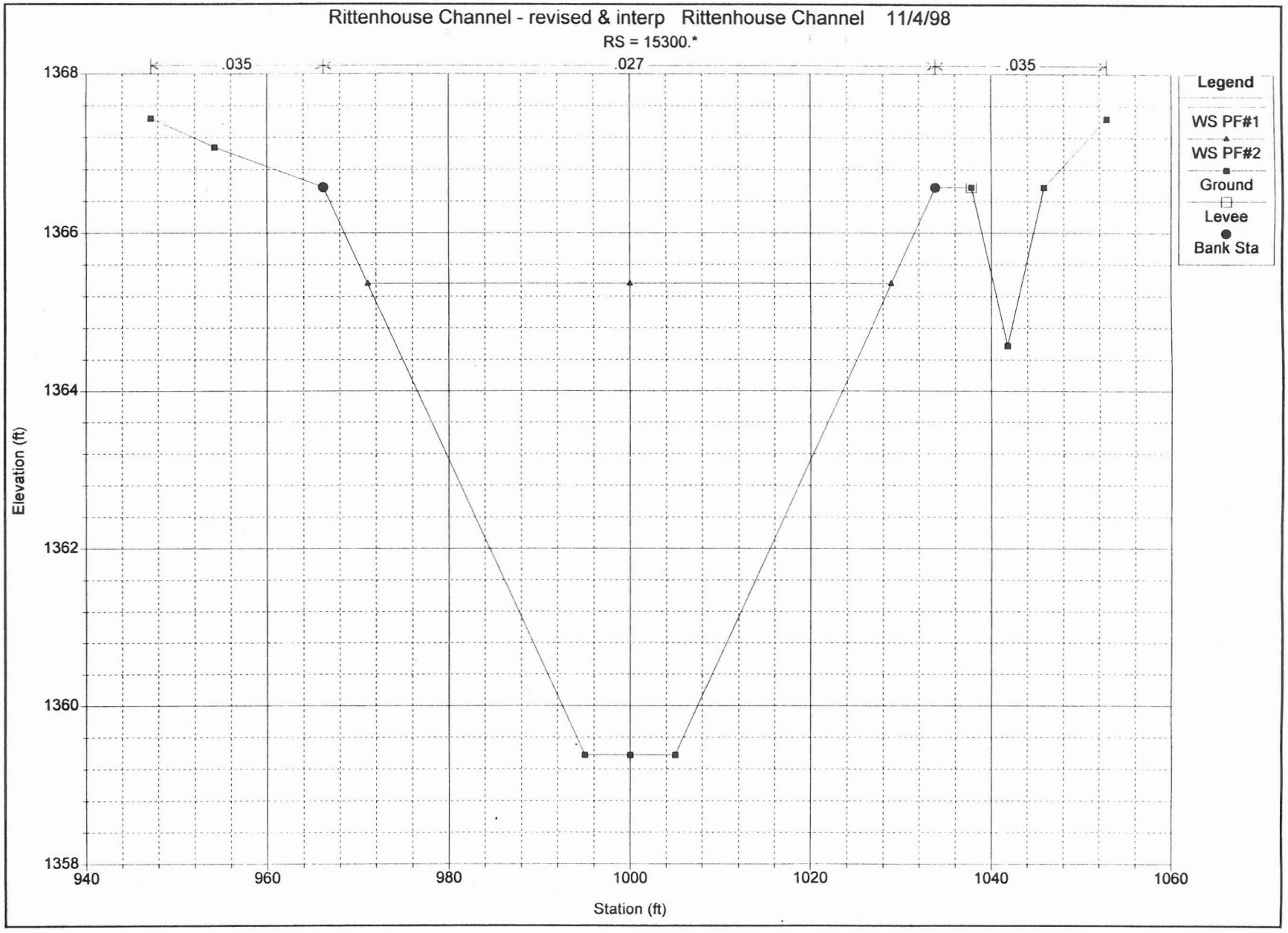

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14800.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

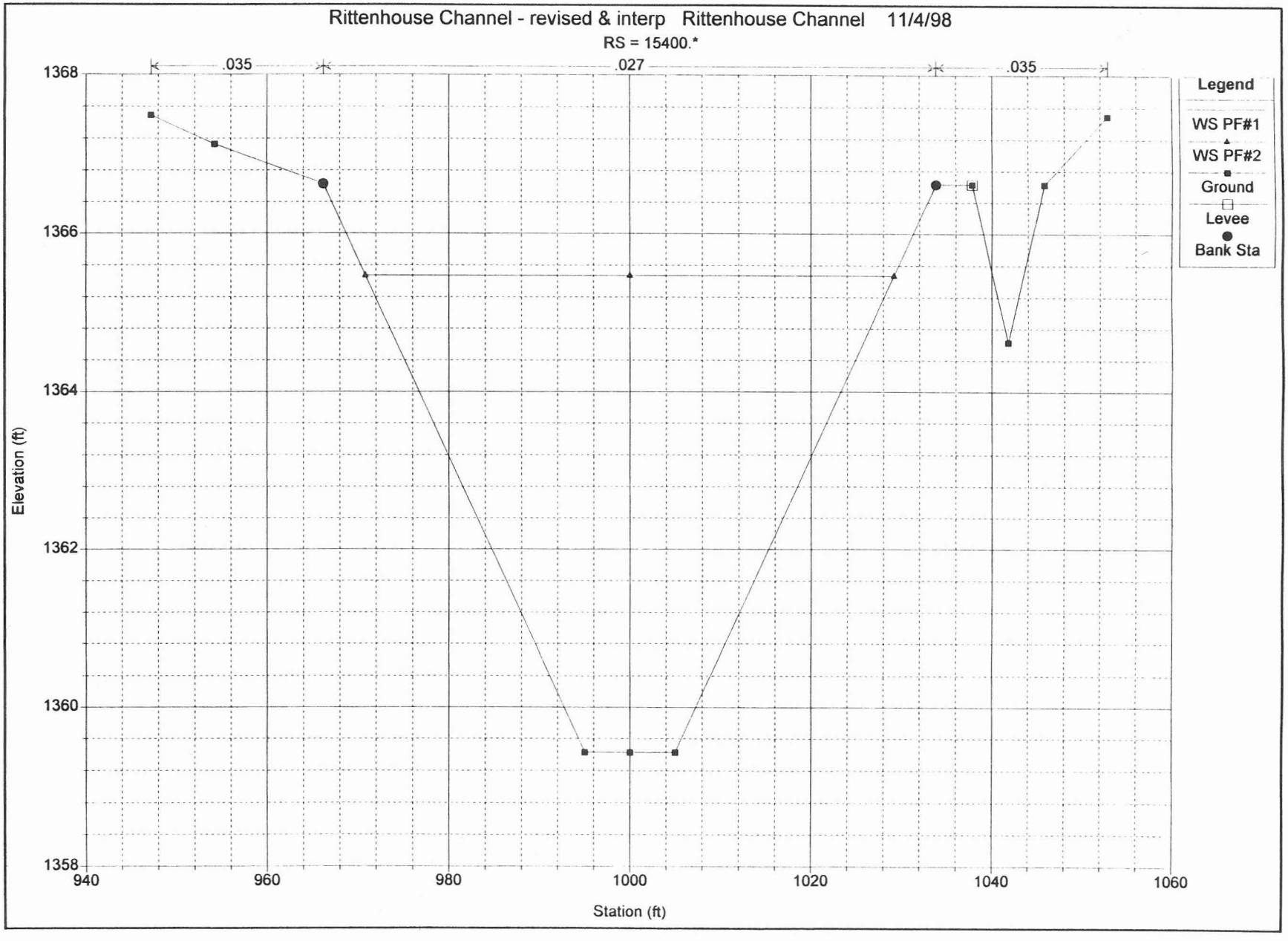

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14900.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

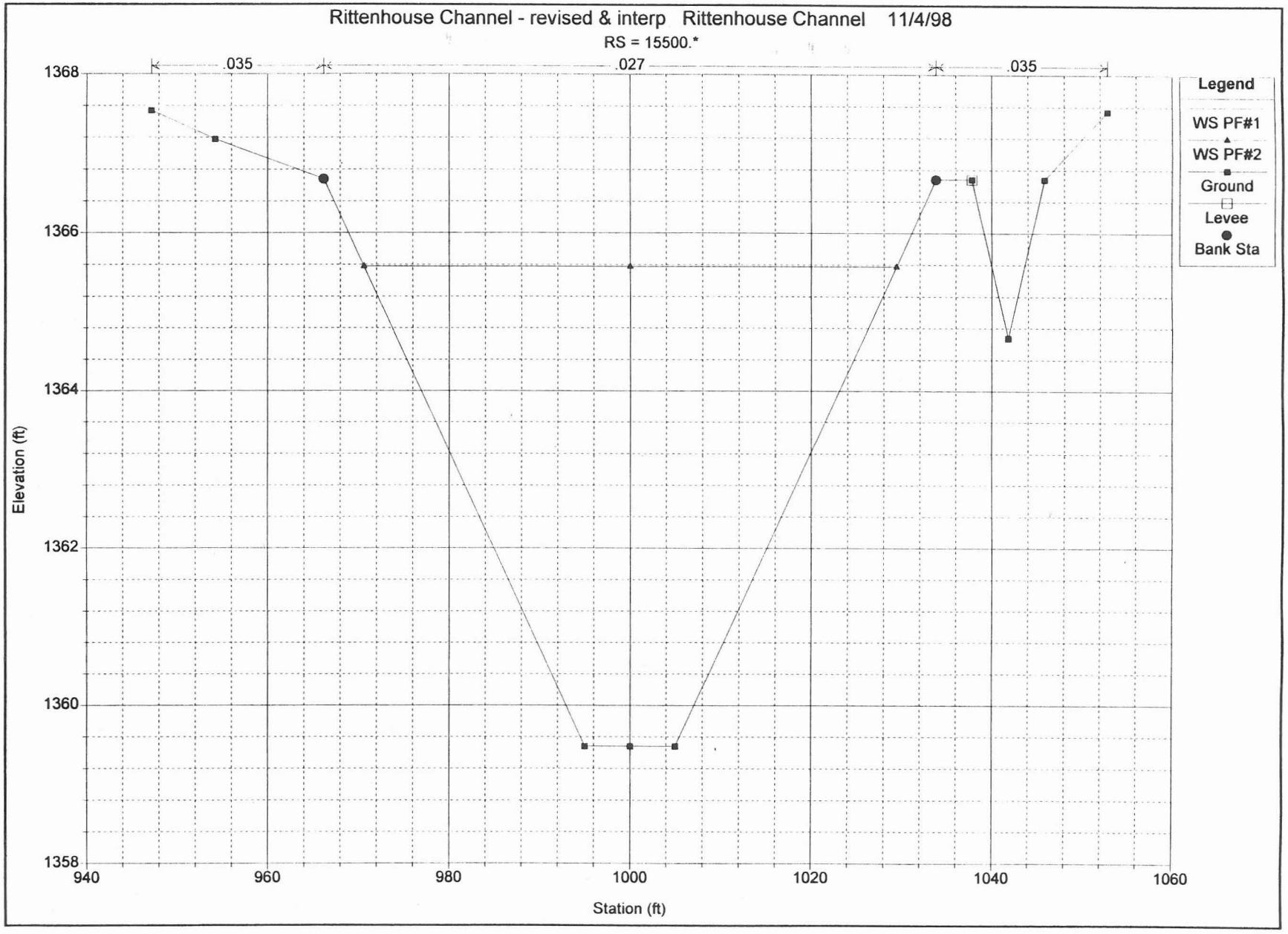

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15000.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

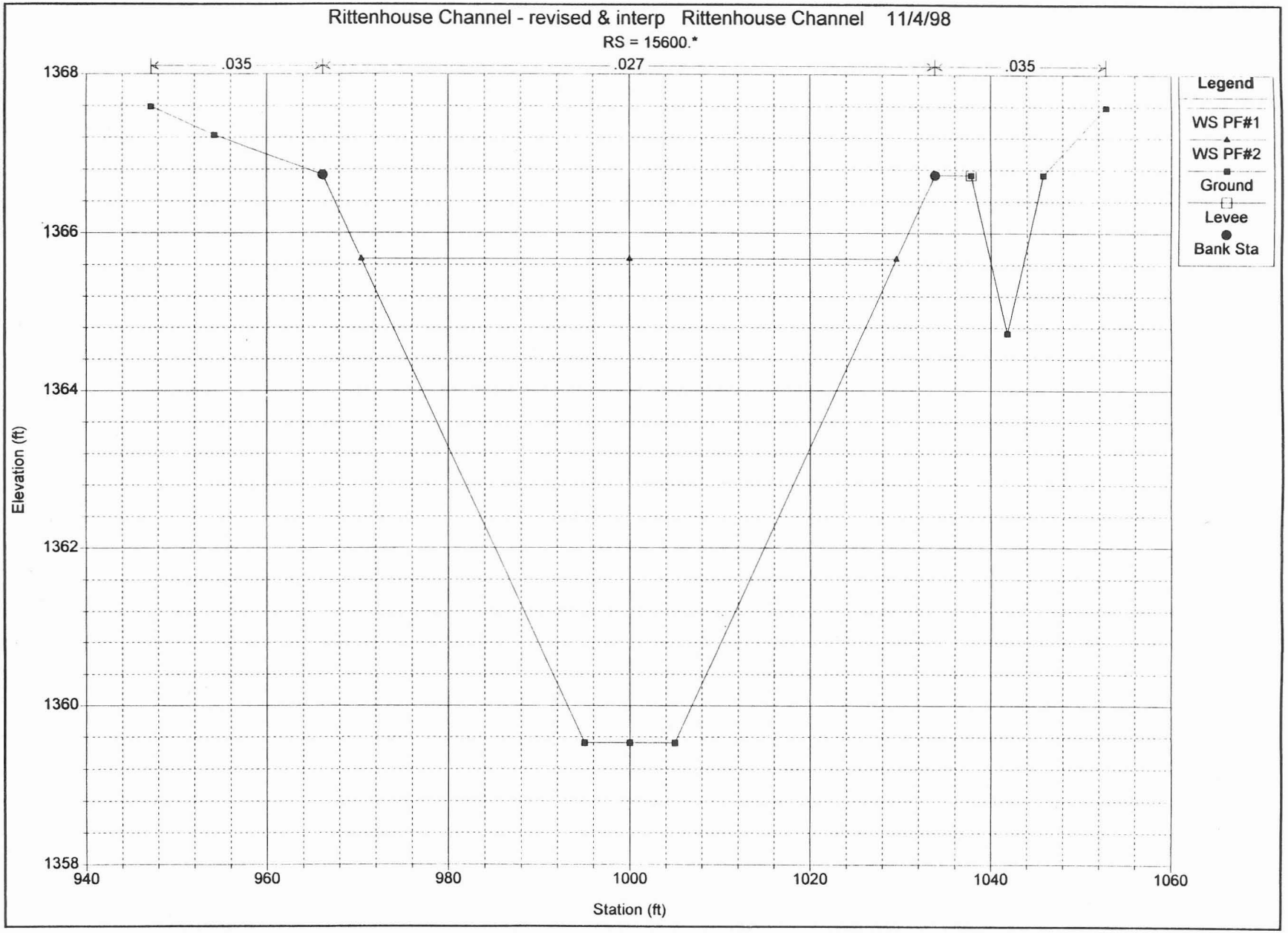

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15100.*
.035
.027
.035
1368
1366
1364
1362
1360
1358
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

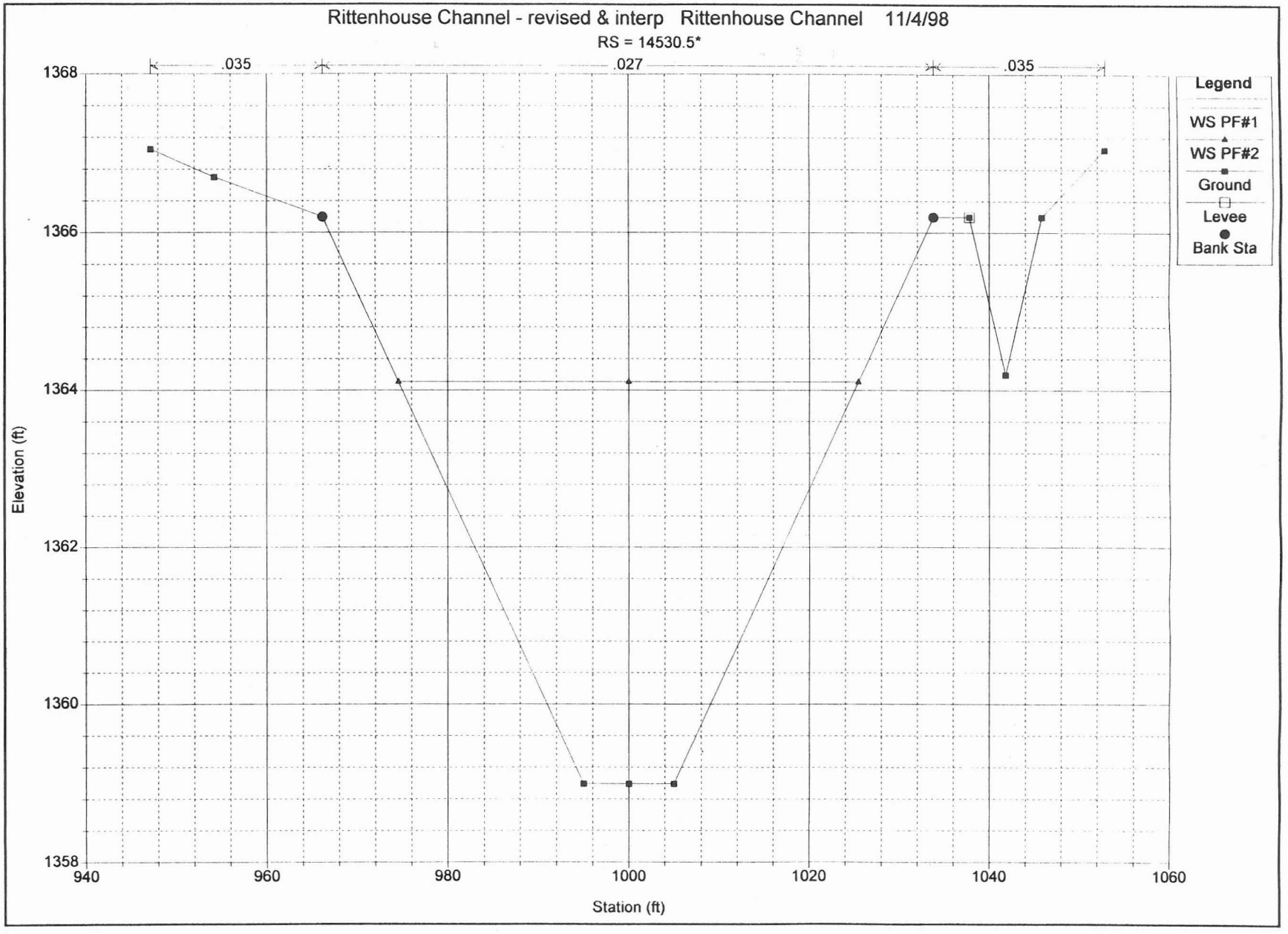

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15200.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

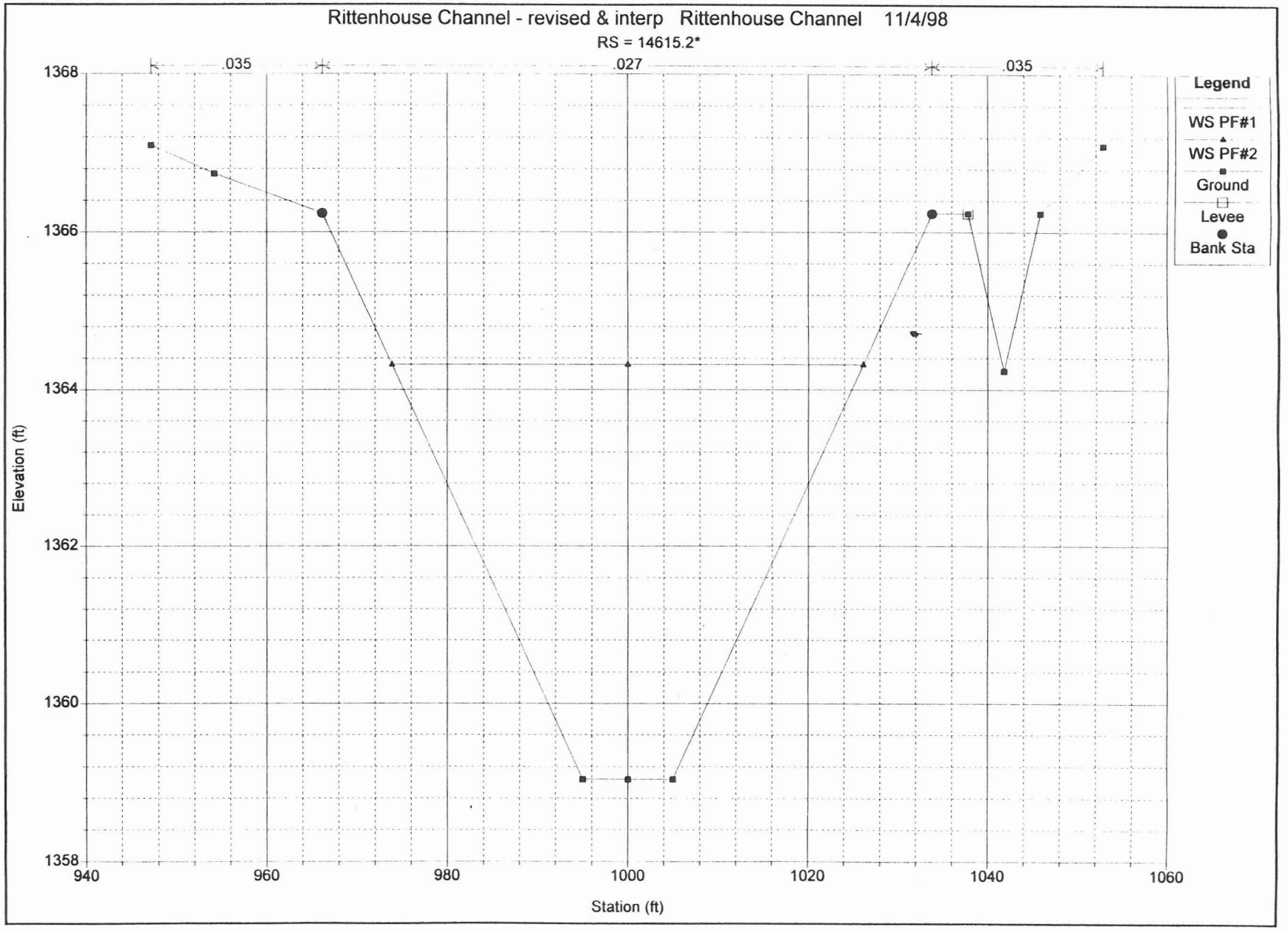

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15300.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

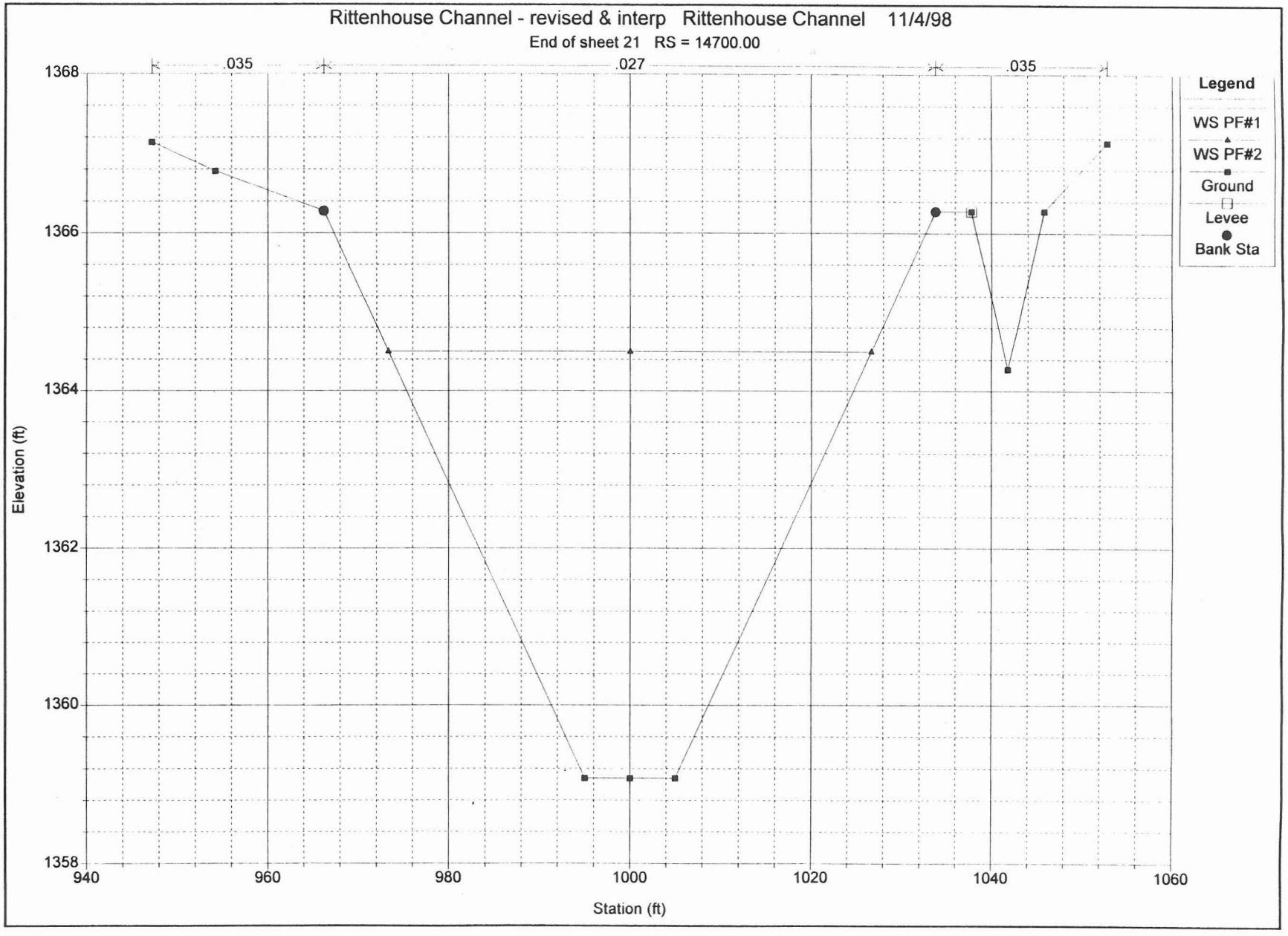

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15400.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

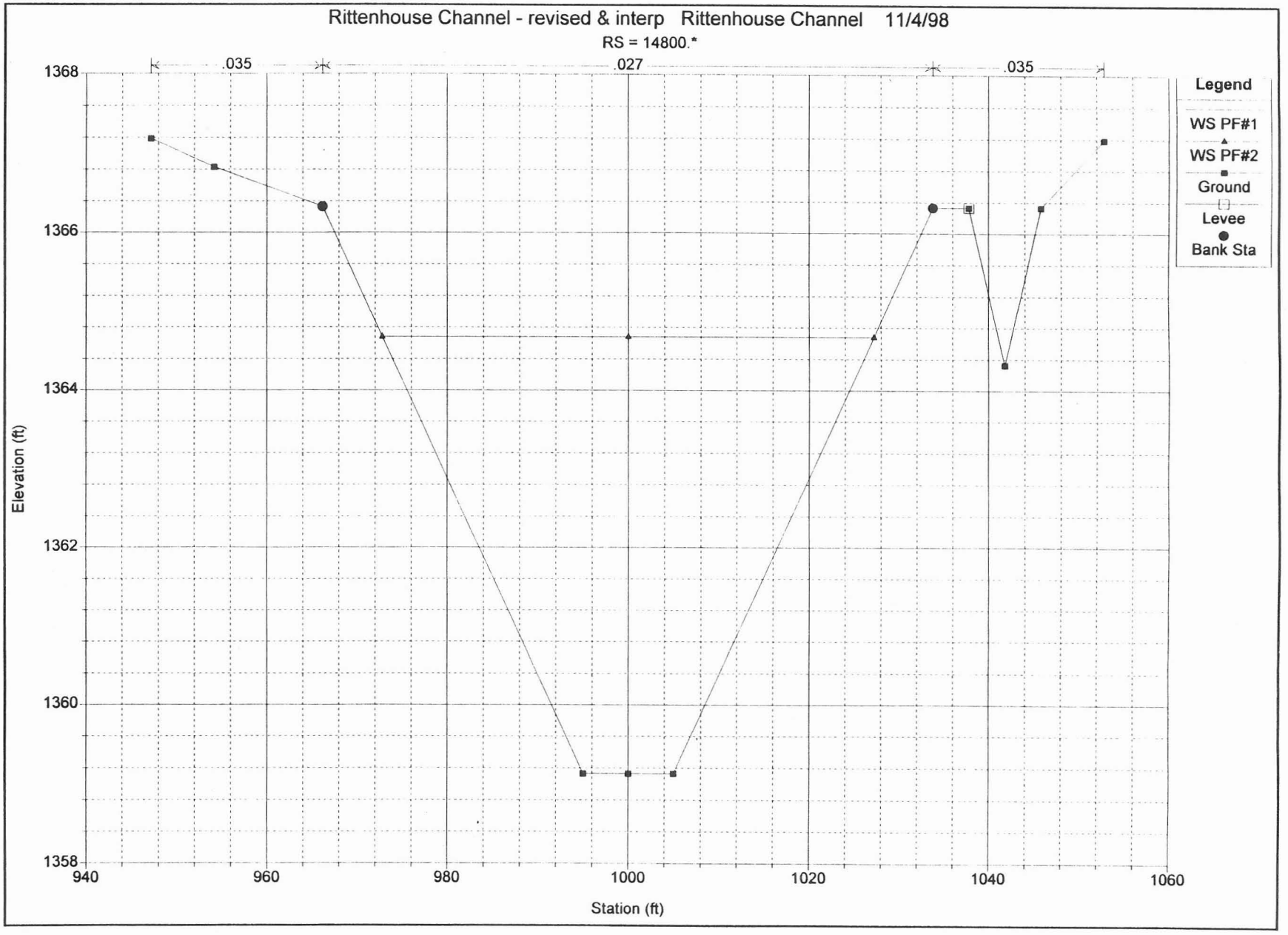

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15500.*
.035
.027
.035
1368
1366
1364
1362
1360
1358
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta

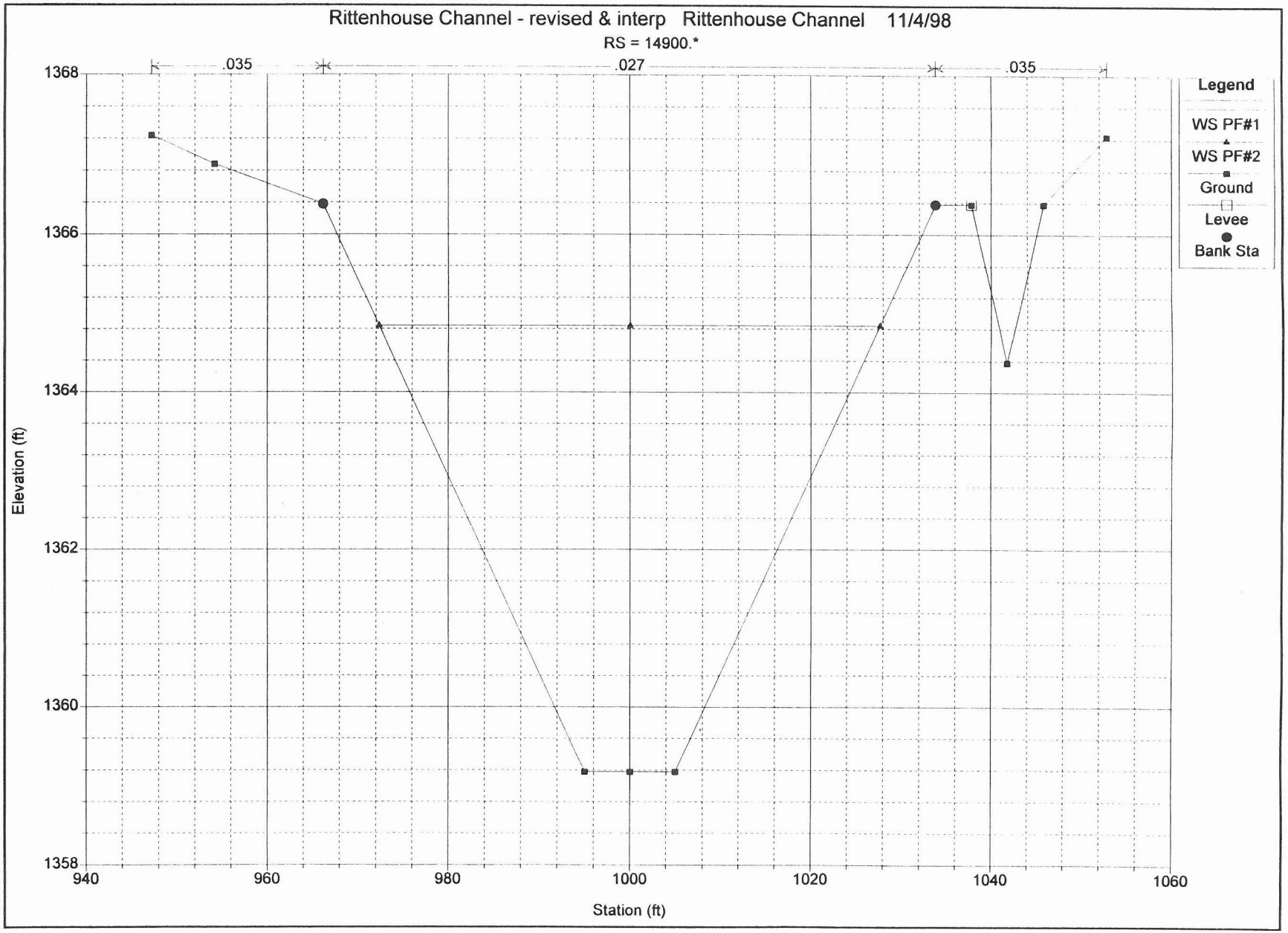

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15600.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

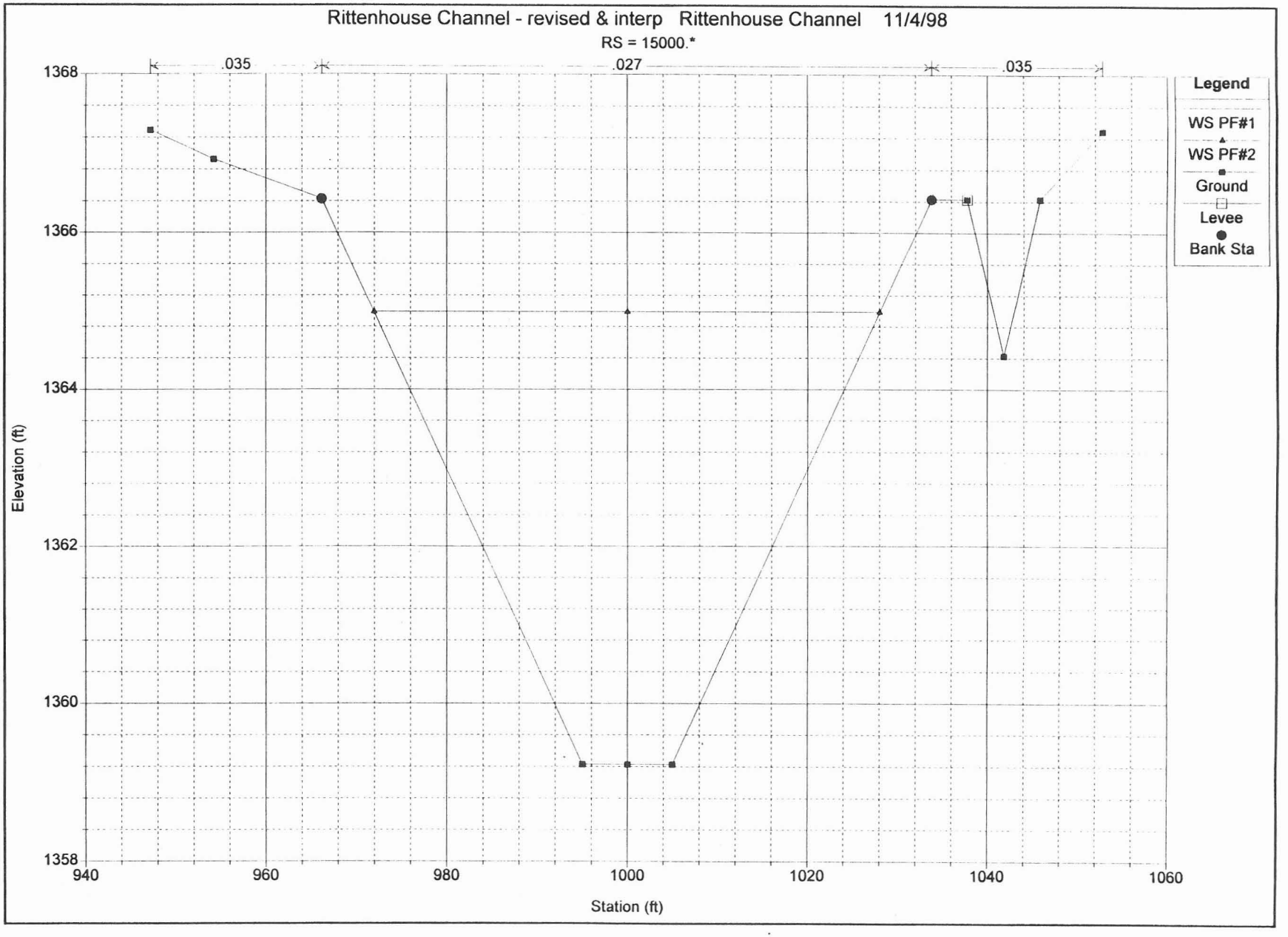

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14530.5*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

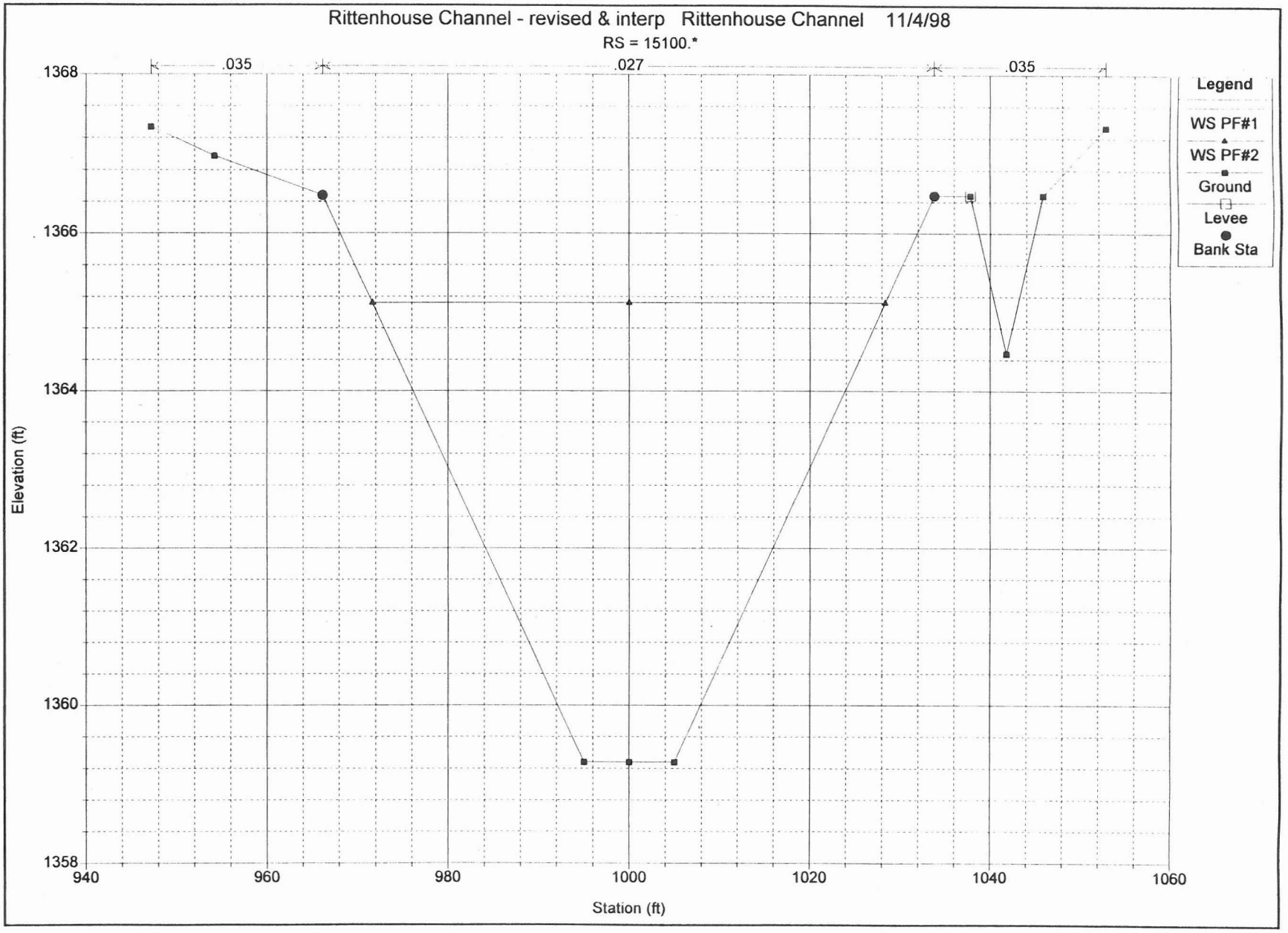

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14615.2*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

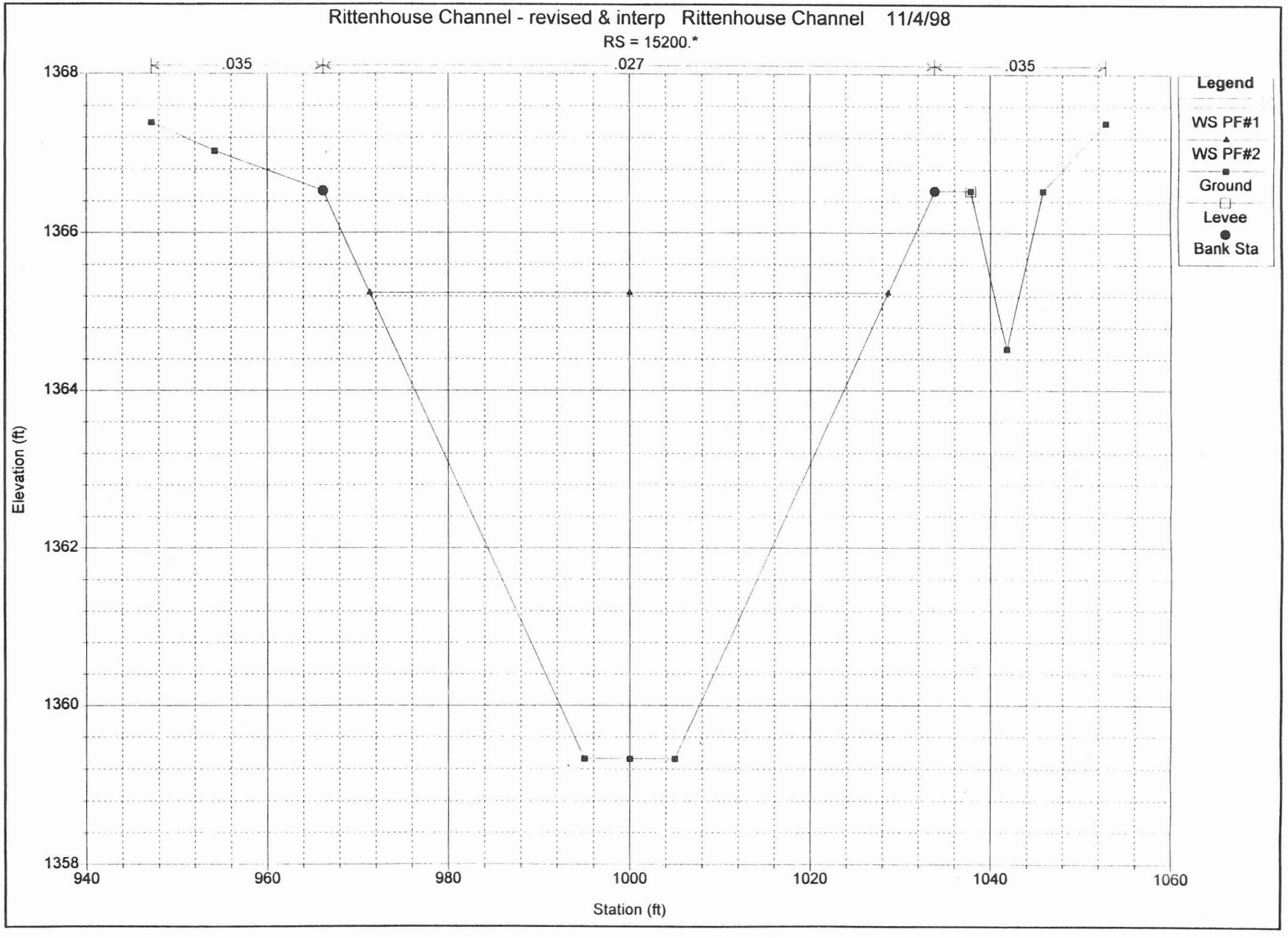

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of sheet 21 RS = 14700.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

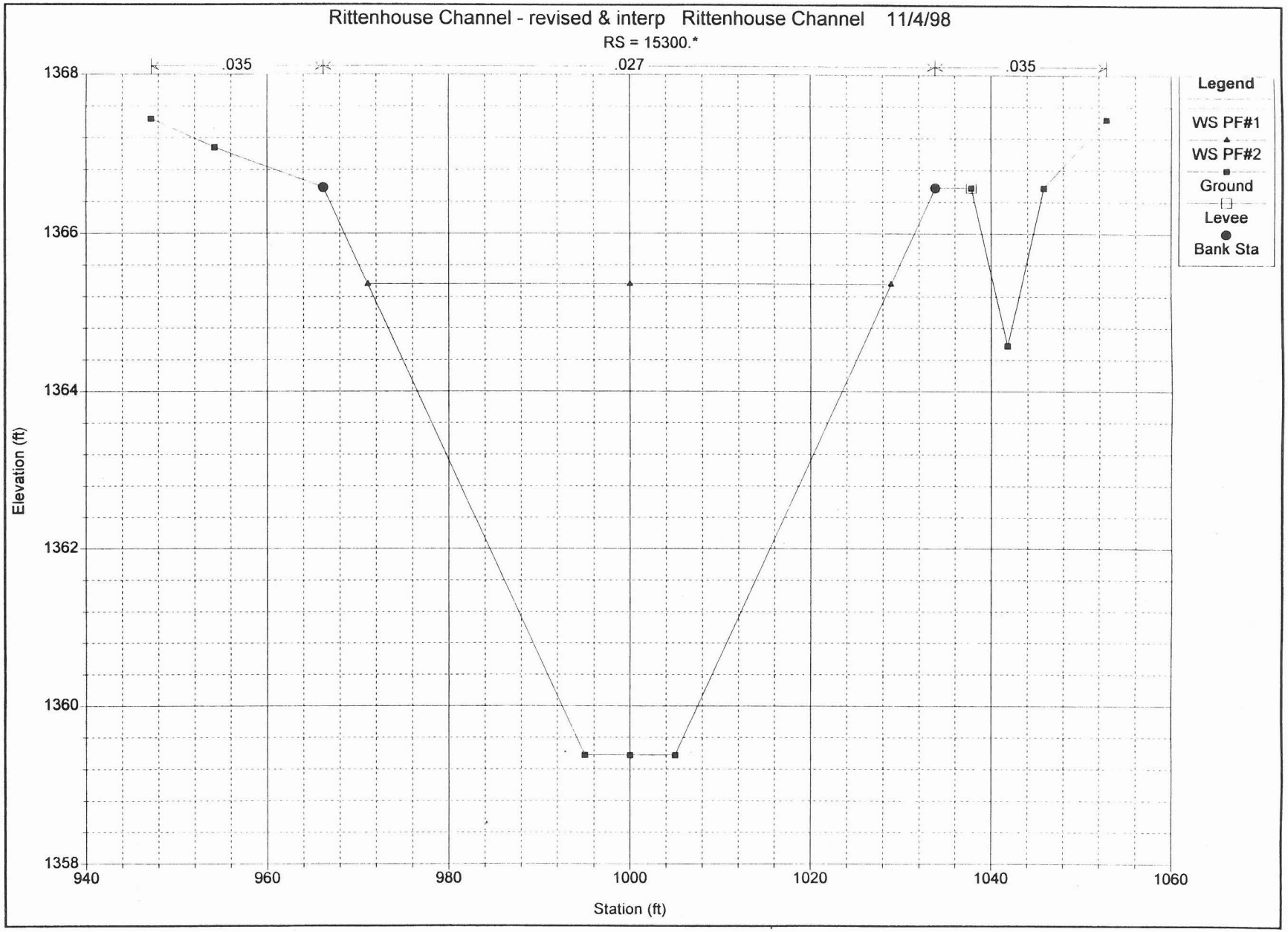

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14800.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

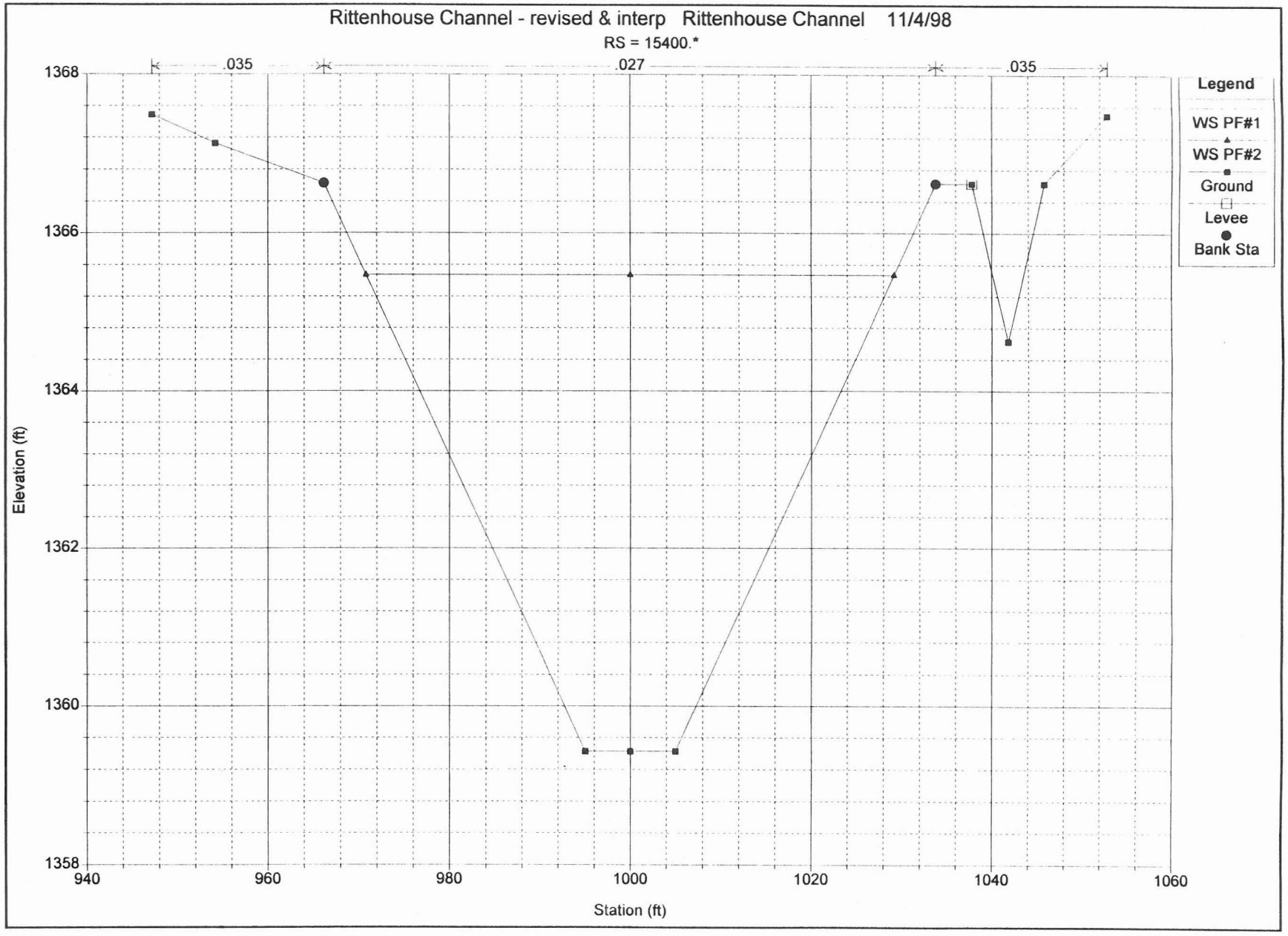

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 14900.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

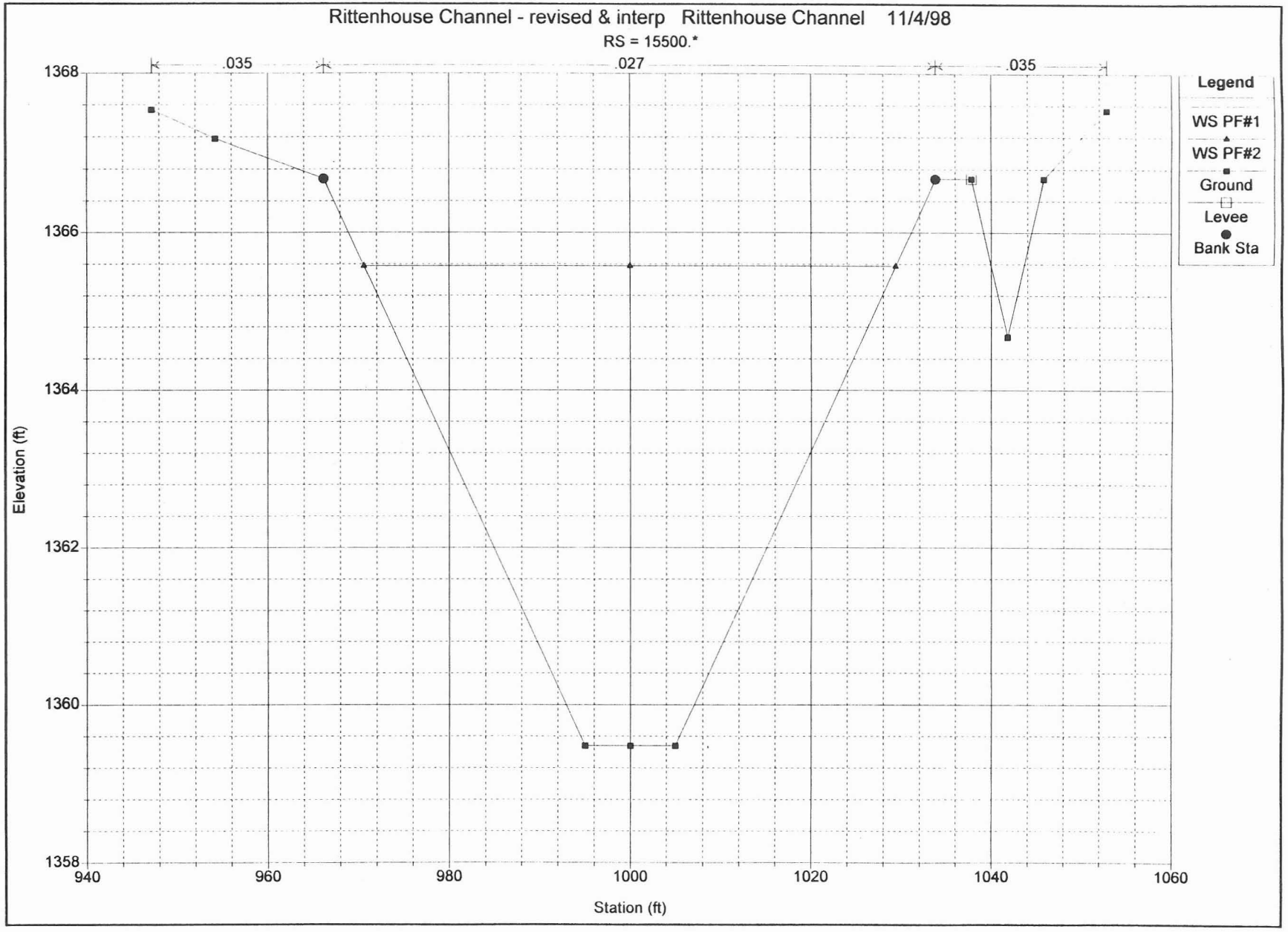

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15000.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

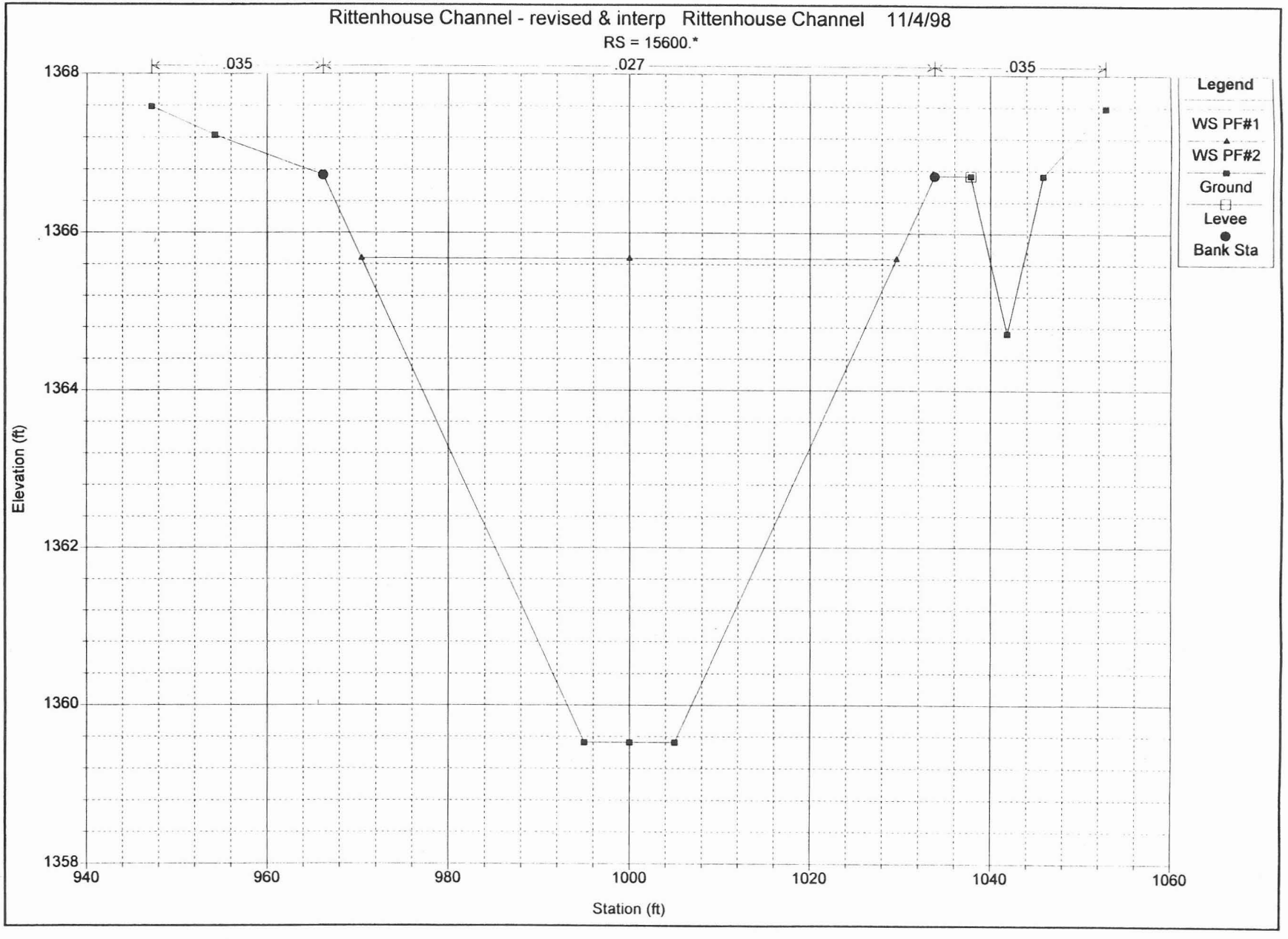

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15100.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

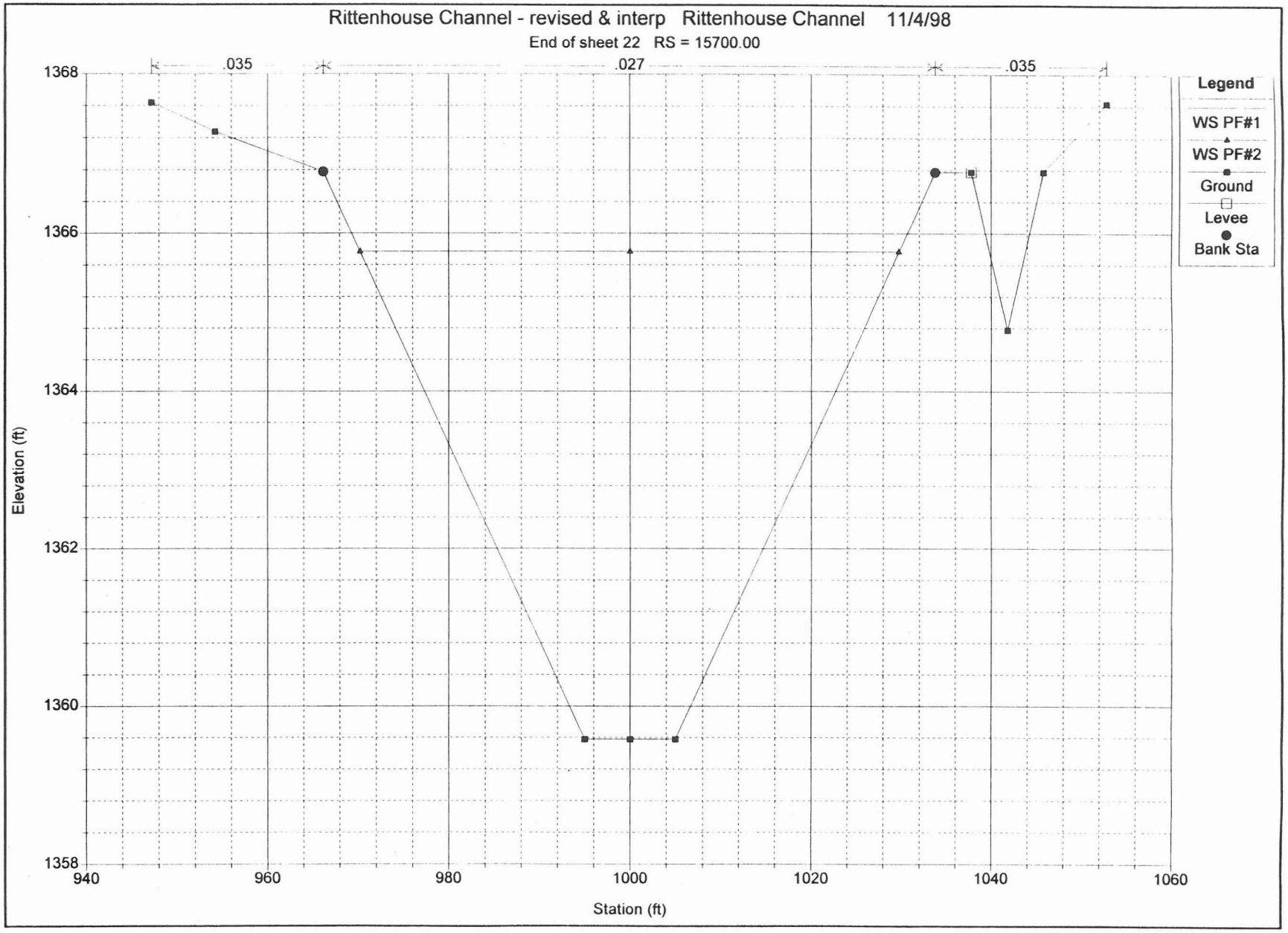

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15200.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

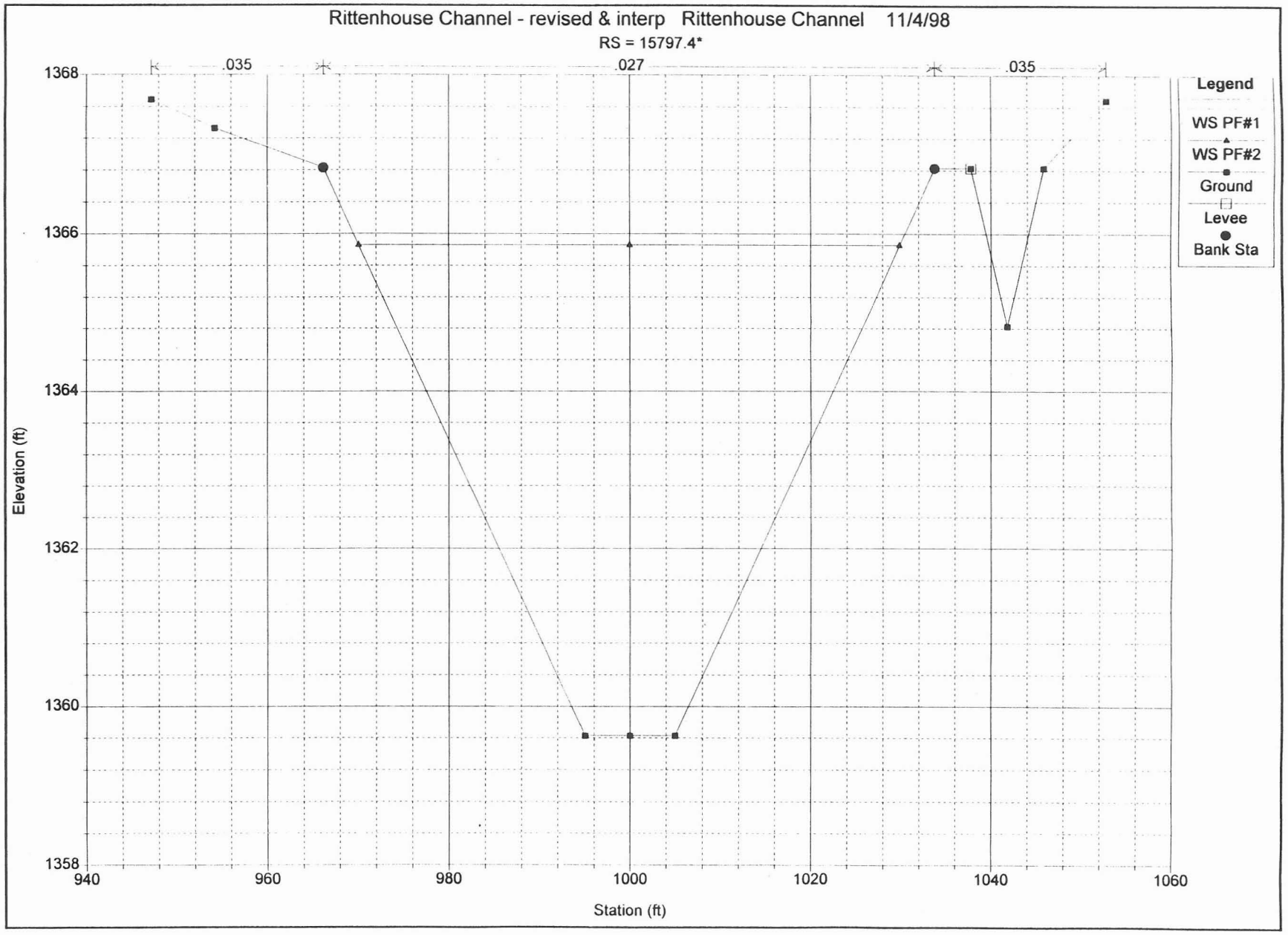

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15300.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

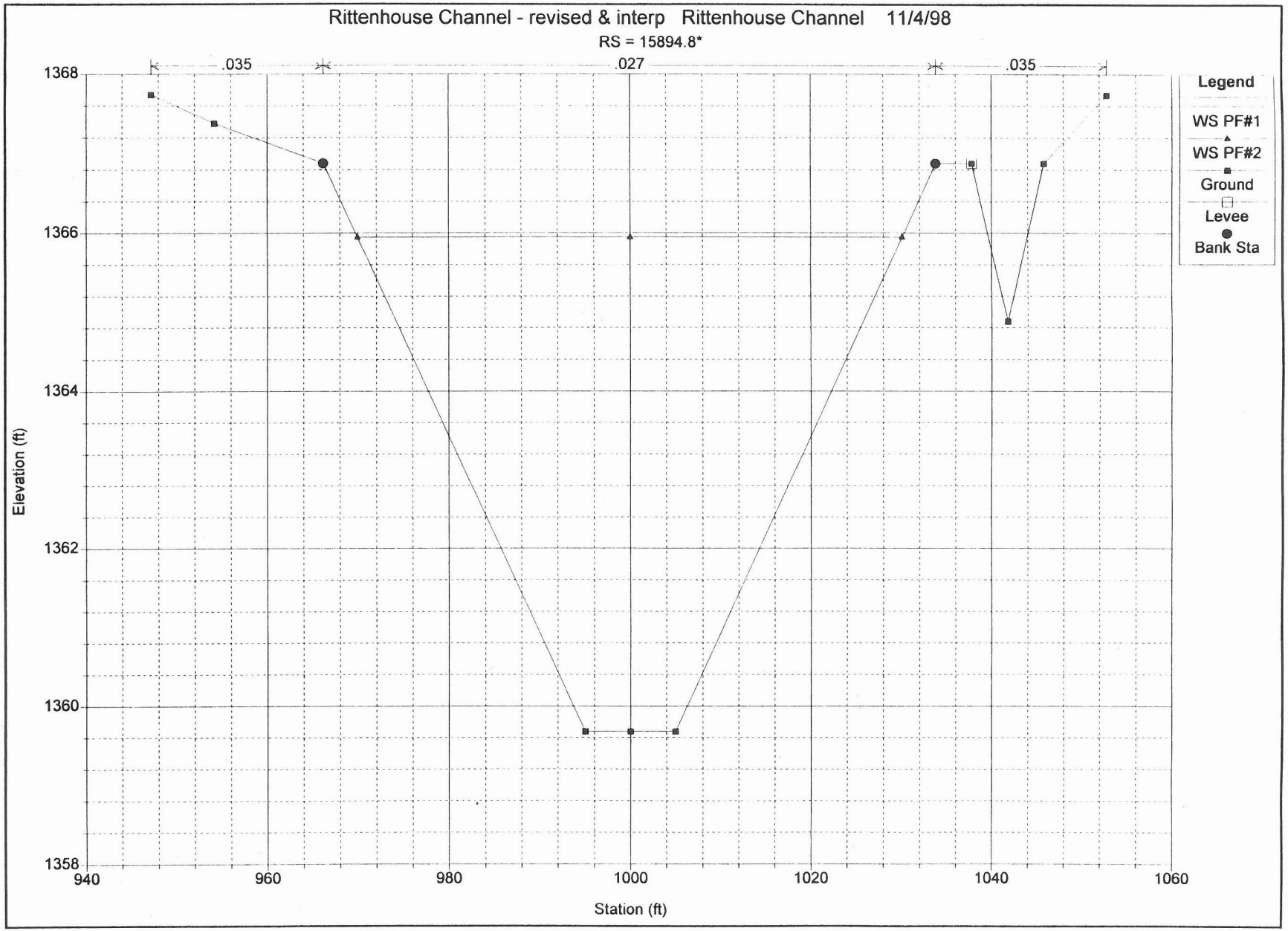

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15400.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

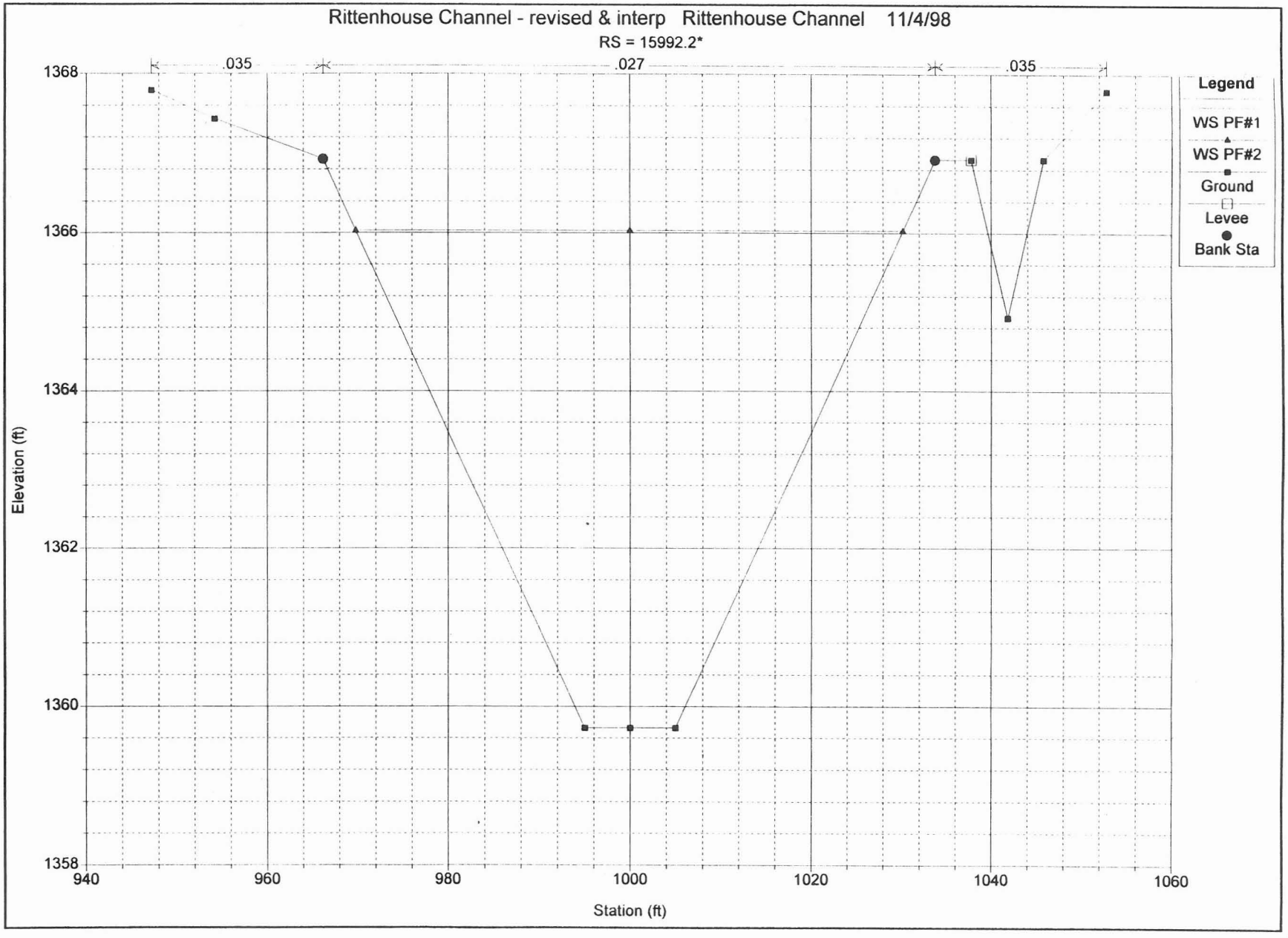

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15500.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

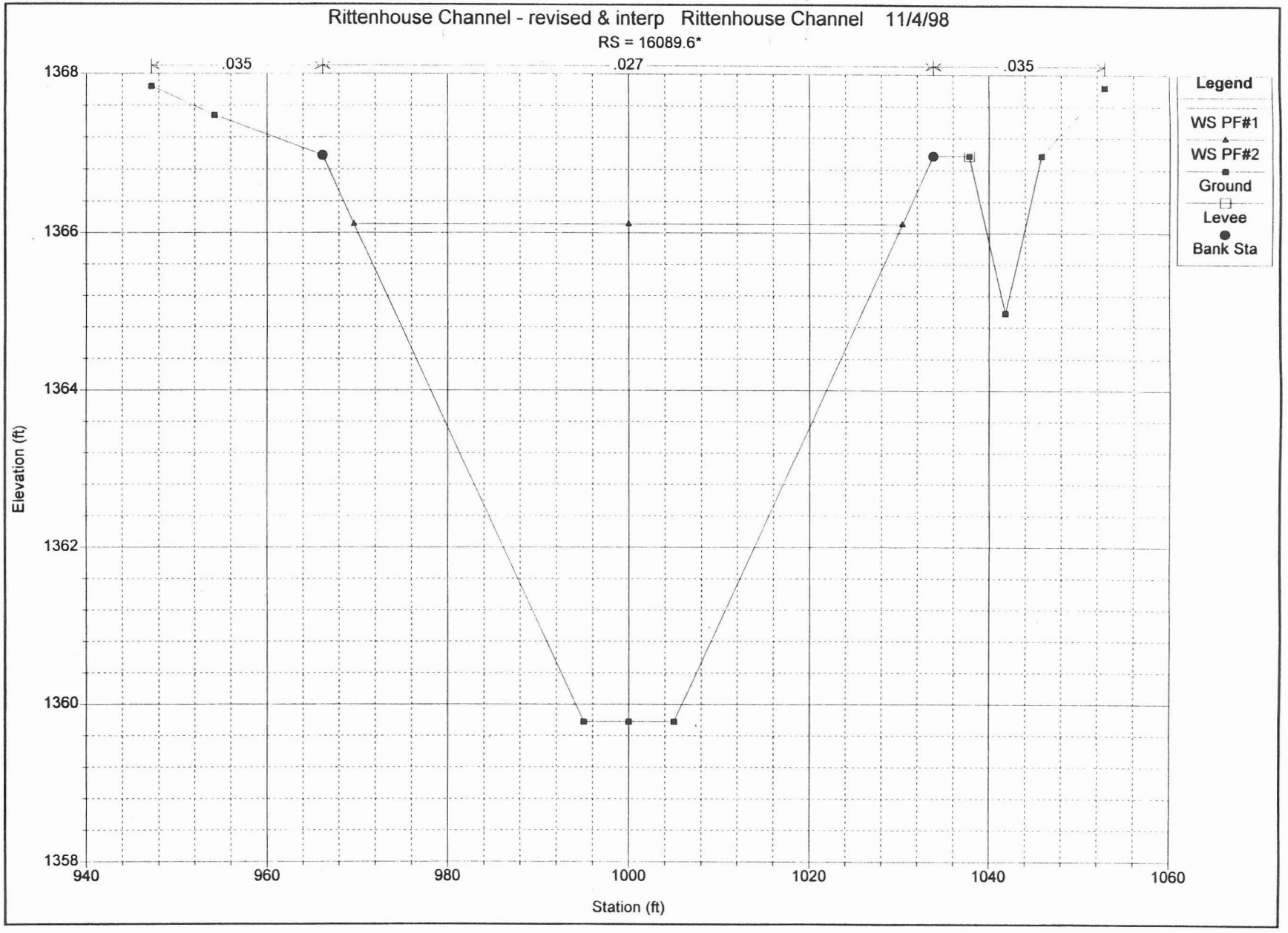

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15600.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

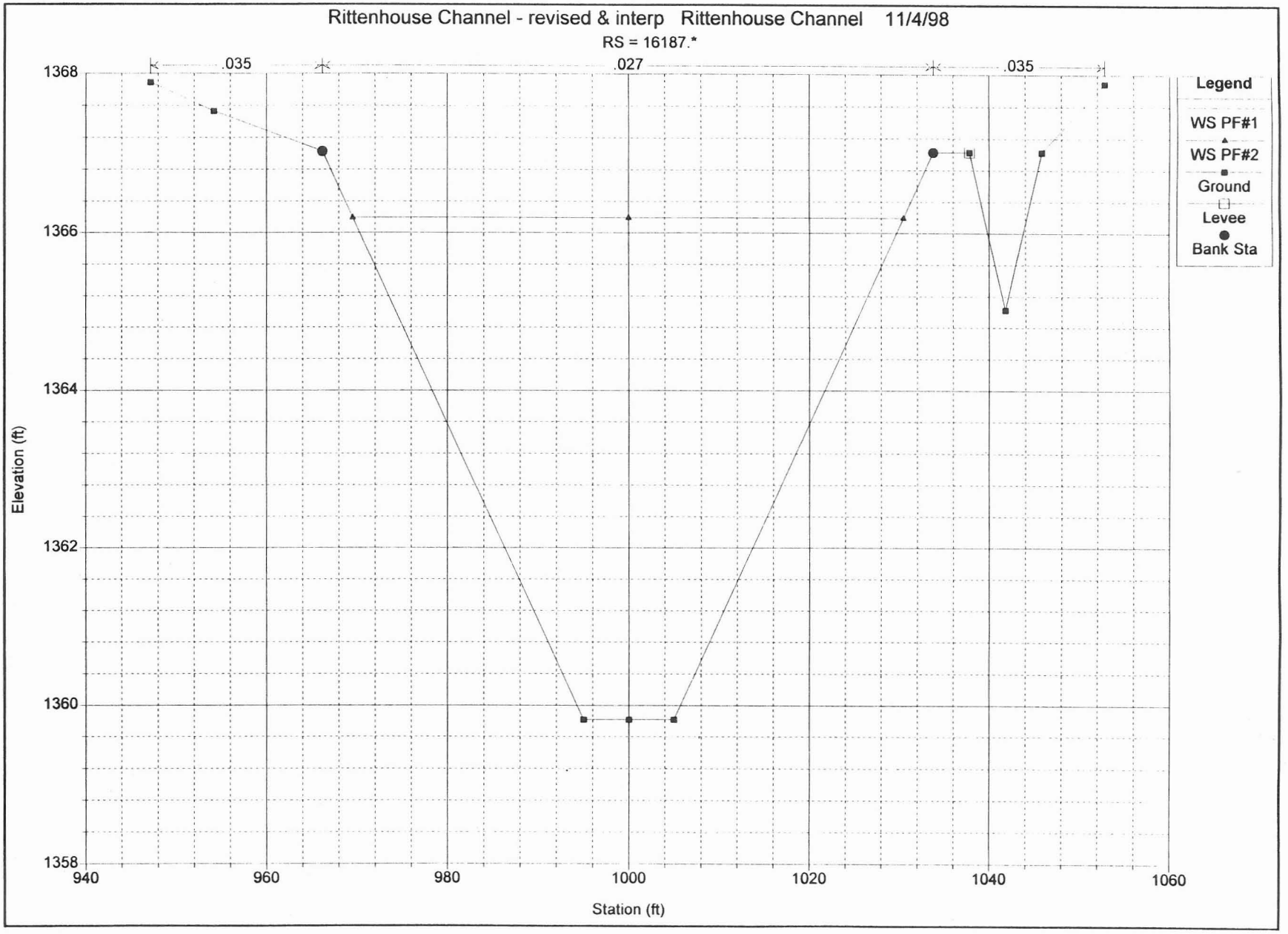

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
End of sheet 22 RS = 15700.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

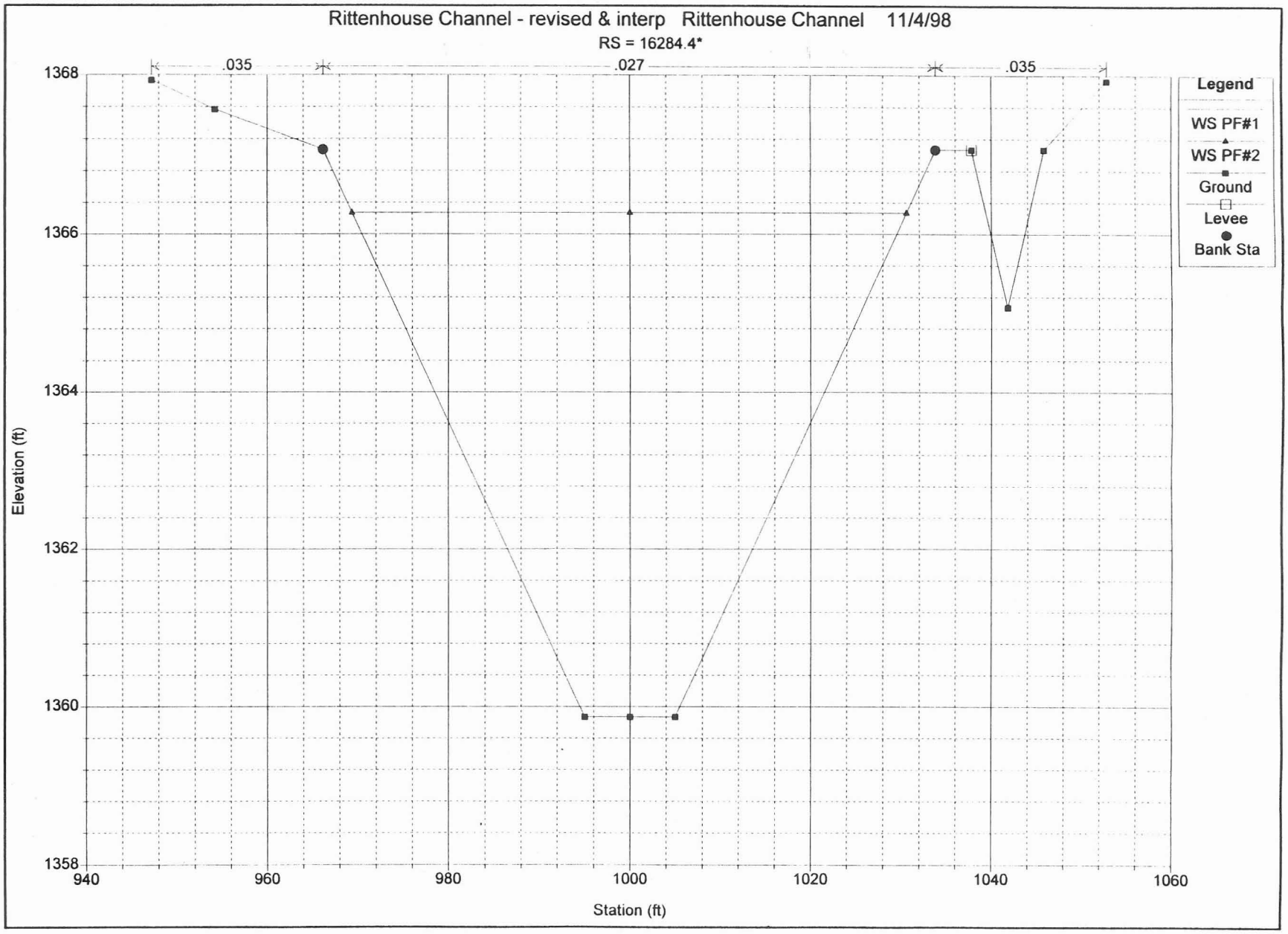

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15797.4*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

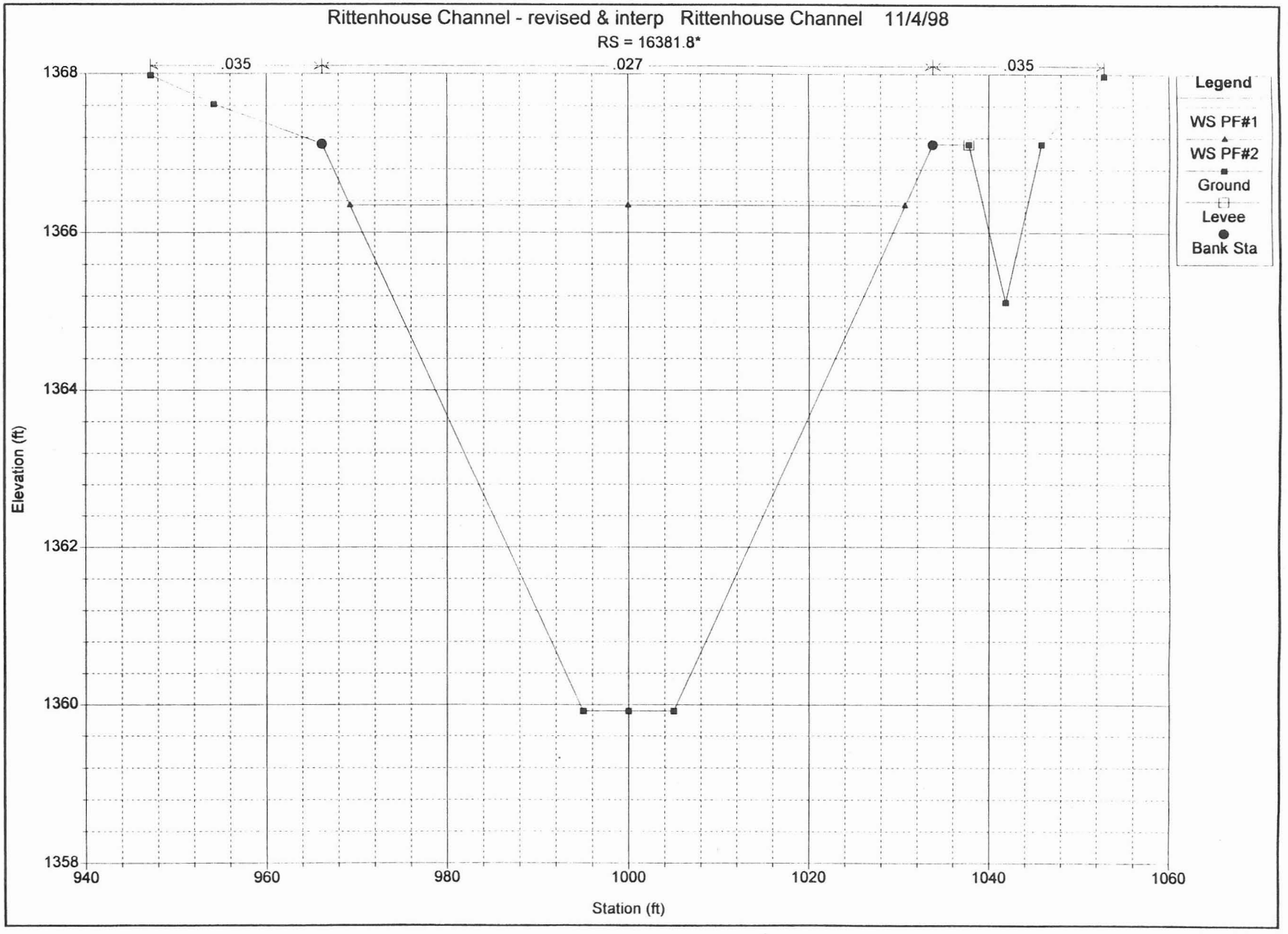

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15894.8*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

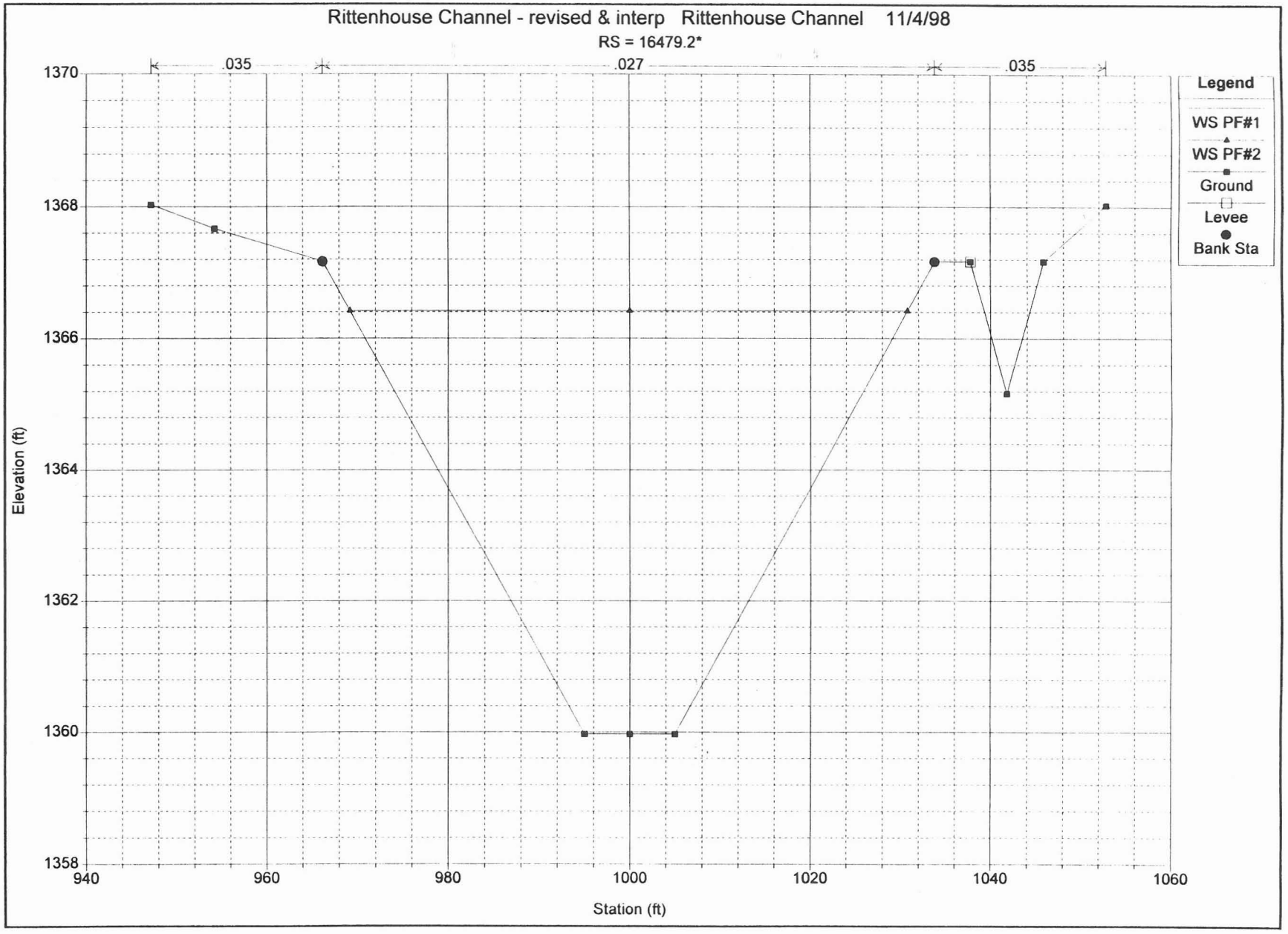

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 15992.2*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

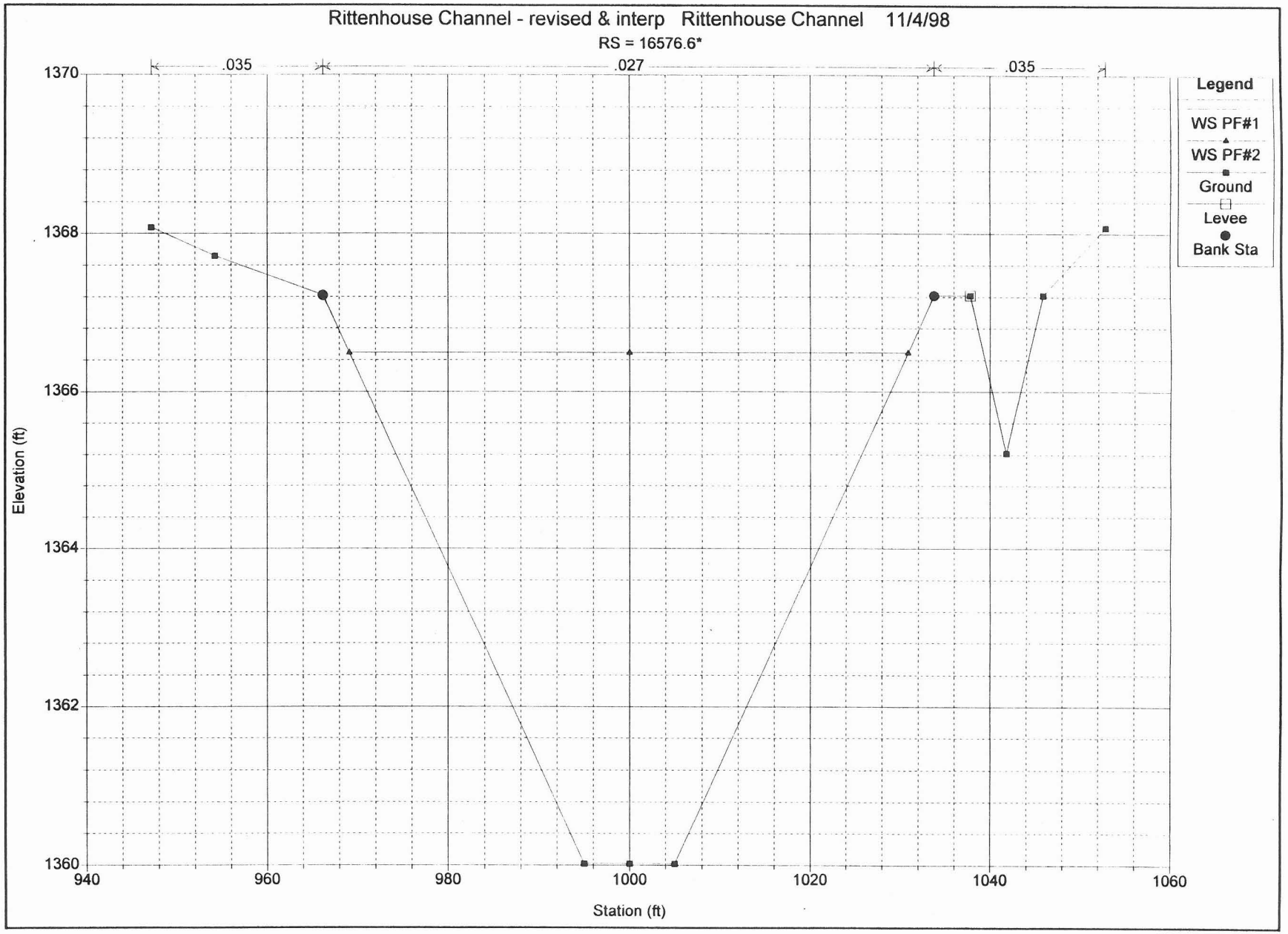

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 16089.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

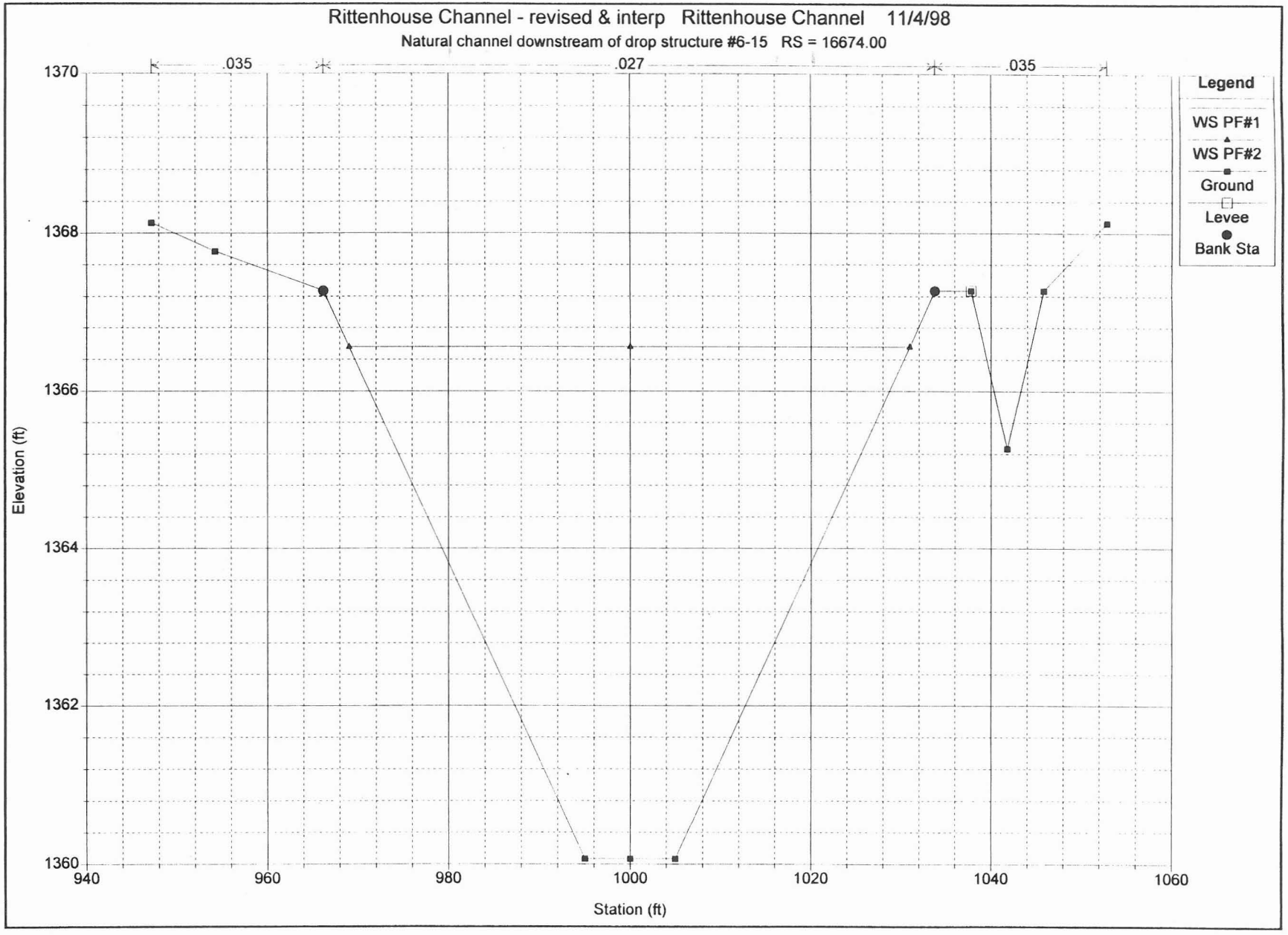

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 16187.*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

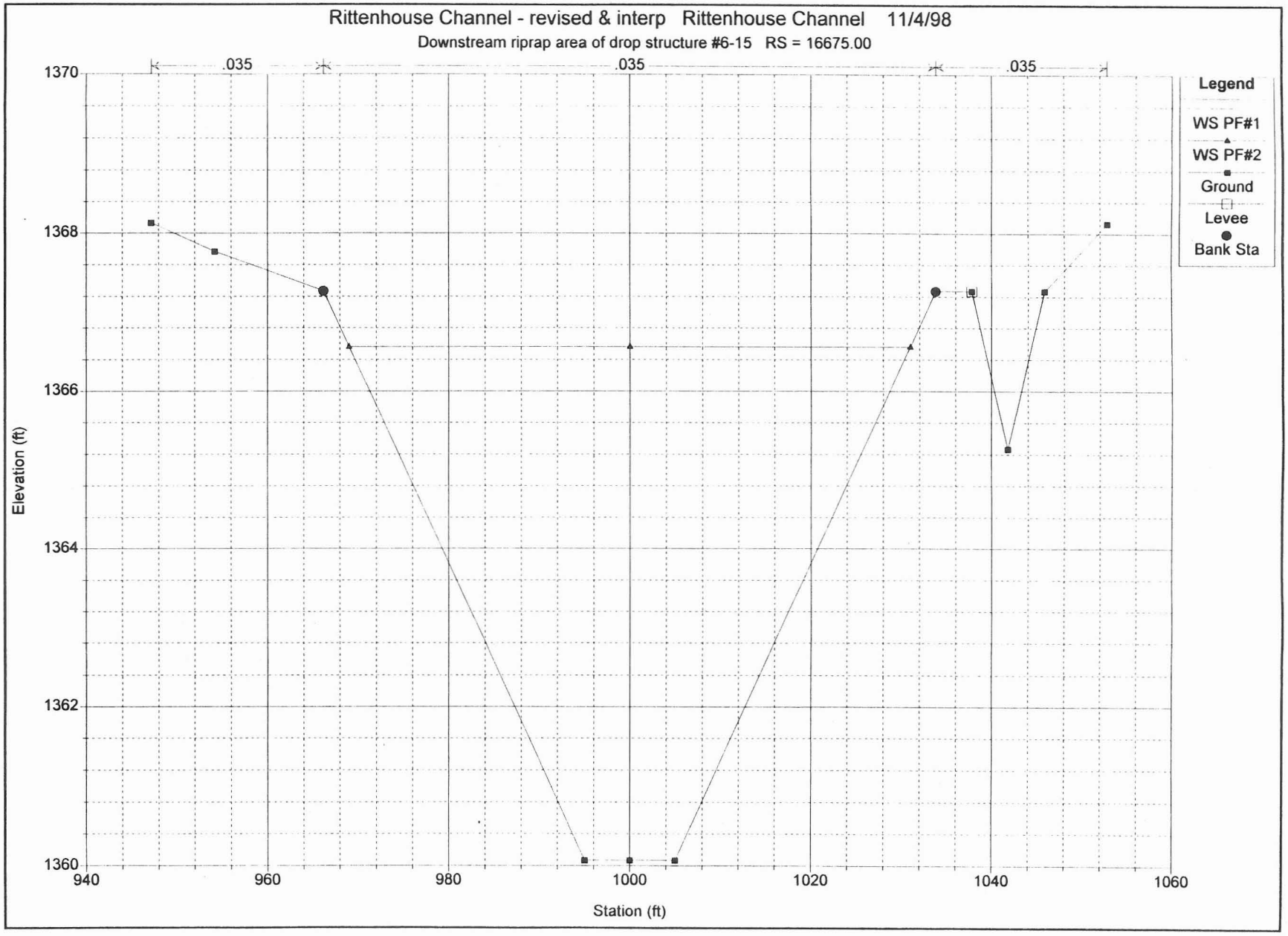

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 16284.4*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

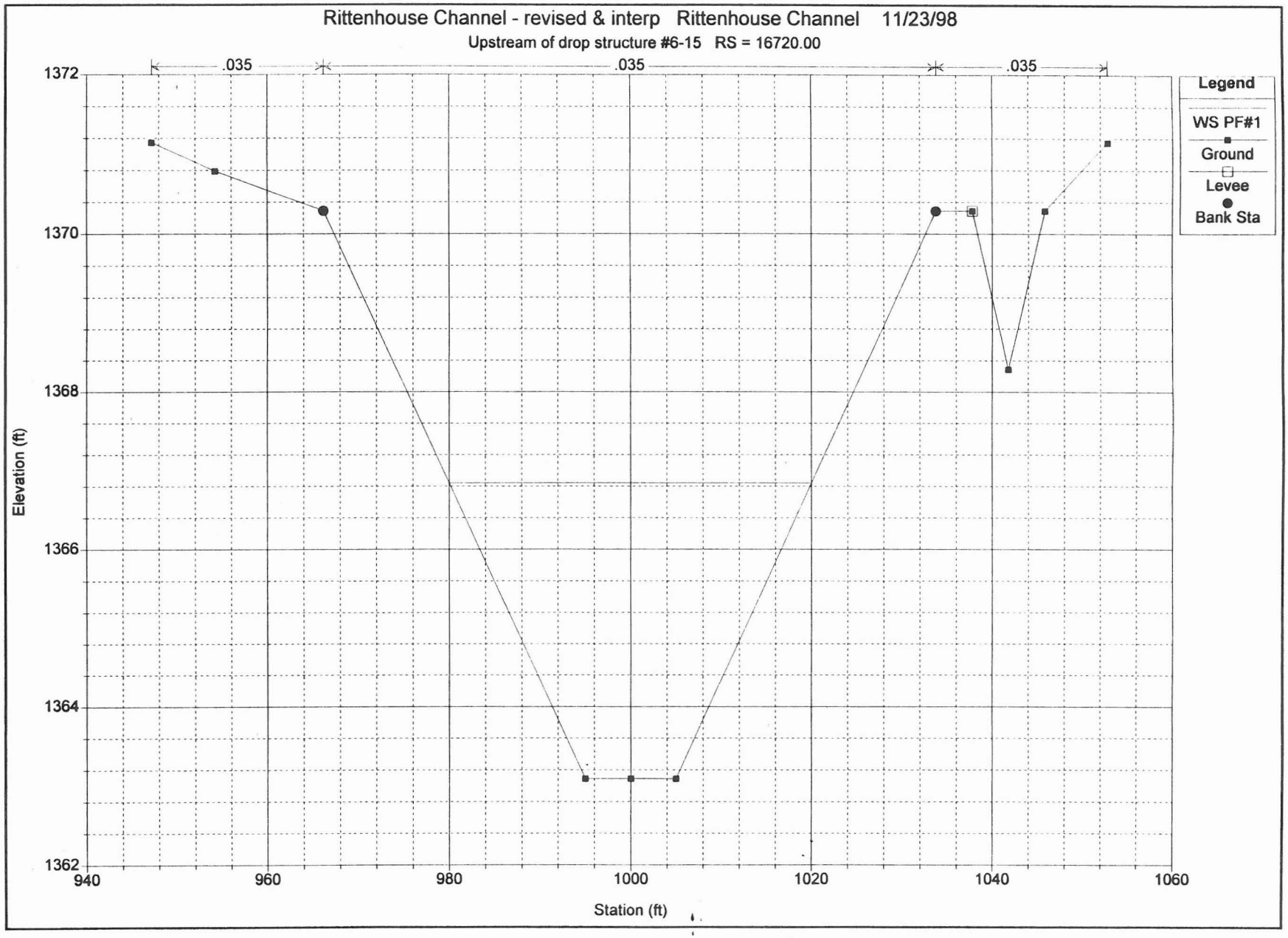

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 16381.8*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

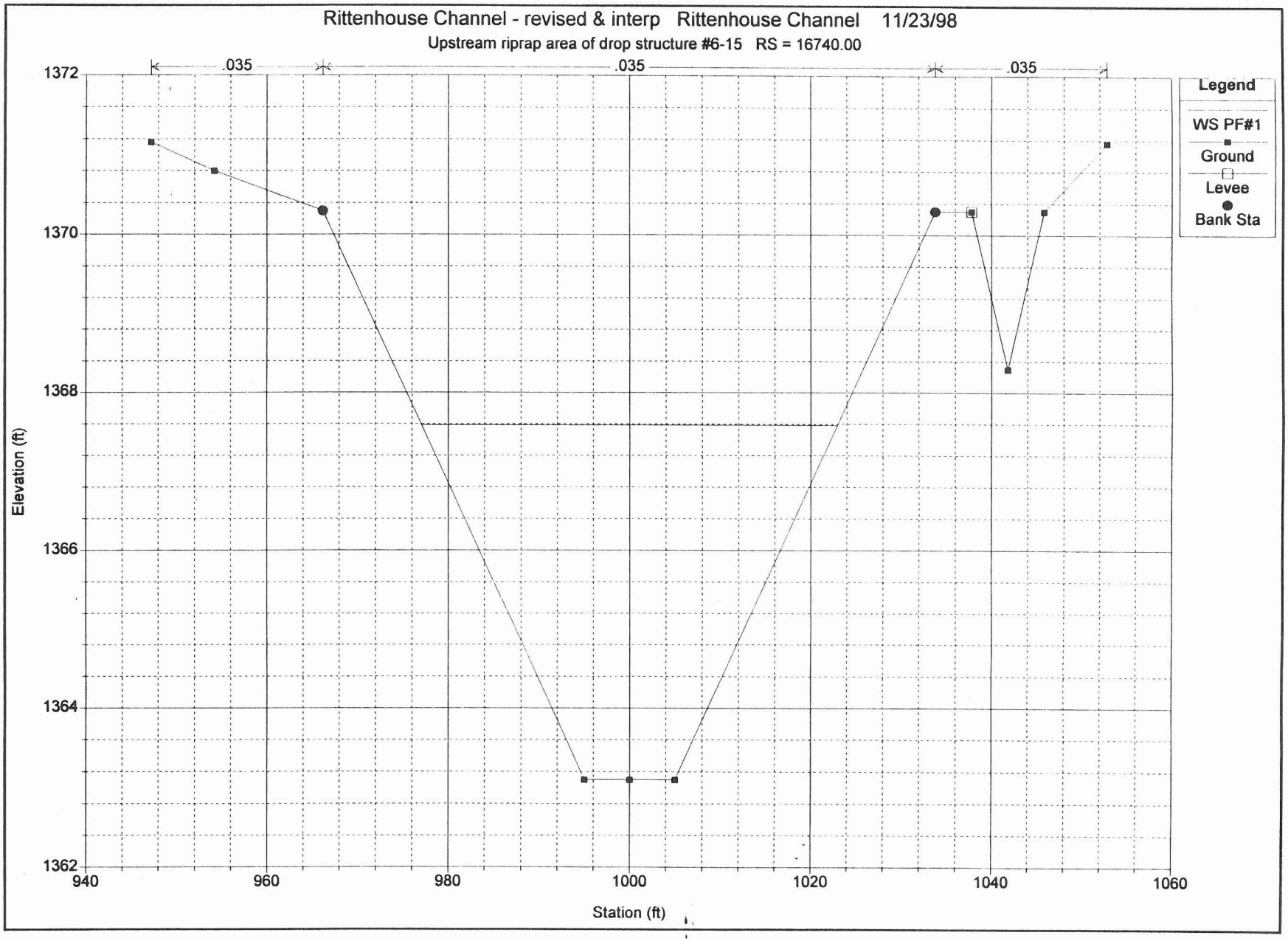

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 16479.2*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1370
1368
1366
1364
1362
1360
1358
940
960
980
1000
1020
1040
1060
Station (ft)

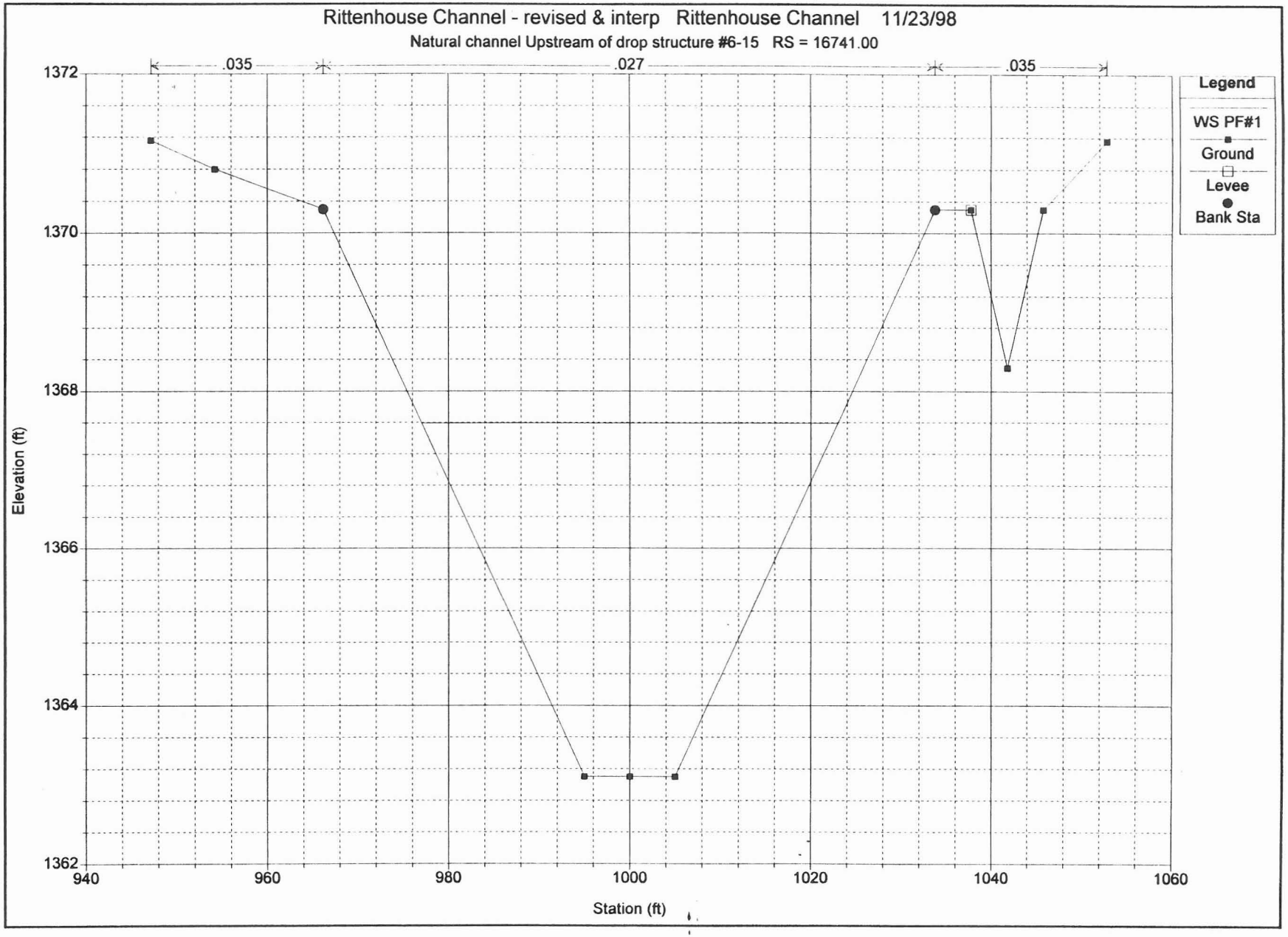

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
RS = 16576.6*
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1370
1368
1366
1364
1362
1360
940
960
980
1000
1020
1040
1060
Station (ft)

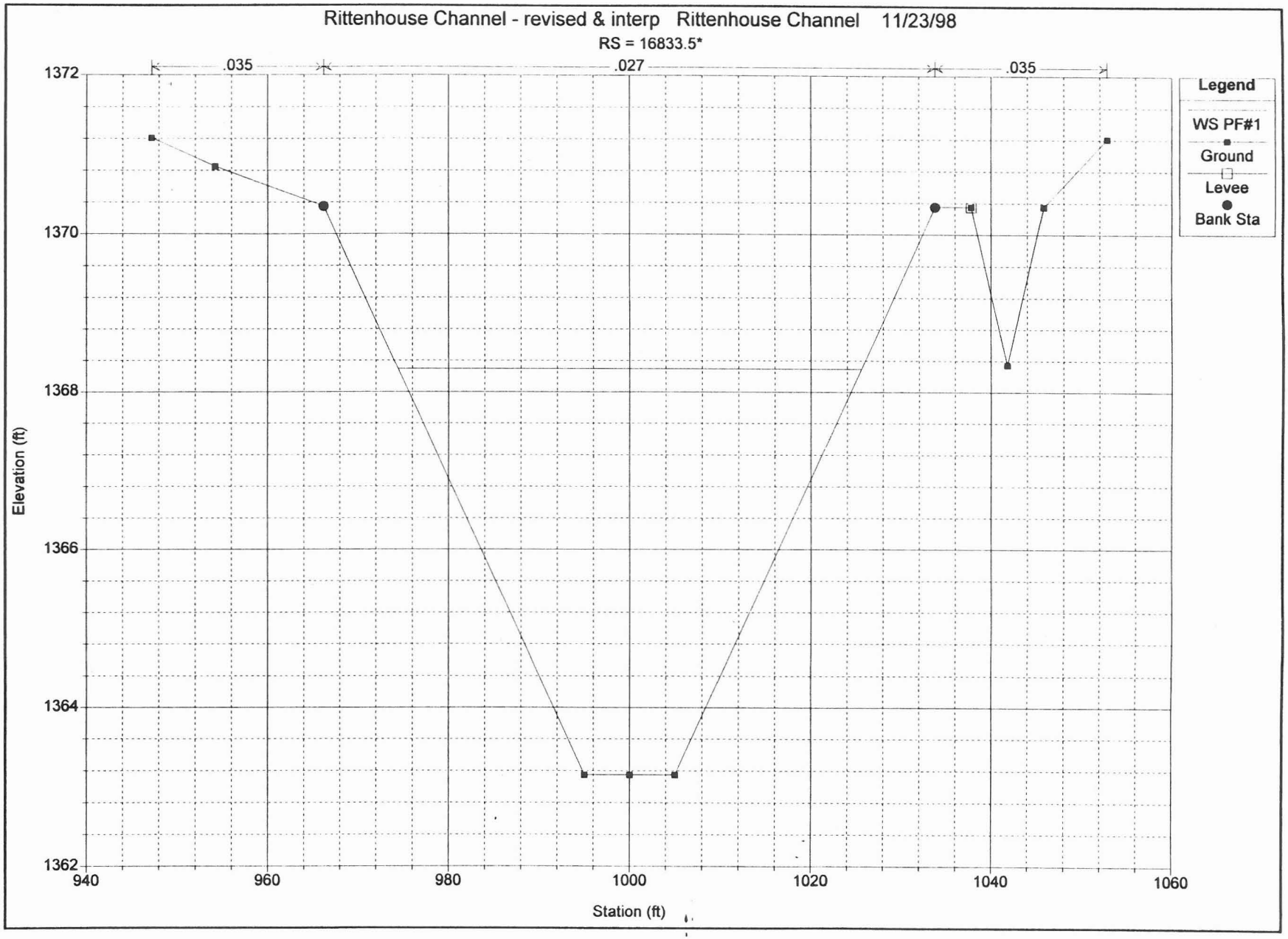

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Natural channel downstream of drop structure #6-15 RS = 16674.00
.035
.027
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1370
1368
1366
1364
1362
1360
940
960
980
1000
1020
1040
1060
Station (ft)

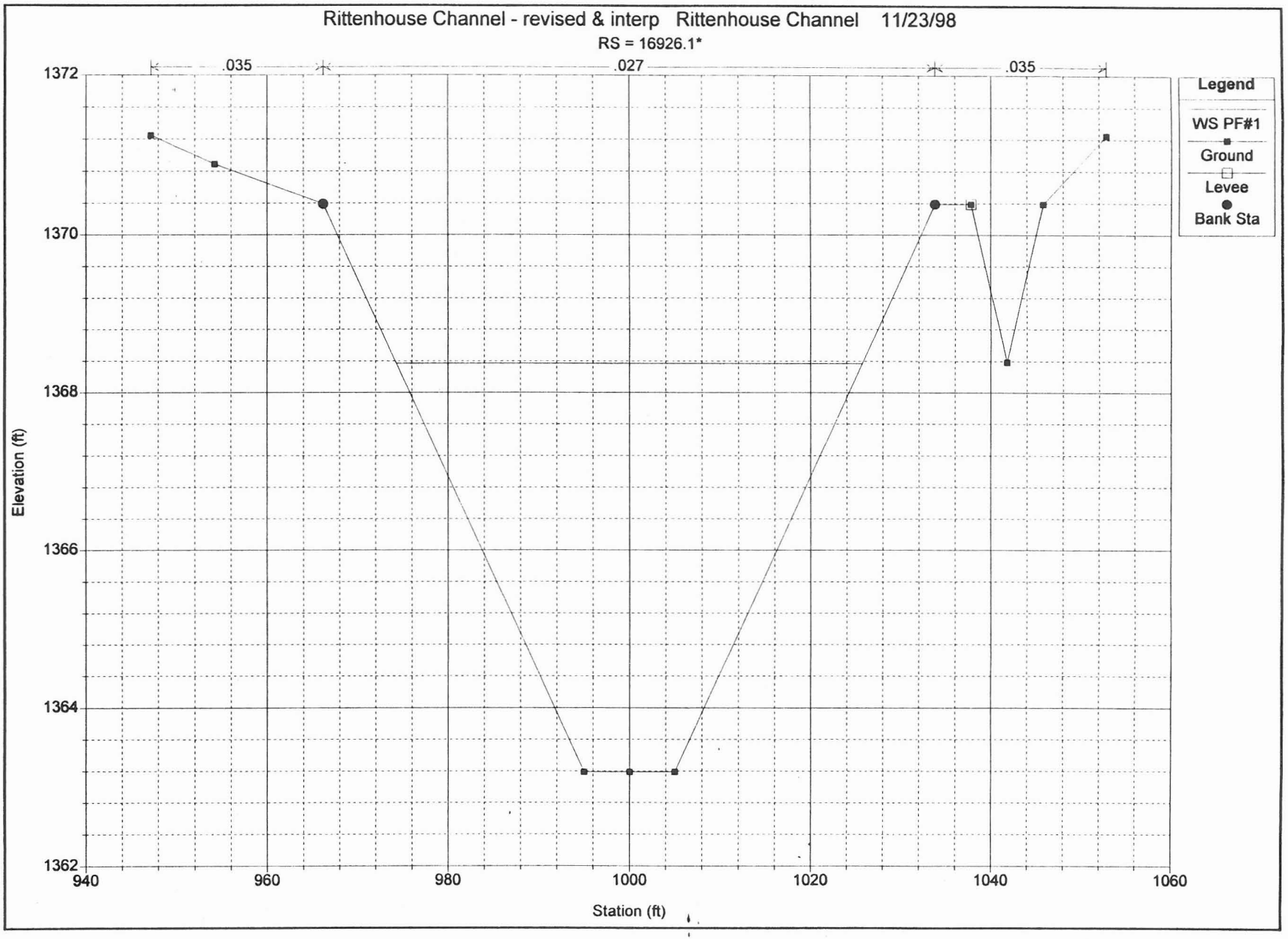

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/4/98
Downstream riprap area of drop structure #6-15 RS = 16675.00
.035
.035
.035
Legend
WS PF#1
WS PF#2
Ground
Levee
Bank Sta
Elevation (ft)
1370
1368
1366
1364
1362
1360
940
960
980
1000
1020
1040
1060
Station (ft)

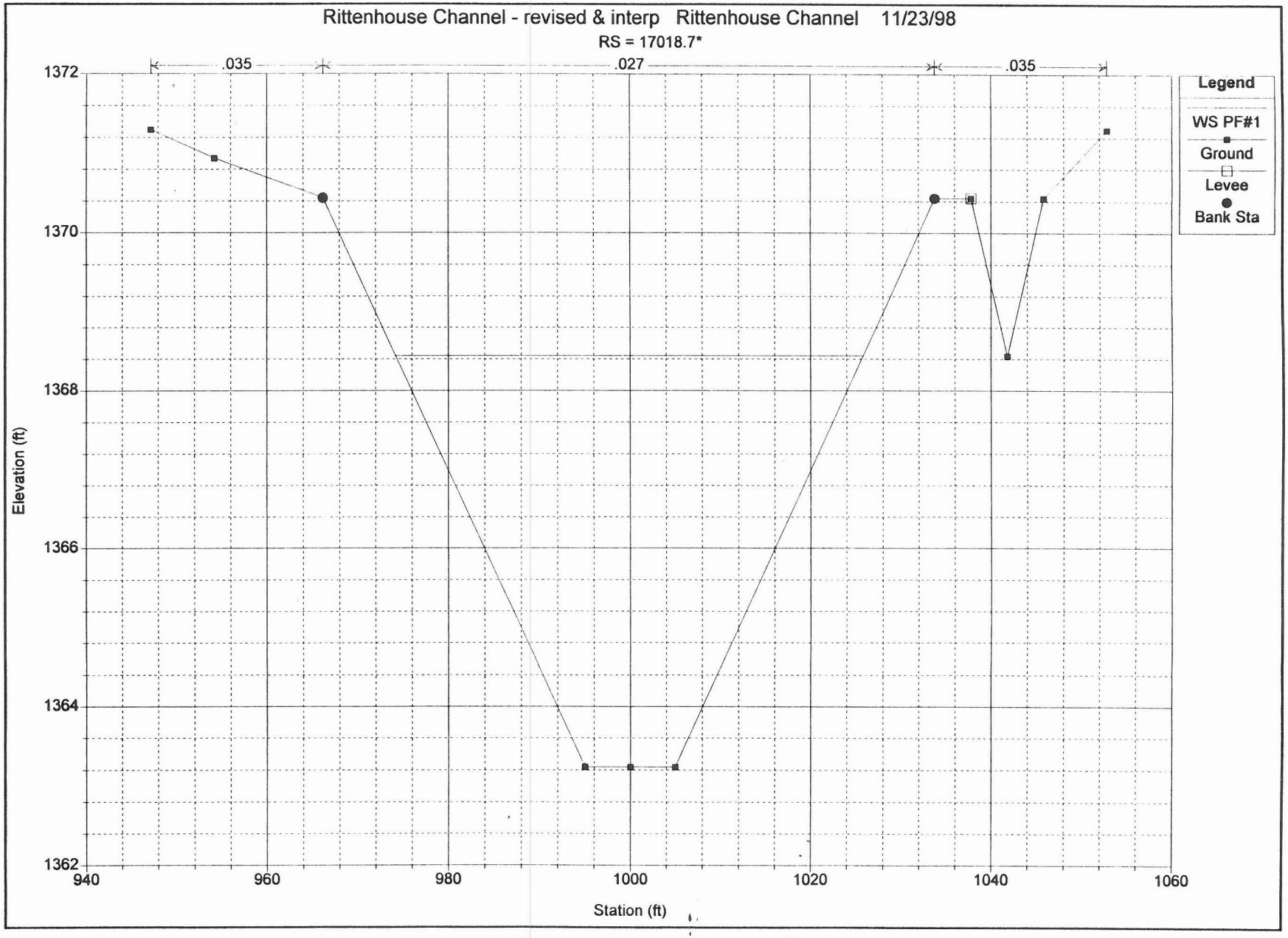

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream of drop structure #6-15 RS = 16720.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

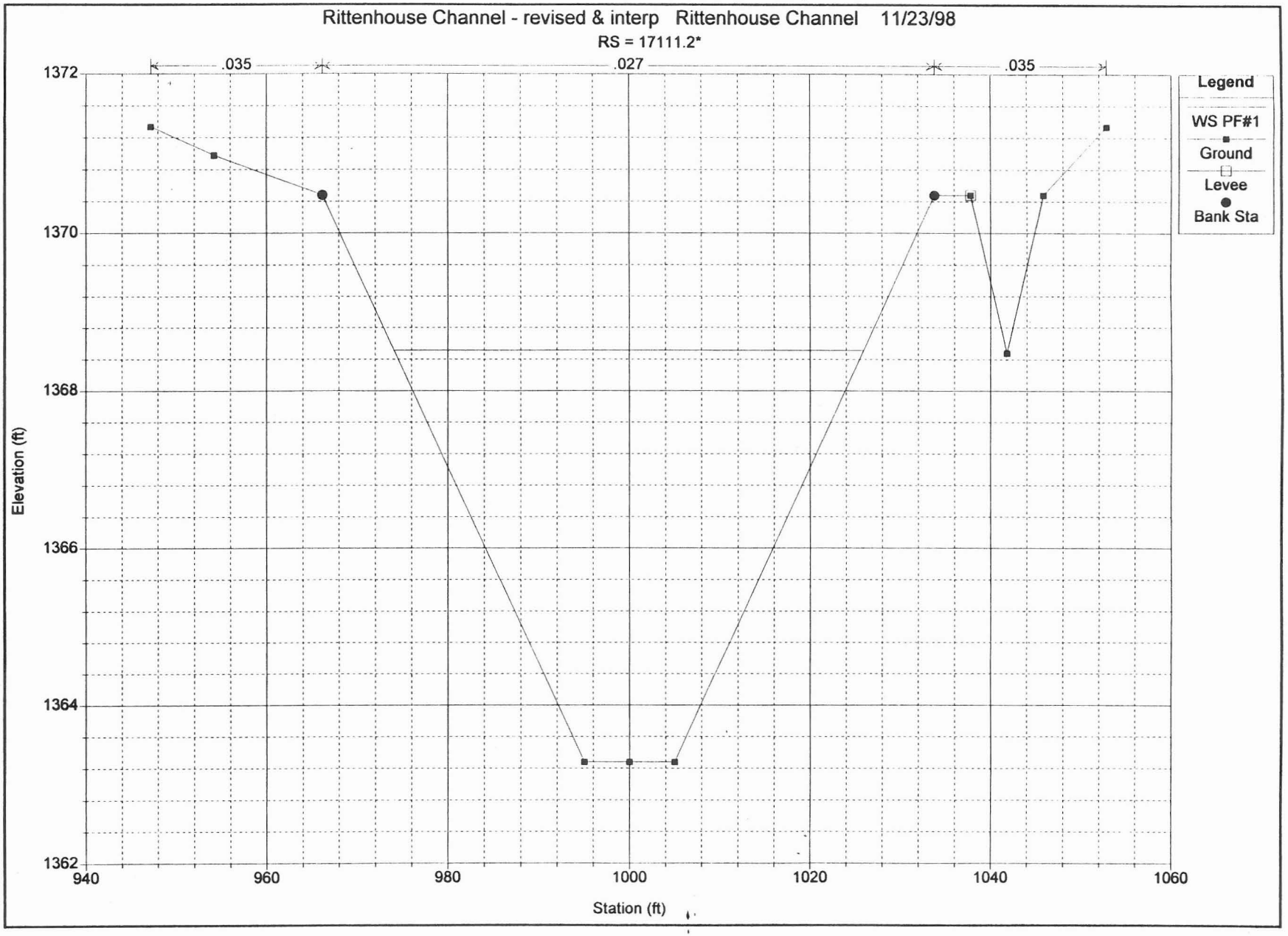

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream riprap area of drop structure #6-15 RS = 16740.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

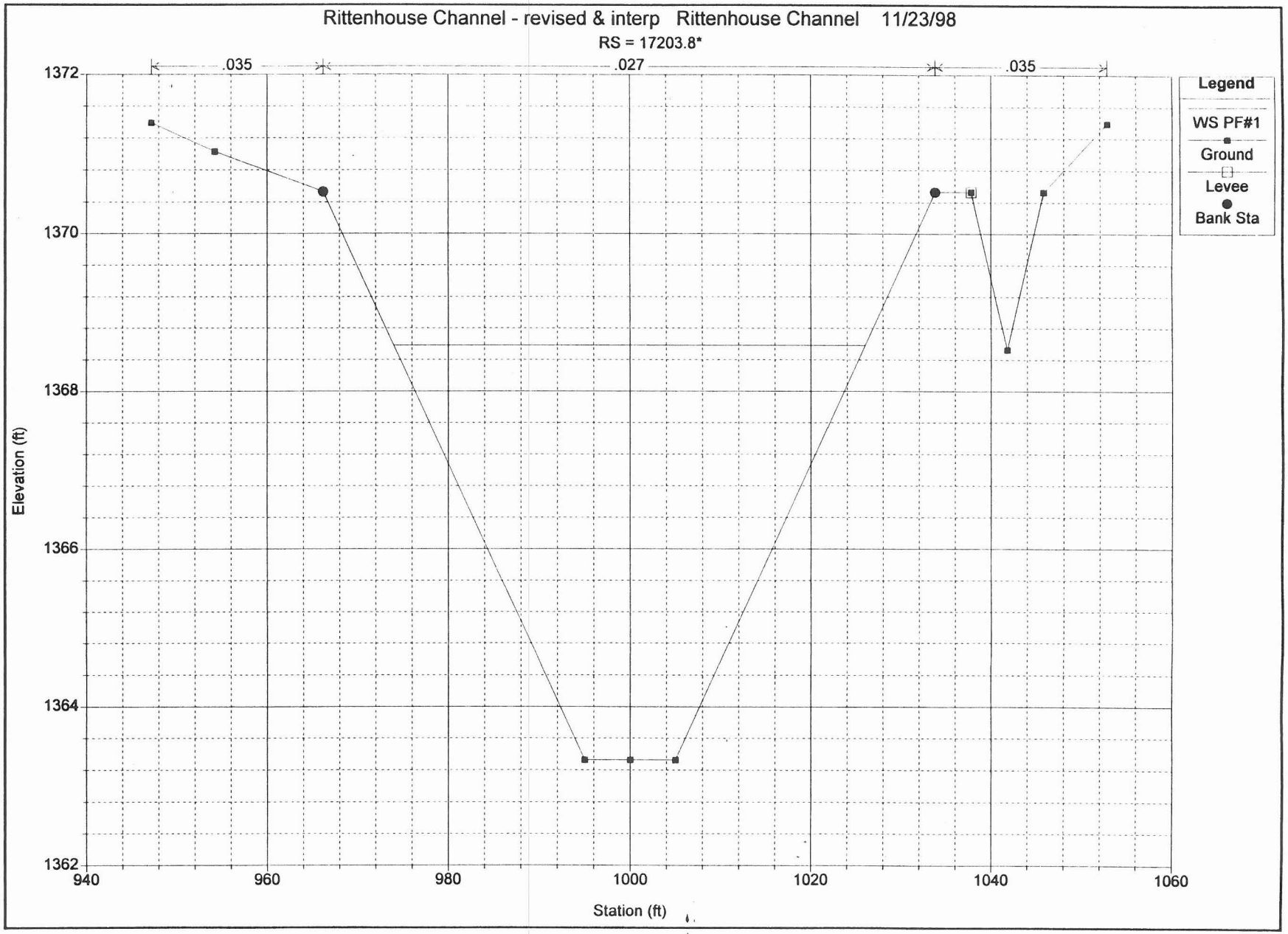

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel Upstream of drop structure #6-15 RS = 16741.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

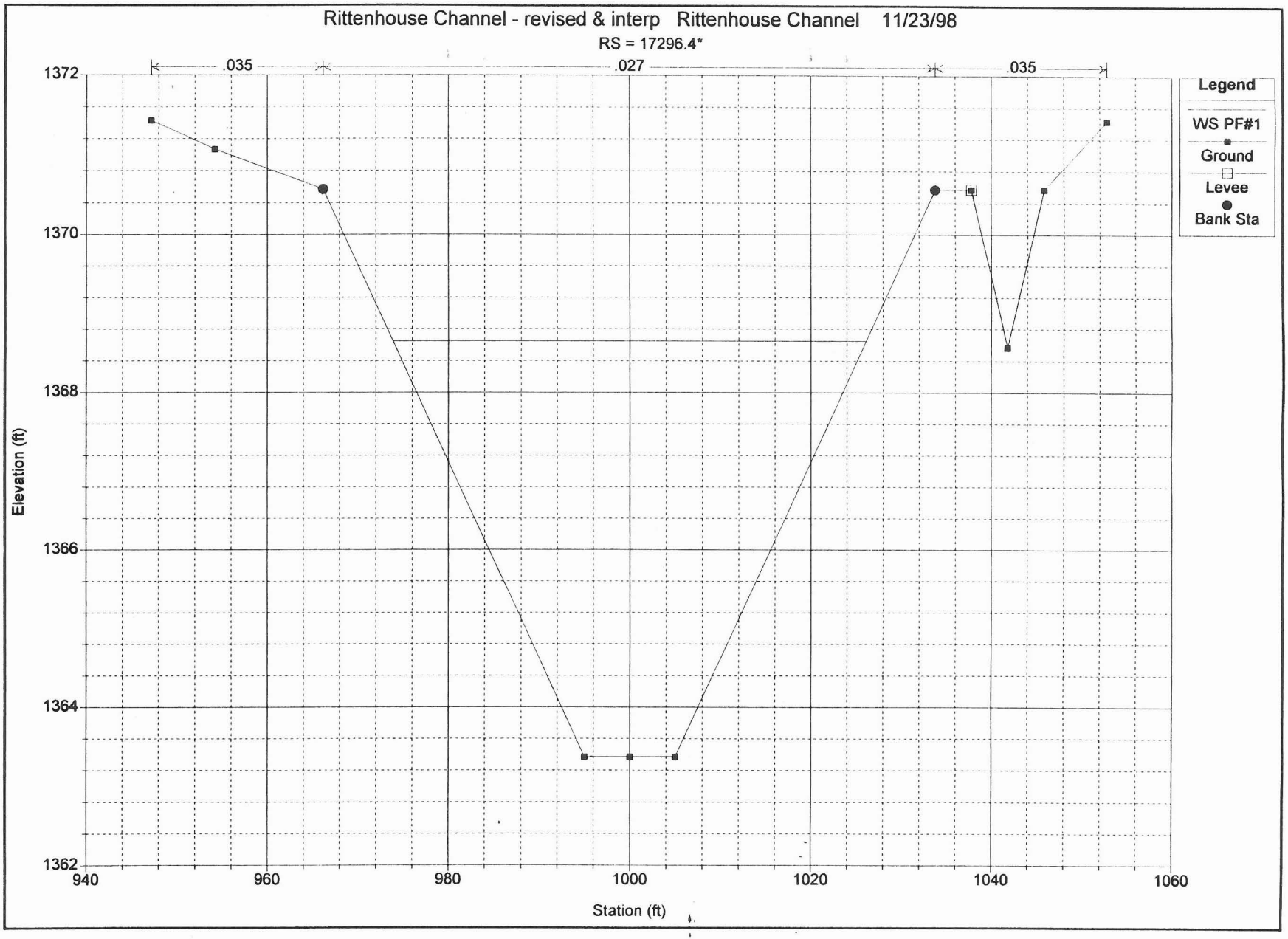

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 16833.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

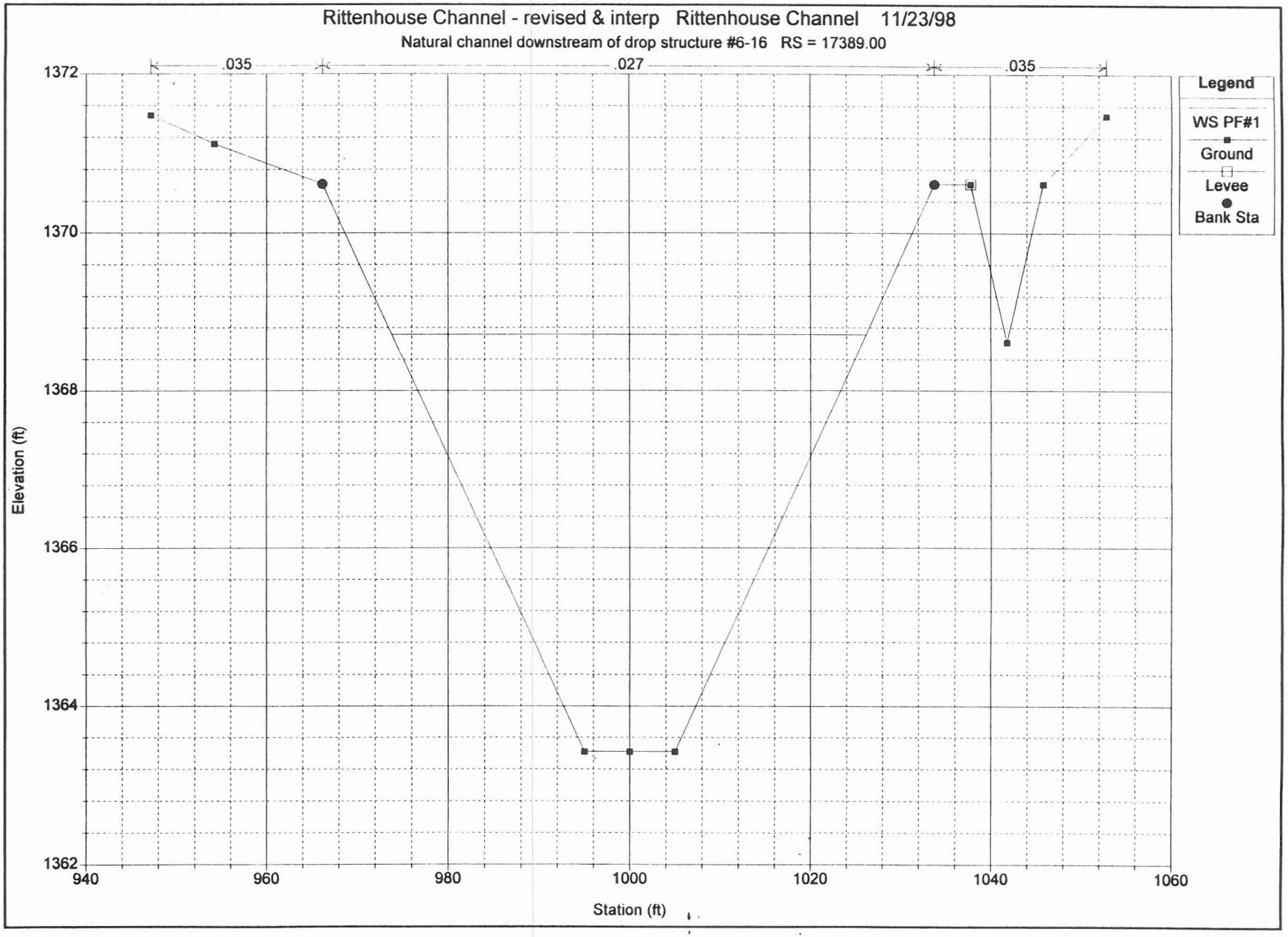

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 16926.1*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

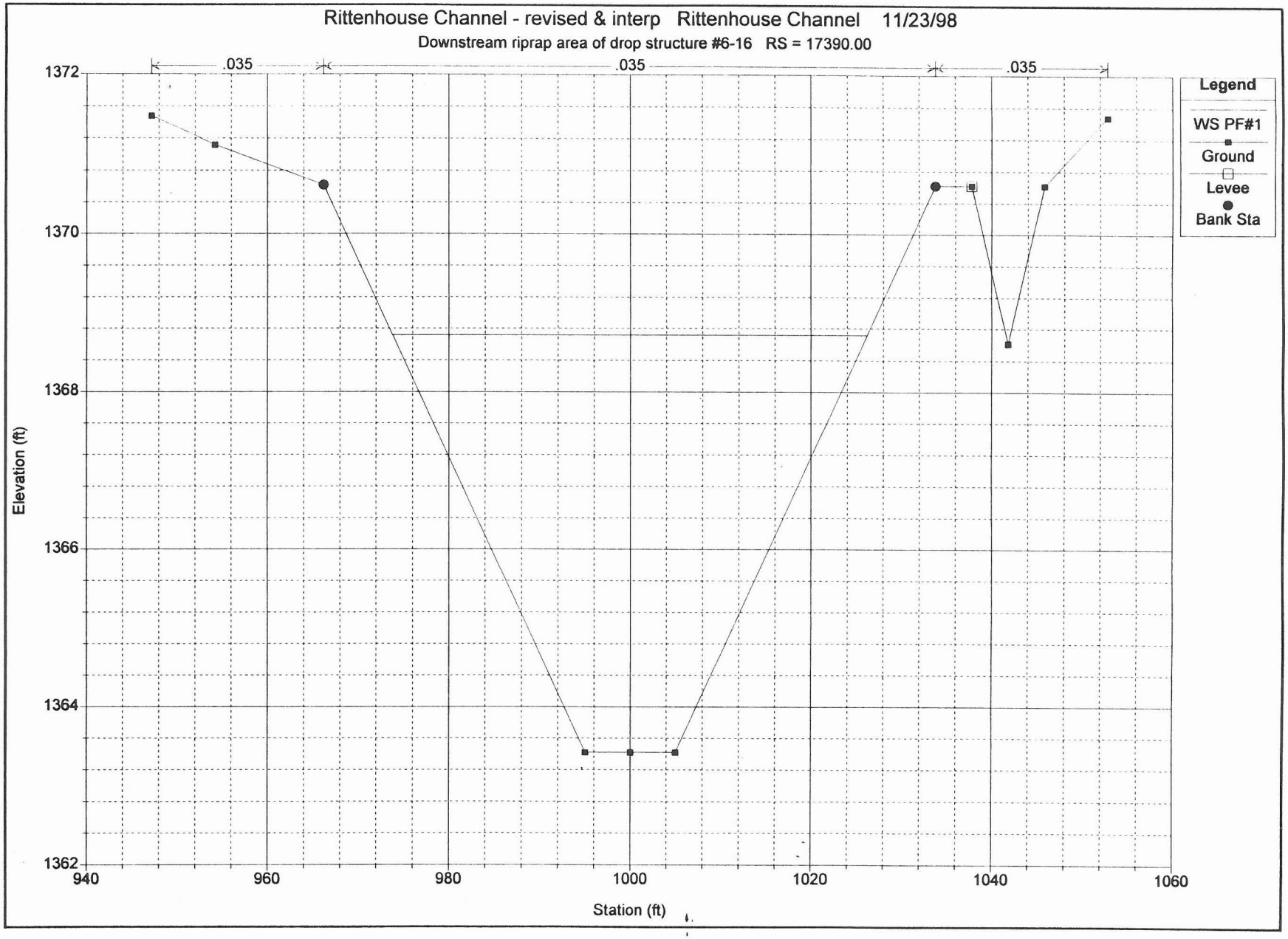

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17018.7*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

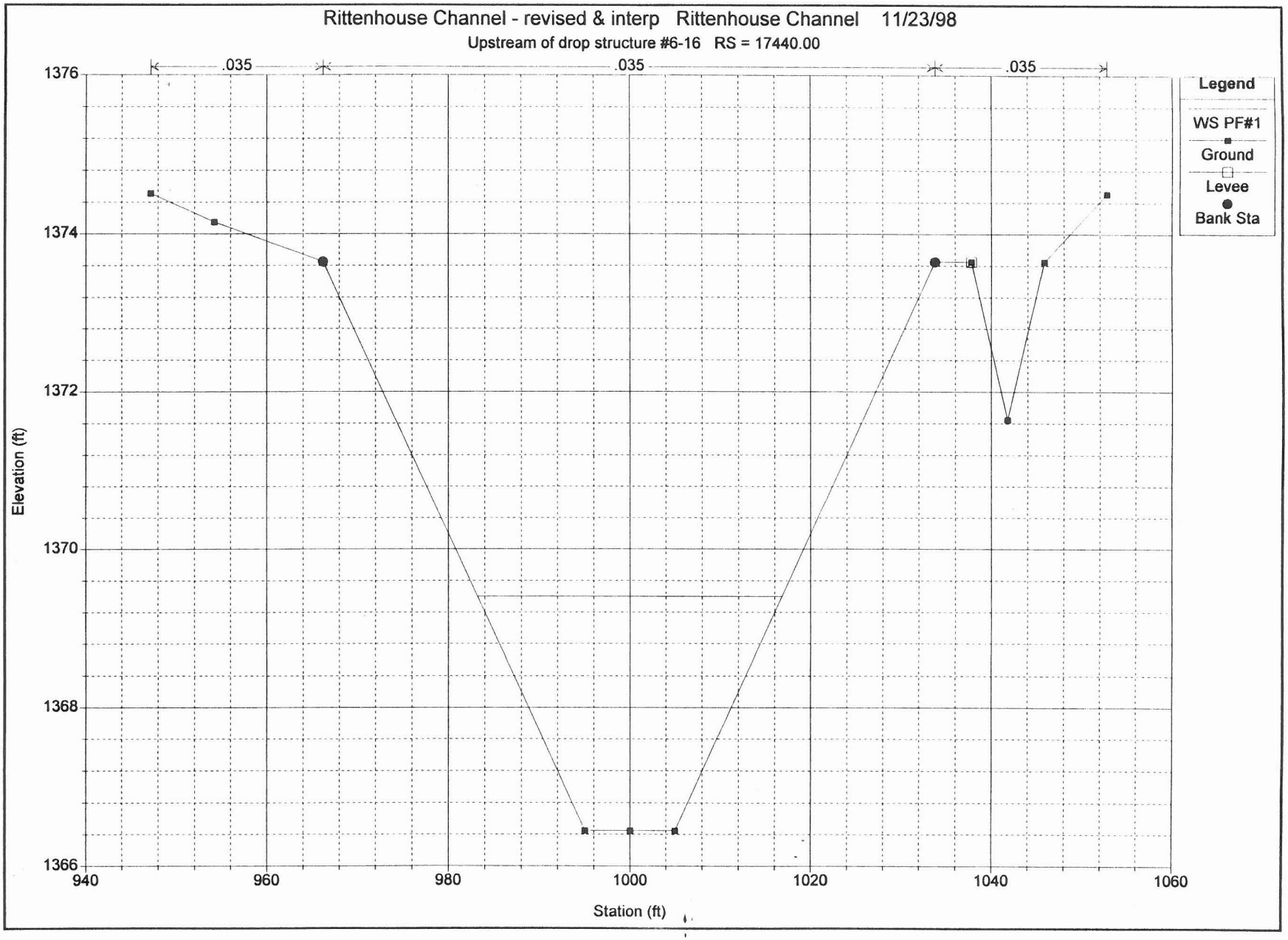

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17111.2*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

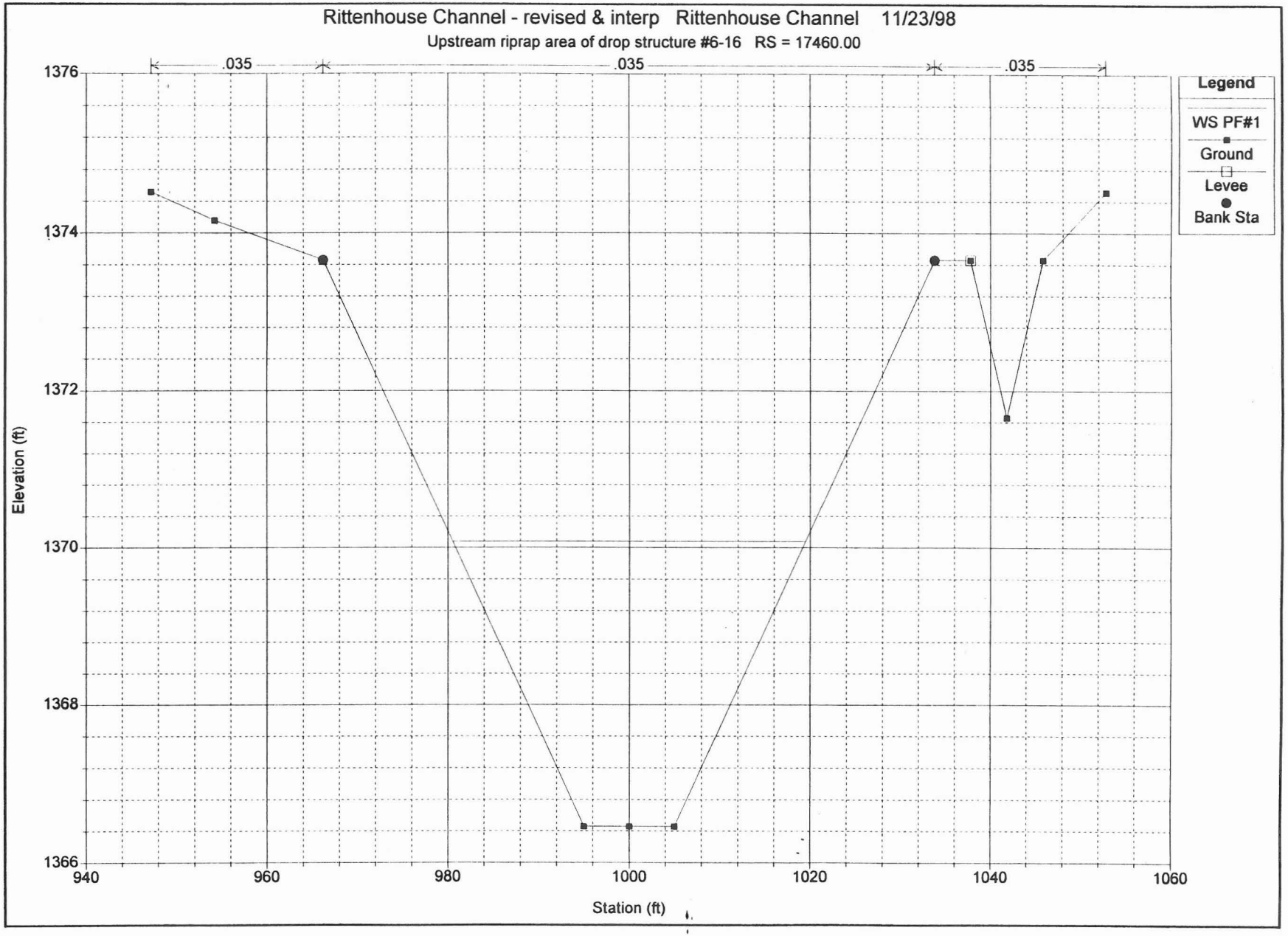

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17203.8*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

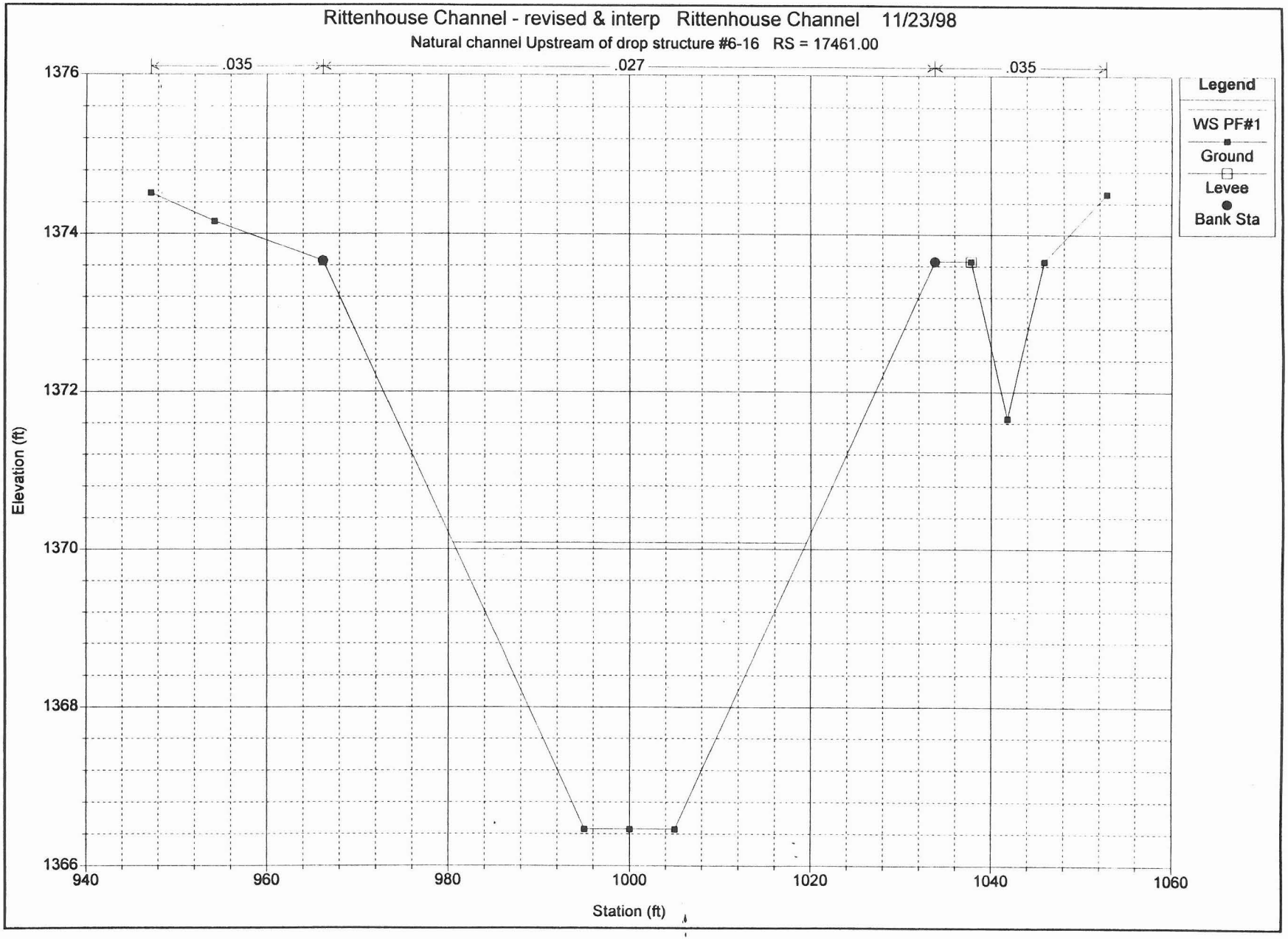

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17296.4*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

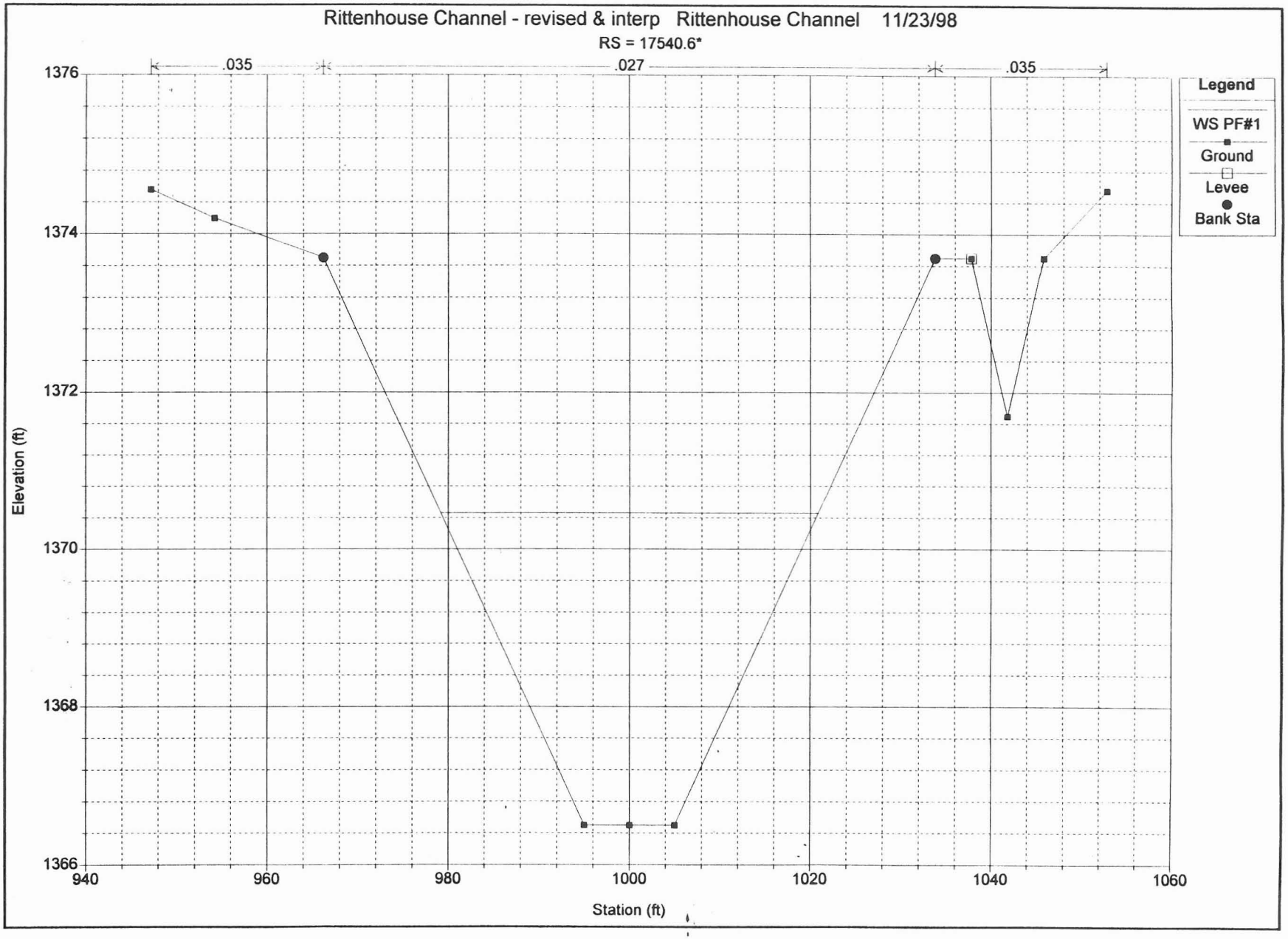

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel downstream of drop structure #6-16 RS = 17389.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

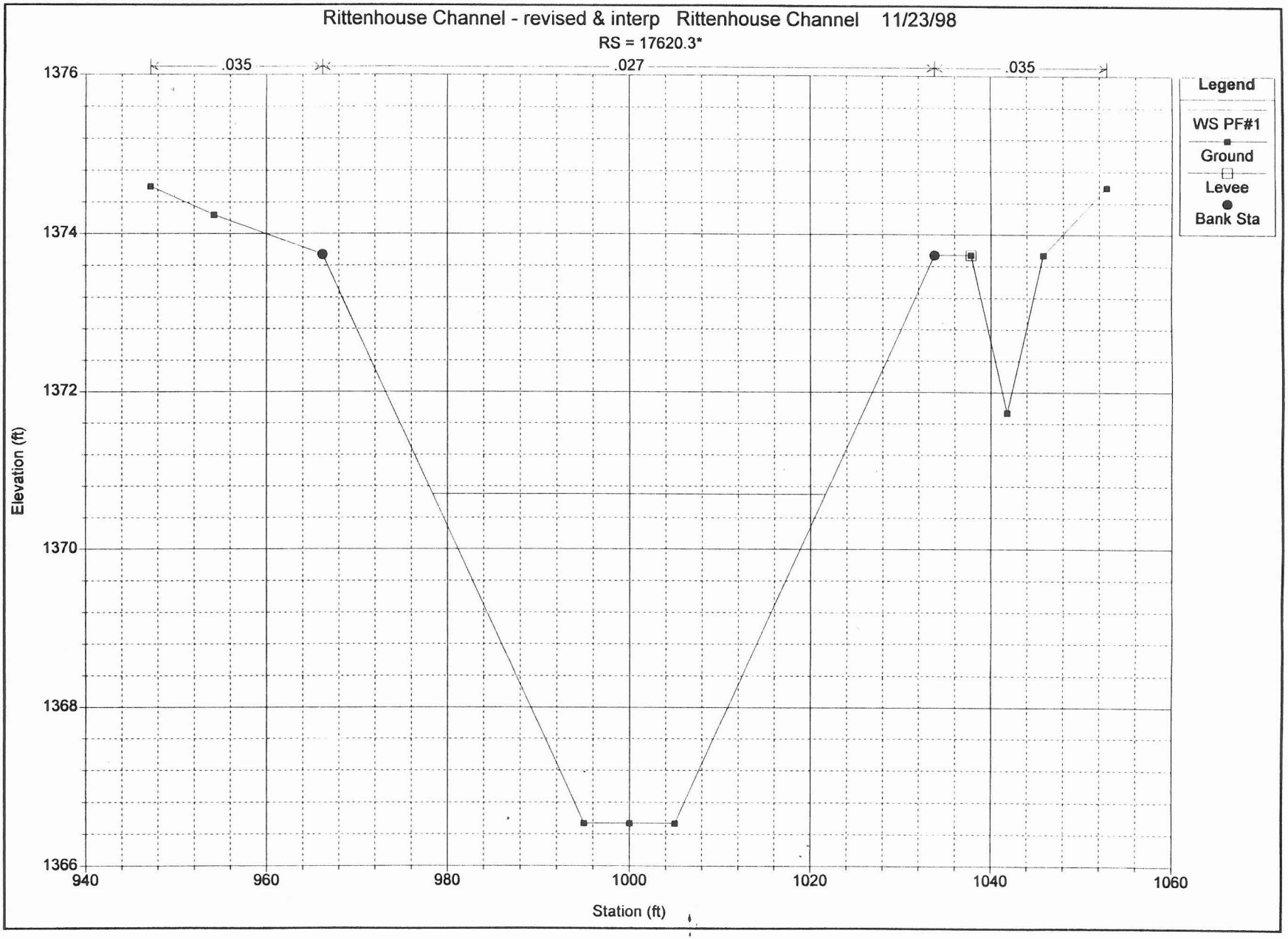

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream riprap area of drop structure #6-16 RS = 17390.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1372
1370
1368
1366
1364
1362
940
960
980
1000
1020
1040
1060
Station (ft)

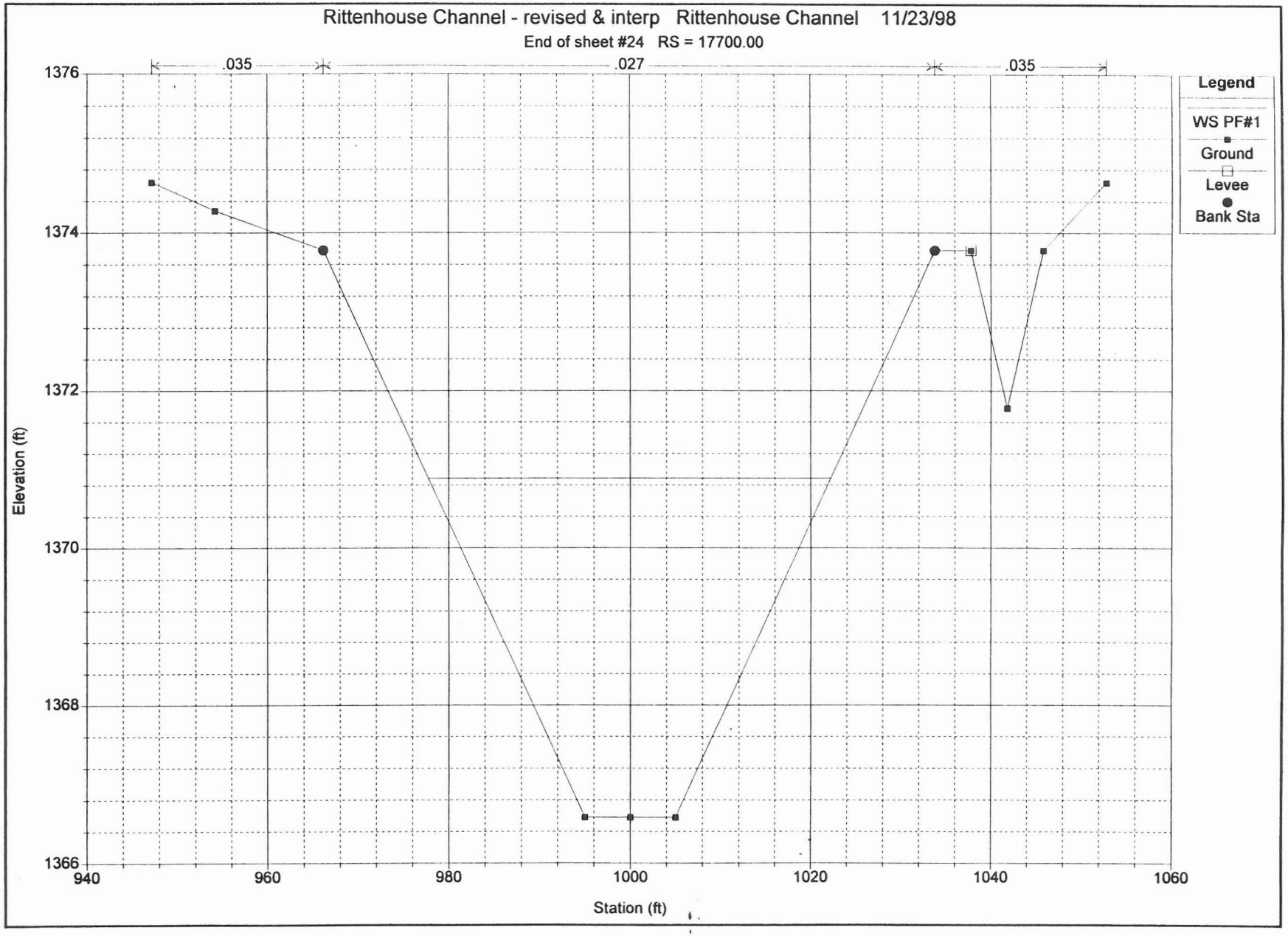

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream of drop structure #6-16 RS = 17440.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

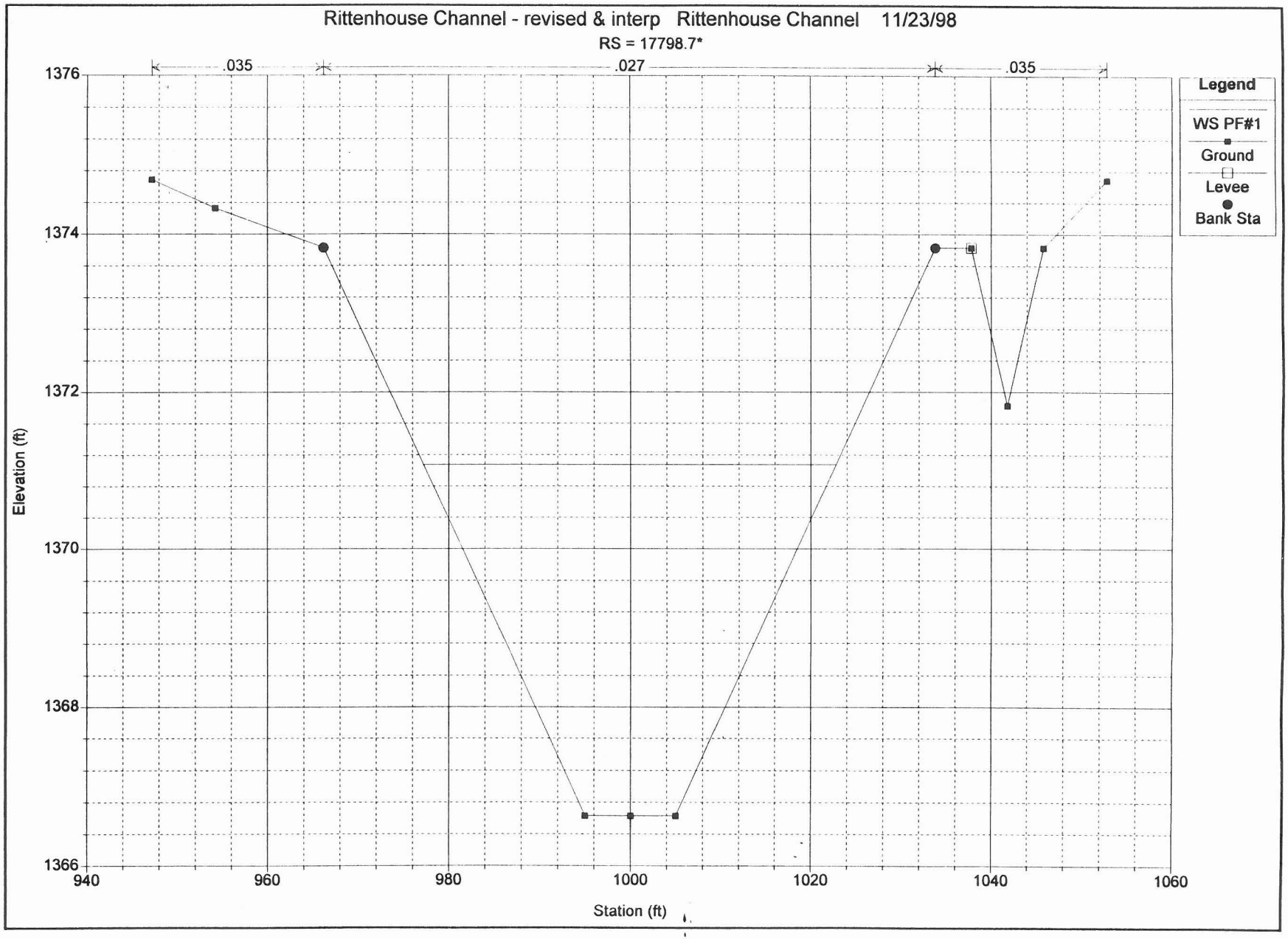

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream riprap area of drop structure #6-16 RS = 17460.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

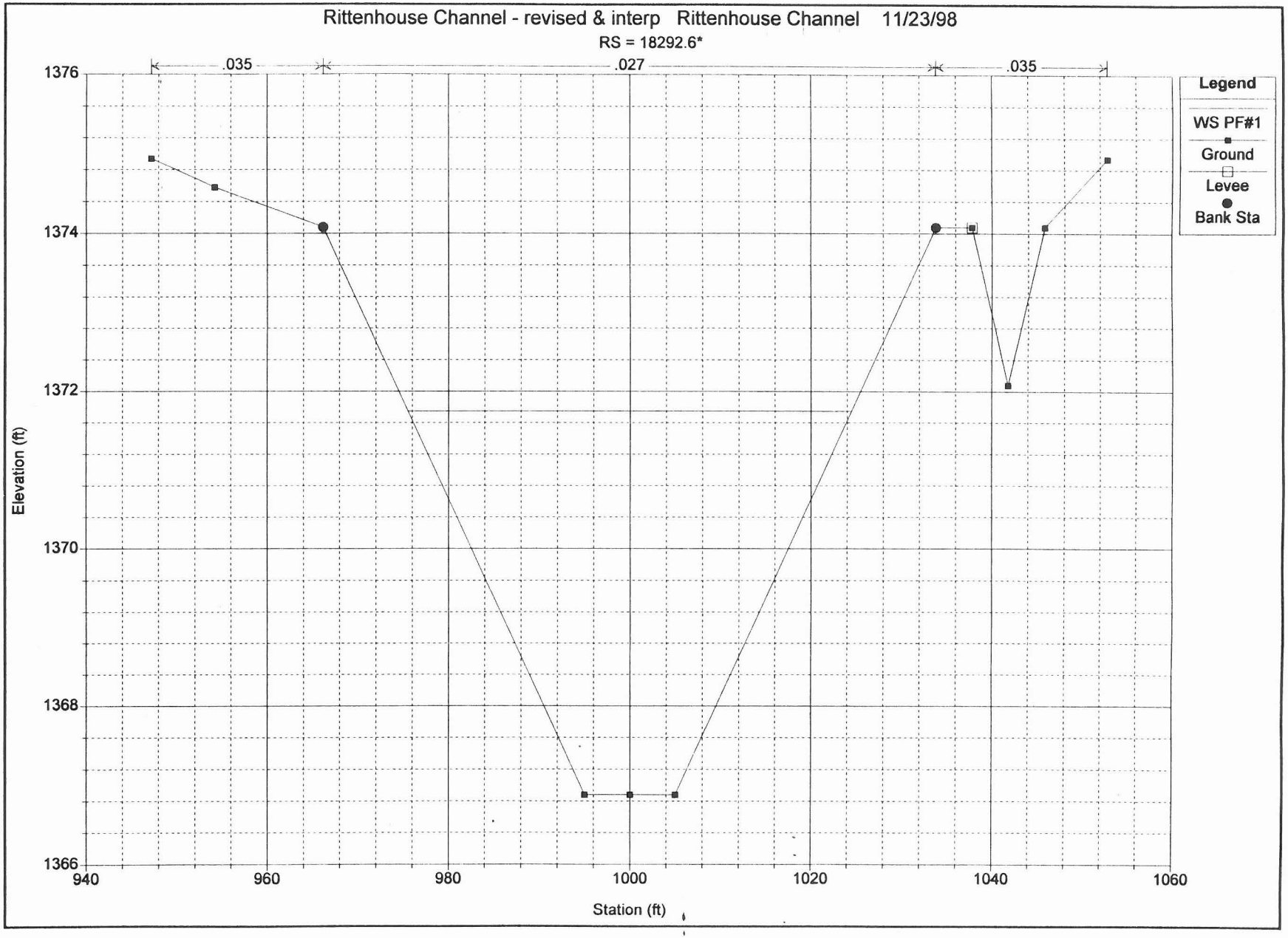

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel Upstream of drop structure #6-16 RS = 17461.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

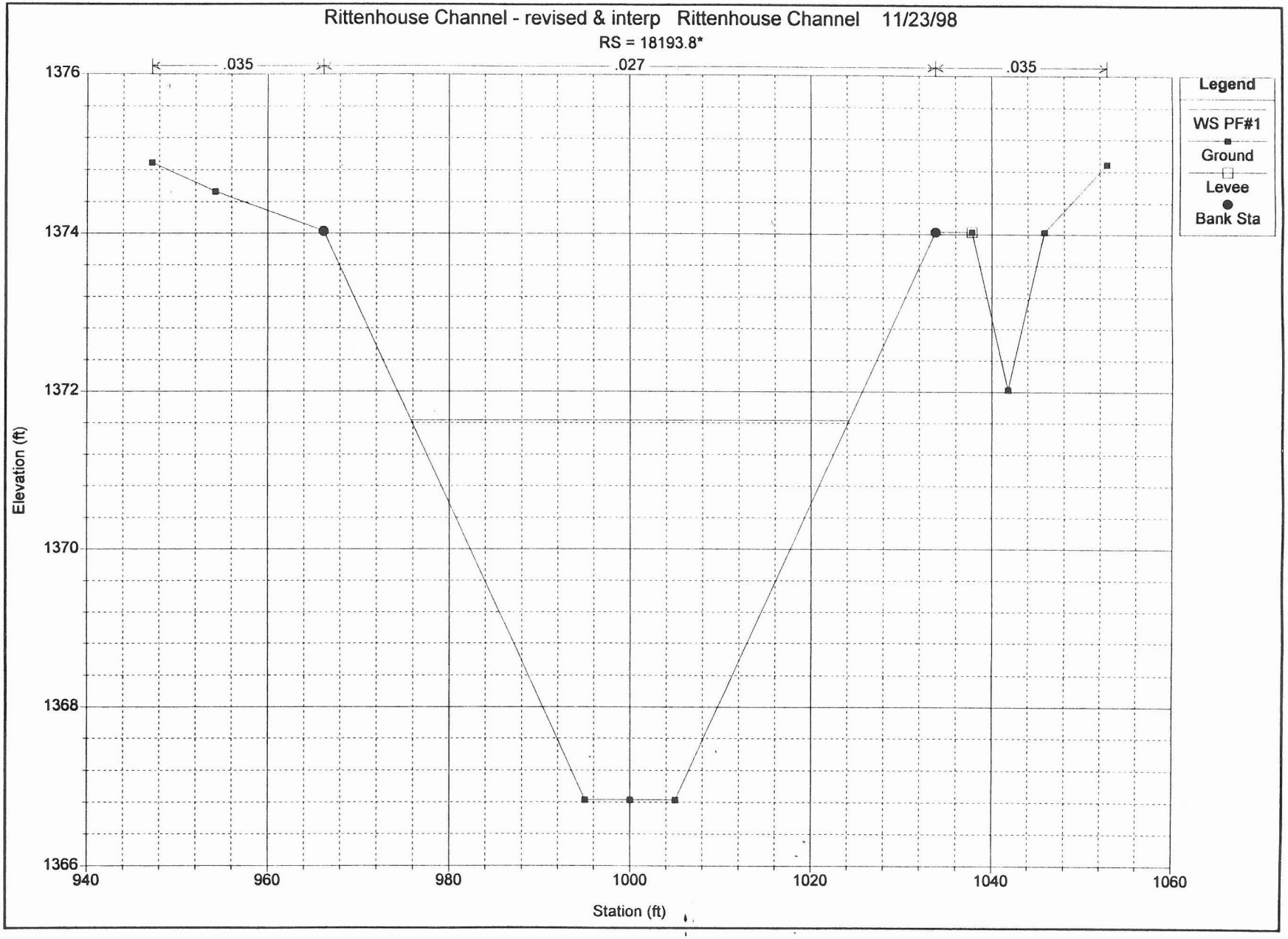

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17540.6*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

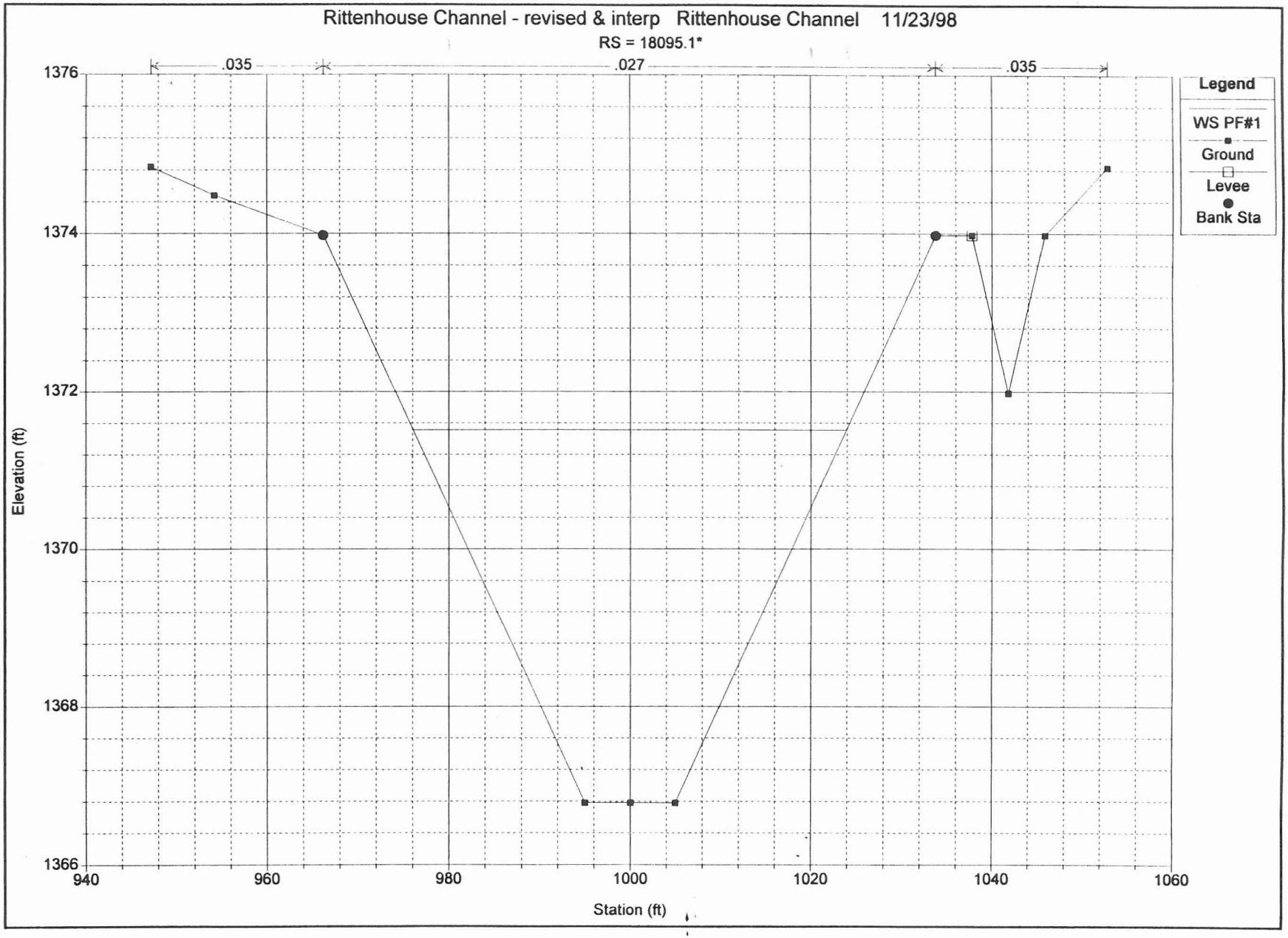

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17620.3*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

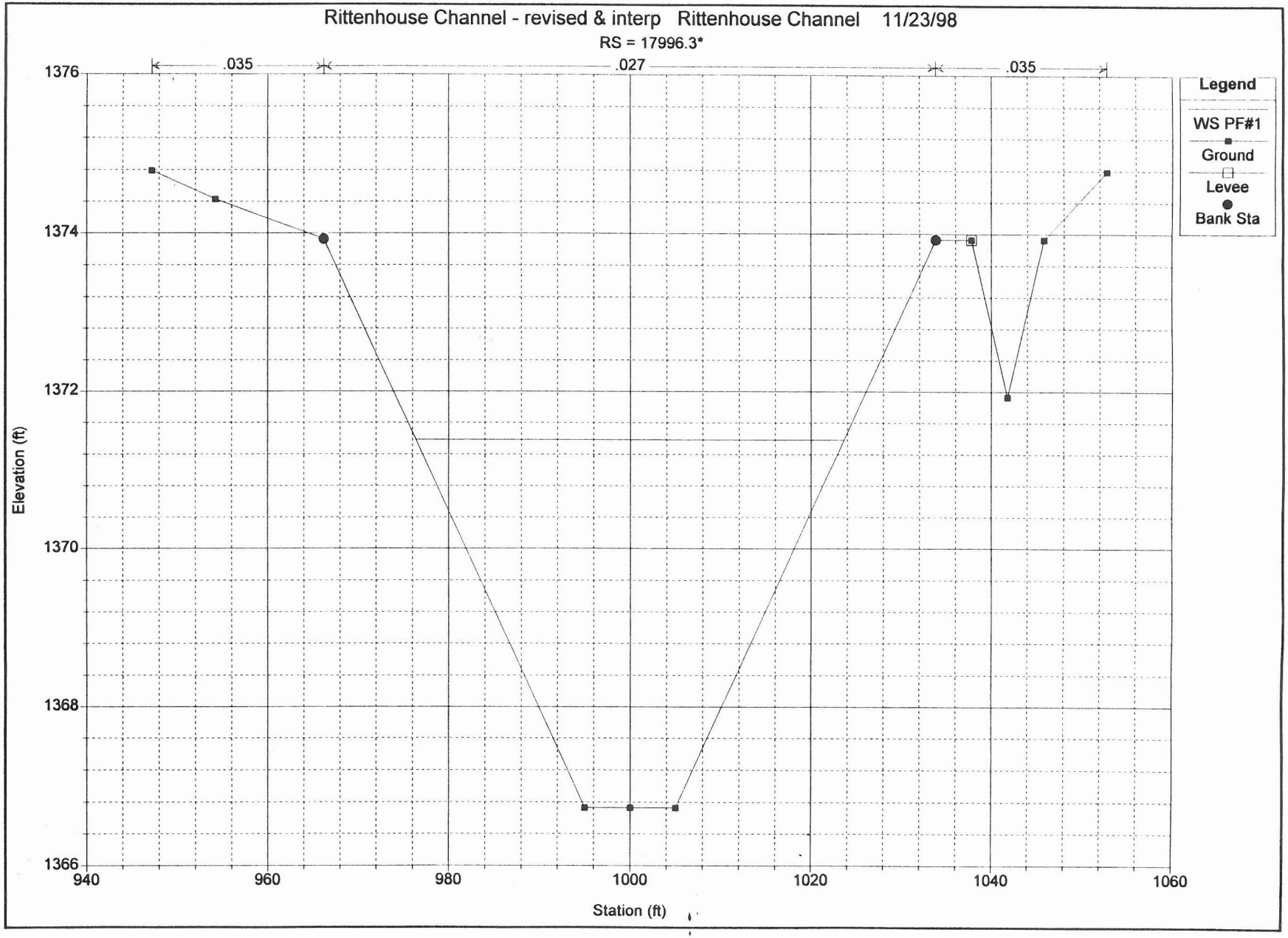

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
End of sheet #24 RS = 17700.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

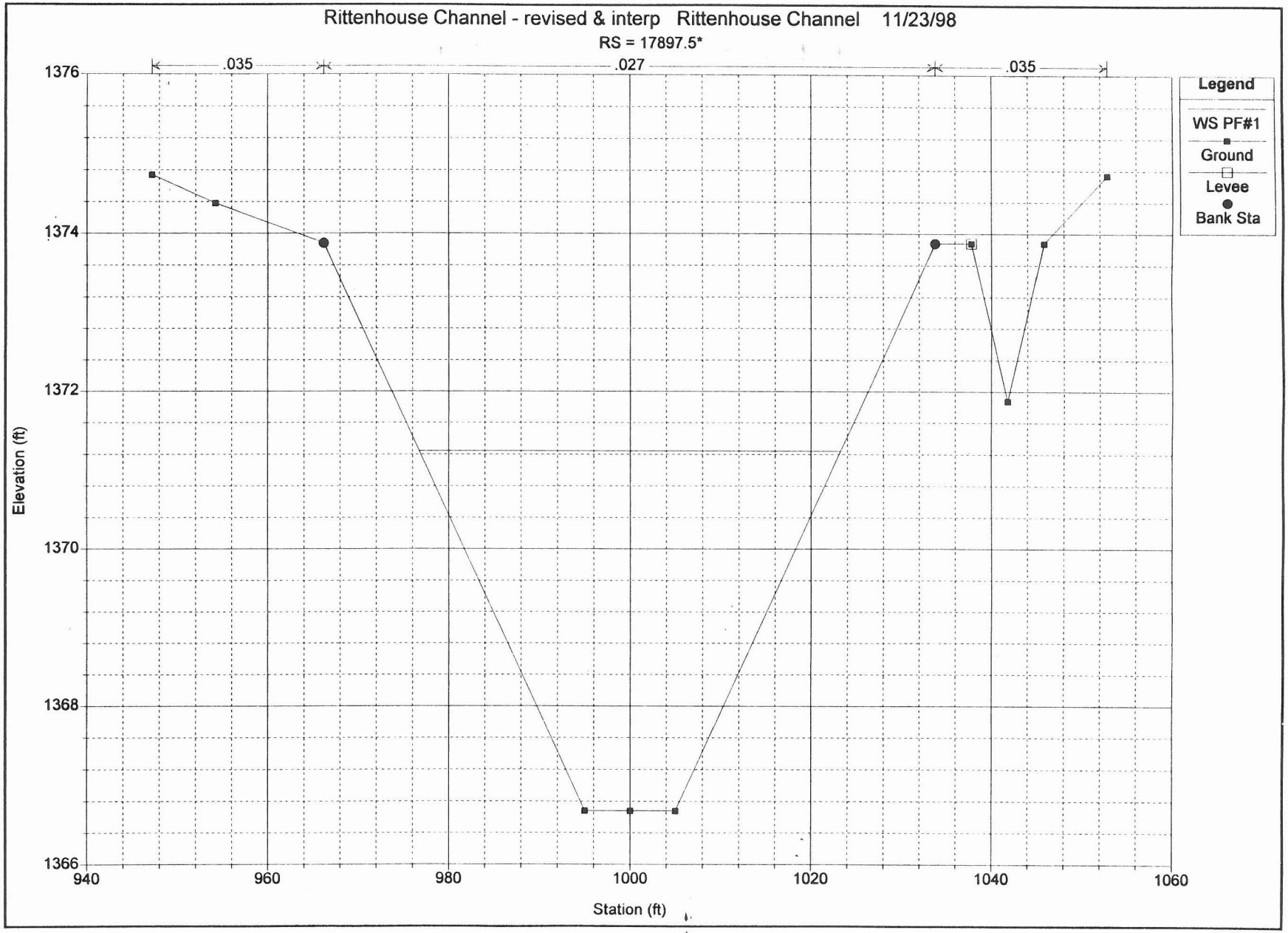

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17798.7*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1376
1374
1372
1370
1368
1366
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

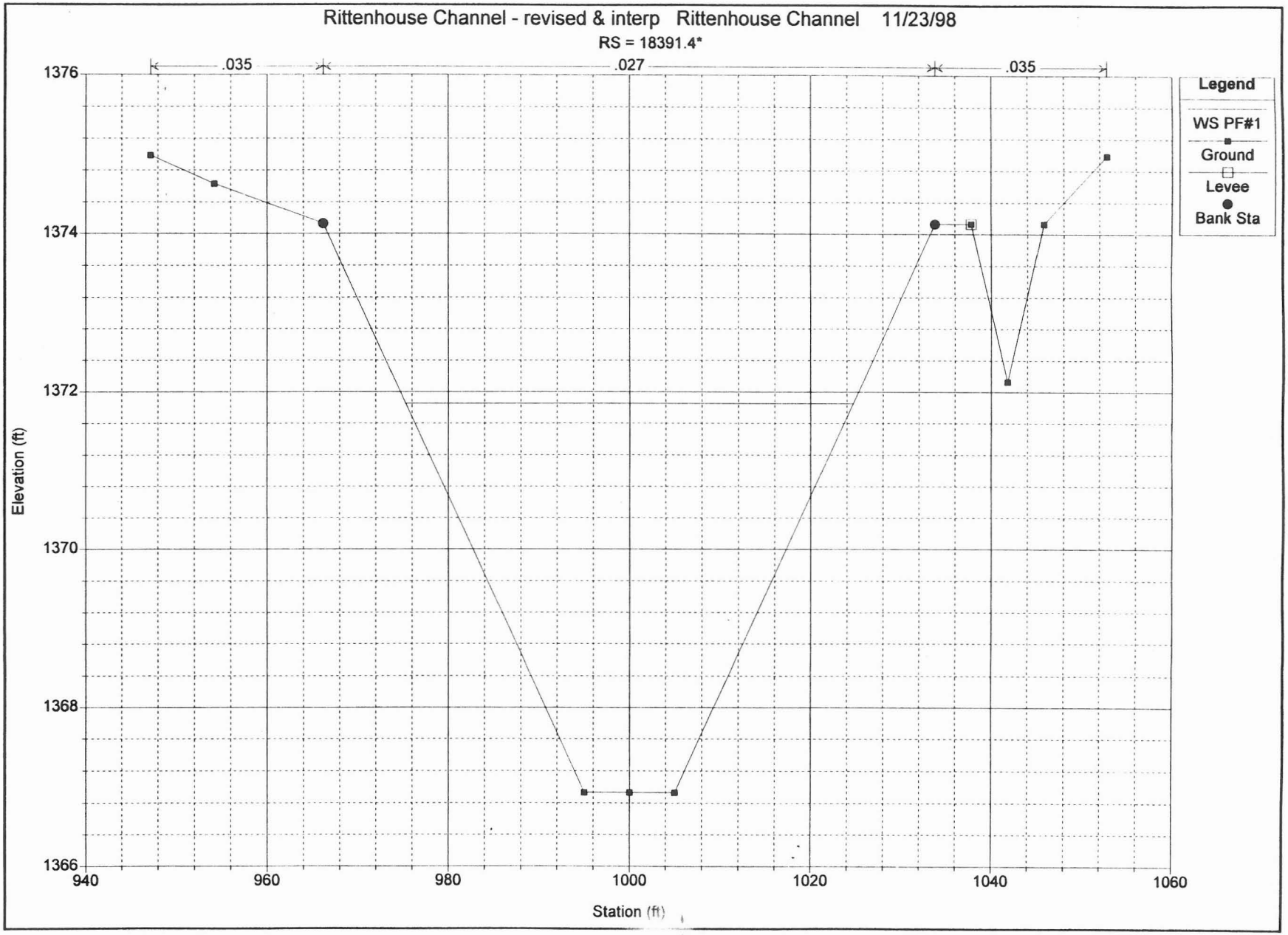

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18292.6*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

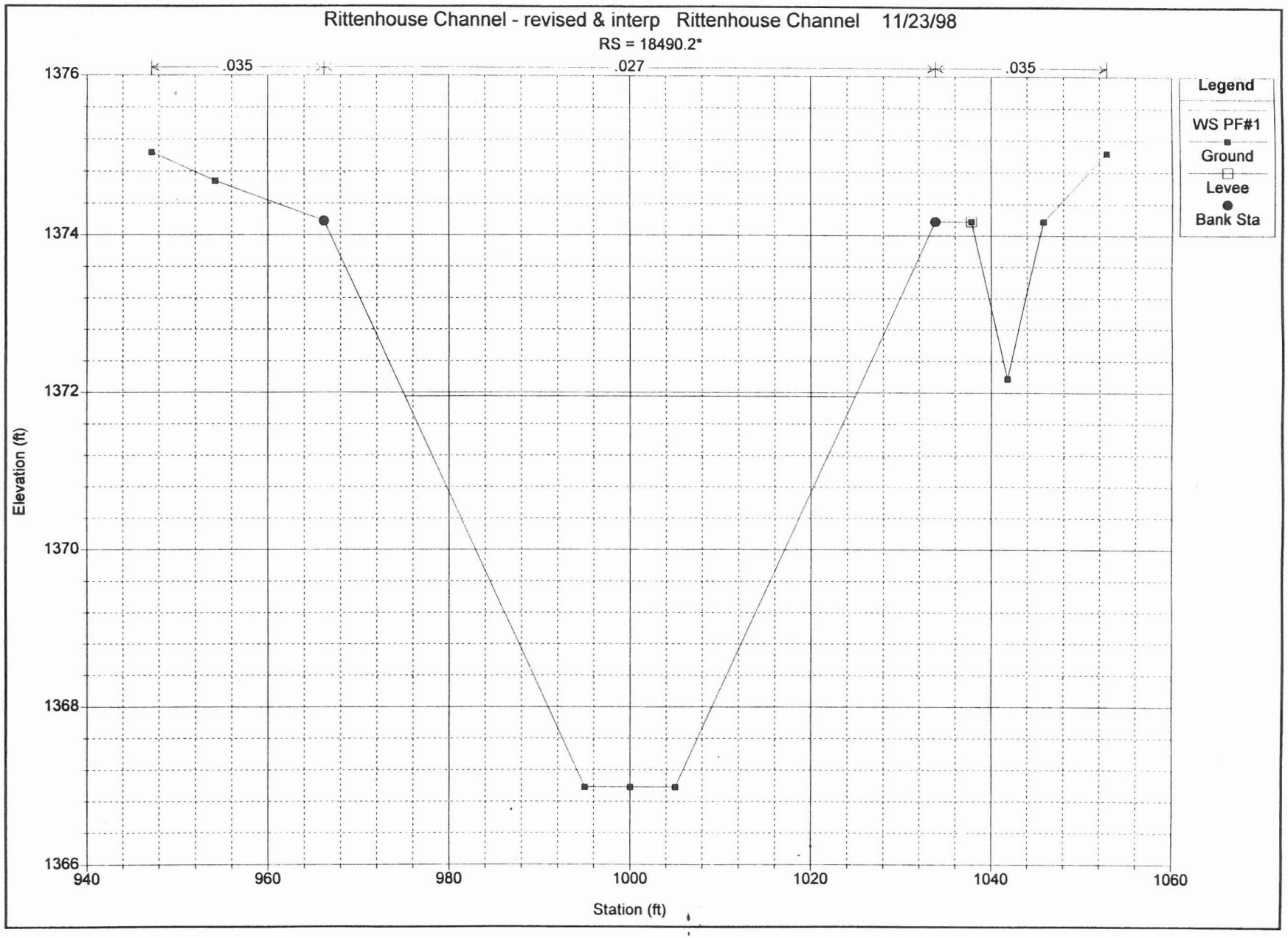

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18193.8*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

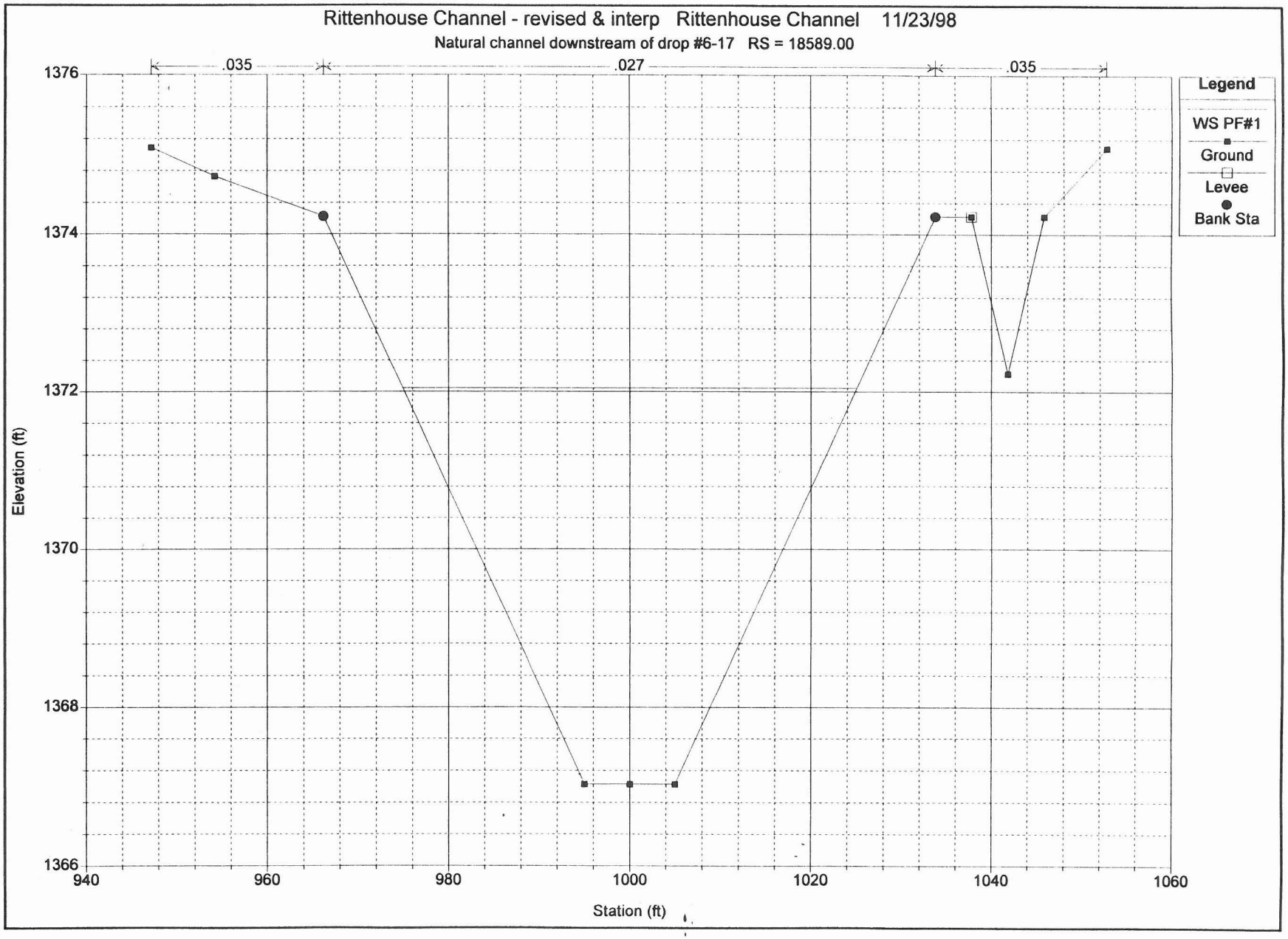

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18095.1*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

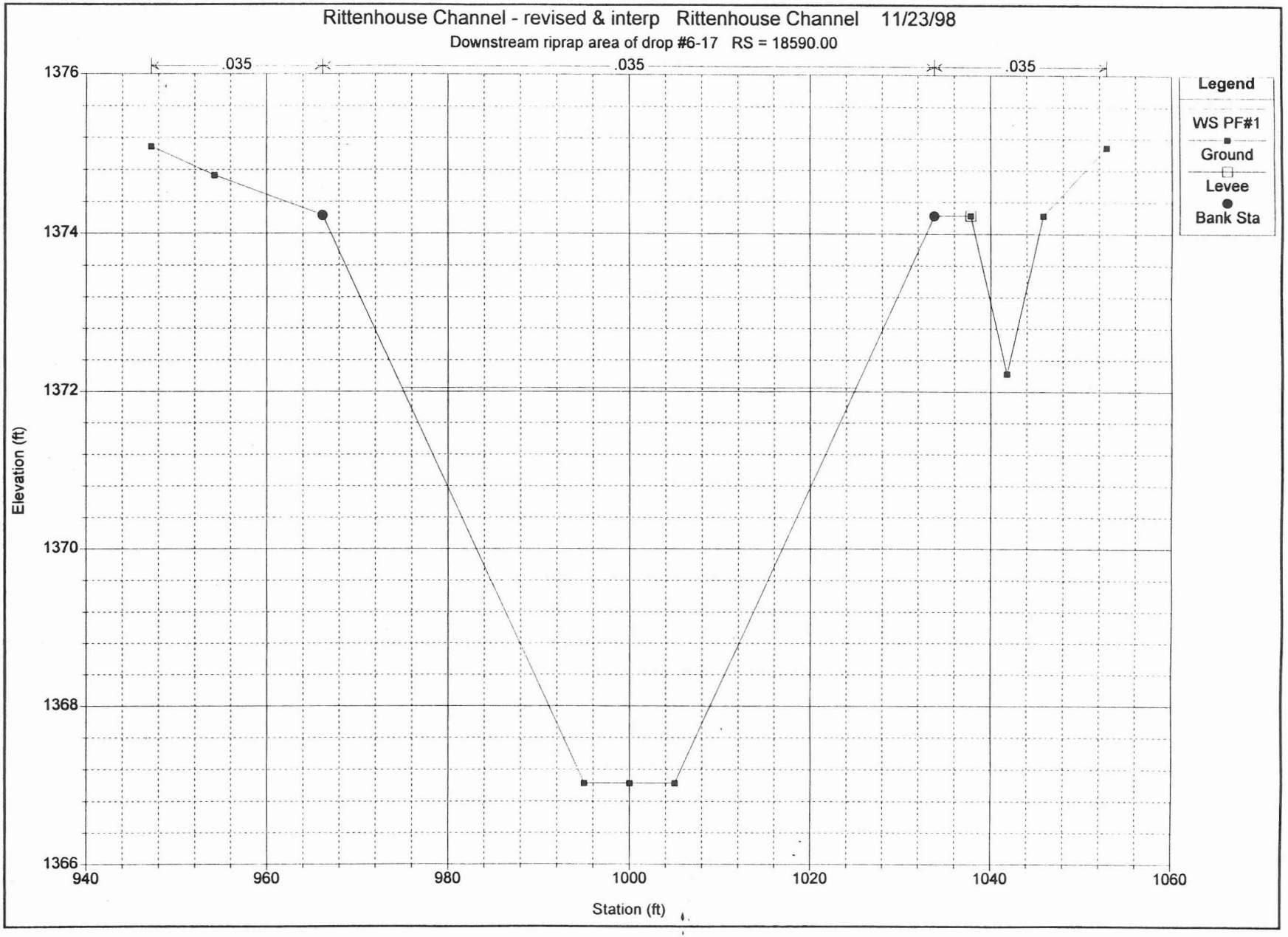

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17996.3*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

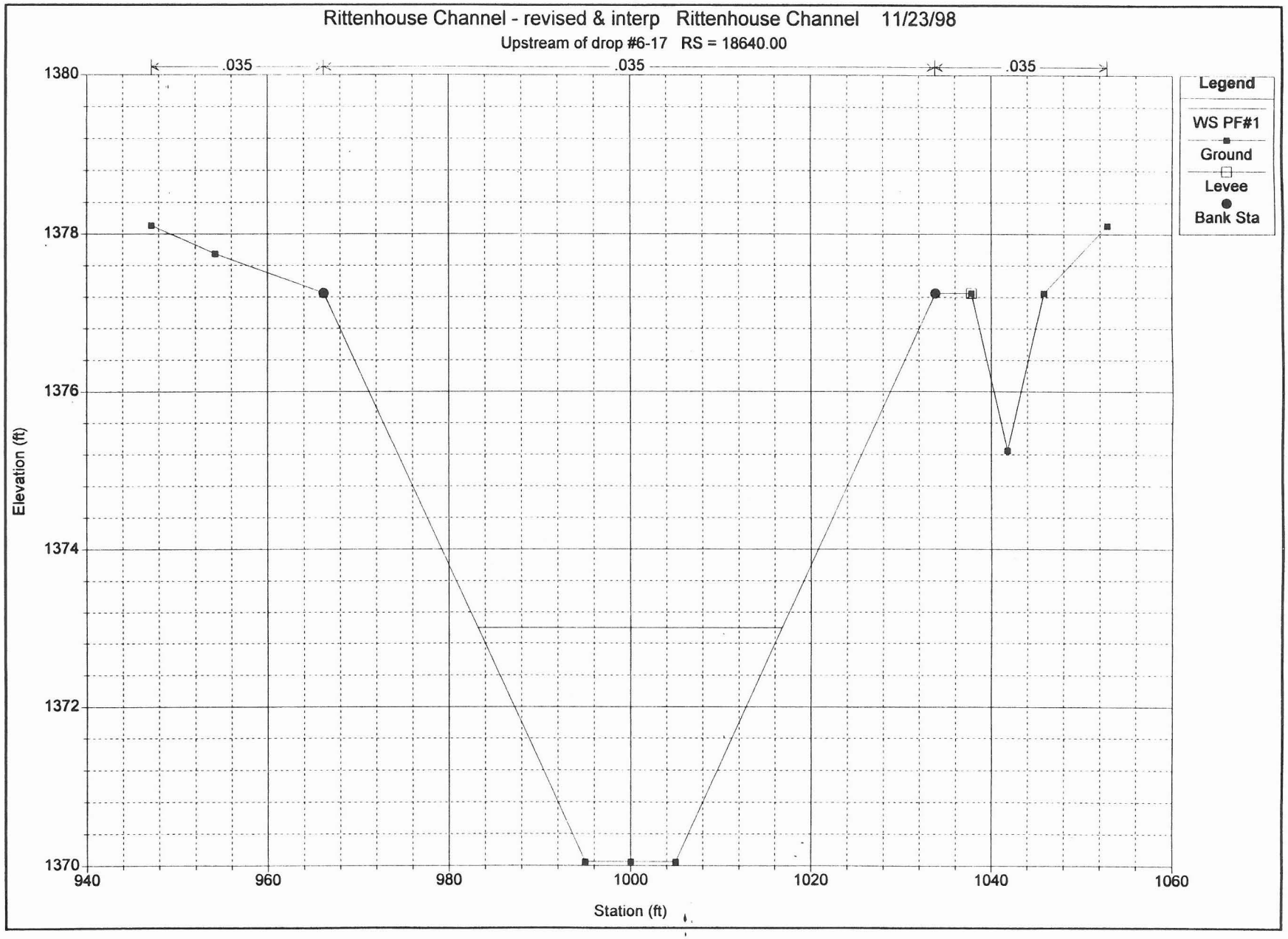

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 17897.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

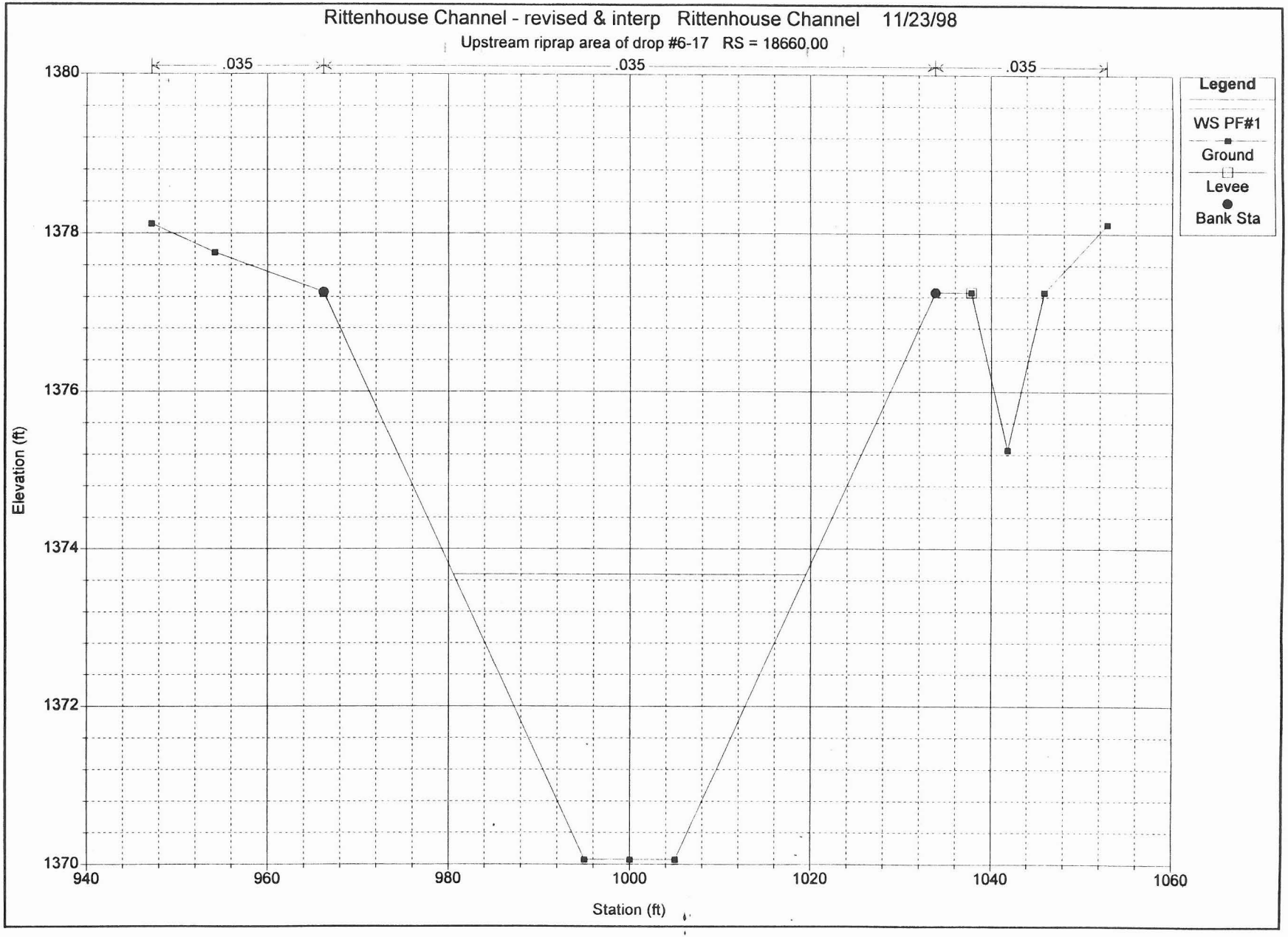

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18391.4*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

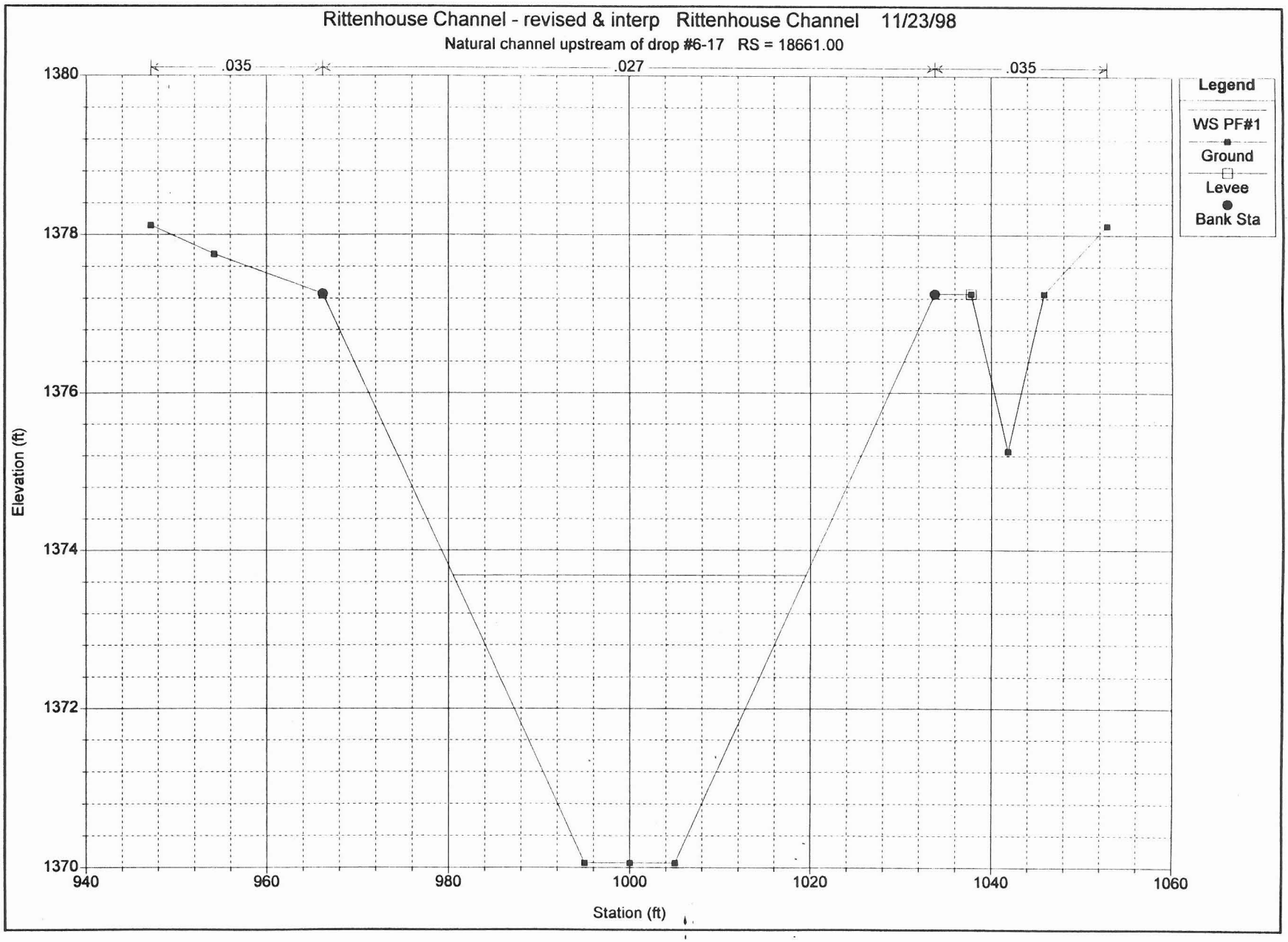

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18490.2*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

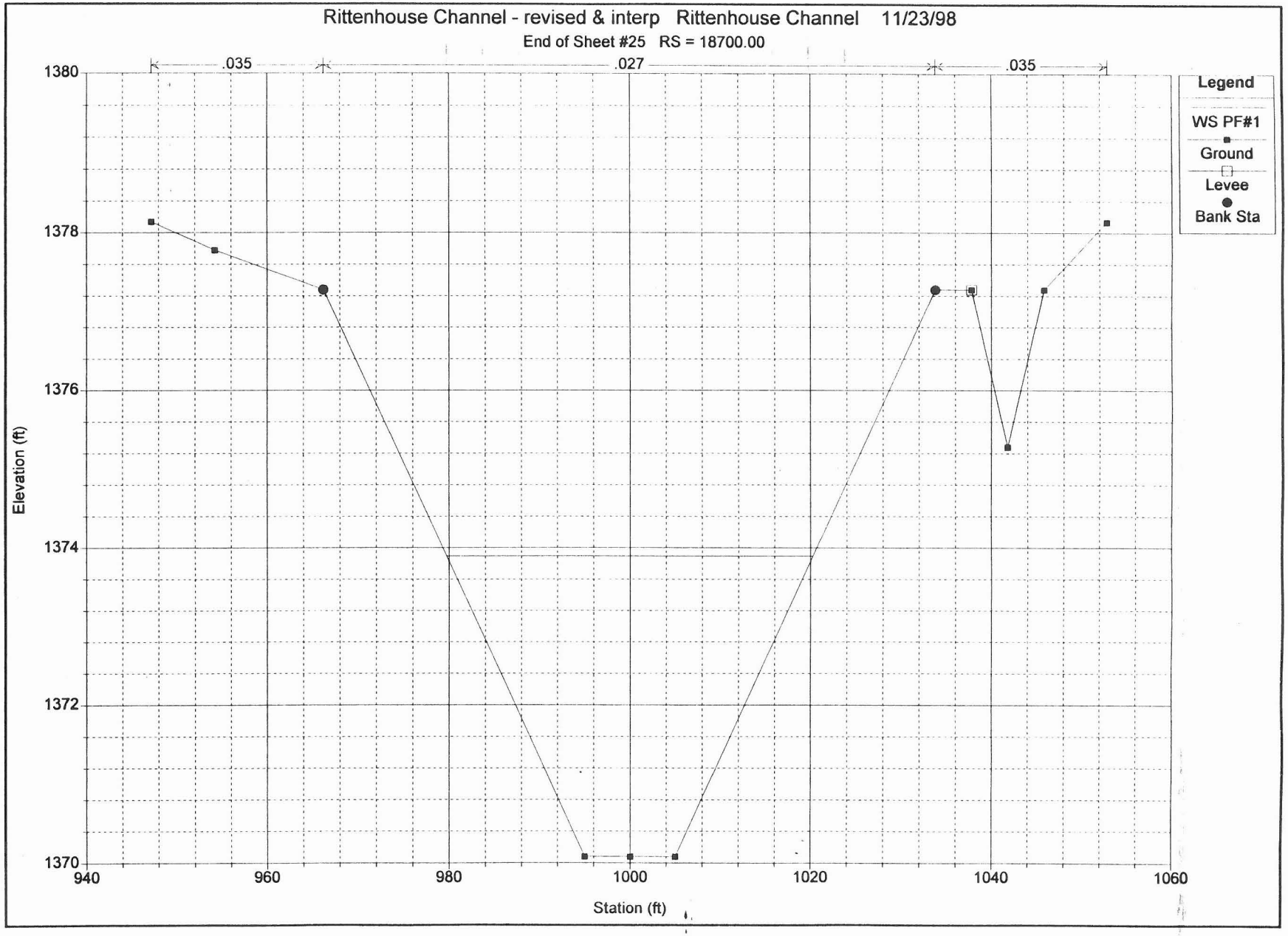

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel downstream of drop #6-17 RS = 18589.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

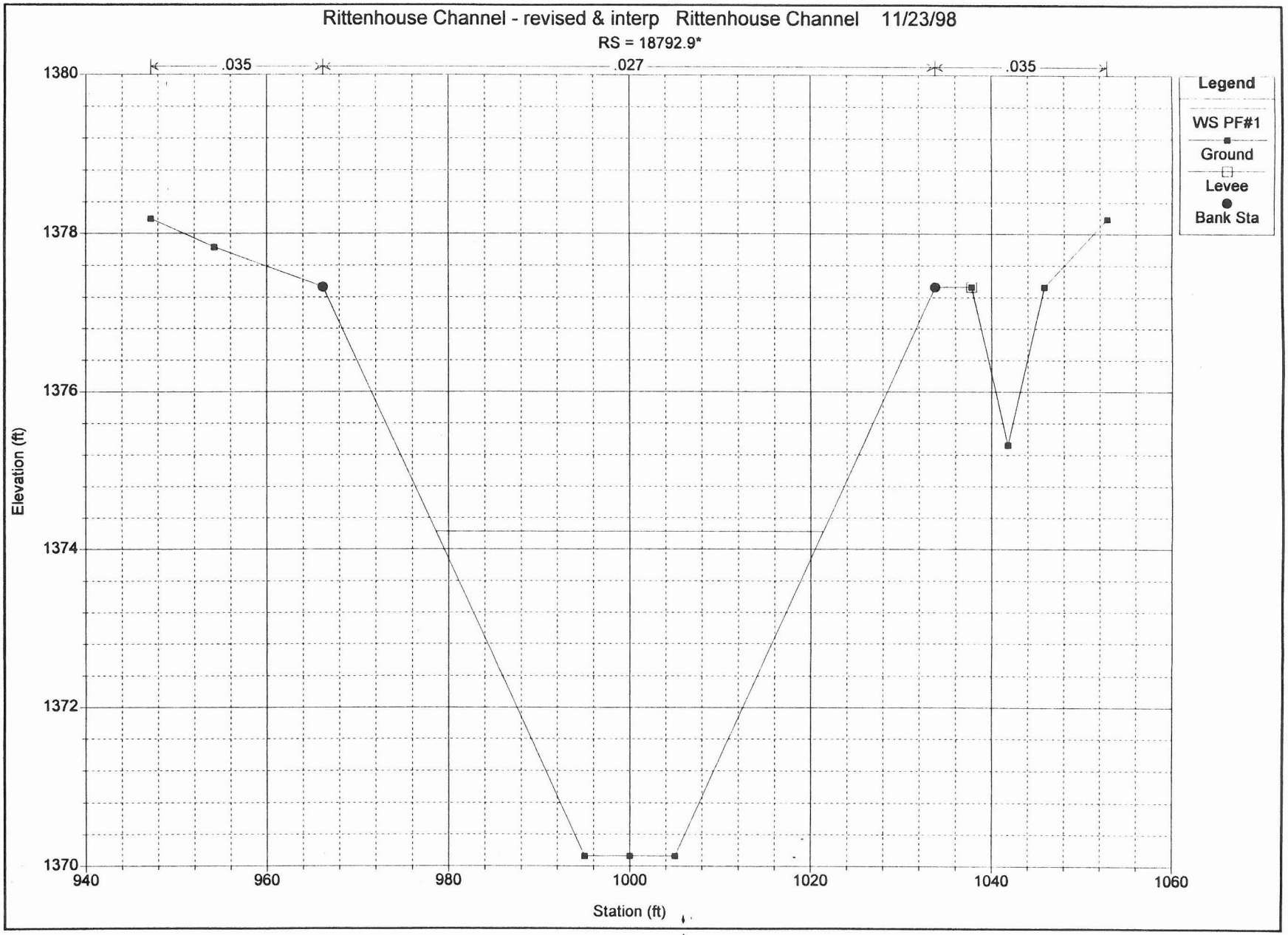

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream riprap area of drop #6-17 RS = 18590.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
940
960
980
1000
1020
1040
1060
Station (ft)

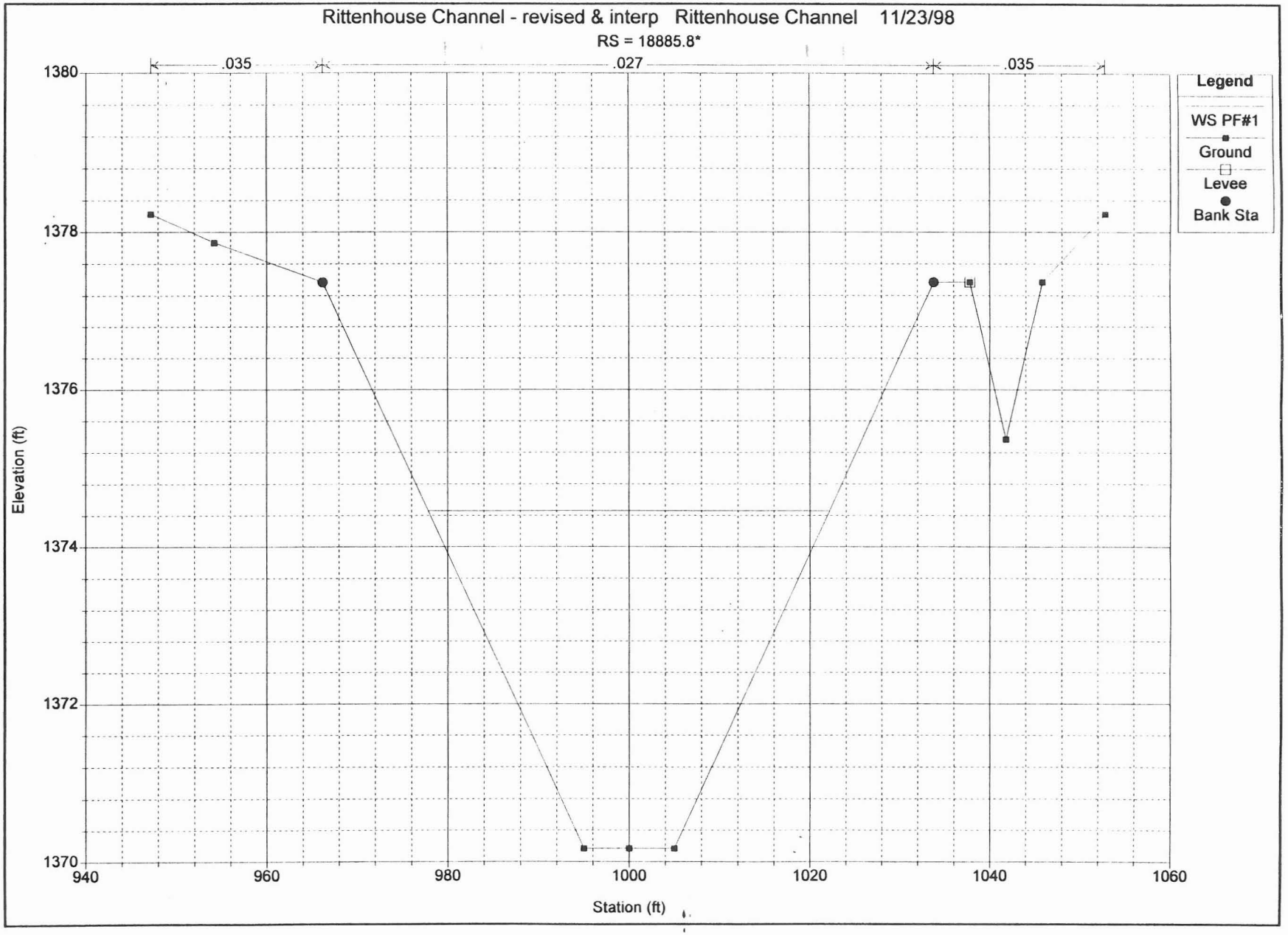

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream of drop #6-17 RS = 18640.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1380
1378
1376
1374
1372
1370
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

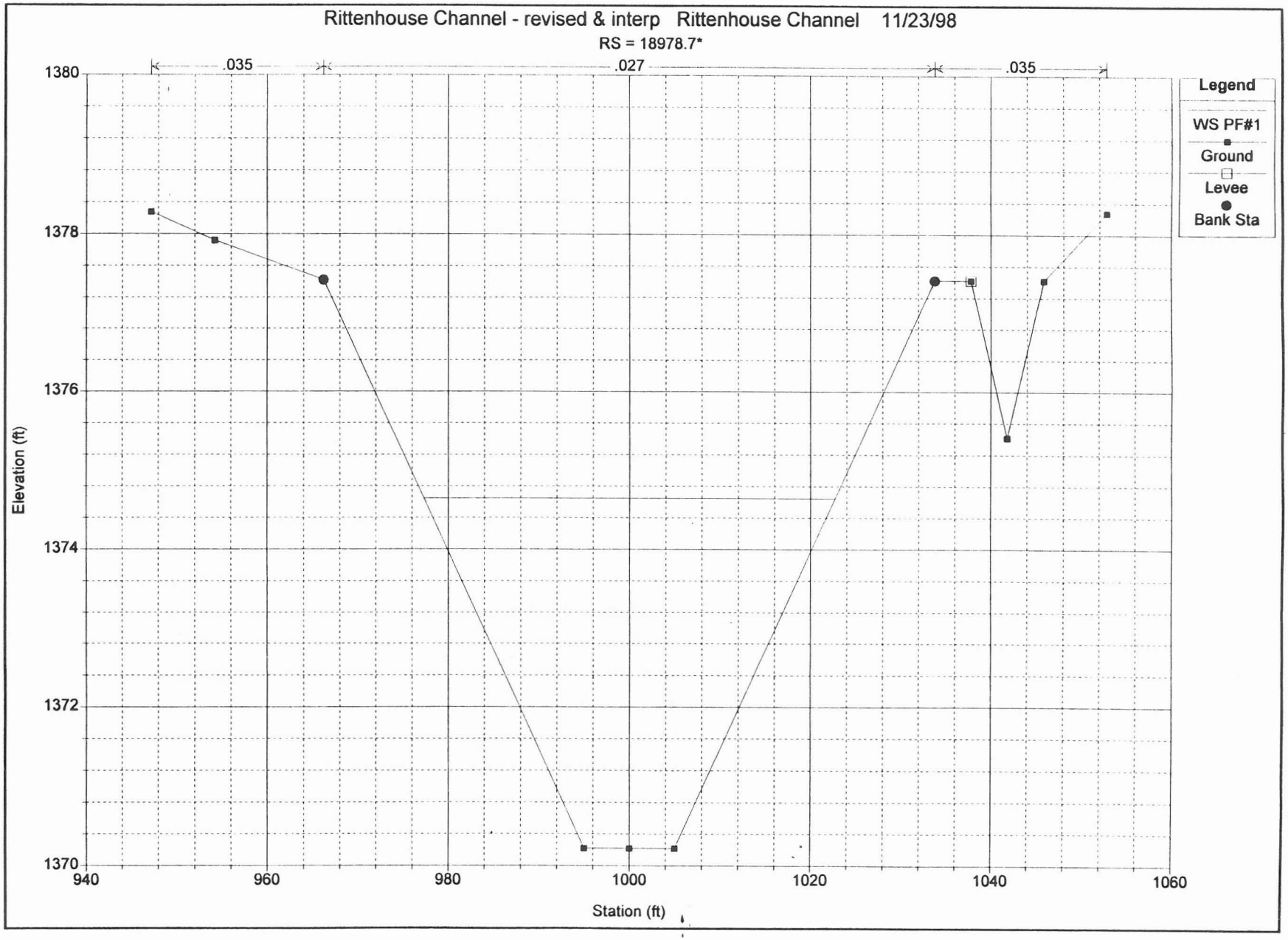

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream riprap area of drop #6-17 RS = 18660.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

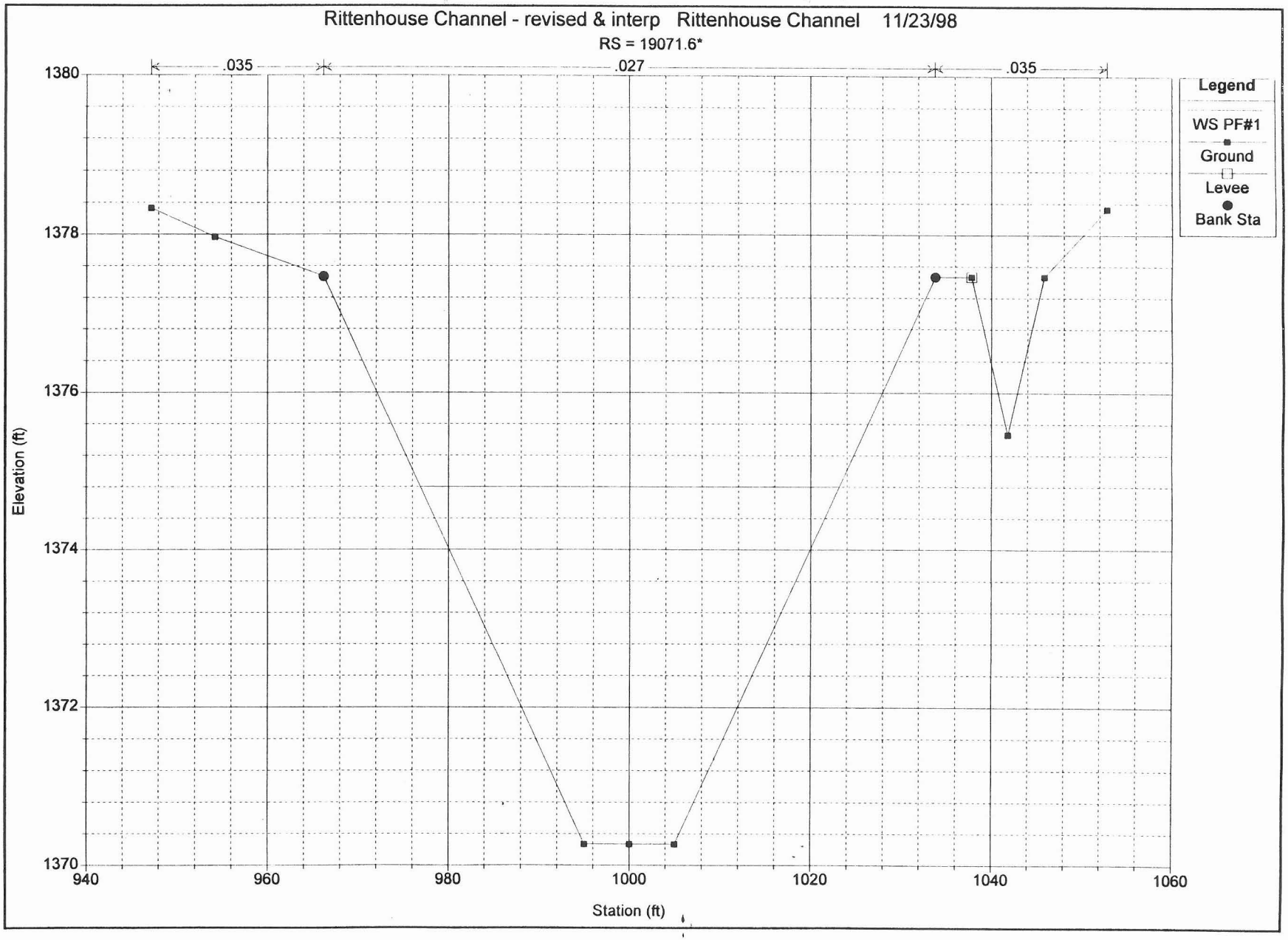

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel upstream of drop #6-17 RS = 18661.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

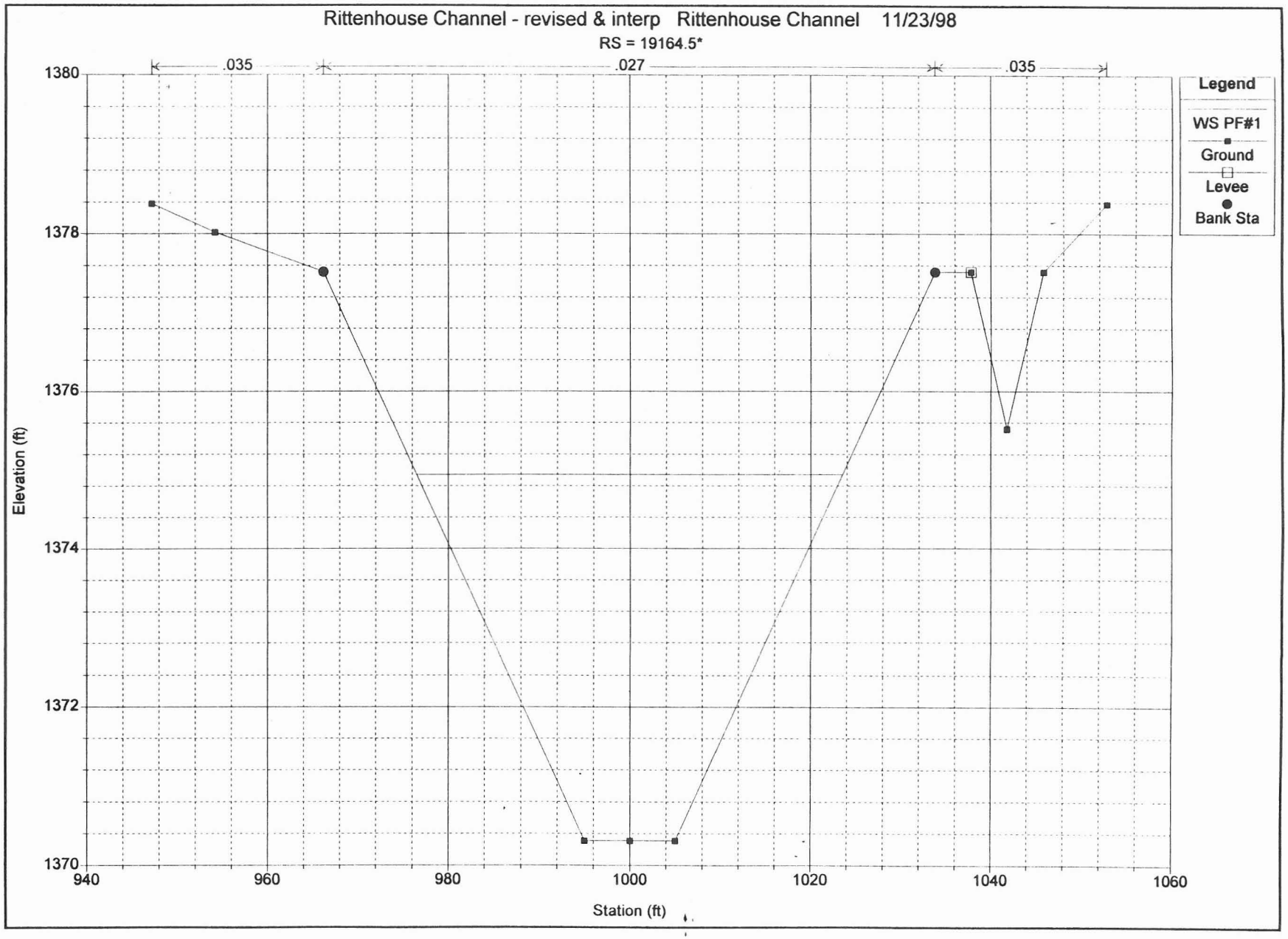

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
End of Sheet #25 RS = 18700.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1380
1378
1376
1374
1372
1370
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

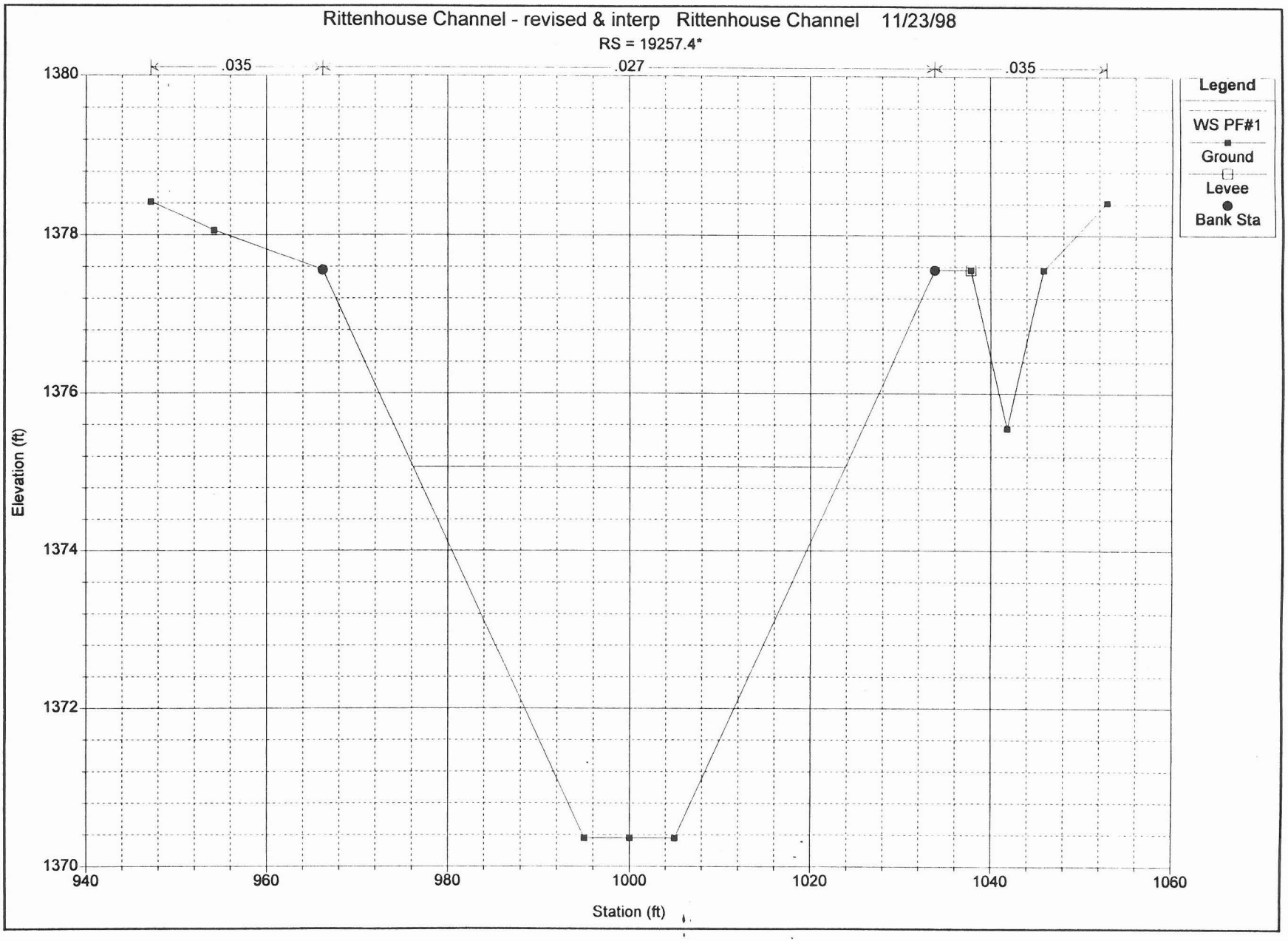

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18792.9*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1380
1378
1376
1374
1372
1370
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

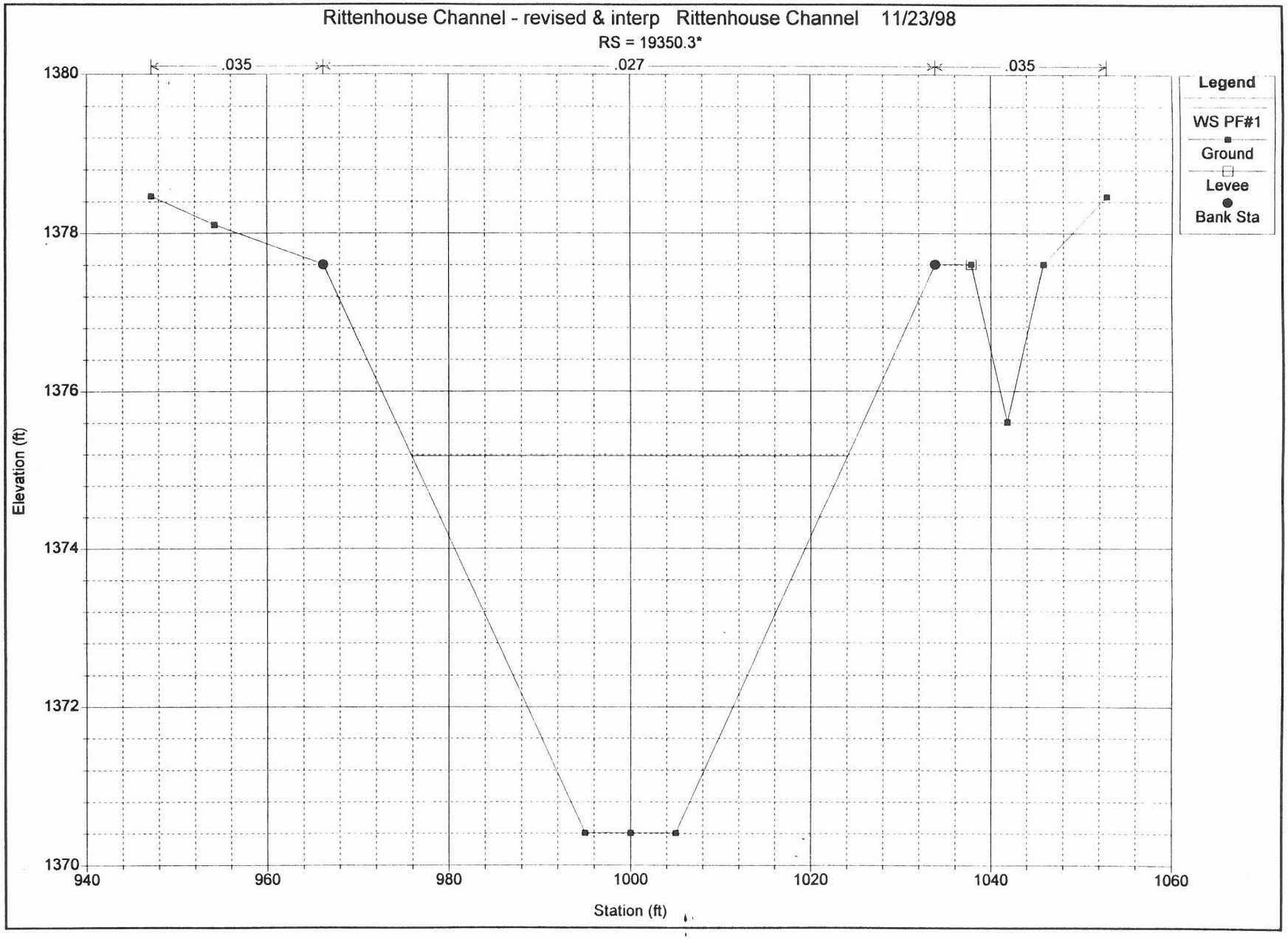

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18885.8*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1380
1378
1376
1374
1372
1370
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

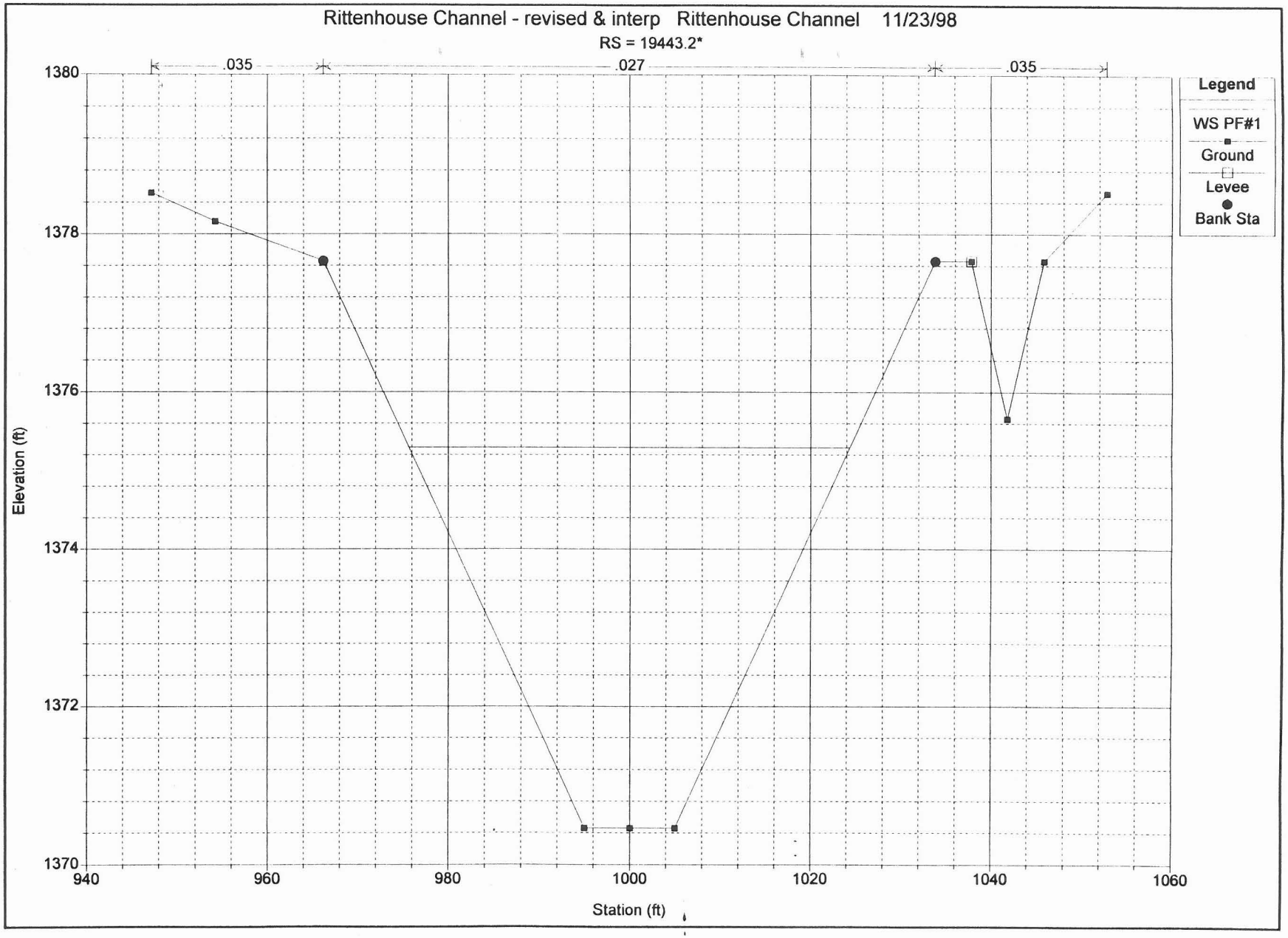

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 18978.7*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

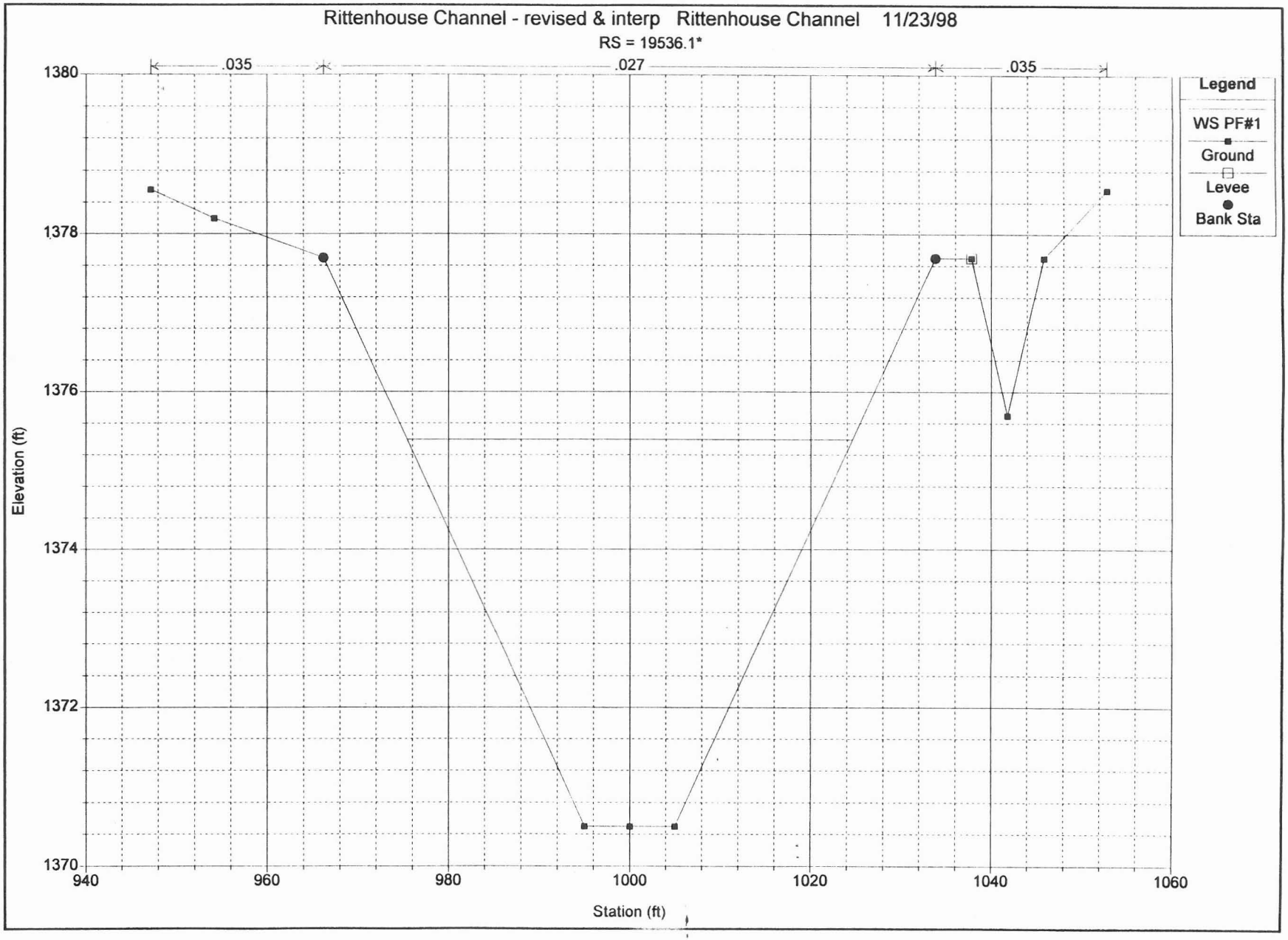

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19071.6*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

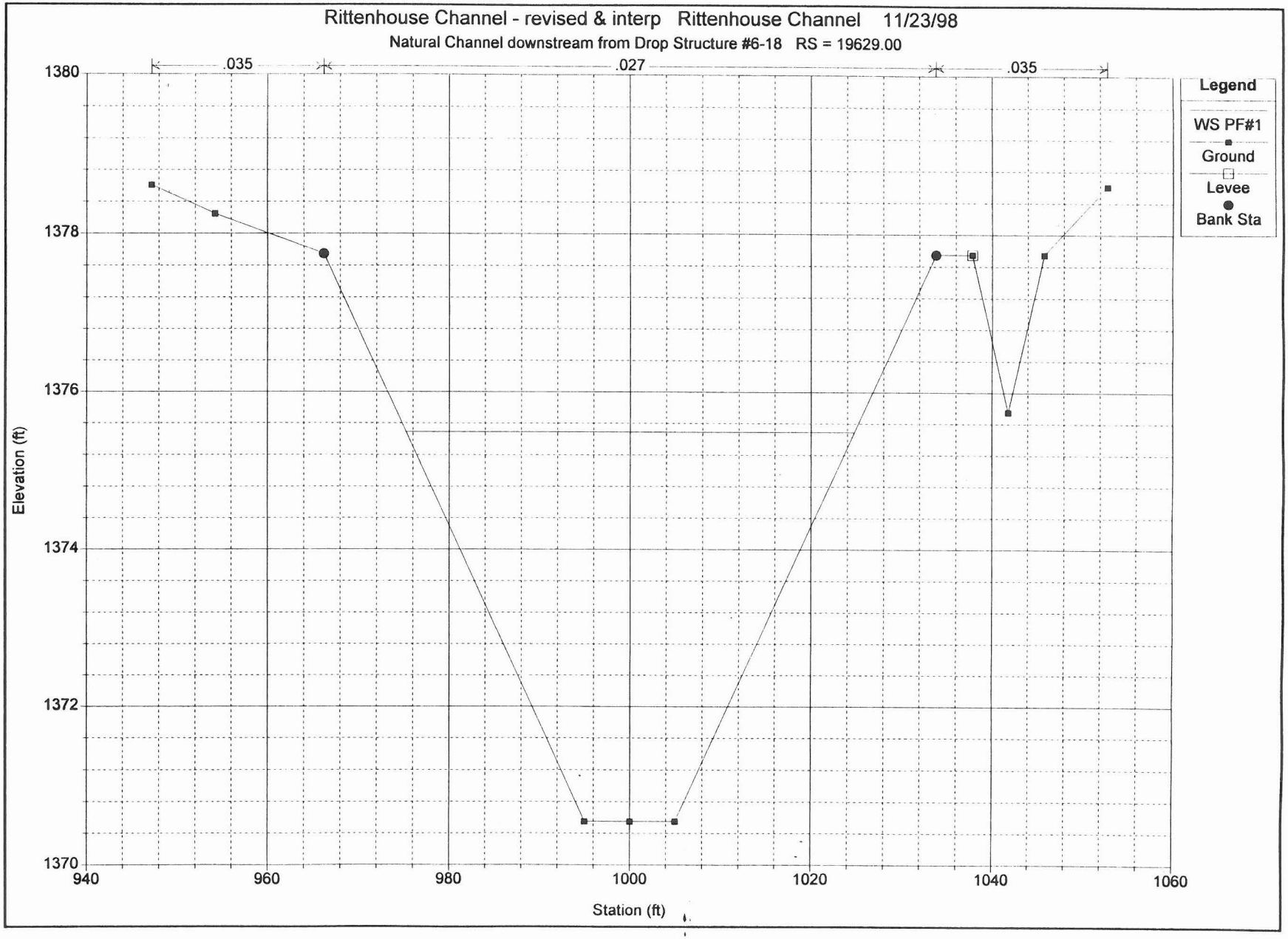

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19164.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

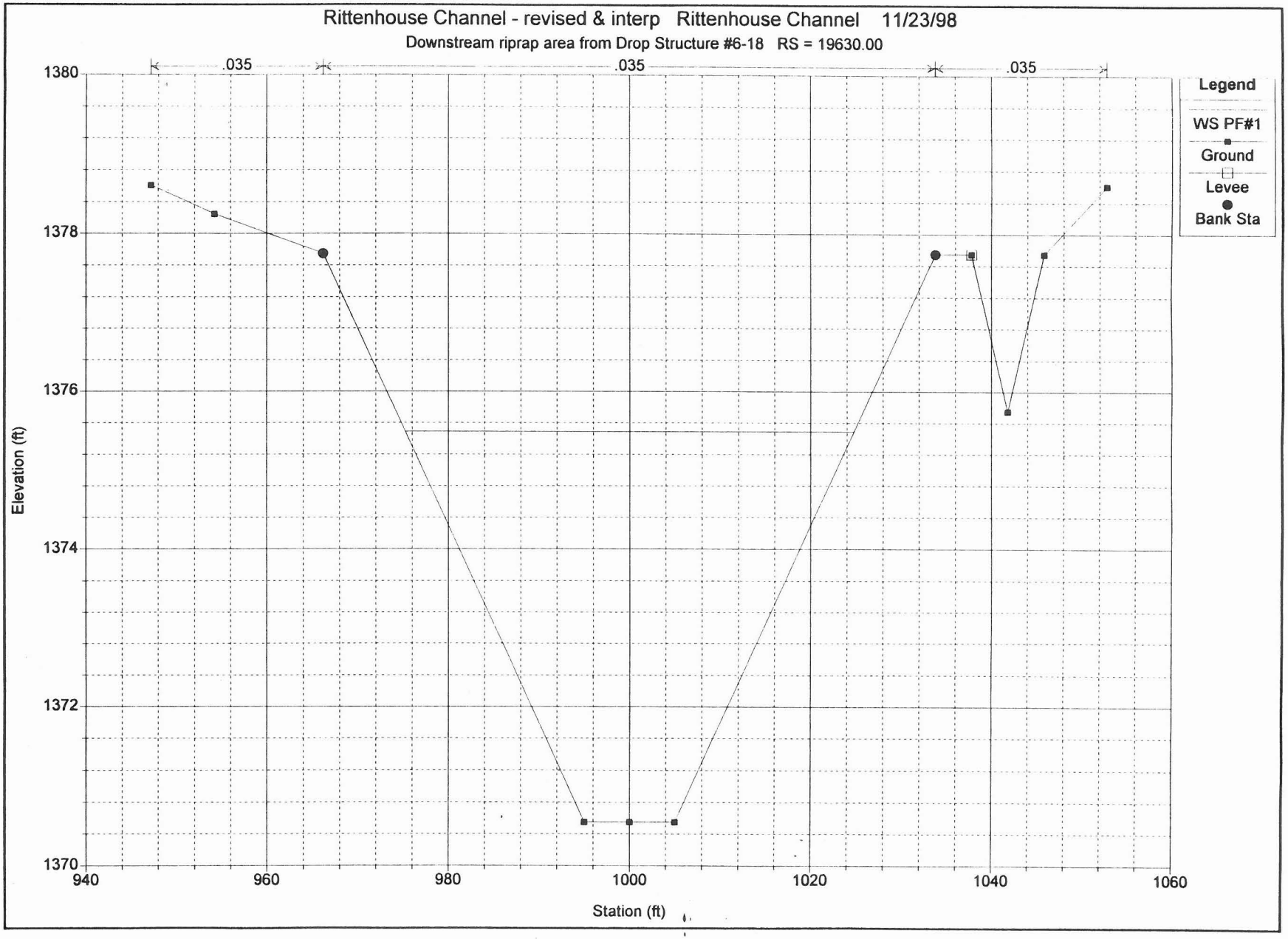

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19257.4*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

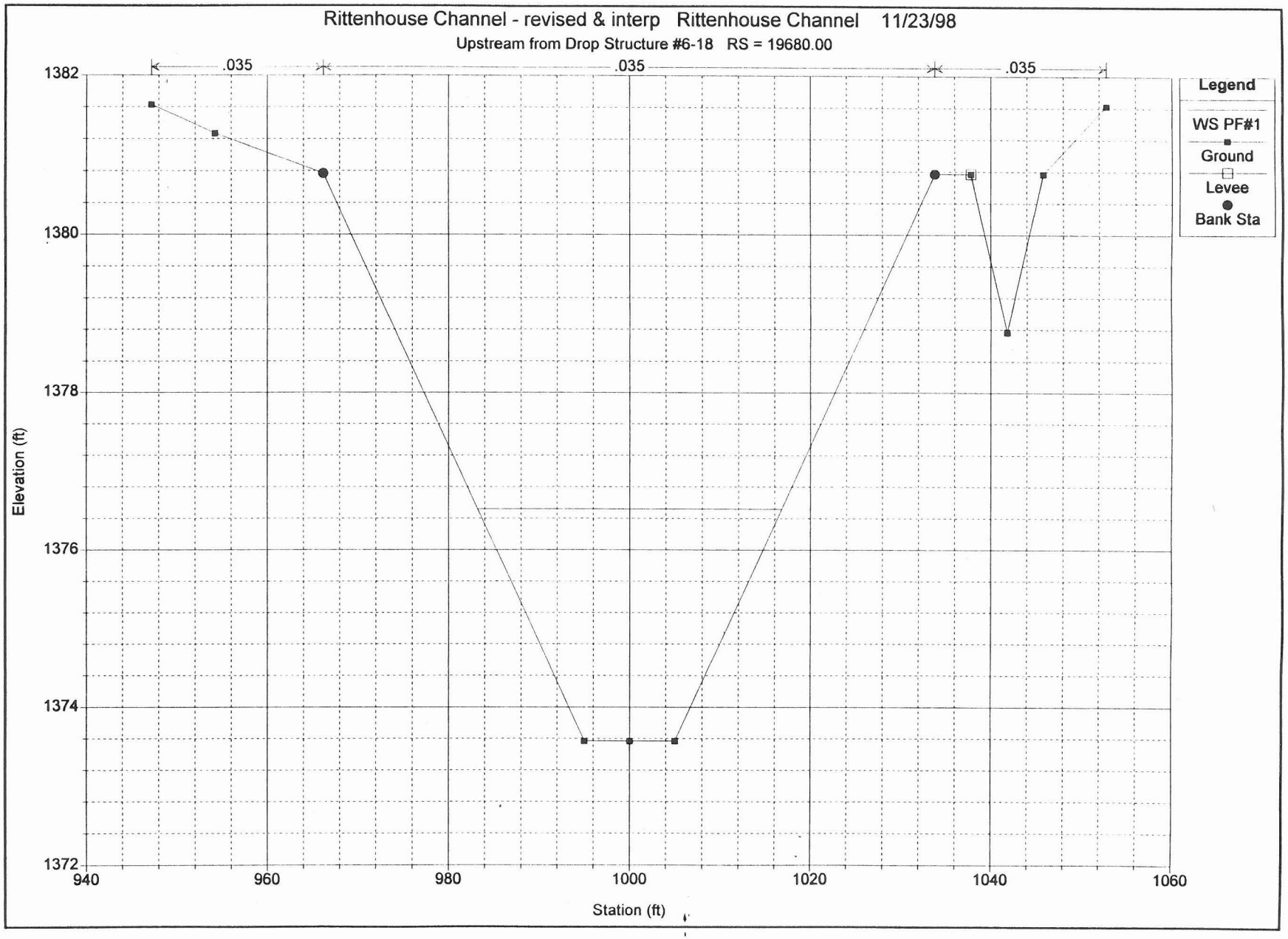

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19350.3*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1380
1378
1376
1374
1372
1370
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

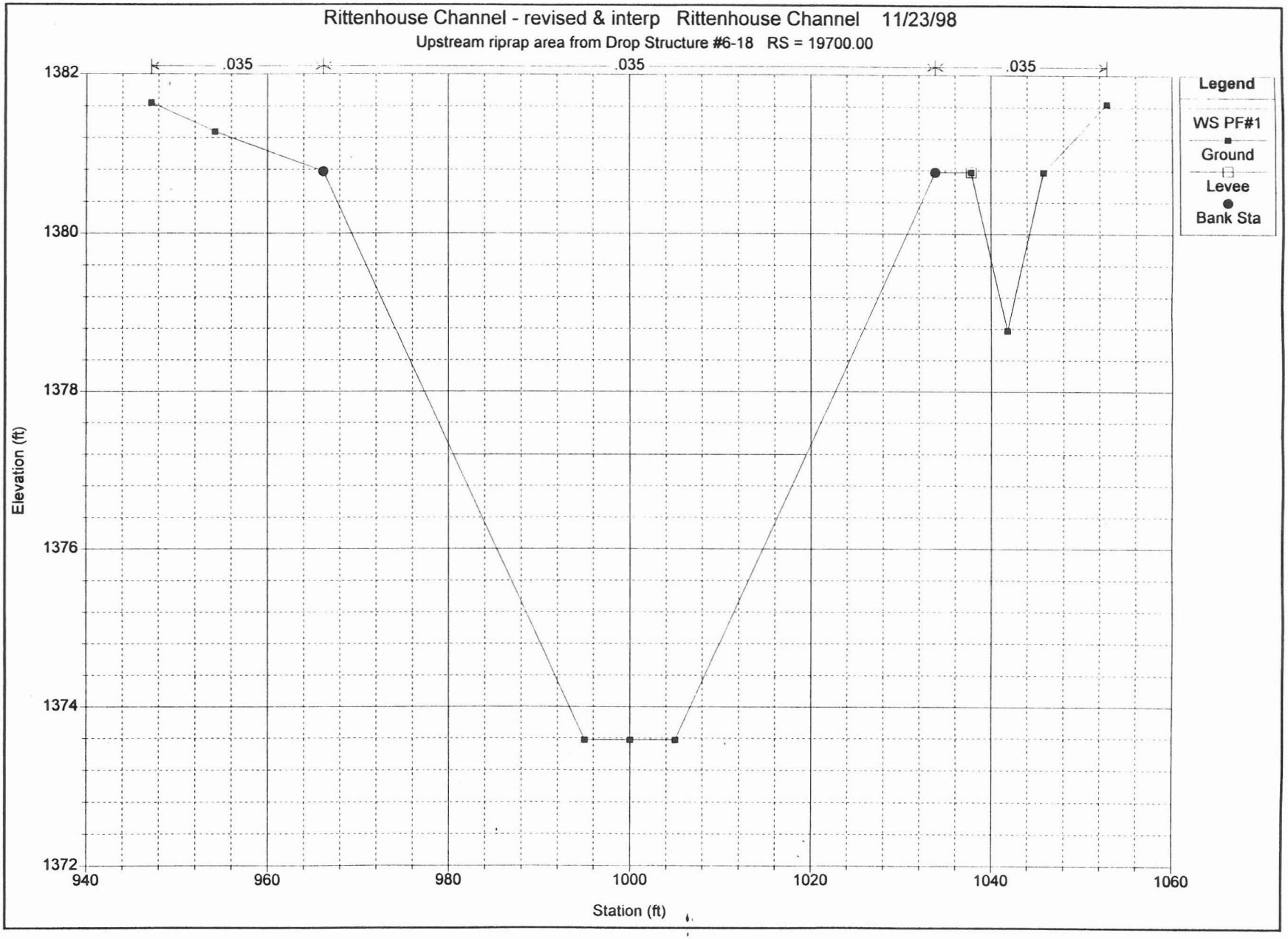

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19443.2*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

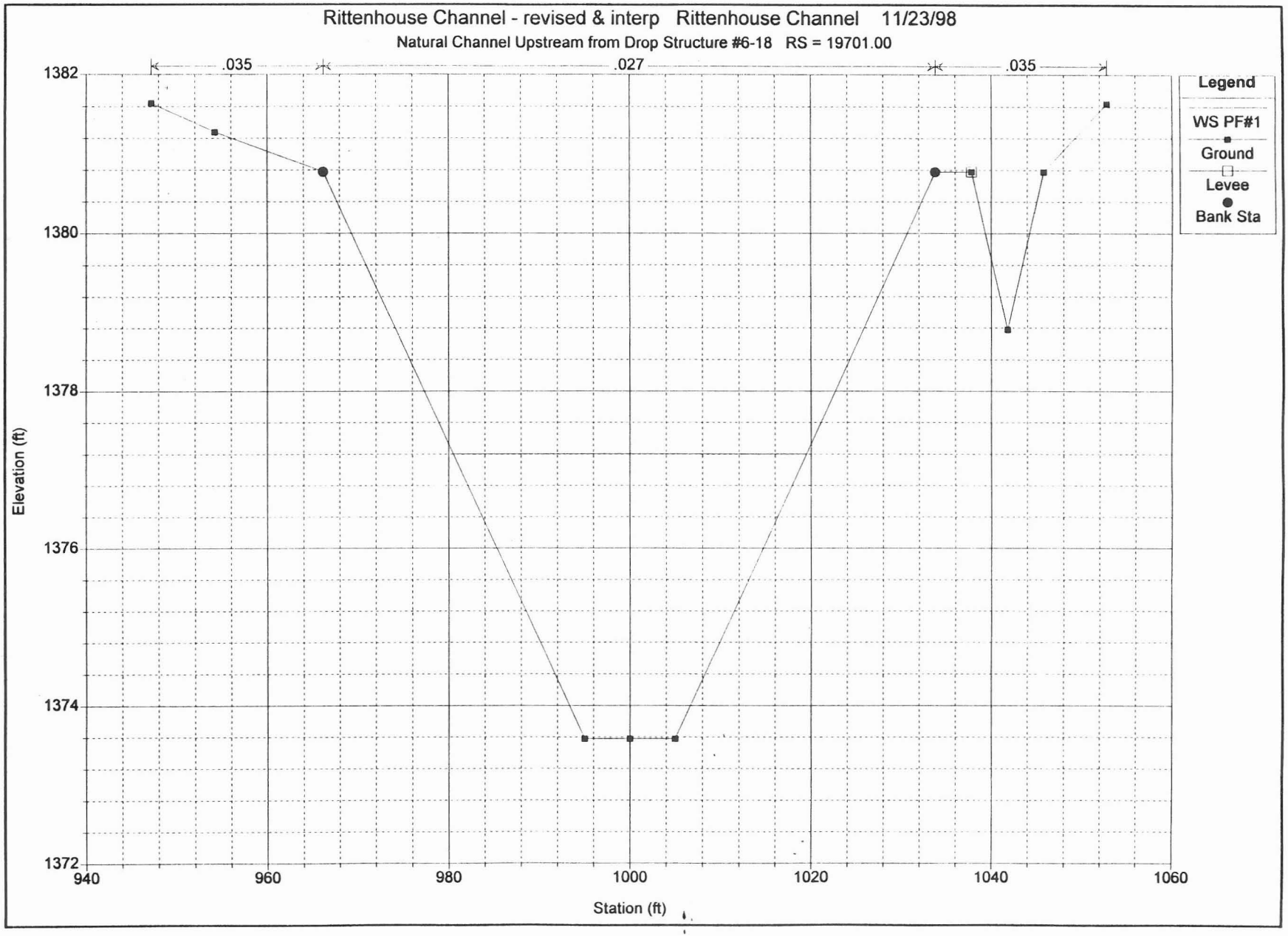

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19536.1*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

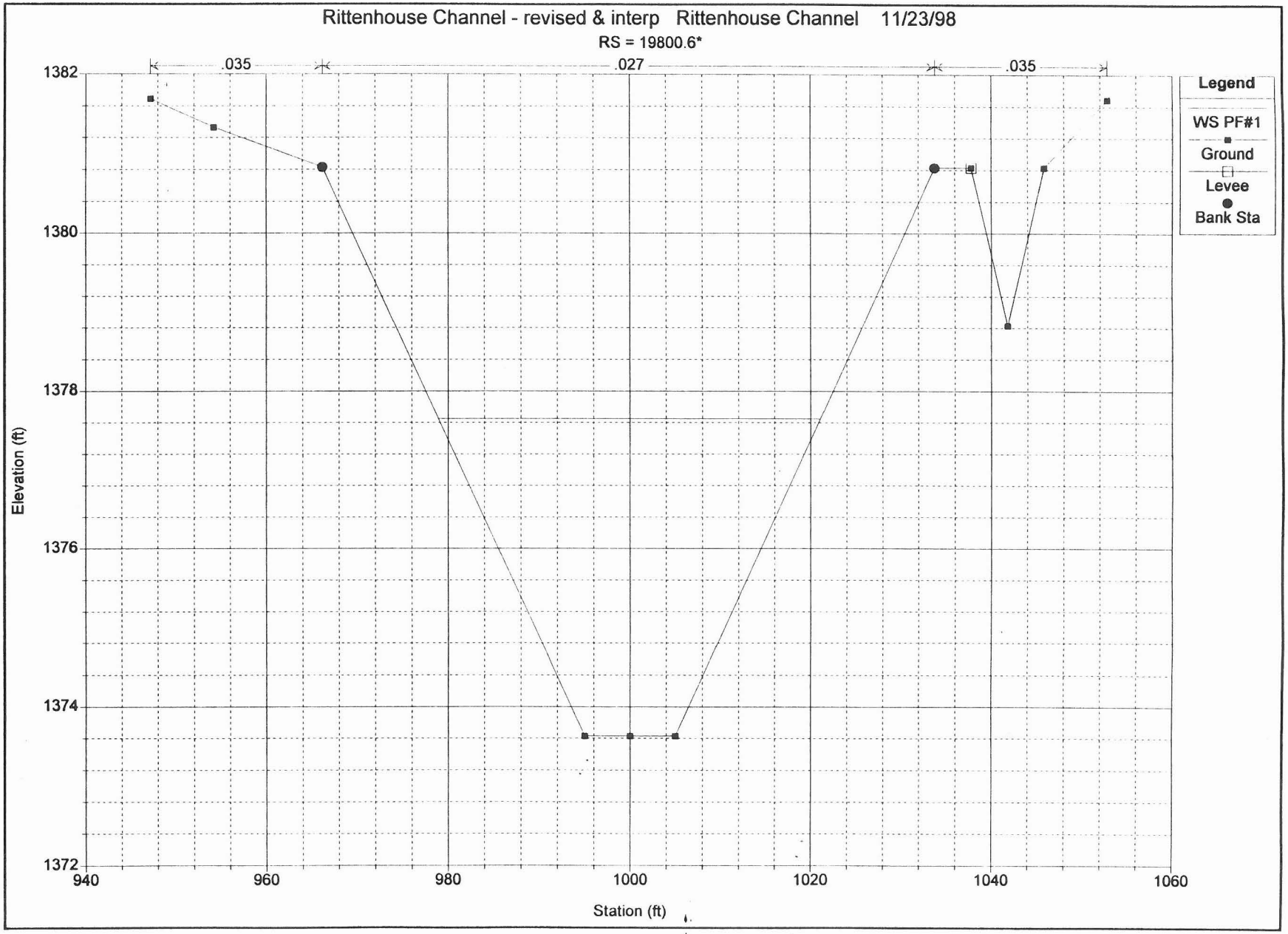

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural Channel downstream from Drop Structure #6-18 RS = 19629.00
.035
.027
.035
1380
1378
1376
1374
1372
1370
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
Ground
Levee
Bank Sta

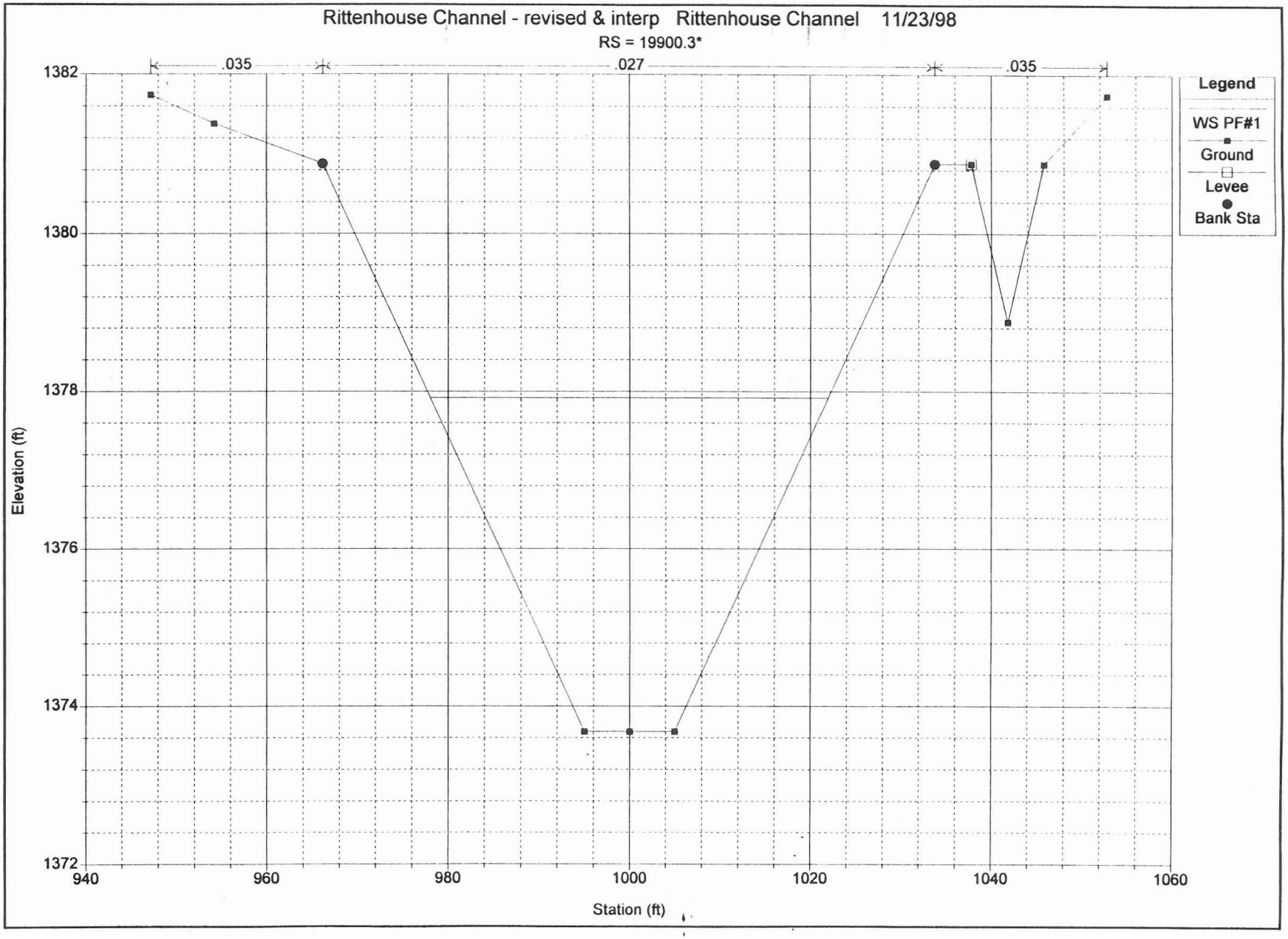

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream riprap area from Drop Structure #6-18 RS = 19630.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
940
960
980
1000
1020
1040
1060
Station (ft)

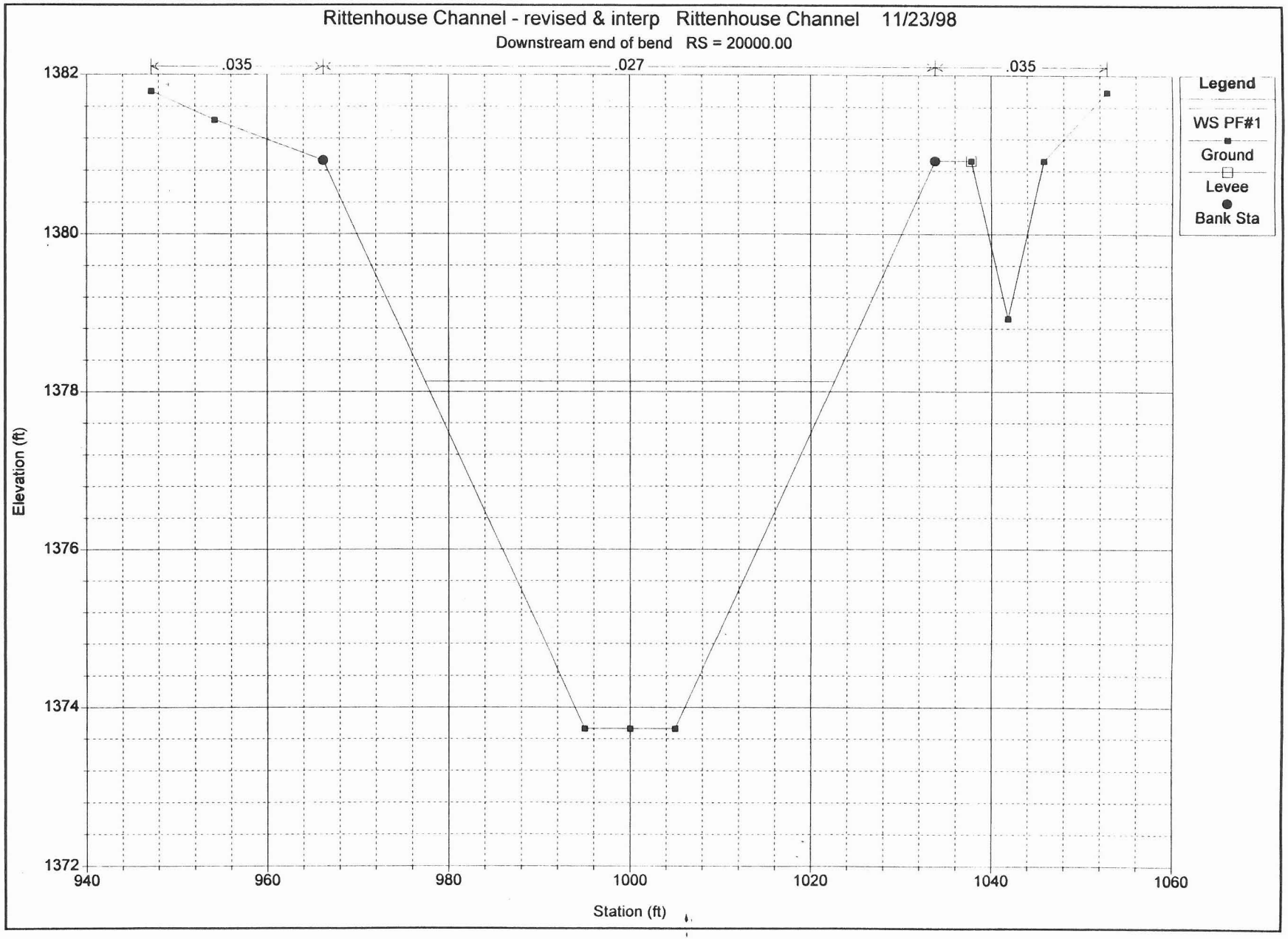

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream from Drop Structure #6-18 RS = 19680.00
.035
.035
.035
1382
1380
1378
1376
1374
1372
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
Ground
Levee
Bank Sta

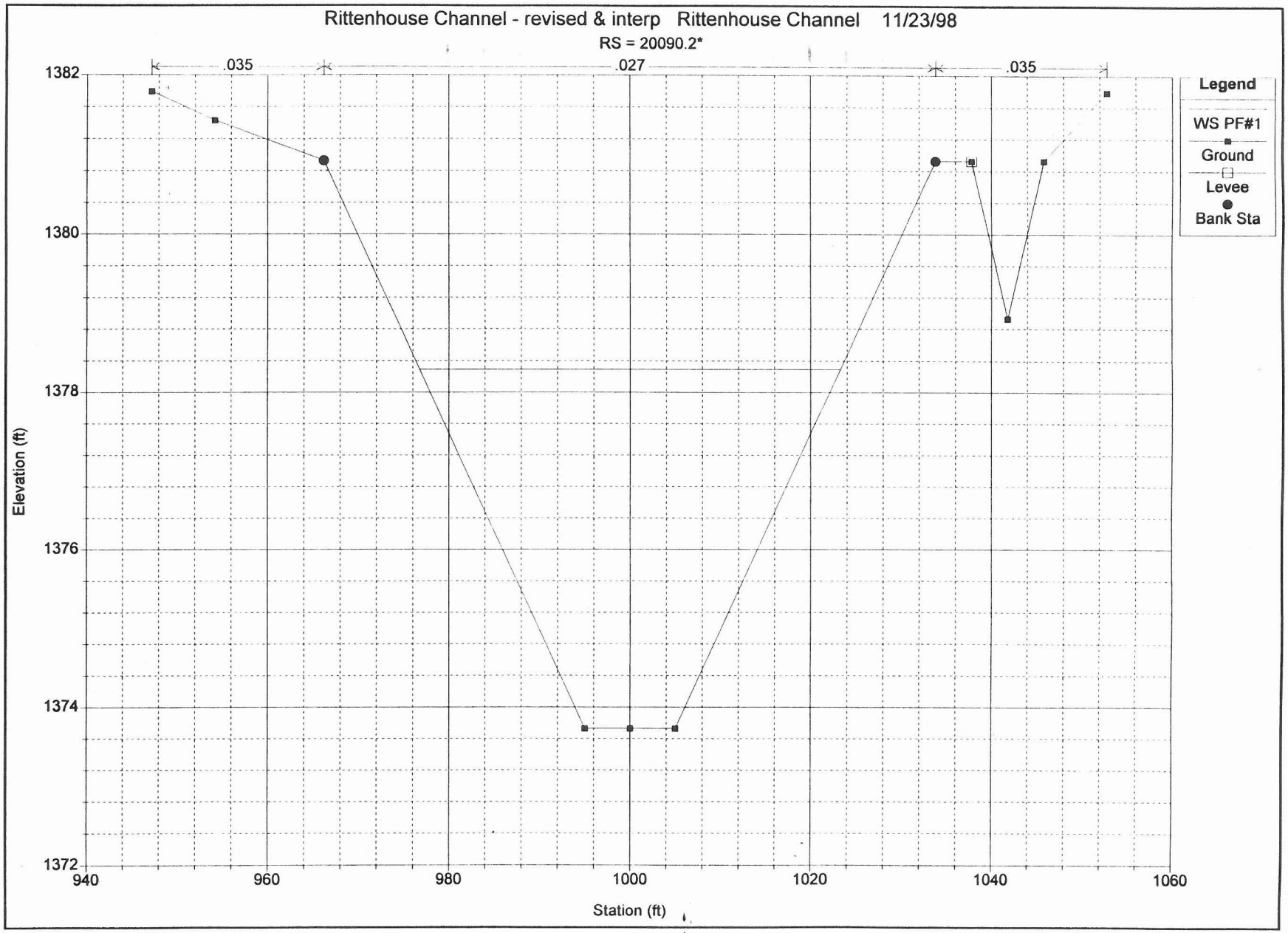

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream riprap area from Drop Structure #6-18 RS = 19700.00
.035
.035
.035
1382
1380
1378
1376
1374
1372
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
Ground
Levee
Bank Sta

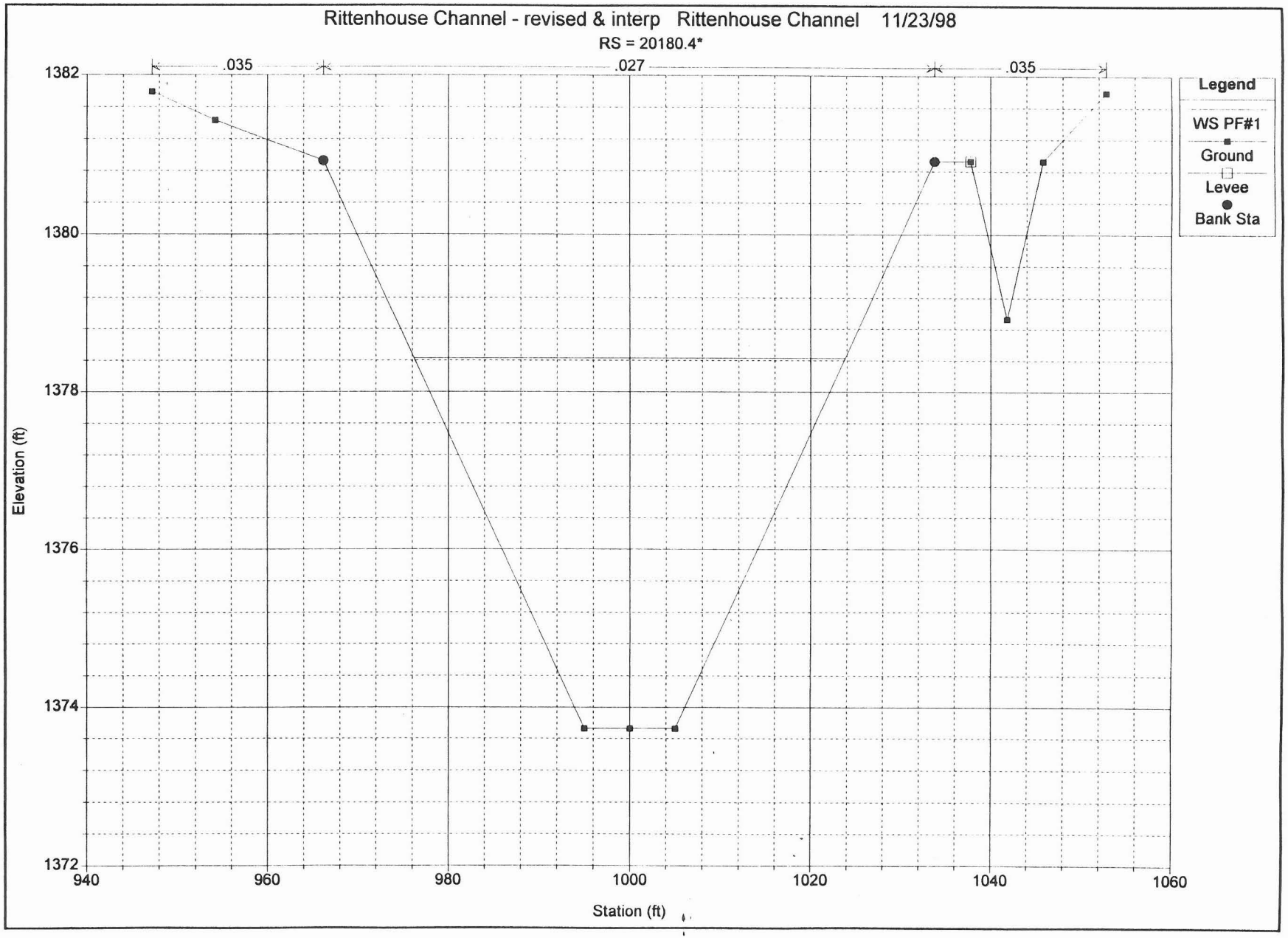

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural Channel Upstream from Drop Structure #6-18 RS = 19701.00
.035
.027
.035
1382
1380
1378
1376
1374
1372
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)
Legend
WS PF#1
Ground
Levee
Bank Sta

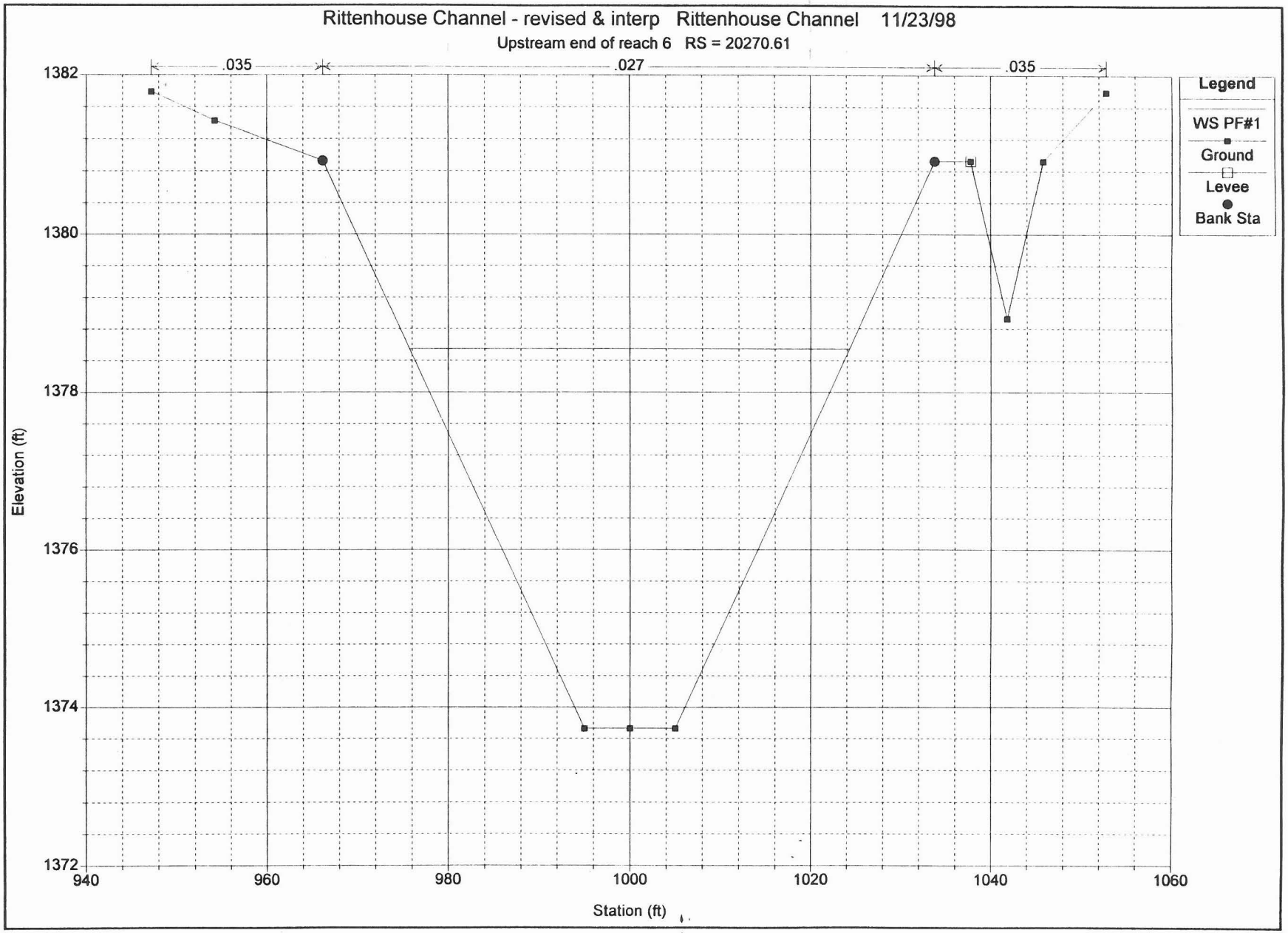

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19800.6*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1382
1380
1378
1376
1374
1372
940
960
980
1000
1020
1040
1060
Station (ft)

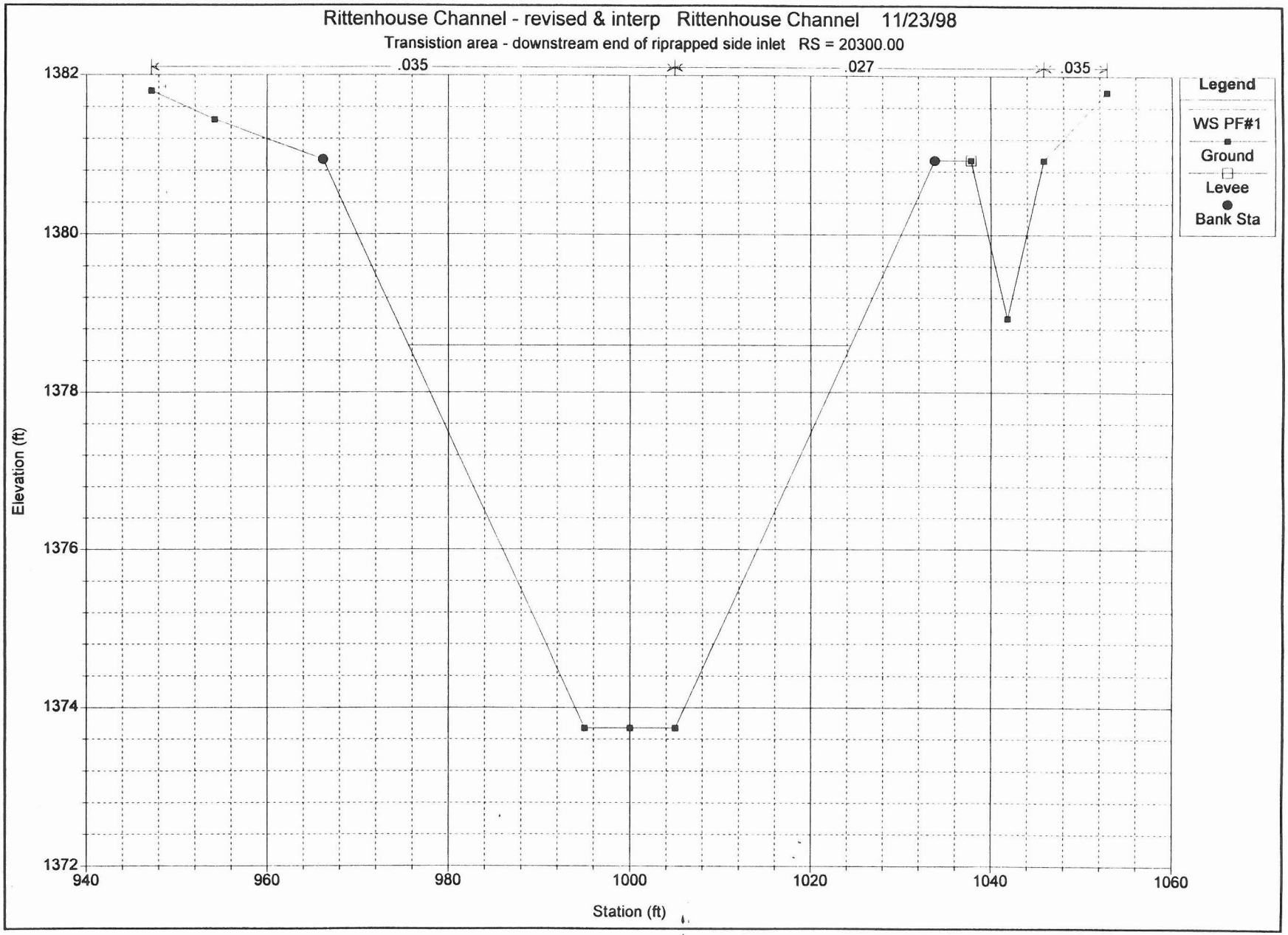

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 19900.3*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1382
1380
1378
1376
1374
1372
940
960
980
1000
1020
1040
1060
Station (ft)

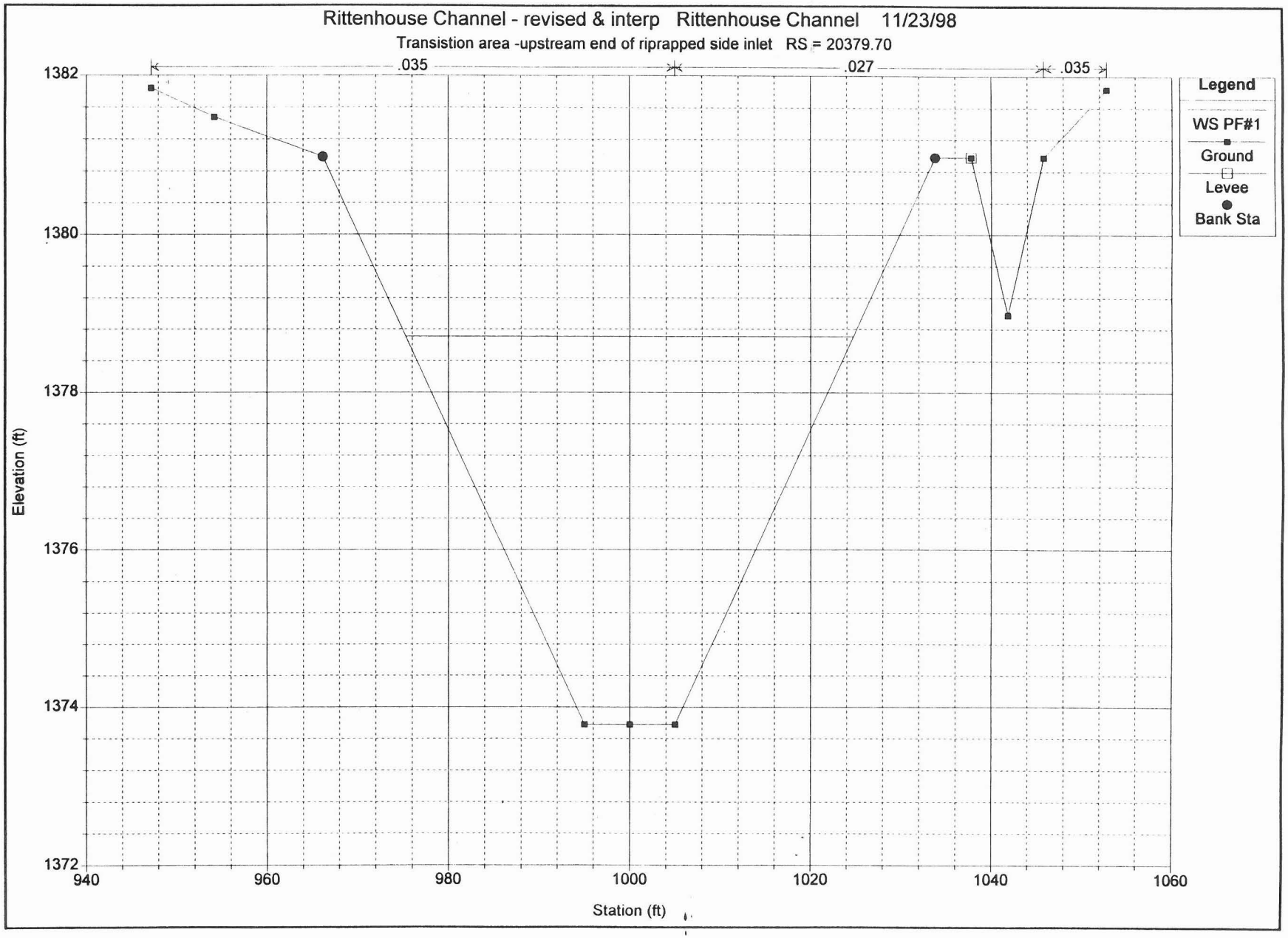

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream end of bend RS = 20000.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1382
1380
1378
1376
1374
1372
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

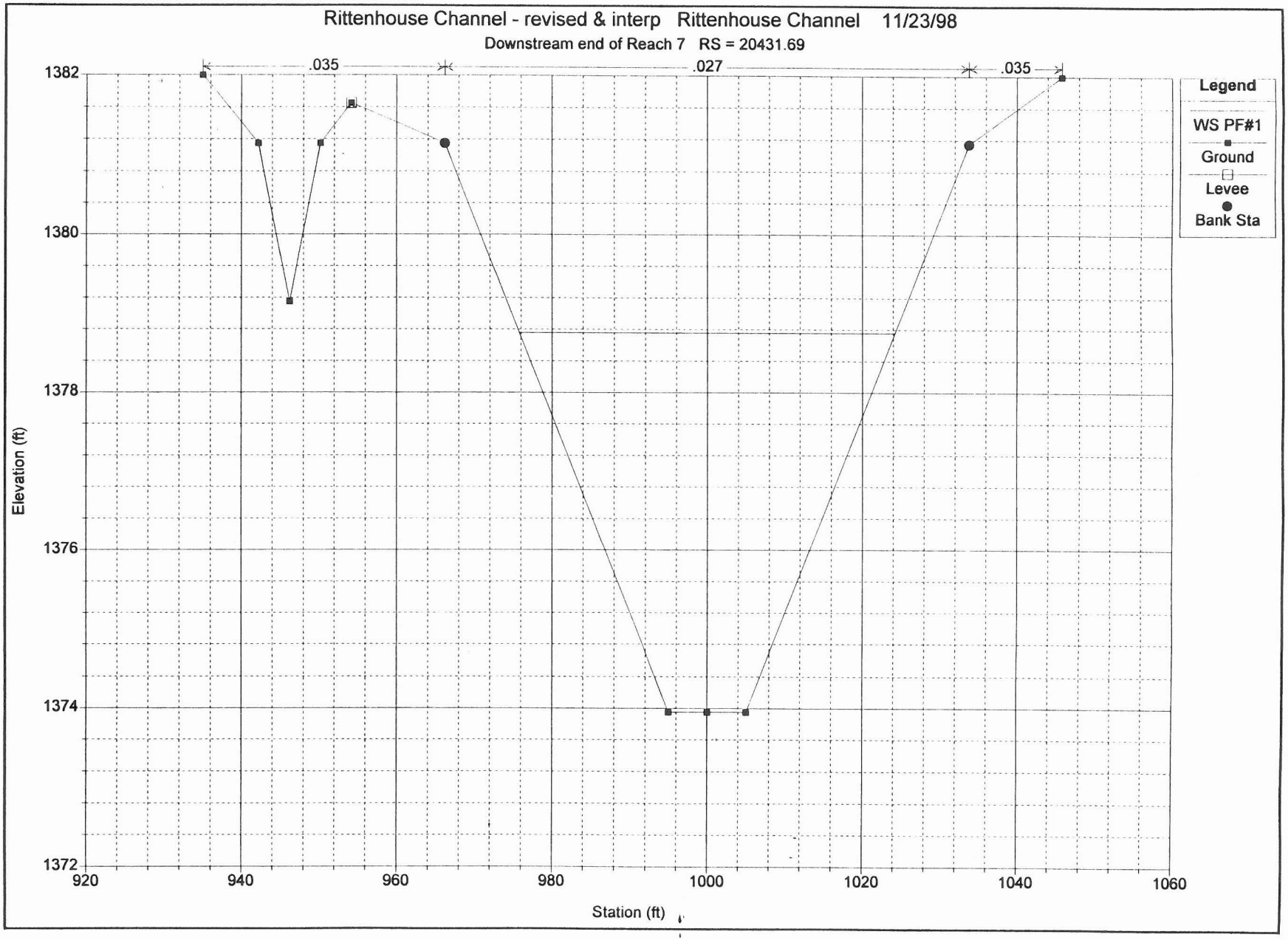

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 20090.2*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1382
1380
1378
1376
1374
1372
940
960
980
1000
1020
1040
1060
Station (ft)

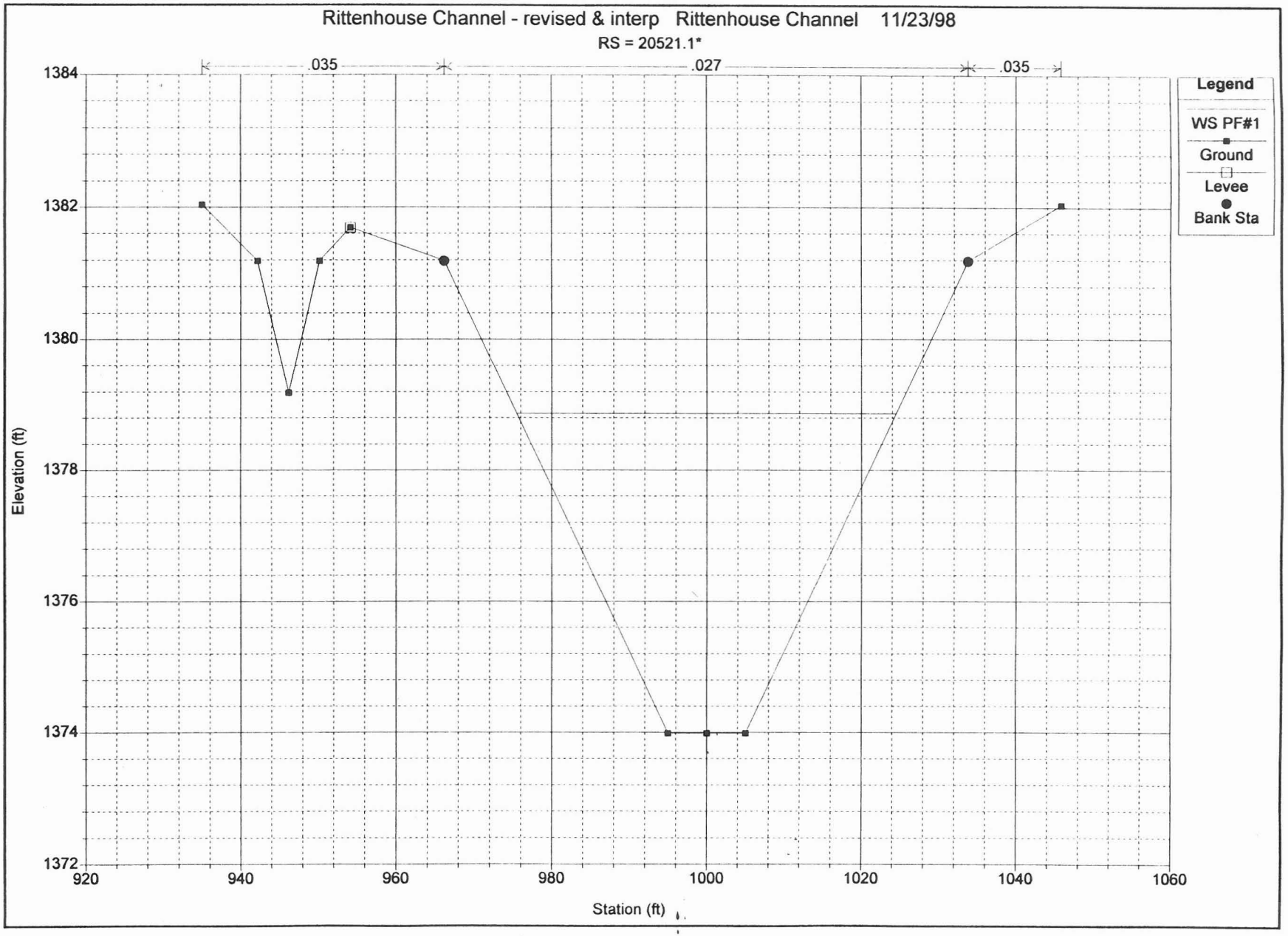

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 20180.4*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1382
1380
1378
1376
1374
1372
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

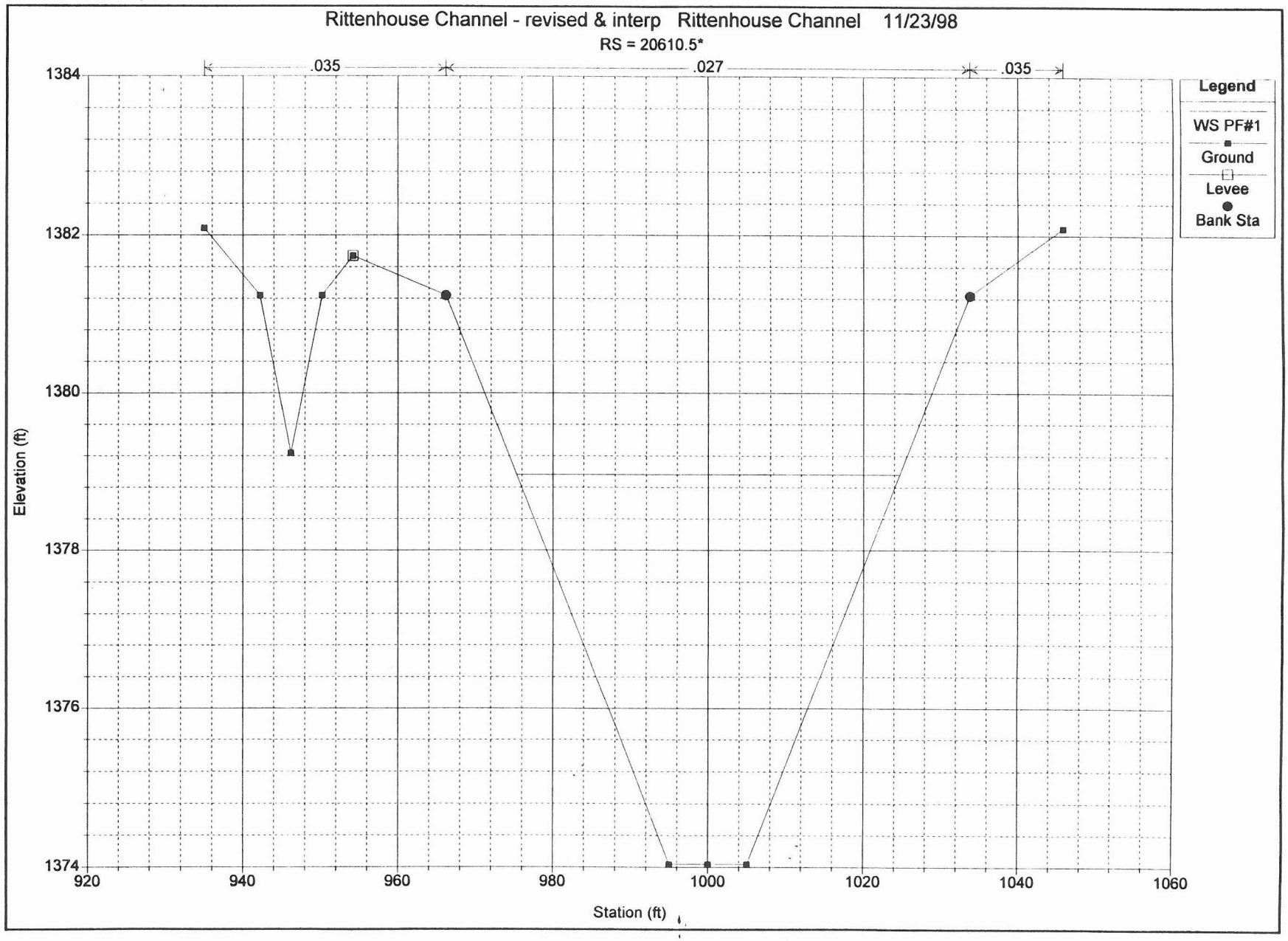

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream end of reach 6 RS = 20270.61
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1382
1380
1378
1376
1374
1372
Elevation (ft)
940
960
980
1000
1020
1040
1060
Station (ft)

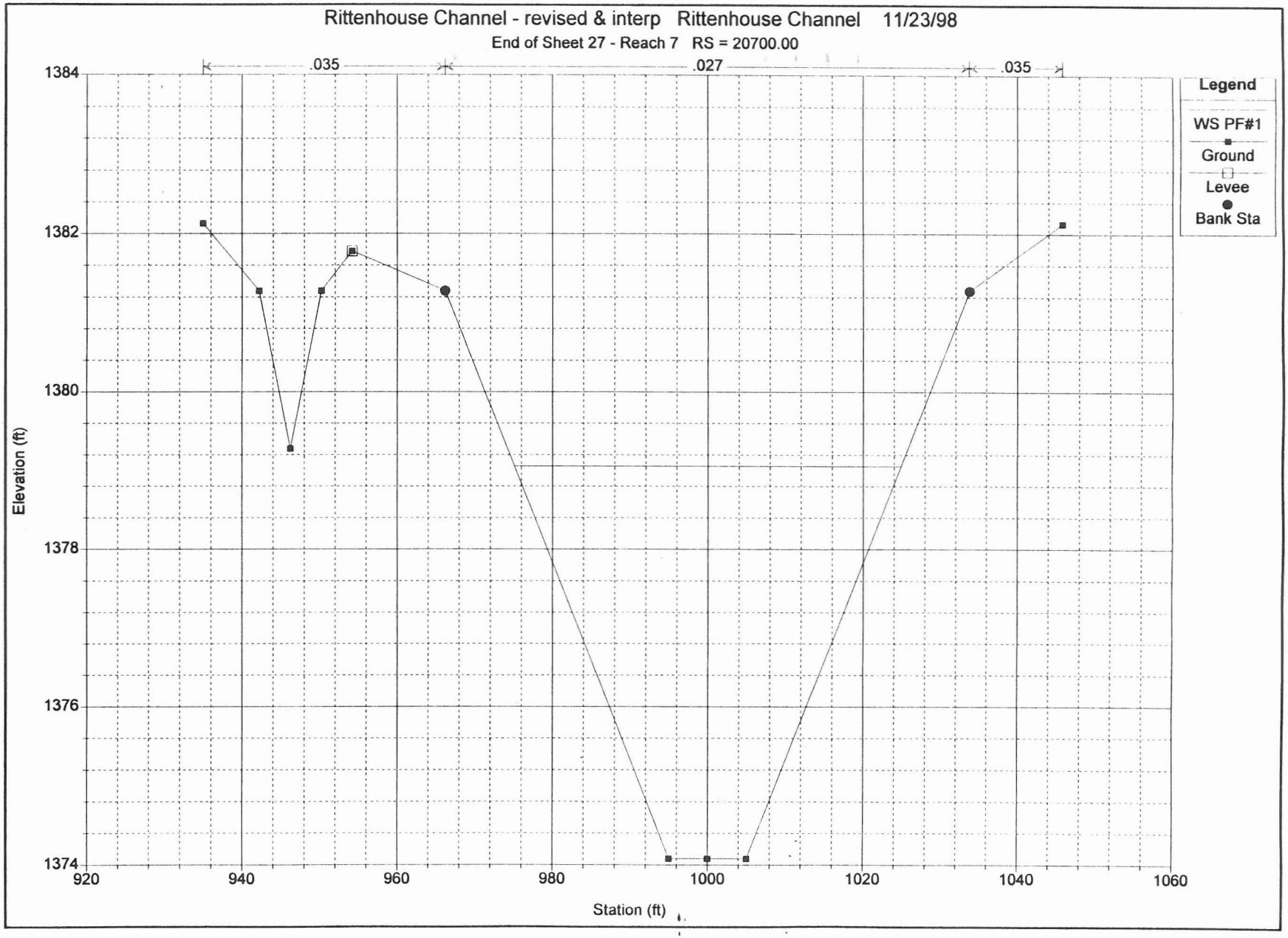

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Transistion area - downstream end of riprapped side inlet RS = 20300.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1382
1380
1378
1376
1374
1372
940
960
980
1000
1020
1040
1060
Station (ft)

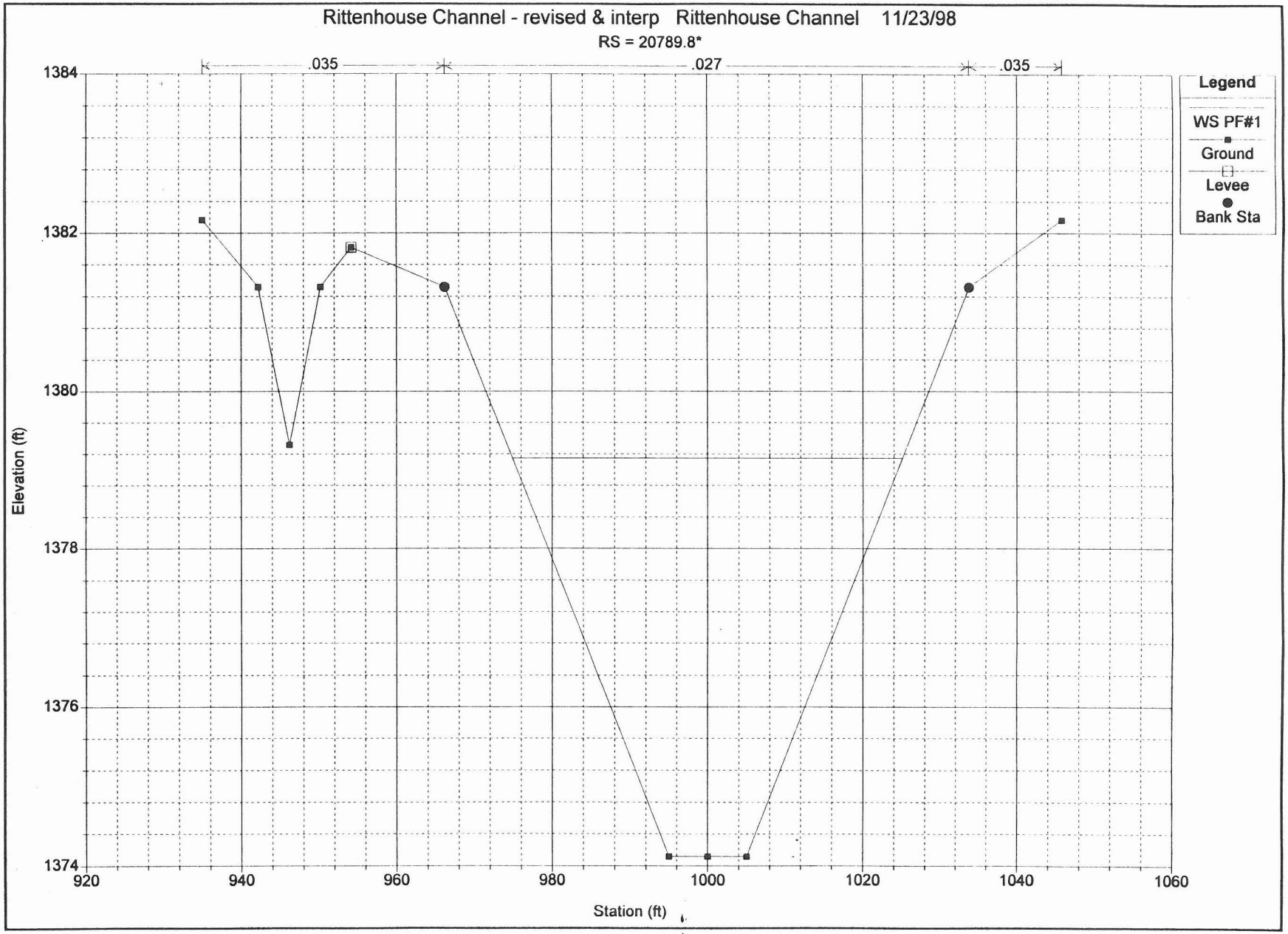

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Transistion area -upstream end of riprapped side inlet RS = 20379.70
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1382
1380
1378
1376
1374
1372
940
960
980
1000
1020
1040
1060
Station (ft)

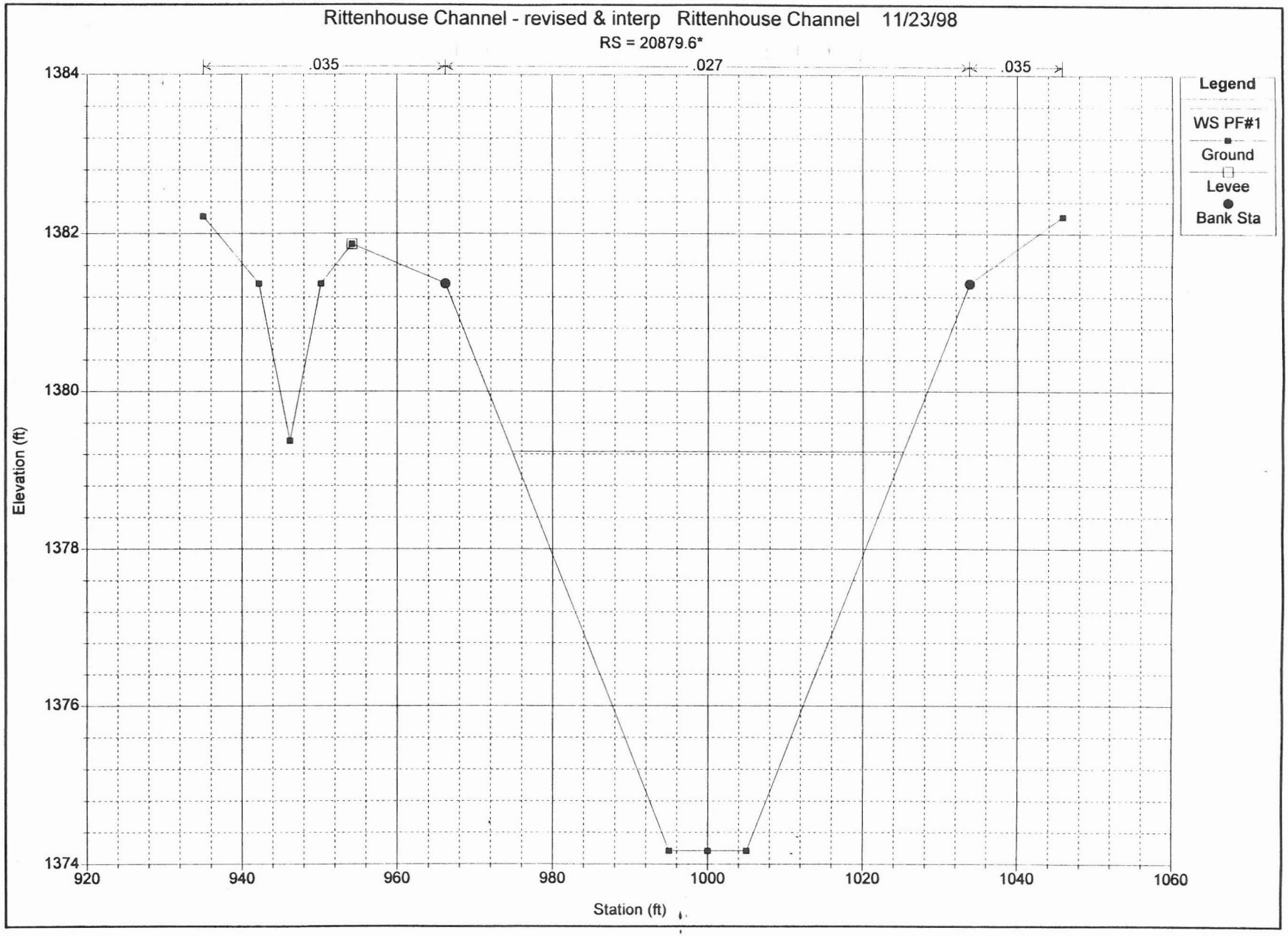

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream end of Reach 7 RS = 20431.69
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1382
1380
1378
1376
1374
1372
920
940
960
980
1000
1020
1040
1060
Station (ft)

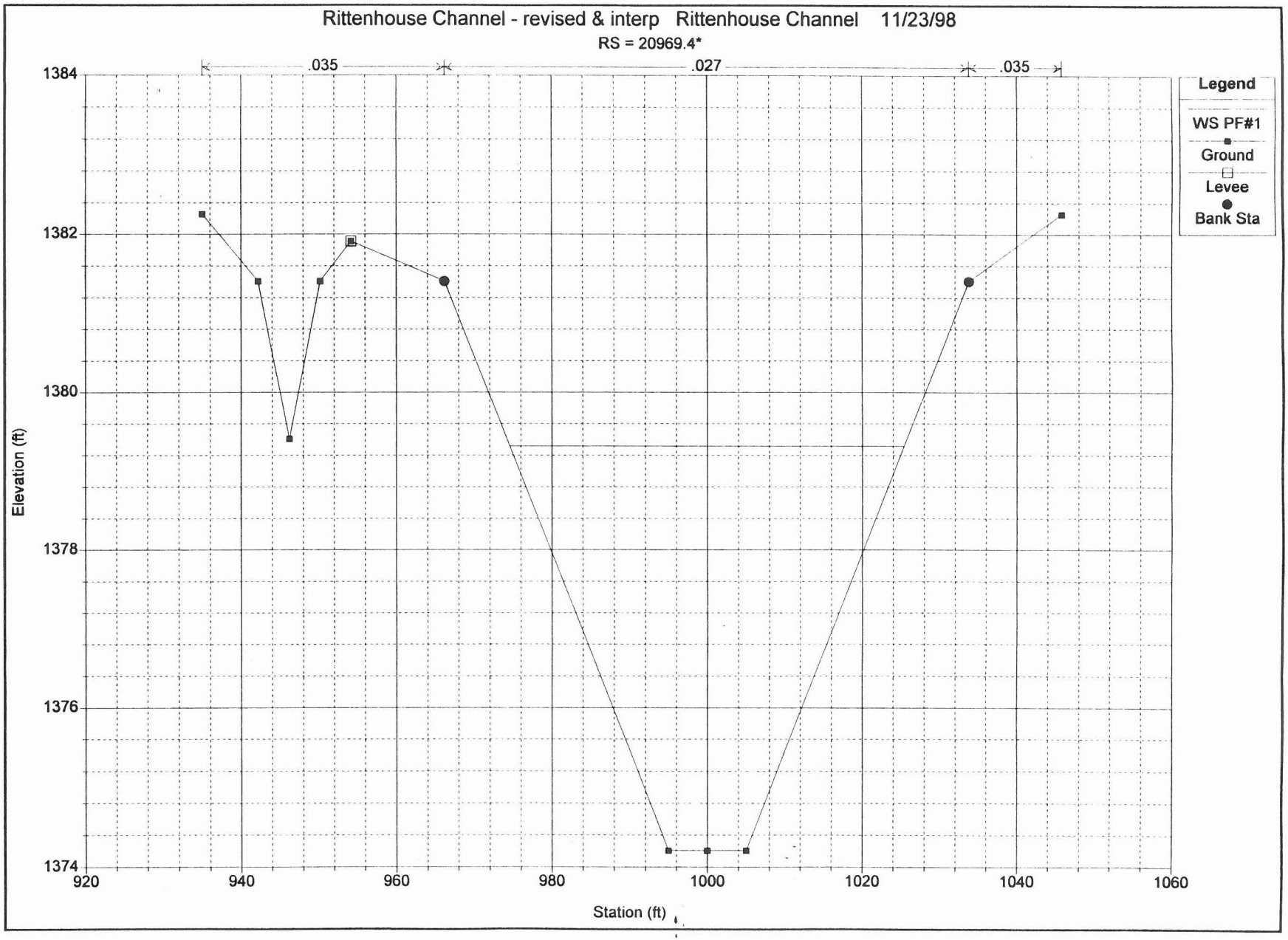

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 20521.1*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
1372
920
940
960
980
1000
1020
1040
1060
Station (ft)

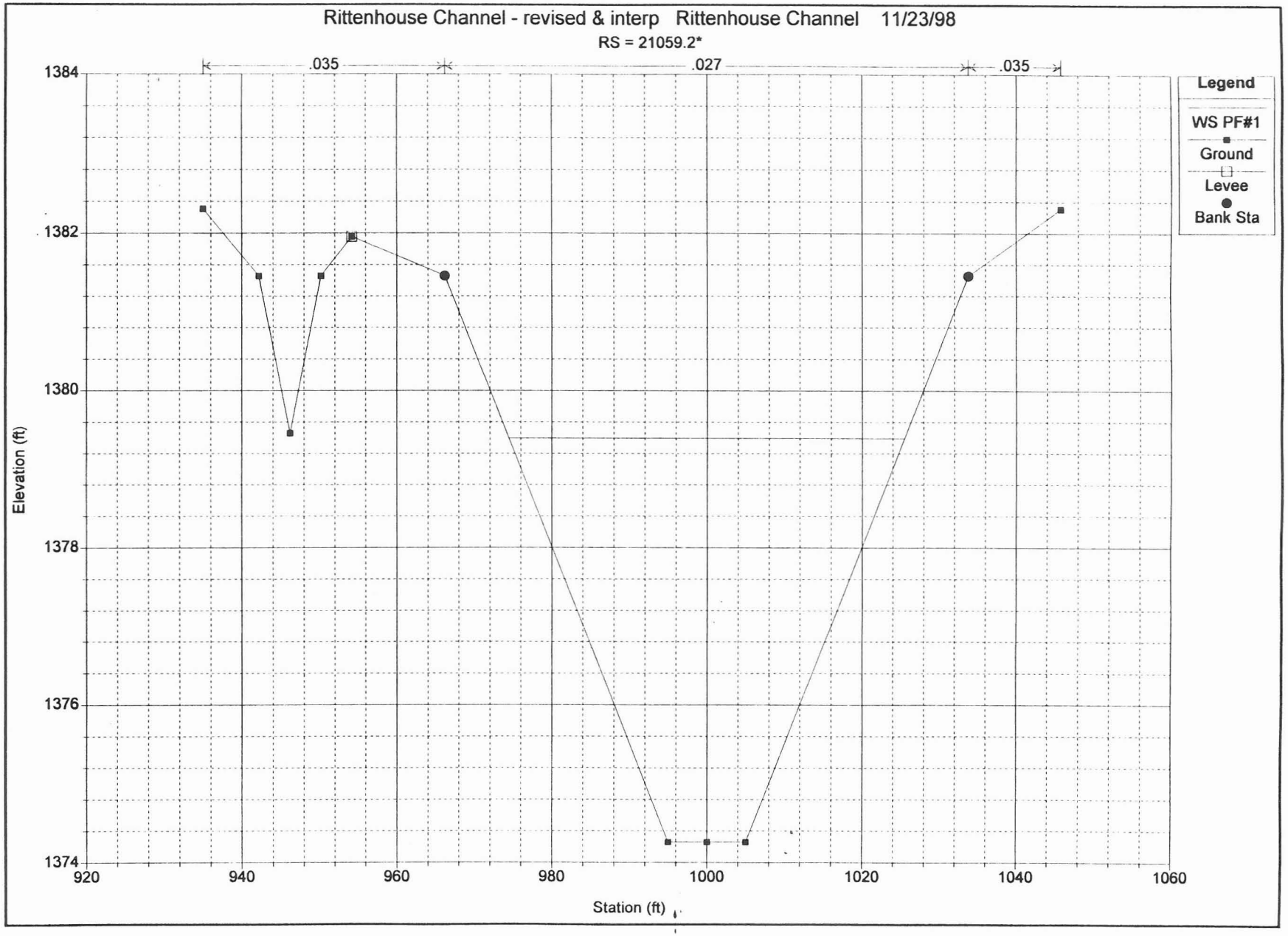

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 20610.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

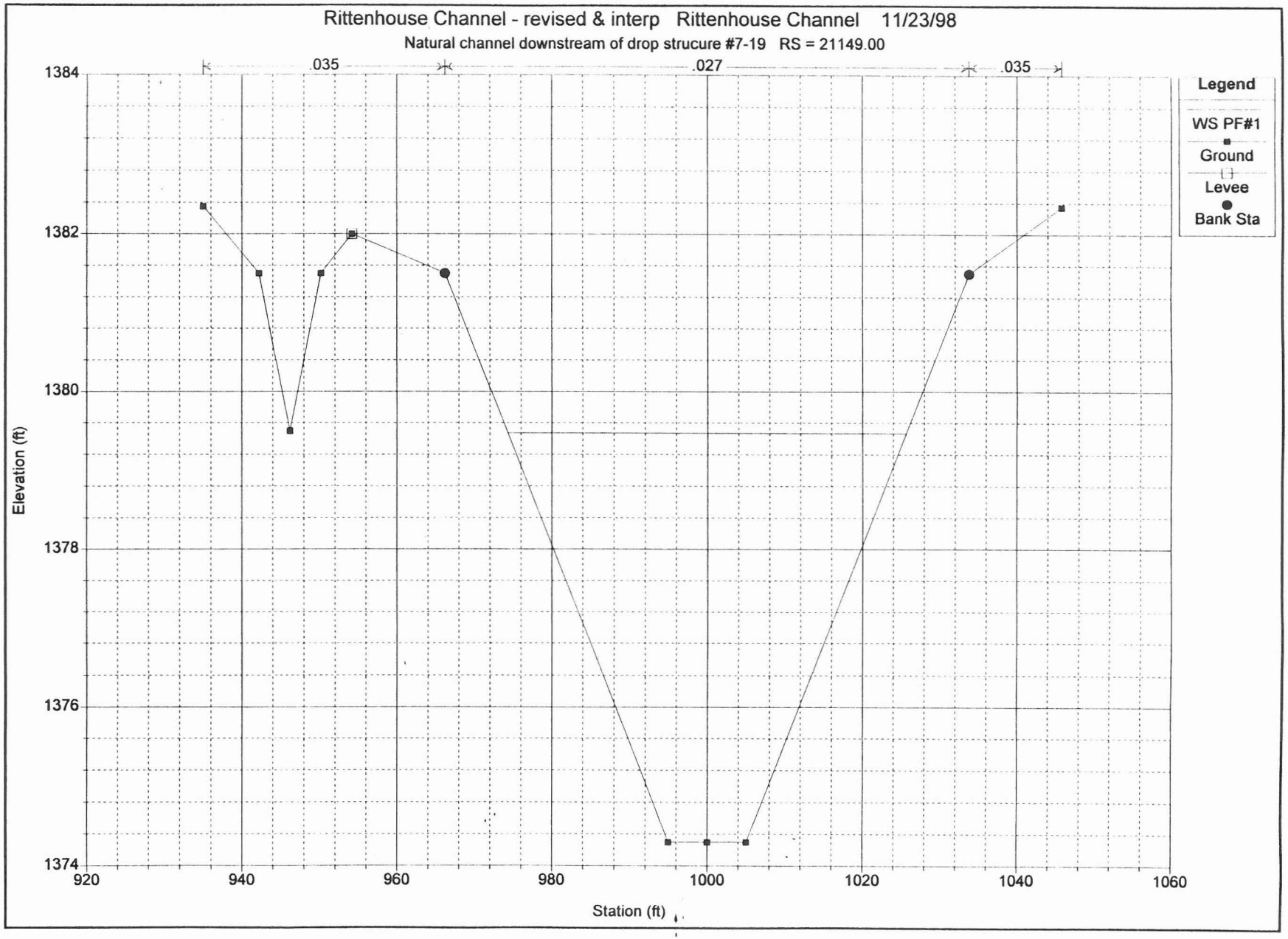

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
End of Sheet 27 - Reach 7 RS = 20700.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

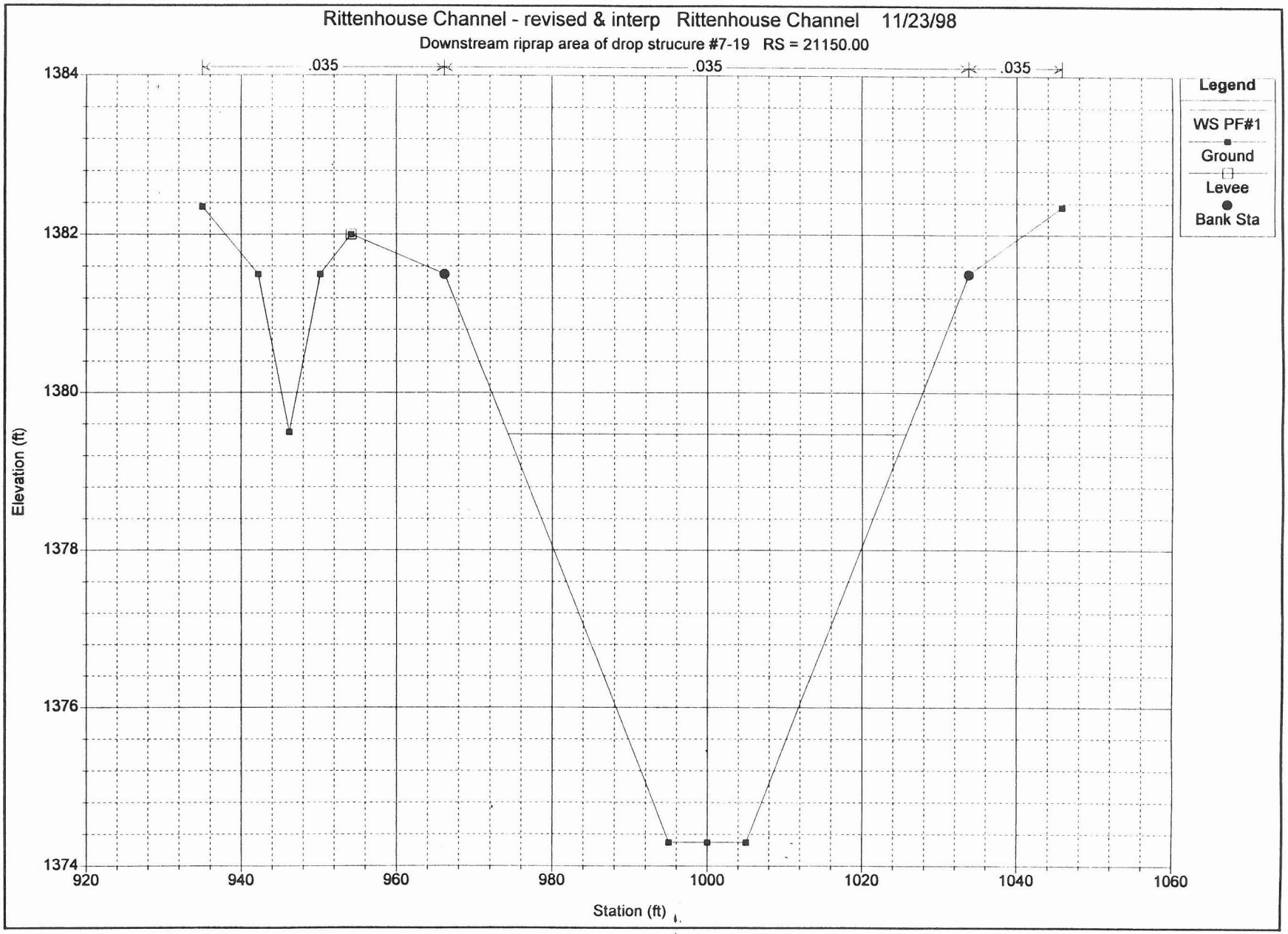

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 20789.8*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

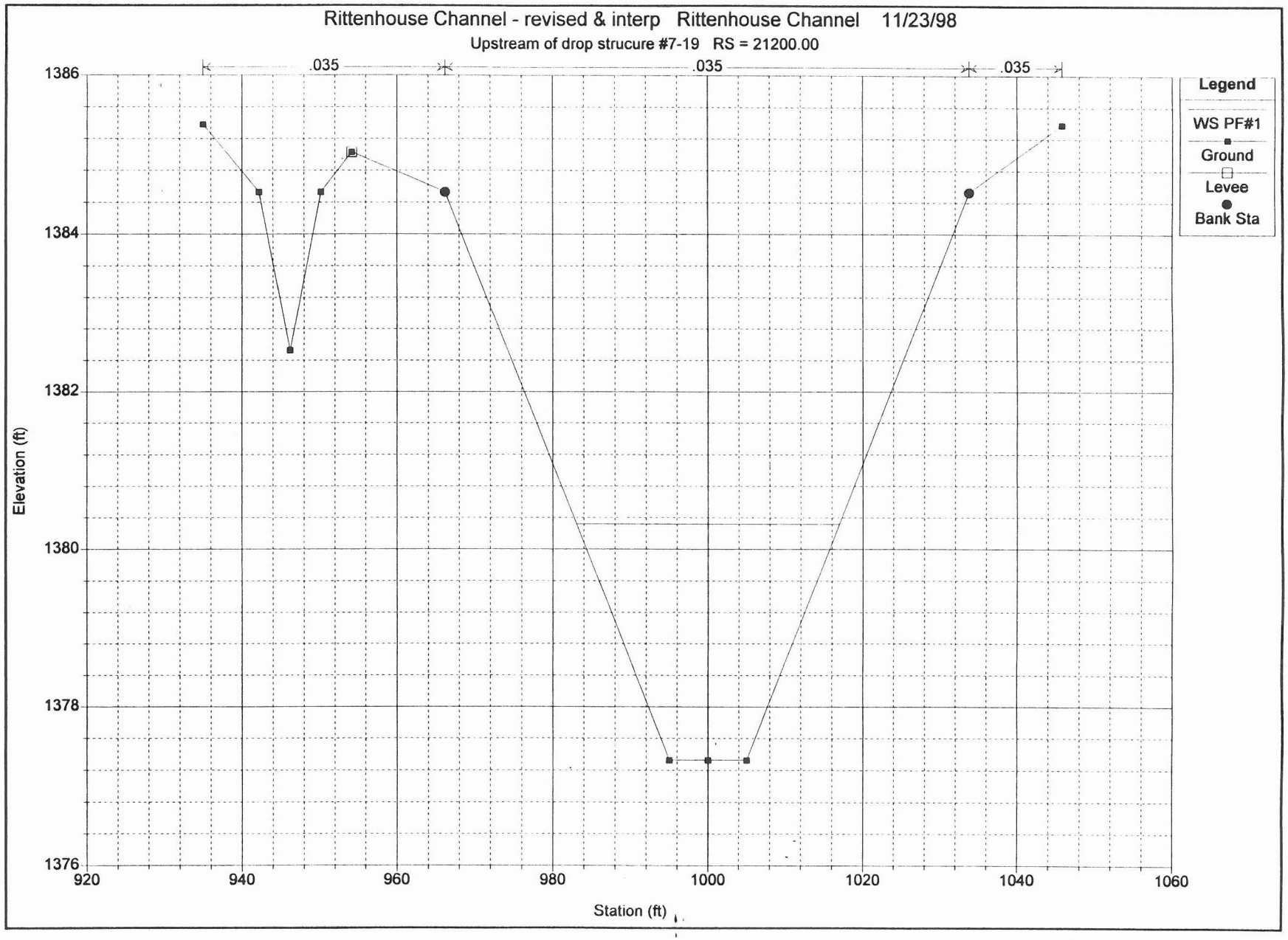

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 20879.6*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

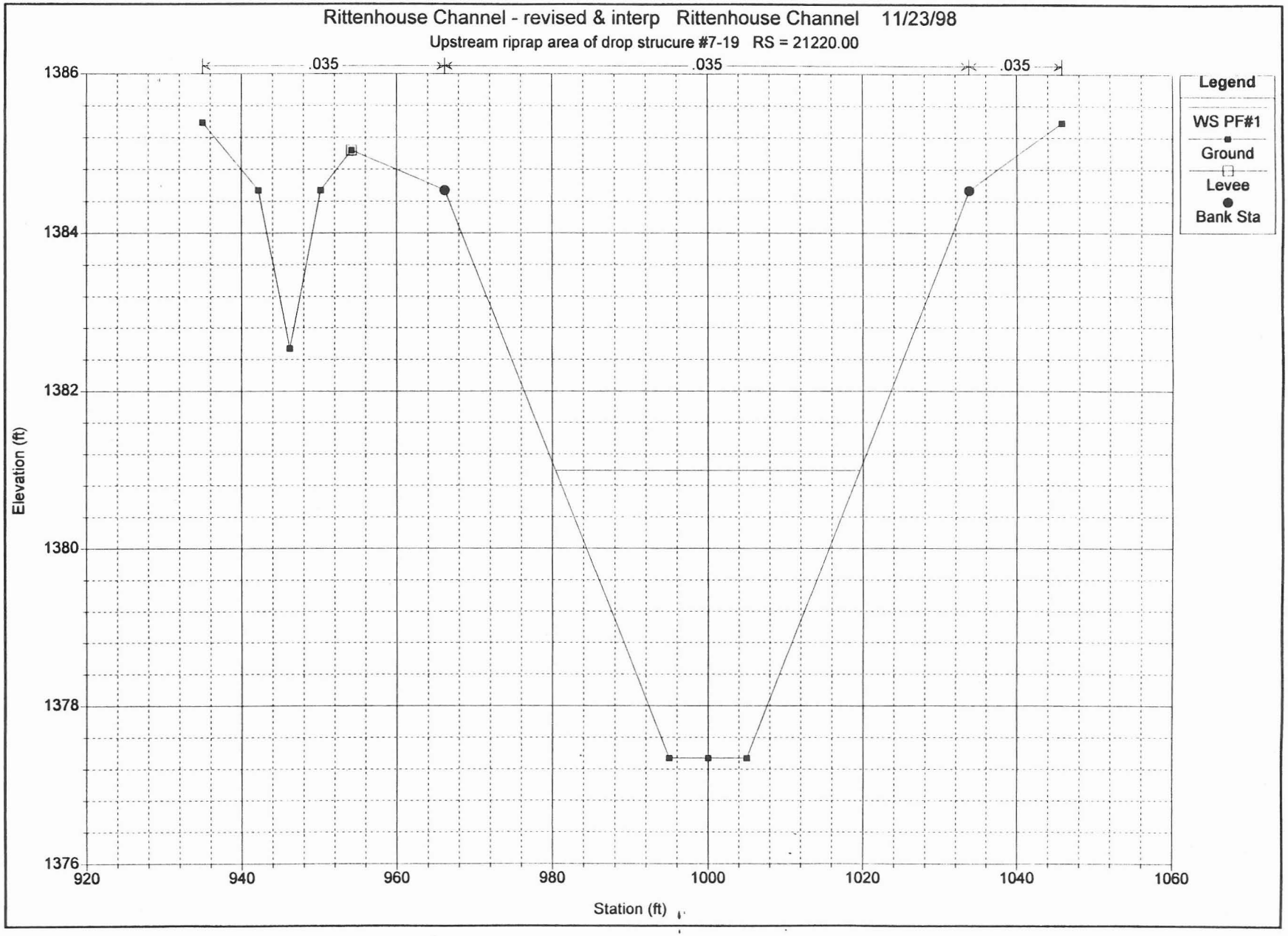

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 20969.4*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

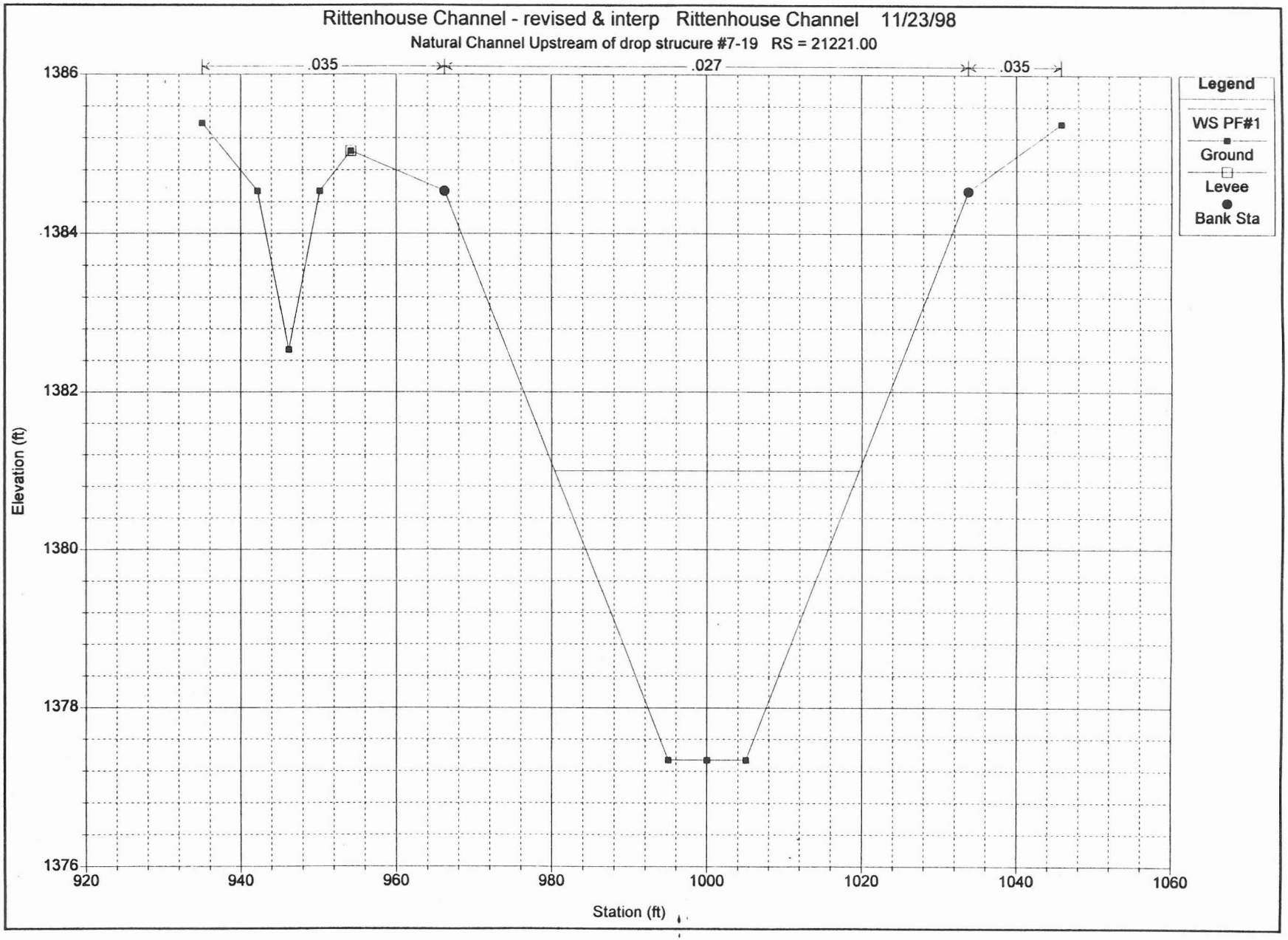

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21059.2*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

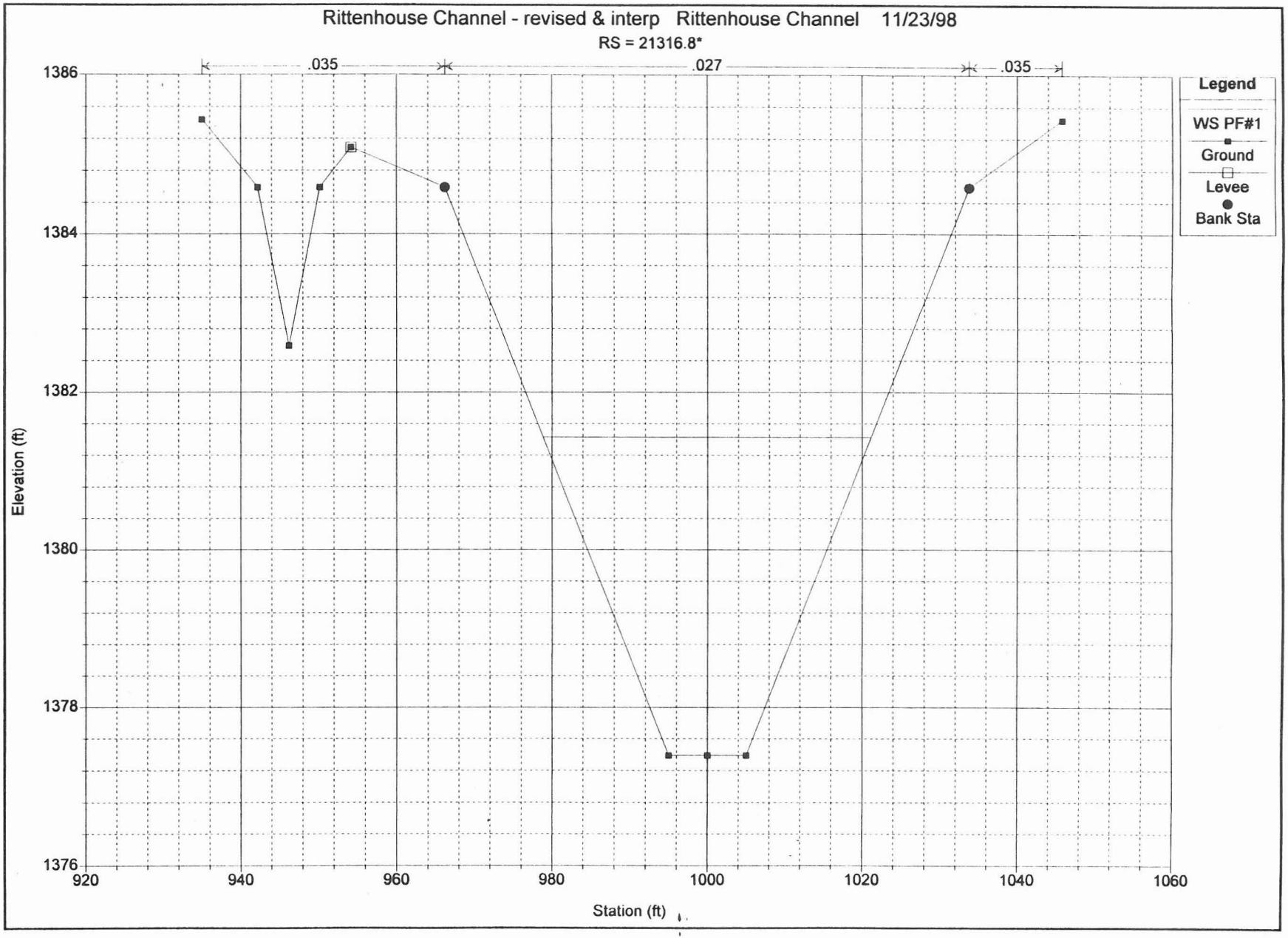

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel downstream of drop strucure #7-19 RS = 21149.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

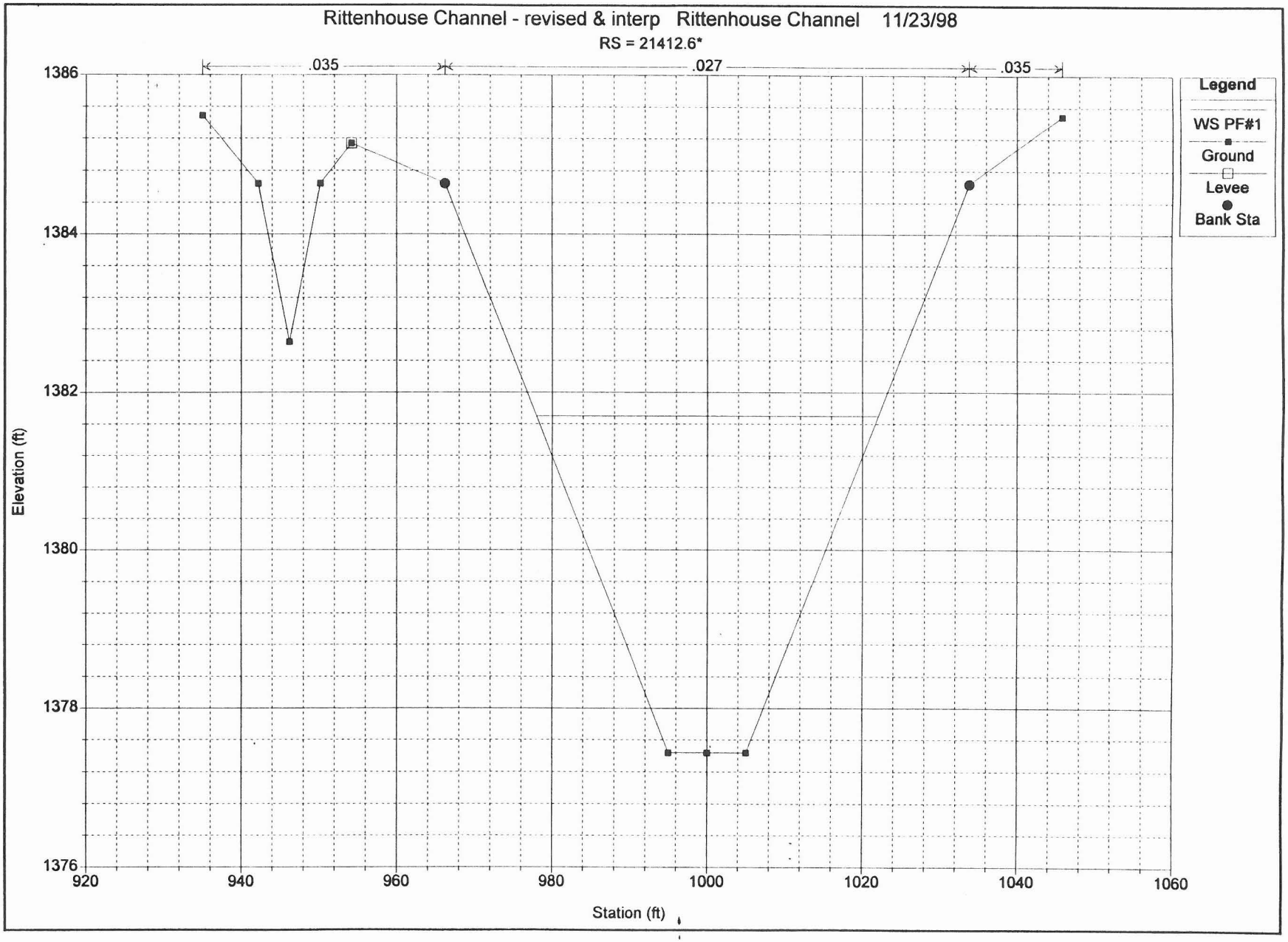

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream riprap area of drop strucure #7-19 RS = 21150.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1384
1382
1380
1378
1376
1374
920
940
960
980
1000
1020
1040
1060
Station (ft)

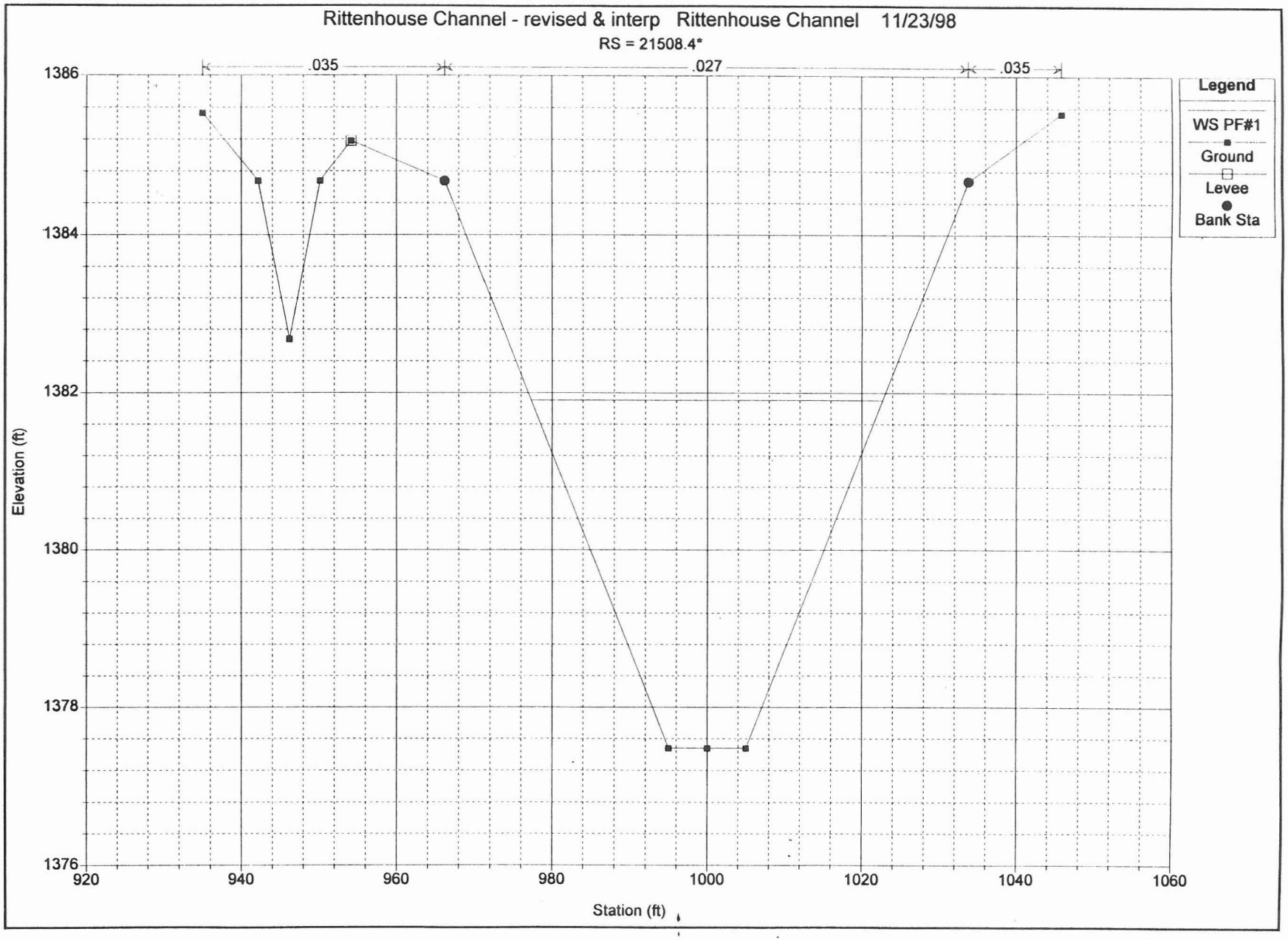

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream of drop strucure #7-19 RS = 21200.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

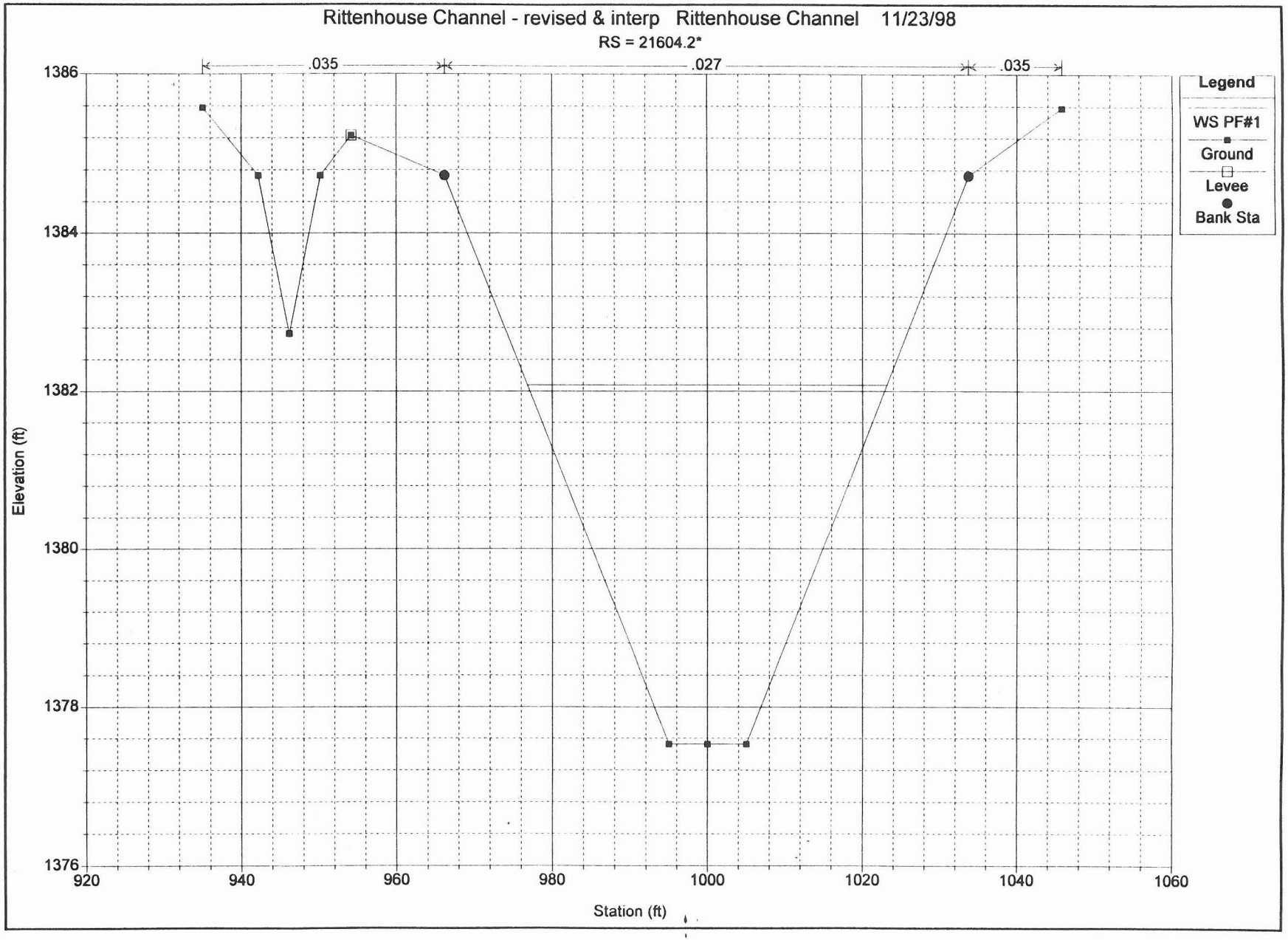

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream riprap area of drop strucure #7-19 RS = 21220.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

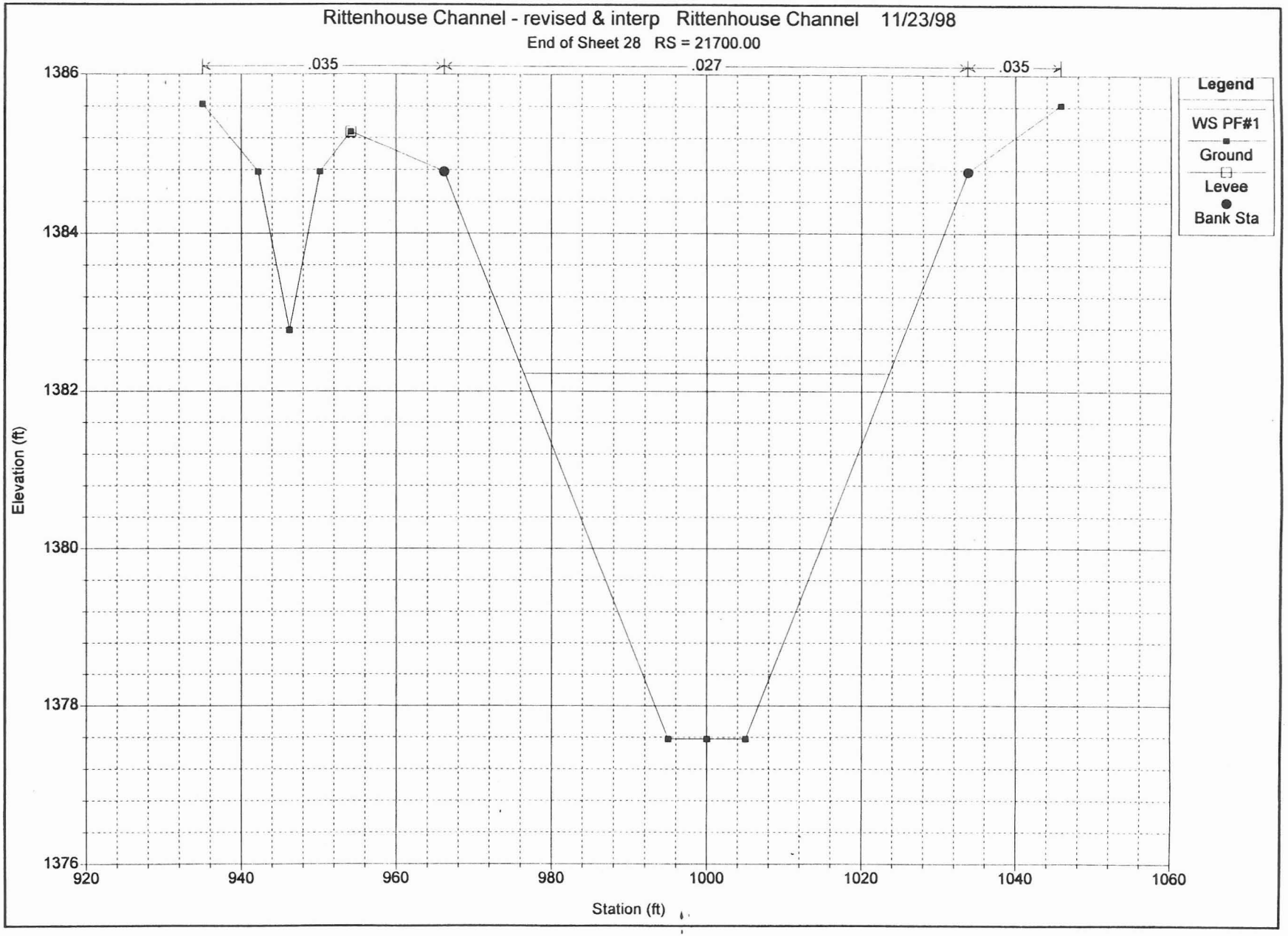

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural Channel Upstream of drop strucure #7-19 RS = 21221.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

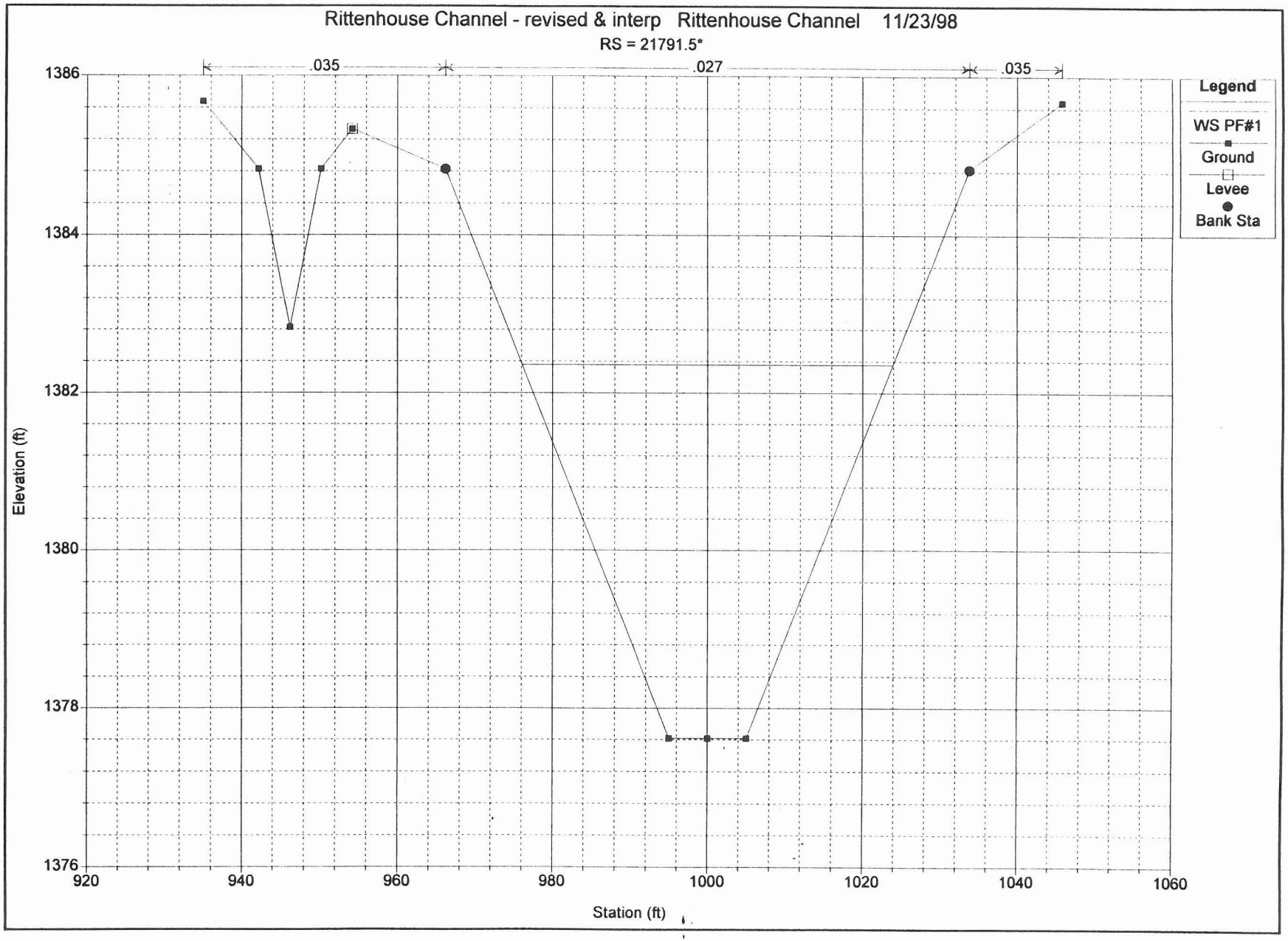

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21316.8*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

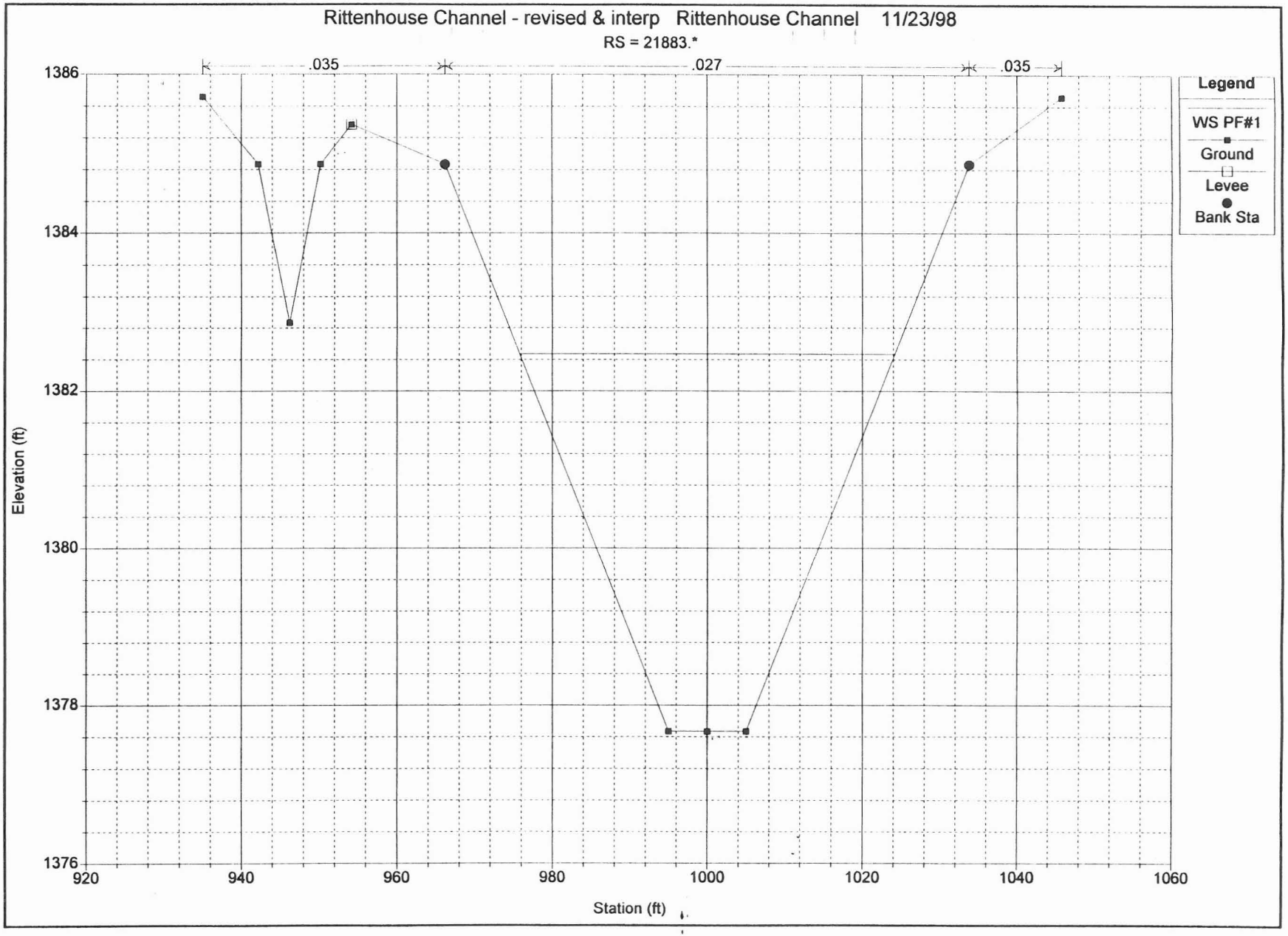

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21412.6*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

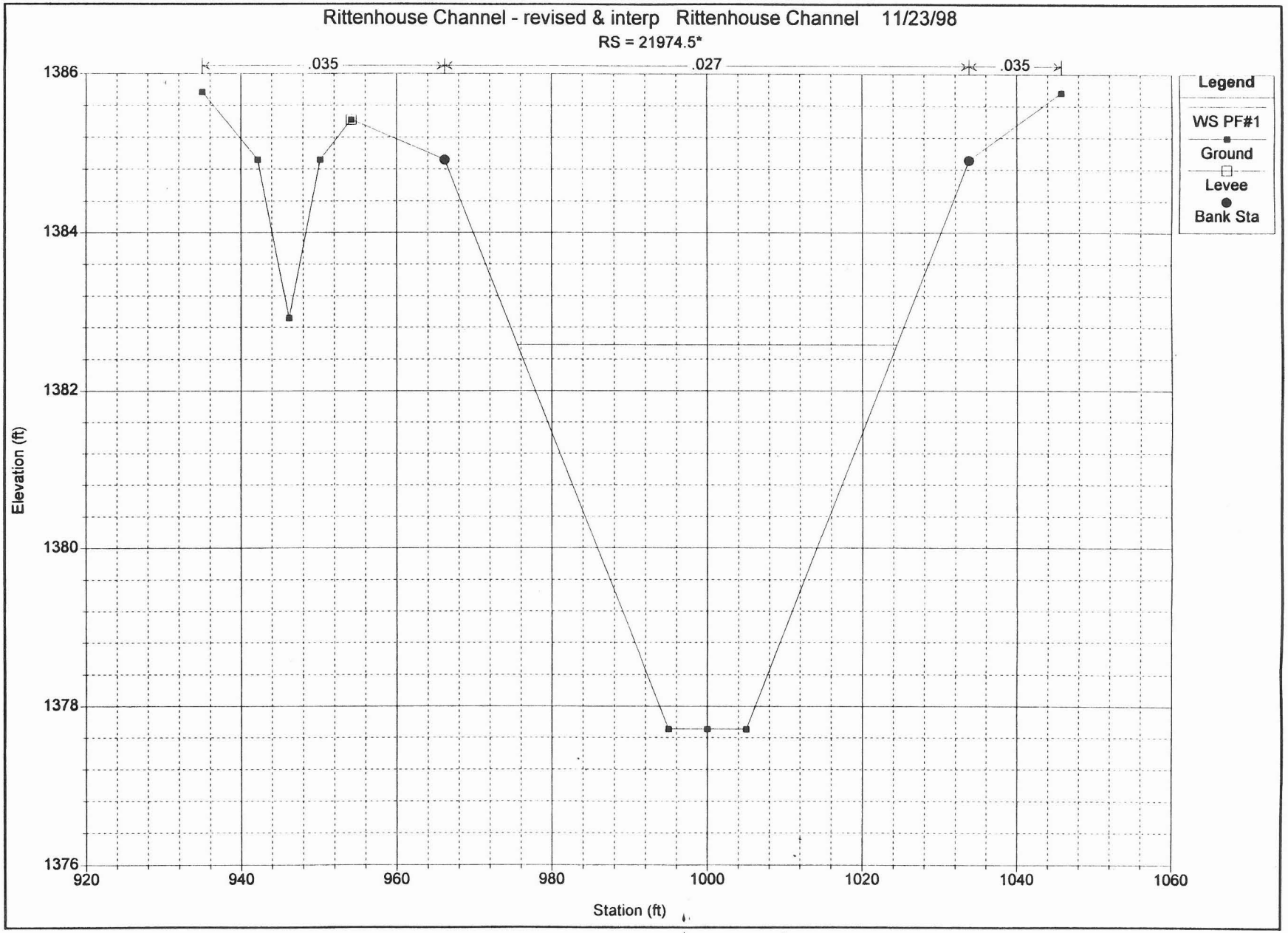

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21508.4*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

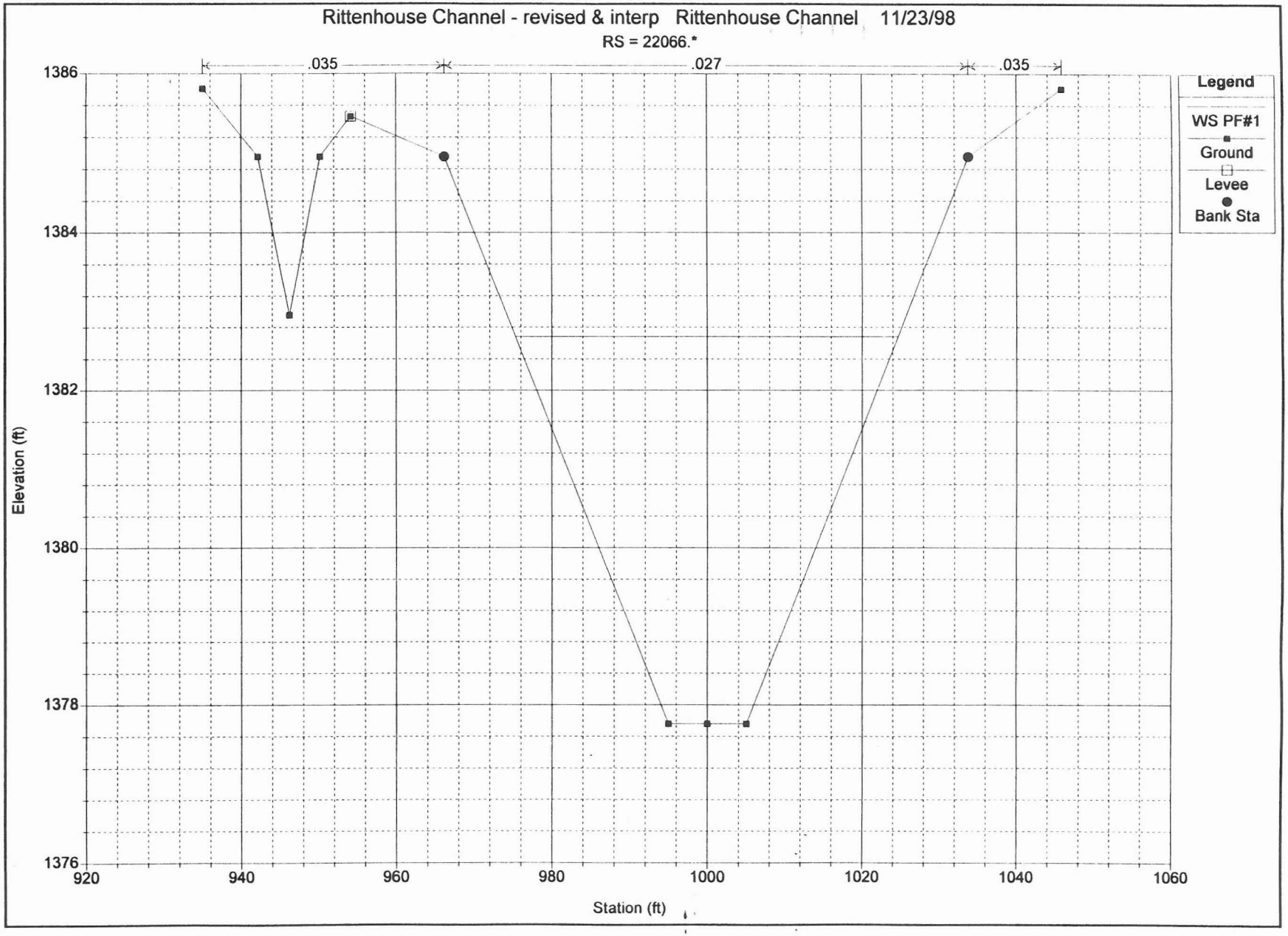

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21604.2*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

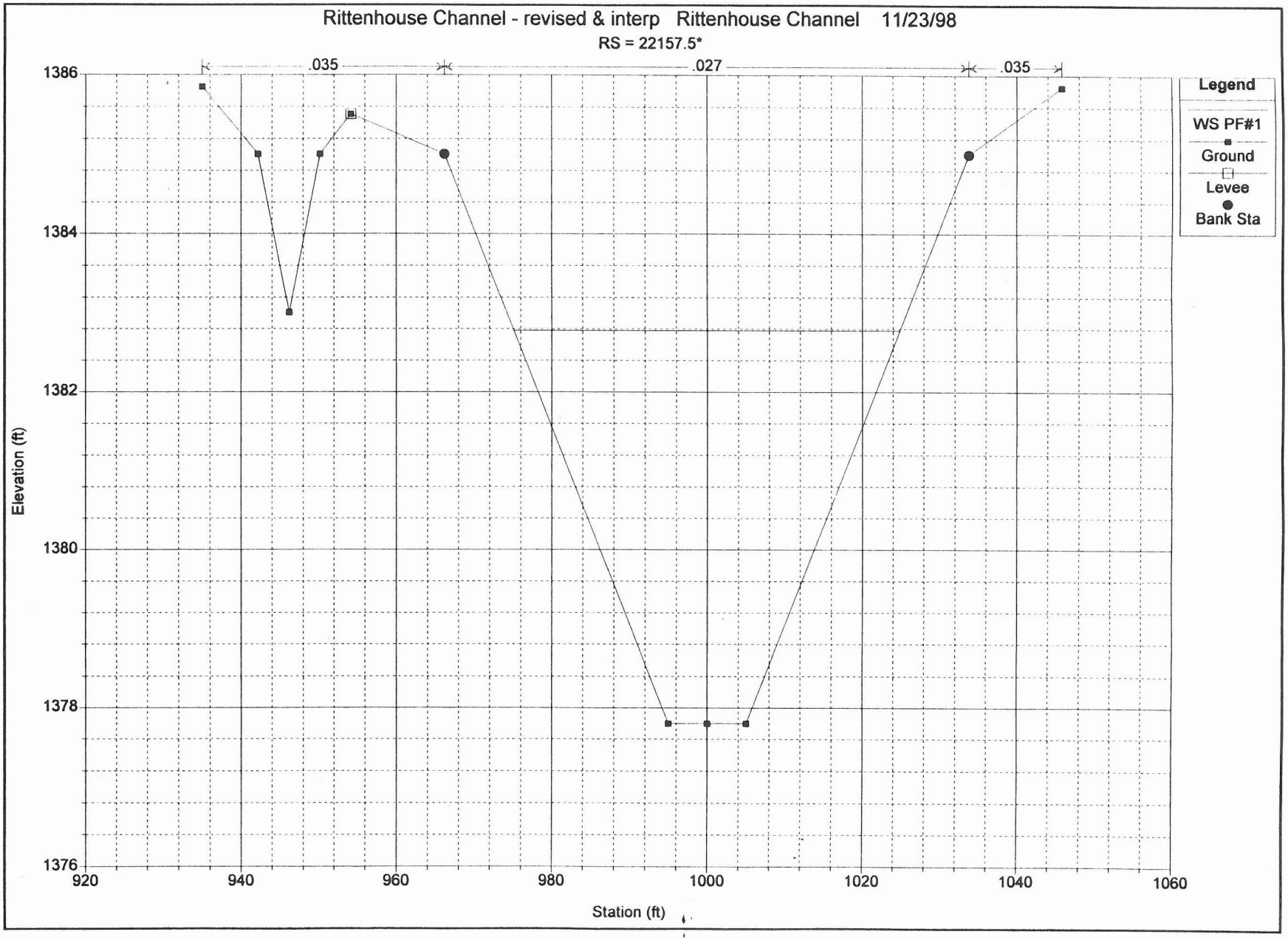

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
End of Sheet 28 RS = 21700.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

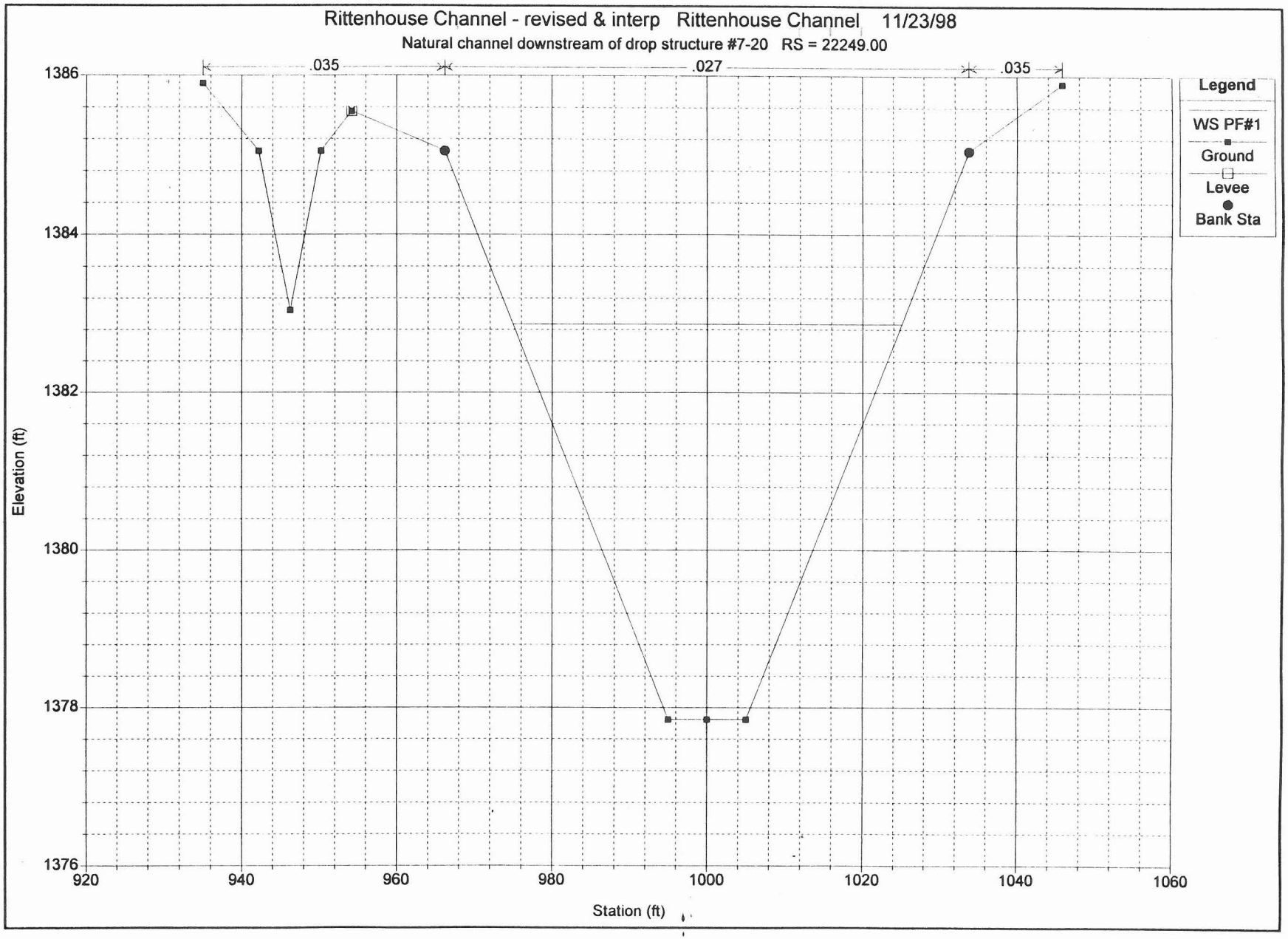

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21791.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

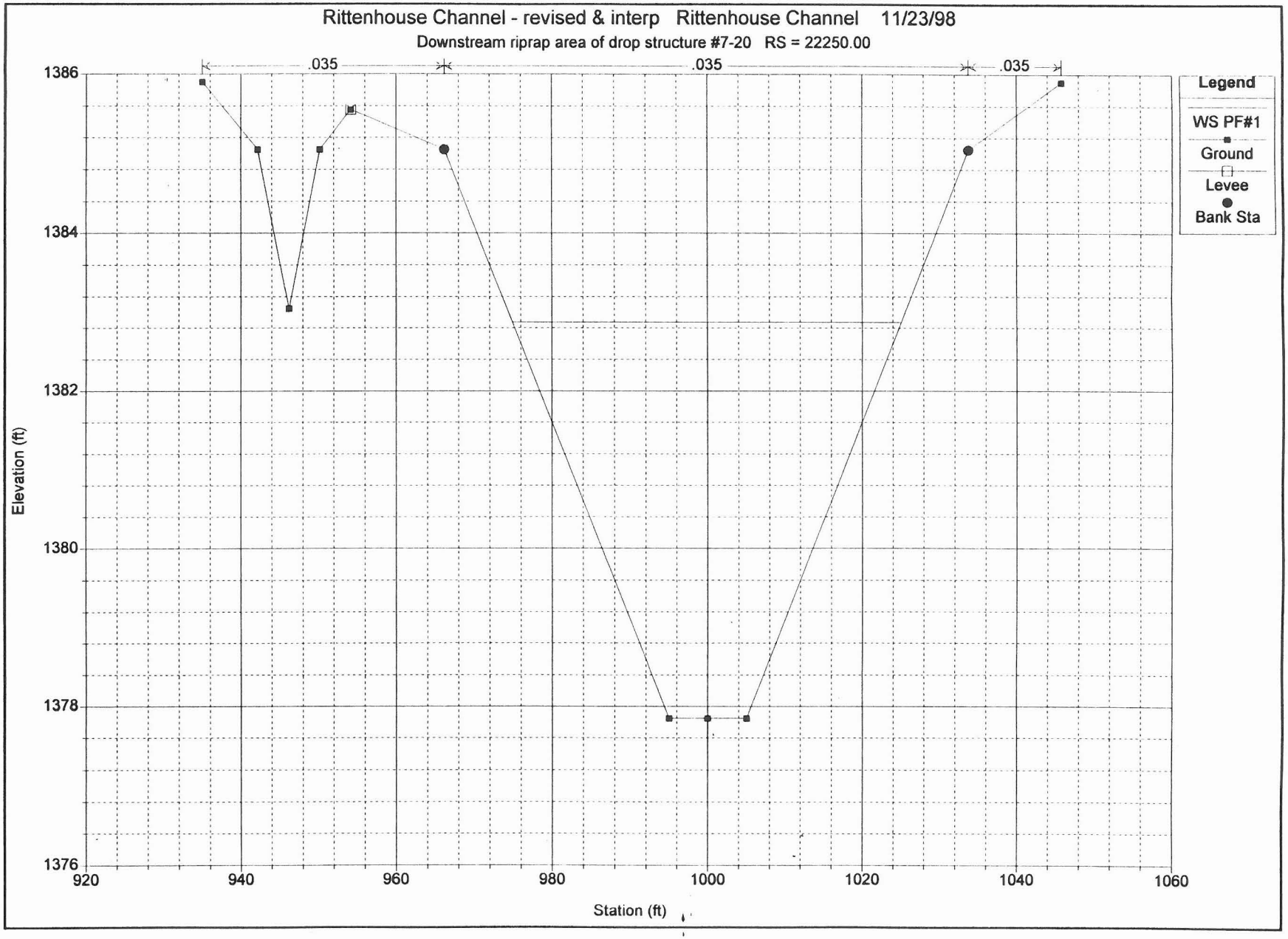

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21883.*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

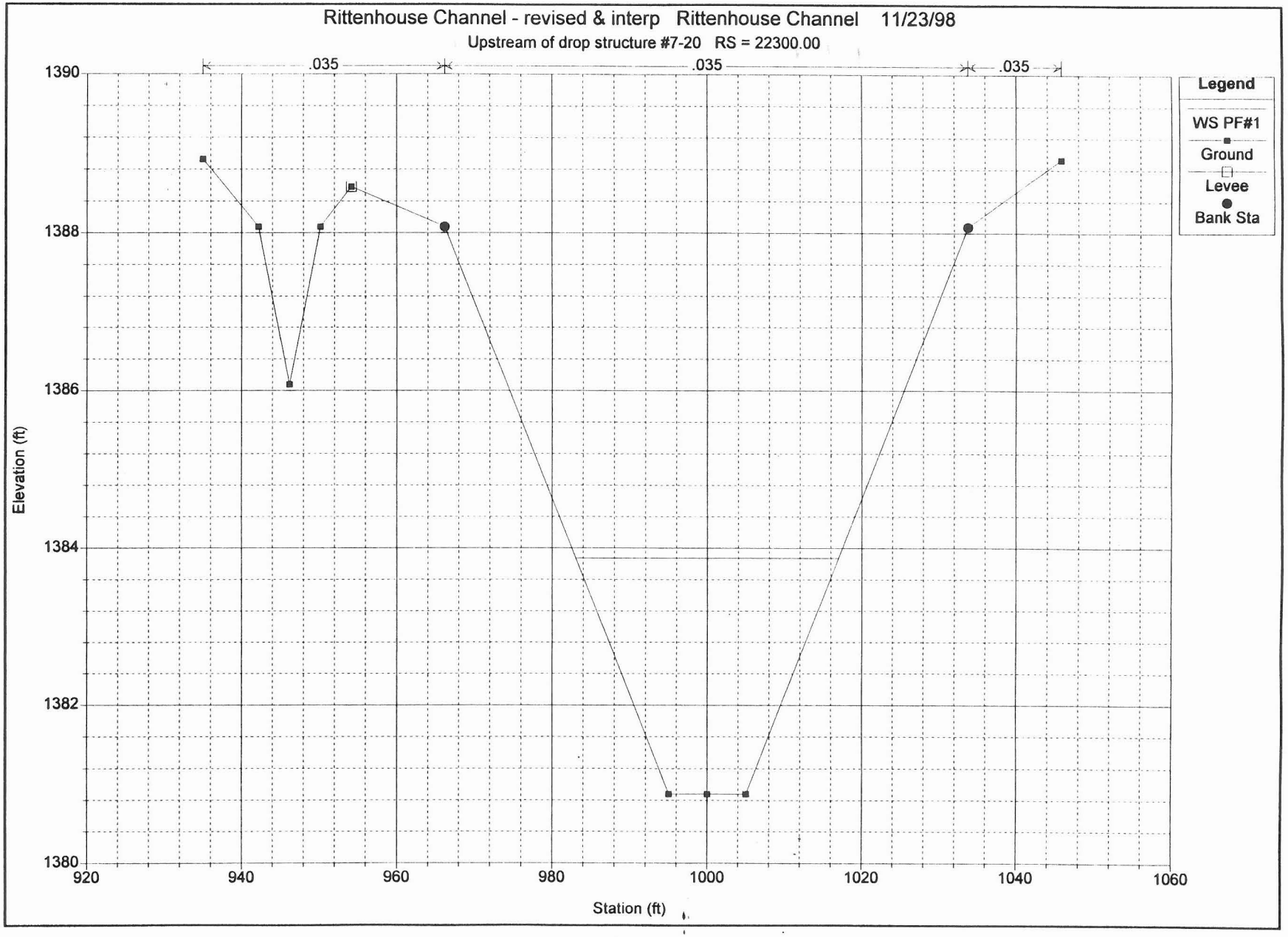

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 21974.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

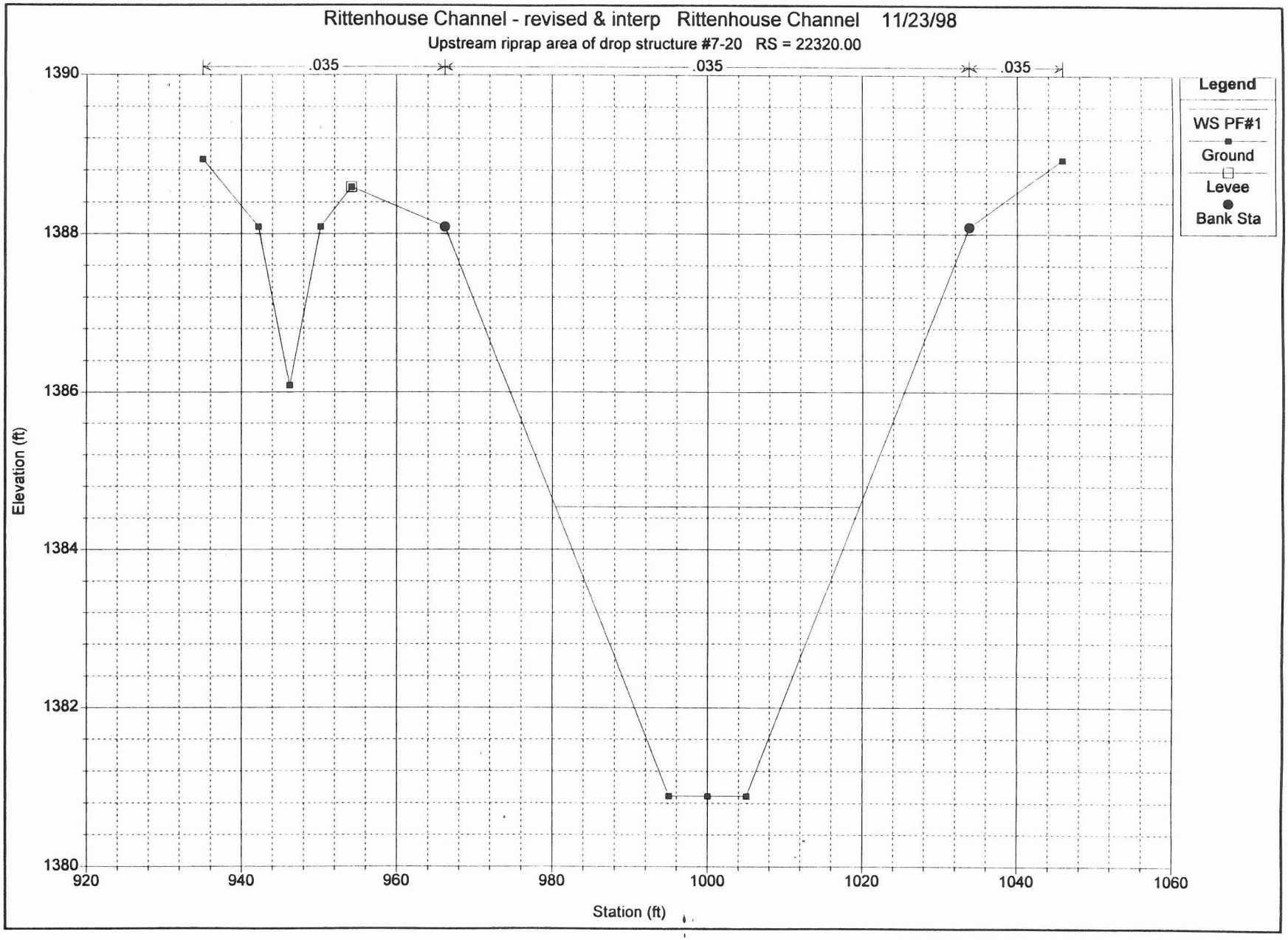

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 22066.*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

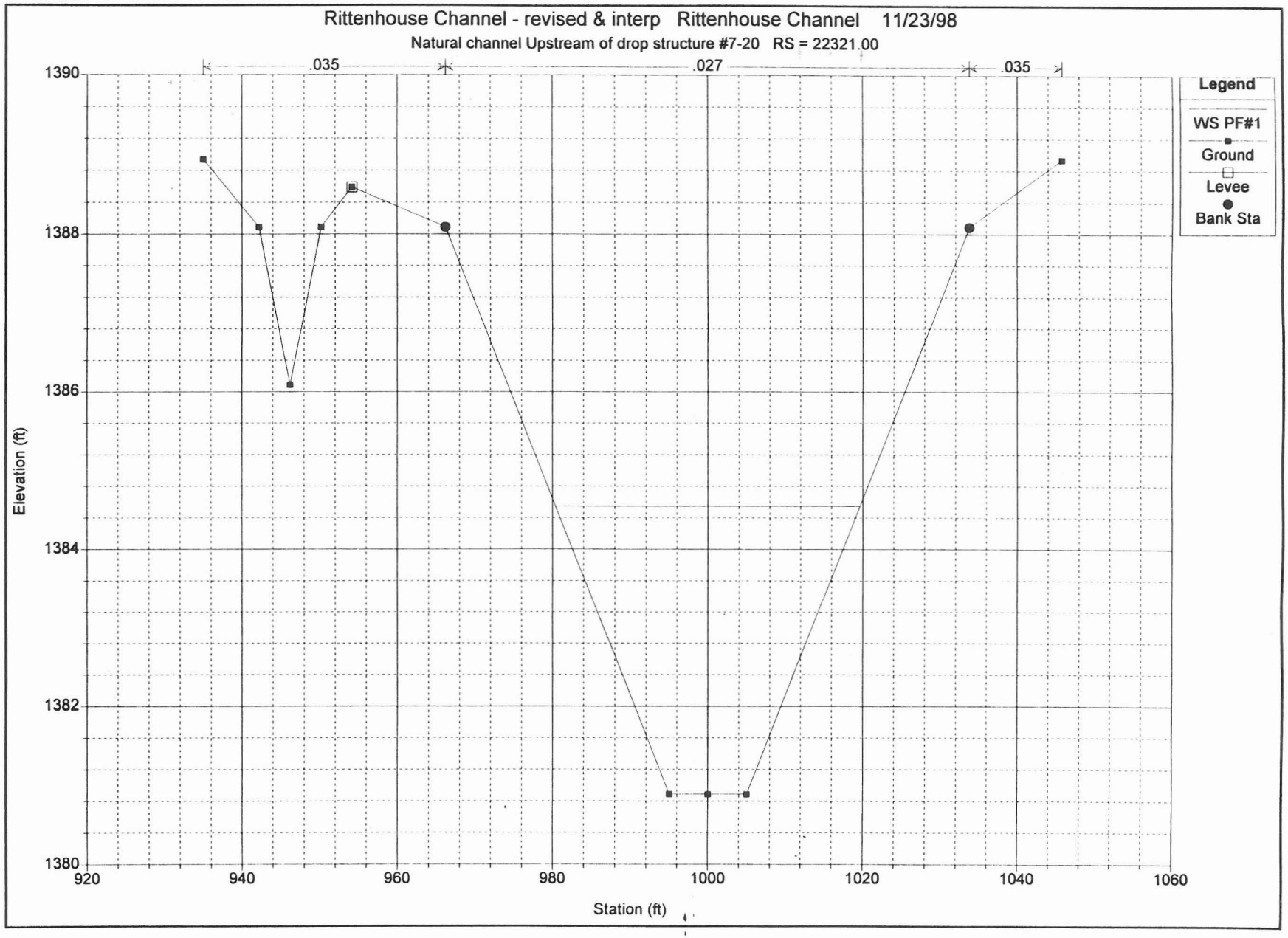

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 22157.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

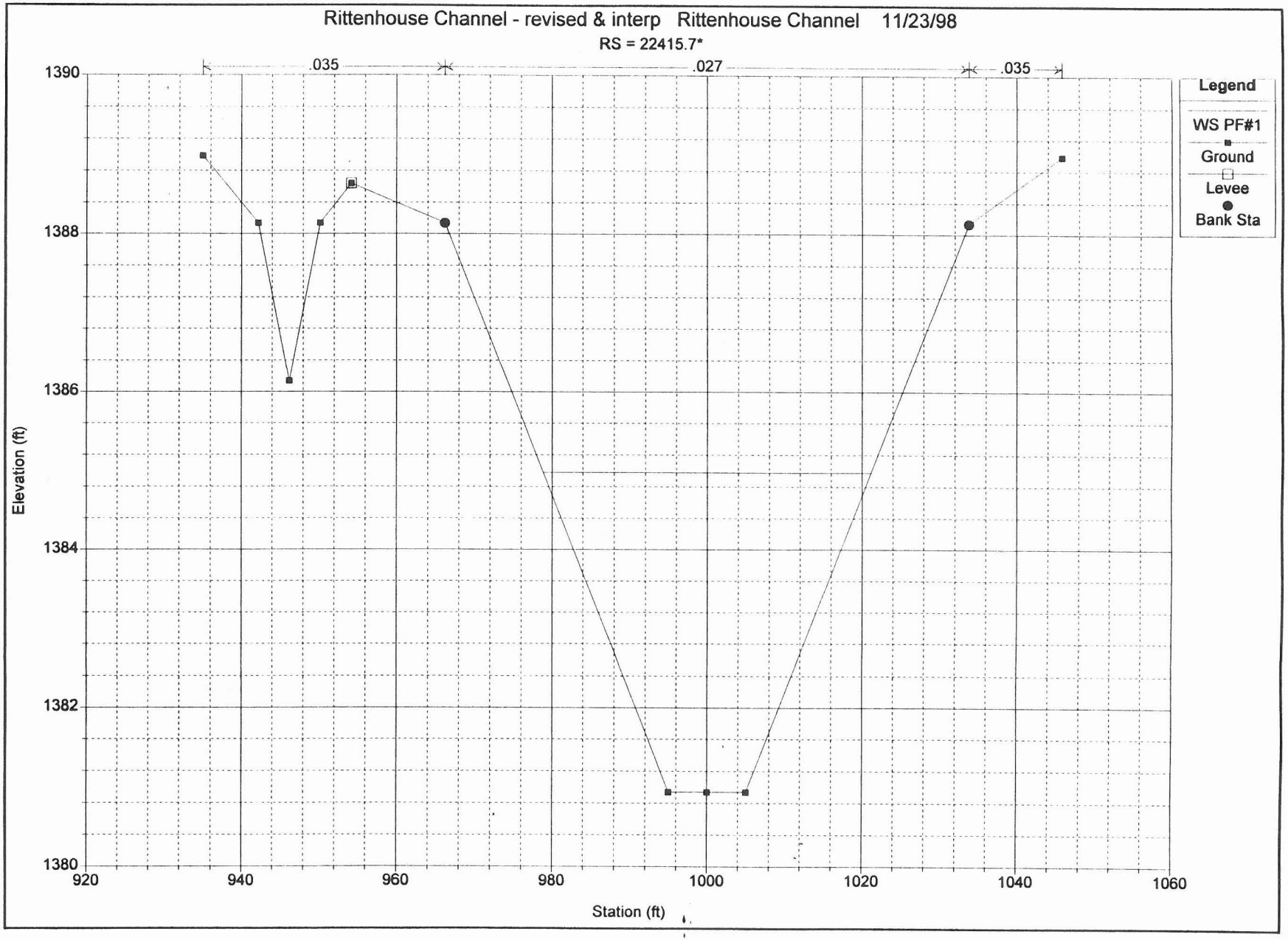

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel downstream of drop structure #7-20 RS = 22249.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1386
1384
1382
1380
1378
1376
Elevation (ft)
920
940
960
980
1000
1020
1040
1060
Station (ft)

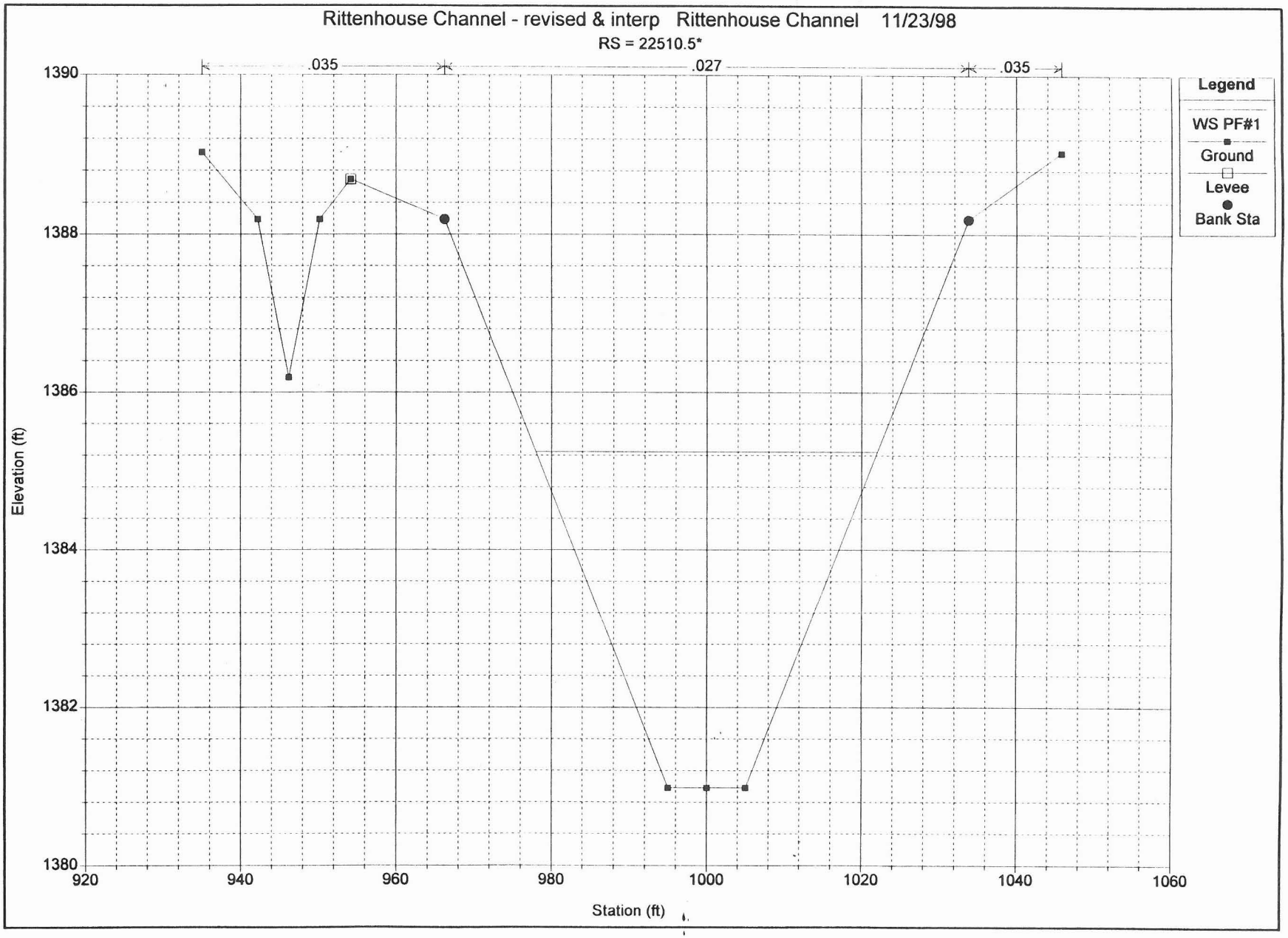

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream riprap area of drop structure #7-20 RS = 22250.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1386
1384
1382
1380
1378
1376
920
940
960
980
1000
1020
1040
1060
Station (ft)

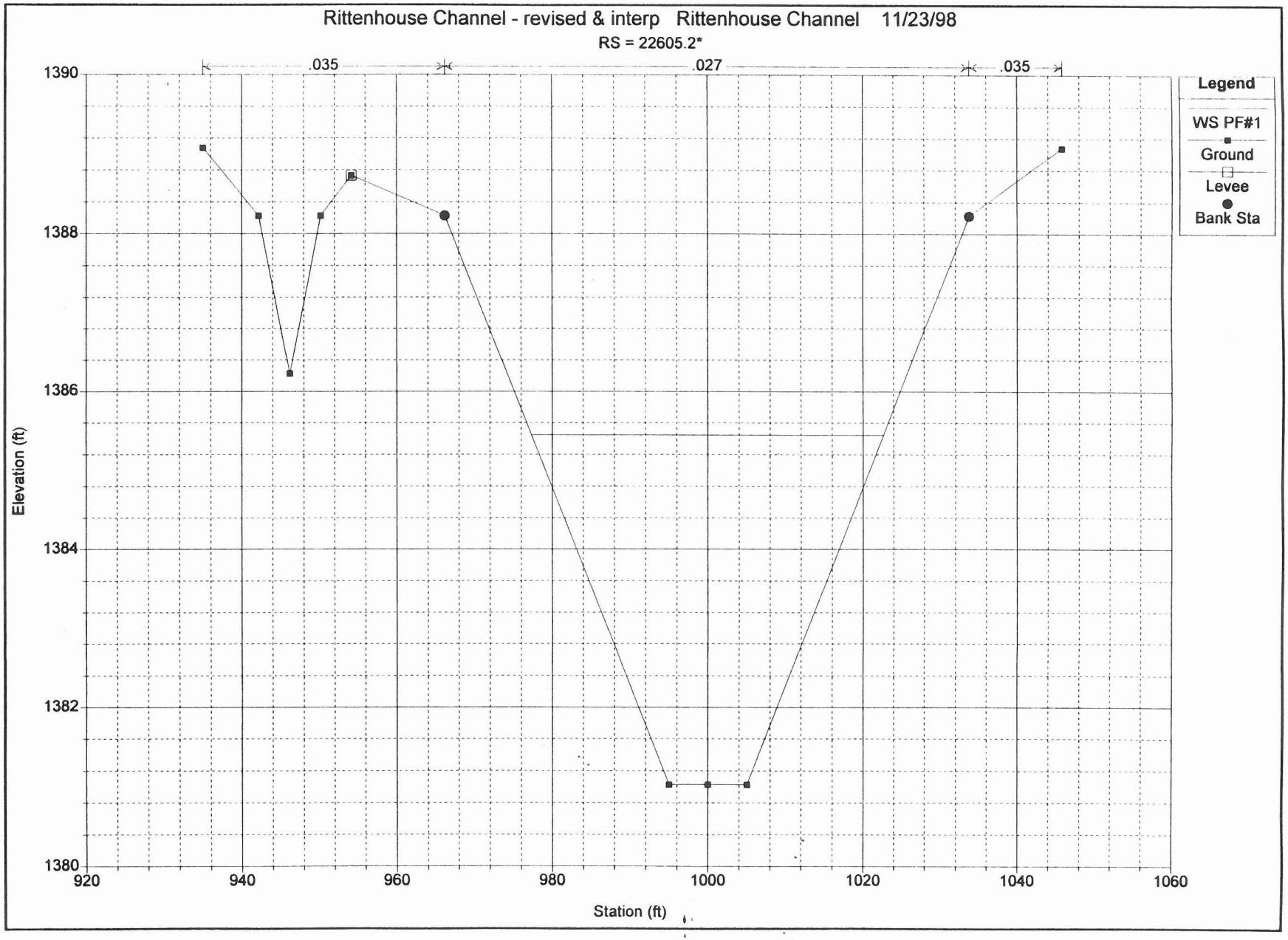

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream of drop structure #7-20 RS = 22300.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)

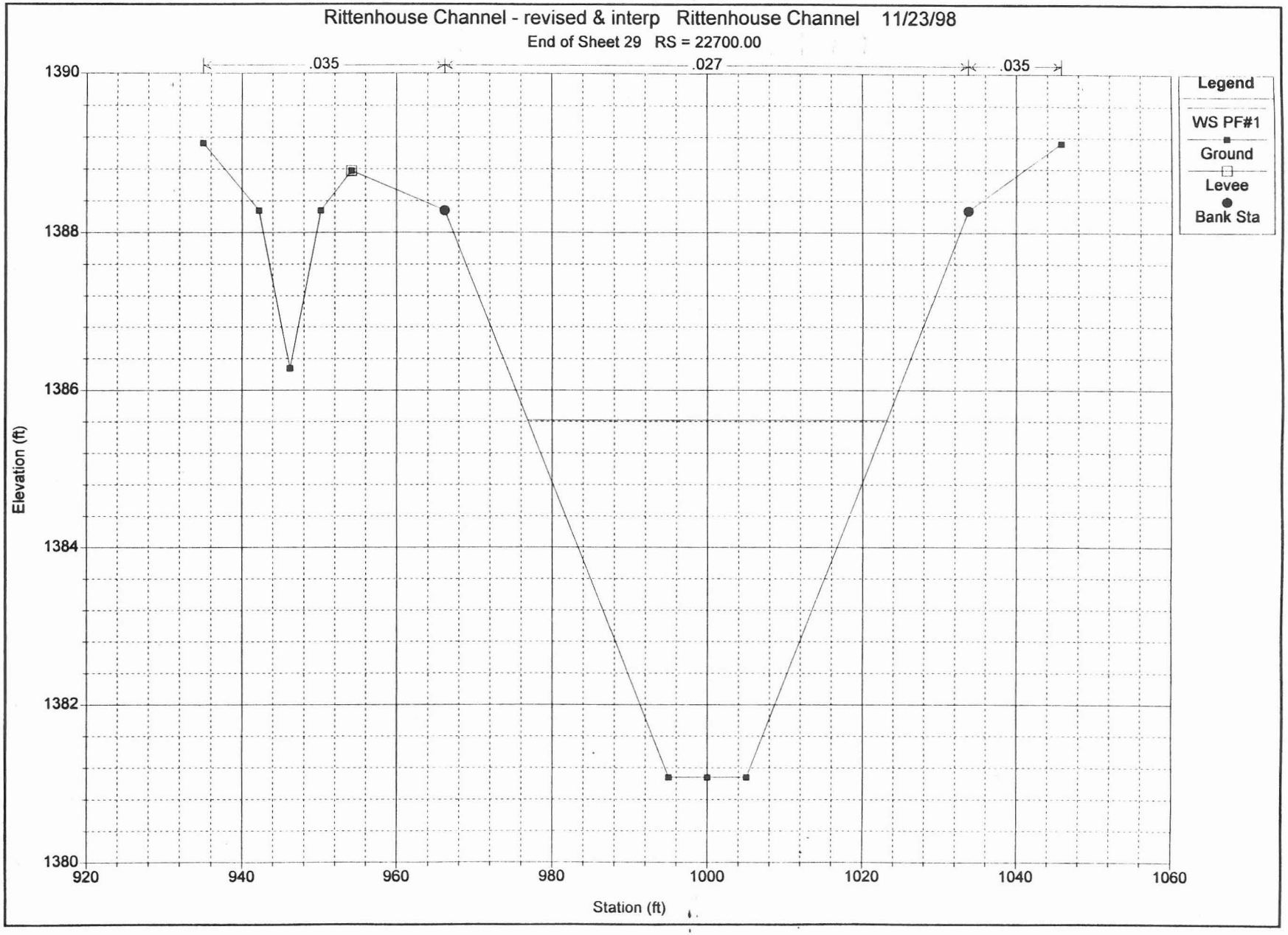

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream riprap area of drop structure #7-20 RS = 22320.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)

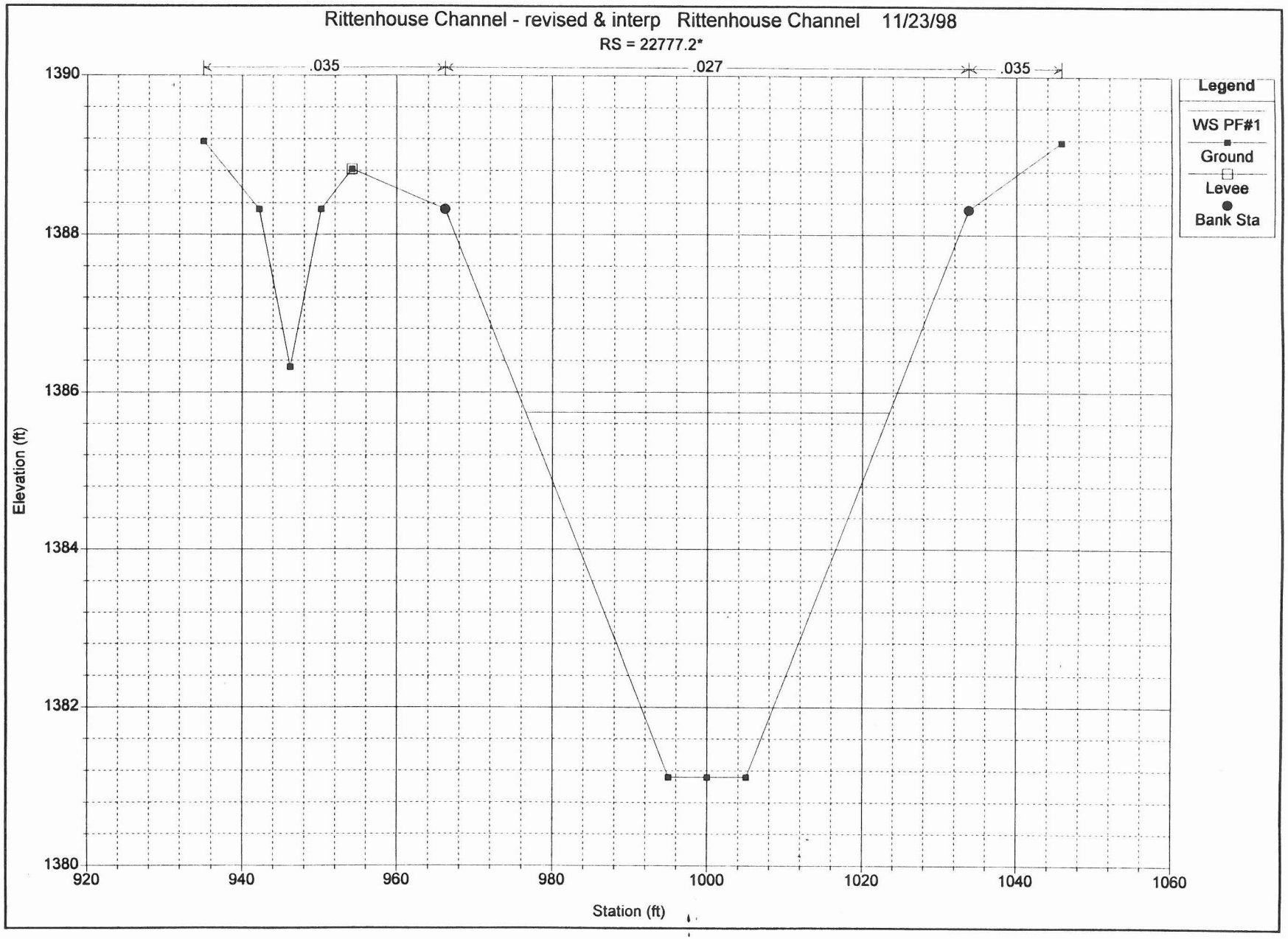

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel Upstream of drop structure #7-20 RS = 22321.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 22415.7*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 22510.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 22605.2*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
End of Sheet 29 RS = 22700.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)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RS = 22777.2*
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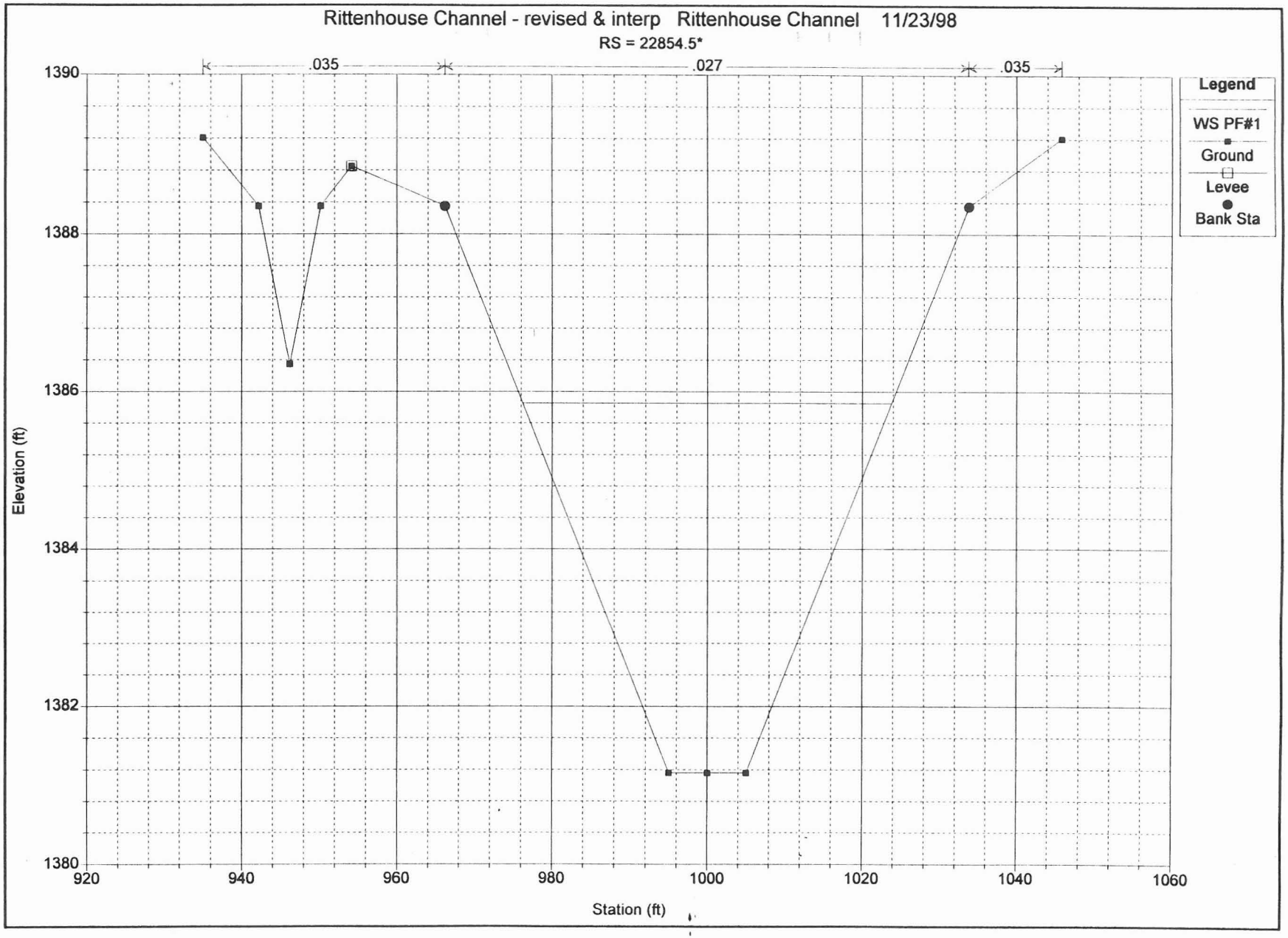
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)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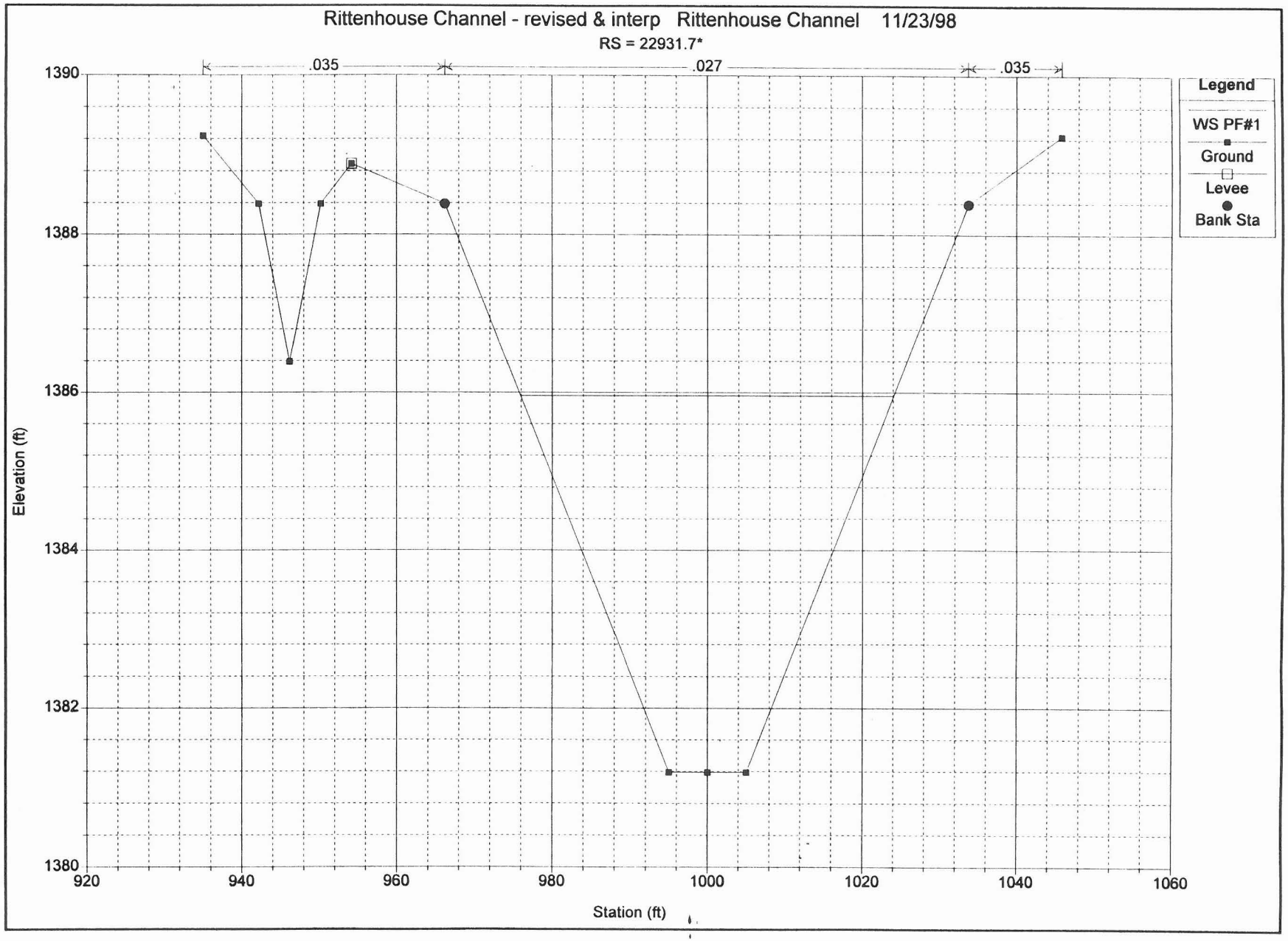
RS = 22854.5*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)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RS = 22931.7*
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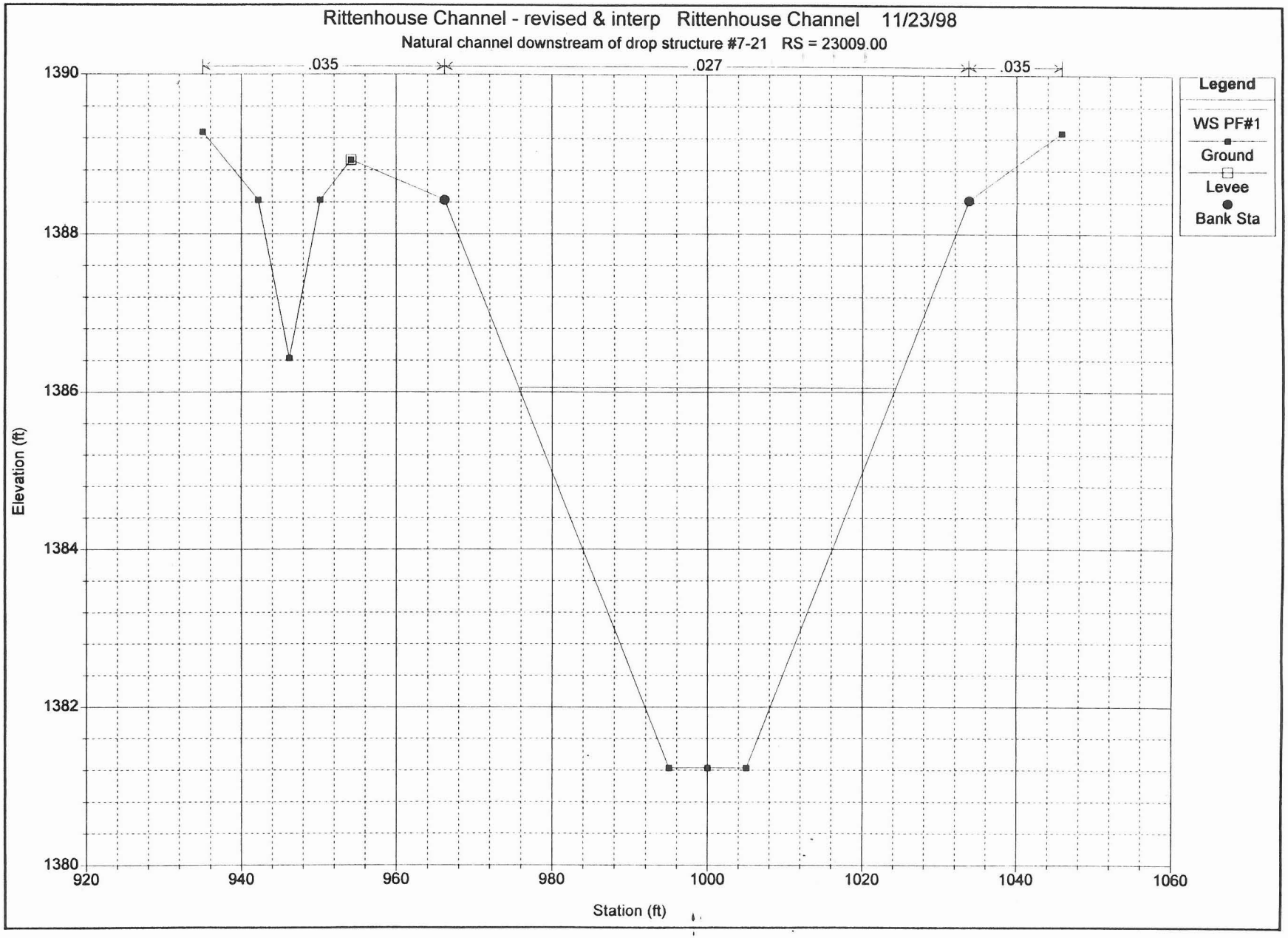
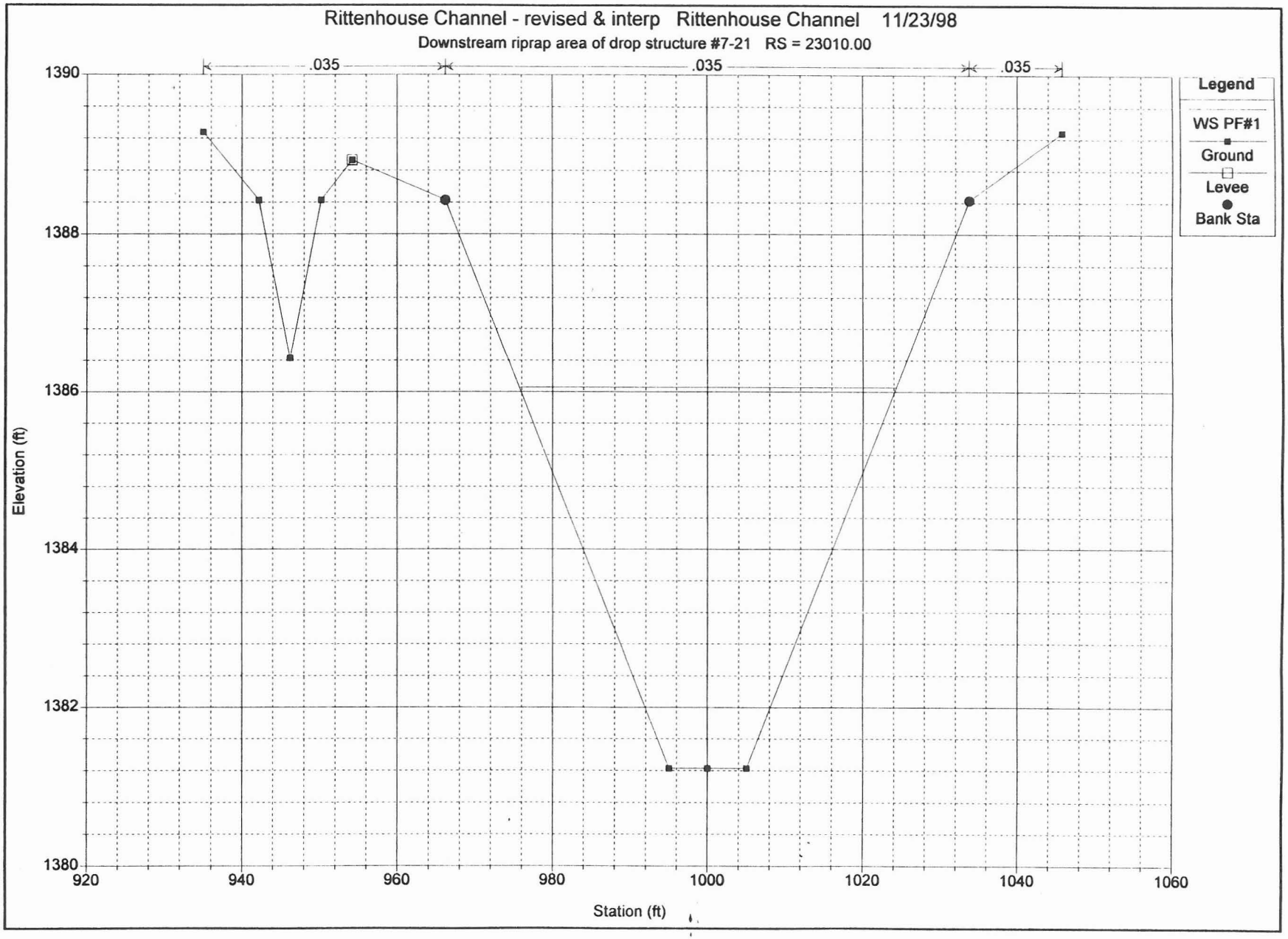
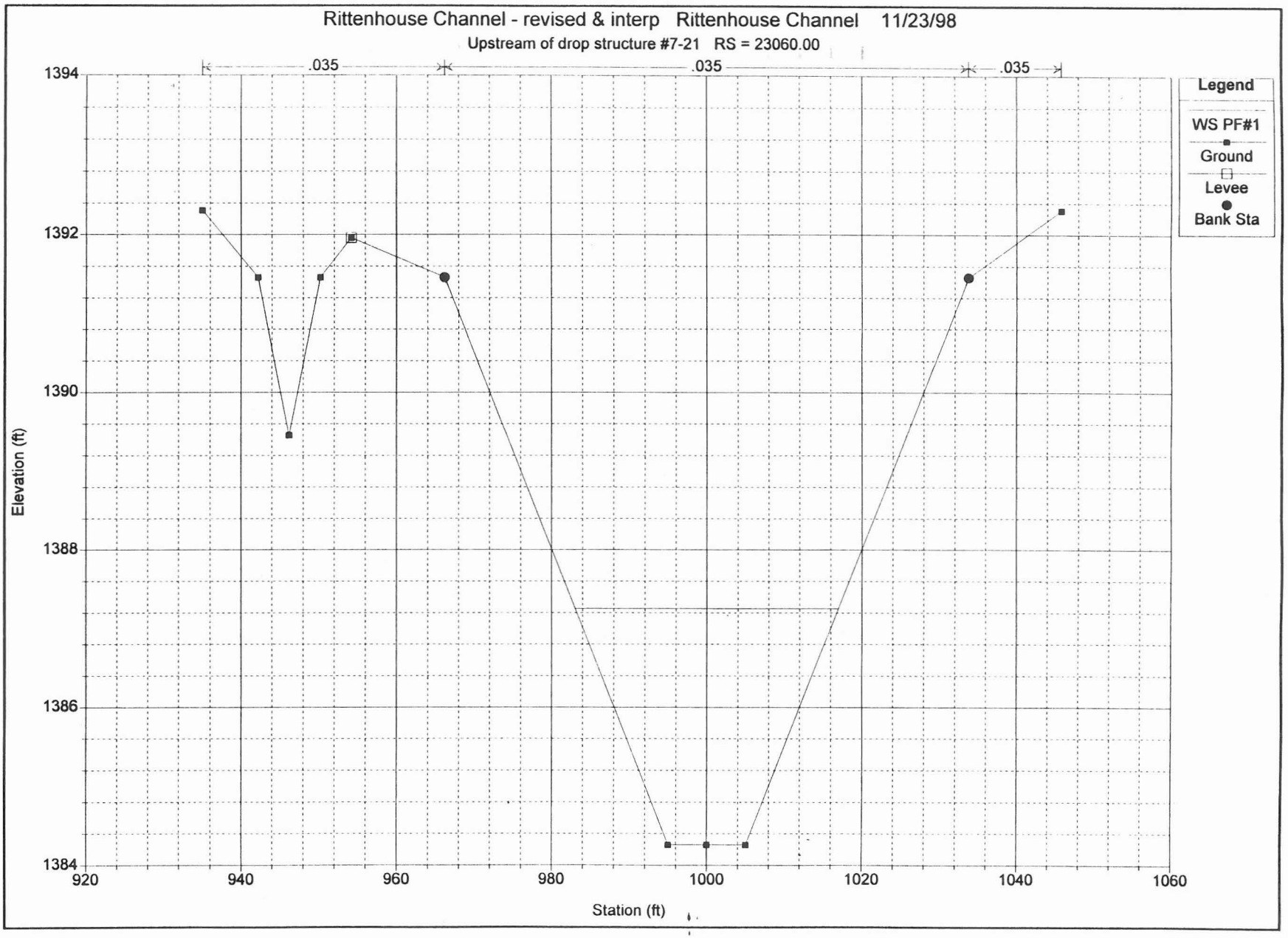
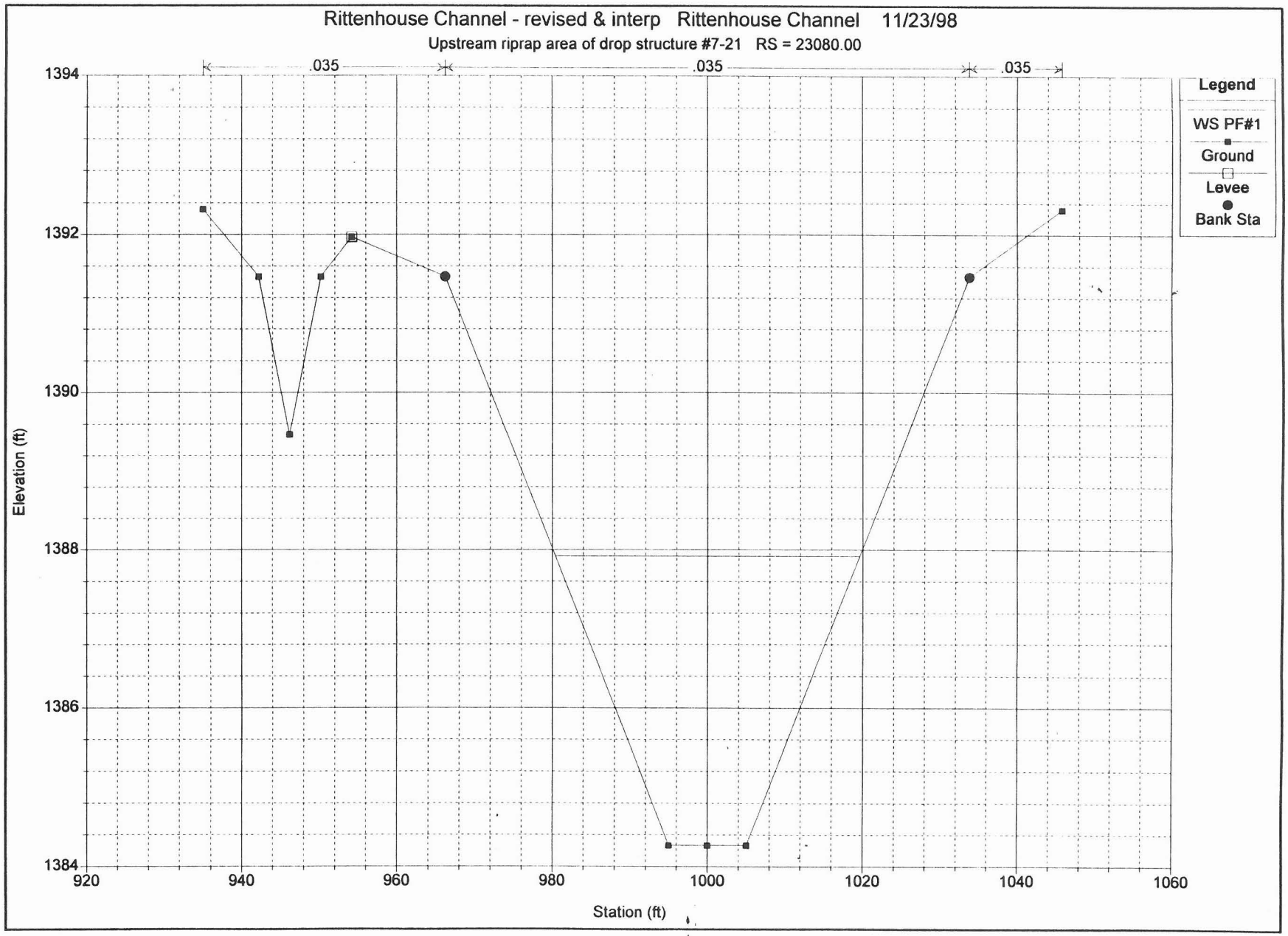
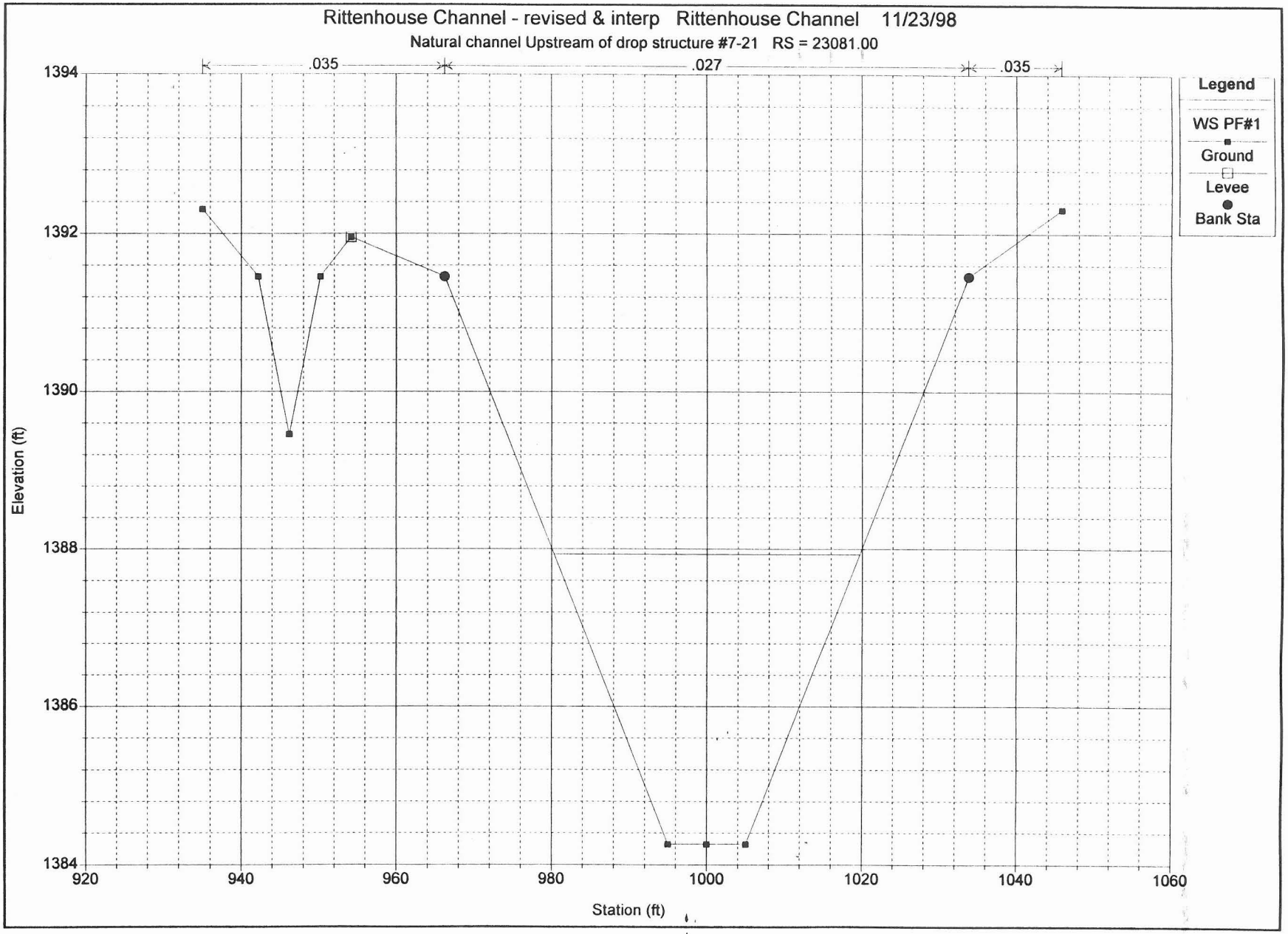
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)

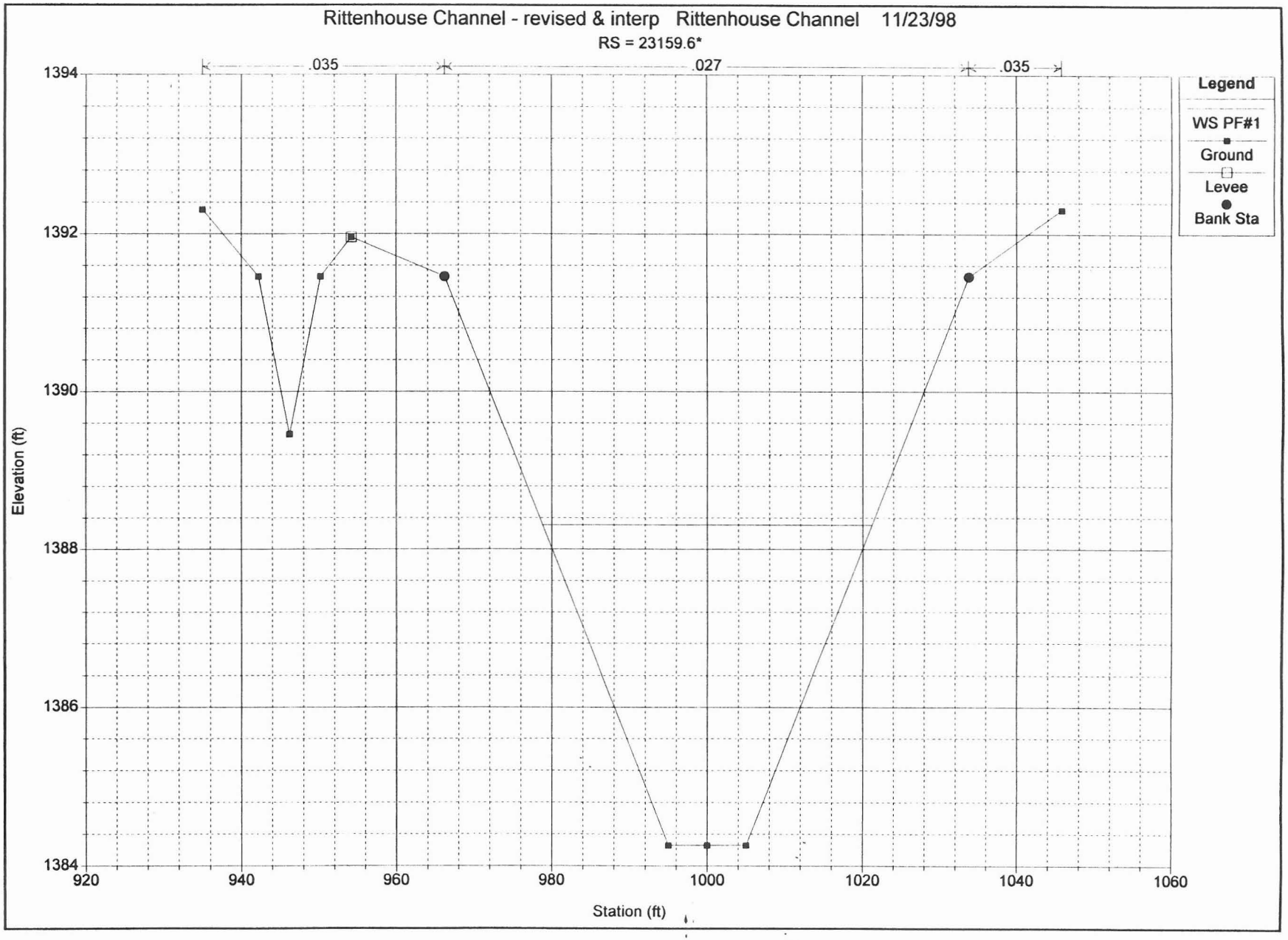

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel downstream of drop structure #7-21 RS = 23009.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)

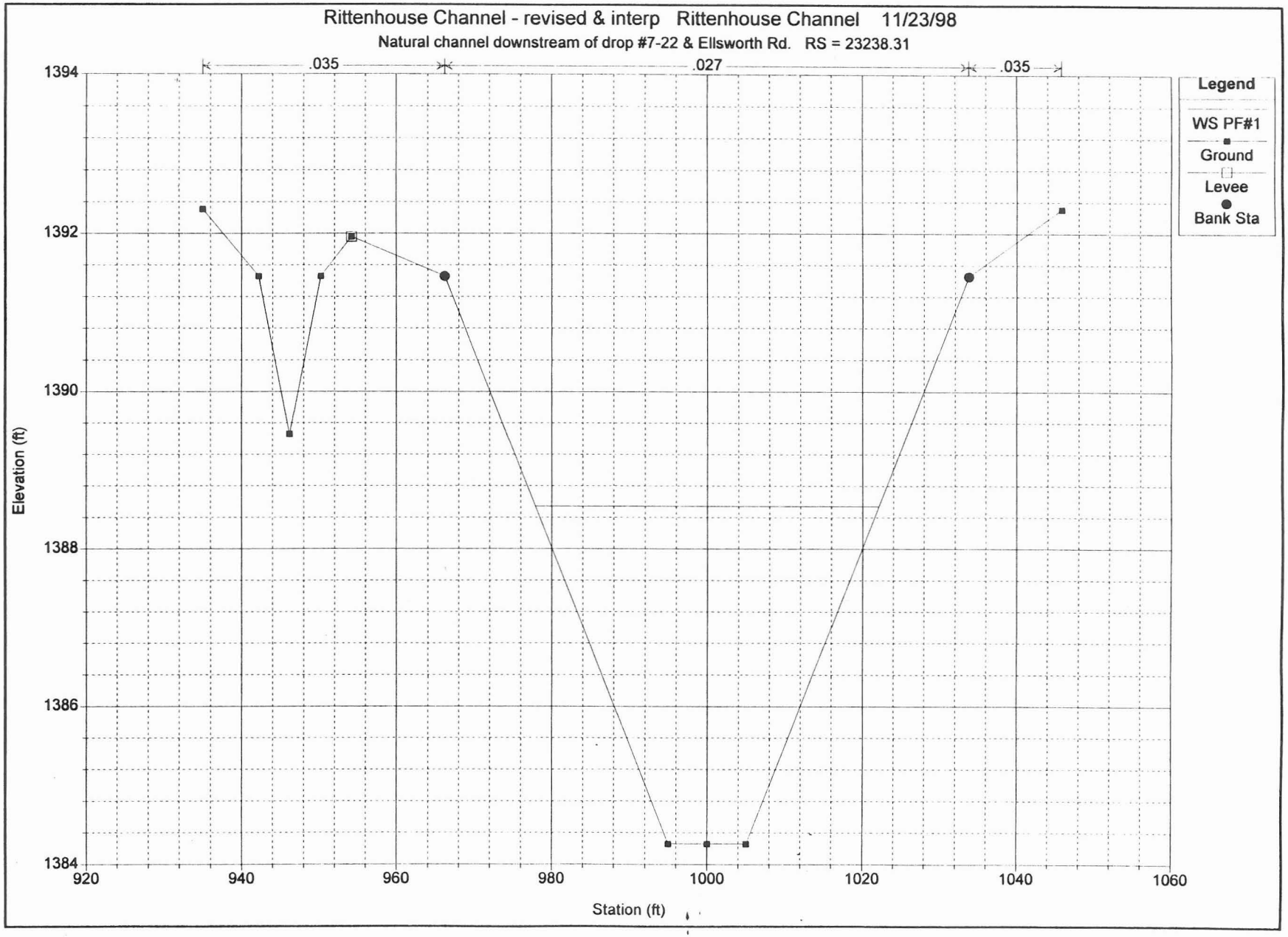

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream riprap area of drop structure #7-21 RS = 23010.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
920
940
960
980
1000
1020
1040
1060
Station (ft)

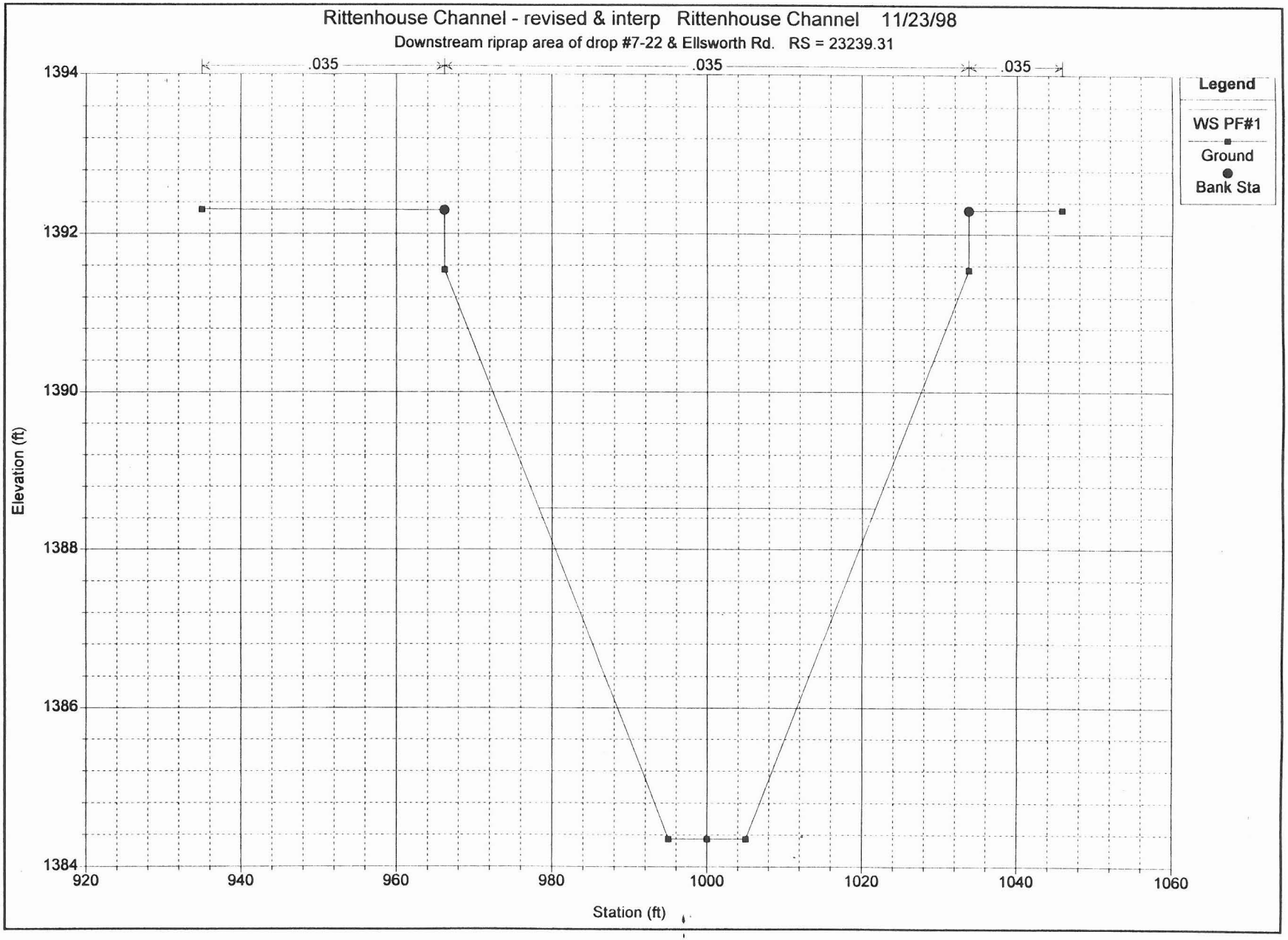

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream of drop structure #7-21 RS = 23060.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
1394
1392
1390
1388
1386
1384
Elevation (ft)
920
940
960
980
1000
1020
1040
1060
Station (ft)

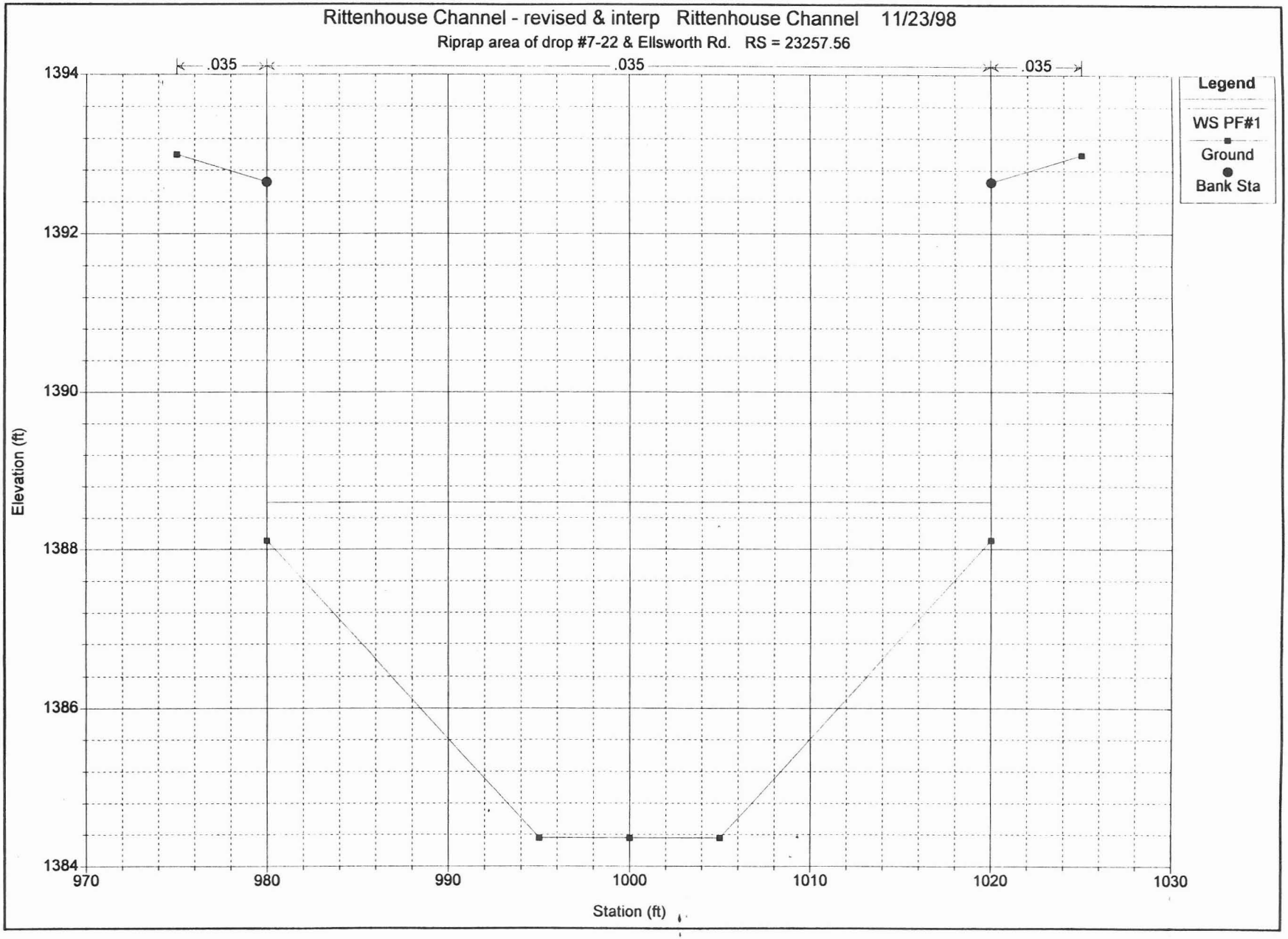

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Upstream riprap area of drop structure #7-21 RS = 23080.00
.035
.035
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1394
1392
1390
1388
1386
1384
920
940
960
980
1000
1020
1040
1060
Station (ft)

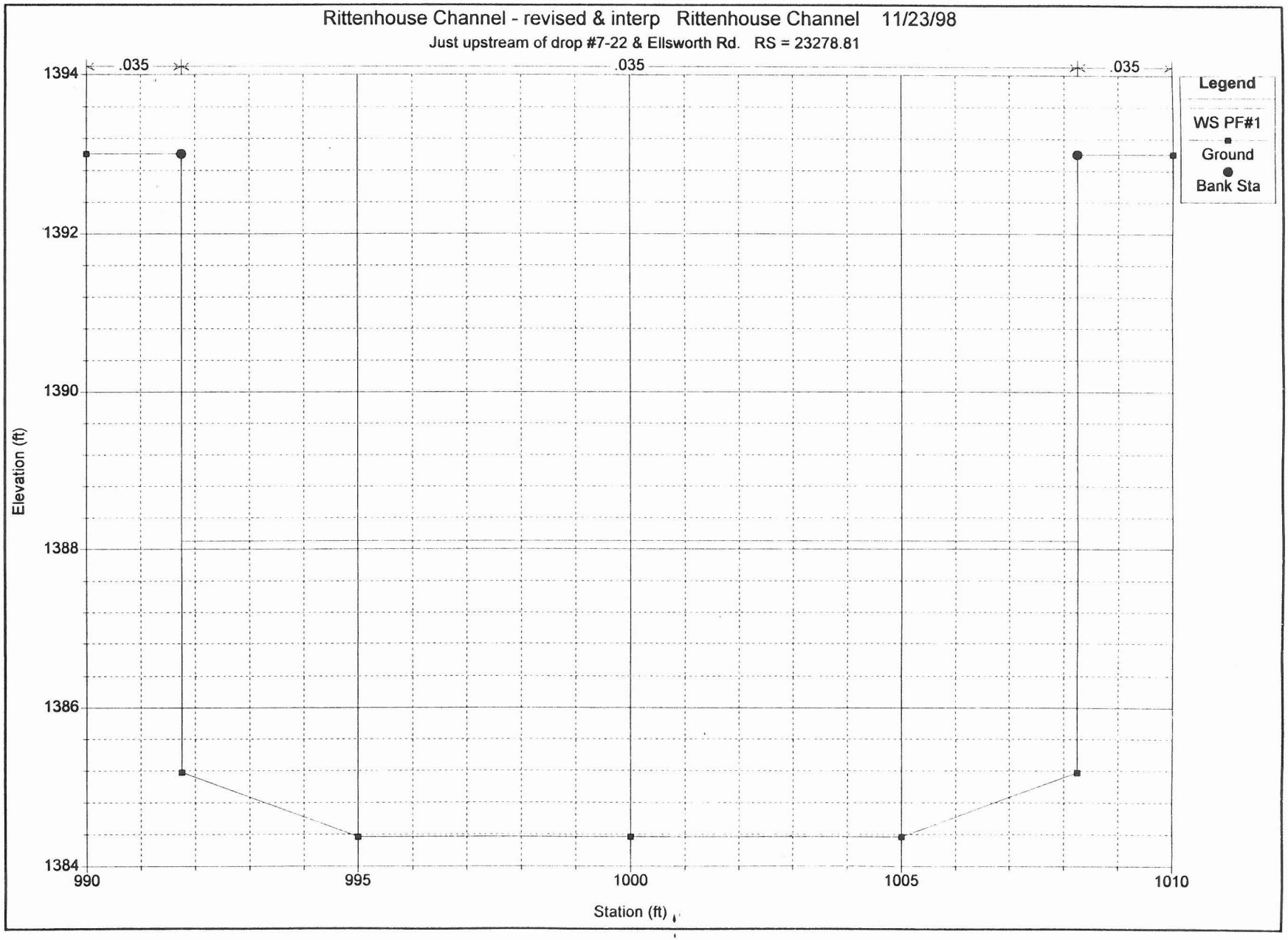

Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel Upstream of drop structure #7-21 RS = 23081.00
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1394
1392
1390
1388
1386
1384
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
RS = 23159.6*
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1394
1392
1390
1388
1386
1384
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Natural channel downstream of drop #7-22 & Ellsworth Rd. RS = 23238.31
.035
.027
.035
Legend
WS PF#1
Ground
Levee
Bank Sta
Elevation (ft)
1394
1392
1390
1388
1386
1384
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Downstream riprap area of drop #7-22 & Ellsworth Rd. RS = 23239.31
.035
.035
.035
Legend
WS PF#1
Ground
Bank Sta
1394
1392
1390
1388
1386
1384
Elevation (ft)
920
940
960
980
1000
1020
1040
1060
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Riprap area of drop #7-22 & Ellsworth Rd. RS = 23257.56
.035
.035
.035
Legend
WS PF#1
Ground
Bank Sta
1394
1392
1390
1388
1386
1384
Elevation (ft)
970
980
990
1000
1010
1020
1030
Station (ft)


Rittenhouse Channel - revised & interp Rittenhouse Channel 11/23/98
Just upstream of drop #7-22 & Ellsworth Rd. RS = 23278.81
.035
.035
.035
Legend
WS PF#1
Ground
Bank Sta
1394
1392
1390
1388
1386
1384
Elevation (ft)
990
995
1000
1005
1010
Station (ft)

# Appendix I

# APPENDIX I

# FLOODWAY DATA TABLE

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX      XXXXXX    XXXX
X     X  X        X            X  X      X    X        X
X     X  X        X    X       X   X     X    X        X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
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PROJECT DATA
Project Title: Rittenhouse Channel - revised & interp
Project File : final.prj
Run Date and Time: 11/23/98 2:44:28 PM

Project in English units

Project Description:
Rittenhouse channel CLOMR for improved channel - revised cross sections at Sossaman Dr.

Profile Output Table - Encroachment 3

| Reach | River Sta | Top Wdth Act (ft) | Area (sq ft) | Vel Total (ft/s) | W.S. Elev (ft) | Base WS (ft) | Prof Delta WS (ft) |
|---|---|---|---|---|---|---|---|
| Main Channel | 800.00 | 71.12 | 196.38 | 5.33 | 1316.90 | 1315.90 | 1.00 |
| Main Channel | 820.00 | 71.95 | 203.78 | 5.14 | 1317.01 | 1316.57 | 0.45 |
| Main Channel | 821.00 | 71.97 | 203.99 | 5.13 | 1317.02 | 1316.57 | 0.45 |
| Main Channel | 911.581* | 73.47 | 217.58 | 4.81 | 1317.25 | 1316.99 | 0.27 |
| Main Channel | 1002.16* | 74.68 | 228.86 | 4.57 | 1317.45 | 1317.25 | 0.20 |
| Main Channel | 1092.74* | 75.57 | 237.19 | 4.41 | 1317.61 | 1317.45 | 0.16 |
| Main Channel | 1183.32* | 76.41 | 245.16 | 4.27 | 1317.75 | 1317.62 | 0.13 |
| Main Channel | 1273.90* | 77.08 | 251.92 | 4.16 | 1317.88 | 1317.77 | 0.11 |
| Main Channel | 1364.49 | 77.67 | 257.28 | 4.07 | 1318.00 | 1317.90 | 0.10 |
| Main Channel | 1459.40* | 78.19 | 262.37 | 3.99 | 1318.11 | 1318.03 | 0.09 |
| Main Channel | 1554.32* | 78.66 | 266.93 | 3.92 | 1318.22 | 1318.15 | 0.08 |
| Main Channel | 1649.24* | 79.13 | 271.22 | 3.86 | 1318.32 | 1318.26 | 0.07 |
| Main Channel | 1744.16* | 79.55 | 275.72 | 3.80 | 1318.42 | 1318.36 | 0.06 |
| Main Channel | 1839.08* | 79.88 | 279.10 | 3.75 | 1318.52 | 1318.46 | 0.06 |
| Main Channel | 1934.00 | 80.20 | 282.22 | 3.71 | 1318.60 | 1318.55 | 0.05 |
| Main Channel | 1935.00 | 80.21 | 282.31 | 3.71 | 1318.61 | 1318.55 | 0.05 |
| Main Channel | 1945.00 | 80.33 | 283.59 | 3.69 | 1318.62 | 1318.57 | 0.05 |
| Main Channel | 2000.00 | 63.16 | 129.61 | 8.08 | 1318.51 | 1318.51 | 0.00 |
| Main Channel | 2020.00 | 68.35 | 172.22 | 6.08 | 1319.16 | 1319.16 | 0.00 |
| Main Channel | 2021.00 | 68.39 | 172.54 | 6.07 | 1319.17 | 1319.17 | 0.00 |
| Main Channel | 2118.94* | 71.52 | 199.97 | 5.24 | 1319.61 | 1319.61 | 0.00 |
| Main Channel | 2216.89* | 73.30 | 216.05 | 4.85 | 1319.88 | 1319.88 | 0.00 |
| Main Channel | 2314.84 | 74.58 | 227.90 | 4.59 | 1320.09 | 1320.09 | 0.00 |
| Main Channel | 2394.62* | 75.43 | 235.82 | 4.44 | 1320.24 | 1320.24 | 0.00 |
| Main Channel | 2474.41* | 76.15 | 242.63 | 4.32 | 1320.37 | 1320.37 | 0.00 |
| Main Channel | 2554.20* | 76.77 | 248.62 | 4.21 | 1320.49 | 1320.49 | 0.00 |
| Main Channel | 2634.00 | 77.33 | 253.95 | 4.12 | 1320.60 | 1320.60 | 0.00 |
| Main Channel | 2635.00 | 77.34 | 254.06 | 4.12 | 1320.60 | 1320.60 | 0.00 |
| Main Channel | 2645.00 | 77.51 | 255.76 | 4.09 | 1320.62 | 1320.62 | 0.00 |
| Main Channel | 2700.00 | 63.02 | 128.46 | 8.15 | 1321.84 | 1321.84 | 0.00 |
| Main Channel | 2720.00 | 67.96 | 168.93 | 6.20 | 1322.47 | 1322.47 | 0.00 |
| Main Channel | 2721.00 | 68.00 | 169.26 | 6.19 | 1322.47 | 1322.47 | 0.00 |
| Main Channel | 2816.33* | 71.29 | 197.88 | 5.29 | 1322.93 | 1322.93 | 0.00 |
| Main Channel | 2911.66* | 73.09 | 214.14 | 4.89 | 1323.21 | 1323.21 | 0.00 |
| Main Channel | 3007.* | 74.38 | 226.01 | 4.63 | 1323.42 | 1323.42 | 0.00 |
| Main Channel | 3102.33* | 75.39 | 235.49 | 4.45 | 1323.59 | 1323.59 | 0.00 |
| Main Channel | 3197.66* | 76.32 | 244.28 | 4.29 | 1323.75 | 1323.75 | 0.00 |
| Main Channel | 3293.* | 77.01 | 250.92 | 4.17 | 1323.89 | 1323.89 | 0.00 |
| Main Channel | 3388.33* | 77.61 | 256.75 | 4.08 | 1324.01 | 1324.01 | 0.00 |
| Main Channel | 3483.66* | 78.15 | 261.94 | 4.00 | 1324.13 | 1324.13 | 0.00 |
| Main Channel | 3579.00 | 78.62 | 266.58 | 3.93 | 1324.24 | 1324.24 | 0.00 |
| Main Channel | 3580.00 | 78.63 | 266.68 | 3.93 | 1324.24 | 1324.24 | 0.00 |
| Main Channel | 3590.00 | 78.78 | 268.17 | 3.90 | 1324.26 | 1324.26 | 0.00 |
| Main Channel | 3640.00 | 62.91 | 127.60 | 8.21 | 1325.29 | 1325.29 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Main Channel | 3660.00 | 68.48 | 173.31 | 6.04 | 1326.00 | 1326.00 | 0.00 |
| Main Channel | 3661.00 | 68.51 | 173.62 | 6.03 | 1326.00 | 1326.00 | 0.00 |
| Main Channel | 3741.28* | 71.17 | 196.85 | 5.32 | 1326.38 | 1326.38 | 0.00 |
| Main Channel | 3821.57* | 72.79 | 211.36 | 4.95 | 1326.62 | 1326.62 | 0.00 |
| Main Channel | 3901.85* | 73.98 | 222.31 | 4.71 | 1326.81 | 1326.81 | 0.00 |
| Main Channel | 3982.14* | 74.94 | 231.21 | 4.53 | 1326.97 | 1326.97 | 0.00 |
| Main Channel | 4062.43 | 75.73 | 238.71 | 4.39 | 1327.11 | 1327.11 | 0.00 |
| Main Channel | 4063.43 | 75.75 | 238.85 | 4.38 | 1327.11 | 1327.11 | 0.00 |
| Main Channel | 4091.43 | 72.67 | 286.51 | 3.65 | 1327.26 | 1327.26 | 0.00 |
| Main Channel | 4107.43 | 56.29 | 237.20 | 4.41 | 1327.26 | 1327.26 | 0.00 |
| Main Channel | 4130.52 | 58.67 | 296.63 | 3.53 | 1327.47 | 1327.47 | 0.00 |
| Main Channel | 4133.00 | 58.67 | 125.63 | 8.33 | 1327.76 | 1327.76 | 0.00 |
| Main Channel | 4213.18 | Mult Open | | | | | |
| Main Channel | 4214.18 | 58.67 | 201.48 | 5.20 | 1331.07 | 1331.07 | 0.00 |
| Main Channel | 4226.18 | 55.65 | 171.61 | 6.14 | 1331.09 | 1331.09 | 0.00 |
| Main Channel | 4245.62 | 69.86 | 253.49 | 4.15 | 1331.50 | 1331.50 | 0.00 |
| Main Channel | 4345.62 | 206.41 | 898.82 | 1.17 | 1331.79 | 1331.79 | 0.00 |
| Main Channel | 4445.62 | 206.22 | 890.08 | 1.18 | 1331.80 | 1331.80 | 0.00 |
| Main Channel | 4508.58 | 208.26 | 972.70 | 1.08 | 1331.81 | 1331.81 | 0.00 |
| Main Channel | 4568.58 | 283.80 | 1239.87 | 0.85 | 1331.82 | 1331.82 | 0.00 |
| Main Channel | 4628.58 | 402.40 | 1772.61 | 0.59 | 1331.82 | 1331.82 | 0.00 |
| Main Channel | 4654.00 | 477.28 | 2112.40 | 0.50 | 1331.83 | 1331.83 | 0.00 |
| Main Channel | 4700 | 421.70 | 1883.05 | 0.56 | 1331.83 | 1331.83 | 0.00 |
| Main Channel | 4772.91* | 387.17 | 1690.39 | 0.62 | 1331.83 | 1331.83 | 0.00 |
| Main Channel | 4845.83 | 352.58 | 1526.99 | 0.69 | 1331.83 | 1331.83 | 0.00 |
| Main Channel | 4862.65 | 352.58 | 1527.12 | 0.69 | 1331.83 | 1331.83 | 0.00 |
| Main Channel | 4931.32* | 282.81 | 1163.20 | 0.91 | 1331.83 | 1331.83 | 0.00 |
| Main Channel | 5000 | 211.95 | 843.50 | 1.25 | 1331.82 | 1331.82 | 0.00 |
| Main Channel | 5100 | 65.87 | 221.48 | 4.75 | 1331.61 | 1331.61 | 0.00 |
| Main Channel | 5101 | 66.59 | 225.94 | 4.66 | 1331.63 | 1331.63 | 0.00 |
| Main Channel | 5184.5* | 67.41 | 232.56 | 4.53 | 1331.77 | 1331.77 | 0.00 |
| Main Channel | 5268.* | 68.12 | 238.88 | 4.41 | 1331.89 | 1331.89 | 0.00 |
| Main Channel | 5351.5* | 68.77 | 244.11 | 4.31 | 1332.01 | 1332.01 | 0.00 |
| Main Channel | 5435.* | 69.33 | 249.31 | 4.22 | 1332.11 | 1332.11 | 0.00 |
| Main Channel | 5518.5* | 69.89 | 254.26 | 4.14 | 1332.22 | 1332.22 | 0.00 |
| Main Channel | 5602.00 | 70.32 | 258.00 | 4.08 | 1332.31 | 1332.31 | 0.00 |
| Main Channel | 5603.00 | 70.33 | 258.09 | 4.08 | 1332.31 | 1332.31 | 0.00 |
| Main Channel | 5613 | 70.47 | 259.39 | 4.06 | 1332.33 | 1332.33 | 0.00 |
| Main Channel | 5663 | 52.75 | 122.37 | 8.60 | 1333.12 | 1333.12 | 0.00 |
| Main Channel | 5683.00 | 58.40 | 161.73 | 6.51 | 1333.84 | 1333.84 | 0.00 |
| Main Channel | 5684.00 | 58.43 | 162.00 | 6.50 | 1333.85 | 1333.85 | 0.00 |
| Main Channel | 5700 | 58.50 | 162.51 | 6.48 | 1333.91 | 1333.91 | 0.00 |
| Main Channel | 5800.* | 61.89 | 188.07 | 5.60 | 1334.38 | 1334.38 | 0.00 |
| Main Channel | 5900.* | 63.83 | 203.38 | 5.18 | 1334.67 | 1334.67 | 0.00 |
| Main Channel | 6000.* | 65.24 | 214.79 | 4.90 | 1334.90 | 1334.90 | 0.00 |
| Main Channel | 6100.* | 66.35 | 223.99 | 4.70 | 1335.09 | 1335.09 | 0.00 |
| Main Channel | 6200.* | 67.27 | 231.73 | 4.54 | 1335.26 | 1335.26 | 0.00 |
| Main Channel | 6300.* | 68.06 | 238.42 | 4.42 | 1335.41 | 1335.41 | 0.00 |
| Main Channel | 6400.* | 68.75 | 244.30 | 4.31 | 1335.54 | 1335.54 | 0.00 |
| Main Channel | 6500.* | 69.35 | 249.56 | 4.22 | 1335.67 | 1335.67 | 0.00 |
| Main Channel | 6600.* | 69.90 | 254.28 | 4.14 | 1335.79 | 1335.79 | 0.00 |
| Main Channel | 6700 | 70.38 | 258.58 | 4.07 | 1335.90 | 1335.90 | 0.00 |
| Main Channel | 6784.4* | 70.78 | 262.09 | 4.02 | 1335.99 | 1335.99 | 0.00 |
| Main Channel | 6868.8* | 71.24 | 266.15 | 3.96 | 1336.07 | 1336.07 | 0.00 |
| Main Channel | 6953.2* | 71.57 | 269.16 | 3.91 | 1336.16 | 1336.16 | 0.00 |
| Main Channel | 7037.6* | 71.97 | 272.78 | 3.86 | 1336.24 | 1336.24 | 0.00 |
| Main Channel | 7122.00 | 72.26 | 275.36 | 3.82 | 1336.31 | 1336.31 | 0.00 |
| Main Channel | 7123.00 | 72.27 | 275.44 | 3.82 | 1336.31 | 1336.31 | 0.00 |
| Main Channel | 7133 | 72.39 | 276.54 | 3.81 | 1336.33 | 1336.33 | 0.00 |
| Main Channel | 7183 | 52.79 | 122.60 | 8.59 | 1336.89 | 1336.89 | 0.00 |
| Main Channel | 7203.00 | 58.39 | 161.64 | 6.51 | 1337.60 | 1337.60 | 0.00 |
| Main Channel | 7204.00 | 58.42 | 161.92 | 6.50 | 1337.61 | 1337.61 | 0.00 |
| Main Channel | 7303.2* | 61.73 | 186.84 | 5.64 | 1338.08 | 1338.08 | 0.00 |
| Main Channel | 7402.4* | 63.60 | 201.59 | 5.22 | 1338.38 | 1338.38 | 0.00 |
| Main Channel | 7501.6* | 65.05 | 213.27 | 4.94 | 1338.61 | 1338.61 | 0.00 |
| Main Channel | 7600.8* | 66.09 | 221.84 | 4.75 | 1338.80 | 1338.80 | 0.00 |
| Main Channel | 7700 | 66.95 | 229.02 | 4.60 | 1338.97 | 1338.97 | 0.00 |
| Main Channel | 7794.* | 67.80 | 236.22 | 4.46 | 1339.11 | 1339.11 | 0.00 |
| Main Channel | 7888.* | 68.64 | 243.36 | 4.33 | 1339.25 | 1339.25 | 0.00 |
| Main Channel | 7982.00 | 69.29 | 248.96 | 4.23 | 1339.37 | 1339.37 | 0.00 |
| Main Channel | 7983 | 69.30 | 249.06 | 4.23 | 1339.37 | 1339.37 | 0.00 |
| Main Channel | 7993 | 69.46 | 250.49 | 4.20 | 1339.39 | 1339.39 | 0.00 |
| Main Channel | 8043 | 52.78 | 122.53 | 8.59 | 1340.32 | 1340.32 | 0.00 |
| Main Channel | 8063.00 | 58.39 | 161.68 | 6.51 | 1341.03 | 1341.03 | 0.00 |
| Main Channel | 8064.00 | 58.43 | 161.95 | 6.50 | 1341.04 | 1341.04 | 0.00 |
| Main Channel | 8154.85* | 61.58 | 185.67 | 5.67 | 1341.48 | 1341.48 | 0.00 |
| Main Channel | 8245.71* | 63.42 | 200.11 | 5.26 | 1341.76 | 1341.76 | 0.00 |
| Main Channel | 8336.57* | 64.76 | 210.89 | 4.99 | 1341.98 | 1341.98 | 0.00 |
| Main Channel | 8427.42* | 65.73 | 218.80 | 4.81 | 1342.16 | 1342.16 | 0.00 |
| Main Channel | 8518.28* | 66.62 | 226.26 | 4.65 | 1342.32 | 1342.32 | 0.00 |
| Main Channel | 8609.14* | 67.39 | 232.68 | 4.53 | 1342.47 | 1342.47 | 0.00 |

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|---|---|---|---|---|---|---|---|
| Main Channel | 8700 | 68.05 | 238.33 | 4.42 | 1342.60 | 1342.60 | 0.00 |
| Main Channel | 8794.* | 68.76 | 244.44 | 4.31 | 1342.73 | 1342.73 | 0.00 |
| Main Channel | 8888.* | 69.49 | 250.72 | 4.20 | 1342.85 | 1342.85 | 0.00 |
| Main Channel | 8982.00 | 70.05 | 255.65 | 4.12 | 1342.96 | 1342.96 | 0.00 |
| Main Channel | 8983.00 | 70.06 | 255.74 | 4.12 | 1342.97 | 1342.97 | 0.00 |
| Main Channel | 8993 | 70.21 | 257.08 | 4.10 | 1342.99 | 1342.99 | 0.00 |
| Main Channel | 9043 | 52.79 | 122.60 | 8.59 | 1343.82 | 1343.82 | 0.00 |
| Main Channel | 9063.00 | 57.88 | 157.95 | 6.67 | 1344.47 | 1344.47 | 0.00 |
| Main Channel | 9064.00 | 57.92 | 158.24 | 6.65 | 1344.47 | 1344.47 | 0.00 |
| Main Channel | 9154.85* | 61.36 | 183.98 | 5.72 | 1344.95 | 1344.95 | 0.00 |
| Main Channel | 9245.71* | 63.27 | 198.92 | 5.29 | 1345.24 | 1345.24 | 0.00 |
| Main Channel | 9336.57* | 64.64 | 209.95 | 5.02 | 1345.47 | 1345.47 | 0.00 |
| Main Channel | 9427.42* | 65.63 | 218.02 | 4.83 | 1345.65 | 1345.65 | 0.00 |
| Main Channel | 9518.28* | 66.54 | 225.58 | 4.67 | 1345.81 | 1345.81 | 0.00 |
| Main Channel | 9609.14* | 67.32 | 232.08 | 4.54 | 1345.96 | 1345.96 | 0.00 |
| Main Channel | 9700 | 67.99 | 237.79 | 4.43 | 1346.10 | 1346.10 | 0.00 |
| Main Channel | 9796.4* | 68.74 | 244.19 | 4.31 | 1346.23 | 1346.23 | 0.00 |
| Main Channel | 9892.8* | 69.40 | 249.92 | 4.21 | 1346.35 | 1346.35 | 0.00 |
| Main Channel | 9989.2* | 69.90 | 254.31 | 4.14 | 1346.47 | 1346.47 | 0.00 |
| Main Channel | 10085.6* | 70.44 | 259.10 | 4.06 | 1346.57 | 1346.57 | 0.00 |
| Main Channel | 10182.00 | 70.94 | 263.51 | 4.00 | 1346.68 | 1346.68 | 0.00 |
| Main Channel | 10183.00 | 70.95 | 263.59 | 3.99 | 1346.68 | 1346.68 | 0.00 |
| Main Channel | 10193 | 71.09 | 264.82 | 3.98 | 1346.70 | 1346.70 | 0.00 |
| Main Channel | 10243 | 52.64 | 121.59 | 8.66 | 1347.40 | 1347.40 | 0.00 |
| Main Channel | 10263.00 | 57.94 | 158.35 | 6.65 | 1348.07 | 1348.07 | 0.00 |
| Main Channel | 10264.00 | 57.98 | 158.64 | 6.64 | 1348.08 | 1348.08 | 0.00 |
| Main Channel | 10348.* | 61.18 | 182.42 | 5.77 | 1348.53 | 1348.53 | 0.00 |
| Main Channel | 10432.* | 63.04 | 196.72 | 5.35 | 1348.81 | 1348.81 | 0.00 |
| Main Channel | 10516.* | 64.38 | 207.25 | 5.08 | 1349.02 | 1349.02 | 0.00 |
| Main Channel | 10600 | 65.46 | 215.80 | 4.88 | 1349.20 | 1349.20 | 0.00 |
| Main Channel | 10627.41 | 65.84 | 218.96 | 4.81 | 1349.27 | 1349.27 | 0.00 |
| Main Channel | 10637.41 | 65.69 | 220.10 | 4.78 | 1349.30 | 1349.30 | 0.00 |
| Main Channel | 10687.00 | 27.00 | 97.36 | 10.82 | 1350.69 | 1350.69 | 0.00 |
| Main Channel | 10777.41 | Culvert | | | | | |
| Main Channel | 10780.41 | 27.00 | 150.30 | 7.01 | 1352.68 | 1352.68 | 0.00 |
| Main Channel | 10791.41 | 50.56 | 242.34 | 4.35 | 1353.45 | 1353.45 | 0.00 |
| Main Channel | 10805.41 | 78.08 | 303.75 | 3.47 | 1353.64 | 1353.64 | 0.00 |
| Main Channel | 10810.00 | 75.75 | 306.63 | 3.43 | 1353.65 | 1353.65 | 0.00 |
| Main Channel | 10906.6* | 75.83 | 307.43 | 3.43 | 1353.71 | 1353.71 | 0.00 |
| Main Channel | 11003.3* | 75.98 | 308.38 | 3.41 | 1353.77 | 1353.77 | 0.00 |
| Main Channel | 11100.00 | 76.06 | 309.08 | 3.41 | 1353.83 | 1353.83 | 0.00 |
| Main Channel | 11200.00 | 76.49 | 313.26 | 3.36 | 1353.89 | 1353.89 | 0.00 |
| Main Channel | 11291.50 | 76.61 | 314.35 | 3.35 | 1353.95 | 1353.95 | 0.00 |
| Main Channel | 11300.00 | 67.52 | 303.27 | 3.47 | 1353.94 | 1353.94 | 0.00 |
| Main Channel | 11346.23 | 42.10 | 275.25 | 3.83 | 1353.98 | 1353.98 | 0.00 |
| Main Channel | 11369.81 | 25.50 | 166.47 | 6.33 | 1353.94 | 1353.94 | 0.00 |
| Main Channel | 11480.7 | Culvert | | | | | |
| Main Channel | 11483.87 | 25.50 | 182.04 | 5.78 | 1354.60 | 1354.60 | 0.00 |
| Main Channel | 11490.00 | 52.80 | 386.61 | 2.72 | 1355.25 | 1355.25 | 0.00 |
| Main Channel | 11496.8 | 65.53 | 455.64 | 2.31 | 1355.29 | 1355.29 | 0.00 |
| Main Channel | 11510.53 | 90.80 | 535.18 | 1.97 | 1355.32 | 1355.32 | 0.00 |
| Main Channel | 11536.53 | 81.70 | 404.23 | 2.01 | 1355.32 | 1355.32 | 0.00 |
| Main Channel | 11547.53 | 81.71 | 404.35 | 2.01 | 1355.32 | 1355.32 | 0.00 |
| Main Channel | 11585.00 | 79.36 | 365.73 | 2.22 | 1355.32 | 1355.32 | 0.00 |
| Main Channel | 11680.94 | 63.78 | 248.02 | 3.28 | 1355.29 | 1355.29 | 0.00 |
| Main Channel | 11765.4* | 63.87 | 248.74 | 3.27 | 1355.34 | 1355.34 | 0.00 |
| Main Channel | 11850.00 | 63.96 | 249.44 | 3.26 | 1355.40 | 1355.40 | 0.00 |
| Main Channel | 11936.5* | 63.89 | 248.87 | 3.27 | 1355.45 | 1355.45 | 0.00 |
| Main Channel | 12023.* | 63.90 | 248.97 | 3.27 | 1355.50 | 1355.50 | 0.00 |
| Main Channel | 12109.5* | 63.84 | 248.79 | 3.27 | 1355.55 | 1355.55 | 0.00 |
| Main Channel | 12196.* | 63.85 | 248.52 | 3.27 | 1355.60 | 1355.60 | 0.00 |
| Main Channel | 12282.5* | 63.86 | 248.26 | 3.27 | 1355.65 | 1355.65 | 0.00 |
| Main Channel | 12369.00 | 63.79 | 248.11 | 3.28 | 1355.70 | 1355.70 | 0.00 |
| Main Channel | 12370 | 63.80 | 248.16 | 3.28 | 1355.71 | 1355.70 | 0.00 |
| Main Channel | 12420.00 | 40.01 | 93.78 | 8.67 | 1355.69 | 1355.69 | 0.00 |
| Main Channel | 12440.00 | 45.89 | 125.38 | 6.48 | 1356.44 | 1356.44 | 0.00 |
| Main Channel | 12441.00 | 45.93 | 125.60 | 6.47 | 1356.44 | 1356.44 | 0.00 |
| Main Channel | 12527.3* | 49.45 | 146.60 | 5.55 | 1356.92 | 1356.92 | 0.00 |
| Main Channel | 12613.6* | 51.75 | 161.15 | 5.05 | 1357.26 | 1357.26 | 0.00 |
| Main Channel | 12700. | 53.77 | 174.43 | 4.66 | 1357.55 | 1357.55 | 0.00 |
| Main Channel | 12782.2* | 55.54 | 186.82 | 4.35 | 1357.78 | 1357.78 | 0.00 |
| Main Channel | 12864.5* | 56.87 | 195.87 | 4.15 | 1357.95 | 1357.95 | 0.00 |
| Main Channel | 12946.7* | 57.84 | 203.10 | 4.00 | 1358.08 | 1358.08 | 0.00 |
| Main Channel | 13029.00 | 58.63 | 208.63 | 3.90 | 1358.18 | 1358.18 | 0.00 |
| Main Channel | 13030.00 | 58.64 | 208.70 | 3.90 | 1358.18 | 1358.18 | 0.00 |
| Main Channel | 13080.00 | 40.03 | 93.89 | 8.66 | 1359.02 | 1359.02 | 0.00 |
| Main Channel | 13100.00 | 45.89 | 125.34 | 6.49 | 1359.77 | 1359.77 | 0.00 |
| Main Channel | 13101.00 | 45.92 | 125.56 | 6.48 | 1359.77 | 1359.77 | 0.00 |
| Main Channel | 13200.8* | 49.44 | 146.55 | 5.55 | 1360.26 | 1360.26 | 0.00 |
| Main Channel | 13300.6* | 51.45 | 159.16 | 5.11 | 1360.56 | 1360.56 | 0.00 |
| Main Channel | 13400.5* | 52.89 | 168.60 | 4.82 | 1360.79 | 1360.79 | 0.00 |

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|---|---|---|---|---|---|---|---|
| Main Channel | 13500.3* | 54.03 | 176.23 | 4.61 | 1360.98 | 1360.98 | 0.00 |
| Main Channel | 13600.1* | 54.98 | 182.66 | 4.45 | 1361.15 | 1361.15 | 0.00 |
| Main Channel | 13700.00 | 55.78 | 188.23 | 4.32 | 1361.30 | 1361.30 | 0.00 |
| Main Channel | 13798.1* | 56.46 | 193.00 | 4.21 | 1361.44 | 1361.44 | 0.00 |
| Main Channel | 13896.3* | 57.06 | 197.25 | 4.12 | 1361.56 | 1361.56 | 0.00 |
| Main Channel | 13994.5* | 57.62 | 201.53 | 4.03 | 1361.68 | 1361.68 | 0.00 |
| Main Channel | 14092.6* | 58.17 | 205.22 | 3.96 | 1361.79 | 1361.79 | 0.00 |
| Main Channel | 14190.8* | 58.60 | 208.38 | 3.90 | 1361.90 | 1361.90 | 0.00 |
| Main Channel | 14289.00 | 59.00 | 211.28 | 3.85 | 1361.99 | 1361.99 | 0.00 |
| Main Channel | 14290.00 | 59.01 | 211.35 | 3.85 | 1362.00 | 1362.00 | 0.00 |
| Main Channel | 14340.00 | 40.03 | 93.88 | 8.66 | 1362.65 | 1362.65 | 0.00 |
| Main Channel | 14360.00 | 45.89 | 125.34 | 6.49 | 1363.40 | 1363.40 | 0.00 |
| Main Channel | 14361.00 | 45.92 | 125.56 | 6.48 | 1363.40 | 1363.40 | 0.00 |
| Main Channel | 14445.7* | 49.08 | 144.28 | 5.63 | 1363.83 | 1363.83 | 0.00 |
| Main Channel | 14530.5* | 50.89 | 155.83 | 5.22 | 1364.11 | 1364.11 | 0.00 |
| Main Channel | 14615.2* | 52.24 | 164.31 | 4.95 | 1364.32 | 1364.32 | 0.00 |
| Main Channel | 14700.00 | 53.36 | 171.71 | 4.73 | 1364.50 | 1364.50 | 0.00 |
| Main Channel | 14800.* | 54.42 | 178.84 | 4.55 | 1364.68 | 1364.68 | 0.00 |
| Main Channel | 14900.* | 55.31 | 184.91 | 4.40 | 1364.84 | 1364.84 | 0.00 |
| Main Channel | 15000.* | 56.07 | 190.22 | 4.27 | 1364.99 | 1364.99 | 0.00 |
| Main Channel | 15100.* | 56.73 | 194.91 | 4.17 | 1365.12 | 1365.12 | 0.00 |
| Main Channel | 15200.* | 57.32 | 199.12 | 4.08 | 1365.25 | 1365.25 | 0.00 |
| Main Channel | 15300.* | 57.85 | 202.93 | 4.01 | 1365.36 | 1365.36 | 0.00 |
| Main Channel | 15400.* | 58.33 | 206.39 | 3.94 | 1365.47 | 1365.47 | 0.00 |
| Main Channel | 15500.* | 58.76 | 209.56 | 3.88 | 1365.58 | 1365.58 | 0.00 |
| Main Channel | 15600.* | 59.16 | 212.49 | 3.83 | 1365.67 | 1365.67 | 0.00 |
| Main Channel | 15700.00 | 59.52 | 215.20 | 3.78 | 1365.77 | 1365.77 | 0.00 |
| Main Channel | 15797.4* | 59.84 | 217.56 | 3.74 | 1365.86 | 1365.86 | 0.00 |
| Main Channel | 15894.8* | 60.13 | 219.76 | 3.70 | 1365.95 | 1365.95 | 0.00 |
| Main Channel | 15992.2* | 60.41 | 221.82 | 3.67 | 1366.03 | 1366.03 | 0.00 |
| Main Channel | 16089.6* | 60.66 | 223.75 | 3.63 | 1366.11 | 1366.11 | 0.00 |
| Main Channel | 16187.* | 60.92 | 225.99 | 3.60 | 1366.19 | 1366.19 | 0.00 |
| Main Channel | 16284.4* | 61.20 | 227.87 | 3.57 | 1366.27 | 1366.27 | 0.00 |
| Main Channel | 16381.8* | 61.40 | 229.38 | 3.54 | 1366.35 | 1366.35 | 0.00 |
| Main Channel | 16479.2* | 61.59 | 230.83 | 3.52 | 1366.42 | 1366.42 | 0.00 |
| Main Channel | 16576.6* | 61.77 | 232.20 | 3.50 | 1366.49 | 1366.49 | 0.00 |
| Main Channel | 16674.00 | 61.93 | 233.49 | 3.48 | 1366.56 | 1366.56 | 0.00 |
| Main Channel | 16675.00 | 61.94 | 233.54 | 3.48 | 1366.56 | 1366.56 | 0.00 |
| Main Channel | 16720.00 | 40.01 | 93.78 | 8.67 | 1366.84 | 1366.84 | 0.00 |
| Main Channel | 16740.00 | 45.89 | 125.38 | 6.48 | 1367.59 | 1367.59 | 0.00 |
| Main Channel | 16741.00 | 45.93 | 125.60 | 6.47 | 1367.59 | 1367.59 | 0.00 |
| Main Channel | 16833.5* | 51.16 | 157.34 | 3.21 | 1368.30 | 1368.30 | 0.00 |
| Main Channel | 16926.1* | 51.45 | 159.17 | 3.17 | 1368.37 | 1368.37 | 0.00 |
| Main Channel | 17018.7* | 51.62 | 160.28 | 3.15 | 1368.44 | 1368.44 | 0.00 |
| Main Channel | 17111.2* | 51.87 | 161.92 | 3.12 | 1368.51 | 1368.51 | 0.00 |
| Main Channel | 17203.8* | 52.02 | 162.88 | 3.10 | 1368.58 | 1368.58 | 0.00 |
| Main Channel | 17296.4* | 52.24 | 164.32 | 3.07 | 1368.65 | 1368.65 | 0.00 |
| Main Channel | 17389.00 | 52.36 | 165.13 | 3.06 | 1368.72 | 1368.72 | 0.00 |
| Main Channel | 17390.00 | 52.37 | 165.17 | 3.06 | 1368.72 | 1368.72 | 0.00 |
| Main Channel | 17440.00 | 33.59 | 64.26 | 7.86 | 1369.40 | 1369.40 | 0.00 |
| Main Channel | 17460.00 | 38.94 | 88.54 | 5.70 | 1370.08 | 1370.08 | 0.00 |
| Main Channel | 17461.00 | 38.98 | 88.72 | 5.69 | 1370.08 | 1370.08 | 0.00 |
| Main Channel | 17540.6* | 41.68 | 102.31 | 4.94 | 1370.46 | 1370.46 | 0.00 |
| Main Channel | 17620.3* | 43.28 | 110.83 | 4.56 | 1370.70 | 1370.70 | 0.00 |
| Main Channel | 17700.00 | 44.46 | 117.28 | 4.31 | 1370.89 | 1370.89 | 0.00 |
| Main Channel | 17798.7* | 45.59 | 123.62 | 4.08 | 1371.08 | 1371.08 | 0.00 |
| Main Channel | 17897.5* | 46.49 | 128.83 | 3.92 | 1371.24 | 1371.24 | 0.00 |
| Main Channel | 17996.3* | 47.24 | 133.24 | 3.79 | 1371.39 | 1371.39 | 0.00 |
| Main Channel | 18095.1* | 47.89 | 137.06 | 3.68 | 1371.52 | 1371.52 | 0.00 |
| Main Channel | 18193.8* | 48.44 | 140.43 | 3.60 | 1371.64 | 1371.64 | 0.00 |
| Main Channel | 18292.6* | 48.94 | 143.42 | 3.52 | 1371.75 | 1371.75 | 0.00 |
| Main Channel | 18391.4* | 49.38 | 146.12 | 3.46 | 1371.85 | 1371.85 | 0.00 |
| Main Channel | 18490.2* | 49.77 | 148.57 | 3.40 | 1371.95 | 1371.95 | 0.00 |
| Main Channel | 18589.00 | 50.13 | 150.79 | 3.35 | 1372.05 | 1372.05 | 0.00 |
| Main Channel | 18590.00 | 50.14 | 150.84 | 3.35 | 1372.05 | 1372.05 | 0.00 |
| Main Channel | 18640.00 | 33.59 | 64.26 | 7.86 | 1373.00 | 1373.00 | 0.00 |
| Main Channel | 18660.00 | 38.94 | 88.54 | 5.70 | 1373.68 | 1373.68 | 0.00 |
| Main Channel | 18661.00 | 38.98 | 88.72 | 5.69 | 1373.68 | 1373.68 | 0.00 |
| Main Channel | 18700.00 | 40.54 | 96.46 | 5.24 | 1373.90 | 1373.90 | 0.00 |
| Main Channel | 18792.9* | 42.77 | 108.07 | 4.67 | 1374.23 | 1374.23 | 0.00 |
| Main Channel | 18885.8* | 44.31 | 116.48 | 4.34 | 1374.46 | 1374.46 | 0.00 |
| Main Channel | 18978.7* | 45.38 | 122.49 | 4.12 | 1374.64 | 1374.64 | 0.00 |
| Main Channel | 19071.6* | 46.25 | 127.43 | 3.96 | 1374.80 | 1374.80 | 0.00 |
| Main Channel | 19164.5* | 47.00 | 132.02 | 3.83 | 1374.94 | 1374.94 | 0.00 |
| Main Channel | 19257.4* | 47.66 | 135.75 | 3.72 | 1375.07 | 1375.07 | 0.00 |
| Main Channel | 19350.3* | 48.19 | 138.90 | 3.64 | 1375.18 | 1375.18 | 0.00 |
| Main Channel | 19443.2* | 48.66 | 141.72 | 3.56 | 1375.29 | 1375.29 | 0.00 |
| Main Channel | 19536.1* | 49.16 | 144.80 | 3.49 | 1375.40 | 1375.40 | 0.00 |
| Main Channel | 19629.00 | 49.53 | 147.05 | 3.43 | 1375.49 | 1375.49 | 0.00 |
| Main Channel | 19630.00 | 49.54 | 147.11 | 3.43 | 1375.49 | 1375.49 | 0.00 |
| Main Channel | 19680.00 | 33.59 | 64.26 | 7.86 | 1376.52 | 1376.52 | 0.00 |

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|---|---|---|---|---|---|---|---|
| Main Channel | 19700.00 | 38.94 | 88.53 | 5.70 | 1377.20 | 1377.20 | 0.00 |
| Main Channel | 19701.00 | 38.98 | 88.72 | 5.69 | 1377.20 | 1377.20 | 0.00 |
| Main Channel | 19800.6* | 42.15 | 104.79 | 4.82 | 1377.65 | 1377.65 | 0.00 |
| Main Channel | 19900.3* | 43.92 | 114.29 | 4.42 | 1377.92 | 1377.92 | 0.00 |
| Main Channel | 20000.00 | 45.18 | 121.35 | 4.16 | 1378.13 | 1378.13 | 0.00 |
| Main Channel | 20090.2* | 46.50 | 128.92 | 3.92 | 1378.29 | 1378.29 | 0.00 |
| Main Channel | 20180.4* | 47.61 | 135.40 | 3.73 | 1378.43 | 1378.43 | 0.00 |
| Main Channel | 20270.61 | 48.56 | 141.14 | 3.58 | 1378.55 | 1378.55 | 0.00 |
| Main Channel | 20300.00 | 48.80 | 142.62 | 3.54 | 1378.59 | 1378.59 | 0.00 |
| Main Channel | 20379.70 | 49.46 | 146.61 | 3.44 | 1378.71 | 1378.71 | 0.00 |
| Main Channel | 20431.69 | 48.46 | 140.52 | 3.67 | 1378.76 | 1378.76 | 0.00 |
| Main Channel | 20521.1* | 48.99 | 143.77 | 3.59 | 1378.86 | 1378.86 | 0.00 |
| Main Channel | 20610.5* | 49.38 | 146.15 | 3.53 | 1378.96 | 1378.96 | 0.00 |
| Main Channel | 20700.00 | 49.82 | 148.88 | 3.47 | 1379.06 | 1379.06 | 0.00 |
| Main Channel | 20789.8* | 50.22 | 151.40 | 3.41 | 1379.15 | 1379.15 | 0.00 |
| Main Channel | 20879.6* | 50.50 | 153.15 | 3.37 | 1379.23 | 1379.23 | 0.00 |
| Main Channel | 20969.4* | 50.85 | 155.35 | 3.32 | 1379.32 | 1379.32 | 0.00 |
| Main Channel | 21059.2* | 51.07 | 156.77 | 3.29 | 1379.39 | 1379.39 | 0.00 |
| Main Channel | 21149.00 | 51.37 | 158.69 | 3.25 | 1379.47 | 1379.47 | 0.00 |
| Main Channel | 21150.00 | 51.38 | 158.74 | 3.25 | 1379.47 | 1379.47 | 0.00 |
| Main Channel | 21200.00 | 33.90 | 65.59 | 7.87 | 1380.32 | 1380.32 | 0.00 |
| Main Channel | 21220.00 | 39.21 | 89.85 | 5.74 | 1380.99 | 1380.99 | 0.00 |
| Main Channel | 21221.00 | 39.25 | 90.03 | 5.73 | 1381.00 | 1381.00 | 0.00 |
| Main Channel | 21316.8* | 42.34 | 105.77 | 4.88 | 1381.43 | 1381.43 | 0.00 |
| Main Channel | 21412.6* | 44.08 | 115.17 | 4.48 | 1381.70 | 1381.70 | 0.00 |
| Main Channel | 21508.4* | 45.42 | 122.67 | 4.21 | 1381.91 | 1381.91 | 0.00 |
| Main Channel | 21604.2* | 46.38 | 128.18 | 4.03 | 1382.08 | 1382.08 | 0.00 |
| Main Channel | 21700.00 | 47.17 | 132.82 | 3.89 | 1382.23 | 1382.23 | 0.00 |
| Main Channel | 21791.5* | 47.83 | 136.91 | 3.77 | 1382.36 | 1382.36 | 0.00 |
| Main Channel | 21883.* | 48.42 | 140.26 | 3.68 | 1382.47 | 1382.47 | 0.00 |
| Main Channel | 21974.5* | 48.92 | 143.51 | 3.60 | 1382.58 | 1382.58 | 0.00 |
| Main Channel | 22066.* | 49.39 | 146.19 | 3.53 | 1382.68 | 1382.68 | 0.00 |
| Main Channel | 22157.5* | 49.78 | 148.86 | 3.47 | 1382.78 | 1382.78 | 0.00 |
| Main Channel | 22249.00 | 50.17 | 151.07 | 3.42 | 1382.87 | 1382.87 | 0.00 |
| Main Channel | 22250.00 | 50.18 | 151.13 | 3.41 | 1382.87 | 1382.87 | 0.00 |
| Main Channel | 22300.00 | 33.94 | 65.73 | 7.85 | 1383.87 | 1383.87 | 0.00 |
| Main Channel | 22320.00 | 39.20 | 89.81 | 5.75 | 1384.54 | 1384.54 | 0.00 |
| Main Channel | 22321.00 | 39.24 | 90.00 | 5.73 | 1384.55 | 1384.55 | 0.00 |
| Main Channel | 22415.7* | 42.30 | 105.60 | 4.89 | 1384.98 | 1384.98 | 0.00 |
| Main Channel | 22510.5* | 44.08 | 115.33 | 4.47 | 1385.25 | 1385.25 | 0.00 |
| Main Channel | 22605.2* | 45.35 | 122.29 | 4.22 | 1385.45 | 1385.45 | 0.00 |
| Main Channel | 22700.00 | 46.31 | 127.79 | 4.04 | 1385.62 | 1385.62 | 0.00 |
| Main Channel | 22777.2* | 46.97 | 131.64 | 3.92 | 1385.74 | 1385.74 | 0.00 |
| Main Channel | 22854.5* | 47.60 | 135.18 | 3.82 | 1385.85 | 1385.85 | 0.00 |
| Main Channel | 22931.7* | 48.14 | 138.62 | 3.72 | 1385.96 | 1385.96 | 0.00 |
| Main Channel | 23009.00 | 48.59 | 141.31 | 3.65 | 1386.05 | 1386.05 | 0.00 |
| Main Channel | 23010.00 | 48.60 | 141.38 | 3.65 | 1386.06 | 1386.06 | 0.00 |
| Main Channel | 23060.00 | 33.94 | 65.73 | 7.85 | 1387.25 | 1387.25 | 0.00 |
| Main Channel | 23080.00 | 39.20 | 89.81 | 5.75 | 1387.92 | 1387.92 | 0.00 |
| Main Channel | 23081.00 | 39.36 | 90.59 | 5.70 | 1387.93 | 1387.93 | 0.00 |
| Main Channel | 23159.6* | 42.39 | 106.04 | 4.87 | 1388.31 | 1388.31 | 0.00 |
| Main Channel | 23238.31 | 44.24 | 116.10 | 4.44 | 1388.54 | 1388.54 | 0.00 |
| Main Channel | 23239.31 | 43.40 | 111.47 | 4.63 | 1388.52 | 1388.52 | 0.00 |
| Main Channel | 23257.56 | 40.00 | 113.16 | 4.56 | 1388.60 | 1388.60 | 0.00 |
| Main Channel | 23278.81 | 16.50 | 58.98 | 8.75 | 1388.10 | 1388.10 | 0.00 |

# Appendix J

# APPENDIX J

# HYDRAULIC ANALYSIS USING HEC-RAS

## (from cross section 5.631 to 4.23)

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
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(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X      X    X       X
X     X  X        X    X       X   X     X    X       X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: Hydraulic analysis
Project File : middle.prj
Run Date and Time: 12/8/98 2:55:34 PM

Project in English units

Project Description:
FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD

QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**

100-YEAR FLOODPLAIN DELINEATION
REVISED: JUNE 1990

PLAN DATA

Plan Title: Imported Plan 01
Plan File : g:\HASAN\ritten\HEC-RAS\prop\middle.p01

Geometry Title: Imported Geom 01
Geometry File : g:\HASAN\ritten\HEC-RAS\prop\middle.g01

Flow Title : Imported Flow 01
Flow File : g:\HASAN\ritten\HEC-RAS\prop\middle.f01

Plan Summary Information:
Number of: Cross Sections = 11 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = RIVER-1 Reach = Reach-1

| RS | Profile | Method | Value1 | Value2 |
|---|---|---|---|---|
| 7.519 | PF#2 | 1 | 9970 | 10050 |
| 6.259 | PF#2 | 1 | 9965 | 10510 |
| 6.047 | PF#2 | 1 | 9960 | 10700 |
| 5.375 | PF#2 | 1 | 9955 | 10800 |
| 5.17 | PF#2 | 1 | 9970 | 10500 |
| 4.616 | PF#2 | 1 | 9850 | 11250 |
| 4.23 | PF#2 | 1 | 9300 | 10900 |
| 4.123 | PF#2 | 1 | 9560 | 10960 |
| 2.053 | PF#2 | 1 | 9970 | 10545 |
| 1.86 | PF#2 | 1 | 9940 | 10600 |
| 1.712 | PF#2 | 1 | 9980 | 10600 |
| 1.561 | PF#2 | 1 | 9960 | 10600 |
| 1.419 | PF#2 | 1 | 9950 | 10600 |
| 1.227 | PF#2 | 1 | 9950 | 10600 |
| 1.078 | PF#2 | 1 | 9970 | 10600 |
| 0.843 | PF#2 | 1 | 9975 | 10600 |
| 0.785 | PF#2 | 1 | 9950 | 10600 |
| 0.681 | PF#2 | 1 | 9700 | 11140 |
| 0.672 | PF#2 | 1 | 9725 | 11160 |
| 0.407 | PF#2 | 1 | 9960 | 11000 |
| 0.199 | PF#2 | 1 | 9960 | 11020 |
| 0.038 | PF#2 | 1 | 9900 | 11100 |

FLOW DATA

Flow Title: Imported Flow 01
Flow File : g:\HASAN\ritten\HEC-RAS\prop\middle.f01

Flow Data (cfs)

| River | Reach | RS | PF#1 | PF#2 |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | 5.631 | 98 | 98 |
| RIVER-1 | Reach-1 | 4.637 | 198 | 198 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | PF#1 | | Critical |
| RIVER-1 | Reach-1 | PF#2 | | Critical |

SUMMARY OF MANNING'S N VALUES

River:RIVER-1

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| Reach-1 | 5.631 | .015 | .015 | .015 |
| Reach-1 | 5.523 | .04 | .035 | .04 |
| Reach-1 | 5.375 | .04 | .035 | .04 |
| Reach-1 | 5.17 | .04 | .035 | .04 |
| Reach-1 | 5.038 | .04 | .035 | .04 |
| Reach-1 | 4.924 | .04 | .035 | .04 |
| Reach-1 | 4.748 | .04 | .035 | .04 |
| Reach-1 | 4.637 | .04 | .05 | .1 |
| Reach-1 | 4.616 | .04 | .05 | .1 |
| Reach-1 | 4.341 | .015 | .015 | .015 |
| Reach-1 | 4.23 | .1 | .05 | .035 |

SUMMARY OF REACH LENGTHS

River: RIVER-1

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach-1 | 5.631 | 340 | 600 | 800 |
| Reach-1 | 5.523 | 780 | 780 | 790 |
| Reach-1 | 5.375 | 1080 | 1080 | 1150 |
| Reach-1 | 5.17 | 700 | 700 | 700 |
| Reach-1 | 5.038 | 600 | 600 | 630 |
| Reach-1 | 4.924 | 930 | 930 | 1040 |
| Reach-1 | 4.748 | 630 | 600 | 330 |
| Reach-1 | 4.637 | 75 | 110 | 550 |
| Reach-1 | 4.616 | 1000 | 1000 | 1000 |
| Reach-1 | 4.341 | 580 | 490 | 520 |
| Reach-1 | 4.23 | 22230 | 22055 | 22860 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach-1 | 5.631 | .3 | .5 |
| Reach-1 | 5.523 | .1 | .3 |
| Reach-1 | 5.375 | .1 | .3 |
| Reach-1 | 5.17 | .1 | .3 |
| Reach-1 | 5.038 | .1 | .3 |
| Reach-1 | 4.924 | .1 | .3 |
| Reach-1 | 4.748 | .1 | .3 |
| Reach-1 | 4.637 | .1 | .3 |
| Reach-1 | 4.616 | .1 | .3 |
| Reach-1 | 4.341 | .3 | .5 |
| Reach-1 | 4.23 | .1 | .3 |

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```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X      X    X       X
X     X  X        X    X       X   X     X    X       X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: Hydraulic analysis
Project File : middle.prj
Run Date and Time: 12/8/98 2:55:34 PM

Project in English units

Project Description:
FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD

QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**

100-YEAR FLOODPLAIN DELINEATION
REVISED: JUNE 1990

GEOMETRY DATA

Geometry Title: Imported Geom 01
Geometry File : g:\HASAN\ritten\HEC-RAS\prop\middle.g01

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 5.631

INPUT
Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9425 | 1414.5 | 9730 | 1412 | 10000 | 1410.3 | 10300 | 1412 | 10500 | 1414 |
| 10870 | 1415 | 11010 | 1416 | 11525 | 1416 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9425 | .015 | 9730 | .015 | 10300 | .015 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9730 10300 340 600 800 .3 .5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 5.523

INPUT
Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9920 | 1414.2 | 9930 | 1414 | 9940 | 1412 | 10000 | 1411 | 10120 | 1412 |
| 10400 | 1413 | 10860 | 1413 | 11365 | 1413 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9920 | .04 | 9940 | .035 | 10120 | .04 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9940 10120 780 780 790 .1 .3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 5.375

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9955 | 1411.9 | 9990 | 1409 | 10000 | 1408 | 10040 | 1409.5 | 10350 | 1410 |
| 10800 | 1410.6 | 11310 | 1410 | 12250 | 1411 | 12755 | 1412 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9955 | .04 | 9990 | .035 | 10040 | .04 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9990 10040 1080 1080 1150 .1 .3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 5.17

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9970 | 1409.6 | 9985 | 1408 | 9990 | 1407 | 10000 | 1406 | 10080 | 1406 |
| 10100 | 1406.7 | 10500 | 1406.2 | 10740 | 1406 | 11460 | 1406 | 11920 | 1408 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9970 | .04 | 9990 | .035 | 10100 | .04 |

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10100              700     700     700             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 5.038

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9965  1406.2    9985    1403   10000    1402   10640    1403   11100    1404
   11475    1404   11485    1406   11800    1406

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9965     .04    9985    .035   10640     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9985   10640              600     600     630             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.924

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9960  1403.2    9975    1401   10000    1400   10490    1401   10760    1402
   11000    1402   12280    1404   12820  1404.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9960     .04    9975    .035   10490     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9975   10490              930     930    1040             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.748

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9950  1400.6    9960    1398   10000    1396   10070    1396   10280    1396
   10510    1398   11400    1400   12720    1402

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9950     .04    9960    .035   10510     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9960   10510              630     600     330             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.637

INPUT
Description:
Station Elevation Data    num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9880  1399.5    9925    1398   10000  1395.3   10010  1395.5   10480    1396
   10870    1398   11320    1400

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9880     .04    9925     .05   10480      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9925   10480               75     110     550             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.616

INPUT
Description:
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9850  1399.5    9930    1396   10000    1395   10100  1394.4   10640    1395
   11130  1395.1   12030    1396   12440    1396   12560    1398

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9850     .04    9930     .05   10640      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9930   10640              1000    1000    1000             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.341

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8420  1399.5    8610    1398    8830    1396    9175    1395    9585  1394.5
   10000    1394   10480  1394.5   10880  1394.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8420    .015    9585    .015   10480    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9585   10480              580     490     520             .3      .5

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 4.23

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9045    1392    9250    1391    9740    1391   10000    1391   10180  1391.4
```

```
   10225    1391   10700    1391   10900    1392

Manning's n Values         num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9045      .1     9740     .05    10180    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9740   10180             22230   22055   22860             .1       .3
```

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```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Hydraulic analysis
Project File : middle.prj
Run Date and Time: 12/8/98 2:55:34 PM

Project in English units

Project Description:
FLOOD INSURANCE STUDY FOR SOUTHERN PACIFIC RAILROAD

QUEEN CREEK AREA-MARICOPA COUNTY, ARIZONA**89500R.DAT**

100-YEAR FLOODPLAIN DELINEATION
REVISED: JUNE 1990

Profile Output Table - Standard Table 1

| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 4.23 | 198.00 | 1391.00 | 1391.10 | 1391.10 | 1391.16 | 0.060571 | 1.52 | 130.37 | 1323.97 | 0.87 |
| Reach-1 | 4.23 | 198.00 | 1391.00 | 1391.10 | 1391.10 | 1391.16 | 0.063512 | 1.55 | 124.19 | 1253.00 | 0.89 |
| Reach-1 | 4.341 | 198.00 | 1394.00 | 1394.31 | 1394.31 | 1394.39 | 0.006036 | 2.24 | 88.36 | 562.43 | 1.00 |
| Reach-1 | 4.341 | 198.00 | 1394.00 | 1394.31 | 1394.31 | 1394.39 | 0.006036 | 2.24 | 88.36 | 562.43 | 1.00 |
| Reach-1 | 4.616 | 198.00 | 1394.40 | 1395.36 | 1394.79 | 1395.36 | 0.000358 | 0.42 | 606.58 | 1410.63 | 0.09 |
| Reach-1 | 4.616 | 198.00 | 1394.40 | 1395.36 | 1394.79 | 1395.36 | 0.000359 | 0.42 | 596.75 | 1274.87 | 0.09 |
| Reach-1 | 4.637 | 198.00 | 1395.30 | 1395.87 | 1395.87 | 1395.98 | 0.069452 | 2.66 | 74.42 | 375.87 | 1.05 |
| Reach-1 | 4.637 | 198.00 | 1395.30 | 1395.87 | 1395.87 | 1395.98 | 0.069452 | 2.66 | 74.42 | 375.87 | 1.05 |
| Reach-1 | 4.748 | 98.00 | 1396.00 | 1396.74 | | 1396.74 | 0.000164 | 0.40 | 242.77 | 379.40 | 0.09 |
| Reach-1 | 4.748 | 98.00 | 1396.00 | 1396.74 | | 1396.74 | 0.000164 | 0.40 | 242.77 | 379.40 | 0.09 |
| Reach-1 | 4.924 | 98.00 | 1400.00 | 1400.39 | 1400.39 | 1400.49 | 0.030612 | 2.50 | 39.22 | 200.98 | 1.00 |
| Reach-1 | 4.924 | 98.00 | 1400.00 | 1400.39 | 1400.39 | 1400.49 | 0.030612 | 2.50 | 39.22 | 200.98 | 1.00 |
| Reach-1 | 5.038 | 98.00 | 1402.00 | 1402.64 | | 1402.65 | 0.001367 | 0.73 | 133.64 | 418.41 | 0.23 |
| Reach-1 | 5.038 | 98.00 | 1402.00 | 1402.64 | | 1402.65 | 0.001367 | 0.73 | 133.64 | 418.41 | 0.23 |
| Reach-1 | 5.17 | 98.00 | 1406.00 | 1406.07 | 1406.07 | 1406.11 | 0.070212 | 1.88 | 59.33 | 902.38 | 1.27 |
| Reach-1 | 5.17 | 98.00 | 1406.00 | 1406.37 | 1406.37 | 1406.47 | 0.017790 | 2.75 | 42.89 | 226.93 | 0.83 |
| Reach-1 | 5.375 | 98.00 | 1408.00 | 1409.82 | 1409.12 | 1409.85 | 0.001061 | 1.49 | 92.42 | 259.81 | 0.25 |
| Reach-1 | 5.375 | 98.00 | 1408.00 | 1409.79 | 1409.11 | 1409.82 | 0.001231 | 1.58 | 84.43 | 239.59 | 0.27 |
| Reach-1 | 5.523 | 98.00 | 1411.00 | 1411.71 | 1411.59 | 1411.78 | 0.010610 | 2.18 | 44.87 | 127.09 | 0.65 |
| Reach-1 | 5.523 | 98.00 | 1411.00 | 1411.75 | 1411.59 | 1411.81 | 0.007831 | 1.95 | 50.28 | 134.54 | 0.56 |
| Reach-1 | 5.631 | 98.00 | 1410.30 | 1411.82 | | 1411.82 | 0.000009 | 0.25 | 388.29 | 510.28 | 0.05 |
| Reach-1 | 5.631 | 98.00 | 1410.30 | 1411.84 | | 1411.84 | 0.000009 | 0.25 | 398.82 | 517.16 | 0.05 |

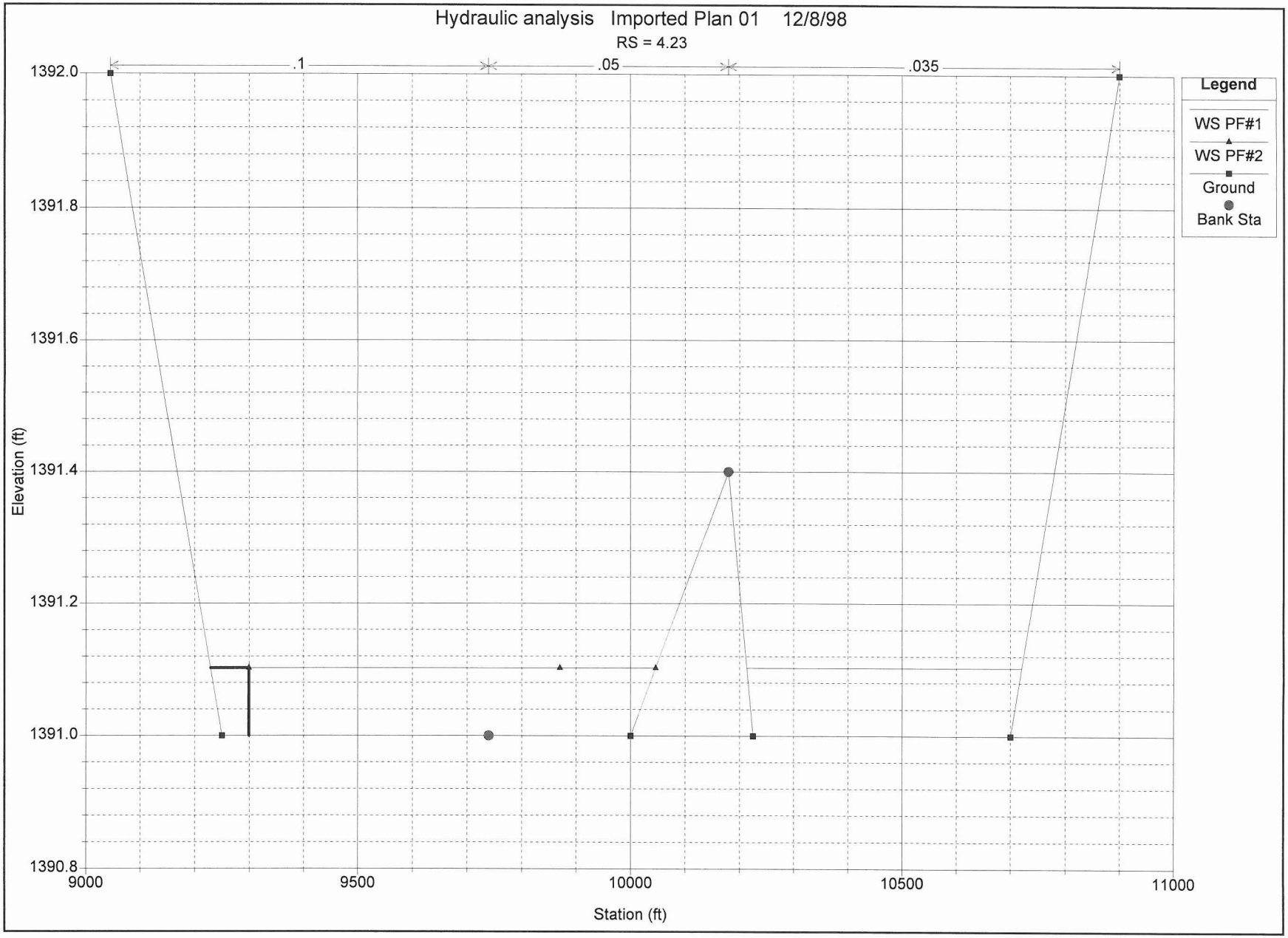
Profile Output Table - Standard Table 2

| Reach | River Sta | E.G. Elev (ft) | W.S. Elev (ft) | Vel Head (ft) | Frctn Loss (ft) | C & E Loss (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Top Width (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 4.23 | 1391.16 | 1391.10 | 0.06 | | | 40.63 | 43.96 | 113.40 | 1323.97 |
| Reach-1 | 4.23 | 1391.16 | 1391.10 | 0.06 | | | 36.86 | 45.02 | 116.12 | 1253.00 |
| Reach-1 | 4.341 | 1394.39 | 1394.31 | 0.08 | 1.66 | 0.01 | | 198.00 | | 562.43 |
| Reach-1 | 4.341 | 1394.39 | 1394.31 | 0.08 | 1.58 | 0.01 | | 198.00 | | 562.43 |
| Reach-1 | 4.616 | 1395.36 | 1395.36 | 0.00 | 0.96 | 0.01 | | 176.57 | 21.43 | 1410.63 |
| Reach-1 | 4.616 | 1395.36 | 1395.36 | 0.00 | 0.96 | 0.01 | | 176.69 | 21.31 | 1274.87 |
| Reach-1 | 4.637 | 1395.98 | 1395.87 | 0.11 | 0.17 | 0.03 | | 198.00 | | 375.87 |
| Reach-1 | 4.637 | 1395.98 | 1395.87 | 0.11 | 0.17 | 0.03 | | 198.00 | | 375.87 |
| Reach-1 | 4.748 | 1396.74 | 1396.74 | 0.00 | 0.75 | 0.01 | | 98.00 | | 379.40 |
| Reach-1 | 4.748 | 1396.74 | 1396.74 | 0.00 | 0.75 | 0.01 | | 98.00 | | 379.40 |
| Reach-1 | 4.924 | 1400.49 | 1400.39 | 0.10 | 0.53 | 0.03 | | 98.00 | | 200.98 |
| Reach-1 | 4.924 | 1400.49 | 1400.39 | 0.10 | 0.53 | 0.03 | | 98.00 | | 200.98 |
| Reach-1 | 5.038 | 1402.65 | 1402.64 | 0.01 | 2.15 | 0.01 | | 98.00 | | 418.41 |
| Reach-1 | 5.038 | 1402.65 | 1402.64 | 0.01 | 2.15 | 0.01 | | 98.00 | | 418.41 |
| Reach-1 | 5.17 | 1406.11 | 1406.07 | 0.04 | 1.53 | 0.00 | | 10.68 | 87.32 | 902.38 |
| Reach-1 | 5.17 | 1406.47 | 1406.37 | 0.11 | 2.35 | 0.03 | | 87.61 | 10.39 | 226.93 |
| Reach-1 | 5.375 | 1409.85 | 1409.82 | 0.03 | 3.74 | 0.00 | 2.72 | 83.73 | 11.55 | 259.81 |
| Reach-1 | 5.375 | 1409.82 | 1409.79 | 0.03 | 3.34 | 0.01 | 2.64 | 85.95 | 9.41 | 239.59 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reach-1 | 5.523 | 1411.78 | 1411.71 | 0.07 | 1.91 | 0.01 | 98.00 | 127.09 |
| Reach-1 | 5.523 | 1411.81 | 1411.75 | 0.06 | 1.97 | 0.01 | 98.00 | 134.54 |
| Reach-1 | 5.631 | 1411.82 | 1411.82 | 0.00 | 0.02 | 0.02 | 98.00 | 510.28 |
| Reach-1 | 5.631 | 1411.84 | 1411.84 | 0.00 | 0.02 | 0.02 | 98.00 | 517.16 |

Profile Output Table - Encroachment 1

| Reach | River Sta | W.S. Elev (ft) | Prof Delta WS (ft) | E.G. Elev (ft) | Top Wdth Act (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Enc Sta L (ft) | Ch Sta L (ft) | Ch Sta R (ft) | Enc Sta R (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reach-1 | 4.23 | 1391.10 | | 1391.16 | 1323.97 | 40.63 | 43.96 | 113.40 | | 9740.00 | 10180.00 | |
| Reach-1 | 4.23 | 1391.10 | 0.00 | 1391.16 | 1253.00 | 36.86 | 45.02 | 116.12 | 9300.00 | 9740.00 | 10180.00 | 10900.00 |
| Reach-1 | 4.341 | 1394.31 | | 1394.39 | 562.43 | | 198.00 | | | 9585.00 | 10480.00 | |
| Reach-1 | 4.341 | 1394.31 | 0.00 | 1394.39 | 562.43 | | 198.00 | | | 9585.00 | 10480.00 | |
| Reach-1 | 4.616 | 1395.36 | | 1395.36 | 1410.63 | | 176.57 | 21.43 | | 9930.00 | 10640.00 | |
| Reach-1 | 4.616 | 1395.36 | 0.00 | 1395.36 | 1274.87 | | 176.69 | 21.31 | 9850.00 | 9930.00 | 10640.00 | 11250.00 |
| Reach-1 | 4.637 | 1395.87 | | 1395.98 | 375.87 | | 198.00 | | | 9925.00 | 10480.00 | |
| Reach-1 | 4.637 | 1395.87 | 0.00 | 1395.98 | 375.87 | | 198.00 | | | 9925.00 | 10480.00 | |
| Reach-1 | 4.748 | 1396.74 | | 1396.74 | 379.40 | | 98.00 | | | 9960.00 | 10510.00 | |
| Reach-1 | 4.748 | 1396.74 | 0.00 | 1396.74 | 379.40 | | 98.00 | | | 9960.00 | 10510.00 | |
| Reach-1 | 4.924 | 1400.39 | | 1400.49 | 200.98 | | 98.00 | | | 9975.00 | 10490.00 | |
| Reach-1 | 4.924 | 1400.39 | 0.00 | 1400.49 | 200.98 | | 98.00 | | | 9975.00 | 10490.00 | |
| Reach-1 | 5.038 | 1402.64 | | 1402.65 | 418.41 | | 98.00 | | | 9985.00 | 10640.00 | |
| Reach-1 | 5.038 | 1402.64 | 0.00 | 1402.65 | 418.41 | | 98.00 | | | 9985.00 | 10640.00 | |
| Reach-1 | 5.17 | 1406.07 | | 1406.11 | 902.38 | | 10.68 | 87.32 | | 9990.00 | 10100.00 | |
| Reach-1 | 5.17 | 1406.37 | 0.30 | 1406.47 | 226.93 | | 87.61 | 10.39 | 9970.00 | 9990.00 | 10100.00 | 10500.00 |
| Reach-1 | 5.375 | 1409.82 | | 1409.85 | 259.81 | 2.72 | 83.73 | 11.55 | | 9990.00 | 10040.00 | |
| Reach-1 | 5.375 | 1409.79 | -0.03 | 1409.82 | 239.59 | 2.64 | 85.95 | 9.41 | 9955.00 | 9990.00 | 10040.00 | 10800.00 |
| Reach-1 | 5.523 | 1411.71 | | 1411.78 | 127.09 | | 98.00 | | | 9940.00 | 10120.00 | |
| Reach-1 | 5.523 | 1411.75 | 0.04 | 1411.81 | 134.54 | | 98.00 | | | 9940.00 | 10120.00 | |
| Reach-1 | 5.631 | 1411.82 | | 1411.82 | 510.28 | | 98.00 | | | 9730.00 | 10300.00 | |
| Reach-1 | 5.631 | 1411.84 | 0.02 | 1411.84 | 517.16 | | 98.00 | | | 9730.00 | 10300.00 | |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1391.6
1391.4
1391.2
1391.0
1390.8
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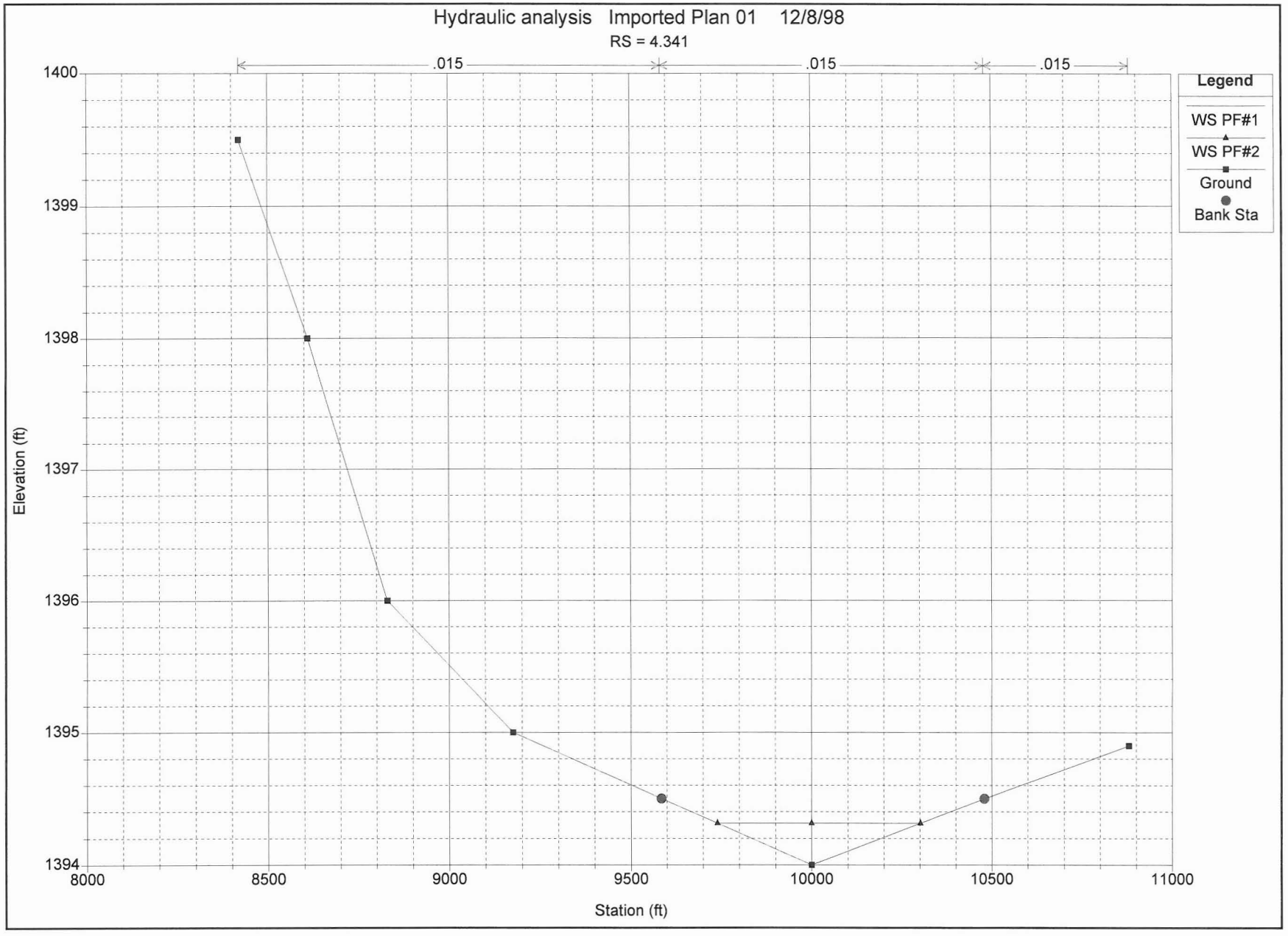
9500
10000
10500
11000
Station (ft)
Legend
WS PF#1
WS PF#2
Ground
Bank Sta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WS PF#2
Ground
Bank Sta
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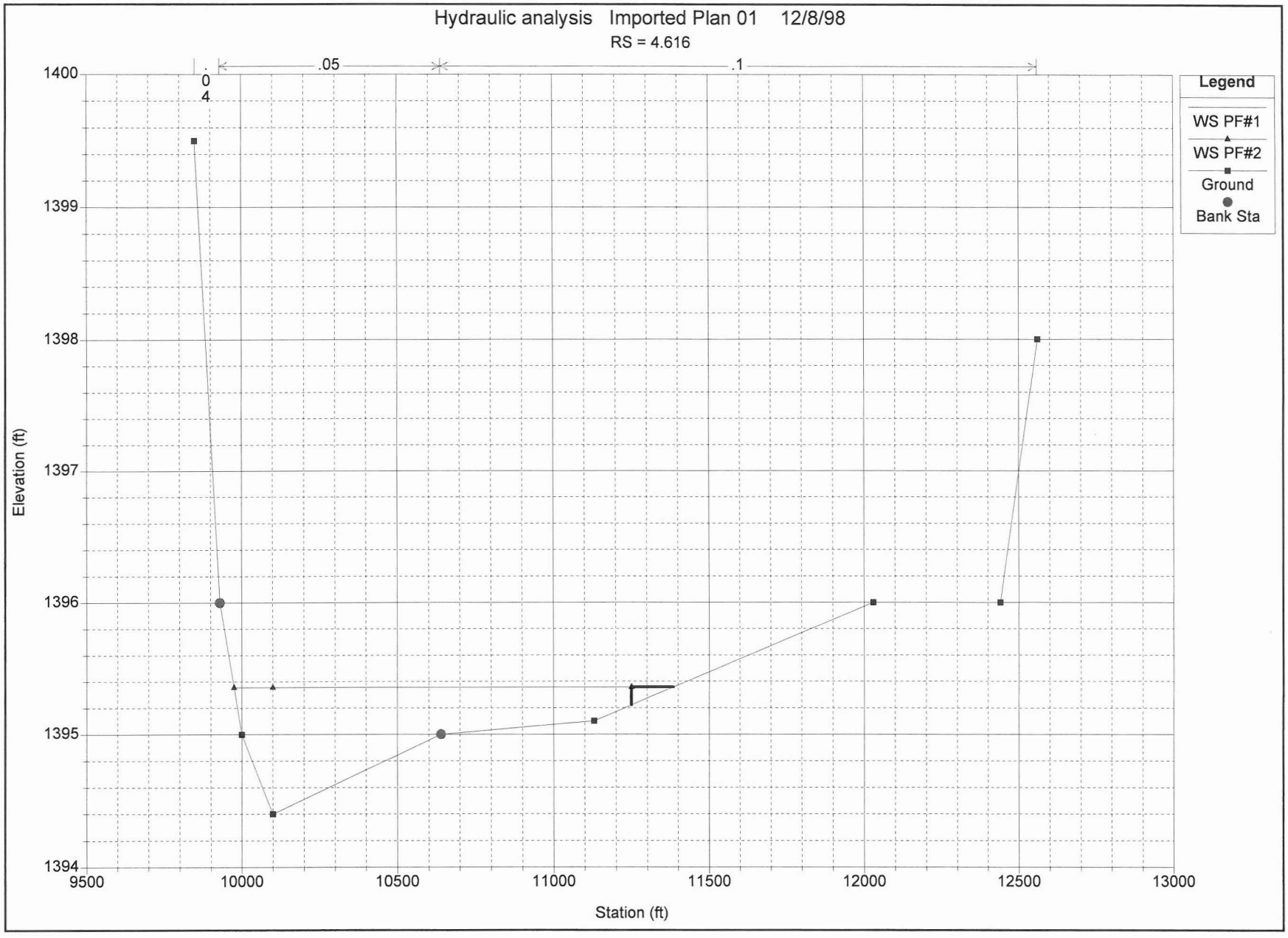
1397
1396
1395
1394
8000
8500
9000
9500
10000
10500
11000
Station (ft)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WS PF#2
Ground
Bank Sta
Elevation (ft)
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1398
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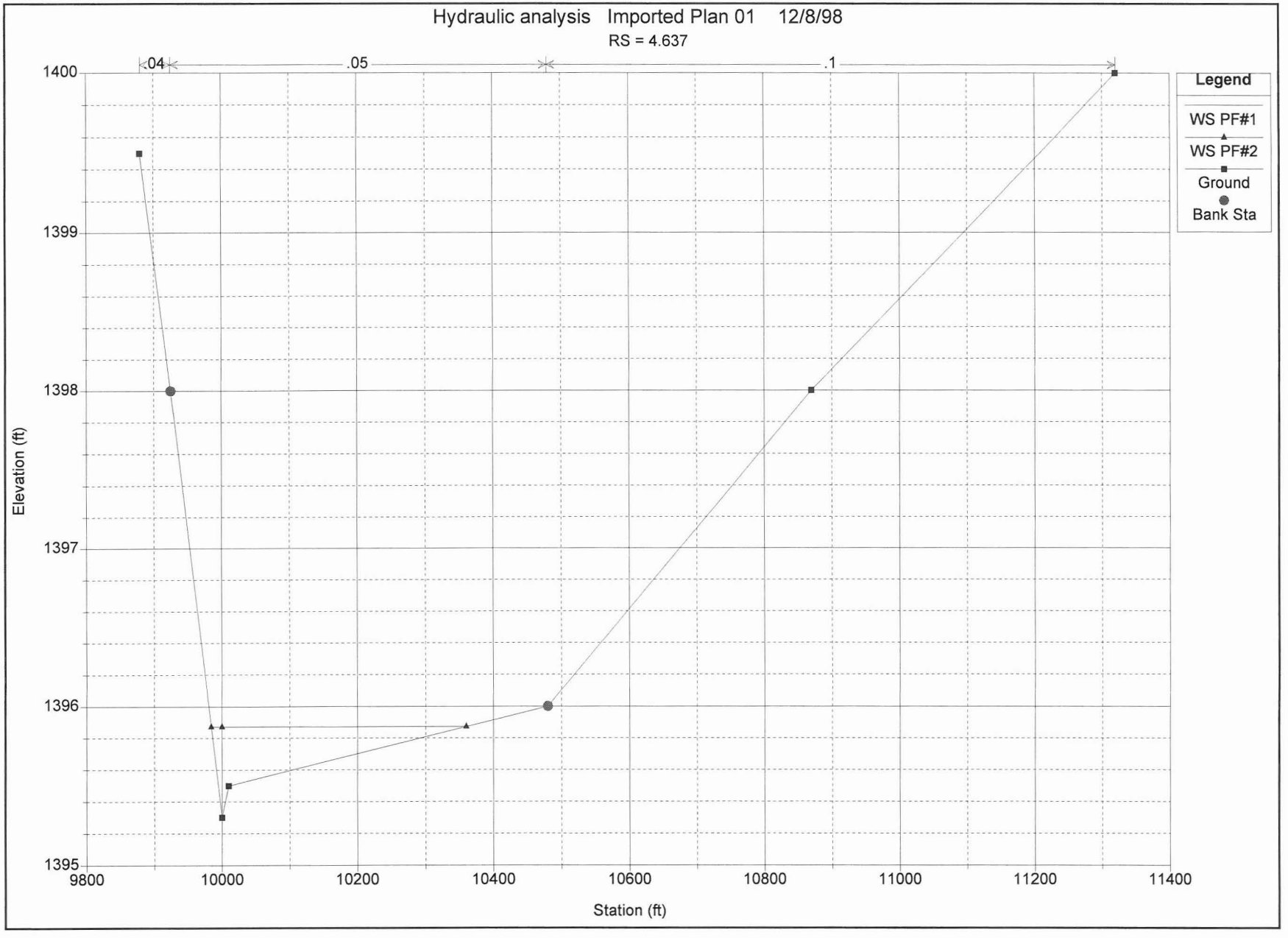
1396
1395
1394
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)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Legend
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WS PF#2
Ground
Bank Sta
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1398
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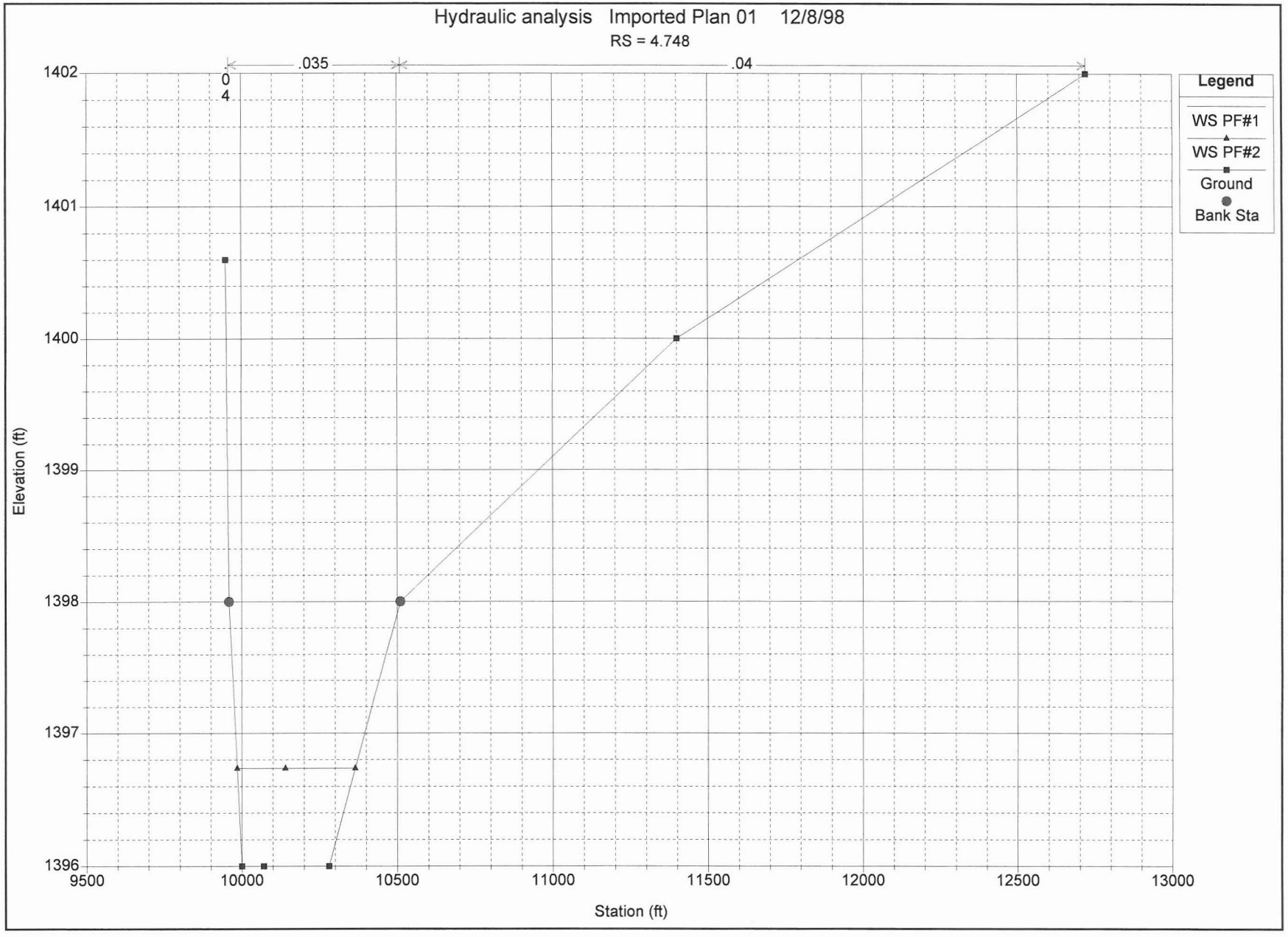
1395
9800
10000
10200
10400
10600
10800
11000
11200
11400
Station (ft)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WS PF#2
Ground
Bank Sta
Elevation (ft)
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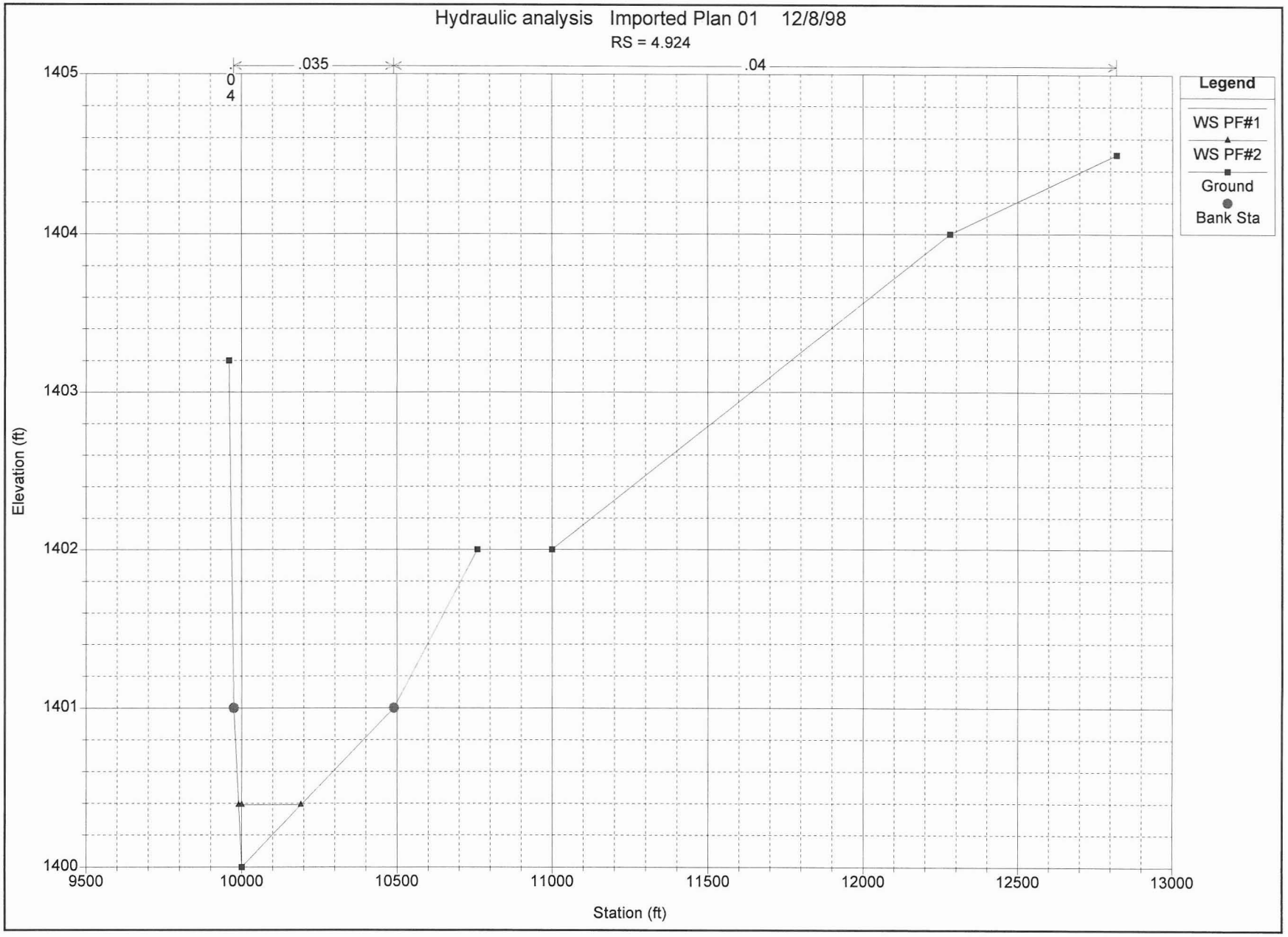
1401
1400
1399
1398
1397
1396
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)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Legend
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WS PF#2
Ground
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1404
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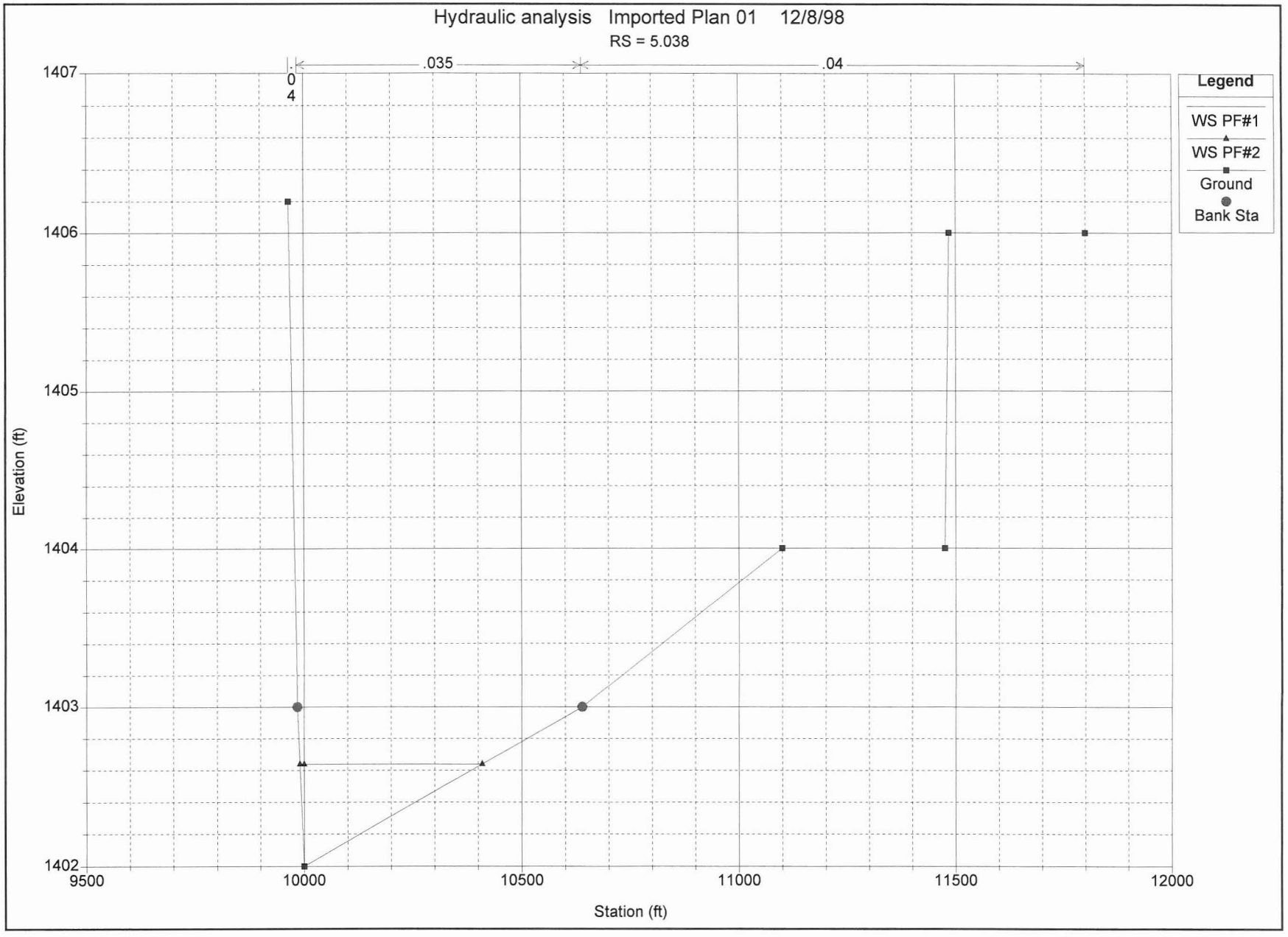
Station (ft)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Bank Sta
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10000
10500
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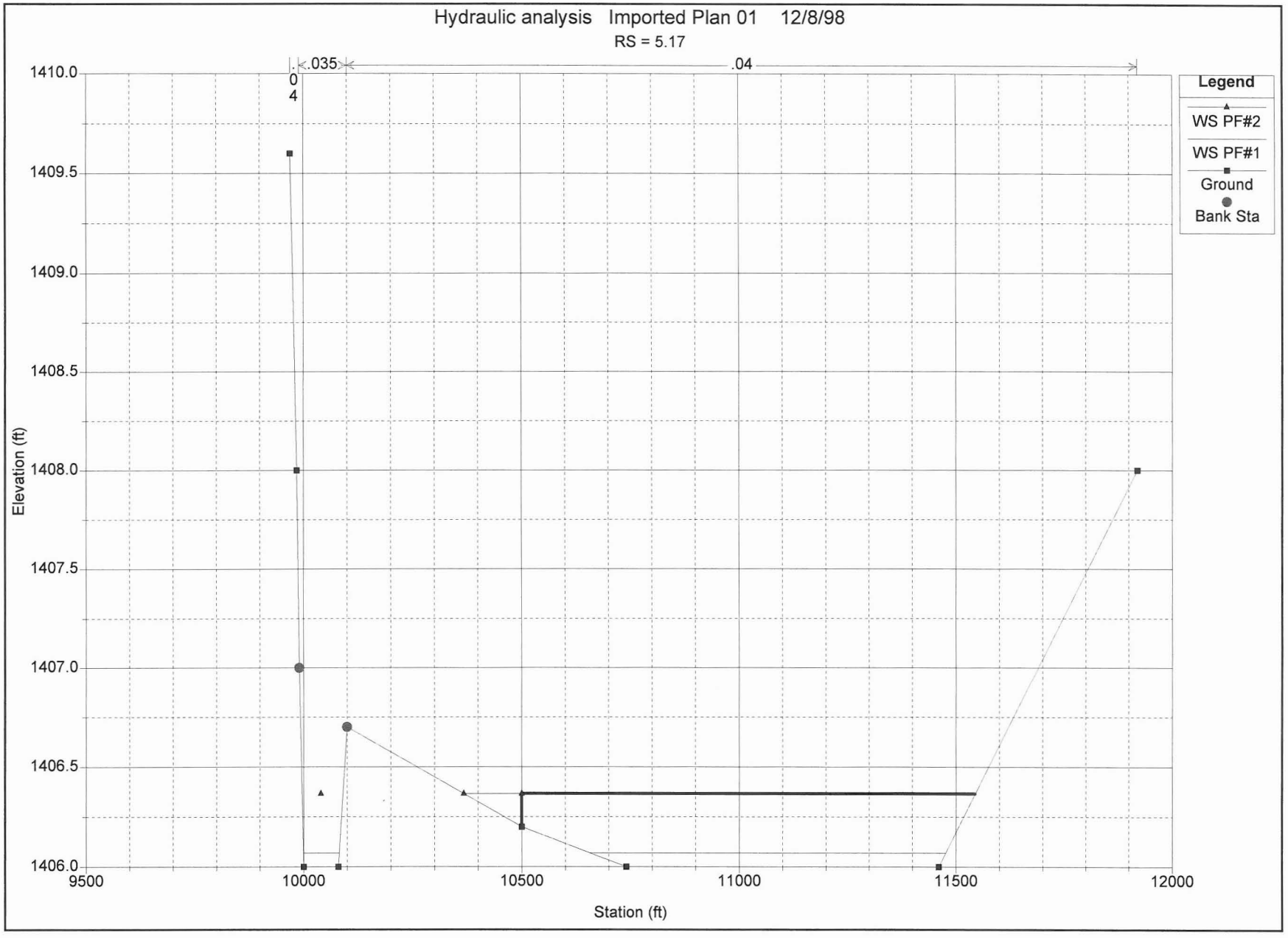
11500
12000
Station (ft)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WS PF#1
Ground
Bank Sta
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1409.5
1409.0
1408.5
1408.0
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1407.0
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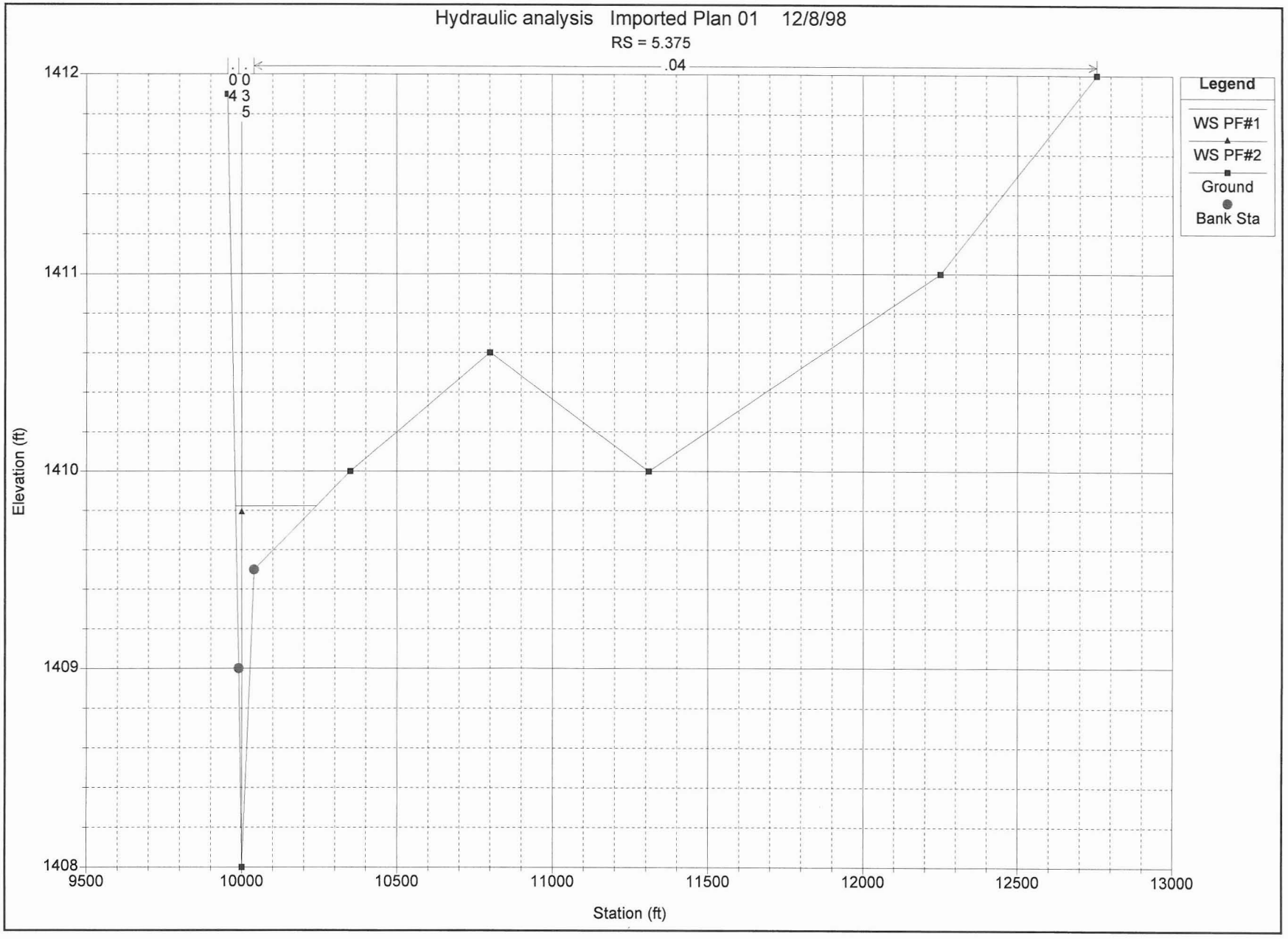
1406.0
9500
10000
10500
11000
11500
12000
Station (ft)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0 0
4 3
5
Legend
WS PF#1
WS PF#2
Ground
Bank Sta
Elevation (ft)
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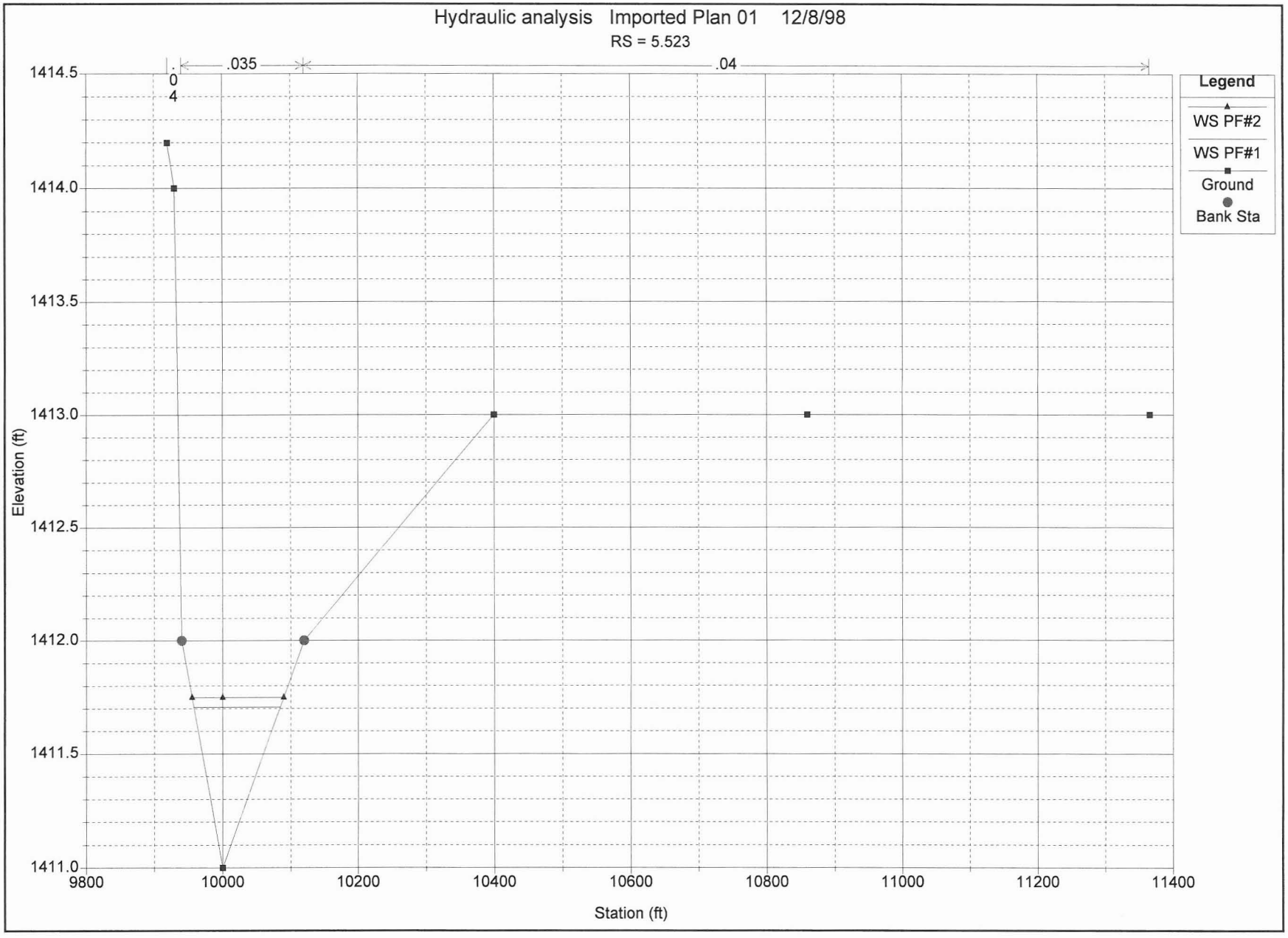
1411
1410
1409
1408
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)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WS PF#1
Ground
Bank Sta
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1413.5
1413.0
1412.5
1412.0
1411.5
1411.0
Elevation (ft)
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10000
10200
10400
10600
10800
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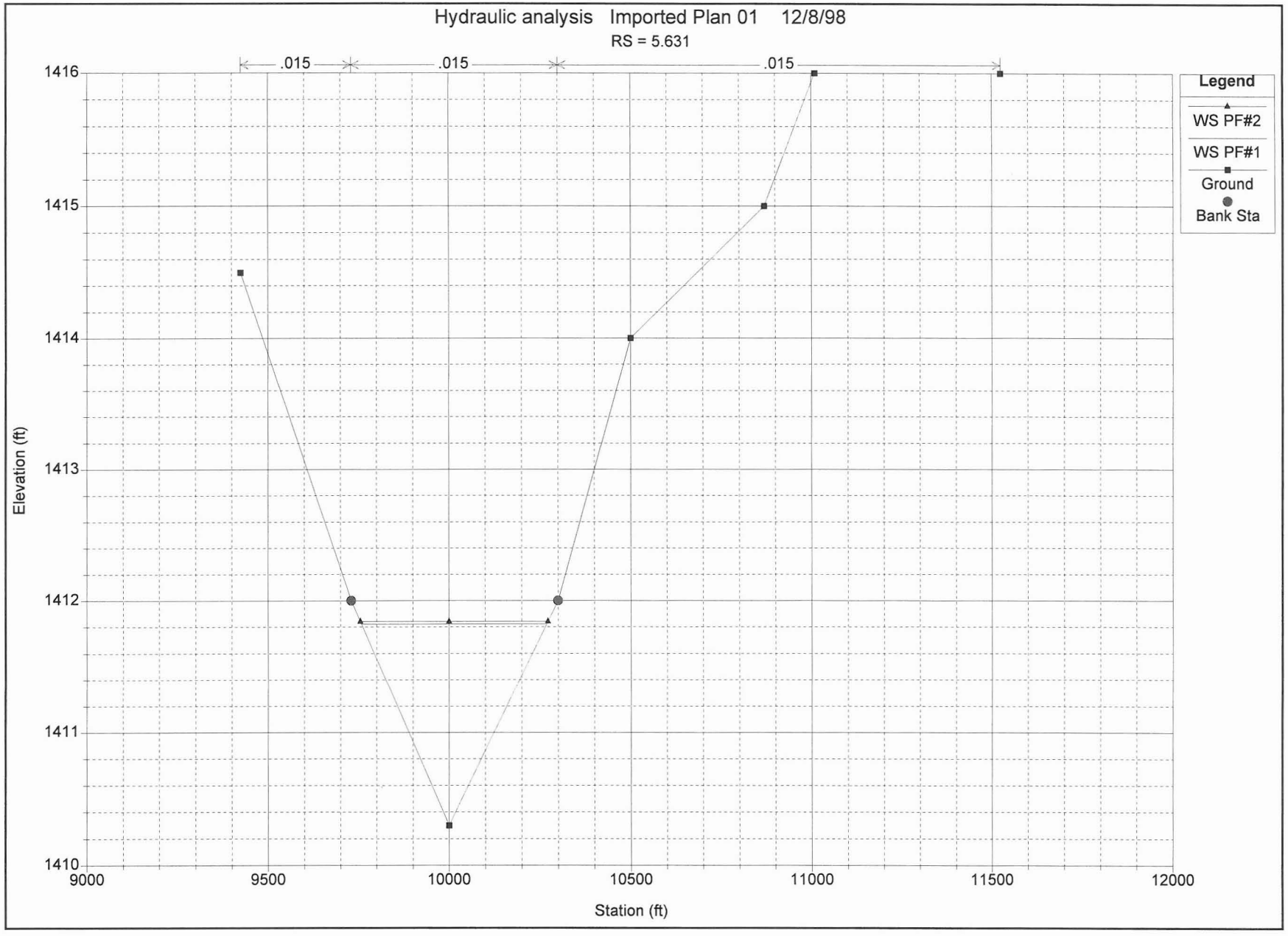
11200
11400
Station (ft)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Legend
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Bank Sta
Elevation (ft)
1416
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1414
1413
1412
1411
1410
9000
9500
10000
10500
11000
11500
12000
Station (ft)

# Appendix F

# APPENDIX K

# HYDRAULIC ANALYSIS OF CULVERT

## (At Ellsworth Road)

# VALUE ENGINEERING PROPOSAL # 1

# RITTENHOUSE CHANNEL PHASE II

FOR

# CAST IN PLACE PIPE IN LIEU OF OPEN CHANNEL
# AND
# CONCRETE BOX CULVERTS

# DESIGN CALCULATIONS

STORM DRAIN ANALYSIS PLUS

Original version by Los Angeles County Public Works
Portions Copyrighted by CIVILSOFT, 1986, 1987, 1989

Version 1.20
Serial Number 07010175

Mar 25, 1998 19:30:31

Input file : RITTEN.DAT
Output file: RITTEN.OUT

INPUT FILE LISTING

```
T1 RITTENHOUSE CHANNEL,  F.C.D. CONTRACT  97-34   -   ALTERNATE CIPCP DESIGN
T2 Q = 504 CFS,   ½ FLOW EACH PIPE,   w/ CONTROL HGL = 1389.56  @  OUTLET
T3 Prepared By:    TERRAIN ENGINEERING                    (RITTEN)    3/25/98
SO  23281.811384.37 72      .014              1389.56
R   24100.001386.60 72      .014
R   25418.401392.50 72      .014
SH                  72
```

SP

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING 

| CARD | SECT NO | CHN TYPE | NO OF PIERS | AVE PIER WIDTH | HEIGHT 1 DIAMETER | BASE WIDTH | ZL | ZR | INV DROP | Y(1) | Y(2) | Y(3) | Y(4) | Y(5) | Y(6) | Y(7) | Y(8) | Y(9) | Y(10) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SO | 72 | 4 | | | 6.00 | | | | | | | | | | | | | | |



WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

| U/S DATA | STATION | INVERT | SECT | W S ELEV |
|---|---|---|---|---|
| | 23281.81 | 1384.37 | 72 | 1389.56 |

ELEMENT NO 2 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 24100.00 | 1386.60 | 72 | .014 | .00 | .00 | .00 | 0 |

ELEMENT NO 3 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 25418.40 | 1392.50 | 72 | .014 | .00 | .00 | .00 | 0 |

ELEMENT NO 4 IS A SYSTEM HEADWORKS * *

| U/S DATA | STATION | INVERT | SECT | W S ELEV |
|---|---|---|---|---|
| | 25418.40 | 1392.50 | 72 | .00 |

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

WATER SURFACE PROFILE LISTING

RITTENHOUSE CHANNEL, F.C.D. CONTRACT 97-34 - ALTERNATE CIPCP DESIGN
Q = 504 CFS, ½ FLOW EACH PIPE, w/ CONTROL HGL = 1389.56 @ OUTLET
Prepared By: TERRAIN ENGINEERING (RITTEN) 3/25/98

| STATION | INVERT ELEV | DEPTH OF FLOW | W.S. ELEV | Q | VEL | VEL HEAD | ENERGY GRD.EL. | SUPER ELEV | CRITICAL DEPTH | | HGT/ DIA | BASE/ ID NO. | ZL | NO PIER | AVBPR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/ELEM | SO | | | | | SF AVE | HF | | | NORM DEPTH | | | ZR | | |
| 23281.81 | 1384.37 | 5.19 | 1389.56 | 252.0 | 9.70 | 1.46 | 1391.02 | .00 | 4.35 | | 6.00 | .00 | .00 | 0 | .00 |
| 224.52 | .00273 | | | | | .00367 | .82 | | | 6.00 | | | .00 | | |
| 23506.33 | 1384.98 | 5.53 | 1390.52 | 252.0 | 9.24 | 1.33 | 1391.84 | .00 | 4.35 | | 6.00 | .00 | .00 | 0 | .00 |
| 343.29 | .00273 | | | | | .00381 | 1.31 | | | 6.00 | | | .00 | | |
| 23849.62 | 1385.92 | 6.00 | 1391.92 | 252.0 | 8.91 | 1.23 | 1393.15 | .00 | 4.35 | | 6.00 | .00 | .00 | 0 | .00 |
| 250.38 | .00273 | | | | | .00408 | 1.02 | | | 6.00 | | | .00 | | |
| 24100.00 | 1386.60 | 6.35 | 1392.95 | 252.0 | 8.91 | 1.23 | 1394.18 | .00 | 4.35 | | 6.00 | .00 | .00 | 0 | .00 |
| 938.21 | .00447 | | | | | .00408 | 3.83 | | | 4.70 | | | .00 | | |
| 25038.21 | 1390.80 | 6.00 | 1396.80 | 252.0 | 8.91 | 1.23 | 1398.03 | .00 | 4.35 | | 6.00 | .00 | .00 | 0 | .00 |
| 380.20 | .00447 | | | | | .00381 | 1.45 | | | 4.70 | | | .00 | | |
| .40 | 1392.50 | 5.70 | 1398.20 | 252.0 | 9.08 | 1.28 | 1399.48 | .00 | 4.35 | | 6.00 | .00 | .00 | 0 | .00 |

84.37 Inv.
5.19' Depth
89.56' Vel. Head
1.46
91.02 Starting WSE

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: RITTENHOUSE CHANNEL

Comment: TRAP CHANNEL - FROM STA 230+60 TO 232+81.81

Solve For Depth

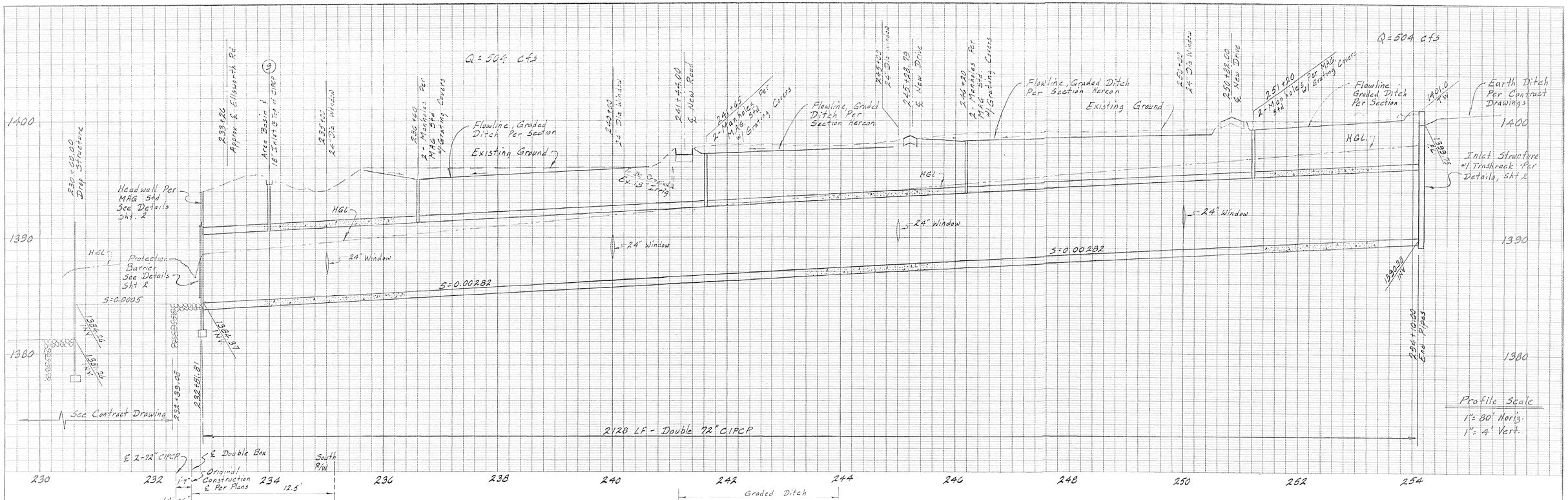
Given Input Data:

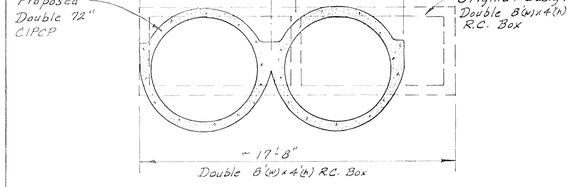
| | |
|---|---|
| Bottom Width..... | 10.00 ft |
| Left Side Slope.. | 4.00:1 (H:V) |
| Right Side Slope. | 4.00:1 (H:V) |
| Manning's n..... | 0.022 |
| Channel Slope.... | 0.0005 ft/ft |
| Discharge..... | 504.00 cfs |

Computed Results:

| | |
|---|---|
| Depth..... | 5.19 ft |
| Velocity..... | 3.16 fps |
| Flow Area..... | 159.60 sf |
| Flow Top Width... | 51.51 ft |
| Wetted Perimeter. | 52.79 ft |
| Critical Depth... | 2.95 ft |
| Critical Slope... | 0.0059 ft/ft |
| Froude Number.... | 0.32 (flow is Subcritical) |

Open Channel Flow Module, Version 3.12 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

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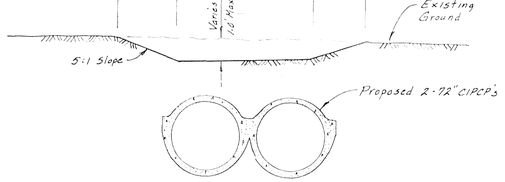


TYPICAL SECTION w/ GRADED DITCH
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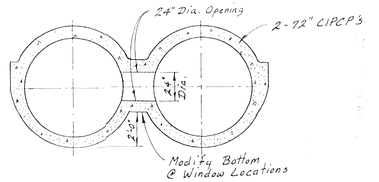



WINDOW OPENING DETAIL
NO SCALE

NOTE:

THE HORIZONTAL AND VERTICAL INFORMATION SHOWN ON THESE EXHIBITS ARE BASED UPON THE ORIGINAL CONTRACT DRAWINGS AND THE FINAL DRAINAGE REPORT PREPARED BY KIRKHAM MICHAEL, DATED NOVEMBER 1997.

PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY ALL LAYOUT INFORMATION AND UTILITY CROSSINGS.

THE PROPOSED DOUBLE BARREL 72-INCH CAST-IN-PLACE CONCRETE PIPE IS TO BE CONSTRUCTED ALONG THE SAME HORIZONTAL ALIGNMENT AND STATIONING AS THE ORIGINAL DOUBLE BARREL 8'(w) x 4'(h) R.C. BOX.

24-INCH DIAMETER FLOW EQUALIZING WINDOWS BETWEEN THE BARRELS SHALL BE CONSTRUCTED AT LOCATIONS SHOW IN THE PROFILE.


Registered Professional Engineer
CERTIFICATE NO.
25563
CURTIS W.
GILLEY
4/1/98
ARIZONA, U.S.A.


APR 30 1998

| REV | SYMBOL | DESCRIPTION OF CHANGE | R.C.E. | DATE | P.D.E. | DATE |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE
DESIGNED
DATE
DELINEATED
DATE
CHECKED


PREPARED BY
TERRAIN ENGINEERING, INC.
25740 WASHINGTON AVENUE
MURRIETA, CA 92562
(909) 698-8471 FAX (909) 698-7898


Curtis W. Gilley 4/1/98
REGISTERED ENGINEER NO. 25563 DATE

DATE
DATE
DATE

EXHIBIT
STORM DRAIN LINE DIAGRAM

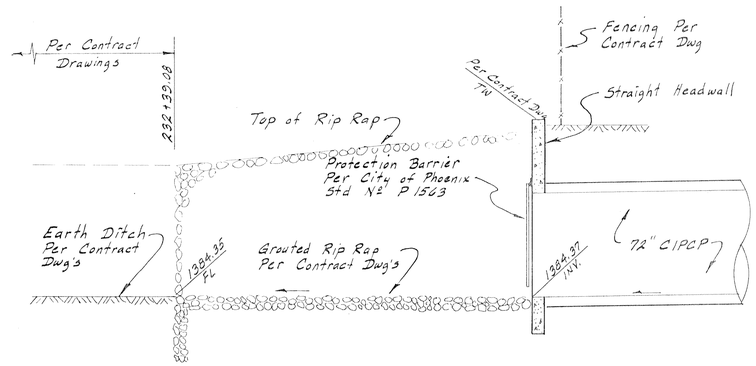
RITTENHOUSE CHANNEL
SOSSAMAN ROAD TO ELLSWORTH ROAD
FCD CONTRACT No. FCD 97 - 34

CAST-IN-PLACE PIPE ALTERNATE



DIETERICH POST REORDER NO. 150347

SECTION A - A
NO SCALE




SECTION B - B
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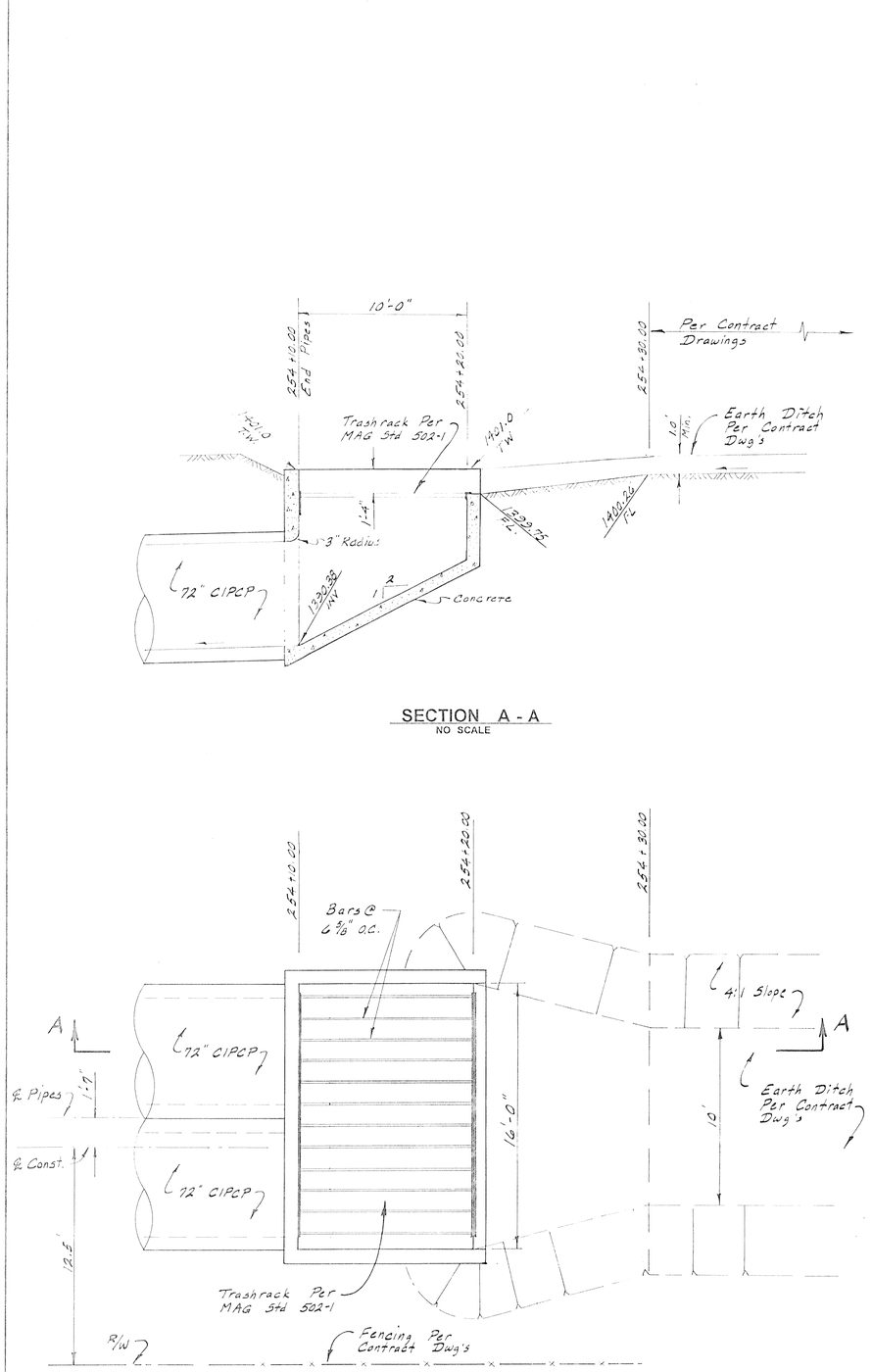
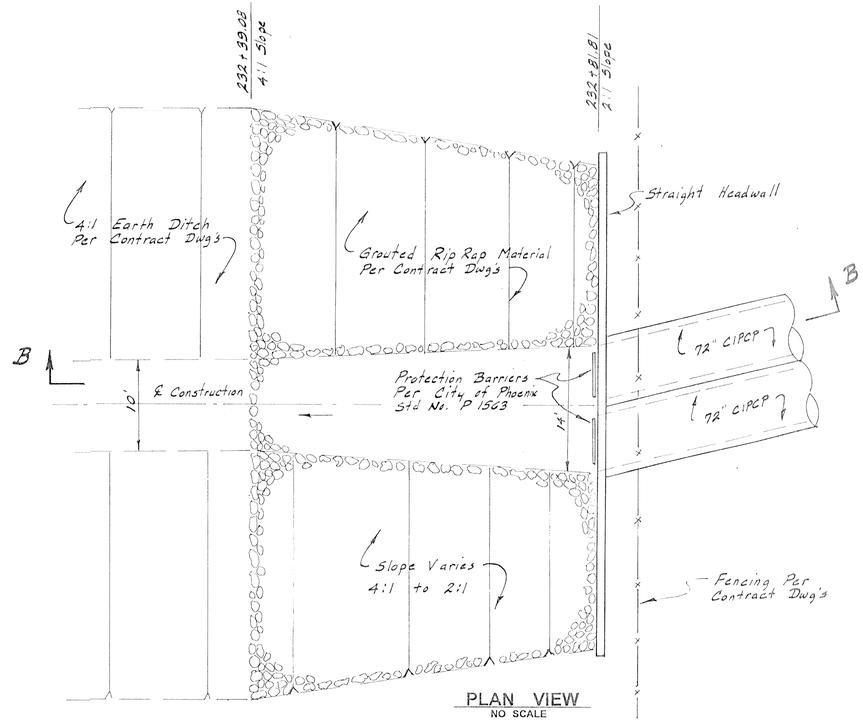



PLAN VIEW
NO SCALE

TRASHRACK INLET STRUCTURE DETAIL




PLAN VIEW
NO SCALE

HEADWALL OUTLET DETAIL

APR 30 1998

| REV. | SYMBOL | DESCRIPTION OF CHANGE | R.C.E. | DATE | P.D.E. | DATE |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE
DESIGNED
DATE
DELINEATED
DATE
CHECKED

PREPARED BY
TERRAIN ENGINEERING, INC.
25740 WASHINGTON AVENUE
MURRIETA, CA 92562
(909) 698-8471 FAX (909) 698-7898

Curtiss L. Gilley 4/25/98
REGISTERED ENGINEER NO DATE

Registered Professional Engineer (Civil) CERTIFICATE NO. 25868 CURTISS W. GILLEY 4/25/98 Date Signed ARIZONA U.S.A.

DATE
DATE

EXHIBIT
STORM DRAIN LINE DIAGRAM

RITTENHOUSE CHANNEL
SOSSAMAN ROAD TO ELLSWORTH ROAD
FCD CONTRACT No. FCD 97 - 34

CAST-IN-PLACE PIPE ALTERNATE

SHEET 2 OF 2

DIETERICH POST REORDER NO. 167087