Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

HYDROLOGIC ANALYSES

FLOODLAIN DELINEATION

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

BLACK & VEATCH
PROGRESS BY DESIGN

Project No. 17676

May 1994

COE & VAN LOO
PLANNING · ENGINEERING
LANDSCAPE ARCHITECTURE

CVL No. 1197-02

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash W: Turtleback Wash
(One form for each flooding source)

Project Name /Identifier: Wickenburg ADMS FCD 89-79

1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)

☒ Detailed study stream (briefly explain methodology) HEC-1 analysis based on Flood Control District of Maricopa County Methodologies.

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis

☐ Improved data *(see data revision on page 3)*

☐ Changed physical conditions of watershed *(explain)* _____

☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*

☐ Evaluation of proposed conditions (CLOMRs only) (explain) _____

☒ Other No existing analysis or analysis being updated to reflect existing conditions.

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Flood Control District of Maricopa County)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

Stream: _____

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs):	Revised (cfs):
Confluence with Hassayampa River	5.03 Sq. mi.	—	5180 cfs

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

No existing analysis or updated analysis to reflect existing conditions.

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

NA

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
NA	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations (*use Attachment B*)

☒ Precipitation/Runoff Model (*use Attachment C*)

☐ Other *(specify; attach backup computations and supporting data)* _____

ATTACHMENT A: STATISTICAL ANALYSIS OF GAGE RECORDS

Gaging Station: NA

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data		
Systematic		
Historical		
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers		
Low outliers		
Zero events		
5. Generalized skew		
6. Station skew		
7. Adopted skew		
8. Probability distribution used (justify if log-Pearson III was not used)		
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:
NA

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:		HEC-1
	Version:		Ver. 3.0
	Date:		02 AUG. 88
2.	Source of rainfall depth:		NOAA Atlas 2
3.	Source of rainfall distribution:		SCS TYPE II
4.	Rainfall duration:		24 hours
5.	Areal adjustment to precipitation (%):		NWS HYDRO-40
6.	Hydrograph development method:		S-Graph
7.	Loss rate method:		Green-AMPT
	Source of soils information:		SCS
	Source of land use information		Town of Wickenburg
8.	Channel routing method:		Normal Depth
9.	Reservoir routing:	☐ Yes ☐ No	☐ Yes ☒ No
10.	Baseflow considerations:	☐ Yes ☐ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

11.	Snowmelt considerations:	☐ Yes ☐ No	☐ Yes ☒ No
12.	Model calibration:	☐ Yes ☐ No	☒ Yes ☐ No

If yes, explain how calibration was performed Computed discharges were compared with DISCHARGE vs DRAINAGE AREA curves and envelopes prepared by the Flood Control District of Maricopa County.

13. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

Stream: NA - No flow records

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

Appendix # 5.3

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE HYDRAULIC ANALYSIS FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

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Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash W : Turtleback Wash
(One form for each flooding source)

Project Name/Identifier: Wickenburg ADMS - FCD 89-79

1. REACH TO BE REVISED

Downstream limit: Station 0.200

Upstream limit: Station 2.163

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study _____

Upstream limit of study _____

☒ Studied by detailed methods

Downstream limit of study Confluence with Hassayampa River

Upstream limit of study Station 2.163

☐ Floodway delineated

Downstream limit of Floodway _____

Upstream limit of Floodway _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain: _____

☐ Improved hydraulic analysis. Explain: _____

☐ Flood control structure. Explain: _____

☐ Other. Explain: _____

3. RIVERINE HYDRAULIC ANALYSIS FORM
Models Submitted

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model *(e.g. duplicate effective model to corrected effective model)*. Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation. For areas which do not have detailed flooding, a hydraulic model is not required; however BFE's may not be added to the revised FIRM.

☐ Duplicate Effective Model — Natural ☐ Floodway ☐

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 requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor'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.

☐ Corrected Effective Model — Natural ☐ Floodway ☐

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 corrected 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.

☐ Existing or Pre-Project Conditions Model — Natural ☐ Floodway ☐

The duplicate effective or corrected 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 or duplicate effective model.

☐ Revised or Post-Project Conditions Model — Natural ☐ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective 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 proposed project this model should reflect proposed conditions.

☒ Other: Please attach a sheet describing all other models or calculations submitted. — Natural ☒ Floodway ☒

New Model (Proposed Effective Model)

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

Discharges:	Upstream Limit	Downstream Limit
10-year	2359	2659 cfs
50-year	3816	4408 cfs
100-year	4412 cfs	5180 cfs
500-year	—	—

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevations determined by the slope-area method.

3. Give range of friction loss coefficients (*Manning's "N"*) Channel 0.035

Overbanks ..... 0.06 ~ 0.07

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added.

Data points for cross-sections are based on photogrammetric models for the topographic maps.

5. Explain how reach lengths for channel and overbanks were determined:

All reach lengths were measured from floodplain work maps.

5. RESULTS (*from model used to revise 100-year water surface elevations*)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ☐ Yes ☒ No

b. Supercritical depth? ☐ Yes ☒ No

c. Critical depth? ☒ Yes ☐ No

d. Other unique situations ☐ Yes ☐ No

If yes, special problems report attached.

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? 0.0113 ft/ft

Specify location 1.365

3. What is the distance between the cross-sections in 2 above? 234 ft

Specify location 1.409

4. What is the maximum distance between cross-sections? 535 ft

Specify location 1.067

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? 1.0 foot

b. What is the maximum surcharge for the revised conditions? 0.8 foot

Specify location 0.679

c. What is the maximum velocity? 17.96 fps

Specify location 1.432

Explain:

d. Are there any negeative surcharge values at any cross-section ☐ Yes ☒ No

If yes, the floodway may need to widen. If it is not widened, please explain and indicate the maximum negative surcharge.

Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☐ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases.

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet and upstream of the project at cross section_____within_____feet.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet and upstream of the project at cross section_____ within_____feet.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

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

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Unincorporated Maricopa County / Town of Wickenburg	Wash W: Turtleback Wash	Wickenburg ADMS-FCD 89-79

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

New Model- See following Floodway Data Table

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet ___ of ___

FLOODWAY DATA, WASH W: TURTLEBACK WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
49.420	1040.	1146.	4.5	1984.8	1984.8	.0
.200	100.	450.	11.5	1991.5	1991.5	.0
.204	106.	601.	8.6	1993.2	1993.2	.0
.224	171.	658.	7.9	1997.5	1997.5	.0
.318	185.	665.	7.8	2008.0	2008.0	.0
.411	91.	501.	10.3	2017.3	2017.3	.0
.457	323.	1409.	3.7	2021.4	2021.4	.0
.485	372.	949.	5.5	2023.1	2023.1	.0
.506	342.	897.	5.8	2025.1	2025.1	.0
.581	205.	774.	6.7	2033.5	2033.5	.0
.679	196.	678.	7.7	2040.4	2039.6	.8
.774	210.	712.	7.3	2047.9	2047.9	.0
.824	130.	610.	8.6	2054.4	2054.4	.0
.871	168.	644.	8.1	2058.0	2058.0	.0
.966	232.	778.	6.7	2065.3	2065.3	.0
1.067	165.	613.	8.5	2075.7	2075.7	.0
1.150	153.	552.	8.6	2082.8	2082.8	.0
1.206	192.	636.	7.5	2088.0	2088.0	.0
1.271	126.	327.	7.6	2097.2	2097.2	.0
1.298	159.	377.	6.6	2103.0	2103.0	.0
1.322	85.	279.	8.9	2105.6	2105.6	.0
1.365	172.	783.	6.0	2108.1	2108.1	.0
1.409	147.	565.	8.3	2113.0	2113.0	.0
1.432	135.	516.	9.1	2115.9	2115.9	.0
1.495	196.	679.	6.9	2121.4	2121.4	.0
1.593	299.	756.	6.2	2128.5	2128.5	.0
1.682	165.	606.	7.6	2138.0	2138.0	.0
1.776	227.	634.	7.2	2146.8	2146.8	.0
1.868	235.	644.	6.9	2155.8	2155.8	.0
1.954	121.	452.	9.9	2165.7	2165.7	.0
2.029	190.	562.	7.8	2171.3	2171.3	.0
2.070	188.	624.	7.1	2176.9	2176.9	.0
2.163	195.	629.	7.0	2185.0	2185.0	.0

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

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Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash W: Turtleback Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Atchison-Topeka and Santa Fe Railroad
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.200 to Station 0.204
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

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

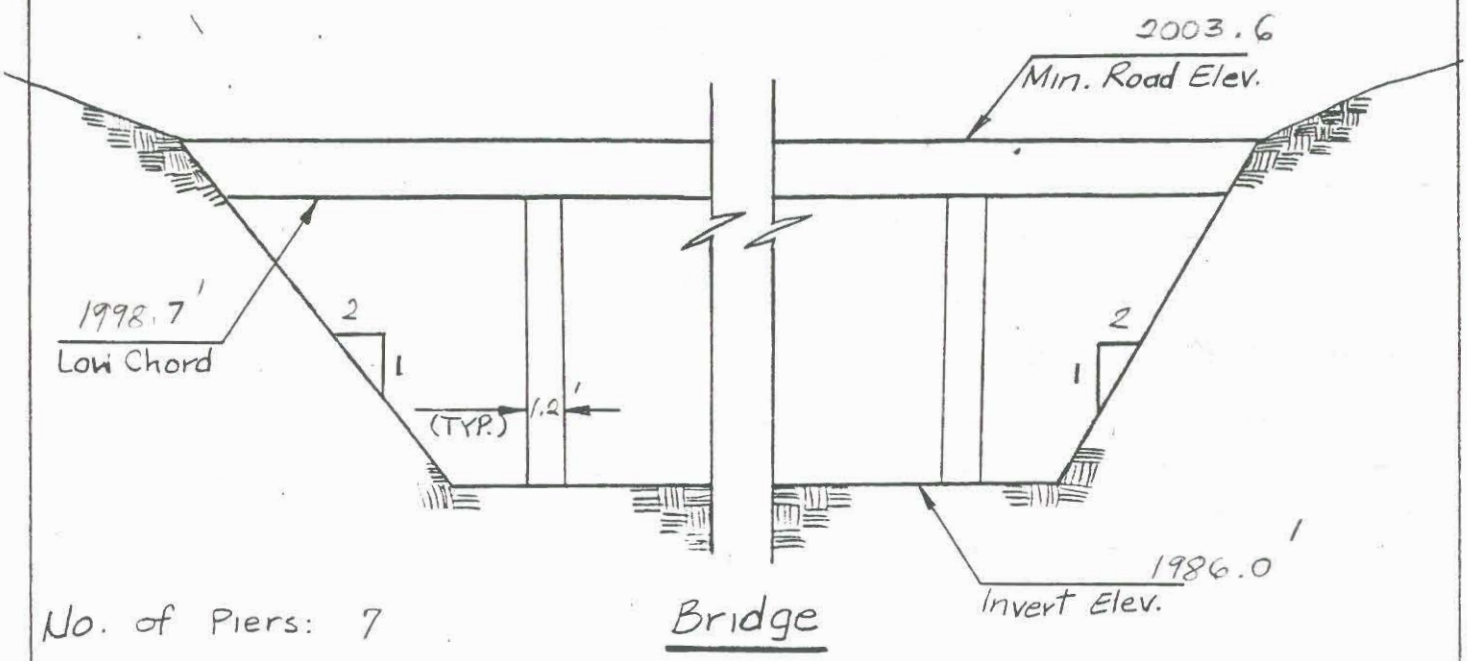
1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) Eight span bridge with three rows of seven 1.2-foot diameter piers.
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Trapezoidal opening with side slope of 2:1 and bottom width of 81.45 ft.
3. Hydraulic model used to analyze the structure *(e.g., HEC-2 with special bridge routine, WSPRO, HY8)* HEC-2 with Special Bridge 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)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A

* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.

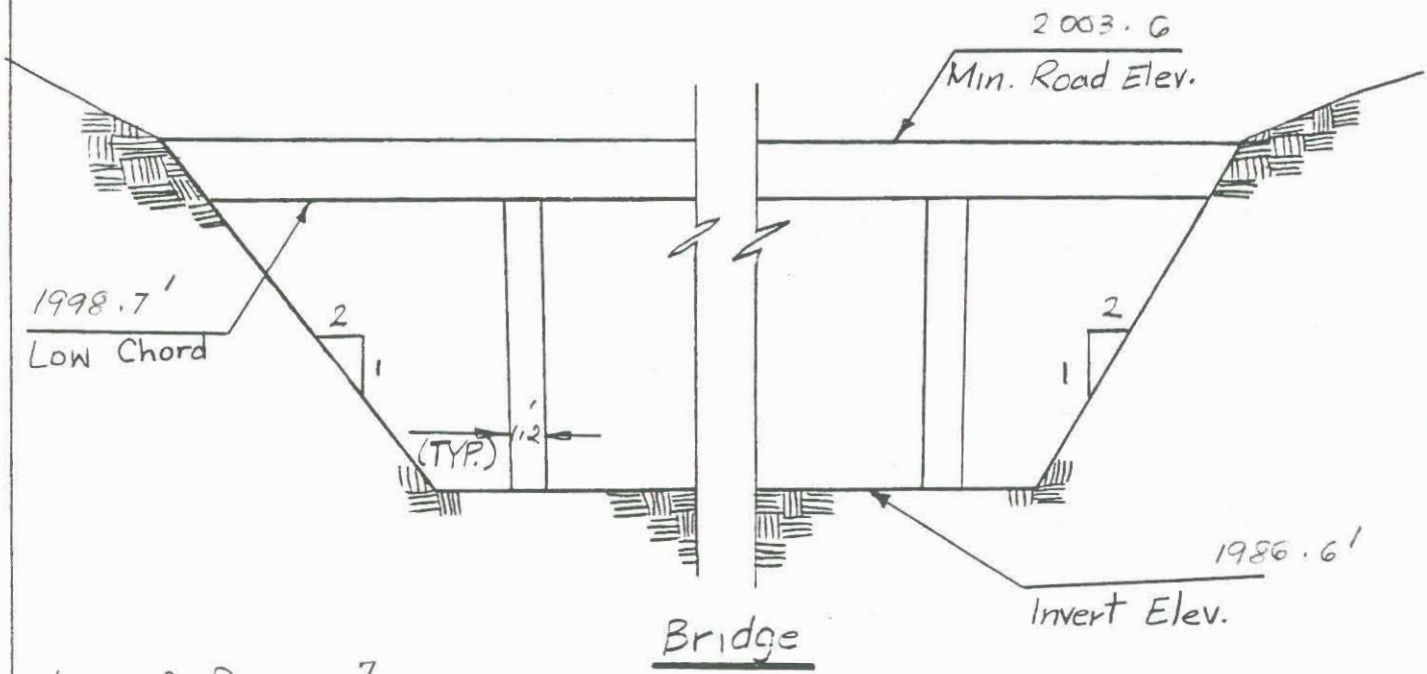


No. of Piers: 7

Total Width of Piers: 8.4'

See Cross Section # 0.200

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.

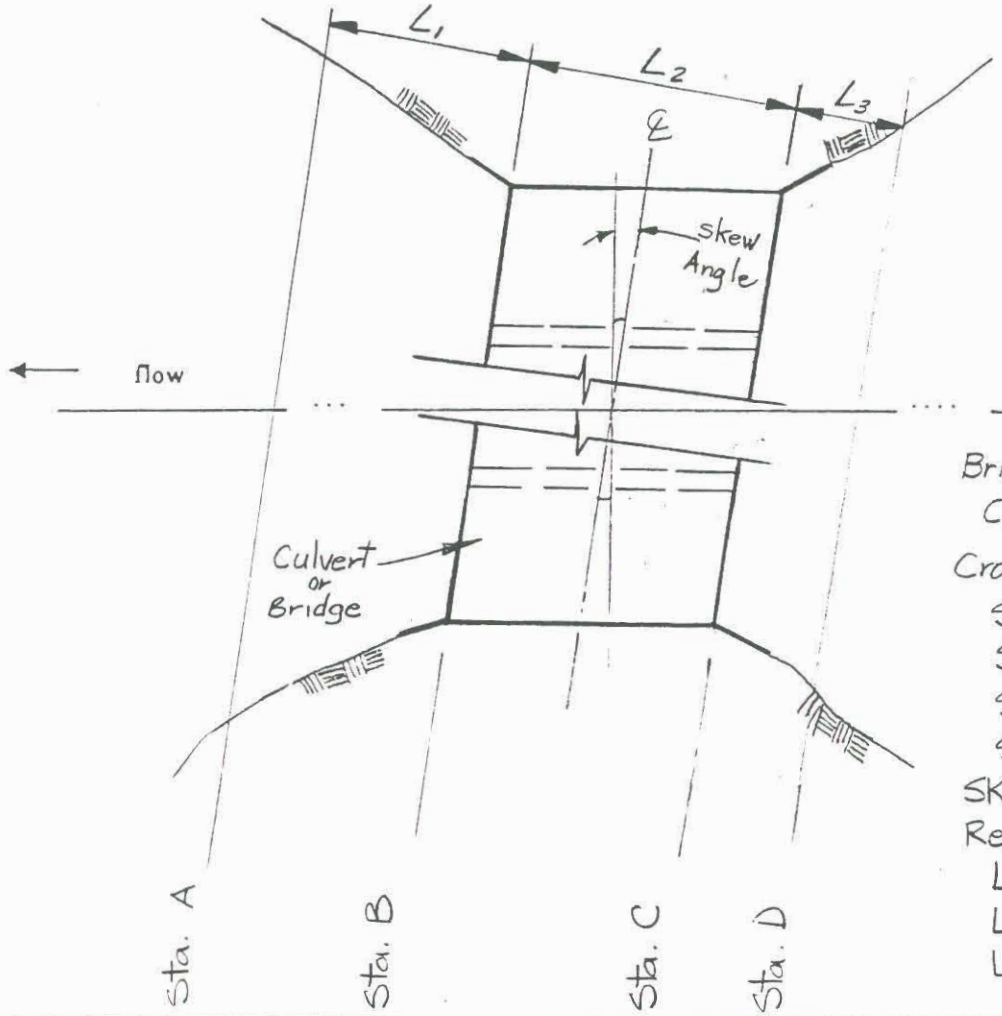


No. of Piers: 7

Total Width of Piers: 8.4'

See Cross Section #0.204

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Bridge Width / Culvert Length: 18.5'

Cross Section Stations

Sta. A = 49.42

Sta. B = 0.200

Sta. C = 0.204

Sta. D = 0.224

Skew Angle: 0

Reach Lengths:

L1 = 105.5 ft.

L2 = 18.5 ft.

L3 = 106 ft.

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	18.5'
Calculated culvert/bridge area (ft^2) by the hydraulic model, if applicable	1177 ft^2
Total culvert/bridge area (ft^2)	1115.2 ft^2

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (STA 0.204)	2003.6'	2003.6'
Downstream face (STA 0.200)	2003.6'	2005.6'

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	2003.6'	2003.6'
Downstream face	2003.6'	2003.6'

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1993.20'	1994.36'
Downstream face	1991.45'	1993.51'

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	5180 cfs	—	—	5180 cfs

The maximum depth of flow over the roadway/railroad (ft.) ..... 0'

Weir length (ft.) ..... 0'

Top Widths

	Floodplain	Floodway
Upstream face	107'	107'
Downstream face	100'	100'

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	107'	107'
Downstream face	100'	100'

Loss Coefficients

Entrance loss coefficient	—
Manning's "n" value assigned to the structure(s)	0.035
Friction loss coefficient through structure (s)	—
Other loss coefficients (e.g., bend manhole, etc.)	—
Total loss coefficient	1.800
Weir coefficient	3.00
Pier coefficient	1.25
Contraction loss coefficient	0.300
Expansion loss coefficient	0.500

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) Method I of bridge encroachment is used where encroachment stations are defined by STENCL & STENCR in the ET record & effective elevations (i.e., ELLEA, ELREA) in the X3 record for effective flow calculations.

Comments *(explain any unusual situations)*:

Attach analysis.

Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

Appendix 5.3: HEC-2 Models & Cross Section Plots for West Area Wash
TURTLEBACK WASH (Wash w)

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

N:\1187\02\ADMIN\119702RP.063

May 1994

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
   Version   4.6.2;  May 1991               *
                                            *
*  RUN DATE    18NOV92    TIME   14:42:47   *
*********************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*      (916) 756-1104                  *
****************************************
```

```
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
```

THIS RUN EXECUTED 18NOV92 14:42:47

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

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


T1      WICKENBURG ADMS: MARICOPA COUNTY - CONTRACT 89-79
T2      BLACK & VEATCH PN 17676: COE & VAN LOO JN 1197-02
T3      WASH W: TURTLEBACK WASH          (WASHW.O)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0     0.0056      0        0        0     1990.02     0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

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


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150       200

QT        2      5180      5180
NC     .045      .045      .035        .1        .3
            HASSAYAMPA RIVER FIS CROSS SECTION 49.42 (CBA 1988, NO DATUM CHANGE
            CONFLUENCE WITH WASH W - TURTLEBACK WASH, A WEST TRIBUTARY
            NON COINCIDENT WITH 100-YEAR DISCHARGE IN HASSAYAMPA.
            THE METHOD USED TO START THIS HEC-2, WATER SURFACE PROFILE
            ANALYSIS IS THE SLOPE/AREA METHOD.
X1    49.42        27    1734.0    2675.0
GR   2019.6    1000.0    2019.6    1022.9    2007.5    1052.7    2001.9    1137.0    2002.0    1152.0
GR   2005.5    1172.8    2004.7    1187.5    1999.3    1219.4    1994.8    1570.8    1996.6    1685.5
GR   1992.2    1712.6    1981.9    1734.0    1981.7    1756.4    1982.6    1824.6    1982.5    2026.8
GR   1985.0    2055.4    1985.4    2213.5    1984.1    2277.0    1985.4    2322.0    1985.1    2479.5
GR   1982.7    2512.2    1983.7    2675.0    1983.3    2764.6    2003.3    2806.0    2003.3    2821.5
GR   1997.3    2872.9    2004.9    2888.1

NC    0.060     0.060     0.035        .3        .5
ET                        9.1                                                          951       1051
            THE POINT OF INTERSECTION OF THE THALWEG WITH A CROSS SECTION
            CORRESPONDS TO STATION 1000.00 OF THE CROSS SECTION,
            UNLESS OTHERWISE NOTED.
            DUE TO THE CONFIGURATION AND OTHER HYDROLOGIC CHARACTERISTICS
            OF THE WATERSHED, THE PEAK DISCHARGE MAY DECREASE AT VARIOUS
            LOCATIONS ALONG THE WASH.
            DOWNSTREAM SECTION OF ATCHISON-TOPEKA & SANTA FE RAILROAD BRIDGE.
     .200        10    938.78   1065.58       400        10    1055.0
X3     10                                                                 2003.6    2003.6
GR   2003.6      919    2003.6       938    1998.5    938.78    1986.5    959.28    1986.5      1000
GR   1986.5   1040.73    1998.5   1065.58    2005.6    1066.0    2003.8    1075.0    2004.0    1096.0
```

```
SB    1.25      1.8       3.0         0      81.45       8.4    1115.2         2    1986.6    1986.0
ET                        9.1                                                          948      1055
            UPSTREAM SECTION OF ATCHISON-TOPEKA & SANTA FE RAILROAD BRIDGE.
X1   0.204       10    938.78   1065.58      18.5      18.5      18.5
X2                         1    1998.7    2004.3
X3      10                                                            2003.6    2003.6
BT     -10      919    2003.6               938    2003.6    1998.5    938.78    2003.6    1998.5
BT            959.28   2003.6    1998.5      1000    2003.6    1998.5   1040.73    2003.6    1998.5
BT           1065.58   2003.6    1998.5    1066.0    2003.6              1075.0    2003.8
BT            1096.0   2004.0
GR  2003.6      919    2003.6       938    1998.5    938.78    1986.8    959.28    1986.8      1000
GR  1986.8   1040.73    1998.5   1065.58    2003.6    1066.0    2003.8    1075.0    2004.0    1096.0

ET                        9.1                                                          931      1103
X1   0.224       30     990.9    1006.7       135        90       106
GR  2020.0    827.0    2010.0     848.0    2004.0     854.0    2002.0       865    2001.7     871.0
GR  2001.1      886    2000.5       898      2000       910    1998.7     921.7    1997.3     933.3
GR    1996      945    1995.1       957    1994.2       969    1992.6     978.3    1991.1     984.6
GR  1989.7    990.9    1988.5       997    1988.0     1000.    1989.3    1006.7      1990      1010
GR  1991.5   1018.3    1992.6    1029.7    1993.4    1041.3    1994.2      1053    1994.8      1065
GR  1995.4     1077    1995.8      1086    1996.0    1089.0    2000.0      1125    2010.0    1145.0

NC   0.070    0.070     0.035        .1        .3
ET                        9.1                                                          960      1146
     0.318       27     990.0    1030.0       440       510       496
      2015    942.3    2013.3     945.8    2011.7     949.4      2010       953      2008     960.3
GR  2006.4    967.2    2004.6     976.8    2002.3     986.7    2001.5     990.0      2001      1000
GR  2001.2   1013.3    2001.4    1026.7    2001.5    1030.0    2002.3    1038.3    2003.8    1048.8
GR    2006     1060    2006.3    1073.3    2006.4    1083.8      2006      1095      2006    1105.7
GR  2005.9   1116.4    2005.9    1126.7      2006      1140    2008.5    1146.8    2011.1    1153.7
GR  2013.6   1160.5    2016.1    1167.4

ET                        9.1                                                          965      1057
X1   0.411       28     990.8    1012.5       492       470       489
GR    2040      920      2038       926      2036       932      2034       938      2032       944
GR    2030      950    2027.1     952.9    2024.3     955.7    2021.4     958.6    2019.2     961.5
GR  2016.9    966.2    2014.6     970.8    2012.3     975.4      2010       980    2009.5     990.8
GR   2009.     1000.   2009.1    1001.6    2009.6    1012.5    2010.6    1022.9    2012.3    1031.5
GR  2014.1   1040.5    2015.9    1049.5    2017.7    1058.5    2018.9    1069.2      2020      1080
GR  2022.9   1082.9    2025.7    1085.7    2028.6    1088.6

QT       2     5212      5212
ET                        9.1                                                          837      1161
X1   0.457       33     990.0    1022.0       300       230       242
GR  2030.4    815.5    2030.0     819.0    2028.3     822.5    2026.7      826.    2025.0     829.5
GR  2023.3      833    2021.7     836.5      2020       840    2018.4     857.5    2017.6       875
GR  2017.8    892.5      2018       910      2018     927.5      2018       945    2017.8     962.4
GR  2016.7    979.7    2016.0     990.0    2015.7     996.7    2015.5     1000.    2015.7      1014
GR  2016.0   1022.0    2017.2    1031.6    2018.3    1048.2    2018.1    1065.5      2016      1078
GR     2014     1084      2014      1102    2014.8    1119.9    2015.7    1137.8    2017.3      1149
     2018.7     1153    2020.0    1157.0    2030.0    1179.0
```

ET			9.1						759	1132
X1	0.485	35	990.0	1020.	142	132	148			
GR	2032.0	730.0	2030.7	734.0	2029.3	738.0	2028.0	742.0	2026.8	746.5
GR	2025.5	751	2023	760	2021	780	2021	797.7	2021.1	815.5
GR	2021.4	833.7	2021.8	851.9	2022	870.5	2021.5	890	2021.2	908.1
GR	2020.9	926.2	2020.6	944.3	2020.2	962.4	2019.3	980.7	2018.0	990.0
GR	2017.5	1000	2018	1020	2019.2	1038.9	2019.7	1056.7	2020.2	1074.6
GR	2020.9	1092.7	2021.6	1110.9	2022.8	1128.8	2024.9	1146.3	2025.7	1150.6
GR	2026.6	1154.9	2027.4	1159.1	2028.3	1163.4	2029.1	1167.7	2030.0	1172.0
ET			9.1						758	1101
X1	0.506	29	992.0	1005.0	110	110	110			
GR	2031.6	740.7	2029.5	745	2026.7	753.5	2023.9	762	2023.7	780.3
GR	2023.5	798.7	2023.3	817.1	2023.1	835.4	2023.1	853.7	2023.2	871.9
GR	2023.3	890.1	2023.4	908.3	2023.3	926.3	2022.8	943.5	2022.2	960.7
GR	2020.5	980	2019.5	992.	2019.3	996	2019.0	1000.	2019.5	1005.
GR	2020.3	1015	2020.9	1033.4	2021.4	1051.2	2022	1069	2023.8	1087.5
GR	2025.7	1105.9	2027.5	1124.4	2029.3	1137	2030.0	1141.0		
ET			9.1						831	1037
X1	0.581	33	990.0	1008.0	397	397	397			
GR	2050	795	2047.5	801	2045	807	2042.5	813	2040	819
GR	2038.4	822.2	2036.8	825.4	2035.2	828.6	2033.6	831.8	2032	835
GR	2030.8	856	2030.1	877	2030.6	898	2031	919	2030.5	939.5
	2030	960	2028.3	975	2026.5	990	2026.0	1000.	2026.0	1008.0
	2026.8	1011.3	2028.5	1018	2031.5	1032.9	2033.1	1035.8	2034.6	1038.8
GR	2036.2	1041.7	2039.2	1047.5	2040.8	1050.5	2043.8	1056.3	2045.4	1059.2
GR	2046.9	1062.2	2048.5	1065.1	2050.0	1068.0				
ET			9.1				852	1136	940	1136
X1	0.679	30	988.8	1008.0	350	540	519			
GR	2050.8	821.5	2049.2	825.5	2046.2	833.7	2044.6	837.8	2043.1	841.8
GR	2041.5	845.9	2039.2	854.2	2037.6	862.6	2036	871	2036	891.7
GR	2036.4	912	2036.9	936.1	2036.5	956.5	2036.2	976.8	2035.8	988.8
GR	2035	1000	2035.2	1004.0	2035.3	1008.0	2036	1024	2036.6	1048
GR	2037.3	1072	2037.9	1096	2038.7	1116.4	2039.6	1136.8	2041.5	1157.8
GR	2043.1	1166	2045.4	1174	2047.7	1182	2048.9	1186	2050.0	1190.0
ET			9.1						929	1141
X1	0.774	28	979.1	1003.1	490	510	501			
GR	2062.5	891.8	2060.0	895.0	2058.8	898.0	2057.5	901.0	2056.3	904.0
GR	2055	907	2052.5	913	2050	919	2048.2	928.3	2046.4	937.6
GR	2044.6	946.9	2042.9	967.5	2042.2	979.1	2041.8	988	2041.5	1000.
GR	2042.3	1003.1	2042	1010	2043.4	1031	2044.8	1052	2045.3	1072.7
GR	2045.8	1093.2	2046.5	1114.2	2047.5	1135.8	2049.2	1154	2049.6	1157
GR	2050.0	1160.0	2060.0	1185.0	2070.0	1210.0				
QT	2	5244	5244							
ET			9.1						980	1111

```
     0.824      33     989.0    1004.0     260     220     263
GR  2080.0   969.0    2077.1     971.0  2074.3   973.0  2071.4     975  2068.6     977
GR  2065.7     979    2052.9       981    2050     983  2048.5  989.0    2048     991
GR  2047.0   1000.    2047.7      1002  2048.4  1004.0  2049.8    1008  2050.5  1019.2
GR    2050    1030    2049.1      1042  2049.5    1054  2049.9    1066  2049.6    1078
GR    2049    1090    2050.8    1102.1  2052.5  1106.3  2054.2  1110.4  2055.8  1114.6
GR  2067.5  1118.8    2069.2    1122.9  2071.2    1129  2074.1  1139.0  2075.9  1145.0
GR  2076.5  1147.0    2077.6    1151.0  2080.0  1159.0

ET                      9.1                                           862    1031
X1   0.871      30     990.2    1012.5     265     205     248
GR  2080.0   810.0    2077.5     815.3  2075.0   820.5  2070.0   831.0  2068.0   835.8
GR    2066   840.6    2064       845.4    2062   850.2    2060     855    2058   862.5
GR    2056     870    2055.5     887.5    2055     905  2054.5   922.5    2054     940
GR  2053.4   957.8    2053       970.5  2052.7   987.7  2052.6   990.2  2052.5   1000.
GR  2052.6    1005    2052.8    1012.5  2054.2  1022.5  2056.5  1027.5  2058.8  1032.5
GR  2061.7  1037.5    2065.1    1042.6  2066.8  1045.2  2075.2  1057.8  2082.0  1068.0

ET                      9.1                                           971    1204
X1   0.966      26     979.7    1006.7     478     500     504
GR    2080     950    2076.7     953.3  2073.3   956.7    2070     960  2067.1   966.6
GR  2064.3   973.1    2061.4     979.7  2059.5    1000  2061.2  1006.7    2062    1010
GR  2062.5  1032.5    2062.4    1053.7  2062.1  1075.7  2061.8  1097.2  2061.6  1118.4
GR    2062    1141    2061.6    1162.8    2062    1185  2064.5  1198.5  2066.9  1212.1
GR  2069.4  1225.6    2071.7    1235.8  2074.2  1246.1  2076.7  1256.3  2079.2  1266.6
    2080.0  1270.0

ET                      9.1                                           867    1033
X1   1.067      35     893.0     940.0     545     445     535
GR  2090.0   835.0    2088.2     839.9  2086.4   844.8  2084.6   849.7  2082.7   854.6
GR  2081.8   857.1    2080       862    2078   864.8    2076   867.5    2074   870.3
GR    2072     873    2071.4     885.5  2071.0   893.0    2071     898    2071   910.3
GR    2071   922.7    2071       935    2071.0   940.0  2071.5   947.3  2072.3   959.6
GR  2072.3   972.2    2072.1     982.4  2071.9   992.5  2071.5   1000.  2071.8    1005
GR  2073.2  1017.3    2074.8    1027.2  2076.4  1036.9    2078  1046.8  2079.6  1056.6
GR    2081  1061.4    2084.0    1068.6  2086.0  1073.4  2088.0  1078.2  2090.0  1083.0

QT       2    4770     4770
ET                      9.1                                           966    1120
            SECTION UPSTREAM OF A SUBAREA WASH INTERSECTION POINT.
X1   1.150      30     997.9    1051.0     450     410     437
GR    2094     935    2091.6       941  2089.3     947  2086.7     955    2084     963
GR  2081.3     971    2079.6     981.3  2079.0   991.7  2078.6   997.9  2078.5  1000.0
GR  2078.5  1002.0    2078.5    1012.3  2078.5  1022.5  2078.5  1032.7  2078.5  1042.9
GR  2078.5  1051.0    2078.6    1053.1  2078.8  1063.2    2079  1073.3  2079.3  1083.5
GR  2079.5  1093.7    2079.7    1103.8  2079.9  1113.9    2080    1118    2085    1120
GR    2090    1122    2092.5    1126.3  2093.8  1128.4  2095.0  1130.8  2100.0  1139.0

ET                      9.1                                           952    1145
X1   1.206      35     977.0    1002.0     275     230     298
GR  2100.0   932.0    2098.8     933.9  2097.5   935.8  2095.0   939.5  2093.8   941.4
    2091.3   945.1    2089.3       949  2087.3     955  2085.3     961  2083.7     971
GR  2083.4   977.0    2083.1       983  2083.3   994.4  2083.5   1000.  2083.6  1002.0
GR  2083.8    1006    2084.1      1018  2084.3    1030  2084.4    1042  2084.4    1054
```

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     2084.1      1066      2084    1077.2    2084.6      1089    2085.4    1100.6      2086    1112.1
GR     2086    1122.4      2086    1132.8      2088    1144.5      2090      1150      2091      1152
GR   2092.0    1154.0    2094.0    1158.8    2096.0    1162.0    2098.0    1166.0    2100.0    1170.0

QT       2      2480      2480
ET                        9.1                                                         980      1107
             SEE COMMENT FOR SECTION 1.322 REGARDING DIVIDED FLOW.
X1   1.271        13     993.0    1025.0       350       350       345
GR  2110.0       885    2109.0       909    2108.0       934    2104.0       950    2100.0       965
GR  2095.0       993    2094.2      1000    2094.2      1025    2094.0      1060    2095.0      1094
GR  2100.0      1122    2120.0      1142    2128.0      1188

ET                        9.1                                                         965      1124
             SEE COMMENT FOR SECTION 1.322 REGARDING DIVIDED FLOW.
X1   1.298        12       975      1019       128       210       143
GR  2110.0       928    2109.0       936    2108.0       942    2104.0       962    2100.0       975
GR  2099.5      1000    2100.0      1019    2100.5      1045    2101.0      1092    2102.0      1112
GR  2104.0      1135    2120.0      1162

ET                 7.1       9.1                                   960      1045       960      1045
             DURING THE 100-YEAR EVENT, DIVIDED FLOW OCCURS AT SECTION 1.322
             DUE TO A NATURAL FEATURE.  MORE SPECIFICALLY, 2685 CFS OF THE
             100-YEAR EVENT BYPASSES SECTIONS 1.271 AND 1.298 AND WEIR FLOWS
             OVER A RIDGELINE ALONG SECTION 1.322.  HENCE, ONLY 2085 CFS
             THROUGH SECTIONS 1.271 AND 1.298.  SEE REPORT FOR DOCUMENTATION.
     1.322        31       987      1026       105       175       127
     2110.0       218    2108.0       222    2106.0       232    2104.0       325    2103.5       494
GR  2107.0       533    2107.0       543    2104.0       575    2102.0       607    2102.0       617
GR  2102.0     633.5    2104.0       650    2106.0       680    2108.0       690    2110.0       755
GR  2110.0       850    2109.0       900    2108.0       948    2104.0       968    2103.0       978
GR  2102.0       987    2100.5      1000    2100.5      1024    2102.0      1026    2103.0      1030
GR  2104.0      1040    2108.0      1052    2110.0      1058    2112.0      1062    2116.0      1072
GR  2120.0      1080

QT       2      4683      4683
ET                 7.1       9.1                                   920      1092       920      1092
             ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
             SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
             WSEL AND THE TOPOGRAPHY.
X1   1.365        20       950      1014       230       216       225
GR  2120.0       760    2116.0       770    2112.0       780    2108.0       789    2104.0       800
GR  2103.5       820    2103.2       830    2103.1       850    2103.3       902    2103.1       925
GR  2103.2       930    2103.2       950    2103.2      1000    2103.3      1014    2103.4    1056.1
GR  2103.8    1073.2    2104.0      1078    2108.0      1092    2114.0    1098.5    2120.0      1105

ET                        9.1                                                         964      1112
X1   1.409        28     992.0    1004.0       234       234       234
GR  2120.0     950.0    2118.0       954.0    2116.0       958.0    2115       960      2113       964
GR     2111       968    2109.6       972    2108.4       978    2107.5       990    2107.4     992.0
GR  2107.0     1000.    2107.2      1002    2107.4    1004.0    2108.1      1014    2108.3      1026
GR  2108.5      1038    2108.7      1050      2109      1062    2109.6    1072.2    2110.2    1082.4
     2110.9    1092.6    2111.6    1102.9    2112.8      1111    2114.4      1115    2115.2      1117
GR  2116.0    1119.0    2118.4    1125.0    2120.0    1129.0
```

ET			9.1						981	1117
X1	1.432	30	1049.1	1061.0	152	90	124			
GR	2124.0	960.0	2122.4	964.0	2120.0	970.0	2118.4	974.0	2117.6	976.0
GR	2116.8	978	2115.2	984	2113.6	992	2112	1000	2111.9	1007.9
GR	2111.7	1015.7	2111.6	1023.6	2111.4	1031.4	2111.3	1039.3	2111.1	1047.1
GR	2111.1	1049.1	2111	1055	2111.1	1061.0	2111.2	1063	2111.3	1071
GR	2111.5	1079	2111.7	1087	2111.8	1095	2112	1103	2113.7	1109
GR	2115.4	1115	2117.1	1121	2120.0	1131.0	2122.3	1139.0	2124.0	1145.0
ET			9.1						915	1112
X1	1.495	18	986.5	1007.3	258	334	334			
GR	2128	870.8	2125.6	881.1	2123.3	895	2121.3	916	2119.5	937.1
GR	2118.1	958.2	2116.7	979.4	2116.2	986.5	2116	1000	2116.2	1007.3
GR	2116.6	1021.8	2117.1	1043.4	2117.6	1064.2	2118.4	1085.1	2119.8	1106.4
GR	2122	1113.5	2126	1120.5	2128	1124				
ET			9.1						952	1252
X1	1.593	25	991.7	1031.0	515	480	520			
GR	2144.0	915.0	2142.0	918.0	2136	930	2132.8	938	2129.6	946
GR	2127.5	958.3	2126.3	979.2	2125.5	991.7	2125	1000	2125.4	1023.3
GR	2125.5	1031.0	2125.8	1046.5	2125.9	1069.8	2125.6	1093.3	2125.4	1116.7
GR	2125.1	1140.2	2125.4	1164.2	2126	1184.3	2126.6	1204.5	2127.1	1224.7
GR	2127.7	1244.9	2130	1264	2132.8	1274.8	2135.2	1286.2	2144.0	1319.0
	2	4589	4589							
			9.1						851	1017
X1	1.682	25	983.8	1002.0	495	440	470			
GR	2156.0	820.0	2148.0	830.5	2144.8	834.7	2143.2	836.8	2141.6	838.9
GR	2140	841	2138.4	849.4	2136.8	857.8	2135.6	878.2	2135	898.5
GR	2134.4	918.8	2133.9	939.1	2133.3	959.4	2132.6	979.7	2132.5	983.8
GR	2132	1000	2132.7	1002.0	2134	1006	2136	1012	2137.8	1016
GR	2139.6	1020	2141.3	1024	2143.1	1028	2152.0	1040.0	2160.0	1048.0
ET			9.1						945	1173
X1	1.776	25	979.7	1015.5	460	510	496			
GR	2160.0	917.0	2156.0	925.0	2154.4	927.6	2151.2	932.8	2149.6	935.4
GR	2148	938	2146.4	947.6	2144.8	957.2	2143.5	979.7	2143	1000
GR	2143.5	1015.5	2143.7	1020.7	2144.3	1041.3	2145	1062	2144.3	1084.2
GR	2143.7	1106.8	2143.3	1127.2	2143.3	1147.6	2144	1168	2145.6	1170.4
GR	2147.2	1172.8	2148.8	1175.2	2150.4	1177.6	2152.0	1180.0	2160.0	1189.0
QT	2	4459	4459							
ET			9.1						894	1131
X1	1.868	24	987.0	1038	490	510	486			
GR	2164.8	847.4	2161.6	857.8	2159.2	868.4	2156.8	884.6	2155.3	900.9
GR	2154.3	917.2	2153.3	933.6	2152.8	949.7	2152.4	965.7	2152.1	981.7
GR	2152.0	987.0	2151	1000	2151.4	1016.3	2151.9	1032.6	2152.0	1038.0
GR	2152.4	1048.9	2152.9	1065.3	2153.4	1081.6	2154	1098	2154.9	1113.9
GR	2155.7	1129.7	2158.7	1145	2160	1150	2164	1156		

```
ET              7.1       9.1                                   891      1013       891      1013
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    1.954       36     936.9    1005.0       430       420       452
GR     2180      470    2177.1     475.7    2174.3     481.4    2171.4     487.1    2168.6     492.9
GR   2165.7    498.6    2162.9     504.3      2160       510    2159.5     539.5    2158.9     568.9
GR   2158.4    598.4    2157.9     627.9    2157.3     657.3      2158     687.3      2160       712
GR     2164      717      2168       722    2170.7     734.7    2173.2     759.9    2174.8     785.1
GR   2176.5    810.5      2176       840    2172.8     863.2      2170     874.5    2166.7     886.7
GR     2164      900    2162.5     930.8    2162.1     936.9    2160.9     961.5      2160     986.7
GR   2160.0    1000.    2162.0    1005.0      2164      1010      2168    1016.3      2172    1022.5
GR     2176    1028.8

QT        2      4412      4412
ET                        9.1                                                        984      1175
X1    2.029       25     992.5    1066.7       386       400       396
GR     2184      969      2180       972    2178.3     974.6    2176.6     977.1    2174.9     979.7
GR   2173.1    982.3    2171.4     984.9    2169.7     987.4      2168       990    2167.8     992.5
GR   2167.0    1000.    2167.2    1012.3    2167.4    1034.6    2167.7    1056.8    2167.8    1066.7
GR     2168     1079    2168.7    1099.7      2169      1120      2169    1142.5    2170.2      1165
GR     2172     1180      2175      1185      2178      1190      2181      1195    2182.5    1197.5

ET                        9.1                                                        975      1164
      2.070       26     987.2    1010.0       200       250       212
       2188      950    2186.2     954.9    2184.4     959.8    2182.7     964.7    2180.9     969.6
GR     2180      972    2177.3     974.7    2174.7     977.3      2172       980    2171.4     987.2
GR   2171.0    1000.    2171.1    1002.5    2171.4    1010.0      2172      1025    2172.9    1047.5
GR   2173.6     1070    2174.2    1092.5    2174.8      1115    2175.4    1137.5      2176      1160
GR     2178   1167.3      2180    1174.5      2182    1181.8      2184      1189      2186    1196.8
GR     2188   1204.5

ET                        9.1                                                        866      1062
            END OF DETAILED STUDY
X1    2.163       32     992.4    1013.3       470       478       489
GR     2200      760    2198.2     778.2    2196.4     796.4    2194.4     807.6    2192.8     815.2
GR   2191.2    822.2    2189.6     828.6      2188       835    2186.3     852.9    2184.7     870.8
GR   2183.6    891.7    2183.1     912.3    2182.5     932.9    2181.8     953.4    2180.4     974.1
GR   2179.4    992.4    2179.2     996.2    2179.0    1000.    2179.4    1013.3    2179.6    1016.7
GR   2181.3     1038    2183.2    1052.8      2184      1060    2185.8    1063.3    2187.6    1066.7
GR   2189.3     1070    2191.1    1073.3    2192.9    1076.7    2194.7      1080    2196.4    1083.3
GR   2198.2   1086.7    2200.0    1090.0
```

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

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 49.420

3265 DIVIDED FLOW

HASSAYAMPA RIVER FIS CROSS SECTION 49.42 (CBA 1988, NO DATUM CHANGE
CONFLUENCE WITH WASH W - TURTLEBACK WASH, A WEST TRIBUTARY
NON COINCIDENT WITH 100-YEAR DISCHARGE IN HASSAYAMPA.
THE METHOD USED TO START THIS HEC-2, WATER SURFACE PROFILE
ANALYSIS IS THE SLOPE/AREA METHOD.

49.420	3.06	1984.76	1984.22	1990.02	1985.09	.33	.00	.00	1981.90
5180.0	24.9	4824.8	330.3	8.5	1022.3	115.2	.0	.0	1983.70
.00	2.93	4.72	2.87	.045	.035	.045	.000	1981.70	1728.05
.005604	0.	0.	0.	0	17	8	.00	663.34	2767.63

JW DISTRIBUTION FOR SECNO= 49.42 CWSEL= 1984.76

STA=	1728.	1734.	2675.	2765.	2768.
PER Q=	.5	93.1	6.3	.1	
AREA=	8.5	1022.3	113.0	2.2	
VEL=	2.9	4.7	2.9	1.9	
DEPTH=	1.4	1.8	1.3	.7	

CCHV= .300 CEHV= .500
*SECNO .200

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 2003.60 ELREA= 2003.60

THE POINT OF INTERSECTION OF THE THALWEG WITH A CROSS SECTION
CORRESPONDS TO STATION 1000.00 OF THE CROSS SECTION,
UNLESS OTHERWISE NOTED.
DUE TO THE CONFIGURATION AND OTHER HYDROLOGIC CHARACTERISTICS
OF THE WATERSHED, THE PEAK DISCHARGE MAY DECREASE AT VARIOUS
LOCATIONS ALONG THE WASH.

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          DOWNSTREAM SECTION OF ATCHISON-TOPEKA & SANTA FE RAILROAD BRIDGE.
     .200      4.95   1991.45   1991.30       .00   1993.51      2.06      7.56       .86   1998.50
   5180.0        .0    5180.0        .0        .0    450.0        .0      17.9       8.1   1998.50
     .02       .00     11.51       .00      .000      .035      .000      .000   1986.50    950.81
  .010245      400.     1055.       10.         2        14         0       .00    100.18   1050.99


FLOW DISTRIBUTION FOR SECNO=       .20          CWSEL=   1991.45

STA=     951.    1066.
  PER Q=    100.0
   AREA=    450.0
    VEL=     11.5
  DEPTH=      4.5


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1989.87 , NOT    1991.45 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.80      3.00       .00     81.45      8.40   1115.20      2.00   1986.60   1986.00

*SECNO  .204

  `1 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

CLASS B LOW FLOW

3420 BRIDGE W.S.=    1991.43 BRIDGE VELOCITY=      12.13     CALCULATED CHANNEL AREA=       399.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                  AREA
       .00   1994.36      .00        0.     5180.     1115.     1177.     1998.70   2004.30        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      2003.60 ELREA=      2003.60

          UPSTREAM SECTION OF ATCHISON-TOPEKA & SANTA FE RAILROAD BRIDGE.
     .204      6.40   1993.20       .00       .00   1994.36      1.15       .84       .00   1998.50
   5180.0        .0    5180.0        .0        .0    601.0        .0      18.1       8.1   1998.50
     .03       .00      8.62       .00      .000      .035      .000      .000   1986.80    948.06
  .004251       19.       19.       19.         0         0         0       .00    106.27   1054.33
```

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

FLOW DISTRIBUTION FOR SECNO= .20 CWSEL= 1993.20

STA= 948. 1066.
PER Q= 100.0
AREA= 601.0
VEL= 8.6
DEPTH= 5.7

*SECNO .224

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.224	9.47	1997.47	1997.47	.00	1999.39	1.92	.60	.38	1989.70
5180.0	1049.9	2169.7	1960.4	184.6	137.9	333.9	19.6	8.5	1989.30
.03	5.69	15.74	5.87	.060	.035	.060	.000	1988.00	931.86
.007829	135.	106.	90.	0	14	0	.00	170.41	1102.27

OW DISTRIBUTION FOR SECNO= .22 CWSEL= 1997.47

STA=	932.	969.	978.	985.	991.	1007.	1010.	1018.	1030.	1041.	1053.	1065.	1086.
PER Q=	4.7	4.0	4.7	6.8	41.9	4.2	8.3	8.1	6.0	4.3	3.1	3.2	
AREA=	66.7	37.9	35.4	44.6	137.9	25.8	55.8	61.8	51.9	43.0	35.7	45.4	
VEL=	3.7	5.5	6.8	7.9	15.7	8.5	7.7	6.7	5.9	5.2	4.5	3.7	
DEPTH=	1.8	4.1	5.6	7.1	8.7	7.8	6.7	5.4	4.5	3.7	3.0	2.2	

STA= 1086. 1102.
PER Q= .6
AREA= 14.5
VEL= 2.2
DEPTH= .9

CCHV= .100 CEHV= .300
*SECNO .318
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.318	7.01	2008.01	2008.01	.00	2009.95	1.93	3.77	.01	2001.50
5180.0	435.5	3567.8	1176.7	95.0	271.1	298.4	27.1	10.5	2001.50
.04	4.58	13.16	3.94	.070	.035	.070	.000	2001.00	960.26
.007494	440.	496.	510.	0	19	0	.00	185.21	1145.47

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

FLOW DISTRIBUTION FOR SECNO= .32 CWSEL= 2008.01

STA=	960.	987.	990.	1030.	1038.	1049.	1073.	1106.	1140.	1145.
PER Q=	6.1	2.3	68.9	6.0	5.3	3.9	3.2	4.1	.2	
AREA=	74.9	20.2	271.1	50.7	52.1	59.6	59.2	71.2	5.5	
VEL=	4.2	6.0	13.2	6.1	5.3	3.4	2.8	3.0	1.8	
DEPTH=	2.8	6.1	6.8	6.1	5.0	2.4	1.8	2.1	1.0	

*SECNO .411

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.411	8.33	2017.33	2017.33	.00	2020.24	2.91	4.18	.29	2009.50
5180.0	968.1	2981.5	1230.4	135.7	174.6	189.2	33.5	12.0	2009.60
.05	7.14	17.07	6.50	.070	.035	.070	.000	2009.00	965.31
.010041	492.	489.	470.	0	11	0	.00	91.35	1056.67

OW DISTRIBUTION FOR SECNO= .41 CWSEL= 2017.33

STA=	965.	971.	975.	980.	991.	1013.	1023.	1032.	1041.	1050.	1057.
PER Q=	.4	1.7	3.7	13.0	57.6	11.5	6.7	3.9	1.5	.2	
AREA=	7.5	17.9	28.4	81.9	174.6	75.2	50.6	37.2	21.0	5.1	
VEL=	2.6	4.9	6.7	8.2	17.1	7.9	6.8	5.4	3.7	1.7	
DEPTH=	1.4	3.9	6.2	7.6	8.0	7.2	5.9	4.1	2.3	.7	

*SECNO .457

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.88

.457	7.39	2021.39	2019.25	.00	2021.72	.33	1.22	.26	2016.00
5212.0	1407.5	1312.5	2492.0	528.3	181.6	700.9	39.1	13.2	2016.00
.07	2.66	7.23	3.56	.070	.035	.070	.000	2014.00	837.14
.002863	300.	242.	230.	3	14	0	.00	322.92	1160.06

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

FLOW DISTRIBUTION FOR SECNO= .46 CWSEL= 2021.39

STA=	837.	875.	893.	910.	945.	962.	980.	990.	1022.	1048.	1078.	1102.	1120.
PER Q=	4.4	3.4	3.1	5.8	3.0	4.0	3.3	25.2	5.9	5.7	13.8	10.0	
AREA=	99.7	64.6	61.1	118.7	60.7	71.6	51.9	181.6	106.4	109.5	171.4	125.1	
VEL=	2.3	2.7	2.6	2.6	2.6	2.9	3.3	7.2	2.9	2.7	4.2	4.2	
DEPTH=	2.6	3.7	3.5	3.4	3.5	4.1	5.0	5.7	4.1	3.7	7.1	7.0	

STA=	1120.	1138.	1149.	1160.
PER Q=	8.0	3.4	1.0	
AREA=	109.9	54.8	23.9	
VEL=	3.8	3.3	2.1	
DEPTH=	6.1	4.9	2.2	

*SECNO .485

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
0 CRITICAL DEPTH ASSUMED

.485	5.65	2023.15	2023.15	.00	2024.31	1.16	.67	.25	2018.00
5212.0	1742.8	2067.9	1401.3	478.6	161.9	307.8	42.9	14.3	2018.00
.07	3.64	12.78	4.55	.070	.035	.070	.000	2017.50	759.48
.009575	142.	148.	132.	0	19	0	.00	372.20	1131.68

FLOW DISTRIBUTION FOR SECNO= .49 CWSEL= 2023.15

STA=	759.	798.	834.	890.	926.	944.	962.	981.	990.	1020.	1039.	1057.	1075.
PER Q=	3.5	4.5	3.9	4.4	3.1	3.9	5.6	4.5	39.7	9.4	6.3	4.9	
AREA=	60.9	71.8	78.5	70.4	43.4	49.7	62.1	41.8	161.9	85.9	65.8	57.2	
VEL=	3.0	3.3	2.6	3.2	3.7	4.1	4.7	5.6	12.8	5.7	5.0	4.5	
DEPTH=	1.6	2.0	1.4	1.9	2.4	2.7	3.4	4.5	5.4	4.5	3.7	3.2	

STA=	1075.	1093.	1132.
PER Q=	3.5	2.8	
AREA=	47.0	51.9	
VEL=	3.9	2.8	
DEPTH=	2.6	1.3	

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 .506
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.506	6.11	2025.11	2025.11	.00	2026.25	1.14	1.20	.00	2019.50
5212.0	2199.5	1172.8	1839.7	504.5	76.0	315.4	45.2	15.2	2019.50
.08	4.36	15.44	5.83	.070	.035	.070	.000	2019.00	758.33
.012610	110.	110.	110.	0	8	0	.00	341.85	1100.18

FLOW DISTRIBUTION FOR SECNO= .51 CWSEL= 2025.11

STA=	758.	799.	835.	872.	908.	944.	961.	980.	992.	1005.	1015.	1033.	1051.
PER Q=	3.1	4.5	5.2	4.5	4.7	3.9	8.0	8.3	22.5	7.1	10.4	8.1	
AREA=	54.0	66.4	72.4	65.9	67.1	44.9	72.6	61.3	76.0	52.1	83.0	70.5	
VEL=	2.9	3.5	3.8	3.5	3.7	4.5	5.7	7.1	15.4	7.1	6.5	6.0	
DEPTH=	1.3	1.8	2.0	1.8	1.9	2.6	3.8	5.1	5.8	5.2	4.5	4.0	

STA=	1051.	1069.	1088.	1100.
PER Q=	6.3	3.2	.3	
AREA=	60.7	40.9	8.3	
VEL=	5.4	4.0	1.8	
DEPTH=	3.4	2.2	.7	

*SECNO .581

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.581	7.55	2033.55	2033.55	.00	2035.23	1.68	4.22	.16	2026.50
5212.0	2476.1	2052.2	683.7	520.9	133.4	119.8	52.8	17.7	2026.00
.09	4.75	15.38	5.70	.070	.035	.070	.000	2026.00	831.90
.009094	397.	397.	397.	0	11	0	.00	204.80	1036.70

FLOW DISTRIBUTION FOR SECNO= .58 CWSEL= 2033.55

STA=	832.	877.	898.	919.	940.	960.	975.	990.	1008.	1011.	1018.	1033.	1037.
PER Q=	8.4	5.7	4.4	4.4	5.8	6.9	12.0	39.4	3.3	4.9	4.7	.2	
AREA=	112.6	67.2	57.7	57.4	67.6	66.0	92.2	133.4	23.6	39.5	52.9	3.8	
VEL=	3.9	4.4	4.0	4.0	4.5	5.4	6.8	15.4	7.4	6.5	4.6	2.1	
DEPTH=	2.5	3.2	2.7	2.8	3.3	4.4	6.1	7.4	7.1	5.9	3.5	1.0	

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

*SECNO .679

3301 HV CHANGED MORE THAN HVINS

.679	4.55	2039.55	2039.47	.00	2040.73	1.18	5.45	.05	2035.80
5212.0	2465.9	1198.5	1547.6	410.2	81.5	283.4	60.3	20.1	2035.30
.11	6.01	14.71	5.46	.070	.035	.070	.000	2035.00	852.93
.017497	350.	519.	540.	2	14	0	.00	282.75	1135.69

FLOW DISTRIBUTION FOR SECNO= .68 CWSEL= 2039.55

STA=	853.	892.	912.	936.	957.	977.	989.	1008.	1024.	1048.	1072.	1096.	1136.
PER Q=	12.2	8.2	7.7	6.3	7.6	5.3	23.0	8.3	9.2	6.4	3.9	1.8	
AREA=	106.5	68.0	69.9	58.2	65.0	42.6	81.5	62.4	78.0	62.4	46.8	33.7	
VEL=	6.0	6.3	5.7	5.6	6.1	6.5	14.7	7.0	6.2	5.3	4.4	2.9	
DEPTH=	2.7	3.4	2.9	2.9	3.2	3.6	4.2	3.9	3.3	2.6	2.0	.8	

*SECNO .774
5 MINIMUM SPECIFIC ENERGY
20 CRITICAL DEPTH ASSUMED

.774	6.42	2047.92	2047.92	.00	2049.56	1.64	6.77	.14	2042.20
5212.0	1008.0	2150.1	2053.9	176.7	146.6	395.6	68.9	23.0	2042.30
.12	5.71	14.67	5.19	.070	.035	.070	.000	2041.50	929.75
.010757	490.	501.	510.	0	11	0	.00	210.55	1140.29

FLOW DISTRIBUTION FOR SECNO= .77 CWSEL= 2047.92

STA=	930.	968.	979.	1003.	1010.	1031.	1052.	1073.	1093.	1136.	1140.
PER Q=	11.3	8.1	41.3	5.4	13.9	8.3	5.1	3.6	3.1	.0	
AREA=	114.4	62.3	146.6	39.8	109.6	80.2	59.4	48.6	57.0	.9	
VEL=	5.1	6.7	14.7	7.1	6.6	5.4	4.4	3.9	2.8	.8	
DEPTH=	3.0	5.4	6.1	5.8	5.2	3.8	2.9	2.4	1.3	.2	

*SECNO .824
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.824	7.36	2054.36	2054.36	.00	2056.43	2.07	2.92	.13	2048.50
5244.0	242.9	1758.2	3242.9	36.7	100.6	472.8	72.5	23.9	2048.40
.13	6.63	17.47	6.86	.070	.035	.070	.000	2047.00	980.77
.013802	260.	263.	220.	0	8	0	.00	130.06	1110.83

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

FLOW DISTRIBUTION FOR SECNO= .82 CWSEL= 2054.36

STA=	981.	989.	1004.	1019.	1030.	1042.	1054.	1066.	1078.	1090.	1102.	1111.
PER Q=	4.6	33.5	8.8	5.4	7.8	8.5	7.4	7.3	8.5	6.9	1.2	
AREA=	36.7	100.6	68.2	44.4	57.8	60.8	56.0	55.4	60.8	54.0	15.6	
VEL=	6.6	17.5	6.7	6.4	7.1	7.4	7.0	6.9	7.3	6.7	4.0	
DEPTH=	4.5	6.7	4.5	4.1	4.8	5.1	4.7	4.6	5.1	4.5	1.8	

*SECNO .871
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.871	5.53	2058.03	2058.03	.00	2059.85	1.82	3.38	.03	2052.60
5244.0	2943.7	1917.1	383.3	461.3	121.2	61.3	75.9	24.7	2052.80
.13	6.38	15.82	6.25	.070	.035	.070	.000	2052.50	862.37
.014542	265.	248.	205.	0	19	0	.00	168.46	1030.83

FLOW DISTRIBUTION FOR SECNO= .87 CWSEL= 2058.03

=	862.	888.	905.	923.	940.	958.	971.	988.	990.	1013.	1023.	1031.
ER Q=	3.8	4.7	6.2	7.8	10.0	8.6	13.0	2.0	36.6	6.0	1.3	
AREA=	47.7	48.7	57.5	66.2	77.1	61.4	89.2	13.5	121.2	45.3	16.0	
VEL=	4.1	5.1	5.7	6.2	6.8	7.3	7.7	7.9	15.8	7.0	4.2	
DEPTH=	1.9	2.8	3.3	3.8	4.3	4.8	5.2	5.4	5.4	4.5	1.9	

*SECNO .966

3301 HV CHANGED MORE THAN HVINS

.966	5.84	2065.34	2065.19	.00	2066.66	1.32	6.75	.05	2061.40
5244.0	70.5	1833.4	3340.1	17.7	132.8	628.0	84.0	26.9	2061.20
.15	3.98	13.80	5.32	.070	.035	.070	.000	2059.50	970.68
.012822	478.	504.	500.	2	8	0	.00	232.61	1203.28

FLOW DISTRIBUTION FOR SECNO= .97 CWSEL= 2065.34

STA=	971.	980.	1007.	1033.	1054.	1076.	1097.	1118.	1141.	1163.	1185.	1203.
PER Q=	1.3	35.0	8.1	5.7	6.6	7.6	8.4	8.5	8.2	8.4	2.1	
AREA=	17.7	132.8	82.0	61.4	68.1	73.0	77.3	80.1	77.3	78.7	30.3	
VEL=	4.0	13.8	5.2	4.9	5.1	5.4	5.7	5.6	5.6	5.6	3.7	
DEPTH=	2.0	4.9	3.2	2.9	3.1	3.4	3.6	3.5	3.5	3.5	1.7	

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 1.067

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.067	4.67	2075.67	2075.67	.00	2077.53	1.86	6.40	.16	2071.00
5244.0	557.2	2988.5	1698.3	92.3	219.4	301.1	91.6	29.1	2071.00
.16	6.04	13.62	5.64	.070	.035	.070	.000	2071.00	867.96
.013193	545.	535.	445.	0	15	0	.00	164.50	1032.46

FLOW DISTRIBUTION FOR SECNO= 1.07 CWSEL= 2075.67

STA=	868.	886.	893.	940.	947.	960.	972.	982.	993.	1000.	1017.	1032.
PER Q=	6.4	4.2	57.0	4.0	5.2	4.4	3.8	4.1	3.5	6.2	1.1	
AREA=	58.8	33.5	219.4	32.3	46.3	42.4	35.4	37.0	29.8	59.1	18.8	
VEL=	5.7	6.6	13.6	6.6	5.9	5.5	5.6	5.8	6.1	5.5	3.2	
DEPTH=	3.4	4.5	4.7	4.4	3.8	3.4	3.5	3.7	4.0	3.4	1.2	

*SECNO 1.150
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
SECTION UPSTREAM OF A SUBAREA WASH INTERSECTION POINT.

1.150	4.29	2082.79	2082.79	.00	2084.59	1.81	5.72	.01	2078.60
4770.0	467.5	2954.0	1348.5	88.3	227.6	236.6	97.3	30.6	2078.50
.18	5.29	12.98	5.70	.070	.035	.070	.000	2078.50	966.59
.013431	450.	437.	410.	0	11	0	.00	152.52	1119.11

FLOW DISTRIBUTION FOR SECNO= 1.15 CWSEL= 2082.79

STA=	967.	992.	998.	1051.	1063.	1073.	1084.	1094.	1104.	1114.	1119.
PER Q=	6.6	3.2	61.9	6.6	5.0	4.5	4.0	3.6	3.2	1.3	
AREA=	63.6	24.7	227.6	50.2	39.3	37.1	34.6	32.2	30.2	13.2	
VEL=	4.9	6.2	13.0	6.3	6.1	5.8	5.5	5.3	5.1	4.5	
DEPTH=	2.5	4.0	4.3	4.1	3.9	3.6	3.4	3.2	3.0	2.5	

*SECNO 1.206
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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
1.206	4.90	2088.00	2088.00	.00	2089.54	1.54	3.80	.03	2083.40
4770.0	433.3	1724.2	2612.5	72.6	117.8	445.3	100.8	31.6	2083.60
.18	5.97	14.63	5.87	.070	.035	.070	.000	2083.10	952.91
.015046	275.	298.	230.	0	8	0	.00	191.58	1144.49

FLOW DISTRIBUTION FOR SECNO= 1.21 CWSEL= 2088.00

STA=	953.	971.	977.	1002.	1018.	1030.	1042.	1054.	1066.	1077.	1089.	1101.	1122.
PER Q=	5.1	3.9	36.1	9.2	6.1	5.7	5.5	5.9	6.0	5.7	3.9	4.3	
AREA=	45.9	26.7	117.8	65.8	45.6	43.8	43.2	45.0	44.2	43.6	34.8	47.0	
VEL=	5.3	7.0	14.6	6.7	6.3	6.2	6.1	6.3	6.5	6.2	5.4	4.4	
DEPTH=	2.5	4.4	4.7	4.1	3.8	3.6	3.6	3.7	3.9	3.7	3.0	2.2	

STA=	1122.	1144.
PER Q=	2.4	
AREA=	32.5	
VEL=	3.6	
DEPTH=	1.5	

.CNO 1.271
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
SEE COMMENT FOR SECTION 1.322 REGARDING DIVIDED FLOW.

1.271	3.24	2097.24	2097.24	.00	2098.60	1.36	5.70	.02	2095.00
2480.0	44.4	1151.9	1283.7	14.0	94.4	216.9	104.6	32.9	2094.20
.19	3.17	12.20	5.92	.070	.035	.070	.000	2094.00	980.47
.019563	350.	345.	350.	0	14	0	.00	126.06	1106.53

FLOW DISTRIBUTION FOR SECNO= 1.27 CWSEL= 2097.24

STA=	980.	993.	1025.	1060.	1094.	1107.
PER Q=	1.8	46.4	28.2	21.8	1.8	
AREA=	14.0	94.4	109.8	93.1	14.0	
VEL=	3.2	12.2	6.4	5.8	3.2	
DEPTH=	1.1	2.9	3.1	2.7	1.1	

*SECNO 1.298
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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          SEE COMMENT FOR SECTION 1.322 REGARDING DIVIDED FLOW.
    1.298      3.53   2103.03   2103.03       .00   2104.22      1.19      2.71       .02   2100.00
   2480.0      46.0    1535.4     898.6      14.9     144.2     216.0     106.1      33.5   2100.00
      .20      3.09     10.64      4.16      .070      .035      .070      .000   2099.50    965.16
  .012909      128.      143.      210.         0         8         0       .00    158.67   1123.83


FLOW DISTRIBUTION FOR SECNO=      1.30          CWSEL=   2103.03

STA=     965.     975.    1019.    1045.    1092.    1112.    1124.
  PER Q=      1.9     61.9     13.9     18.0      3.9       .4
   AREA=     14.9    144.2     72.2    107.1     30.6      6.1
    VEL=      3.1     10.6      4.8      4.2      3.2      1.5
  DEPTH=      1.5      3.3      2.8      2.3      1.5       .5

*SECNO 1.322

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      960.0    1045.0  TYPE=      1  TARGET=       85.000
          DURING THE 100-YEAR EVENT, DIVIDED FLOW OCCURS AT SECTION 1.322
          DUE TO A NATURAL FEATURE.  MORE SPECIFICALLY, 2685 CFS OF THE
          100-YEAR EVENT BYPASSES SECTIONS 1.271 AND 1.298 AND WEIR FLOWS
          OVER A RIDGELINE ALONG SECTION 1.322.  HENCE, ONLY 2085 CFS
          THROUGH SECTIONS 1.271 AND 1.298.  SEE REPORT FOR DOCUMENTATION.
    1.322      5.09   2105.59   2105.59       .00   2107.39      1.80      1.47       .18   2102.00
   2480.0     200.2    2151.5     128.3      55.1     187.3      37.1     107.2      33.9   2102.00
      .20      3.64     11.48      3.46      .070      .035      .070      .000   2100.50    960.04
  .009209      105.      127.      175.         0        11         0       .00     84.73   1044.77


FLOW DISTRIBUTION FOR SECNO=      1.32          CWSEL=   2105.59

STA=     960.     968.     978.     987.    1026.    1030.    1040.    1045.
  PER Q=       .4      2.8      4.8     86.8      2.1      2.8       .3
   AREA=      6.3     20.9     27.8    187.3     12.4     20.9      3.8
    VEL=      1.7      3.3      4.3     11.5      4.2      3.3      1.7
  DEPTH=       .8      2.1      3.1      4.8      3.1      2.1       .8

*SECNO 1.365

3301 HV CHANGED MORE THAN HVINS
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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 = 2.50

3470 ENCROACHMENT STATIONS= 920.0 1092.0 TYPE= 1 TARGET= 172.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

1.365	4.98	2108.08	2106.68	.00	2108.90	.82	1.40	.10	2103.20
4683.0	609.7	2744.2	1329.0	146.8	311.2	324.4	109.9	34.6	2103.30
.21	4.15	8.82	4.10	.070	.035	.070	.000	2103.10	920.00
.005237	230.	225.	216.	2	19	0	.00	172.00	1092.00

FLOW DISTRIBUTION FOR SECNO= 1.37 CWSEL= 2108.08

STA=	920.	925.	930.	950.	1014.	1056.	1073.	1078.	1092.
PER Q=	1.5	2.3	9.2	58.6	18.4	6.8	1.7	1.5	
AREA=	24.8	24.6	97.5	311.2	198.8	76.5	20.0	29.0	
VEL=	2.8	4.4	4.4	8.8	4.3	4.2	4.0	2.4	
DEPTH=	5.0	4.9	4.9	4.9	4.7	4.5	4.2	2.1	

*SECNO 1.409

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.409	5.99	2112.99	2112.99	.00	2114.80	1.81	2.01	.30	2107.40
4683.0	804.8	1219.9	2658.3	110.1	69.4	385.2	113.5	35.4	2107.40
.22	7.31	17.57	6.90	.070	.035	.070	.000	2107.00	964.03
.016544	234.	234.	234.	0	11	0	.00	147.43	1111.46

FLOW DISTRIBUTION FOR SECNO= 1.41 CWSEL= 2112.99

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

STA=	964.	978.	990.	992.	1004.	1014.	1026.	1038.	1050.	1062.	1072.	1082.	1103.
PER Q=	4.8	10.3	2.0	26.0	9.2	9.5	8.9	8.2	7.5	5.2	3.9	4.1	
AREA=	38.6	60.4	11.1	69.4	52.4	57.4	55.0	52.6	49.6	37.6	31.5	42.7	
VEL=	5.9	8.0	8.5	17.6	8.2	7.8	7.5	7.3	7.0	6.5	5.8	4.5	
DEPTH=	2.8	5.0	5.5	5.8	5.2	4.8	4.6	4.4	4.1	3.7	3.1	2.1	

STA=	1103.	1111.
PER Q=	.3	
AREA=	6.4	
VEL=	2.3	
DEPTH=	.7	

*SECNO 1.432
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.432	4.88	2115.88	2115.88	.00	2117.76	1.87	2.21	.02	2111.10
4683.0	1986.9	1032.8	1663.3	249.8	57.5	208.2	114.9	35.8	2111.10
.22	7.95	17.96	7.99	.070	.035	.070	.000	2111.00	981.44
.021901	152.	124.	90.	0	15	0	.00	135.26	1116.70

FLOW DISTRIBUTION FOR SECNO= 1.43 CWSEL= 2115.88

STA=	981.	1000.	1008.	1016.	1024.	1031.	1039.	1047.	1049.	1061.	1071.	1079.	1087.
PER Q=	4.5	5.2	5.5	5.9	6.1	6.6	6.9	1.8	22.1	8.7	6.5	6.1	
AREA=	37.4	31.1	31.8	33.4	34.2	35.8	36.5	9.6	57.5	46.5	35.9	34.3	
VEL=	5.6	7.8	8.0	8.2	8.4	8.6	8.8	8.9	18.0	8.8	8.5	8.3	
DEPTH=	2.0	3.9	4.1	4.2	4.4	4.5	4.7	4.8	4.8	4.7	4.5	4.3	

STA=	1087.	1095.	1103.	1115.	1117.
PER Q=	5.7	5.4	3.1	.0	
AREA=	33.1	31.9	26.2	.4	
VEL=	8.1	7.9	5.6	1.2	
DEPTH=	4.1	4.0	2.2	.2	

*SECNO 1.495

3301 HV CHANGED MORE THAN HVINS

1.495	5.37	2121.37	2121.09	.00	2122.68	1.32	4.87	.06	2116.20
4683.0	999.1	1531.8	2152.1	193.6	109.6	375.8	119.1	37.0	2116.20
.23	5.16	13.98	5.73	.070	.035	.070	.000	2116.00	915.29
.011833	258.	334.	334.	3	8	0	.00	196.17	1111.46

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

FLOW DISTRIBUTION FOR SECNO= 1.50 CWSEL= 2121.37

STA=	915.	937.	958.	979.	987.	1007.	1022.	1043.	1064.	1085.	1106.	1111.
PER Q=	1.0	5.0	10.4	5.0	32.7	10.3	13.1	10.4	7.8	4.1	.2	
AREA=	20.4	54.2	84.1	34.9	109.6	72.0	97.6	83.6	70.4	48.3	4.0	
VEL=	2.3	4.3	5.8	6.7	14.0	6.7	6.3	5.8	5.2	4.0	1.9	
DEPTH=	.9	2.6	4.0	4.9	5.3	5.0	4.5	4.0	3.4	2.3	.8	

*SECNO 1.593

1.593	3.51	2128.51	2128.30	.00	2129.46	.95	6.75	.04	2125.50
4683.0	293.7	1495.3	2894.0	69.5	128.0	557.9	127.2	39.8	2125.50
.25	4.22	11.68	5.19	.070	.035	.070	.000	2125.00	952.34
.015677	515.	520.	480.	3	14	0	.00	299.35	1251.69

FLOW DISTRIBUTION FOR SECNO= 1.59 CWSEL= 2128.51

STA=	952.	992.	1031.	1047.	1070.	1093.	1117.	1140.	1164.	1184.	1205.	1245.	1252.
PER Q=	6.3	31.9	5.1	6.8	7.3	8.4	9.6	9.8	6.4	4.3	4.1	.1	
AREA=	69.5	128.0	44.4	62.1	65.0	70.6	76.8	78.4	56.6	44.8	56.2	2.8	
VEL=	4.2	11.7	5.4	5.1	5.2	5.6	5.9	5.9	5.3	4.5	3.4	1.5	
DEPTH=	1.8	3.3	2.9	2.7	2.8	3.0	3.3	3.3	2.8	2.2	1.4	.4	

*SECNO 1.682

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.682	6.03	2138.03	2138.03	.00	2139.71	1.68	6.68	.22	2132.50
4589.0	2736.5	1629.4	223.1	458.8	105.0	41.5	134.5	42.2	2132.70
.27	5.96	15.51	5.37	.070	.035	.070	.000	2132.00	851.33
.013017	495.	470.	440.	0	14	0	.00	165.18	1016.51

FLOW DISTRIBUTION FOR SECNO= 1.68 CWSEL= 2138.03

STA=	851.	878.	899.	919.	939.	959.	980.	984.	1002.	1012.	1017.
PER Q=	3.1	5.7	8.0	10.3	12.8	16.1	3.7	35.5	4.6	.2	
AREA=	41.3	55.5	67.6	78.8	90.0	103.2	22.5	105.0	36.9	4.6	
VEL=	3.4	4.7	5.4	6.0	6.5	7.2	7.5	15.5	5.7	2.4	
DEPTH=	1.5	2.7	3.3	3.9	4.4	5.1	5.5	5.8	3.7	1.0	

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

*SECNO 1.776
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.776	3.78	2146.78	2146.78	.00	2148.13	1.34	7.49	.03	2143.50
4589.0	361.9	1690.1	2537.0	71.1	126.5	436.3	141.4	44.4	2143.50
.28	5.09	13.35	5.81	.070	.035	.070	.000	2143.00	945.29
.018382	460.	496.	510.	0	14	0	.00	226.89	1172.18

FLOW DISTRIBUTION FOR SECNO= 1.78 CWSEL= 2146.78

STA=	945.	980.	1016.	1041.	1062.	1084.	1107.	1127.	1148.	1168.	1172.
PER Q=	7.9	36.8	9.4	4.6	4.9	7.8	9.3	10.2	8.6	.5	
AREA=	71.1	126.5	73.9	44.2	47.4	62.9	67.0	71.1	64.0	5.8	
VEL=	5.1	13.4	5.8	4.8	4.8	5.7	6.4	6.6	6.2	3.6	
DEPTH=	2.1	3.5	2.9	2.1	2.1	2.8	3.3	3.5	3.1	1.4	

*SECNO 1.868
7185 MINIMUM SPECIFIC ENERGY
0 CRITICAL DEPTH ASSUMED

1.868	4.82	2155.82	2155.82	.00	2157.21	1.40	6.99	.02	2152.00
4459.0	1008.5	2607.0	843.4	224.0	220.1	199.4	148.7	47.1	2152.00
.30	4.50	11.84	4.23	.070	.035	.070	.000	2151.00	895.30
.011090	490.	486.	510.	0	11	0	.00	234.99	1130.29

FLOW DISTRIBUTION FOR SECNO= 1.87 CWSEL= 2155.82

STA=	895.	934.	950.	966.	982.	987.	1038.	1049.	1065.	1082.	1114.	1130.
PER Q=	3.5	4.4	5.6	6.7	2.4	58.5	4.7	5.6	4.2	4.2	.3	
AREA=	51.0	44.5	51.4	57.0	20.0	220.1	39.4	51.9	43.4	56.4	8.2	
VEL=	3.1	4.4	4.9	5.2	5.4	11.8	5.3	4.8	4.3	3.3	1.4	
DEPTH=	1.3	2.8	3.2	3.6	3.8	4.3	3.6	3.2	2.7	1.7	.5	

*SECNO 1.954

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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= 891.0 1013.0 TYPE= 1 TARGET= 122.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

1.954	8.38	2165.68	2165.68	.00	2167.72	2.04	4.62	.19	2162.10
4459.0	392.7	4011.1	55.2	102.4	333.5	15.6	154.3	48.9	2162.00
.31	3.84	12.03	3.53	.070	.035	.070	.000	2157.30	891.73
.009727	430.	452.	420.	0	17	0	.00	120.92	1012.64

FLOW DISTRIBUTION FOR SECNO= 1.95 CWSEL= 2165.68

STA=	892.	900.	931.	937.	1005.	1010.	1013.
PER Q=	.3	6.3	2.2	90.0	1.2	.1	
AREA=	6.9	74.8	20.6	333.5	13.4	2.2	
VEL=	1.8	3.8	4.7	12.0	3.8	1.7	
DEPTH=	.8	2.4	3.4	4.9	2.7	.8	

*CNO 2.029

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.029	4.34	2171.34	2171.34	.00	2172.87	1.52	4.14	.05	2167.80
4412.0	71.5	3276.3	1064.2	17.1	291.8	252.4	158.9	50.3	2167.80
.32	4.19	11.23	4.22	.070	.035	.070	.000	2167.00	984.98
.011276	386.	396.	400.	0	11	0	.00	189.55	1174.54

FLOW DISTRIBUTION FOR SECNO= 2.03 CWSEL= 2171.34

STA=	985.	987.	990.	993.	1067.	1079.	1100.	1120.	1143.	1165.	1175.
PER Q=	.1	.5	1.0	74.3	4.9	6.6	4.8	4.8	2.9	.2	
AREA=	2.0	6.5	8.6	291.8	42.4	62.0	50.6	52.7	39.2	5.5	
VEL=	1.7	3.7	5.1	11.2	5.1	4.7	4.1	4.0	3.3	1.5	
DEPTH=	.8	2.5	3.4	3.9	3.4	3.0	2.5	2.3	1.7	.6	

*SECNO 2.070
7185 MINIMUM SPECIFIC ENERGY

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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


3720 CRITICAL DEPTH ASSUMED
    2.070      5.87   2176.87   2176.87       .00   2178.44      1.57      2.54       .01   2171.40
   4412.0     293.0    1845.8    2273.2      49.1     129.2     445.8     162.0      51.3   2171.40
      .33      5.97     14.28      5.10      .070      .035      .070      .000   2171.00    975.13
  .011207      200.      212.      250.         0        11         0       .00    188.04   1163.17


FLOW DISTRIBUTION FOR SECNO=      2.07          CWSEL=   2176.87

STA=     975.     977.     980.     987.    1010.    1025.    1048.    1070.    1093.    1115.    1138.    1160.    1163.
  PER Q=      .1       .9      5.7     41.8     11.8     13.6      9.8      7.0      4.8      3.0      1.5       .0
   AREA=     2.3      9.5     37.2    129.2     77.5     99.4     81.4     66.8     53.3     39.8     26.3      1.4
    VEL=     1.9      4.1      6.7     14.3      6.7      6.0      5.3      4.6      4.0      3.3      2.5      1.3
  DEPTH=     1.1      3.5      5.2      5.7      5.2      4.4      3.6      3.0      2.4      1.8      1.2       .4

*SECNO 2.163
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
             END OF DETAILED STUDY
    2.163      6.05   2185.05   2185.05       .00   2186.62      1.57      5.37       .00   2179.40
   4412.0    1684.5    1775.8     951.7     336.3     122.3     169.7     168.9      53.4   2179.40
      .34      5.01     14.52      5.61      .070      .035      .070      .000   2179.00    866.89
  .011115      470.      489.      478.         0         8         0       .00    195.04   1061.92


FLOW DISTRIBUTION FOR SECNO=      2.16          CWSEL=   2185.05

STA=     867.     912.     933.     953.     974.     992.    1013.    1038.    1053.    1062.
  PER Q=     3.4      4.0      6.1     10.3     14.2     40.2     16.7      4.2       .7
   AREA=    54.5     46.3     59.4     81.8     94.2    122.3    116.8     41.4     11.4
    VEL=     2.8      3.8      4.5      5.6      6.7     14.5      6.3      4.4      2.7
  DEPTH=     1.2      2.2      2.9      3.9      5.1      5.8      4.7      2.8      1.3
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FLOODWAY DETERMINATION

T2

T3 WASH W: TURTLEBACK WASH

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	0.0056	0	0	0	1990.02	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	-1	0	0	0

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 49.420

3265 DIVIDED FLOW

HASSAYAMPA RIVER FIS CROSS SECTION 49.42 (CBA 1988, NO DATUM CHANGE
CONFLUENCE WITH WASH W - TURTLEBACK WASH, A WEST TRIBUTARY
NON COINCIDENT WITH 100-YEAR DISCHARGE IN HASSAYAMPA.
THE METHOD USED TO START THIS HEC-2, WATER SURFACE PROFILE
ANALYSIS IS THE SLOPE/AREA METHOD.

49.420	3.06	1984.76	1984.22	1990.02	1985.09	.33	.00	.00	1981.90
5180.0	24.9	4824.8	330.3	8.5	1022.3	115.2	.0	.0	1983.70
.00	2.93	4.72	2.87	.045	.035	.045	.000	1981.70	1728.05
.005604	0.	0.	0.	0	17	8	.00	663.34	2767.63

.V= .300 CEHV= .500
*SECNO .200

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 951.0 1051.0 TYPE= 1 TARGET= 100.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 2003.60 ELREA= 2003.60

THE POINT OF INTERSECTION OF THE THALWEG WITH A CROSS SECTION
CORRESPONDS TO STATION 1000.00 OF THE CROSS SECTION,
UNLESS OTHERWISE NOTED.
DUE TO THE CONFIGURATION AND OTHER HYDROLOGIC CHARACTERISTICS
OF THE WATERSHED, THE PEAK DISCHARGE MAY DECREASE AT VARIOUS
LOCATIONS ALONG THE WASH.
DOWNSTREAM SECTION OF ATCHISON-TOPEKA & SANTA FE RAILROAD BRIDGE.

.200	4.95	1991.45	1991.30	1991.45	1993.51	2.06	7.56	.86	100000.00
5180.0	.0	5180.0	.0	.0	449.8	.0	17.9	8.1	100000.00
.02	.00	11.52	.00	.000	.035	.000	.000	1986.50	951.00
.010247	400.	1055.	10.	2	14	0	.00	99.99	1050.99

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

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1989.87 , NOT 1991.45 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.80	3.00	.00	81.45	8.40	1115.20	2.00	1986.60	1986.00

*SECNO .204

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

CLASS B LOW FLOW

3420 BRIDGE W.S.= 1991.43 BRIDGE VELOCITY= 12.13 CALCULATED CHANNEL AREA= 399.

PRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1994.36	.00	0.	5180.	1115.	1177.	1998.70	2004.30	0.

3470 ENCROACHMENT STATIONS= 948.0 1055.0 TYPE= 1 TARGET= 107.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 2003.60 ELREA= 2003.60

UPSTREAM SECTION OF ATCHISON-TOPEKA & SANTA FE RAILROAD BRIDGE.

.204	6.40	1993.20	.00	1993.20	1994.36	1.15	.84	.00	100000.00
5180.0	.0	5180.0	.0	.0	601.0	.0	18.1	8.1	100000.00
.03	.00	8.62	.00	.000	.035	.000	.000	1986.80	948.06
.004251	19.	19.	19.	0	0	0	.00	106.27	1054.33

*SECNO .224

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 931.0 1103.0 TYPE= 1 TARGET= 172.000

.224	9.49	1997.49	1997.49	1997.47	1999.39	1.90	.60	.37	1989.70
5180.0	1051.1	2166.7	1962.2	185.3	138.1	335.0	19.6	8.5	1989.30
.03	5.67	15.69	5.86	.060	.035	.060	.000	1988.00	931.76
.007772	135.	106.	90.	0	14	0	.00	170.61	1102.37

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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  .318
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      960.0    1146.0  TYPE=      1  TARGET=      186.000
      .318      7.02   2008.02   2008.02   2008.01   2009.95      1.93      3.75       .01   2001.50
    5180.0     435.7    3566.3    1178.0      95.2     271.3     298.9      27.1      10.5   2001.50
       .04      4.58     13.14      3.94      .070      .035      .070      .000   2001.00    960.24
   .007469      440.      496.      510.         0        19         0       .00    185.24   1145.48


*SECNO  .411

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

  70 ENCROACHMENT STATIONS=      965.0    1057.0  TYPE=      1  TARGET=       92.000
      .411      8.35   2017.35   2017.35   2017.33   2020.24      2.89      4.16       .29   2009.50
    5180.0     968.5    2979.2    1232.2     136.2     175.1     190.1      33.5      12.0   2009.60
       .05      7.11     17.02      6.48      .070      .035      .070      .000   2009.00    965.27
   .009942      492.      489.      470.         0        11         0       .00     91.50   1056.77


*SECNO  .457

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.87


3470 ENCROACHMENT STATIONS=      837.0    1161.0  TYPE=      1  TARGET=      324.000
      .457      7.39   2021.39   2019.25   2021.39   2021.72       .33      1.22       .26   2016.00
    5212.0    1406.7    1312.8    2492.5     527.6     181.5     700.3      39.2      13.2   2016.00
       .07      2.67      7.23      3.56      .070      .035      .070      .000   2014.00    837.15
   .002873      300.      242.      230.         3        14         0       .00    322.90   1160.05


*SECNO  .485
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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

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 759.0 1132.0 TYPE= 1 TARGET= 373.000

.485	5.65	2023.15	2023.15	2023.15	2024.31	1.16	.67	.25	2018.00
5212.0	1743.1	2067.5	1401.3	478.8	161.9	307.9	42.9	14.3	2018.00
.07	3.64	12.77	4.55	.070	.035	.070	.000	2017.50	759.47
.009567	142.	148.	132.	0	19	0	.00	372.21	1131.68

*SECNO .506
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 758.0 1101.0 TYPE= 1 TARGET= 343.000

.506	6.11	2025.11	2025.11	2025.11	2026.25	1.14	1.20	.00	2019.50
5212.0	2200.7	1172.0	1839.3	505.2	76.0	315.7	45.3	15.2	2019.50
.08	4.36	15.42	5.83	.070	.035	.070	.000	2019.00	758.32
.012572	110.	110.	110.	0	8	0	.00	341.89	1100.21

*SECNO .581

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 831.0 1037.0 TYPE= 1 TARGET= 206.000

.581	7.55	2033.55	2033.55	2033.55	2035.23	1.68	4.22	.16	2026.50
5212.0	2476.3	2052.0	683.7	521.0	133.4	119.9	52.9	17.7	2026.00
.09	4.75	15.38	5.70	.070	.035	.070	.000	2026.00	831.90
.009090	397.	397.	397.	0	11	0	.00	204.80	1036.70

*SECNO .679
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 940.0 1136.0 TYPE= 1 TARGET= 196.000

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

    .679      5.36   2040.36   2040.36   2039.55   2041.98      1.62      5.56       .01   2035.80
  5212.0    1288.7    1554.9    2368.4     194.6      97.0     386.5      60.3      19.8   2035.30
     .10      6.62     16.04      6.13      .070      .035      .070      .000   2035.00    940.00
 .016506      350.      519.      540.         0        19         0       .00    196.00   1136.00

*SECNO  .774
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      929.0    1141.0  TYPE=      1  TARGET=      212.000
    .774      6.39   2047.89   2047.89   2047.92   2049.56      1.67      6.71       .01   2042.20
  5212.0    1007.2    2157.7    2047.1     175.0     145.8     391.1      68.3      22.1   2042.30
     .12      5.75     14.80      5.23      .070      .035      .070      .000   2041.50    929.92
 .011032      490.      501.      510.         0        11         0       .00    210.02   1139.94

*SECNO  .824
7185 MINIMUM SPECIFIC ENERGY
   0 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      980.0    1111.0  TYPE=      1  TARGET=      131.000
    .824      7.37   2054.37   2054.37   2054.36   2056.43      2.07      2.96       .12   2048.50
  5244.0     242.9    1757.8    3243.2      36.7     100.7     473.1      71.8      23.0   2048.40
     .13      6.62     17.46      6.86      .070      .035      .070      .000   2047.00    980.77
 .013778      260.      263.      220.         0         8         0       .00    130.06   1110.83

*SECNO  .871
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      862.0    1031.0  TYPE=      1  TARGET=      169.000
    .871      5.54   2058.04   2058.04   2058.03   2059.85      1.82      3.37       .03   2052.60
  5244.0    2943.9    1916.8     383.3     461.5     121.2      61.3      75.2      23.8   2052.80
     .13      6.38     15.82      6.25      .070      .035      .070      .000   2052.50    862.37
 .014523      265.      248.      205.         0        19         0       .00    168.47   1030.84

*SECNO  .966

3470 ENCROACHMENT STATIONS=      971.0    1204.0  TYPE=      1  TARGET=      233.000
    .966      5.84   2065.34   2065.19   2065.34   2066.66      1.32      6.75       .05   2061.40
  5244.0      70.5    1833.6    3339.8      17.7     132.8     627.7      83.3      26.1   2061.20
     .15      3.99     13.81      5.32      .070      .035      .070      .000   2059.50    971.00
 .012839      478.      504.      500.         2         8         0       .00    232.28   1203.28
```

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 1.067

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 867.0 1033.0 TYPE= 1 TARGET= 166.000

1.067	4.67	2075.67	2075.67	2075.67	2077.53	1.86	6.40	.16	2071.00
5244.0	557.3	2987.9	1698.8	92.4	219.6	301.4	90.9	28.2	2071.00
.16	6.03	13.61	5.64	.070	.035	.070	.000	2071.00	867.96
.013149	545.	535.	445.	0	15	0	.00	164.53	1032.49

*SECNO 1.150
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 966.0 1120.0 TYPE= 1 TARGET= 154.000
SECTION UPSTREAM OF A SUBAREA WASH INTERSECTION POINT.

1.150	4.29	2082.79	2082.79	2082.79	2084.59	1.81	5.71	.01	2078.60
4770.0	467.4	2954.1	1348.4	88.3	227.5	236.6	96.6	29.8	2078.50
.17	5.29	12.98	5.70	.070	.035	.070	.000	2078.50	966.60
.013439	450.	437.	410.	0	11	0	.00	152.52	1119.11

*SECNO 1.206
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 952.0 1145.0 TYPE= 1 TARGET= 193.000

1.206	4.90	2088.00	2088.00	2088.00	2089.54	1.54	3.80	.03	2083.40
4770.0	433.3	1724.0	2612.7	72.6	117.9	445.5	100.1	30.8	2083.60
.18	5.97	14.63	5.86	.070	.035	.070	.000	2083.10	952.90
.015026	275.	298.	230.	0	8	0	.00	191.59	1144.50

*SECNO 1.271
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 980.0 1107.0 TYPE= 1 TARGET= 127.000
SEE COMMENT FOR SECTION 1.322 REGARDING DIVIDED FLOW.

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
1.271	3.25	2097.25	2097.25	2097.24	2098.60	1.35	5.67	.02	2095.00
2480.0	44.7	1151.6	1283.7	14.2	94.8	218.0	103.9	32.1	2094.20
.19	3.15	12.15	5.89	.070	.035	.070	.000	2094.00	980.40
.019263	350.	345.	350.	0	14	0	.00	126.20	1106.60

*SECNO 1.298
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 965.0 1124.0 TYPE= 1 TARGET= 159.000
SEE COMMENT FOR SECTION 1.322 REGARDING DIVIDED FLOW.

1.298	3.54	2103.04	2103.04	2103.03	2104.22	1.18	2.67	.02	2100.00
2480.0	46.1	1533.9	899.9	15.0	144.7	217.1	105.4	32.7	2100.00
.20	3.07	10.60	4.15	.070	.035	.070	.000	2099.50	965.12
.012748	128.	143.	210.	0	8	0	.00	158.82	1123.95

*SECNO 1.322

1 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 960.0 1045.0 TYPE= 1 TARGET= 85.000
DURING THE 100-YEAR EVENT, DIVIDED FLOW OCCURS AT SECTION 1.322
DUE TO A NATURAL FEATURE. MORE SPECIFICALLY, 2685 CFS OF THE
100-YEAR EVENT BYPASSES SECTIONS 1.271 AND 1.298 AND WEIR FLOWS
OVER A RIDGELINE ALONG SECTION 1.322. HENCE, ONLY 2085 CFS
THROUGH SECTIONS 1.271 AND 1.298. SEE REPORT FOR DOCUMENTATION.

1.322	5.09	2105.59	2105.59	2105.59	2107.39	1.81	1.46	.19	2102.00
2480.0	200.0	2151.8	128.2	55.0	187.2	37.0	106.5	33.1	2102.00
.20	3.64	11.49	3.46	.070	.035	.070	.000	2100.50	960.06
.009232	105.	127.	175.	0	11	0	.00	84.71	1044.76

*SECNO 1.365

3301 HV CHANGED MORE THAN HVINS

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.51

3470 ENCROACHMENT STATIONS= 920.0 1092.0 TYPE= 1 TARGET= 172.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

1.365	4.98	2108.08	2106.68	2108.08	2108.90	.82	1.40	.10	2103.20
4683.0	609.7	2744.2	1329.1	146.9	311.3	324.5	109.2	33.7	2103.30
.21	4.15	8.82	4.10	.070	.035	.070	.000	2103.10	920.00
.005233	230.	225.	216.	2	19	0	.00	172.00	1092.00

*SECNO 1.409

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
?0 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 964.0 1112.0 TYPE= 1 TARGET= 148.000

1.409	5.99	2112.99	2112.99	2112.99	2114.80	1.81	2.01	.30	2107.40
4683.0	804.8	1219.6	2658.6	110.2	69.5	385.5	112.8	34.6	2107.40
.22	7.31	17.56	6.90	.070	.035	.070	.000	2107.00	964.02
.016516	234.	234.	234.	0	11	0	.00	147.44	1111.47

*SECNO 1.432
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 981.0 1117.0 TYPE= 1 TARGET= 136.000

1.432	4.89	2115.89	2115.89	2115.88	2117.76	1.87	2.21	.02	2111.10
4683.0	1987.0	1032.7	1663.3	250.0	57.5	208.3	114.3	35.0	2111.10
.22	7.95	17.95	7.98	.070	.035	.070	.000	2111.00	981.43
.021862	152.	124.	90.	0	15	0	.00	135.28	1116.71

*SECNO 1.495

3301 HV CHANGED MORE THAN HVINS

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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=      915.0    1112.0  TYPE=      1  TARGET=      197.000
   1.495      5.37   2121.37   2121.09   2121.37   2122.68      1.32      4.87       .06   2116.20
  4683.0     998.9    1532.0    2152.1     193.5     109.5     375.6     118.5      36.1   2116.20
     .23      5.16     13.99      5.73      .070      .035      .070      .000   2116.00    915.31
 .011848      258.      334.      334.         3         8         0       .00    196.15   1111.45


*SECNO 1.593

3470 ENCROACHMENT STATIONS=      952.0    1252.0  TYPE=      1  TARGET=      300.000
   1.593      3.51   2128.51   2128.30   2128.51   2129.47       .95      6.75       .04   2125.50
  4683.0     293.7    1495.2    2894.1      69.6     128.1     558.1     126.6      38.9   2125.50
     .25      4.22     11.67      5.19      .070      .035      .070      .000   2125.00    952.34
 .015659      515.      520.      480.         3        14         0       .00    299.36   1251.69


*SECNO 1.682

 01 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      851.0    1017.0  TYPE=      1  TARGET=      166.000
   1.682      6.03   2138.03   2138.03   2138.03   2139.71      1.68      6.67       .22   2132.50
  4589.0    2736.8    1629.1     223.1     459.1     105.1      41.5     133.9      41.4   2132.70
     .27      5.96     15.51      5.37      .070      .035      .070      .000   2132.00    851.32
 .013000      495.      470.      440.         0        14         0       .00    165.19   1016.52


*SECNO 1.776
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      945.0    1173.0  TYPE=      1  TARGET=      228.000
   1.776      3.79   2146.79   2146.79   2146.78   2148.13      1.34      7.49       .03   2143.50
  4589.0     361.9    1690.0    2537.1      71.1     126.6     436.4     140.8      43.6   2143.50
     .28      5.09     13.35      5.81      .070      .035      .070      .000   2143.00    945.29
 .018373      460.      496.      510.         0        14         0       .00    226.89   1172.18
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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 1.868
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      894.0    1131.0  TYPE=      1  TARGET=      237.000
   1.868      4.82   2155.82   2155.82   2155.82   2157.21      1.39      6.98       .02   2152.00
  4459.0    1008.9    2606.3     843.8     224.3     220.3     199.6     148.1      46.2   2152.00
     .30      4.50     11.83      4.23      .070      .035      .070      .000   2151.00    895.27
 .011059      490.      486.      510.         0        11         0       .00    235.04   1130.30


*SECNO 1.954

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      891.0    1013.0  TYPE=      1  TARGET=      122.000
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
   1.954      8.38   2165.68   2165.68   2165.68   2167.72      2.04      4.61       .19   2162.10
  4459.0     392.8    4010.9      55.2     102.4     333.6      15.6     153.6      48.0   2162.00
     .31      3.84     12.02      3.53      .070      .035      .070      .000   2157.30    891.72
 .009720      430.      452.      420.         0        17         0       .00    120.92   1012.65


*SECNO 2.029

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      984.0    1175.0  TYPE=      1  TARGET=      191.000
   2.029      4.35   2171.35   2171.35   2171.34   2172.87      1.52      4.13       .05   2167.80
  4412.0      71.6    3275.1    1065.3      17.1     292.2     253.1     158.2      49.4   2167.80
     .32      4.18     11.21      4.21      .070      .035      .070      .000   2167.00    984.97
 .011213      386.      396.      400.         0        11         0       .00    189.61   1174.58
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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 2.070
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 975.0 1164.0 TYPE= 1 TARGET= 189.000

2.070	5.87	2176.87	2176.87	2176.87	2178.44	1.57	2.53	.02	2171.40
4412.0	293.0	1845.7	2273.3	49.1	129.2	445.9	161.4	50.5	2171.40
.33	5.97	14.28	5.10	.070	.035	.070	.000	2171.00	975.13
.011201	200.	212.	250.	0	11	0	.00	188.04	1163.17

*SECNO 2.163
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 866.0 1062.0 TYPE= 1 TARGET= 196.000
END OF DETAILED STUDY

2.163	6.05	2185.05	2185.05	2185.05	2186.62	1.57	5.35	.00	2179.40
4412.0	1685.3	1774.8	951.8	336.8	122.3	169.9	168.3	52.5	2179.40
.34	5.00	14.51	5.60	.070	.035	.070	.000	2179.00	866.84
.011075	470.	489.	478.	0	8	0	.00	195.09	1061.93

THIS RUN EXECUTED 18NOV92 14:42:56

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

WASH W: TURTLEBACK WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	49.420	.00	.00	.00	1981.70	5180.00	1984.76	1984.22	1985.09	56.04	4.72	1146.03	691.97
	49.420	.00	.00	.00	1981.70	5180.00	1984.76	1984.22	1985.09	56.04	4.72	1146.03	691.97
	.200	1055.00	.00	.00	1986.50	5180.00	1991.45	1991.30	1993.51	102.45	11.51	450.00	511.77
	.200	1055.00	.00	.00	1986.50	5180.00	1991.45	1991.30	1993.51	102.47	11.52	449.78	511.73
	.204	18.50	2004.30	1998.70	1986.80	5180.00	1993.20	.00	1994.36	42.51	8.62	601.01	794.52
*	.204	18.50	2004.30	1998.70	1986.80	5180.00	1993.20	.00	1994.36	42.51	8.62	601.01	794.52
*	.224	106.00	.00	.00	1988.00	5180.00	1997.47	1997.47	1999.39	78.29	15.74	656.41	585.42
*	.224	106.00	.00	.00	1988.00	5180.00	1997.49	1997.49	1999.39	77.72	15.69	658.43	587.58
*	.318	496.00	.00	.00	2001.00	5180.00	2008.01	2008.01	2009.95	74.94	13.16	664.48	598.38
*	.318	496.00	.00	.00	2001.00	5180.00	2008.02	2008.02	2009.95	74.69	13.14	665.40	599.37
*	.411	489.00	.00	.00	2009.00	5180.00	2017.33	2017.33	2020.24	100.41	17.07	499.48	516.94
*	.411	489.00	.00	.00	2009.00	5180.00	2017.35	2017.35	2020.24	99.42	17.02	501.35	519.51
*	.457	242.00	.00	.00	2014.00	5212.00	2021.39	2019.25	2021.72	28.63	7.23	1410.89	974.07
*	.457	242.00	.00	.00	2014.00	5212.00	2021.39	2019.25	2021.72	28.73	7.23	1409.31	972.43
*	.485	148.00	.00	.00	2017.50	5212.00	2023.15	2023.15	2024.31	95.75	12.78	948.27	532.64
*	.485	148.00	.00	.00	2017.50	5212.00	2023.15	2023.15	2024.31	95.67	12.77	948.58	532.87
*	.506	110.00	.00	.00	2019.00	5212.00	2025.11	2025.11	2026.25	126.10	15.44	895.86	464.14
*	.506	110.00	.00	.00	2019.00	5212.00	2025.11	2025.11	2026.25	125.72	15.42	896.86	464.84
*	.581	397.00	.00	.00	2026.00	5212.00	2033.55	2033.55	2035.23	90.94	15.38	774.11	546.54
*	.581	397.00	.00	.00	2026.00	5212.00	2033.55	2033.55	2035.23	90.90	15.38	774.23	546.66
	.679	519.00	.00	.00	2035.00	5212.00	2039.55	2039.47	2040.73	174.97	14.71	775.08	394.02
	.679	519.00	.00	.00	2035.00	5212.00	2040.36	2040.36	2041.98	165.06	16.04	677.97	405.67

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	.774	501.00	.00	.00	2041.50	5212.00	2047.92	2047.92	2049.56	107.57	14.67	718.85	502.52
*	.774	501.00	.00	.00	2041.50	5212.00	2047.89	2047.89	2049.56	110.32	14.80	711.86	496.23
*	.824	263.00	.00	.00	2047.00	5244.00	2054.36	2054.36	2056.43	138.02	17.47	610.08	446.36
*	.824	263.00	.00	.00	2047.00	5244.00	2054.37	2054.37	2056.43	137.78	17.46	610.43	446.75
*	.871	248.00	.00	.00	2052.50	5244.00	2058.03	2058.03	2059.85	145.42	15.82	643.73	434.85
*	.871	248.00	.00	.00	2052.50	5244.00	2058.04	2058.04	2059.85	145.23	15.82	644.02	435.14
	.966	504.00	.00	.00	2059.50	5244.00	2065.34	2065.19	2066.66	128.22	13.80	778.52	463.11
	.966	504.00	.00	.00	2059.50	5244.00	2065.34	2065.19	2066.66	128.39	13.81	778.15	462.81
*	1.067	535.00	.00	.00	2071.00	5244.00	2075.67	2075.67	2077.53	131.93	13.62	612.72	456.56
*	1.067	535.00	.00	.00	2071.00	5244.00	2075.67	2075.67	2077.53	131.49	13.61	613.40	457.32
*	1.150	437.00	.00	.00	2078.50	4770.00	2082.79	2082.79	2084.59	134.31	12.98	552.54	411.59
*	1.150	437.00	.00	.00	2078.50	4770.00	2082.79	2082.79	2084.59	134.39	12.98	552.43	411.47
*	1.206	298.00	.00	.00	2083.10	4770.00	2088.00	2088.00	2089.54	150.46	14.63	635.74	388.88
*	1.206	298.00	.00	.00	2083.10	4770.00	2088.00	2088.00	2089.54	150.26	14.63	636.02	389.13
*	1.271	345.00	.00	.00	2094.00	2480.00	2097.24	2097.24	2098.60	195.63	12.20	325.30	177.31
*	1.271	345.00	.00	.00	2094.00	2480.00	2097.25	2097.25	2098.60	192.63	12.15	326.96	178.69
	1.298	143.00	.00	.00	2099.50	2480.00	2103.03	2103.03	2104.22	129.09	10.64	375.11	218.27
*	1.298	143.00	.00	.00	2099.50	2480.00	2103.04	2103.04	2104.22	127.48	10.60	376.78	219.65
*	1.322	127.00	.00	.00	2100.50	2480.00	2105.59	2105.59	2107.39	92.09	11.48	279.49	258.43
*	1.322	127.00	.00	.00	2100.50	2480.00	2105.59	2105.59	2107.39	92.32	11.49	279.22	258.10
*	1.365	225.00	.00	.00	2103.10	4683.00	2108.08	2106.68	2108.90	52.37	8.82	782.43	647.15
*	1.365	225.00	.00	.00	2103.10	4683.00	2108.08	2106.68	2108.90	52.33	8.82	782.59	647.37
*	1.409	234.00	.00	.00	2107.00	4683.00	2112.99	2112.99	2114.80	165.44	17.57	564.74	364.09
*	1.409	234.00	.00	.00	2107.00	4683.00	2112.99	2112.99	2114.80	165.16	17.56	565.07	364.39
*	1.432	124.00	.00	.00	2111.00	4683.00	2115.88	2115.88	2117.76	219.01	17.96	515.53	316.44
*	1.432	124.00	.00	.00	2111.00	4683.00	2115.89	2115.89	2117.76	218.62	17.95	515.83	316.72
	1.495	334.00	.00	.00	2116.00	4683.00	2121.37	2121.09	2122.68	118.33	13.98	679.00	430.50
	1.495	334.00	.00	.00	2116.00	4683.00	2121.37	2121.09	2122.68	118.48	13.99	678.71	430.24
	1.593	520.00	.00	.00	2125.00	4683.00	2128.51	2128.30	2129.46	156.77	11.68	755.45	374.02
	1.593	520.00	.00	.00	2125.00	4683.00	2128.51	2128.30	2129.47	156.59	11.67	755.74	374.24
*	1.682	470.00	.00	.00	2132.00	4589.00	2138.03	2138.03	2139.71	130.17	15.51	605.37	402.21
*	1.682	470.00	.00	.00	2132.00	4589.00	2138.03	2138.03	2139.71	130.00	15.51	605.65	402.48
	1.776	496.00	.00	.00	2143.00	4589.00	2146.78	2146.78	2148.13	183.82	13.35	633.98	338.47
	1.776	496.00	.00	.00	2143.00	4589.00	2146.79	2146.79	2148.13	183.73	13.35	634.09	338.56

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1.868	486.00	.00	.00	2151.00	4459.00	2155.82	2155.82	2157.21	110.90	11.84	643.48	423.42
*	1.868	486.00	.00	.00	2151.00	4459.00	2155.82	2155.82	2157.21	110.59	11.83	644.17	424.02
*	1.954	452.00	.00	.00	2157.30	4459.00	2165.68	2165.68	2167.72	97.27	12.03	451.54	452.12
*	1.954	452.00	.00	.00	2157.30	4459.00	2165.68	2165.68	2167.72	97.20	12.02	451.65	452.29
*	2.029	396.00	.00	.00	2167.00	4412.00	2171.34	2171.34	2172.87	112.76	11.23	561.30	415.49
*	2.029	396.00	.00	.00	2167.00	4412.00	2171.35	2171.35	2172.87	112.13	11.21	562.41	416.66
*	2.070	212.00	.00	.00	2171.00	4412.00	2176.87	2176.87	2178.44	112.07	14.28	624.10	416.76
*	2.070	212.00	.00	.00	2171.00	4412.00	2176.87	2176.87	2178.44	112.01	14.28	624.24	416.88
*	2.163	489.00	.00	.00	2179.00	4412.00	2185.05	2185.05	2186.62	111.15	14.52	628.24	418.49
*	2.163	489.00	.00	.00	2179.00	4412.00	2185.05	2185.05	2186.62	110.75	14.51	629.10	419.23

H W: TURTLEBACK WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	49.420	5180.00	1984.76	.00	.00	-5.26	663.34	.00
	49.420	5180.00	1984.76	.00	.00	-5.26	663.34	.00
	.200	5180.00	1991.45	.00	6.69	.00	100.18	1055.00
	.200	5180.00	1991.45	.00	6.69	.00	99.99	1055.00
*	.204	5180.00	1993.20	.00	1.75	.00	106.27	18.50
*	.204	5180.00	1993.20	.00	1.75	.00	106.27	18.50
*	.224	5180.00	1997.47	.00	4.27	.00	170.41	106.00
*	.224	5180.00	1997.49	.01	4.28	.01	170.61	106.00
*	.318	5180.00	2008.01	.00	10.54	.00	185.21	496.00
*	.318	5180.00	2008.02	.01	10.53	.01	185.24	496.00
*	.411	5180.00	2017.33	.00	9.32	.00	91.35	489.00
*	.411	5180.00	2017.35	.02	9.34	.02	91.50	489.00
	.457	5212.00	2021.39	.00	4.06	.00	322.92	242.00
	.457	5212.00	2021.39	.00	4.03	.00	322.90	242.00
*	.485	5212.00	2023.15	.00	1.75	.00	372.20	148.00
*	.485	5212.00	2023.15	.00	1.76	.00	372.21	148.00
*	.506	5212.00	2025.11	.00	1.96	.00	341.85	110.00
*	.506	5212.00	2025.11	.00	1.97	.00	341.89	110.00
*	.581	5212.00	2033.55	.00	8.44	.00	204.80	397.00
*	.581	5212.00	2033.55	.00	8.44	.00	204.80	397.00
	.679	5212.00	2039.55	.00	6.00	.00	282.75	519.00
*	.679	5212.00	2040.36	.81	6.81	.81	196.00	519.00
*	.774	5212.00	2047.92	.00	8.37	.00	210.55	501.00
*	.774	5212.00	2047.89	-.03	7.53	-.03	210.02	501.00
*	.824	5244.00	2054.36	.00	6.44	.00	130.06	263.00
*	.824	5244.00	2054.37	.00	6.48	.00	130.06	263.00
*	.871	5244.00	2058.03	.00	3.67	.00	168.46	248.00
*	.871	5244.00	2058.04	.00	3.67	.00	168.47	248.00
	.966	5244.00	2065.34	.00	7.31	.00	232.61	504.00
	.966	5244.00	2065.34	.00	7.30	.00	232.28	504.00
*	1.067	5244.00	2075.67	.00	10.33	.00	164.50	535.00
*	1.067	5244.00	2075.67	.00	10.33	.00	164.53	535.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1.150	4770.00	2082.79	.00	7.12	.00	152.52	437.00
*	1.150	4770.00	2082.79	.00	7.11	.00	152.52	437.00
*	1.206	4770.00	2088.00	.00	5.21	.00	191.58	298.00
*	1.206	4770.00	2088.00	.00	5.21	.00	191.59	298.00
*	1.271	2480.00	2097.24	.00	9.24	.00	126.06	345.00
*	1.271	2480.00	2097.25	.01	9.25	.01	126.20	345.00
*	1.298	2480.00	2103.03	.00	5.79	.00	158.67	143.00
*	1.298	2480.00	2103.04	.01	5.79	.01	158.82	143.00
*	1.322	2480.00	2105.59	.00	2.56	.00	84.73	127.00
*	1.322	2480.00	2105.59	.00	2.55	.00	84.71	127.00
*	1.365	4683.00	2108.08	.00	2.49	.00	172.00	225.00
*	1.365	4683.00	2108.08	.00	2.49	.00	172.00	225.00
*	1.409	4683.00	2112.99	.00	4.91	.00	147.43	234.00
*	1.409	4683.00	2112.99	.00	4.91	.00	147.44	234.00
*	1.432	4683.00	2115.88	.00	2.90	.00	135.26	124.00
*	1.432	4683.00	2115.89	.00	2.90	.00	135.28	124.00
	1.495	4683.00	2121.37	.00	5.48	.00	196.17	334.00
	1.495	4683.00	2121.37	.00	5.48	.00	196.15	334.00
	1.593	4683.00	2128.51	.00	7.15	.00	299.35	520.00
	1.593	4683.00	2128.51	.00	7.15	.00	299.36	520.00
*	1.682	4589.00	2138.03	.00	9.52	.00	165.18	470.00
*	1.682	4589.00	2138.03	.00	9.52	.00	165.19	470.00
*	1.776	4589.00	2146.78	.00	8.75	.00	226.89	496.00
*	1.776	4589.00	2146.79	.00	8.75	.00	226.89	496.00
*	1.868	4459.00	2155.82	.00	9.03	.00	234.99	486.00
*	1.868	4459.00	2155.82	.00	9.03	.00	235.04	486.00
*	1.954	4459.00	2165.68	.00	9.86	.00	120.92	452.00
*	1.954	4459.00	2165.68	.00	9.86	.00	120.92	452.00
*	2.029	4412.00	2171.34	.00	5.66	.00	189.55	396.00
*	2.029	4412.00	2171.35	.01	5.67	.01	189.61	396.00
*	2.070	4412.00	2176.87	.00	5.52	.00	188.04	212.00
*	2.070	4412.00	2176.87	.00	5.52	.00	188.04	212.00
	2.163	4412.00	2185.05	.00	8.18	.00	195.04	489.00
	2.163	4412.00	2185.05	.00	8.19	.00	195.09	489.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      .204  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=      .204  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=      .204  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=      .204  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .224  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .224  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .224  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .224  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .318  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .318  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      .318  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=      .411  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .411  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .411  PROFILE=  2  MINIMUM SPECIFIC ENERGY

  NING SECNO=       .457  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 RNING SECNO=       .457  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .485  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .485  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      .485  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=      .679  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .679  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .774  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     1.322  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     1.365  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.365  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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CAUTION SECNO=     1.432  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.682  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     1.776  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     2.163  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     2.163  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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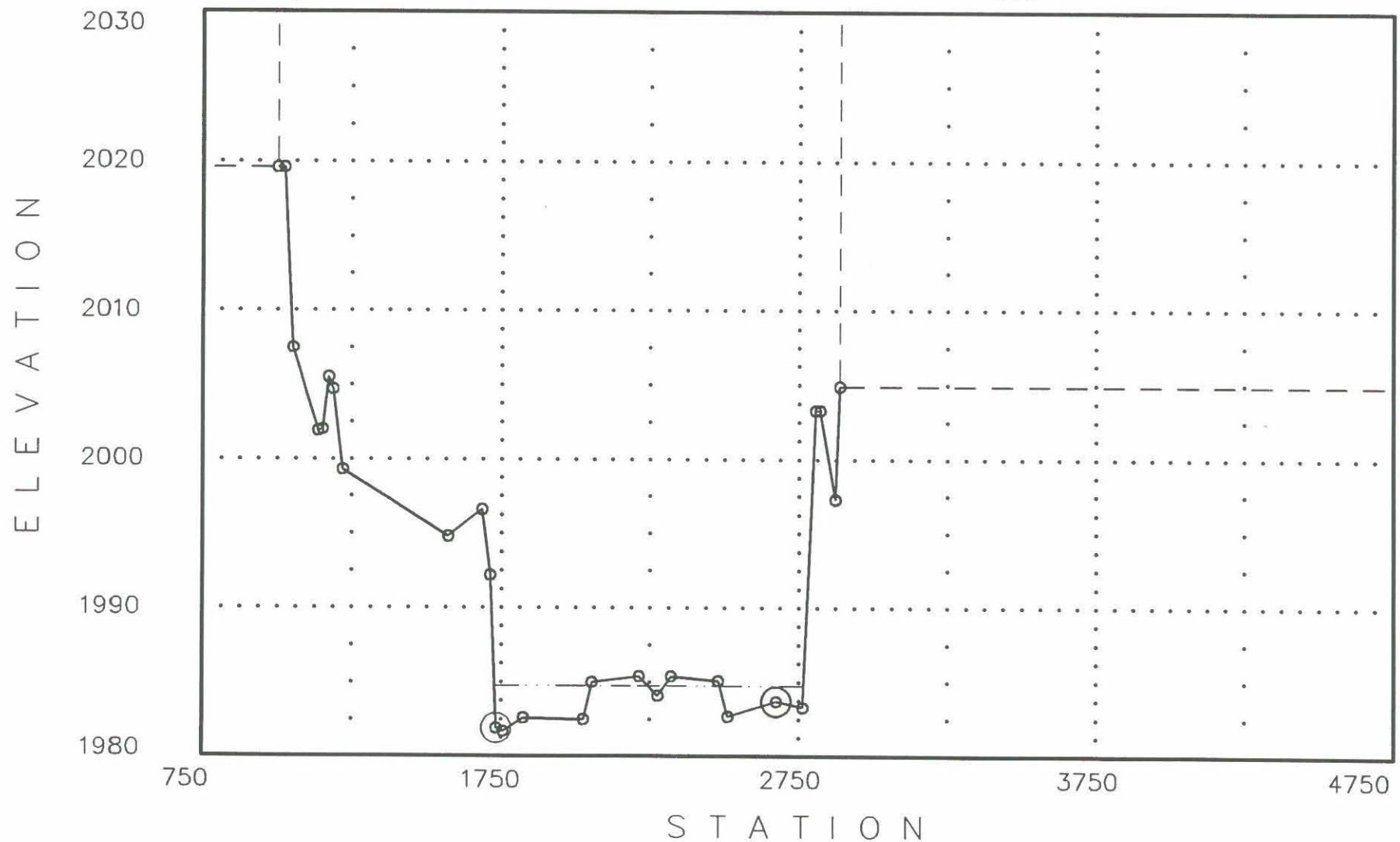
FLOODWAY DATA, WASH W: TURTLEBACK WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
49.420	1040.	1146.	4.5	1984.8	1984.8	.0
.200	100.	450.	11.5	1991.5	1991.5	.0
.204	106.	601.	8.6	1993.2	1993.2	.0
.224	171.	658.	7.9	1997.5	1997.5	.0
.318	185.	665.	7.8	2008.0	2008.0	.0
.411	91.	501.	10.3	2017.3	2017.3	.0
.457	323.	1409.	3.7	2021.4	2021.4	.0
.485	372.	949.	5.5	2023.1	2023.1	.0
.506	342.	897.	5.8	2025.1	2025.1	.0
.581	205.	774.	6.7	2033.5	2033.5	.0
.679	196.	678.	7.7	2040.4	2039.6	.8
.774	210.	712.	7.3	2047.9	2047.9	.0
.824	130.	610.	8.6	2054.4	2054.4	.0
.871	168.	644.	8.1	2058.0	2058.0	.0
.966	232.	778.	6.7	2065.3	2065.3	.0
1.067	165.	613.	8.5	2075.7	2075.7	.0
1.150	153.	552.	8.6	2082.8	2082.8	.0
1.206	192.	636.	7.5	2088.0	2088.0	.0
1.271	126.	327.	7.6	2097.2	2097.2	.0
1.298	159.	377.	6.6	2103.0	2103.0	.0
1.322	85.	279.	8.9	2105.6	2105.6	.0
1.365	172.	783.	6.0	2108.1	2108.1	.0
1.409	147.	565.	8.3	2113.0	2113.0	.0
1.432	135.	516.	9.1	2115.9	2115.9	.0
1.495	196.	679.	6.9	2121.4	2121.4	.0
1.593	299.	756.	6.2	2128.5	2128.5	.0
1.682	165.	606.	7.6	2138.0	2138.0	.0
1.776	227.	634.	7.2	2146.8	2146.8	.0
1.868	235.	644.	6.9	2155.8	2155.8	.0
1.954	121.	452.	9.9	2165.7	2165.7	.0
2.029	190.	562.	7.8	2171.3	2171.3	.0
2.070	188.	624.	7.1	2176.9	2176.9	.0
2.163	195.	629.	7.0	2185.0	2185.0	.0

<<<<<< Cross Section: 49.42: (FN = WASHW.O) >>>>>>

Q1= 5180 WS1= 1984.76
Q2= 5180 WS2= 1984.76

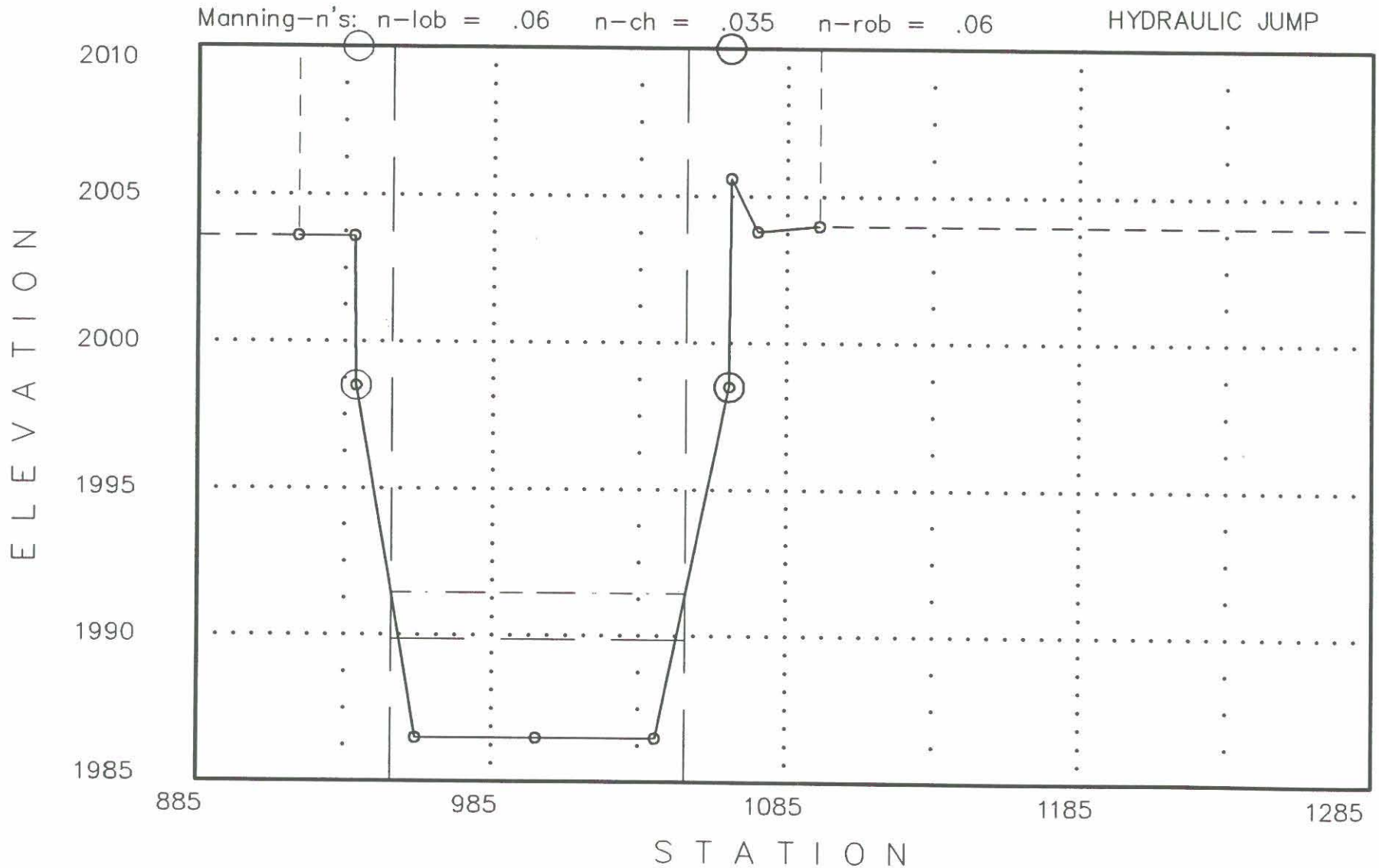
Manning-n's: n-lob = .045 n-ch = .035 n-rob = .045



11-18-1992

<<<<<< Cross Section: .2: (FN = WASHW.O) >>>>>>

Q1= 5180 WS1= 1991.45
Q2= 5180 WS2= 1991.45

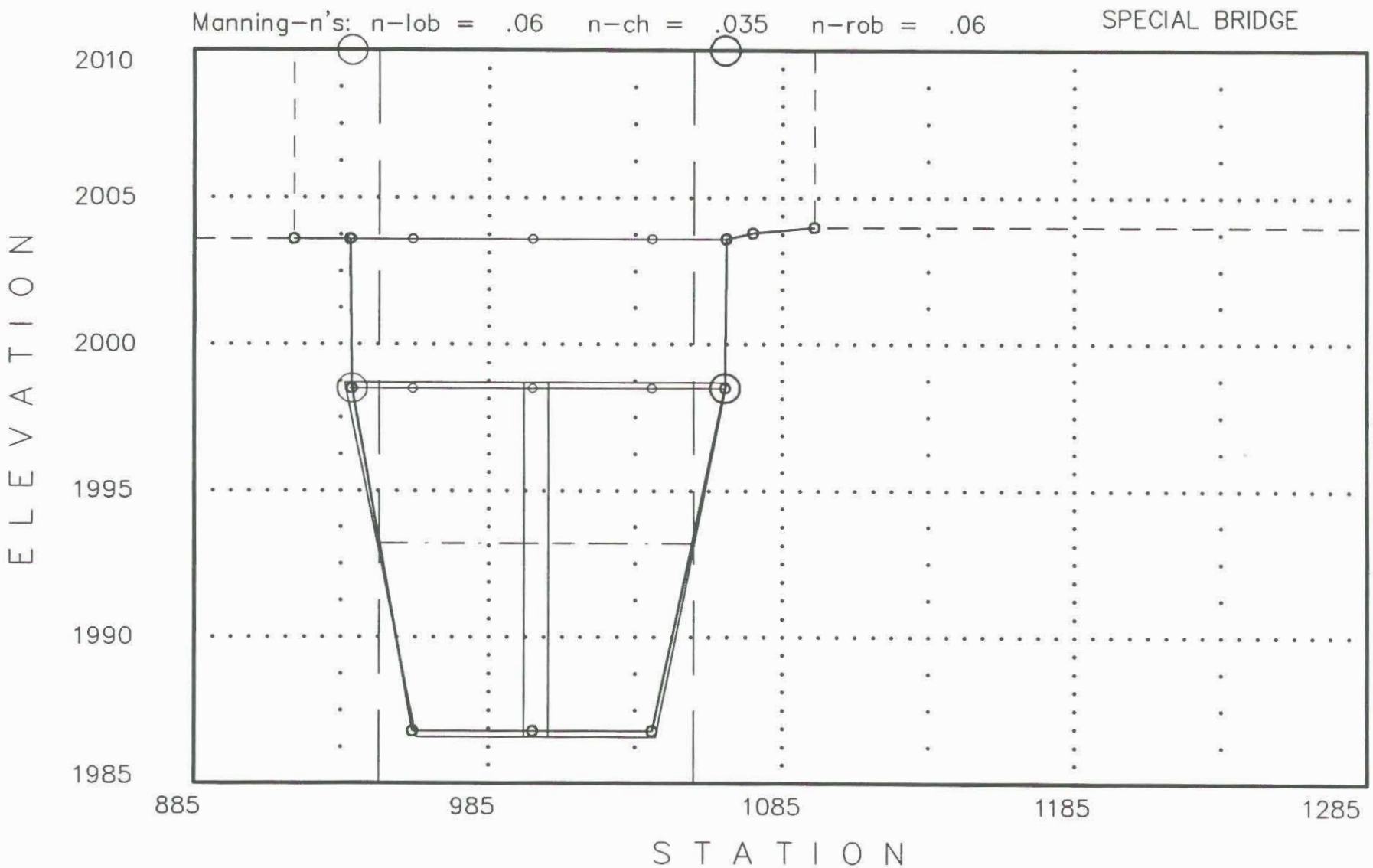


11-18-1992

<<<<<< Cross Section: .204: (FN = WASHW.O) >>>>>>

Q1= 5180 WS1= 1993.2

Q2= 5180 WS2= 1993.2



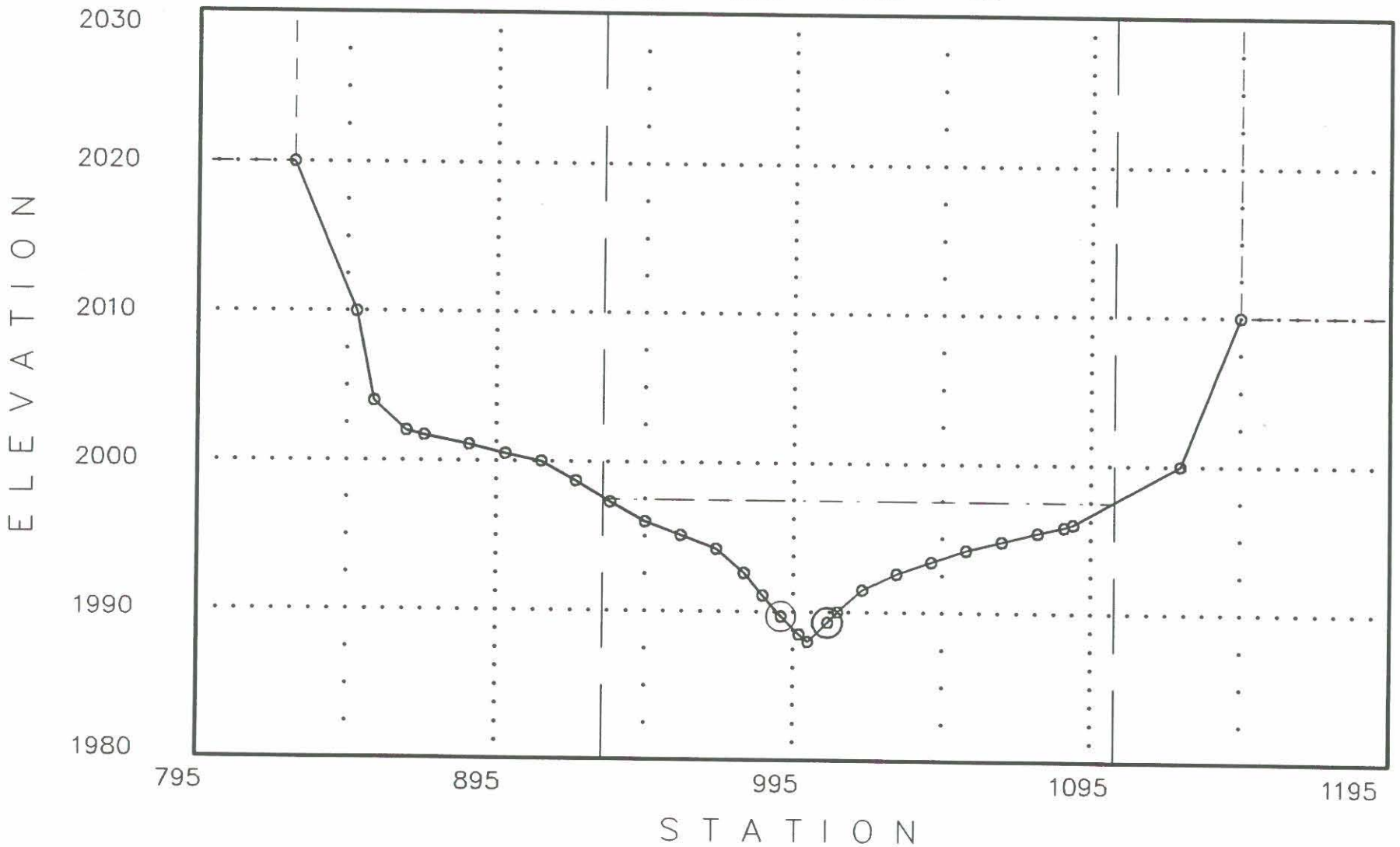
11-18-1992

<<<<<< Cross Section: .224: (FN = WASHW.O) >>>>>>

Q1= 5180 WS1= 1997.47

Q2= 5180 WS2= 1997.49

Manning-n's: n-lob = .06 n-ch = .035 n-rob = .06

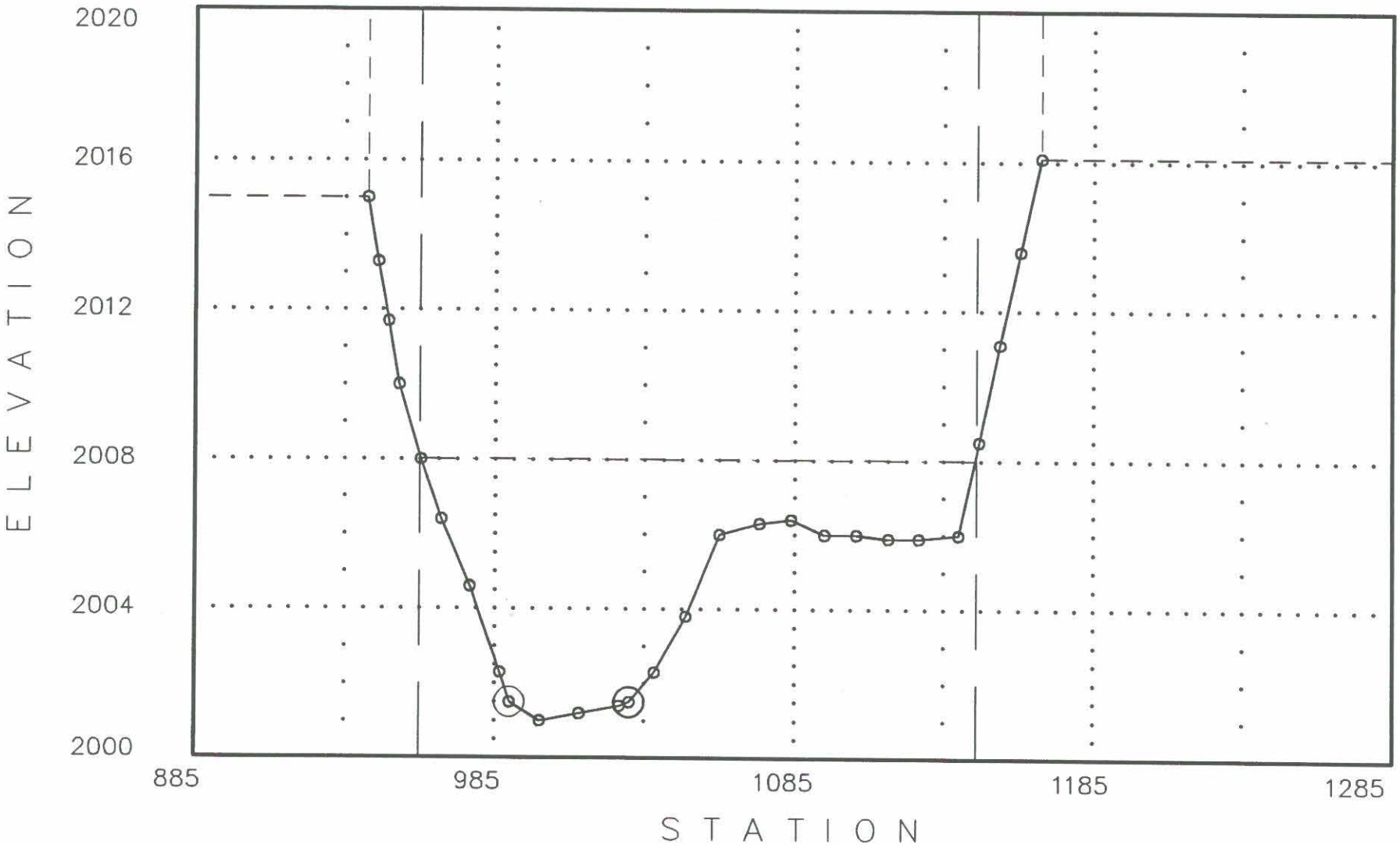


11-16-1992

<<<<<< Cross Section: .318: (FN = WASHW.O) >>>>>>

Q1= 5180 WS1= 2008.01
Q2= 5180 WS2= 2008.02

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



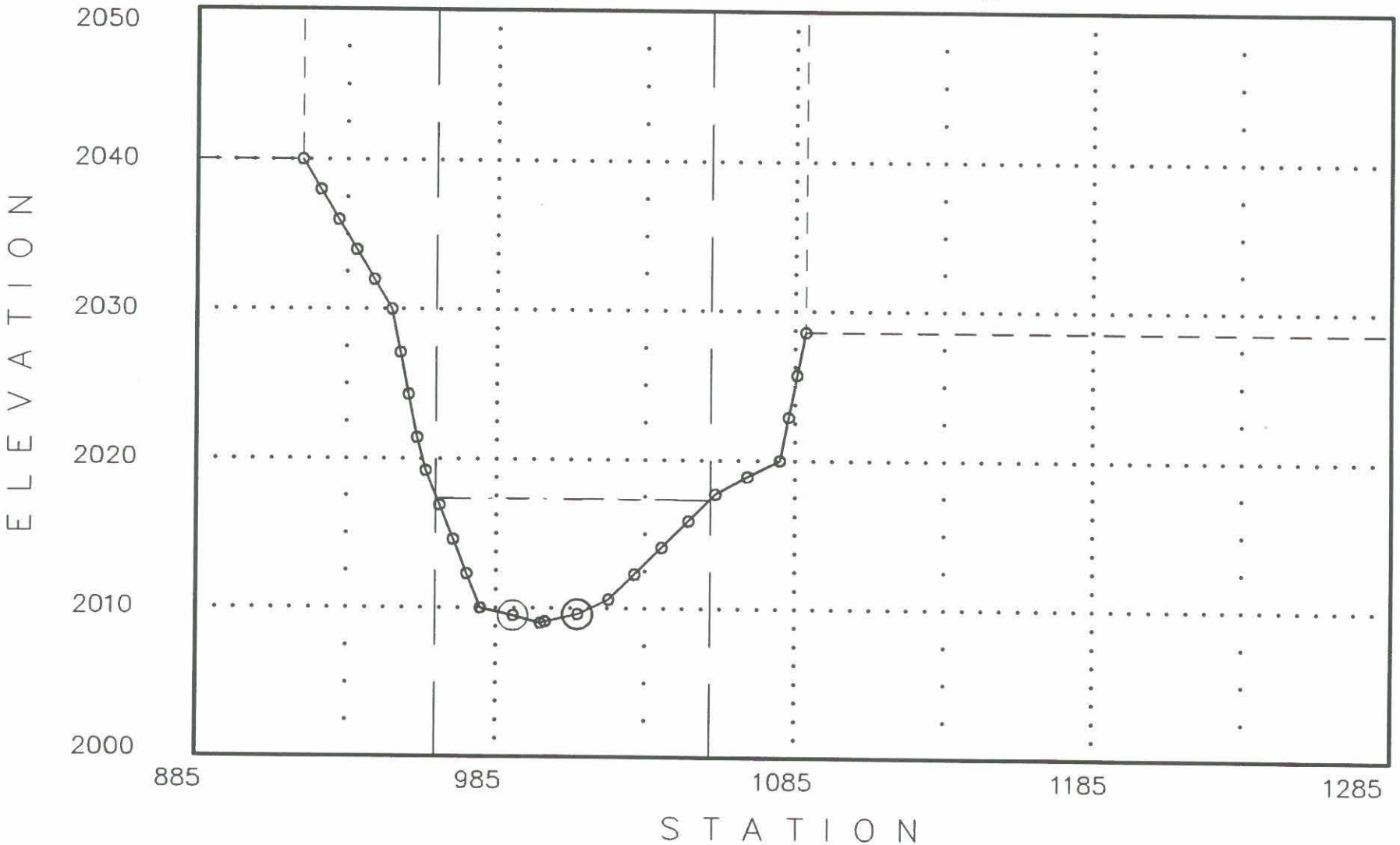
11-16-1992

<<<<<< Cross Section: .411: (FN = WASHW.O) >>>>>>

Q1= 5180 WS1= 2017.33

Q2= 5180 WS2= 2017.35

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



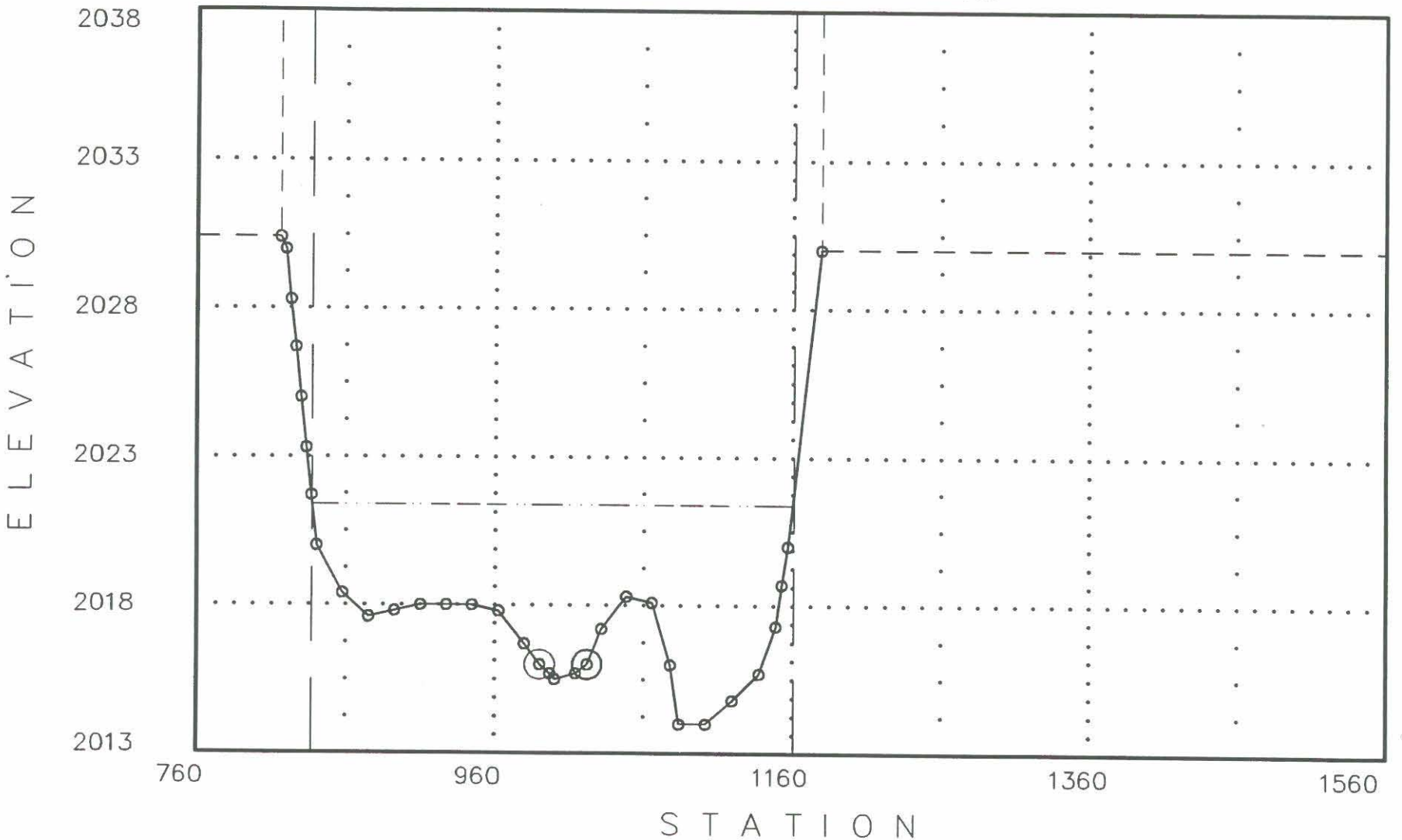
11-18-1992

<<<<<< Cross Section: .457: (FN = WASHW.O) >>>>>>

Q1= 5212 WS1= 2021.39

Q2= 5212 WS2= 2021.39

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



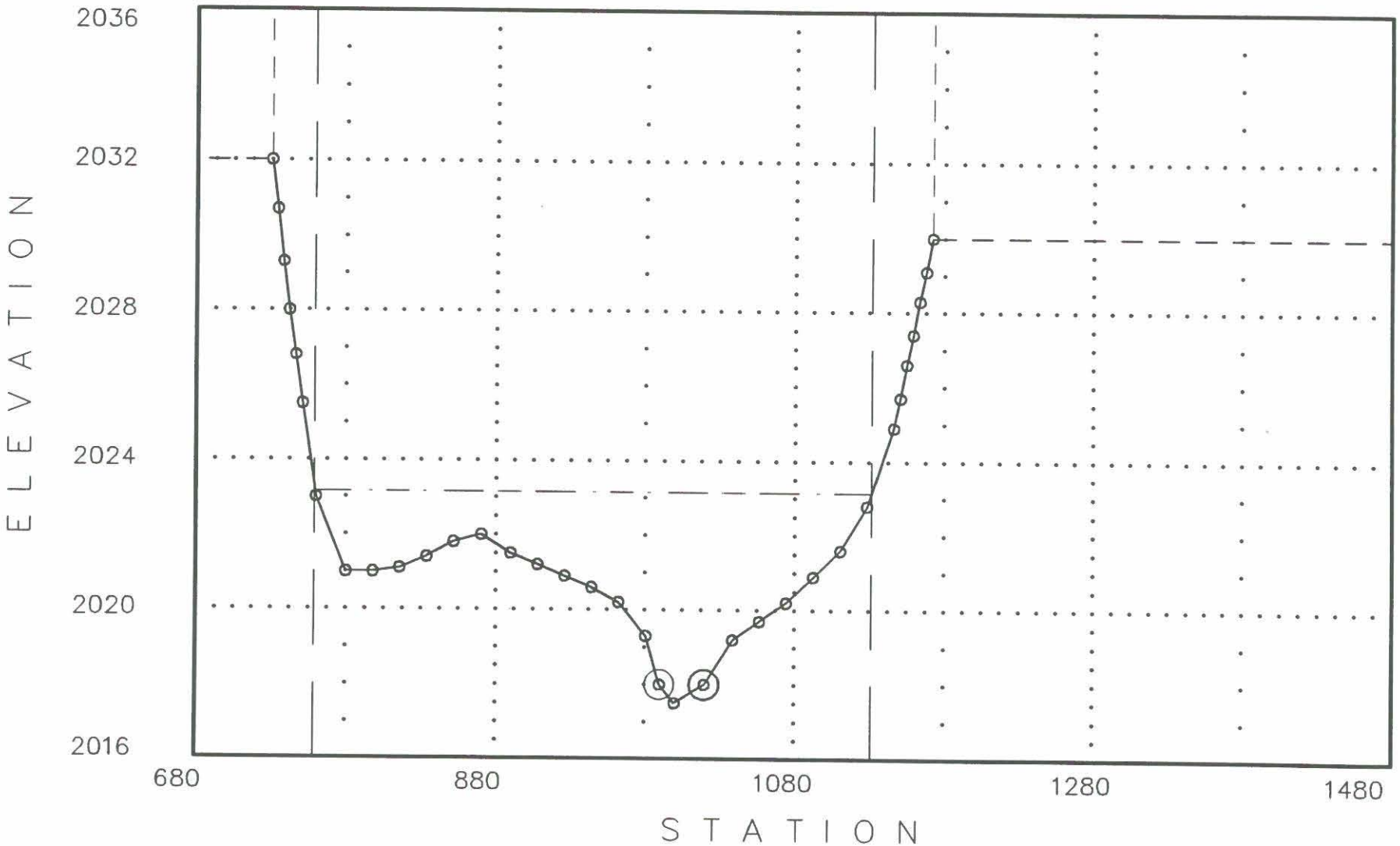
11-18-1992

<<<<<< Cross Section: .485: (FN = WASHW.O) >>>>>>

Q1= 5212 WS1= 2023.15

Q2= 5212 WS2= 2023.15

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



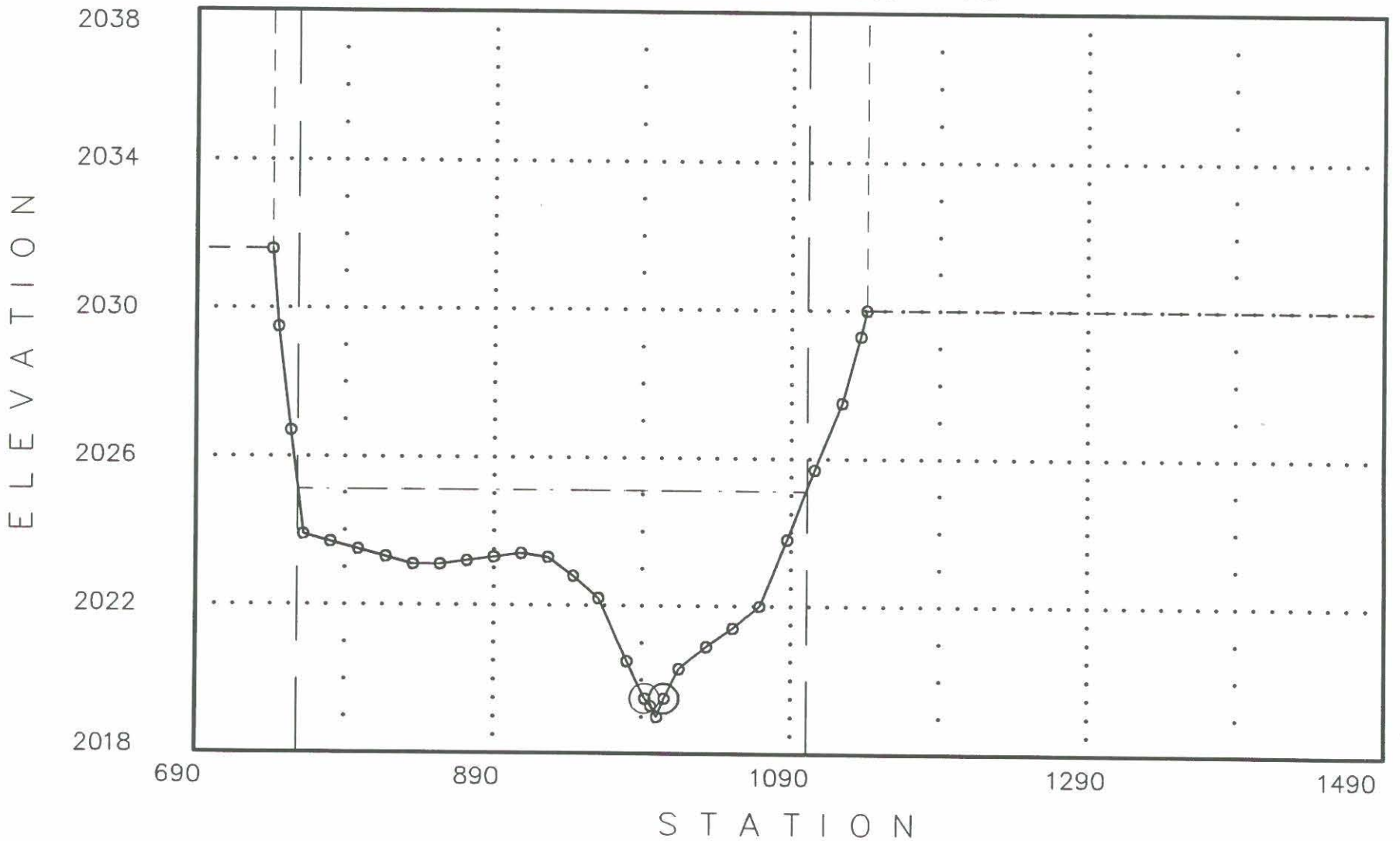
11-18-1992

<<<<<< Cross Section: .506: (FN = WASHW.O) >>>>>>

Q1= 5212 WS1= 2025.11

Q2= 5212 WS2= 2025.11

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



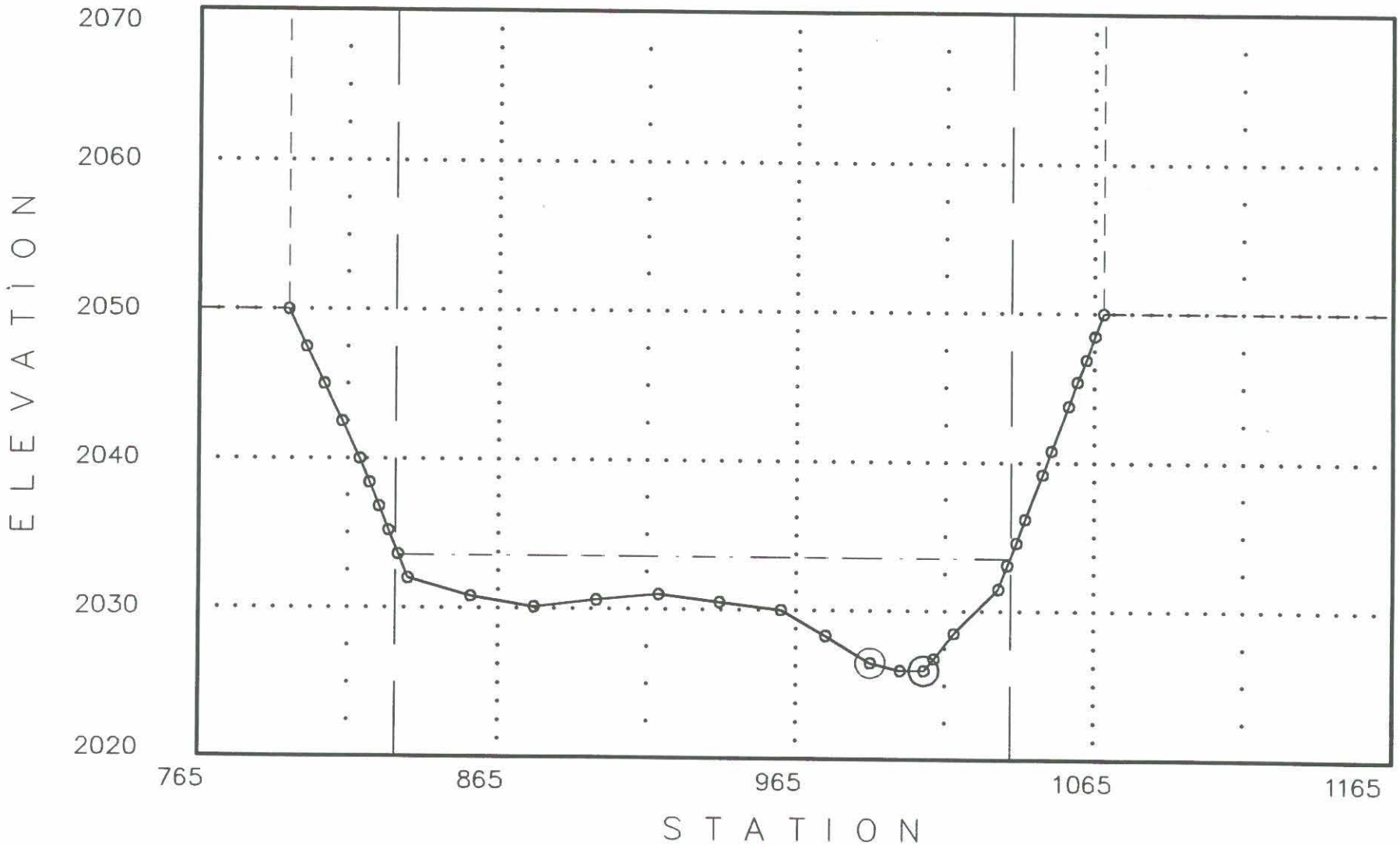
11-18-1992

<<<<<< Cross Section: .581: (FN = WASHW.O) >>>>>>

Q1= 5212 WS1= 2033.55

Q2= 5212 WS2= 2033.55

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



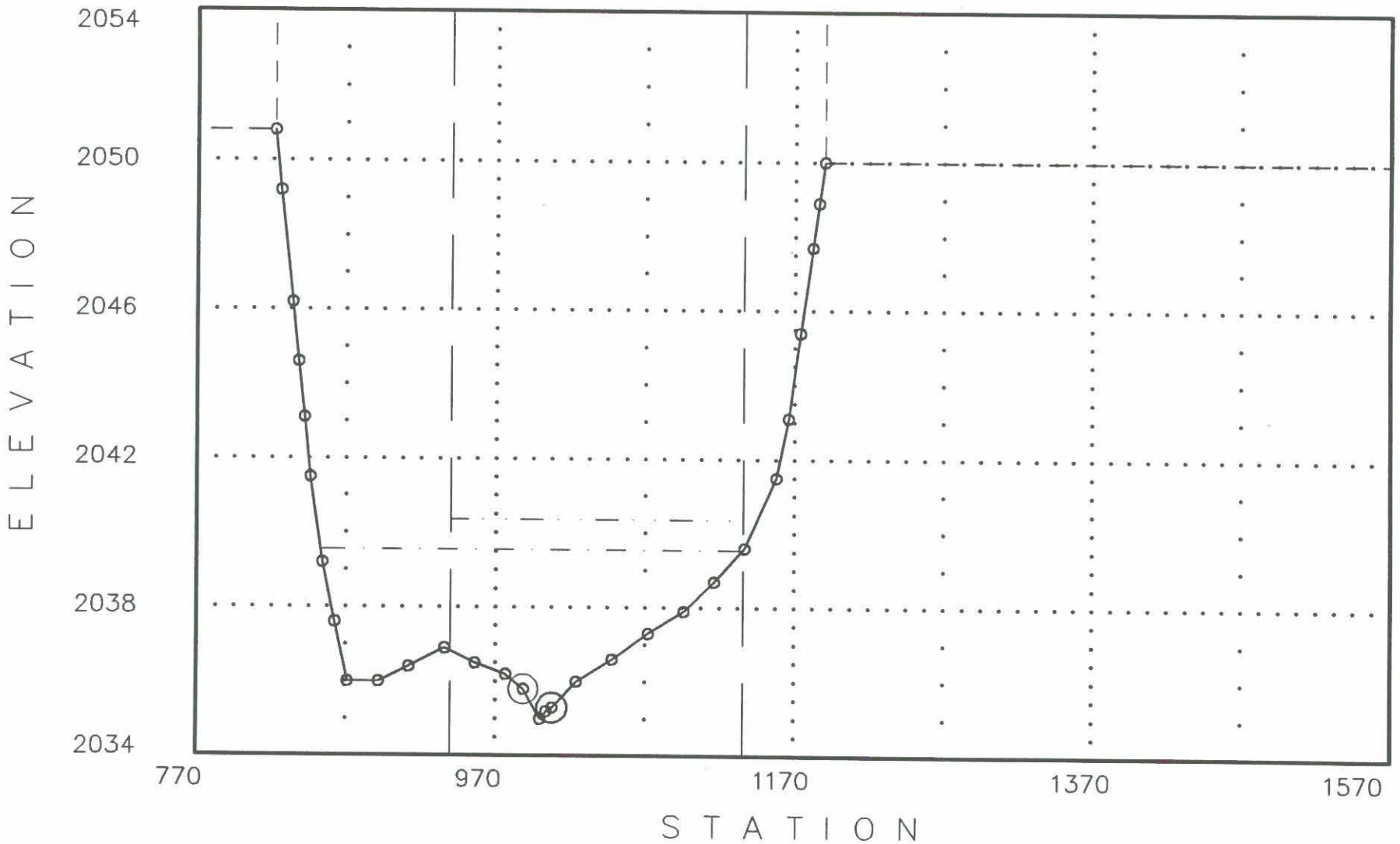
11-18-1992

<<<<<< Cross Section: .679: (FN = WASHW.O) >>>>>>

Q1= 5212 WS1= 2039.55

Q2= 5212 WS2= 2040.36

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

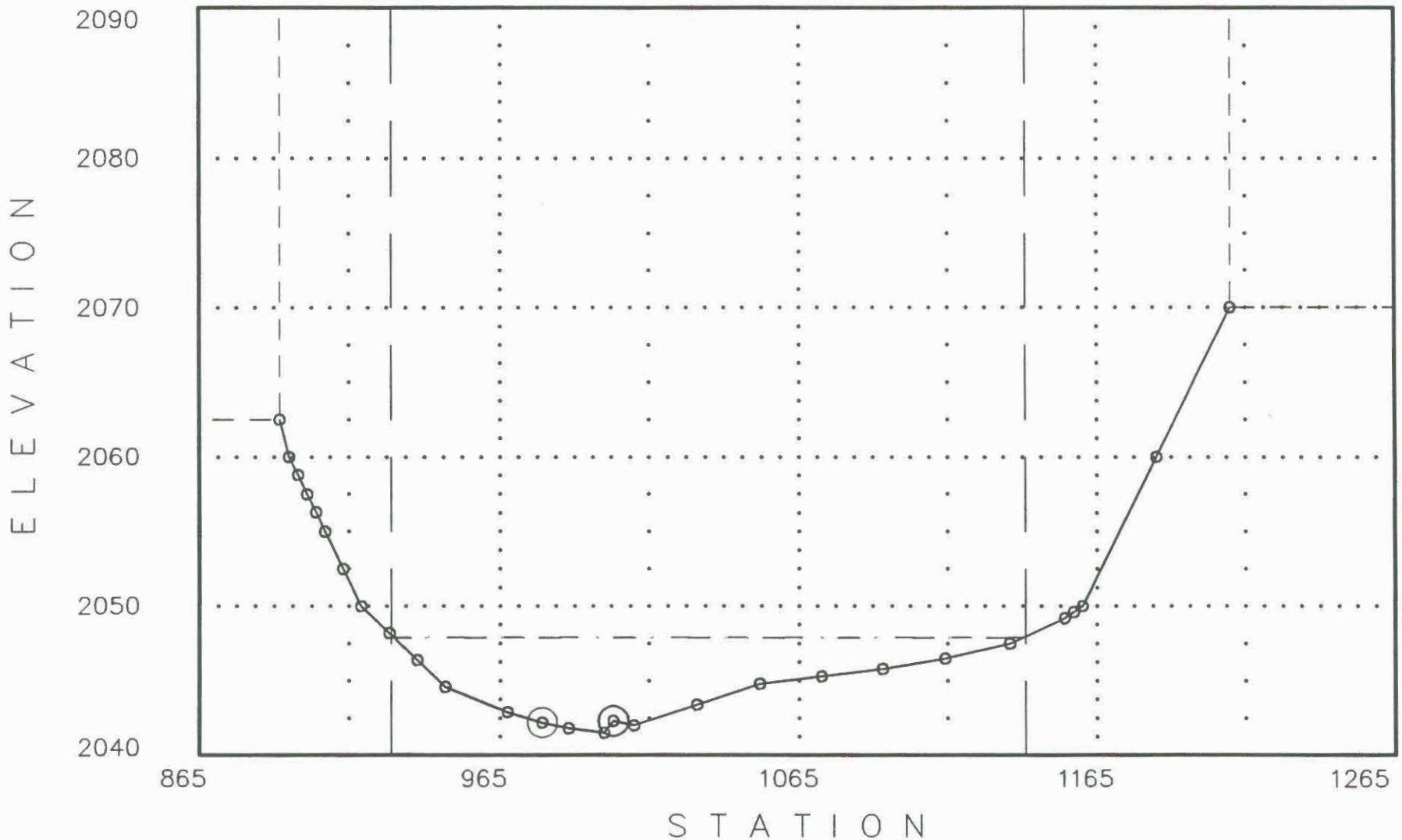


11-18-1992

<<<<<< Cross Section: .774: (FN = WASHW.O) >>>>>>

Q1= 5212 WS1= 2047.92
Q2= 5212 WS2= 2047.89

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



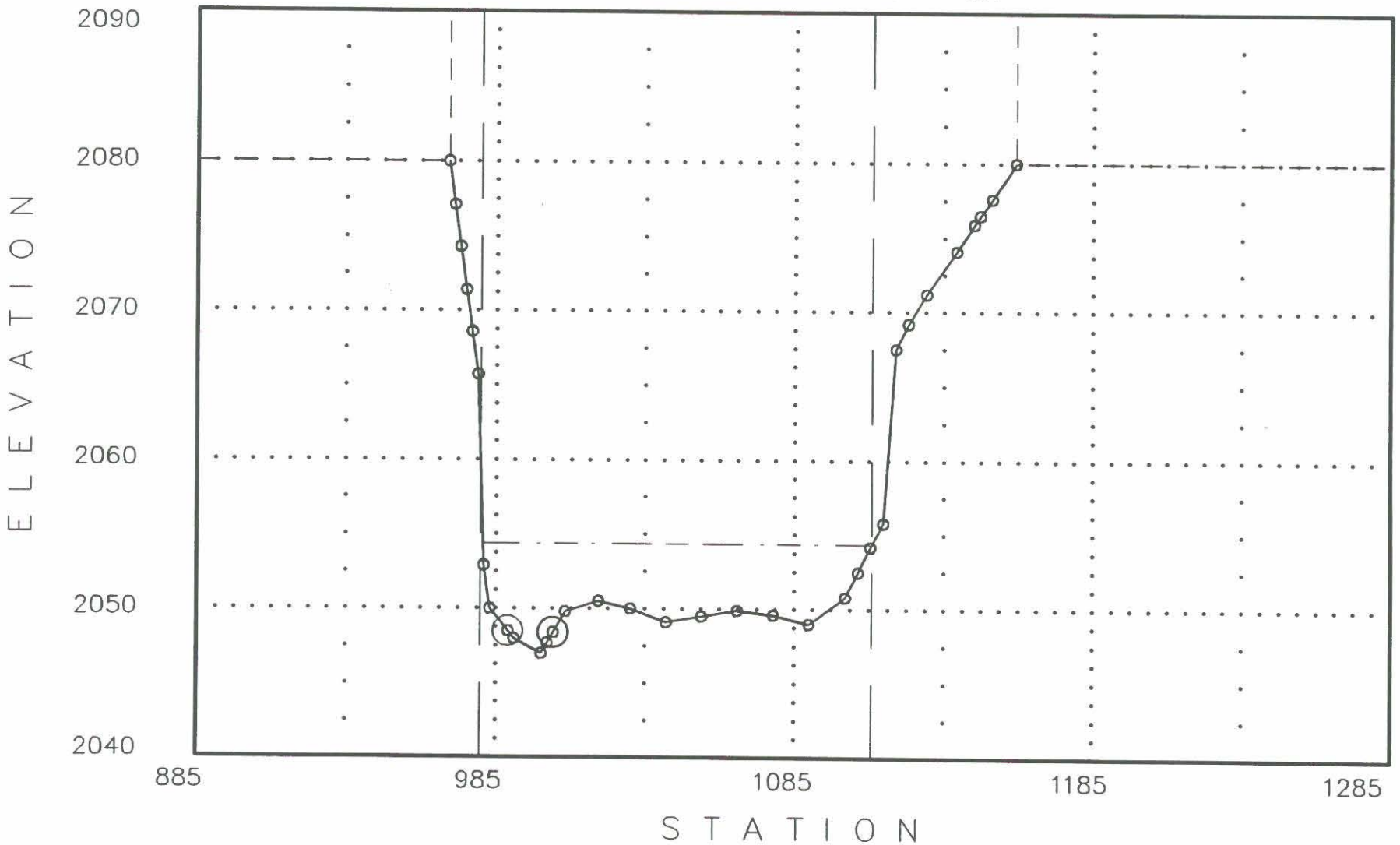
11-18-1992

<<<<<< Cross Section: .824: (FN = WASHW.O) >>>>>>

Q1= 5244 WS1= 2054.36

Q2= 5244 WS2= 2054.37

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



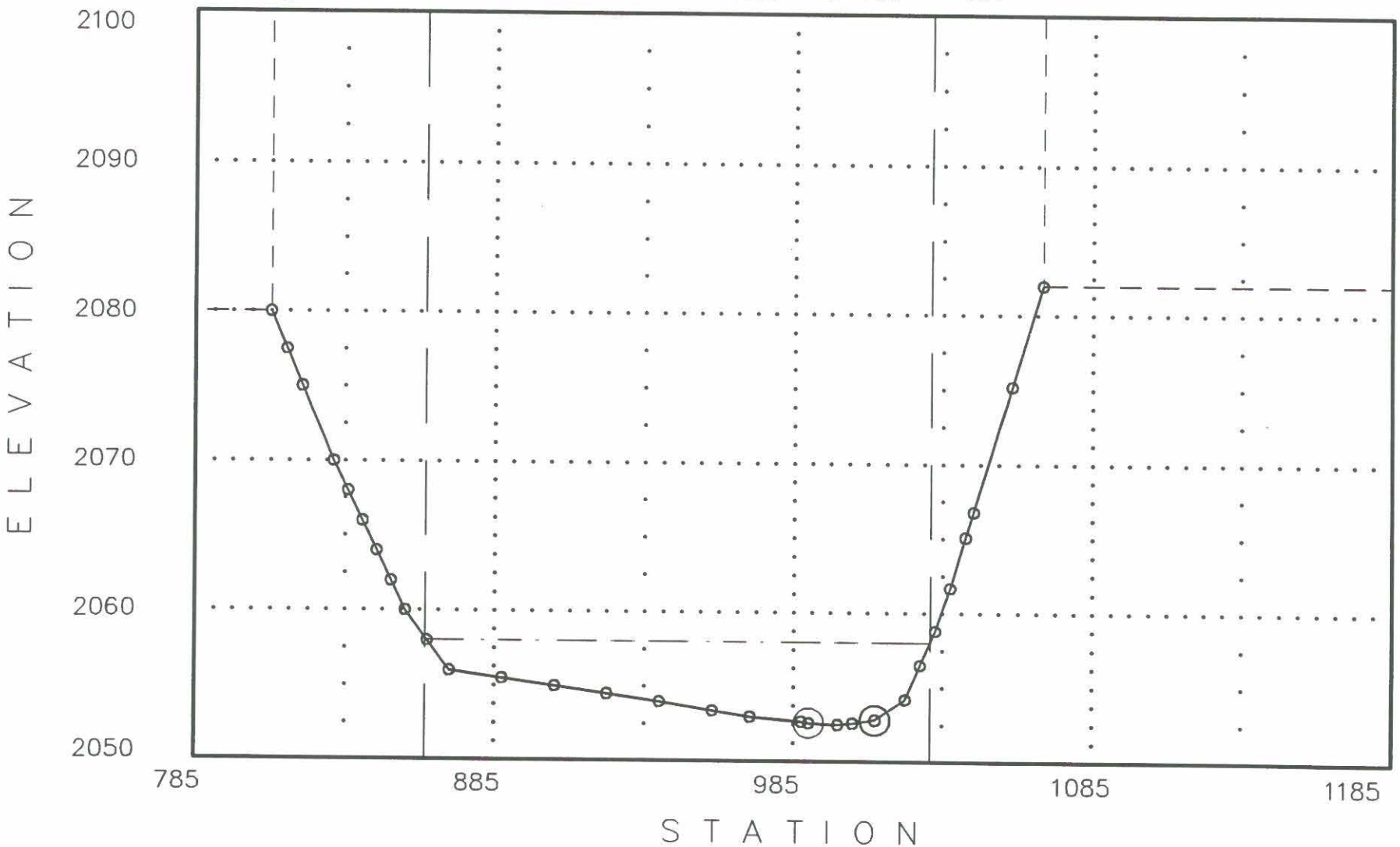
11-16-1992

<<<<<< Cross Section: .871: (FN = WASHW.O) >>>>>>

Q1= 5244 WS1= 2058.03

Q2= 5244 WS2= 2058.04

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

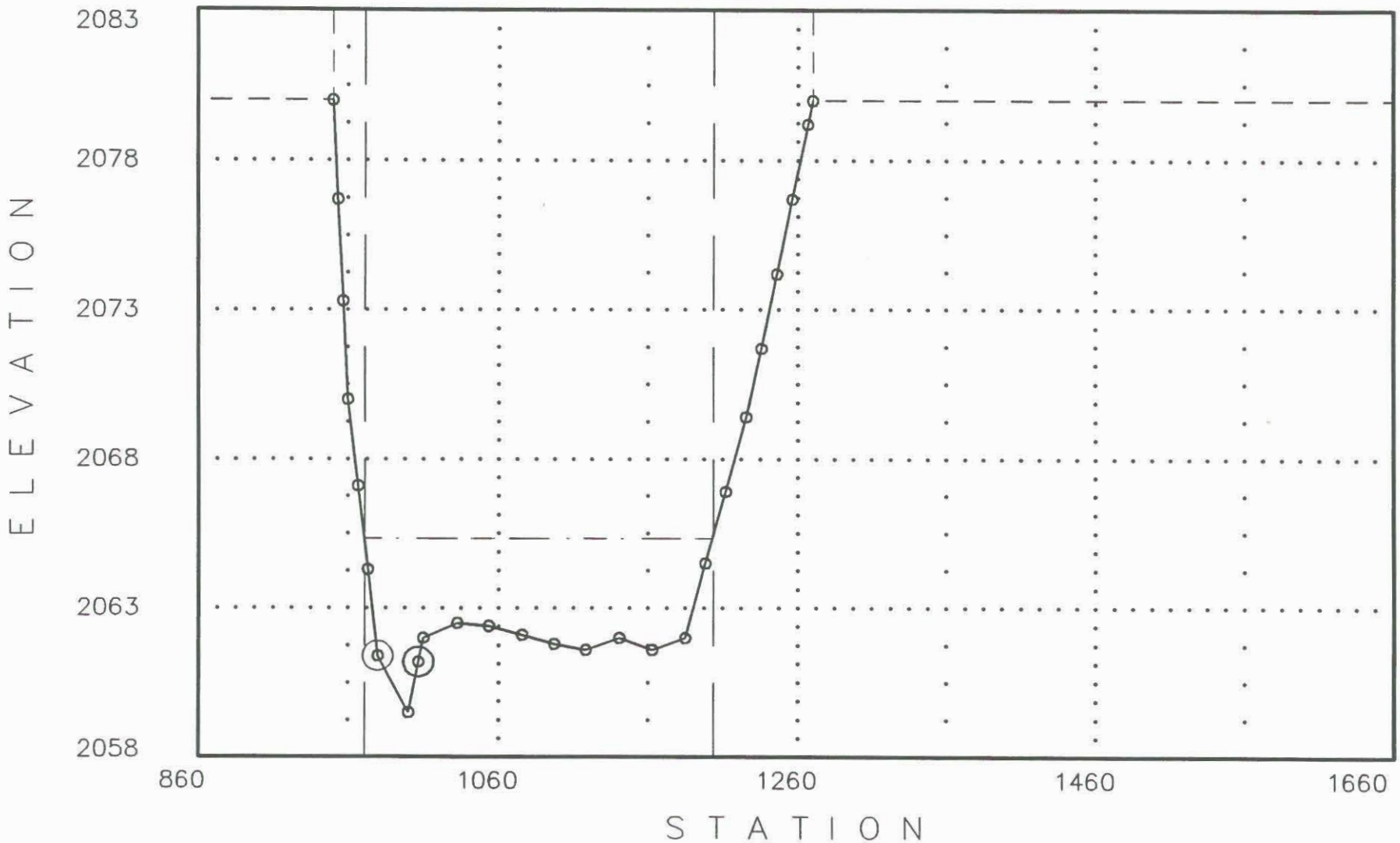


11-18-1992

<<<<<< Cross Section: .966: (FN = WASHW.O) >>>>>>

Q1= 5244 WS1= 2065.34
Q2= 5244 WS2= 2065.34

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

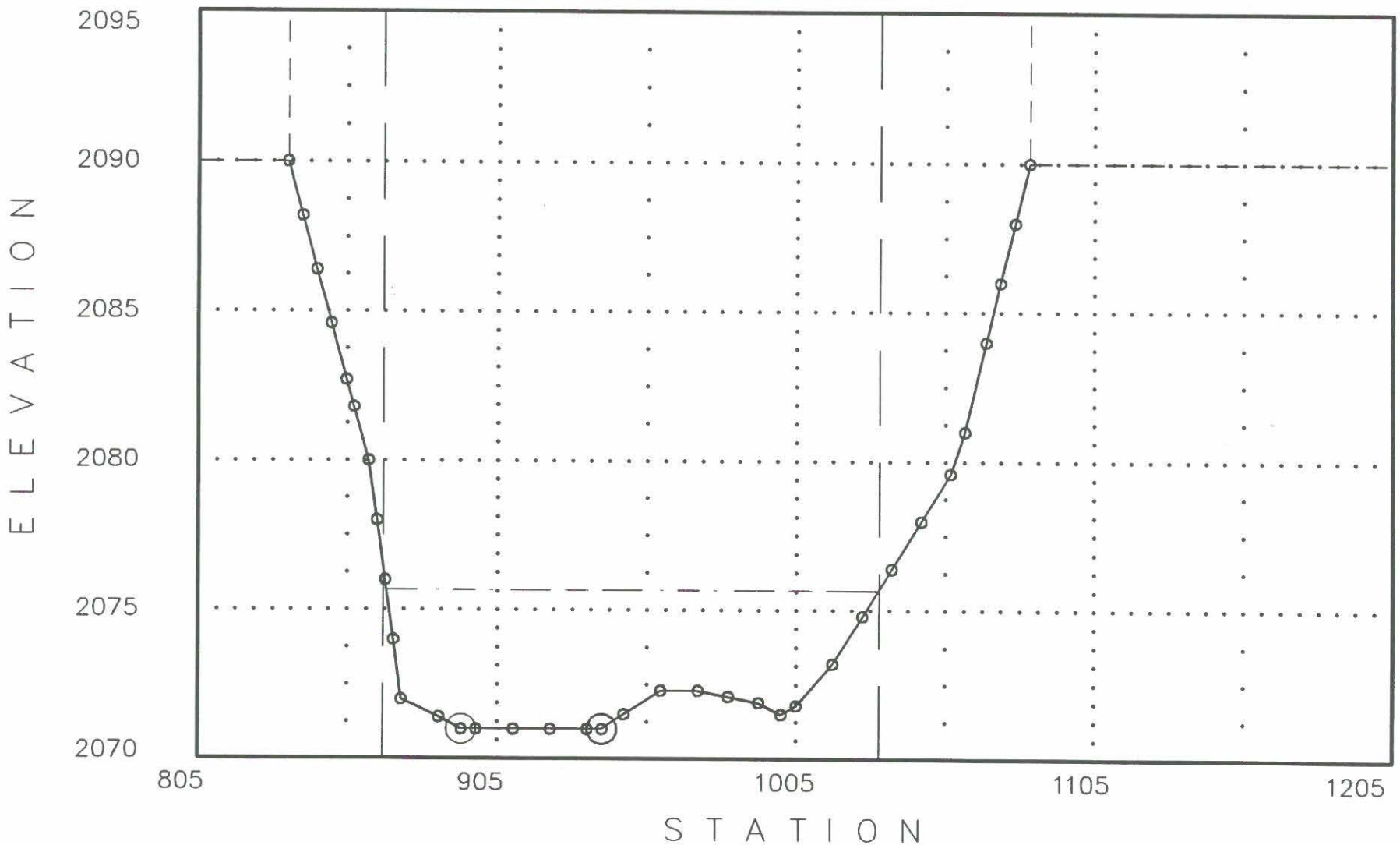


11-18-1992

<<<<<< Cross Section: 1.067: (FN = WASHW.O) >>>>>>

Q1= 5244 WS1= 2075.67
Q2= 5244 WS2= 2075.67

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

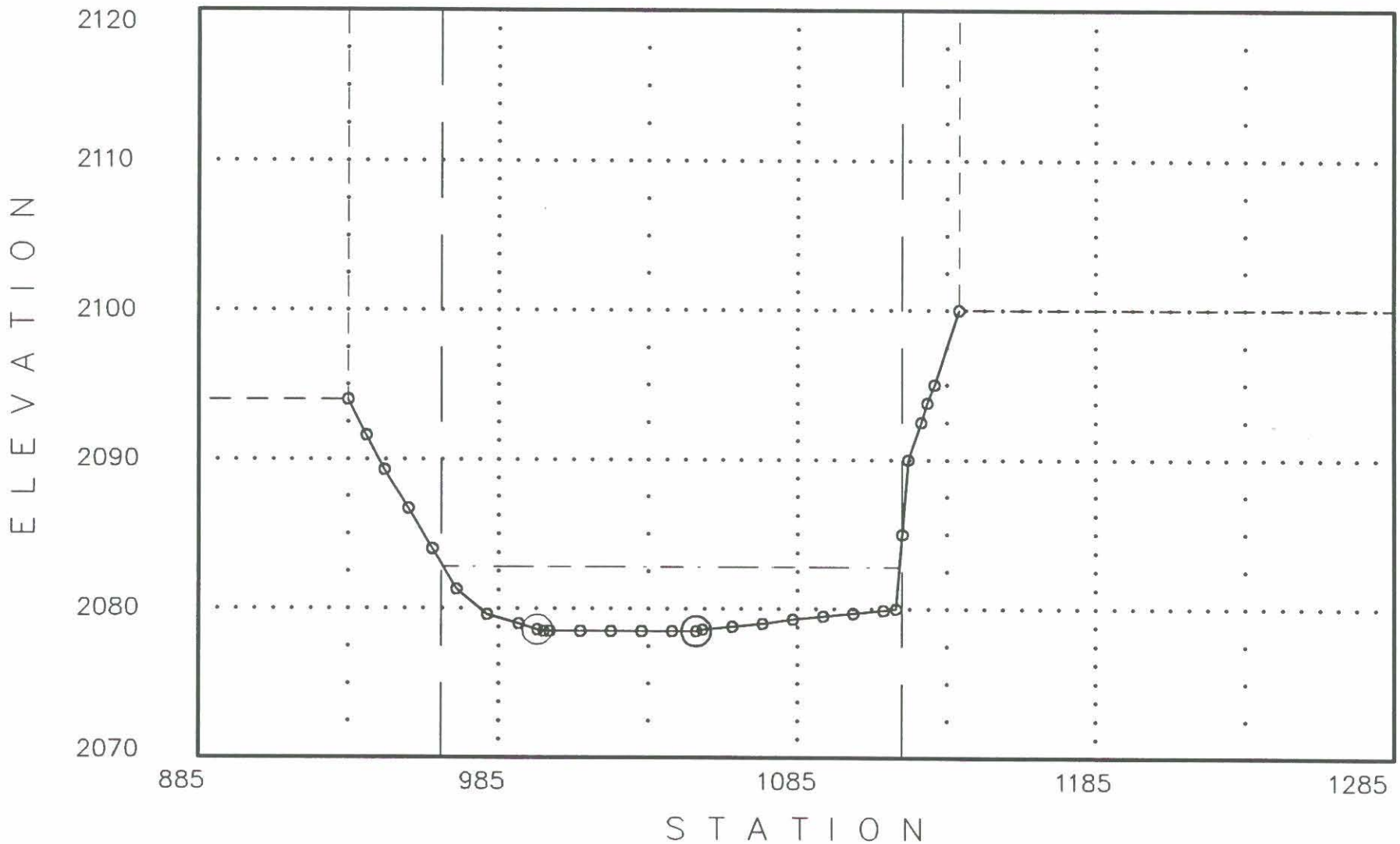


11-18-1992

<<<<<< Cross Section: 1.15: (FN = WASHW.O) >>>>>>

Q1= 4770 WS1= 2082.79
Q2= 4770 WS2= 2082.79

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

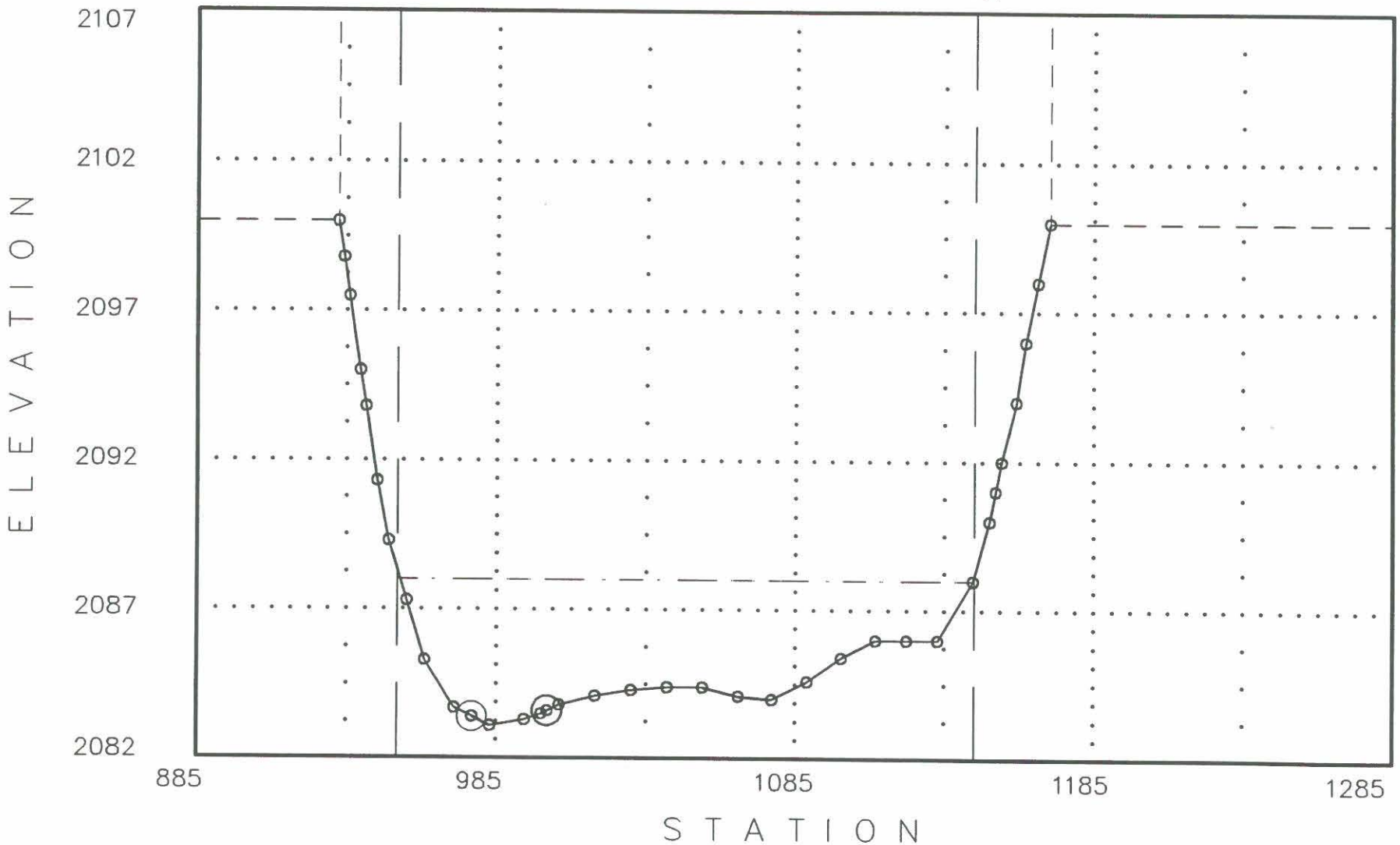


11-18-1992

<<<<<< Cross Section: 1.206: (FN = WASHW.O) >>>>>>

Q1= 4770 WS1= 2088
Q2= 4770 WS2= 2088

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



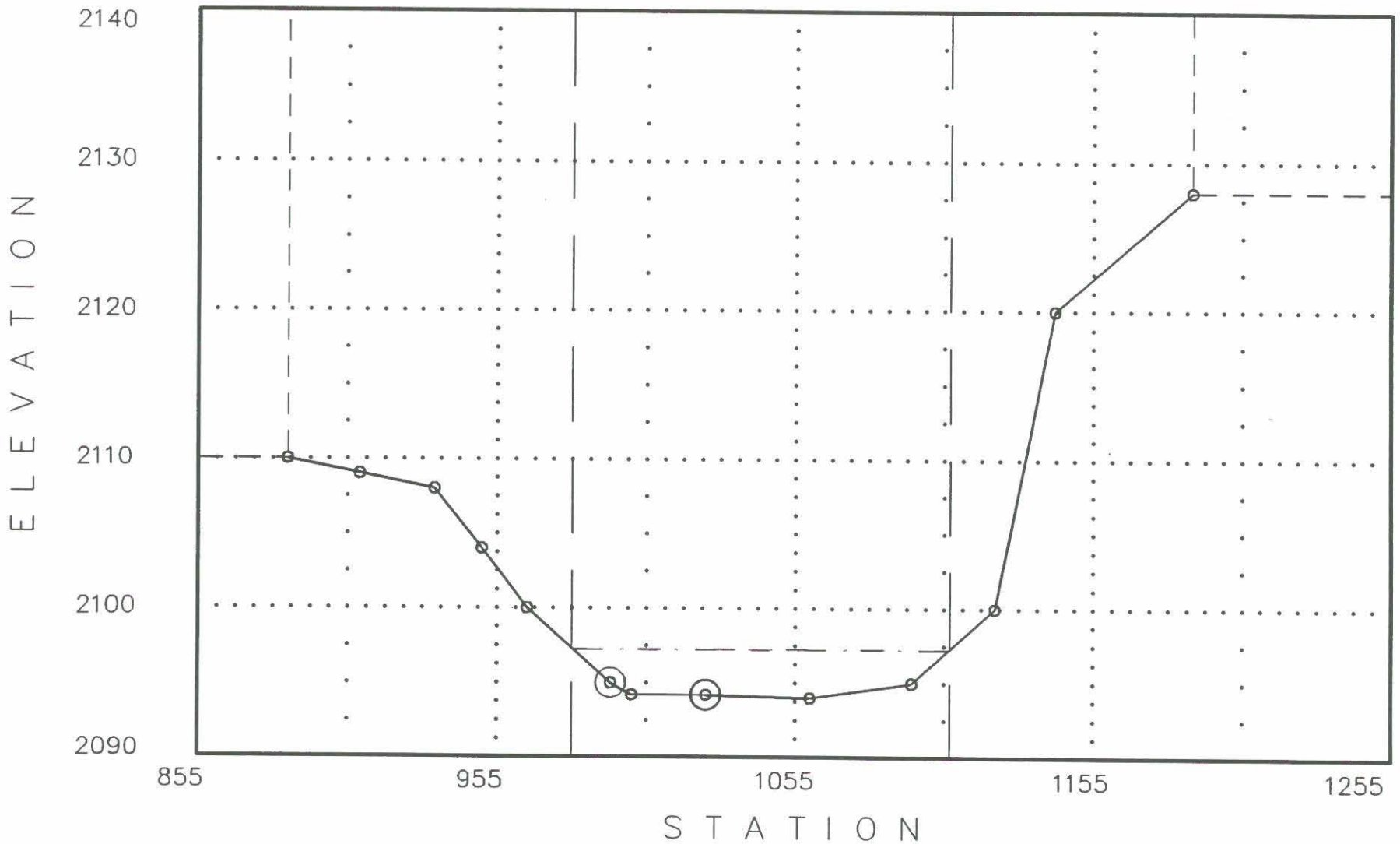
11-18-1992

<<<<<< Cross Section: 1.271: (FN = WASHW.O) >>>>>>

Q1= 2480 WS1= 2097.24

Q2= 2480 WS2= 2097.25

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



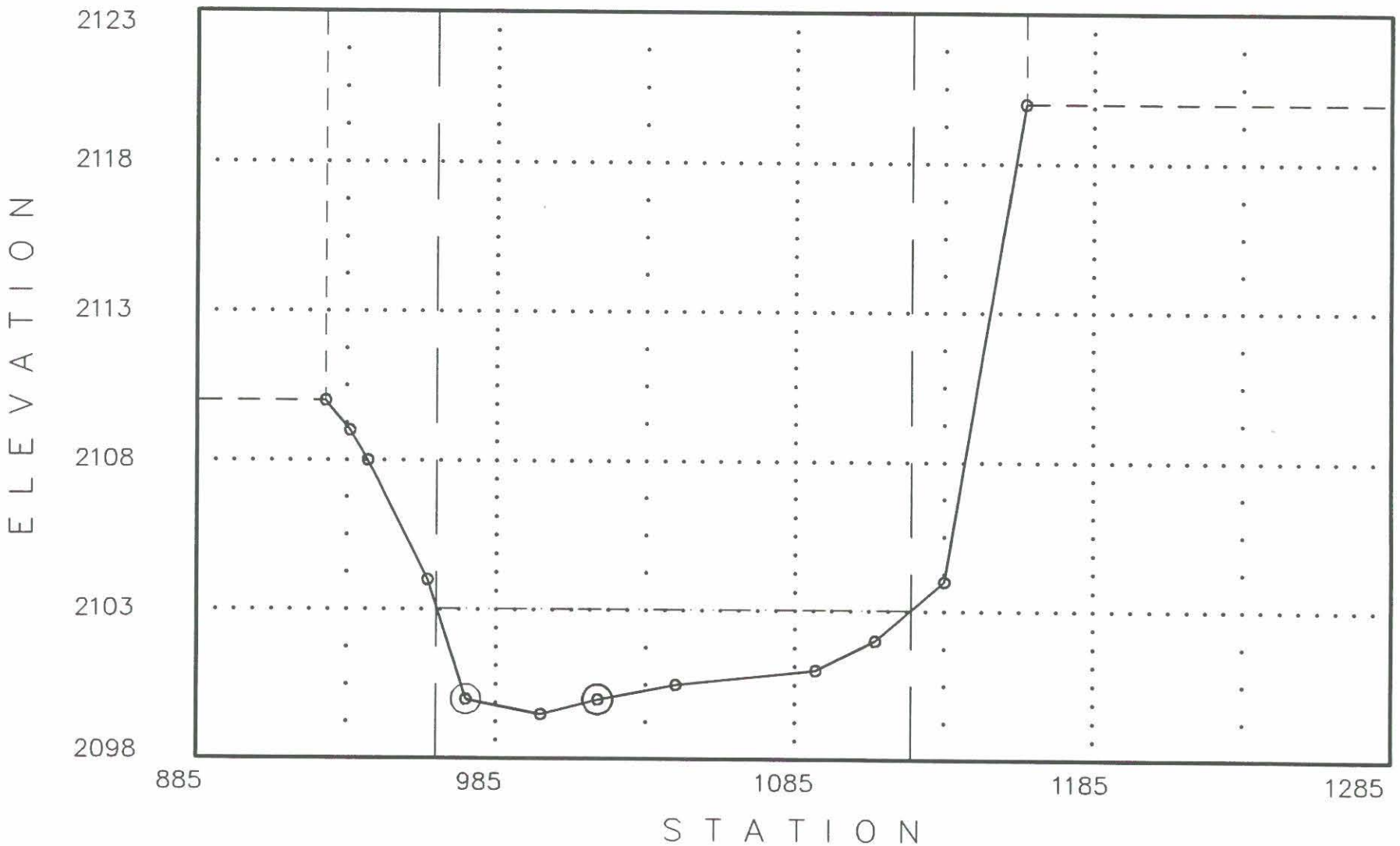
11-18-1992

<<<<<< Cross Section: 1.298: (FN = WASHW.O) >>>>>>

Q1= 2480 WS1= 2103.03

Q2= 2480 WS2= 2103.04

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

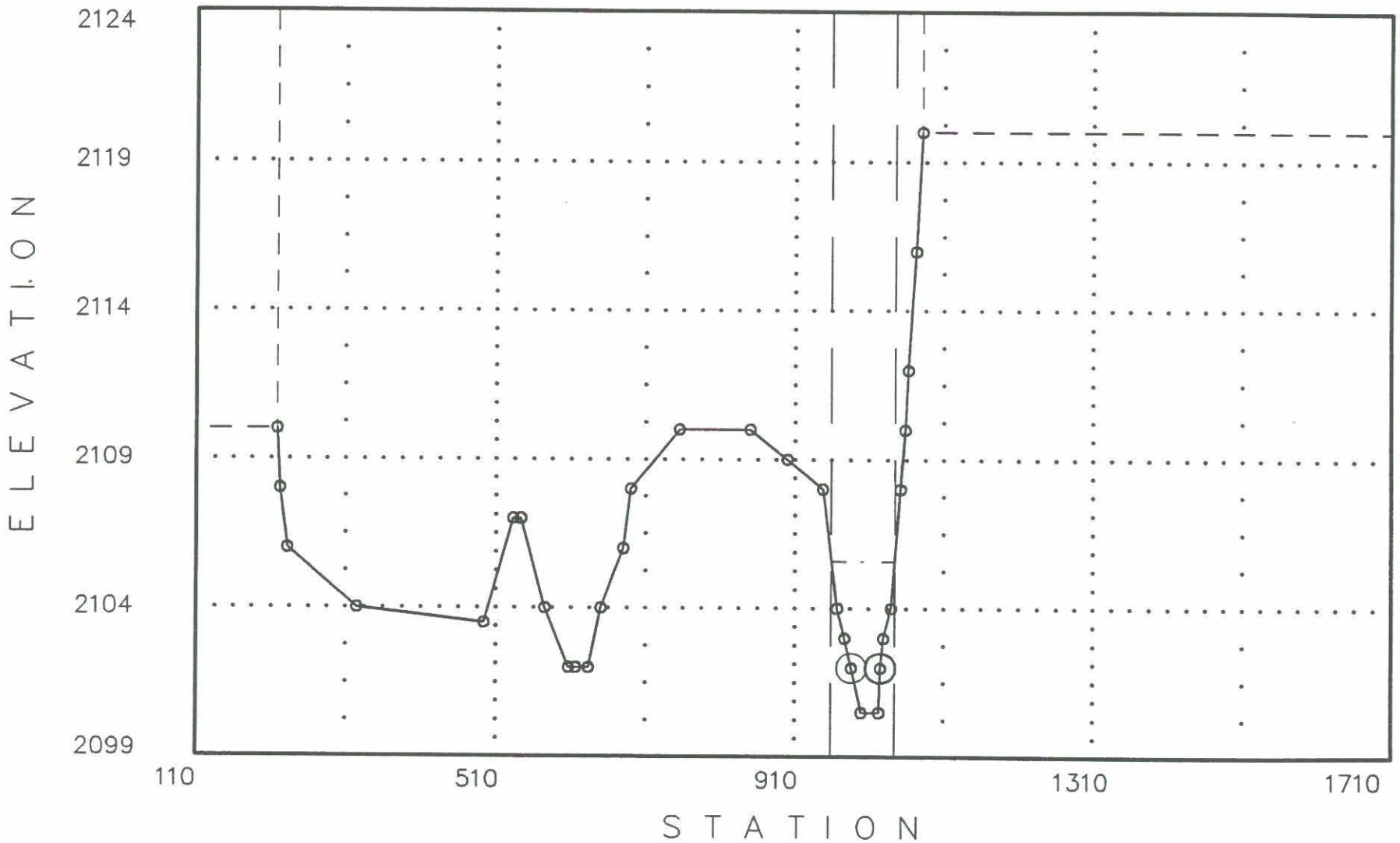


11-18-1992

<<<<<< Cross Section: 1.322: (FN = WASHW.O) >>>>>>

Q1= 2480 WS1= 2105.59
Q2= 2480 WS2= 2105.59

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

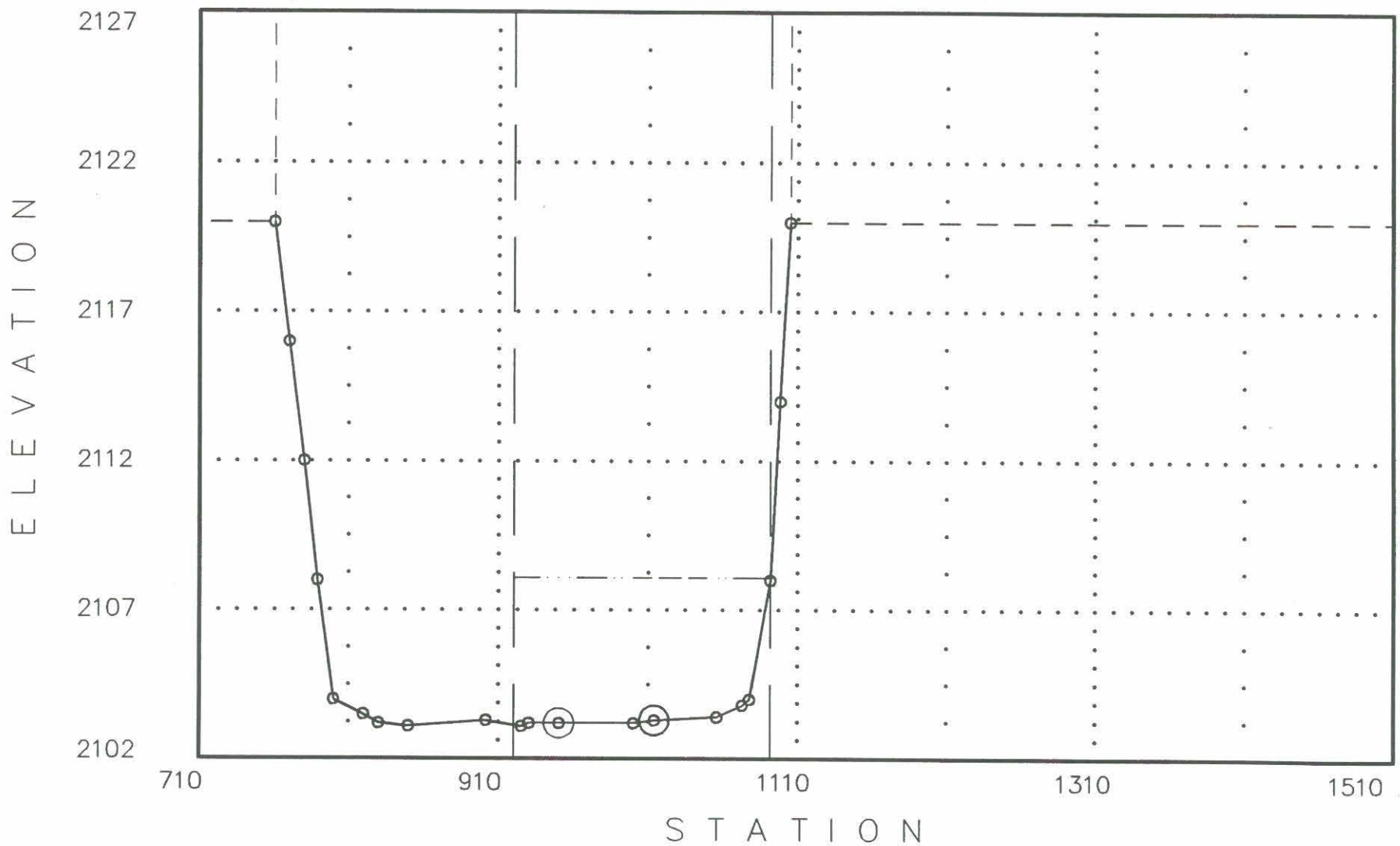


11-18-1992

<<<<<< Cross Section: 1.365: (FN = WASHW.O) >>>>>>

Q1= 4683 WS1= 2108.08
Q2= 4683 WS2= 2108.08

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

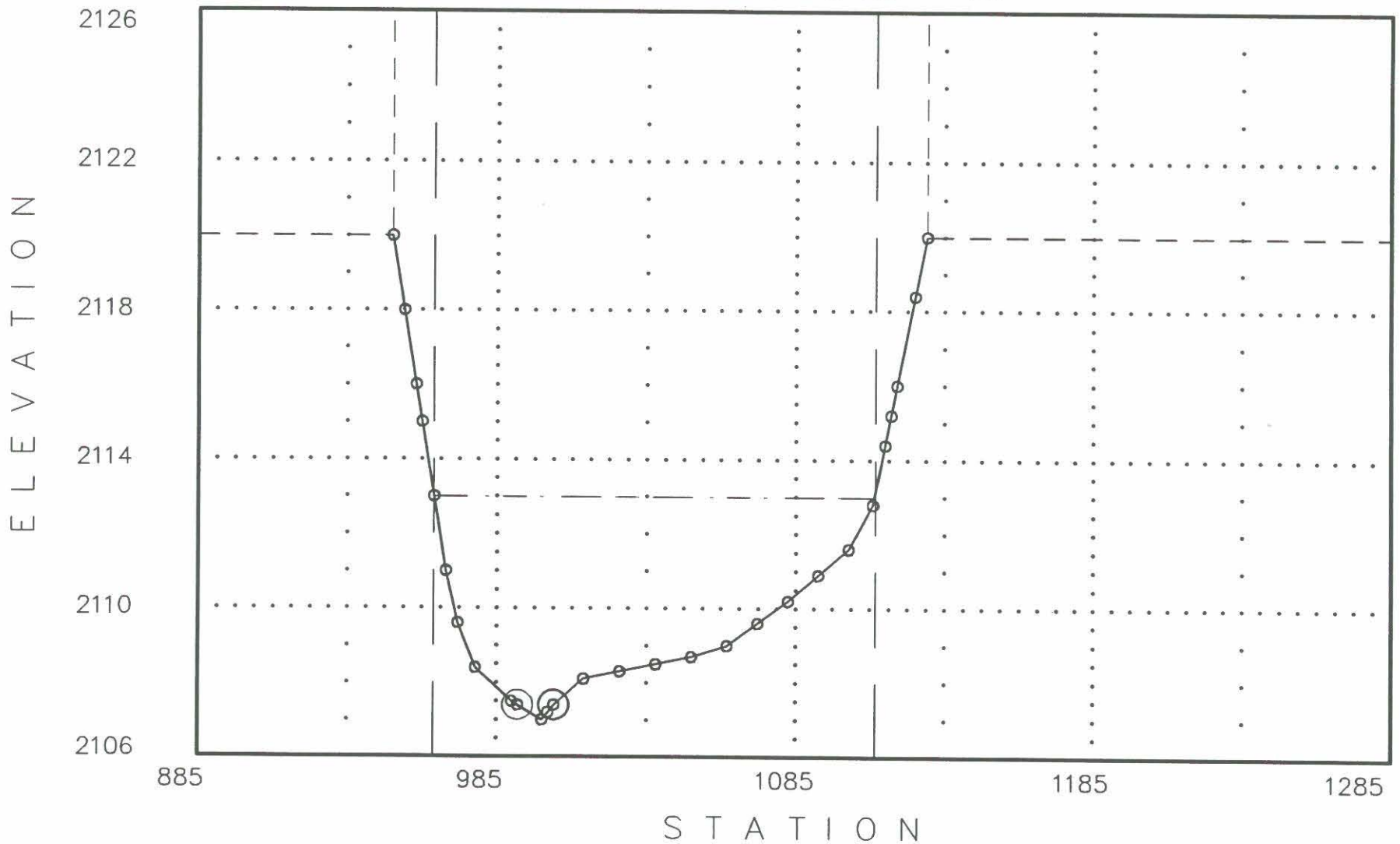


11-16-1992

<<<<<< Cross Section: 1.409: (FN = WASHW.O) >>>>>>

Q1= 4683 WS1= 2112.99
Q2= 4683 WS2= 2112.99

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

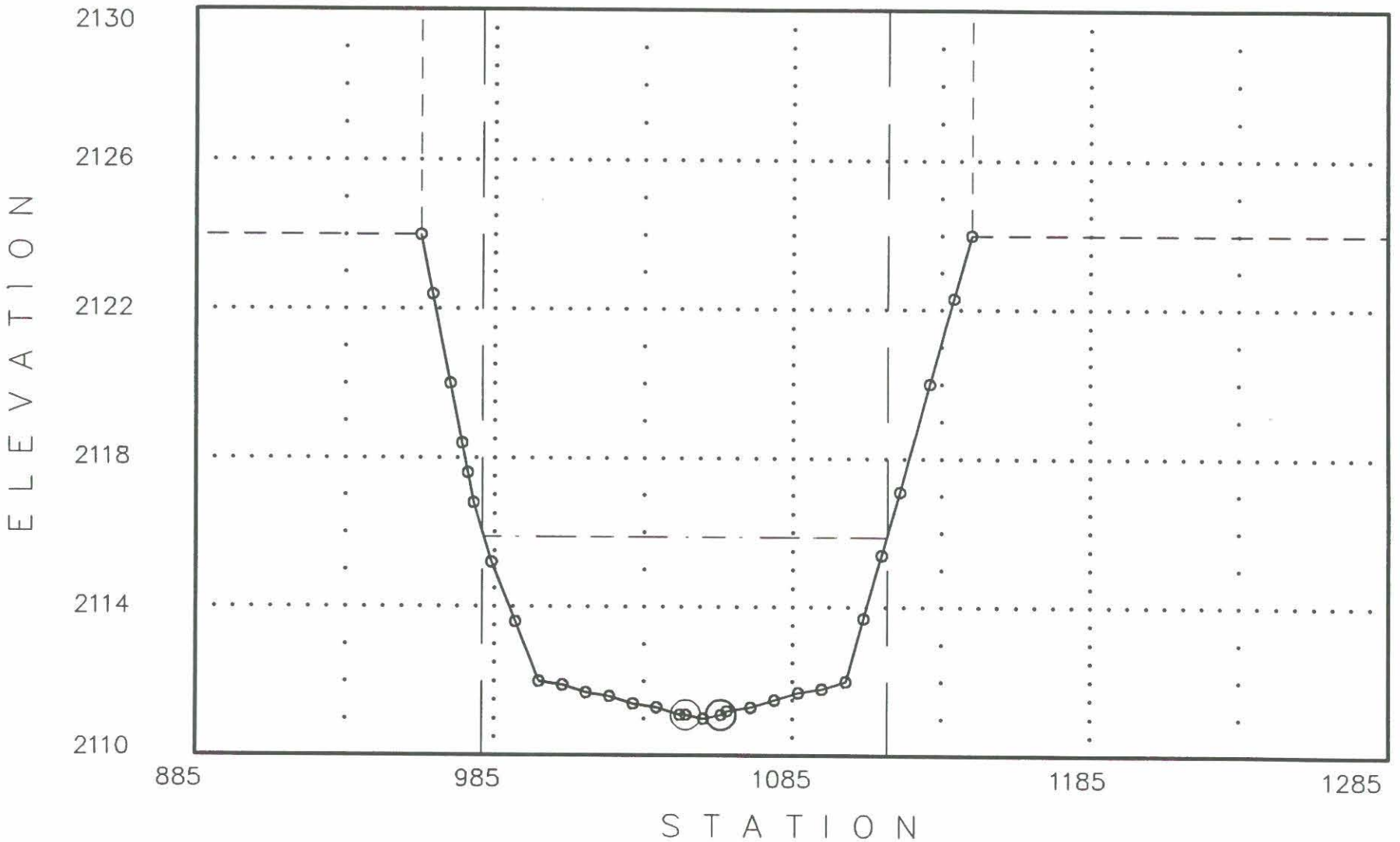


11-16-1992

<<<<<< Cross Section: 1.432: (FN = WASHW.O) >>>>>>

Q1= 4683 WS1= 2115.88
Q2= 4683 WS2= 2115.89

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

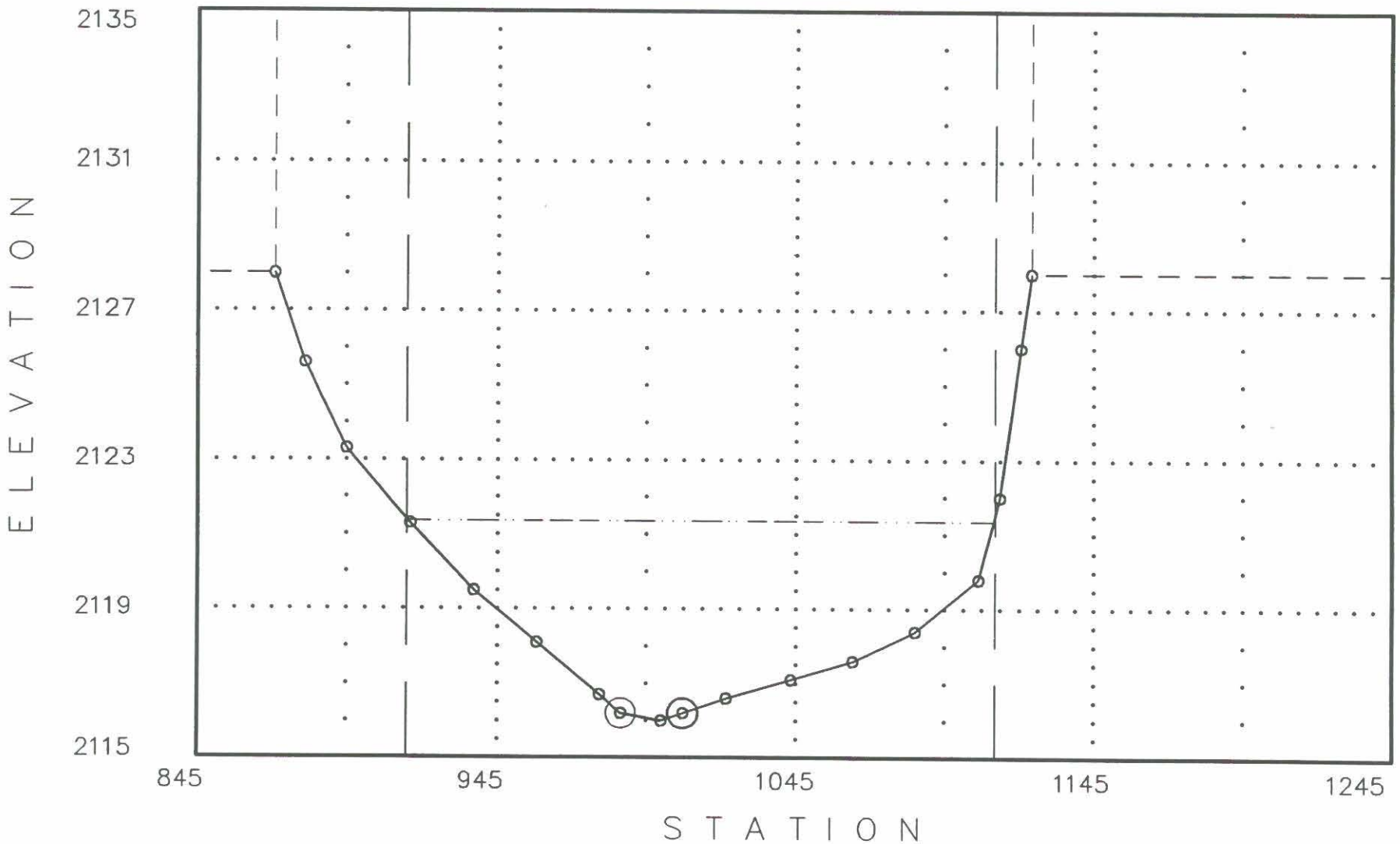


11-18-1992

<<<<<< Cross Section: 1.495: (FN = WASHW.O) >>>>>>

Q1= 4683 WS1= 2121.37
Q2= 4683 WS2= 2121.37

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

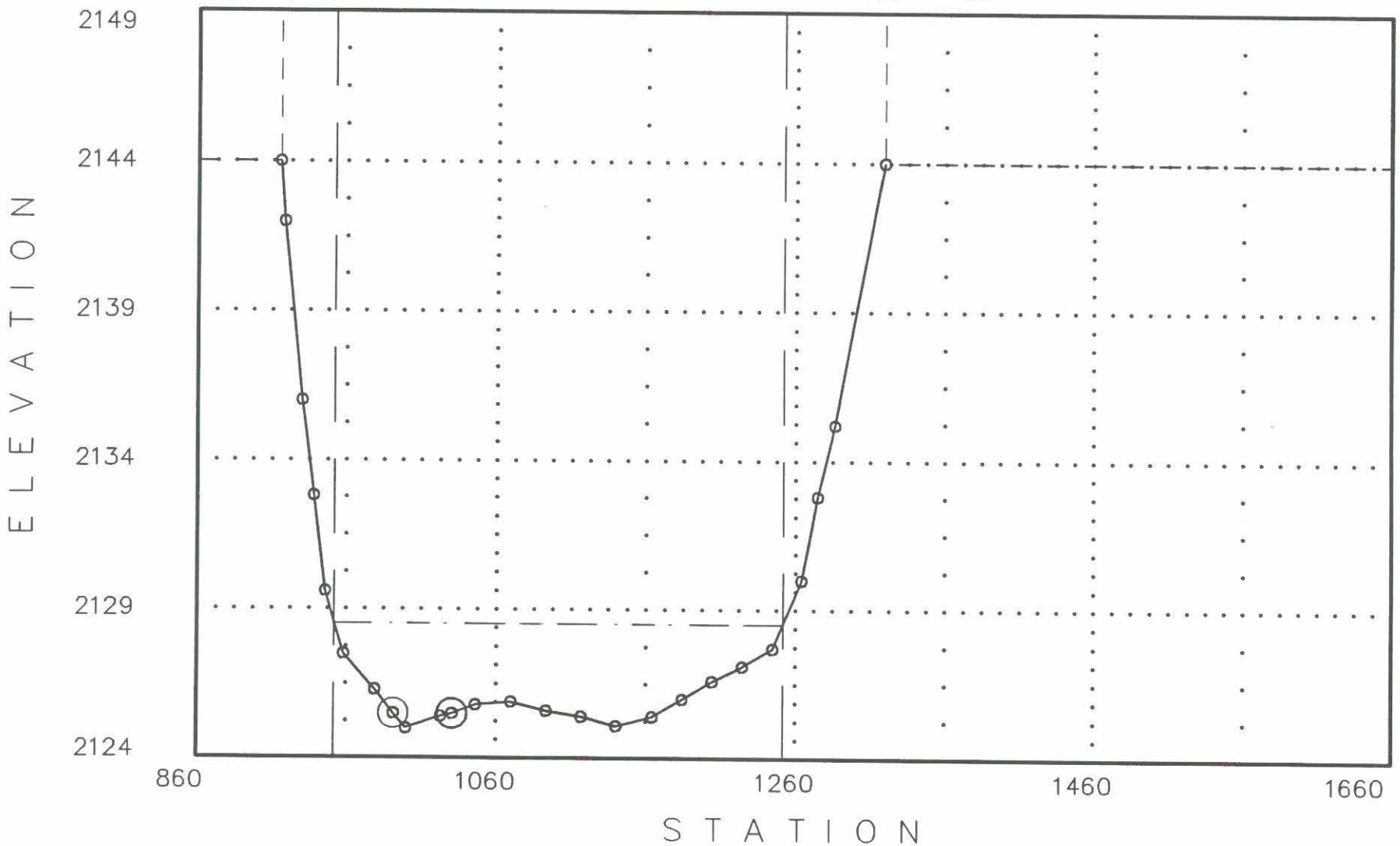


11-18-1992

<<<<<< Cross Section: 1.593: (FN = WASHW.0) >>>>>>

Q1= 4683 WS1= 2128.51
Q2= 4683 WS2= 2128.51

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



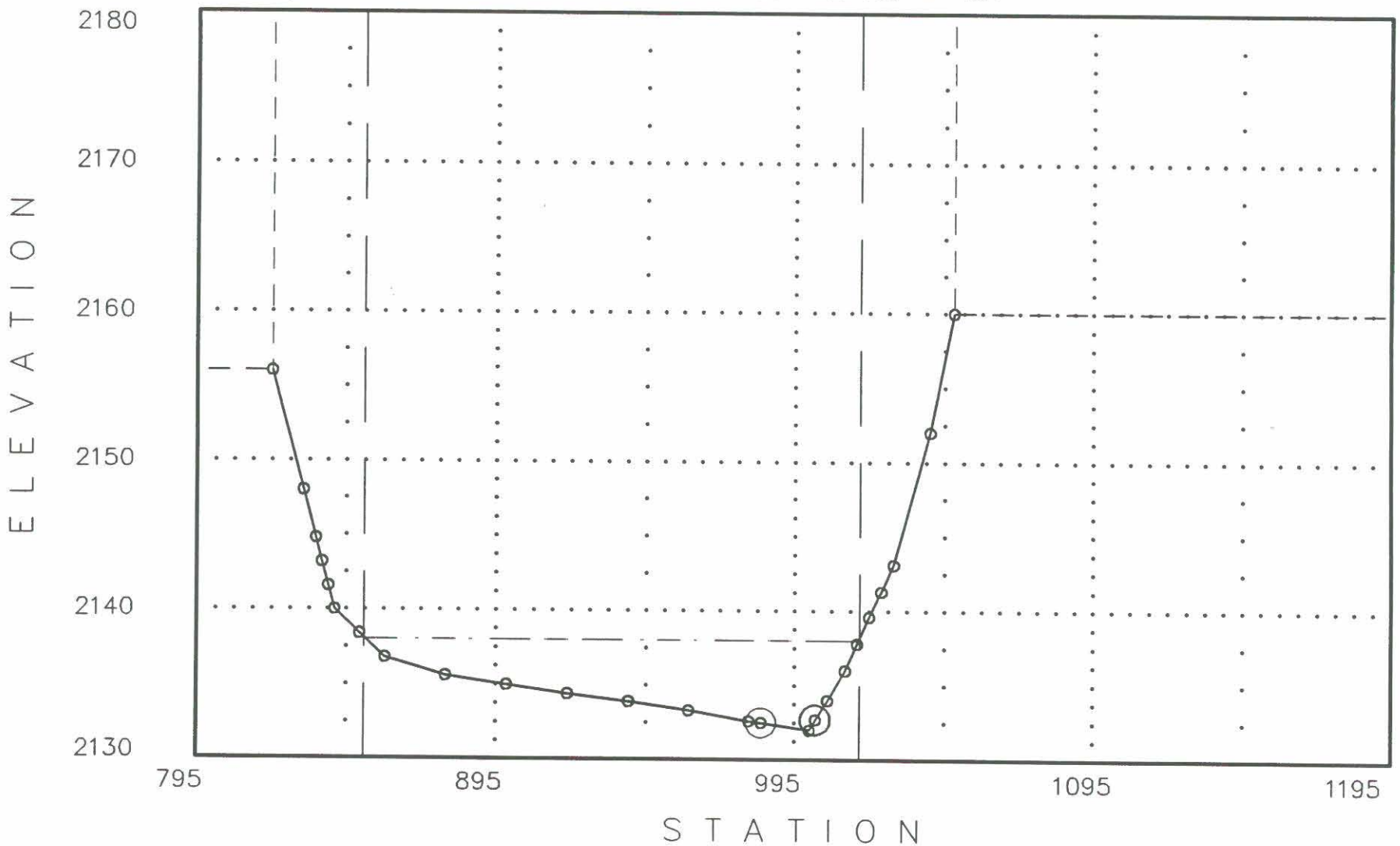
11-18-1992

<<<<<< Cross Section: 1.682: (FN = WASHW.O) >>>>>>

Q1= 4589 WS1= 2138.03

Q2= 4589 WS2= 2138.03

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

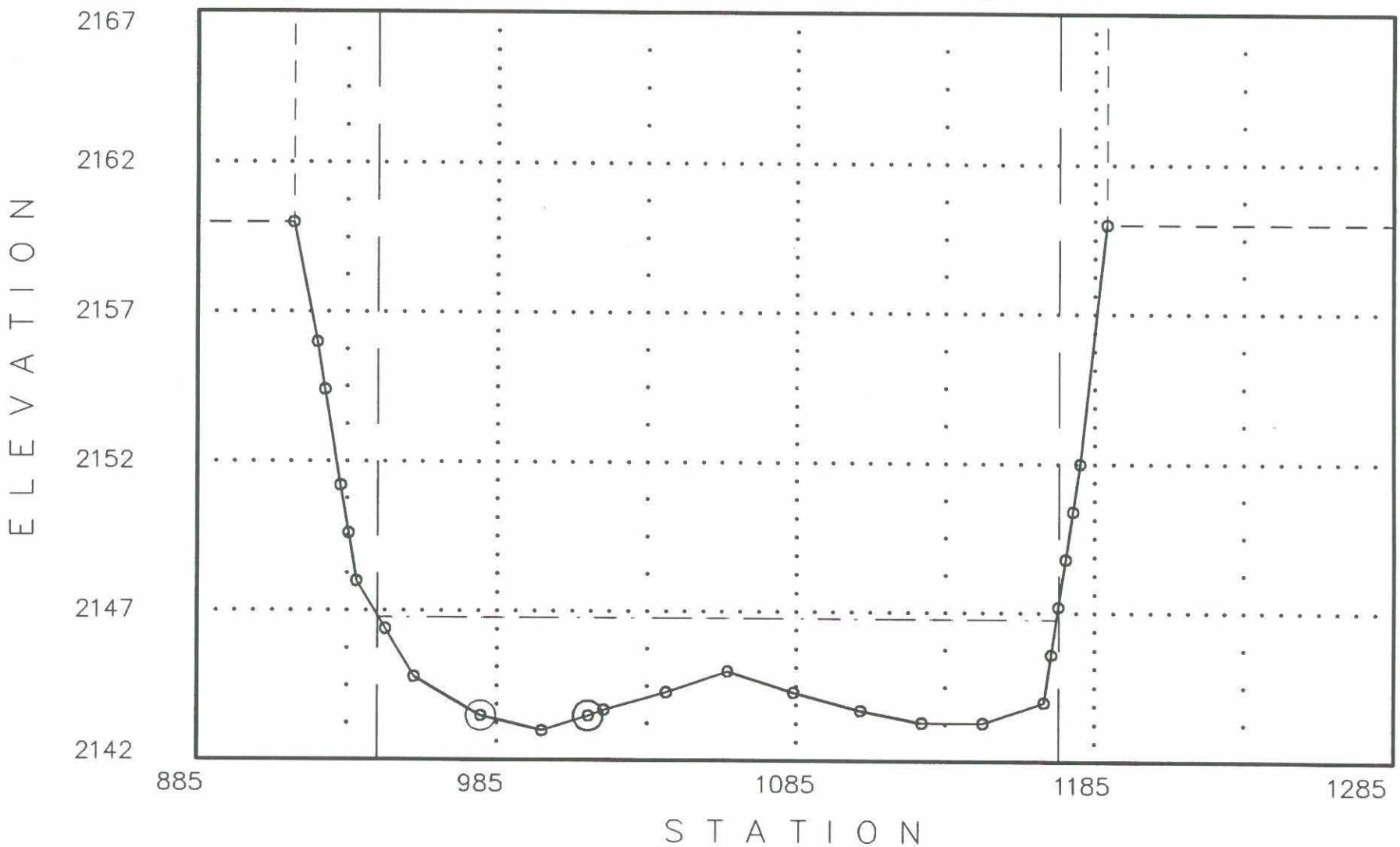


11-18-1992

<<<<<< Cross Section: 1.776: (FN = WASHW.O) >>>>>>

Q1= 4589 WS1= 2146.78
Q2= 4589 WS2= 2146.79

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

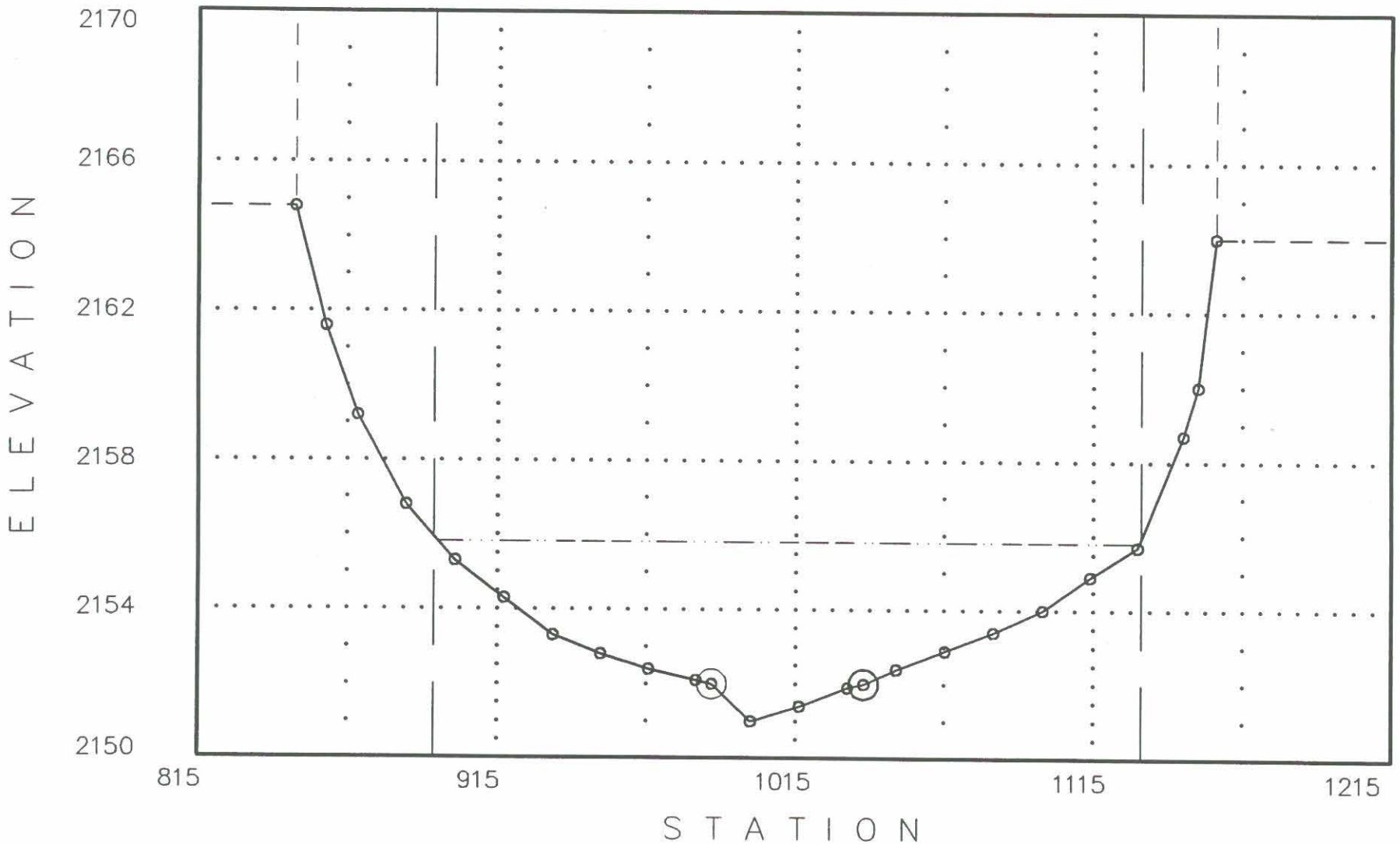


11-18-1992

<<<<<< Cross Section: 1.868: (FN = WASHW.O) >>>>>>

Q1= 4459 WS1= 2155.82
Q2= 4459 WS2= 2155.82

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



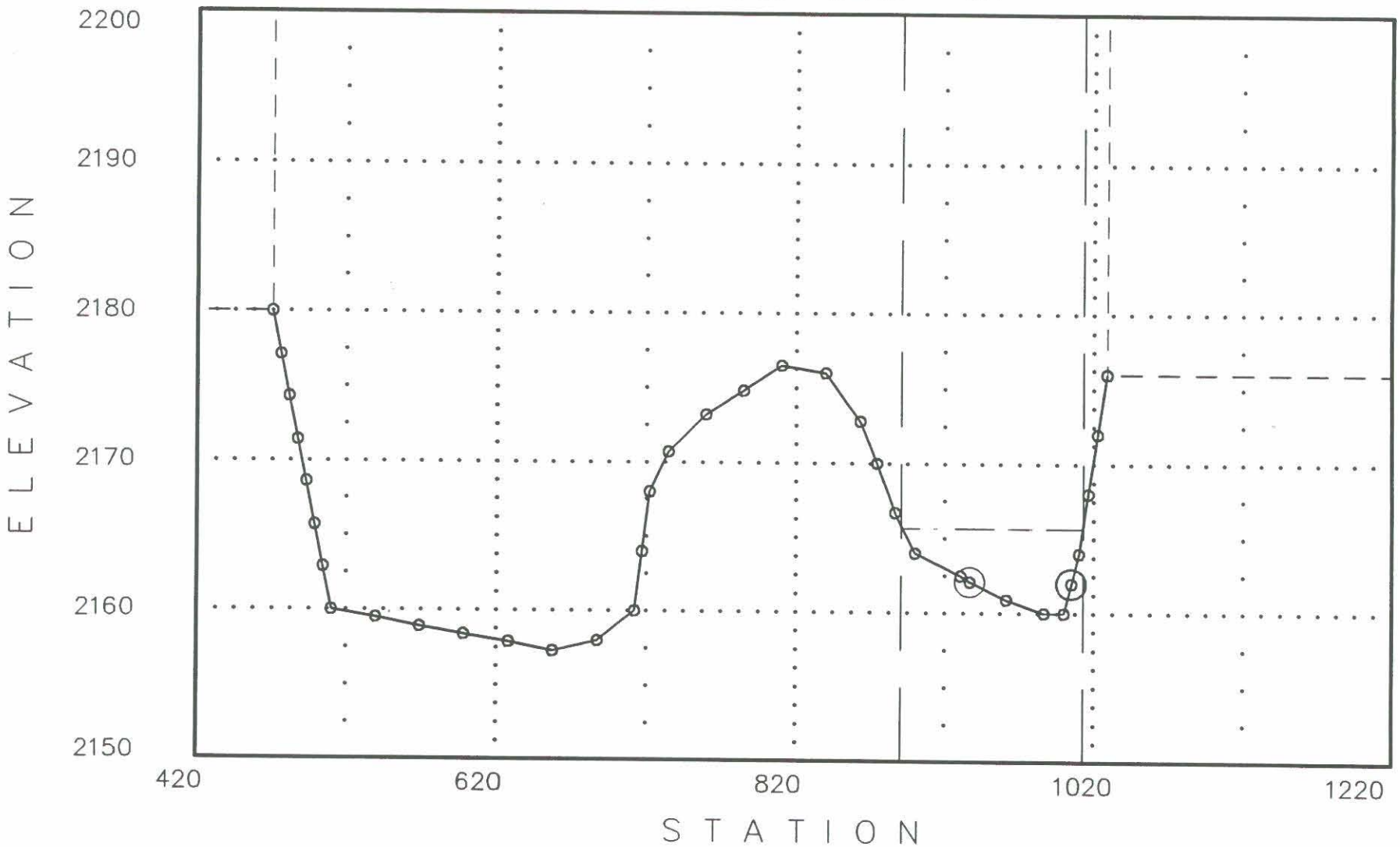
11-18-1992

<<<<<< Cross Section: 1.954: (FN = WASHW.O) >>>>>>

Q1= 4459 WS1= 2165.68

Q2= 4459 WS2= 2165.68

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



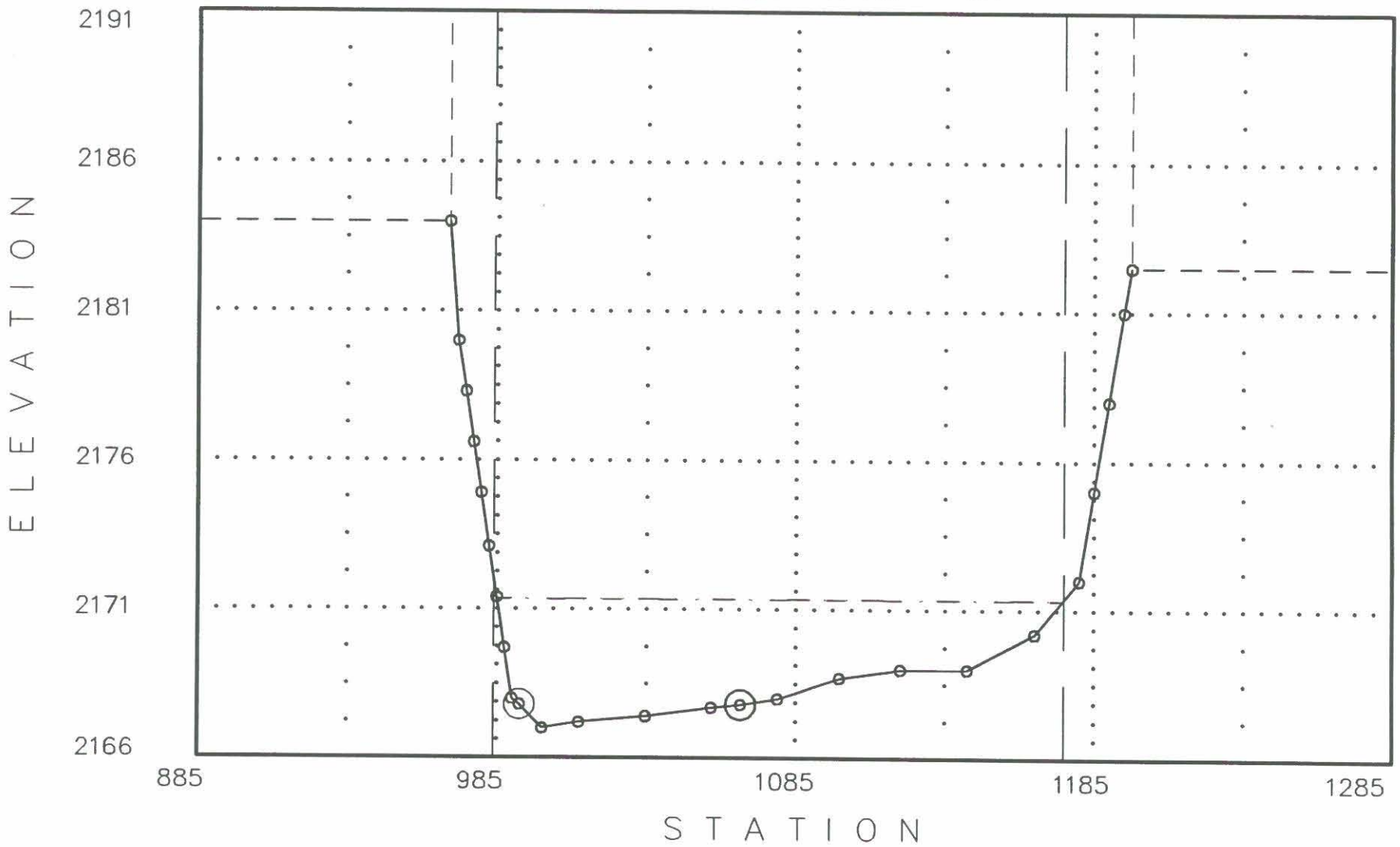
11-18-1992

<<<<<< Cross Section: 2.029: (FN = WASHW.O) >>>>>>

Q1= 4412 WS1= 2171.34

Q2= 4412 WS2= 2171.35

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

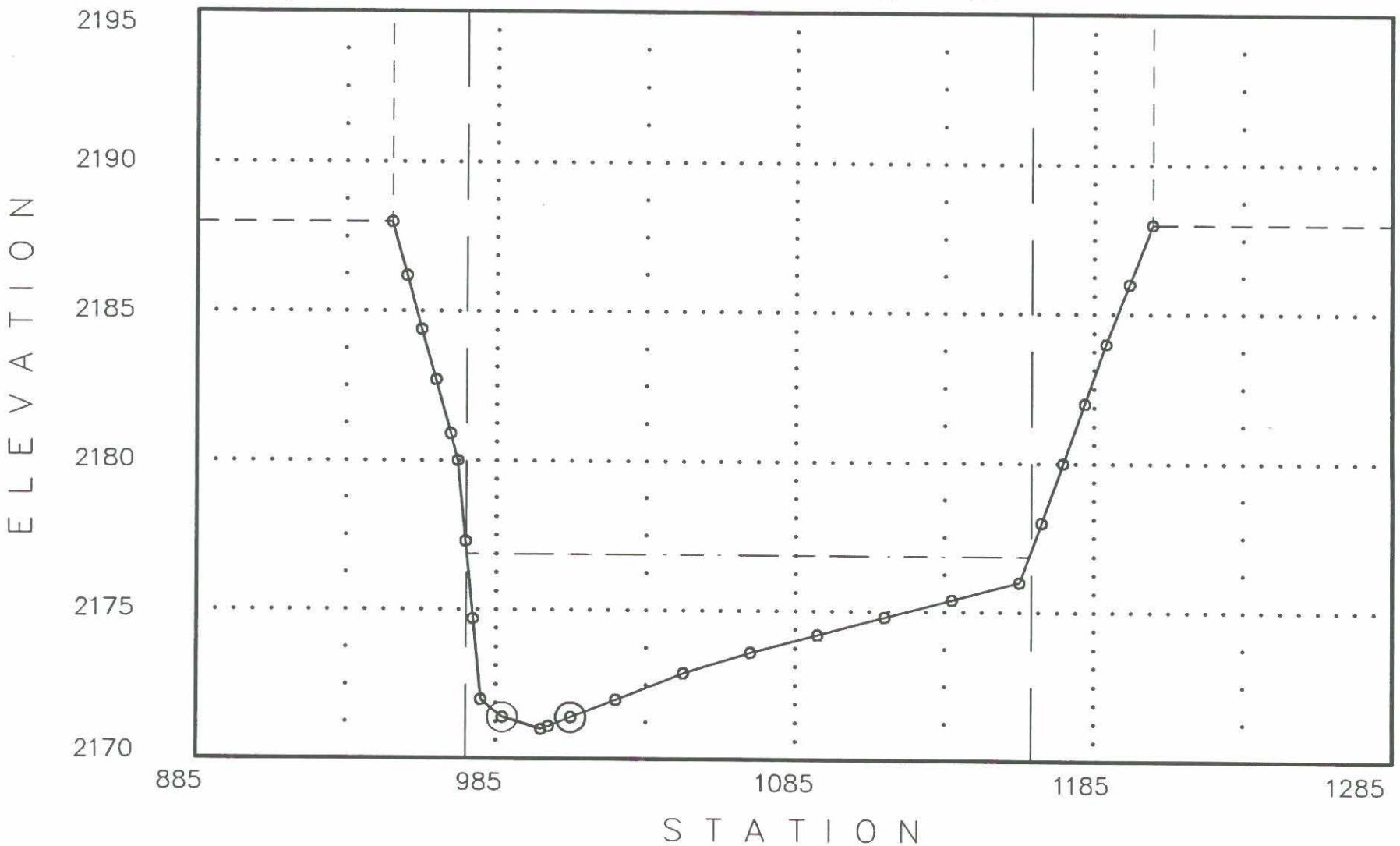


11-18-1992

<<<<<< Cross Section: 2.07: (FN = WASHW.O) >>>>>>

Q1= 4412 WS1= 2176.87
Q2= 4412 WS2= 2176.87

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



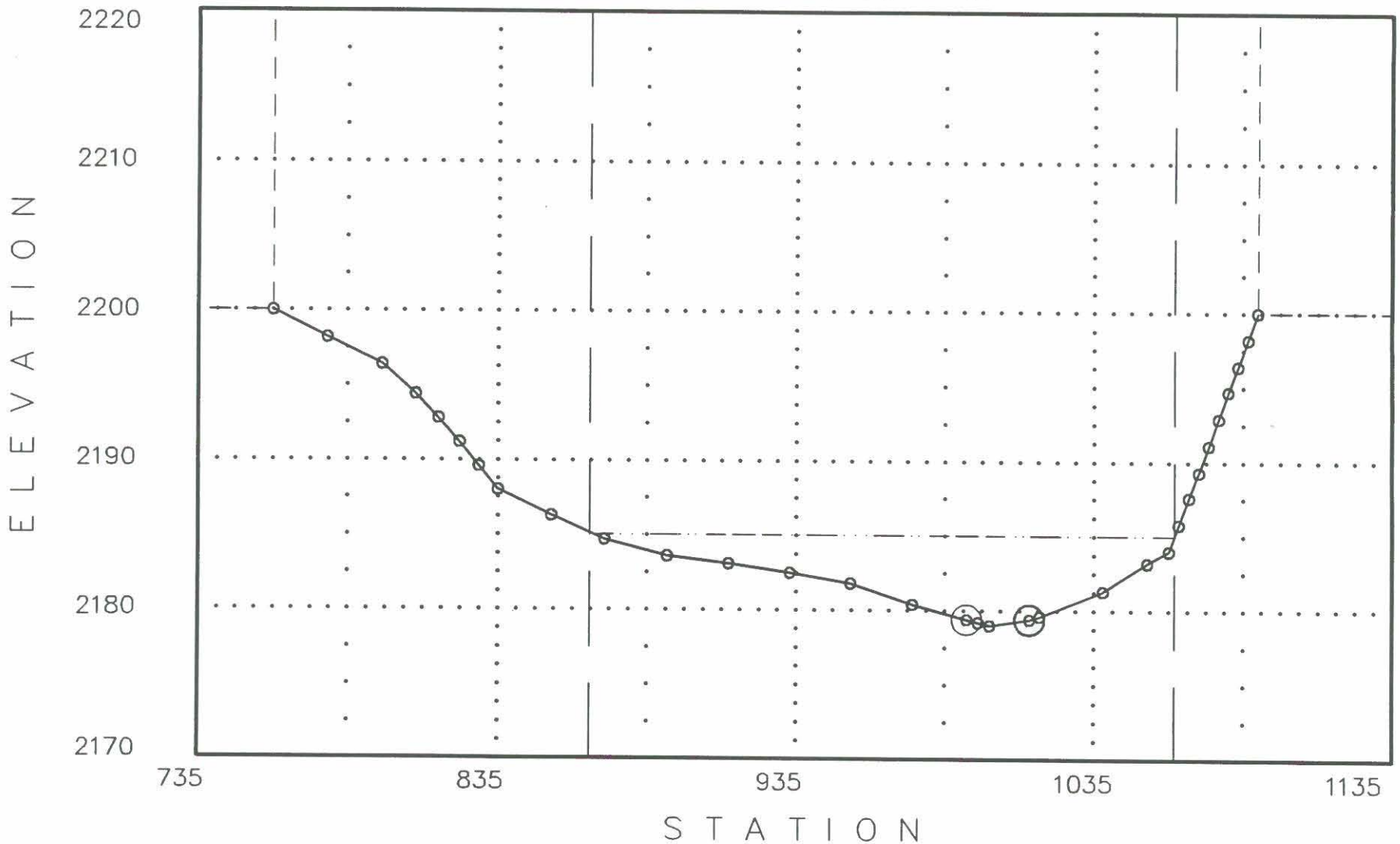
11-18-1992

<<<<<< Cross Section: 2.163: (FN = WASHW.O) >>>>>>

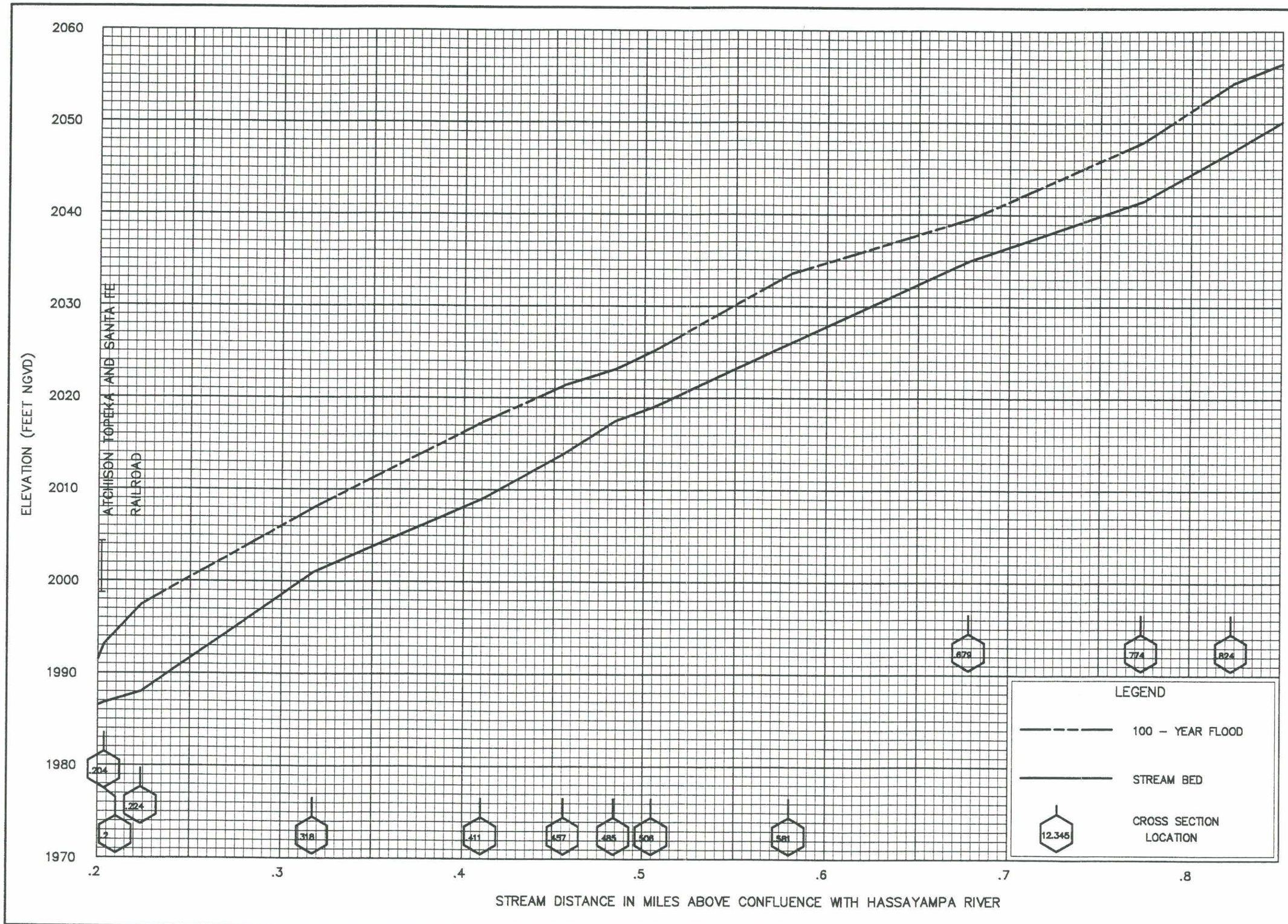
Q1= 4412 WS1= 2185.05

Q2= 4412 WS2= 2185.05

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



11-18-1992

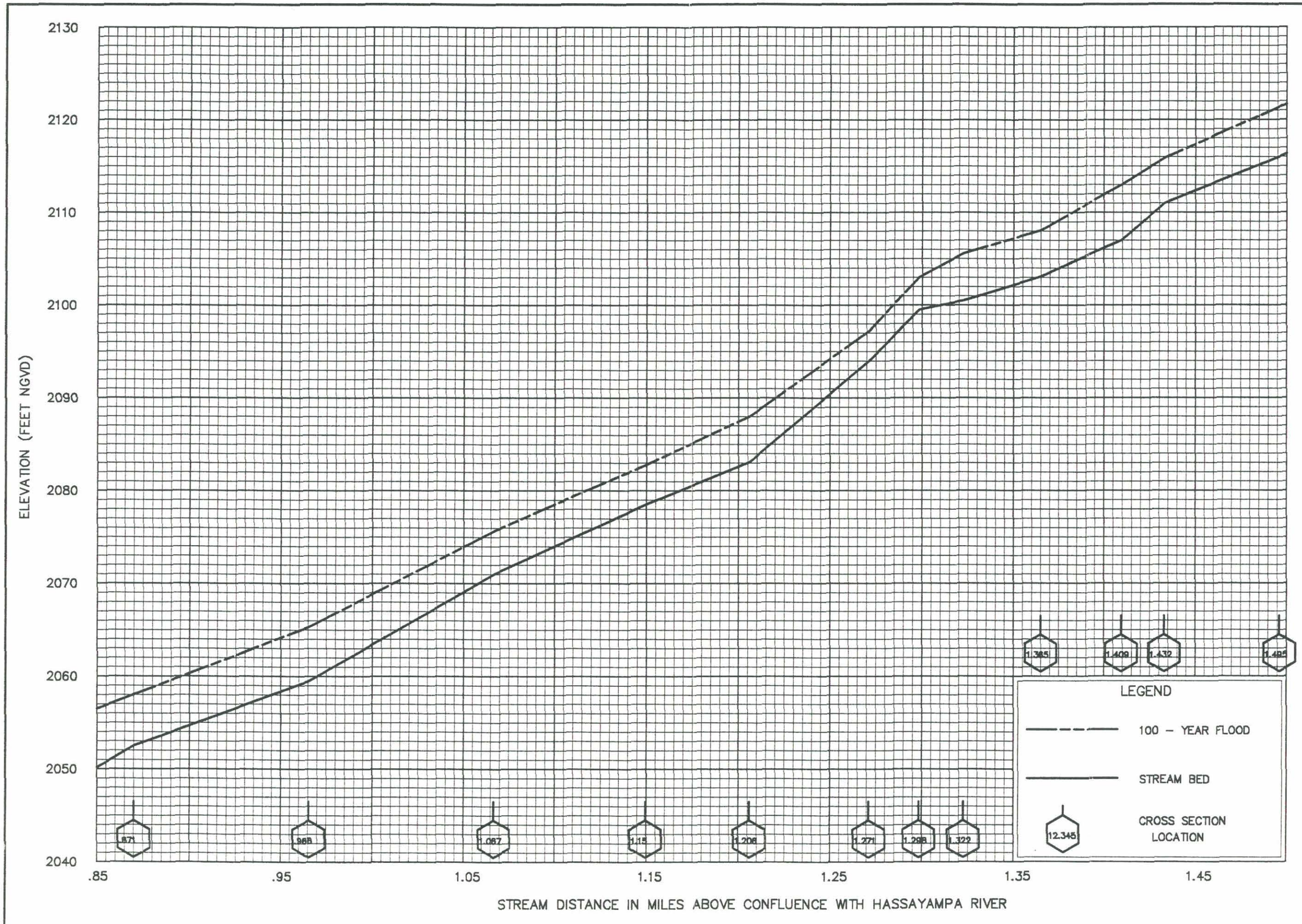


FLOOD PROFILES

TURTLE BACK WASH (WASH W)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

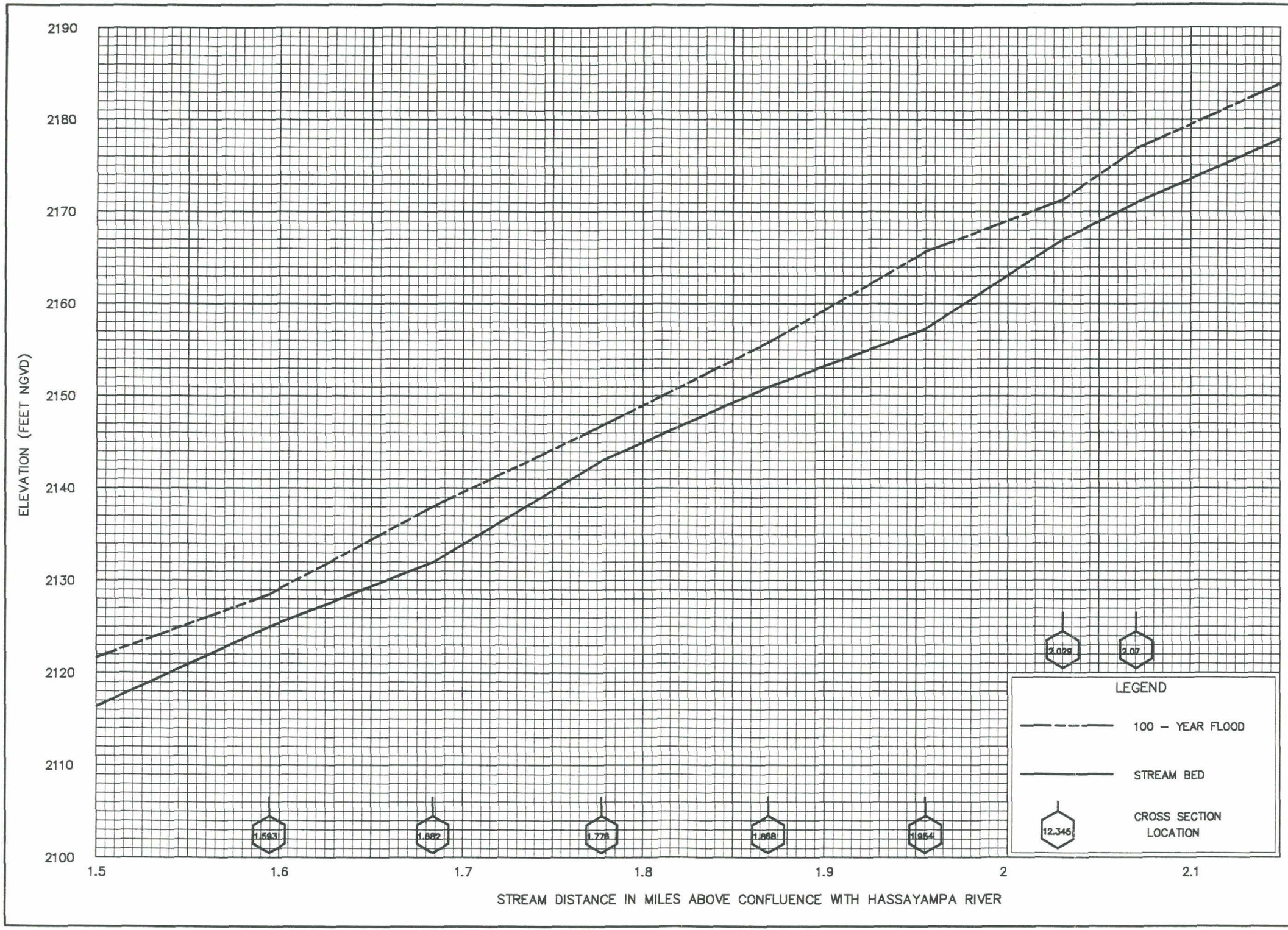


FLOOD PROFILES

TURTLE BACK WASH (WASH W)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

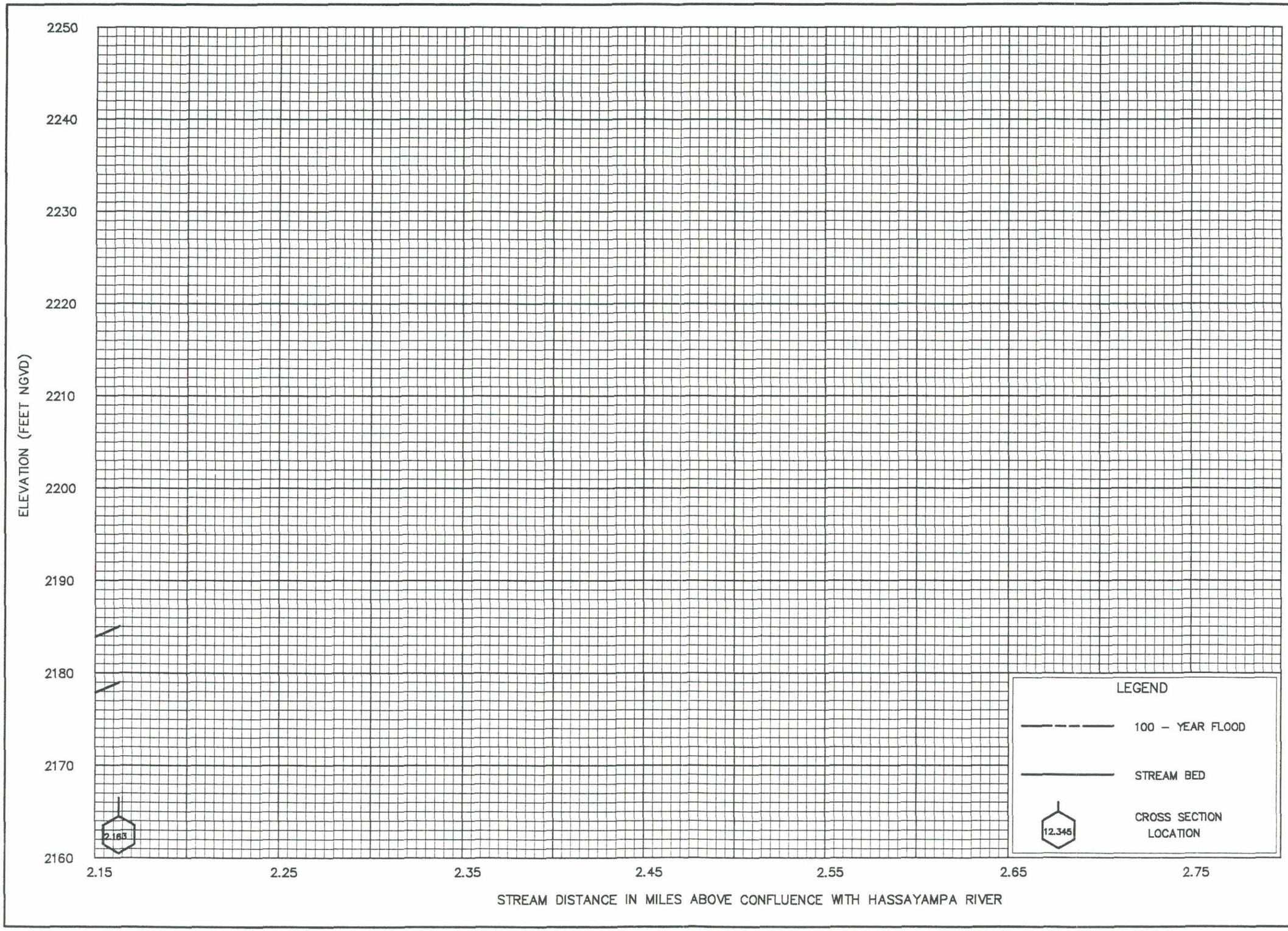


FLOOD PROFILES

TURTLE BACK WASH (WASH W)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



FLOOD PROFILES

TURTLE BACK WASH (WASH W)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

Appendix 5.4: HEC-2 Models & Cross Section Plots for West Area Wash SUNSET WASH (Wash ad)

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

N:\1187\02\ADMIN\119702RP.063

May 1994

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AD: Sunset Wash
(One form for each flooding source)

Project Name /Identifier: Wickenburg ADMS FCD 89-79

1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)
☒ Detailed study stream (briefly explain methodology) HEC-1 analysis based on Flood Control District of Maricopa County Methodologies.

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis
☐ Improved data *(see data revision on page 3)*
☐ Changed physical conditions of watershed *(explain)*

☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*

☐ Evaluation of proposed conditions (CLOMRs only) (explain)

☒ Other No existing analysis or analysis being updated to reflect existing conditions.

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Flood Control District of Maricopa County)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

4. REVIEW OF RESULTS

Stream: _____

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
Confluence with Hassayampa River	2.46 Sq. mi.	—	600 cfs

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

No existing analysis or updated analysis to reflect existing conditions.

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

NA

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
NA	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records *(use Attachment A)*

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

Gaging Station: NA

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data		
Systematic		
Historical		
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers		
Low outliers		
Zero events		
5. Generalized skew		
6. Station skew		
7. Adopted skew		
8. Probability distribution used (justify if log-Pearson III was not used)		
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:
NA

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
.	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:		HEC-1
	Version:		Ver. 3.0
	Date:		02 AUG. 88
2.	Source of rainfall depth:		NOAA Atlas 2
3.	Source of rainfall distribution:		SCS TYPE II
4.	Rainfall duration:		24 hours
5.	Areal adjustment to precipitation (%):		NWS HYDRO-40
6.	Hydrograph development method:		S-Graph
7.	Loss rate method:		Green-AMPT
	Source of soils information:		SCS
	Source of land use information		Town of Wickenburg
8.	Channel routing method:		Normal Depth
9.	Reservoir routing:	☐ Yes ☐ No	☒ Yes ☐ No
10.	Baseflow considerations:	☐ Yes ☐ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

11.	Snowmelt considerations:	☐ Yes ☐ No	☐ Yes ☒ No
12.	Model calibration:	☐ Yes ☐ No	☒ Yes ☐ No

If yes, explain how calibration was performed Computed discharges were compared with DISCHARGE vs DRAINAGE AREA curves and envelopes prepared by the Flood Control District of Maricopa County.

13. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

ATTACHMENT D: CONFIDENCE LIMITS EVALUATION

Stream: NA - No flow records

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

Appendix # 5.4

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE HYDRAULIC ANALYSIS FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

blic reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the .ne 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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AD : Sunset Wash
(One form for each flooding source)

Project Name/Identifier: Wickenburg ADMS - FCD 89-79

1. REACH TO BE REVISED

Downstream limit: Station 0.216

Upstream limit: Station 1.206

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study _____

Upstream limit of study _____

☒ Studied by detailed methods

Downstream limit of study Confluence with Hassayampa River

Upstream limit of study Station 1.206

☐ Floodway delineated

Downstream limit of Floodway _____

Upstream limit of Floodway _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain: _____

☐ Improved hydraulic analysis. Explain: _____

☐ Flood control structure. Explain: _____

☐ Other. Explain: _____

3. RIVERINE HYDRAULIC ANALYSIS FORM
Models Submitted

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model *(e.g. duplicate effective model to corrected effective model)*. Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation. For areas which do not have detailed flooding, a hydraulic model is not required; however BFE's may not be added to the revised FIRM.

☐ Duplicate Effective Model — Natural ☐ Floodway ☐

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 requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor'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.

☐ Corrected Effective Model — Natural ☐ Floodway ☐

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 corrected 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.

☐ Existing or Pre-Project Conditions Model — Natural ☐ Floodway ☐

The duplicate effective or corrected 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 or duplicate effective model.

☐ Revised or Post-Project Conditions Model — Natural ☐ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective 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 proposed project this model should reflect proposed conditions.

☒ Other: Please attach a sheet describing all other models or calculations submitted. — Natural ☒ Floodway ☒

New Model (Proposed Effective Model)

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

Discharges:	Upstream Limit	Downstream Limit
10-year	16 cfs	271 cfs
50-year	27 cfs	506 cfs
100-year	32 cfs	600 cfs
500-year	—	—

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevations determined by the slope-area method.

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... 0.015 ~ 0.035

Overbanks ..... 0.055 ~ 0.070

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined (*e.g., field survey, topographic map, taken from previous study*) and list cross sections that were added.

Data points for cross-sections are based on photogrammetric models for the topographic maps.

5. Explain how reach lengths for channel and overbanks were determined:

All reach lengths were measured from floodplain work maps.

5. RESULTS (from model used to revise 100-year water surface elevations)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ☐ Yes ☒ No

b. Supercritical depth? ☐ Yes ☒ No

c. Critical depth? ☒ Yes ☐ No

d. Other unique situations ☐ Yes ☐ No

If yes, special problems report attached.

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? 0.00825 ft/ft

Specify location 0.578

3. What is the distance between the cross-sections in 2 above? 108 ft

Specify location 0.598

4. What is the maximum distance between cross-sections? 526

Specify location 1.152

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? 1.0 foot

b. What is the maximum surcharge for the revised conditions? 0.4 foot

Specify location 0.862

c. What is the maximum velocity? 11.12 fps

Specify location 0.568

Explain:

d. Are there any negeative surcharge values at any cross-section ☒ Yes ☐ No

If yes, the floodway may need to widen. If it is not widened, please explain and indicate the maximum negative surcharge. Negative surcharge of -0.2 ft due to culvert computation of the immediate downstream station. The box culvert does not have the capacity to handle the peak discharge.

Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☐ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases.

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet and upstream of the project at cross section_____within_____feet.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet and upstream of the project at cross section_____ within_____feet.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

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

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Unincorporated Maricopa County / Town of Wickenburg	Wash AD: Sunset Wash	Wickenburg ADMS-FCD 89-79

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

New Model- See following Floodway Data Table

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet ___ of ___

FLOODWAY DATA, WASH AD: SUNSET WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
50.940	513.	207.	2.9	2023.8	2023.8	.0
.216	58.	93.	6.5	2037.5	2037.5	.0
.261	50.	126.	4.8	2039.4	2039.4	.0
.292	53.	122.	4.9	2040.3	2040.3	.0
.296	53.	115.	5.2	2040.5	2040.5	.0
.321	57.	87.	6.9	2041.2	2041.2	.0
.390	59.	85.	6.8	2045.6	2045.6	.0
.473	65.	91.	6.3	2051.3	2051.3	.0
.491	126.	126.	4.6	2052.7	2052.7	.0
.534	57.	91.	6.0	2055.8	2055.8	.0
.568	27.	74.	7.3	2058.1	2058.1	.0
.569	65.	119.	4.6	2060.4	2060.4	.0
.578	130.	259.	2.1	2061.3	2061.3	.0
.598	48.	77.	7.0	2061.2	2061.4	-.2
.639	40.	103.	5.1	2063.1	2062.8	.3
.672	41.	83.	6.3	2063.8	2063.8	.0
.681	46.	74.	7.1	2066.0	2066.0	.0
.693	98.	117.	4.5	2066.9	2066.9	.0
.704	120.	405.	1.3	2070.0	2070.0	.0
.705	121.	383.	1.4	2070.1	2070.1	.0
.721	70.	157.	3.4	2070.0	2070.1	-.1
.762	68.	96.	5.0	2070.8	2070.8	.0
.763	112.	112.	4.3	2071.6	2071.6	.0
.765	137.	128.	3.7	2072.3	2072.3	.0
.798	52.	90.	5.4	2074.9	2074.9	.0
.862	39.	73.	4.6	2078.0	2077.6	.4
.913	328.	210.	1.6	2079.9	2079.7	.2
.957	38.	47.	6.4	2085.0	2085.0	.0
1.053	28.	28.	4.8	2093.5	2093.5	.0
1.152	27.	10.	3.3	2101.7	2101.7	.0
1.206	42.	12.	2.7	2108.0	2108.0	.0
-.798	52.	75.	6.4	2074.9	2074.9	.0
.032	99.	80.	1.8	2078.9	2078.9	.0
.095	27.	24.	6.0	2084.4	2084.4	.0
.175	48.	37.	2.8	2090.4	2090.4	.0
.228	50.	28.	3.6	2095.3	2095.3	.0
.280	25.	17.	3.0	2099.6	2099.6	.0
.293	16.	11.	4.6	2103.9	2103.9	.0
.294	16.	10.	4.9	2106.9	2106.9	.0
.295	31.	123.	.4	2107.3	2107.3	.0
.313	44.	165.	.3	2107.3	2107.3	.0
.356	101.	244.	.2	2107.3	2107.3	.0

FLOODWAY DATA, WASH AD: SUNSET WASH
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.382	171.	363.	.1	2107.3	2107.3	.0
.420	50.	18.	2.7	2108.2	2108.2	.0

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE/COASTAL MAPPING FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

ublic 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.

Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash AD: Sunset Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*:

		Included		
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 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☐ Yes	☐ No	☒ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☐ Yes	☐ No	☒ N/A
I.	The requestor'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 etc.)	☒ 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 analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: No Zone A, 500-year or coastal zones revised or delineated. Revised 100-year floodplains tie into effective Hassayampa River floodplain.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? Photo: Jan. 1991 (E), Oct 1990 (W); Maps 1992

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS unknown scale unknown Contour interval
   b. Revision Request 1" = 200' scale 2' Contour interval

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

Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

Attach additional pages if needed.

5. Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's ? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

Revised detailed 100-year floodplain replaces effective zone A floodplain.

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ..... ☐ Yes ☒ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase? _____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ..... ☐ Yes ☒ No

If yes, explain:

7. If a V- zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain:

NA

8. Manual or digital map submission:

☒ Manual

☐ Digital

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 of submission as possible.

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed ☒ N/A

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

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, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

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.

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AD: Sunset Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Jackson Street
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.693 to Station 0.704
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

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

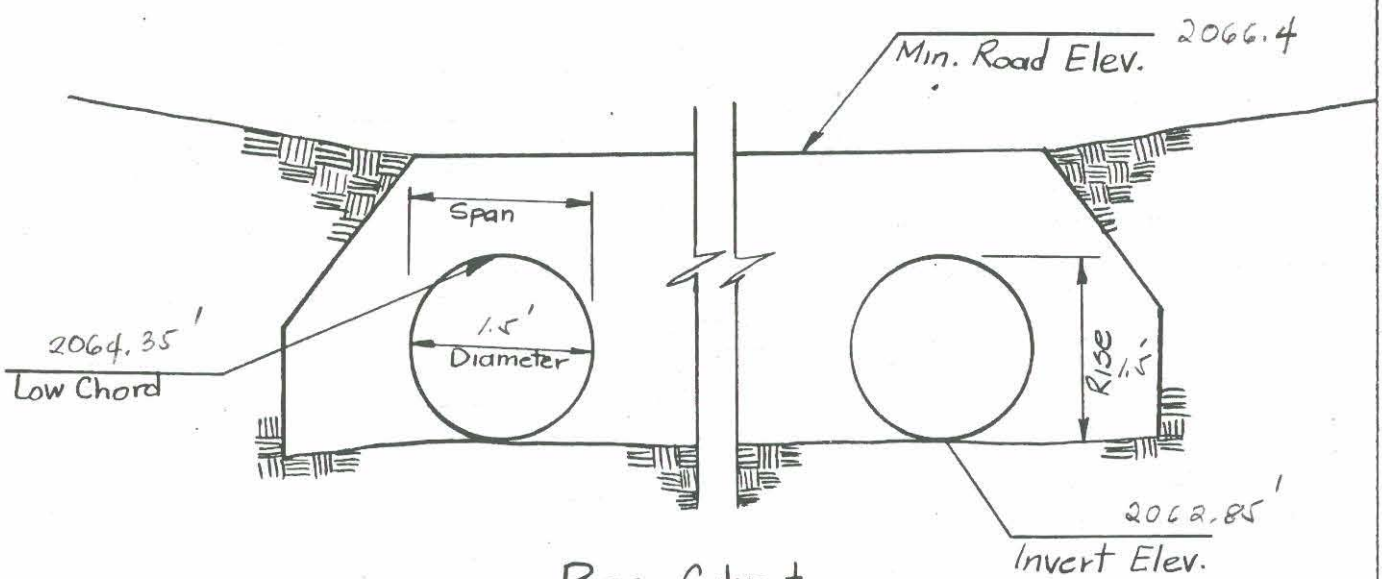
1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) three 20.4" x 15.6" Arch corrugated metal pipes. equivalent to 18" ϕ circular pipe
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Circular pipe projecting from fill
3. Hydraulic model used to analyze the structure *(e.g., HEC-2 with special bridge routine, WSPRO, HY8)* HEC-2 with Special 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)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A

* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.

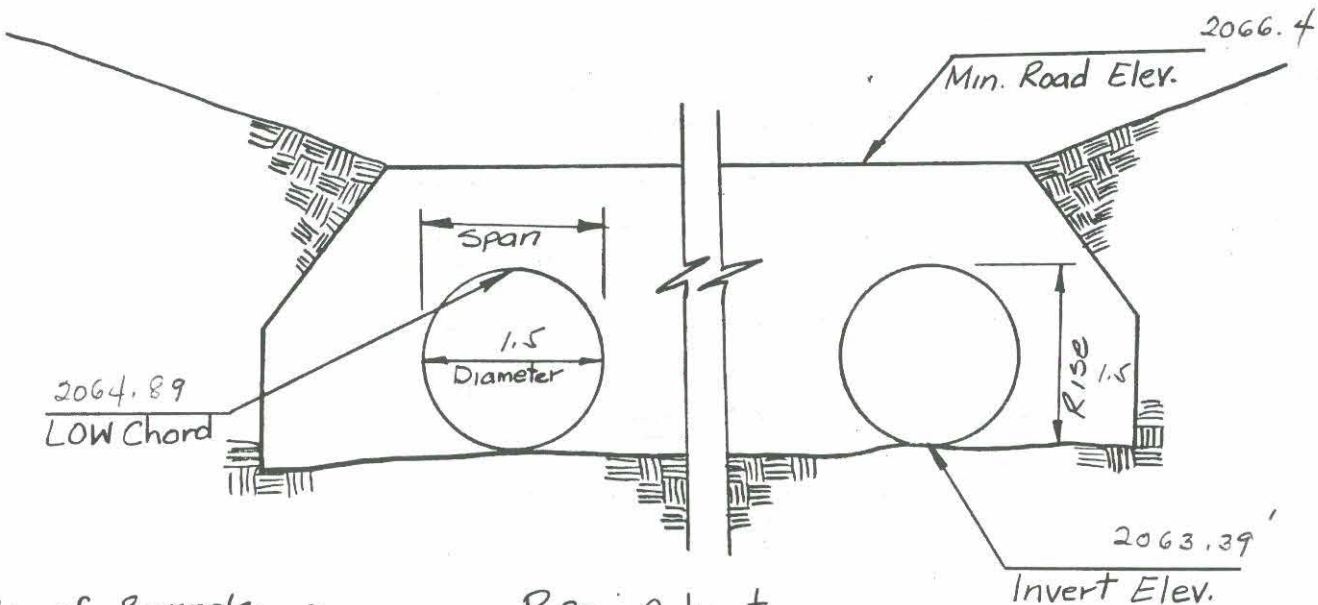


Pipe Culvert

No. of Barrels: 3

Culvert Size: 18" ϕ Circular Pipes (equivalent diameter of 20.4" x 15.6" corrugated metal pipe) See Cross Section # 0.693

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.

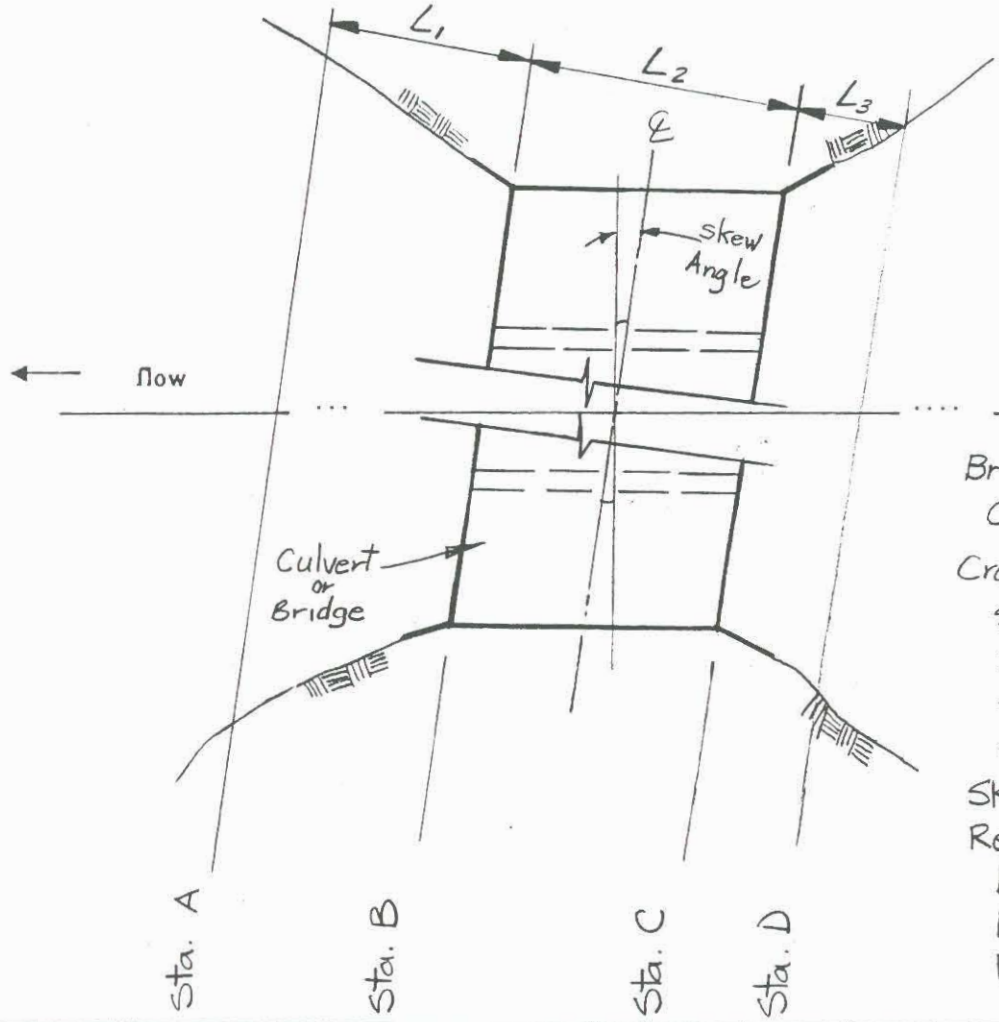


No of Barrels: 3

Pipe Culvert

Culvert Size: 18" circular pipes (equivalent diameter of 20.4" x 15.6" corrugated metal pipe) See Cross Section # 0.704

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Bridge Width / Culvert Length: 46.5'

Cross Section Stations

Sta. A = 0.681

Sta. B = 0.693

Sta. C = 0.704

Sta. D = 0.705

Skew Angle: 0

Reach Lengths:

L1 65 ft.

L2 46.5 ft.

L3 5 ft.

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	46.5'
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	5.3
Total culvert/bridge area (ft²)	5.3

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (STA 0.704)	2066.4	2068.9
Downstream face (STA 0.693)	2065.9	2065.89

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	2066.4	2068.9
Downstream face	2066.4	2068.9

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	2070.04	2070.12
Downstream face	2066.92	2067.86

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	—	36	495	528 (≈531)

The maximum depth of flow over the roadway/railroad (ft.) ..... 3.64'

Weir length (ft.) ..... 36'

Top Widths

	Floodplain	Floodway
Upstream face	285'	121'
Downstream face	99'	99'

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	121'	285'
Downstream face	99'	99'

Loss Coefficients

Entrance loss coefficient	0.70
Manning's "n" value assigned to the structure(s)	0.024
Friction loss coefficient through structure (s)	—
Other loss coefficients (e.g., bend manhole, etc.)	—
Total loss coefficient	—
Weir coefficient	2.9
Pier coefficient	—
Contraction loss coefficient	0.30
Expansion loss coefficient	0.50

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert? _____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) Method I of bridge encroachment is used where station limits are defined by ET record (i.e. STENCL & STENCR) for effective flow calculations.

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AD: Sunset Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Mesquite St.
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.569 to Station 0.578
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

   (Explain why new analysis was performed) _____

2. BACKGROUND

Provide the following information about the structure:

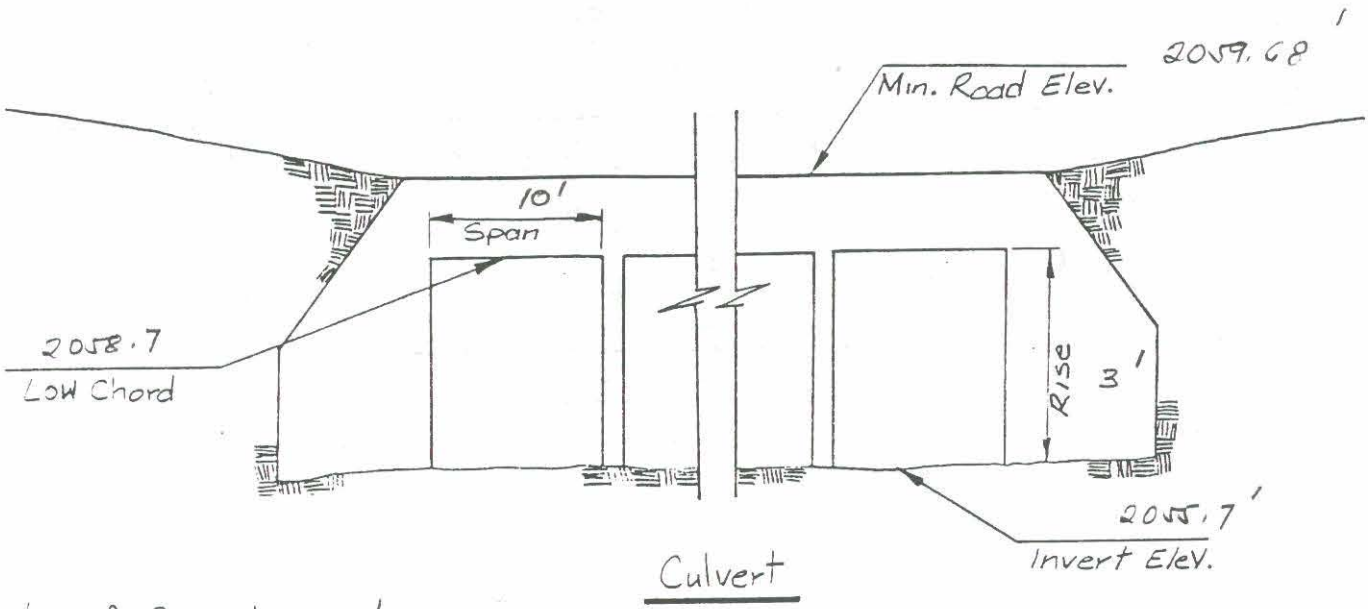
1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) One 10' x 3' x 48' concrete box culvert
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) 30° - 75° wing walls; no inlet top edge bevel; square top edge.
3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special 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)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A

* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



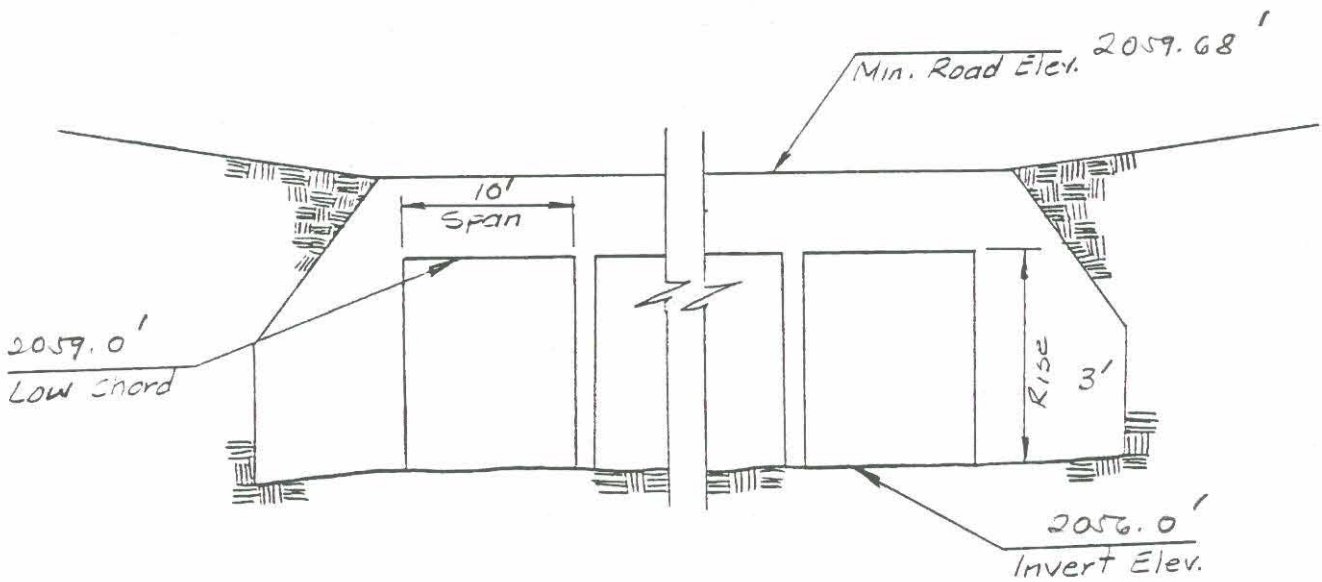
No. of Barrels: 1

Culvert Size: 10' x 3' x 48'

Approx. Depth of Sediment in Culvert: 0

See Cross Section # 0.569

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



No of Barrels: 1

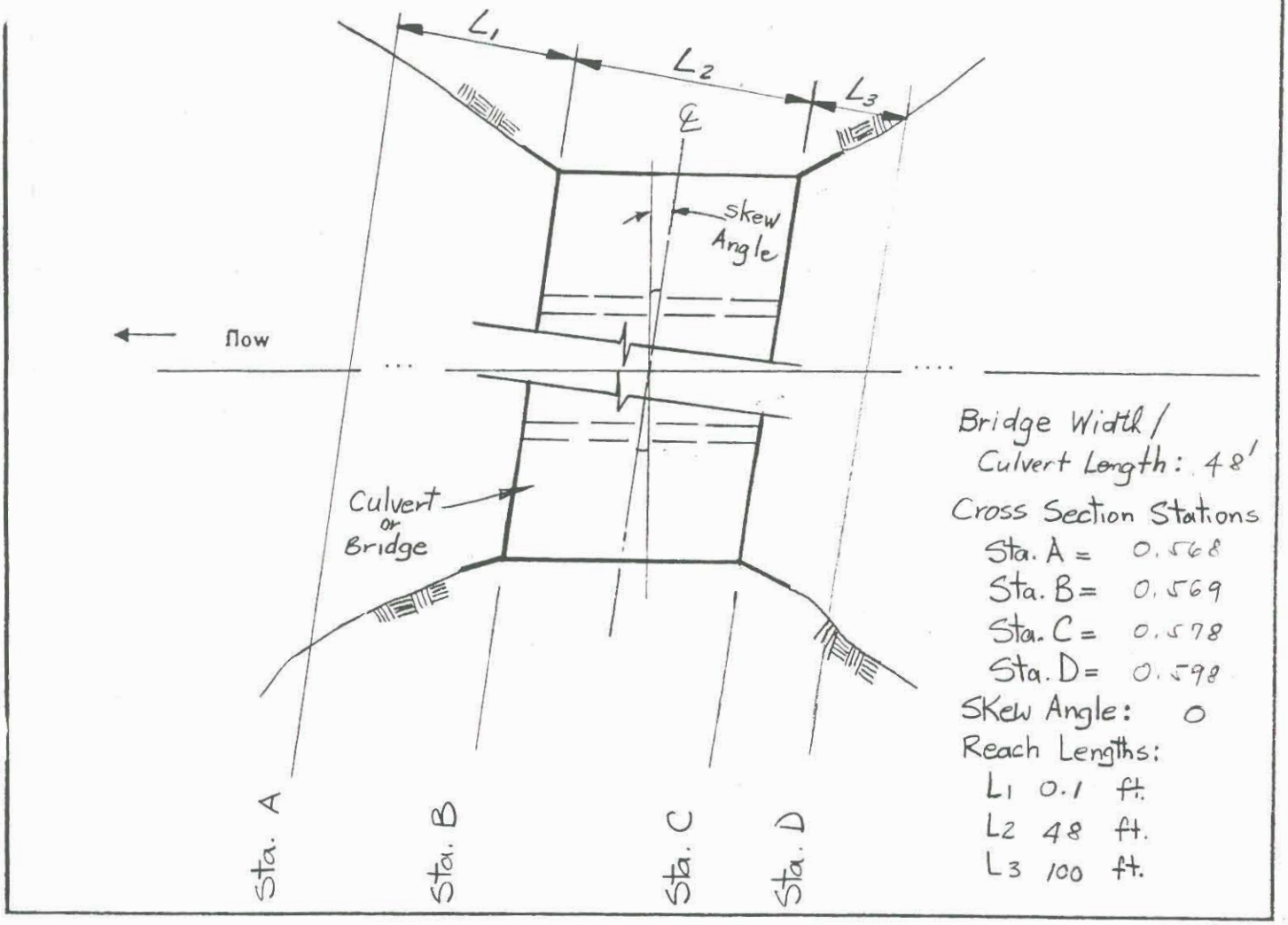
Culvert

Culvert Size: 10' x 3' x 48'

Approx. Depth of Sediment in Culvert: 0

See Cross Section # 0.578

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	48'
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	30 ft²
Total culvert/bridge area (ft²)	30 ft²

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (STA 0.558)	2060.54	2059.97
Downstream face (STA 0.569)	2059.65	2059.64

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	2060.54	2059.97
Downstream face	2060.54	2059.97

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	2061.29	2061.70
Downstream face	2060.44	2061.70

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	–	268.0	276.0	541 (≈ 544)

The maximum depth of flow over the roadway/railroad (ft.) ..... (2061.29 – 2059.68) ..... 1.61'

Weir length (ft.) ..... 51'

Top Widths

	Floodplain	Floodway
Upstream face	185' (*)	130'
Downstream face	130' (*)	65'

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	130'	185' (*)
Downstream face	65'	130' (*)

(*) Zone A floodplain extends southeast along Mesquite St.

Loss Coefficients

Entrance loss coefficient	0.45
Manning's "n" value assigned to the structure(s)	0.015
Friction loss coefficient through structure (s)	–
Other loss coefficients (e.g., bend manhole, etc.)	–
Total loss coefficient	–
Weir coefficient	3.00
Pier coefficient	–
Contraction loss coefficient	0.3
Expansion loss coefficient	0.5

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert? _____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) Method I of bridge encroachment is used where encroachment stations (i.e., STENCL, STENCR) are defined by the ET record for effective flow calculations.

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AD: Sunset Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Atchison - Topeka and Sta Fe Railroad
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.292 to Station 0.296
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

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

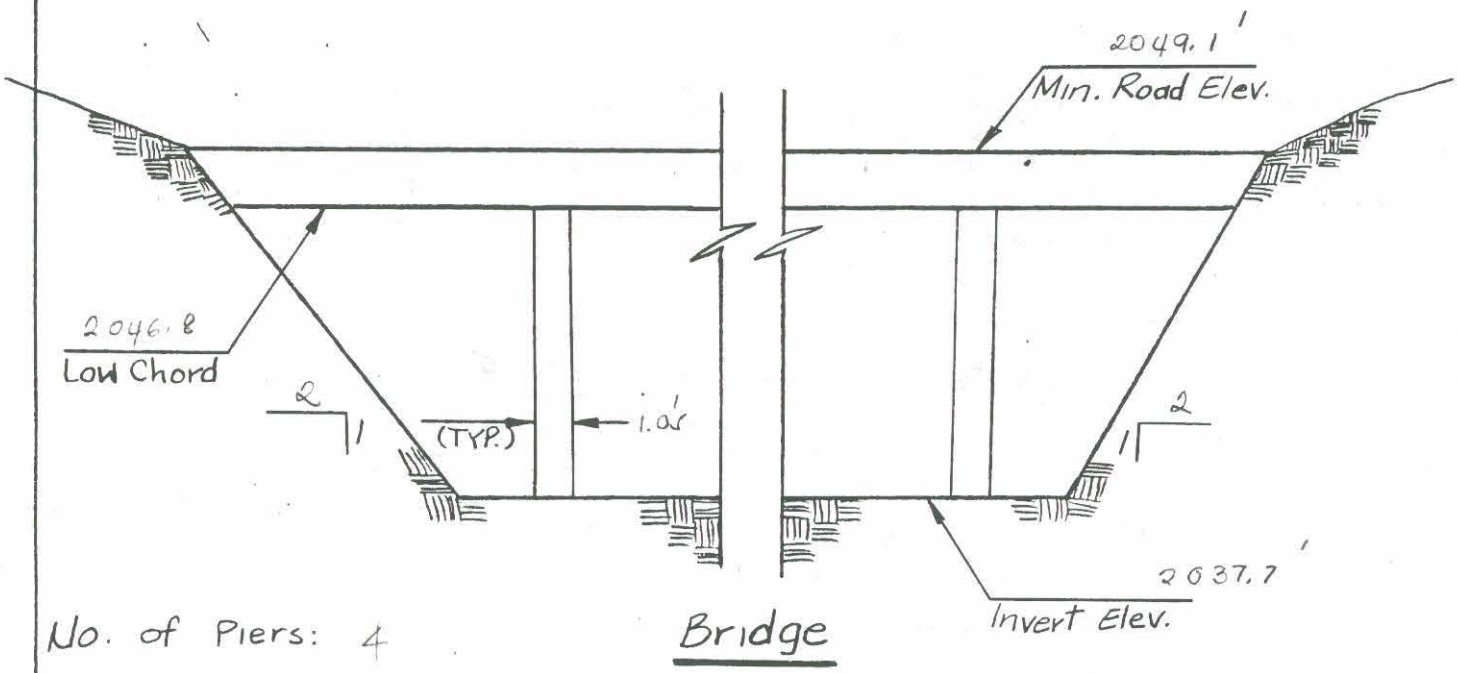
1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) five span bridge with 4 rows of three 1-foot piers.
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Trapezoidal opening with side slope of 2:1 and bottom width of 42.7 ft.
3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special Bridge 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)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A

* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.

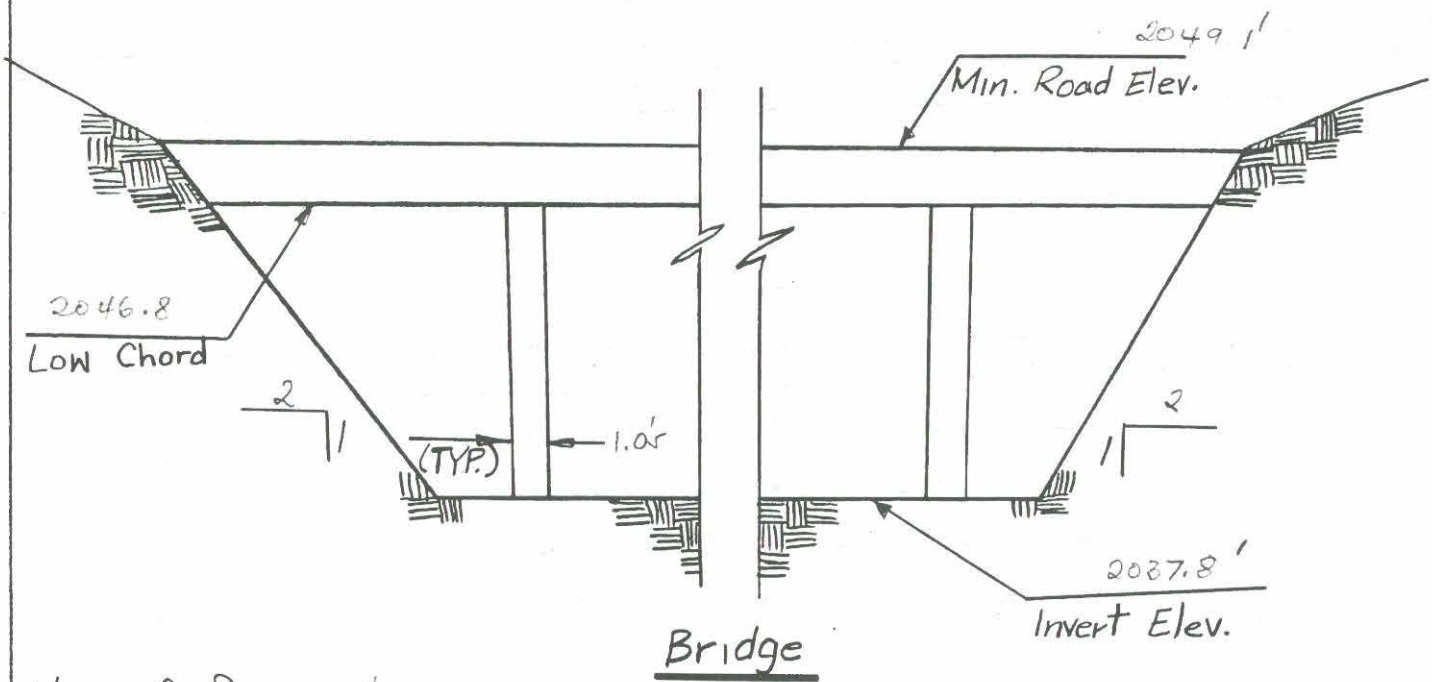


No. of Piers: 4

Total width of piers : 4.22'

See Cross Section # 0.292

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.

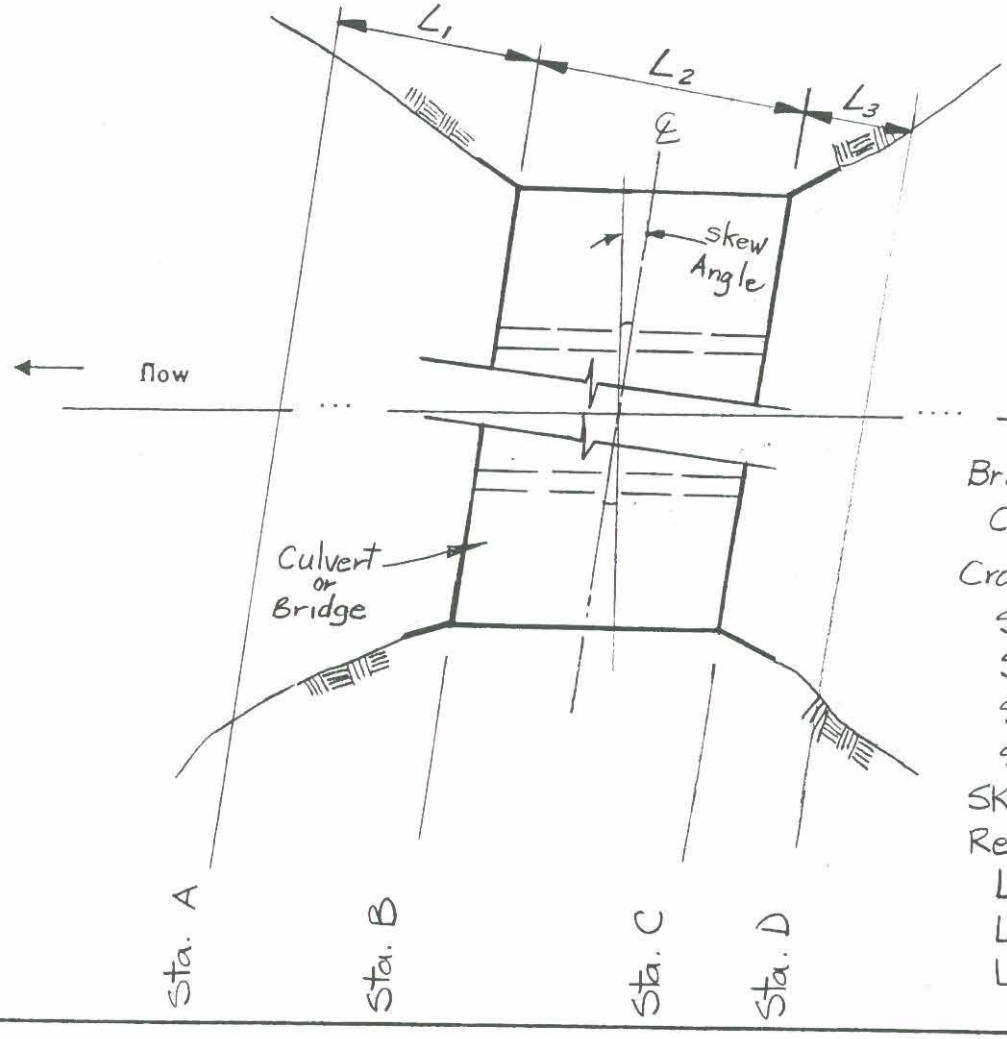


No. of Piers: 4

Total width of piers : 4.22'

See Cross Section # 0.296

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Bridge Width / Culvert Length: 19'

Cross Section Stations

Sta. A = 0.261

Sta. B = 0.292

Sta. C = 0.296

Sta. D = 0.321

Skew Angle: 0

Reach Lengths:

L1 = 172 ft.

L2 = 19 ft.

L3 = 119 ft.

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	19
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	508
Total culvert/bridge area (ft²)	497.1

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (STA 0.290)	2049.8	2049.1
Downstream face (STA 0.292)	2049.8	2049.1

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	2049.8	2049.1
Downstream face	2049.8	2049.1

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	2040.51	2040.98
Downstream face	2040.29	2040.72

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	600	—	—	600 cfs

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths

	Floodplain	Floodway
Upstream face	400'	54'
Downstream face	54'	54'

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	51'	400'
Downstream face	51'	54'

Loss Coefficients

Entrance loss coefficient	—
Manning's "n" value assigned to the structure(s)	0.035
Friction loss coefficient through structure (s)	—
Other loss coefficients (e.g., bend manhole, etc.)	—
Total loss coefficient	1.56
Weir coefficient	2.80
Pier coefficient	1.25
Contraction loss coefficient	0.3
Expansion loss coefficient	0.5

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) Method I of bridge encroachment is used where encroachment stations (i.e., STENCL, STENCR) are defined in the ET record for effective flow calculations.

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **DAM FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1994*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 0.5 hour 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.

Community Name: Town of Wickenburg

Flooding Source: Sunset Wash

Project Name/Identifier: Wickenburg ADMS

IDENTIFIER

Name of Dam: Sunset Dam

Location of dam along flood source (in terms of stream distance or cross section identifier):

From the confluence of the Hassayampa River, north west approximately 0.8 mile.

Check one of the following:

- ☐ Existing dam
- ☐ New dam
- ☐ Modifications of existing dam (describe modifications) _____

Was the dam designed by SCS Federal agency ____ State agency

____ Local government agency ____ Private organization?

BACKGROUND

Does the dam have dedicated flood control storage? ☐ Yes ☒ No

Does the project involve revised hydrology? ☐ Yes ☒ No

If yes, complete Hydrologic Analysis Form and include calculations of the 100-year inflow flood hydrograph routed through the dam with the beginning pool at the normal pool elevation (spillway crest elevation for ungated spillway). Include any inflow hydrograph bulking by watershed sediment yield and provide necessary debris and sediment yield analysis.

Does the revised hydrology affect the 100-year water-surface elevation behind the dam or downstream of the dam? ☐ Yes ☒ No

If yes, complete the Riverine Hydraulic Analysis Form and complete the table shown on the following page.

	Stillwater Elevation Behind the Dam	
	FIS	Revised
10-year		
50-year		
100-year	Not Available	Not Available
500-year		
Normal Pool Elevation	Dry pool area.	

Was long term sediment accumulation taken into consideration in determining the normal pool elevation? ☒ Yes ☐ No

Was the dam designed to withstand the hydrostatic and hydrodynamic forces associated with floods greater than the 100-year flood? ☒ Yes ☐ No

If no, and the dam has a reasonable probability of failure during the 100-year flood, please attach dam break analysis.

Provide the following data on the dam:

Height: 2141.5 ft
Crest Elevation: 2131 ft.
100-year flood storage capacity: 55 ac-ft
Freeboard (measured from 100-year water surface elevation): 10.5 ft.

Spillway(s):

Type: ☐ gated ☒ ungated

Width: 14 ft.
Height: 30.5 ft.
Crest Elevation: 2131 ft.

Outlet(s):

Type: ☒ gated ☐ ungated

Width: 18 inches
Height 18 inches
Diameter: 30 inches
Invert Elevation: 2104.75

Explain flow regulation plan: Collects runoff in Sunset Wash and conveys it via a 30 inch Pipeline to a wash below the Town of Wickenburg which flows into the Hassayampa River. The intake structure has an 18" x 18" gated opening at stream bed level and also functions as a drop inlet with an open top to permit discharge for flows in excess of normal.

Are the project features, including the emergency spillway, designed to accommodate the 100-year flood discharge without overtopping the dam? ☒ Yes ☐ No

Was the dam designed in accordance with all currently applicable local, State, and Federal regulations? ☒ Yes ☐ No

If no, please provide explanation. _____

FEMA may request a list of regulations that have been complied with and supporting documentation demonstrating compliance with these regulations.

Attach copy of formal operation and maintenance plan

Answer N/A to any questions which are not applicable

Annual Inspection Report - Sunset F.R.S.

1. Inspection Team:

The annual inspection of the Sunset F.R.S. was conducted on June 23, 1993. The inspection team consisted of:

Ken Hussain - Arizona Department of Water Resources
Ernie Hamer - Work Control Center, Flood Control District

2. Project Conditions:

The weather was clear and hot with the temperature reported at Phoenix Sky Harbor International Airport at a high of 106° F.

3. Impoundment:

The highest level of impoundment this past year was 9.4 feet on August 22, 1992.

4. Inspection Observations:

A. Dam:

The crest of the dam is in good condition and the access road along the crest is free of vegetation. The upstream and downstream slopes are in good condition. The toes and groin areas appear stable. Vegetation on slopes of structure exceeding 2-3' in height needs to be removed as observed by Ken Hussain.

B. Spillway:

All the concrete in the spillway appeared sound. Previous movement at expansion joints of wing walls needs to be rechecked and monitored. The ungrouted rip rap in the stilling basin is intact and free of vegetation. The approach channel of the emergency spillway was clear and free of obstructions.

C. Outlet Works:

The outlet tower is in excellent condition. The impound area needs to be mowed, but appears in good condition with no debris or silt buildup. The gated outlet had been recently serviced and is in good working order. The gate is in closed position.

5. Conclusion:

The dam and appurtenance are in excellent condition and will function as designed.

6. Required Action:

Continue with regular maintenance and observation of the structure as required. Work orders have been written to mow impoundment area.

O. D. Park, P.E.
Construction and Operations Division Manager

Copies to: Remer Dekle, Soil Conservation Service
John Hall, Soil Conservation Service, Phoenix Field Office
Ken Hussain, Arizona Department of Water Resources

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*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
   Version   4.6.2;  May 1991             *
                                          *
*  RUN DATE    14AUG92    TIME   15:27:35 *
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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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THIS RUN EXECUTED 14AUG92 15:27:35

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

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


T1      WICKENBURG ADMS: MARICOPA COUNTY - CONTRACT FCDMC 89-79
T2      BLACK & VEATCH PN 17676: COE & VAN LOO JN 1197-02
T3      WASH AD: SUNSET WASH              (WASHAD.O)

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0    0.0051         0         0         0   2031.84         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

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


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150       200

QT        2       600       600
NC    0.045     0.045     0.035        .1        .3
            HASSAYAMPA RIVER CROSS SECTION 50.94 (CBA 1988, NO DATUM CHANGE)
            CONFLUENCE WITH WASH AD - SUNSET WASH, A WEST TRIBUTARY
            NON COINCIDENT WITH 100-YEAR DISCHARGE IN HASSAYAMPA.
X1    50.94        30    1912.5    2217.5     475.0     555.0     500.0
GR   2044.3    1235.0    2043.4    1580.0    2028.0    1605.0    2027.0    1678.6    2023.5    1719.0
GR   2024.0    1869.6    2021.9    1892.6    2022.0    1912.5    2024.4    1990.0    2025.6    2111.5
GR   2023.6    2160.9    2022.4    2173.0    2022.4    2200.2    2022.4    2217.5    2027.7    2256.6
GR   2028.4    2389.9    2030.0    2524.1    2028.6    3209.1    2029.8    3462.2    2043.6    3494.3
GR   2043.3    3534.2    2052.0    3548.9    2055.6    3689.4    2054.1    3742.9    2039.6    3849.8
GR   2042.4    3973.8    2044.7    4024.6    2052.4    4089.3    2049.0    4169.4    2053.0    4249.8

NC    0.055     0.065     0.035        .1        .3
ET                7.1       9.1                                     972      1030       972      1030
            FIRST CROSS SECTION OF WASH AD - SUNSET WASH.
            EXISTING 2 BARREL-42" CORRUGATED METAL PIPES UNDER DIRT ROAD
            APPROXIMATELY 45 FEET DOWNSTREAM OF THIS CROSS SECTION.
            THIS CROSSING HAS NOT BEEN INCLUDED IN THIS ANALYSIS BECAUSE
            THE CROSSING IS IN THE EXISTING FLOODPLAIN OF THE HASSAYAMPA
            RIVER AND WOULD BE INUNDATED IN A 100 YEAR EVENT.  BASED ON THE
            FIELD SURVEY DATA, THE EXISTING PIPES WILL NOT HANDLE THE
            100 YEAR PEAK DISCHARGE FROM WASH AD-SUNSET WASH.  THERE IS
            EVIDENCE THAT FLOW OVERTOPS THE DIRT ROAD WITH EXCESS FLOW
            DRAINING EAST AND SOUTH.
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                ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
                SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
                WSEL AND THE TOPOGRAPHY.
X1    0.216       54      980     1020     1150      900     1141
GR     2038      490   2037.8    503.8   2037.5    517.5   2037.3    531.3     2037      545
GR   2036.7    558.3   2036.3    571.7     2036      585     2034      600   2033.8    613.8
GR   2033.6    627.7   2033.3    641.5   2033.1    655.4   2032.9    669.2   2032.7    683.1
GR   2032.6      697   2032.6      711   2032.6      725   2032.6      739   2032.6      753
GR   2032.6      767   2032.6      781   2032.6      795   2032.6    808.6   2032.6    822.3
GR   2032.6    835.9   2032.6    849.5   2032.6    863.2   2032.8    876.7   2033.1      890
GR   2033.4    903.3   2033.7    916.7     2034      930     2036      940     2038      955
GR     2038      970     2036      980   2035.7    993.3   2034.6     1000   2035.7   1006.7
GR     2036     1020     2037     1030     2036     1045     2034     1050     2034   1064.2
GR     2034   1078.3     2034   1092.5     2034   1106.7     2034   1120.8     2034     1135
GR     2036     1145     2038     1160     2040     1170   2040.5     1180

NC    0.065    0.070    0.035       .1       .3
ET              7.1      9.1                                  973     1024      973     1024
                ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
                SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
                WSEL AND THE TOPOGRAPHY.
X1    0.261       53      990     1010      198      210      235
GR     2042      590     2040      615     2038      640   2037.7    659.4   2037.5    665.9
GR   2037.1    691.8   2036.9    698.2   2036.5    724.1   2036.3    730.6   2035.9    756.3
GR   2035.9    762.7   2035.7    775.3   2035.7    781.7   2035.5    794.3   2035.5    800.7
     2035.3    813.3   2035.3    819.7   2035.1    832.3   2035.1    838.7     2035      845
     2035.2    858.1   2035.2    864.6   2035.5    884.2   2035.5    890.8   2035.8    910.4
GR   2035.8    916.9     2036      930     2040      945     2041      960     2040      970
GR   2038.7    976.7   2037.3    983.3     2036      990   2035.8      995   2035.8     1000
GR   2035.8     1005     2036     1010     2038     1020     2040     1025   2040.3     1030
GR   2040.5     1035   2040.3     1040     2040     1045     2036     1060   2035.7   1066.7
GR   2035.3   1073.3     2035     1080   2035.6     1101     2036     1115   2038.4     1136
GR     2040     1150   2043.3     1171   2045.5     1185

NC    0.065    0.070    0.035       .3       .5
ET              9.1                                                          973     1027
                DOWNSTREAM CROSS SECTION OF THE ATCHISON-TOPEKA AND SANTA FE
                RAILROAD TRESTLE.
X1    0.292       65   978.85  1021.55      132      139      172
X3       10
GR   2054.8      600   2054.6      612   2054.4      624   2054.2      636   2054.0      648
GR   2053.8      660   2053.7    665.8   2053.6    671.6   2053.5    677.4   2053.4    683.2
GR   2053.2    694.8   2053.1    700.6   2053.0    706.4   2052.9    712.2   2052.7    723.8
GR   2052.6    729.6   2052.5    735.4   2052.4    741.2   2052.2    752.8   2052.1    758.6
GR   2052.0    764.4   2051.9    770.2   2051.8    781.8   2051.7    787.6   2051.7    793.4
GR   2051.6    799.2   2051.5    810.8   2051.3    822.3   2051.2    833.8   2051.1    845.3
GR   2050.9    856.8   2050.8    868.3   2050.7    879.8   2050.6    891.3   2050.4    902.8
GR   2050.3    914.3   2050.2      920   2050.1      930     2050     940.0   2049.8    965.0
GR   2046.6   965.15   2044.6   965.25   2037.6   978.85   2037.9      990   2037.8      995
GR   2037.7     1000   2037.7     1010   2037.8     1015   2037.7   1021.55     2042   1030.02
GR   2044.8  1035.45   2046.8  1035.55   2049.4     1036   2048.7     1061   2048.4     1072
     2048.1     1083   2047.8     1094   2047.5     1105   2047.2   1116.5   2046.9   1128.1
GR   2046.6   1139.6   2046.3   1151.2     2046   1162.7   2045.8   1174.2   2045.8     1180
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ET                      9.1                                                973      1027
SB    1.25      1.56      2.8        0     42.70      4.22     497.1        2    2037.8    2037.7
            UPSTREAM CROSS SECTION OF THE ATCHISON-TOPEKA AND SANTA FE
            RAILROAD TRESTLE.
X1   0.296        66   978.85   1021.55        19        19        19
X2       0         0        1    2046.8    2049.1         0         0      2.0         0         0
X3      10
BT     -12     965.0    2049.8            965.15    2049.8            965.25    2049.8
BT            978.85    2049.7             982.5    2049.6              990.    2049.6
BT              1000    2049.5            1016.7    2049.3           1021.55    2049.2
BT            1035.45   2049.1           1035.55    2049.5            1036.0    2049.1
GR    2056       520    2054.8     589.2   2054.6     603.4    2054.4     617.6    2054.1     631.8
GR  2054.0       639    2053.9       646   2053.7     660.3    2053.4     674.5    2053.2     688.7
GR  2053.0     702.9    2052.9       710   2052.7     724.2    2052.4     738.4    2052.3     745.5
GR  2052.0     765.0    2051.9       774   2051.7     788.2    2051.6     802.4    2051.5     809.5
GR  2051.4     816.6    2051.3     830.8   2051.1       845    2050.9     858.7    2050.8     872.4
GR  2050.6       886    2050.5     899.7   2050.3     913.4      2050     940.0    2049.8     965.0
GR  2046.8    965.15    2044.8    965.25   2037.9    978.85    2039.8     982.5    2037.8       990
GR  2037.8      1000    2037.8    1016.7   2038.3   1021.55    2044.8   1035.45    2046.8   1035.55
GR  2049.1    1036.0    2048.9    1064.6   2048.8    1071.5    2048.7    1078.5    2048.6    1092.3
GR  2048.6    1099.2    2048.5    1106.2   2048.4      1120    2048.3      1134    2048.1      1148
GR  2048.0      1162    2047.9      1176   2047.8      1190    2047.7    1196.9    2047.6    1203.8
GR  2047.5    1210.8    2047.4    1217.7   2047.3    1224.6    2047.3    1231.5    2047.3    1238.5
GR  2047.2    1245.4    2047.1    1252.3   2047.1    1259.2    2047.0    1266.2    2046.9    1273.1
    2046.9      1280

ET                    7.1       9.1                                820      1266       967      1025
NC  0.070       0.070     0.030       .1        .3
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1   0.321        74       980      1020       128       132       119
GR    2050       580    2048.7     586.7   2047.3     593.3      2046       600      2044       615
GR    2042       630    2041.8     645.4   2041.8     653.1    2041.6     668.5    2041.5     683.8
GR  2041.3     699.2    2041.2     706.9   2041.1     722.3      2041       730    2041.1       746
GR  2041.3       762    2041.3       770   2041.5       786    2041.5       794    2041.7       810
GR  2041.7       818    2041.9       834     2042       850      2042       865      2042       880
GR  2042.1       895    2042.3       910   2042.3     917.5    2042.4     932.5    2042.5       940
GR  2042.2     953.3      2042       960   2040.7     973.3      2040       980    2039.2     986.7
GR    2039     993.3      2039      1000   2039.6      1015      2040      1020    2042.3    1028.3
GR    2043      1045    2043.7    1061.7   2044.3    1076.7    2044.7    1083.3      2045      1090
GR  2044.3    1098.8    2043.5    1107.5   2042.8    1116.3      2042      1125    2041.7      1140
GR  2041.3      1155      2041      1170   2040.8      1185    2040.6    1192.5    2040.4    1207.5
GR  2040.3      1215    2040.1    1222.5     2040      1230    2040.3    1237.5    2040.5      1245
GR  2040.8    1252.5      2041      1260   2041.3    1267.5    2041.5      1275    2041.8    1282.5
GR    2042      1290      2046    1307.5     2049    1316.3      2051      1325      2056    1332.1
GR    2057    1342.5      2058      1360   2058.3    1373.3    2058.5      1380
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QT      2       576       576
ET                        9.1                                                966       1026
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
X1    0.390       53       985      1020       460       450       438
GR     2050      630    2049.3       635    2048.7       640      2048       645    2047.8     649.4
GR     2047    662.5    2046.8     666.9      2046       680    2045.8       689    2045.8     693.5
GR   2045.6    702.5    2045.4       716    2045.3     720.5    2045.3       725      2045     738.5
GR   2044.8      752    2044.7     756.5    2044.7       761    2044.5       770    2044.7       779
GR   2044.7    783.5    2044.9     792.5    2045.1       806    2045.3       815    2045.3     819.5
GR   2045.6      833    2045.8     846.5    2045.8       851      2046       860    2046.1     873.8
GR   2046.1    882.9    2046.2     887.5    2046.2     901.3    2046.3     905.8    2046.3     919.5
GR   2046.2      924    2046.2     937.5    2046.1       951      2046     955.5      2046       960
GR   2045.4      972      2045       980    2044.5       985      2043      1000    2043.6      1012
GR     2044     1020    2047.6      1032      2050      1040    2052.7      1045    2055.3      1050
GR     2058     1055    2058.1      1060    2058.2      1070

NC    0.070    0.070     0.035        .1        .3
ET                        9.1                                                970       1035
X1    0.473       41       980      1025       412       455       440
GR     2054      780    2053.6       802    2053.2       824      2053       835    2052.8     840.8
GR   2052.7    846.7    2052.3     858.3    2052.2     864.2      2052       870      2052       890
GR   2051.8    901.3    2051.3     923.8    2050.8     946.3    2050.3     968.8      2050       980
     2049.2     1000    2049.7      1015    2049.8      1020      2050      1025    2050.7      1030
     2051.3     1035      2052      1040      2052    1056.9    2052.1    1062.5    2052.1      1085
GR   2052.1   1107.5    2052.2    1113.1    2052.2    1135.4    2052.2    1156.8    2052.3    1178.2
GR   2052.3   1199.6    2052.3    1216.3    2052.2      1222    2052.2    1244.7    2052.1    1250.3
GR   2052.1     1273      2052      1290    2051.5      1315    2051.7      1320    2051.8      1325
GR     2052     1330

ET                        9.1                                                934       1061
          PARK STREET - DIP CROSSING.
X1    0.491       48       985      1020        64       125        91
GR     2054      780      2054     794.3      2054     808.7      2054       823      2054     837.4
GR     2054    851.7      2054     866.1      2054     880.4      2054       890    2053.9     894.7
GR   2053.7    899.3    2053.5     908.7    2053.3     913.3    2053.1     922.7    2052.9     927.3
GR   2052.7    936.7    2052.5     941.3    2052.3     950.7    2052.1     955.3    2051.6       970
GR   2051.4      975    2051.3       980    2051.1       985    2050.5      1000    2050.8      1005
GR     2051     1010    2051.3      1015    2051.5      1020    2051.8      1025    2052.2    1039.4
GR   2052.4   1044.1    2052.7    1058.2    2052.9    1067.7    2053.1    1072.3    2053.4    1086.5
GR   2053.6   1095.9    2053.8    1100.6      2054      1110    2054.1    1124.5    2054.2      1139
GR   2054.3   1153.5    2054.4      1168    2054.5    1182.5    2054.6      1197    2054.7    1211.5
GR   2054.8     1226    2054.9    1240.5      2055      1255

QT      2       541       541
ET                        9.1                                                952       1010
X1    0.534       70       982    1003.3       255       200       229
GR     2058      930    2057.9     931.5    2057.5     934.6    2057.4     936.2    2057.2     937.7
^^   2057.1    939.2    2056.9     940.8    2056.8     942.3    2056.6     943.8    2056.5     945.4
     2056.1    948.5    2055.9     951.5    2055.5     954.6    2055.4     956.2    2055.2     957.7
GR   2055.1    959.2    2054.9     960.8    2054.8     962.3    2054.6     963.8    2054.5     965.4
GR   2054.1    968.5      2054       970      2054     971.5    2053.9       973    2053.9     977.5
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     2053.8      979     2053.8      982     2053.7     983.5     2053.7      988     2053.6     989.5
GR   2053.6    995.5     2053.5      997     2053.5      1000     2053.9   1001.7     2054.3    1003.3
GR   2054.8     1005     2055.2   1006.7     2055.6    1008.3       2056     1010       2056    1011.6
GR   2056.1   1013.1     2056.1   1016.2     2056.2    1017.8     2056.2   1020.9     2056.3    1022.4
GR   2056.3   1025.6     2056.4   1027.1     2056.4    1030.2     2056.5   1031.8     2056.5    1034.9
GR   2056.6   1036.4     2056.6   1039.6     2056.7    1041.1     2056.7   1044.2     2056.8    1045.8
GR   2056.8   1048.9     2056.9   1050.4     2056.9    1053.6       2057   1055.1       2057    1058.2
GR   2057.1   1059.8     2057.1   1062.9     2057.2    1064.4     2057.2   1067.6     2057.3    1069.1
GR   2057.3   1072.2     2057.4   1073.8     2057.4    1076.9     2057.5   1078.4     2057.5      1080

NC    0.070    0.065      0.030       .1         .3
ET             7.1        9.1                                       987     1016        987      1016
             DOWNSTREAM CROSS SECTION OF 1.5 FOOT DROP STRUCTURE AT
             THE OUTLET OF THE MESQUITE STREET CROSSING.
             ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
             SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
             WSEL AND THE TOPOGRAPHY.
X1    0.568     60       995    1005.0       232       148       179
X3       10
GR     2062    740      2062     744.8    2061.8     759.1    2061.8     763.9    2061.7     768.7
GR   2061.7   773.5    2061.5     797.4    2061.4     802.2    2061.4     811.7    2061.3     816.5
GR   2061.3   821.3    2061.2     826.1    2061.2     830.9      2061     845.2      2061     854.8
GR   2060.9   859.6    2060.9     864.4    2060.8     869.2    2060.8     878.8    2060.7     883.5
GR   2060.7   888.3    2060.6     893.1    2060.6     897.9    2060.5     902.7    2060.5     912.3
GR   2060.4   917.1    2060.4     921.9    2060.3     926.7    2060.3     936.3    2060.2       941
     2060.2   945.8    2060.1     950.6    2060.1     955.4      2060     960.2    2059.9       970
...  2059.7     975   2059.66       980   2059.66       985    2054.1       995    2054.1      1000
GR   2054.1  1005.0   2059.64    1019.1    2058.8    1023.9    2058.7    1028.7    2058.7    1033.5
GR   2058.5  1057.4    2058.4    1062.2    2058.4    1071.7    2058.3    1076.5    2058.3    1081.3
GR   2058.2  1086.1    2058.2    1090.9      2058    1105.2      2058      1110    2057.5    1133.8
GR   2057.1  1152.9    2057.1    1157.6    2056.9    1162.4    2056.5    1186.2      2056      1210

NC    0.070    0.065      0.015       .3         .5
ET             7.1        9.1                                       975     1040        975      1040
             DOWNSTREAM CROSS SECTION OF 10' X 3' CONCRETE BOX CULVERT
             AT THE MESQUITE STREET CROSSING.
             ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
             SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
             WSEL AND THE TOPOGRAPHY.
X1    0.569     62     994.99    1005.0        .1        .1        .1
X3       10
GR     2062    740      2062     744.8    2061.8     759.1    2061.8     763.9    2061.7     768.7
GR   2061.7   773.5    2061.5     797.4    2061.4     802.2    2061.4     811.7    2061.3     816.5
GR   2061.3   821.3    2061.2     826.1    2061.2     830.9      2061     845.2      2061     854.8
GR   2060.9   859.6    2060.9     864.4    2060.8     869.2    2060.8     878.8    2060.7     883.5
GR   2060.7   888.3    2060.6     893.1    2060.6     897.9    2060.5     902.7    2060.5     912.3
GR   2060.4   917.1    2060.4     921.9    2060.3     926.7    2060.3     936.3    2060.2       941
GR   2060.2   945.8    2060.1     950.6    2060.1     955.4      2060     960.2    2059.9       970
GR   2059.7     975   2059.66       980   2059.65       985    2058.7    994.99    2055.7       995
GR   2055.7  1000.0    2055.7    1005.0    2058.7   1005.01   2059.64    1019.1    2059.0    1023.9
     2058.7  1028.7    2058.7    1033.5    2058.5    1057.4    2058.4    1062.2    2058.4    1071.7
     2058.3  1076.5    2058.3    1081.3    2058.2    1086.1    2058.2    1090.9      2058    1105.2
GR     2058    1110    2057.5    1133.8    2057.1    1152.9    2057.1    1157.6    2056.9    1162.4
GR   2056.5  1186.2      2056      1210
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ET                7.1       9.1                                        970       1100       970       1100
SC    1.015       0.45      3.0          0        3.0          10      48        8.1      2056.0     2055.7
            UPSTREAM CROSS SECTION OF 10' X 3' CONCRETE BOX CULVERT
            AT THE MESQUITE STREET CROSSING.
            THE BOX CULVERT DOES NOT HAVE THE CAPACITY TO HANDLE THE
            PEAK DISCHARGE OF 541 CFS.  THE TOTAL FLOW INTO THE BOX CULVERT
            IS APPROXIMATELY 268 CFS, AND 273 CFS OVERTOPPING THE STREET
            WITH 44 CFS CROSSING THE STREET IN WEIR FLOW AND 232 CFS
            GOING SOUTHEASTERLY DOWN MESQUITE STREET AND SOME FLOW REENTERING
            THE WASH AT PARK STREET AND SOME OF THE FLOW REENTERING THE
            WASH AT FISHER STREET.
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    0.578       60        994.99    1005.01      48        48        48
X2        0        0         2        2059.0    2059.68      0         0         0         0         0
X3       10
BT       -8      980.0     2060.54               990.0     2060.4                994.0     2059.84
BT              1000.0     2059.76              1006.0     2059.68               1010.0     2060.12
BT              1020.4     2059.97              1030.8     2059.83
GR     2062       790       2061.9     795.3     2061.9     800.7     2061.8     811.3     2061.8     816.7
GR   2061.7     827.3       2061.7     832.7     2061.6     843.3     2061.6     848.7     2061.5     859.3
GR   2061.5     864.7       2061.4     875.3     2061.4     885.8     2061.3     891       2061.3     896.3
GR   2061.2     906.8       2061.2     917.3     2061.1     927.8     2061.0     938.3     2061.0     943.5
     2060.9     948.8       2060.8     959.3     2060.7     969.8     2060.6     975       2060.54    980
     2059.0    994.99       2056.0     995       2056.0     1000      2056.0     1005      2059.0     1005.01
GR   2059.5    1015.2       2059.4    1020.4     2059.83    1030.8    2059.76    1036      2059.68    1041.2
GR   2059.6    1046.4       2059.47   1056.8     2059.32    1067.2    2059.25    1072.4    2059.4     1077.6
GR   2059.3    1082.8       2059.2    1093.2     2059.1     1103.6    2059.0     1108.8    2058.9     1119.2
GR   2058.8    1129.6       2058.7    1134.8     2058.6     1145.4    2058.5     1150.7    2058.4     1156.1
GR   2058.3    1161.4       2058.2    1166.8     2058.1     1172.1    2057.9     1182.9    2057.7     1188.2
GR   2057.6    1193.6       2057.4    1198.9     2057.3     1204.3    2057.1     1209.6    2057       1215

NC    0.070     0.070       0.035       .1         .3
ET                          9.1                                                              975        1024
X1    0.598       67        980       1020        95        100       108
GR   2062.5      875       2062.5    876.7      2062.4     878.4     2062.4     881.8     2062.3     883.5
GR   2062.3     886.9      2062.2    888.6      2062.2     892       2062.1     893.8     2062.1     897.2
GR     2062     898.9       2062     900.6      2061.9     902.3     2061.9     907.4     2061.8     909.1
GR   2061.8     912.5      2061.7    914.2      2061.7     915.9     2061.6     917.6     2061.6     922.7
GR   2061.5     924.4      2061.5    926.1      2061.4     927.8     2061.4     931.3     2061.3     933
GR   2061.3     936.4      2061.2    938.1      2061.2     941.5     2061.1     943.2     2061.1     946.6
GR     2061     948.3       2061     950        2060.9     951.7     2060.9     953.3     2060.8     955
GR   2060.8     956.7      2060.7    958.3      2060.7     960       2060.6     961.7     2060.6     963.3
GR   2060.4     966.7      2060.4    968.3      2060.3     970       2060.3     971.7     2060.2     973.3
GR   2060.2       975      2060.1    976.7      2060.1     978.3     2060       980       2059.8     983.3
GR   2059.8       985      2059.3    993.3      2059.3     995       2059       1000      2059.3     1005
GR   2059.3    1006.7      2059.8    1015       2059.8     1016.7    2060       1020      2060.7     1021.7
GR   2061.3    1023.3       2062     1025       2062.3     1030      2062.3     1031.7    2062.8     1040
     2062.8    1041.7       2063     1045
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QT      2       528     528
ET                      9.1                                                     975     1015
X1    0.639      62     990     1010     140     240     217
GR     2063     835    2063    847.5    2063     860    2063    862.6    2063.1    865.2
GR   2063.1   870.4  2063.2      873  2063.2   878.2  2063.3    880.7    2063.3    885.9
GR   2063.4   888.5  2063.4    893.7  2063.5   896.3  2063.5    901.5    2063.6    904.1
GR   2063.6   909.3  2063.7    911.8  2063.7     917  2063.8    919.6    2063.8    924.8
GR   2063.9   927.4  2063.9    932.5    2064     935    2064      940    2064.1    942.5
GR   2064.1     950  2064.2    952.5  2064.2   957.5  2064.1      960    2064.1      965
GR     2064   967.5    2064      970  2061.5   982.5    2060      990    2059.8    992.5
GR   2059.5     995  2059.3    997.5    2059    1000  2059.3   1002.5    2059.5     1005
GR   2059.8  1007.5    2060     1010  2061.7  1012.5  2063.3     1015    2066.7     1020
GR   2068.3  1022.5  2071.7   1027.5  2073.3     1030  2076.7     1035    2078.3   1037.5
GR     2080    1040  2080.5   1042.5  2080.9     1045  2082.9     1055    2083.3   1057.5
GR   2084.8    1065  2085.2   1067.5  2086.2   1072.5  2086.6     1075    2088.6     1085
GR     2089  1087.5  2089.5     1090

ET              7.1     9.1                                     971     1013     971     1013
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    0.672      70    987.5    1002.9     148     135     173
GR     2066     810    2066     813    2065.9   815.9  2065.9    821.8    2065.8    824.8
GR   2065.8   827.8  2065.7    830.7  2065.7   836.7  2065.6    839.6    2065.6    845.6
     2065.5   848.5  2065.5    851.5  2065.4   854.4  2065.4    860.4    2065.3    863.3
     2065.3   869.3  2065.2    872.2  2065.2   875.2  2065.1    878.2    2065.1    884.1
GR     2065     887    2065      893  2064.9   895.9  2064.9    901.8    2064.8    904.8
GR   2064.8   907.8  2064.7    910.7  2064.7   916.7  2064.6    919.6    2064.6    925.6
GR   2064.5   928.5  2064.5    931.5  2064.4   934.4  2064.4    940.4    2064.3    943.3
GR   2064.3   949.3  2064.2    952.2  2064.2   955.2  2064.1    958.2    2064.1    964.1
GR     2064     967    2064      970  2062.8     979    2062      985    2061.1    987.5
GR   2060.2     990  2060.2     1000    2061  1002.9  2061.9   1005.7    2062.7   1008.6
GR   2063.5  1011.4  2064.3   1014.3  2065.2  1017.1    2066     1020    2065.9     1023
GR   2065.9    1026  2065.7     1032  2065.7     1035  2065.5     1041    2065.5     1044
GR   2065.3    1050  2065.3     1053  2065.1     1059  2065.1     1062      2065     1065
GR   2064.4    1074  2063.8     1083  2063.2     1092  2062.6     1101      2062     1110

NC    0.055   0.065   0.018       .1      .3
ET                      9.1                                                     983     1030
            BEGIN CONCRETE LINED OUTLET CHANNEL 65 FEET NORTH OF JACKSON
            STREET PIPE CROSSING.
X1    0.681      54     994    1006.0      75      30      46
X3       10
GR     2070     800  2068.7    813.3  2068.3     820    2068    823.3    2067.9    836.3
GR   2067.9   845.8  2067.8    858.4  2067.7     871  2067.6    883.7    2067.5    886.8
GR   2067.5   893.2  2067.4    896.3  2067.4   905.8  2067.3    918.4    2067.2      931
GR   2067.1   940.5  2066.7    943.7    2067   946.8  2066.7      960    2066.3      970
GR   2066.4   973.3  2066.4    976.7  2066.3     980  2066.0    983.3    2065.7    986.7
GR   2065.2     988 2062.07    994.0 2062.07   996.7 2062.07     1000   2062.07   1003.3
     2062.1  1006.0 2065.20     1010 2065.95  1013.3  2065.7   1026.7    2066.3   1033.3
     2067.7  1046.7    2068     1050  2068.6  1053.2  2069.6   1059.6    2070.2   1062.7
GR   2070.7  1065.9  2071.3   1069.1  2071.8  1072.3  2072.4   1075.4    2073.4   1081.8
GR   2074.6  1088.2  2075.6   1094.6  2076.2  1097.7  2076.7   1100.9    2077.3   1104.1
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     2077.8    1107.3    2078.4    1110.4    2079.4    1116.8      2080      1120

NC    0.055     0.065     0.024        .3        .5
ET                        9.1                                                   941      1040
            JACKSON STREET PIPE CROSSING - CROSSING MODELLED AS 3-BARREL,
            18" DIAMETER, CIRCULAR PIPES(EQUIVALENT DIAMETER OF 20.4" x
            15.6" ARCH CORRUGATED METAL PIPES - DOWNSTREAM CROSS SECTION OF
            3 - BARREL, 20.4" x 15.6" ARCH CORRUGATED METAL PIPE WITH
            PROJECTING ENDS.  THE STREET EMBANKMENT HAS BEEN CONCRETE
            LINED FOR EROSION PROTECTION AND THE CONCRETE EMBANKMENT
            PROTECTION IS A PART OF THE CONCRETE LINED CHANNEL DOWNSTREAM.
X1    0.693        55       994    1006.0        65        65        65
X3       10
GR    2072       710      2070       800    2068.7     813.3    2068.3       820      2068     823.3
GR  2067.9     836.3    2067.9     845.8    2067.8     858.4    2067.7       871    2067.6     883.7
GR  2067.5     886.8    2067.5     893.2    2067.4     896.3    2067.4     905.8    2067.3     918.4
GR  2067.2       931    2067.1     940.5    2066.7     943.7      2067     946.8    2066.7       960
GR  2066.3       970    2066.4     973.3    2066.4     976.7    2066.3       980    2066.0     983.3
GR  2065.8     986.7    2065.9       988   2062.85     994.0   2062.85     996.7   2062.85      1000
GR  2062.9    1003.3    2062.9    1006.0   2065.89      1010   2065.95    1013.3    2066.0    1026.7
GR  2066.3    1033.3    2067.7    1046.7      2068      1050    2068.6    1053.2    2069.6    1059.6
GR  2070.2    1062.7    2070.7    1065.9    2071.3    1069.1    2071.8    1072.3    2072.4    1075.4
GR  2073.4    1081.8    2074.6    1088.2    2075.6    1094.6    2076.2    1097.7    2076.7    1100.9
GR  2077.3    1104.1    2077.8    1107.3    2078.4    1110.4    2079.4    1116.8      2080      1120

                 7.1       9.1                                      915      1036       915      1036
-   3.024        .7       2.9         0       1.5         0      46.5       2.3   2063.39   2062.85
            UPSTREAM CROSS SECTION OF 3 - BARREL, 20.4" x 15.6" ARCH
            CORRUGATED METAL PIPE CROSSING.  ROAD EMBANKMENT IS CONCRETE
            LINED FOR EROSION PROTECTION.  INLET CHANNEL IS CONCRETE LINED
            FOR A DISTANCE OF ABOUT 5 FEET UPSTREAM OF THE PIPES.
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    0.704        66   994.75   1005.25      46.5      46.5      46.5
X2        0         0        2    2066.0    2064.9         0         0       2.0         0         0
X3       10
BT       -7       985    2066.4            994.75    2066.6              1000    2066.8
BT            1003.3    2067.1           1005.25    2067.5           1011.25    2068.0
BT            1020.7    2068.9
GR    2072       705      2070       750    2069.8     757.5    2069.8     761.3    2069.5     772.5
GR  2069.3       780    2069.3     783.8      2069       795    2068.8     802.5    2068.8     806.3
GR  2068.5     817.5    2068.3       825    2068.3     828.8      2068       840      2068     843.7
GR  2067.9     847.4    2067.9     854.8    2067.8     858.5    2067.8     862.2    2067.7     865.9
GR  2067.7     873.3    2067.6       877    2067.6     884.4    2067.5     888.2    2067.5     891.8
GR  2067.4     895.6    2067.4       903    2067.3     906.7    2067.3     914.1    2067.2     917.8
GR  2067.2     921.5    2067.1     925.2    2067.1     932.6      2067     936.3      2067       940
GR  2066.4     951.3    2066.8       955    2066.7     966.3    2066.6     977.5    2066.5     981.3
GR  2066.4       985    2063.4    994.75   2063.39      1000   2063.39    1003.3   2063.39   1005.25
GR  2066.4   1011.25    2068.9    1020.7    2069.1    1024.3      2070      1035    2070.9    1045.7
-   2071.1    1049.3      2072      1060    2072.4    1063.9    2072.9    1067.8    2073.3    1071.7
     2073.8    1075.6    2074.2    1079.4    2074.7    1083.3    2075.1    1087.2    2075.6    1091.1
GR    2076      1095    2076.6    1098.6    2077.1    1102.1    2078.9    1112.9    2079.4    1116.4
GR    2080      1120
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NC    0.055     0.065     0.035       .1        .3
ET                7.1       9.1                                   915      1036       915      1036
          END OF 5 FOOT CONCRETE LINED INLET CHANNEL.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
X1    0.705        66    994.75    1003.3         5         5         5
X3       10
GR     2072       705      2070       750    2069.8     757.5    2069.8     761.3    2069.5     772.5
GR   2069.3       780    2069.3     783.8      2069       795    2068.8     802.5    2068.8     806.3
GR   2068.5     817.5    2068.3       825    2068.3     828.8      2068       840      2068     843.7
GR   2067.9     847.4    2067.9     854.8    2067.8     858.5    2067.8     862.2    2067.7     865.9
GR   2067.7     873.3    2067.6       877    2067.6     884.4    2067.5     888.2    2067.5     891.8
GR   2067.4     895.6    2067.4       903    2067.3     906.7    2067.3     914.1    2067.2     917.8
GR   2067.2     921.5    2067.1     925.2    2067.1     932.6      2067     936.3      2067       940
GR   2066.4     951.3    2066.8       955    2066.7     966.3    2066.6     977.5    2066.5     981.3
GR   2066.4       985    2064.4    994.75   2064.39      1000   2064.39    1003.3   2064.39   1005.25
GR   2067.4   1011.25    2068.9    1020.7    2069.1    1024.3      2070      1035    2070.9    1045.7
GR   2071.1    1049.3      2072      1060    2072.4    1063.9    2072.9    1067.8    2073.3    1071.7
GR   2073.8    1075.6    2074.2    1079.4    2074.7    1083.3    2075.1    1087.2    2075.6    1091.1
GR     2076      1095    2076.6    1098.6    2077.1    1102.1    2078.9    1112.9    2079.4    1116.4
GR     2080      1120

ET                7.1       9.1                                   900      1011       940      1011
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
X1    0.721        65     986.7    1003.3        83        83        83
GR     2072       685      2070       770      2070     773.3    2069.9     776.6    2069.9     783.2
GR   2069.8     786.5    2069.8     793.1    2069.7     796.4    2069.7       803    2069.6     806.3
GR   2069.6     812.9    2069.5     816.2    2069.5     822.8    2069.4     826.1    2069.4     832.7
GR   2069.3       836    2069.3     842.6    2069.2     845.9    2069.2     849.3    2069.1     852.5
GR   2069.1     862.5      2069     865.8      2069     869.1    2068.9     872.4    2068.9     882.3
GR   2068.8     885.6    2068.8     888.9    2068.7     892.2    2068.7     898.8    2068.6     902.1
GR   2068.6     908.7    2068.5       912    2068.5     918.6    2068.4     921.9    2068.4     928.5
GR   2068.3     931.8    2068.3     938.4    2068.2     941.7    2068.2     951.7    2068.3       955
GR   2068.3       968    2068.3       971    2068.4       974    2068.4       980    2067.6     983.3
GR   2066.8     986.7      2066       990    2065.8     993.3    2065.7     996.7    2065.5      1000
GR     2067    1003.3    2068.5    1006.7      2070      1010      2071    1013.3      2072    1016.7
GR     2074    1023.3      2075    1026.7      2076      1030    2076.8    1043.3    2076.9    1046.7
GR   2077.7      1060    2078.5    1073.3    2079.1    1083.3    2079.2    1086.7      2080      1100

QT        2       481       481
ET                          9.1                                                       974      1042
          LINCOLN STREET CROSSING - DOWNSTREAM CROSS SECTION OF A 3
          BARREL 20.4" x 15.6" ARCH CORRUGATED METAL PIPE WITH PROJECTING
          ENDS.  ROAD EMBANKMENT IS CONCRETE LINED FOR EROSION PROTECTION.
          THIS CROSSING IS NOT MODELLED AS A CULVERT CROSSING BECAUSE
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            THE INLET IS COMPLETELY COVERED BY SEDIMENTATION.  THE INLET
            ELEVATION IS EQUAL TO THE TOP OF ROADWAY.
X1    0.762       41     994.75   1005.25      215.5      215.5      215.5
GR     2072      790       2072       802       2072        814       2072        826       2072        838
GR     2072    850.2       2072     862.3       2072      874.4       2072      886.5       2072      898.6
GR     2072    910.8       2072     922.9       2072        935     2071.2        947       2071        950
GR     2071    961.4       2071       970     2070.9      972.9     2070.7      975.7     2070.6      978.6
GR   2070.4    981.4     2070.3     984.3     2070.1      987.1       2070        990   2067.34     994.75
GR   2067.3    996.7    2067.34      1000    2067.34     1003.3    2067.34    1005.25     2069.4     1013.3
GR   2069.5   1016.7     2069.6      1020     2069.7     1023.3     2069.9     1026.7       2070       1030
GR   2070.8     1042     2071.6      1054       2072       1060     2074.4       1072     2076.8       1084
GR     2078     1090

ET                          9.1                                                                941       1054
            THIS IS THE DOWNSTREAM CROSS SECTION OF THE LINCOLN STREET
            CROSSING. THIS SECTION IS THE TOP OF A 3 FOOT DROP STRUCTURE
            CREATED BY THE COVERED INLET LOCATED UPSTREAM OF THIS SECTION.
X1    0.763       41     994.75   1013.3          .5         .5         .5
GR     2072      790       2072       802       2072        814       2072        826       2072        838
GR     2072    850.2       2072     862.3       2072      874.4       2072      886.5       2072      898.6
GR     2072    910.8       2072     922.9       2072        935     2071.2        947       2071        950
GR     2071    961.4       2071       970     2070.9      972.9     2070.7      975.7     2070.6      978.6
GR   2070.4    981.4     2070.3     984.3     2070.1      987.1       2070        990     2069.9     994.75
GR   2069.8    996.7     2069.7      1000     2069.7     1003.3     2069.8    1005.25     2069.9     1013.3
GR   2070.1   1016.7     2070.2      1020     2070.3     1023.3     2070.4     1026.7     2070.5       1030
     2070.8     1042     2071.6      1054       2072       1060     2074.4       1072     2076.8       1084
     2078     1090

ET                7.1        9.1                                      899       1079       940       1079
            UPSTREAM CROSS SECTION OF LINCOLN STREET. 3 - BARREL, 20.4"
            x 15.6" CORRUGATED METAL PIPE, PIPES ARE COVERED BY
            SEDIMENTATION AND ARE CONSIDERED INEFFECTIVE.
X1    0.765       65      957.7   1025.0         47         47         47
GR     2073      660       2073       671.8     2073      683.6       2073      695.5       2073      707.3
GR     2073    719.1       2073       730.9     2073      742.7       2073      754.5       2073      766.4
GR     2073    778.2       2073         790     2073      801.8       2073      813.6       2073      825.5
GR     2073    837.3       2073       849.1     2073        855     2072.8      867.1     2072.6      879.2
GR   2072.4    891.3     2072.2       903.3     2072      915.4     2071.8      927.5     2071.6      933.5
GR   2071.4    945.6     2071.2       957.7     2071      969.8     2070.8      981.9     2070.6        994
GR   2070.5     1000     2070.9      1012.5     2071.3     1025     2071.4     1031.3     2071.6     1037.5
GR     2072     1050     2072.1        1056     2072.1   1062.1     2072.2     1068.1     2072.2     1074.1
GR   2072.4   1086.2     2072.4      1092.2     2072.5   1098.2     2072.5     1104.3     2072.6     1110.3
GR   2072.6   1116.3     2072.8      1128.4     2072.8   1134.4     2072.9     1140.4     2072.9     1146.5
GR   2073.1   1158.5     2073.1      1164.6     2073.2   1170.6     2073.2     1176.6     2073.4     1188.7
GR   2073.4   1194.7     2073.5      1200.7     2073.5   1206.8     2073.6     1212.8     2073.6     1218.8
GR   2073.8   1230.9     2073.8      1236.9     2073.9   1242.9     2073.9       1249       2074       1255

NC    0.060    0.060      0.035          .1         .3
ET                7.1        9.1                                      973       1025       940       1025
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            CONFLUENCE OF WASH AD - SUNSET WASH AND WASH AE - SUNNY COVE
            WASH IS LOCATED 120 FEET UPSTREAM OF THIS SECTION.
X1    0.798       31      990     1000      142      132      140
GR     2076    654.4     2076      670   2075.9    677.1   2075.7    684.3   2075.6    691.4
GR   2075.4    698.6   2075.3    705.7   2075.1    712.9     2075      735     2076      800
GR     2076      860   2076.3      938   2076.3      966   2076.0      972   2072.3      977
GR     2074      982     2072      990     2072     1000     2074     1010     2074     1025
GR     2074     1040     2074     1055     2074     1070     2074     1085   2073.9   1092.5
GR   2073.9     1100   2073.8   1107.5   2073.8     1115   2073.6     1130   2073.6   1137.5
GR   2073.5     1145

QT        2      336      336
NC    0.070    0.070    0.030       .1       .3
ET                       9.1                                947     1019      980     1019
            1ST CROSS SECTION OF WASH AD-SUNSET WASH UPSTREAM OF
            WASH AE-SUNNY COVE WASH.
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    0.862       62      990     1010      200      408      335
GR     2078      740   2077.1   809.99   2085.1      810   2085.1      845   2076.6   845.01
GR   2076.3   873.99   2084.3      874   2084.3      894   2076.0   894.01   2076.0      920
GR   2084.0   920.01   2084.0      948   2084.0      972   2076.0   972.01     2076      980
GR   2075.9      990   2075.8   993.3   2075.7    996.7   2075.5     1000   2075.7   1003.3
GR   2075.8   1006.7     2076     1010   2076.7   1013.3   2077.3   1016.7     2078     1020
     2078.1     1023   2078.1   1028.9   2078.2   1031.9   2078.2   1034.9   2078.3   1037.9
     2078.3   1040.8   2078.4   1043.8   2078.4   1046.8   2078.5   1049.8   2078.5   1052.7
GR   2078.6   1055.7   2078.6   1058.7   2078.7   1061.7   2078.7   1064.6   2078.8   1067.6
GR   2078.8   1070.6   2078.9   1073.6   2078.9   1079.5   2079.1   1085.5   2079.1   1091.4
GR   2079.2   1094.4   2079.2   1097.4   2079.3   1100.4   2079.3   1103.3   2079.4   1106.3
GR   2079.4   1109.3   2079.5   1112.3   2079.5   1115.2   2079.6   1118.2   2079.6   1121.2
GR   2079.7   1124.2   2079.7   1127.1   2079.8   1130.1   2079.8   1133.1   2079.9   1136.1
GR   2079.9     1142     2080     1145

ET                 7.1      9.1                                800     1128      800     1128
            DIP SECTION CROSSING AT KELLIS ROAD.
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    0.913       34      980     1020      200      415      270
GR   2081.0    485.0   2080.0    518.0   2079.9    564.2   2079.8    610.4   2079.7    656.6
GR   2079.6    702.8   2079.5    749.0   2079.4    795.2   2079.3    841.4   2079.2    887.6
GR   2079.1    934.0   2079.0    980.0   2078.8    990.0   2078.6   1000.0   2079.0   1015.0
GR   2079.0   1020.0  2079.09   1030.0  2079.14   1040.0   2079.2   1050.0  2079.26   1060.0
GR   2079.3   1070.0  2079.37   1080.0  2079.43   1090.0  2079.49   1100.0  2079.54   1110.0
GR   2079.6   1120.0  2079.66   1130.0  2079.71   1140.0  2079.77   1150.0  2079.83   1160.0
GR   2079.9   1170.0  2079.94   1180.0   2080.0   1190.0   2081.0   1385.0

QT        2      304      304
ET                 7.1      9.1                                985     1024      985     1024
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            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    0.957      69     990    1020     235     235     235
GR     2097     380  2096.2   386.7  2095.3   393.3  2093.7   406.7  2092.8   413.3
GR     2092     420    2084     435    2083   447.5    2082     460    2082   474.3
GR     2082   488.6    2082   502.9    2082   517.1    2082   531.4    2082   545.7
GR     2082     560  2081.9   566.7  2081.9   573.3  2081.8     580  2081.8   593.3
GR   2081.8   606.7  2081.8   613.3  2081.9     620  2081.9   633.3  2081.9     640
GR     2082   646.7    2082     660    2082   672.5    2082     685    2082     692
GR   2081.9     699  2081.9     706  2081.8     713  2081.8   726.9  2081.9   733.8
GR   2081.9   747.5  2081.9   761.3    2082   768.1    2082   781.4    2082   794.3
GR   2082.1   800.7  2082.1   813.6  2082.1   826.7  2082.1     840  2082.1   846.7
GR   2082.2   853.3  2082.2     860  2082.4     874  2082.6     881  2082.8     895
GR     2083     909  2083.2     916  2083.4     930  2083.6     944  2083.8     951
GR     2084     965  2085.1   972.5  2086.1     980    2084     990    2083    1000
GR   2083.3  1006.7  2083.7  1013.3    2084    1020    2086  1026.7    2088  1033.3
GR     2090    1040    2090    1054    2090    1068    2090    1075

QT        2     136     136
ET              7.1     9.1                             988    1016     988    1016
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
X1    1.053      61   992.5    1005     487     500     504
      2113     330    2110     350  2106.7   358.3  2103.3   366.7    2100     375
      2094     395    2094     412    2094     429    2094     446    2094     463
GR     2094     480    2093     500    2093     520    2093     535  2092.9   543.2
GR   2092.9   551.4  2092.8   559.6  2092.8   567.9  2092.7   576.1  2092.7   584.3
GR   2092.5   600.7  2092.5   608.9  2092.4   617.1  2092.4   625.4  2092.3   633.6
GR   2092.3   641.8  2092.2     650  2092.3   658.1  2092.5   666.3  2092.6   674.4
GR   2092.8   682.5    2093   698.8  2093.2   706.9  2093.4   723.8  2093.4   741.3
GR   2093.5     750  2093.5   766.7  2093.5   783.3  2093.5     800  2093.5   816.7
GR   2093.5   833.3  2093.5     850  2093.5   867.8  2093.5   885.6  2093.5   903.3
GR   2093.5   921.1  2093.5     930  2093.6   938.8  2093.8   947.5    2094     965
GR     2094     985  2092.8   992.5  2091.5    1000    2092    1005    2094    1020
GR   2094.4  1028.6  2094.9  1037.1  2095.7  1054.3  2096.1  1062.9  2096.6  1071.4
GR     2097    1080

QT        2      32      32
NC    0.060   0.070   0.035      .1      .3
ET                    9.1                                     967    1001
X1    1.152      47     975    1000     360     550     526
GR     2120     630  2112.5     645    2110     650  2109.7     655  2109.3     660
GR   2108.7     670  2108.3     675    2108     680    2108   694.6    2108   709.2
GR     2108   723.8    2108   738.4    2108     753    2108   767.6    2108   782.2
GR     2108   796.8    2108   811.5    2108     826    2108   840.7    2108   855.3
GR     2108     870    2108     885    2108     900    2108     915    2108     930
GR     2108     940    2106     950    2104     955    2102     960  2101.4     975
GR     2101     985  2101.3     990  2101.7     995    2102    1000  2103.5    1015
GR     2104    1020    2110    1030  2111.7    1035  2113.3    1040  2116.7    1050
      2118.3    1055    2120    1060  2120.8    1065  2121.7    1070  2123.3    1080
GR   2124.2    1085    2125    1090
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ET                          9.1                                                   978       1021
            LAST SECTION OF DTEAILED STUDY.  JUST DOWNSTREAM OF
            THE RECENTLY CNSTRUCTED FLOOD CONTROL DAM.
X1    1.206        62       980      1020       361       240       283
GR     2118       685      2117     688.8      2116     692.5      2115     696.3      2114       700
GR     2113     703.8      2112     707.5      2111     711.3      2110       715      2110       723
GR   2109.9       727    2109.9       739    2109.9       743    2109.8       747    2109.8     758.9
GR   2109.8     762.8    2109.9     766.7    2109.9     778.3      2110     782.2      2110     793.8
GR     2110     805.4      2110     816.9      2110     828.5      2110       840      2110     843.8
GR   2109.9     847.6    2109.9       859    2109.9     862.9    2109.8     866.7    2109.8     878.1
GR   2109.7     881.9    2109.7     893.3    2109.6     897.1    2109.6     908.6    2109.6     912.4
GR   2109.5     916.2    2109.5       920    2109.2     931.3    2108.9     942.5    2108.8     946.3
GR   2108.8       950    2108.5     961.3    2108.2     972.5      2108       980    2107.7       992
GR   2107.5      1000    2107.8      1012      2108      1020    2108.7    1023.3    2109.3    1026.7
GR     2110      1030    2111.3    1033.8    2112.5    1037.5    2113.8    1041.3      2115      1045
GR   2116.3    1048.8    2117.5    1052.5    2118.8    1056.3      2120      1060    2122.7    1063.3
GR   2125.3    1066.7      2128      1070

QT        2       481       481
NC    0.060     0.060     0.035        .1        .3
ET                7.1       9.1                                   973      1025       973      1025
            CONFLUENCE OF WASH AD - SUNSET WASH AND WASH AE - SUNNY COVE
            WASH IS LOCATED 120 FEET UPSTREAM OF THIS SECTION.
X1   -0.798        62       955       990       142       132       140
      2085       405      2080       420      2076       440      2076     455.2      2076     470.5
      2076     485.7      2076       501      2076     516.2      2076     531.4      2076     546.7
GR    2076     561.9      2076     577.1      2076     592.4      2076     607.8      2076     623.3
GR    2076     638.9      2076     654.4      2076       670    2075.9       677.1    2075.7     684.3
GR  2075.6     691.4    2075.4     698.6    2075.3     705.7    2075.1     712.9      2075       720
GR    2075       735      2075       750      2075       765      2075       780      2075       795
GR    2075       810    2074.8     817.5    2074.7       825    2074.3       840    2074.2     847.5
GR    2074       855    2073.8     870.5    2073.6     885.9    2073.6     893.6    2073.4     901.4
GR  2073.4     909.1    2073.2     924.5      2073       940      2073       955    2072.7     961.7
GR  2072.3     968.3      2072       975      2074       990      2073      1000      2074      1010
GR    2074      1025      2074      1040      2074      1055      2074      1070      2074      1085
GR  2073.9    1092.5    2073.9      1100    2073.8    1107.5    2073.8      1115    2073.6      1130
GR  2073.6    1137.5    2073.5      1145

QT        2       145       145
NC    0.065     0.070     0.035        .1        .3
ET                          9.1                                                   987       1086
            FIRST CROSS SECTION OF WASH AE-SUNNY COVE WASH, UPSTREAM OF
            WASH AD-SUNSET WASH.
X1    0.032        68       990      1022       295       287       283
GR     2082       590    2081.4       605    2080.8       620    2080.2       635    2079.9       645
GR   2079.8       660    2079.6       670    2079.6       675    2079.5       680    2079.7     690.3
GR   2079.8     695.5    2079.8     700.7      2080       711      2080     725.5      2080       740
GR     2080       745    2079.9       750    2079.9       765    2079.8       770    2079.8       785
GR   2079.7       790    2079.7       800    2079.6       815    2079.6       820    2079.5       825
      2079.5     835.1    2079.6     845.4    2079.6     850.6    2079.7     855.7    2079.7     860.9
      2079.8       866    2079.8     876.3    2079.9     881.4    2079.9     891.7      2080       902
GR   2080.5       916      2081       930    2081.2       935    2081.3       940    2081.7       950
GR   2081.8       955      2082       960    2082.3     964.5    2082.5       969      2082       972
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     2080      982     2078      990    2077.8      995    2077.5     1000    2077.5     1015
GR   2078     1022    2078.1   1026.8    2078.1   1036.4    2078.3     1046    2078.3   1050.8
GR  2078.4   1055.6    2078.4   1065.2    2078.6   1074.9    2078.8   1079.8    2078.9   1084.7
GR  2079.3   1094.5    2079.4   1099.4    2079.6   1104.3    2079.7   1109.2      2080     1119
GR   2082     1131    2083.5   1145.3      2084     1150

ET             7.1       9.1                                985     1012       985     1012
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
X1  0.095      63    986.3     1009      380      250      332
GR  2086.2    834    2086.2   841.6    2086.4   849.2    2086.3   860.6    2086.3   868.2
GR  2086.2    872    2086.2   884.2      2086   888.2      2086   892.3    2085.8   896.3
GR  2085.8  900.4    2085.6   904.4    2085.6   916.6    2085.6   920.6    2085.2   932.8
GR  2085.3  936.8    2085.6   940.9      2086     949    2086.5     954    2086.5     959
GR    2086    960    2085.8   963.8    2085.5   967.5    2085.3   971.3      2085     975
GR  2084.8  978.8    2084.5   982.5    2084.3   986.3      2084     990      2083     995
GR    2083 1004.5    2083.5    1009    2084.7    1013    2085.3    1017      2086    1021
GR    2086 1025.1    2086.5  1029.3    2086.5  1033.4    2086.3  1037.6      2086  1041.7
GR    2086 1045.9    2085.6  1057.9    2085.3  1069.6    2085.2  1073.6      2085  1077.5
GR  2084.7 1081.4    2084.4  1093.2    2084.1    1105    2083.8  1118.1    2083.6  1127.1
GR  2083.4 1137.2      2083    1150    2082.7  1160.4    2082.5  1174.4    2082.2  1184.5
GR  2081.8 1197.6    2081.4  1211.7    2081.1  1218.8    2080.9  1221.8    2080.7  1227.9
GR  2080.4 1229.9    2080.3  1232.9      2080    1235

       2      102       102
   0.070    0.070     0.035      .1       .3
ET                    9.1                                      984    1033
X1  0.175       53      1000  1018.8      415      425      422
GR   2100      730    2099.4    734    2097.7      746     2096     758    2095.9   762.1
GR  2095.9   766.3    2095.6  778.7    2095.6   782.9    2095.5     787      2095     798
GR   2095   810.8      2095    815    2094.8   818.5    2094.5     822    2094.3   825.5
GR   2094     829    2092.5    841      2092     845    2091.7   848.7    2091.3   852.3
GR   2091     856    2091.2    860    2091.3     864    2091.7     872    2091.8     876
GR  2092.2     888    2092.5    900    2092.3     909      2092     918      2092     930
GR   2092     942      2092    954      2092     962    2091.1     974    2090.6     982
GR   2090     990      2089   1000    2089.1  1003.8    2089.3  1007.5    2089.6  1018.8
GR  2089.8  1022.5    2090    1030    2091.5  1041.3      2092    1045      2092  1056.5
GR   2092    1068      2092    1072      2096    1080      2100    1090      2103    1102
GR   2106    1114      2109    1126      2110    1130

ET                    9.1                                      996    1047
X1  0.228       49      1000  1021.1      270      345      283
GR   2108     920    2107.7   923.2    2107.3   926.3    2106.7   932.7    2106.3   935.8
GR   2106     939    2104.3   950.7    2102.6   962.4    2100.9   974.1      2100     980
GR  2097.6   988.6    2094.5    1000    2094.5    1012    2094.5    1018    2094.6  1021.1
GR  2094.9  1030.2    2094.9  1033.3    2095.3  1045.5    2095.6  1054.7    2095.6  1057.8
GR    2096    1070    2096.4  1081.8    2096.8   1093.6    2096.9  1099.5    2097.1  1102.5
GR  2097.4  1114.3    2097.8  1126.1      2098    1132    2098.3  1134.9    2098.5  1137.8
GR  2098.8  1140.6      2099  1143.5    2099.3  1146.4    2099.5  1149.3    2099.8  1152.1
GR    2100    1155    2103.6  1166.6    2104.6  1169.6    2105.4  1172.4    2109.1  1184.1
      2110    1187    2111.7    1190    2113.3    1193    2116.7    1199    2118.3    1202
GR    2120    1205    2120.7  1208.3    2121.3  1211.7      2122    1215
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QT        2        49        49
ET                 7.1       9.1                                        984       1009       984       1009
          DOWNSTREAM CROSS SECTION OF 21" CORRUGATED METAL PIPE WITH
          PROJECTING OUTLET, EAST SIDE OF KELLIS ROAD.
          THIS PIPE IS NOT MODELLED DUE TO ITS LIMITED CAPACITY,
          BASED ON ANALYSIS THE PIPE HANDLES LESS THAN HALF OF THE
          PEAK DISCHARGE OF 49 CFS.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
X1    0.280        65     985.0    1001.0       260       322       276
X3       10
GR     2108       680      2106       709    2105.3     714.3    2104.7     719.7      2104       725
GR     2102       745    2101.3       750    2100.7       755      2100       760    2099.9     765.4
GR   2099.9     770.7    2099.6     786.8    2099.6     792.1    2099.4     802.9    2099.4     808.2
GR   2099.1     824.3    2099.1     829.6      2099       835      2099     861.1    2099.1     866.7
GR   2099.1     894.4    2099.2       900    2099.2     922.2    2099.3     927.8    2099.3       950
GR   2099.4     955.6    2099.4     985.0   2098.54     999.0   2098.54      1000   2098.54    1001.0
GR     2100      1013    2100.4    1018.8    2100.9    1024.6    2101.3    1030.3    2101.8    1036.1
GR   2102.2    1041.9    2102.7    1047.7    2103.1    1053.4    2103.6    1059.2      2104      1065
GR   2104.8    1070.5    2105.5      1076    2106.3    1081.5      2107      1087    2107.8    1092.5
GR   2108.5      1098    2109.3    1103.5      2110      1109    2111.7    1114.2    2113.3    1119.3
GR   2116.7    1129.7    2118.3    1134.8      2120      1140    2121.4    1145.9    2122.9    1151.7
GR   2124.3    1157.6    2125.7    1163.4    2127.1    1169.3    2128.6    1175.1      2130      1181
     2131.4    1186.6    2132.9    1192.1    2137.1    1208.9    2138.6    1214.4      2140      1220

ET                 7.1       9.1                                        984       1001       984       1001
          EDGE OF EAST SIDE OF KELLIS ROAD-DOWNSTREAM SIDE OF ROAD CROSSING.
X1    0.293        58       985      1000        15        15        15                  0
GR     2101       555    2100.8     561.8    2100.5     568.5    2100.3     575.3    2100.4       582
GR   2100.5     589.3    2100.6     596.5    2100.7     603.8    2100.8       611    2100.9     618.3
GR   2101.0     625.5    2101.1     632.8    2101.2       640    2101.3     654.4    2101.4     661.6
GR   2101.5     690.4    2101.6     697.6    2101.7       712    2101.8     768.6    2101.9     825.3
GR   2102.0     881.9    2102.1       889    2102.2       900    2102.3     912.8    2102.4       932
GR   2102.5     939.4    2102.6     946.8    2102.7     954.2    2102.8     961.6    2102.9       969
GR   2103.0       985    2103.5       999    2104.0      1000    2104.2      1001    2104.5      1015
GR     2105      1020      2107      1050    2107.3    1056.5    2107.7      1063    2108.3      1076
GR   2108.7    1082.5      2109      1089    2110.6    1103.4      2113      1125      2117      1151
GR   2117.7    1158.2    2118.3    1165.3    2119.7    1179.7    2120.3    1186.8      2121      1194
GR   2121.8    1200.6    2122.5    1207.3    2123.3    1213.9      2124    1220.5    2124.8    1227.1
GR   2125.5    1233.8    2126.3    1240.4      2127      1247

ET                 7.1       9.1                                        984       1010       984       1010
          EDGE OF WAST SIDE OF KELLIS ROAD-UPSTREAM SIDE OF ROAD CROSSING.
          THIS EDGE OF ROADWAY WAS USED FOR WEIR FLOW CALCULATIONS.
X1    0.294        58       985      1001        50        50        50                  0
GR     2104       555    2103.8     561.8    2103.5     568.5    2103.3     575.3    2103.4       582
GR   2103.5     589.3    2103.6     596.5    2103.7     603.8    2103.8       611    2103.9     618.3
GR   2104.0     625.5    2104.1     632.8    2104.2       640    2104.3     654.4    2104.4     661.6
     2104.5     690.4    2104.6     697.6    2104.7       712    2104.8     768.6    2104.9     825.3
     2105.0     881.9    2105.1       889    2105.2       900    2105.3     912.8    2105.4       932
GR   2105.5     939.4    2105.6     946.8    2105.7     954.2    2105.8     961.6    2105.9       969
GR   2106.0       985    2106.5       999    2107.0      1000    2107.2      1001    2107.5      1015
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      2108      1020      2110      1050      2110.3    1056.5    2110.7    1063      2111.3    1076
GR    2111.7    1082.5    2112      1089      2113.6    1103.4    2116      1125      2120      1151
GR    2120.7    1158.2    2121.3    1165.3    2122.7    1179.7    2123.3    1186.8    2124      1194
GR    2124.8    1200.6    2125.5    1207.3    2126.3    1213.9    2127      1220.5    2127.8    1227.1
GR    2128.5    1233.8    2129.3    1240.4    2130      1247

ET                7.1       9.1                                   984       1015      984       1015
          UPSTREAM CROSS SECTION OF 21" CORRUGATED METAL PIPE WITH
          PROJECTING INLET, NO EROSION PROTECTION.  ANALYSIS DOES NOT
          INCLUDE THIS PIPE.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
X1    0.295     58        985       1001      15        15        15                  0
GR    2104      555       2103.8    561.8     2103.5    568.5     2103.3    575.3     2103      582
GR    2102.9    589.3     2102.8    596.5     2102.6    603.8     2102.5    611       2102.4    618.3
GR    2102.3    625.5     2102.1    632.8     2102      640       2101.6    654.4     2101.4    661.6
GR    2100.6    690.4     2100.4    697.6     2100      712       2100      768.6     2100      825.3
GR    2100      881.9     2100      889       2099      900       2099.4    912.8     2100      932
GR    2100.4    939.4     2100.8    946.8     2101.2    954.2     2101.6    961.6     2102      969
GR    2106.0    985       2100.2    999       2100.2    1000      2100.2    1001      2107.5    1015
GR    2108      1020      2110      1050      2110.3    1056.5    2110.7    1063      2111.3    1076
GR    2111.7    1082.5    2112      1089      2113.6    1103.4    2116      1125      2120      1151
GR    2120.7    1158.2    2121.3    1165.3    2122.7    1179.7    2123.3    1186.8    2124      1194
GR    2124.8    1200.6    2125.5    1207.3    2126.3    1213.9    2127      1220.5    2127.8    1227.1
      2128.5    1233.8    2129.3    1240.4    2130      1247

ET                          9.1                                                         970       1016
X1    0.313     60        994       1009      108       60        95
GR    2110      960       2109.5    962       2109.1    964       2107.6    970       2107.2    972
GR    2106.2    976       2105.8    978       2104.8    982       2104.4    984       2102.9    990
GR    2102.5    992       2102      994       2101.7    996       2101.3    998       2101      1000
GR    2101.3    1002.3    2101.5    1004.5    2101.8    1006.8    2102      1009      2110      1019
GR    2110.8    1027      2111.1    1029      2112.9    1047      2113.2    1049      2114.2    1058.9
GR    2114.3    1060.8    2114.7    1064.7    2114.8    1066.6    2115.2    1070.4    2115.3    1072.3
GR    2115.7    1076.2    2115.8    1078.1    2116      1080      2116.3    1082.1    2116.7    1084.2
GR    2117.3    1088.3    2117.7    1090.4    2118.3    1094.6    2118.7    1096.7    2119.3    1100.8
GR    2119.7    1102.9    2120      1105      2120.3    1106.9    2120.7    1108.9    2121.3    1112.8
GR    2121.7    1114.7    2122.3    1118.6    2122.7    1120.6    2123.3    1124.4    2123.7    1126.4
GR    2124.3    1130.3    2124.7    1132.2    2125.3    1136.1    2125.7    1138.1    2126      1140
GR    2126.8    1148      2127.1    1150      2128.9    1168      2129.2    1170      2130      1178

ET                          9.1                                                         964       1067
X1    0.356     55        992.5     1000      240       225       230
GR    2120      930       2117.9    936       2117.1    938       2112.9    950       2112.1    952
GR    2110      958       2108      962       2106      972       2105.7    974.2     2105.3    976.3
GR    2104.7    980.7     2104.3    982.8     2104      985       2103.9    986.9     2103.9    988.8
GR    2103.8    990.6     2103.8    992.5     2103.6    996.3     2103.6    998.1     2103.5    1000
GR    2104      1010      2104.1    1012.3    2104.3    1014.5    2104.6    1021.1    2104.6    1025.3
GR    2104.8    1029.5    2104.8    1031.6    2104.9    1033.7    2104.9    1037.9    2105.4    1048
      2105.6    1050      2106      1058      2106.3    1060      2106.7    1062      2107.3    1066
      2107.7    1068      2108      1070      2110      1080      2110.5    1081.9    2111      1083.9
GR    2111.5    1085.8    2112.5    1089.8    2113      1091.7    2113.5    1093.7    2114      1095.6
GR    2114.5    1097.6    2115.5    1101.4    2116      1103.4    2116.5    1105.3    2117.5    1109.3
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	2118	1111.2	2118.5	1113.2	2119	1115.1	2119.5	1117.1	2120	1119
ET			9.1						890	1064
X1	0.382	70	980	1002.5	138	125	138			
GR	2110	871	2109.7	873.7	2109.3	876.3	2108.7	881.7	2108.3	884.3
GR	2108	887	2106	900	2105.9	902.5	2105.9	905	2105.8	907.5
GR	2105.8	910	2105.6	915	2105.6	917.5	2105.5	920	2105.5	922.5
GR	2105.4	925	2105.4	927.5	2105.2	932.5	2105.2	935	2105.1	937.5
GR	2105.1	940	2104.9	945	2104.9	947.5	2104.8	950	2104.8	952.5
GR	2104.6	957.5	2104.6	960	2104.5	962.5	2104.5	965	2104.4	967.5
GR	2104.4	970	2104.2	975	2104.2	977.5	2104.1	980	2104.1	982.5
GR	2104	985	2104	1000	2104.1	1002.5	2104.3	1005	2104.6	1012.5
GR	2104.8	1015	2105.1	1022.5	2105.3	1025	2105.6	1032.5	2105.8	1035
GR	2106.1	1042.5	2106.3	1045	2106.5	1050	2106.7	1052.4	2106.8	1054.9
GR	2107.2	1059.8	2107.3	1062.2	2107.7	1067.1	2107.8	1069.6	2108	1072
GR	2108.5	1074.3	2109	1076.5	2109.5	1078.8	2110	1081	2112.5	1094.1
GR	2114	1102	2114.6	1104.6	2115.6	1109.6	2116.2	1112.2	2116.7	1114.7
GR	2117.3	1117.3	2117.8	1119.8	2118.4	1122.4	2119.4	1127.4	2120	1130
ET			9.1						993	1044

LAST CROSS SECTION OF DETAILED ANALYSIS-JUST DOWN STREAM
FROM THE SUNNY COVE FLOOD CONTROL DAM.

X1	0.420	53	1012.5	1027.4	216	178	197			
GR	2130	905	2129.1	907.5	2128.2	909.9	2127.3	912.4	2126.4	914.8
GR	2125.4	917.3	2124.6	919.7	2123.6	922.2	2122.7	924.6	2121.8	927.1
	2120.9	929.5	2120	932	2110	945	2109.9	947.6	2109.7	950.1
	2109.6	952.7	2109.4	955.3	2109.3	957.9	2109.1	960.4	2108.9	965.5
GR	2108.9	967.9	2108.7	972.9	2108.7	975.3	2108.5	980.3	2108.5	982.7
GR	2108.3	987.7	2108.3	990.1	2108.1	995.1	2108.1	997.5	2107.9	1002.5
GR	2107.9	1007.5	2107.8	1010	2107.8	1012.5	2107.6	1017.5	2107.6	1020
GR	2107.6	1022.5	2107.5	1025	2107.6	1027.4	2107.6	1029.9	2107.9	1037.1
GR	2107.9	1039.6	2108	1042	2108.9	1049.7	2109.1	1052.3	2110	1060
GR	2110.4	1069.8	2110.6	1072.2	2111	1082	2111	1110	2111.3	1112.8
GR	2111.5	1115.5	2111.8	1118.3	2112	1121				

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

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 50.940

3265 DIVIDED FLOW

HASSAYAMPA RIVER CROSS SECTION 50.94 (CBA 1988, NO DATUM CHANGE)
CONFLUENCE WITH WASH AD - SUNSET WASH, A WEST TRIBUTARY
NON COINCIDENT WITH 100-YEAR DISCHARGE IN HASSAYAMPA.

50.940	1.92	2023.82	2023.33	2031.84	2023.95	.13	.00	.00	2022.00
600.0	189.4	396.8	13.8	72.9	126.8	7.4	.0	.0	2022.40
.00	2.60	3.13	1.86	.045	.035	.045	.000	2021.90	1715.35
.005091	475.	500.	555.	0	17	10	.00	270.94	2227.95

FLOW DISTRIBUTION FOR SECNO= 50.94 CWSEL= 2023.82

A=	1715.	1719.	1814.	1893.	1913.	2218.	2228.
PER Q=	.1	1.7	7.7	22.1	66.1	2.3
AREA=	.6	15.1	20.1	37.1	126.8	7.4
VEL=	.7	.7	2.3	3.6	3.1	1.9
DEPTH=	.2	.2	.3	1.9	1.1	.7

CCHV= .100 CEHV= .300
*SECNO .216

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 972.0 1030.0 TYPE= 1 TARGET= 58.000
FIRST CROSS SECTION OF WASH AD - SUNSET WASH.
EXISTING 2 BARREL-42" CORRUGATED METAL PIPES UNDER DIRT ROAD
APPROXIMATELY 45 FEET DOWNSTREAM OF THIS CROSS SECTION.
THIS CROSSING HAS NOT BEEN INCLUDED IN THIS ANALYSIS BECAUSE
THE CROSSING IS IN THE EXISTING FLOODPLAIN OF THE HASSAYAMPA
RIVER AND WOULD BE INUNDATED IN A 100 YEAR EVENT. BASED ON THE
FIELD SURVEY DATA, THE EXISTING PIPES WILL NOT HANDLE THE

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          100 YEAR PEAK DISCHARGE FROM WASH AD-SUNSET WASH.  THERE IS
          EVIDENCE THAT FLOW OVERTOPS THE DIRT ROAD WITH EXCESS FLOW
          DRAINING EAST AND SOUTH.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .216      4.93   2037.53   2037.53       .00   2038.31       .78      8.62       .19   2036.00
    600.0      14.6     559.5      25.9       5.9      76.6      10.3       3.9       4.3   2036.00
      .05      2.50      7.31      2.51      .055      .035      .065      .000   2032.60    972.35
  .012532     1150.     1141.      900.         0         9         0       .00     57.65   1030.00


FLOW DISTRIBUTION FOR SECNO=       .22          CWSEL=   2037.53

STA=     972.     980.    1020.    1030.
  PER Q=      2.4     93.2      4.3
   AREA=      5.9     76.6     10.3
    VEL=      2.5      7.3      2.5
  DEPTH=       .8      1.9      1.0

CCHV=     .100 CEHV=     .300
*SECNO  .261

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69


   0 ENCROACHMENT STATIONS=      973.0    1024.0  TYPE=      1  TARGET=       51.000
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .261      4.40   2039.40   2038.58       .00   2039.94       .54      1.60       .02   2036.00
    600.0      72.4     465.3      62.4      28.9      71.0      26.4       4.5       4.5   2036.00
      .06      2.50      6.56      2.36      .065      .035      .070      .000   2035.00    973.10
  .004412      198.      235.      210.         3        19         0       .00     50.39   1023.49


FLOW DISTRIBUTION FOR SECNO=       .26          CWSEL=   2039.40

STA=     973.     977.     983.     990.    1010.    1020.    1023.
  PER Q=       .2      2.9      9.0     77.5     10.0       .4
   AREA=      1.3      9.2     18.4     71.0     24.0      2.4
    VEL=       .7      1.9      2.9      6.6      2.5      1.1
  DEPTH=       .3      1.4      2.7      3.5      2.4       .7

CCHV=     .300 CEHV=     .500
*SECNO  .292
          DOWNSTREAM CROSS SECTION OF THE ATCHISON-TOPEKA AND SANTA FE
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RAILROAD TRESTLE.

.292	2.69	2040.29	2039.55	.00	2040.72	.42	.75	.03	2037.60
600.0	12.2	577.4	10.4	7.1	108.7	6.6	4.9	4.7	2037.70
.07	1.73	5.31	1.57	.065	.035	.070	.000	2037.60	973.61
.004507	132.	172.	139.	2	14	0	.00	53.05	1026.66

FLOW DISTRIBUTION FOR SECNO= .29 CWSEL= 2040.29

STA=	974.	979.	1022.	1027.
PER Q=	2.0	96.2	1.7	
AREA=	7.1	108.7	6.6	
VEL=	1.7	5.3	1.6	
DEPTH=	1.3	2.5	1.3	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.80	.00	42.70	4.22	497.10	2.00	2037.80	2037.70

*SECNO .296
CLASS A LOW FLOW

3420 BRIDGE W.S.= 2040.21 BRIDGE VELOCITY= 5.62 CALCULATED CHANNEL AREA= 104.

GPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2040.98	.22	0.	600.	497.	508.	2046.80	2049.10	0.

UPSTREAM CROSS SECTION OF THE ATCHISON-TOPEKA AND SANTA FE
RAILROAD TRESTLE.

.296	2.71	2040.51	.00	.00	2040.98	.48	.27	.00	2037.90
600.0	12.6	579.2	8.2	6.7	103.1	5.2	5.0	4.7	2038.30
.07	1.88	5.62	1.58	.065	.035	.070	.000	2037.80	973.71
.005538	19.	19.	19.	0	0	0	.00	52.56	1026.27

FLOW DISTRIBUTION FOR SECNO= .30 CWSEL= 2040.51

STA=	974.	979.	1022.	1026.
PER Q=	2.1	96.5	1.4	
AREA=	6.7	103.1	5.2	
VEL=	1.9	5.6	1.6	
DEPTH=	1.3	2.4	1.1	

CCHV= .100 CEHV= .300

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 .321

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 820.0 1266.0 TYPE= 1 TARGET= 446.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.321	2.23	2041.23	2041.18	.00	2041.75	.52	.75	.01	2040.00
600.0	10.7	485.5	103.8	7.3	75.9	68.7	5.3	5.1	2040.00
.07	1.46	6.39	1.51	.070	.030	.070	.000	2039.00	967.90
.007104	128.	119.	132.	2	15	0	.00	163.63	1265.70

FLOW DISTRIBUTION FOR SECNO= .32 CWSEL= 2041.23

STA=	968.	980.	1020.	1208.	1223.	1238.	1266.
PER Q=	1.8	80.9	4.8	4.1	5.5	2.9	
AREA=	7.3	75.9	23.8	14.3	16.9	13.7	
VEL=	1.5	6.4	1.2	1.7	1.9	1.3	
DEPTH=	.6	1.9	.1	1.0	1.1	.5	

*SECNO .390

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.390	2.63	2045.63	2045.63	.00	2046.14	.51	3.02	.00	2044.50
576.0	115.0	454.5	6.5	83.8	70.8	4.4	6.9	6.9	2044.00
.10	1.37	6.42	1.46	.070	.030	.070	.000	2043.00	701.19
.006600	460.	438.	450.	0	8	0	.00	191.79	1025.43

FLOW DISTRIBUTION FOR SECNO= .39 CWSEL= 2045.63

STA=	701.	752.	770.	784.	806.	985.	1020.	1025.
PER Q=	4.1	5.1	4.0	3.8	2.9	78.9	1.1	
AREA=	20.8	17.4	13.4	16.0	16.1	70.8	4.4	
VEL=	1.1	1.7	1.7	1.4	1.0	6.4	1.5	
DEPTH=	.4	1.0	1.0	.7	.1	2.0	.8	

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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  .473
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .473      2.06   2051.26   2051.26       .00   2051.87       .61      3.87       .03   2050.00
     576.0      66.2     498.4      11.4      33.1      74.7       5.9       8.3       8.4   2050.00
       .12      2.00      6.67      1.95      .070      .035      .070      .000   2049.20    925.62
   .012586      412.      440.      455.         0        15         0       .00    109.04   1034.66


FLOW DISTRIBUTION FOR SECNO=       .47          CWSEL=   2051.26

STA=     926.     946.     969.     980.    1025.    1030.    1035.
  PER Q=       .7      5.2      5.5     86.5      1.8       .2
   AREA=      4.8     16.0     12.4     74.7      4.5      1.3
    VEL=       .9      1.9      2.6      6.7      2.2      1.0
  DEPTH=       .2       .7      1.1      1.7       .9       .3

*SECNO  .491
  95 MINIMUM SPECIFIC ENERGY
  20 CRITICAL DEPTH ASSUMED
            PARK STREET - DIP CROSSING.
      .491      2.25   2052.75   2052.75       .00   2053.33       .58      1.08       .00   2051.10
     576.0      97.6     439.2      39.2      40.8      63.7      21.3       8.5       8.6   2051.50
       .12      2.39      6.89      1.84      .070      .035      .070      .000   2050.50    934.37
   .011866       64.       91.      125.         0         8         0       .00    126.18   1060.55


FLOW DISTRIBUTION FOR SECNO=       .49          CWSEL=   2052.75

STA=     934.     970.     980.     985.    1020.    1039.    1061.
  PER Q=      6.4      6.4      4.2     76.3      5.9       .9
   AREA=     19.8     13.2      7.7     63.7     16.3      5.0
    VEL=      1.9      2.8      3.1      6.9      2.1      1.0
  DEPTH=       .6      1.3      1.5      1.8       .8       .2

*SECNO  .534
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .534      2.33   2055.83   2055.83       .00   2056.68       .86      3.03       .08   2053.80
     541.0     139.6     390.9      10.4      40.0      46.1       4.4       9.1       9.1   2054.30
       .13      3.49      8.48      2.39      .070      .035      .070      .000   2053.50    952.07
   .014367      255.      229.      200.         0         8         0       .00     57.19   1009.26
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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

FLOW DISTRIBUTION FOR SECNO= .53 CWSEL= 2055.83

STA=	952.	965.	970.	973.	978.	982.	1003.	1009.
PER Q=	4.0	4.8	3.9	6.3	6.8	72.3	1.9	
AREA=	9.3	7.4	5.6	8.7	9.0	46.1	4.4	
VEL=	2.3	3.5	3.8	3.9	4.1	8.5	2.4	
DEPTH=	.7	1.6	1.9	1.9	2.0	2.2	.7	

CCHV= .100 CEHV= .300
*SECNO .568
3280 CROSS SECTION .57 EXTENDED 2.06 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 987.0 1016.0 TYPE= 1 TARGET= 29.000
DOWNSTREAM CROSS SECTION OF 1.5 FOOT DROP STRUCTURE AT
THE OUTLET OF THE MESQUITE STREET CROSSING.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.568	3.96	2058.06	2058.06	.00	2059.65	1.59	1.95	.22	2054.10
541.0	38.8	440.7	61.6	14.1	39.6	20.0	9.5	9.3	2054.10
.13	2.74	11.12	3.08	.070	.030	.065	.000	2054.10	987.87
.008035	232.	179.	148.	0	14	0	.00	27.21	1015.09

FLOW DISTRIBUTION FOR SECNO= .57 CWSEL= 2058.06

STA=	988.	995.	1005.	1015.
PER Q=	7.2	81.5	11.4	
AREA=	14.1	39.6	20.0	
VEL=	2.7	11.1	3.1	
DEPTH=	2.0	4.0	2.0	

CCHV= .300 CEHV= .500
*SECNO .569

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

3280 CROSS SECTION .57 EXTENDED 4.44 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 975.0 1040.0 TYPE= 1 TARGET= 65.000
DOWNSTREAM CROSS SECTION OF 10' X 3' CONCRETE BOX CULVERT
AT THE MESQUITE STREET CROSSING.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.569	4.74	2060.44	2060.44	.00	2061.70	1.26	.00	.10	2058.70
541.0	18.5	462.1	60.3	20.4	47.5	50.9	9.5	9.3	2055.70
.13	.91	9.74	1.19	.070	.015	.065	.000	2055.70	975.00
.001718	0.	0.	0.	0	8	0	.00	65.00	1040.00

FLOW DISTRIBUTION FOR SECNO= .57 CWSEL= 2060.44

=	975.	980.	985.	995.	1005.	1019.	1024.	1029.	1034.	1040.
ER Q=	.5	.5	2.4	85.4	3.7	1.0	1.8	2.1	2.5	
AREA=	3.8	3.9	12.7	47.5	17.9	5.4	7.6	8.4	11.5	
VEL=	.7	.8	1.0	9.7	1.1	1.0	1.3	1.4	1.2	
DEPTH=	.8	.8	1.3	4.7	1.3	1.1	1.6	1.7	1.8	

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.015	.45	3.00	.00	3.00	10.00	48.00	8	1	2056.00	2055.70

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC= 2070.94..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO .578

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 2061.50
5150, EG OF 2061.50 LESS THAN XEG OF 2061.70
3280 CROSS SECTION .58 EXTENDED 4.29 FEET

3301 HV CHANGED MORE THAN HVINS

? WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.42

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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
2070.94	2069.08	.00	276.	268.	6.447	30.0	2059.68	51.

3470 ENCROACHMENT STATIONS= 970.0 1100.0 TYPE= 1 TARGET= 130.000

UPSTREAM CROSS SECTION OF 10' X 3' CONCRETE BOX CULVERT
AT THE MESQUITE STREET CROSSING.
THE BOX CULVERT DOES NOT HAVE THE CAPACITY TO HANDLE THE
PEAK DISCHARGE OF 541 CFS. THE TOTAL FLOW INTO THE BOX CULVERT
IS APPROXIMATELY 268 CFS, AND 273 CFS OVERTOPPING THE STREET
WITH 44 CFS CROSSING THE STREET IN WEIR FLOW AND 232 CFS
GOING SOUTHEASTERLY DOWN MESQUITE STREET AND SOME FLOW REENTERING
THE WASH AT PARK STREET AND SOME OF THE FLOW REENTERING THE
WASH AT FISHER STREET.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.578	5.29	2061.29	.00	.00	2061.70	.41	.00	.00	2059.00
541.0	21.9	341.7	177.4	29.6	53.0	176.8	9.7	9.4	2059.00
.14	.74	6.45	1.00	.070	.015	.065	.000	2056.00	970.00
.000858	48.	48.	48.	3	0	0	.00	130.00	1100.00

FLOW DISTRIBUTION FOR SECNO= .58 CWSEL= 2061.29

STA=	970.	995.	1005.	1015.	1031.	1046.	1057.	1067.	1078.	1093.	1100.
PER Q=	4.0	63.2	4.1	4.8	4.1	3.3	3.7	4.0	6.2	2.5	
AREA=	29.6	53.0	20.8	27.0	24.6	18.3	19.7	20.7	31.3	14.4	
VEL=	.7	6.4	1.1	1.0	.9	1.0	1.0	1.1	1.1	.9	
DEPTH=	1.2	5.3	2.0	1.7	1.6	1.8	1.9	2.0	2.0	2.1	

CCHV= .100 CEHV= .300
*SECNO .598

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

.598	2.41	2061.41	2061.26	.00	2061.95	.54	.21	.04	2060.00
541.0	59.5	477.1	4.4	32.1	76.5	2.5	10.1	9.6	2060.00
.14	1.85	6.24	1.75	.070	.035	.070	.000	2059.00	927.45
.009105	95.	108.	100.	0	18	0	.00	96.14	1023.59

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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


FLOW DISTRIBUTION FOR SECNO=       .60          CWSEL=   2061.41

STA=     927.     963.     972.     978.     980.    1020.    1024.
  PER Q=      3.2      3.2      3.6      1.1     88.2       .8
   AREA=     13.1      8.5      8.2      2.3     76.5      2.5
    VEL=      1.3      2.0      2.3      2.5      6.2      1.8
  DEPTH=       .4      1.0      1.2      1.4      1.9       .7

*SECNO  .639
      .639      3.81   2062.81   2062.24       .00   2063.53       .72      1.52       .05   2060.00
     528.0      45.3     470.8      11.9      19.7      65.6       5.8      10.6       9.9   2060.00
       .15      2.30      7.17      2.04      .070      .035      .070      .000   2059.00    975.97
   .005891      140.      217.      240.         2        11         0       .00     38.26   1014.23


FLOW DISTRIBUTION FOR SECNO=       .64          CWSEL=   2062.81

STA=     976.     983.     990.    1010.    1013.    1014.
  PER Q=      1.0      7.6     89.2      2.1       .2
   AREA=      4.3     15.4     65.6      4.9      1.0
    VEL=      1.2      2.6      7.2      2.2      1.0
  DEPTH=       .7      2.1      3.3      2.0       .6

*SECNO  .672
3280 CROSS SECTION       .67 EXTENDED      1.78 FEET


3470 ENCROACHMENT STATIONS=      971.0    1013.0  TYPE=      1  TARGET=       42.000
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
      .672      3.58   2063.78   2063.58       .00   2064.77       .99      1.16       .08   2061.10
     528.0      41.1     452.6      34.3      17.5      52.9      12.9      10.9      10.1   2061.00
       .16      2.35      8.56      2.67      .070      .035      .070      .000   2060.20    971.64
   .008036      148.      173.      135.         2        11         0       .00     40.77   1012.42


FLOW DISTRIBUTION FOR SECNO=       .67          CWSEL=   2063.78

STA=     972.     979.     985.     988.    1003.    1006.    1009.    1011.    1012.
  PER Q=       .8      3.7      3.3     85.7      4.0      2.0       .5       .0
   AREA=      3.6      8.3      5.6     52.9      6.5      4.3      1.9       .1
    VEL=      1.2      2.3      3.1      8.6      3.2      2.4      1.4       .5
  DEPTH=       .5      1.4      2.2      3.4      2.3      1.5       .7       .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

CCHV= .100 CEHV= .300
*SECNO .681

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
BEGIN CONCRETE LINED OUTLET CHANNEL 65 FEET NORTH OF JACKSON
STREET PIPE CROSSING.

.681	3.88	2065.95	2065.95	.00	2067.45	1.50	.20	.15	2062.07
528.0	31.3	479.5	17.2	14.9	46.5	12.5	11.0	10.1	2062.10
.16	2.10	10.31	1.38	.055	.018	.065	.000	2062.07	983.86
.002559	75.	46.	30.	0	8	0	.00	45.59	1029.45

FLOW DISTRIBUTION FOR SECNO= .68 CWSEL= 2065.95

STA=	984.	987.	988.	994.	1006.	1010.	1013.	1027.	1029.
PER Q=	.0	.1	5.8	90.8	3.0	.1	.1	.0	
AREA=	.4	.7	13.9	46.5	9.2	1.2	1.7	.3	
VEL=	.3	.8	2.2	10.3	1.7	.6	.3	.3	
DEPTH=	.1	.5	2.3	3.9	2.3	.4	.1	.1	

CCHV= .300 CEHV= .500
*SECNO .693

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
JACKSON STREET PIPE CROSSING - CROSSING MODELLED AS 3-BARREL,
18" DIAMETER, CIRCULAR PIPES(EQUIVALENT DIAMETER OF 20.4" x
15.6" ARCH CORRUGATED METAL PIPES - DOWNSTREAM CROSS SECTION OF
3 - BARREL, 20.4" x 15.6" ARCH CORRUGATED METAL PIPE WITH
PROJECTING ENDS. THE STREET EMBANKMENT HAS BEEN CONCRETE
LINED FOR EROSION PROTECTION AND THE CONCRETE EMBANKMENT
PROTECTION IS A PART OF THE CONCRETE LINED CHANNEL DOWNSTREAM.

.693	4.07	2066.92	2066.92	.00	2067.86	.95	.18	.17	2062.85
528.0	59.3	422.5	46.2	33.7	48.6	32.8	11.1	10.2	2062.90
.16	1.76	8.70	1.41	.055	.024	.065	.000	2062.85	941.98
.003061	65.	65.	65.	0	8	0	.00	92.63	1039.19

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

FLOW DISTRIBUTION FOR SECNO= .69 CWSEL= 2066.92

STA=	942.	987.	994.	1006.	1010.	1027.	1039.
PER Q=	3.4	7.9	80.0	3.9	3.7	1.2	
AREA=	17.1	16.6	48.6	10.1	15.9	6.9	
VEL=	1.0	2.5	8.7	2.0	1.2	.9	
DEPTH=	.4	2.3	4.0	2.5	1.0	.5	

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	.024	.70	2.90	.00	1.50	.00	46.50	2	3	2063.39	2062.85

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 2612.73..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 2773.67 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
ECNO .704

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 2070.12

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.71

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
2612.73	2773.67	2.26	495.	36.	3.267	5.3	2066.40	36.

3470 ENCROACHMENT STATIONS= 915.0 1036.0 TYPE= 1 TARGET= 121.000
UPSTREAM CROSS SECTION OF 3 - BARREL, 20.4" x 15.6" ARCH
CORRUGATED METAL PIPE CROSSING. ROAD EMBANKMENT IS CONCRETE
LINED FOR EROSION PROTECTION. INLET CHANNEL IS CONCRETE LINED
FOR A DISTANCE OF ABOUT 5 FEET UPSTREAM OF THE PIPES.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.704	6.65	2070.04	.00	.00	2070.12	.08	2.26	.00	2063.40
528.0	254.8	228.1	45.1	275.6	69.8	62.5	11.4	10.3	2063.39
.17	.92	3.27	.72	.055	.024	.065	.000	2063.39	915.00
.000223	47.	47.	47.	2	0	0	.00	120.51	1035.51

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

FLOW DISTRIBUTION FOR SECNO= .70 CWSEL= 2070.04

STA=	915.	925.	933.	940.	951.	966.	978.	985.	995.	1005.	1011.	1035.
PER Q=	4.0	3.4	3.6	6.4	8.5	6.5	4.7	11.1	43.2	5.5	3.0	
AREA=	29.1	21.8	22.3	37.8	49.9	38.0	26.6	50.1	69.8	30.9	31.6	
VEL=	.7	.8	.8	.9	.9	.9	.9	1.2	3.3	.9	.5	
DEPTH=	2.9	2.9	3.0	3.3	3.3	3.4	3.5	5.1	6.7	5.1	1.3	

CCHV= .100 CEHV= .300
*SECNO .705

3470 ENCROACHMENT STATIONS= 915.0 1036.0 TYPE= 1 TARGET= 121.000
END OF 5 FOOT CONCRETE LINED INLET CHANNEL.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.705	5.69	2070.08	2067.69	.00	2070.13	.04	.00	.00	2064.40
528.0	336.3	131.5	60.2	273.8	48.6	64.1	11.4	10.3	2064.39
.17	1.23	2.70	.94	.055	.035	.065	.000	2064.39	915.00
.000399	5.	5.	5.	2	9	0	.00	120.97	1035.97

FLOW DISTRIBUTION FOR SECNO= .70 CWSEL= 2070.08

STA=	915.	922.	933.	940.	951.	955.	966.	978.	981.	985.	995.	1003.	1005.
PER Q=	3.2	6.9	4.9	8.8	3.0	8.6	8.9	3.2	3.2	12.9	24.9	3.1	
AREA=	18.6	32.9	22.6	38.2	12.9	37.6	38.4	13.4	13.4	45.6	48.6	11.1	
VEL=	.9	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.5	2.7	1.5	
DEPTH=	2.9	3.0	3.1	3.4	3.5	3.3	3.4	3.5	3.6	4.7	5.7	5.7	

STA=	1005.	1011.	1035.
PER Q=	5.2	3.1	
AREA=	25.1	27.8	
VEL=	1.1	.6	
DEPTH=	4.2	1.2	

*SECNO .721

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .51

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= 900.0 1011.0 TYPE= 1 TARGET= 111.000

ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED WSEL AND THE TOPOGRAPHY.

.721	4.56	2070.06	2069.11	.00	2070.22	.16	.06	.03	2066.80
528.0	233.1	281.4	13.5	151.7	67.7	10.5	12.0	10.6	2067.00
.18	1.54	4.15	1.28	.055	.035	.065	.000	2065.50	900.00
.001520	83.	83.	83.	2	15	0	.00	110.20	1010.20

FLOW DISTRIBUTION FOR SECNO= .72 CWSEL= 2070.06

STA=	900.	909.	919.	929.	938.	952.	968.	980.	987.	1003.	1010.
PER Q=	3.0	4.1	4.5	5.0	7.4	8.4	5.8	6.0	53.3	2.6	
AREA=	12.6	15.3	16.3	17.3	24.6	28.8	20.4	16.5	67.7	10.5	
VEL=	1.3	1.4	1.5	1.5	1.6	1.5	1.5	1.9	4.2	1.3	
DEPTH=	1.5	1.5	1.6	1.7	1.8	1.8	1.7	2.5	4.1	1.5	

CNO .762

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

LINCOLN STREET CROSSING - DOWNSTREAM CROSS SECTION OF A 3 BARREL 20.4" x 15.6" ARCH CORRUGATED METAL PIPE WITH PROJECTING ENDS. ROAD EMBANKMENT IS CONCRETE LINED FOR EROSION PROTECTION. THIS CROSSING IS NOT MODELLED AS A CULVERT CROSSING BECAUSE THE INLET IS COMPLETELY COVERED BY SEDIMENTATION. THE INLET ELEVATION IS EQUAL TO THE TOP OF ROADWAY.

.762	3.47	2070.77	2070.77	.00	2071.61	.84	.62	.20	2067.34
481.0	46.2	318.5	116.3	16.0	36.1	41.9	12.8	11.0	2067.34
.19	2.89	8.82	2.77	.055	.035	.065	.000	2067.30	974.74
.008320	216.	216.	216.	0	15	0	.00	66.79	1041.53

FLOW DISTRIBUTION FOR SECNO= .76 CWSEL= 2070.77

STA=	975.	995.	1005.	1013.	1020.	1027.	1042.
PER Q=	9.6	66.2	14.7	4.3	3.1	2.0	
AREA=	16.0	36.1	19.3	8.5	7.0	7.1	
VEL=	2.9	8.8	3.7	2.4	2.1	1.4	
DEPTH=	.8	3.4	2.4	1.3	1.0	.5	

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


*SECNO  .763
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
           THIS IS THE DOWNSTREAM CROSS SECTION OF THE LINCOLN STREET
           CROSSING. THIS SECTION IS THE TOP OF A 3 FOOT DROP STRUCTURE
           CREATED BY THE COVERED INLET LOCATED UPSTREAM OF THIS SECTION.
     .763      1.85   2071.55   2071.55       .00   2072.05       .50       .01       .03   2069.90
    481.0     134.5     240.6     105.9      42.0      32.6      37.0      12.8      11.0   2069.90
      .19      3.20      7.38      2.86      .055      .035      .065      .000   2069.70    941.71
  .014249        1.        1.        1.         0        11         0       .00    111.57   1053.29


FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   2071.55

STA=     942.     961.     976.     981.     987.     990.     995.    1013.    1017.    1020.    1027.    1042.    1053.
  PER Q=      3.6      4.1      3.7      5.7      3.8      7.0     50.0      4.0      3.3      5.5      7.9      1.3
   AREA=      8.6      8.6      5.6      7.3      4.4      7.6     32.6      5.3      4.6      8.4     14.5      4.2
    VEL=      2.0      2.3      3.2      3.8      4.2      4.4      7.4      3.7      3.4      3.2      2.6      1.4
  DEPTH=       .4       .6      1.0      1.3      1.5      1.6      1.8      1.6      1.4      1.3       .9       .4

  .CNO  .765

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.48


3470 ENCROACHMENT STATIONS=      899.0    1079.0  TYPE=      1  TARGET=      180.000
           UPSTREAM CROSS SECTION OF LINCOLN STREET. 3 - BARREL, 20.4"
           x 15.6" CORRUGATED METAL PIPE, PIPES ARE COVERED BY
           SEDIMENTATION AND ARE CONSIDERED INEFFECTIVE.
     .765      1.76   2072.26   2072.00       .00   2072.51       .24       .44       .03   2071.20
    481.0      53.1     402.3      25.6      30.9      94.0      19.8      13.0      11.2   2071.30
      .19      1.72      4.28      1.29      .055      .035      .065      .000   2070.50    899.40
  .006520       47.       47.       47.         2        15         0       .00    178.63   1078.03


FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   2072.26

STA=     899.     946.     958.    1025.    1038.    1078.
  PER Q=      5.9      5.2     83.6      3.6      1.7
   AREA=     19.2     11.7     94.0     10.5      9.3
    VEL=      1.5      2.1      4.3      1.7       .9
  DEPTH=       .4      1.0      1.4       .8       .2
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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 .798
3280 CROSS SECTION .80 EXTENDED 1.39 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 973.0 1025.0 TYPE= 1 TARGET= 52.000
CONFLUENCE OF WASH AD - SUNSET WASH AND WASH AE - SUNNY COVE
WASH IS LOCATED 120 FEET UPSTREAM OF THIS SECTION.

.798	2.89	2074.89	2074.89	.00	2075.72	.83	1.18	.18	2072.00
481.0	105.2	268.0	107.8	28.4	28.9	32.3	13.3	11.5	2072.00
.19	3.71	9.27	3.34	.060	.035	.060	.000	2072.00	973.50
.011556	142.	140.	132.	0	14	0	.00	51.50	1025.00

W DISTRIBUTION FOR SECNO= .80 CWSEL= 2074.89

STA=	973.	977.	982.	990.	1000.	1010.	1025.
PER Q=	2.6	6.7	12.6	55.7	15.8	6.6	
AREA=	4.5	8.7	15.1	28.9	18.9	13.4	
VEL=	2.7	3.7	4.0	9.3	4.0	2.4	
DEPTH=	1.3	1.7	1.9	2.9	1.9	.9	

CCHV= .100 CEHV= .300
*SECNO .862

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

1ST CROSS SECTION OF WASH AD-SUNSET WASH UPSTREAM OF
WASH AE-SUNNY COVE WASH.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.862	2.08	2077.58	2077.04	.00	2077.75	.17	1.96	.07	2075.90
336.0	162.9	165.3	7.7	112.2	36.8	6.2	14.1	12.1	2076.00
.22	1.45	4.49	1.24	.070	.030	.070	.000	2075.50	772.34
.003638	200.	335.	408.	3	11	0	.00	138.66	1018.04

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

FLOW DISTRIBUTION FOR SECNO= .86 CWSEL= 2077.58

STA=	772.	874.	920.	980.	990.	1010.	1018.
PER Q=	14.3	19.7	5.8	8.6	49.2	2.3	
AREA=	42.0	41.2	12.7	16.3	36.8	6.2	
VEL=	1.1	1.6	1.5	1.8	4.5	1.2	
DEPTH=	.4	.9	.2	1.6	1.8	.8	

*SECNO .913
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 800.0 1128.0 TYPE= 1 TARGET= 328.000
DIP SECTION CROSSING AT KELLIS ROAD.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.913	1.05	2079.65	2079.65	.00	2079.86	.21	1.58	.01	2079.00
336.0	123.3	166.6	46.1	82.3	33.1	34.2	15.0	13.5	2079.00
.24	1.50	5.03	1.35	.070	.030	.070	.000	2078.60	800.00
.013313	200.	270.	415.	0	8	0	.00	328.00	1128.00

FLOW DISTRIBUTION FOR SECNO= .91 CWSEL= 2079.65

STA=	800.	841.	888.	934.	980.	1020.	1030.	1050.	1070.	1128.
PER Q=	4.2	7.4	10.7	14.4	49.6	3.2	4.7	3.1	2.7	
AREA=	12.7	18.6	23.3	27.7	33.1	6.1	10.2	7.9	10.0	
VEL=	1.1	1.3	1.5	1.7	5.0	1.8	1.6	1.3	.9	
DEPTH=	.3	.4	.5	.6	.8	.6	.5	.4	.2	

*SECNO .957
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 985.0 1024.0 TYPE= 1 TARGET= 39.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.957	3.18	2084.98	2084.98	.00	2085.67	.69	2.86	.14	2084.00
304.0	3.1	298.7	2.2	2.3	44.3	1.6	15.5	14.5	2084.00
.25	1.36	6.74	1.34	.070	.030	.070	.000	2081.80	985.35
.011038	235.	235.	235.	0	28	0	.00	37.93	1023.27

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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


FLOW DISTRIBUTION FOR SECNO=       .96          CWSEL=   2084.98

STA=     985.     990.    1020.    1023.
  PER Q=      1.0     98.3       .7
   AREA=      2.3     44.3      1.6
    VEL=      1.4      6.7      1.3
  DEPTH=       .5      1.5       .5

*SECNO 1.053
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1016.0  TYPE=      1  TARGET=       28.000
            ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
            SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
            WSEL AND THE TOPOGRAPHY.
     1.053      1.98   2093.48   2093.48       .00   2094.06       .58      5.41       .01   2092.80
     136.0       1.5     120.2      14.3       1.4      18.6       8.2      15.9      14.9   2092.00
       .28      1.03      6.46      1.75      .070      .030      .070      .000   2091.50    988.25
   .010135      487.      504.      500.         0        14         0       .00     27.74   1016.00


FLOW DISTRIBUTION FOR SECNO=      1.05          CWSEL=   2093.48

STA=     988.     993.    1005.    1016.
  PER Q=      1.1     88.4     10.5
   AREA=      1.4     18.6      8.2
    VEL=      1.0      6.5      1.7
  DEPTH=       .3      1.5       .7

CCHV=     .100 CEHV=     .300
*SECNO 1.152
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.152       .69   2101.69   2101.69       .00   2101.89       .20      6.05       .04   2101.40
      32.0       1.1      30.9        .0       1.0       8.5        .0      16.2      15.2   2102.00
       .32      1.02      3.63       .00      .060      .035      .000      .000   2101.00    967.79
   .022679      360.      526.      550.         0        22         0       .00     27.06    994.85
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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


FLOW DISTRIBUTION FOR SECNO=      1.15          CWSEL=   2101.69

STA=     968.     975.    1000.
  PER Q=      3.3     96.7
   AREA=      1.0      8.5
    VEL=      1.0      3.6
  DEPTH=       .1       .4

*SECNO 1.206
           LAST SECTION OF DTEAILED STUDY.  JUST DOWNSTREAM OF
           THE RECENTLY CNSTRUCTED FLOOD CONTROL DAM.
     1.206       .55   2108.05   2108.02       .00   2108.16       .12      6.27       .01   2108.00
      32.0        .0      32.0        .0        .0      11.7        .0      16.2      15.4   2108.00
       .35       .04      2.74       .03      .060      .035      .070      .000   2107.50    978.42
   .021444      361.      283.      240.         4        18         0       .00     41.78   1020.20


FLOW DISTRIBUTION FOR SECNO=      1.21          CWSEL=   2108.05

  ^=     978.     980.    1020.    1020.
   ER Q=       .0    100.0       .0
   AREA=       .0     11.7       .0
    VEL=       .0      2.7       .0
  DEPTH=       .0       .3       .0

CCHV=     .100 CEHV=     .300
*SECNO  -.798
START TRIB COMP
      -.798      .798  2074.892
3280 CROSS SECTION      -.80 EXTENDED      1.39 FEET


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      973.0    1025.0  TYPE=      1  TARGET=       52.000
           CONFLUENCE OF WASH AD - SUNSET WASH AND WASH AE - SUNNY COVE
           WASH IS LOCATED 120 FEET UPSTREAM OF THIS SECTION.
     -.798      2.89   2074.89       .00       .00   2075.81       .92      3.08      3.19 100000.00
     481.0        .0     308.9     172.1        .0      34.1      41.2      16.4      15.5   2074.00
       .35       .00      9.06      4.18      .000      .035      .060      .000   2072.00    973.00
   .022306      142.      140.      132.         0         0         0       .00     52.00   1025.00
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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

FLOW DISTRIBUTION FOR SECNO= -.80 CWSEL= 2074.89

STA=	973.	990.	1000.	1010.	1025.
PER Q=	64.2	13.3	13.3	9.2	
AREA=	34.1	13.9	13.9	13.4	
VEL=	9.1	4.6	4.6	3.3	
DEPTH=	2.0	1.4	1.4	.9	

CCHV= .100 CEHV= .300
*SECNO .032

3301 HV CHANGED MORE THAN HVINS

FIRST CROSS SECTION OF WASH AE-SUNNY COVE WASH, UPSTREAM OF
WASH AD-SUNSET WASH.

.032	1.45	2078.95	2078.51	.00	2079.04	.09	3.15	.08	2078.00
145.0	1.3	112.2	31.5	1.8	41.7	36.7	16.9	16.0	2078.00
.39	.72	2.69	.86	.065	.035	.070	.000	2077.50	986.22
.002822	295.	283.	287.	5	22	0	.00	99.56	1085.78

FLOW DISTRIBUTION FOR SECNO= .03 CWSEL= 2078.95

STA=	986.	990.	1022.	1027.	1036.	1046.	1051.	1056.	1065.	1075.	1080.	1085.	1086.
PER Q=	.9	77.4	3.1	5.6	4.6	1.8	1.6	2.7	1.9	.4	.1	.0	
AREA=	1.8	41.7	4.3	8.1	7.1	3.1	2.9	5.2	4.3	1.2	.5	.0	
VEL=	.7	2.7	1.0	1.0	.9	.8	.8	.8	.7	.4	.2	.0	
DEPTH=	.5	1.3	.9	.8	.7	.6	.6	.5	.4	.2	.1	.0	

*SECNO .095
3280 CROSS SECTION .09 EXTENDED 4.36 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 985.0 1012.0 TYPE= 1 TARGET= 27.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED

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          WSEL AND THE TOPOGRAPHY.
     .095      4.36   2084.36   2084.36      .00   2084.95      .60      1.96      .15   2084.30
    145.0       .0     142.9       2.1       .0      22.9      1.2      17.2     16.5   2083.50
      .40       .03      6.24      1.72     .065      .035     .070      .000  2080.00    985.25
  .021577     380.      332.      250.        0        20        0       .00    26.60   1011.85


FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   2084.36

STA=     985.     986.    1009.    1012.
  PER Q=       .0     98.6      1.4
   AREA=       .0     22.9      1.2
    VEL=       .0      6.2      1.7
  DEPTH=       .0      1.0       .4

CCHV=     .100 CEHV=     .300
*SECNO  .175
     .175      1.38   2090.38   2090.17      .00   2090.57      .19      5.58      .04   2089.00
    102.0      15.8      78.0       8.2      9.8      20.0      6.7      17.5     16.8   2089.60
      .44      1.61      3.89      1.22     .070      .035     .070      .000  2089.00    984.86
  .007730      415.      422.      425.        6        14        0       .00    48.04   1032.90


FLOW DISTRIBUTION FOR SECNO=       .17          CWSEL=   2090.38

  '=     985.     990.    1000.    1019.    1023.    1030.    1033.
   ER Q=       .6     14.9     76.4      3.6      4.1       .3
   AREA=      1.0      8.9     20.0      2.5      3.6       .6
    VEL=       .6      1.7      3.9      1.4      1.2       .6
  DEPTH=       .2       .9      1.1       .7       .5       .2

*SECNO  .228
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .228       .83   2095.33   2095.33      .00   2095.65      .31      3.19      .04   2094.50
    102.0       1.9      84.8      15.3      1.3      17.4      9.5      17.8     17.2   2094.60
      .46      1.51      4.88      1.62     .070      .035     .070      .000  2094.50    996.94
  .017086      270.      283.      345.        0        14        0       .00    49.52   1046.46


FLOW DISTRIBUTION FOR SECNO=       .23          CWSEL=   2095.33

STA=     997.    1000.    1021.    1030.    1033.    1046.    1046.
  PER Q=      1.9     83.1     10.0      2.1      2.9       .0
   AREA=      1.3     17.4      5.3      1.3      2.8       .0
    VEL=      1.5      4.9      1.9      1.6      1.0       .0
  DEPTH=       .4       .8       .6       .4       .2       .0
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO  .280

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3470 ENCROACHMENT STATIONS=      984.0    1009.0  TYPE=      1  TARGET=       25.000
           DOWNSTREAM CROSS SECTION OF 21" CORRUGATED METAL PIPE WITH
           PROJECTING OUTLET, EAST SIDE OF KELLIS ROAD.
           THIS PIPE IS NOT MODELLED DUE TO ITS LIMITED CAPACITY,
           BASED ON ANALYSIS THE PIPE HANDLES LESS THAN HALF OF THE
           PEAK DISCHARGE OF 49 CFS.
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
     .280      1.10   2099.64   2099.49      .00   2099.81       .17      4.15       .01   2099.40
    49.0        .2      41.1       7.7       .2      11.5       4.9      17.9      17.4   2098.54
     .48       .74      3.58      1.58      .070      .035      .070      .000   2098.54    984.00
  .011040      260.      276.      322.         4        11         0       .00     25.00   1009.00


 .OW DISTRIBUTION FOR SECNO=       .28          CWSEL=   2099.64

STA=     984.     985.    1001.    1009.
  PER Q=       .4     84.0     15.7
   AREA=       .2     11.5      4.9
    VEL=       .7      3.6      1.6
  DEPTH=       .2       .7       .6

*SECNO  .293
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      984.0    1001.0  TYPE=      1  TARGET=       17.000
           EDGE OF EAST SIDE OF KELLIS ROAD-DOWNSTREAM SIDE OF ROAD CROSSING.
     .293      3.63   2103.93   2103.93      .00   2104.28       .36       .23       .06   2103.00
    49.0       1.9      47.1        .0        .9       9.7        .0      17.9      17.4   2104.00
     .48      2.00      4.88       .00      .070      .035      .000      .000   2100.30    984.00
  .023641       15.       15.       15.         0        18         0       .00     15.85    999.85


FLOW DISTRIBUTION FOR SECNO=       .29          CWSEL=   2103.93
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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


STA=     984.     985.    1000.
  PER Q=      3.8     96.2
   AREA=       .9      9.7
    VEL=      2.0      4.9
  DEPTH=       .9       .7

*SECNO  .294
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      984.0    1010.0  TYPE=      1  TARGET=       26.000
           EDGE OF WAST SIDE OF KELLIS ROAD-UPSTREAM SIDE OF ROAD CROSSING.
           THIS EDGE OF ROADWAY WAS USED FOR WEIR FLOW CALCULATIONS.
     .294      3.59   2106.89   2106.89       .00   2107.29       .40      1.28       .01   2106.00
    49.0       1.9      47.1        .0        .9       9.2        .0      17.9      17.4   2107.20
     .48      2.15      5.13       .00      .070      .035      .000      .000   2103.30    984.00
  .027879      50.       50.       50.         0         5         0       .00     15.79    999.79


 OW DISTRIBUTION FOR SECNO=       .29          CWSEL=   2106.89

STA=     984.     985.    1001.
  PER Q=      3.9     96.1
   AREA=       .9      9.2
    VEL=      2.1      5.1
  DEPTH=       .9       .6

*SECNO  .295

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 35.57


3470 ENCROACHMENT STATIONS=      984.0    1015.0  TYPE=      1  TARGET=       31.000
           UPSTREAM CROSS SECTION OF 21" CORRUGATED METAL PIPE WITH
           PROJECTING INLET, NO EROSION PROTECTION.  ANALYSIS DOES NOT
           INCLUDE THIS PIPE.
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
     .295      8.33   2107.33   2101.92       .00   2107.33       .00       .00       .04   2106.00
    49.0        .1      38.5      10.4       1.4      73.3      48.6      17.9      17.5   2100.20
     .49       .07       .52       .21      .070      .035      .070      .000   2099.00    984.00
  .000022      15.       15.       15.         1        14         0       .00     30.65   1014.65
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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

FLOW DISTRIBUTION FOR SECNO= .29 CWSEL= 2107.33

STA=	984.	985.	1001.	1015.
PER Q=	.2	78.5	21.3	
AREA=	1.4	73.3	48.6	
VEL=	.1	.5	.2	
DEPTH=	1.4	4.6	3.6	

*SECNO .313

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

.313	6.33	2107.33	2102.21	.00	2107.33	.00	.00	.00	2102.00
49.0	9.1	37.9	2.0	60.3	87.2	17.8	18.2	17.5	2102.00
.56	.15	.43	.11	.070	.035	.070	.000	2101.00	971.35
.000010	108.	95.	60.	2	20	0	.00	44.31	1015.66

FLOW DISTRIBUTION FOR SECNO= .31 CWSEL= 2107.33

.A=	971.	976.	978.	982.	984.	990.	992.	994.	1009.	1016.
PER Q=	.3	.4	1.8	1.5	7.1	3.5	4.1	77.4	4.0	
AREA=	2.5	2.7	8.1	5.5	22.1	9.3	10.2	87.2	17.8	
VEL=	.0	.1	.1	.1	.2	.2	.2	.4	.1	
DEPTH=	.5	1.3	2.0	2.7	3.7	4.6	5.1	5.8	2.7	

*SECNO .356

.356	3.83	2107.33	2104.34	.00	2107.33	.00	.00	.00	2103.80
49.0	10.5	11.8	26.7	60.7	27.7	155.9	19.3	17.9	2103.50
.84	.17	.43	.17	.070	.035	.070	.000	2103.50	965.33
.000018	240.	230.	225.	0	17	0	.00	100.83	1066.16

FLOW DISTRIBUTION FOR SECNO= .36 CWSEL= 2107.33

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

STA=	965.	981.	985.	989.	993.	1000.	1010.	1012.	1021.	1025.	1030.	1034.	1038.
PER Q=	5.7	4.9	5.3	5.5	24.1	15.3	3.0	9.7	4.1	3.8	3.5	3.4	
AREA=	21.8	13.0	13.0	13.0	27.7	35.8	7.6	25.9	11.5	11.1	10.5	10.2	
VEL=	.1	.2	.2	.2	.4	.2	.2	.2	.2	.2	.2	.2	
DEPTH=	1.4	3.0	3.4	3.5	3.7	3.6	3.3	2.9	2.7	2.6	2.5	2.4	

STA=	1038.	1048.	1058.	1066.
PER Q=	6.8	4.0	.9	
AREA=	22.0	15.9	5.4	
VEL=	.2	.1	.1	
DEPTH=	2.2	1.6	.7	

*SECNO .382

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.51

.382	3.34	2107.34	2104.53	.00	2107.34	.00	.00	.00	2104.10
49.0	19.6	19.7	9.8	188.1	74.6	100.5	20.2	18.3	2104.10
1.06	.10	.26	.10	.070	.035	.070	.000	2104.00	891.32
.000008	138.	138.	125.	0	17	0	.00	171.32	1062.64

FLOW DISTRIBUTION FOR SECNO= .38 CWSEL= 2107.34

STA=	891.	915.	925.	935.	945.	953.	958.	963.	968.	975.	980.	1003.	1013.
PER Q=	4.2	3.3	4.0	4.8	4.1	3.0	3.3	3.5	5.7	4.1	40.1	7.3	
AREA=	28.6	18.1	20.4	22.7	18.6	13.2	13.8	14.3	22.5	15.8	74.6	29.5	
VEL=	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.3	.1	
DEPTH=	1.2	1.8	2.0	2.3	2.5	2.6	2.8	2.9	3.0	3.2	3.3	2.9	

STA=	1013.	1023.	1033.	1050.	1063.
PER Q=	5.4	3.7	3.2	.4	
AREA=	24.5	19.5	22.0	5.1	
VEL=	.1	.1	.1	.0	
DEPTH=	2.4	1.9	1.3	.4	

*SECNO .420
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

LAST CROSS SECTION OF DETAILED ANALYSIS-JUST DOWN STREAM
FROM THE SUNNY COVE FLOOD CONTROL DAM.

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
.420	.67	2108.17	2108.17	.00	2108.37	.19	.01	.06	2107.80
49.0	5.3	34.0	9.7	4.2	8.3	5.8	21.1	18.8	2107.60
1.08	1.25	4.10	1.67	.070	.035	.070	.000	2107.50	993.28
.020467	216.	197.	178.	0	21	0	.00	50.20	1043.48

FLOW DISTRIBUTION FOR SECNO= .42 CWSEL= 2108.17

STA=	993.	998.	1003.	1008.	1010.	1013.	1027.	1030.	1037.	1040.	1042.	1043.
PER Q=	.2	1.7	3.6	2.4	3.0	69.3	6.1	10.6	1.8	1.2	.2	
AREA=	.2	.9	1.4	.8	.9	8.3	1.4	3.0	.7	.5	.1	
VEL=	.4	.9	1.3	1.4	1.6	4.1	2.1	1.7	1.3	1.1	.6	
DEPTH=	.1	.2	.3	.3	.4	.6	.6	.4	.3	.2	.1	

FLOODWAY DETERMINATION

T2

T3 WASH AD: SUNSET WASH

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	0.0051	0	0	0	2031.84	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	-1	0	0	0

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 50.940

3265 DIVIDED FLOW

HASSAYAMPA RIVER CROSS SECTION 50.94 (CBA 1988, NO DATUM CHANGE)
CONFLUENCE WITH WASH AD - SUNSET WASH, A WEST TRIBUTARY
NON COINCIDENT WITH 100-YEAR DISCHARGE IN HASSAYAMPA.

50.940	1.92	2023.82	2023.33	2031.84	2023.95	.13	.00	.00	2022.00
600.0	189.4	396.8	13.8	72.9	126.8	7.4	.0	.0	2022.40
.00	2.60	3.13	1.86	.045	.035	.045	.000	2021.90	1715.35
.005091	475.	500.	555.	0	17	10	.00	270.94	2227.95

CCHV= .100 CEHV= .300
*SECNO .216

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 972.0 1030.0 TYPE= 1 TARGET= 58.000

FIRST CROSS SECTION OF WASH AD - SUNSET WASH.
EXISTING 2 BARREL-42" CORRUGATED METAL PIPES UNDER DIRT ROAD
APPROXIMATELY 45 FEET DOWNSTREAM OF THIS CROSS SECTION.
THIS CROSSING HAS NOT BEEN INCLUDED IN THIS ANALYSIS BECAUSE
THE CROSSING IS IN THE EXISTING FLOODPLAIN OF THE HASSAYAMPA
RIVER AND WOULD BE INUNDATED IN A 100 YEAR EVENT. BASED ON THE
FIELD SURVEY DATA, THE EXISTING PIPES WILL NOT HANDLE THE
100 YEAR PEAK DISCHARGE FROM WASH AD-SUNSET WASH. THERE IS
EVIDENCE THAT FLOW OVERTOPS THE DIRT ROAD WITH EXCESS FLOW
DRAINING EAST AND SOUTH.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.216	4.93	2037.53	2037.53	2037.53	2038.31	.78	8.62	.19	2036.00
600.0	14.6	559.5	25.9	5.9	76.6	10.3	3.9	4.3	2036.00
.05	2.50	7.31	2.51	.055	.035	.065	.000	2032.60	972.35
.012532	1150.	1141.	900.	0	9	0	.00	57.65	1030.00

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

CCHV= .100 CEHV= .300
*SECNO .261

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.69

3470 ENCROACHMENT STATIONS= 973.0 1024.0 TYPE= 1 TARGET= 51.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.261	4.40	2039.40	2038.58	2039.40	2039.94	.54	1.60	.02	2036.00
600.0	72.4	465.3	62.4	28.9	71.0	26.4	4.5	4.5	2036.00
.06	2.50	6.56	2.36	.065	.035	.070	.000	2035.00	973.10
.004412	198.	235.	210.	3	19	0	.00	50.39	1023.49

CCHV= .300 CEHV= .500
*SECNO .292

70 ENCROACHMENT STATIONS= 973.0 1027.0 TYPE= 1 TARGET= 54.000
DOWNSTREAM CROSS SECTION OF THE ATCHISON-TOPEKA AND SANTA FE
RAILROAD TRESTLE.

.292	2.69	2040.29	2039.55	2040.29	2040.72	.42	.75	.03	2037.60
600.0	12.2	577.4	10.4	7.1	108.7	6.6	4.9	4.7	2037.70
.07	1.73	5.31	1.57	.065	.035	.070	.000	2037.60	973.61
.004507	132.	172.	139.	2	14	0	.00	53.05	1026.66

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.80	.00	42.70	4.22	497.10	2.00	2037.80	2037.70

*SECNO .296
CLASS A LOW FLOW

3420 BRIDGE W.S.= 2040.21 BRIDGE VELOCITY= 5.62 CALCULATED CHANNEL AREA= 104.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2040.98	.22	0.	600.	497.	508.	2046.80	2049.10	0.

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


3470 ENCROACHMENT STATIONS=      973.0    1027.0  TYPE=      1  TARGET=       54.000
          UPSTREAM CROSS SECTION OF THE ATCHISON-TOPEKA AND SANTA FE
          RAILROAD TRESTLE.
     .296      2.71   2040.51       .00   2040.51   2040.98       .48       .27       .00   2037.90
    600.0      12.6     579.2       8.2       6.7     103.1       5.2       5.0       4.7   2038.30
      .07      1.88      5.62      1.58      .065      .035      .070      .000   2037.80    973.71
  .005538       19.       19.       19.         0         0         0       .00     52.56   1026.27


CCHV=     .100 CEHV=     .300
*SECNO  .321
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      967.0    1025.0  TYPE=      1  TARGET=       58.000
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .321      2.24   2041.24   2041.24   2041.23   2042.12       .88       .87       .12   2040.00
    600.0      13.0     582.8       4.2       7.4      76.4       2.8       5.2       4.9   2040.00
      .07      1.75      7.63      1.51      .070      .030      .070      .000   2039.00    967.79
  .010045      128.      119.      132.         0        15         0       .00     56.68   1024.47


*SECNO  .390
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      966.0    1026.0  TYPE=      1  TARGET=       60.000
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .390      2.66   2045.66   2045.66   2045.63   2046.55       .89      4.26       .00   2044.50
    576.0      13.5     554.4       8.1       8.8      71.7       4.6       6.1       5.5   2044.00
      .09      1.53      7.73      1.76      .070      .030      .070      .000   2043.00    966.87
  .009394      460.      438.      450.         0        11         0       .00     58.65   1025.52


CCHV=     .100 CEHV=     .300
*SECNO  .473
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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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=      970.0    1035.0  TYPE=      1  TARGET=      65.000
     .473      2.05    2051.25    2051.25    2051.26    2052.00       .75      5.10       .01    2050.00
   576.0       29.1      534.7       12.1       11.2       74.3       5.8       7.0       6.1    2050.00
     .10       2.61       7.20       2.10       .070       .035      .070      .000   2049.20     970.00
  .014733      412.       440.       455.          0         15         0       .00     64.59    1034.59


*SECNO  .491
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      934.0    1061.0  TYPE=      1  TARGET=      127.000
           PARK STREET - DIP CROSSING.
     .491      2.25    2052.75    2052.75    2052.75    2053.33       .58      1.18       .02    2051.10
   576.0       97.6      439.1       39.2       40.8       63.8      21.3       7.2       6.3    2051.50
     .11       2.39       6.89       1.84       .070       .035      .070      .000   2050.50     934.33
  .011846       64.        91.       125.          0          8         0       .00    126.26    1060.59


  CNO  .534
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      952.0    1010.0  TYPE=      1  TARGET=      58.000
     .534      2.33    2055.83    2055.83    2055.83    2056.68       .85      3.01       .08    2053.80
   541.0      139.8      390.7       10.5       40.2       46.2       4.4       7.8       6.8    2054.30
     .12       3.48       8.46       2.39       .070       .035      .070      .000   2053.50     952.02
  .014216      255.       229.       200.          0          8         0       .00     57.26    1009.29


CCHV=     .100 CEHV=     .300
*SECNO  .568
3280 CROSS SECTION       .57 EXTENDED      2.06 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      987.0    1016.0  TYPE=      1  TARGET=      29.000
           DOWNSTREAM CROSS SECTION OF 1.5 FOOT DROP STRUCTURE AT
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          THE OUTLET OF THE MESQUITE STREET CROSSING.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .568      3.96   2058.06   2058.06   2058.06   2059.65      1.59      1.95       .22   2054.10
    541.0      38.7     440.7      61.6      14.1      39.6      20.0       8.2       7.0   2054.10
      .12      2.75     11.13      3.08      .070      .030      .065      .000   2054.10    987.88
  .008050      232.      179.      148.         0        14         0       .00     27.21   1015.08


CCHV=     .300 CEHV=     .500
*SECNO  .569
3280 CROSS SECTION       .57 EXTENDED      4.44 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      975.0    1040.0  TYPE=      1  TARGET=       65.000
          DOWNSTREAM CROSS SECTION OF 10' X 3' CONCRETE BOX CULVERT
          AT THE MESQUITE STREET CROSSING.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .569      4.74   2060.44   2060.44   2060.44   2061.70      1.26       .00       .10   2058.70
    541.0      18.5     462.1      60.3      20.4      47.5      50.9       8.2       7.0   2055.70
      .12       .91      9.74      1.19      .070      .015      .065      .000   2055.70    975.00
  .001718        0.        0.        0.         0         8         0       .00     65.00   1040.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .015      .45      3.00       .00      3.00     10.00     48.00      8         1      2056.00   2055.70

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC= 2070.94..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO  .578

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =   2061.50
5150, EG OF  2061.50 LESS THAN XEG OF  2061.70
3280 CROSS SECTION       .58 EXTENDED      4.29 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42
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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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
2070.94	2069.08	.00	276.	268.	6.447	30.0	2059.68	51.

3470 ENCROACHMENT STATIONS= 970.0 1100.0 TYPE= 1 TARGET= 130.000
UPSTREAM CROSS SECTION OF 10' X 3' CONCRETE BOX CULVERT
AT THE MESQUITE STREET CROSSING.
THE BOX CULVERT DOES NOT HAVE THE CAPACITY TO HANDLE THE
PEAK DISCHARGE OF 541 CFS. THE TOTAL FLOW INTO THE BOX CULVERT
IS APPROXIMATELY 268 CFS, AND 273 CFS OVERTOPPING THE STREET
WITH 44 CFS CROSSING THE STREET IN WEIR FLOW AND 232 CFS
GOING SOUTHEASTERLY DOWN MESQUITE STREET AND SOME FLOW REENTERING
THE WASH AT PARK STREET AND SOME OF THE FLOW REENTERING THE
WASH AT FISHER STREET.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.578	5.29	2061.29	.00	2061.29	2061.70	.41	.00	.00	2059.00
541.0	21.9	341.7	177.4	29.6	53.0	176.8	8.4	7.1	2059.00
.13	.74	6.45	1.00	.070	.015	.065	.000	2056.00	970.00
.000858	48.	48.	48.	3	0	0	.00	130.00	1100.00

CCHV= .100 CEHV= .300
*SECNO .598
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 975.0 1024.0 TYPE= 1 TARGET= 49.000

.598	2.25	2061.25	2061.25	2061.41	2062.09	.85	.24	.13	2060.00
541.0	14.9	522.2	3.9	5.7	69.6	1.9	8.8	7.3	2060.00
.13	2.60	7.50	2.03	.070	.035	.070	.000	2059.00	975.00
.014927	95.	108.	100.	0	18	0	.00	48.16	1023.16

*SECNO .639

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.82

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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=      975.0    1015.0  TYPE=      1  TARGET=      40.000
     .639      4.10   2063.10   2062.25   2062.81   2063.68       .58      1.56       .03   2060.00
   528.0      50.6     464.0      13.4      24.0      71.5       7.2       9.2       7.5   2060.00
     .14      2.11      6.49      1.87      .070      .035      .070      .000   2059.00    975.00
  .004300     140.      217.      240.         3        11         0       .00     39.69   1014.69


*SECNO  .672
3280 CROSS SECTION       .67 EXTENDED      1.79 FEET


3470 ENCROACHMENT STATIONS=      971.0    1013.0  TYPE=      1  TARGET=      42.000
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
     .672      3.58   2063.78   2063.58   2063.78   2064.77       .99       .97       .12   2061.10
   528.0      41.2     452.5      34.4      17.5      52.9      12.9       9.5       7.6   2061.00
     .15      2.35      8.55      2.66      .070      .035      .070      .000   2060.20    971.61
  .007996     148.      173.      135.         3        15         0       .00     40.82   1012.43


CCHV=     .100 CEHV=     .300
*SECNO  .681

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      983.0    1030.0  TYPE=      1  TARGET=      47.000
           BEGIN CONCRETE LINED OUTLET CHANNEL 65 FEET NORTH OF JACKSON
           STREET PIPE CROSSING.
     .681      3.89   2065.96   2065.96   2065.95   2067.45      1.49       .20       .15   2062.07
   528.0      31.4     479.3      17.3      15.0      46.6      12.7       9.6       7.7   2062.10
     .15      2.10     10.28      1.36      .055      .018      .065      .000   2062.07    983.76
  .002536      75.       46.       30.         0         8         0       .00     45.80   1029.56


CCHV=     .300 CEHV=     .500
*SECNO  .693
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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

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 941.0 1040.0 TYPE= 1 TARGET= 99.000
JACKSON STREET PIPE CROSSING - CROSSING MODELLED AS 3-BARREL,
18" DIAMETER, CIRCULAR PIPES(EQUIVALENT DIAMETER OF 20.4" x
15.6" ARCH CORRUGATED METAL PIPES - DOWNSTREAM CROSS SECTION OF
3 - BARREL, 20.4" x 15.6" ARCH CORRUGATED METAL PIPE WITH
PROJECTING ENDS. THE STREET EMBANKMENT HAS BEEN CONCRETE
LINED FOR EROSION PROTECTION AND THE CONCRETE EMBANKMENT
PROTECTION IS A PART OF THE CONCRETE LINED CHANNEL DOWNSTREAM.

.693	4.08	2066.93	2066.93	2066.92	2067.86	.93	.18	.17	2062.85
528.0	60.1	421.0	46.9	34.6	48.8	33.5	9.8	7.8	2062.90
.15	1.74	8.63	1.40	.055	.024	.065	.000	2062.85	941.82
.002990	65.	65.	65.	0	8	0	.00	94.01	1039.38

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	.024	.70	2.90	.00	1.50	.00	46.50	2	3	2063.39	2062.85

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 2612.73..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 2773.69 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO .704

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 2070.09

3301 HV CHANGED MORE THAN HVINS

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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
2612.73	2773.69	2.23	488.	35.	3.293	5.3	2066.40	36.

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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=      915.0    1036.0  TYPE=      1  TARGET=      121.000
          UPSTREAM CROSS SECTION OF 3 - BARREL, 20.4" x 15.6" ARCH
          CORRUGATED METAL PIPE CROSSING.  ROAD EMBANKMENT IS CONCRETE
          LINED FOR EROSION PROTECTION.  INLET CHANNEL IS CONCRETE LINED
          FOR A DISTANCE OF ABOUT 5 FEET UPSTREAM OF THE PIPES.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .704      6.62   2070.01       .00   2070.04   2070.09       .08      2.23       .00   2063.40
    528.0     254.2     229.0      44.9     273.4      69.5      61.7      10.1       7.9   2063.39
      .16       .93      3.29       .73      .055      .024      .065      .000   2063.39    915.00
  .000227       47.       47.       47.         2         0         0       .00    120.17   1035.17


CCHV=     .100 CEHV=     .300
*SECNO  .705

3470 ENCROACHMENT STATIONS=      915.0    1036.0  TYPE=      1  TARGET=      121.000
          END OF 5 FOOT CONCRETE LINED INLET CHANNEL.
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .705      5.66   2070.05   2067.64   2070.08   2070.10       .05       .00       .00   2064.40
    528.0     336.0     132.0      60.0     271.6      48.4      63.2      10.1       7.9   2064.39
      .16      1.24      2.73       .95      .055      .035      .065      .000   2064.39    915.00
  .000409        5.        5.        5.         2         8         0       .00    120.64   1035.64


*SECNO  .721

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .40


3470 ENCROACHMENT STATIONS=      940.0    1011.0  TYPE=      1  TARGET=       71.000
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .721      4.44   2069.94   2069.11   2070.06   2070.25       .31       .07       .08   2066.80
    528.0     163.0     349.3      15.7      81.8      65.7       9.7      10.6       8.1   2067.00
      .16      1.99      5.31      1.62      .055      .035      .065      .000   2065.50    940.00
  .002585       83.       83.       83.         2        17         0       .00     69.87   1009.87
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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

*SECNO .762

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 974.0 1042.0 TYPE= 1 TARGET= 68.000
LINCOLN STREET CROSSING - DOWNSTREAM CROSS SECTION OF A 3
BARREL 20.4" x 15.6" ARCH CORRUGATED METAL PIPE WITH PROJECTING
ENDS. ROAD EMBANKMENT IS CONCRETE LINED FOR EROSION PROTECTION.
THIS CROSSING IS NOT MODELLED AS A CULVERT CROSSING BECAUSE
THE INLET IS COMPLETELY COVERED BY SEDIMENTATION. THE INLET
ELEVATION IS EQUAL TO THE TOP OF ROADWAY.

.762	3.50	2070.80	2070.80	2070.77	2071.61	.81	.88	.15	2067.34
481.0	47.0	316.5	117.5	16.6	36.4	43.0	11.2	8.5	2067.34
.17	2.84	8.69	2.73	.055	.035	.065	.000	2067.30	974.34
.007989	216.	216.	216.	0	15	0	.00	67.62	1041.96

.CNO .763
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 941.0 1054.0 TYPE= 1 TARGET= 113.000
THIS IS THE DOWNSTREAM CROSS SECTION OF THE LINCOLN STREET
CROSSING. THIS SECTION IS THE TOP OF A 3 FOOT DROP STRUCTURE
CREATED BY THE COVERED INLET LOCATED UPSTREAM OF THIS SECTION.

.763	1.85	2071.55	2071.55	2071.55	2072.05	.50	.01	.03	2069.90
481.0	134.5	240.5	105.9	42.0	32.6	37.0	11.2	8.5	2069.90
.17	3.20	7.38	2.86	.055	.035	.065	.000	2069.70	941.71
.014240	1.	1.	1.	0	11	0	.00	111.58	1053.29

*SECNO .765

3470 ENCROACHMENT STATIONS= 940.0 1079.0 TYPE= 1 TARGET= 139.000
UPSTREAM CROSS SECTION OF LINCOLN STREET. 3 - BARREL, 20.4"
x 15.6" CORRUGATED METAL PIPE, PIPES ARE COVERED BY
SEDIMENTATION AND ARE CONSIDERED INEFFECTIVE.

.765	1.75	2072.25	2071.99	2072.26	2072.54	.28	.47	.02	2071.20
481.0	34.2	420.7	26.2	16.0	93.1	19.2	11.4	8.6	2071.30
.18	2.13	4.52	1.37	.055	.035	.065	.000	2070.50	940.00
.007341	47.	47.	47.	2	15	0	.00	137.29	1077.29

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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  .798
3280 CROSS SECTION       .80 EXTENDED      1.39 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      940.0    1025.0  TYPE=      1  TARGET=       85.000
           CONFLUENCE OF WASH AD - SUNSET WASH AND WASH AE - SUNNY COVE
           WASH IS LOCATED 120 FEET UPSTREAM OF THIS SECTION.
     .798      2.89   2074.89   2074.89   2074.89   2075.72       .83      1.27       .16   2072.00
    481.0     105.2     268.0     107.8      28.4      28.9      32.3      11.7       8.9   2072.00
      .18      3.71      9.27      3.34      .060      .035      .060      .000   2072.00    973.50
  .011574      142.      140.      132.         0        14         0       .00     51.50   1025.00


 HV=     .100 CEHV=     .300
 SECNO  .862

3470 ENCROACHMENT STATIONS=      980.0    1019.0  TYPE=      1  TARGET=       39.000
           1ST CROSS SECTION OF WASH AD-SUNSET WASH UPSTREAM OF
           WASH AE-SUNNY COVE WASH.
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
     .862      2.43   2077.93   2077.52   2077.58   2078.44       .52      2.69       .03   2075.90
    336.0      44.4     275.0      16.6      19.8      43.7       9.2      12.3       9.2   2076.00
      .20      2.24      6.29      1.80      .070      .030      .070      .000   2075.50    980.00
  .005689      200.      335.      408.         3        19         0       .00     39.00   1019.00


*SECNO  .913

3470 ENCROACHMENT STATIONS=      800.0    1128.0  TYPE=      1  TARGET=      328.000
           DIP SECTION CROSSING AT KELLIS ROAD.
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
     .913      1.24   2079.84   2079.65   2079.65   2079.94       .10      1.45       .04   2079.00
    336.0     133.8     145.9      56.2     115.6      40.5      54.2      13.2      10.4   2079.00
      .23      1.16      3.60      1.04      .070      .030      .070      .000   2078.60    800.00
  .005212      200.      270.      415.         4        18         0       .00    328.00   1128.00
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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  .957

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      985.0    1024.0  TYPE=      1  TARGET=       39.000
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
     .957      3.15   2084.95   2084.95   2084.98   2085.67       .72      1.73       .19   2084.00
    304.0       3.0     299.0       2.1       2.2      43.5       1.5      13.9      11.4   2084.00
      .24      1.38      6.86      1.36      .070      .030      .070      .000   2081.80    985.47
  .011724      235.      235.      235.         0        32         0       .00     37.72   1023.19


*SECNO 1.053
7185 MINIMUM SPECIFIC ENERGY
  ?0 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1016.0  TYPE=      1  TARGET=       28.000
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
    1.053      1.98   2093.48   2093.48   2093.48   2094.06       .58      5.64       .01   2092.80
    136.0       1.5     120.2      14.3       1.4      18.6       8.2      14.3      11.8   2092.00
      .26      1.03      6.46      1.75      .070      .030      .070      .000   2091.50    988.26
  .010154      487.      504.      500.         0        14         0       .00     27.74   1016.00


CCHV=     .100 CEHV=     .300
*SECNO 1.152
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      967.0    1001.0  TYPE=      1  TARGET=       34.000
    1.152       .69   2101.69   2101.69   2101.69   2101.89       .19      6.03       .04   2101.40
     32.0       1.1      30.9        .0       1.1       8.6        .0      14.5      12.1   2102.00
      .31      1.02      3.60       .00      .060      .035      .000      .000   2101.00    967.70
  .022081      360.      526.      550.         0        19         0       .00     27.20    994.90
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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 1.206

3470 ENCROACHMENT STATIONS=      978.0    1021.0  TYPE=      1  TARGET=       43.000
           LAST SECTION OF DTEAILED STUDY.  JUST DOWNSTREAM OF
           THE RECENTLY CNSTRUCTED FLOOD CONTROL DAM.
    1.206       .53   2108.03   2108.02   2108.05   2108.15       .12      6.26       .01   2108.00
     32.0        .0      32.0       .0       .0      11.6        .0      14.6      12.3   2108.00
      .33       .04      2.76       .03      .060      .035      .070      .000   2107.50    978.49
  .021929      361.      283.      240.         3        18         0       .00     41.70   1020.19


CCHV=     .100 CEHV=     .300
*SECNO  -.798
START TRIB COMP
     -.798      .798  2074.891
3280 CROSS SECTION      -.80 EXTENDED      1.39 FEET


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      973.0    1025.0  TYPE=      1  TARGET=       52.000
           CONFLUENCE OF WASH AD - SUNSET WASH AND WASH AE - SUNNY COVE
           WASH IS LOCATED 120 FEET UPSTREAM OF THIS SECTION.
    -.798      2.89   2074.89       .00   2074.89   2075.81       .92      3.09      3.17 100000.00
    481.0        .0     309.0     172.0        .0      34.1      41.2      14.7      12.5   2074.00
      .34       .00      9.07      4.18      .000      .035      .060      .000   2072.00    973.00
  .022350      142.      140.      132.         0         0         0       .00     52.00   1025.00


CCHV=     .100 CEHV=     .300
*SECNO  .032

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      987.0    1086.0  TYPE=      1  TARGET=       99.000
           FIRST CROSS SECTION OF WASH AE-SUNNY COVE WASH, UPSTREAM OF
           WASH AD-SUNSET WASH.
     .032      1.45   2078.95   2078.51   2078.95   2079.04       .09      3.15       .08   2078.00
    145.0       1.3     112.1      31.5       1.7      41.7      36.7      15.2      12.9   2078.00
      .37       .78      2.69       .86      .065      .035      .070      .000   2077.50    987.00
  .002816      295.      283.      287.         5        22         0       .00     98.80   1085.80
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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  .095
3280 CROSS SECTION       .09 EXTENDED      4.36 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      985.0    1012.0  TYPE=      1  TARGET=       27.000
           ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
           SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
           WSEL AND THE TOPOGRAPHY.
     .095      4.36   2084.36   2084.36   2084.36   2084.95       .60      1.96       .15   2084.30
   145.0        .0     142.9       2.1        .0      22.9       1.2      15.6      13.4   2083.50
     .39       .03      6.24      1.72      .065      .035      .070      .000   2080.00    985.23
  .021489     380.      332.      250.         0        20         0       .00     26.63   1011.85


  V=     .100 CEHV=     .300
  .CNO  .175

3470 ENCROACHMENT STATIONS=      984.0    1033.0  TYPE=      1  TARGET=       49.000
     .175      1.38   2090.38   2090.17   2090.38   2090.57       .19      5.58       .04   2089.00
   102.0       15.8      78.0       8.2       9.8      20.0       6.7      15.9      13.7   2089.60
     .42      1.61      3.90      1.22      .070      .035      .070      .000   2089.00    984.88
  .007757     415.      422.      425.         6        14         0       .00     48.02   1032.90


*SECNO  .228
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      996.0    1047.0  TYPE=      1  TARGET=       51.000
     .228       .83   2095.33   2095.33   2095.33   2095.65       .31      3.19       .04   2094.50
   102.0        1.9      84.7      15.3       1.3      17.4       9.5      16.1      14.1   2094.60
     .44      1.51      4.86      1.61      .070      .035      .070      .000   2094.50    996.94
  .016951     270.      283.      345.         0        14         0       .00     49.58   1046.51


*SECNO  .280
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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 = .59

3470 ENCROACHMENT STATIONS= 984.0 1009.0 TYPE= 1 TARGET= 25.000
DOWNSTREAM CROSS SECTION OF 21" CORRUGATED METAL PIPE WITH
PROJECTING OUTLET, EAST SIDE OF KELLIS ROAD.
THIS PIPE IS NOT MODELLED DUE TO ITS LIMITED CAPACITY,
BASED ON ANALYSIS THE PIPE HANDLES LESS THAN HALF OF THE
PEAK DISCHARGE OF 49 CFS.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.280	1.09	2099.63	2099.49	2099.64	2099.81	.17	4.15	.01	2099.40
49.0	.2	41.2	7.7	.2	11.5	4.8	16.3	14.3	2098.54
.47	.74	3.59	1.58	.070	.035	.070	.000	2098.54	984.00
.011182	260.	276.	322.	4	11	0	.00	25.00	1009.00

ECNO .293
.85 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 984.0 1001.0 TYPE= 1 TARGET= 17.000
EDGE OF EAST SIDE OF KELLIS ROAD-DOWNSTREAM SIDE OF ROAD CROSSING.

.293	3.63	2103.93	2103.93	2103.93	2104.28	.36	.24	.05	2103.00
49.0	1.9	47.1	.0	.9	9.7	.0	16.3	14.3	2104.00
.47	2.00	4.87	.00	.070	.035	.000	.000	2100.30	984.00
.023557	15.	15.	15.	0	18	0	.00	15.86	999.86

*SECNO .294
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 984.0 1010.0 TYPE= 1 TARGET= 26.000
EDGE OF WAST SIDE OF KELLIS ROAD-UPSTREAM SIDE OF ROAD CROSSING.
THIS EDGE OF ROADWAY WAS USED FOR WEIR FLOW CALCULATIONS.

.294	3.59	2106.89	2106.89	2106.89	2107.29	.40	1.28	.01	2106.00
49.0	1.9	47.1	.0	.9	9.1	.0	16.3	14.3	2107.20
.47	2.16	5.15	.00	.070	.035	.000	.000	2103.30	984.00
.028122	50.	50.	50.	0	5	0	.00	15.78	999.78

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 .295

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 35.74

3470 ENCROACHMENT STATIONS= 984.0 1015.0 TYPE= 1 TARGET= 31.000
UPSTREAM CROSS SECTION OF 21" CORRUGATED METAL PIPE WITH
PROJECTING INLET, NO EROSION PROTECTION. ANALYSIS DOES NOT
INCLUDE THIS PIPE.
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.295	8.33	2107.33	2101.89	2107.33	2107.33	.00	.00	.04	2106.00
49.0	.1	38.5	10.4	1.4	73.3	48.6	16.3	14.4	2100.20
.48	.07	.52	.21	.070	.035	.070	.000	2099.00	984.00
.000022	15.	15.	15.	1	16	0	.00	30.66	1014.66

*SECNO .313

2 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

3470 ENCROACHMENT STATIONS= 970.0 1016.0 TYPE= 1 TARGET= 46.000

.313	6.33	2107.33	2102.21	2107.33	2107.33	.00	.00	.00	2102.00
49.0	9.1	37.9	2.0	60.3	87.3	17.8	16.6	14.4	2102.00
.55	.15	.43	.11	.070	.035	.070	.000	2101.00	971.35
.000010	108.	95.	60.	2	20	0	.00	44.31	1015.66

*SECNO .356

3470 ENCROACHMENT STATIONS= 964.0 1067.0 TYPE= 1 TARGET= 103.000

.356	3.83	2107.33	2104.34	2107.33	2107.34	.00	.00	.00	2103.80
49.0	10.5	11.8	26.7	60.7	27.7	156.0	17.7	14.8	2103.50
.82	.17	.43	.17	.070	.035	.070	.000	2103.50	965.33
.000018	240.	230.	225.	0	17	0	.00	100.83	1066.17

*SECNO .382

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.51

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= 890.0 1064.0 TYPE= 1 TARGET= 174.000

.382	3.34	2107.34	2104.53	2107.34	2107.34	.00	.00	.00	2104.10
49.0	19.6	19.7	9.8	188.1	74.6	100.6	18.6	15.2	2104.10
1.05	.10	.26	.10	.070	.035	.070	.000	2104.00	891.31
.000008	138.	138.	125.	0	17	0	.00	171.33	1062.65

*SECNO .420
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 993.0 1044.0 TYPE= 1 TARGET= 51.000
LAST CROSS SECTION OF DETAILED ANALYSIS-JUST DOWN STREAM
FROM THE SUNNY COVE FLOOD CONTROL DAM.

.420	.67	2108.17	2108.17	2108.17	2108.37	.19	.01	.06	2107.80
49.0	5.2	34.0	9.7	4.2	8.3	5.8	19.5	15.7	2107.60
1.06	1.26	4.12	1.68	.070	.035	.070	.000	2107.50	993.32
.020720	216.	197.	178.	0	21	0	.00	50.14	1043.46

THIS RUN EXECUTED 14AUG92 15:27:49

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

WASH AD: SUNSET WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	50.940	.00	.00	.00	2021.90	600.00	2023.82	2023.33	2023.95	50.91	3.13	207.10	84.09
	50.940	.00	.00	.00	2021.90	600.00	2023.82	2023.33	2023.95	50.91	3.13	207.10	84.09
*	.216	1141.00	.00	.00	2032.60	600.00	2037.53	2037.53	2038.31	125.32	7.31	92.73	53.60
*	.216	1141.00	.00	.00	2032.60	600.00	2037.53	2037.53	2038.31	125.32	7.31	92.73	53.60
	.261	235.00	.00	.00	2035.00	600.00	2039.40	2038.58	2039.94	44.12	6.56	126.25	90.33
*	.261	235.00	.00	.00	2035.00	600.00	2039.40	2038.58	2039.94	44.12	6.56	126.25	90.33
	.292	172.00	.00	.00	2037.60	600.00	2040.29	2039.55	2040.72	45.07	5.31	122.36	89.37
	.292	172.00	.00	.00	2037.60	600.00	2040.29	2039.55	2040.72	45.07	5.31	122.36	89.37
	.296	19.00	2049.10	2046.80	2037.80	600.00	2040.51	.00	2040.98	55.38	5.62	114.97	80.62
	.296	19.00	2049.10	2046.80	2037.80	600.00	2040.51	.00	2040.98	55.38	5.62	114.97	80.62
	.321	119.00	.00	.00	2039.00	600.00	2041.23	2041.18	2041.75	71.04	6.39	151.94	71.19
*	.321	119.00	.00	.00	2039.00	600.00	2041.24	2041.24	2042.12	100.45	7.63	86.59	59.86
*	.390	438.00	.00	.00	2043.00	576.00	2045.63	2045.63	2046.14	66.00	6.42	158.95	70.90
*	.390	438.00	.00	.00	2043.00	576.00	2045.66	2045.66	2046.55	93.94	7.73	85.13	59.43
*	.473	440.00	.00	.00	2049.20	576.00	2051.26	2051.26	2051.87	125.86	6.67	113.67	51.34
*	.473	440.00	.00	.00	2049.20	576.00	2051.25	2051.25	2052.00	147.33	7.20	91.25	47.45
*	.491	91.00	.00	.00	2050.50	576.00	2052.75	2052.75	2053.33	118.66	6.89	125.78	52.88
*	.491	91.00	.00	.00	2050.50	576.00	2052.75	2052.75	2053.33	118.46	6.89	125.87	52.92
*	.534	229.00	.00	.00	2053.50	541.00	2055.83	2055.83	2056.68	143.67	8.48	90.45	45.14
*	.534	229.00	.00	.00	2053.50	541.00	2055.83	2055.83	2056.68	142.16	8.46	90.79	45.37
	.568	179.00	.00	.00	2054.10	541.00	2058.06	2058.06	2059.65	80.35	11.12	73.74	60.35
	.568	179.00	.00	.00	2054.10	541.00	2058.06	2058.06	2059.65	80.50	11.13	73.68	60.30

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	.569	.10	.00	.00	2055.70	541.00	2060.44	2060.44	2061.70	17.18	9.74	118.76	130.51
*	.569	.10	.00	.00	2055.70	541.00	2060.44	2060.44	2061.70	17.18	9.74	118.76	130.51
*	.578	48.00	2059.68	2059.00	2056.00	541.00	2061.29	.00	2061.70	8.58	6.45	259.49	184.74
*	.578	48.00	2059.68	2059.00	2056.00	541.00	2061.29	.00	2061.70	8.58	6.45	259.49	184.74
*	.598	108.00	.00	.00	2059.00	541.00	2061.41	2061.26	2061.95	91.05	6.24	111.16	56.70
*	.598	108.00	.00	.00	2059.00	541.00	2061.25	2061.25	2062.09	149.27	7.50	77.30	44.28
	.639	217.00	.00	.00	2059.00	528.00	2062.81	2062.24	2063.53	58.91	7.17	91.18	68.79
*	.639	217.00	.00	.00	2059.00	528.00	2063.10	2062.25	2063.68	43.00	6.49	102.69	80.52
	.672	173.00	.00	.00	2060.20	528.00	2063.78	2063.58	2064.77	80.36	8.56	83.20	58.90
	.672	173.00	.00	.00	2060.20	528.00	2063.78	2063.58	2064.77	79.96	8.55	83.38	59.05
*	.681	46.00	.00	.00	2062.07	528.00	2065.95	2065.95	2067.45	25.59	10.31	73.89	104.38
*	.681	46.00	.00	.00	2062.07	528.00	2065.96	2065.96	2067.45	25.36	10.28	74.31	104.85
*	.693	65.00	.00	.00	2062.85	528.00	2066.92	2066.92	2067.86	30.61	8.70	115.10	95.44
*	.693	65.00	.00	.00	2062.85	528.00	2066.93	2066.93	2067.86	29.90	8.63	116.90	96.56
*	.704	46.50	2066.40	2066.00	2063.39	528.00	2070.04	.00	2070.12	2.23	3.27	407.97	353.93
*	.704	46.50	2066.40	2066.00	2063.39	528.00	2070.01	.00	2070.09	2.27	3.29	404.59	350.15
	.705	5.00	.00	.00	2064.39	528.00	2070.08	2067.69	2070.13	3.99	2.70	386.59	264.29
	.705	5.00	.00	.00	2064.39	528.00	2070.05	2067.64	2070.10	4.09	2.73	383.23	261.05
*	.721	83.00	.00	.00	2065.50	528.00	2070.06	2069.11	2070.22	15.20	4.15	229.97	135.44
*	.721	83.00	.00	.00	2065.50	528.00	2069.94	2069.11	2070.25	25.85	5.31	157.31	103.85
*	.762	215.50	.00	.00	2067.30	481.00	2070.77	2070.77	2071.61	83.20	8.82	94.02	52.73
*	.762	215.50	.00	.00	2067.30	481.00	2070.80	2070.80	2071.61	79.89	8.69	95.94	53.81
*	.763	.50	.00	.00	2069.70	481.00	2071.55	2071.55	2072.05	142.49	7.38	111.61	40.30
*	.763	.50	.00	.00	2069.70	481.00	2071.55	2071.55	2072.05	142.40	7.38	111.64	40.31
*	.765	47.00	.00	.00	2070.50	481.00	2072.26	2072.00	2072.51	65.20	4.28	144.63	59.57
	.765	47.00	.00	.00	2070.50	481.00	2072.25	2071.99	2072.54	73.41	4.52	128.35	56.14
*	.798	140.00	.00	.00	2072.00	481.00	2074.89	2074.89	2075.72	115.56	9.27	89.61	44.74
*	.798	140.00	.00	.00	2072.00	481.00	2074.89	2074.89	2075.72	115.74	9.27	89.56	44.71
	.862	335.00	.00	.00	2075.50	336.00	2077.58	2077.04	2077.75	36.38	4.49	155.26	55.71
	.862	335.00	.00	.00	2075.50	336.00	2077.93	2077.52	2078.44	56.89	6.29	72.76	44.55
*	.913	270.00	.00	.00	2078.60	336.00	2079.65	2079.65	2079.86	133.13	5.03	149.60	29.12
	.913	270.00	.00	.00	2078.60	336.00	2079.84	2079.65	2079.94	52.12	3.60	210.30	46.54
	.957	235.00	.00	.00	2081.80	304.00	2084.98	2084.98	2085.67	110.38	6.74	48.20	28.94
	.957	235.00	.00	.00	2081.80	304.00	2084.95	2084.95	2085.67	117.24	6.86	47.22	28.08

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1.053	504.00	.00	.00	2091.50	136.00	2093.48	2093.48	2094.06	101.35	6.46	28.26	13.51
*	1.053	504.00	.00	.00	2091.50	136.00	2093.48	2093.48	2094.06	101.54	6.46	28.24	13.50
*	1.152	526.00	.00	.00	2101.00	32.00	2101.69	2101.69	2101.89	226.79	3.63	9.55	2.12
*	1.152	526.00	.00	.00	2101.00	32.00	2101.69	2101.69	2101.89	220.81	3.60	9.65	2.15
	1.206	283.00	.00	.00	2107.50	32.00	2108.05	2108.02	2108.16	214.44	2.74	11.73	2.19
	1.206	283.00	.00	.00	2107.50	32.00	2108.03	2108.02	2108.15	219.29	2.76	11.65	2.16
	-.798	140.00	.00	.00	2072.00	481.00	2074.89	.00	2075.81	223.06	9.06	75.30	32.21
	-.798	140.00	.00	.00	2072.00	481.00	2074.89	.00	2075.81	223.50	9.07	75.25	32.17
	.032	283.00	.00	.00	2077.50	145.00	2078.95	2078.51	2079.04	28.22	2.69	80.19	27.29
	.032	283.00	.00	.00	2077.50	145.00	2078.95	2078.51	2079.04	28.16	2.69	80.16	27.33
*	.095	332.00	.00	.00	2080.00	145.00	2084.36	2084.36	2084.95	215.77	6.24	24.13	9.87
*	.095	332.00	.00	.00	2080.00	145.00	2084.36	2084.36	2084.95	214.89	6.24	24.16	9.89
	.175	422.00	.00	.00	2089.00	102.00	2090.38	2090.17	2090.57	77.30	3.89	36.61	11.60
	.175	422.00	.00	.00	2089.00	102.00	2090.38	2090.17	2090.57	77.57	3.90	36.57	11.58
*	.228	283.00	.00	.00	2094.50	102.00	2095.33	2095.33	2095.65	170.86	4.88	28.12	7.80
*	.228	283.00	.00	.00	2094.50	102.00	2095.33	2095.33	2095.65	169.51	4.86	28.20	7.83
	.280	276.00	.00	.00	2098.54	49.00	2099.64	2099.49	2099.81	110.40	3.58	16.61	4.66
*	.280	276.00	.00	.00	2098.54	49.00	2099.63	2099.49	2099.81	111.82	3.59	16.54	4.63
*	.293	15.00	.00	.00	2100.30	49.00	2103.93	2103.93	2104.28	236.41	4.88	10.59	3.19
*	.293	15.00	.00	.00	2100.30	49.00	2103.93	2103.93	2104.28	235.57	4.87	10.61	3.19
*	.294	50.00	.00	.00	2103.30	49.00	2106.89	2106.89	2107.29	278.79	5.13	10.07	2.93
*	.294	50.00	.00	.00	2103.30	49.00	2106.89	2106.89	2107.29	281.22	5.15	10.04	2.92
*	.295	15.00	.00	.00	2099.00	49.00	2107.33	2101.92	2107.33	.22	.52	123.36	104.39
*	.295	15.00	.00	.00	2099.00	49.00	2107.33	2101.89	2107.33	.22	.52	123.40	104.44
*	.313	95.00	.00	.00	2101.00	49.00	2107.33	2102.21	2107.33	.10	.43	165.30	153.80
*	.313	95.00	.00	.00	2101.00	49.00	2107.33	2102.21	2107.33	.10	.43	165.32	153.82
	.356	230.00	.00	.00	2103.50	49.00	2107.33	2104.34	2107.33	.18	.43	244.35	116.42
	.356	230.00	.00	.00	2103.50	49.00	2107.33	2104.34	2107.34	.18	.43	244.40	116.46
*	.382	138.00	.00	.00	2104.00	49.00	2107.34	2104.53	2107.34	.08	.26	363.15	175.37
*	.382	138.00	.00	.00	2104.00	49.00	2107.34	2104.53	2107.34	.08	.26	363.24	175.42
*	.420	197.00	.00	.00	2107.50	49.00	2108.17	2108.17	2108.37	204.67	4.10	18.31	3.43
*	.420	197.00	.00	.00	2107.50	49.00	2108.17	2108.17	2108.37	207.20	4.12	18.22	3.40

SH AD: SUNSET WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	50.940	600.00	2023.82	.00	.00	-8.02	270.94	.00
	50.940	600.00	2023.82	.00	.00	-8.02	270.94	.00
*	.216	600.00	2037.53	.00	13.71	.00	57.65	1141.00
*	.216	600.00	2037.53	.00	13.71	.00	57.65	1141.00
*	.261	600.00	2039.40	.00	1.87	.00	50.39	235.00
*	.261	600.00	2039.40	.00	1.87	.00	50.39	235.00
	.292	600.00	2040.29	.00	.90	.00	53.05	172.00
	.292	600.00	2040.29	.00	.90	.00	53.05	172.00
	.296	600.00	2040.51	.00	.22	.00	52.56	19.00
	.296	600.00	2040.51	.00	.22	.00	52.56	19.00
	.321	600.00	2041.23	.00	.72	.00	163.63	119.00
*	.321	600.00	2041.24	.01	.73	.01	56.68	119.00
	.390	576.00	2045.63	.00	4.40	.00	191.79	438.00
	.390	576.00	2045.66	.03	4.42	.03	58.65	438.00
*	.473	576.00	2051.26	.00	5.63	.00	109.04	440.00
*	.473	576.00	2051.25	-.01	5.59	-.01	64.59	440.00
*	.491	576.00	2052.75	.00	1.49	.00	126.18	91.00
*	.491	576.00	2052.75	.00	1.50	.00	126.26	91.00
*	.534	541.00	2055.83	.00	3.08	.00	57.19	229.00
*	.534	541.00	2055.83	.01	3.08	.01	57.26	229.00
*	.568	541.00	2058.06	.00	2.24	.00	27.21	179.00
*	.568	541.00	2058.06	.00	2.23	.00	27.21	179.00
*	.569	541.00	2060.44	.00	2.38	.00	65.00	.10
*	.569	541.00	2060.44	.00	2.38	.00	65.00	.10
*	.578	541.00	2061.29	.00	.85	.00	130.00	48.00
*	.578	541.00	2061.29	.00	.85	.00	130.00	48.00
*	.598	541.00	2061.41	.00	.12	.00	96.14	108.00
*	.598	541.00	2061.25	-.17	-.04	-.17	48.16	108.00
	.639	528.00	2062.81	.00	1.40	.00	38.26	217.00
*	.639	528.00	2063.10	.29	1.85	.29	39.69	217.00
	.672	528.00	2063.78	.00	.97	.00	40.77	173.00
	.672	528.00	2063.78	.00	.69	.00	40.82	173.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	.681	528.00	2065.95	.00	2.17	.00	45.59	46.00
*	.681	528.00	2065.96	.01	2.18	.01	45.80	46.00
*	.693	528.00	2066.92	.00	.97	.00	92.63	65.00
*	.693	528.00	2066.93	.02	.98	.02	94.01	65.00
*	.704	528.00	2070.04	.00	3.13	.00	120.51	46.50
*	.704	528.00	2070.01	-.03	3.08	-.03	120.17	46.50
	.705	528.00	2070.08	.00	.04	.00	120.97	5.00
	.705	528.00	2070.05	-.03	.04	-.03	120.64	5.00
*	.721	528.00	2070.06	.00	-.02	.00	110.20	83.00
*	.721	528.00	2069.94	-.12	-.12	-.12	69.87	83.00
*	.762	481.00	2070.77	.00	.71	.00	66.79	215.50
*	.762	481.00	2070.80	.03	.86	.03	67.62	215.50
*	.763	481.00	2071.55	.00	.78	.00	111.57	.50
*	.763	481.00	2071.55	.00	.76	.00	111.58	.50
*	.765	481.00	2072.26	.00	.71	.00	178.63	47.00
	.765	481.00	2072.25	-.01	.70	-.01	137.29	47.00
	.798	481.00	2074.89	.00	2.63	.00	51.50	140.00
*	.798	481.00	2074.89	.00	2.64	.00	51.50	140.00
	.862	336.00	2077.58	.00	2.69	.00	138.66	335.00
	.862	336.00	2077.93	.35	3.04	.35	39.00	335.00
*	.913	336.00	2079.65	.00	2.07	.00	328.00	270.00
	.913	336.00	2079.84	.19	1.91	.19	328.00	270.00
*	.957	304.00	2084.98	.00	5.33	.00	37.93	235.00
*	.957	304.00	2084.95	-.03	5.11	-.03	37.72	235.00
*	1.053	136.00	2093.48	.00	8.50	.00	27.74	504.00
*	1.053	136.00	2093.48	.00	8.53	.00	27.74	504.00
*	1.152	32.00	2101.69	.00	8.21	.00	27.06	526.00
*	1.152	32.00	2101.69	.00	8.21	.00	27.20	526.00
	1.206	32.00	2108.05	.00	6.36	.00	41.78	283.00
	1.206	32.00	2108.03	-.01	6.34	-.01	41.70	283.00
	-.798	481.00	2074.89	.00	-33.15	.00	52.00	140.00
	-.798	481.00	2074.89	.00	-33.14	.00	52.00	140.00
	.032	145.00	2078.95	.00	4.06	.00	99.56	283.00
	.032	145.00	2078.95	.00	4.06	.00	98.80	283.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	.095	145.00	2084.36	.00	5.41	.00	26.60	332.00
*	.095	145.00	2084.36	.00	5.41	.00	26.63	332.00
	.175	102.00	2090.38	.00	6.03	.00	48.04	422.00
	.175	102.00	2090.38	.00	6.03	.00	48.02	422.00
*	.228	102.00	2095.33	.00	4.95	.00	49.52	283.00
*	.228	102.00	2095.33	.00	4.95	.00	49.58	283.00
*	.280	49.00	2099.64	.00	4.30	.00	25.00	276.00
*	.280	49.00	2099.63	.00	4.30	.00	25.00	276.00
*	.293	49.00	2103.93	.00	4.29	.00	15.85	15.00
*	.293	49.00	2103.93	.00	4.29	.00	15.86	15.00
*	.294	49.00	2106.89	.00	2.97	.00	15.79	50.00
*	.294	49.00	2106.89	.00	2.96	.00	15.78	50.00
*	.295	49.00	2107.33	.00	.43	.00	30.65	15.00
*	.295	49.00	2107.33	.00	.44	.00	30.66	15.00
*	.313	49.00	2107.33	.00	.00	.00	44.31	95.00
*	.313	49.00	2107.33	.00	.00	.00	44.31	95.00
	.356	49.00	2107.33	.00	.00	.00	100.83	230.00
	.356	49.00	2107.33	.00	.00	.00	100.83	230.00
*	.382	49.00	2107.34	.00	.00	.00	171.32	138.00
*	.382	49.00	2107.34	.00	.00	.00	171.33	138.00
*	.420	49.00	2108.17	.00	.84	.00	50.20	197.00
*	.420	49.00	2108.17	.00	.83	.00	50.14	197.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      .216  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .216  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .216  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .216  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .261  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .261  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .321  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .321  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .390  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .390  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .390  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .390  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .473  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .473  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .473  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .473  PROFILE=  2  MINIMUM SPECIFIC ENERGY

  .TION SECNO=      .491  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .491  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .491  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .491  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .534  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .534  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .534  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .534  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .568  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .568  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .568  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .568  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .569  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .569  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .569  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .569  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .578  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .578  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .598  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=      .598  PROFILE=  2  CRITICAL DEPTH ASSUMED
   TION SECNO=      .598  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .639  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .681  PROFILE=  1  CRITICAL DEPTH ASSUMED
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   TION SECNO=      .681  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .681  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .681  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .693  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .693  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .693  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .693  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .704  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .704  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .721  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .721  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .762  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .762  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .762  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .762  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .763  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .763  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .763  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .763  PROFILE=  2  MINIMUM SPECIFIC ENERGY

  'NING SECNO=      .765  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .798  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .798  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .798  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .798  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .913  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      .957  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.053  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     1.053  PROFILE=  2  CRITICAL DEPTH ASSUMED
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 ^'UTION SECNO=      .095  PROFILE=  1  CRITICAL DEPTH ASSUMED
   TION SECNO=      .095  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .095  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .095  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      .228  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .228  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .228  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .280  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .280  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .293  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .293  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .293  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .293  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .294  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .294  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .294  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .294  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .295  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .295  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .313  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .313  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 RNING SECNO=       .382  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 RNING SECNO=       .382  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .420  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .420  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .420  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .420  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, WASH AD: SUNSET WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
50.940	513.	207.	2.9	2023.8	2023.8	.0
.216	58.	93.	6.5	2037.5	2037.5	.0
.261	50.	126.	4.8	2039.4	2039.4	.0
.292	53.	122.	4.9	2040.3	2040.3	.0
.296	53.	115.	5.2	2040.5	2040.5	.0
.321	57.	87.	6.9	2041.2	2041.2	.0
.390	59.	85.	6.8	2045.6	2045.6	.0
.473	65.	91.	6.3	2051.3	2051.3	.0
.491	126.	126.	4.6	2052.7	2052.7	.0
.534	57.	91.	6.0	2055.8	2055.8	.0
.568	27.	74.	7.3	2058.1	2058.1	.0
.569	65.	119.	4.6	2060.4	2060.4	.0
.578	130.	259.	2.1	2061.3	2061.3	.0
.598	48.	77.	7.0	2061.2	2061.4	-.2
.639	40.	103.	5.1	2063.1	2062.8	.3
.672	41.	83.	6.3	2063.8	2063.8	.0
.681	46.	74.	7.1	2066.0	2066.0	.0
.693	98.	117.	4.5	2066.9	2066.9	.0
.704	120.	405.	1.3	2070.0	2070.0	.0
.705	121.	383.	1.4	2070.1	2070.1	.0
.721	70.	157.	3.4	2070.0	2070.1	-.1
.762	68.	96.	5.0	2070.8	2070.8	.0
.763	112.	112.	4.3	2071.6	2071.6	.0
.765	137.	128.	3.7	2072.3	2072.3	.0
.798	52.	90.	5.4	2074.9	2074.9	.0
.862	39.	73.	4.6	2078.0	2077.6	.4
.913	328.	210.	1.6	2079.9	2079.7	.2
.957	38.	47.	6.4	2085.0	2085.0	.0
1.053	28.	28.	4.8	2093.5	2093.5	.0
1.152	27.	10.	3.3	2101.7	2101.7	.0
1.206	42.	12.	2.7	2108.0	2108.0	.0
-.798	52.	75.	6.4	2074.9	2074.9	.0
.032	99.	80.	1.8	2078.9	2078.9	.0
.095	27.	24.	6.0	2084.4	2084.4	.0
.175	48.	37.	2.8	2090.4	2090.4	.0
.228	50.	28.	3.6	2095.3	2095.3	.0
.280	25.	17.	3.0	2099.6	2099.6	.0
.293	16.	11.	4.6	2103.9	2103.9	.0
.294	16.	10.	4.9	2106.9	2106.9	.0
.295	31.	123.	.4	2107.3	2107.3	.0
.313	44.	165.	.3	2107.3	2107.3	.0
.356	101.	244.	.2	2107.3	2107.3	.0

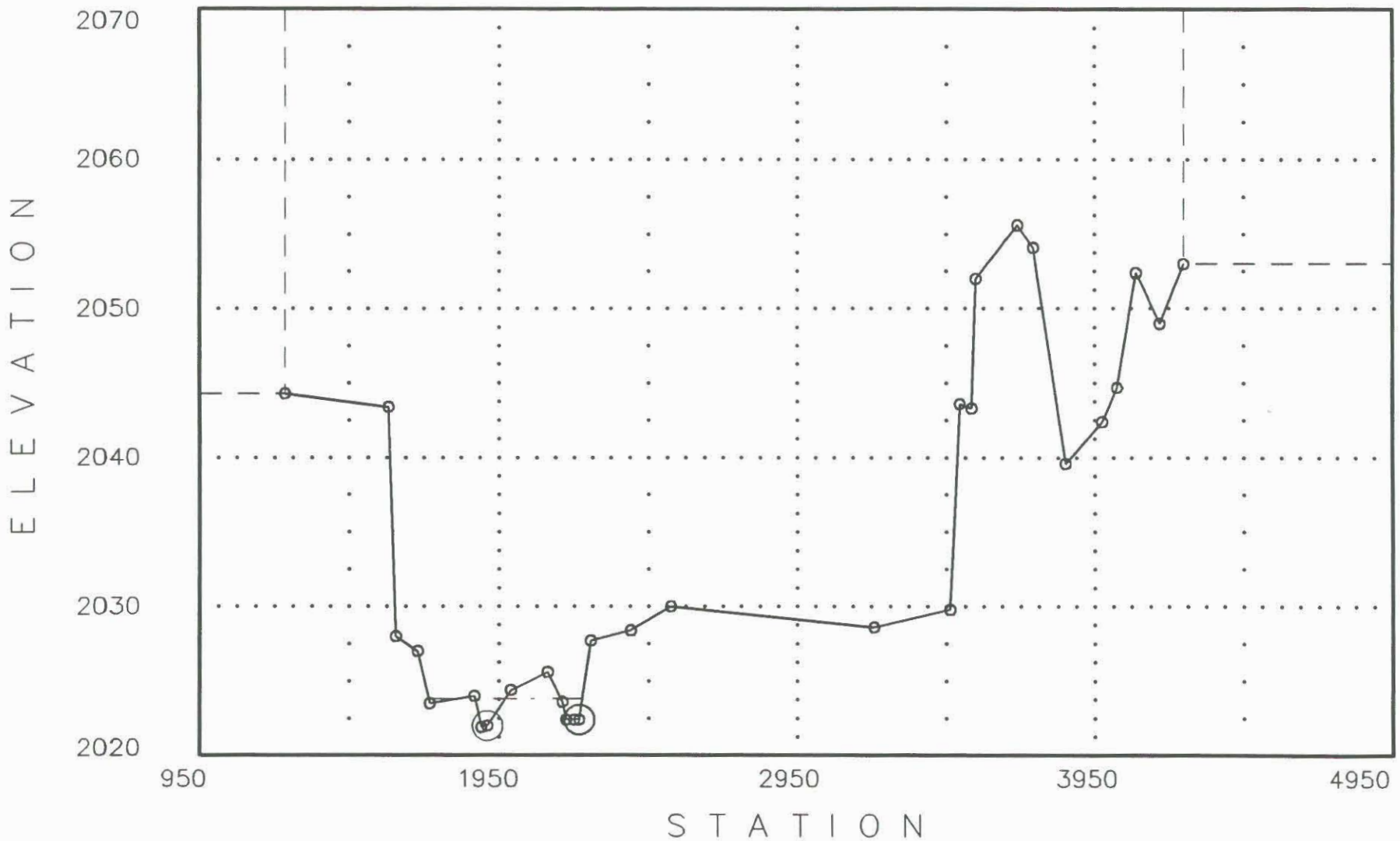
FLOODWAY DATA, WASH AD: SUNSET WASH
PROFILE NO. 2

STATION	WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.382	171.	363.	.1	2107.3	2107.3	.0
.420	50.	18.	2.7	2108.2	2108.2	.0

<<<<<< Cross Section: 50.94: (FN = WASHAD.O) >>>>>>

Q1= 600 WS1= 2023.82
Q2= 600 WS2= 2023.82

Manning-n's: n-lob = .045 n-ch = .035 n-rob = .045

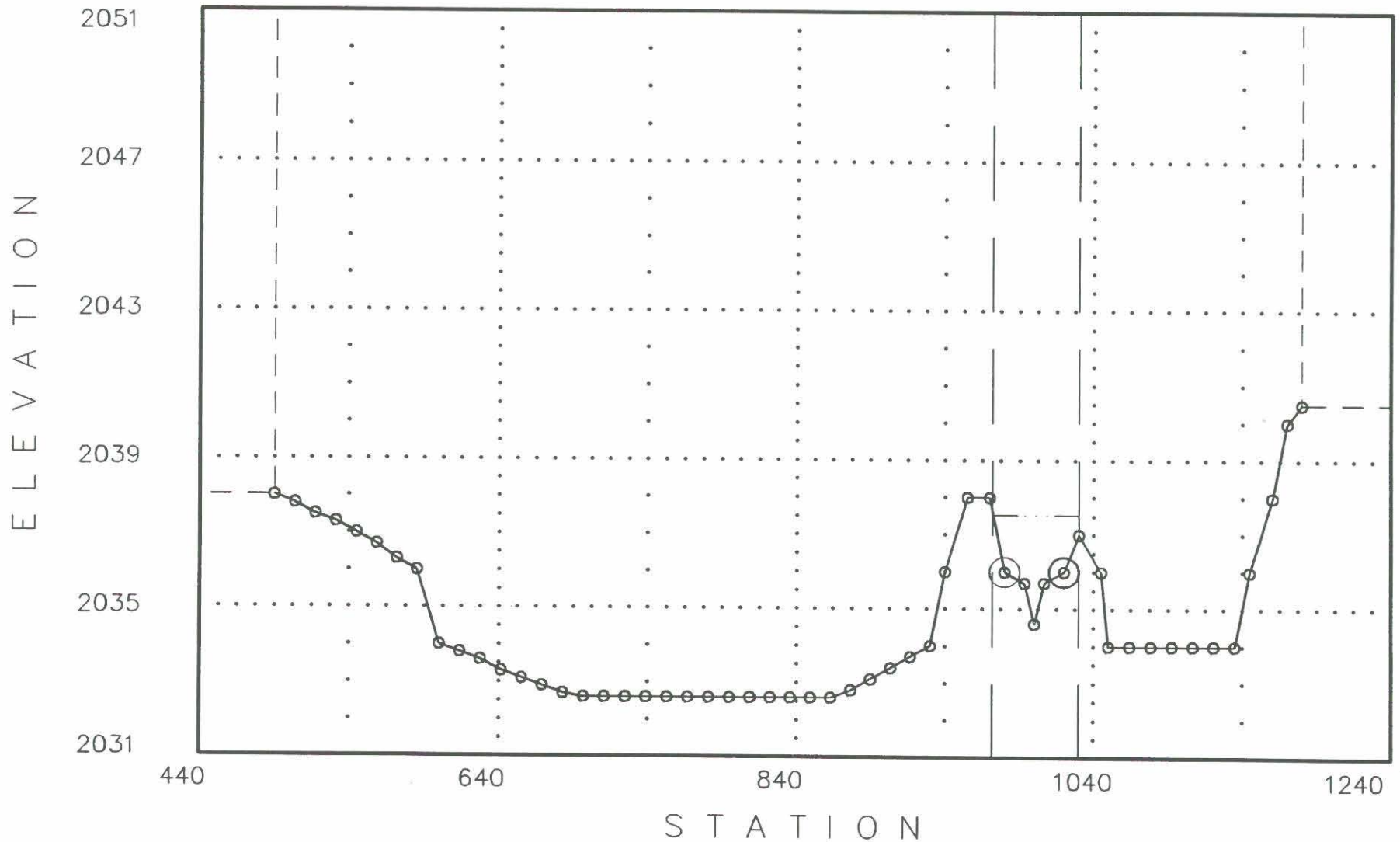


11-21-1992

<<<<<< Cross Section: .216: (FN = WASHAD.O) >>>>>>

Q1= 600 WS1= 2037.53
Q2= 600 WS2= 2037.53

Manning-n's: n-lob = .055 n-ch = .035 n-rob = .065

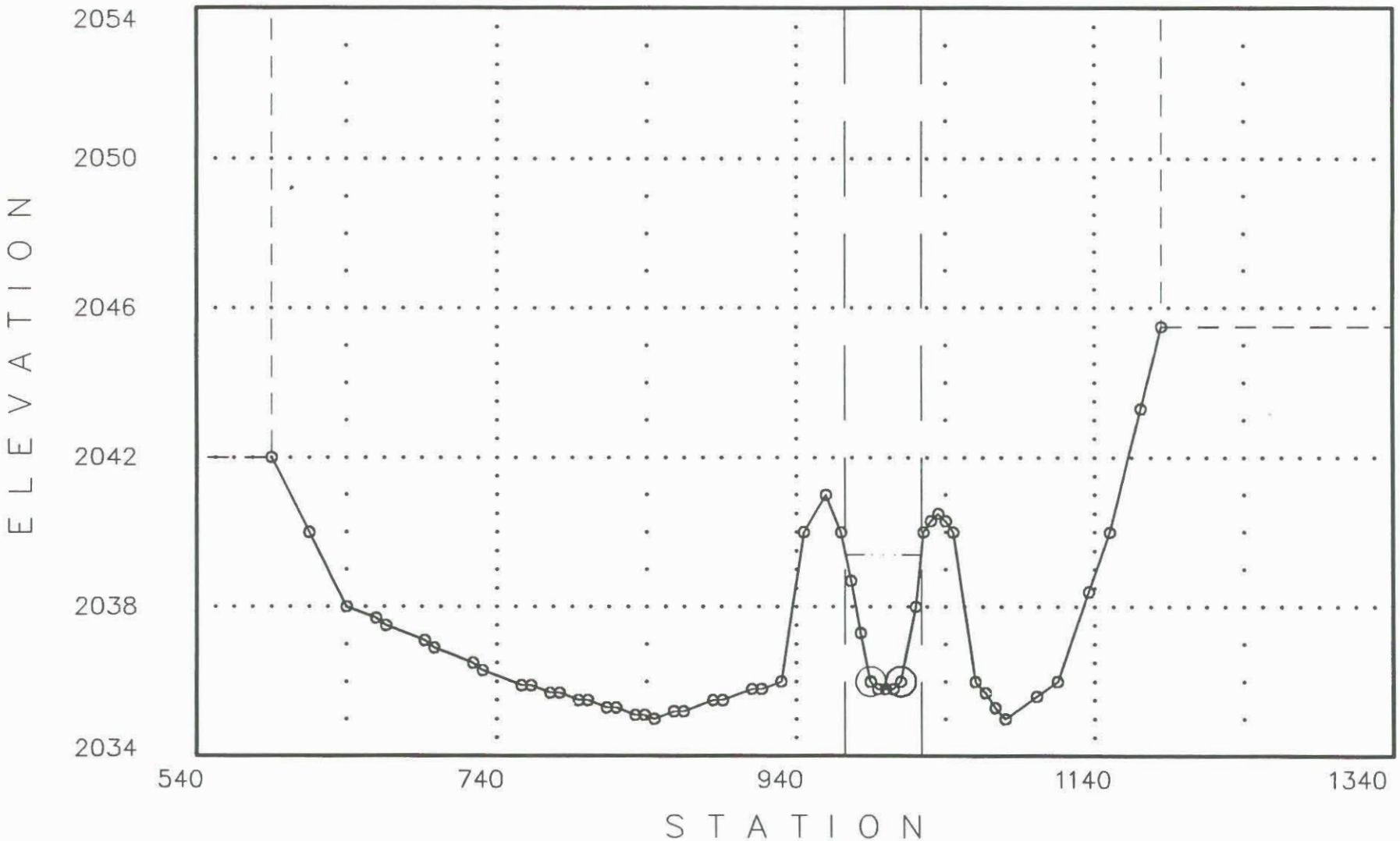


11-21-1992

<<<<<< Cross Section: .261: (FN = WASHAD.O) >>>>>>

Q1= 600 WS1= 2039.4
Q2= 600 WS2= 2039.4

Manning-n's: n-lob = .065 n-ch = .035 n-rob = .07



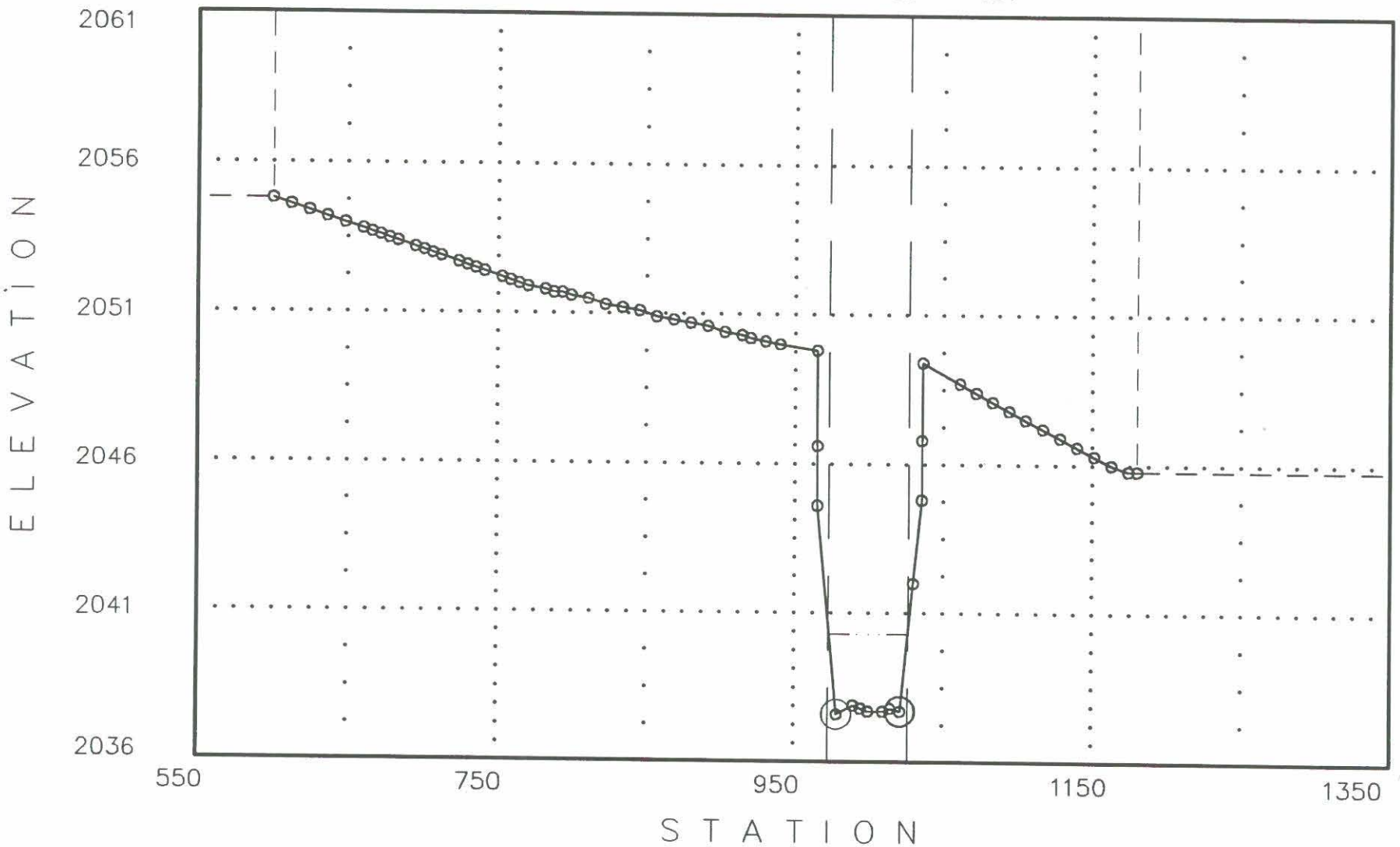
11-21-1992

<<<<<< Cross Section: .292: (FN = WASHAD.O) >>>>>>

Q1= 600 WS1= 2040.29

Q2= 600 WS2= 2040.29

Manning-n's: n-lob = .065 n-ch = .035 n-rob = .07

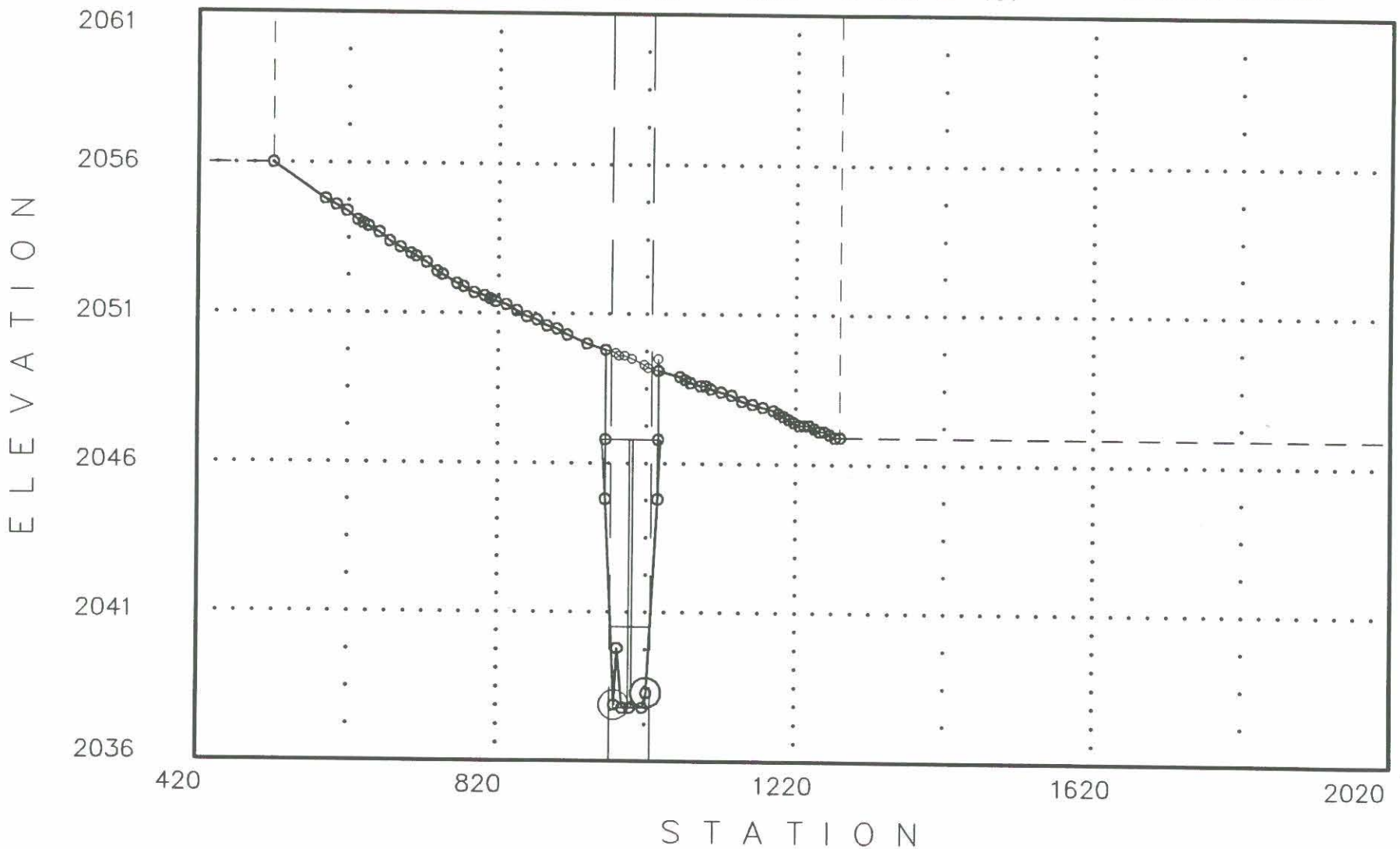


11-21-1992

<<<<<< Cross Section: .296: (FN = WASHAD.O) >>>>>>

Q1= 600 WS1= 2040.51
Q2= 600 WS2= 2040.51

Manning-n's: n-lob = .065 n-ch = .035 n-rob = .07 SPECIAL BRIDGE



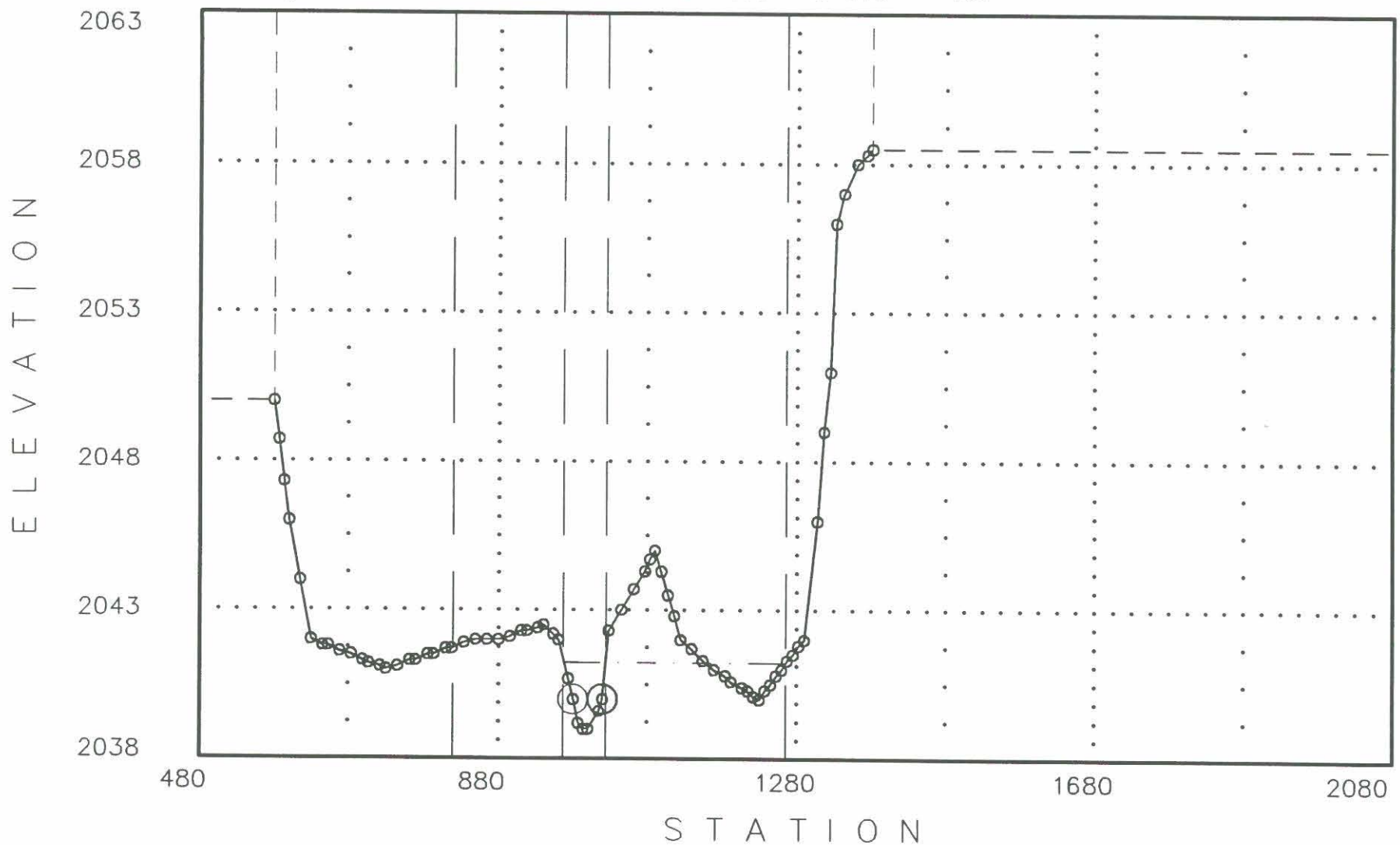
11-21-1992

<<<<<< Cross Section: .321: (FN = WASHAD.O) >>>>>>

Q1= 600 WS1= 2041.23

Q2= 600 WS2= 2041.24

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07



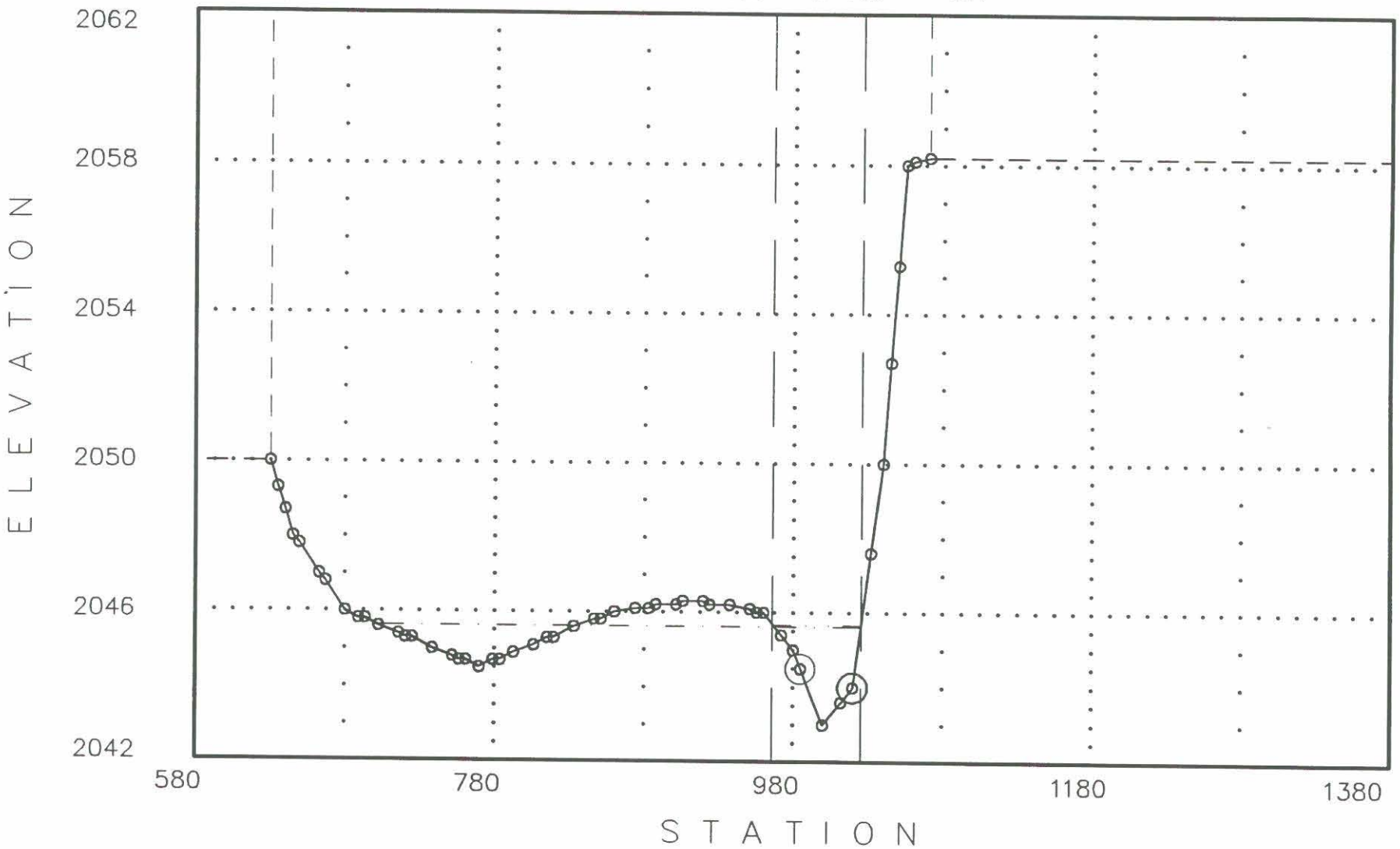
11-21-1992

<<<<<< Cross Section: .39: (FN = WASHAD.O) >>>>>>

Q1= 576 WS1= 2045.63

Q2= 576 WS2= 2045.66

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07



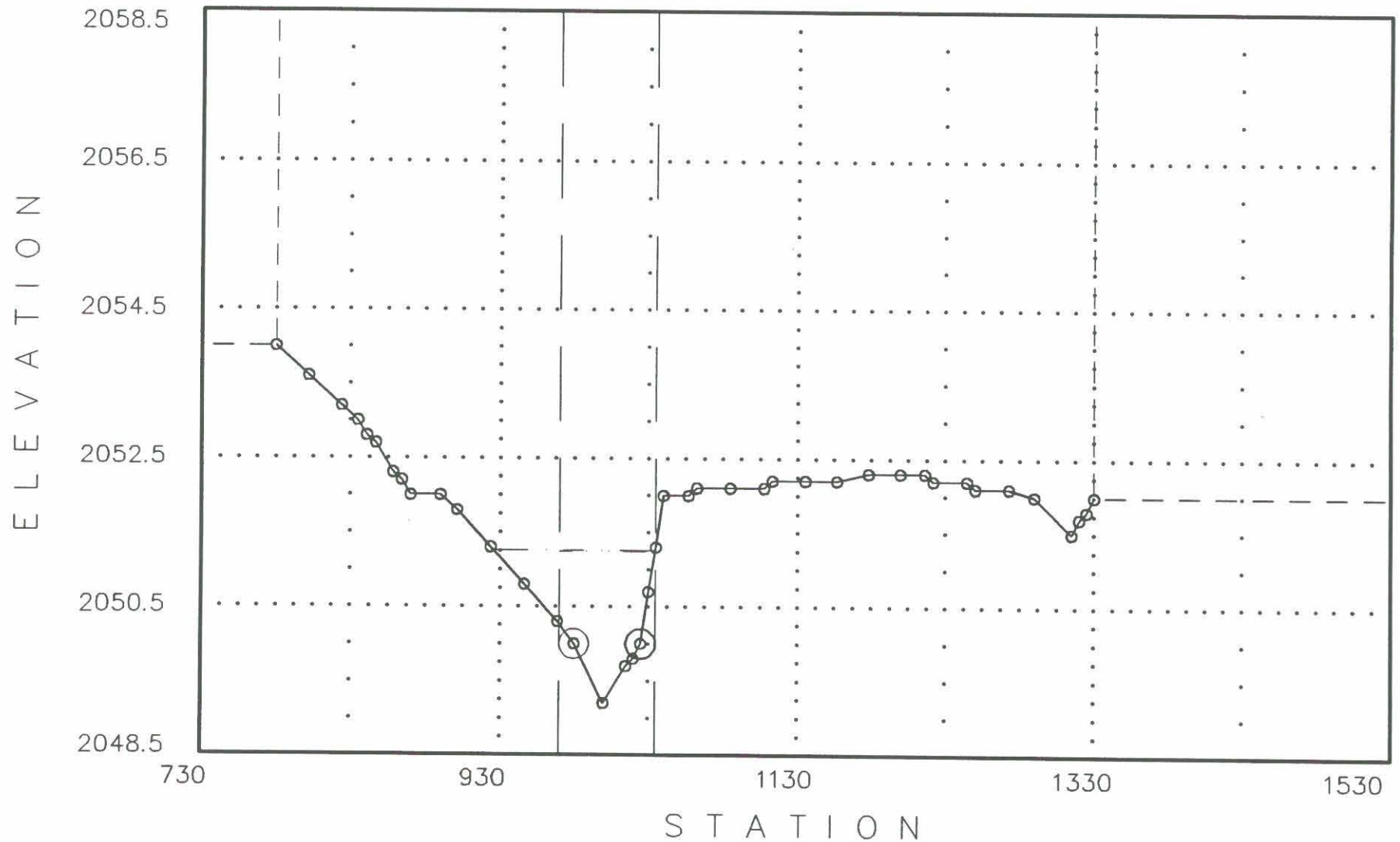
11-21-1992

<<<<<< Cross Section: .473: (FN = WASHAD.O) >>>>>>

Q1= 576 WS1= 2051.26

Q2= 576 WS2= 2051.25

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



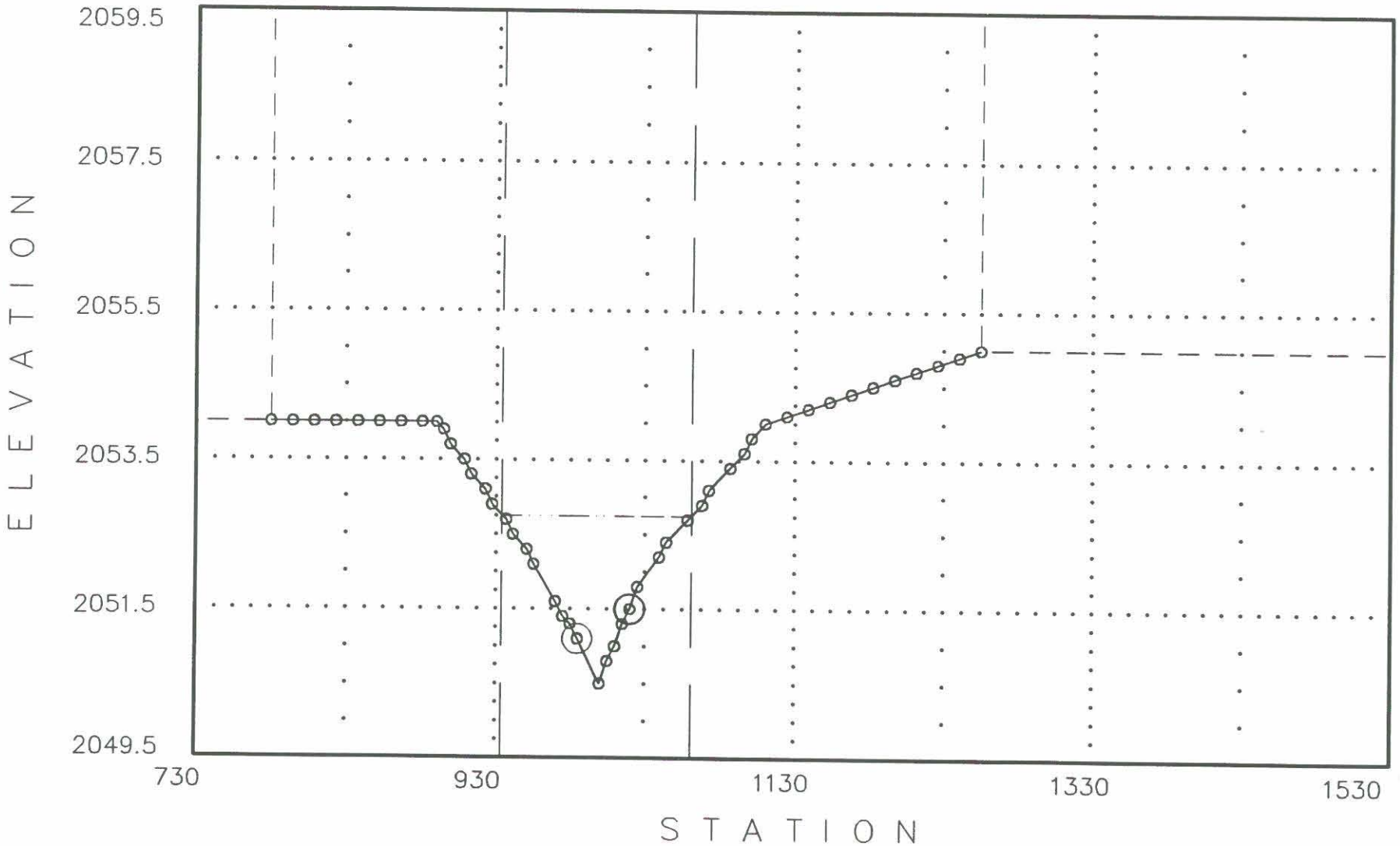
11-21-1992

<<<<<< Cross Section: .491: (FN = WASHAD.O) >>>>>>

Q1= 576 WS1= 2052.75

Q2= 576 WS2= 2052.75

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



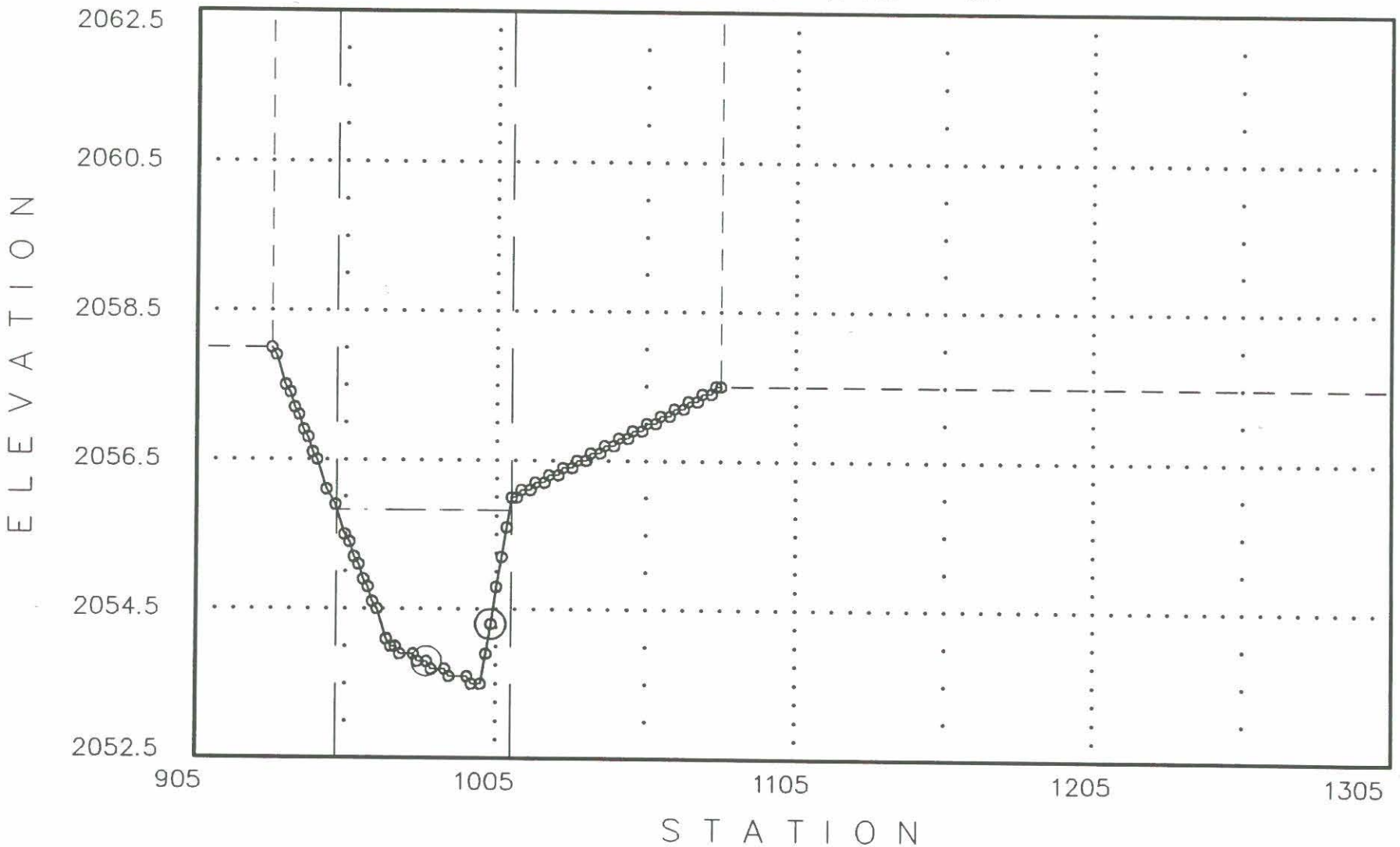
11-21-1992

<<<<<< Cross Section: .534: (FN = WASHAD.O) >>>>>>

Q1= 541 WS1= 2055.83

Q2= 541 WS2= 2055.83

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

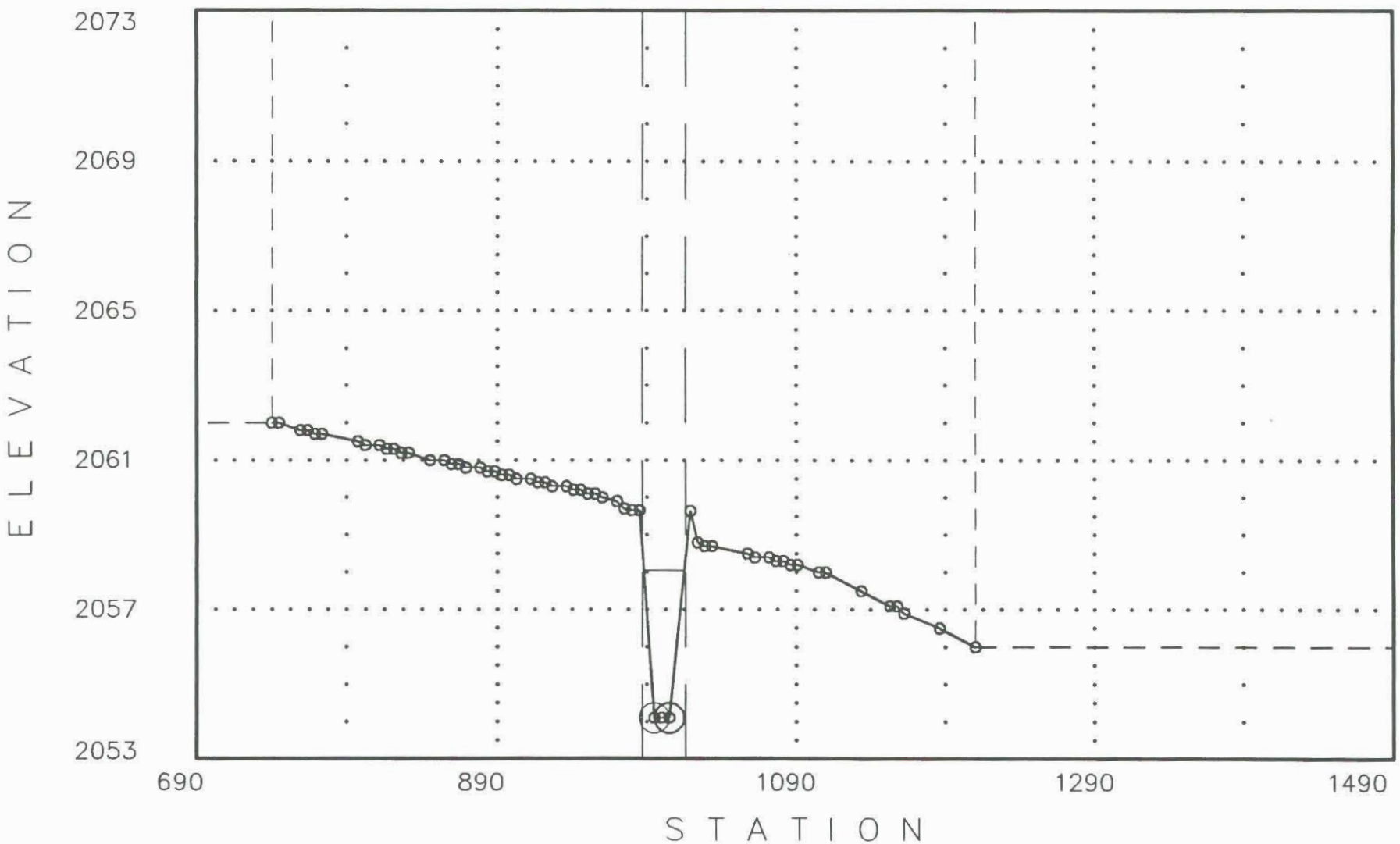


11-21-1992

<<<<<< Cross Section: .568: (FN = WASHAD.O) >>>>>>

Q1= 541 WS1= 2058.06
Q2= 541 WS2= 2058.06

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .065

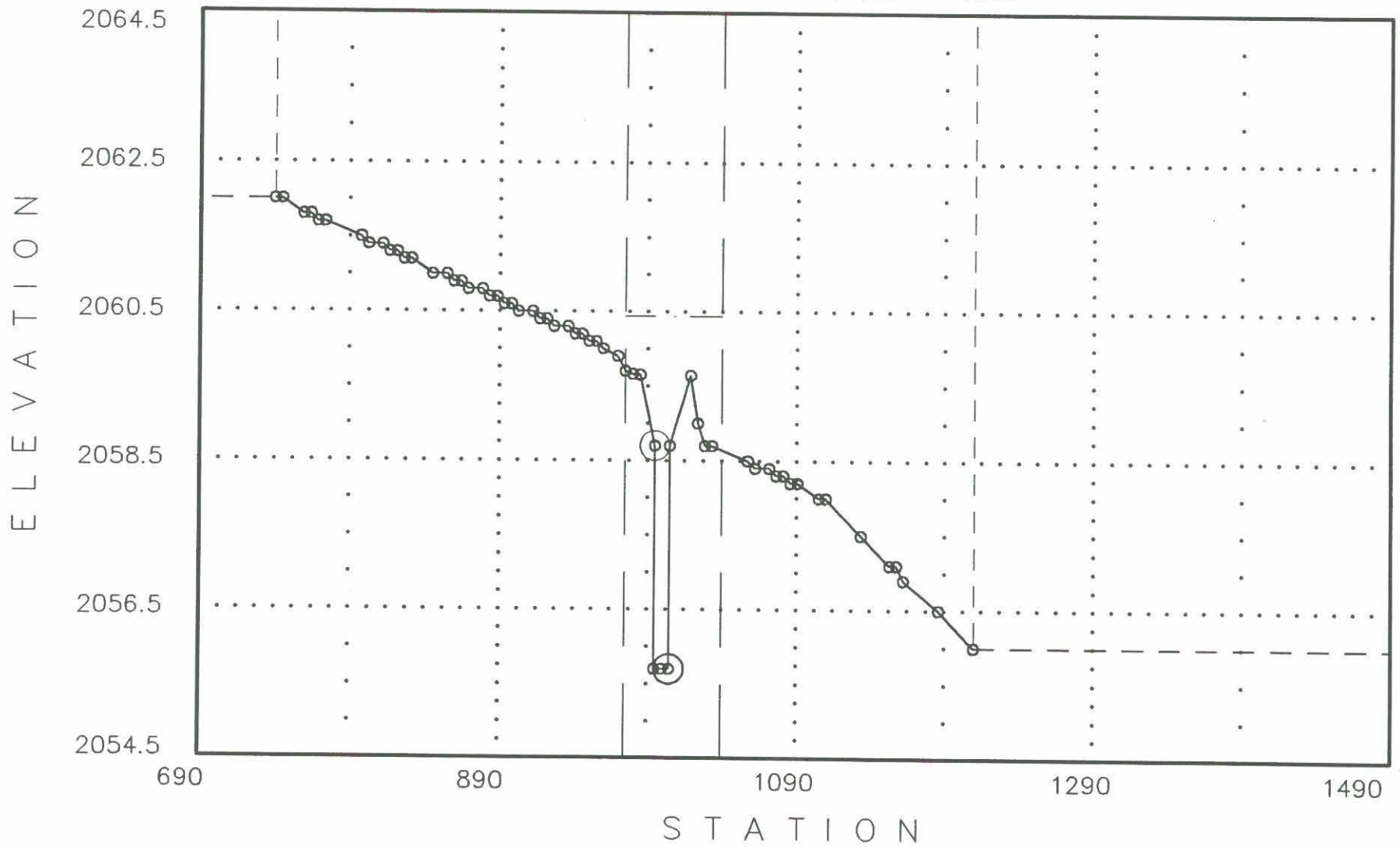


11-21-1992

<<<<<< Cross Section: .569: (FN = WASHAD.O) >>>>>>

Q1= 541 WS1= 2060.44
Q2= 541 WS2= 2060.44

Manning-n's: n-lob = .07 n-ch = .015 n-rob = .065

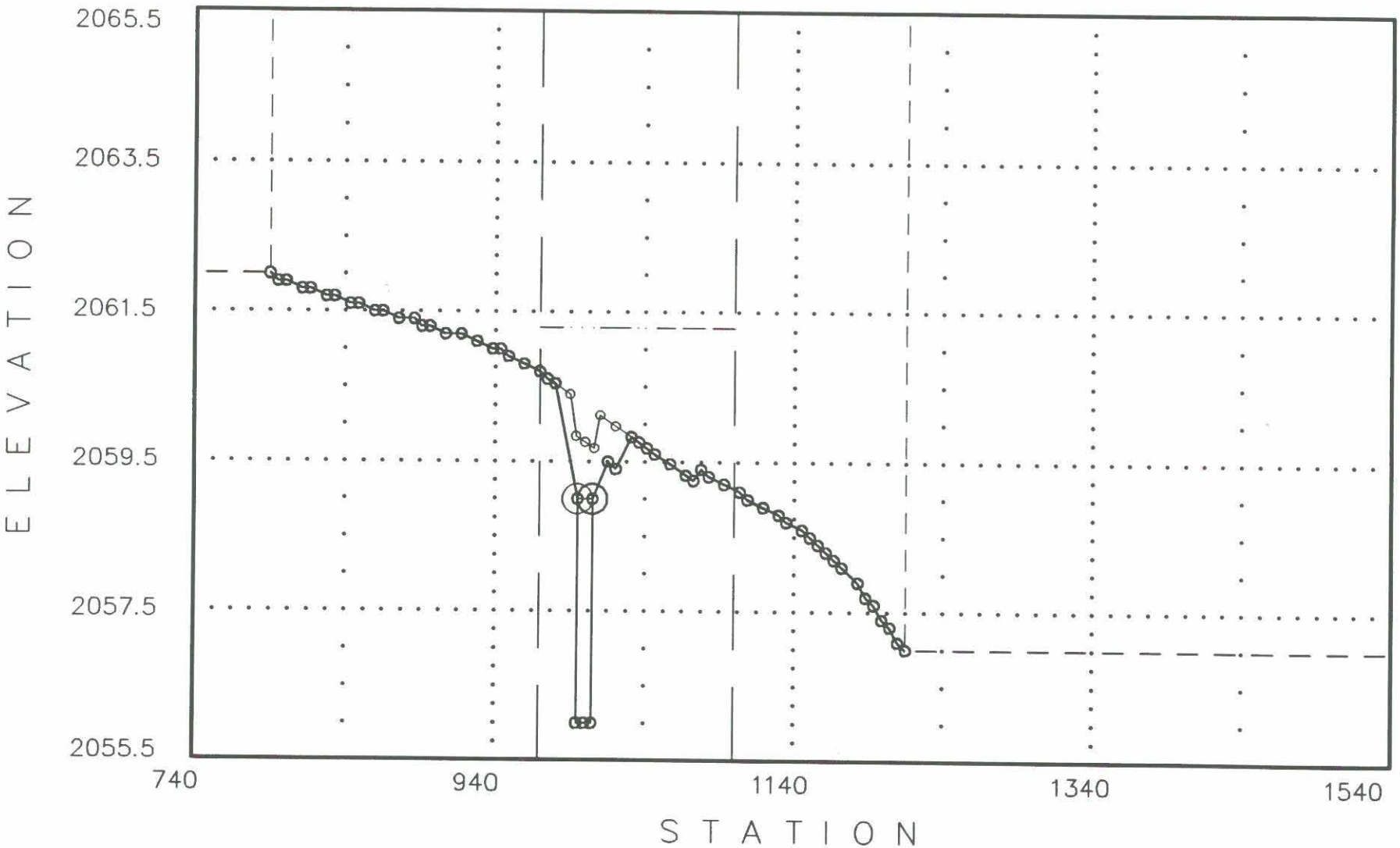


11-21-1992

<<<<<< Cross Section: .578: (FN = WASHAD.O) >>>>>>

Q1= 541 WS1= 2061.29
Q2= 541 WS2= 2061.29

Manning-n's: n-lob = .07 n-ch = .015 n-rob = .065 SPECIAL CULVERT



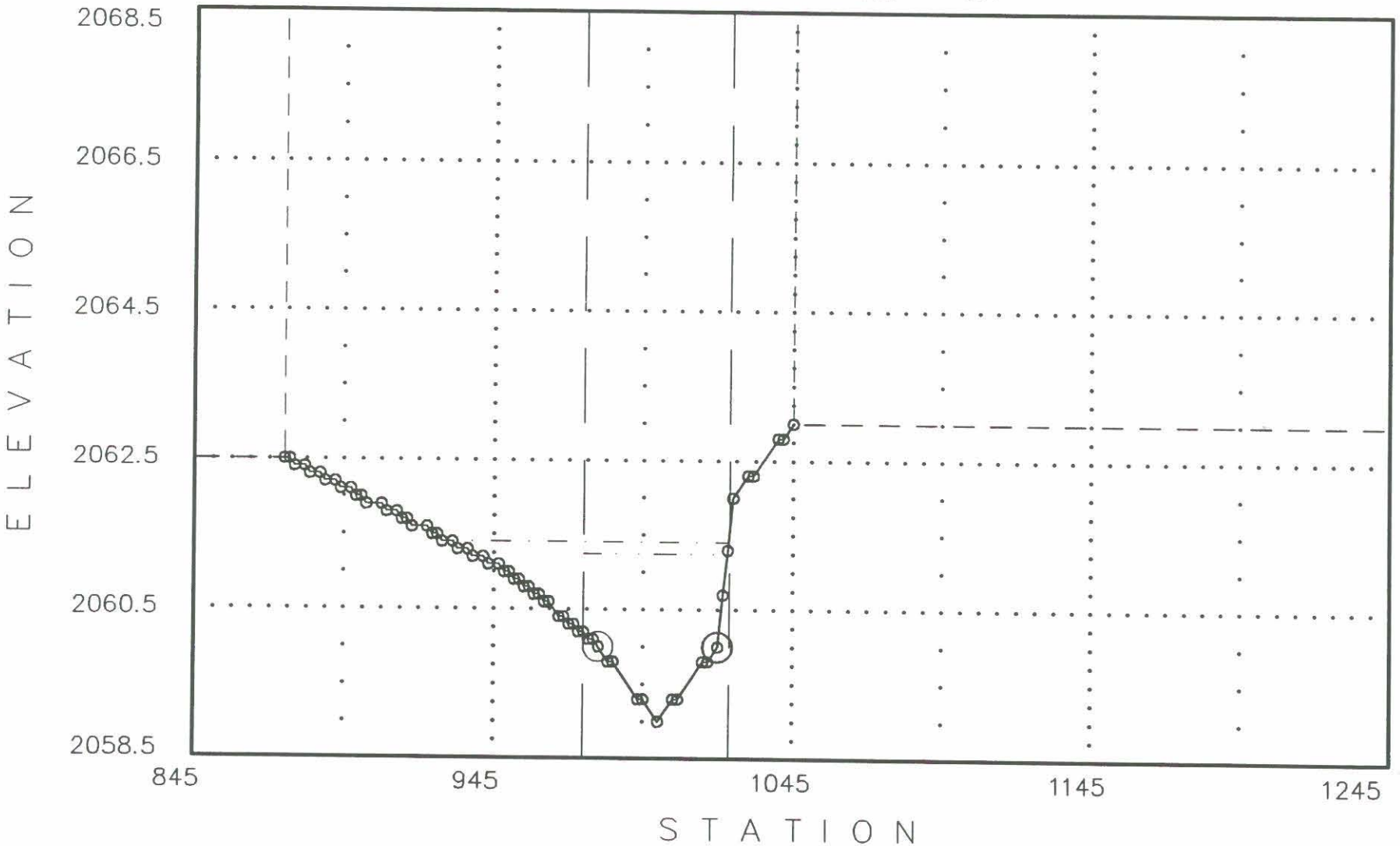
11-21-1992

<<<<<< Cross Section: .598: (FN = WASHAD.O) >>>>>>

Q1= 541 WS1= 2061.41

Q2= 541 WS2= 2061.25

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



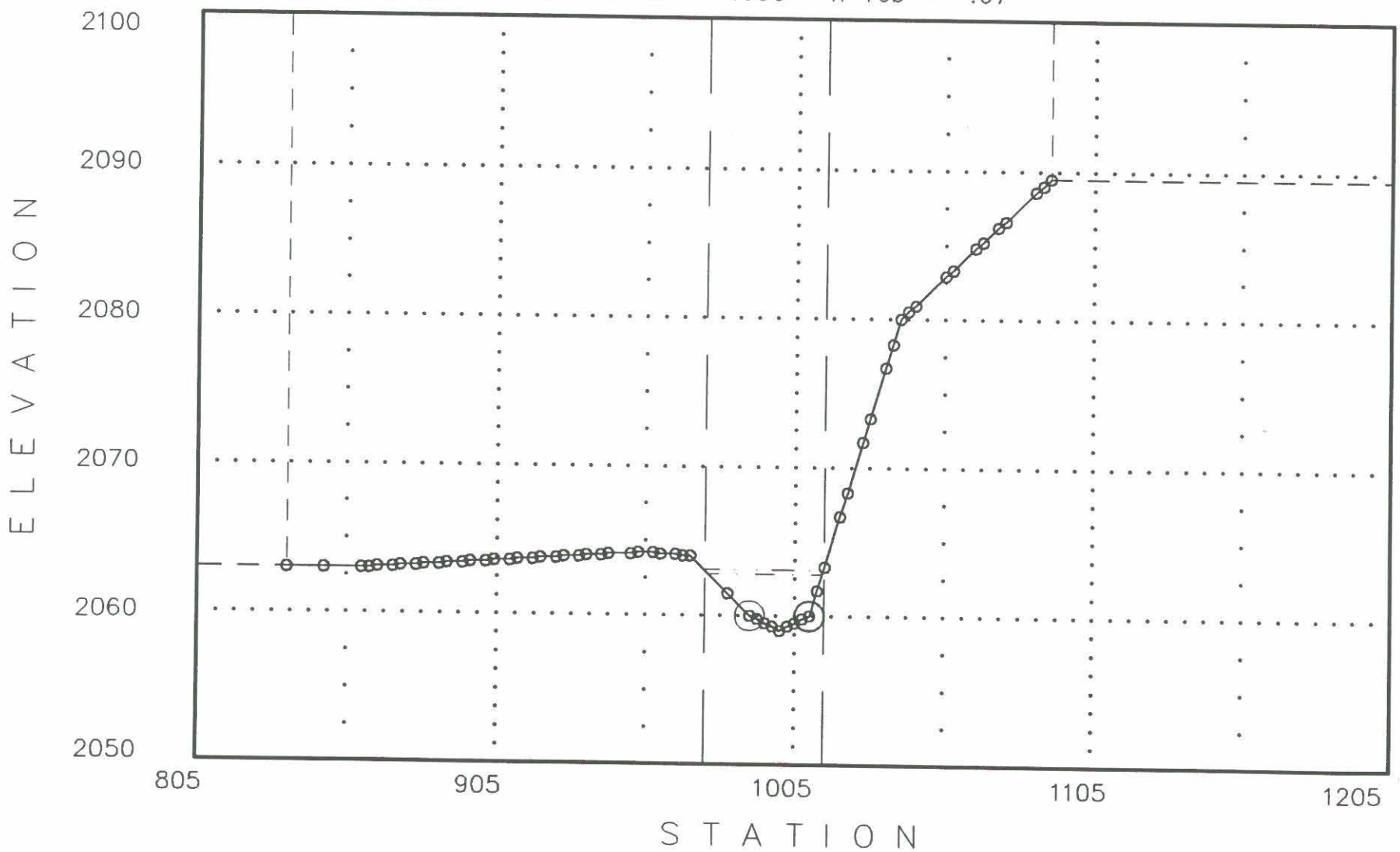
11-21-1992

<<<<<< Cross Section: .639: (FN = WASHAD.O) >>>>>>

Q1= 528 WS1= 2062.81

Q2= 528 WS2= 2063.1

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



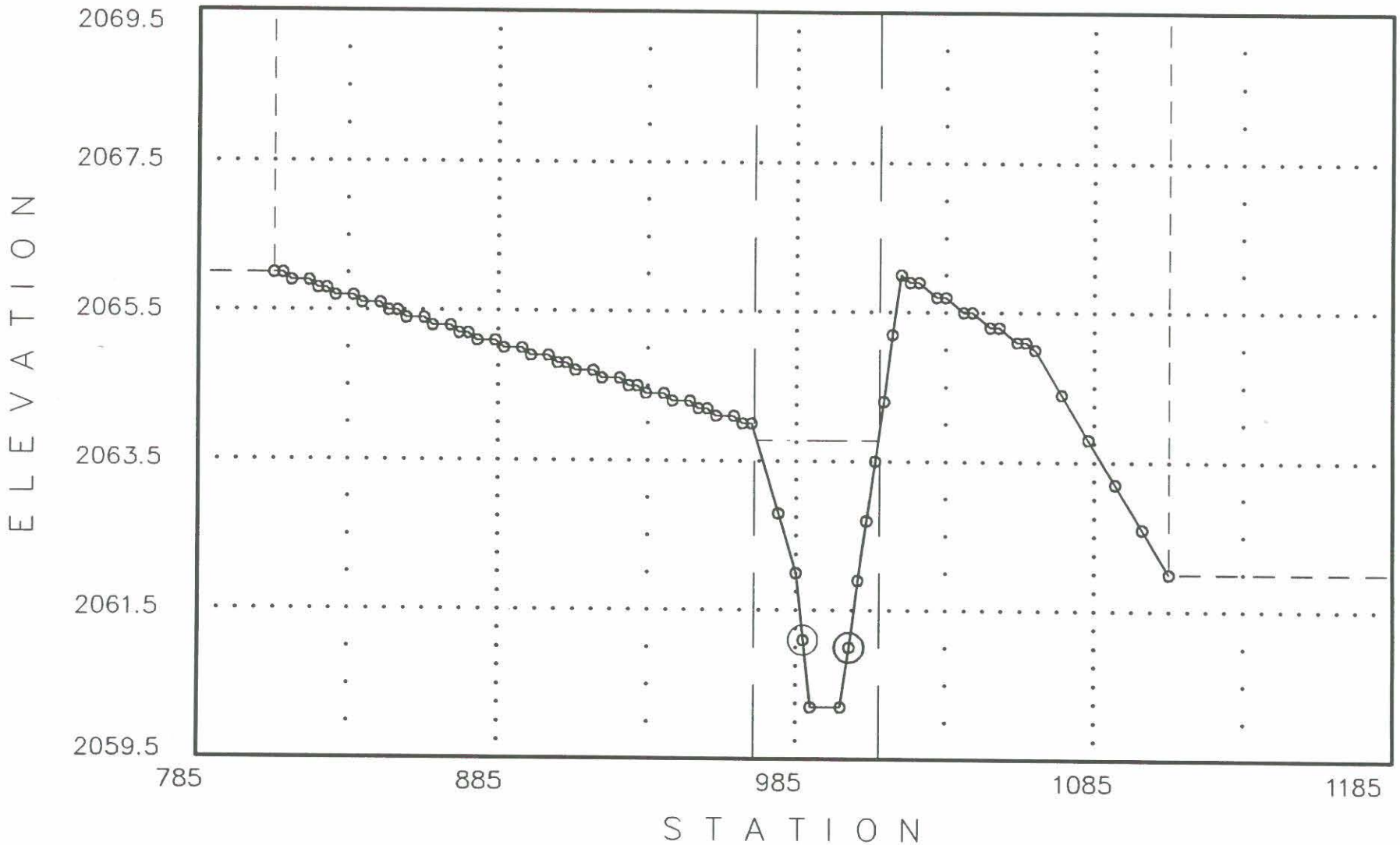
11-21-1992

<<<<<< Cross Section: .672: (FN = WASHAD.O) >>>>>>

Q1= 528 WS1= 2063.78

Q2= 528 WS2= 2063.78

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



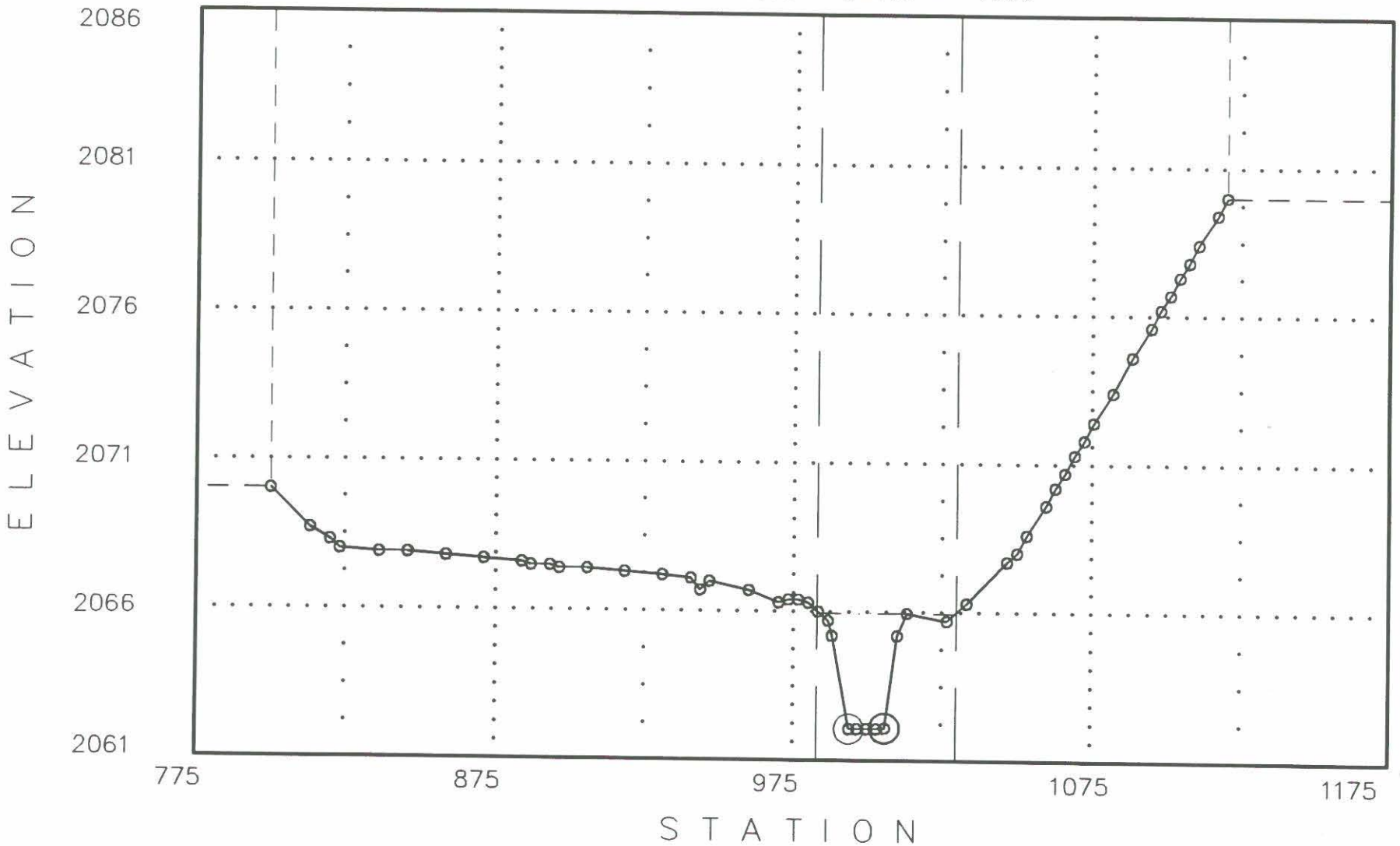
11-21-1992

<<<<<< Cross Section: .681: (FN = WASHAD.O) >>>>>>

Q1= 528 WS1= 2065.95

Q2= 528 WS2= 2065.96

Manning-n's: n-lob = .055 n-ch = .018 n-rob = .065



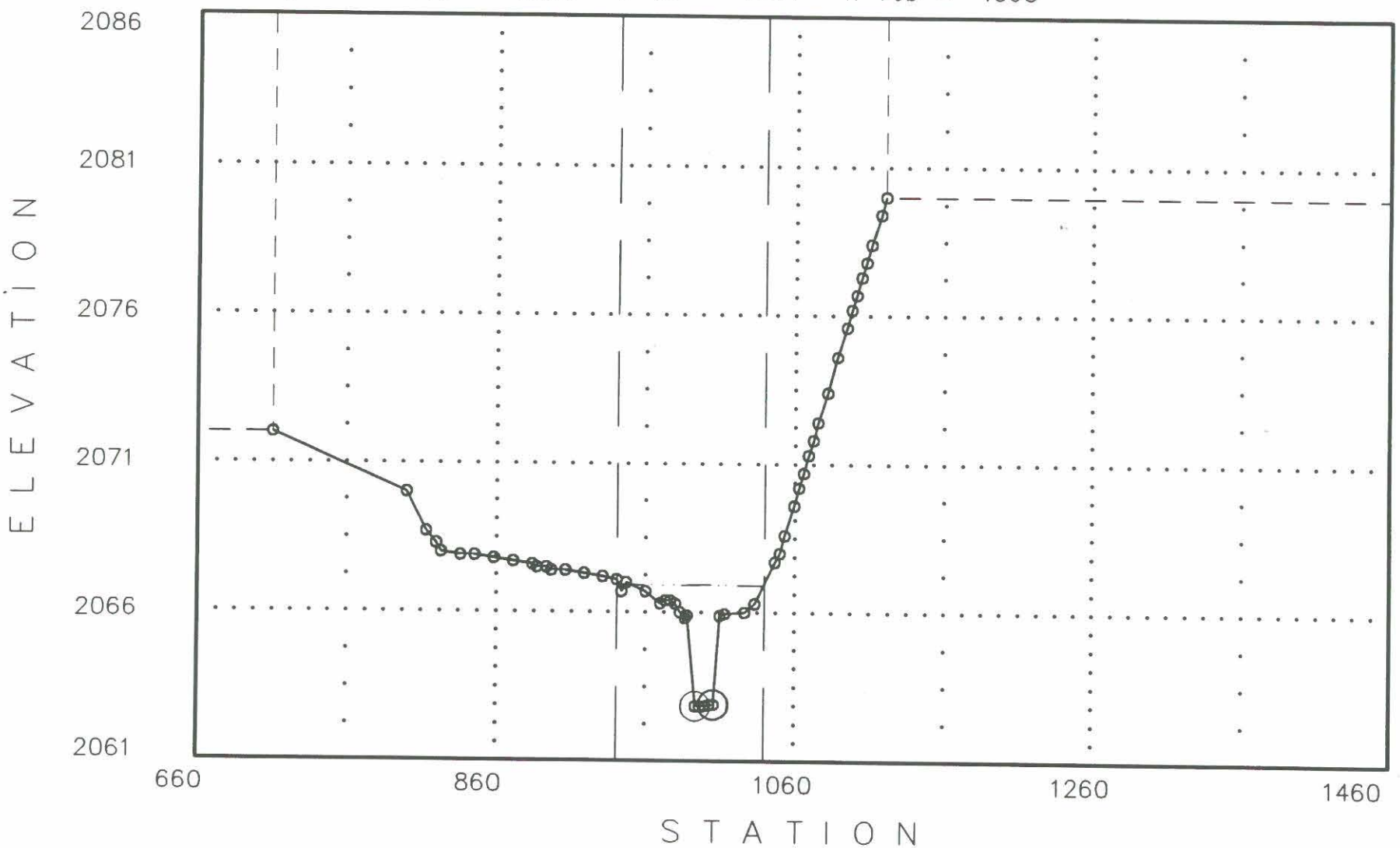
11-21-1992

<<<<<< Cross Section: .693: (FN = WASHAD.O) >>>>>>

Q1= 528 WS1= 2066.92

Q2= 528 WS2= 2066.93

Manning-n's: n-lob = .055 n-ch = .024 n-rob = .065

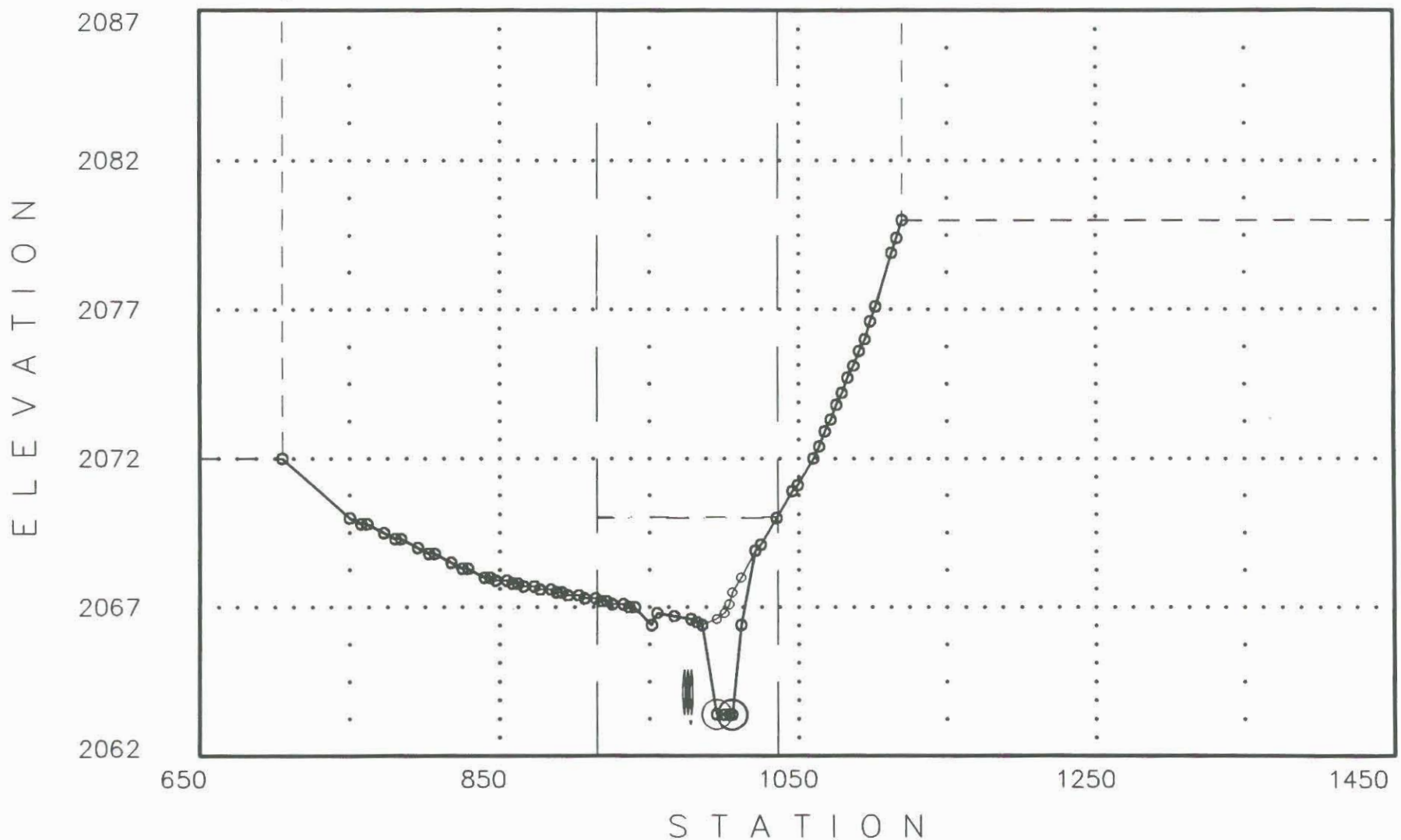


11-21-1992

<<<<<< Cross Section: .704: (FN = WASHAD.O) >>>>>>

Q1= 528 WS1= 2070.04
Q2= 528 WS2= 2070.01

Manning-n's: n-lob = .055 n-ch = .024 n-rob = .065



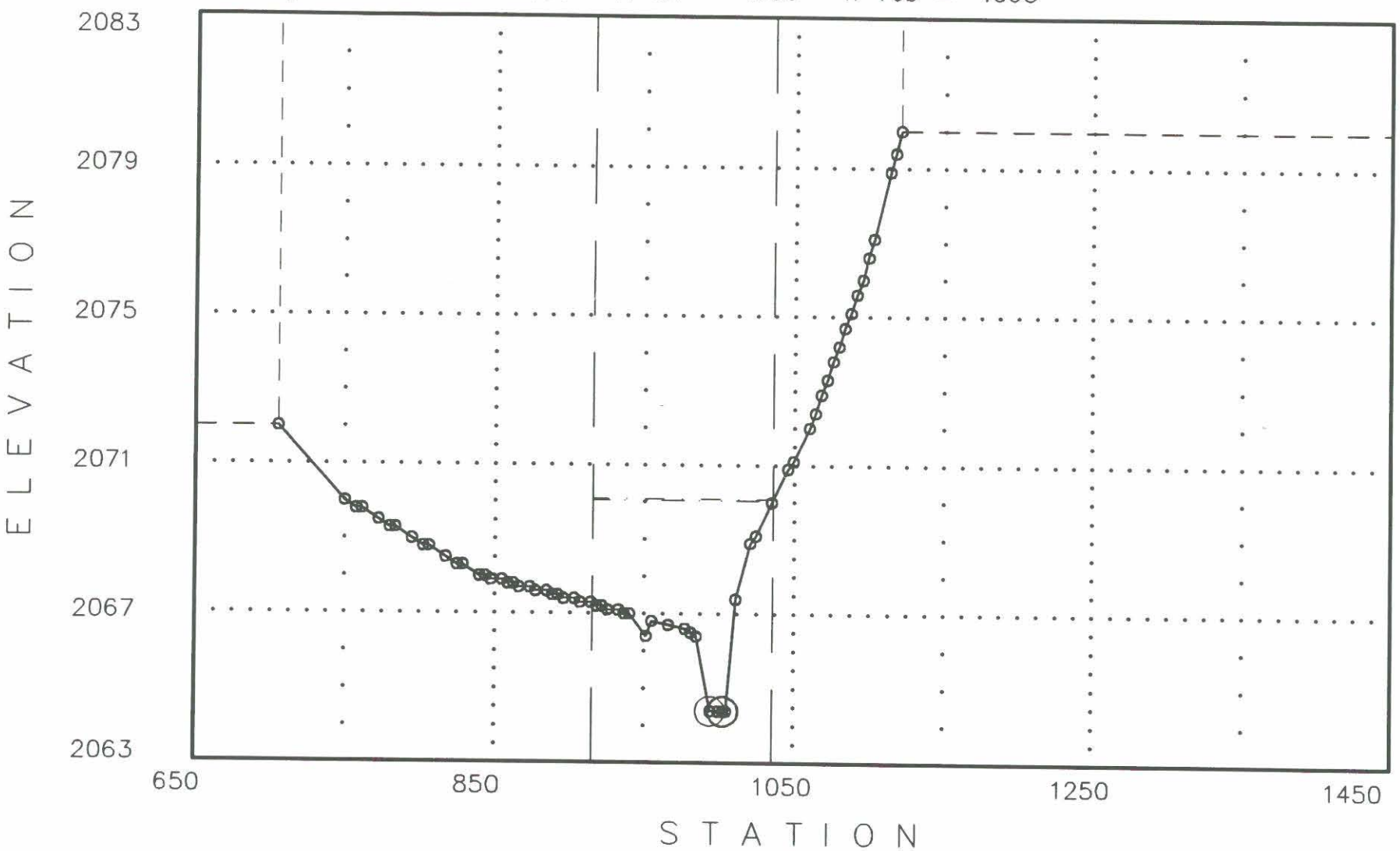
11-21-1992

<<<<<< Cross Section: .705: (FN = WASHAD.O) >>>>>>

Q1= 528 WS1= 2070.08

Q2= 528 WS2= 2070.05

Manning-n's: n-lob = .055 n-ch = .035 n-rob = .065

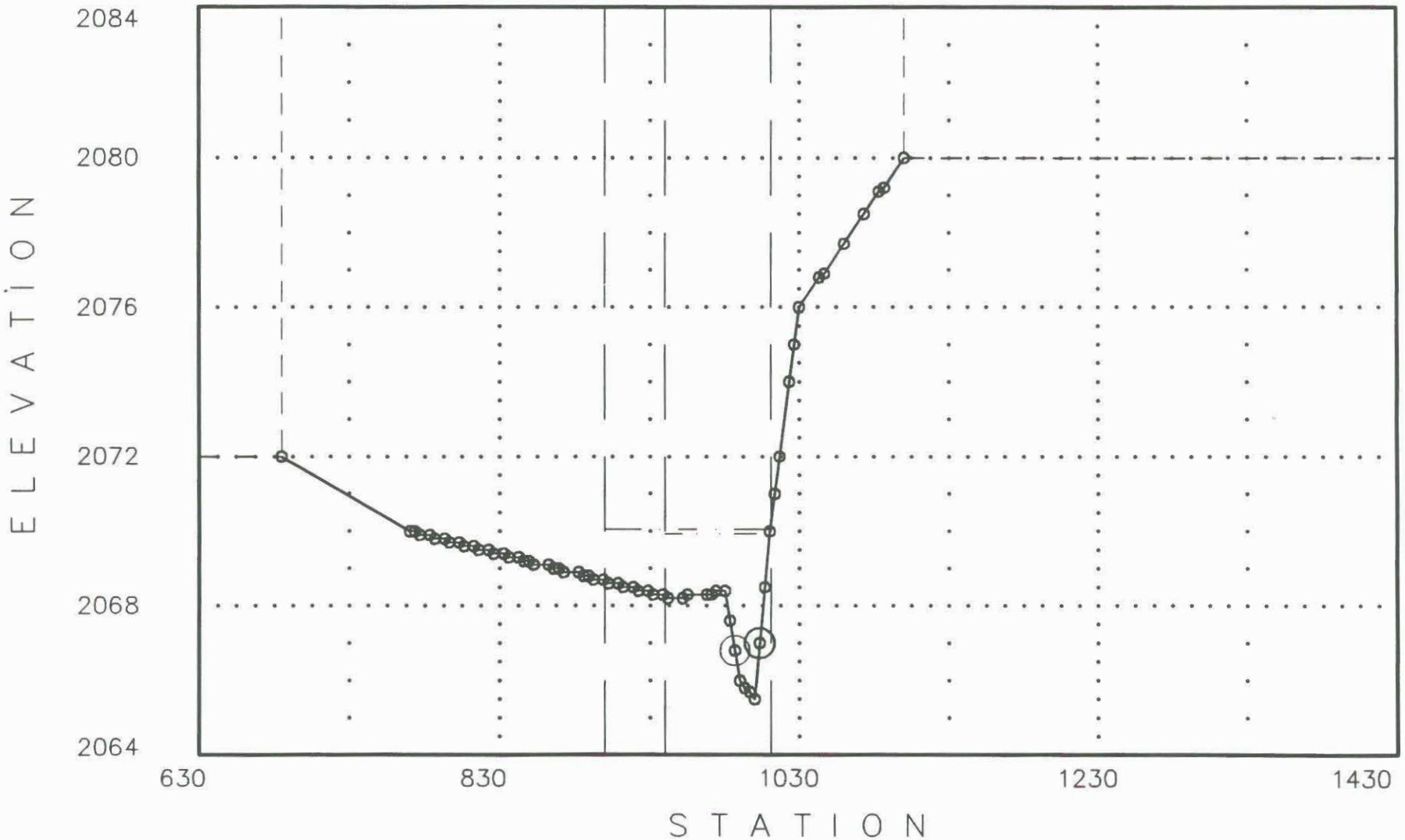


11-21-1992

<<<<<< Cross Section: .721: (FN = WASHAD.O) >>>>>>

Q1= 528 WS1= 2070.06
Q2= 528 WS2= 2069.94

Manning-n's: n-lob = .055 n-ch = .035 n-rob = .065



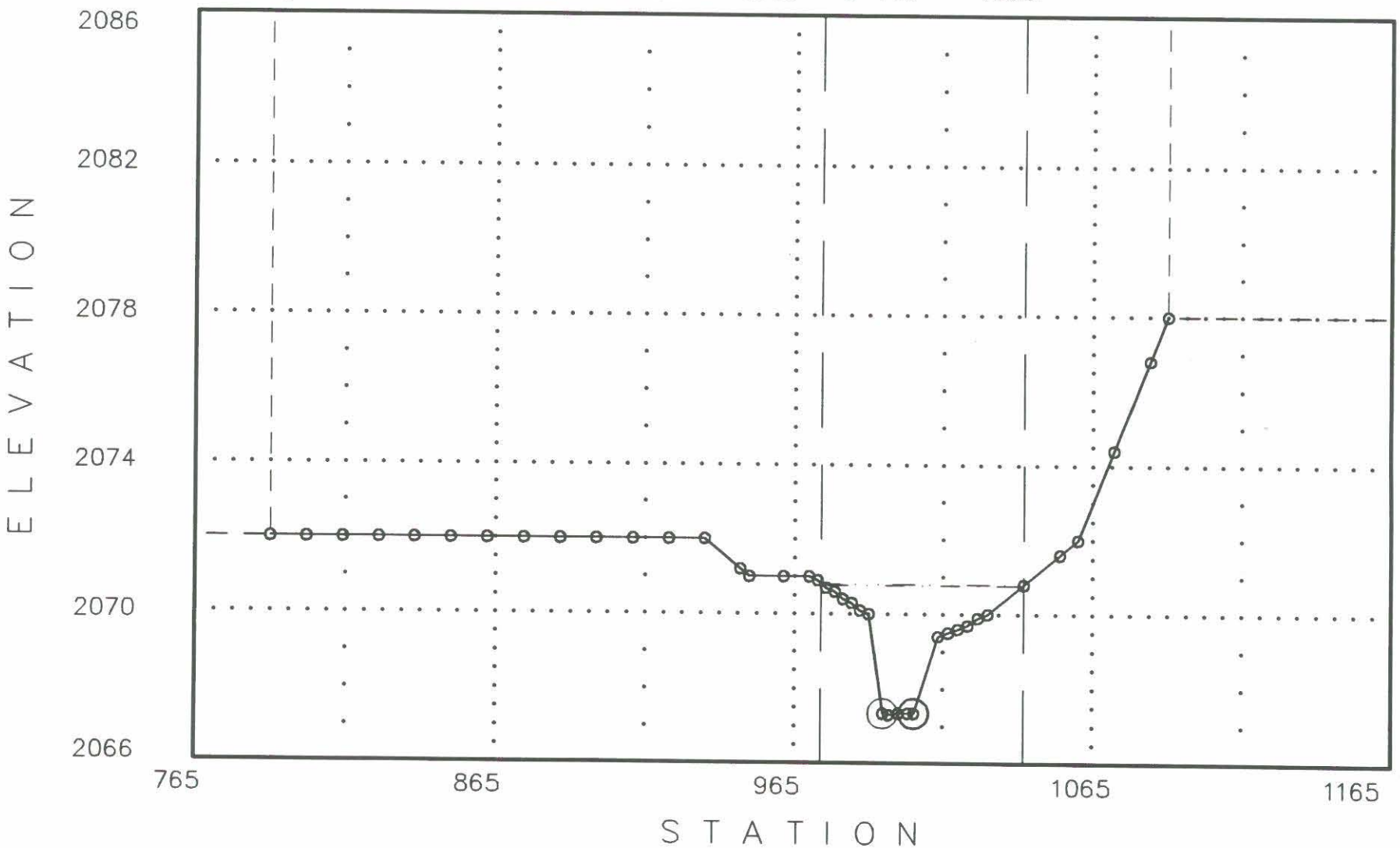
11-21-1992

<<<<<< Cross Section: .762: (FN = WASHAD.O) >>>>>>

Q1= 481 WS1= 2070.77

Q2= 481 WS2= 2070.8

Manning-n's: n-lob = .055 n-ch = .035 n-rob = .065



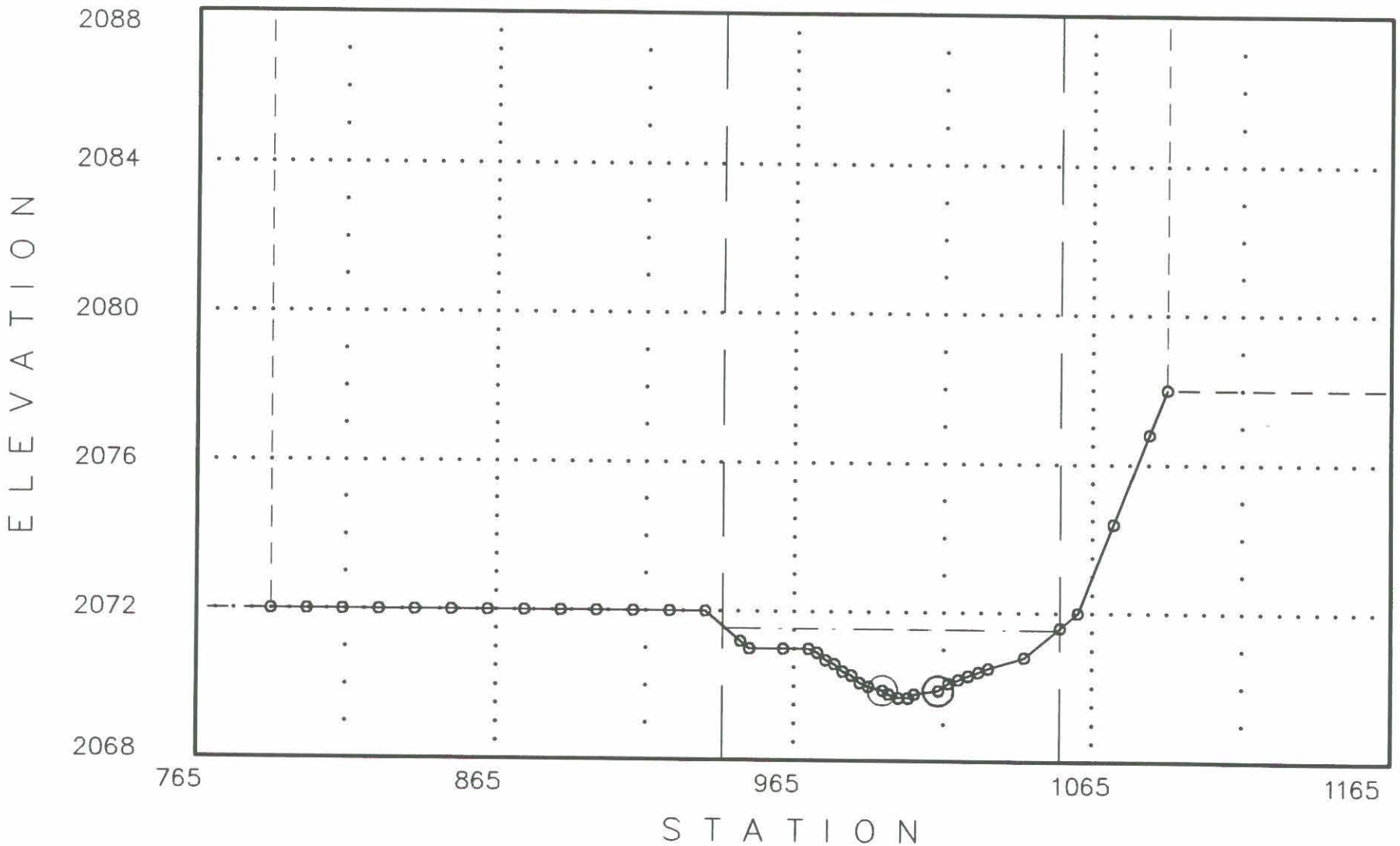
11-21-1992

<<<<<< Cross Section: .763: (FN = WASHAD.O) >>>>>>

Q1= 481 WS1= 2071.55

Q2= 481 WS2= 2071.55

Manning-n's: n-lob = .055 n-ch = .035 n-rob = .065



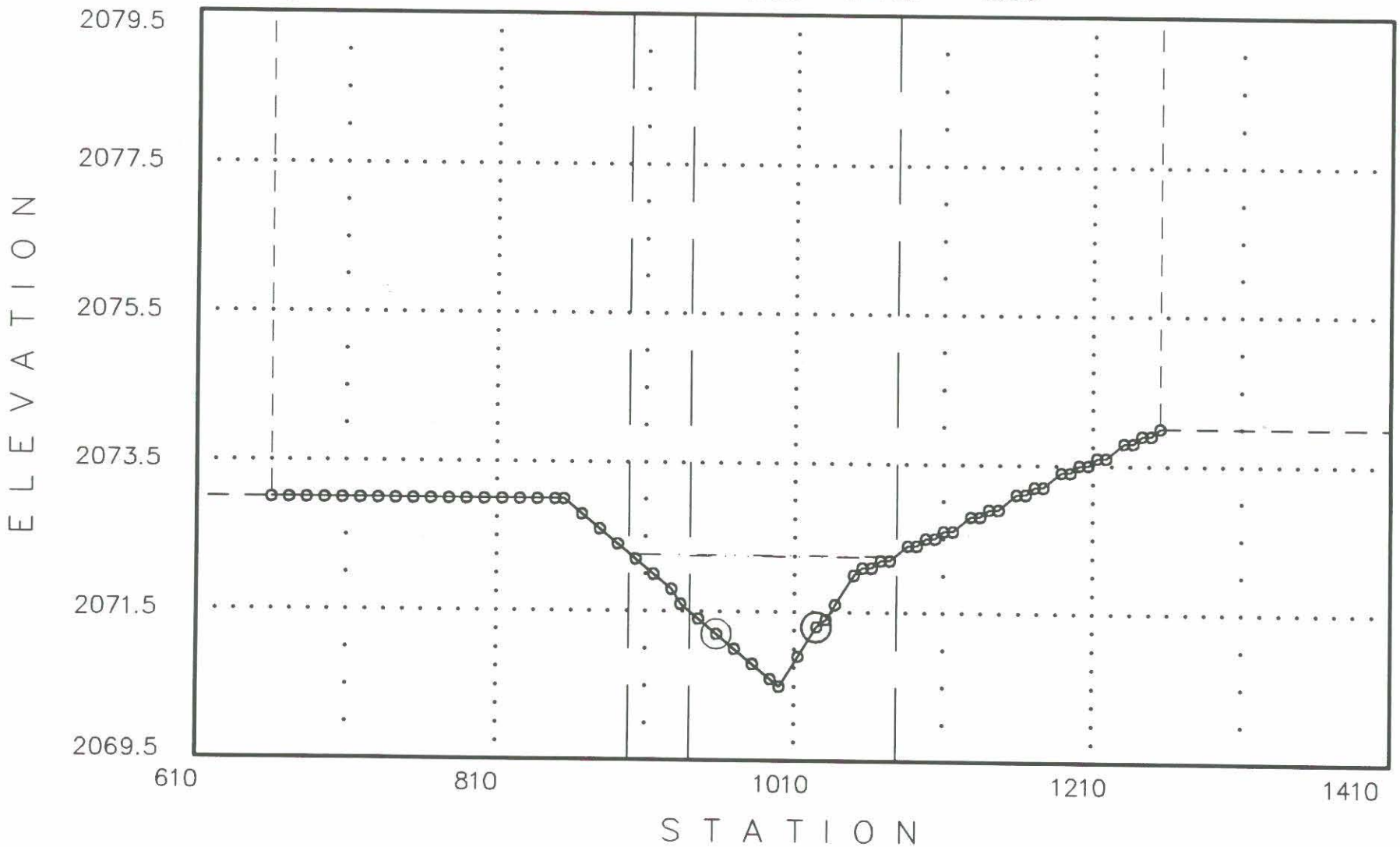
11-21-1992

<<<<<< Cross Section: .765: (FN = WASHAD.O) >>>>>>

Q1= 481 WS1= 2072.26

Q2= 481 WS2= 2072.25

Manning-n's: n-lob = .055 n-ch = .035 n-rob = .065

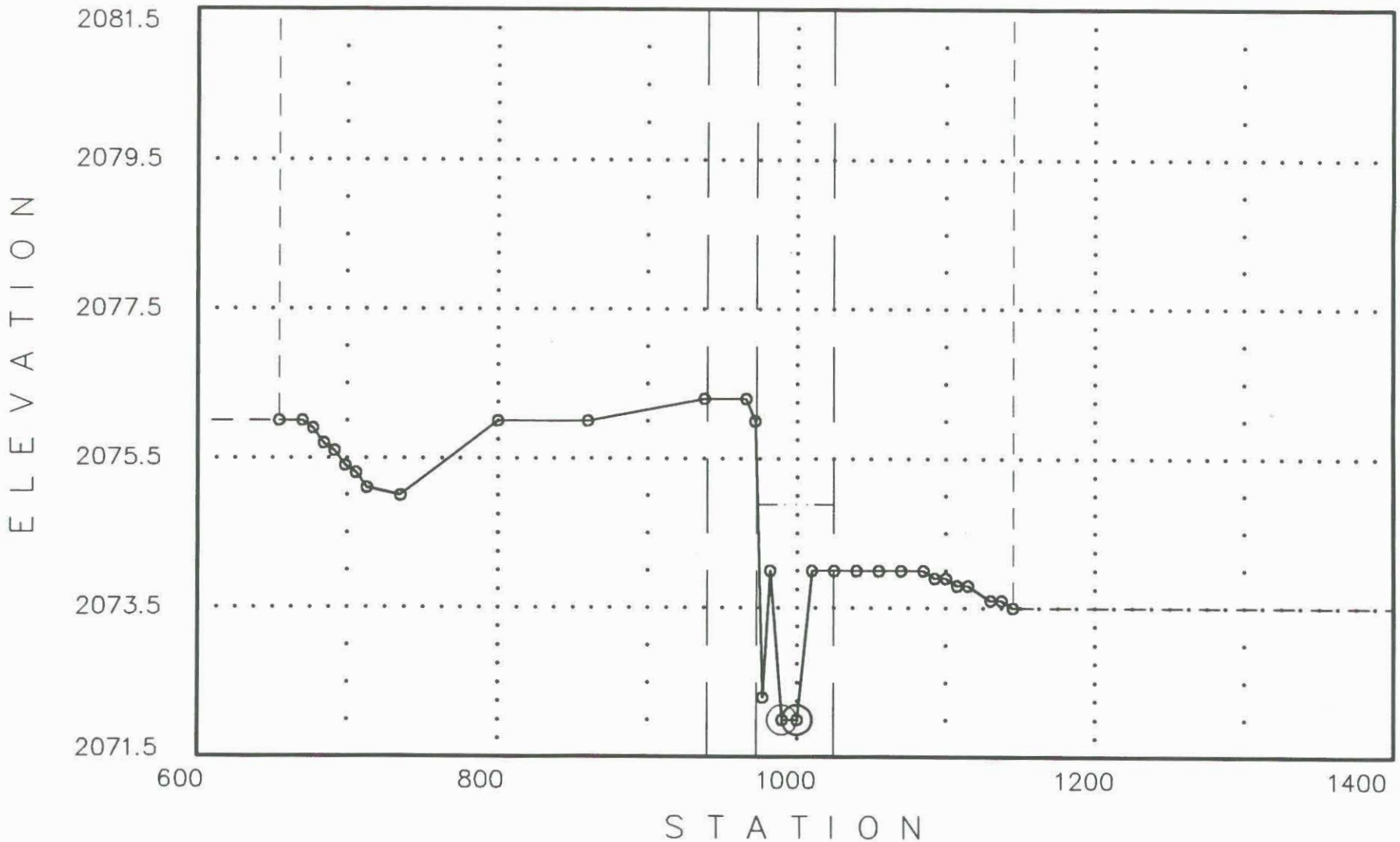


11-21-1992

<<<<<< Cross Section: .798: (FN = WASHAD.O) >>>>>>

Q1= 481 WS1= 2074.89
Q2= 481 WS2= 2074.89

Manning-n's: n-lob = .06 n-ch = .035 n-rob = .06

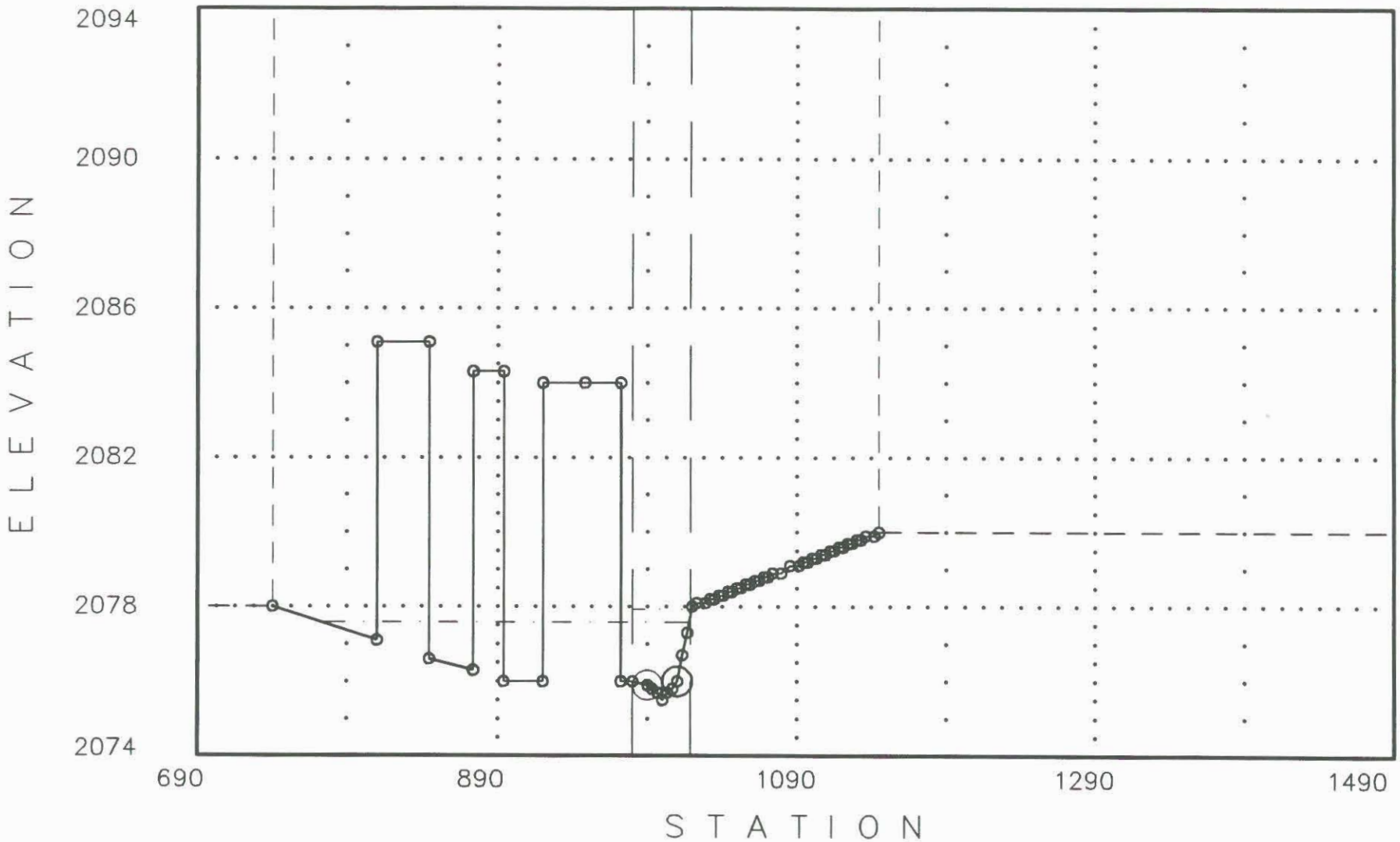


11-21-1992

<<<<<< Cross Section: .862: (FN = WASHAD.O) >>>>>>

Q1= 336 WS1= 2077.58
Q2= 336 WS2= 2077.93

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07



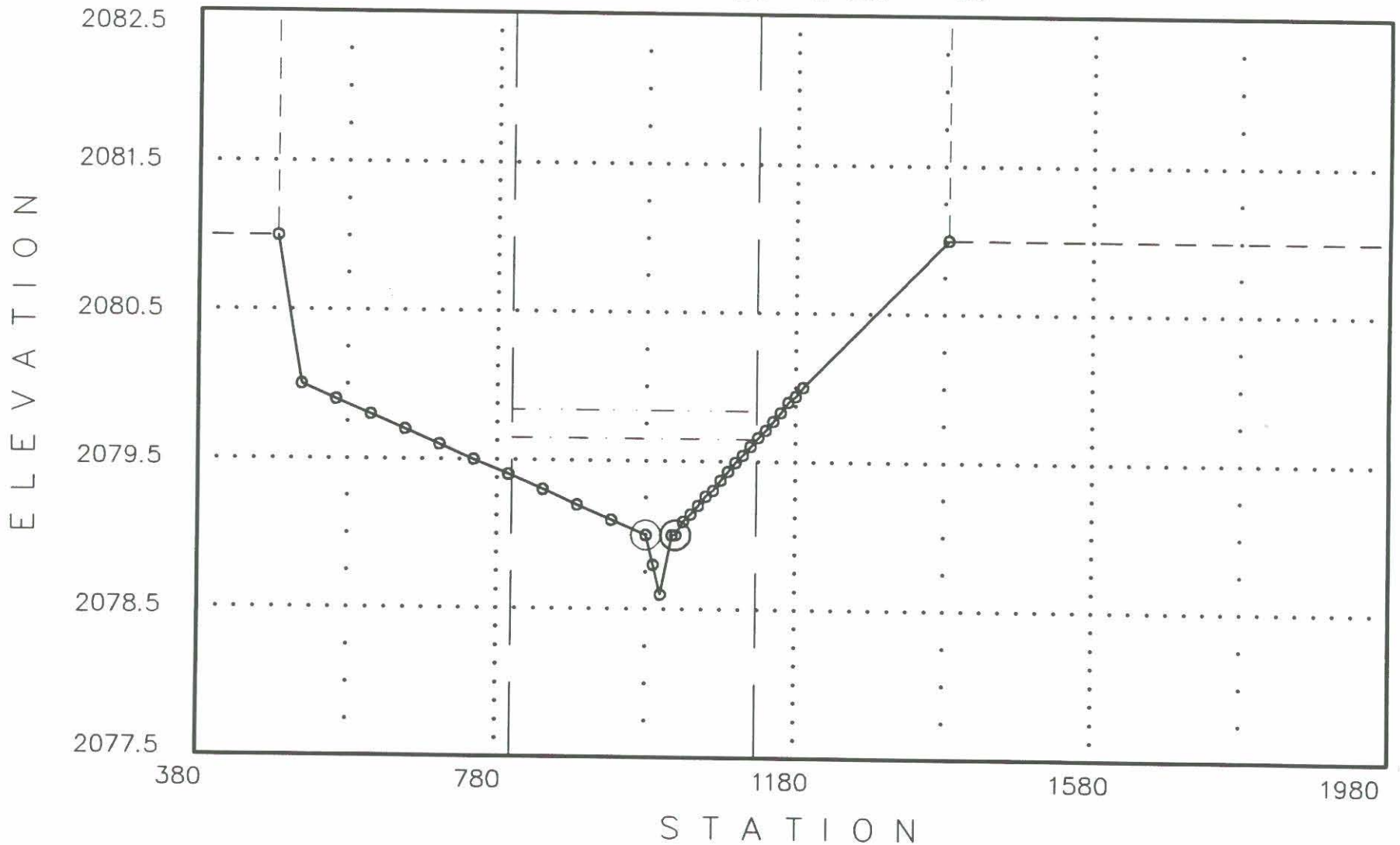
11-21-1992

<<<<<< Cross Section: .913: (FN = WASHAD.O) >>>>>>

Q1= 336 WS1= 2079.65

Q2= 336 WS2= 2079.84

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

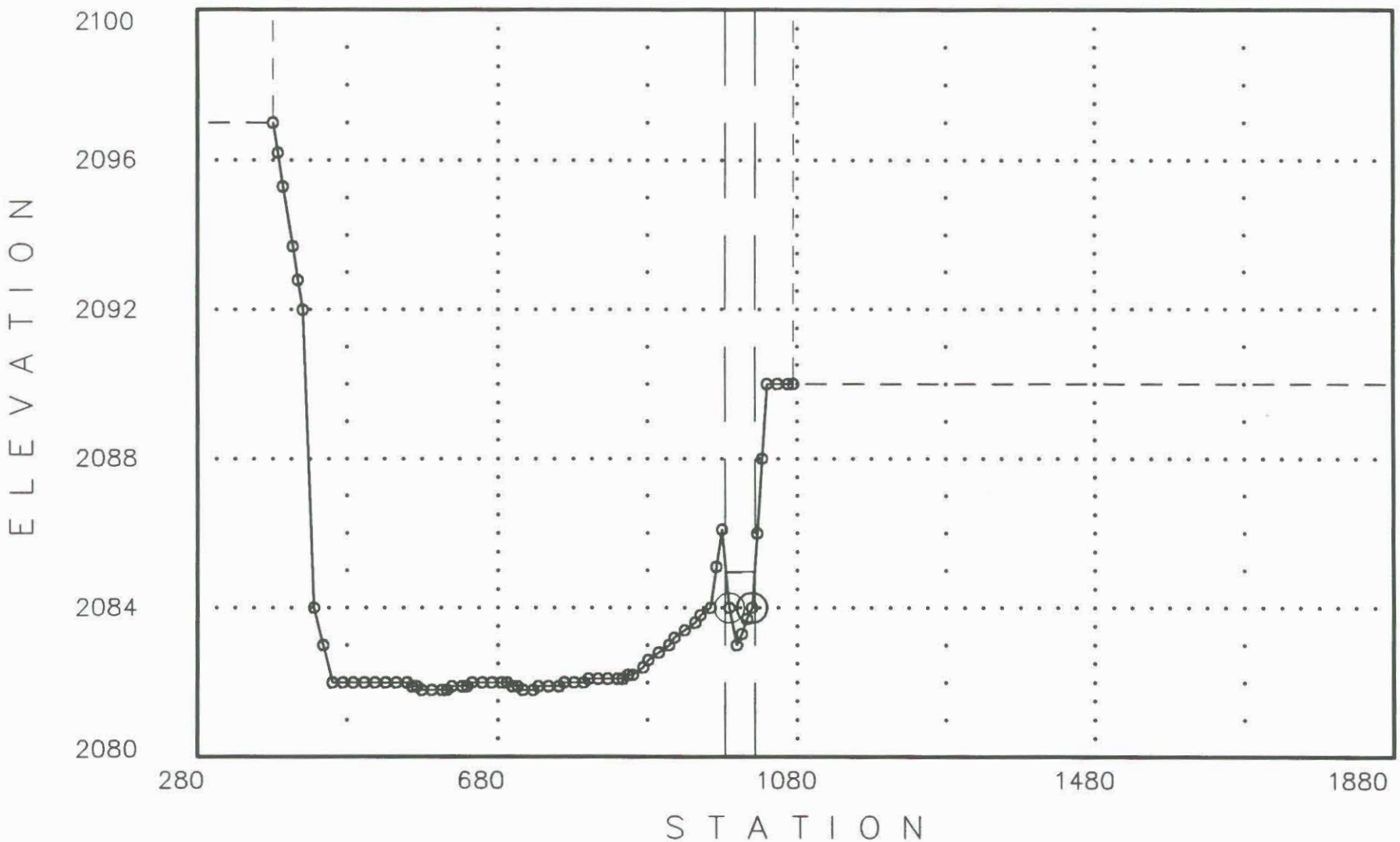


11-21-1992

<<<<<< Cross Section: .957: (FN = WASHAD.O) >>>>>>

Q1= 304 WS1= 2084.98
Q2= 304 WS2= 2084.95

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

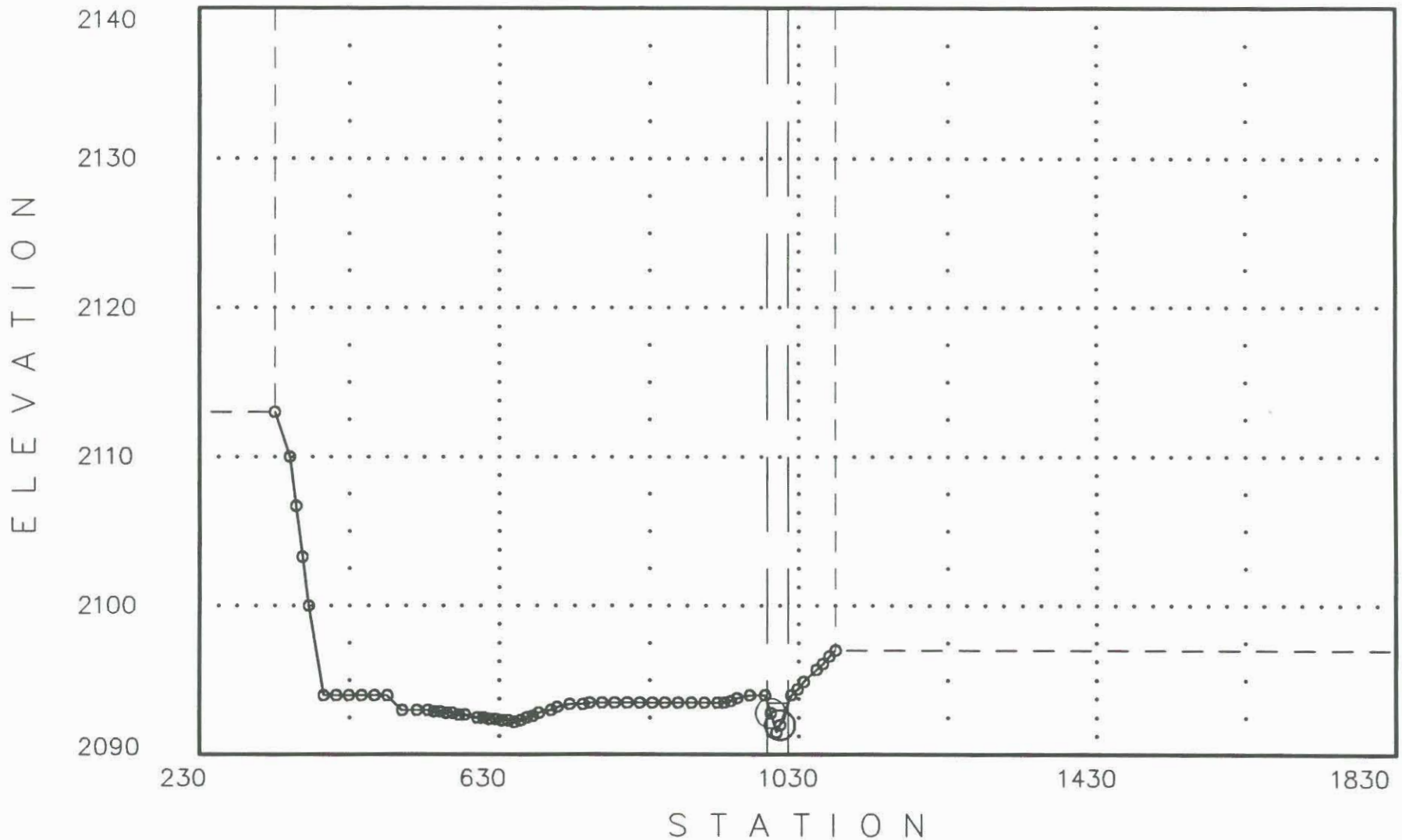


11-21-1992

<<<<<< Cross Section: 1.053: (FN = WASHAD.O) >>>>>>

Q1= 136 WS1= 2093.48
Q2= 136 WS2= 2093.48

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

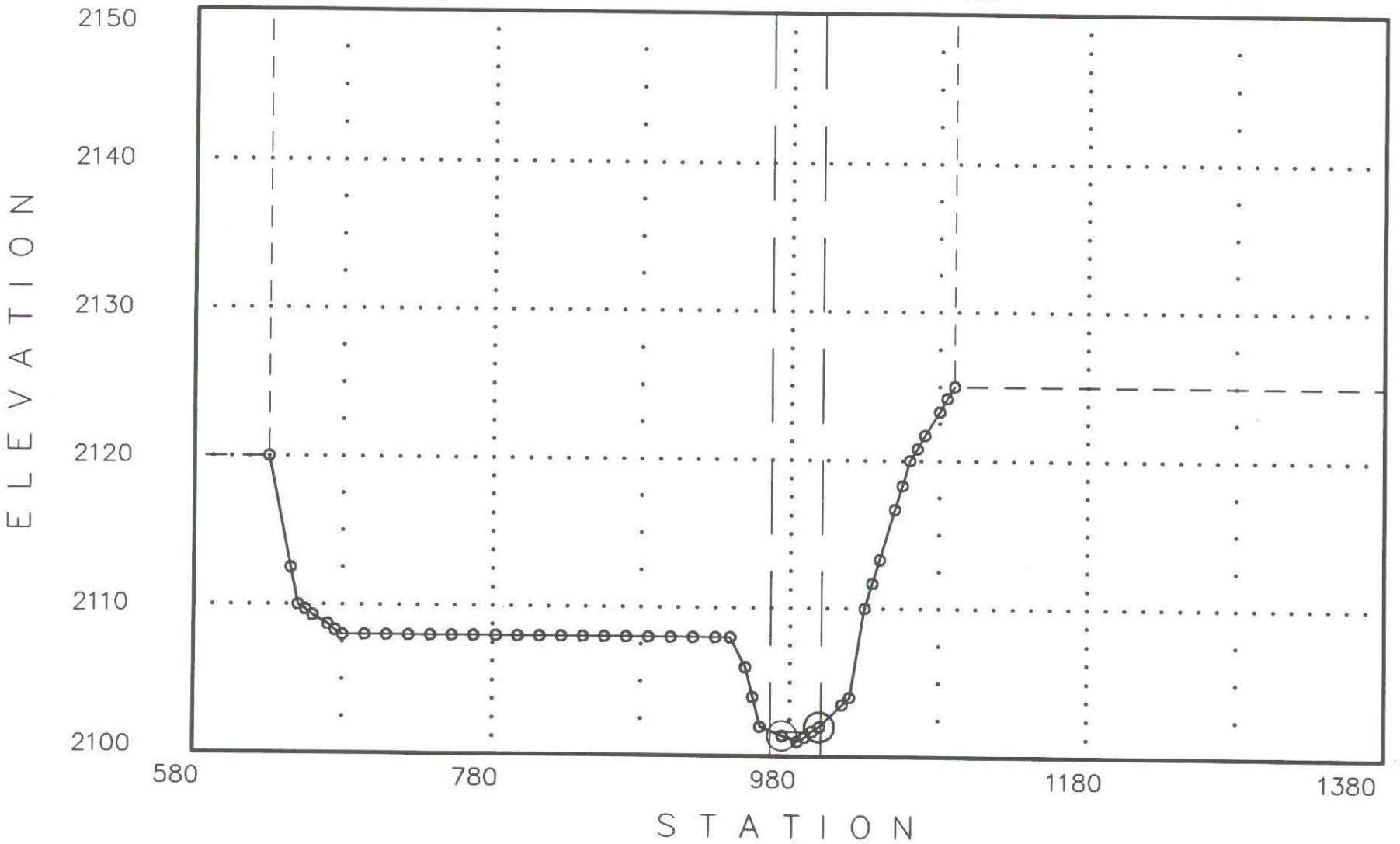


11-21-1992

<<<<<< Cross Section: 1.152: (FN = WASHAD.O) >>>>>>

Q1= 32 WS1= 2101.69
Q2= 32 WS2= 2101.69

Manning-n's: n-lob = .06 n-ch = .035 n-rob = .07



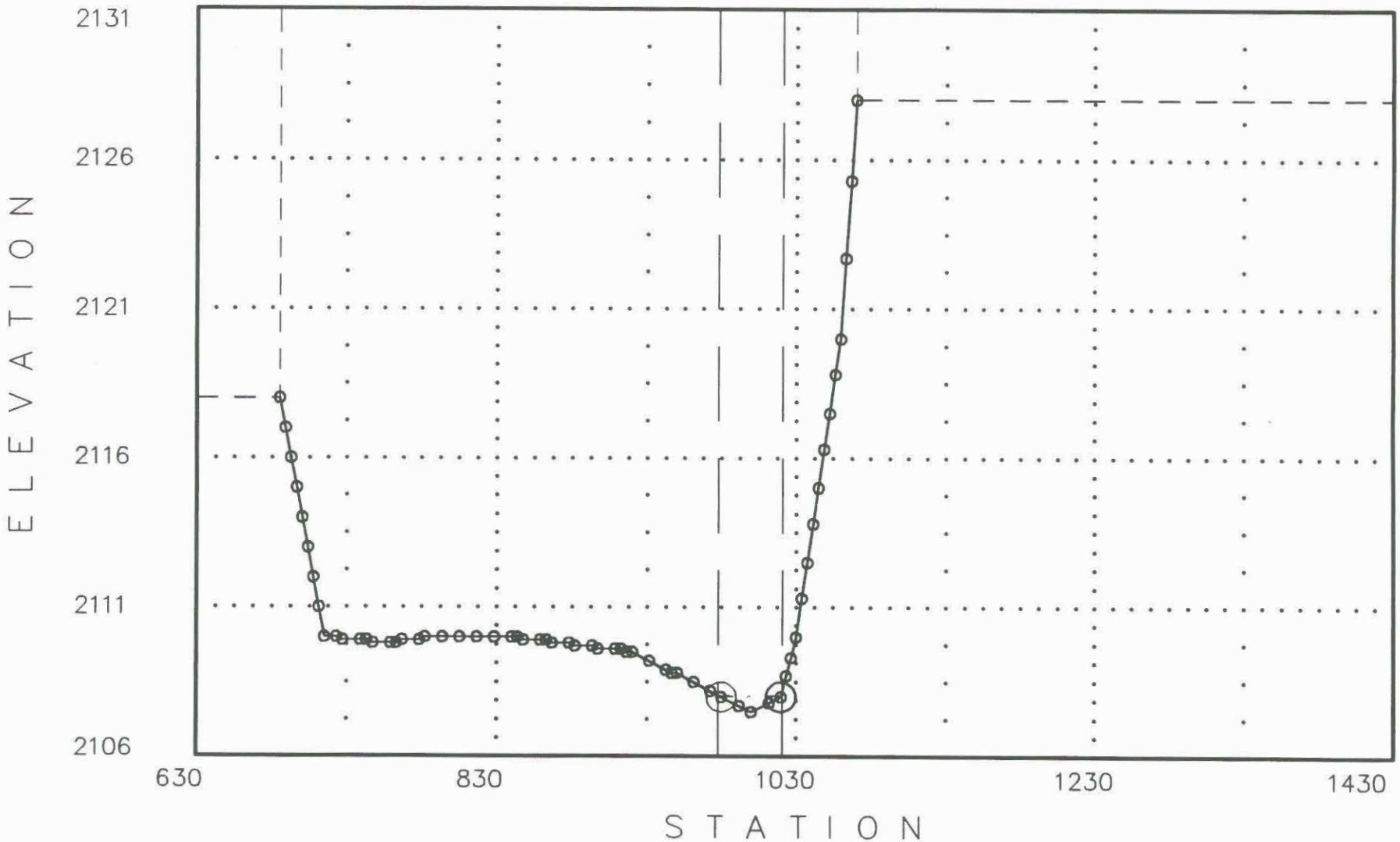
11-21-1992

<<<<<< Cross Section: 1.206: (FN = WASHAD.0) >>>>>>

Q1= 32 WS1= 2108.05

Q2= 32 WS2= 2108.03

Manning-n's: n-lob = .06 n-ch = .035 n-rob = .07

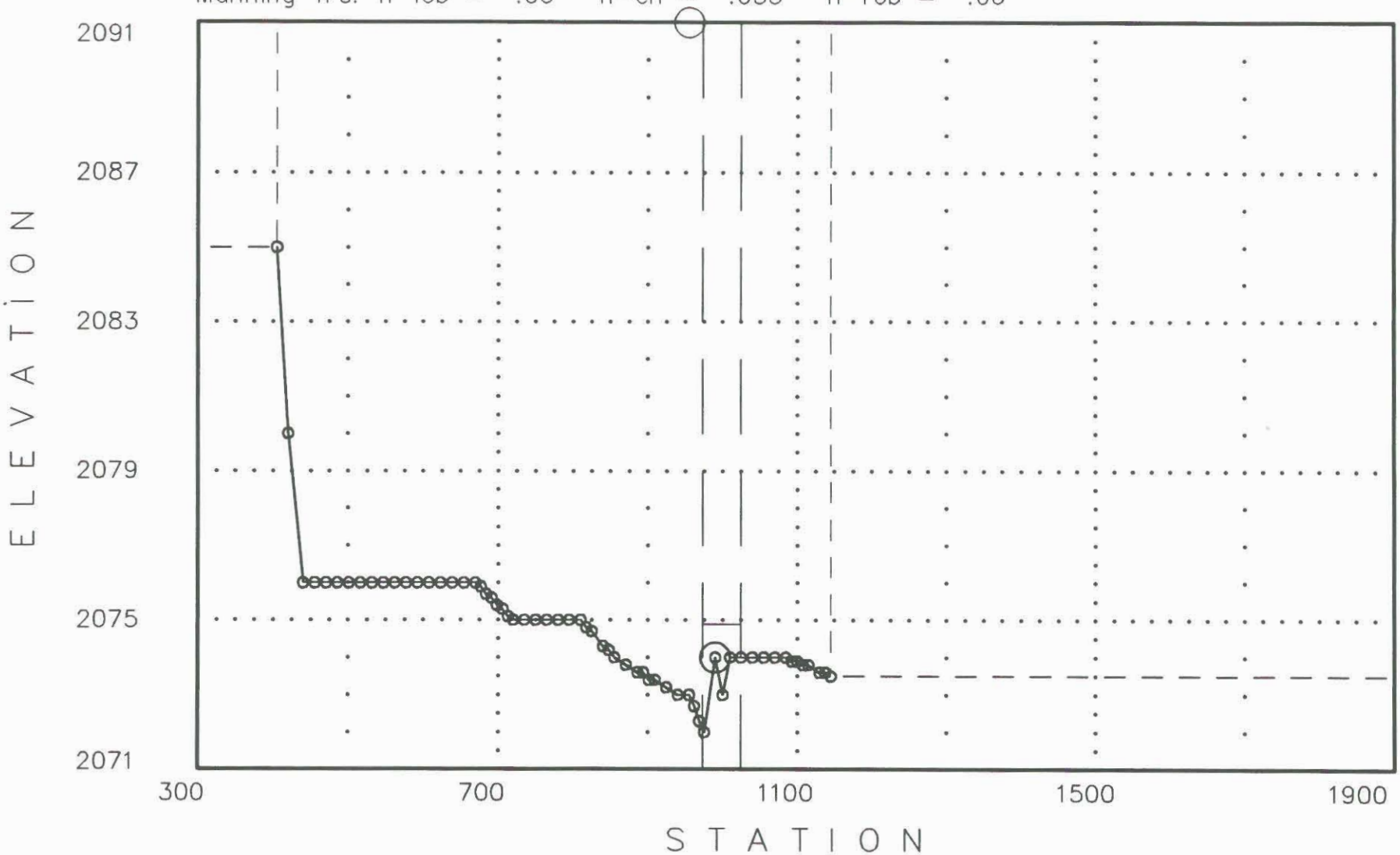


11-21-1992

<<<<<< Cross Section: -.798: (FN = WASHAD.O) >>>>>>

Q1= 481 WS1= 2074.89
Q2= 481 WS2= 2074.89

Manning-n's: n-lob = .06 n-ch = .035 n-rob = .06

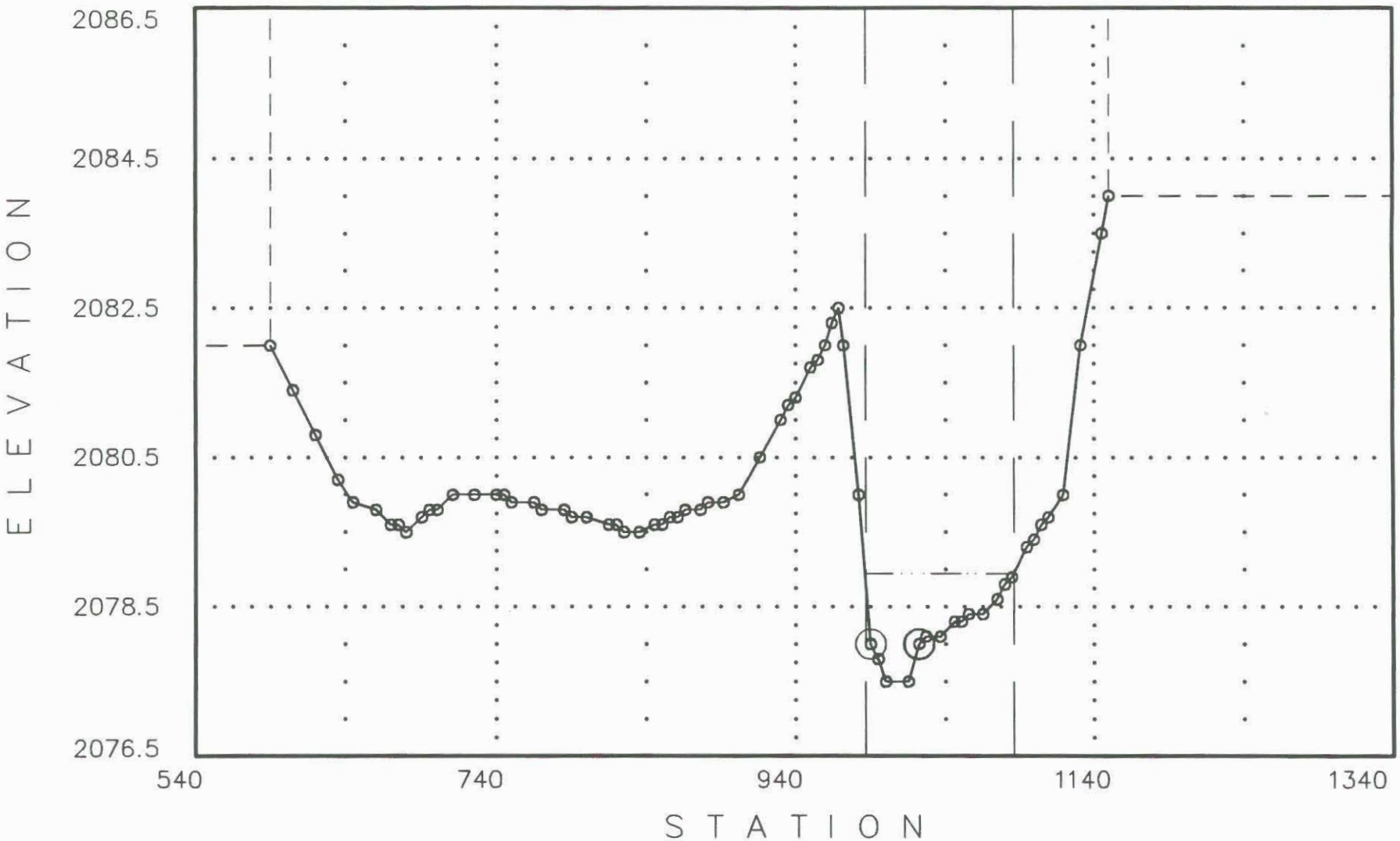


11-21-1992

<<<<<< Cross Section: .032: (FN = WASHAD.O) >>>>>>

Q1= 145 WS1= 2078.95
Q2= 145 WS2= 2078.95

Manning-n's: n-lob = .065 n-ch = .035 n-rob = .07



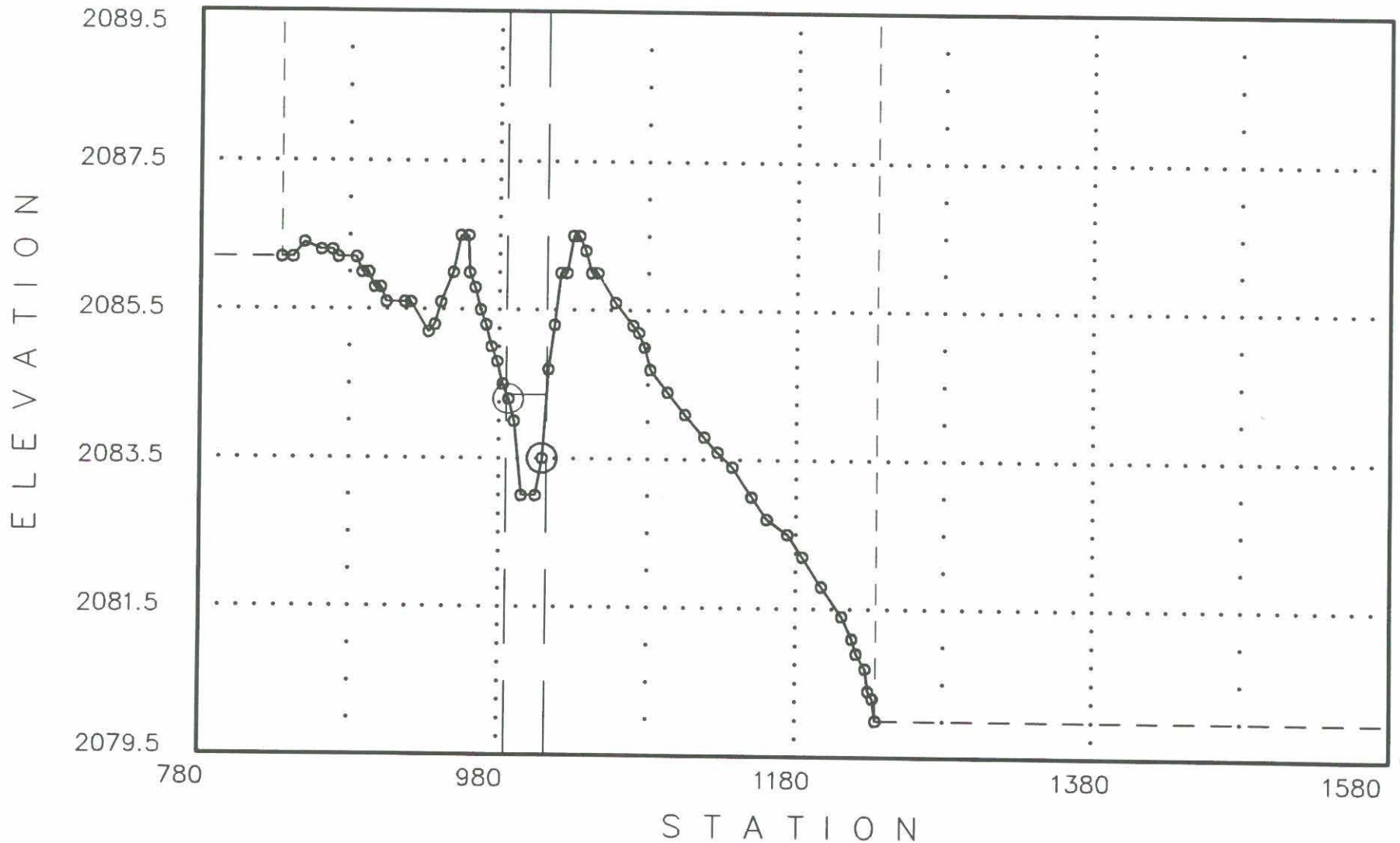
11-21-1992

<<<<<< Cross Section: .095: (FN = WASHAD.O) >>>>>>

Q1= 145 WS1= 2084.36

Q2= 145 WS2= 2084.36

Manning-n's: n-lob = .065 n-ch = .035 n-rob = .07

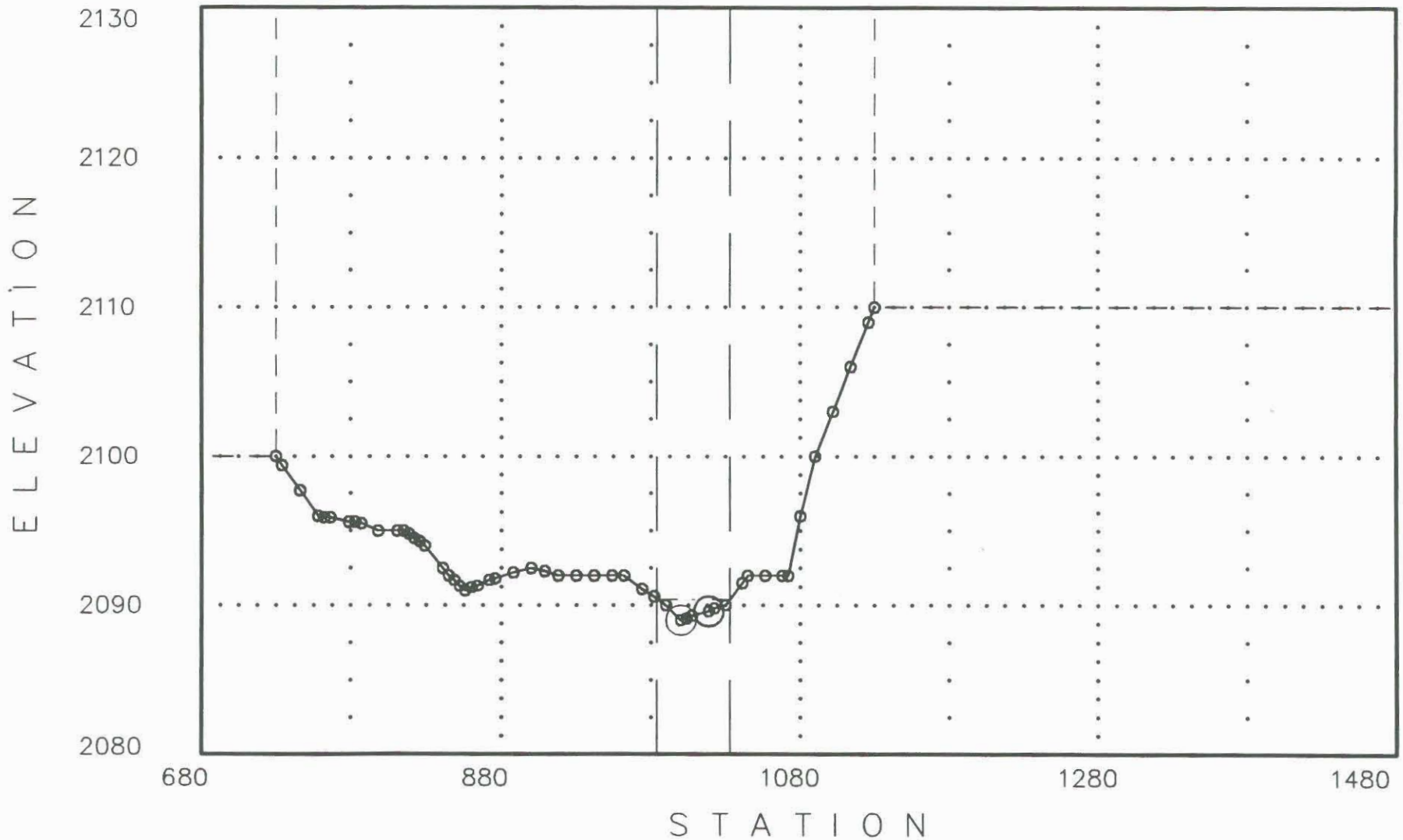


11-21-1992

<<<<<< Cross Section: .175: (FN = WASHAD.O) >>>>>>

Q1= 102 WS1= 2090.38
Q2= 102 WS2= 2090.38

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



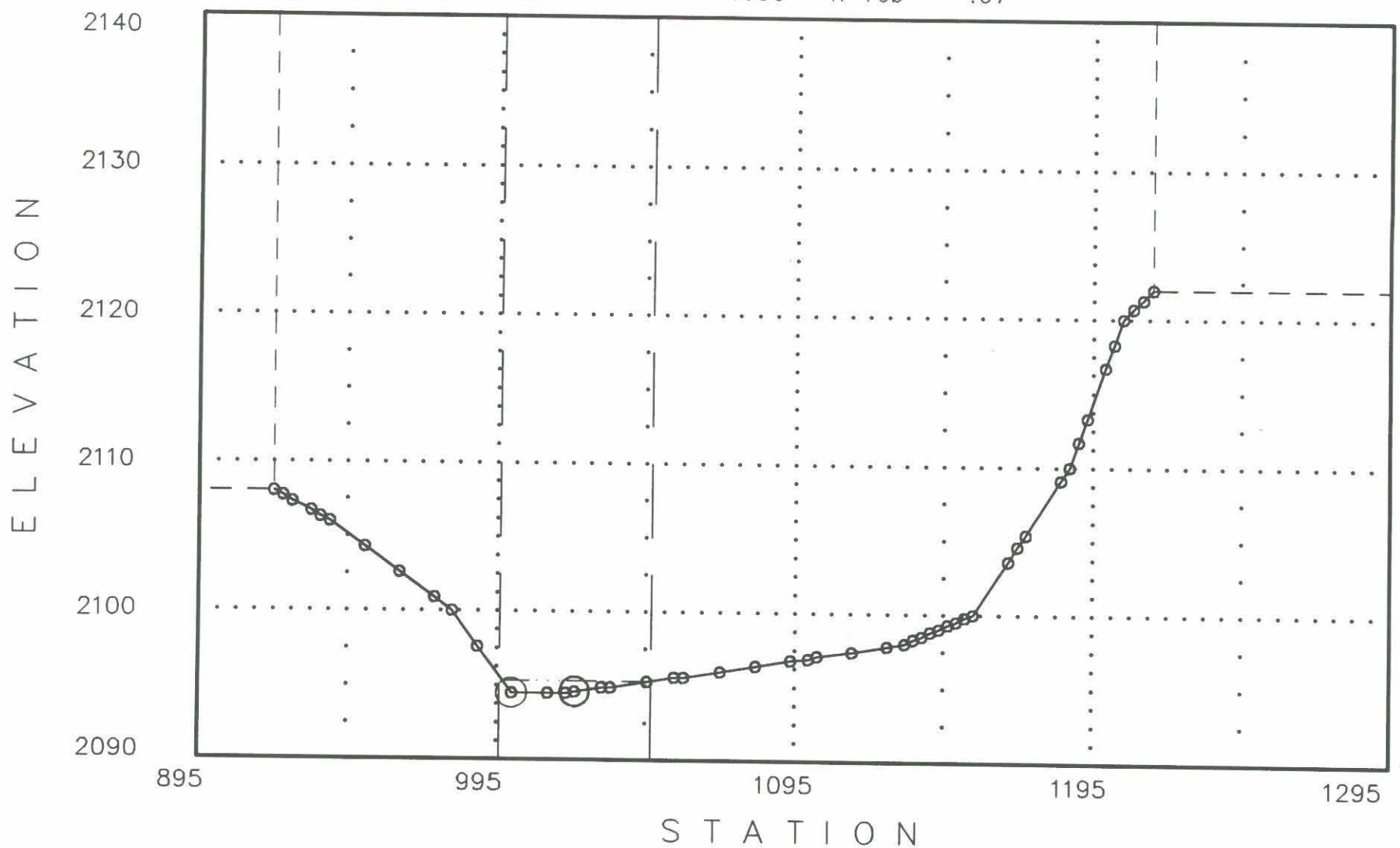
11-21-1992

<<<<<< Cross Section: .228: (FN = WASHAD.O) >>>>>>

Q1= 102 WS1= 2095.33

Q2= 102 WS2= 2095.33

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



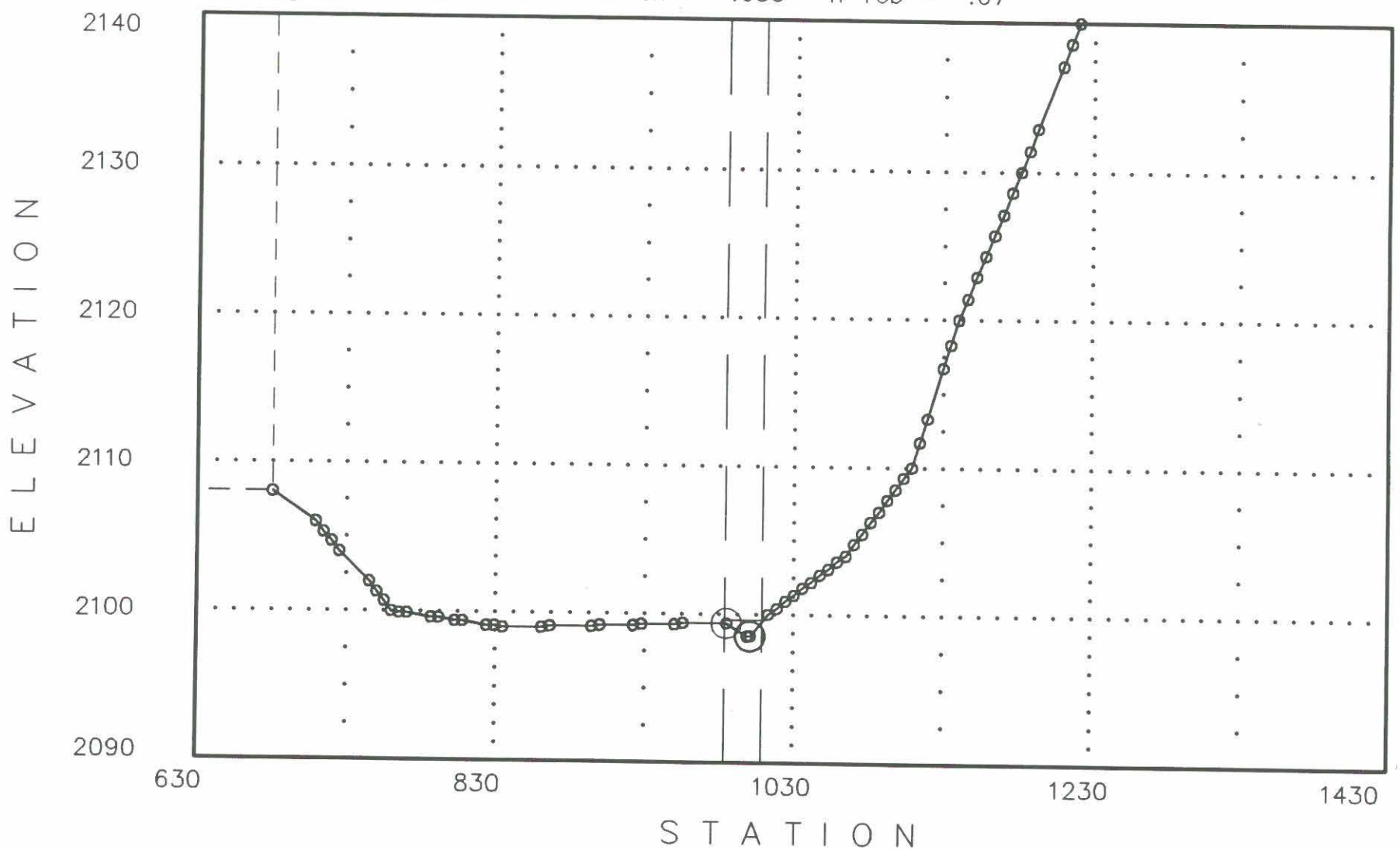
11-21-1992

<<<<<< Cross Section: .28: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2099.64

Q2= 49 WS2= 2099.63

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

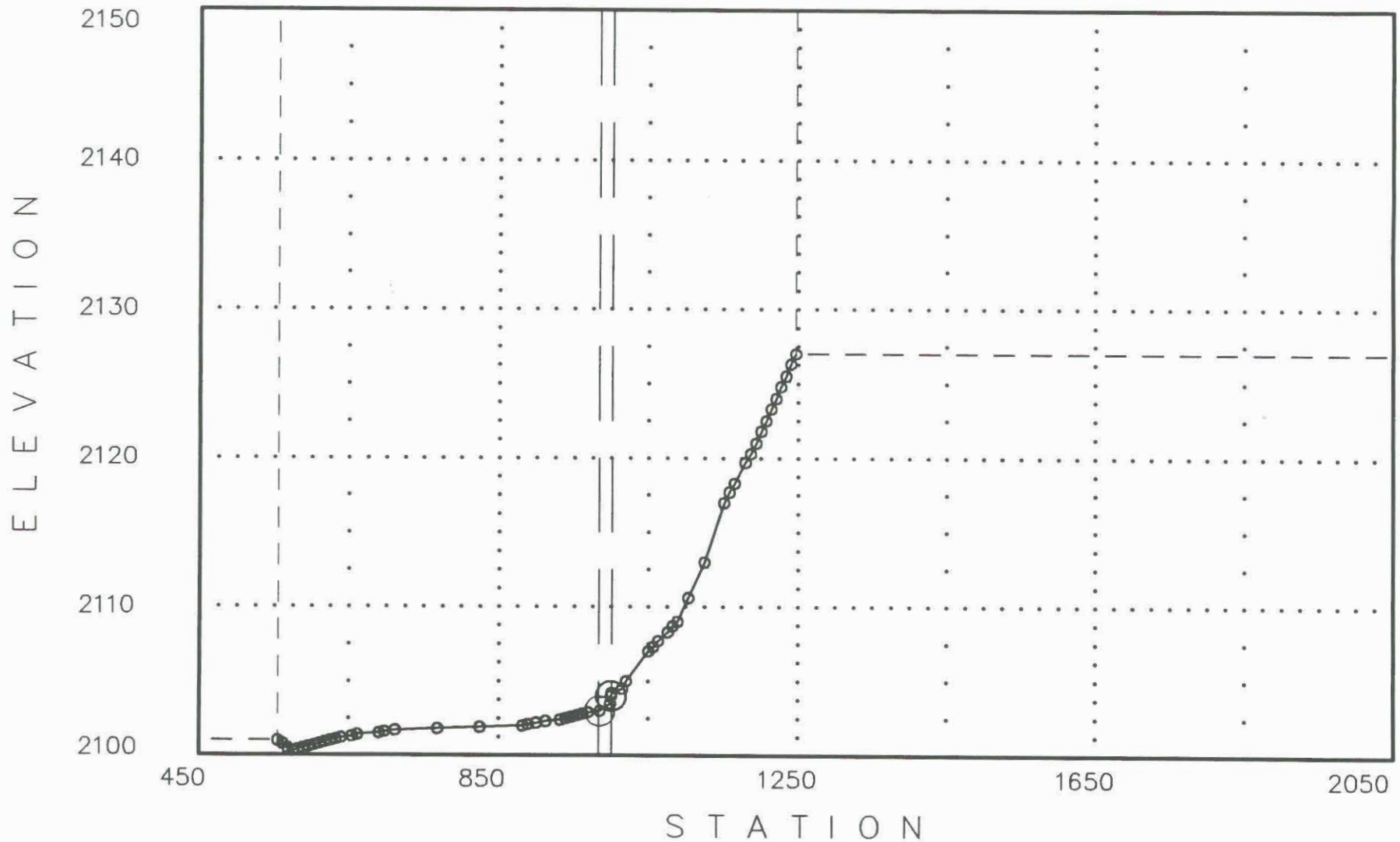


11-21-1992

<<<<<< Cross Section: .293: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2103.93
Q2= 49 WS2= 2103.93

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



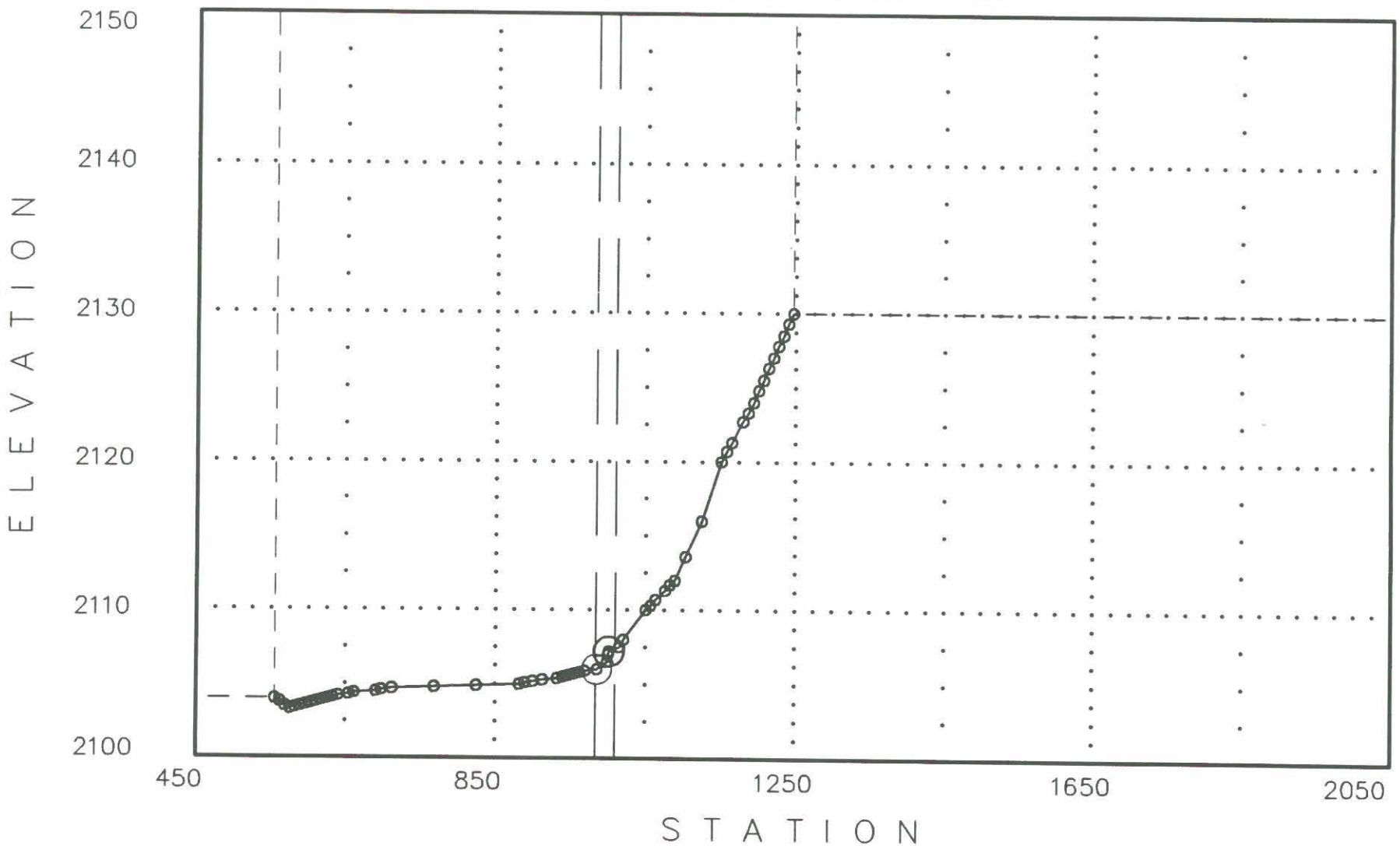
11-21-1992

<<<<<< Cross Section: .294: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2106.89

Q2= 49 WS2= 2106.89

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



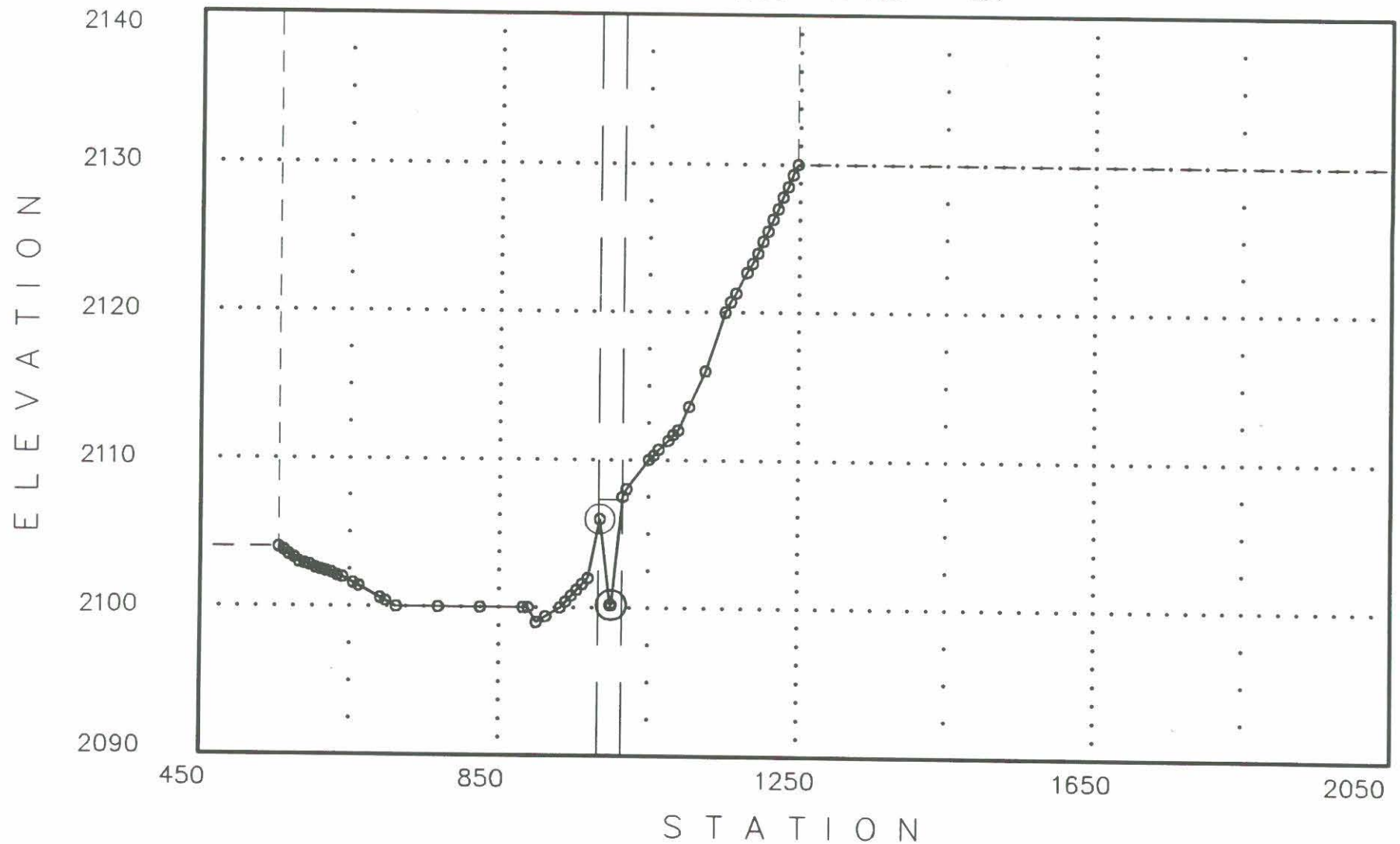
11-21-1992

<<<<<< Cross Section: .295: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2107.33

Q2= 49 WS2= 2107.33

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



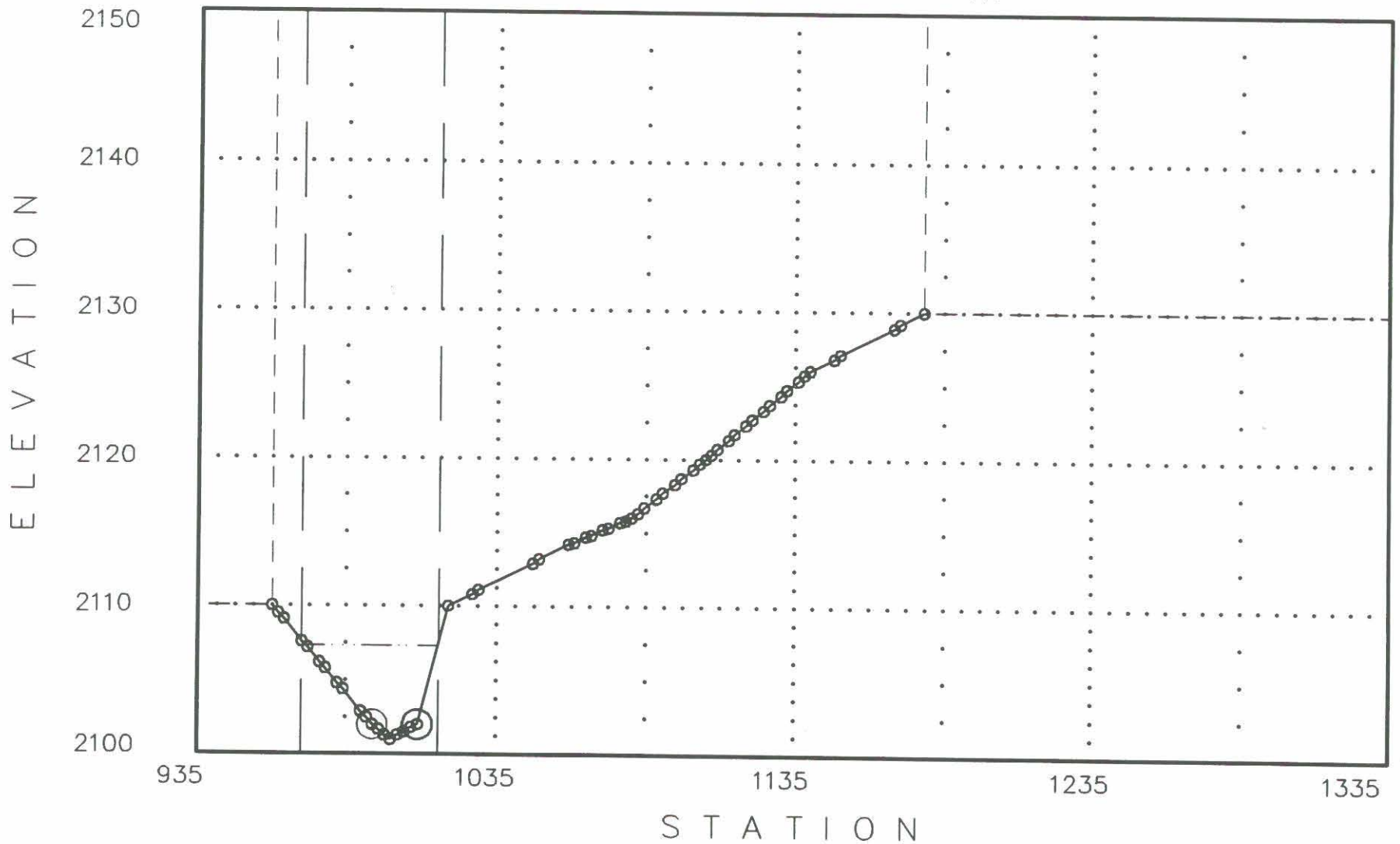
11-21-1992

<<<<<< Cross Section: .313: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2107.33

Q2= 49 WS2= 2107.33

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



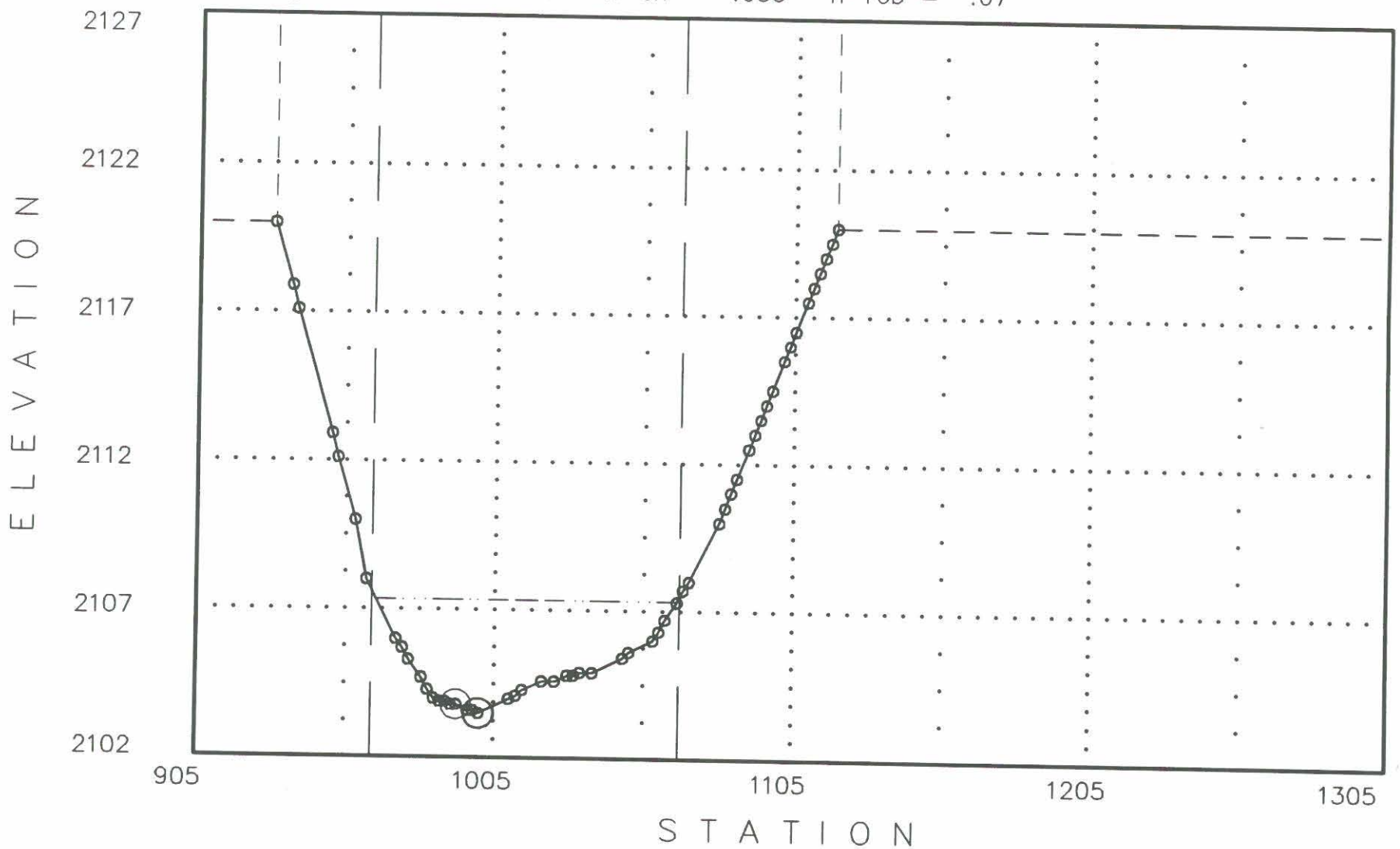
11-21-1992

<<<<<< Cross Section: .356: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2107.33

Q2= 49 WS2= 2107.33

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

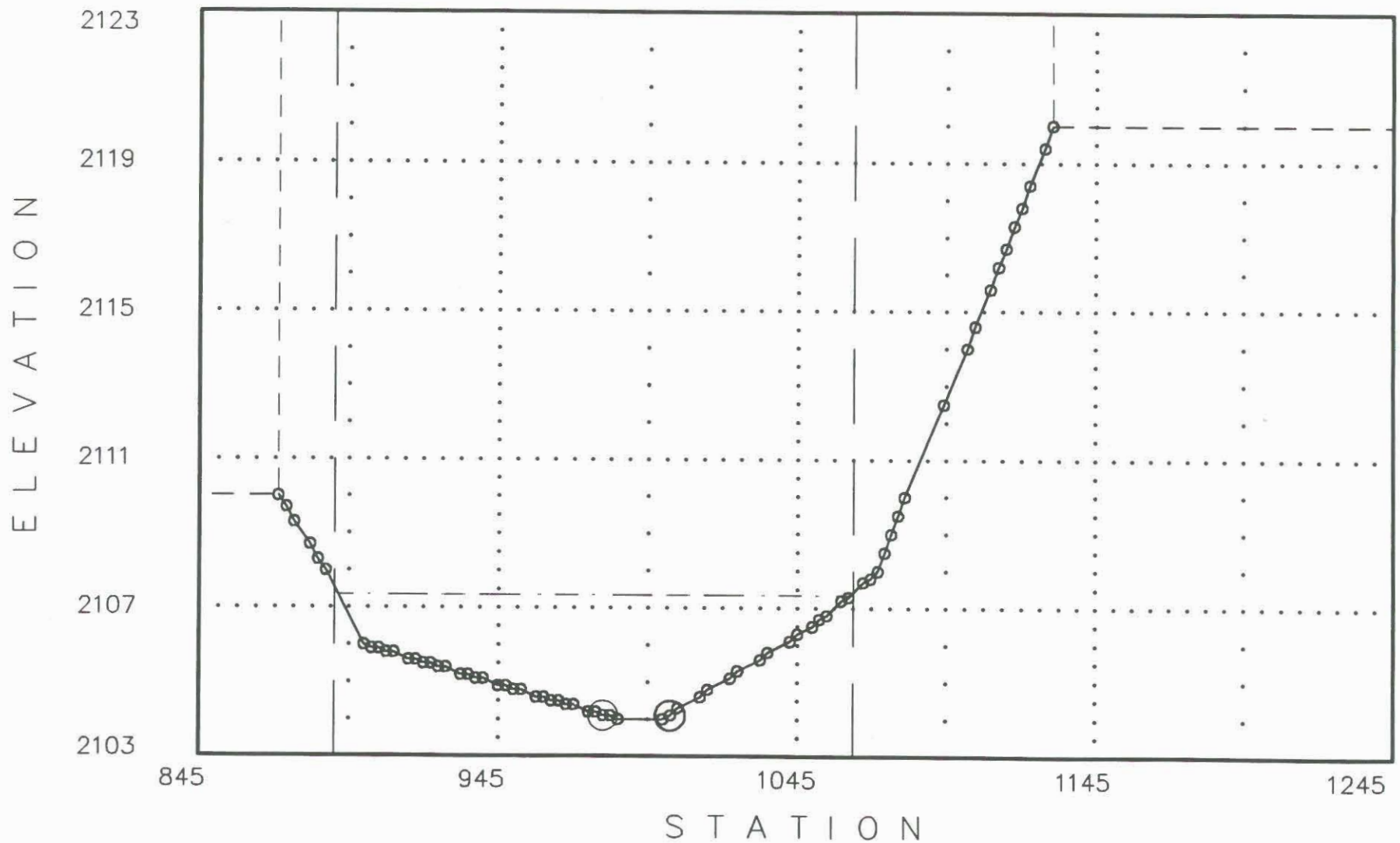


11-21-1992

<<<<<< Cross Section: .382: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2107.34
Q2= 49 WS2= 2107.34

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

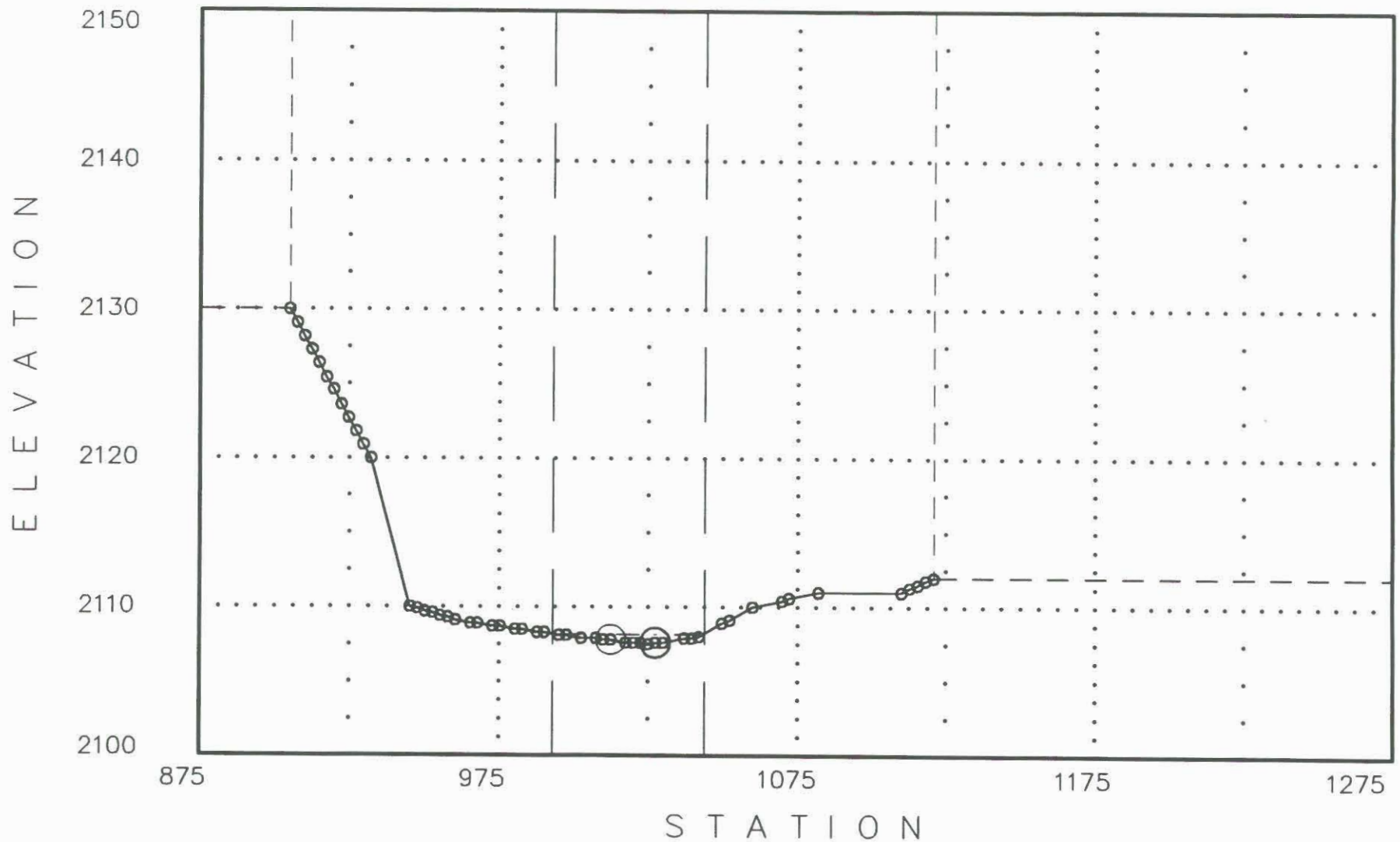


11-21-1992

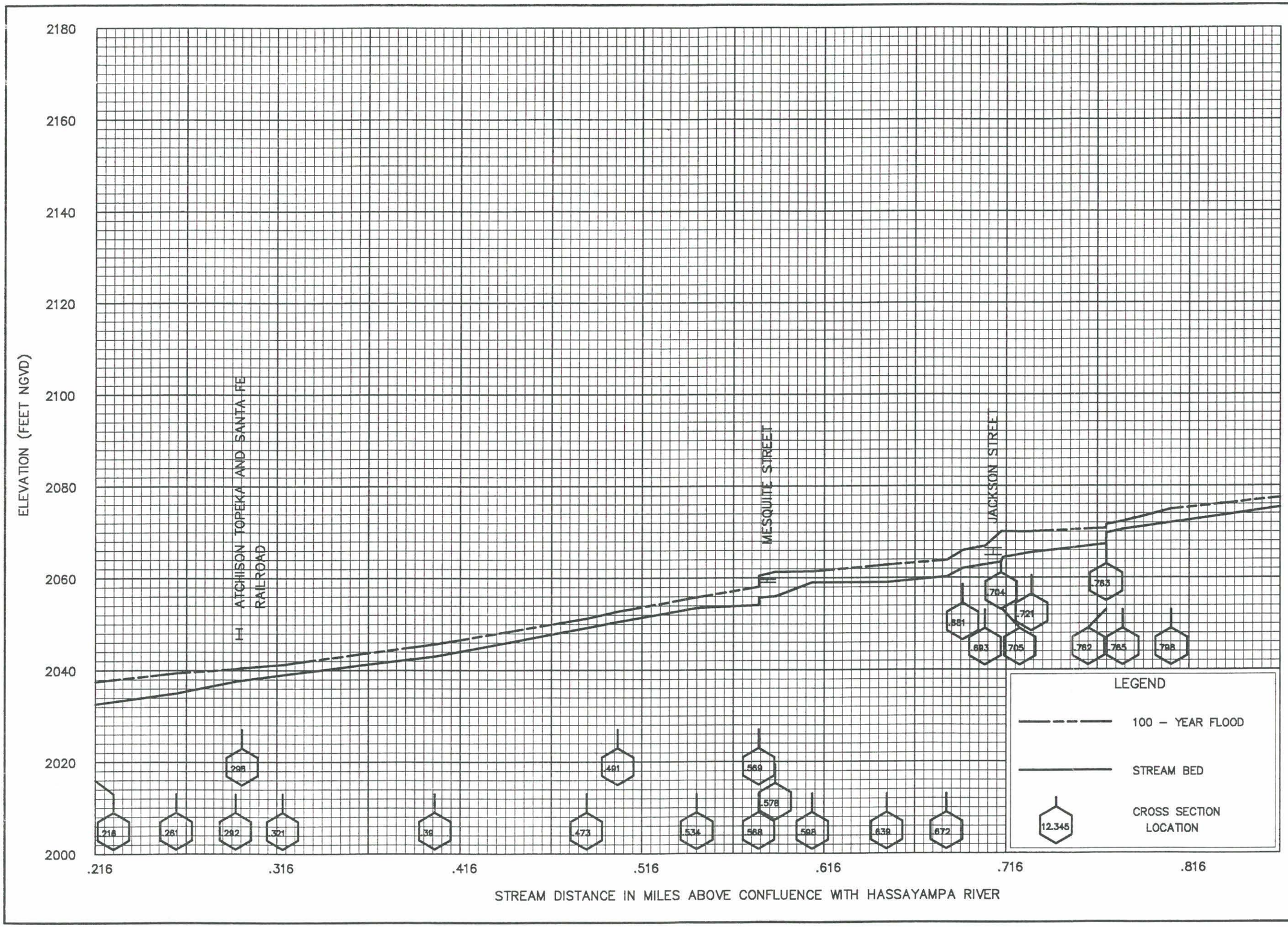
<<<<<< Cross Section: .42: (FN = WASHAD.O) >>>>>>

Q1= 49 WS1= 2108.17
Q2= 49 WS2= 2108.17

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



11-21-1992



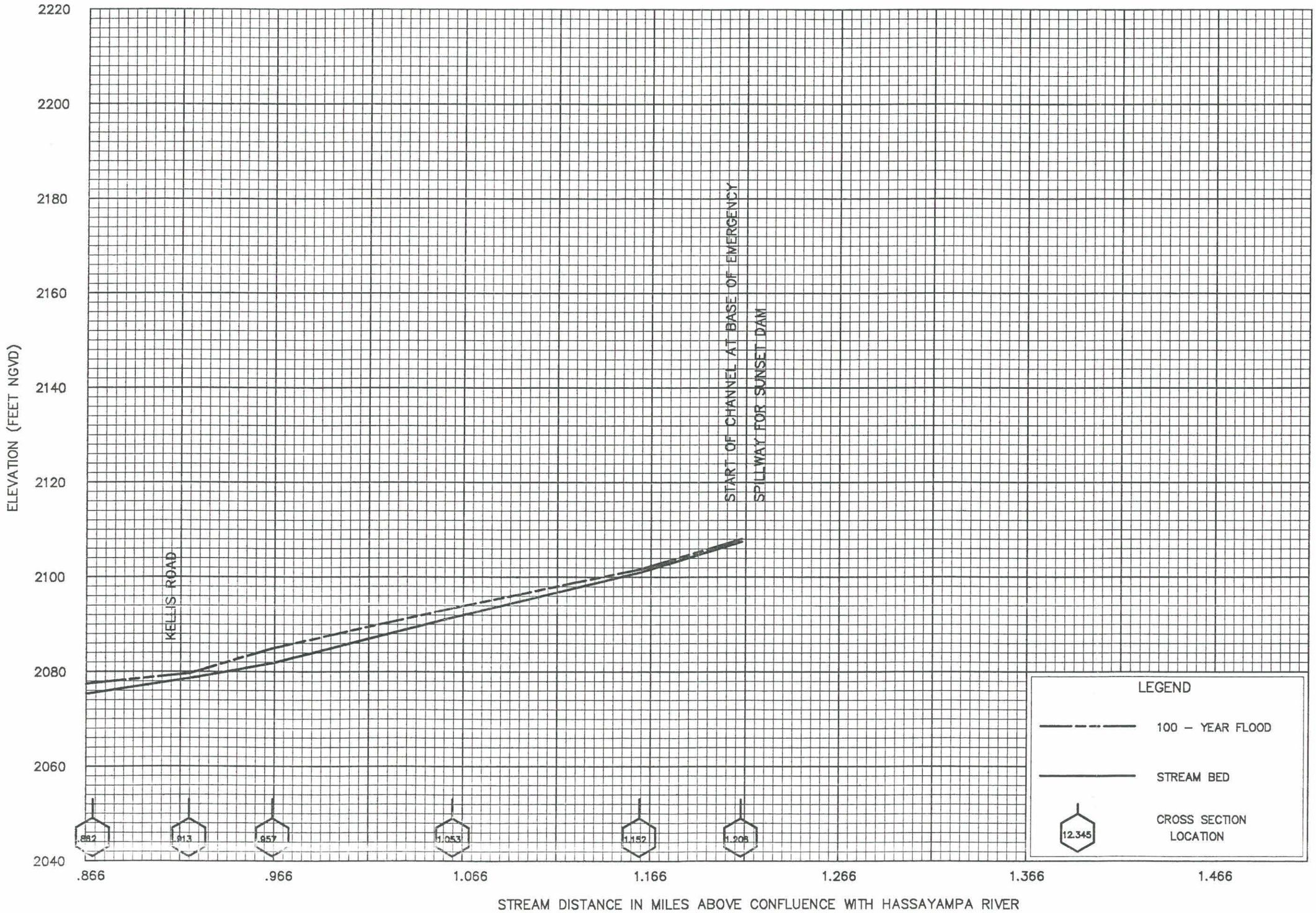
FLOOD PROFILES

SUNSET WASH (WASH AD)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

AD–1



FLOOD PROFILES

SUNSET WASH (WASH AD)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	O.M.B. Burden No. 3067-0148 *Expires July 31, 1994*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AE: Sunny Cove Wash
(One form for each flooding source)

Project Name /Identifier: Wickenburg ADMS FCD 89-79

1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)

☒ Detailed study stream (briefly explain methodology) HEC-1 analysis based on Flood Control District of Maricopa County Methodologies.

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis

☐ Improved data *(see data revision on page 3)*

☐ Changed physical conditions of watershed *(explain)* _____

☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*

☐ Evaluation of proposed conditions (CLOMRs only) (explain) _____

☒ Other No existing analysis or analysis being updated to reflect existing conditions.

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Flood Control District of Maricopa County)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

4. REVIEW OF RESULTS

Stream: _____

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
Confluence with Wash AD	0.20 sq mi *	—	49 cfs
Confluence with Sunny Cove Dam	1.34 Sq.mi.	—	1232 cfs

* Excluding drainage area u/s of dams.

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

No existing analysis or updated analysis to reflect existing conditions. Previous floodplain only included ponding area behind Sunny Cove Dam.

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

NA

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
NA	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

ATTACHMENT A: STATISTICAL ANALYSIS OF GAGE RECORDS

Gaging Station: NA

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data		
Systematic		
Historical		
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers		
Low outliers		
Zero events		
5. Generalized skew		
6. Station skew		
7. Adopted skew		
8. Probability distribution used (justify if log-Pearson III was not used)		
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. *Expected probability**	☐ Yes ☐ No
11. Comparison of results with other analyses	☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:
NA

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
8.	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

ATTACHMENT C: PRECIPITATION/RUNOFF MODEL

		FIS:	Revised
1.	Method or model used:		HEC-1
	Version:		Ver. 3.0
	Date:		02 AUG. 88
2.	Source of rainfall depth:		NOAA Atlas 2
3.	Source of rainfall distribution:		SCS TYPE II
4.	Rainfall duration:		24 hours
5.	Areal adjustment to precipitation (%):		NWS HYDRO-40
6.	Hydrograph development method:		S-Graph
7.	Loss rate method:		Green-AMPT
	Source of soils information:		SCS
	Source of land use information		Town of Wickenburg
8.	Channel routing method:		Normal Depth
9.	Reservoir routing:	☐ Yes ☐ No	☒ Yes ☐ No
10.	Baseflow considerations:	☐ Yes ☐ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

11.	Snowmelt considerations:	☐ Yes ☐ No	☐ Yes ☒ No
12.	Model calibration:	☐ Yes ☐ No	☒ Yes ☐ No

If yes, explain how calibration was performed Computed discharges were compared with DISCHARGE vs DRAINAGE AREA curves and envelopes prepared by the Flood Control District of Maricopa County.

13. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

Stream: NA - No flow records

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval:	5% limit	_____	cfs
	95% limit	_____	cfs
50% Confidence Interval:	25% limit	_____	cfs
	75% limit	_____	cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

Appendix # 5.5

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE HYDRAULIC ANALYSIS FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

ublic reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the ime 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.

Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash AE : Sunny Cove Wash
(One form for each flooding source)

Project Name/Identifier: Wickenburg ADMS - FCD 89-79

1. REACH TO BE REVISED

Downstream limit: Station 0.667

Upstream limit: Station 3.197

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study _____

Upstream limit of study _____

☒ Studied by detailed methods

Downstream limit of study Station 0.667

Upstream limit of study Station 3.197

☐ Floodway delineated

Downstream limit of Floodway _____

Upstream limit of Floodway _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☒ Improved hydrologic data/analysis. Explain: Hydrologic analysis updated per Maricopa County procedure manual.

☐ Improved hydraulic analysis. Explain: _____

☐ Flood control structure. Explain: _____

☐ Other. Explain: _____

3. RIVERINE HYDRAULIC ANALYSIS FORM
Models Submitted

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model (*e.g. duplicate effective model to corrected effective model*). Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation. For areas which do not have detailed flooding, a hydraulic model is not required; however BFE's may not be added to the revised FIRM.

☐ Duplicate Effective Model — Natural ☐ Floodway ☐

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 requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor'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.

☐ Corrected Effective Model — Natural ☐ Floodway ☐

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 corrected 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.

☐ Existing or Pre-Project Conditions Model — Natural ☐ Floodway ☐

The duplicate effective or corrected 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 or duplicate effective model.

☐ Revised or Post-Project Conditions Model — Natural ☐ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective 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 proposed project this model should reflect proposed conditions.

☒ Other: Please attach a sheet describing all other models or calculations submitted. — Natural ☒ Floodway ☒

New Model (Proposed Effective Model)

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

Discharges:	Upstream Limit	Downstream Limit
10-year	384 cfs	641 cfs
50-year	633 cfs	1058 cfs
100-year	737 cfs	1232 cfs
500-year	—	—

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevations determined by the slope-area method.

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... 0.024 ~ 0.040

Overbanks ..... 0.060 ~ 0.070

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined (*e.g., field survey, topographic map, taken from previous study*) and list cross sections that were added.

Data points for cross-sections are based on photogrammetric models for the topographic maps.

5. Explain how reach lengths for channel and overbanks were determined:

All reach lengths were measured from floodplain work maps.

5. RESULTS (*from model used to revise 100-year water surface elevations*)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ..... ☐ Yes ☒ No

b. Supercritical depth? ..... ☐ Yes ☒ No

c. Critical depth? ..... ☒ Yes ☐ No

d. Other unique situations ..... ☐ Yes ☐ No

If yes, special problems report attached.

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? ..... 0.0300 ft/ft

Specify location 1.231

3. What is the distance between the cross-sections in 2 above? ..... 508 ft

Specify location 1.328

4. What is the maximum distance between cross-sections? 601

Specify location 1.803

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? ..... 1.0 foot

b. What is the maximum surcharge for the revised conditions? ..... 0.1 foot

Specify location 2.311

c. What is the maximum velocity? ..... 10.95 fps

Specify location 1.041

Explain:

d. Are there any negeative surcharge values at any cross-section ☐ Yes ☒ No

If yes, the floodway may need to widen. If it is not widened, please explain and indicate the maximum negative surcharge.

Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☐ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases.

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet and upstream of the project at cross section_____within_____feet.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet and upstream of the project at cross section_____ within_____feet.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

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

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Unincorporated Maricopa County / Town of Wickenburg	Wash AE: Sunny Cove Wash	Wickenburg ADMS-FCD 89-79

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

New Model- See following Floodway Data Table

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet___ _____ of _____

FLOODWAY DATA, WASH AE: SUNNY COVE WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.667	157.	2348.	.5	2155.0	2155.0	.0
.726	127.	1192.	1.0	2155.0	2155.0	.0
.795	100.	565.	1.9	2155.0	2155.0	.0
.848	64.	157.	6.9	2154.6	2154.6	.0
.892	59.	140.	7.7	2158.1	2158.1	.0
.939	82.	167.	6.5	2162.1	2162.1	.0
1.041	74.	164.	6.6	2170.4	2170.4	.0
1.129	86.	173.	6.1	2178.0	2178.0	.0
1.166	108.	218.	4.8	2181.8	2181.8	.0
1.185	209.	805.	1.3	2187.0	2187.0	.0
1.231	136.	394.	2.7	2187.1	2187.1	.0
1.328	157.	188.	5.4	2190.5	2190.5	.0
1.385	162.	239.	4.3	2195.4	2195.4	.0
1.470	181.	319.	3.2	2198.9	2198.9	.0
1.551	162.	231.	4.4	2204.3	2204.3	.0
1.621	143.	200.	5.1	2209.2	2209.2	.0
1.689	107.	186.	5.5	2213.8	2213.8	.0
1.803	143.	214.	4.8	2223.2	2223.2	.0
1.848	136.	200.	5.1	2227.5	2227.5	.0
1.898	95.	190.	5.2	2230.7	2230.7	.0
1.935	86.	168.	5.9	2234.0	2234.0	.0
1.998	90.	216.	4.3	2237.0	2237.0	.0
2.093	64.	126.	6.8	2240.7	2240.7	.0
2.182	40.	104.	8.3	2248.9	2248.9	.0
2.271	48.	117.	7.3	2256.6	2256.6	.0
2.311	54.	113.	7.6	2263.6	2263.5	.1
2.388	59.	123.	7.0	2268.8	2268.8	.0
2.466	106.	215.	4.0	2274.2	2274.2	.0
2.560	71.	131.	6.6	2281.6	2281.6	.0
2.625	65.	140.	5.3	2286.0	2286.0	.0
2.655	124.	192.	3.8	2287.5	2287.5	.0
2.720	82.	111.	6.6	2292.8	2292.8	.0
2.813	139.	165.	4.5	2299.2	2299.2	.0
2.901	117.	141.	5.2	2305.8	2305.8	.0
2.981	148.	179.	4.1	2313.1	2313.1	.0
3.081	229.	190.	3.9	2319.9	2319.9	.0
3.136	306.	248.	3.0	2323.9	2323.9	.0
3.163	251.	185.	4.0	2327.5	2327.5	.0
3.197	188.	210.	3.5	2329.9	2329.9	.0

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE/COASTAL MAPPING FORM**	O.M.B. Burden No. 3067-0148 *Expires July 31, 1994*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

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.

Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash AE: Sunny Cove Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*:

		Included		
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 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☐ Yes	☐ No	☒ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☐ Yes	☐ No	☒ N/A
I.	The requestor'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 etc.)	☒ 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 analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: No Zone A, 500-year or coastal zones revised or delineated. Revised 100-year floodplains tie into effective Hassayampa River floodplain.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? Photo: Jan. 1991 (E), Oct 1990 (W); Maps 1992

3. What is the scale and contour interval of the following work maps?
   a. Effective FIS unknown scale unknown Contour interval
   b. Revision Request 1" = 200' scale 2' Contour interval

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

Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

Attach additional pages if needed.

5. Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

Revised detailed 100-year floodplain replaces effective Zone A floodplain.

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ..... ☐ Yes ☒ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase? _____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ..... ☐ Yes ☒ No

If yes, explain:

7. If a V-zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain:

NA

8. Manual or digital map submission:

☒ Manual

☐ Digital

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 of submission as possible.

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed ☒ N/A

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

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, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

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.

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AE: Sunny Cove Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Mariposa Drive
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 1.166 to Station 1.185
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

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

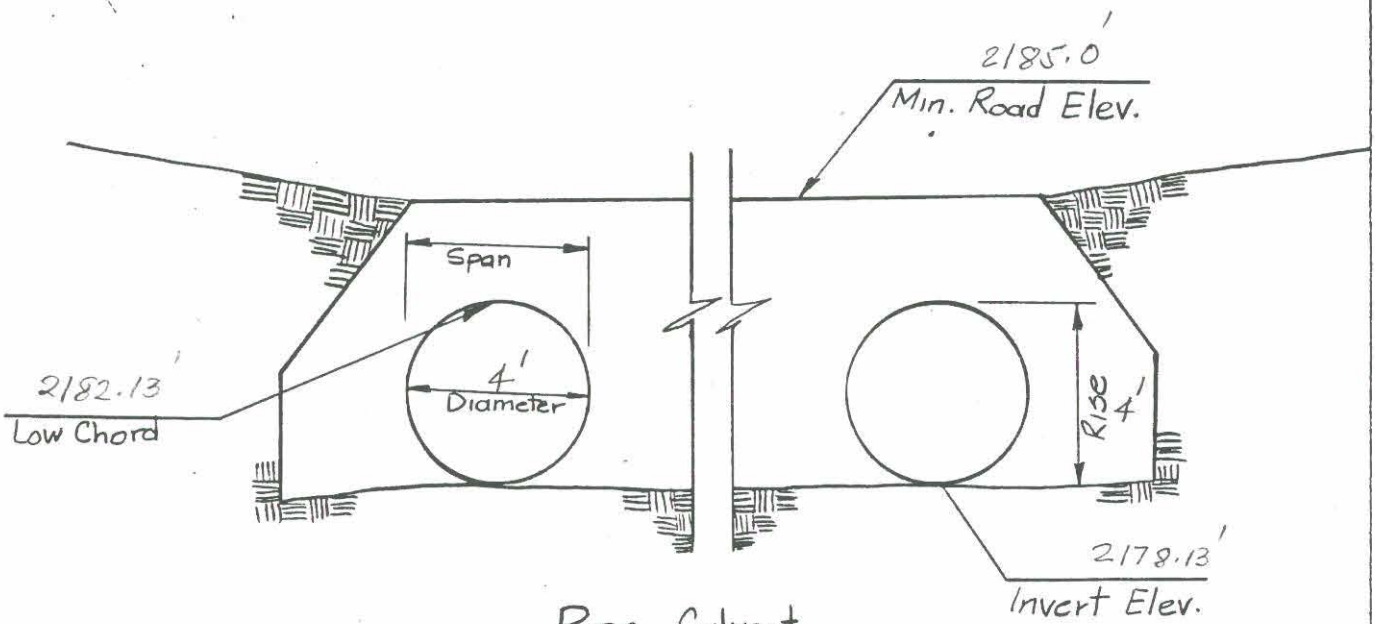
1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) three 48" Ø x 102' corrugated metal pipes
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Circular opening with head wall
3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special 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)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A

* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



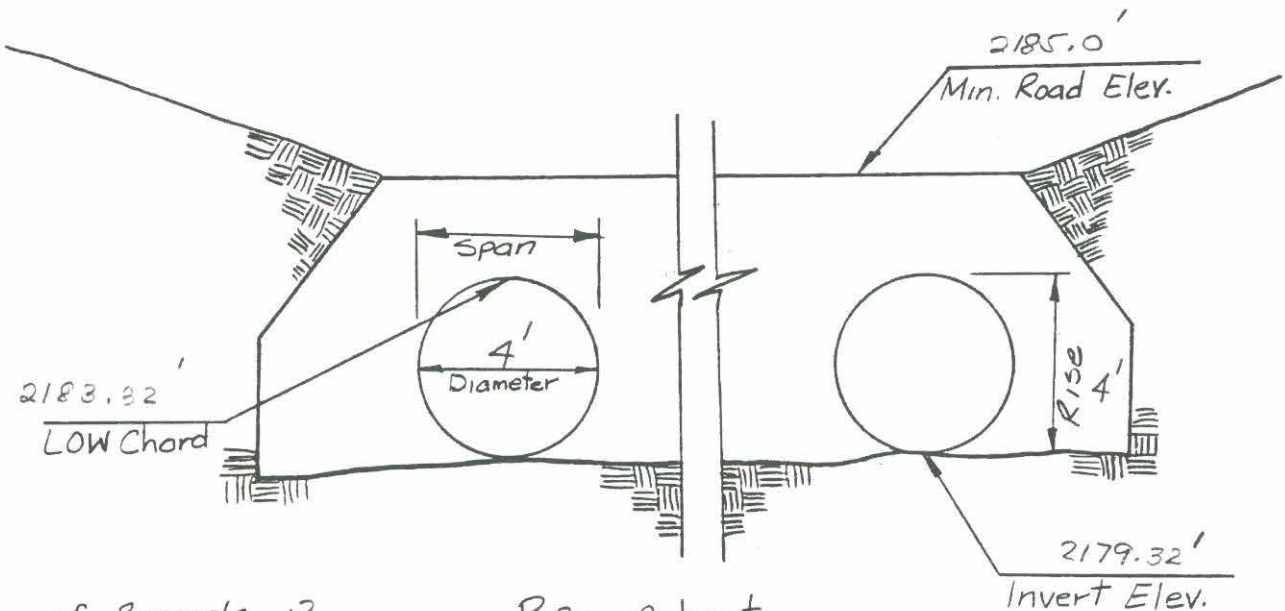
Pipe Culvert

No. of Barrels: 3

Culvert Size: 48" ϕ x 102'

See Cross Section # 1.166

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



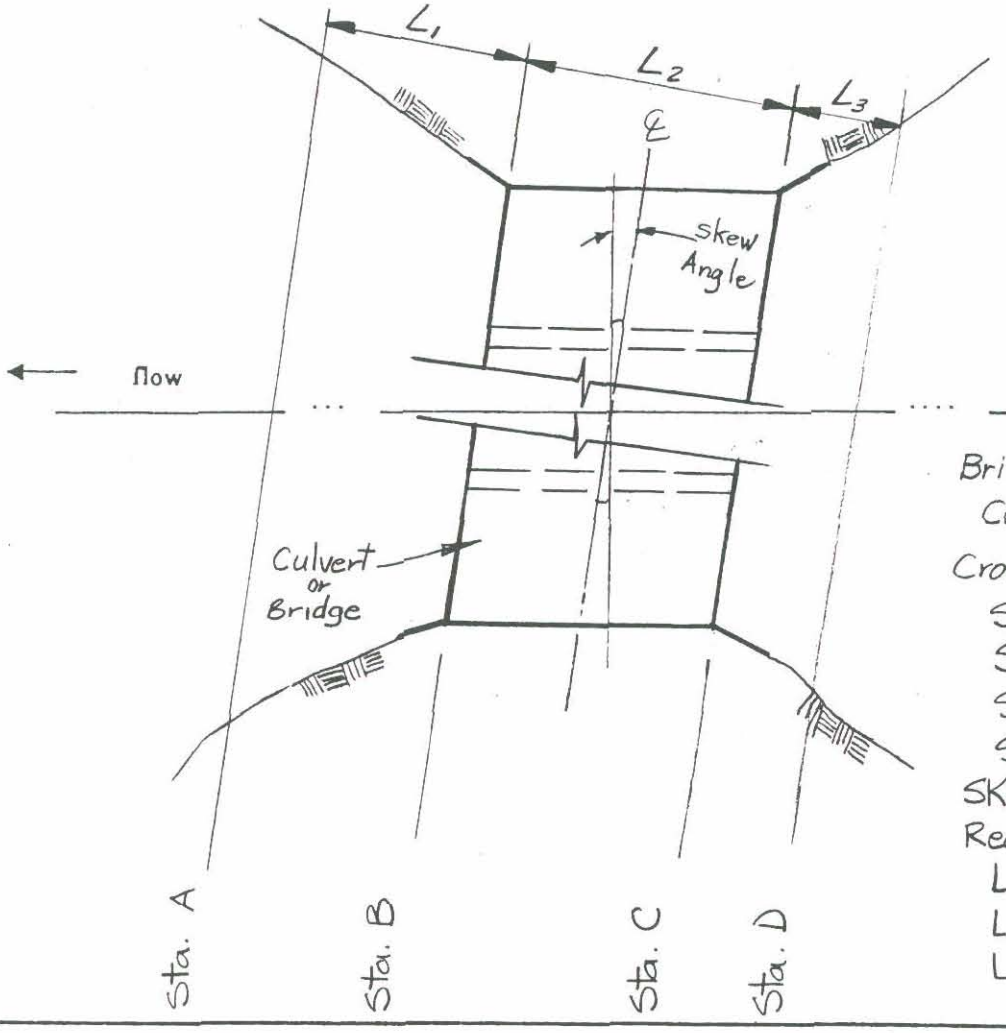
No of Barrels: 3

Pipe Culvert

Culvert Size: 48" ϕ x 102'

See Cross Section # 1.185

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Bridge Width / Culvert Length: 102'

Cross Section Stations

Sta. A = 1.129

Sta. B = 1.166

Sta. C = 1.185

Sta. D = 1.231

Skew Angle: 0

Reach Lengths:

L1 = 193' ft.

L2 = 102' ft.

L3 = 245' ft.

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	102'
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	37.7
Total culvert/bridge area (ft²)	37.7

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (STA 1.185)	2185.2	2185.1
Downstream face (STA 1.166)	2184.5	2180.0

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	2185.2	2185.1
Downstream face	2185.2	2185.1

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	2187.05	2187.13
Downstream face	2181.83	2182.87

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	–	615	436	1053 (≈ 1051)

The maximum depth of flow over the roadway/railroad (ft.) ....(2187.05 – 2185.0)..... 2.05'

Weir length (ft.) ..... 173'

Top Widths

	Floodplain	Floodway
Upstream face	210'	210'
Downstream face	130'	109'

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	210'	210'
Downstream face	109'	130'

Loss Coefficients

Entrance loss coefficient	0.12
Manning's "n" value assigned to the structure(s)	0.024
Friction loss coefficient through structure (s)	–
Other loss coefficients (e.g., bend manhole, etc.)	–
Total loss coefficient	–
Weir coefficient	2.900
Pier coefficient	–
Contraction loss coefficient	0.3
Expansion loss coefficient	0.5

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (*including scour and deposition*) can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

   B Based on the conditions (*such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions*), is there a potential for debris and sediment transport (*including scour and deposition*) to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment (*bed material*) load?
_____cfs (*attach gradation curve*)

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) Method I of encroachment is used where encroachment stations (i.e., STENCL, STENCR) are defined in the ET record; while effective elevations (i.e., ELLEX, ELREX) are defined in the X3 record for effective flow calculations.

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **DAM FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1994*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 0.5 hour 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.

Community Name: Town of Wickenburg

Flooding Source: Sunnycove Wash

Project Name/Identifier: Wickenburg ADMS

IDENTIFIER

Name of Dam: Sunnycove Dam

Location of dam along flood source (in terms of stream distance or cross section identifier):

From the confluence of Sunset Wash, north-west approximately 0.5 mile.

Check one of the following:

- [x] Existing dam
- [ ] New dam
- [ ] Modifications of existing dam (describe modifications)

Was the dam designed by SCS Federal agency ____State agency

____Local government agency ____Private organization?

BACKGROUND

Does the dam have dedicated flood control storage? [ ] Yes [x] No

Does the project involve revised hydrology? [ ] Yes [x] No

If yes, complete Hydrologic Analysis Form and include calculations of the 100-year inflow flood hydrograph routed through the dam with the beginning pool at the normal pool elevation (spillway crest elevation for ungated spillway). Include any inflow hydrograph bulking by watershed sediment yield and provide necessary debris and sediment yield analysis.

Does the revised hydrology affect the 100-year water-surface elevation behind the dam or downstream of the dam? [ ] Yes [x] No

If yes, complete the Riverine Hydraulic Analysis Form and complete the table shown on the following page.

RESULTS

	Stillwater Elevation Behind the Dam	
	FIS	Revised
10-year		
50-year		
100-year	Not Available	2155 ft.
500-year		
Normal Pool Elevation	Dry pool area.	

Was long term sediment accumulation taken into consideration in determining the normal pool elevation? ☒ Yes ☐ No

Was the dam designed to withstand the hydrostatic and hydrodynamic forces associated with floods greater than the 100-year flood? ☒ Yes ☐ No

If no, and the dam has a reasonable probability of failure during the 100-year flood, please attach dam break analysis.

Provide the following data on the dam:

Height: 48.5 ft.
Crest Elevation: 2170 ft.
100-year flood storage capacity: 2.18 ac-ft
Freeboard (measured from 100-year water surface elevation): 8.5 ft.

Spillway(s):

Type: ☐ gated ☒ ungated

Width: 14 ft.
Height: 40 ft.
Crest Elevation: 2170 ft.

Outlet(s):

Type: ☒ gated ☐ ungated

Width: 18 inches
Height 18 inches
Diameter: 30 inches
Invert Elevation: 1226.5 ft.

Explain flow regulation plan: Vertical reinforce concrete tower from below streambed elevation to approximate spillway crest elevation. At streambed elevation there is an 18" x 18" gated opening. The open top acts as a drop inlet for above normal runoff. A 30" RCP runs from the tower to the outfall area.

Are the project features, including the emergency spillway, designed to accommodate the 100-year flood discharge without overtopping the dam? ☒ Yes ☐ No

Was the dam designed in accordance with all currently applicable local, State, and Federal regulations? ☒ Yes ☐ No

If no, please provide explanation.

FEMA may request a list of regulations that have been complied with and supporting documentation demonstrating compliance with these regulations.

Attach copy of formal operation and maintenance plan

Answer N/A to any questions which are not applicable

Annual Inspection Report - Sunny Cove FRS

1. Inspection Team:

The annual inspection of the Sunny Cove FRS was conducted on June 23, 1993. The inspection team consisted of:

Ken Hussain - Arizona Department of Water Resources
Ernie Hamer - Work Control Center, Flood Control District

2. Project Conditions:

The weather was clear and hot with the temperature reported at Phoenix Sky Harbor International Airport at a high of 106° F.

3. Impoundment:

The highest level of impoundment this past year was 21.7 feet on August 22, 1992.

4. Inspection Observations:

A. Dam:
The crest of the dam is in good condition and the access road along the crest is graded and free of vegetation. The upstream and downstream slopes are both in good condition. The embankment toes and groin area appear stable. Vegetation exceeding 2-3 feet in height needs to be removed from slopes of structure as observed by Ken Hussain. Two enlarged rodent holes at bottom area of downstream slope need to be excavated, backfilled, and compacted.

B. Spillway:

The spillway is in good condition and free of unwanted vegetation. All slopes are in good condition and free of erosion and vegetation.

C. Outlet Works:
The concrete in the intake tower is in excellent condition with no cracks, spalling or noticeable deterioration. The gated inlet has been recently serviced by the FCD maintenance staff as part of the regular scheduled maintenance program. Tall grass needs mowing in the impoundment area.

5. Conclusion:

The dam and appurtenance are in good condition and will function as designed.

6. Required Action:

Continue with regular scheduled maintenance program. Work orders have been written to mow impoundment and repair enlarged rodent holes on downstream slope.

G. D. Park, P.E.
Construction and Operations Division Manager

Copies to: Remer Dekle, Soil Conservation Service
John Hall, Soil Conservation Service, Phoenix Field Office
Ken Hussain, Arizona Department of Water Resources

Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

Appendix 5.5: HEC-2 Models & Cross Section Plots for West Area Wash
SUNNY COVE WASH (Wash ae)

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

N:\1187\02\ADMIN\119702RP.063

May 1994

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*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    02JUL92    TIME   08:39:59 *
*******************************************
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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
```

THIS RUN EXECUTED 02JUL92 08:40:00

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

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


T1      WICKENBURG ADMS - CONTRACT FCDMC 89-79
T2      BLACK & VEATCH PN 17676: COE & VAN LOO JN 1197-02
T3      WASH AE: SUNNY COVE WASH - ABOVE THE DAM

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0        0        0        0        0     2155.0      0

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

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


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150       200

QT        2      1232      1232
NC    0.060     0.060     0.030       .1        .3
ET                          9.1                                                          907       1065
            THE STATIONING FOR WASH AE-SUNNY COVE WASH IS BASED ON MILES
            ABOVE THE CONFLUENCE WITH WASH AD-SUNSET WASH.  THE CONFLUENCE
            OF WASH AD-SUNSET AND WASH AE-SUNNY COVE IS LOCATED SOUTHWEST
            OF THE INTERSECTION OF LINCOLN STREET AND CENTER STREET.
            THE TOP OF THE DAM IS AT STATION 0.590+/-, AND HAS A LOW-
            POINT ELEVATION OF 2180.2.  THE EMERGENCY SPILLWAY ELEVATION
            IS APPROXIMATELY 2178.0+/-.
            THIS HEC-2 ANALYSIS IS FOR THE PORTION OF WASH AE-SUNNY COVE
            WASH THAT IS UPSTREAM OF THE RECENTLY COMPLETED FLOOD CONTROL
            DAM LOCATED APPROXIMATELY 850 FEET WEST OF KELLIS ROAD AND
            APPROXIMATELY ONE HALF OF A MILE SOUTH OF U.S. HWY 60.
            THE STUDY BEGINS AT CROSS SECTION 0.667, WHICH IS APPROXIMATELY
            410 FEET UPSTREAM OF THE DAM.
            THIS ANALYSIS WAS STARTED USING THE 100-YEAR WATER SURFACE
            ELEVATION (2155.0) OF THE PONDING AREA AT THE FLOOD CONTROL DAM.
            THE 100-YEAR PEAK DISCHARGE THAT IMPACTS THE DAM IS 1232 CFS.
X1    0.667       56      985     1022        0        0        0
GR     2164      850   2163.7    852.5   2163.5    855.1   2162.9    860.1   2162.7    862.7
GR   2162.1    867.7   2161.9    870.3   2161.3    875.3   2161.1    877.9   2160.5    882.9
GR   2160.3    885.5     2160      888   2159.3    890.5   2158.7    893.1   2157.3    898.1
GR   2156.7    900.7   2155.3    905.7   2154.7    908.3   2153.3    913.3   2152.7    915.9
GR   2151.3    920.9   2150.7    923.5     2150      926     2141    947.6     2140      950
GR   2139.3    952.5   2138.5      955   2137.8    957.5     2137      960   2136.3    962.5
GR   2135.5      965   2134.8    967.5     2134      970   2133.8      975   2133.8    977.5
GR   2133.5      985   2133.3      990   2133.3    992.5     2133     1000   2133.1   1002.4
GR   2133.1   1004.9   2133.2   1007.3   2133.2   1009.8   2133.3   1012.2   2133.3   1014.7
```

GR	2133.4	1017.1	2133.4	1019.6	2133.5	1022	2134	1030	2140	1043

	2150	1059	2160	1070	2169	1091.6	2170	1094	2170.4	1106.9
GR	2170.5	1112								
QT	2	1180	1180							
ET			9.1						951	1078
X1	0.726	50	995	1019.3	240	402	315			
GR	2170	902	2168.8	907	2166.3	917	2163.8	927	2161.3	937
GR	2160	942	2158.6	944.6	2157.1	947.1	2152.9	954.9	2151.4	957.4
GR	2150	960	2149.3	962.5	2148.7	965	2147.3	970	2146.7	972.5
GR	2145.3	977.5	2144.7	980	2143.3	985	2142.7	987.5	2141.3	992.5
GR	2140.5	995	2139.8	997.5	2139	1000	2139.2	1002.3	2139.3	1004.7
GR	2139.7	1009.3	2139.8	1011.7	2140.3	1016.7	2140.7	1019.3	2141.3	1024.7
GR	2141.7	1027.3	2142	1030	2142.7	1032.5	2143.3	1035	2144.7	1040
GR	2145.3	1042.5	2146.7	1047.5	2147.3	1050	2148.7	1055	2149.3	1057.5
GR	2152.1	1067.5	2157.1	1085	2160.7	1097.5	2166.7	1119.7	2170	1132
GR	2171.4	1134.6	2172.9	1137.1	2177.1	1144.9	2178.6	1147.4	2180	1150
QT	2	1087	1087							
ET			9.1						967	1068
X1	0.795	18	982	1008	332	360	365			
GR	2182.5	890	2182	920	2180	930	2170	951	2160	962
GR	2150	972	2148	980	2147.9	982	2147.4	1000	2147.5	1005
GR	2147.6	1008	2148	1033	2150	1043	2160	1092	2170	1162
GR	2172	1173	2174	1181	2176	1218				
			9.1						947	1012
	0.848	33	957	1002	320	230	279			
GR	2170	907	2166.7	915.3	2161.7	927.8	2159.3	933.9	2155.3	945.4
GR	2152	955	2152	957	2151.9	967.3	2151.8	969.3	2151.8	977.5
GR	2151.7	979.5	2151.7	985.7	2151.6	987.7	2151.6	995.9	2151.5	1000
GR	2152	1002	2154	1010	2160	1020	2170	1041	2170.4	1043.1
GR	2170.9	1045.1	2172.1	1051.4	2172.6	1053.4	2173.4	1057.6	2173.9	1059.6
GR	2175.1	1065.9	2175.6	1067.9	2176	1070	2176.1	1071.9	2176.1	1073.8
GR	2176.3	1077.5	2176.3	1079.4	2176.4	1083.1				
ET			9.1						970	1030
		DIP CROSSING AT SURFACED ROAD								
X1	0.892	32	976	1007.5	170	270	231			
GR	2162	923	2161.6	931	2161.6	933	2161	945	2161	947
GR	2160.4	959	2160.4	961	2160	969	2156	972	2155.8	974
GR	2155.5	976	2155.3	978	2155	980	2155	992	2155	1000
GR	2155.1	1001.9	2155.3	1003.8	2155.5	1007.5	2155.6	1009.4	2155.8	1011.3
GR	2156	1015	2157.5	1025	2157.9	1027	2158.1	1029	2158.5	1031
GR	2160	1041	2166	1052.4	2170	1060	2173	1072	2176	1084
GR	2179	1096	2180	1100						
ET			9.1						976	1059
X1	0.939	66	992	1014	250	236	248			
GR	2180	950	2178.7	952	2177.3	954	2174.7	958	2173.3	960
GR	2170.7	964	2169.3	966	2166.7	970	2165.3	972	2162.7	976
GR	2161.3	978	2160	980	2159.9	982	2159.9	986	2159.8	988
	2159.8	990	2159.7	992	2159.6	998	2159.5	1000	2159.5	1002
GR	2159.6	1004	2159.6	1012	2159.7	1014	2159.7	1018	2159.8	1020
GR	2159.8	1026	2159.9	1036	2160	1038	2160	1040	2160.4	1044

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     2160.7      1046     2161.3      1052     2161.6      1054      2162      1058     2165.1      1068
GR   2165.8      1070     2167.6      1076     2168.3      1078    2169.5      1082     2169.6    1089.7
GR   2169.7    1091.6     2169.7    1093.6     2169.8    1095.5    2169.8    1099.4       2170      1109
GR   2170.3      1111     2170.7      1113     2171.3      1117    2171.7      1119     2172.3      1123
GR   2172.7      1125     2173.3      1129     2173.7      1131    2174.3      1135     2174.7      1137
GR   2175.3      1141     2175.7      1143     2176.3      1147    2176.7      1149     2177.3      1153
GR   2177.7      1155     2178.3      1159     2178.7      1161    2179.3      1165     2179.7      1167
GR      2180     1169

ET                          9.1                                                   969      1044
             DIP CROSSING AT DIRT ROAD
X1   1.041        58      994.3      1012       670       430       540
GR      2190      929     2189.1     930.5     2188.2     931.9    2187.3     933.4     2185.4     936.3
GR   2184.6    937.7     2182.7     940.6     2181.8     942.1    2180.9     943.5       2180       945
GR   2177.6    951.1     2177.1     952.7     2175.3     957.2    2172.9     963.3     2172.4     964.9
GR   2171.2    967.9       2170       971     2169.8     973.9    2169.6     975.4     2168.9     985.6
GR   2168.7    987.1     2168.4     991.4     2168.2     992.9    2168.1     994.3     2167.9     995.7
GR   2167.8    997.1     2167.6     998.6     2167.5      1000    2167.5      1003     2167.6    1004.5
GR   2167.6     1012     2167.6    1013.5     2167.7      1015    2167.7      1021     2167.8    1022.5
GR   2167.8     1030     2167.9    1031.5     2167.9    1040.5      2168      1042       2168    1043.5
GR     2176     1045     2178.8    1055.5       2180      1060    2180.1    1061.5     2180.1      1063
GR   2180.4   1067.4     2180.4    1068.9     2180.7    1073.3    2180.7    1074.8       2181    1079.3
GR     2181   1080.7     2181.3    1085.2     2181.3    1086.7    2181.6    1091.1     2181.6    1092.6
GR   2181.9     1097     2181.9    1098.5       2182      1100

        2     1053       1053
     0.070    0.070      0.035        .3        .5
ET                          9.1                                                   984      1071
X1   1.129       68        992      1009       430       538       464
GR      2190      932     2189.8     933.5     2189.7       935    2189.3       938     2189.2     939.5
GR   2188.8    942.5     2188.7       944     2188.3       947    2188.2     948.5       2188       950
GR   2183.6    966.5       2180       980     2179.3     981.5    2178.5       983     2177.8     984.5
GR     2177      986     2176.3     987.5     2175.5       989    2174.8     990.5       2174       992
GR     2173     1000     2173.2    1001.5     2173.3      1003    2173.7      1006     2173.8    1007.5
GR     2174     1009     2174.9    1013.7     2175.1    1015.3      2176      1020     2176.1    1021.5
GR   2176.1     1023     2176.2    1024.5     2176.2      1026    2176.4      1029     2176.4    1030.5
GR   2176.5     1032     2176.5    1033.5     2176.6      1035    2176.6    1036.5     2176.8    1039.5
GR   2176.8     1041     2176.9    1042.5     2176.9      1044    2177.1      1047     2177.1    1048.5
GR   2177.2     1050     2177.2    1051.5     2177.4    1054.5    2177.4      1056     2177.5    1057.5
GR   2177.5     1059     2177.6    1060.5     2177.6      1062    2177.8      1065     2177.8    1066.5
GR   2177.9     1068     2177.9    1069.5     2178.1    1072.5    2178.5    1075.4     2178.6    1076.8
GR   2178.8   1078.3     2178.9    1079.8     2179.1    1081.2    2179.2    1082.7     2179.4    1084.2
GR   2179.5   1085.6     2179.9    1088.5       2180      1090

NC   0.060    0.060      0.024        .3        .5
ET                          9.1                                                   985      1094
             DOWNSTREAM CROSS SECTION OF 3-BARREL, 48" CORRUGATED METAL
             PIPE WITH HEADWALLS, CULVERT CROSSING AT MARIPOSA DRIVE
             UPSTREAM CROSS SECTION OF CULVERT CROSSING AT MARIPOSA DRIVE
X1   1.166       53        990     1009.5       184       178       193
     10
     2200      841     2199.3       845     2198.7       849    2197.3       857     2196.7       861
GR     2196     865     2195.6     868.9     2195.1     872.8    2194.7     876.7     2193.3     888.3
GR   2192.9   892.2     2192.4     896.1       2192       900    2191.1       912       2190       928
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	2189.2	932	2188.5	936	2186.1	948	2185.0	972	2184.5	982
GR	2177.7	990	2177.72	992	2178.13	1000	2178.36	1007.5	2179.3	1009.5
GR	2180.0	1012	2180.0	1016	2180.0	1020	2180.0	1028	2180.0	1032
GR	2180.0	1040	2180.0	1044	2180.0	1052	2180.0	1064	2180	1068
GR	2180	1072	2181.3	1087.3	2183.3	1110.3	2184.9	1129.6	2186	1145
GR	2188.7	1161.7	2190	1170	2190	1198	2190	1210	2190.8	1214.2
GR	2191.7	1218.3	2193.3	1226.7	2194.2	1230.8	2195.8	1239.2	2196.7	1243.3
GR	2198.3	1251.7	2199.2	1255.8	2200	1260				
SC	3.024	0.12	2.9	0	4.0	0	102	2.1	2179.32	2178.13
ET			9.1						898	1108
X1	1.185	51	990	1009.3	102	102	102			
X2	0	0	2	2183.32	2185.0	0	0	2.0	0	0
X3	10							2185.2	2185.2	
BT	-22	895	2188.0		899	2187.6		903	2187.6	
BT		907	2187.4		982	2185.6		990	2185.2	
BT		992	2185.2		1000	2185.0		1007.5	2185.1	
BT		1009.3	2185.2		1015	2185.3		1020	2186.4	
BT		1030	2185.5		1070	2186.3		1074	2186.4	
BT		1078	2186.7		1086	2186.9		1090	2187.1	
BT		1098	2187.3		1102	2187.4		1110	2187.7	
BT		1114	2187.9							
GR	2198	790	2197.3	793.9	2196.7	797.8	2195.3	805.6	2194.7	809.4
GR	2193.3	817.2	2192.7	821.1	2192	825	2191.4	837	2191.3	841
GR	2190.7	853	2190.6	857	2190	869	2189.7	873.3	2189.3	877.7
	2188.7	886.3	2188.3	890.7	2188	895	2186.9	899	2185.7	903
	2184.6	907	2184.8	982	2179.26	990	2179.26	992	2179.32	1000
GR	2179.2	1007.5	2179.19	1009.3	2181.5	1015	2181.5	1020.0	2181.5	1030
GR	2182	1070	2182.5	1074	2183.1	1078	2184.1	1086	2184.7	1090
GR	2185.7	1098	2186.3	1102	2187.3	1110	2187.9	1114	2188.9	1122
GR	2189.5	1126	2190	1130	2190.8	1134	2191.5	1138	2192.3	1142
GR	2193	1146	2193.8	1150	2194.5	1154	2195.3	1158	2196	1162
GR	2200	1200								
NC	0.065	0.065	0.035	.1	.3					
ET			9.1						893	1029
X1	1.231	67	990	1001.8	326	212	245			
GR	2190	875	2189.7	877.1	2189.3	879.2	2188.7	883.3	2188.3	885.4
GR	2187.7	889.6	2187.3	891.7	2186.7	895.8	2186.3	897.9	2186	900
GR	2185.9	902	2185.9	904	2185.6	910	2185.6	912	2185.4	916
GR	2185.4	918	2185.2	922	2185.2	924	2185	928	2185	930
GR	2184.8	934	2184.8	936	2184.5	942	2184.5	944	2184.3	948
GR	2184.3	950	2184.1	954	2184.1	956	2183.9	960	2183.9	962
GR	2183.6	968	2183.6	970	2183.5	972	2183.3	974	2183.2	976
GR	2182.8	980	2182.7	982	2182.3	986	2182.2	988	2182	990
GR	2182	1000	2182.1	1001.8	2182.3	1005.5	2182.3	1007.3	2182.5	1011
GR	2183	1013.1	2183.6	1015.1	2184.6	1019.3	2185.2	1021.4	2185.7	1023.4
GR	2186.3	1025.5	2187.3	1029.6	2187.9	1031.7	2188.9	1035.9	2189.5	1037.9
GR	2190	1040	2190.7	1042	2191.3	1044	2192.7	1048	2193.3	1050
GR	2194.7	1054	2195.3	1056	2196.7	1060	2197.3	1062	2198.7	1066
--	2199.3	1068	2200	1070						

WT	2	1023	1023							
ET			9.1						862	1021
X1	1.328	41	990.5	1009.5	400	568	508			
GR	2202	770	2200.4	782	2198.8	794	2198	800	2197.5	803.1
GR	2197.1	806.2	2196.1	812.3	2195.7	815.4	2194.3	824.6	2193.9	827.7
GR	2192.9	833.8	2192.5	836.9	2192	840	2191.2	852	2190.4	864
GR	2190	870	2189.9	873	2189.8	882	2189.7	885	2189.7	888
GR	2189.4	900	2189.3	909	2189.2	912	2189.2	915	2189	924
GR	2189	936	2189	948	2189	960	2189	972	2189	984.2
GR	2189	990.5	2189	1000	2189.5	1009.5	2190	1019	2191.4	1022
GR	2197.1	1034	2198.6	1037	2200	1040	2204	1052	2208	1064
GR	2210	1070								
NC	0.070	0.070	0.040	.1	.3					
ET			9.1						987	1150
X1	1.385	71	993.3	1031	243	347	302			
GR	2206	919	2205.8	921.9	2205.7	924.8	2205.3	930.7	2205.2	933.6
GR	2204.8	939.4	2204.7	942.3	2204.3	948.2	2204.2	951.1	2204	954
GR	2202	966.5	2200	979	2198.5	981.8	2197	984.5	2195.5	987.3
GR	2194	990	2193.7	993.3	2193.3	996.7	2193	1000	2193	1012.4
GR	2193	1024.8	2193	1031	2193.1	1034.1	2193.1	1037.1	2193.3	1043.3
GR	2193.3	1046.3	2193.4	1049.4	2193.4	1052.4	2193.6	1058.6	2193.6	1061.6
GR	2193.8	1067.8	2193.8	1070.8	2193.9	1073.9	2193.9	1076.9	2194.1	1083
GR	2194.1	1086	2194.3	1092	2194.3	1095	2194.4	1098	2194.4	1101
	2194.6	1107	2194.6	1110	2194.8	1116	2194.8	1119	2194.9	1122
	2194.9	1125	2195.1	1131	2195.1	1134	2195.3	1140	2195.3	1143
GR	2195.4	1146	2195.4	1149	2195.6	1155	2195.6	1158	2195.8	1164
GR	2195.8	1167	2195.9	1170	2195.9	1173	2196	1176	2196.4	1179.1
GR	2196.9	1182.2	2197.3	1185.3	2197.8	1188.4	2198.2	1191.6	2198.7	1194.7
GR	2199.1	1197.8	2199.6	1200.9	2200	1204	2200.3	1206.7	2200.7	1209.3
GR	2201	1212								
ET			9.1						947	1129
X1	1.470	43	992.5	1010	562	288	470			
GR	2200	920	2199.5	932.5	2199	945	2198.5	957.5	2198	970
GR	2198	972.5	2197.6	975	2197.6	977.5	2197.5	980	2197.5	985
GR	2197.7	987.5	2197.7	990	2197.6	992.5	2197.6	995	2197.5	997.5
GR	2197.5	1010	2197.7	1012.5	2197.8	1015	2197.8	1027.5	2197.8	1032.5
GR	2197.6	1035	2197.3	1037.5	2197.2	1040	2197.2	1042.5	2196.9	1050
GR	2196.8	1057.5	2196.6	1062.5	2196.6	1065	2196.3	1072.5	2196.3	1075
GR	2196.1	1080	2196.1	1082.5	2195.8	1090	2195.8	1092.5	2195.5	1100
GR	2195.6	1102.4	2195.6	1104.8	2195.8	1109.5	2195.8	1111.9	2196	1119
GR	2199.2	1129.4	2202.4	1139.8	2204	1145				
NC	0.070	0.070	0.035	.1	.3					
ET			9.1						856	1020
X1	1.551	62	991	1015	398	412	426			
GR	2210	809	2209.7	811.4	2209.3	813.8	2208.7	818.7	2208.3	821.1
GR	2207.7	825.9	2207.3	828.3	2206.7	833.2	2206.3	835.6	2206	838
GR	2205.8	840.6	2205.5	843.3	2205.3	845.9	2205	848.5	2204.8	851.1
	2204.5	853.8	2204.3	856.4	2204	859	2203.9	861.4	2203.9	863.9
GR	2203.8	866.3	2203.8	868.8	2203.7	871.2	2203.7	873.7	2203.6	876.1
GR	2203.6	878.6	2203.4	883.4	2203.4	885.9	2203.3	888.3	2203.3	890.8

	2203.2	893.2	2203.2	895.7	2203.1	898.1	2203.1	900.6	2203	903
GR	2203	920.2	2203	937.3	2203	952	2202.9	954.4	2202.9	956.9
GR	2202.8	959.3	2202.8	961.8	2202.6	966.6	2202.6	969.1	2202.4	973.9
GR	2202.4	976.4	2202.3	978.8	2202.3	981.3	2202.1	986.1	2202.1	988.6
GR	2202	991	2201.8	995.5	2201.6	997.8	2201.5	1000	2201.5	1010
GR	2201.8	1012.5	2202	1015	2203.3	1017.5	2204.7	1020	2207.3	1025
GR	2208.7	1027.5	2210	1030						
ET			9.1						937	1081
X1	1.621	65	994.3	1028.8	300	412	373			
GR	2220.5	840	2220.4	842.9	2220.4	845.7	2220.1	854.3	2220.1	857.1
GR	2220	860	2219.4	863.1	2218.9	866.1	2218.3	869.2	2217.8	872.2
GR	2217.2	875.3	2216.7	878.3	2216.1	881.4	2215.6	884.4	2214.4	890.6
GR	2213.9	893.6	2213.3	896.7	2212.8	899.7	2212.2	902.8	2211.7	905.8
GR	2211.1	908.9	2210.6	911.9	2210	915	2209.6	927	2209.2	939
GR	2208.8	950.8	2208.8	953.8	2208.4	965.4	2208.3	968.3	2208.3	971.3
GR	2207.9	982.9	2207.7	985.7	2207.6	988.6	2207.4	991.4	2207.3	994.3
GR	2207.1	997.1	2207	1000	2207	1011.4	2207	1020	2207.1	1022.9
GR	2207.1	1025.9	2207.2	1028.8	2207.2	1031.8	2207.4	1037.7	2207.4	1040.6
GR	2207.5	1043.5	2207.5	1046.5	2207.6	1049.4	2207.6	1052.3	2207.8	1058.2
GR	2207.8	1061.2	2207.9	1064.1	2207.9	1067.1	2208	1070	2208.4	1072.9
GR	2208.7	1075.8	2209.1	1078.7	2209.4	1081.6	2210.6	1090.4	2210.9	1093.3
GR	2211.3	1096.2	2211.6	1099.1	2212	1102	2216	1114.5	2220	1127
ET			9.1						979	1086
	1.689	61	992.5	1020	354	362	359			
	2227	891	2226.8	895.8	2226.6	898.1	2226.3	905.3	2226.1	907.6
GR	2226	910	2225.6	914.9	2225.3	917.3	2224.7	924.7	2224.4	927.1
GR	2224	932	2223.6	934.5	2223.3	937.1	2222.9	939.6	2222.6	942.2
GR	2221.4	949.8	2221.1	952.4	2220.7	954.9	2220.4	957.5	2220	960
GR	2216	972.5	2212	985	2211.8	987.5	2211.7	990	2211.5	992.5
GR	2211.3	995	2211.2	997.5	2211	1000	2211.1	1002.5	2211.1	1005
GR	2211.3	1010	2211.3	1012.5	2211.4	1015	2211.4	1017.5	2211.5	1020
GR	2211.5	1022.4	2211.6	1024.8	2211.6	1027.3	2211.7	1029.7	2211.7	1032.1
GR	2211.8	1034.5	2211.8	1039.3	2211.9	1041.8	2211.9	1044.2	2212	1046.6
GR	2212	1049	2212.1	1051.6	2212.3	1054.1	2212.6	1061.8	2212.8	1064.4
GR	2213.1	1072.1	2213.3	1074.6	2213.6	1082.3	2213.8	1084.9	2214	1090
GR	2220	1100	2222	1112.4	2224	1124.8	2226	1137.2	2228	1149.6
GR	2230	1162								
ET			9.1						974	1117
X1	1.803	43	992.4	1020	618	612	601			
GR	2235.5	848	2235.4	851.4	2235.2	854.7	2235.1	858.1	2234.7	868.2
GR	2234.3	878.3	2234.1	881.6	2233.6	892	2233	902.5	2232.4	913
GR	2231.8	923.5	2231.5	927	2231.3	930.5	2231	934	2230.8	937.5
GR	2230.5	941	2230.3	944.5	2230	948	2228.7	951.7	2227.3	955.3
GR	2226	959	2224	970	2222	981	2221.7	992.4	2221.5	1000
GR	2221.5	1013.3	2221.5	1020	2221.5	1033.6	2221.5	1044.6	2221.5	1055.4
GR	2221.5	1066.4	2221.5	1070	2221.6	1080.6	2221.8	1091.3	2221.9	1101.9
GR	2222	1109	2224	1122	2230	1132	2232.1	1142.3	2234.3	1152.6
	2236.4	1162.9	2238.6	1173.1	2240	1180				

```
ET                      9.1                                                968      1105
          DIP CROSSING AT OCOTILLA DRIVE (DIRT ROAD)
X1   1.848      53      996     1022.5     232     239     239
GR    2238     760    2237.7    764.2    2237.3   768.3   2236.7   776.7   2236.3   780.8
GR    2236     785    2235.6    792.8    2235.3   796.7   2234.7   808.3   2234.4   812.2
GR    2234     820     2234     840.8     2234    861.7    2234    885.6    2234     905
GR    2233     910    2232.6    913.8    2232.3   917.5   2231.1   928.8   2230.8   932.5
GR  2228.4     956     2228      960     2227.8    964    2227.5    968    2227.3    972
GR    2227     976    2226.8     980     2226.5    984    2226.3    988     2226     992
GR  2225.3     996    2224.5    1000     2224.6  1003.8   2224.6  1007.5   2224.8   1015
GR  2224.8  1018.8    2224.9  1022.5     2224.9  1026.3    2225    1030    2225.2  1033.7
GR  2225.3  1037.3    2225.7  1044.7     2225.8  1048.3    2226    1052    2226.4  1067.6
GR  2226.6  1071.4    2227.2  1094.8     2227.4  1102.6   2227.6  1106.4    2228    1122
GR  2228.9  1133.6    2229.1  1137.4      2230    1149

QT      2     982      982
ET                      9.1                                                938      1034
X1   1.898      67      995     1008.3     267     262     264
GR    2240     840    2239.8    842.5    2239.5   845     2239.3   847.5   2239     850
GR  2238.8   852.5    2238.5     855     2238.3  857.5    2238    860     2237.8  864.9
GR  2237.6   867.3    2237.3    874.6    2237.1  877.1   2236.8   884.4   2236.6  886.8
GR  2236.3   894.1    2236.1    896.6     2236    899     2234    909     2232    920
GR  2231.4   927.6    2231.3    930.2    2230.7  937.8   2230.6   940.4   2230    948
GR  2228.6   952.9    2228.9    955.4    2228.3  957.8   2228.9   962.7   2228.2  965.2
    2228.6   967.6    2228.9    970.1    2228.3  977.5    2228    980     2228.8  982.5
    2228.5     985    2228.3    987.5     2228    990    2228.9   992.5    2228    995
GR  2227.6   997.5    2227.5     1000    2227.6  1002.8   2227.6  1005.5   2227.8  1008.3
GR  2227.9    1011    2227.9    1013.4    2228   1015.8   2228.2  1018.1   2228.3  1020.5
GR  2228.7  1022.9    2229.3    1027.6    2229.7   1030    2230    1032.6   2231.7  1035.2
GR  2233.3  1040.3    2234.2    1042.9    2235.8  1048.1   2236.7  1050.7   2238.3  1055.8
GR  2239.2  1058.4     2240      1061     2240.3  1063.3   2240.7  1065.7   2241.3  1070.3
GR  2241.7  1072.7     2242      1075

ET                      9.1                                                939      1026
X1   1.935      35     992.3    1010.8     184     198     193
GR    2242     891    2240.8    901.5     2240    909     2236    921     2234.8  931.5
GR  2233.9   940.5    2233.3    952.7     2233    958.7   2232.4   970.9   2232    972.4
GR    2232   975.4    2231.8    978.5    2231.8   980     2231.3   983.1   2231    992.3
GR  2230.8   996.9    2230.5    998.5    2230.5  1003.1   2230.6  1009.2   2230.8  1010.8
GR  2231.8  1012.3    2231.8    1018.5    2232    1020    2232.5  1021.5   2233.1  1022.9
GR  2234.1  1025.9    2234.7    1027.3   2235.7  1030.3   2236.3  1031.7   2237.3  1034.7
GR  2237.9  1036.1    2238.9    1039.1   2239.5  1040.5   2247.2  1061.5    2250    1069

QT      2     920      920
ET                      9.1                                                974      1065
X1   1.998      47     992.7     1012     290     358     335
GR    2248     885    2247.6    892.8    2247.4  894.7   2246.6   910.3   2246.4  912.2
GR    2246     920     2244      929     2242    950     2237.6   971.4   2234    989
GR  2233.8   990.8    2233.7    992.7    2233.3  996.3   2233.2   998.2   2233    1000
    2233.4    1008    2233.4     1010    2233.6  1012    2233.6   1014    2234.4  1030.2
    2234.6  1032.3    2235.4    1048.7   2235.6  1050.8   2236    1059    2236.3  1060.8
GR  2236.7  1062.7    2237.3    1066.3   2237.7  1068.2   2238.3  1071.9   2238.5  1073.8
GR  2238.8  1075.6     2239     1077.5   2239.3  1079.4   2239.5  1081.3   2239.8  1083.1
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	2240	1085	2240.3	1087	2240.5	1089	2241.1	1093	2241.3	1095
GR	2241.9	1099	2242.1	1101	2242.7	1105	2242.9	1107	2243.5	1111
GR	2243.7	1113	2244	1115						
QT	2	857	857							
ET			9.1						978	1043
X1	2.093	59	987.5	1018.3	575	445	498			
GR	2270	910	2268.9	912.4	2267.8	914.9	2266.7	917.3	2265.6	919.8
GR	2264.4	922.2	2263.3	924.7	2262.2	927.1	2261.1	929.6	2260	932
GR	2259.2	934.5	2258.3	937	2256.7	942	2255.8	944.5	2254.2	949.5
GR	2253.3	952	2251.7	957	2250.8	959.5	2250	962	2248.6	964.6
GR	2247.1	967.1	2242.9	974.9	2241.4	977.4	2240	980	2238.5	987.5
GR	2238	990	2238	1011	2238.2	1013.4	2238.3	1015.8	2238.5	1018.3
GR	2238.7	1020.7	2238.8	1023.1	2239.2	1027.9	2239.3	1030.3	2239.7	1035.2
GR	2239.8	1037.6	2240	1040	2240.8	1042.5	2241.7	1045	2243.3	1050
GR	2244.2	1052.5	2245.8	1057.5	2246.7	1060	2248.3	1065	2249.2	1067.5
GR	2250	1070	2252	1082	2254	1093	2254.9	1100.3	2255.1	1102.7
GR	2256	1110	2256.4	1114.9	2256.7	1117.3	2257.3	1124.7	2257.6	1127.1
GR	2258	1132	2258.9	1139.7	2259.1	1142.3	2260	1150		
ET			9.1						976	1017
X1	2.182	51	986	1009	478	495	473			
GR	2264	905	2262.7	913.3	2260.7	925.8	2259.6	932	2258.6	936.1
GR	2258.2	938.2	2257.7	940.2	2257.3	942.3	2256.8	944.3	2256.4	946.4
GR	2255.4	950.5	2254.6	954.5	2253.6	958.6	2253.2	960.7	2252.7	962.7
	2252.3	964.8	2251.8	966.8	2251.4	968.9	2250.4	973	2250	975
[illegible]	2246	982	2245.9	984	2245.9	986	2245.8	988	2245.8	990
GR	2245.7	992	2245.7	994	2245.5	1000	2245.6	1002.3	2245.8	1004.5
GR	2246	1009	2246.7	1010.8	2247.3	1012.7	2248.7	1016.3	2249.3	1018.2
GR	2250	1020	2252.1	1026.2	2257.1	1040.7	2260	1049	2263.1	1058.7
GR	2263.8	1060.6	2265.6	1066.4	2268.1	1074.2	2268.8	1076.1	2270	1080
GR	2271.4	1084	2272.2	1086	2273.6	1090	2275.8	1096	2276.6	1098
GR	2278	1102								
NC	0.070	0.070	0.040	.1	.3					
ET			9.1						985	1034
X1	2.271	40	994.3	1009.2	400	495	467			
GR	2266	908	2265.6	914	2265.6	915.5	2265.4	917	2265.1	923
GR	2264.7	929	2264.6	932	2264.4	933.5	2264.1	939.5	2263.9	942.5
GR	2263.5	945.4	2262.9	951.2	2262.3	957.1	2261.7	962.9	2261.1	968.8
GR	2260.5	974.6	2260.1	977.5	2260	979	2257.4	983.7	2254	990
GR	2253.6	994.3	2253	1000	2253.3	1006.2	2253.5	1009.2	2253.8	1015.4
GR	2254	1020	2255	1026	2256	1032	2256.6	1033.4	2257.1	1034.9
GR	2258.9	1039.1	2259.4	1040.6	2260	1042	2261.8	1048	2263.6	1054
GR	2264.6	1057	2265.4	1060	2266.4	1063	2268.2	1069	2270	1075
ET			9.1						979	1034
X1	2.311	10	983	1012	300	285	310			
GR	2280.0	955	2270.0	973	2260.3	983	2260.0	1000	2262.0	1012
GR	2264.0	1040	2266.0	1075	2268.0	1118	2270.0	1145	2280.0	1236

ET			9.1						978	1039
X1	2.388	67	988.5	1010	300	285	307			
GR	2276	928	2275.9	929.5	2275.7	930.9	2275.5	933.9	2275.3	935.3
GR	2275.1	938.3	2274.9	939.7	2274.7	942.7	2274.5	944.1	2274.3	947.1
GR	2274.1	948.5	2274	950	2273.8	951.5	2273.5	953	2273.3	954.5
GR	2273	956	2272.8	957.5	2272.5	959	2272.3	960.5	2272	962
GR	2271.6	964.9	2271.3	966.3	2270.7	970.7	2270.4	972.1	2270	975
GR	2269.6	976.5	2268.6	979.5	2267.8	982.5	2267.3	984	2266.9	985.5
GR	2265.9	988.5	2265.5	990	2265.5	1000	2265.6	1001.4	2265.6	1002.9
GR	2265.9	1007.1	2265.9	1008.6	2266	1010	2266.1	1011.5	2266.3	1013
GR	2266.4	1014.5	2266.6	1016	2266.7	1017.5	2266.9	1019	2267.1	1022
GR	2267.3	1023.5	2267.4	1025	2267.6	1026.5	2267.7	1028	2267.9	1029.5
GR	2268	1031	2268.6	1035.6	2268.7	1037.2	2269.3	1041.8	2269.4	1043.4
GR	2270	1048	2270.5	1049.5	2270.9	1051.1	2272.9	1057.1	2273.3	1058.7
GR	2274.8	1063.2	2275.2	1064.8	2276.7	1069.3	2277.1	1070.9	2279.1	1076.9
GR	2279.5	1078.5	2280	1080						
ET			9.1						906	1013
X1	2.466	51	990	1005.8	392	382	413			
GR	2280	791	2279.2	806	2279.1	809	2278.9	812	2278.8	815
GR	2278.1	827	2277.9	833	2277.7	836	2277.6	839	2277.4	842
GR	2277.3	845	2276.6	860	2276.4	863	2276.3	866	2275.9	874.9
GR	2275.5	880.8	2275.4	883.7	2275.2	886.6	2274.8	895.4	2274.6	898.3
GR	2274	910	2272.8	915.5	2271.5	921	2271.5	935	2272.1	954
	2272.3	963	2272.3	966	2272.5	975	2272	990	2271	1000
.	2271.8	1002.9	2272.5	1005.8	2278.5	1029.2	2279.3	1032.1	2280	1035
GR	2280.8	1037.9	2281.7	1040.8	2283.3	1046.7	2284.2	1049.6	2285.8	1055.4
GR	2286.7	1058.3	2288.3	1064.2	2289.2	1067.1	2290.8	1073.1	2291.5	1076.2
GR	2293.9	1085.4	2294.6	1088.5	2295.4	1091.5	2298.5	1103.8	2299.2	1106.9
GR	2300	1110								
ET			9.1						979	1051
X1	2.560	51	991	1018.5	398	541	496			
GR	2300	829	2299.4	834.9	2298.8	840.9	2298.2	846.8	2297.6	852.8
GR	2297.1	858.7	2296.5	864.7	2295.9	870.6	2295.3	876.5	2294.7	882.5
GR	2294.1	888.4	2293.5	894.3	2292.9	900.3	2292.4	906.2	2291.8	912.2
GR	2291.2	918.1	2290.6	924.1	2290	930	2289.6	935.8	2289.2	941.6
GR	2288.8	947.4	2288.4	953.2	2288	959	2286.2	964.8	2284.4	970.6
GR	2282.7	976.3	2280.9	982.1	2280	985	2279.6	991	2279.2	997
GR	2279	1000	2279.1	1003.1	2279.1	1006.2	2279.3	1012.3	2279.5	1018.5
GR	2279.6	1024.6	2279.8	1030.8	2279.9	1033.8	2279.9	1036.9	2280	1040
GR	2280.9	1045.9	2281.8	1051.8	2282.7	1057.7	2283.6	1063.6	2284.6	1069.6
GR	2285.4	1075.4	2286.4	1081.4	2287.3	1087.3	2288.2	1093.2	2289.1	1099.1
GR	2290	1105								
QT	2	737	737							
NC	0.070	0.070	0.035	0.1	0.3					
ET			9.1						958	1025
X1	2.625	55	991.2	1015	410	310	345			
[illegible]	2290	935.3	2289.8	936.8	2289.8	938.3	2289.7	939.7	2289	942.7
	2289.4	944.1	2289.6	945.6	2288.4	947.1	2287.6	950	2287	952.9
GR	2286.8	954.4	2286.4	955.9	2285.8	960.3	2285.5	961.8	2285.1	963.2
GR	2284.8	964.7	2284.5	967.7	2284.4	970.6	2284.1	973.5	2284.1	975

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     2284     977.9    2283.8     979.4    2283.8     980.9    2283.7     982.3    2283.7     983.8
GR  2283.5     986.8    2283.5     989.7    2283.4     991.2    2283.2     994.1    2283.2     995.6
GR  2283.1     998.5    2282.8      1000    2282.8      1003    2282.9    1007.5      2283      1009
GR    2283      1012    2283.2    1013.5    2283.5      1015    2283.7    1016.6    2284.4    1019.6
GR  2284.9    1021.1    2285.6    1022.6    2286.4    1025.7    2287.3    1027.2    2287.7    1028.7
GR    2288    1030.2      2289    1031.8    2289.4    1033.3      2290    1034.8      2290    1036.3
GR  2291.8    1037.8      2295    1042.4    2297.8      1047      2299    1048.5      2300      1050

ET                        9.1                                                   970      1094
X1   2.655        45       993      1015       115       168       156
GR    2296       865    2295.4       870    2295.2     872.5    2294.6     877.5    2293.8       885
GR  2293.6     887.5    2292.4     897.5    2292.2       900    2291.6       905    2290.8     912.5
GR  2290.6       915      2290       920    2289.6       930    2289.4     932.5    2288.9       945
GR  2288.6     952.5    2288.4       955      2288       965    2287.3     972.9      2287     975.5
GR  2286.3     983.4    2285.8     988.3    2285.7     990.7    2285.5       993    2285.3     995.3
GR  2285.2     997.7      2285      1000    2285.3    1007.5    2285.3      1010    2285.5      1015
GR  2285.8    1022.5    2285.8      1025    2286.1    1032.5    2286.3      1040    2286.3    1042.5
GR  2286.5      1050    2286.4    1052.5    2286.3      1060    2286.1      1065    2286.1    1067.5
GR  2285.8      1075    2285.5      1080      2286      1090      2290      1100      2300      1102

ET                        9.1                                                   975      1058
                JUST UPSTREAM OF A TRIBUTARY WASH WHICH CONTRIBUTES
                APPROXIMATELY 169 CFS.
X1   2.720        14       980      1048       280       390       344
GR  2310.0       874    2300.0       932    2292.0       980    2290.5      1000    2292.0      1048
    2294.0      1072    2296.0      1104    2298.0      1118    2300.0      1130    2302.0      1138
    2304.0      1140    2306.0      1155    2308.0      1168    2310.0      1172

ET                        9.1                                                   889      1029
X1   2.813        12       970      1022       580       420       490
GR  2310.0       665    2308.0       716    2306.0       735    2304.0       774    2302.0       780
GR  2300.0       850    2298.0       945    2297.4       970    2297.1      1000    2298.0      1022
GR  2300.0      1034    2310.0      1074

ET                        9.1                                                   977      1095
X1   2.901        13       975      1030       440       475       470
GR  2314.0       890    2312.0       902    2310.0       918    2308.0       942    2306.0       975
GR  2304.0      1000    2304.6      1030    2304.3      1075    2306.0      1097    2308.0      1112
GR  2310.0      1124    2312.0      1138    2314.0      1155

ET                        9.1                                                   974      1123
X1   2.981        19     983.6      1012       408       432       420
GR  2328.0       832    2326.0       865    2324.0       883    2322.0       900    2320.0       918
GR  2318.0     934.4    2316.0     950.8    2314.0     967.2    2312.0     983.6    2310.0      1000
GR  2312.0      1012    2312.3      1031    2312.0      1060    2311.7      1087    2312.0      1111
GR  2314.0      1132    2316.0      1143    2318.0      1270    2320.0      1282

ET                        9.1                                                   899      1128
X1   3.081        14       975      1045       412       435       430
GR  2330.0       830    2320.0       898    2319.1       915    2319.3       932    2319.1       950
    2319.3       975    2318.0      1000    2319.1      1045    2319.4      1098    2320.0      1132
    2322.0      1146    2324.0      1155    2326.0      1167    2328.0      1180
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ET                          9.1                                                   862      1169
X1    3.136        19       988      1010       320       330       335
GR   2340.0       660    2330.0       765    2328.0       812    2326.0       837    2324.0       858
GR   2323.3       890    2323.6       952    2322.0       988    2322.0      1000    2322.0      1010
GR   2324.0      1055    2324.2      1070    2324.0      1100    2322.0      1115    2322.0      1142
GR   2324.0      1170    2326.0      1200    2330.0      1213    2334.0      1242

ET                          9.1                                                   882      1133
             EXISTING 18" CORRUGATED METAL PIPE WITH NEGLIGIBLE CAPACITY,
             HENCE, THE PIPE IN NOT MODELLED WITH SPECIAL CULVERT ROUTINE.
X1    3.163        13       967      1030       195       195       195
GR   2340.0       680    2330.0       800    2328.0       828    2327.5       878    2327.4       934
GR   2326.4       967    2326.2      1000    2326.3      1030    2326.4      1075    2328.0      1160
GR   2329.6      1202    2330.0      1292    2340.0      1485

ET                          9.1                                                   888      1078
X1    3.197        10       980      1010       180       180       180
GR   2340.0       780    2330.0       885    2328.0       980    2328.0      1000    2328.0      1010
GR   2330.0      1080    2332.0      1102    2334.0      1122    2336.0      1143    2338.0      1162
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV= .100 CEHV= .300
*SECNO .667

THE STATIONING FOR WASH AE-SUNNY COVE WASH IS BASED ON MILES
ABOVE THE CONFLUENCE WITH WASH AD-SUNSET WASH. THE CONFLUENCE
OF WASH AD-SUNSET AND WASH AE-SUNNY COVE IS LOCATED SOUTHWEST
OF THE INTERSECTION OF LINCOLN STREET AND CENTER STREET.
THE TOP OF THE DAM IS AT STATION 0.590+/-, AND HAS A LOW-
POINT ELEVATION OF 2180.2. THE EMERGENCY SPILLWAY ELEVATION
IS APPROXIMATELY 2178.0+/-.
THIS HEC-2 ANALYSIS IS FOR THE PORTION OF WASH AE-SUNNY COVE
WASH THAT IS UPSTREAM OF THE RECENTLY COMPLETED FLOOD CONTROL
DAM LOCATED APPROXIMATELY 850 FEET WEST OF KELLIS ROAD AND
APPROXIMATELY ONE HALF OF A MILE SOUTH OF U.S. HWY 60.
THE STUDY BEGINS AT CROSS SECTION 0.667, WHICH IS APPROXIMATELY
410 FEET UPSTREAM OF THE DAM.
THIS ANALYSIS WAS STARTED USING THE 100-YEAR WATER SURFACE
ELEVATION (2155.0) OF THE PONDING AREA AT THE FLOOD CONTROL DAM.
THE 100-YEAR PEAK DISCHARGE THAT IMPACTS THE DAM IS 1232 CFS.

.667	22.00	2155.00	2136.01	2155.00	2155.01	.01	.00	.00	2133.50
1232.0	336.4	700.3	195.3	965.5	804.6	577.8	.0	.0	2133.50
.00	.35	.87	.34	.060	.030	.060	.000	2133.00	907.00
.000005	0.	0.	0.	0	16	0	.00	157.50	1064.50

FLOW DISTRIBUTION FOR SECNO= .67 CWSEL= 2155.00

STA=	907.	948.	955.	963.	968.	975.	985.	1022.	1030.	1043.	1059.	1065.
PER Q=	4.4	3.1	3.9	3.1	5.4	7.4	56.8	5.9	6.8	3.0	.1	
AREA=	252.6	113.4	132.0	97.4	157.0	213.1	804.6	170.0	234.0	160.0	13.8	
VEL=	.2	.3	.4	.4	.4	.4	.9	.4	.4	.2	.1	
DEPTH=	6.2	15.3	17.6	19.5	20.9	21.3	21.7	21.3	18.0	10.0	2.5	

*SECNO .726

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

.726	15.99	2154.99	2143.68	.00	2155.02	.03	.00	.01	2140.50
1180.0	230.4	648.3	301.3	360.8	370.7	460.3	12.7	1.0	2140.70
.07	.64	1.75	.65	.060	.030	.060	.000	2139.00	951.01
.000033	240.	315.	402.	1	21	0	.00	126.62	1077.63

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

FLOW DISTRIBUTION FOR SECNO= .73 CWSEL= 2154.99

STA=	951.	970.	978.	985.	993.	995.	1019.	1025.	1030.	1035.	1040.	1048.	1058.
PER Q=	3.1	3.3	4.6	6.1	2.4	54.9	5.3	4.8	3.9	3.2	3.7	3.1	
AREA=	85.7	65.0	80.0	95.0	35.2	370.7	75.6	70.6	61.6	55.0	70.0	70.0	
VEL=	.4	.6	.7	.8	.8	1.7	.8	.8	.7	.7	.6	.5	
DEPTH=	4.5	8.7	10.7	12.7	14.1	15.3	14.0	13.3	12.3	11.0	9.3	7.0	

STA=	1058.	1078.
PER Q=	1.6	
AREA=	57.6	
VEL=	.3	
DEPTH=	2.9	

*SECNO .795

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .32

.795	7.57	2154.97	2150.27	.00	2155.06	.09	.03	.02	2147.90
1087.0	91.8	596.5	398.7	74.1	191.6	299.3	19.8	1.9	2147.60
.11	1.24	3.11	1.33	.060	.030	.060	.000	2147.40	967.03
.000276	332.	365.	360.	2	25	0	.00	100.31	1067.34

FLOW DISTRIBUTION FOR SECNO= .80 CWSEL= 2154.97

STA=	967.	972.	980.	982.	1008.	1033.	1043.	1067.
PER Q=	.7	5.8	1.9	54.9	25.2	7.3	4.1	
AREA=	12.3	47.7	14.0	191.6	179.2	59.7	60.5	
VEL=	.6	1.3	1.5	3.1	1.5	1.3	.7	
DEPTH=	2.5	6.0	7.0	7.4	7.2	6.0	2.5	

*SECNO .848

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .21

.848	3.11	2154.61	2154.30	.00	2155.51	.90	.20	.24	2152.00
1087.0	41.6	1011.2	34.1	15.1	128.6	13.2	22.0	2.4	2152.00
.12	2.75	7.87	2.59	.060	.030	.060	.000	2151.50	947.41
.006231	320.	279.	230.	3	18	0	.00	63.61	1011.02

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

FLOW DISTRIBUTION FOR SECNO= .85 CWSEL= 2154.61

STA=	947.	955.	957.	1002.	1010.	1011.
PER Q=	2.0	1.8	93.0	3.1	.0	
AREA=	9.9	5.2	128.6	12.9	.3	
VEL=	2.2	3.7	7.9	2.6	.8	
DEPTH=	1.3	2.6	2.9	1.6	.3	

*SECNO .892
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DIP CROSSING AT SURFACED ROAD

.892	3.14	2158.14	2158.14	.00	2159.42	1.28	1.69	.11	2155.50
1087.0	41.7	930.4	114.9	11.2	96.0	33.0	22.8	2.8	2155.50
.13	3.72	9.69	3.48	.060	.030	.060	.000	2155.00	970.39
.008680	170.	231.	270.	0	5	0	.00	58.83	1029.22

FLOW DISTRIBUTION FOR SECNO= .89 CWSEL= 2158.14

A=	970.	972.	974.	976.	1008.	1009.	1011.	1015.	1025.	1027.	1029.
PER Q=	.3	1.6	1.9	85.6	2.0	1.8	3.0	3.7	.1	.0	
AREA=	1.7	4.5	5.0	96.0	4.9	4.6	8.3	13.9	.9	.3	
VEL=	1.7	3.9	4.2	9.7	4.4	4.2	4.0	2.9	1.3	.6	
DEPTH=	1.1	2.2	2.5	3.0	2.6	2.4	2.2	1.4	.4	.1	

*SECNO .939
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.939	2.64	2162.14	2162.14	.00	2163.18	1.04	2.55	.02	2159.70
1087.0	142.6	579.9	364.5	30.8	55.9	80.6	23.7	3.2	2159.70
.14	4.62	10.38	4.52	.060	.030	.060	.000	2159.50	976.80
.012690	250.	248.	236.	0	15	0	.00	81.65	1058.45

FLOW DISTRIBUTION FOR SECNO= .94 CWSEL= 2162.14

STA=	977.	986.	990.	992.	1014.	1018.	1026.	1036.	1040.	1044.	1052.	1058.
PER Q=	6.8	4.2	2.2	53.3	4.5	8.5	10.2	3.7	3.1	3.0	.4	
AREA=	16.8	9.3	4.8	55.9	9.8	18.8	22.9	8.7	7.8	10.0	2.8	
VEL=	4.4	4.9	5.0	10.4	5.1	4.9	4.8	4.7	4.3	3.3	1.7	
DEPTH=	1.8	2.3	2.4	2.5	2.4	2.4	2.3	2.2	1.9	1.3	.4	

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

*SECNO 1.041
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DIP CROSSING AT DIRT ROAD

1.041	2.92	2170.42	2170.42	.00	2171.53	1.11	6.49	.02	2168.10
1087.0	114.6	539.8	432.6	31.6	49.3	82.8	25.6	4.1	2167.60
.16	3.63	10.95	5.23	.060	.030	.060	.000	2167.50	969.91
.012503	670.	540.	430.	0	8	0	.00	74.04	1043.95

FLOW DISTRIBUTION FOR SECNO= 1.04 CWSEL= 2170.42

STA=	970.	986.	991.	994.	1012.	1015.	1021.	1030.	1041.	1044.	1044.
PER Q=	3.9	4.0	2.7	49.7	4.2	8.1	11.5	12.5	3.4	.1	
AREA=	14.8	10.5	6.4	49.3	8.4	16.3	23.7	26.5	7.3	.5	
VEL=	2.8	4.1	4.7	10.9	5.5	5.4	5.3	5.1	5.0	1.0	
DEPTH=	.9	1.8	2.2	2.8	2.8	2.7	2.6	2.5	2.4	1.2	

CCHV= .300 CEHV= .500
*SECNO 1.129
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.129	4.96	2177.96	2177.96	.00	2179.16	1.20	4.75	.04	2174.00
1053.0	50.0	768.7	234.3	15.5	75.8	81.4	27.5	5.0	2174.00
.17	3.24	10.14	2.88	.070	.035	.070	.000	2173.00	984.16
.007855	430.	464.	538.	0	14	0	.00	86.20	1070.36

FLOW DISTRIBUTION FOR SECNO= 1.13 CWSEL= 2177.96

STA=	984.	992.	1009.	1014.	1020.	1029.	1040.	1070.
PER Q=	4.8	73.0	6.7	5.3	4.2	3.3	2.7	
AREA=	15.4	75.8	16.5	16.0	16.0	14.7	18.2	
VEL=	3.2	10.1	4.3	3.5	2.8	2.4	1.6	
DEPTH=	2.0	4.5	3.5	2.5	1.8	1.4	.6	

CCHV= .300 CEHV= .500
*SECNO 1.166
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DOWNSTREAM CROSS SECTION OF 3-BARREL, 48" CORRUGATED METAL

PIPE WITH HEADWALLS, CULVERT CROSSING AT MARIPOSA DRIVE
UPSTREAM CROSS SECTION OF CULVERT CROSSING AT MARIPOSA DRIVE

1.166	4.14	2181.83	2181.83	.00	2182.87	1.03	1.09	.05	2177.70
1053.0	22.4	709.8	320.8	10.1	72.5	135.3	28.4	5.4	2179.30
.18	2.23	9.80	2.37	.060	.024	.060	.000	2177.70	985.14
.004415	184.	193.	178.	0	15	0	.00	108.32	1093.45

FLOW DISTRIBUTION FOR SECNO= 1.17 CWSEL= 2181.83

STA=	985.	990.	1010.	1016.	1028.	1040.	1052.	1064.	1072.	1087.	1093.
PER Q=	2.1	67.4	3.1	5.2	5.2	5.2	5.2	3.4	3.2	.1	
AREA=	10.1	72.5	12.8	22.0	22.0	22.0	22.0	14.7	18.1	1.6	
VEL=	2.2	9.8	2.6	2.5	2.5	2.5	2.5	2.5	1.8	.7	
DEPTH=	2.1	3.7	2.0	1.8	1.8	1.8	1.8	1.8	1.2	.3	

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	.024	.12	2.90	.00	4.00	.00	102.00	2	1	2179.32	2178.13

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

0, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
0, EGIC= 2211.63..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 2204.34 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 1.185

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 2187.13

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.92

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
2211.63	2204.34	4.27	619.	436.	3.285	37.7	2185.00	173.

1.185	7.86	2187.05	.00	.00	2187.13	.09	4.27	.00	2179.26
1053.0	143.4	493.5	416.1	227.0	150.2	429.1	29.5	5.8	2179.19
.20	.63	3.29	.97	.060	.024	.060	.000	2179.19	898.45
.000182	102.	102.	102.	2	0	0	.00	209.54	1108.00

FLOW DISTRIBUTION FOR SECNO= 1.18 CWSEL= 2187.05

=	898.	982.	990.	1009.	1015.	1030.	1070.	1078.	1098.	1108.
PER Q=	10.3	3.3	46.9	4.1	8.3	20.5	3.1	3.3	.2	
AREA=	186.8	40.2	150.2	38.2	83.2	212.0	36.2	53.0	6.4	
VEL=	.6	.9	3.3	1.1	1.0	1.0	.9	.7	.3	
DEPTH=	2.2	5.0	7.8	6.7	5.5	5.3	4.5	2.6	.6	

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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 1.231

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .31

    1.231      5.08   2187.08   2185.43       .00   2187.28       .19       .11       .03   2182.00
   1053.0     519.8     327.0     206.1     250.2      60.0      84.8      33.2       6.9   2182.10
      .22      2.08      5.45      2.43      .065      .035      .065      .000   2182.00    893.14
  .001888      326.      245.      212.         2        18         0       .00    135.60   1028.74


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   2187.08

STA=     893.     918.     930.     942.     950.     956.     962.     968.     972.     976.     980.     986.     990.
  PER Q=      3.3      3.4      4.6      3.9      3.4      3.8      4.2      3.1      3.4      3.9      6.9      5.4
   AREA=     29.1     23.1     28.0     21.5     17.5     18.7     20.0     14.1     15.1     16.4     27.0     19.7
    VEL=      1.2      1.5      1.7      1.9      2.0      2.1      2.2      2.3      2.4      2.5      2.7      2.9
  DEPTH=      1.2      1.9      2.3      2.7      2.9      3.1      3.3      3.5      3.8      4.1      4.5      4.9

  \=     990.    1002.    1006.    1011.    1015.    1021.    1029.
  PER Q=     31.1      4.9      6.9      3.9      3.1       .7
   AREA=     60.0     18.1     26.0     16.7     17.2      6.8
    VEL=      5.5      2.9      2.8      2.5      1.9      1.1
  DEPTH=      5.1      4.9      4.7      4.1      2.7       .9

*SECNO 1.328
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    1.328      1.49   2190.49   2190.49       .00   2191.09       .60      2.15       .12   2189.00
   1023.0     757.5     241.7      23.8     154.4      25.9       7.3      36.1       8.3   2189.50
      .24      4.91      9.33      3.27      .065      .035      .065      .000   2189.00    862.66
  .031921      400.      508.      568.         0        14         0       .00    157.38   1020.05


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   2190.49
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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

STA=     863.     885.     900.     909.     915.     924.     936.     948.     960.     972.     984.     991.    1010.
  PER Q=     3.2      5.1      4.5      3.5      6.2      9.3      9.3      9.3      9.3      9.5      4.9     23.6
   AREA=    11.4     13.6     10.3      7.6     12.5     17.9     17.9     17.9     17.9     18.2      9.4     25.9
    VEL=     2.8      3.8      4.5      4.8      5.1      5.3      5.3      5.3      5.3      5.3      5.3      9.3
  DEPTH=      .5       .9      1.1      1.3      1.4      1.5      1.5      1.5      1.5      1.5      1.5      1.4

STA=    1010.    1020.
  PER Q=     2.3
   AREA=     7.3
    VEL=     3.3
  DEPTH=      .7

CCHV=     .100 CEHV=     .300
*SECNO 1.385

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

     1.385      2.44   2195.44   2195.12       .00   2195.89       .45      4.78       .02   2193.70
    1023.0      17.9     592.8     412.3       7.1      89.4     142.8      37.6       9.4   2193.00
       .25      2.54      6.63      2.89      .070      .040      .070      .000   2193.00    987.43
   .010088      243.      302.      347.         5        11         0       .00    162.46   1149.89


FLOW DISTRIBUTION FOR SECNO=      1.38          CWSEL=   2195.44

STA=     987.     993.    1031.    1037.    1043.    1049.    1059.    1068.    1077.    1086.    1098.    1119.    1150.
  PER Q=     1.7     57.9      5.3      4.9      4.4      5.9      4.9      4.1      3.3      3.2      3.2      1.0
   AREA=     7.1     89.4     14.4     13.8     12.8     18.1     16.2     14.4     12.7     14.0     17.4      9.0
    VEL=     2.5      6.6      3.8      3.6      3.5      3.3      3.1      2.9      2.7      2.4      1.9      1.1
  DEPTH=     1.2      2.4      2.4      2.2      2.1      2.0      1.8      1.6      1.4      1.2       .8       .3

*SECNO 1.470
     1.470      3.39   2198.89   2198.01       .00   2199.06       .17      3.14       .03   2197.60
    1023.0      71.2      95.0     856.8      37.5      23.9     257.7      39.8      10.8   2197.50
       .29      1.90      3.98      3.32      .070      .040      .070      .000   2195.50    947.85
   .007580      562.      470.      288.         6         8         0       .00    180.53   1128.38


FLOW DISTRIBUTION FOR SECNO=      1.47          CWSEL=   2198.89
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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

STA=	948.	980.	993.	1010.	1028.	1040.	1050.	1058.	1063.	1073.	1080.	1090.	1100.
PER Q=	3.5	3.5	9.3	3.8	3.5	4.8	4.4	3.3	7.8	6.9	10.6	12.5	
AREA=	21.3	16.2	23.9	19.6	16.1	18.0	15.3	10.9	24.0	19.9	29.0	32.0	
VEL=	1.7	2.2	4.0	2.0	2.2	2.7	3.0	3.1	3.3	3.5	3.8	4.0	
DEPTH=	.7	1.3	1.4	1.1	1.3	1.8	2.0	2.2	2.4	2.7	2.9	3.2	

STA=	1100.	1102.	1105.	1110.	1119.	1128.
PER Q=	3.2	3.1	5.9	10.8	3.0	
AREA=	8.0	7.9	15.0	28.6	13.5	
VEL=	4.1	4.1	4.0	3.9	2.3	
DEPTH=	3.3	3.3	3.2	3.0	1.4	

CCHV= .100 CEHV= .300
*SECNO 1.551

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.551	2.76	2204.26	2204.26	.00	2204.94	.68	3.85	.15	2202.00
1023.0	466.7	543.5	12.8	163.8	62.5	4.8	42.4	12.4	2202.00
.30	2.85	8.70	2.64	.070	.035	.070	.000	2201.50	856.75
.011743	398.	426.	412.	0	15	0	.00	162.46	1019.21

FLOW DISTRIBUTION FOR SECNO= 1.55 CWSEL= 2204.26

STA=	857.	891.	903.	920.	937.	952.	962.	969.	976.	981.	986.	991.	1015.
PER Q=	3.5	3.3	5.7	5.7	4.9	3.8	3.6	4.3	3.3	3.6	4.1	53.1	
AREA=	20.2	13.5	21.7	21.5	18.5	13.6	11.6	13.1	9.5	9.9	10.7	62.5	
VEL=	1.8	2.5	2.7	2.7	2.7	2.9	3.1	3.4	3.6	3.7	3.9	8.7	
DEPTH=	.6	1.1	1.3	1.3	1.3	1.4	1.6	1.8	1.9	2.1	2.2	2.6	

STA=	1015.	1019.
PER Q=	1.3	
AREA=	4.8	
VEL=	2.6	
DEPTH=	1.2	

*SECNO 1.621
7185 MINIMUM SPECIFIC ENERGY

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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


3720 CRITICAL DEPTH ASSUMED
    1.621      2.25    2209.25    2209.25        .00    2209.98        .74       4.50        .02    2207.30
   1023.0     134.3      635.7      253.0       49.6       75.9       74.6       44.1       13.6    2207.20
      .32      2.71       8.37       3.39       .070       .035       .070       .000    2207.00     937.61
  .013601      300.       373.       412.          0         15          0        .00     142.51    1080.11


FLOW DISTRIBUTION FOR SECNO=      1.62          CWSEL=   2209.25

STA=     938.     971.     983.     991.     994.    1029.    1038.    1044.    1049.    1058.    1067.    1080.
  PER Q=      3.1      3.5      4.5      2.0     62.1      6.7      3.8      3.5      4.6      3.8      2.3
   AREA=     17.2     13.3     13.6      5.5     75.9     17.6     10.6     10.2     13.9     12.4      9.9
    VEL=      1.8      2.7      3.4      3.8      8.4      3.9      3.7      3.6      3.4      3.1      2.4
  DEPTH=       .5      1.1      1.6      1.9      2.2      2.0      1.8      1.7      1.6      1.4       .8

*SECNO 1.689
    1.689      2.84    2213.84    2213.76        .00    2214.66        .82       4.65        .03    2211.50
   1023.0      71.5      629.1      322.4       20.9       71.0       94.5       45.7       14.6    2211.50
      .33      3.42       8.86       3.41       .070       .035       .070       .000    2211.00     979.26
  .012315      354.       359.       362.          3         11          0        .00     106.56    1085.82


FLOW DISTRIBUTION FOR SECNO=      1.69          CWSEL=   2213.84

STA=     979.     990.     993.    1020.    1025.    1030.    1035.    1039.    1044.    1049.    1062.    1086.
  PER Q=      4.8      2.2     61.5      4.5      4.2      3.8      3.6      3.5      3.1      5.9      2.8
   AREA=     15.3      5.6     71.0     11.1     10.8     10.1      9.8      9.6      8.9     19.4     14.7
    VEL=      3.2      4.0      8.9      4.1      4.0      3.9      3.8      3.7      3.6      3.1      2.0
  DEPTH=      1.4      2.2      2.6      2.3      2.2      2.1      2.0      2.0      1.9      1.5       .6

*SECNO 1.803
    1.803      1.71    2223.21    2223.04        .00    2223.75        .53       9.06        .03    2221.70
   1023.0      63.5      380.7      578.8       19.6       46.6      147.8       48.5       16.4    2221.50
      .37      3.24       8.18       3.92       .070       .035       .070       .000    2221.50     974.32
  .018472      618.       601.       612.          4         11          0        .00     142.57    1116.89


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   2223.21

STA=     974.     992.    1020.    1034.    1045.    1055.    1066.    1081.    1091.    1102.    1117.
  PER Q=      6.2     37.2      9.4      7.6      7.5      7.6      9.5      6.0      5.0      3.9
   AREA=     19.6     46.6     23.3     18.9     18.5     18.9     23.8     16.2     14.5     13.8
    VEL=      3.2      8.2      4.1      4.1      4.1      4.1      4.1      3.8      3.5      2.9
  DEPTH=      1.1      1.7      1.7      1.7      1.7      1.7      1.7      1.5      1.4       .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 1.848
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DIP CROSSING AT OCOTILLA DRIVE (DIRT ROAD)

1.848	2.99	2227.49	2227.49	.00	2228.29	.80	3.36	.08	2225.30
1023.0	61.1	641.4	320.6	24.4	73.0	102.0	49.6	17.1	2224.90
.38	2.50	8.78	3.14	.070	.035	.070	.000	2224.50	968.27
.011111	232.	239.	239.	0	14	0	.00	135.98	1104.25

FLOW DISTRIBUTION FOR SECNO= 1.85 CWSEL= 2227.49

STA=	968.	992.	996.	1023.	1026.	1030.	1034.	1037.	1045.	1052.	1068.	1103.	1104.
PER Q=	3.6	2.4	62.7	4.1	3.8	3.4	3.0	5.1	3.7	5.2	3.0	.0	
AREA=	17.1	7.3	73.0	9.8	9.4	8.8	8.1	14.7	12.1	20.1	18.9	.1	
VEL=	2.1	3.3	8.8	4.2	4.2	4.0	3.8	3.5	3.1	2.6	1.6	.0	
DEPTH=	.7	1.8	2.8	2.6	2.5	2.4	2.2	2.0	1.7	1.3	.5	.0	

*SECNO 1.898

1.898	3.15	2230.65	2230.49	.00	2231.41	.76	3.12	.00	2228.00
982.0	377.1	398.8	206.0	99.7	40.1	50.5	50.8	17.8	2227.80
.39	3.78	9.93	4.08	.070	.035	.070	.000	2227.50	938.91
.012605	267.	264.	262.	2	5	0	.00	94.69	1033.61

FLOW DISTRIBUTION FOR SECNO= 1.90 CWSEL= 2230.65

STA=	939.	955.	963.	968.	978.	983.	988.	993.	995.	1008.	1011.	1013.	1016.
PER Q=	4.0	5.8	4.3	7.7	5.1	4.3	5.0	2.2	40.6	3.7	3.2	3.1	
AREA=	14.2	15.0	10.7	20.0	11.9	10.7	11.8	5.5	40.1	7.6	6.6	6.5	
VEL=	2.8	3.8	3.9	3.8	4.2	3.9	4.1	3.9	9.9	4.7	4.7	4.6	
DEPTH=	.9	2.1	2.2	2.0	2.4	2.1	2.4	2.2	3.0	2.8	2.8	2.7	

STA=	1016.	1021.	1028.	1034.
PER Q=	5.2	4.7	1.2	
AREA=	11.7	13.0	5.2	
VEL=	4.4	3.6	2.3	
DEPTH=	2.5	1.8	.9	

*SECNO 1.935
7185 MINIMUM SPECIFIC ENERGY

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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


3720 CRITICAL DEPTH ASSUMED
     1.935      3.51    2234.01    2234.01       .00    2235.04       1.03       2.23        .08    2231.00
     982.0     272.7      617.1       92.2      78.8       62.2       26.5       51.6       18.2    2230.80
       .39      3.46       9.92       3.48      .070       .035       .070       .000    2230.50     939.39
   .010855      184.       193.       198.         0          8          0        .00      86.24    1025.63


FLOW DISTRIBUTION FOR SECNO=      1.93          CWSEL=   2234.01

STA=     939.     971.     975.     980.     983.     992.    1011.    1019.    1026.
  PER Q=      6.0      3.1      3.7      3.1     11.9     62.8      6.8      2.6
   AREA=     26.2      8.7      9.9      7.6     26.3     62.2     17.8      8.7
    VEL=      2.2      3.4      3.7      4.0      4.5      9.9      3.8      2.9
  DEPTH=       .8      1.9      2.1      2.5      2.9      3.4      2.3      1.2

*SECNO 1.998
     1.998      4.02    2237.02    2236.37       .00    2237.56        .54       2.47        .05    2233.70
     920.0      84.1      530.5      305.4      34.0       71.6      110.0       53.0       18.9    2233.60
       .41      2.47       7.41       2.78      .070       .035       .070       .000    2233.00     974.26
   .005315      290.       335.       358.         2          8          0        .00      90.33    1064.59


FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=   2237.02

STA=     974.     989.     993.    1012.    1030.    1049.    1065.
  PER Q=      4.8      4.3     57.7     19.7     10.5      3.0
   AREA=     22.2     11.8     71.6     55.7     38.3     16.0
    VEL=      2.0      3.3      7.4      3.3      2.5      1.7
  DEPTH=      1.5      3.2      3.7      3.1      2.1      1.0

*SECNO 2.093

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.093      2.73    2240.73    2240.73       .00    2241.78       1.04       3.69        .15    2238.50
     857.0      33.5      721.9      101.6      11.6       81.7       33.0       54.9       19.7    2238.50
       .43      2.88       8.83       3.08      .070       .035       .070       .000    2238.00     978.64
   .011813      575.       498.       445.         0         14          0        .00      63.66    1042.29
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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

FLOW DISTRIBUTION FOR SECNO= 2.09 CWSEL= 2240.73

STA=	979.	980.	988.	1018.	1021.	1023.	1028.	1030.	1035.	1038.	1040.	1042.
PER Q=	.1	3.8	84.2	2.3	2.0	3.2	1.2	1.9	.6	.5	.1	
AREA=	.5	11.1	81.7	5.1	4.8	8.3	3.6	6.0	2.4	2.0	.8	
VEL=	1.1	3.0	8.8	3.8	3.6	3.3	3.0	2.6	2.3	2.0	1.1	
DEPTH=	.4	1.5	2.7	2.1	2.0	1.7	1.5	1.2	1.0	.8	.4	

*SECNO 2.182
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.182	3.40	2248.90	2248.90	.00	2250.31	1.41	5.72	.11	2245.90
857.0	77.9	740.6	38.5	19.2	73.0	11.5	56.2	20.3	2246.00
.44	4.05	10.15	3.35	.070	.035	.070	.000	2245.50	976.93
.012258	478.	473.	495.	0	11	0	.00	40.00	1016.93

FLOW DISTRIBUTION FOR SECNO= 2.18 CWSEL= 2248.90

STA=	977.	982.	984.	986.	1009.	1011.	1013.	1016.	1017.
PER Q=	2.3	3.3	3.4	86.4	2.2	1.5	.8	.0	
AREA=	7.3	5.9	6.0	73.0	4.6	3.6	3.2	.1	
VEL=	2.7	4.8	4.9	10.1	4.2	3.5	2.1	.0	
DEPTH=	1.4	2.9	3.0	3.2	2.5	1.9	.9	.1	

CCHV= .100 CEHV= .300
*SECNO 2.271
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.271	3.57	2256.57	2256.57	.00	2257.82	1.25	6.67	.02	2253.60
857.0	83.4	531.1	242.5	18.1	49.4	49.7	57.4	20.8	2253.50
.46	4.62	10.75	4.88	.070	.040	.070	.000	2253.00	985.23
.017007	400.	467.	495.	0	8	0	.00	48.11	1033.34

FLOW DISTRIBUTION FOR SECNO= 2.27 CWSEL= 2256.57

STA=	985.	990.	994.	1009.	1015.	1020.	1026.	1032.	1033.
PER Q=	2.2	7.6	62.0	12.0	7.6	6.5	2.2	.1	
AREA=	6.1	11.9	49.4	18.1	12.3	12.4	6.4	.4	
VEL=	3.0	5.4	10.8	5.7	5.3	4.5	2.9	1.1	
DEPTH=	1.3	2.8	3.3	2.9	2.7	2.1	1.1	.3	

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 2.311
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.311	3.52	2263.52	2263.52	.00	2264.77	1.25	4.75	.00	2260.30
857.0	14.9	808.0	34.1	5.3	87.5	16.2	58.2	21.1	2262.00
.47	2.79	9.23	2.11	.070	.040	.070	.000	2260.00	979.68
.014263	300.	310.	285.	0	5	0	.00	53.60	1033.28

FLOW DISTRIBUTION FOR SECNO= 2.31 CWSEL= 2263.52

STA=	980.	983.	1012.	1033.
PER Q=	1.7	94.3	4.0	
AREA=	5.3	87.5	16.2	
VEL=	2.8	9.2	2.1	
DEPTH=	1.6	3.0	.8	

*SECNO 2.388
7185 MINIMUM SPECIFIC ENERGY
'20 CRITICAL DEPTH ASSUMED

2.388	3.31	2268.81	2268.81	.00	2269.94	1.13	4.32	.01	2265.90
857.0	49.5	652.8	154.7	13.6	68.4	40.8	59.0	21.5	2266.00
.48	3.64	9.54	3.80	.070	.040	.070	.000	2265.50	978.86
.014133	300.	307.	285.	0	11	0	.00	59.21	1038.07

FLOW DISTRIBUTION FOR SECNO= 2.39 CWSEL= 2268.81

STA=	979.	989.	1010.	1013.	1016.	1019.	1024.	1036.	1038.
PER Q=	5.8	76.2	4.6	3.8	3.0	3.4	3.3	.0	
AREA=	13.6	68.4	8.1	7.2	6.3	7.9	11.1	.3	
VEL=	3.6	9.5	4.9	4.5	4.1	3.7	2.6	.6	
DEPTH=	1.4	3.2	2.7	2.4	2.1	1.7	.9	.1	

*SECNO 2.466

3301 HV CHANGED MORE THAN HVINS

2.466	3.20	2274.20	2273.52	.00	2274.53	.34	4.51	.08	2272.00
857.0	574.5	272.5	10.0	168.5	41.0	5.6	60.5	22.3	2272.50
.50	3.41	6.64	1.78	.070	.040	.070	.000	2271.00	906.12
.009120	392.	413.	382.	3	19	0	.00	106.31	1012.43

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

FLOW DISTRIBUTION FOR SECNO= 2.47 CWSEL= 2274.20

STA=	906.	910.	916.	921.	935.	954.	963.	966.	975.	990.	1006.	1012.
PER Q=	.0	.9	4.2	17.3	19.3	6.8	2.1	5.7	10.8	31.8	1.2	
AREA=	.4	4.4	11.3	37.8	45.6	18.0	5.7	16.2	29.2	41.0	5.6	
VEL=	.4	1.7	3.2	3.9	3.6	3.2	3.1	3.0	3.2	6.6	1.8	
DEPTH=	.1	.8	2.0	2.7	2.4	2.0	1.9	1.8	1.9	2.6	.8	

*SECNO 2.560

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.560	2.64	2281.64	2281.64	.00	2282.59	.95	5.85	.18	2279.60
857.0	59.7	591.7	205.6	15.4	65.7	49.6	62.3	23.2	2279.50
.52	3.89	9.01	4.15	.070	.040	.070	.000	2279.00	979.72
.018427	398.	496.	541.	0	15	0	.00	71.02	1050.74

.OW DISTRIBUTION FOR SECNO= 2.56 CWSEL= 2281.64

STA=	980.	982.	985.	991.	1019.	1025.	1031.	1034.	1037.	1040.	1046.	1051.
PER Q=	.1	1.3	5.6	69.0	7.0	6.3	2.7	2.6	2.5	2.6	.3	
AREA=	.9	3.4	11.0	65.7	12.7	12.0	5.4	5.4	5.2	7.0	1.8	
VEL=	1.4	3.1	4.3	9.0	4.7	4.5	4.2	4.2	4.1	3.2	1.5	
DEPTH=	.4	1.2	1.8	2.4	2.1	1.9	1.8	1.7	1.7	1.2	.4	

CCHV= .100 CEHV= .300
*SECNO 2.625

2.625	3.20	2286.00	2285.63	.00	2286.69	.69	4.07	.03	2283.40
737.0	165.3	536.3	35.4	56.6	70.5	13.1	63.4	23.7	2283.50
.54	2.92	7.61	2.70	.070	.035	.070	.000	2282.80	958.86
.007597	410.	345.	310.	4	8	0	.00	65.28	1024.14

FLOW DISTRIBUTION FOR SECNO= 2.63 CWSEL= 2286.00

STA=	959.	971.	978.	982.	987.	990.	991.	1015.	1020.	1024.
PER Q=	3.4	5.1	4.0	4.7	3.3	1.8	72.8	4.0	.8	
AREA=	11.7	13.6	9.6	10.6	7.2	3.8	70.5	9.7	3.4	
VEL=	2.1	2.8	3.1	3.3	3.4	3.4	7.6	3.0	1.8	
DEPTH=	1.0	1.9	2.2	2.4	2.5	2.5	3.0	2.1	.8	

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

*SECNO 2.655

2.655	2.55	2287.55	2287.29	.00	2287.98	.44	1.27	.03	2285.50
737.0	61.6	357.5	317.9	24.7	50.5	117.1	64.0	24.1	2285.50
.54	2.50	7.08	2.71	.070	.035	.070	.000	2285.00	970.08
.009208	115.	156.	168.	2	19	0	.00	123.80	1093.88

FLOW DISTRIBUTION FOR SECNO= 2.65 CWSEL= 2287.55

STA=	970.	988.	993.	1015.	1023.	1033.	1040.	1050.	1060.	1068.	1075.	1080.	1090.
PER Q=	4.7	3.7	48.5	6.0	6.3	3.4	3.6	3.6	3.6	4.5	4.0	7.4	
AREA=	15.9	8.8	50.5	14.3	16.4	10.1	11.8	11.8	10.4	12.0	9.5	18.0	
VEL=	2.2	3.1	7.1	3.1	2.8	2.5	2.3	2.3	2.5	2.8	3.1	3.0	
DEPTH=	.9	1.9	2.3	1.9	1.6	1.4	1.2	1.2	1.4	1.6	1.9	1.8	

STA=	1090.	1094.
PER Q=	.7	
AREA=	3.0	
VEL=	1.6	
DEPTH=	.8	

*SECNO 2.720
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
JUST UPSTREAM OF A TRIBUTARY WASH WHICH CONTRIBUTES
APPROXIMATELY 169 CFS.

2.720	2.29	2292.79	2292.79	.00	2293.54	.74	4.08	.09	2292.00
737.0	2.6	729.1	5.3	1.9	104.7	3.7	65.2	24.9	2292.00
.56	1.39	6.96	1.40	.070	.035	.070	.000	2290.50	975.26
.015136	280.	344.	390.	0	11	0	.00	82.23	1057.48

FLOW DISTRIBUTION FOR SECNO= 2.72 CWSEL= 2292.79

STA=	975.	980.	1048.	1057.
PER Q=	.4	98.9	.7	
AREA=	1.9	104.7	3.7	
VEL=	1.4	7.0	1.4	
DEPTH=	.4	1.5	.4	

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


*SECNO 2.813
    2.813      2.06   2299.16   2299.01       .00   2299.66       .50      6.10       .02   2297.40
    737.0     148.1     582.9       6.0      68.6      92.8       4.1      66.8      26.2   2298.00
      .58      2.16      6.28      1.47      .070      .035      .070      .000   2297.10    889.79
  .010100      580.      490.      420.         4        15         0       .00    139.19   1028.97


FLOW DISTRIBUTION FOR SECNO=      2.81          CWSEL=   2299.16

STA=     890.     945.     970.    1022.    1029.
  PER Q=      6.5     13.6     79.1       .8
   AREA=     32.1     36.6     92.8      4.1
    VEL=      1.5      2.7      6.3      1.5
  DEPTH=       .6      1.5      1.8       .6

*SECNO 2.901
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    2.901      1.80   2305.80   2305.80       .00   2306.38       .59      6.68       .03   2306.00
    737.0        .0     468.9     268.1        .0      65.0      75.1      68.5      27.6   2304.60
      .61       .00      7.21      3.57      .000      .035      .070      .000   2304.00    977.55
  .021683      440.      470.      475.         0        12         0       .00    116.81   1094.36


FLOW DISTRIBUTION FOR SECNO=      2.90          CWSEL=   2305.80

STA=     978.    1030.    1075.    1094.
  PER Q=     63.6     31.3      5.1
   AREA=     65.0     60.6     14.5
    VEL=      7.2      3.8      2.6
  DEPTH=      1.2      1.3       .7

*SECNO 2.981
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    2.981      3.09   2313.09   2313.09       .00   2313.67       .58      6.71       .00   2312.00
    737.0       7.5     449.0     280.5       4.9      59.4     114.6      70.0      28.9   2312.00
      .63      1.55      7.56      2.45      .070      .035      .070      .000   2310.00    974.66
  .012035      408.      420.      432.         0        14         0       .00    147.78   1122.45
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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

FLOW DISTRIBUTION FOR SECNO= 2.98 CWSEL= 2313.09

STA=	975.	984.	1012.	1031.	1060.	1087.	1111.	1122.
PER Q=	1.0	60.9	5.4	8.3	12.2	10.9	1.3	
AREA=	4.9	59.4	17.9	27.3	33.5	29.8	6.2	
VEL=	1.5	7.6	2.2	2.2	2.7	2.7	1.5	
DEPTH=	.5	2.1	.9	.9	1.2	1.2	.5	

*SECNO 3.081
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.081	1.93	2319.93	2319.93	.00	2320.37	.44	5.48	.01	2319.30
737.0	96.2	564.3	76.5	50.2	94.0	43.9	71.8	30.7	2319.10
.65	1.92	6.01	1.75	.070	.035	.070	.000	2318.00	899.36
.013520	412.	430.	435.	0	14	0	.00	228.58	1127.93

FLOW DISTRIBUTION FOR SECNO= 3.08 CWSEL= 2319.93

=	899.	915.	932.	950.	975.	1045.	1098.	1128.
PER Q=	1.2	3.4	3.6	4.9	76.6	9.3	1.1	
AREA=	6.5	12.4	13.1	18.2	94.0	35.9	7.9	
VEL=	1.4	2.0	2.0	2.0	6.0	1.9	1.0	
DEPTH=	.4	.7	.7	.7	1.3	.7	.3	

*SECNO 3.136

3265 DIVIDED FLOW

3.136	1.91	2323.91	2323.72	.00	2324.20	.30	3.82	.01	2322.00
737.0	133.4	272.8	330.8	76.4	41.9	131.3	73.5	32.6	2322.00
.68	1.75	6.51	2.52	.070	.035	.070	.000	2322.00	862.32
.009943	320.	335.	330.	4	12	0	.00	258.52	1168.68

FLOW DISTRIBUTION FOR SECNO= 3.14 CWSEL= 2323.91

STA=	862.	890.	952.	988.	1010.	1053.	1115.	1142.	1169.
PER Q=	1.1	4.8	12.2	37.0	11.4	3.8	22.7	7.1	
AREA=	8.4	28.2	39.8	41.9	40.8	13.6	51.4	25.4	
VEL=	1.0	1.3	2.3	6.5	2.0	2.0	3.3	2.0	
DEPTH=	.3	.5	1.1	1.9	1.0	.2	1.9	1.0	

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

*SECNO 3.163
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
EXISTING 18" CORRUGATED METAL PIPE WITH NEGLIGIBLE CAPACITY,
HENCE, THE PIPE IN NOT MODELLED WITH SPECIAL CULVERT ROUTINE.

3.163	1.29	2327.49	2327.49	.00	2327.93	.44	2.50	.04	2326.40
737.0	39.0	483.8	214.3	21.8	76.5	83.0	74.4	33.7	2326.30
.69	1.78	6.32	2.58	.070	.035	.070	.000	2326.20	882.92
.017090	195.	195.	195.	0	14	0	.00	250.06	1132.97

FLOW DISTRIBUTION FOR SECNO= 3.16 CWSEL= 2327.49

STA=	883.	934.	967.	1030.	1075.	1133.
PER Q=	.1	5.2	65.6	21.1	8.0	
AREA=	2.3	19.5	76.5	51.4	31.6	
VEL=	.4	2.0	6.3	3.0	1.9	
DEPTH=	.0	.6	1.2	1.1	.5	

ECNO 3.197

3.197	1.93	2329.93	2329.80	.00	2330.37	.44	2.44	.00	2328.00
737.0	193.4	401.1	142.5	88.8	58.0	65.4	75.3	34.6	2328.00
.70	2.18	6.92	2.18	.070	.035	.070	.000	2328.00	888.15
.011012	180.	180.	180.	4	11	0	.00	189.52	1077.68

FLOW DISTRIBUTION FOR SECNO= 3.20 CWSEL= 2329.93

STA=	888.	980.	1010.	1078.
PER Q=	26.2	54.4	19.3	
AREA=	88.8	58.0	65.4	
VEL=	2.2	6.9	2.2	
DEPTH=	1.0	1.9	1.0	

FLOODWAY DETERMINATION

T2

T3 WASH AE: SUNNY COVE WASH-ABOVE THE DAM

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	0	0	0	0	2155.00	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	-1	0	0	0

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV= .100 CEHV= .300
*SECNO .667

3470 ENCROACHMENT STATIONS= 907.0 1065.0 TYPE= 1 TARGET= 158.000
THE STATIONING FOR WASH AE-SUNNY COVE WASH IS BASED ON MILES
ABOVE THE CONFLUENCE WITH WASH AD-SUNSET WASH. THE CONFLUENCE
OF WASH AD-SUNSET AND WASH AE-SUNNY COVE IS LOCATED SOUTHWEST
OF THE INTERSECTION OF LINCOLN STREET AND CENTER STREET.
THE TOP OF THE DAM IS AT STATION 0.590+/-, AND HAS A LOW-
POINT ELEVATION OF 2180.2. THE EMERGENCY SPILLWAY ELEVATION
IS APPROXIMATELY 2178.0+/-.
THIS HEC-2 ANALYSIS IS FOR THE PORTION OF WASH AE-SUNNY COVE
WASH THAT IS UPSTREAM OF THE RECENTLY COMPLETED FLOOD CONTROL
DAM LOCATED APPROXIMATELY 850 FEET WEST OF KELLIS ROAD AND
APPROXIMATELY ONE HALF OF A MILE SOUTH OF U.S. HWY 60.
THE STUDY BEGINS AT CROSS SECTION 0.667, WHICH IS APPROXIMATELY
410 FEET UPSTREAM OF THE DAM.
THIS ANALYSIS WAS STARTED USING THE 100-YEAR WATER SURFACE
ELEVATION (2155.0) OF THE PONDING AREA AT THE FLOOD CONTROL DAM.
THE 100-YEAR PEAK DISCHARGE THAT IMPACTS THE DAM IS 1232 CFS.

.667	22.00	2155.00	2136.01	2155.00	2155.01	.01	.00	.00	2133.50
1232.0	336.4	700.3	195.3	965.5	804.6	577.7	.0	.0	2133.50
.00	.35	.87	.34	.060	.030	.060	.000	2133.00	907.00
.000005	0.	0.	0.	0	16	0	.00	157.50	1064.50

*SECNO .726

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

3470 ENCROACHMENT STATIONS= 951.0 1078.0 TYPE= 1 TARGET= 127.000

.726	15.99	2154.99	2143.68	2154.99	2155.02	.03	.00	.01	2140.50
1180.0	230.4	648.3	301.3	360.8	370.7	460.3	12.7	1.0	2140.70
.07	.64	1.75	.65	.060	.030	.060	.000	2139.00	951.01
.000033	240.	315.	402.	1	21	0	.00	126.62	1077.63

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 .795

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .32

3470 ENCROACHMENT STATIONS= 967.0 1068.0 TYPE= 1 TARGET= 101.000

.795	7.57	2154.97	2150.27	2154.97	2155.06	.09	.03	.02	2147.90
1087.0	91.8	596.5	398.7	74.1	191.6	299.3	19.8	1.9	2147.60
.11	1.24	3.11	1.33	.060	.030	.060	.000	2147.40	967.03
.000276	332.	365.	360.	2	25	0	.00	100.31	1067.34

*SECNO .848

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .21

+70 ENCROACHMENT STATIONS= 947.0 1012.0 TYPE= 1 TARGET= 65.000

.848	3.11	2154.61	2154.30	2154.61	2155.51	.90	.20	.24	2152.00
1087.0	41.6	1011.3	34.1	15.1	128.6	13.2	22.0	2.4	2152.00
.12	2.75	7.87	2.59	.060	.030	.060	.000	2151.50	947.41
.006235	320.	279.	230.	3	18	0	.00	63.60	1011.01

*SECNO .892
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 970.0 1030.0 TYPE= 1 TARGET= 60.000
DIP CROSSING AT SURFACED ROAD

.892	3.15	2158.15	2158.15	2158.14	2159.42	1.27	1.69	.11	2155.50
1087.0	41.7	930.3	115.0	11.2	96.1	33.1	22.8	2.8	2155.50
.13	3.72	9.68	3.48	.060	.030	.060	.000	2155.00	970.39
.008660	170.	231.	270.	0	5	0	.00	58.84	1029.23

*SECNO .939
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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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=      976.0    1059.0  TYPE=      1  TARGET=      83.000
     .939       2.64    2162.14    2162.14    2162.14    2163.18       1.04       2.55        .02    2159.70
   1087.0      142.6      579.9      364.5       30.9       55.9       80.7       23.7        3.2    2159.70
      .14       4.62      10.38       4.52       .060       .030       .060       .000    2159.50     976.80
  .012672       250.       248.       236.          0         15          0        .00      81.65    1058.45


*SECNO 1.041
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      969.0    1044.0  TYPE=      1  TARGET=      75.000
            DIP CROSSING AT DIRT ROAD
    1.041       2.92    2170.42    2170.42    2170.42    2171.53       1.11       6.48        .02    2168.10
   1087.0      114.6      539.8      432.6       31.6       49.3       82.8       25.6        4.1    2167.60
      .16       3.63      10.94       5.22       .060       .030       .060       .000    2167.50     969.91
  .012479       670.       540.       430.          0          8          0        .00      74.04    1043.95


 .V=     .300 CEHV=     .500
*SECNO 1.129
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      984.0    1071.0  TYPE=      1  TARGET=      87.000
    1.129       4.96    2177.96    2177.96    2177.96    2179.16       1.20       4.75        .04    2174.00
   1053.0       50.0      768.7      234.3       15.5       75.8       81.4       27.5        5.0    2174.00
      .17       3.24      10.14       2.88       .070       .035       .070       .000    2173.00     984.16
  .007853       430.       464.       538.          0         14          0        .00      86.20    1070.37


CCHV=     .300 CEHV=     .500
*SECNO 1.166
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      985.0    1094.0  TYPE=      1  TARGET=     109.000
            DOWNSTREAM CROSS SECTION OF 3-BARREL, 48" CORRUGATED METAL
            PIPE WITH HEADWALLS, CULVERT CROSSING AT MARIPOSA DRIVE
            UPSTREAM CROSS SECTION OF CULVERT CROSSING AT MARIPOSA DRIVE
    1.166       4.14    2181.84    2181.84    2181.83    2182.87       1.03       1.08        .05    2177.70
   1053.0       22.4      709.2      321.4       10.1       72.6      135.8       28.4        5.4    2179.30
      .18       2.22       9.77       2.37       .060       .024       .060       .000    2177.70     985.13
  .004386       184.       193.       178.          0         15          0        .00     108.38    1093.51
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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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	.024	.12	2.90	.00	4.00	.00	102.00	2	1	2179.32	2178.13

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
5130, EGIC= 2211.63..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 2204.34 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 1.185

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 2187.13

3301 HV CHANGED MORE THAN HVINS

'02 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.89

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
2211.63	2204.34	4.26	615.	436.	3.290	37.7	2185.00	173.

3470 ENCROACHMENT STATIONS= 898.0 1108.0 TYPE= 1 TARGET= 210.000

1.185	7.85	2187.04	.00	2187.05	2187.13	.09	4.26	.00	2179.26
1053.0	143.1	493.8	416.1	226.5	150.1	428.5	29.6	5.8	2179.19
.20	.63	3.29	.97	.060	.024	.060	.000	2179.19	898.48
.000183	102.	102.	102.	2	0	0	.00	209.47	1107.95

CCHV= .100 CEHV= .300
*SECNO 1.231

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

3470 ENCROACHMENT STATIONS= 893.0 1029.0 TYPE= 1 TARGET= 136.000

1.231	5.08	2187.08	2185.43	2187.08	2187.27	.20	.11	.03	2182.00
1053.0	519.5	327.3	206.2	249.6	59.9	84.6	33.2	6.9	2182.10
.22	2.08	5.46	2.44	.065	.035	.065	.000	2182.00	893.18
.001899	326.	245.	212.	2	18	0	.00	135.53	1028.71

*SECNO 1.328
7185 MINIMUM SPECIFIC ENERGY

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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

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      862.0    1021.0  TYPE=      1  TARGET=      159.000
     1.328      1.49   2190.49   2190.49   2190.49   2191.09       .60      2.16       .12   2189.00
    1023.0     757.5     241.7      23.8     154.5      25.9       7.3      36.1       8.3   2189.50
       .24      4.90      9.32      3.27      .065      .035      .065      .000   2189.00    862.64
   .031820      400.      508.      568.         0        14         0       .00    157.41   1020.05


CCHV=     .100 CEHV=     .300
*SECNO 1.385

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.77


3470 ENCROACHMENT STATIONS=      987.0    1150.0  TYPE=      1  TARGET=      163.000
     1.385      2.44   2195.44   2195.12   2195.44   2195.89       .45      4.78       .01   2193.70
    1023.0      17.9     592.9     412.2       7.0      89.4     142.7      37.6       9.4   2193.00
       .25      2.54      6.63      2.89      .070      .040      .070      .000   2193.00    987.43
   .010106      243.      302.      347.         5        11         0       .00    162.42   1149.85


*SECNO 1.470

3470 ENCROACHMENT STATIONS=      947.0    1129.0  TYPE=      1  TARGET=      182.000
     1.470      3.39   2198.89   2198.01   2198.89   2199.06       .17      3.14       .03   2197.60
    1023.0      71.2      95.0     856.7      37.5      23.9     257.8      39.8      10.8   2197.50
       .29      1.90      3.98      3.32      .070      .040      .070      .000   2195.50    947.83
   .007571      562.      470.      288.         6         8         0       .00    180.55   1128.38


CCHV=     .100 CEHV=     .300
*SECNO 1.551

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      856.0    1020.0  TYPE=      1  TARGET=      164.000
     1.551      2.76   2204.26   2204.26   2204.26   2204.94       .68      3.84       .15   2202.00
    1023.0     466.9     543.3      12.8     164.1      62.5       4.9      42.4      12.4   2202.00
       .30      2.85      8.69      2.64      .070      .035      .070      .000   2201.50    856.73
   .011706      398.      426.      412.         0        15         0       .00    162.48   1019.22
```

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 1.621
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 937.0 1081.0 TYPE= 1 TARGET= 144.000

1.621	2.25	2209.25	2209.25	2209.25	2209.98	.73	4.49	.02	2207.30
1023.0	134.4	635.6	253.0	49.6	76.0	74.7	44.1	13.6	2207.20
.32	2.71	8.37	3.39	.070	.035	.070	.000	2207.00	937.57
.013570	300.	373.	412.	0	15	0	.00	142.55	1080.13

*SECNO 1.689

3470 ENCROACHMENT STATIONS= 979.0 1086.0 TYPE= 1 TARGET= 107.000

1.689	2.83	2213.83	2213.76	2213.84	2214.66	.82	4.65	.03	2211.50
1023.0	71.5	629.2	322.3	20.9	71.0	94.4	45.7	14.6	2211.50
.33	3.42	8.87	3.41	.070	.035	.070	.000	2211.00	979.27
.012338	354.	359.	362.	3	11	0	.00	106.52	1085.79

SECNO 1.803

3470 ENCROACHMENT STATIONS= 974.0 1117.0 TYPE= 1 TARGET= 143.000

1.803	1.71	2223.21	2223.04	2223.21	2223.74	.53	9.06	.03	2221.70
1023.0	63.5	380.6	578.8	19.6	46.6	147.9	48.5	16.4	2221.50
.37	3.24	8.17	3.91	.070	.035	.070	.000	2221.50	974.31
.018425	618.	601.	612.	4	11	0	.00	142.59	1116.90

*SECNO 1.848
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 968.0 1105.0 TYPE= 1 TARGET= 137.000
DIP CROSSING AT OCOTILLA DRIVE (DIRT ROAD)

1.848	2.99	2227.49	2227.49	2227.49	2228.29	.80	3.35	.08	2225.30
1023.0	61.2	641.1	320.7	24.5	73.1	102.1	49.6	17.1	2224.90
.38	2.50	8.77	3.14	.070	.035	.070	.000	2224.50	968.23
.011081	232.	239.	239.	0	14	0	.00	136.04	1104.28

*SECNO 1.898

```
   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=      938.0    1034.0  TYPE=      1  TARGET=      96.000
     1.898      3.15   2230.65   2230.49   2230.65   2231.41       .76      3.12       .00   2228.00
     982.0     377.0     399.0     206.0      99.6      40.1      50.5      50.8      17.8   2227.80
       .39      3.78      9.94      4.08      .070      .035      .070      .000   2227.50    938.97
   .012639      267.      264.      262.         2         5         0       .00     94.64   1033.60


*SECNO 1.935
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      939.0    1026.0  TYPE=      1  TARGET=      87.000
     1.935      3.51   2234.01   2234.01   2234.01   2235.04      1.03      2.23       .08   2231.00
     982.0     272.8     617.0      92.2      78.8      62.3      26.5      51.6      18.2   2230.80
       .39      3.46      9.91      3.47      .070      .035      .070      .000   2230.50    939.38
   .010835      184.      193.      198.         0         8         0       .00     86.26   1025.64


 ECNO 1.998

3470 ENCROACHMENT STATIONS=      974.0    1065.0  TYPE=      1  TARGET=      91.000
     1.998      4.02   2237.02   2236.36   2237.02   2237.56       .54      2.47       .05   2233.70
     920.0      84.1     530.5     305.4      34.0      71.6     109.9      53.0      18.9   2233.60
       .41      2.47      7.41      2.78      .070      .035      .070      .000   2233.00    974.27
   .005319      290.      335.      358.         2        11         0       .00     90.32   1064.58


*SECNO 2.093

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      978.0    1043.0  TYPE=      1  TARGET=      65.000
     2.093      2.73   2240.73   2240.73   2240.73   2241.78      1.04      3.69       .15   2238.50
     857.0      33.5     721.9     101.6      11.6      81.7      33.0      54.9      19.7   2238.50
       .43      2.88      8.83      3.08      .070      .035      .070      .000   2238.00    978.64
   .011821      575.      498.      445.         0        14         0       .00     63.65   1042.29
```

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

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*SECNO 2.182
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      976.0    1017.0  TYPE=      1  TARGET=       41.000
     2.182      3.40   2248.90   2248.90   2248.90   2250.31      1.41      5.71       .11   2245.90
     857.0      77.9     740.5      38.6      19.3      73.1      11.5      56.2      20.3   2246.00
       .44      4.04     10.13      3.35      .070      .035      .070      .000   2245.50    976.92
   .012218      478.      473.      495.         0        11         0       .00     40.01   1016.93


CCHV=     .100 CEHV=     .300
*SECNO 2.271
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      985.0    1034.0  TYPE=      1  TARGET=       49.000
     2.271      3.58   2256.58   2256.58   2256.57   2257.82      1.24      6.64       .02   2253.60
     857.0      83.5     530.9     242.7      18.1      49.5      49.8      57.4      20.8   2253.50
       .46      4.61     10.73      4.87      .070      .040      .070      .000   2253.00    985.22
   .016901      400.      467.      495.         0         8         0       .00     48.13   1033.35


*SECNO 2.311
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      979.0    1034.0  TYPE=      1  TARGET=       55.000
     2.311      3.59   2263.59   2263.59   2263.52   2264.77      1.19      4.54       .01   2260.30
     857.0      15.1     805.0      36.8       5.6      89.4      17.6      58.2      21.1   2262.00
       .47      2.72      9.00      2.10      .070      .040      .070      .000   2260.00    979.61
   .013185      300.      310.      285.         0         5         0       .00     54.39   1034.00


*SECNO 2.388
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      978.0    1039.0  TYPE=      1  TARGET=       61.000
     2.388      3.32   2268.82   2268.82   2268.81   2269.94      1.13      4.15       .01   2265.90
     857.0      49.5     652.6     154.8      13.6      68.5      40.8      59.0      21.5   2266.00
       .48      3.63      9.53      3.79      .070      .040      .070      .000   2265.50    978.85
   .014099      300.      307.      285.         0        11         0       .00     59.23   1038.09
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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 2.466

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      906.0    1013.0  TYPE=      1  TARGET=      107.000
    2.466      3.19   2274.19   2273.52   2274.20   2274.53       .34      4.51       .08   2272.00
    857.0     574.5     272.5      10.0     168.4      41.0       5.6      60.5      22.3   2272.50
      .50      3.41      6.64      1.78      .070      .040      .070      .000   2271.00    906.14
  .009137      392.      413.      382.         3        19         0       .00    106.28   1012.42


*SECNO 2.560

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

  70 ENCROACHMENT STATIONS=      979.0    1051.0  TYPE=      1  TARGET=       72.000
    2.560      2.64   2281.64   2281.64   2281.64   2282.59       .95      5.85       .18   2279.60
    857.0      59.8     591.6     205.7      15.4      65.8      49.6      62.3      23.2   2279.50
      .52      3.88      8.99      4.14      .070      .040      .070      .000   2279.00    979.71
  .018350      398.      496.      541.         0        15         0       .00     71.05   1050.76


CCHV=     .100 CEHV=     .300
*SECNO 2.625

3470 ENCROACHMENT STATIONS=      958.0    1025.0  TYPE=      1  TARGET=       67.000
    2.625      3.19   2285.99   2285.62   2286.00   2286.69       .69      4.07       .03   2283.40
    737.0     165.3     536.4      35.3      56.5      70.4      13.1      63.4      23.8   2283.50
      .54      2.93      7.62      2.70      .070      .035      .070      .000   2282.80    958.88
  .007621      410.      345.      310.         4         8         0       .00     65.25   1024.13


*SECNO 2.655

3470 ENCROACHMENT STATIONS=      970.0    1094.0  TYPE=      1  TARGET=      124.000
    2.655      2.55   2287.55   2287.29   2287.55   2287.99       .43      1.27       .03   2285.50
    737.0      61.6     357.4     318.0      24.7      50.5     117.2      64.0      24.1   2285.50
      .55      2.50      7.08      2.71      .070      .035      .070      .000   2285.00    970.07
  .009195      115.      156.      168.         2        19         0       .00    123.81   1093.88
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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 2.720
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      975.0    1058.0  TYPE=      1  TARGET=      83.000
            JUST UPSTREAM OF A TRIBUTARY WASH WHICH CONTRIBUTES
            APPROXIMATELY 169 CFS.
    2.720      2.30   2292.80   2292.80   2292.79   2293.53       .74      4.06       .09   2292.00
    737.0       2.6     729.0       5.3       1.9     105.2       3.8      65.2      24.9   2292.00
      .56      1.39      6.93      1.40      .070      .035      .070      .000   2290.50    975.22
  .014926      280.      344.      390.         0        11         0       .00     82.34   1057.56


*SECNO 2.813

3470 ENCROACHMENT STATIONS=      889.0    1029.0  TYPE=      1  TARGET=     140.000
    2.813      2.06   2299.16   2299.01   2299.16   2299.66       .50      6.10       .02   2297.40
    737.0     147.8     583.3       5.9      68.2      92.6       4.0      66.9      26.2   2298.00
      .58      2.17      6.30      1.48      .070      .035      .070      .000   2297.10    890.03
  .010211      580.      490.      420.         4        12         0       .00    138.91   1028.94


*SECNO 2.901

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3470 ENCROACHMENT STATIONS=      977.0    1095.0  TYPE=      1  TARGET=     118.000
    2.901      1.80   2305.80   2305.78   2305.80   2306.38       .58      6.70       .02 100000.00
    737.0        .0     468.9     268.1        .0      65.2      75.3      68.5      27.6   2304.60
      .61       .00      7.19      3.56      .000      .035      .070      .000   2304.00    977.51
  .021501      440.      470.      475.         2        15         0       .00    116.90   1094.41


*SECNO 2.981
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      974.0    1123.0  TYPE=      1  TARGET=     149.000
    2.981      3.09   2313.09   2313.09   2313.09   2313.67       .57      6.67       .00   2312.00
    737.0       7.6     448.6     280.8       4.9      59.4     114.9      70.0      28.9   2312.00
      .63      1.54      7.55      2.44      .070      .035      .070      .000   2310.00    974.64
  .011971      408.      420.      432.         0        14         0       .00    147.83   1122.47
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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 3.081
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 899.0 1128.0 TYPE= 1 TARGET= 229.000

3.081	1.94	2319.94	2319.94	2319.93	2320.37	.43	5.41	.01	2319.30
737.0	96.7	563.1	77.2	50.7	94.5	44.4	71.9	30.7	2319.10
.65	1.91	5.96	1.74	.070	.035	.070	.000	2318.00	899.23
.013237	412.	430.	435.	0	14	0	.00	228.77	1128.00

*SECNO 3.136

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 862.0 1169.0 TYPE= 1 TARGET= 307.000

3.136	1.90	2323.90	2323.70	2323.91	2324.20	.30	3.82	.01	2322.00
737.0	132.4	273.5	331.1	75.5	41.8	130.5	73.5	32.6	2322.00
.68	1.75	6.55	2.54	.070	.035	.070	.000	2322.00	862.65
.010120	320.	335.	330.	4	11	0	.00	257.88	1168.58

*SECNO 3.163
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 882.0 1133.0 TYPE= 1 TARGET= 251.000
EXISTING 18" CORRUGATED METAL PIPE WITH NEGLIGIBLE CAPACITY,
HENCE, THE PIPE IN NOT MODELLED WITH SPECIAL CULVERT ROUTINE.

3.163	1.31	2327.51	2327.51	2327.49	2327.93	.43	2.47	.04	2326.40
737.0	40.0	482.0	215.0	23.0	77.4	84.4	74.5	33.7	2326.30
.69	1.74	6.22	2.55	.070	.035	.070	.000	2326.20	882.00
.016319	195.	195.	195.	0	14	0	.00	251.00	1133.00

*SECNO 3.197

3470 ENCROACHMENT STATIONS= 888.0 1078.0 TYPE= 1 TARGET= 190.000

3.197	1.92	2329.92	2329.78	2329.93	2330.37	.45	2.43	.01	2328.00
737.0	192.7	402.4	141.9	87.6	57.6	64.5	75.3	34.6	2328.00
.70	2.20	6.99	2.20	.070	.035	.070	.000	2328.00	888.79
.011343	180.	180.	180.	3	11	0	.00	188.42	1077.20

THIS RUN EXECUTED 02JUL92 08:40:13

****
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

WASH AE: SUNNY COVE WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	.667	.00	.00	.00	2133.00	1232.00	2155.00	2136.01	2155.01	.05	.87	2347.92	5461.51
	.667	.00	.00	.00	2133.00	1232.00	2155.00	2136.01	2155.01	.05	.87	2347.92	5461.51
*	.726	315.00	.00	.00	2139.00	1180.00	2154.99	2143.68	2155.02	.33	1.75	1191.80	2039.09
*	.726	315.00	.00	.00	2139.00	1180.00	2154.99	2143.68	2155.02	.33	1.75	1191.80	2039.09
	.795	365.00	.00	.00	2147.40	1087.00	2154.97	2150.27	2155.06	2.76	3.11	565.01	654.60
*	.795	365.00	.00	.00	2147.40	1087.00	2154.97	2150.27	2155.06	2.76	3.11	565.01	654.60
*	.848	279.00	.00	.00	2151.50	1087.00	2154.61	2154.30	2155.51	62.31	7.87	156.88	137.70
*	.848	279.00	.00	.00	2151.50	1087.00	2154.61	2154.30	2155.51	62.35	7.87	156.85	137.66
*	.892	231.00	.00	.00	2155.00	1087.00	2158.14	2158.14	2159.42	86.80	9.69	140.22	116.67
*	.892	231.00	.00	.00	2155.00	1087.00	2158.15	2158.15	2159.42	86.60	9.68	140.34	116.80
*	.939	248.00	.00	.00	2159.50	1087.00	2162.14	2162.14	2163.18	126.90	10.38	167.35	96.49
*	.939	248.00	.00	.00	2159.50	1087.00	2162.14	2162.14	2163.18	126.72	10.38	167.43	96.56
*	1.041	540.00	.00	.00	2167.50	1087.00	2170.42	2170.42	2171.53	125.03	10.95	163.67	97.21
*	1.041	540.00	.00	.00	2167.50	1087.00	2170.42	2170.42	2171.53	124.79	10.94	163.78	97.31
*	1.129	464.00	.00	.00	2173.00	1053.00	2177.96	2177.96	2179.16	78.55	10.14	172.62	118.81
*	1.129	464.00	.00	.00	2173.00	1053.00	2177.96	2177.96	2179.16	78.53	10.14	172.64	118.82
*	1.166	193.00	.00	.00	2177.70	1053.00	2181.83	2181.83	2182.87	44.15	9.80	217.86	158.48
*	1.166	193.00	.00	.00	2177.70	1053.00	2181.84	2181.84	2182.87	43.86	9.77	218.44	159.00
*	1.185	102.00	2185.00	2183.32	2179.19	1053.00	2187.05	.00	2187.13	1.82	3.29	806.35	779.47
*	1.185	102.00	2185.00	2183.32	2179.19	1053.00	2187.04	.00	2187.13	1.83	3.29	805.12	778.01
*	1.231	245.00	.00	.00	2182.00	1053.00	2187.08	2185.43	2187.28	18.88	5.45	394.95	242.32
	1.231	245.00	.00	.00	2182.00	1053.00	2187.08	2185.43	2187.27	18.99	5.46	394.12	241.63

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1.328	508.00	.00	.00	2189.00	1023.00	2190.49	2190.49	2191.09	319.21	9.33	187.57	57.26
*	1.328	508.00	.00	.00	2189.00	1023.00	2190.49	2190.49	2191.09	318.20	9.32	187.76	57.35
*	1.385	302.00	.00	.00	2193.00	1023.00	2195.44	2195.12	2195.89	100.88	6.63	239.23	101.85
*	1.385	302.00	.00	.00	2193.00	1023.00	2195.44	2195.12	2195.89	101.06	6.63	239.07	101.76
	1.470	470.00	.00	.00	2195.50	1023.00	2198.89	2198.01	2199.06	75.80	3.98	319.12	117.50
	1.470	470.00	.00	.00	2195.50	1023.00	2198.89	2198.01	2199.06	75.71	3.98	319.25	117.57
*	1.551	426.00	.00	.00	2201.50	1023.00	2204.26	2204.26	2204.94	117.43	8.70	231.17	94.40
*	1.551	426.00	.00	.00	2201.50	1023.00	2204.26	2204.26	2204.94	117.06	8.69	231.44	94.55
*	1.621	373.00	.00	.00	2207.00	1023.00	2209.25	2209.25	2209.98	136.01	8.37	200.08	87.72
*	1.621	373.00	.00	.00	2207.00	1023.00	2209.25	2209.25	2209.98	135.70	8.37	200.26	87.82
	1.689	359.00	.00	.00	2211.00	1023.00	2213.84	2213.76	2214.66	123.15	8.86	186.41	92.18
	1.689	359.00	.00	.00	2211.00	1023.00	2213.83	2213.76	2214.66	123.38	8.87	186.28	92.10
	1.803	601.00	.00	.00	2221.50	1023.00	2223.21	2223.04	2223.75	184.72	8.18	213.96	75.27
	1.803	601.00	.00	.00	2221.50	1023.00	2223.21	2223.04	2223.74	184.25	8.17	214.13	75.37
*	1.848	239.00	.00	.00	2224.50	1023.00	2227.49	2227.49	2228.29	111.11	8.78	199.47	97.05
*	1.848	239.00	.00	.00	2224.50	1023.00	2227.49	2227.49	2228.29	110.81	8.77	199.70	97.18
	1.898	264.00	.00	.00	2227.50	982.00	2230.65	2230.49	2231.41	126.05	9.93	190.42	87.47
	1.898	264.00	.00	.00	2227.50	982.00	2230.65	2230.49	2231.41	126.39	9.94	190.23	87.35
*	1.935	193.00	.00	.00	2230.50	982.00	2234.01	2234.01	2235.04	108.55	9.92	167.52	94.25
*	1.935	193.00	.00	.00	2230.50	982.00	2234.01	2234.01	2235.04	108.35	9.91	167.65	94.34
	1.998	335.00	.00	.00	2233.00	920.00	2237.02	2236.37	2237.56	53.15	7.41	215.61	126.19
	1.998	335.00	.00	.00	2233.00	920.00	2237.02	2236.36	2237.56	53.19	7.41	215.54	126.14
*	2.093	498.00	.00	.00	2238.00	857.00	2240.73	2240.73	2241.78	118.13	8.83	126.37	78.85
*	2.093	498.00	.00	.00	2238.00	857.00	2240.73	2240.73	2241.78	118.21	8.83	126.34	78.82
*	2.182	473.00	.00	.00	2245.50	857.00	2248.90	2248.90	2250.31	122.58	10.15	103.73	77.41
*	2.182	473.00	.00	.00	2245.50	857.00	2248.90	2248.90	2250.31	122.18	10.13	103.84	77.53
*	2.271	467.00	.00	.00	2253.00	857.00	2256.57	2256.57	2257.82	170.07	10.75	117.14	65.72
*	2.271	467.00	.00	.00	2253.00	857.00	2256.58	2256.58	2257.82	169.01	10.73	117.40	65.92
*	2.311	310.00	.00	.00	2260.00	857.00	2263.52	2263.52	2264.77	142.63	9.23	109.05	71.76
*	2.311	310.00	.00	.00	2260.00	857.00	2263.59	2263.59	2264.77	131.85	9.00	112.57	74.63
*	2.388	307.00	.00	.00	2265.50	857.00	2268.81	2268.81	2269.94	141.33	9.54	122.82	72.09
*	2.388	307.00	.00	.00	2265.50	857.00	2268.82	2268.82	2269.94	140.99	9.53	122.94	72.18
	2.466	413.00	.00	.00	2271.00	857.00	2274.20	2273.52	2274.53	91.20	6.64	215.20	89.74
	2.466	413.00	.00	.00	2271.00	857.00	2274.19	2273.52	2274.53	91.37	6.64	215.07	89.66

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	2.560	496.00	.00	.00	2279.00	857.00	2281.64	2281.64	2282.59	184.27	9.01	130.61	63.13
*	2.560	496.00	.00	.00	2279.00	857.00	2281.64	2281.64	2282.59	183.50	8.99	130.80	63.27
	2.625	345.00	.00	.00	2282.80	737.00	2286.00	2285.63	2286.69	75.97	7.61	140.13	84.56
	2.625	345.00	.00	.00	2282.80	737.00	2285.99	2285.62	2286.69	76.21	7.62	139.97	84.42
	2.655	156.00	.00	.00	2285.00	737.00	2287.55	2287.29	2287.98	92.08	7.08	192.29	76.81
	2.655	156.00	.00	.00	2285.00	737.00	2287.55	2287.29	2287.99	91.95	7.08	192.38	76.86
*	2.720	344.00	.00	.00	2290.50	737.00	2292.79	2292.79	2293.54	151.36	6.96	110.36	59.90
*	2.720	344.00	.00	.00	2290.50	737.00	2292.80	2292.80	2293.53	149.26	6.93	110.88	60.33
	2.813	490.00	.00	.00	2297.10	737.00	2299.16	2299.01	2299.66	101.00	6.28	165.54	73.33
	2.813	490.00	.00	.00	2297.10	737.00	2299.16	2299.01	2299.66	102.11	6.30	164.83	72.93
*	2.901	470.00	.00	.00	2304.00	737.00	2305.80	2305.80	2306.38	216.83	7.21	140.10	50.05
*	2.901	470.00	.00	.00	2304.00	737.00	2305.80	2305.78	2306.38	215.01	7.19	140.50	50.26
*	2.981	420.00	.00	.00	2310.00	737.00	2313.09	2313.09	2313.67	120.35	7.56	178.84	67.18
*	2.981	420.00	.00	.00	2310.00	737.00	2313.09	2313.09	2313.67	119.71	7.55	179.20	67.36
*	3.081	430.00	.00	.00	2318.00	737.00	2319.93	2319.93	2320.37	135.20	6.01	187.99	63.38
*	3.081	430.00	.00	.00	2318.00	737.00	2319.94	2319.94	2320.37	132.37	5.96	189.56	64.06
	3.136	335.00	.00	.00	2322.00	737.00	2323.91	2323.72	2324.20	99.43	6.51	249.67	73.91
	3.136	335.00	.00	.00	2322.00	737.00	2323.90	2323.70	2324.20	101.20	6.55	247.84	73.26
*	3.163	195.00	.00	.00	2326.20	737.00	2327.49	2327.49	2327.93	170.90	6.32	181.38	56.38
*	3.163	195.00	.00	.00	2326.20	737.00	2327.51	2327.51	2327.93	163.19	6.22	184.93	57.69
	3.197	180.00	.00	.00	2328.00	737.00	2329.93	2329.80	2330.37	110.12	6.92	212.23	70.23
	3.197	180.00	.00	.00	2328.00	737.00	2329.92	2329.78	2330.37	113.43	6.99	209.70	69.20

:H AE: SUNNY COVE WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.667	1232.00	2155.00	.00	.00	.00	157.50	.00
	.667	1232.00	2155.00	.00	.00	.00	157.50	.00
*	.726	1180.00	2154.99	.00	-.01	.00	126.62	315.00
*	.726	1180.00	2154.99	.00	-.01	.00	126.62	315.00
*	.795	1087.00	2154.97	.00	-.02	.00	100.31	365.00
*	.795	1087.00	2154.97	.00	-.02	.00	100.31	365.00
*	.848	1087.00	2154.61	.00	-.36	.00	63.61	279.00
*	.848	1087.00	2154.61	.00	-.36	.00	63.60	279.00
*	.892	1087.00	2158.14	.00	3.54	.00	58.83	231.00
*	.892	1087.00	2158.15	.00	3.54	.00	58.84	231.00
*	.939	1087.00	2162.14	.00	3.99	.00	81.65	248.00
*	.939	1087.00	2162.14	.00	3.99	.00	81.65	248.00
	1.041	1087.00	2170.42	.00	8.28	.00	74.04	540.00
	1.041	1087.00	2170.42	.00	8.28	.00	74.04	540.00
*	1.129	1053.00	2177.96	.00	7.54	.00	86.20	464.00
*	1.129	1053.00	2177.96	.00	7.54	.00	86.20	464.00
*	1.166	1053.00	2181.83	.00	3.88	.00	108.32	193.00
*	1.166	1053.00	2181.84	.01	3.88	.01	108.38	193.00
*	1.185	1053.00	2187.05	.00	5.21	.00	209.54	102.00
*	1.185	1053.00	2187.04	-.01	5.20	-.01	209.47	102.00
*	1.231	1053.00	2187.08	.00	.03	.00	135.60	245.00
*	1.231	1053.00	2187.08	-.01	.03	-.01	135.53	245.00
*	1.328	1023.00	2190.49	.00	3.41	.00	157.38	508.00
*	1.328	1023.00	2190.49	.00	3.41	.00	157.41	508.00
*	1.385	1023.00	2195.44	.00	4.95	.00	162.46	302.00
*	1.385	1023.00	2195.44	.00	4.95	.00	162.42	302.00
	1.470	1023.00	2198.89	.00	3.45	.00	180.53	470.00
	1.470	1023.00	2198.89	.00	3.45	.00	180.55	470.00
*	1.551	1023.00	2204.26	.00	5.37	.00	162.46	426.00
*	1.551	1023.00	2204.26	.00	5.38	.00	162.48	426.00
*	1.621	1023.00	2209.25	.00	4.99	.00	142.51	373.00
*	1.621	1023.00	2209.25	.00	4.99	.00	142.55	373.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.689	1023.00	2213.84	.00	4.59	.00	106.56	359.00
	1.689	1023.00	2213.83	.00	4.59	.00	106.52	359.00
	1.803	1023.00	2223.21	.00	9.38	.00	142.57	601.00
	1.803	1023.00	2223.21	.00	9.38	.00	142.59	601.00
*	1.848	1023.00	2227.49	.00	4.27	.00	135.98	239.00
*	1.848	1023.00	2227.49	.00	4.27	.00	136.04	239.00
	1.898	982.00	2230.65	.00	3.17	.00	94.69	264.00
	1.898	982.00	2230.65	.00	3.16	.00	94.64	264.00
*	1.935	982.00	2234.01	.00	3.36	.00	86.24	193.00
*	1.935	982.00	2234.01	.00	3.36	.00	86.26	193.00
	1.998	920.00	2237.02	.00	3.01	.00	90.33	335.00
	1.998	920.00	2237.02	.00	3.00	.00	90.32	335.00
*	2.093	857.00	2240.73	.00	3.72	.00	63.66	498.00
*	2.093	857.00	2240.73	.00	3.72	.00	63.65	498.00
*	2.182	857.00	2248.90	.00	8.16	.00	40.00	473.00
*	2.182	857.00	2248.90	.00	8.17	.00	40.01	473.00
	2.271	857.00	2256.57	.00	7.68	.00	48.11	467.00
*	2.271	857.00	2256.58	.01	7.68	.01	48.13	467.00
*	2.311	857.00	2263.52	.00	6.95	.00	53.60	310.00
*	2.311	857.00	2263.59	.07	7.01	.07	54.39	310.00
*	2.388	857.00	2268.81	.00	5.29	.00	59.21	307.00
*	2.388	857.00	2268.82	.00	5.23	.00	59.23	307.00
	2.466	857.00	2274.20	.00	5.38	.00	106.31	413.00
	2.466	857.00	2274.19	.00	5.38	.00	106.28	413.00
*	2.560	857.00	2281.64	.00	7.44	.00	71.02	496.00
*	2.560	857.00	2281.64	.00	7.45	.00	71.05	496.00
	2.625	737.00	2286.00	.00	4.36	.00	65.28	345.00
	2.625	737.00	2285.99	.00	4.35	.00	65.25	345.00
	2.655	737.00	2287.55	.00	1.55	.00	123.80	156.00
	2.655	737.00	2287.55	.00	1.56	.00	123.81	156.00
*	2.720	737.00	2292.79	.00	5.24	.00	82.23	344.00
*	2.720	737.00	2292.80	.01	5.25	.01	82.34	344.00
	2.813	737.00	2299.16	.00	6.37	.00	139.19	490.00
	2.813	737.00	2299.16	-.01	6.36	-.01	138.91	490.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	2.901	737.00	2305.80	.00	6.63	.00	116.81	470.00
*	2.901	737.00	2305.80	.00	6.64	.00	116.90	470.00
*	2.981	737.00	2313.09	.00	7.29	.00	147.78	420.00
*	2.981	737.00	2313.09	.00	7.29	.00	147.83	420.00
*	3.081	737.00	2319.93	.00	6.84	.00	228.58	430.00
*	3.081	737.00	2319.94	.01	6.84	.01	228.77	430.00
	3.136	737.00	2323.91	.00	3.98	.00	258.52	335.00
	3.136	737.00	2323.90	-.01	3.96	-.01	257.88	335.00
*	3.163	737.00	2327.49	.00	3.58	.00	250.06	195.00
*	3.163	737.00	2327.51	.01	3.61	.01	251.00	195.00
	3.197	737.00	2329.93	.00	2.44	.00	189.52	180.00
	3.197	737.00	2329.92	-.01	2.41	-.01	188.42	180.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=      .726  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .726  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .795  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .795  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .848  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .848  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .892  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .892  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .892  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .892  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .939  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .939  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .939  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .939  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.041  PROFILE=  1  CRITICAL DEPTH ASSUMED
 UTION SECNO=      1.041  PROFILE=  1  MINIMUM SPECIFIC ENERGY
AUTION SECNO=      1.041  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.041  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.129  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.129  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.129  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.129  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.166  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.166  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.166  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.166  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     1.185  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.185  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.231  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.231  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.328  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.328  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.328  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.328  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 ARNING SECNO=     1.385  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
  RNING SECNO=     1.385  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.551  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.551  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.551  PROFILE=  2  CRITICAL DEPTH ASSUMED
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 JTION SECNO=      1.551  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.621  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.621  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.621  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     1.848  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.848  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     1.935  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     2.093  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     2.093  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.182  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.182  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     2.182  PROFILE=  2  CRITICAL DEPTH ASSUMED
 JTION SECNO=      2.182  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.271  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.271  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     2.271  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.271  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.311  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.311  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     2.311  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.311  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.388  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.388  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     2.388  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.388  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.560  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.560  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     2.560  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.720  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.720  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     2.720  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.720  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.901  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.901  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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 NING SECNO=      2.901  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    2.981  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    2.981  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    2.981  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    2.981  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    3.081  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    3.081  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    3.081  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    3.081  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    3.163  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=    3.163  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    3.163  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```

FLOODWAY DATA, WASH AE: SUNNY COVE WASH
PROFILE NO. 2

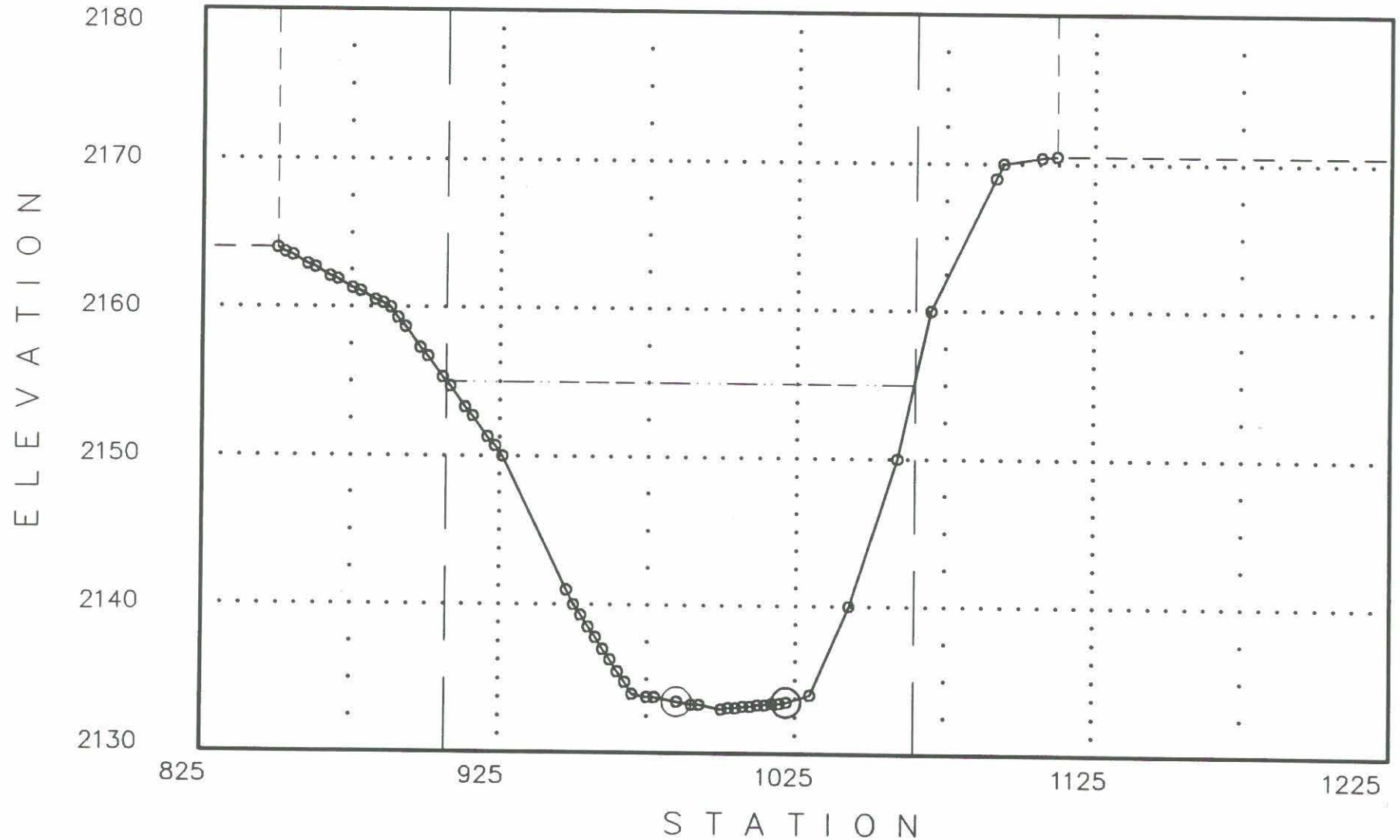
STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.667	157.	2348.	.5	2155.0	2155.0	.0
.726	127.	1192.	1.0	2155.0	2155.0	.0
.795	100.	565.	1.9	2155.0	2155.0	.0
.848	64.	157.	6.9	2154.6	2154.6	.0
.892	59.	140.	7.7	2158.1	2158.1	.0
.939	82.	167.	6.5	2162.1	2162.1	.0
1.041	74.	164.	6.6	2170.4	2170.4	.0
1.129	86.	173.	6.1	2178.0	2178.0	.0
1.166	108.	218.	4.8	2181.8	2181.8	.0
1.185	209.	805.	1.3	2187.0	2187.0	.0
1.231	136.	394.	2.7	2187.1	2187.1	.0
1.328	157.	188.	5.4	2190.5	2190.5	.0
1.385	162.	239.	4.3	2195.4	2195.4	.0
1.470	181.	319.	3.2	2198.9	2198.9	.0
1.551	162.	231.	4.4	2204.3	2204.3	.0
1.621	143.	200.	5.1	2209.2	2209.2	.0
1.689	107.	186.	5.5	2213.8	2213.8	.0
1.803	143.	214.	4.8	2223.2	2223.2	.0
1.848	136.	200.	5.1	2227.5	2227.5	.0
1.898	95.	190.	5.2	2230.7	2230.7	.0
1.935	86.	168.	5.9	2234.0	2234.0	.0
1.998	90.	216.	4.3	2237.0	2237.0	.0
2.093	64.	126.	6.8	2240.7	2240.7	.0
2.182	40.	104.	8.3	2248.9	2248.9	.0
2.271	48.	117.	7.3	2256.6	2256.6	.0
2.311	54.	113.	7.6	2263.6	2263.5	.1
2.388	59.	123.	7.0	2268.8	2268.8	.0
2.466	106.	215.	4.0	2274.2	2274.2	.0
2.560	71.	131.	6.6	2281.6	2281.6	.0
2.625	65.	140.	5.3	2286.0	2286.0	.0
2.655	124.	192.	3.8	2287.5	2287.5	.0
2.720	82.	111.	6.6	2292.8	2292.8	.0
2.813	139.	165.	4.5	2299.2	2299.2	.0
2.901	117.	141.	5.2	2305.8	2305.8	.0
2.981	148.	179.	4.1	2313.1	2313.1	.0
3.081	229.	190.	3.9	2319.9	2319.9	.0
3.136	306.	248.	3.0	2323.9	2323.9	.0
3.163	251.	185.	4.0	2327.5	2327.5	.0
3.197	188.	210.	3.5	2329.9	2329.9	.0

<<<<<< Cross Section: .667: (FN = WASHAE.O) >>>>>>

Q1= 1232 WS1= 2155

Q2= 1232 WS2= 2155

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



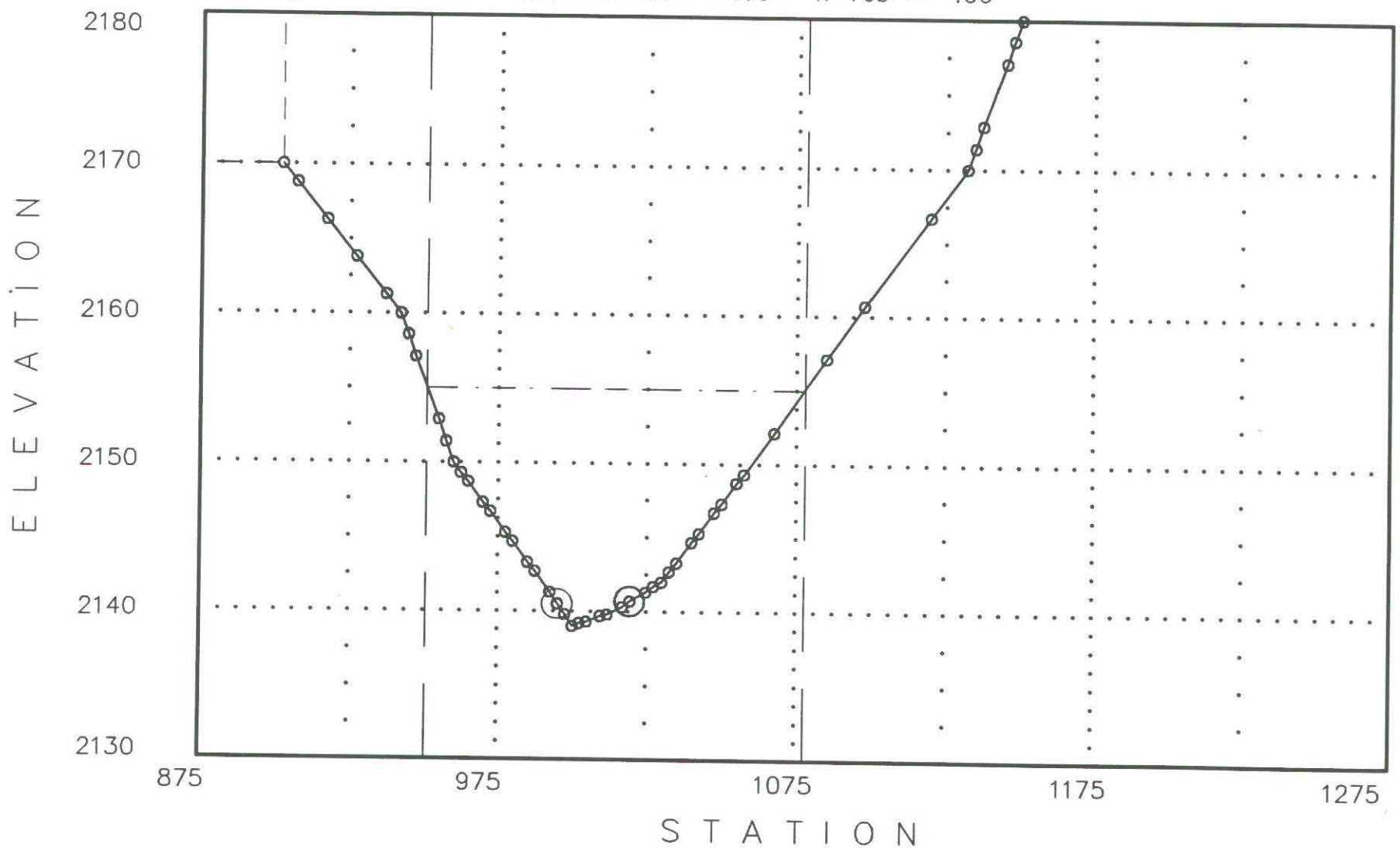
11-21-1992

<<<<<< Cross Section: .726: (FN = WASHAE.O) >>>>>>

Q1= 1180 WS1= 2154.99

Q2= 1180 WS2= 2154.99

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



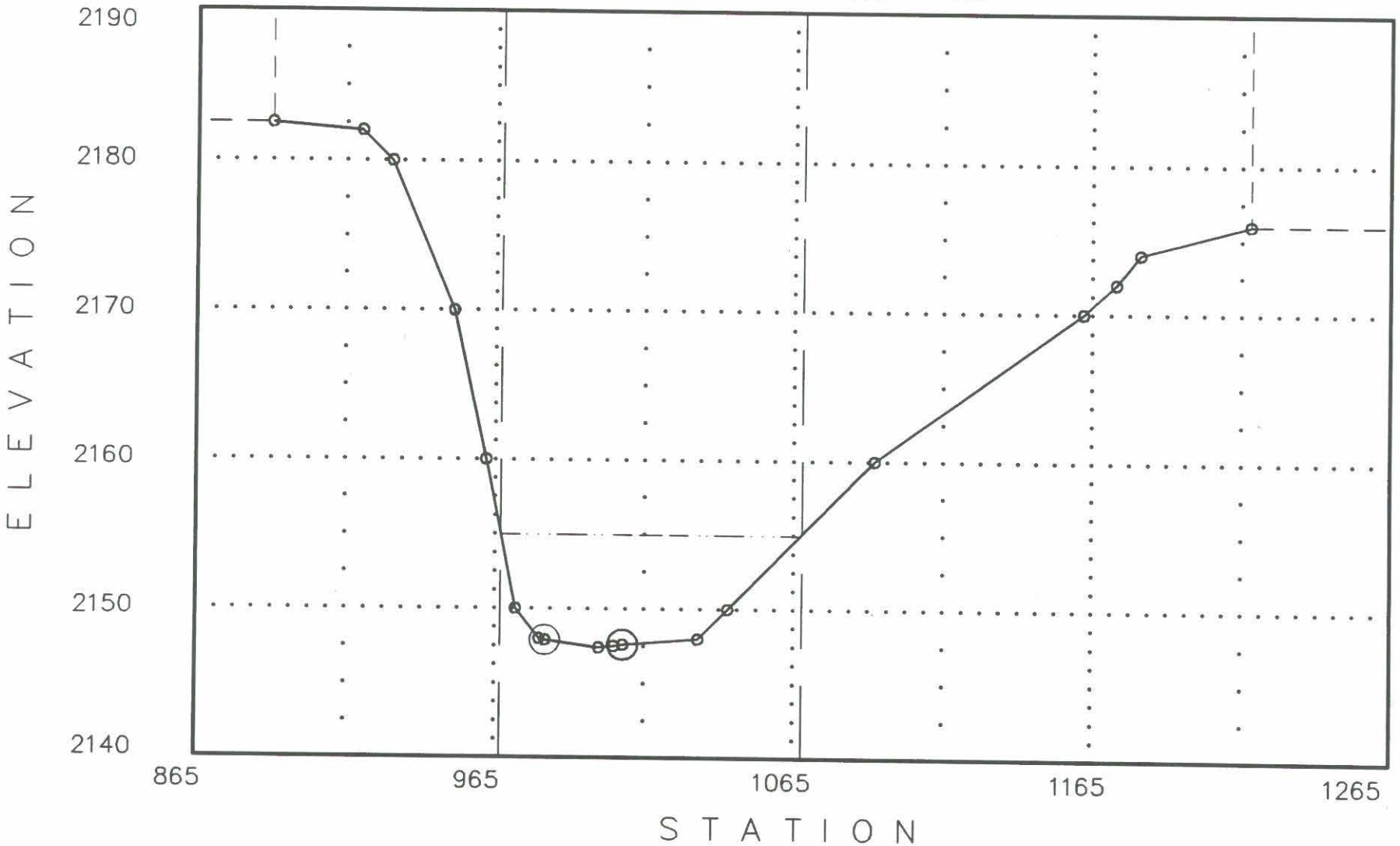
11-21-1992

<<<<<< Cross Section: .795: (FN = WASHAE.O) >>>>>>

Q1= 1087 WS1= 2154.97

Q2= 1087 WS2= 2154.97

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



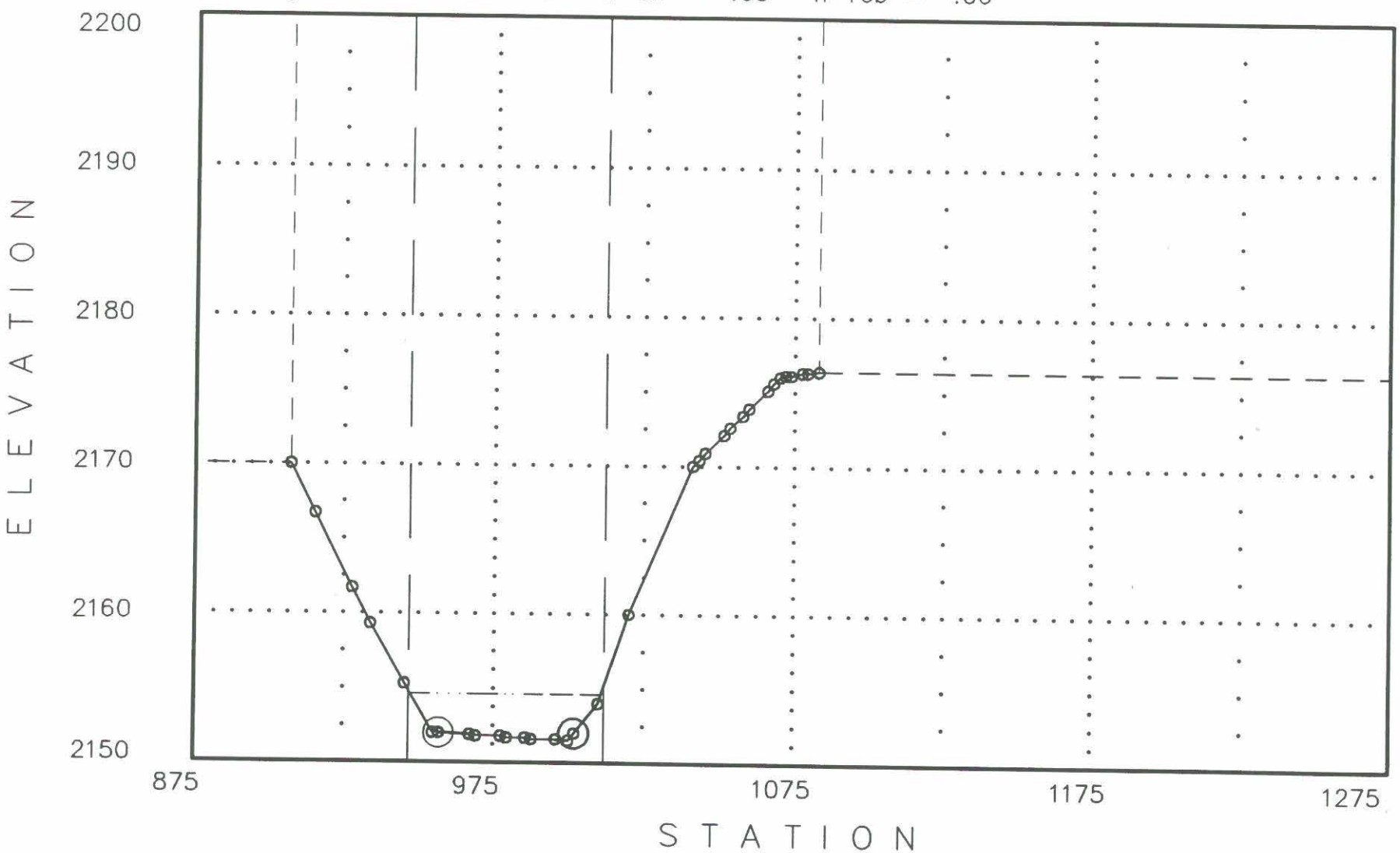
11-21-1992

<<<<<< Cross Section: .848: (FN = WASHAE.O) >>>>>>

Q1= 1087 WS1= 2154.61

Q2= 1087 WS2= 2154.61

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



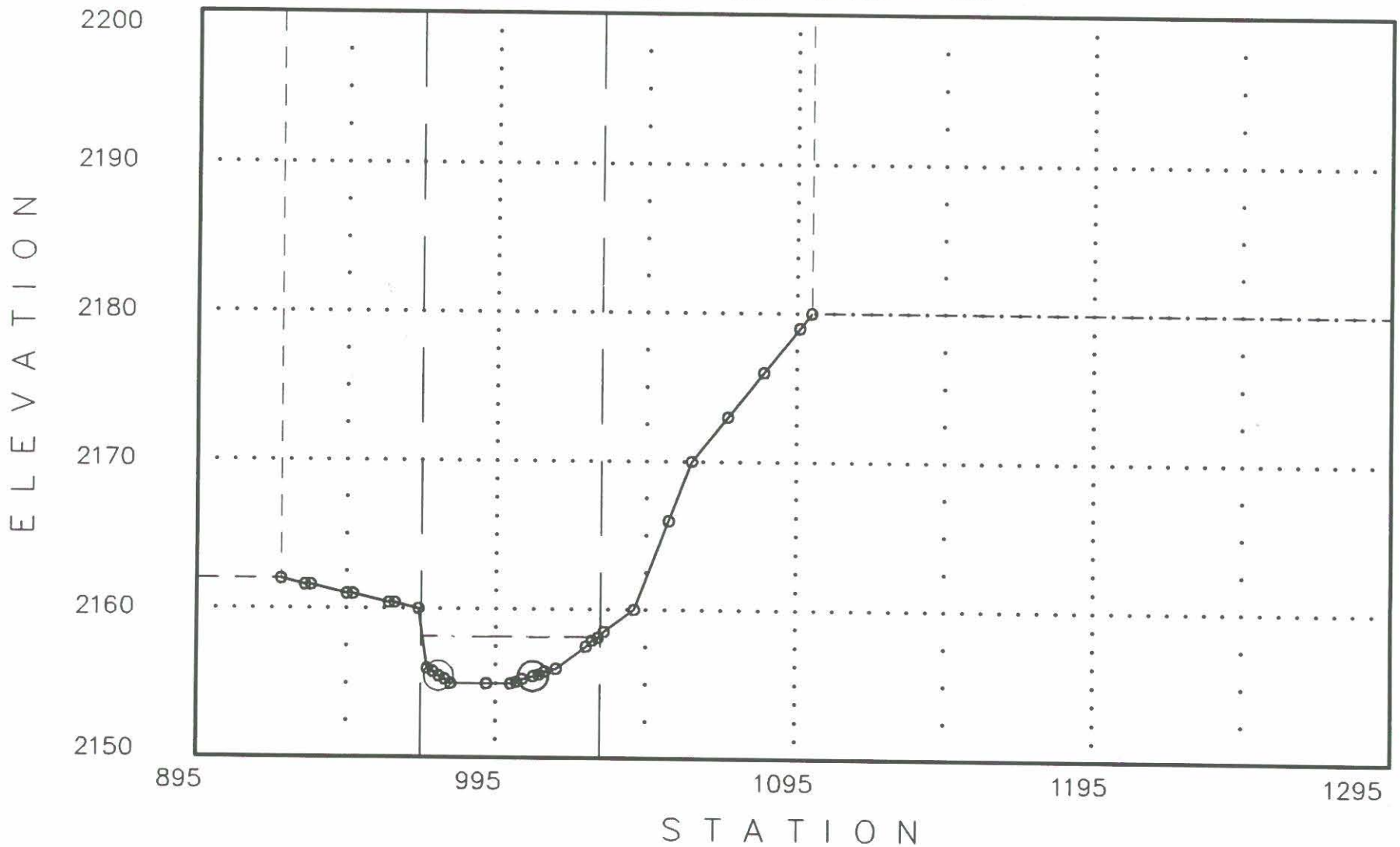
11-21-1992

<<<<<< Cross Section: .892: (FN = WASHAE.O) >>>>>>

Q1= 1087 WS1= 2158.14

Q2= 1087 WS2= 2158.15

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



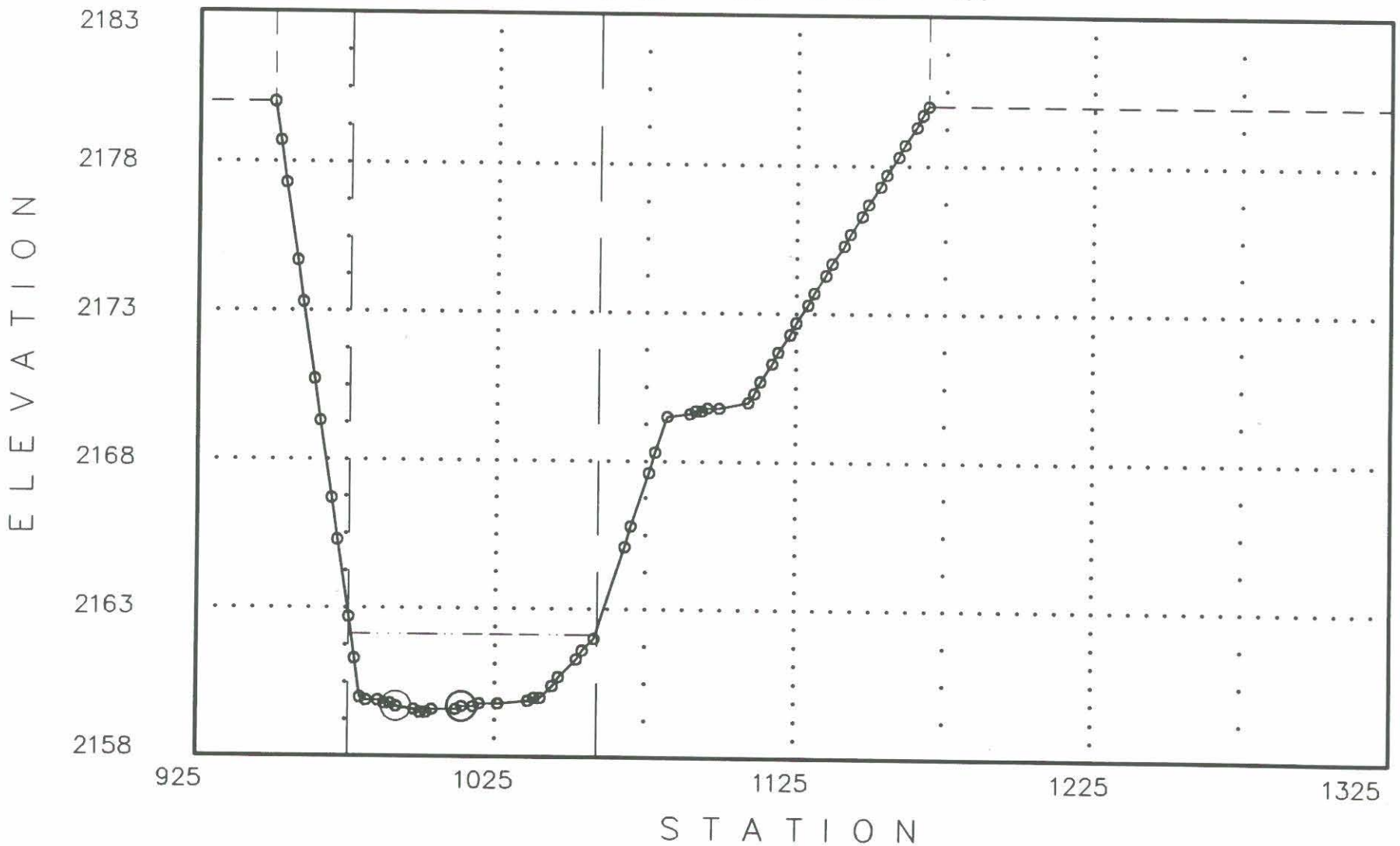
11-21-1992

<<<<<< Cross Section: .939: (FN = WASHAE.O) >>>>>>

Q1= 1087 WS1= 2162.14

Q2= 1087 WS2= 2162.14

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

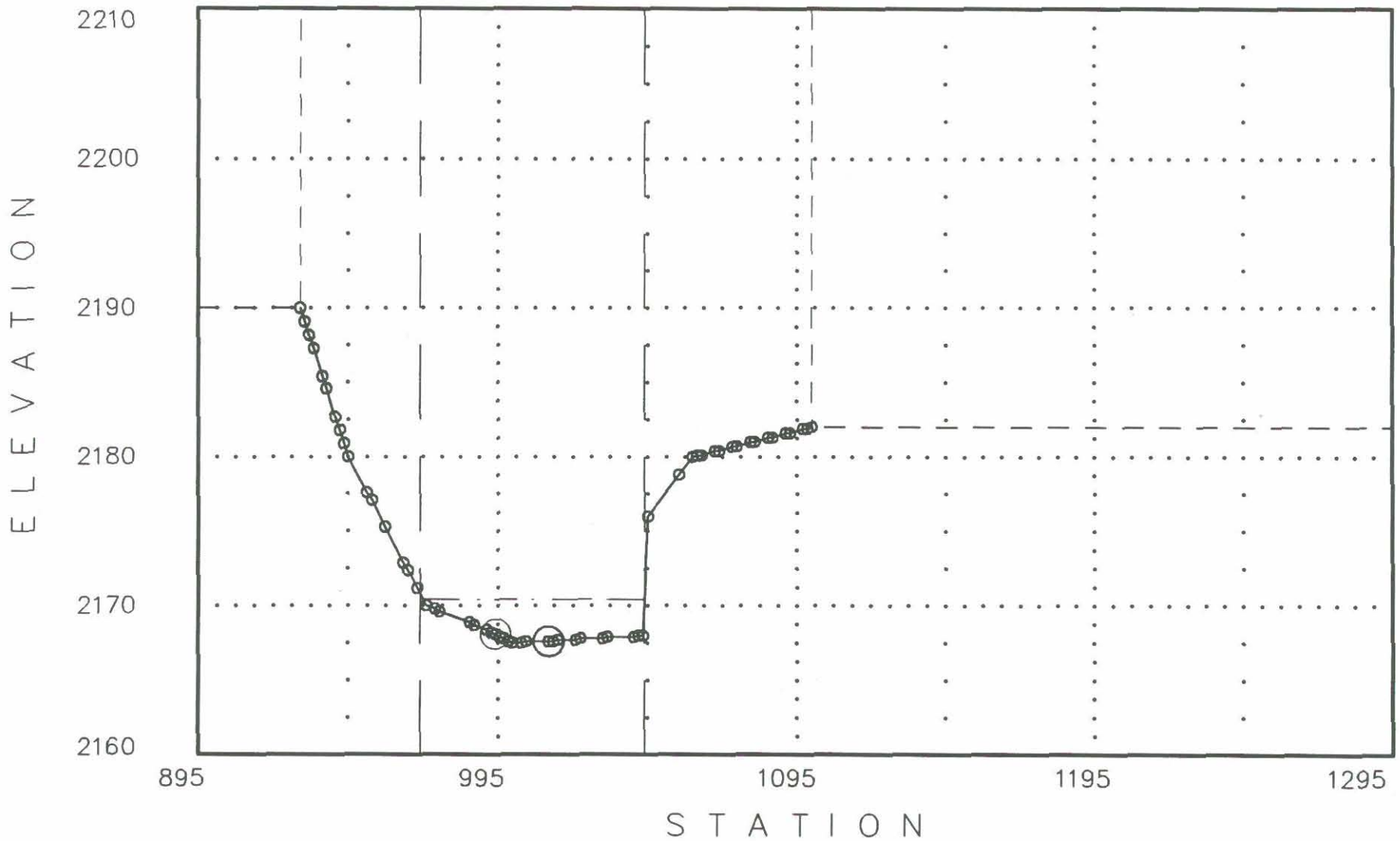


11-21-1992

<<<<<< Cross Section: 1.041: (FN = WASHAE.O) >>>>>>

Q1= 1087 WS1= 2170.42
Q2= 1087 WS2= 2170.42

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

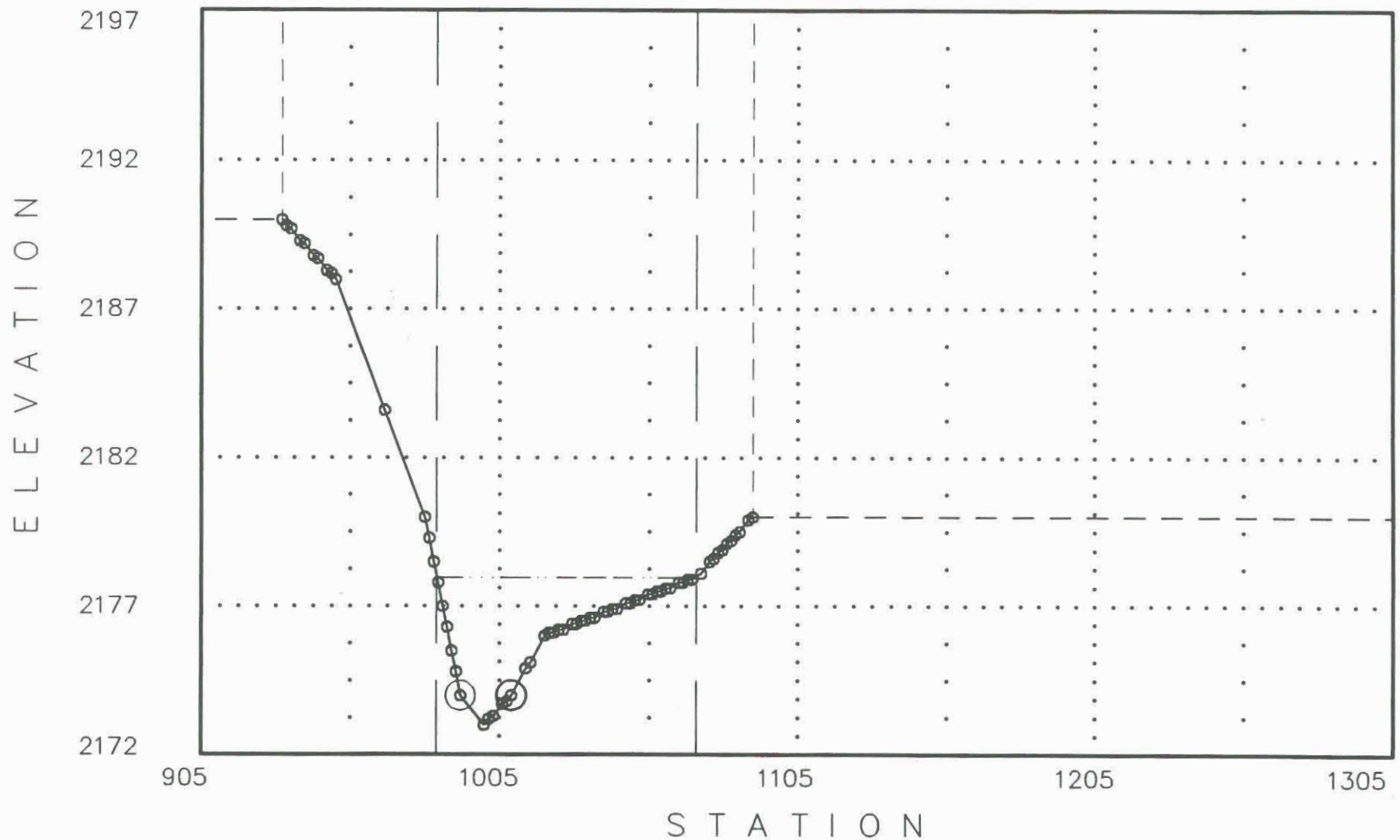


11-21-1992

<<<<<< Cross Section: 1.129: (FN = WASHAE.O) >>>>>>

Q1= 1053 WS1= 2177.96
Q2= 1053 WS2= 2177.96

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

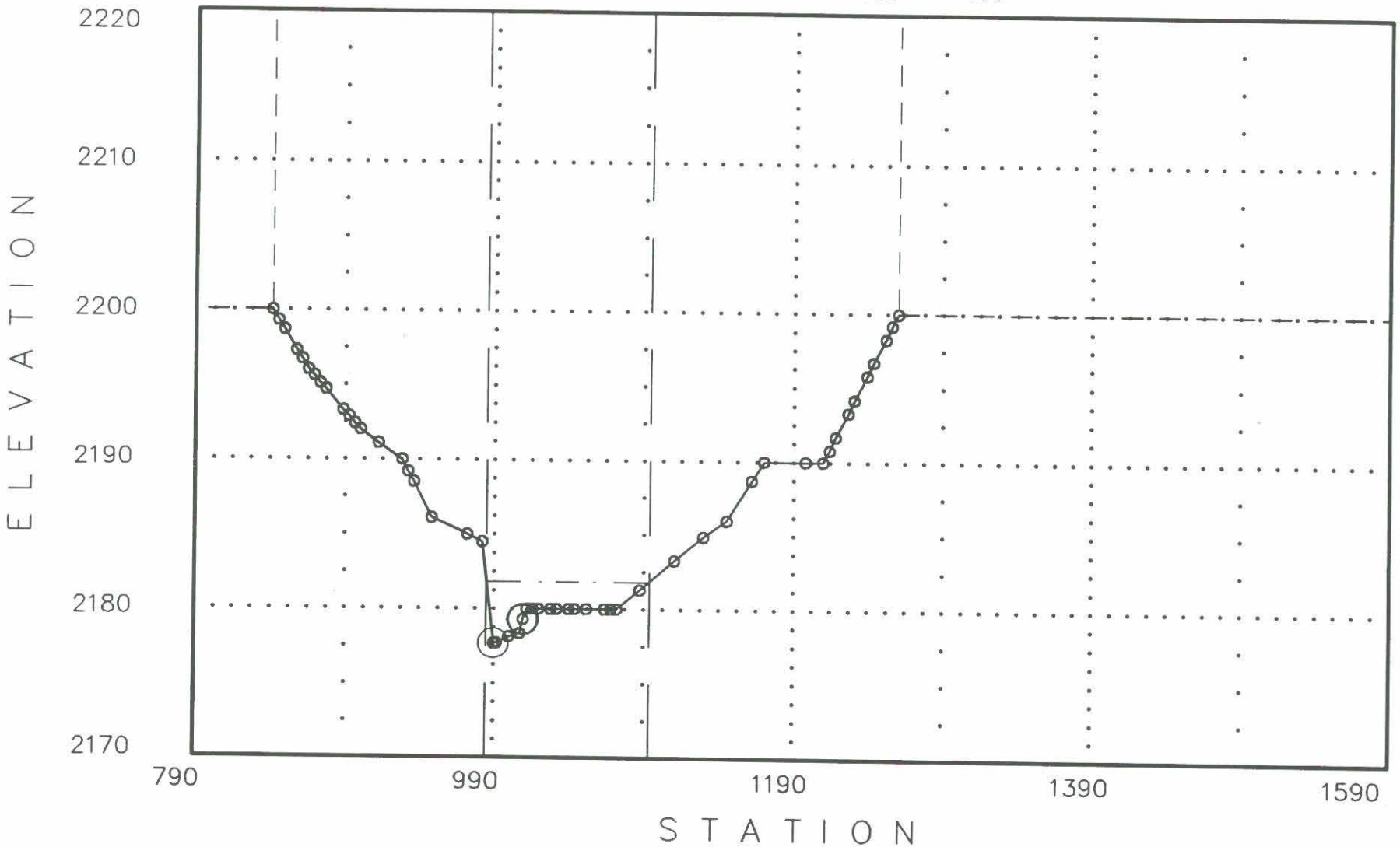


11-21-1992

<<<<<< Cross Section: 1.166: (FN = WASHAE.O) >>>>>>

Q1= 1053 WS1= 2181.83
Q2= 1053 WS2= 2181.84

Manning-n's: n-lob = .06 n-ch = .024 n-rob = .06



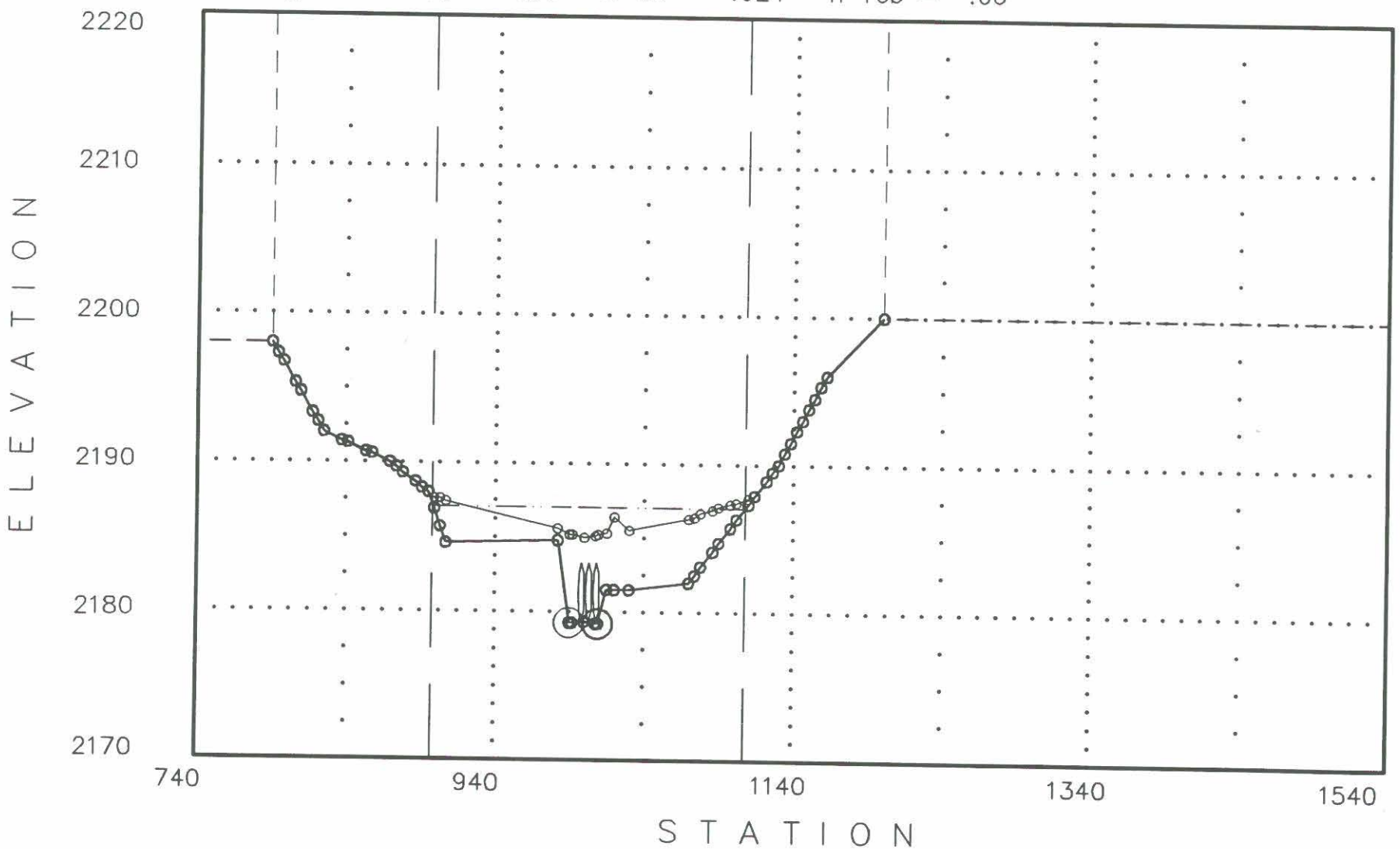
11-21-1992

<<<<<< Cross Section: 1.185: (FN = WASHAE.O) >>>>>>

Q1= 1053 WS1= 2187.05

Q2= 1053 WS2= 2187.04

Manning-n's: n-lob = .06 n-ch = .024 n-rob = .06



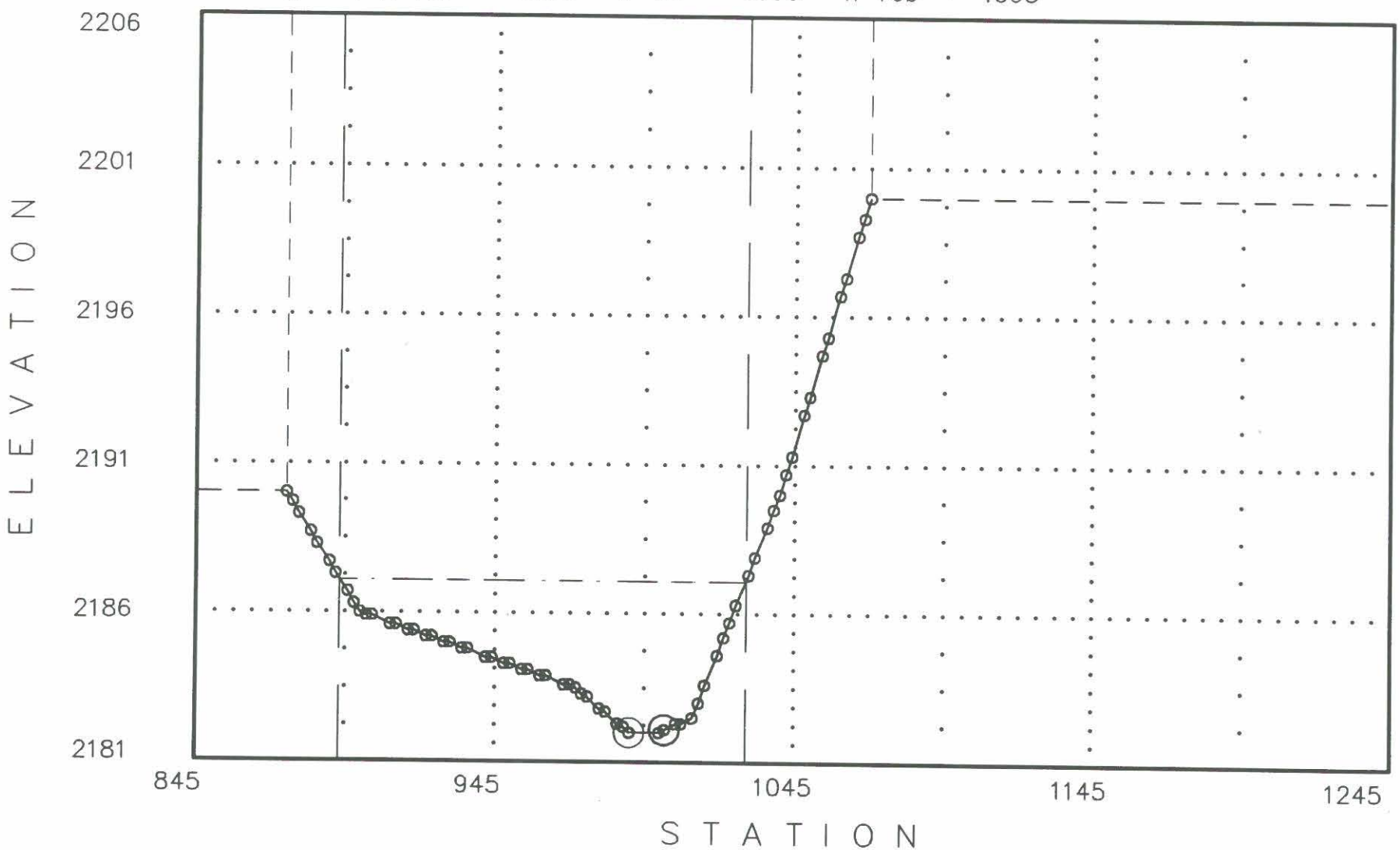
11-21-1992

<<<<<< Cross Section: 1.231: (FN = WASHAE.O) >>>>>>

Q1= 1053 WS1= 2187.08

Q2= 1053 WS2= 2187.08

Manning-n's: n-lob = .065 n-ch = .035 n-rob = .065

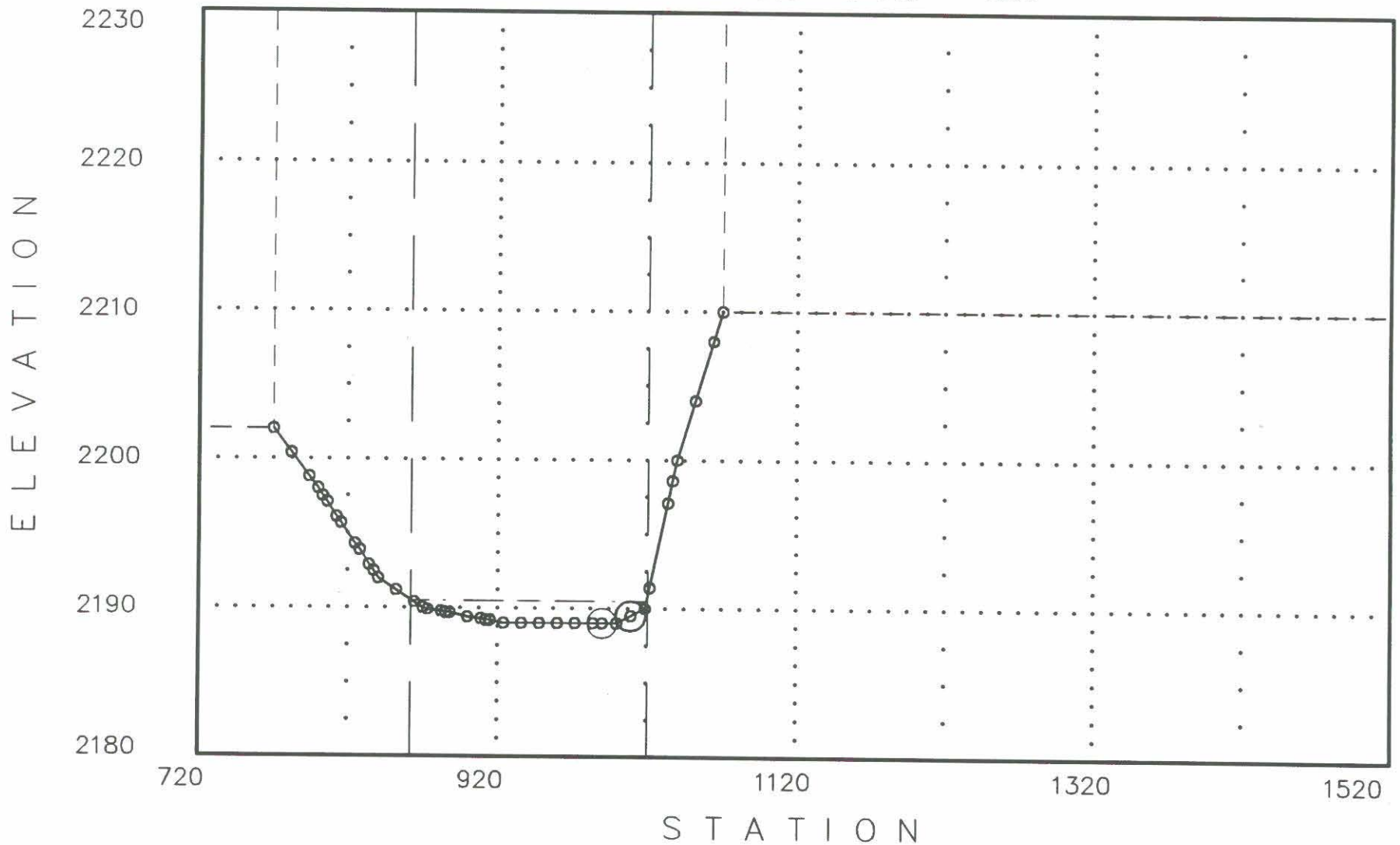


11-21-1992

<<<<<< Cross Section: 1.328: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2190.49
Q2= 1023 WS2= 2190.49

Manning-n's: n-lob = .065 n-ch = .035 n-rob = .065

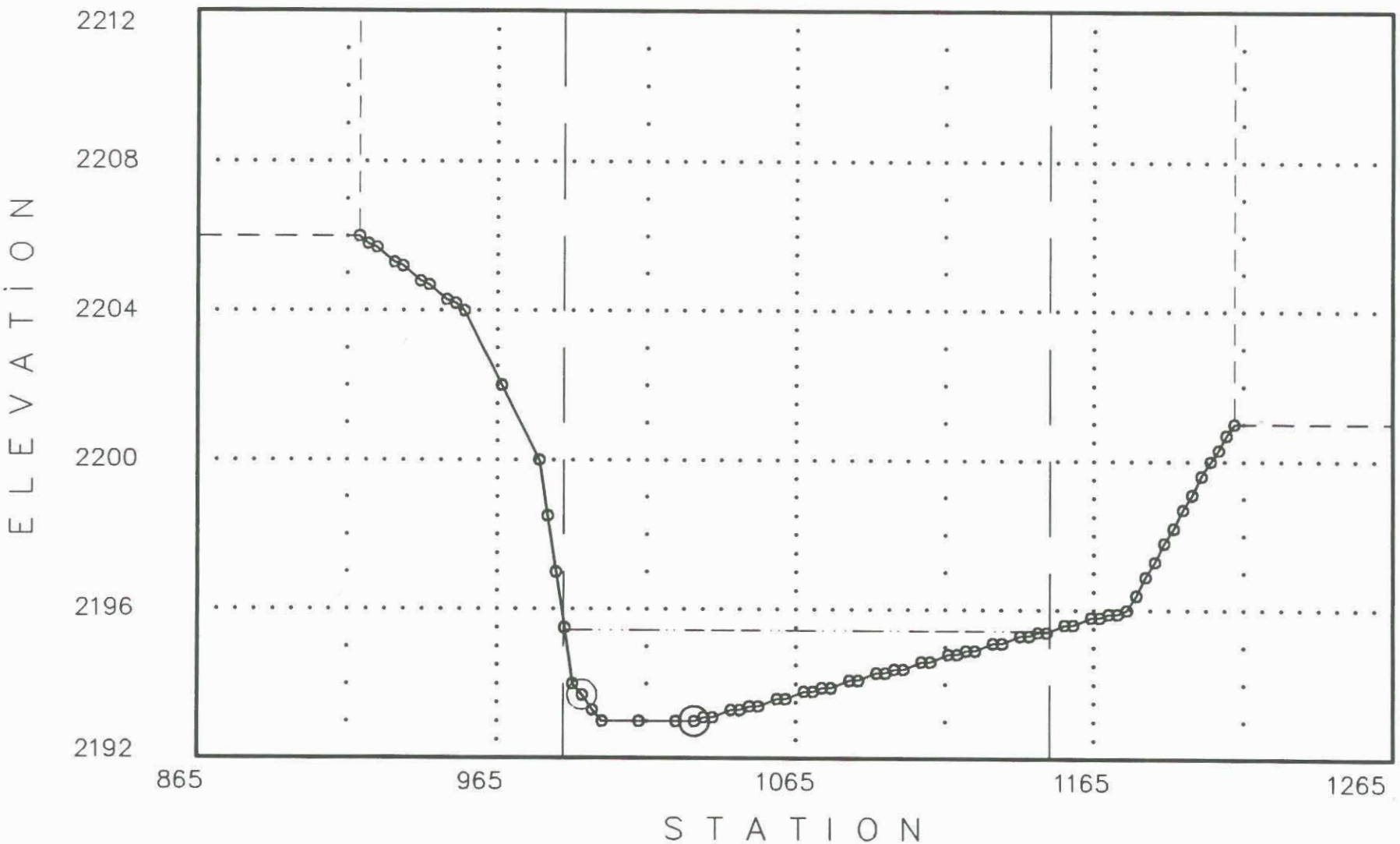


11-21-1992

<<<<<< Cross Section: 1.385: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2195.44
Q2= 1023 WS2= 2195.44

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .07

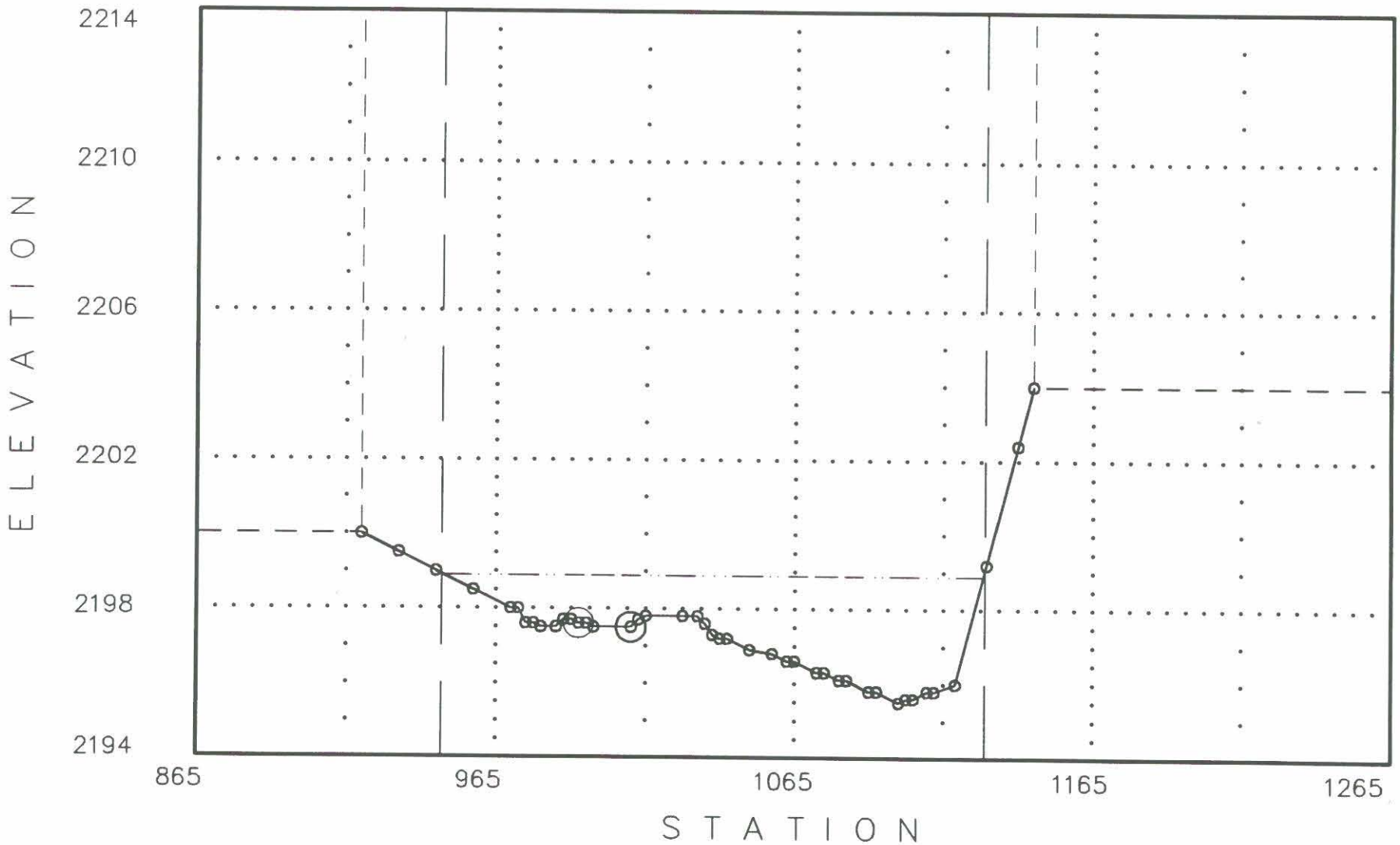


11-21-1992

<<<<<< Cross Section: 1.47: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2198.89
Q2= 1023 WS2= 2198.89

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .07

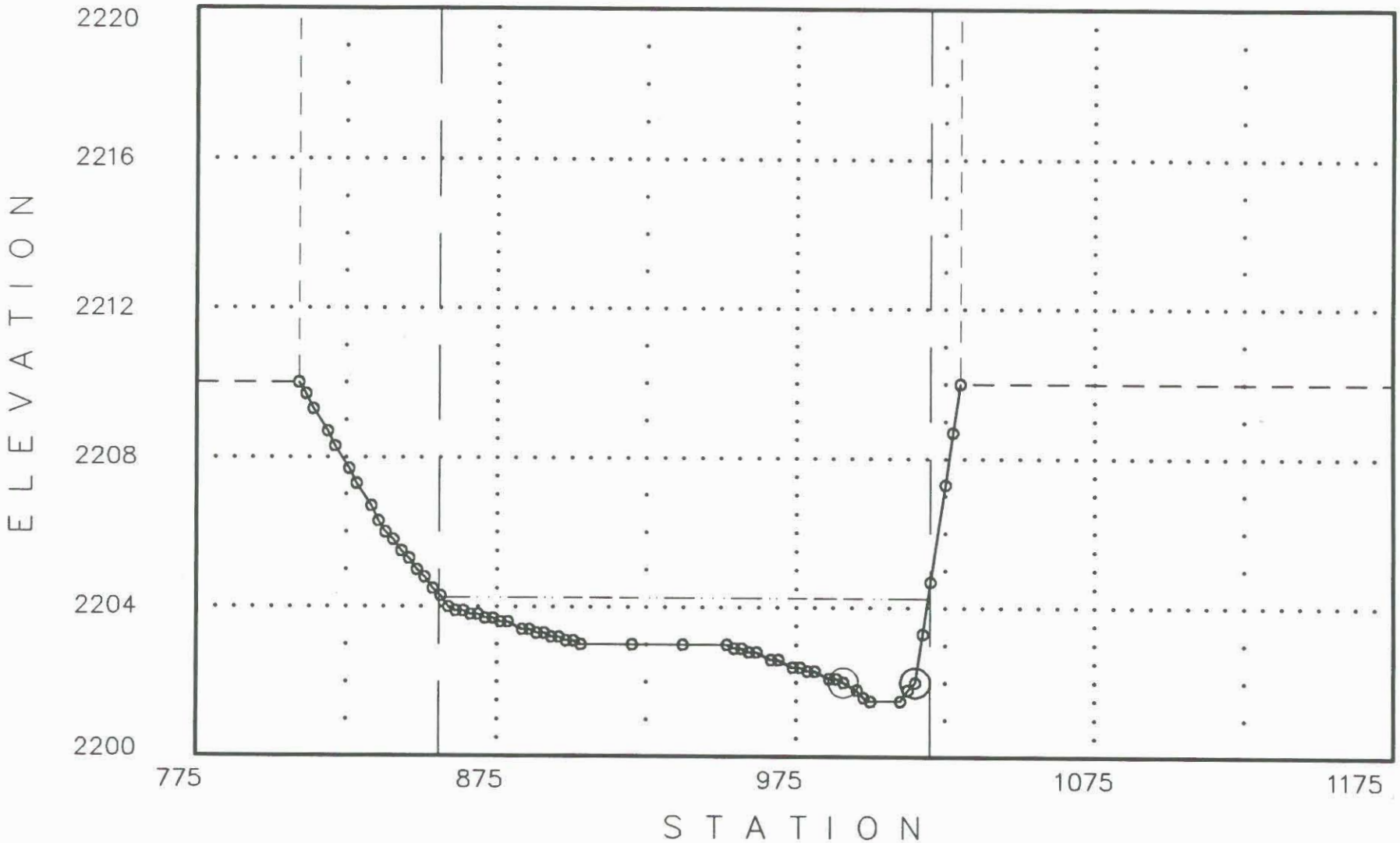


11-21-1992

<<<<<< Cross Section: 1.551: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2204.26
Q2= 1023 WS2= 2204.26

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

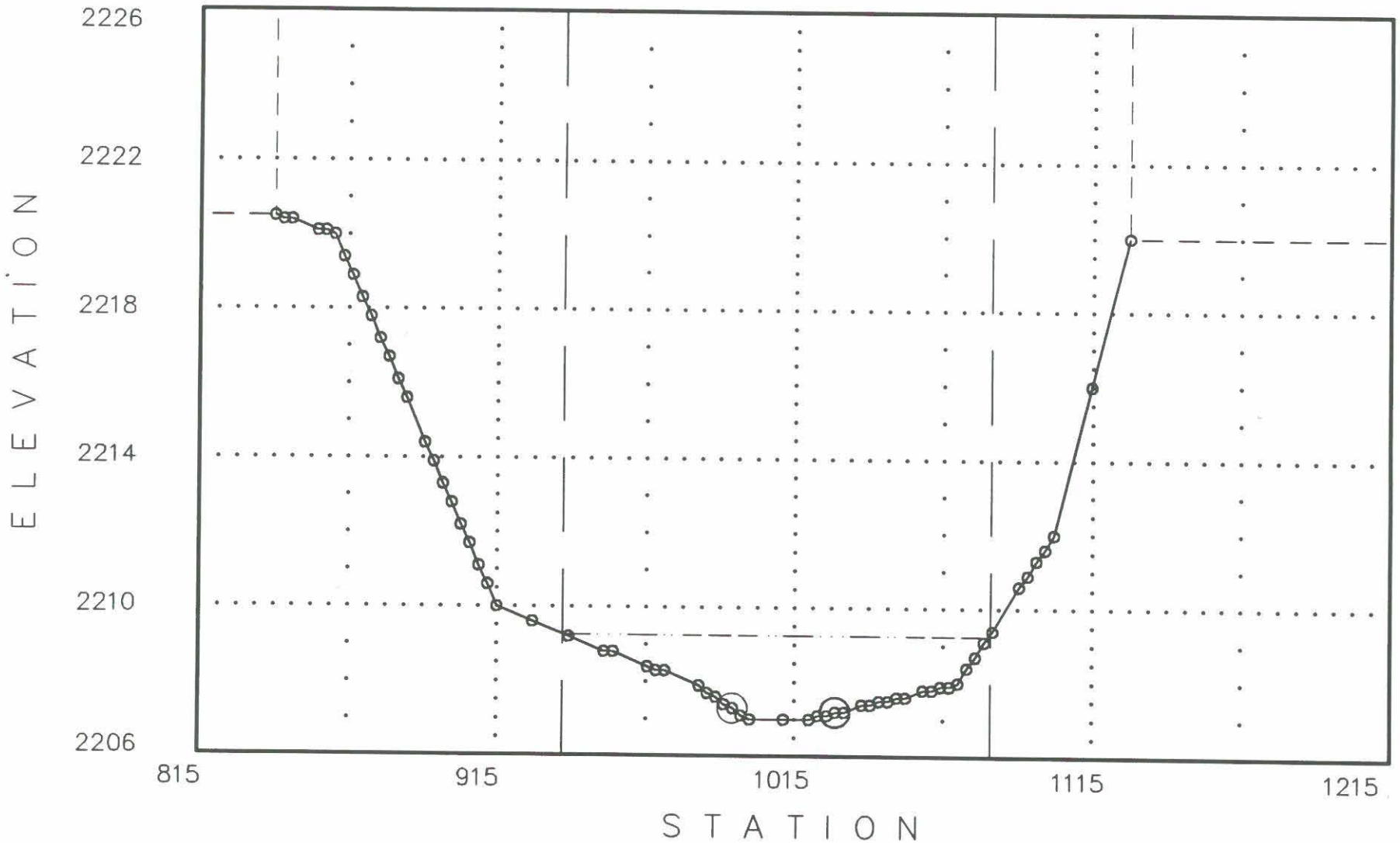


11-21-1992

<<<<<< Cross Section: 1.621: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2209.25
Q2= 1023 WS2= 2209.25

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

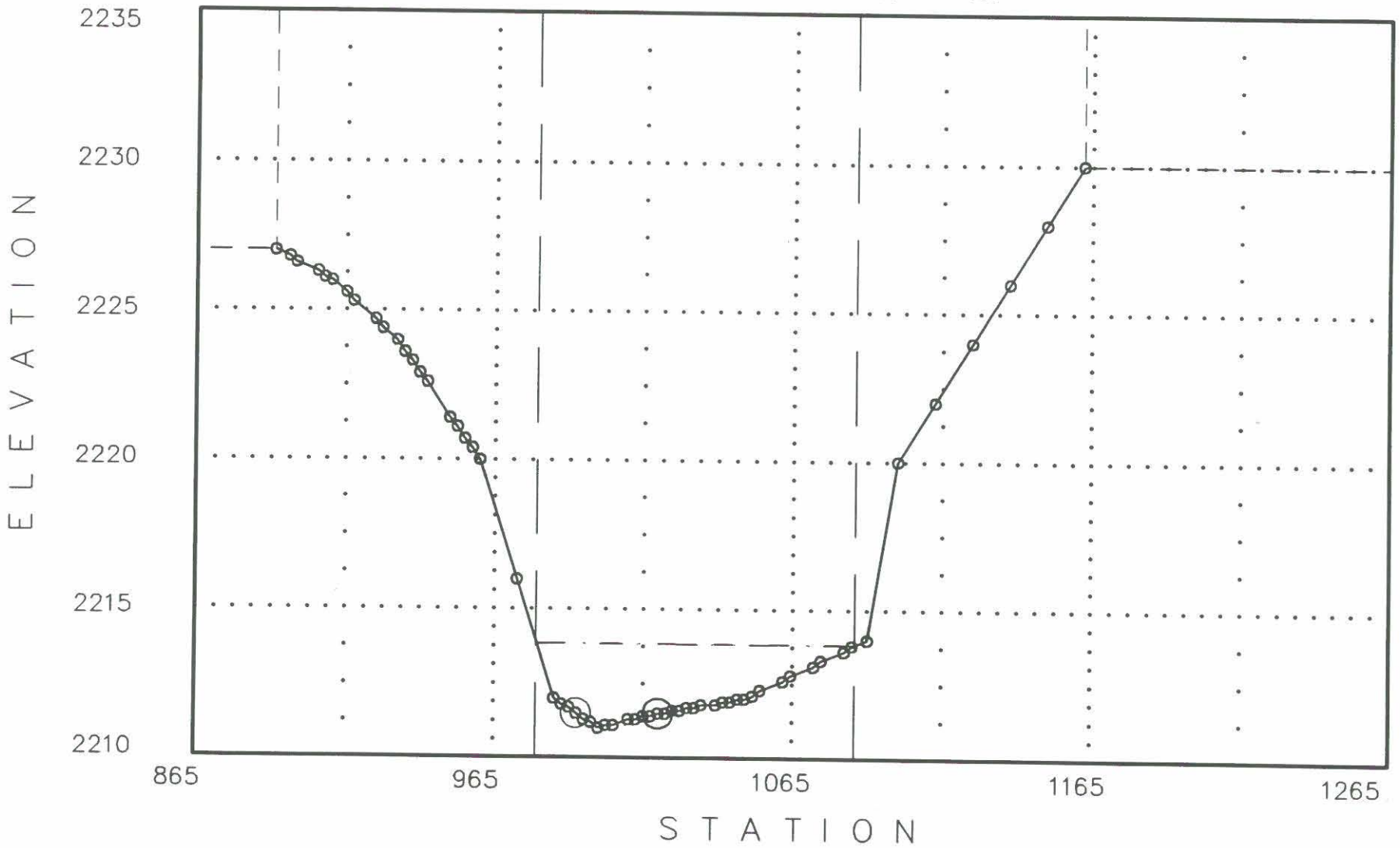


11-21-1992

<<<<<< Cross Section: 1.689: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2213.84
Q2= 1023 WS2= 2213.83

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

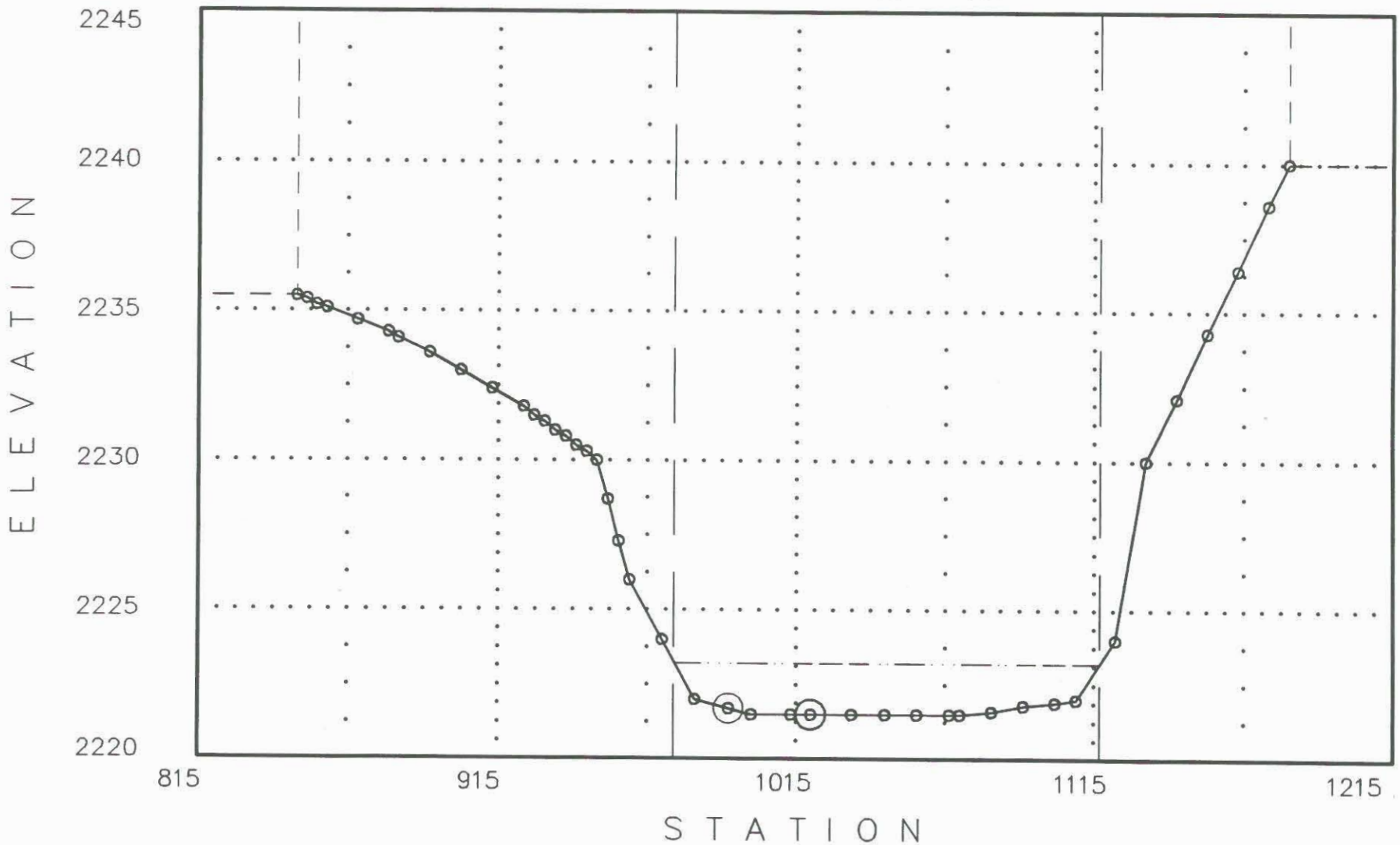


11-21-1992

<<<<<< Cross Section: 1.803: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2223.21
Q2= 1023 WS2= 2223.21

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

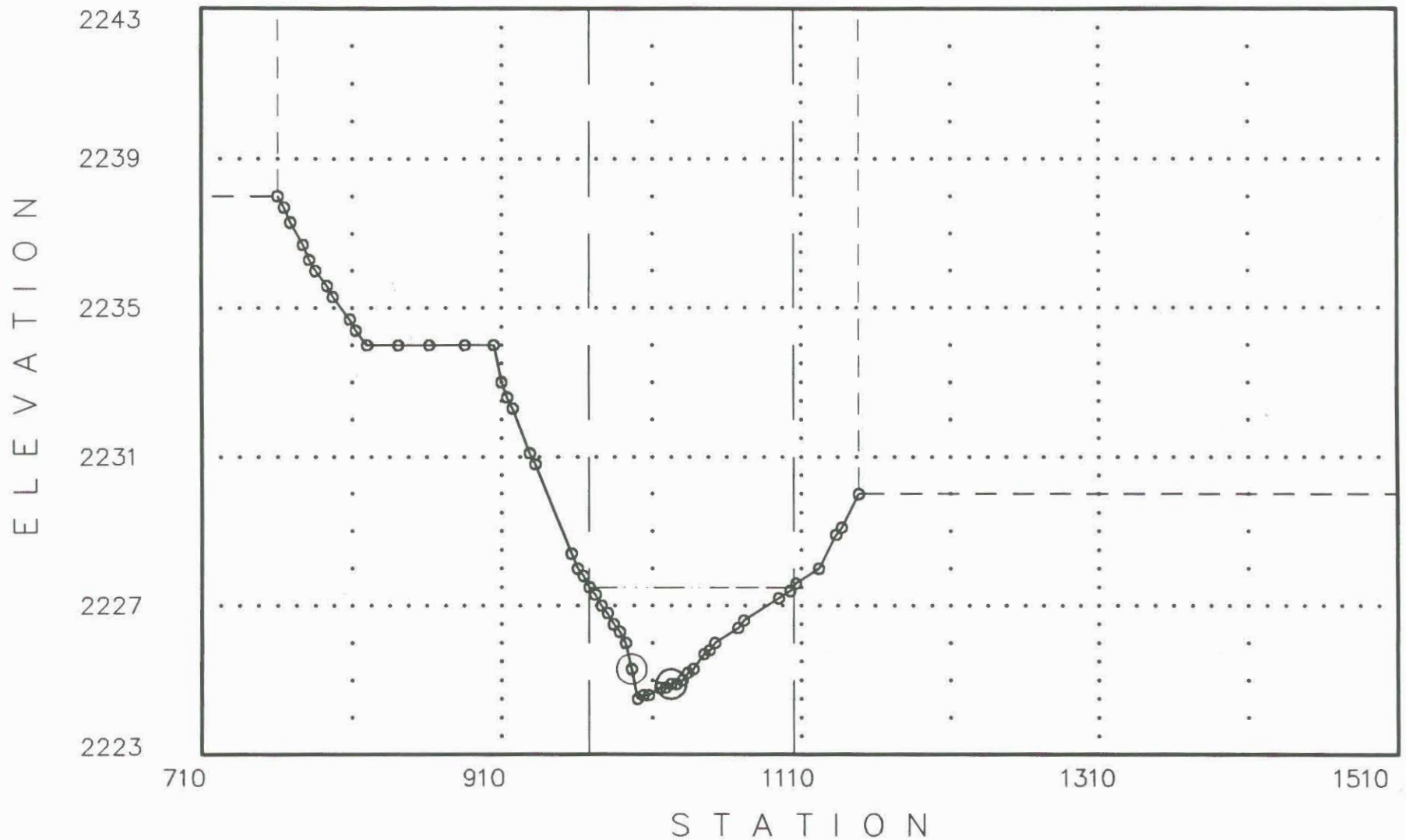


11-21-1992

<<<<<< Cross Section: 1.848: (FN = WASHAE.O) >>>>>>

Q1= 1023 WS1= 2227.49
Q2= 1023 WS2= 2227.49

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



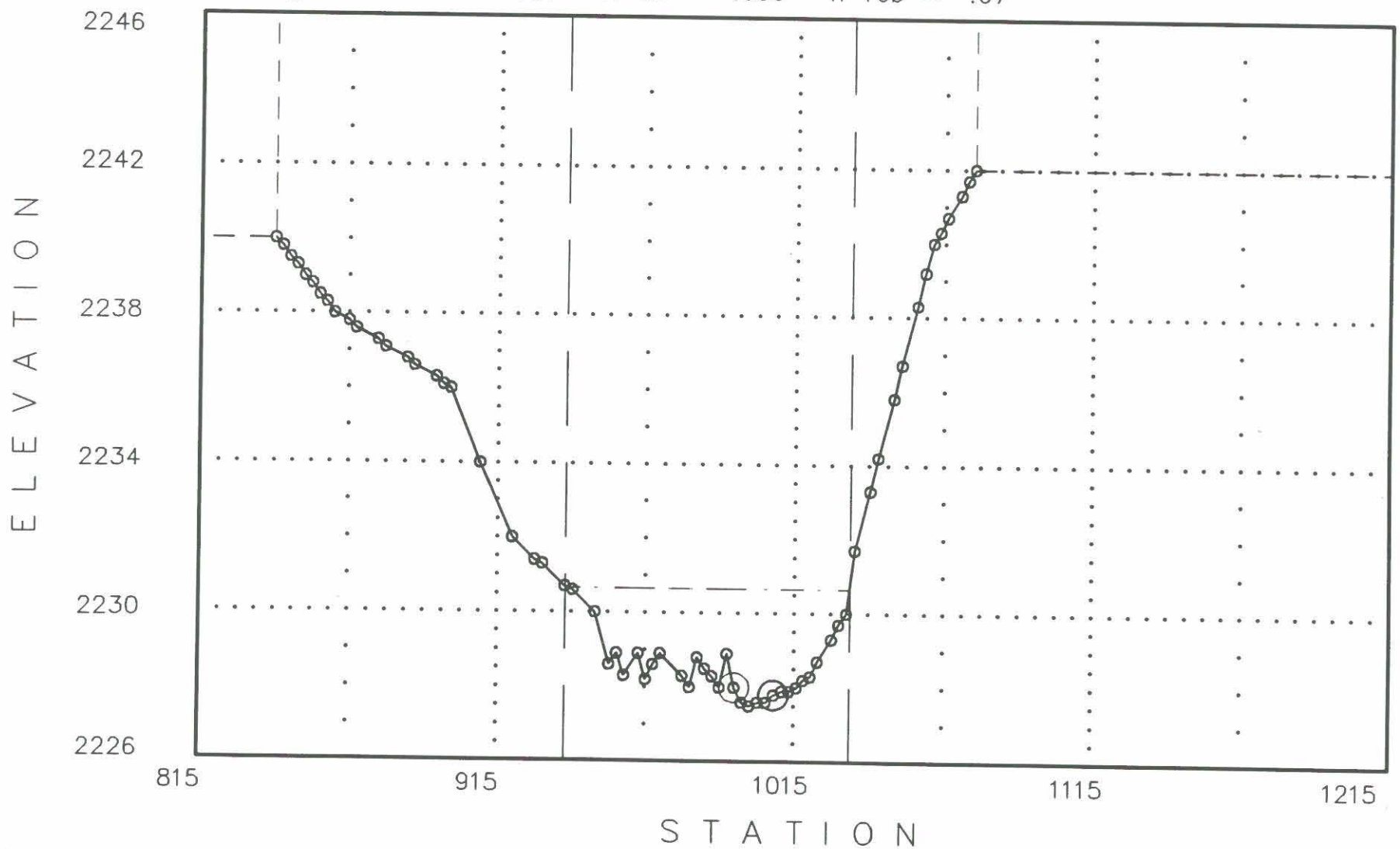
11-21-1992

<<<<<< Cross Section: 1.898: (FN = WASHAE.O) >>>>>>

Q1= 982 WS1= 2230.65

Q2= 982 WS2= 2230.65

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



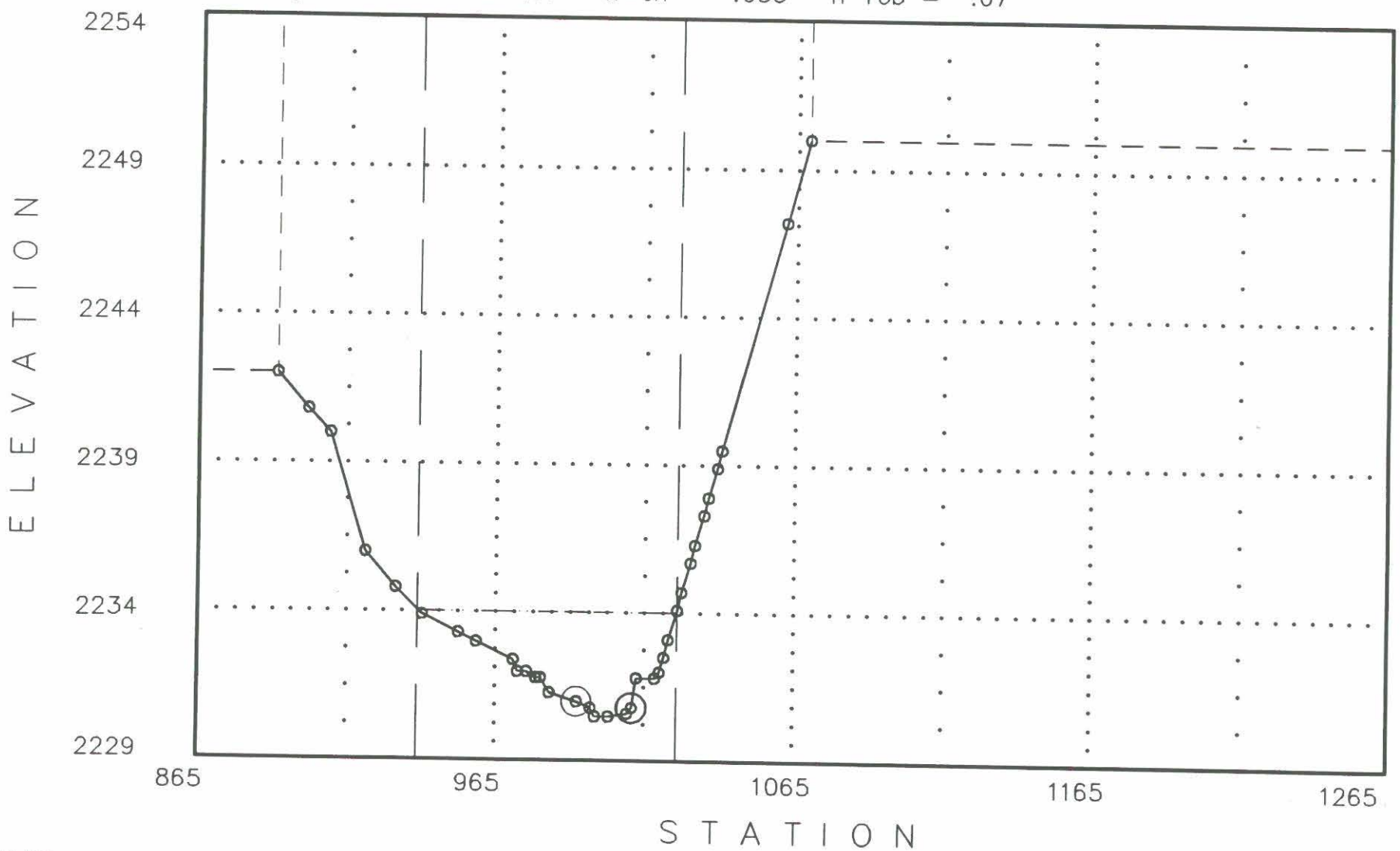
11-21-1992

<<<<<< Cross Section: 1.935: (FN = WASHAE.O) >>>>>>

Q1= 982 WS1= 2234.01

Q2= 982 WS2= 2234.01

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



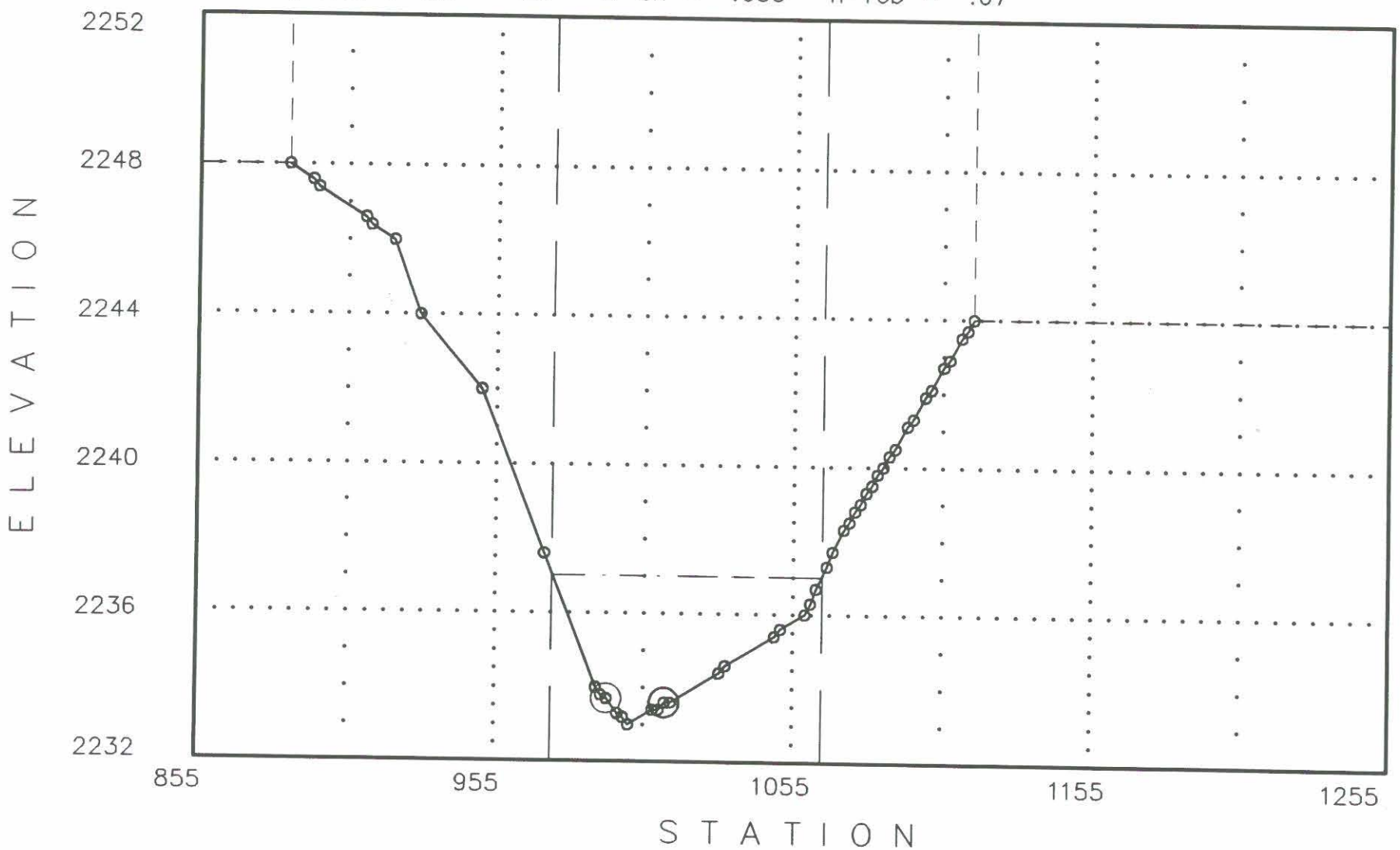
11-21-1992

<<<<<< Cross Section: 1.998: (FN = WASHAE.O) >>>>>>

Q1= 920 WS1= 2237.02

Q2= 920 WS2= 2237.02

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

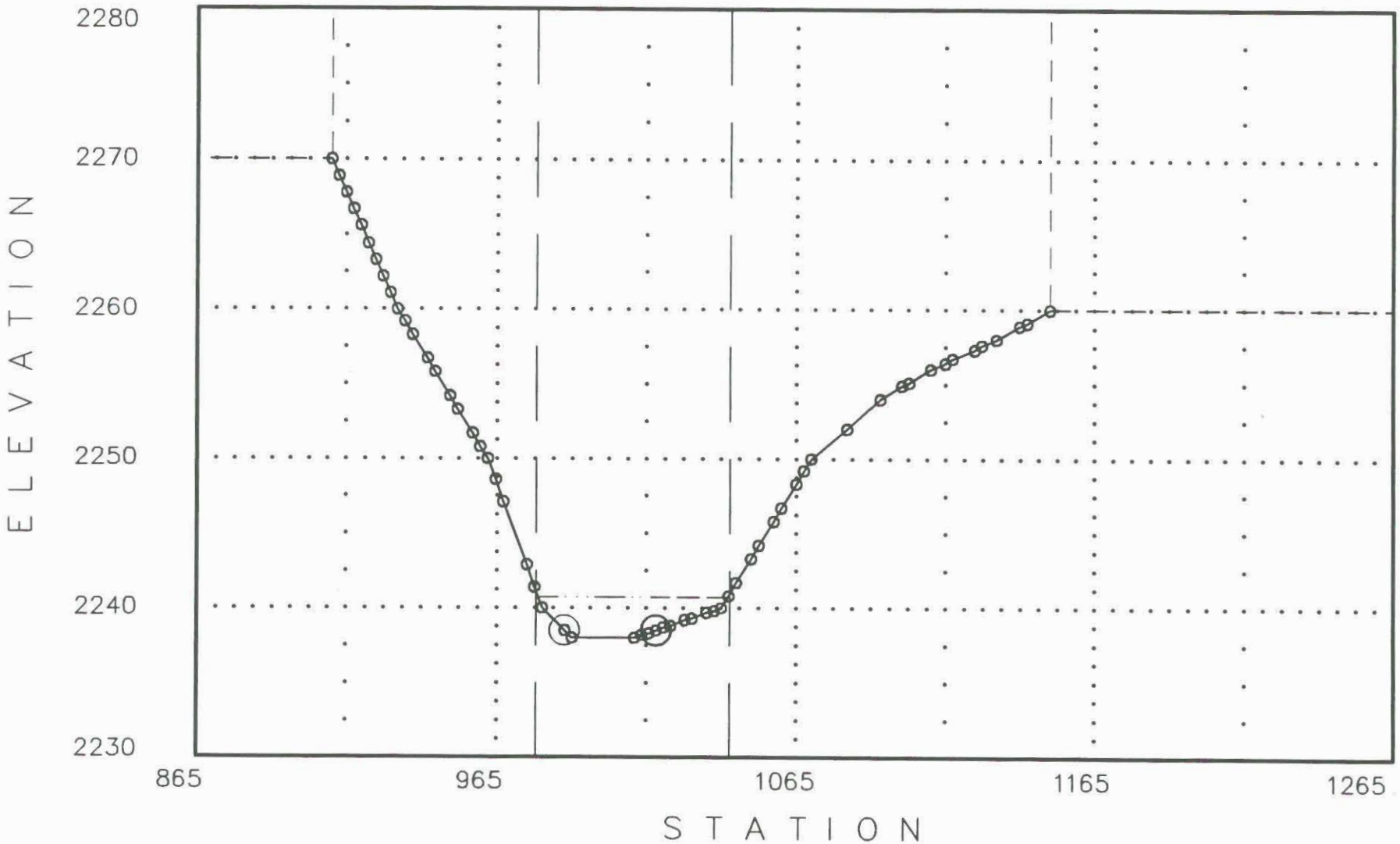


11-21-1992

<<<<<< Cross Section: 2.093: (FN = WASHAE.O) >>>>>>

Q1= 857 WS1= 2240.73
Q2= 857 WS2= 2240.73

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

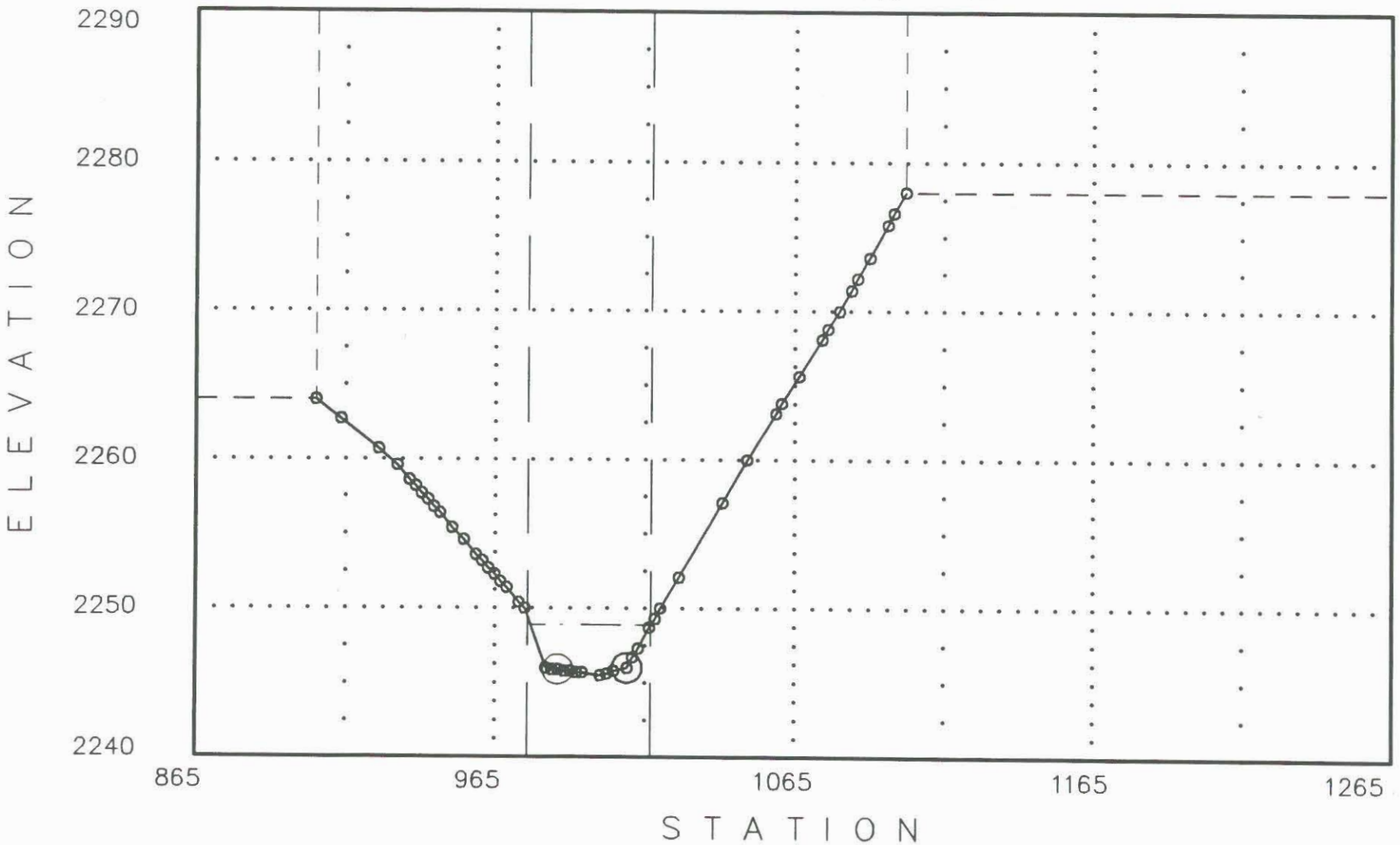


11-21-1992

<<<<<< Cross Section: 2.182: (FN = WASHAE.O) >>>>>>

Q1= 857 WS1= 2248.9
Q2= 857 WS2= 2248.9

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



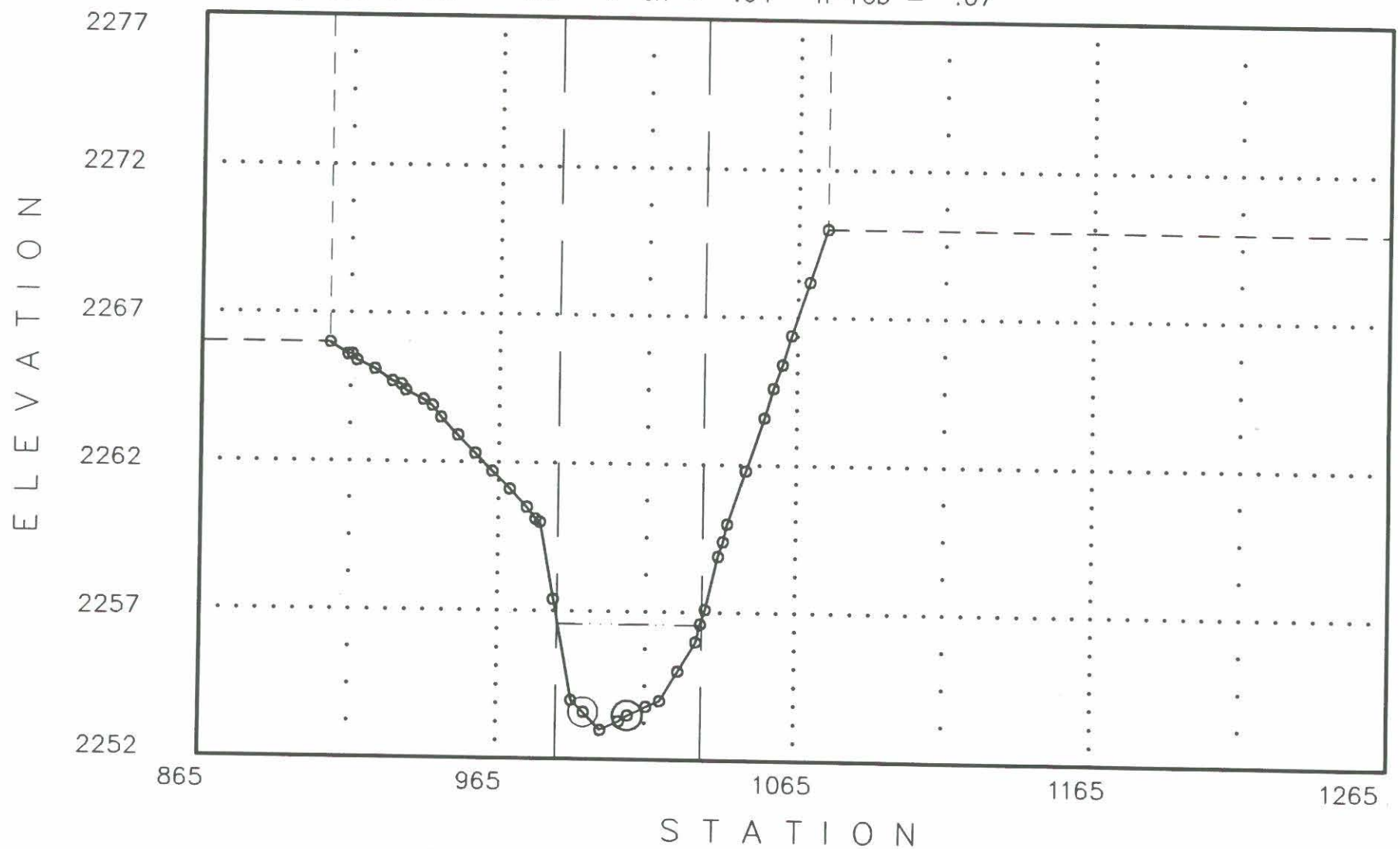
11-21-1992

<<<<<< Cross Section: 2.271: (FN = WASHAE.O) >>>>>>

Q1= 857 WS1= 2256.57

Q2= 857 WS2= 2256.58

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .07



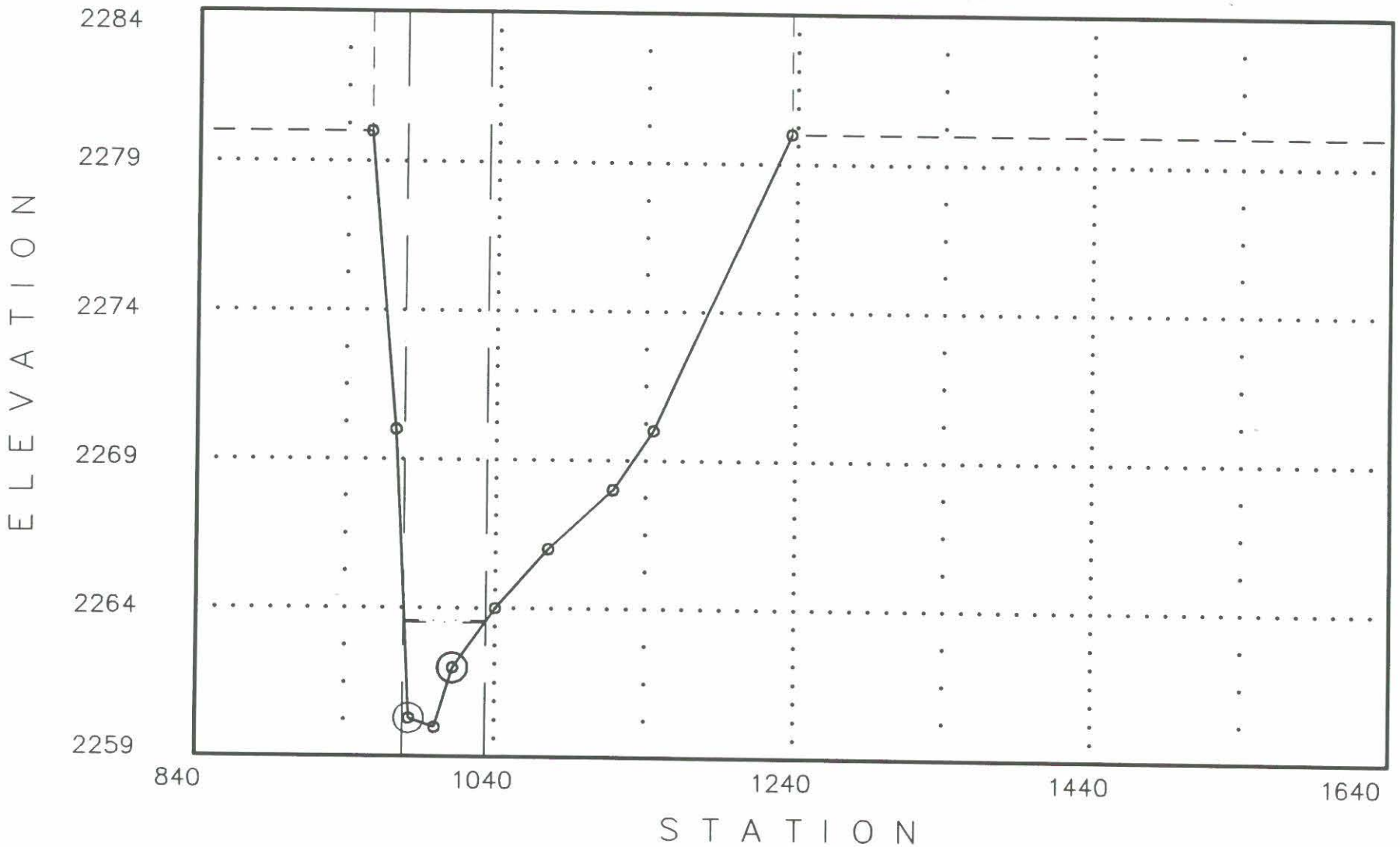
11-21-1992

<<<<<< Cross Section: 2.311: (FN = WASHAE.O) >>>>>>

Q1= 857 WS1= 2263.52

Q2= 857 WS2= 2263.59

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .07

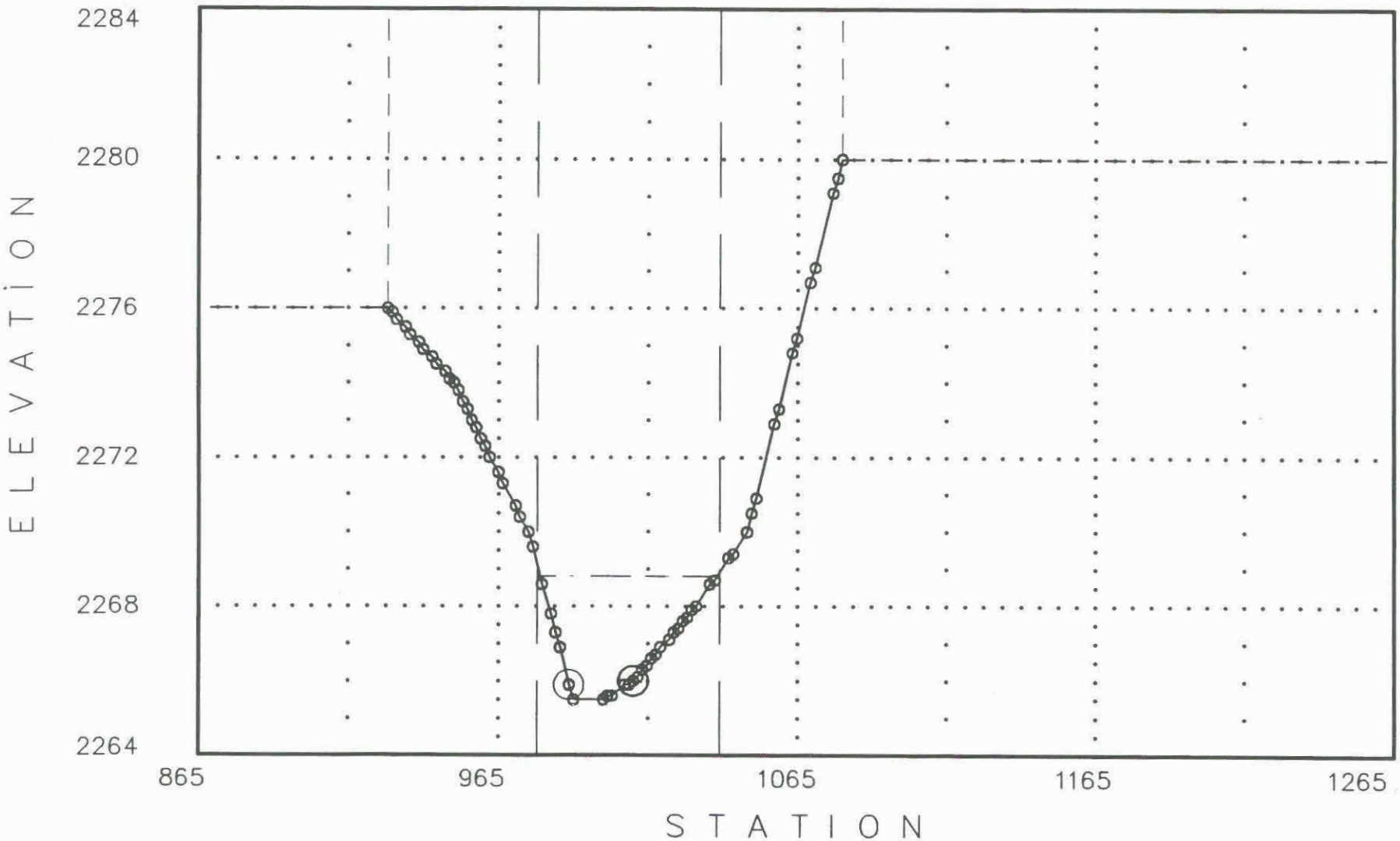


11-21-1992

<<<<<< Cross Section: 2.388: (FN = WASHAE.O) >>>>>>

Q1= 857 WS1= 2268.81
Q2= 857 WS2= 2268.82

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .07

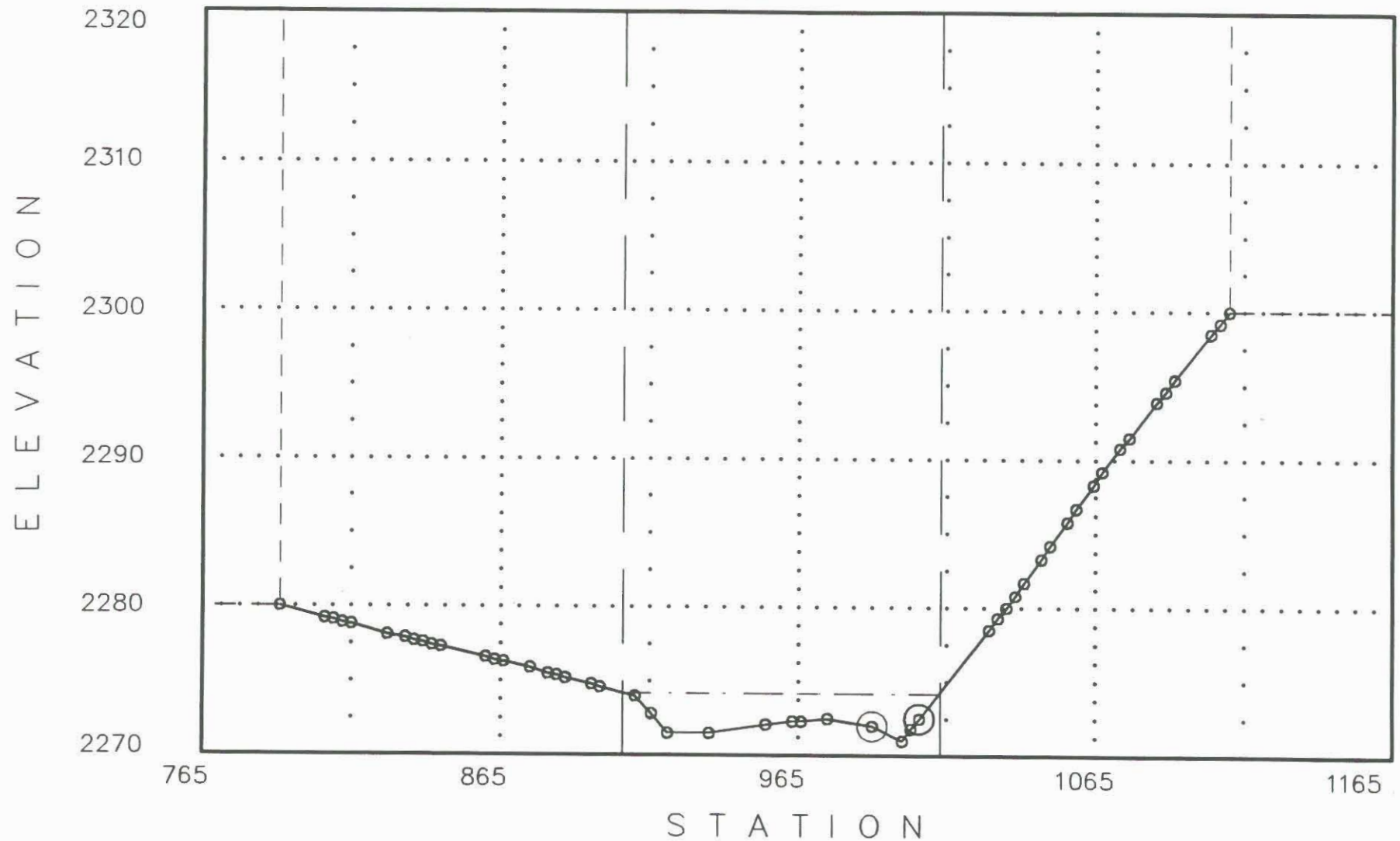


11-21-1992

<<<<<< Cross Section: 2.466: (FN = WASHAE.O) >>>>>>

Q1= 857 WS1= 2274.2
Q2= 857 WS2= 2274.19

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .07

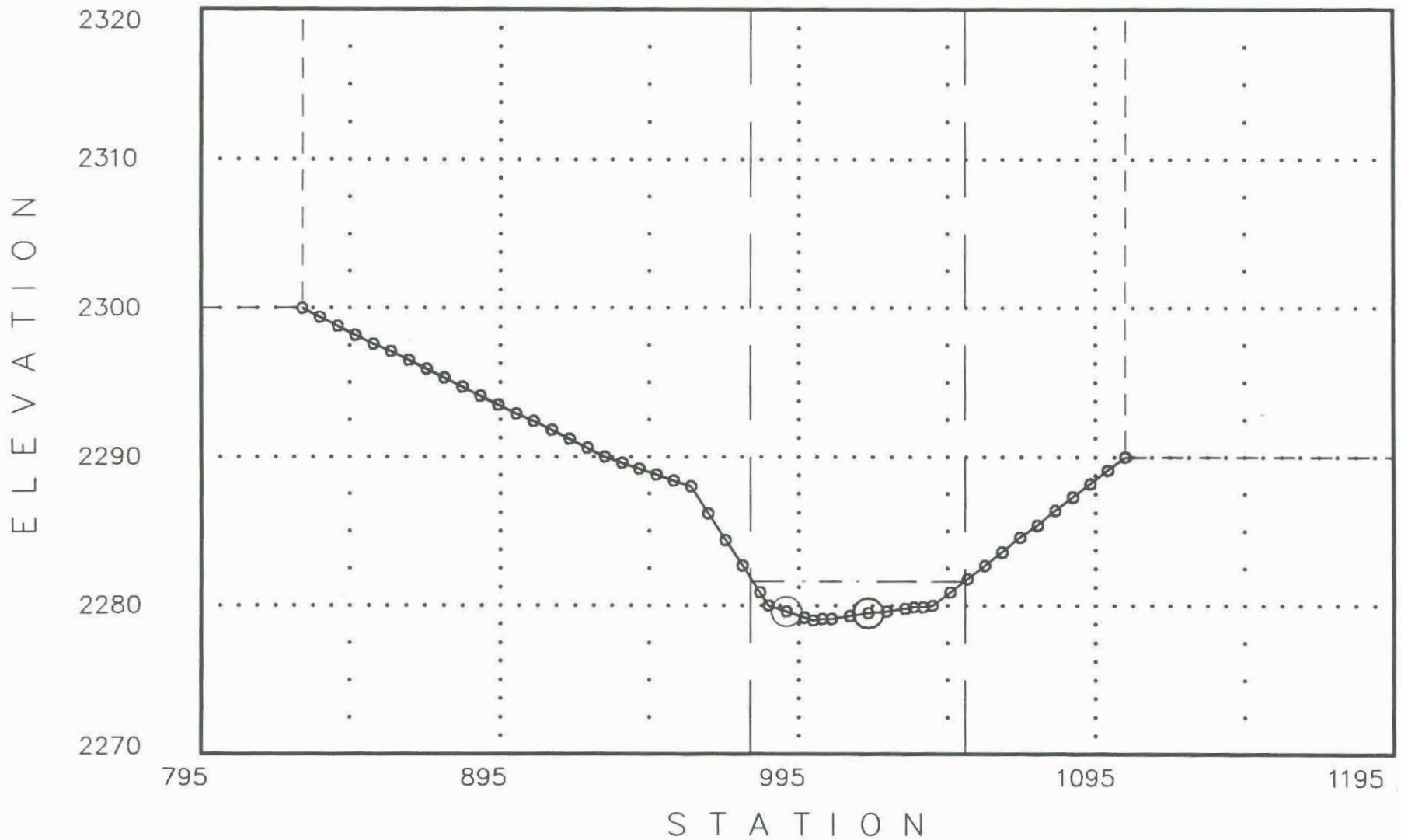


11-21-1992

<<<<<< Cross Section: 2.56: (FN = WASHAE.O) >>>>>>

Q1= 857 WS1= 2281.64
Q2= 857 WS2= 2281.64

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .07

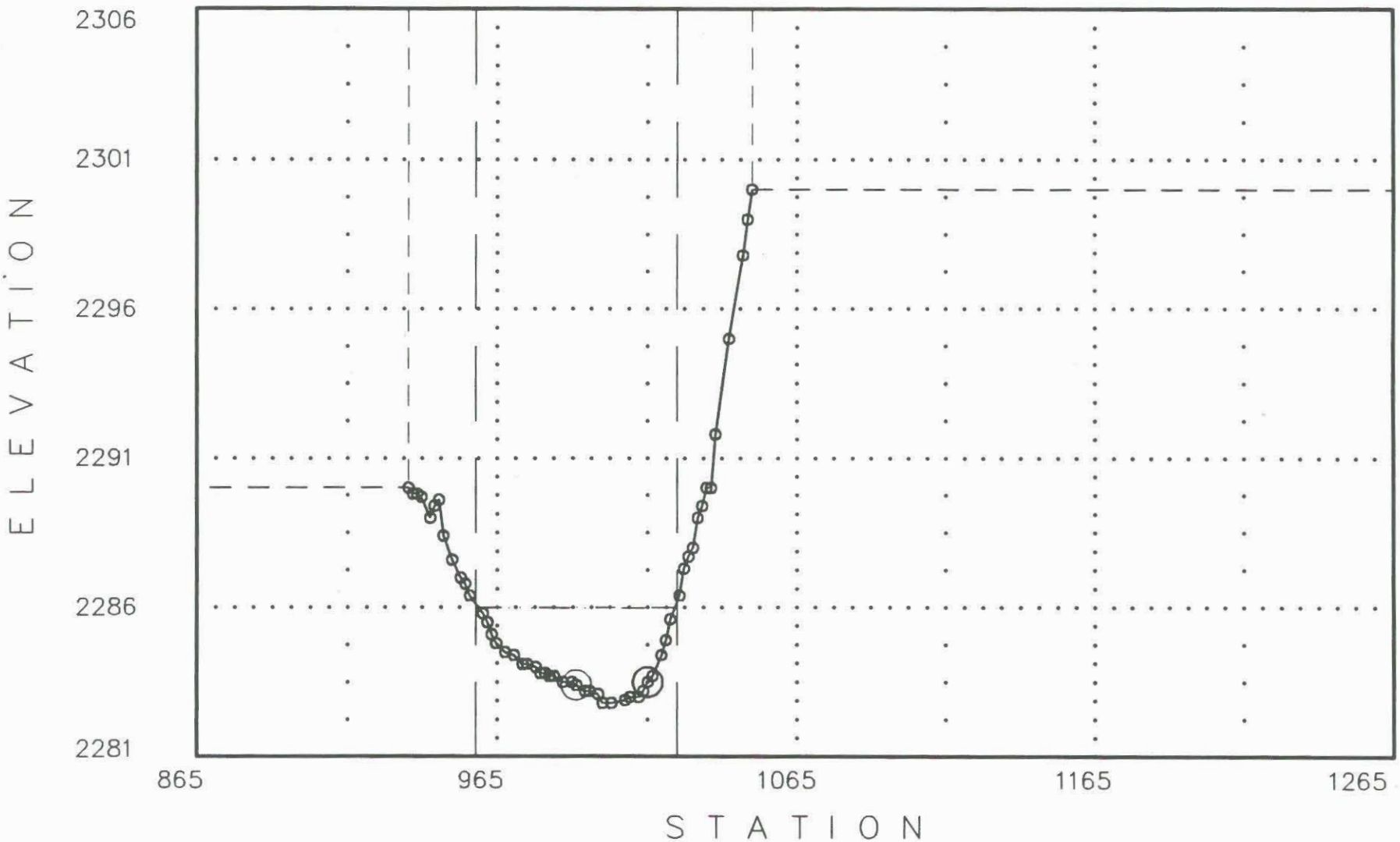


11-21-1992

<<<<<< Cross Section: 2.625: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2286
Q2= 737 WS2= 2285.99

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



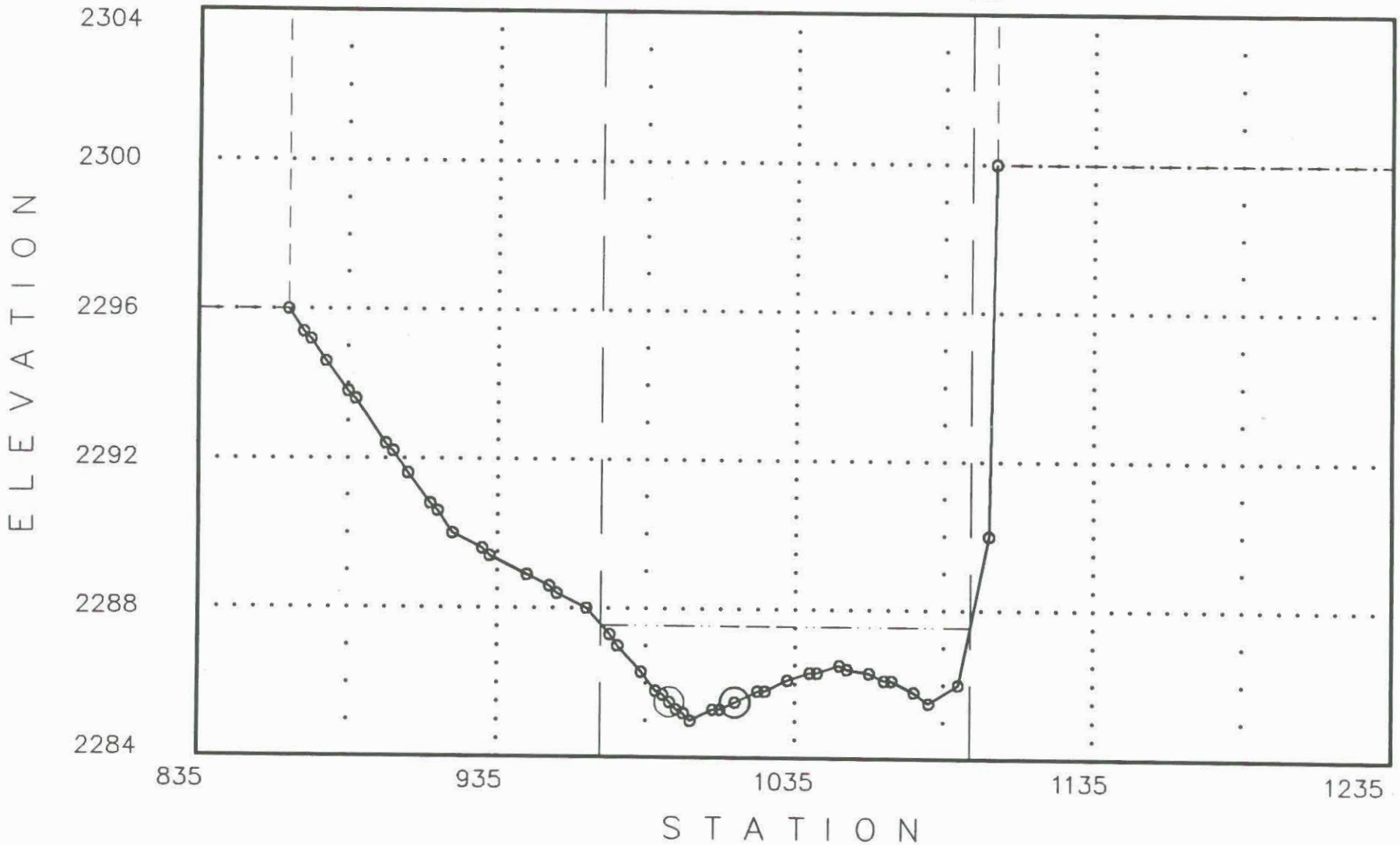
11-21-1992

<<<<<< Cross Section: 2.655: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2287.55

Q2= 737 WS2= 2287.55

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

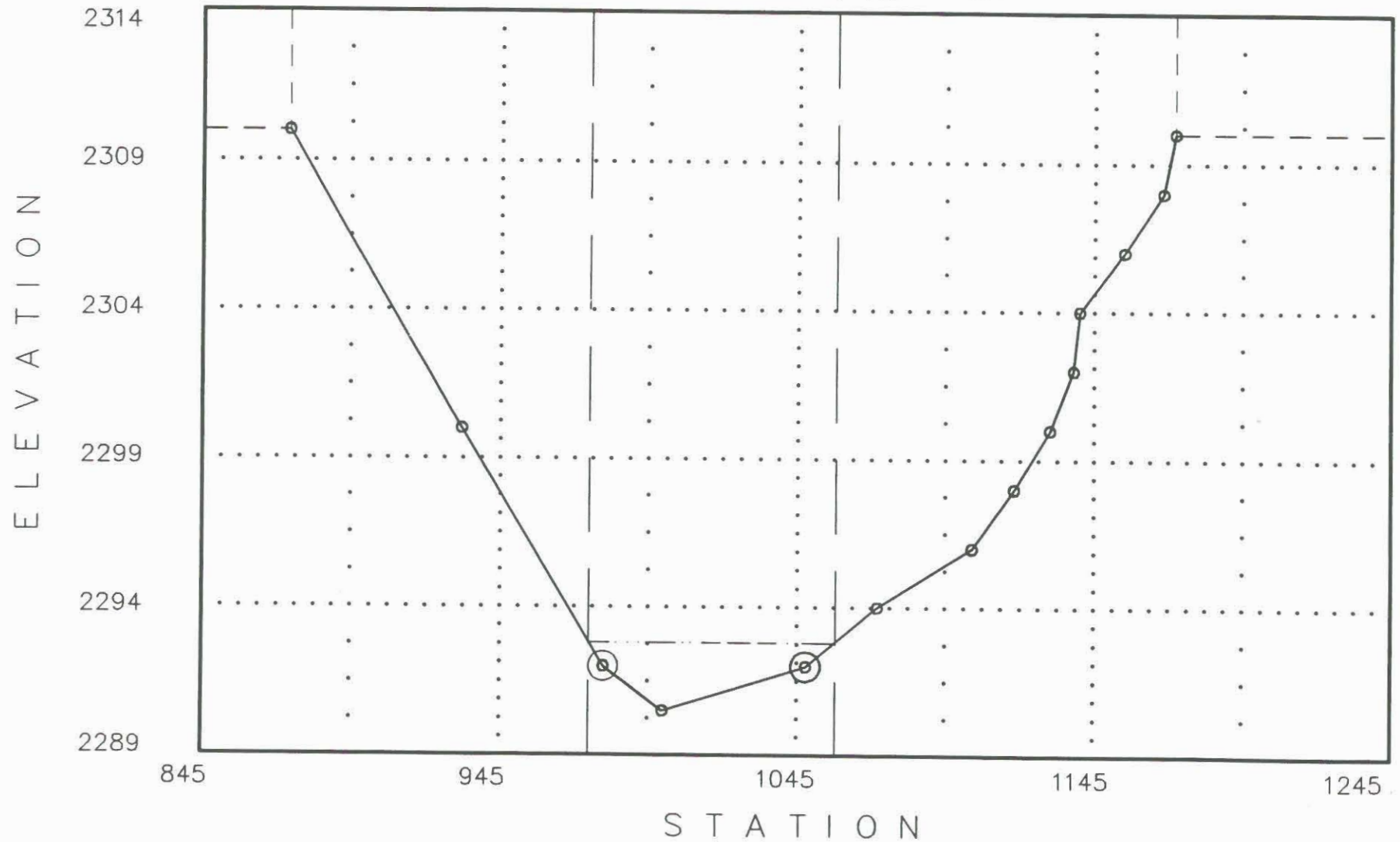


11-21-1992

<<<<<< Cross Section: 2.72: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2292.79
Q2= 737 WS2= 2292.8

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

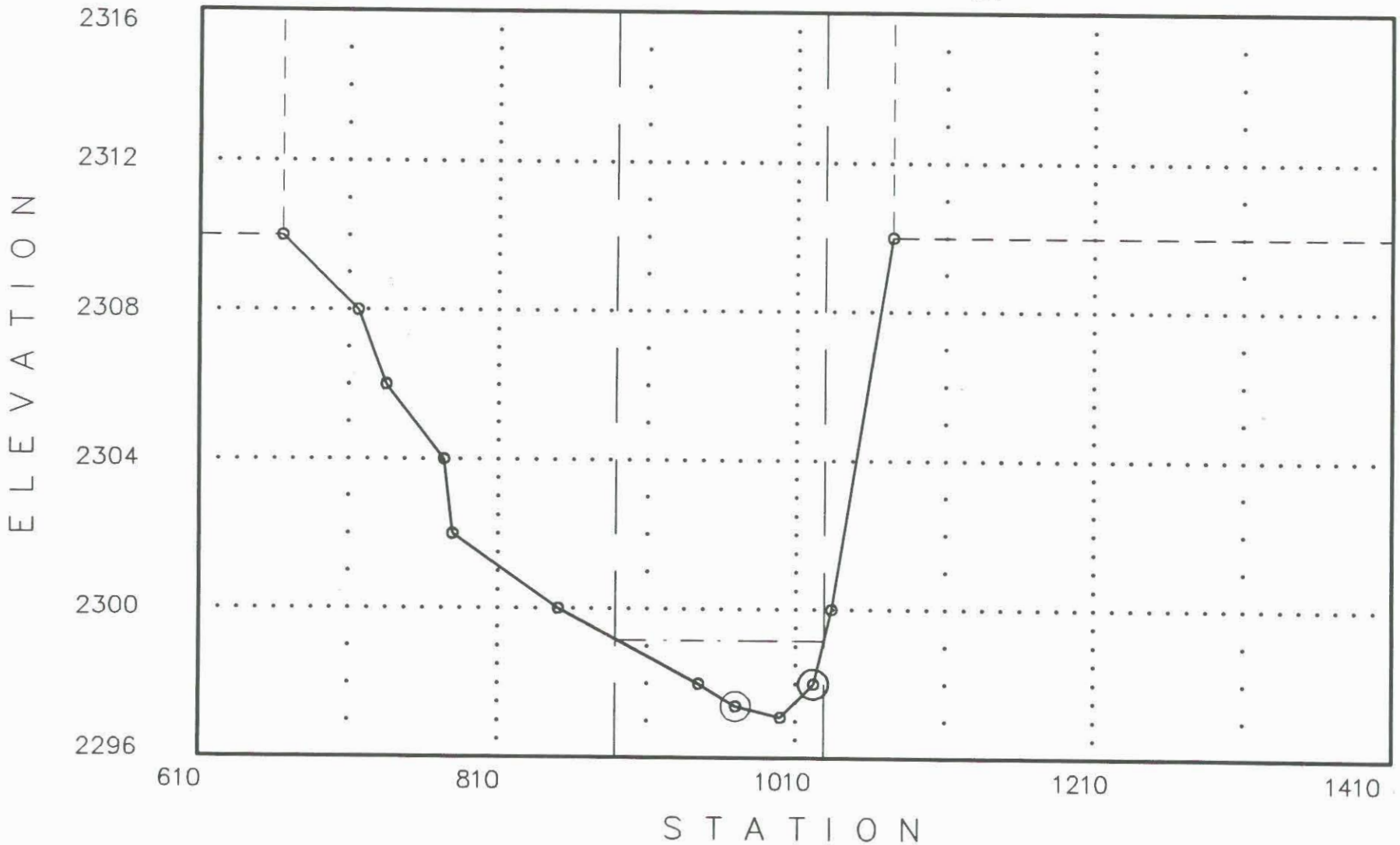


11-21-1992

<<<<<< Cross Section: 2.813: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2299.16
Q2= 737 WS2= 2299.16

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



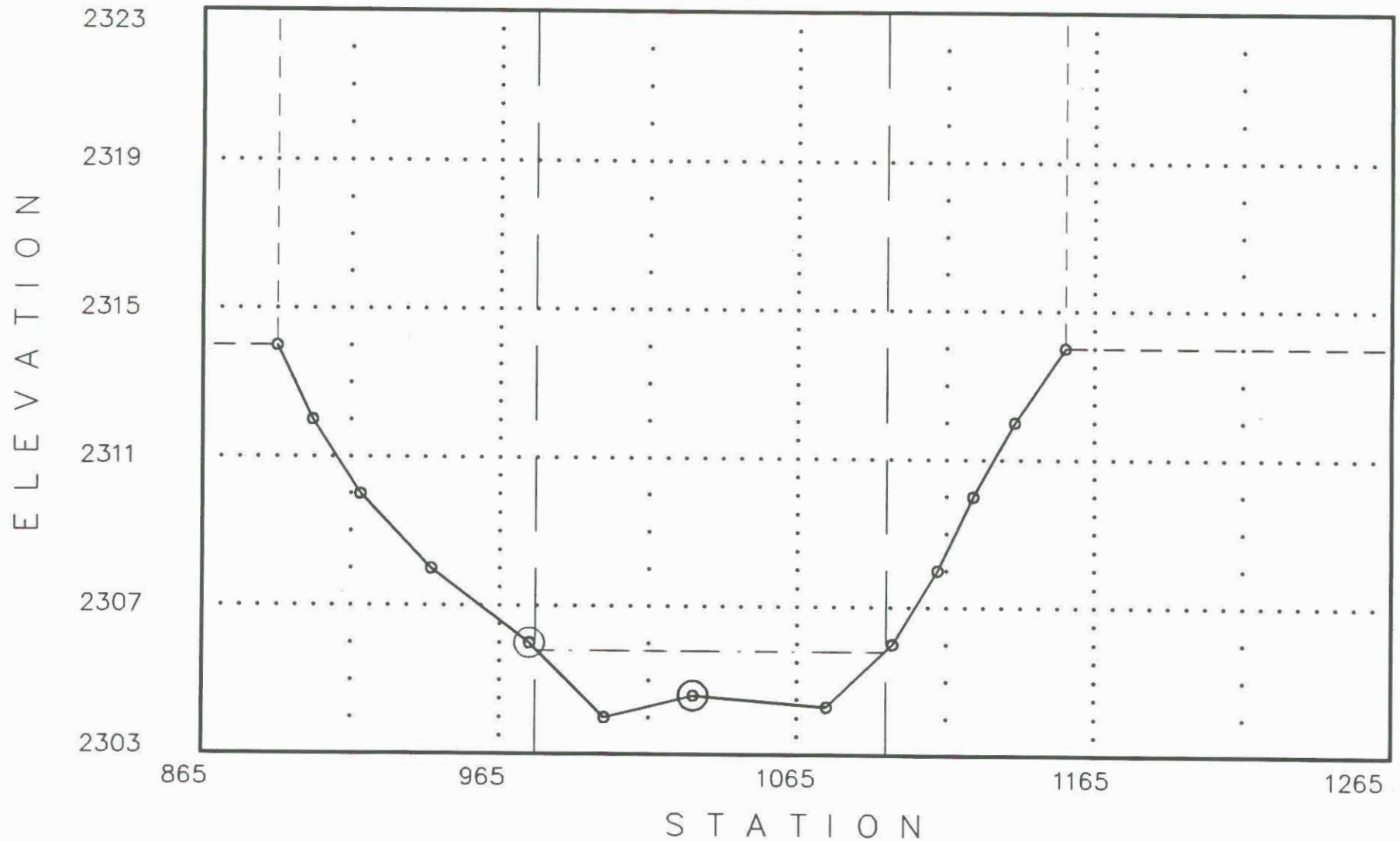
11-21-1992

<<<<<< Cross Section: 2.901: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2305.8

Q2= 737 WS2= 2305.8

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



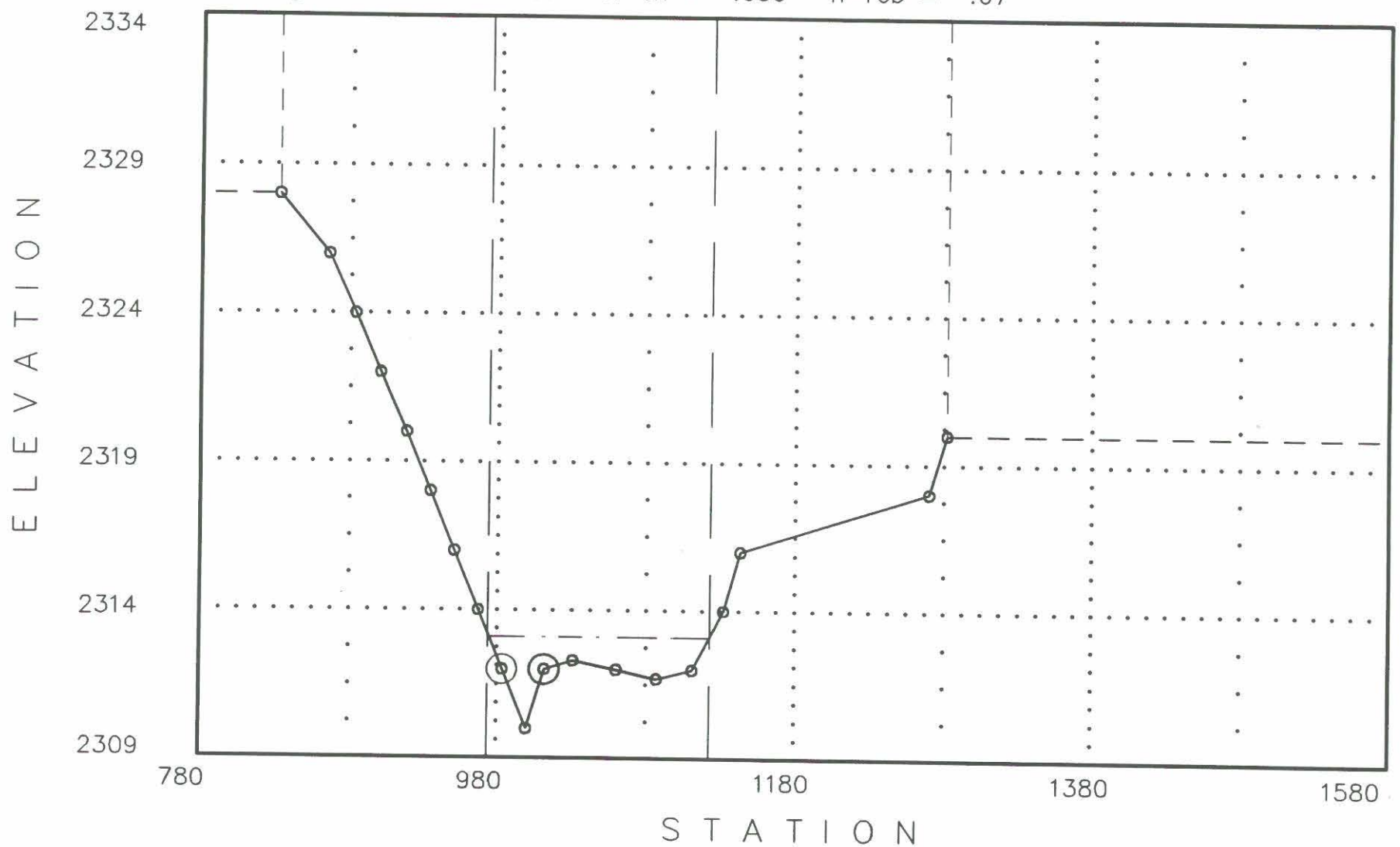
11-21-1992

<<<<<< Cross Section: 2.981: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2313.09

Q2= 737 WS2= 2313.09

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



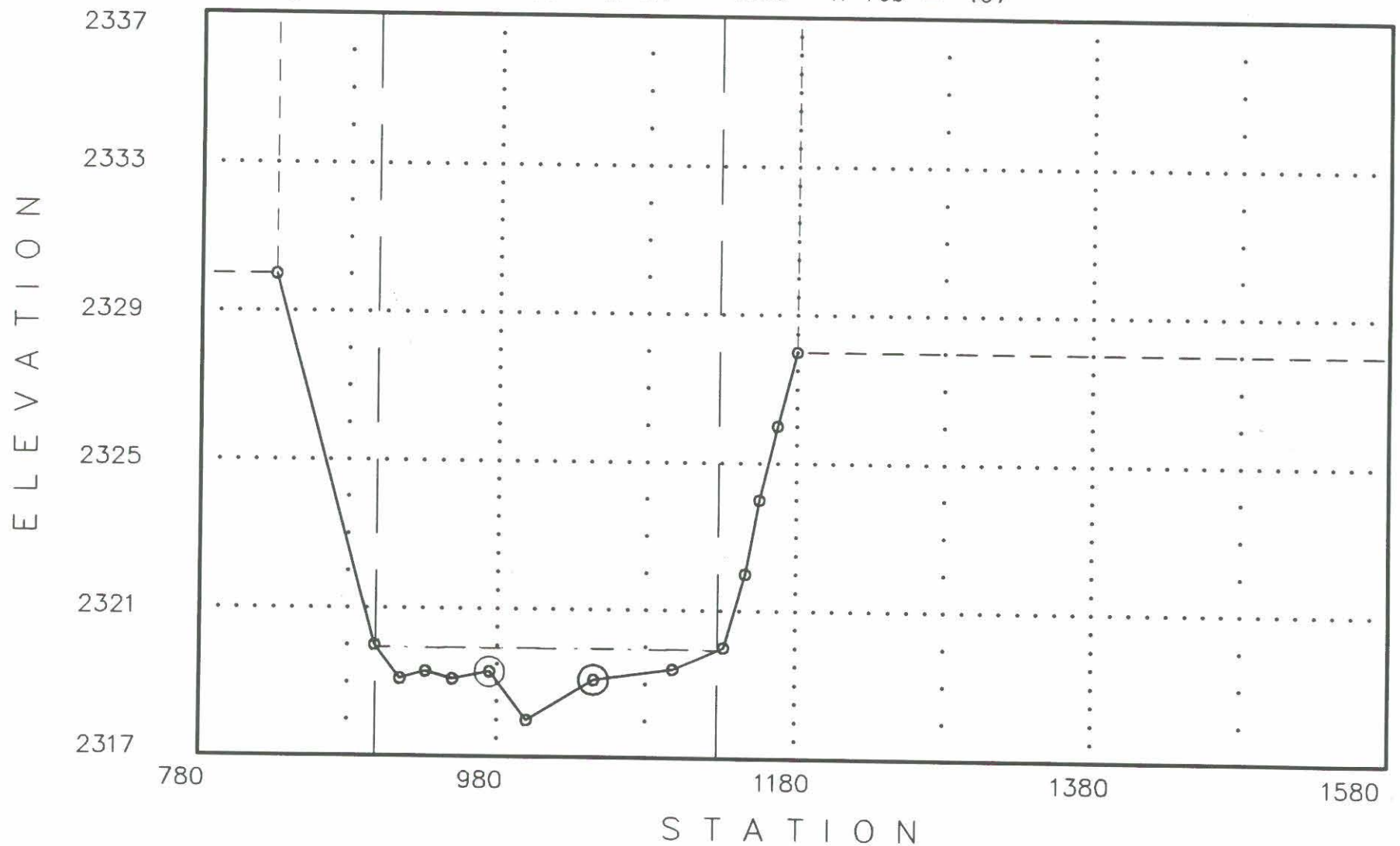
11-21-1992

<<<<<< Cross Section: 3.081: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2319.93

Q2= 737 WS2= 2319.94

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07

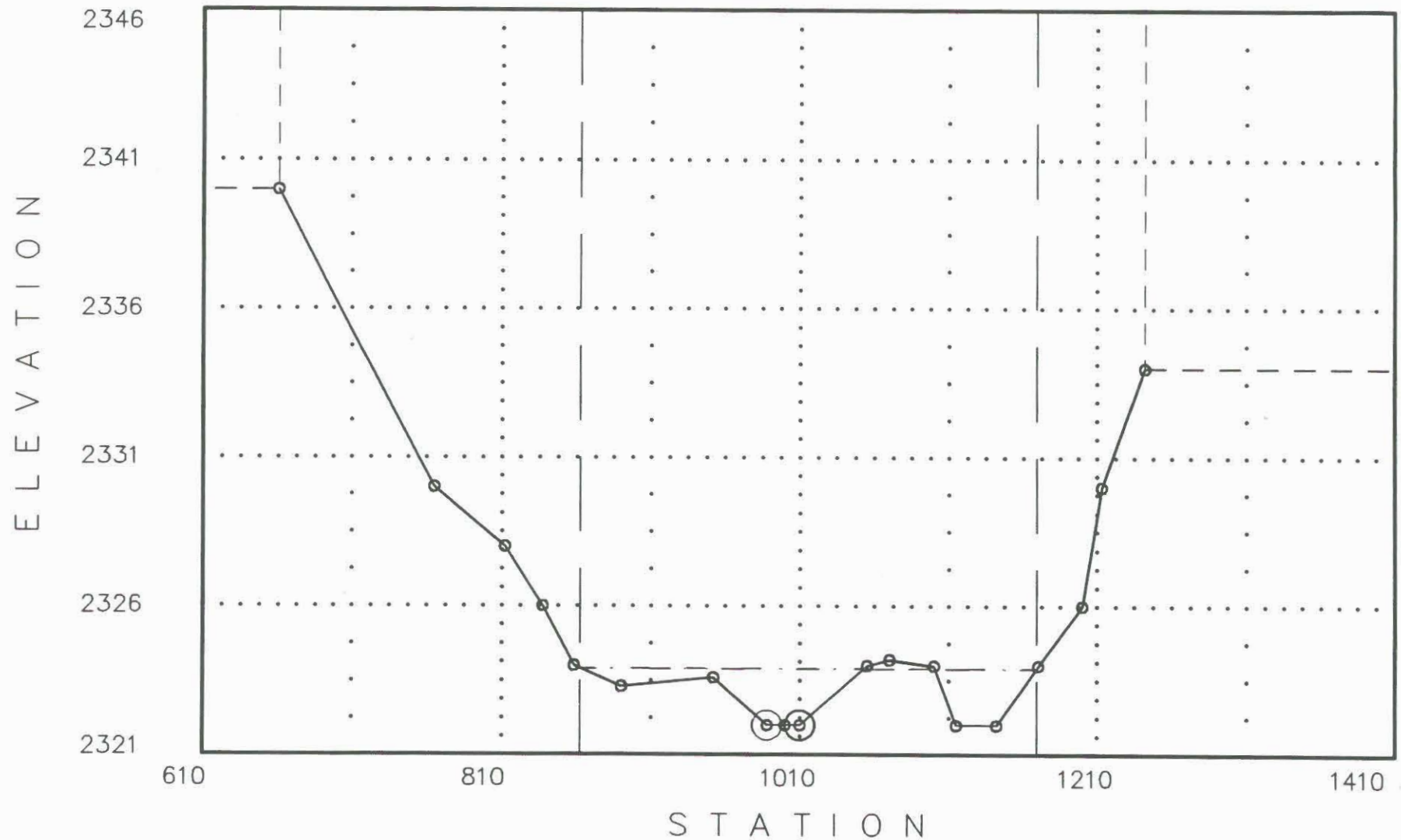


11-21-1992

<<<<<< Cross Section: 3.136: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2323.91
Q2= 737 WS2= 2323.9

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



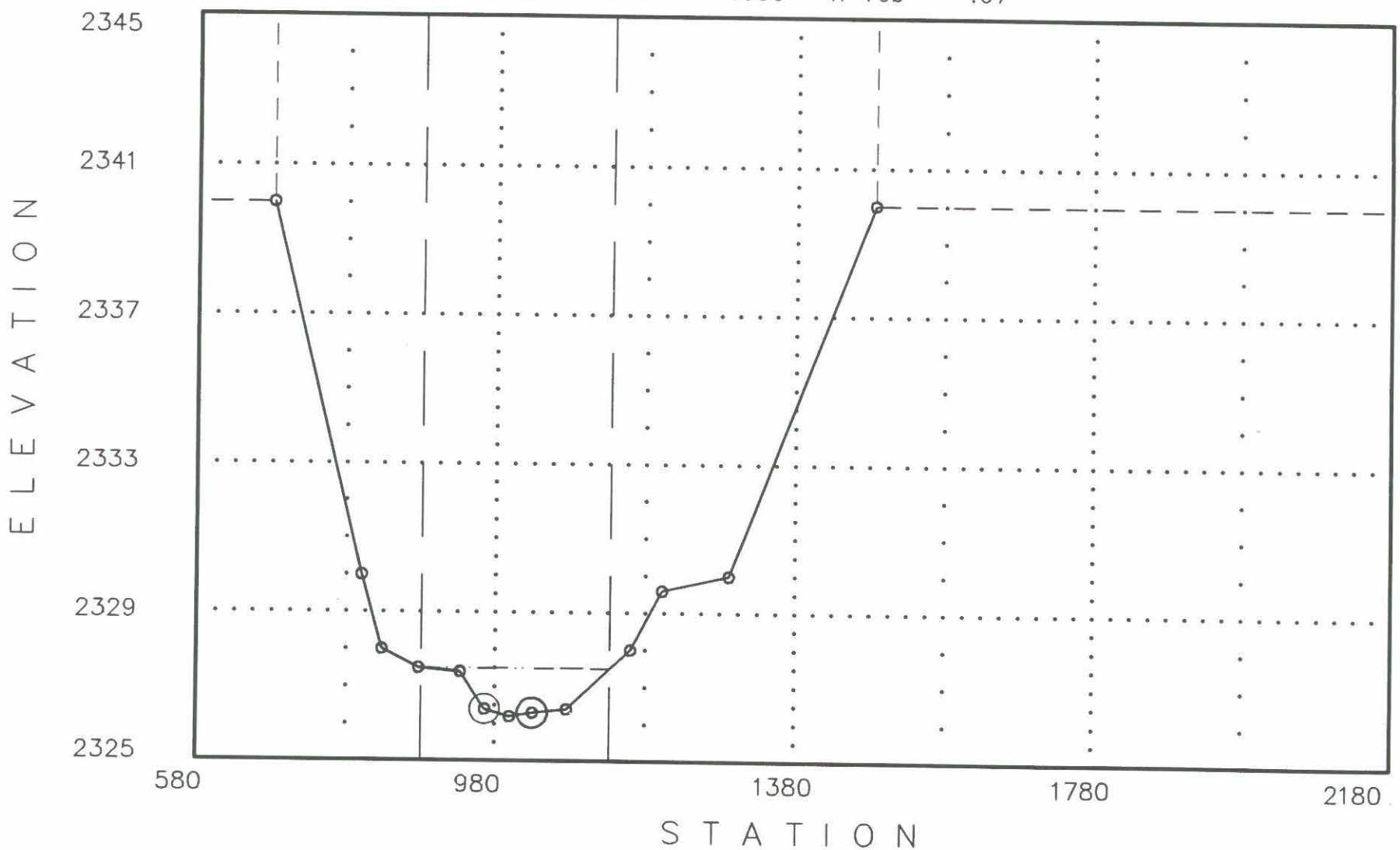
11-21-1992

<<<<<< Cross Section: 3.163: (FN = WASHAE.O) >>>>>>

Q1= 737 WS1= 2327.49

Q2= 737 WS2= 2327.51

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



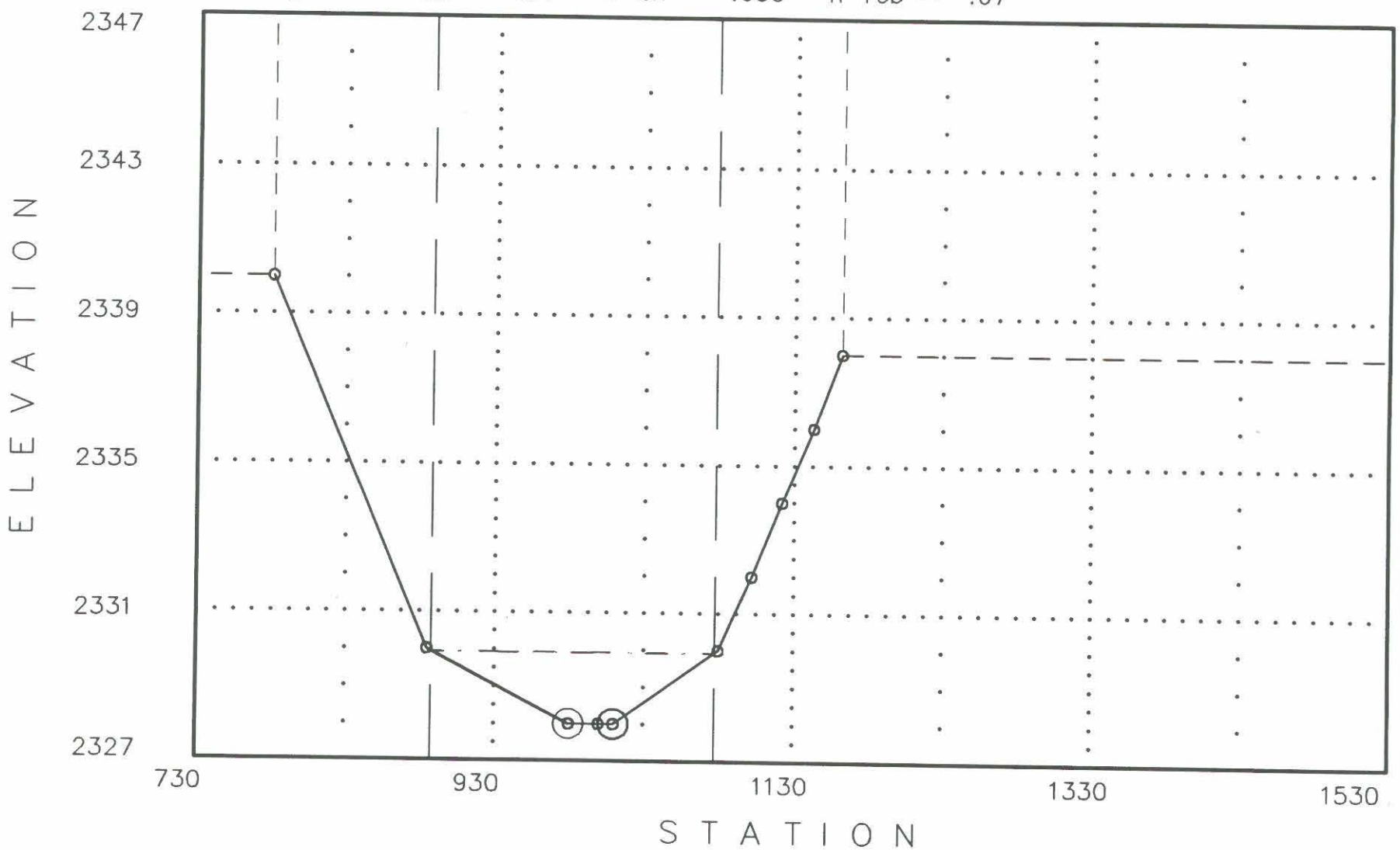
11-21-1992

<<<<<< Cross Section: 3.197: (FN = WASHAE.O) >>>>>>

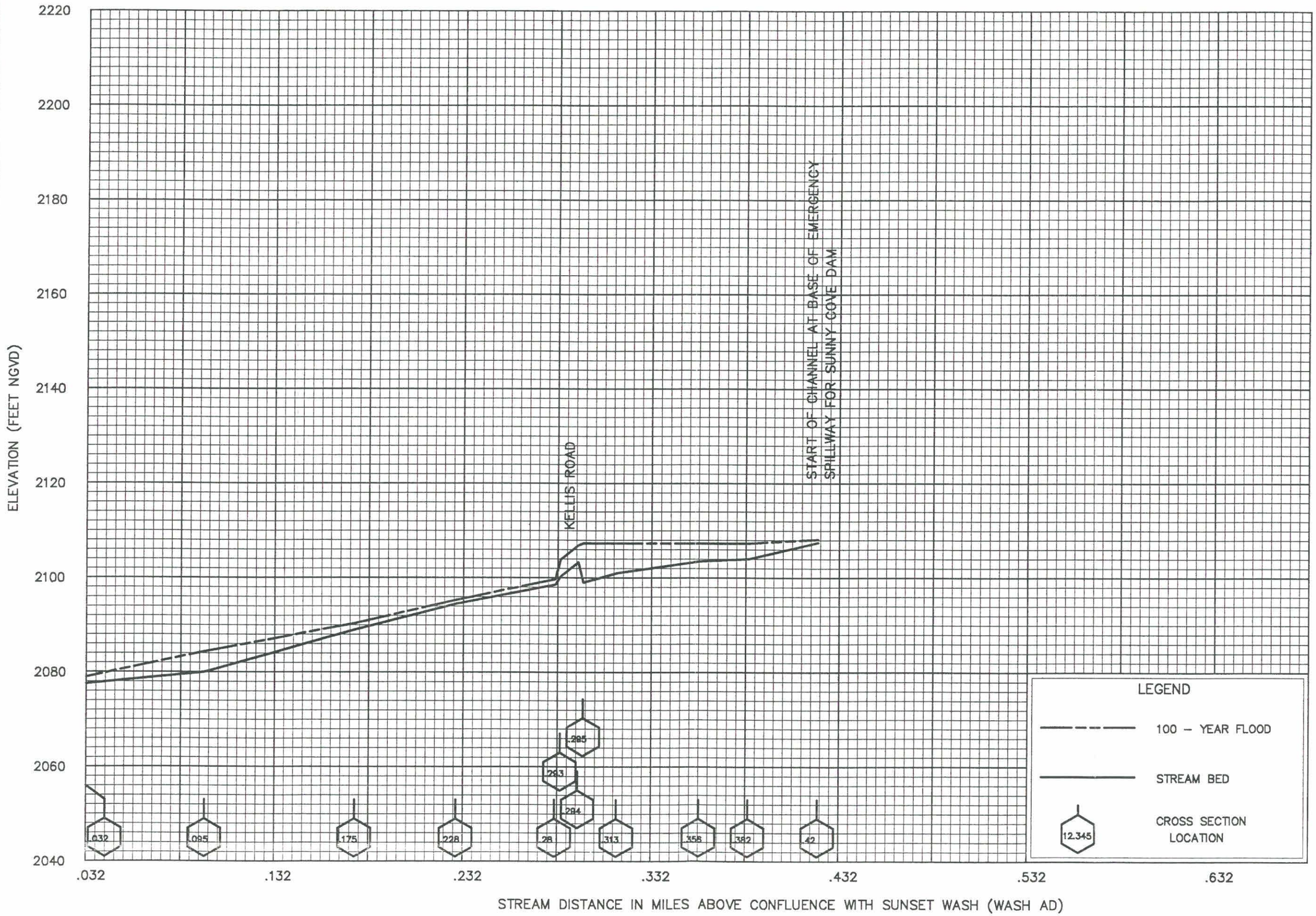
Q1= 737 WS1= 2329.93

Q2= 737 WS2= 2329.92

Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



11-21-1992



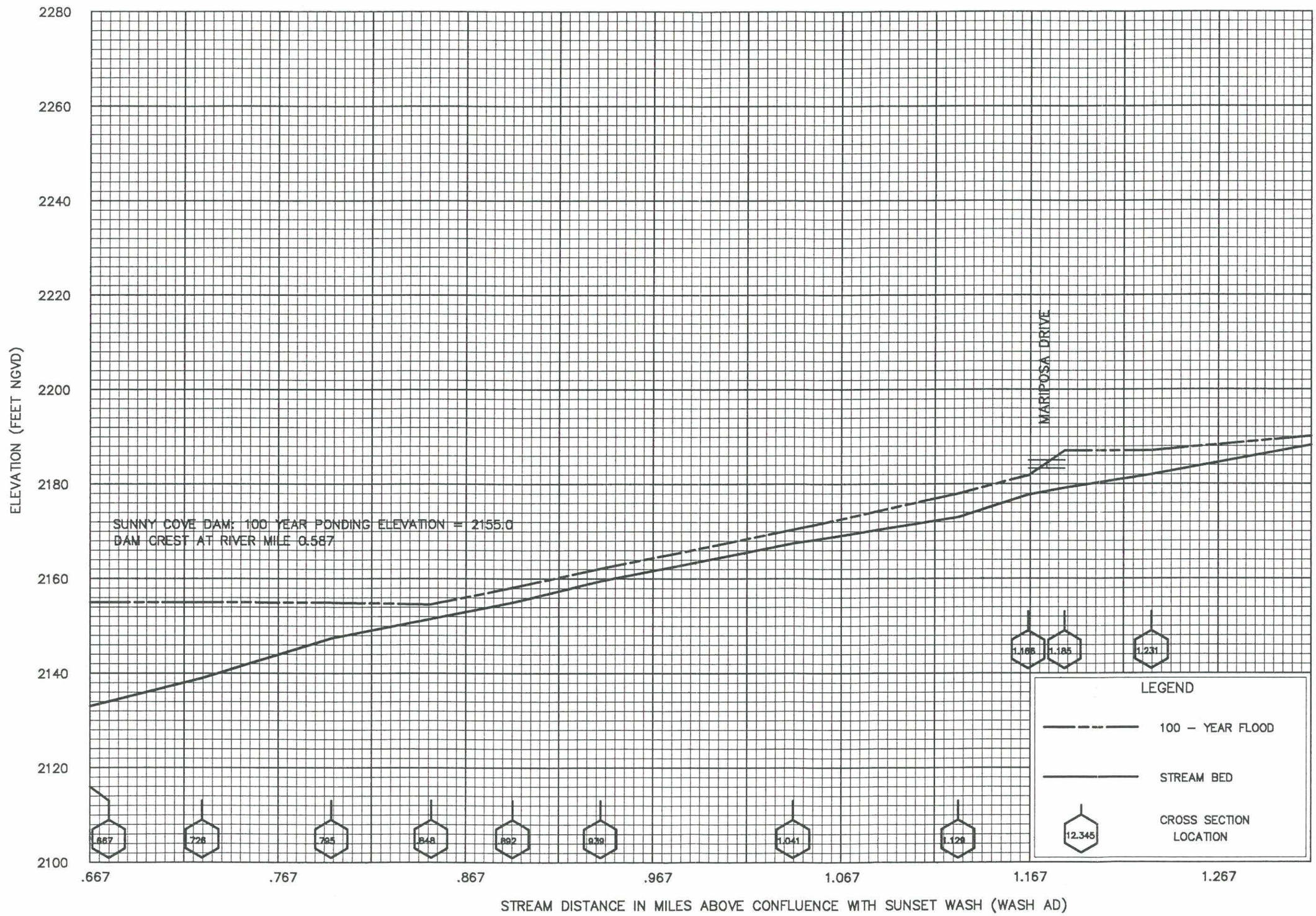
FLOOD PROFILES

SUNNY COVE WASH (WASH AE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

AE–1

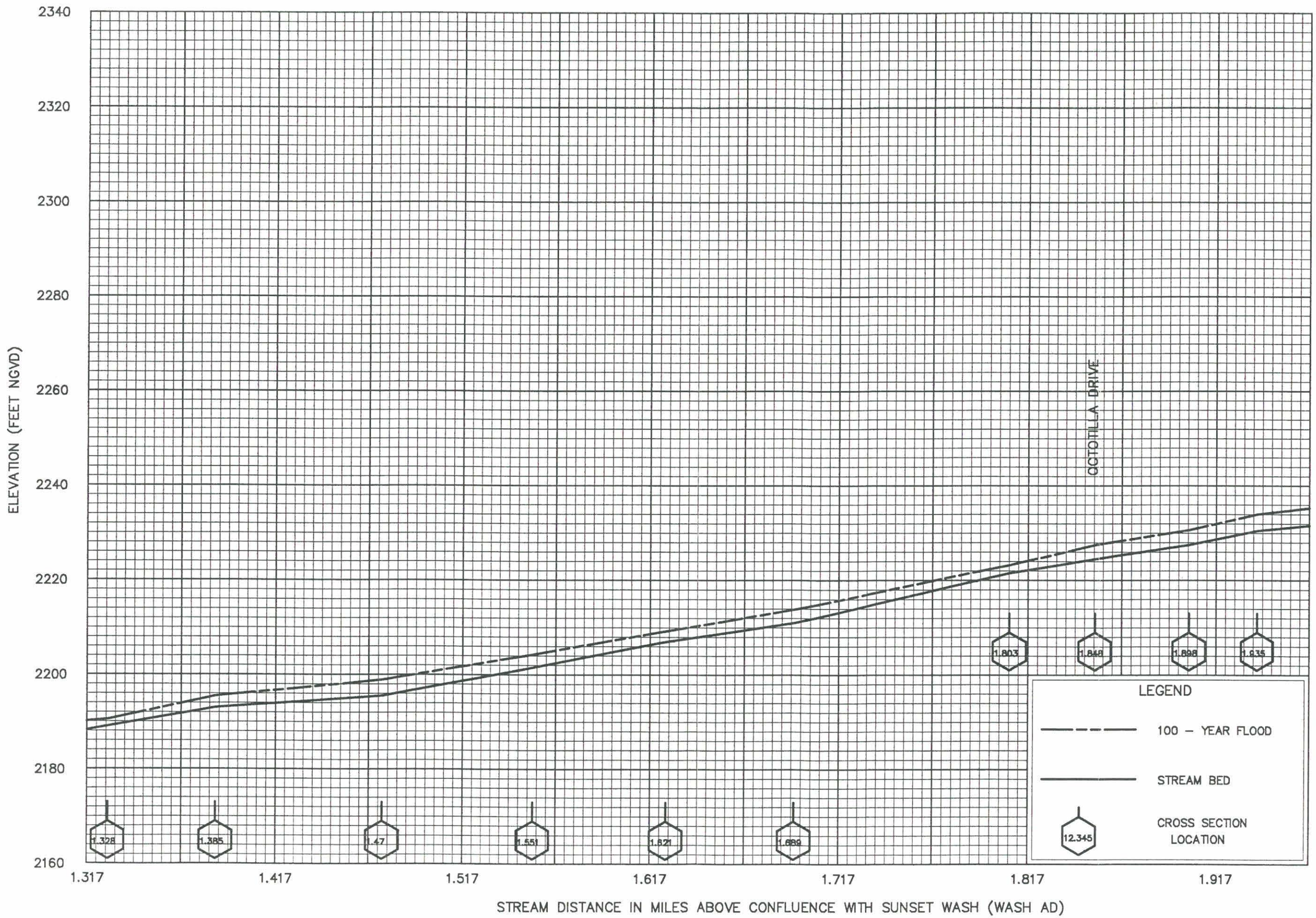


FLOOD PROFILES

SUNNY COVE WASH (WASH AE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

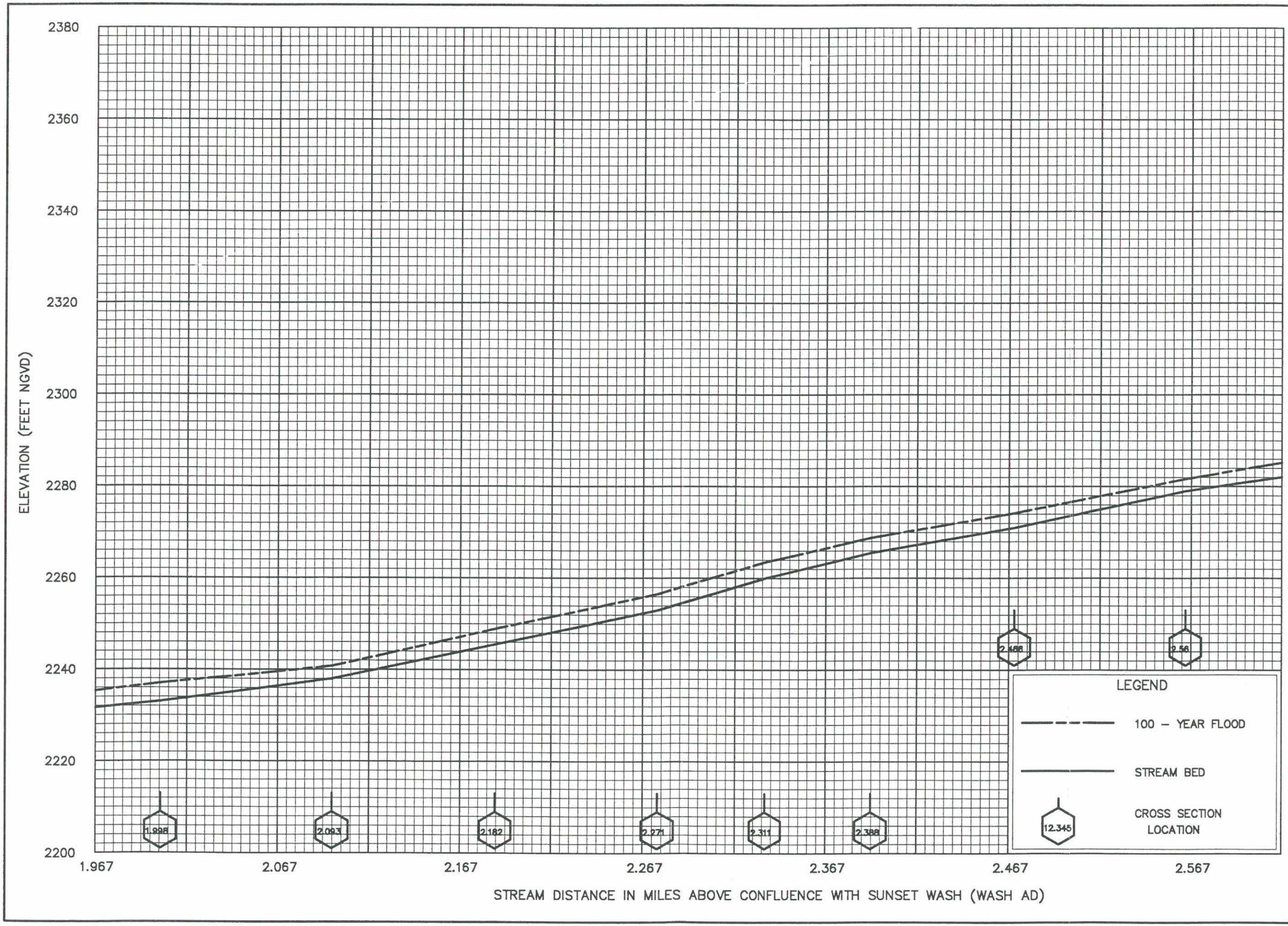


FLOOD PROFILES

SUNNY COVE WASH (WASH AE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

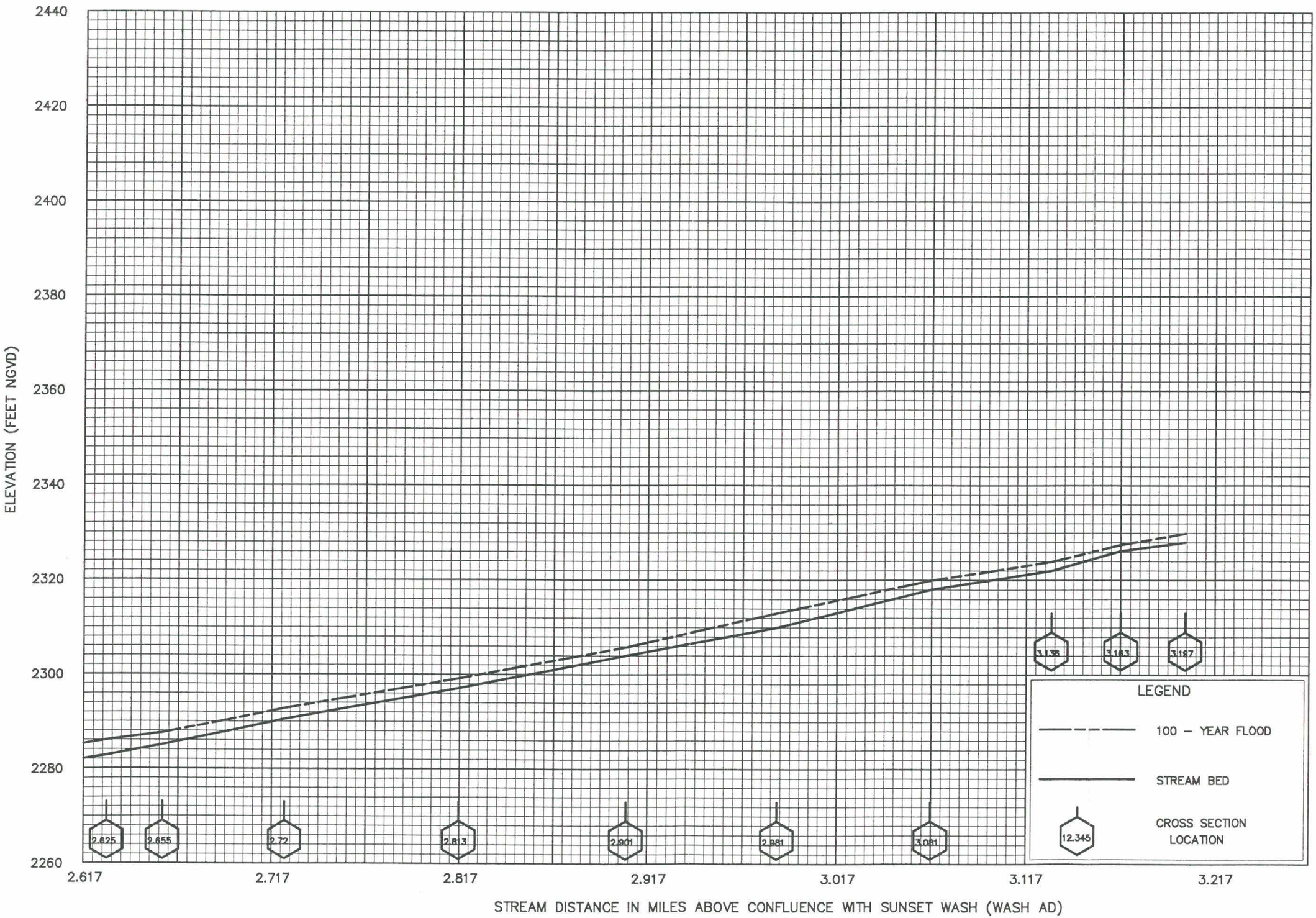


FLOOD PROFILES

SUNNY COVE WASH (WASH AE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



FLOOD PROFILES

SUNNY COVE WASH (WASH AE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

Appendix 5.6: HEC-2 Models & Cross Section Plots for West Area Wash UNNAMED WASH #10 (Wash ag)

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

N:\1197\02\ADMIN\119702RP.063

May 1994

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AG:
(One form for each flooding source)

Project Name /Identifier: Wickenburg ADMS FCD 89-79

1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)

☒ Detailed study stream (briefly explain methodology) HEC-1 analysis based on Flood Control District of Maricopa County Methodologies.

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis

☐ Improved data *(see data revision on page 3)*

☐ Changed physical conditions of watershed *(explain)*

☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*

☐ Evaluation of proposed conditions (CLOMRs only) (explain)

☒ Other No existing analysis or analysis being updated to reflect existing conditions.

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Flood Control District of Maricopa County)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

4. REVIEW OF RESULTS

Stream: _____

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
Confluence with Hassayampa River	.18 Sq. mi.	—	272 cfs

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

No existing analysis or updated analysis to reflect existing conditions.

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

NA

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
NA	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

ATTACHMENT A: STATISTICAL ANALYSIS OF GAGE RECORDS

Gaging Station: NA

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data	_____	_____
Systematic	_____	_____
Historical	_____	_____
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers	_____	_____
Low outliers	_____	_____
Zero events	_____	_____
5. Generalized skew	_____	_____
6. Station skew	_____	_____
7. Adopted skew	_____	_____
8. Probability distribution used (justify if log-Pearson III was not used)	_____	_____
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:
NA

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
8.	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:		HEC-1
	Version:		Ver. 3.0
	Date:		02 AUG. 88
2.	Source of rainfall depth:		NOAA Atlas 2
3.	Source of rainfall distribution:		SCS TYPE II
4.	Rainfall duration:		24 hours
5.	Areal adjustment to precipitation (%):		NWS HYDRO-40
6.	Hydrograph development method:		S-Graph
7.	Loss rate method:		Green-AMPT
	Source of soils information;		SCS
	Source of land use information		Town of Wickenburg
8.	Channel routing method:		Normal Depth
9.	Reservoir routing:	☐ Yes ☐ No	☐ Yes ☒ No
10.	Baseflow considerations:	☐ Yes ☐ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

11.	Snowmelt considerations:	☐ Yes ☐ No	☐ Yes ☒ No
12.	Model calibration:	☐ Yes ☐ No	☒ Yes ☐ No

If yes, explain how calibration was performed Computed discharges were compared with DISCHARGE vs DRAINAGE AREA curves and envelopes prepared by the Flood Control District of Maricopa County.

13. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

Stream: NA - No flow records

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

Appendix # 5.6

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE HYDRAULIC ANALYSIS FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

ublic reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the ime 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.

Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash AG!
(One form for each flooding source)

Project Name/Identifier: Wickenburg ADMS - FCD 89-79

1. REACH TO BE REVISED

Downstream limit: Station 0.284

Upstream limit: Station 1.134

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study _____

Upstream limit of study _____

☒ Studied by detailed methods

Downstream limit of study Confluence with Hassayampa River

Upstream limit of study Station 0.284

☐ Floodway delineated

Downstream limit of Floodway _____

Upstream limit of Floodway _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain: _____

☐ Improved hydraulic analysis. Explain: _____

☐ Flood control structure. Explain: _____

☐ Other. Explain: _____

3. RIVERINE HYDRAULIC ANALYSIS FORM
Models Submitted

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model *(e.g. duplicate effective model to corrected effective model)*. Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation. For areas which do not have detailed flooding, a hydraulic model is not required; however BFE's may not be added to the revised FIRM.

☐ Duplicate Effective Model — Natural ☐ Floodway ☐

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 requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor'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.

☐ Corrected Effective Model — Natural ☐ Floodway ☐

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 corrected 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.

☐ Existing or Pre-Project Conditions Model — Natural ☐ Floodway ☐

The duplicate effective or corrected 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 or duplicate effective model.

☐ Revised or Post-Project Conditions Model — Natural ☐ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective 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 proposed project this model should reflect proposed conditions.

☒ Other: Please attach a sheet describing all other models or calculations submitted. — Natural ☒ Floodway ☒

New Model (Proposed Effective Model)

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

Discharges:	Upstream Limit	Downstream Limit
10-year	138 cfs	138 cfs
50-year	233 cfs	233 cfs
100-year	272 cfs	272 cfs
500-year	—	—

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevations determined by the slope-area method.

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... 0.020 ~ 0.050

Overbanks ..... 0.060 ~ 0.075

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added.

Data points for cross-sections are based on photogrammetric models for the topographic maps.

5. Explain how reach lengths for channel and overbanks were determined:

All reach lengths were measured from floodplain work maps.

5. RESULTS (*from model used to revise 100-year water surface elevations*)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ..... ☐ Yes ☒ No

b. Supercritical depth? ..... ☐ Yes ☒ No

c. Critical depth? ..... ☒ Yes ☐ No

d. Other unique situations ..... ☐ Yes ☐ No

If yes, special problems report attached.

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? ..... 0.0531 ft/ft

Specify location 0.341

3. What is the distance between the cross-sections in 2 above? ..... 201 ft

Specify location 0.379

4. What is the maximum distance between cross-sections? ..... 581 ft

Specify location 0.955

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? ..... 1.0 foot

b. What is the maximum surcharge for the revised conditions? ..... 0.0 foot

Specify location ..... N/A

c. What is the maximum velocity? ..... 9.13 fps

Specify location 1.053

Explain:

d. Are there any negeative surcharge values at any cross-section ☐ Yes ☐ No

If yes, the floodway may need to widen. If it is not widened, please explain and indicate the maximum negative surcharge.

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☐ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases.

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet and upstream of the project at cross section_____within_____feet.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet and upstream of the project at cross section_____ within_____feet.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

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

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Unincorporated Maricopa County / Town of Wickenburg	Wash AG: Un-Named Wash (#1)	Wickenburg ADMS-FCD 89-79

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

New Model- See following Floodway Data Table

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet ___ of ___

FLOODWAY DATA, WASH AG : UNNAMED WASH #
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
50.840	517.	213.	1.3	2021.3	2021.3	.0
.284	140.	78.	3.5	2026.9	2026.9	.0
.305	36.	83.	3.3	2027.8	2027.8	.0
.316	42.	66.	4.1	2027.9	2027.9	.0
.341	203.	561.	.5	2028.2	2028.2	.0
.379	222.	78.	3.5	2029.6	2029.6	.0
.473	246.	108.	2.5	2041.6	2041.6	.0
.536	362.	86.	3.2	2050.2	2050.2	.0
.597	51.	60.	4.5	2058.0	2058.0	.0
.669	37.	46.	5.9	2065.4	2065.4	.0
.763	40.	48.	5.7	2075.5	2075.5	.0
.845	48.	51.	5.3	2085.0	2085.0	.0
.955	24.	40.	6.8	2097.7	2097.7	.0
1.053	22.	42.	6.5	2108.7	2108.7	.0
1.134	35.	45.	6.0	2119.6	2119.6	.0

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

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.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash AG-1

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Atchison-Topeka and Santa Fe Railroad
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.305 to Station 0.316
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

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

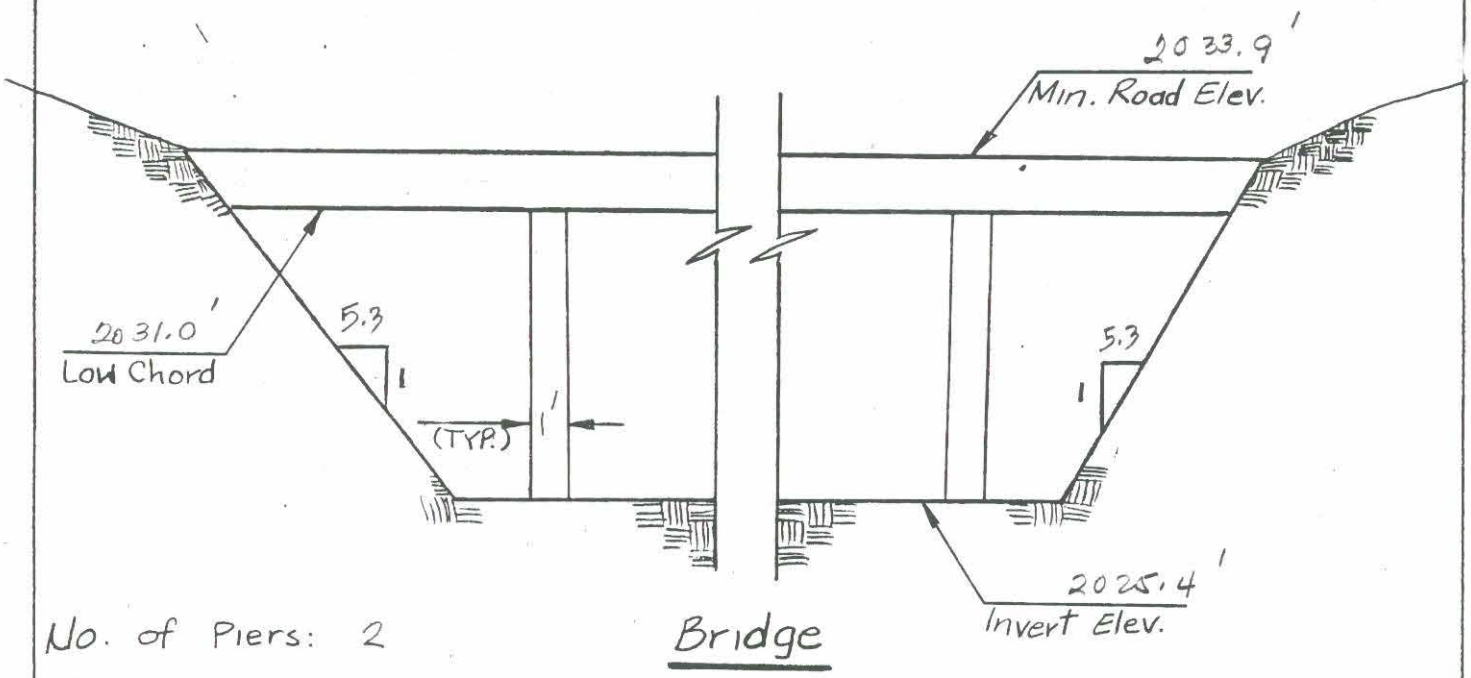
1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) three span bridge with two rows of three 1- foot diameter circular piers.
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Trapezoidal opening with side slope of 5.3:1 and bottom width of 13.40 ft.
3. Hydraulic model used to analyze the structure *(e.g., HEC-2 with special bridge routine, WSPRO, HY8)* HEC-2 with Special Bridge 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)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A

* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.

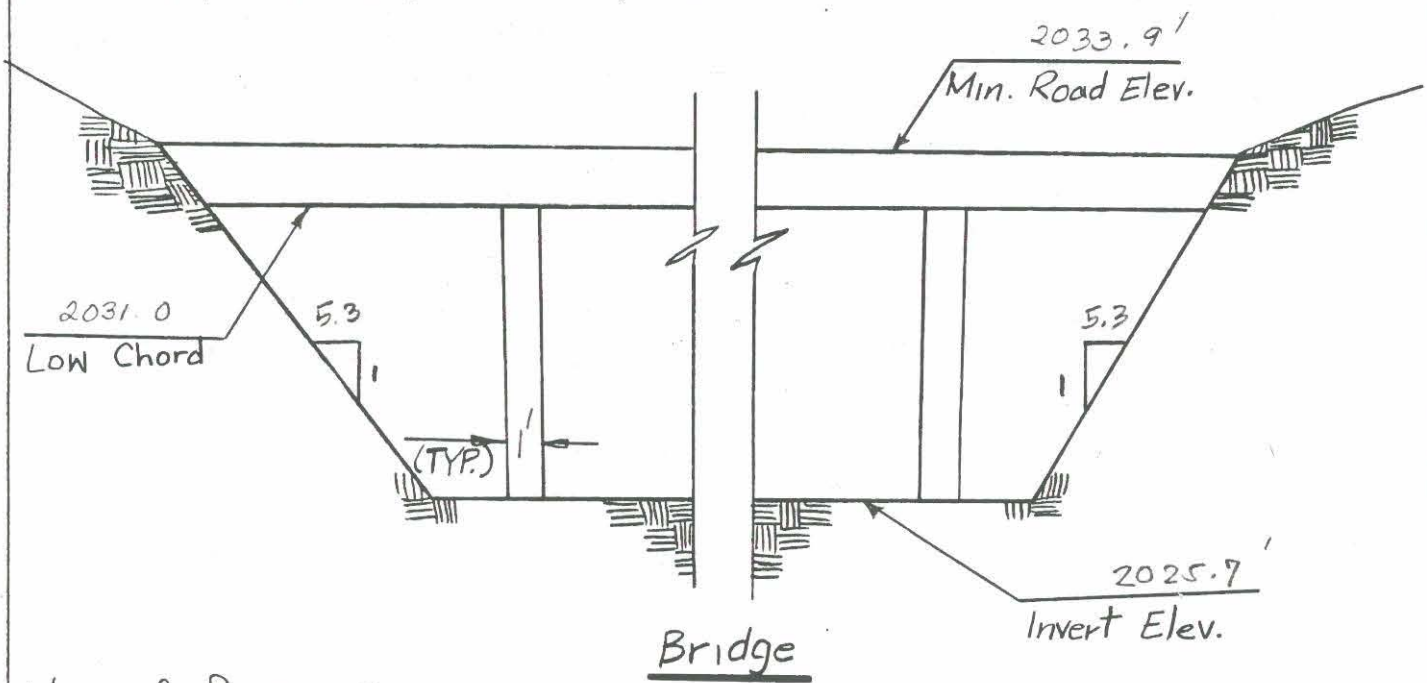


No. of Piers: 2

Total Width of Piers: 2 ft

See Cross Section # 0.305

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.

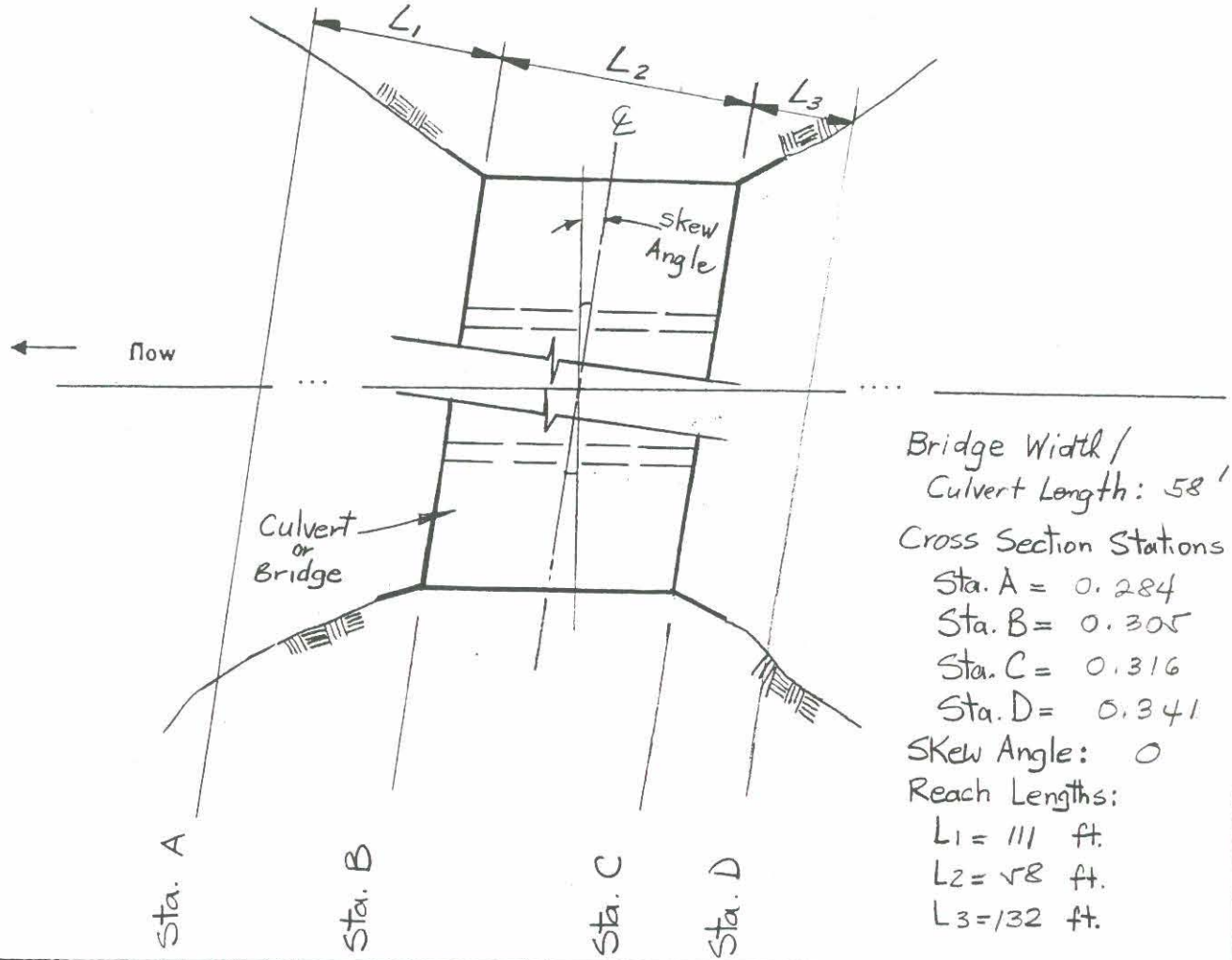


No. of Piers: 2

Total Width of Piers: 2 ft

See Cross Section # 0.316

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	58 ft.
Calculated culvert/bridge area (ft^2) by the hydraulic model, if applicable	209 ft^2
Total culvert/bridge area (ft^2)	203 ft^2

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (STA 0.316)	2034.2	2033.9'
Downstream face (STA 0.305)	2026.0'	2026.0'

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	2034.2'	2033.9'
Downstream face	2034.2'	2033.9'

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	2027.87'	2028.13'
Downstream face	2027.84'	2028.00'

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	272 cfs	—	—	272 cfs

The maximum depth of flow over the roadway/railroad (ft.) ..... 0'

Weir length (ft.) ..... 0'

Top Widths	Floodplain	Floodway
Upstream face	45'	36'
Downstream face	465'	38'

Top Widths	Effective Flow	Effective and Ineffective Flow
Upstream face	45'	45'
Downstream face	38'	465'

Loss Coefficients

Entrance loss coefficient	—
Manning's "n" value assigned to the structure(s)	0.020
Friction loss coefficient through structure (s)	—
Other loss coefficients (e.g., bend manhole, etc.)	—
Total loss coefficient	1.56
Weir coefficient	2.60
Pier coefficient	1.05
Contraction loss coefficient	0.30
Expansion loss coefficient	0.50

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) No encroachment specified in the bridge.

Comments *(explain any unusual situations)*:

Attach analysis.

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*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
                                          *
*  RUN DATE    20AUG92    TIME   16:06:10 *
*******************************************
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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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THIS RUN EXECUTED 20AUG92 16:06:10

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

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


T1      WICKENBURG ADMS - CONTRACT FCDMC 89-79
T2      BLACK & VEATCH PN 17676:  COE & VAN LOO JN 1197-02
T3      WASH AG : UNNAMED WASH # 10    WASHAG

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0      .0027        0         0         0   2021.32        0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

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


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150       200

QT        2       272       272
NC     .070      .070      .045        .1        .3
          HASSAYAMPA RIVER FIS SECTION (CBA 1988, NO DATUM CHANGE)
          CONFLUENCE WITH WASH AG - UNNAMED WASH # 10, A WEST TRIBUTARY
          NON COINCIDENT WITH 100 YEAR DISCHARGE IN HASSAYAMPA
X1    50.84        33    1482.5    1829.8         0         0         0
GR   2036.9    1000.0    2038.1    1026.4    2024.2    1072.0    2020.3    1249.4    2020.3    1275.7
GR   2021.9    1297.2    2022.0    1399.3    2020.7    1423.6    2020.7    1482.5    2022.7    1504.4
GR   2023.3    1586.2    2020.5    1609.7    2020.5    1630.9    2021.7    1637.5    2019.8    1647.6
GR   2019.8    1666.0    2019.8    1686.9    2022.5    1745.1    2023.6    1829.8    2025.5    1849.7
GR   2026.1    1917.0    2028.9    1998.7    2027.2    2482.0    2025.6    2506.5    2025.9    2873.7
GR   2027.5    2888.9    2027.5    2922.8    2025.6    2943.0    2034.1    2987.7    2030.6    3018.3
GR   2045.1    3082.9    2052.4    3221.7    2052.5    3222.3       0.0       0.0       0.0       0.0

ET                7.1       9.1                                     930      1070       930      1070
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY
X1    0.284        56       992    1021.3      1000       520       810
GR   2028.5       759    2028.5       777    2028.5     794.3    2028.5     810.3    2028.5       821
GR   2028.3     832.2    2028.2     837.8      2028       849    2027.7     854.9    2027.4     860.7
GR   2027.1     866.6    2026.9     872.4    2026.6     878.3    2026.3     884.1      2026       890
GR     2026     905.8      2026     921.5      2026       932    2026.2     943.2    2026.3     948.8
GR   2026.5       960    2026.5       980    2026.3       992      2026      1010    2026.1    1015.6
     2026.1    1021.3    2026.3    1032.5    2026.3    1038.1    2026.4    1043.8    2026.4    1049.4
GR   2026.5      1055    2026.5    1071.5    2026.5      1088    2026.5    1104.9    2026.5    1122.4
GR   2026.5      1140    2026.5    1156.5    2026.5      1173    2026.5    1190.3    2026.5    1207.5
GR   2026.5    1224.5    2026.4    1229.9    2026.4    1240.9    2026.3    1246.3    2026.3    1257.3
GR   2026.2    1262.7    2026.2    1273.7    2026.1    1279.1    2026.1    1290.1      2026    1295.5
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GR	2026	1301	2026.1	1306.6	2026.1	1312.1	2026.4	1328.9	2026.4	1334.4

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     2028.5       1355

ET                 7.1        9.1                                        981       1019        981       1019
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY
          DOWNSTREAM SECTION OF BRIDGE; FLOWLINE ELEVATION = 2025.4
X1    0.305        66      981.6      1018        80       150       111
X3       10                                                          2033.9    2033.9
GR     2030       730     2029.9       736    2029.7       742    2029.5       754    2029.3       760
GR   2029.1       772     2028.9       778    2028.7       790    2028.5       796    2028.3       808
GR   2028.1       814       2028       820    2027.9     826.1    2027.7     832.1    2027.5     844.3
GR   2027.3     850.3     2027.1     862.5    2026.9     868.5    2026.7     880.7    2026.5     886.7
GR   2026.3     898.9     2026.1     904.9      2026       911      2026     928.1      2026     945.3
GR     2026       951     2025.9     957.1    2025.9     963.3    2025.8     969.4    2025.8     975.5
GR   2025.7     981.6     2025.6     987.8    2025.6     993.9    2025.5      1000    2025.5      1018
GR   2025.6      1024     2025.6      1042    2025.6      1060    2025.7      1066    2025.7      1084
GR   2025.7      1102     2025.8      1108    2025.8      1126    2025.8      1144    2025.9      1150
GR   2025.9      1168     2025.9      1186      2026      1192      2026      1210    2026.1    1215.9
GR   2026.3    1221.8     2026.4    1227.8    2026.6    1239.6    2026.8    1245.5      2027    1257.3
GR   2027.1    1263.3     2027.3    1269.2    2027.6    1286.9    2027.8    1292.8    2027.9    1298.8
GR   2028.1    1310.6     2028.3    1316.5    2028.5    1328.3    2028.6    1334.3    2028.8    1340.2
GR   2028.9    1346.1

NC     .070      .070      .020        .3        .5
      1.05      1.56       2.6         0      13.4         2     203.4       5.3    2025.7    2025.4
          UPSTREAM SECTION OF BRIDGE; LOW CHORD ELEVATION = 2031.0
          FLOWLINE ELEVATION = 2025.7, 2 PIERS, BOTTOM WIDTH = 13.4'
X1    0.316         9      979.3     1021.3        58        58        58
X2                            1     2031.0    2034.0
X3       10                                                          2033.9    2033.9
BT       -3     940.3     2034.2                980    2034.1                1066.7    2033.9
GR     2036     929.5     2034.2     940.3    2027.7     979.3    2025.7     991.3    2025.7      1000
GR   2025.7    1008.7     2027.7    1021.3    2033.9    1066.7      2036    1073.6

NC     .075      .075      .050        .3        .5
ET                 7.1        9.1                                        855       1060        855       1060
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY
X1    0.341        14       980       1015       110       120       132
GR     2040       825     2030       850      2026       865      2025       890      2025       910
GR     2026       965     2026       980    2025.1       990    2025.1      1010    2025.3      1015
GR   2025.4      1040     2025.4     1070      2026      1140      2032      1170

NC     .075      .075      .050        .1        .3
ET                           9.1                                                                794      1016
X1    0.379        56       972     1012.3       190       230       201
GR   2039.7     767.5     2038.6     770.5    2037.5     773.4    2036.3     776.4    2035.2     779.3
GR   2034.1     782.3       2033     785.2    2031.8     788.2    2030.7     791.1    2029.6     794.1
     2029.6     806.1     2029.5     809.1    2029.5       824    2029.4       827    2029.4       845
     2029.5       848     2029.5       854    2029.6       857    2029.6       866    2029.7       869
GR   2029.7       878     2029.6       881    2029.6       884    2029.5       887    2029.5       890
GR   2029.4       893     2029.4       896    2029.3       899    2029.3       902      2029       911
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	2029	914	2028.8	920	2028.8	923	2028.5	932	2028.5	935
GR	2028.4	938	2028.6	941.2	2028.8	944.5	2029.1	947.7	2029.3	950.9
GR	2029.3	969	2029.2	972	2029.2	990	2029.1	993	2029.1	996.5
GR	2029	1000	2029.2	1006	2029.3	1009	2029.4	1012.3	2029.6	1015.6
GR	2029.8	1018.7	2029.9	1021.8	2034.9	1036.8	2035.9	1039.8	2037	1042.8
GR	2040	1051.8								
NC	.070	.065	.040							
ET			9.1						776	1024
X1	0.473	30	975	1021.3	480	500	496			
GR	2056	610	2051	634.2	2050	639	2044	660	2042.5	680
GR	2042.2	703.8	2042	718	2042.3	738.7	2042.5	749	2042.1	769.8
GR	2042	775	2040.5	782	2040	800	2041.3	824.4	2042	839
GR	2040.5	845	2042	861	2042.5	872	2040	891	2041.9	915.4
GR	2043	930	2042.4	955	2041.8	975	2040.5	1000	2041.5	1021.3
GR	2042	1032	2045.3	1056.2	2048.7	1080.3	2050	1090	2058.3	1115
NC	.065	.065	.045							
ET			9.1						649	1012
X1	0.536	31	981	1010	310	350	332			
GR	2064	613	2058	629	2051.6	645.8	2050	650	2049.5	669
GR	2049.9	686.6	2050.4	705.3	2050.5	710	2050.2	727.7	2050	745.8
GR	2050	764.7	2050	783.3	2050	788	2049.5	800	2050	820
GR	2050	838.7	2049.8	856.4	2049.5	869	2050	882	2050.1	900
GR	2050.3	918	2050.4	936	2050.5	945	2050.3	963	2050.1	981
	2049.8	995	2049.5	1000	2050	1010	2052	1022	2056	1041
	2059	1055.3								
NC	.060	.060	.040							
ET			9.1						989	1042
X1	0.597	65	997	1011	290	330	322			
GR	2070	954	2068.8	957	2066.8	962	2064.8	967	2062.8	972
GR	2060.8	977	2060	979	2059.6	981	2059.4	982	2059.3	983
GR	2058.7	986	2058.6	987	2057.6	992	2057.4	993	2057.3	994
GR	2056.7	997	2056.6	998	2056	1001	2056	1002	2056.1	1003
GR	2056.1	1005	2056.2	1006	2056.2	1008	2056.3	1009	2056.3	1011
GR	2056.4	1012	2056.4	1014	2056.5	1015	2056.5	1016	2056.6	1017
GR	2056.6	1019	2056.7	1020	2056.7	1022	2056.8	1023	2056.8	1025
GR	2056.9	1026	2056.9	1028	2057	1029	2057	1030	2057.3	1033
GR	2057.4	1034	2057.4	1035	2057.6	1036	2057.6	1037	2057.7	1038
GR	2057.8	1039	2058	1041	2058.4	1043	2058.7	1044	2059.3	1047
GR	2059.6	1048	2060	1050	2060.8	1051	2061.5	1052	2062.3	1053
GR	2063	1054	2063.8	1055	2064.5	1056	2065.3	1057	2066	1058
GR	2066.8	1059	2067.5	1060	2068.3	1061	2069	1062	2069.8	1063
ET			9.1						984	1021
X1	0.669	32	990	1011	380	380	380			
GR	2080	942	2079.5	943.5	2077.4	949.4	2076.8	950.8	2075.3	955.3
GR	2074.7	956.7	2073.2	961.2	2072.6	962.6	2071.1	967	2070.5	968.5
GR	2066	982	2064	990	2063.9	991.4	2063.9	992.9	2063.6	997.1
GR	2063.6	998.6	2063.5	1000	2063.9	1007.9	2064	1011	2064.8	1017.1
	2065.1	1018.6	2066.9	1032.4	2067.2	1033.9	2068	1040	2068.9	1044.5
GR	2070.9	1055	2072.6	1064	2074.2	1071.6	2075.8	1079.2	2077.4	1086.8
GR	2079	1094.4	2079.7	1097.5						

ET			9.1						971	1012
X1	0.763	40	986	1006	530	500	496			
GR	2084	909	2083.2	915.1	2083.1	916.6	2081.1	931.9	2080.9	933.4
GR	2080.8	934.9	2079.8	942.5	2079.5	944	2079.3	945.5	2079	947
GR	2078.8	948.5	2078.5	950	2078.3	951.5	2078	953	2077.8	954.5
GR	2077.5	956	2077.3	957.5	2077	959	2076.8	960.5	2076.5	962
GR	2076.3	963.5	2076	965	2075.6	971	2075.4	972.5	2074.6	984.5
GR	2074.4	986	2073.5	1000	2073.8	1004.5	2073.8	1006	2074	1009
GR	2074.9	1010.6	2075.7	1012.1	2076.6	1013.7	2077.4	1015.3	2078.3	1016.9
GR	2079.1	1018.4	2080	1020	2084	1035.2	2088	1050.4	2089.6	1056.5
ET			9.1						966	1015
X1	0.845	54	986.5	1010.5	433	433	433			
GR	2100	882	2099.5	883.5	2097.4	889.4	2096.8	890.8	2095.3	895.3
GR	2094.7	896.7	2093.2	901.2	2092.6	902.6	2091.1	907	2090.5	908.5
GR	2090	910	2089.9	911.5	2089.5	914.4	2089.1	918.8	2088.9	920.2
GR	2088.8	921.7	2088.1	927.5	2087.9	930.5	2087.7	932	2087.6	933.5
GR	2087.4	935	2087.3	936.5	2086.6	944	2086.4	945.5	2086.3	947
GR	2085.2	962.2	2085.1	965.2	2084.9	966.8	2084	982	2083.8	985
GR	2083.8	986.5	2083.3	994	2083.3	995.5	2083	1000	2084	1010.5
GR	2086	1018	2090	1030	2090.4	1031.5	2090.9	1033	2091.7	1036.1
GR	2092.2	1037.6	2093	1040.7	2093.5	1042.2	2093.9	1043.7	2094.8	1046.7
GR	2095.6	1049.8	2096.1	1051.3	2096.5	1052.8	2097	1054.3	2097.8	1057.4
GR	2098.3	1058.9	2099.1	1062	2099.6	1063.5	2100	1065		
			9.1						989	1014
X1	0.955	30	995.5	1010	581	581	581			
GR	2120	919	2119.6	923.5	2119.4	925	2119.3	926.5	2118.6	934
GR	2118.4	935.5	2118.3	937	2118	940	2110	955	2106.4	960.8
GR	2105.4	962.3	2104.6	963.7	2102.7	966.6	2100	971	2099.4	975.6
GR	2099.3	977.2	2098.7	981.8	2098.6	983.4	2098	988	2096.1	995.5
GR	2095.8	997	2095	1000	2095.4	1004.3	2095.6	1005.7	2096	1010
GR	2100.7	1019.5	2108	1035.6	2110	1040	2115.5	1056.5	2119.5	1068.5
ET			9.1						984	1007
X1	1.053	29	993	1000	517	517	517			
GR	2130	940	2127	946	2124	952	2121	958	2118	964
GR	2115	970	2112	976	2110	980	2108.5	985	2108.1	986
GR	2107.9	987	2107.5	988	2106	993	2105.9	994	2105.9	995
GR	2105.6	998	2105.6	999	2105.5	1000	2108.5	1006	2110.5	1010
GR	2110.9	1011	2112.9	1015	2113.3	1016	2114.8	1019	2115.2	1020
GR	2116.7	1023	2117.1	1024	2119.1	1028	2119.5	1029		
ET			9.1						981	1018
X1	1.134	48	990	1009	428	428	428			
GR	2134	945	2133.8	946	2133.5	947	2133.1	949	2132.8	950
GR	2132.4	952	2131.2	957	2130.9	958	2130.5	960	2130.2	961
GR	2130	962	2127.6	966	2127.1	967	2122.9	974	2120	979
GR	2119.6	982	2119.4	983	2119.3	984	2118.6	989	2118.4	990
GR	2118.3	991	2117.9	994	2117.6	998	2117.6	999	2117.5	1000
	2117.6	1001	2117.7	1004	2117.8	1005	2117.8	1006	2118	1009
GR	2120	1019	2123.6	1023	2124.6	1024	2125.4	1025	2130	1030
GR	2130.2	1031	2130.5	1032	2130.9	1034	2131.2	1035	2131.4	1036

	2131.7	1037	2132.1	1039	2132.8	1042	2133.1	1043	2133.3	1044
GR	2133.6	1045	2134	1047	2134.3	1048				

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


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 50.840

3265 DIVIDED FLOW

         HASSAYAMPA RIVER FIS SECTION (CBA 1988, NO DATUM CHANGE)
         CONFLUENCE WITH WASH AG - UNNAMED WASH # 10, A WEST TRIBUTARY
         NON COINCIDENT WITH 100 YEAR DISCHARGE IN HASSAYAMPA
   50.840      1.52   2021.32   2020.77   2021.32   2021.35       .03       .00       .00   2020.70
    272.0      81.9     190.1        .0      97.6     114.9        .0        .0        .0   2023.60
      .00       .84      1.65       .00      .070      .045      .000      .000   2019.80   1203.01
  .002653        0.        0.        0.         0        13         0       .00    276.41   1719.66


FLOW DISTRIBUTION FOR SECNO=     50.84          CWSEL=   2021.32

  .=    1203.    1249.    1276.    1289.    1424.    1483.    1830.
 PER Q=      6.1      10.9       1.8       .7      10.7      69.9
  AREA=     23.7      26.8       7.0      3.6      36.5     114.9
   VEL=       .7       1.1        .7       .5        .8       1.7
 DEPTH=       .5       1.0        .5       .0        .6       1.0

*SECNO  .284
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      930.0    1070.0  TYPE=      1  TARGET=      140.000
         ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
         SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
         WSEL AND THE TOPOGRAPHY
     .284       .87   2026.87   2026.87       .00   2027.13       .26      5.58       .07   2026.30
    272.0      89.4     117.6      65.0      32.0      21.9      24.1       2.9       4.2   2026.10
      .06      2.79      5.37      2.70      .070      .045      .070      .000   2026.00    930.00
  .039055     1000.      810.      520.         0        11         0       .00    140.00   1070.00


FLOW DISTRIBUTION FOR SECNO=       .28          CWSEL=   2026.87
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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

STA=	930.	943.	949.	960.	980.	992.	1021.	1033.	1038.	1049.	1070.
PER Q=	13.0	3.9	4.9	5.8	5.2	43.2	8.8	3.4	5.4	6.3	
AREA=	10.3	3.5	5.2	7.4	5.6	21.9	7.5	3.2	5.6	7.9	
VEL=	3.4	3.0	2.5	2.2	2.5	5.4	3.2	2.9	2.6	2.2	
DEPTH=	.8	.6	.5	.4	.5	.7	.7	.6	.5	.4	

*SECNO .305

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.47

3470 ENCROACHMENT STATIONS= 981.0 1019.0 TYPE= 1 TARGET= 38.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 2033.90 ELREA= 2033.90

ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY
DOWNSTREAM SECTION OF BRIDGE; FLOWLINE ELEVATION = 2025.4

.305	2.34	2027.84	2026.75	.00	2028.00	.17	.87	.01	2025.70
272.0	.0	272.0	.0	.0	83.2	.0	3.1	4.4	2025.50
.07	.00	3.27	.00	.000	.045	.000	.000	2025.50	981.60
.003253	80.	111.	150.	5	11	0	.00	36.40	1018.00

FLOW DISTRIBUTION FOR SECNO= .31 CWSEL= 2027.84

STA=	982.	1018.
PER Q=	100.0	
AREA=	83.2	
VEL=	3.3	
DEPTH=	2.3	

CCHV= .300 CEHV= .500

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.56	2.60	.00	13.40	2.00	203.40	5.30	2025.70	2025.40

*SECNO .316

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 = 1.40

CLASS A LOW FLOW

3420 BRIDGE W.S.= 2027.90 BRIDGE VELOCITY= 4.86 CALCULATED CHANNEL AREA= 51.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2028.13	.03	0.	272.	203.	209.	2031.00	2034.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 2033.90 ELREA= 2033.90

UPSTREAM SECTION OF BRIDGE; LOW CHORD ELEVATION = 2031.0
FLOWLINE ELEVATION = 2025.7, 2 PIERS, BOTTOM WIDTH = 13.4'

.316	2.17	2027.87	.00	.00	2028.13	.26	.12	.00	2027.70
272.0	.0	272.0	.0	.0	66.5	.0	3.2	4.5	2027.70
.07	.00	4.09	.00	.000	.020	.000	.000	2025.70	979.30
.001659	58.	58.	58.	0	0	0	.00	42.00	1021.30

FLOW DISTRIBUTION FOR SECNO= .32 CWSEL= 2027.87

STA= 979. 1021.
PER Q= 100.0
AREA= 66.5
VEL= 4.1
DEPTH= 1.6

CCHV= .300 CEHV= .500
*SECNO .341

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.61

3470 ENCROACHMENT STATIONS= 855.0 1060.0 TYPE= 1 TARGET= 205.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY

.341	3.24	2028.24	2025.78	.00	2028.24	.00	.04	.08	2026.00
272.0	142.8	73.1	56.1	327.0	104.9	129.1	4.1	4.8	2025.30
.14	.44	.70	.43	.075	.050	.075	.000	2025.00	856.60
.000127	110.	132.	120.	2	22	0	.00	203.40	1060.00

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

FLOW DISTRIBUTION FOR SECNO= .34 CWSEL= 2028.24

STA=	857.	865.	890.	910.	965.	980.	1015.	1040.	1060.
PER Q=	.8	11.0	11.7	24.3	4.7	26.9	12.1	8.6	
AREA=	9.4	68.5	64.8	150.7	33.6	104.9	72.3	56.8	
VEL=	.2	.4	.5	.4	.4	.7	.5	.4	
DEPTH=	1.1	2.7	3.2	2.7	2.2	3.0	2.9	2.8	

CCHV= .100 CEHV= .300
*SECNO .379

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.379	1.23	2029.63	2029.63	.00	2029.83	.19	.09	.06	2029.20
272.0	197.1	74.4	.5	59.2	18.3	.4	5.5	5.7	2029.40
.16	3.33	4.06	1.16	.075	.050	.075	.000	2028.40	794.02
.053209	190.	201.	230.	0	17	0	.00	208.92	1016.08

FLOW DISTRIBUTION FOR SECNO= .38 CWSEL= 2029.63

STA=	794.	845.	902.	911.	920.	923.	932.	935.	938.	941.	945.	951.	969.
PER Q=	3.9	3.1	4.5	8.3	3.7	14.6	6.2	6.6	6.6	4.9	4.1	4.8	
AREA=	7.3	5.7	4.3	6.3	2.5	8.8	3.4	3.5	3.6	3.1	3.6	6.0	
VEL=	1.5	1.5	2.8	3.6	4.0	4.5	5.0	5.1	5.0	4.4	3.2	2.2	
DEPTH=	.1	.1	.5	.7	.8	1.0	1.1	1.2	1.1	.9	.6	.3	

STA=	969.	972.	1012.	1016.
PER Q=	1.0	27.4	.2	
AREA=	1.1	18.3	.4	
VEL=	2.4	4.1	1.2	
DEPTH=	.4	.5	.1	

*SECNO .473

3265 DIVIDED FLOW

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 = 1.95

.473	1.58	2041.58	2041.22	.00	2041.68	.10	11.85	.01	2041.80
272.0	201.3	70.7	.0	84.4	23.6	.1	6.6	7.7	2041.50
.21	2.38	2.99	.03	.070	.040	.065	.000	2040.00	776.95
.014002	480.	496.	500.	9	5	0	.00	145.38	1023.05

FLOW DISTRIBUTION FOR SECNO= .47 CWSEL= 2041.58

STA=	777.	782.	800.	824.	830.	845.	857.	891.	911.	1021.	1023.
PER Q=	1.6	26.8	20.0	.2	1.4	3.8	7.5	12.7	26.0	.0	
AREA=	2.7	24.0	22.7	.8	2.3	6.2	9.5	16.1	23.6	.1	
VEL=	1.6	3.0	2.4	.7	1.6	1.7	2.1	2.1	3.0	.0	
DEPTH=	.5	1.3	.9	.1	.2	.5	.3	.8	.6	.0	

*SECNO .536

5 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.536	.73	2050.23	2050.23	.00	2050.39	.16	7.96	.02	2050.10
272.0	221.9	49.9	.2	75.7	11.5	.2	7.3	9.2	2050.00
.24	2.93	4.33	1.29	.065	.045	.065	.000	2049.50	649.40
.058781	310.	332.	350.	0	15	0	.00	276.55	1011.36

FLOW DISTRIBUTION FOR SECNO= .54 CWSEL= 2050.23

STA=	649.	669.	687.	765.	783.	800.	820.	839.	856.	869.	882.	981.	1010.
PER Q=	11.3	12.3	5.7	3.2	7.9	11.9	3.2	5.6	10.3	7.7	2.5	18.3	
AREA=	9.1	9.3	8.6	4.2	6.8	9.5	4.2	5.8	7.3	6.2	4.6	11.5	
VEL=	3.4	3.6	1.8	2.1	3.2	3.4	2.1	2.6	3.8	3.4	1.5	4.3	
DEPTH=	.5	.5	.1	.2	.4	.5	.2	.3	.6	.5	.0	.4	

STA=	1010.	1011.
PER Q=	.1	
AREA=	.2	
VEL=	1.3	
DEPTH=	.1	

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

*SECNO .597

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

.597	2.00	2058.00	2057.87	.00	2058.45	.45	7.97	.09	2056.70
272.0	11.3	159.4	101.3	4.5	24.6	30.3	7.8	10.3	2056.30
.25	2.52	6.47	3.34	.060	.040	.060	.000	2056.00	990.06
.014369	290.	322.	330.	6	20	0	.00	50.83	1040.89

FLOW DISTRIBUTION FOR SECNO= .60 CWSEL= 2058.00

STA=	990.	997.	1011.	1014.	1016.	1019.	1022.	1025.	1028.	1033.	1041.
PER Q=	4.2	58.6	7.2	4.3	5.8	5.1	4.5	3.9	4.7	1.8	
AREA=	4.5	24.6	4.8	3.0	4.2	3.9	3.6	3.3	4.5	2.9	
VEL=	2.5	6.5	4.1	3.9	3.7	3.5	3.4	3.2	2.8	1.7	
DEPTH=	.6	1.8	1.6	1.5	1.4	1.3	1.2	1.1	.9	.4	

*SECNO .669
75 MINIMUM SPECIFIC ENERGY
0 CRITICAL DEPTH ASSUMED

.669	1.91	2065.41	2065.41	.00	2066.08	.67	6.04	.07	2064.00
272.0	10.2	239.6	22.2	4.0	34.7	7.3	8.2	10.7	2064.00
.27	2.56	6.90	3.05	.060	.040	.060	.000	2063.50	984.34
.017671	380.	380.	380.	0	8	0	.00	36.67	1021.01

FLOW DISTRIBUTION FOR SECNO= .67 CWSEL= 2065.41

STA=	984.	990.	1011.	1017.	1019.	1021.
PER Q=	3.8	88.1	7.5	.5	.1	
AREA=	4.0	34.7	6.2	.7	.4	
VEL=	2.6	6.9	3.3	1.9	1.0	
DEPTH=	.7	1.7	1.0	.5	.2	

*SECNO .763
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.763	2.02	2075.52	2075.52	.00	2076.16	.64	8.77	.00	2074.40
272.0	18.2	226.0	27.8	7.8	33.0	6.9	8.8	11.2	2073.80
.29	2.33	6.85	4.01	.060	.040	.060	.000	2073.50	971.60
.017529	530.	496.	500.	0	8	0	.00	40.16	1011.76

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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


FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   2075.52

STA=     972.     985.     986.    1006.    1009.    1011.    1012.
  PER Q=      4.9      1.9     83.1      8.1      2.0       .2
   AREA=      6.3      1.5     33.0      4.9      1.7       .4
    VEL=      2.1      3.3      6.9      4.5      3.1      1.4
  DEPTH=       .5      1.0      1.6      1.6      1.1       .3

*SECNO  .845
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .845      1.97   2084.97   2084.97       .00   2085.53       .56      7.44       .01   2083.80
     272.0      33.4     235.2       3.4      12.9      36.8       1.8       9.3      11.6   2084.00
       .31      2.60      6.40      1.94      .060      .040      .060      .000   2083.00    966.24
   .016853      433.      433.      433.         0         8         0       .00     47.89   1014.14


FLOW DISTRIBUTION FOR SECNO=       .85          CWSEL=   2084.97

   =     966.     982.     985.     987.    1011.    1014.
  PER Q=      6.0      4.0      2.3     86.5      1.3
   AREA=      7.9      3.2      1.8     36.8      1.8
    VEL=      2.1      3.4      3.6      6.4      1.9
  DEPTH=       .5      1.1      1.2      1.5       .5

*SECNO  .955
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .955      2.71   2097.71   2097.71       .00   2098.61       .91      9.64       .10   2096.10
     272.0      13.7     250.5       7.8       5.1      31.6       2.9       9.9      12.1   2096.00
       .33      2.68      7.92      2.65      .060      .040      .060      .000   2095.00    989.15
   .016329      581.      581.      581.         0        11         0       .00     24.30   1013.45


FLOW DISTRIBUTION FOR SECNO=       .95          CWSEL=   2097.71

STA=     989.     996.    1010.    1013.
  PER Q=      5.0     92.1      2.9
   AREA=      5.1     31.6      2.9
    VEL=      2.7      7.9      2.6
  DEPTH=       .8      2.2       .9
```

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 1.053
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.053	3.16	2108.66	2108.66	.00	2109.62	.96	7.98	.02	2106.00
272.0	47.4	185.9	38.8	11.6	20.4	10.0	10.4	12.4	2105.50
.35	4.10	9.13	3.88	.060	.040	.060	.000	2105.50	984.47
.014607	517.	517.	517.	0	11	0	.00	21.85	1006.32

FLOW DISTRIBUTION FOR SECNO= 1.05 CWSEL= 2108.66

STA=	984.	986.	987.	988.	993.	1000.	1006.	1006.
PER Q=	.2	.5	1.0	15.7	68.3	14.2	.0	
AREA=	.4	.7	1.0	9.5	20.4	10.0	.0	
VEL=	1.3	2.2	2.8	4.5	9.1	3.9	.0	
DEPTH=	.3	.7	1.0	1.9	2.9	1.7	.1	

*SECNO 1.134
7185 MINIMUM SPECIFIC ENERGY
?0 CRITICAL DEPTH ASSUMED

1.134	2.11	2119.61	2119.61	.00	2120.32	.71	6.70	.03	2118.40
272.0	12.2	241.9	17.8	4.8	34.1	6.5	10.8	12.6	2118.00
.37	2.55	7.10	2.75	.060	.040	.060	.000	2117.50	981.91
.016823	428.	428.	428.	0	14	0	.00	35.15	1017.06

FLOW DISTRIBUTION FOR SECNO= 1.13 CWSEL= 2119.61

STA=	982.	983.	984.	989.	990.	1009.	1017.
PER Q=	.0	.1	3.0	1.4	88.9	6.6	
AREA=	.1	.3	3.3	1.1	34.1	6.5	
VEL=	.7	1.3	2.4	3.4	7.1	2.7	
DEPTH=	.1	.3	.7	1.1	1.8	.8	

FLOODWAY DETERMINATION

T2

T3 WASH F: UNNAMED WASH # 1

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	.0027	0	0	0	2021.32	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15	0	-1	0	0	0	-1	0	0	0

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


*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 50.840

3265 DIVIDED FLOW

         HASSAYAMPA RIVER FIS SECTION (CBA 1988, NO DATUM CHANGE)
         CONFLUENCE WITH WASH AG - UNNAMED WASH # 10, A WEST TRIBUTARY
         NON COINCIDENT WITH 100 YEAR DISCHARGE IN HASSAYAMPA
   50.840      1.52   2021.32   2020.77   2021.32   2021.35       .03       .00       .00   2020.70
    272.0      81.9     190.1        .0      97.6     114.9        .0        .0        .0   2023.60
      .00       .84      1.65       .00      .070      .045      .000      .000   2019.80   1203.01
  .002653        0.        0.        0.         0        13         0       .00    276.41   1719.66


*SECNO  .284
  `5 MINIMUM SPECIFIC ENERGY
  .0 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      930.0    1070.0  TYPE=      1  TARGET=      140.000
         ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
         SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
         WSEL AND THE TOPOGRAPHY
     .284       .87   2026.87   2026.87   2026.87   2027.13       .26      5.58       .07   2026.30
    272.0      89.4     117.6      65.0      32.0      21.9      24.1       2.9       4.2   2026.10
      .06      2.79      5.37      2.70      .070      .045      .070      .000   2026.00    930.00
  .039055     1000.      810.      520.         0        11         0       .00    140.00   1070.00


*SECNO  .305

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.47


3470 ENCROACHMENT STATIONS=      981.0    1019.0  TYPE=      1  TARGET=       38.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      2033.90 ELREA=      2033.90

         ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
         SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
```

```
        WSEL AND THE TOPOGRAPHY
        DOWNSTREAM SECTION OF BRIDGE; FLOWLINE ELEVATION = 2025.4
     .305      2.34   2027.84   2026.75   2027.84   2028.00       .17       .87       .01   2025.70
   272.0        .0     272.0        .0        .0      83.2        .0       3.1       4.4   2025.50
     .07       .00      3.27       .00      .000      .045      .000      .000   2025.50    981.60
  .003253      80.      111.      150.         5        11         0       .00     36.40   1018.00


CCHV=     .300 CEHV=     .500

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    1.05      1.56      2.60       .00     13.40      2.00     203.40     5.30   2025.70   2025.40

*SECNO  .316

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40

CLASS A LOW FLOW

3420 BRIDGE W.S.=    2027.90 BRIDGE VELOCITY=       4.86     CALCULATED CHANNEL AREA=        51.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                               AREA
      .00   2028.13      .03        0.      272.      203.      209.     2031.00   2034.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      2033.90 ELREA=      2033.90

        UPSTREAM SECTION OF BRIDGE; LOW CHORD ELEVATION = 2031.0
        FLOWLINE ELEVATION = 2025.7, 2 PIERS, BOTTOM WIDTH = 13.4'
     .316      2.17   2027.87       .00   2027.87   2028.13       .26       .12       .00   2027.70
   272.0        .0     272.0        .0        .0      66.5        .0       3.2       4.5   2027.70
     .07       .00      4.09       .00      .000      .020      .000      .000   2025.70    979.30
  .001659      58.       58.       58.         0         0         0       .00     42.00   1021.30


CCHV=     .300 CEHV=     .500
*SECNO  .341

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.61


3470 ENCROACHMENT STATIONS=      855.0    1060.0  TYPE=      1  TARGET=      205.000
        ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
        SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
        WSEL AND THE TOPOGRAPHY
     .341      3.24   2028.24   2025.78   2028.24   2028.24       .00       .04       .08   2026.00
   272.0     142.8      73.1      56.1     327.0     104.9     129.1       4.1       4.8   2025.30
     .14       .44       .70       .43      .075      .050      .075      .000   2025.00    856.60
  .000127     110.      132.      120.         2        22         0       .00    203.40   1060.00
```

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

CCHV= .100 CEHV= .300
*SECNO .379

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 794.0 1016.0 TYPE= 1 TARGET= 222.000

.379	1.23	2029.63	2029.63	2029.63	2029.83	.20	.09	.06	2029.20
272.0	197.2	74.3	.5	58.9	18.3	.4	5.5	5.7	2029.40
.16	3.35	4.07	1.16	.075	.050	.075	.000	2028.40	794.02
.053783	190.	201.	230.	0	17	0	.00	208.73	1016.00

*SECNO .473

3265 DIVIDED FLOW

,2 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.97

3470 ENCROACHMENT STATIONS= 776.0 1024.0 TYPE= 1 TARGET= 248.000

.473	1.58	2041.58	2041.22	2041.58	2041.68	.10	11.85	.01	2041.80
272.0	201.2	70.8	.0	84.6	23.7	.1	6.6	7.7	2041.50
.21	2.38	2.99	.03	.070	.040	.065	.000	2040.00	776.95
.013924	480.	496.	500.	9	5	0	.00	145.53	1023.08

*SECNO .536

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 649.0 1012.0 TYPE= 1 TARGET= 363.000

.536	.72	2050.22	2050.22	2050.23	2050.39	.17	8.06	.02	2050.10
272.0	221.8	50.0	.2	74.3	11.4	.1	7.3	9.2	2050.00
.24	2.98	4.39	1.30	.065	.045	.065	.000	2049.50	649.42
.061771	310.	332.	350.	0	18	0	.00	274.95	1011.33

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 .597

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.10

3470 ENCROACHMENT STATIONS= 989.0 1042.0 TYPE= 1 TARGET= 53.000

.597	2.00	2058.00	2057.87	2058.00	2058.44	.44	7.97	.08	2056.70
272.0	11.4	159.0	101.6	4.5	24.8	30.6	7.8	10.3	2056.30
.25	2.51	6.41	3.32	.060	.040	.060	.000	2056.00	990.00
.014020	290.	322.	330.	7	20	0	.00	50.99	1040.99

*SECNO .669
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 984.0 1021.0 TYPE= 1 TARGET= 37.000

.669	1.91	2065.41	2065.41	2065.41	2066.08	.67	5.99	.07	2064.00
272.0	10.2	239.7	22.1	4.0	34.6	7.2	8.2	10.7	2064.00
.27	2.57	6.92	3.06	.060	.040	.060	.000	2063.50	984.36
.017854	380.	380.	380.	0	8	0	.00	36.61	1020.97

*SECNO .763
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 971.0 1012.0 TYPE= 1 TARGET= 41.000

.763	2.02	2075.52	2075.52	2075.52	2076.16	.64	8.80	.00	2074.40
272.0	18.3	225.9	27.8	7.8	33.0	6.9	8.8	11.2	2073.80
.29	2.33	6.85	4.01	.060	.040	.060	.000	2073.50	971.59
.017480	530.	496.	500.	0	8	0	.00	40.17	1011.76

*SECNO .845
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 966.0 1015.0 TYPE= 1 TARGET= 49.000

.845	1.97	2084.97	2084.97	2084.97	2085.53	.56	7.45	.01	2083.80
272.0	33.4	235.2	3.4	12.8	36.7	1.8	9.3	11.6	2084.00
.31	2.60	6.40	1.94	.060	.040	.060	.000	2083.00	966.26
.016915	433.	433.	433.	0	8	0	.00	47.87	1014.13

```
   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  .955
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      989.0    1014.0  TYPE=      1  TARGET=      25.000
      .955      2.72   2097.72   2097.72   2097.71   2098.61       .89      9.56       .10   2096.10
     272.0      13.8     250.3       7.9       5.2      31.8       3.0       9.9      12.1   2096.00
       .33      2.67      7.87      2.63      .060      .040      .060      .000   2095.00    989.11
   .016027      581.      581.      581.         0        11         0       .00     24.36   1013.47


*SECNO 1.053
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      984.0    1007.0  TYPE=      1  TARGET=      23.000
     1.053      3.16   2108.66   2108.66   2108.66   2109.62       .96      7.89       .02   2106.00
     272.0      47.4     185.8      38.8      11.6      20.4      10.0      10.4      12.3   2105.50
       .35      4.09      9.11      3.88      .060      .040      .060      .000   2105.50    984.46
   .014536      517.      517.      517.         0        11         0       .00     21.87   1006.32


*SECNO 1.134
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      981.0    1018.0  TYPE=      1  TARGET=      37.000
     1.134      2.11   2119.61   2119.61   2119.61   2120.32       .71      6.68       .03   2118.40
     272.0      12.2     241.9      17.8       4.8      34.1       6.5      10.8      12.6   2118.00
       .37      2.55      7.10      2.75      .060      .040      .060      .000   2117.50    981.91
   .016823      428.      428.      428.         0        14         0       .00     35.15   1017.06
```

THIS RUN EXECUTED 20AUG92 16:06:18

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

WASH AG : UNNAMED WASH #

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	50.840	.00	.00	.00	2019.80	272.00	2021.32	2020.77	2021.35	26.53	1.65	212.51	52.81
	50.840	.00	.00	.00	2019.80	272.00	2021.32	2020.77	2021.35	26.53	1.65	212.51	52.81
*	.284	810.00	.00	.00	2026.00	272.00	2026.87	2026.87	2027.13	390.55	5.37	78.03	13.76
*	.284	810.00	.00	.00	2026.00	272.00	2026.87	2026.87	2027.13	390.55	5.37	78.03	13.76
	.305	111.00	.00	.00	2025.50	272.00	2027.84	2026.75	2028.00	32.53	3.27	83.22	47.69
*	.305	111.00	.00	.00	2025.50	272.00	2027.84	2026.75	2028.00	32.53	3.27	83.22	47.69
*	.316	58.00	2034.00	2031.00	2025.70	272.00	2027.87	.00	2028.13	16.59	4.09	66.50	66.77
*	.316	58.00	2034.00	2031.00	2025.70	272.00	2027.87	.00	2028.13	16.59	4.09	66.50	66.77
*	.341	132.00	.00	.00	2025.00	272.00	2028.24	2025.78	2028.24	1.27	.70	561.00	240.99
*	.341	132.00	.00	.00	2025.00	272.00	2028.24	2025.78	2028.24	1.27	.70	561.00	240.99
*	.379	201.00	.00	.00	2028.40	272.00	2029.63	2029.63	2029.83	532.09	4.06	77.96	11.79
*	.379	201.00	.00	.00	2028.40	272.00	2029.63	2029.63	2029.83	537.83	4.07	77.60	11.73
*	.473	496.00	.00	.00	2040.00	272.00	2041.58	2041.22	2041.68	140.02	2.99	108.14	22.99
*	.473	496.00	.00	.00	2040.00	272.00	2041.58	2041.22	2041.68	139.24	2.99	108.35	23.05
*	.536	332.00	.00	.00	2049.50	272.00	2050.23	2050.23	2050.39	587.81	4.33	87.41	11.22
*	.536	332.00	.00	.00	2049.50	272.00	2050.22	2050.22	2050.39	617.71	4.39	85.86	10.94
*	.597	322.00	.00	.00	2056.00	272.00	2058.00	2057.87	2058.45	143.69	6.47	59.43	22.69
*	.597	322.00	.00	.00	2056.00	272.00	2058.00	2057.87	2058.44	140.20	6.41	59.96	22.97
*	.669	380.00	.00	.00	2063.50	272.00	2065.41	2065.41	2066.08	176.71	6.90	45.99	20.46
*	.669	380.00	.00	.00	2063.50	272.00	2065.41	2065.41	2066.08	178.54	6.92	45.82	20.36
*	.763	496.00	.00	.00	2073.50	272.00	2075.52	2075.52	2076.16	175.29	6.85	47.71	20.54
	.763	496.00	.00	.00	2073.50	272.00	2075.52	2075.52	2076.16	174.80	6.85	47.76	20.57

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	.845	433.00	.00	.00	2083.00	272.00	2084.97	2084.97	2085.53	168.53	6.40	51.41	20.95
*	.845	433.00	.00	.00	2083.00	272.00	2084.97	2084.97	2085.53	169.15	6.40	51.34	20.91
*	.955	581.00	.00	.00	2095.00	272.00	2097.71	2097.71	2098.61	163.29	7.92	39.69	21.29
*	.955	581.00	.00	.00	2095.00	272.00	2097.72	2097.72	2098.61	160.27	7.87	39.96	21.49
*	1.053	517.00	.00	.00	2105.50	272.00	2108.66	2108.66	2109.62	146.07	9.13	41.91	22.51
*	1.053	517.00	.00	.00	2105.50	272.00	2108.66	2108.66	2109.62	145.36	9.11	41.98	22.56
*	1.134	428.00	.00	.00	2117.50	272.00	2119.61	2119.61	2120.32	168.23	7.10	45.38	20.97
*	1.134	428.00	.00	.00	2117.50	272.00	2119.61	2119.61	2120.32	168.23	7.10	45.38	20.97

H AG : UNNAMED WASH #

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	50.840	272.00	2021.32	.00	.00	.00	276.41	.00
	50.840	272.00	2021.32	.00	.00	.00	276.41	.00
*	.284	272.00	2026.87	.00	5.55	.00	140.00	810.00
*	.284	272.00	2026.87	.00	5.55	.00	140.00	810.00
*	.305	272.00	2027.84	.00	.97	.00	36.40	111.00
*	.305	272.00	2027.84	.00	.97	.00	36.40	111.00
*	.316	272.00	2027.87	.00	.03	.00	42.00	58.00
*	.316	272.00	2027.87	.00	.03	.00	42.00	58.00
*	.341	272.00	2028.24	.00	.37	.00	203.40	132.00
*	.341	272.00	2028.24	.00	.37	.00	203.40	132.00
*	.379	272.00	2029.63	.00	1.39	.00	208.92	201.00
*	.379	272.00	2029.63	.00	1.39	.00	208.73	201.00
	.473	272.00	2041.58	.00	11.95	.00	145.38	496.00
	.473	272.00	2041.58	.00	11.95	.00	145.53	496.00
*	.536	272.00	2050.23	.00	8.64	.00	276.55	332.00
*	.536	272.00	2050.22	-.01	8.64	-.01	274.95	332.00
*	.597	272.00	2058.00	.00	7.77	.00	50.83	322.00
*	.597	272.00	2058.00	.00	7.78	.00	50.99	322.00
*	.669	272.00	2065.41	.00	7.42	.00	36.67	380.00
*	.669	272.00	2065.41	.00	7.41	.00	36.61	380.00
*	.763	272.00	2075.52	.00	10.11	.00	40.16	496.00
*	.763	272.00	2075.52	.00	10.11	.00	40.17	496.00
*	.845	272.00	2084.97	.00	9.45	.00	47.89	433.00
*	.845	272.00	2084.97	.00	9.45	.00	47.87	433.00
*	.955	272.00	2097.71	.00	12.74	.00	24.30	581.00
*	.955	272.00	2097.72	.01	12.75	.01	24.36	581.00
*	1.053	272.00	2108.66	.00	10.95	.00	21.85	517.00
*	1.053	272.00	2108.66	.00	10.94	.00	21.87	517.00
*	1.134	272.00	2119.61	.00	10.95	.00	35.15	428.00
*	1.134	272.00	2119.61	.00	10.95	.00	35.15	428.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .284  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .284  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .284  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .284  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .305  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .305  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .316  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .316  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .341  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .341  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .379  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .379  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .379  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .379  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .473  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
  RNING SECNO=      .473  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .536  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .536  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .536  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .536  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .597  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .597  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .669  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .669  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .669  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .669  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .763  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .763  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .763  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .763  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .845  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .845  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .845  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .845  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .955  PROFILE=  1  CRITICAL DEPTH ASSUMED
   TION SECNO=      .955  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .955  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .955  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.053  PROFILE=  1  CRITICAL DEPTH ASSUMED
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 TION SECNO=      1.053  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    1.053  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    1.053  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    1.134  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    1.134  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    1.134  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    1.134  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```

FLOODWAY DATA, WASH AG : UNNAMED WASH #
PROFILE NO. 2

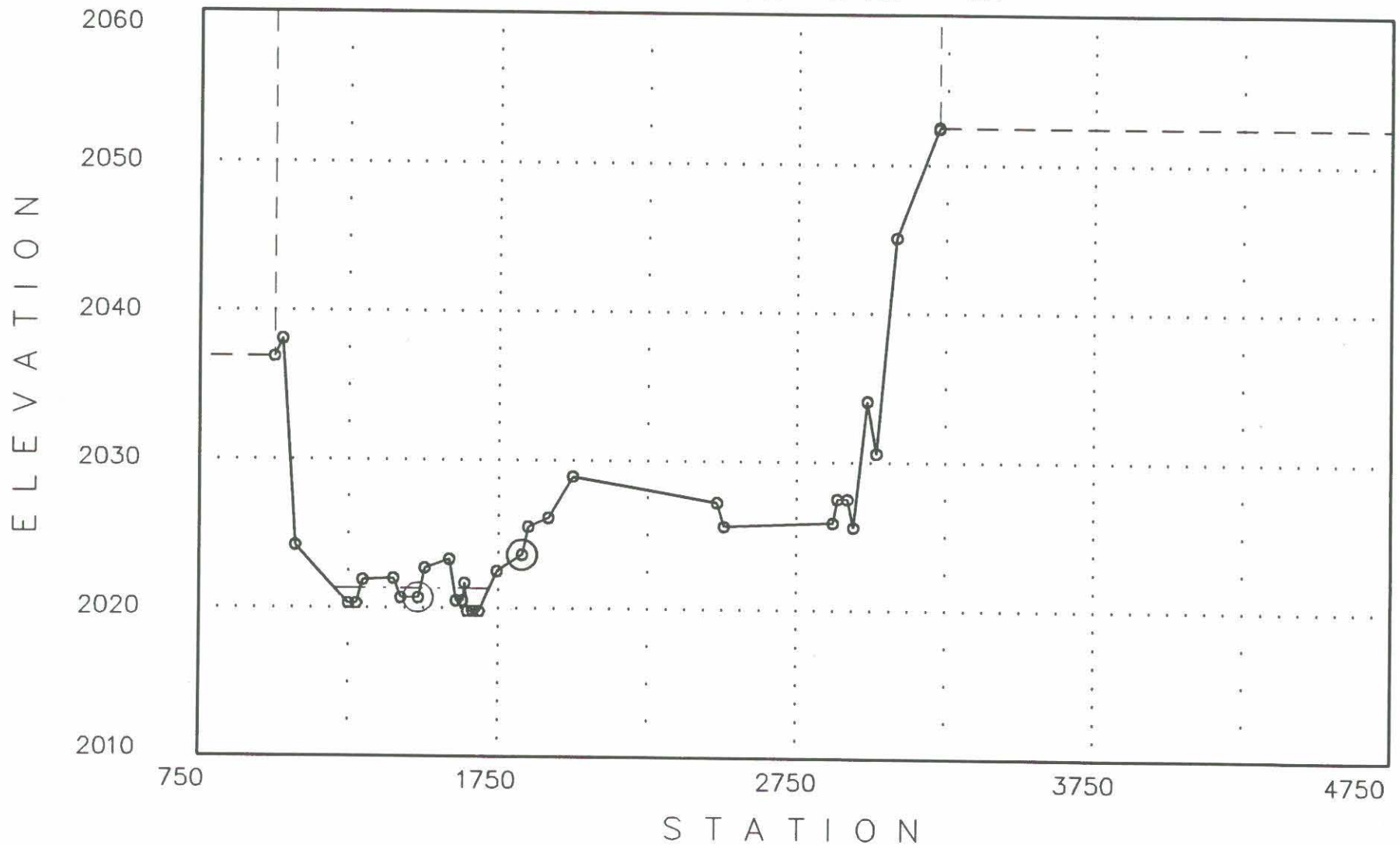
STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
50.840	517.	213.	1.3	2021.3	2021.3	.0
.284	140.	78.	3.5	2026.9	2026.9	.0
.305	36.	83.	3.3	2027.8	2027.8	.0
.316	42.	66.	4.1	2027.9	2027.9	.0
.341	203.	561.	.5	2028.2	2028.2	.0
.379	222.	78.	3.5	2029.6	2029.6	.0
.473	246.	108.	2.5	2041.6	2041.6	.0
.536	362.	86.	3.2	2050.2	2050.2	.0
.597	51.	60.	4.5	2058.0	2058.0	.0
.669	37.	46.	5.9	2065.4	2065.4	.0
.763	40.	48.	5.7	2075.5	2075.5	.0
.845	48.	51.	5.3	2085.0	2085.0	.0
.955	24.	40.	6.8	2097.7	2097.7	.0
1.053	22.	42.	6.5	2108.7	2108.7	.0
1.134	35.	45.	6.0	2119.6	2119.6	.0

<<<<<< Cross Section: 50.84: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2021.32

Q2= 272 WS2= 2021.32

Manning-n's: n-lob = .07 n-ch = .045 n-rob = .07



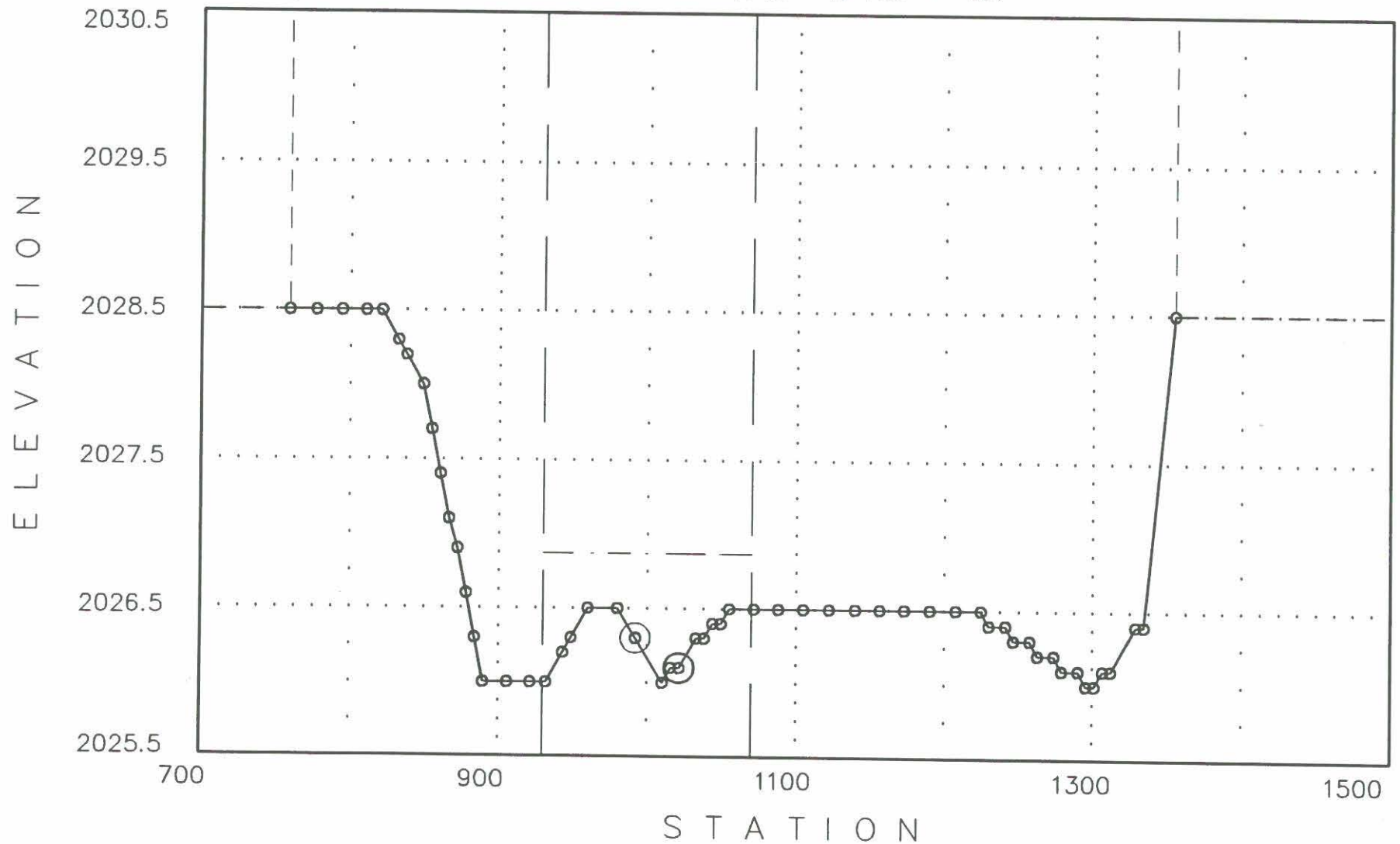
08-18-1992

<<<<<< Cross Section: .284: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2026.87

Q2= 272 WS2= 2026.87

Manning-n's: n-lob = .07 n-ch = .045 n-rob = .07

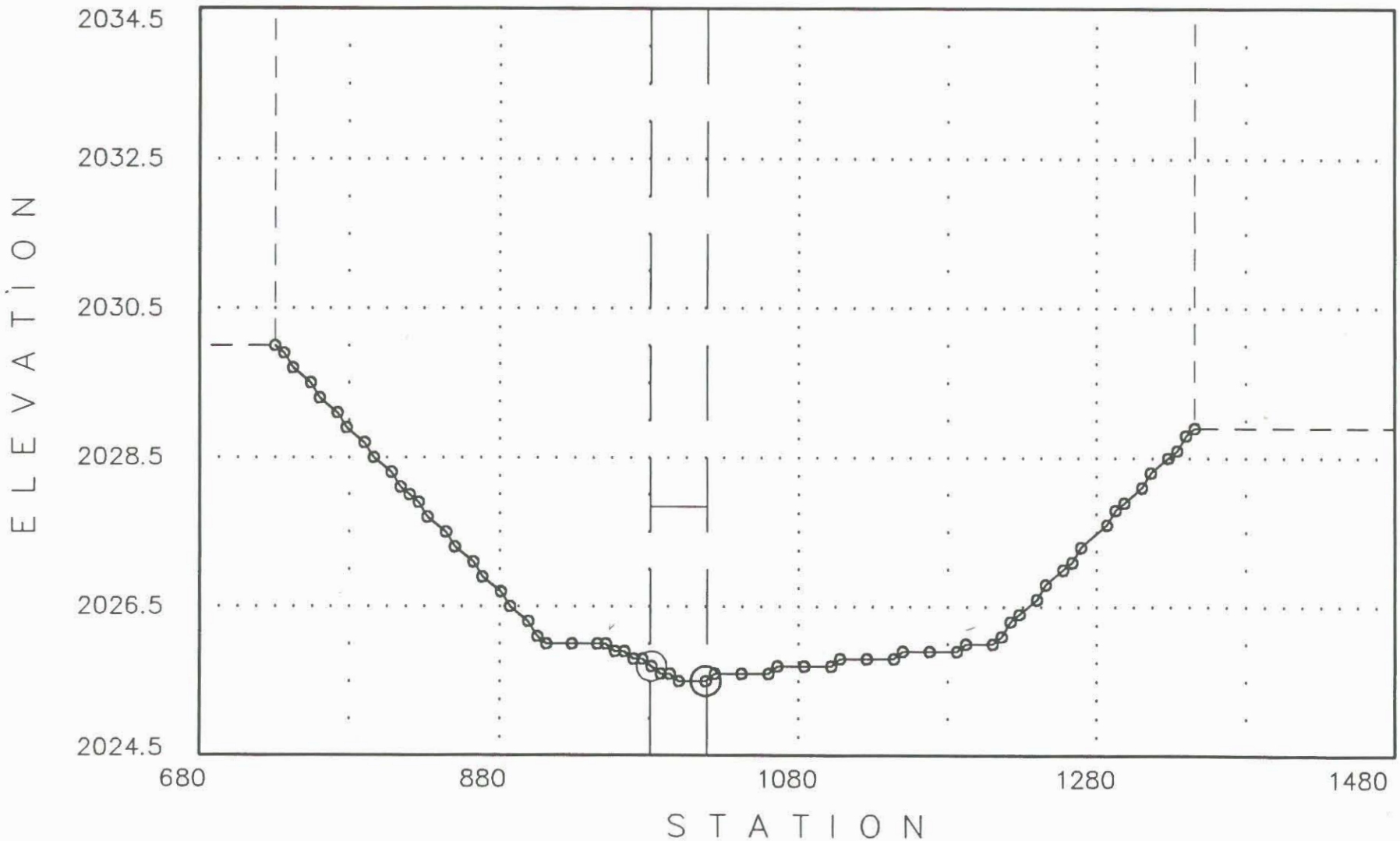


08-18-1992

<<<<<< Cross Section: .305: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2027.84
Q2= 272 WS2= 2027.84

Manning-n's: n-lob = .07 n-ch = .045 n-rob = .07



08-18-1992

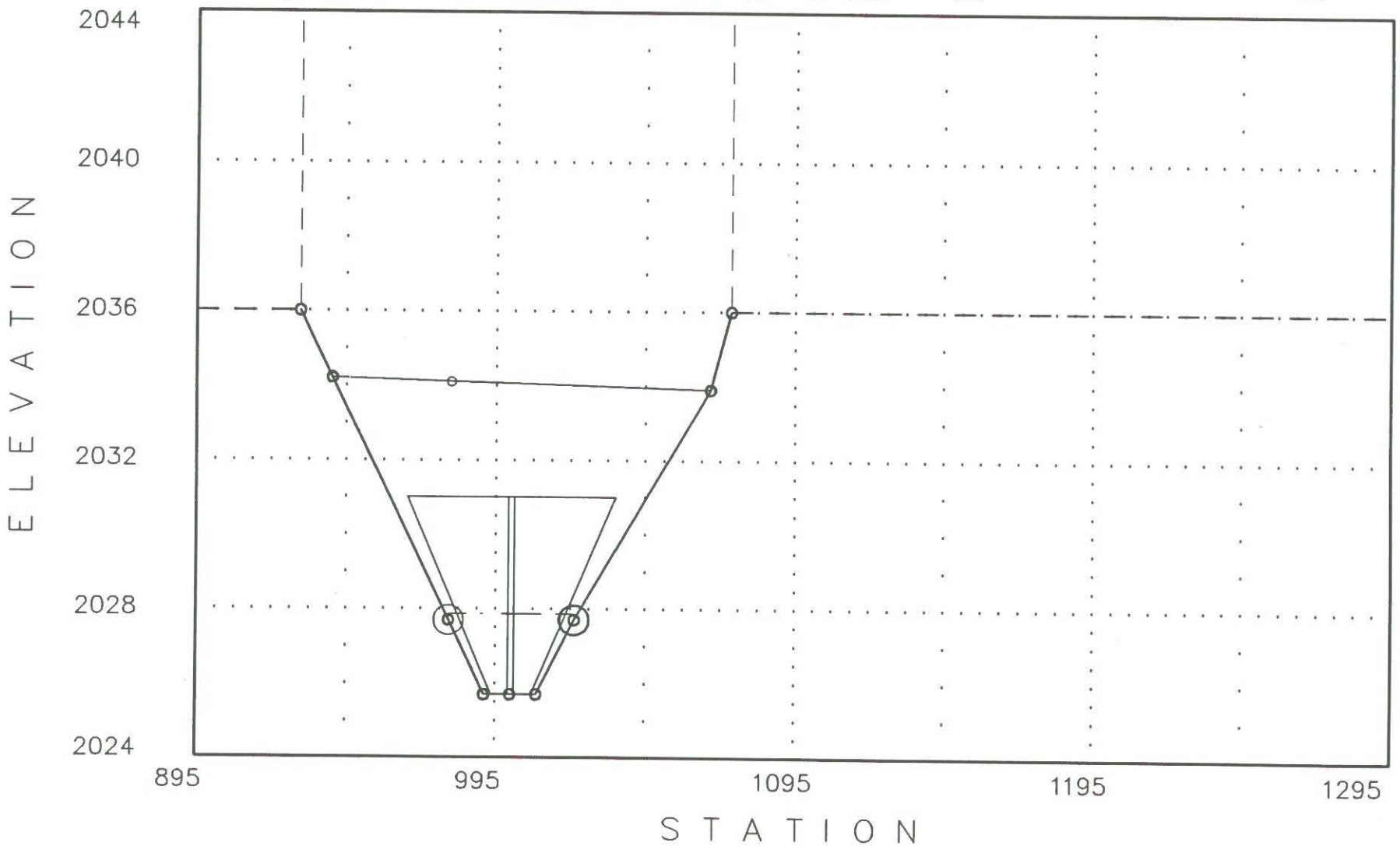
<<<<<< Cross Section: .316: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2027.87

Q2= 272 WS2= 2027.87

Manning-n's: n-lob = .07 n-ch = .02 n-rob = .07

SPECIAL BRIDGE

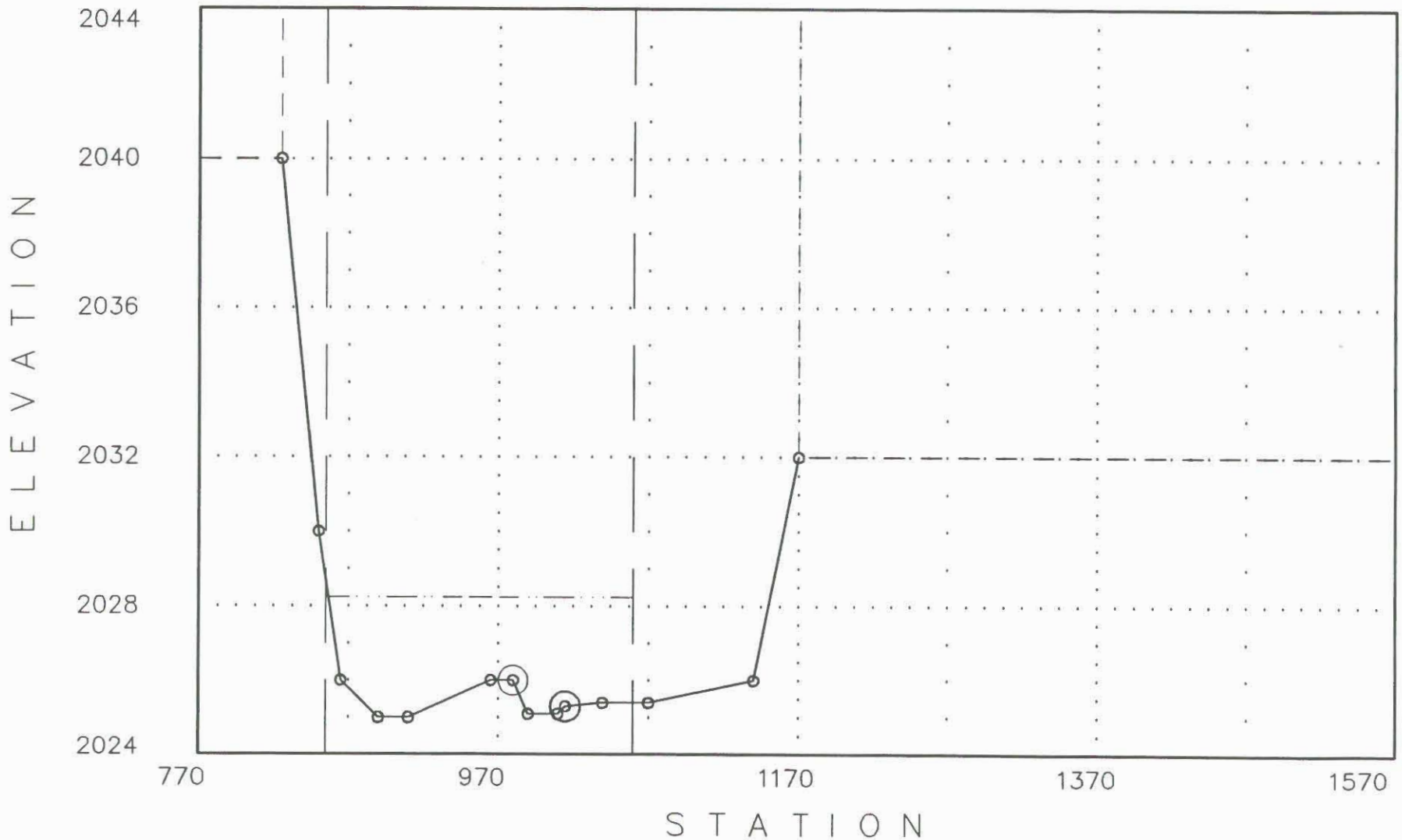


08-18-1992

<<<<<< Cross Section: .341: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2028.24
Q2= 272 WS2= 2028.24

Manning-n's: n-lob = .075 n-ch = .05 n-rob = .075

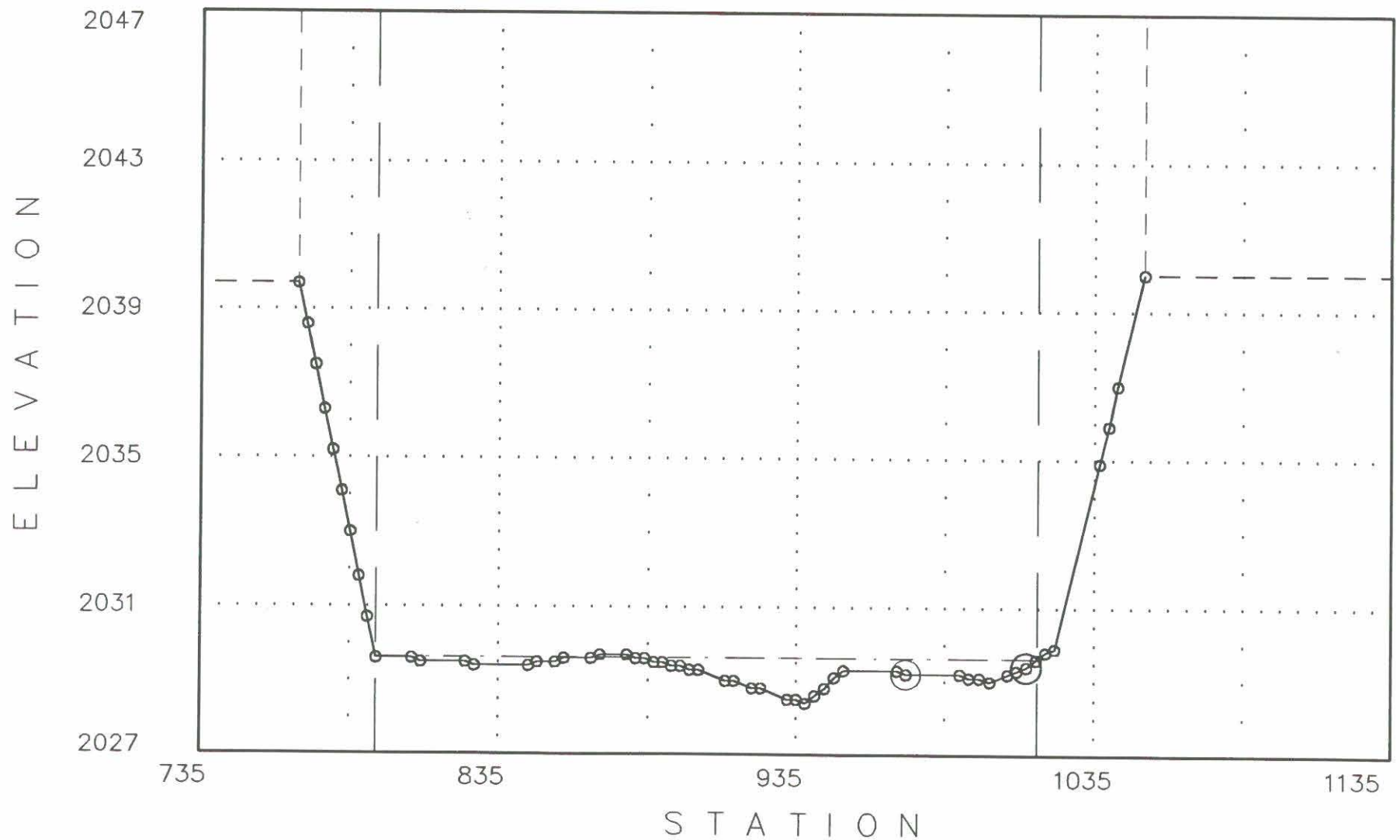


08-20-1992

<<<<<< Cross Section: .379: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2029.63
Q2= 272 WS2= 2029.63

Manning-n's: n-lob = .075 n-ch = .05 n-rob = .075

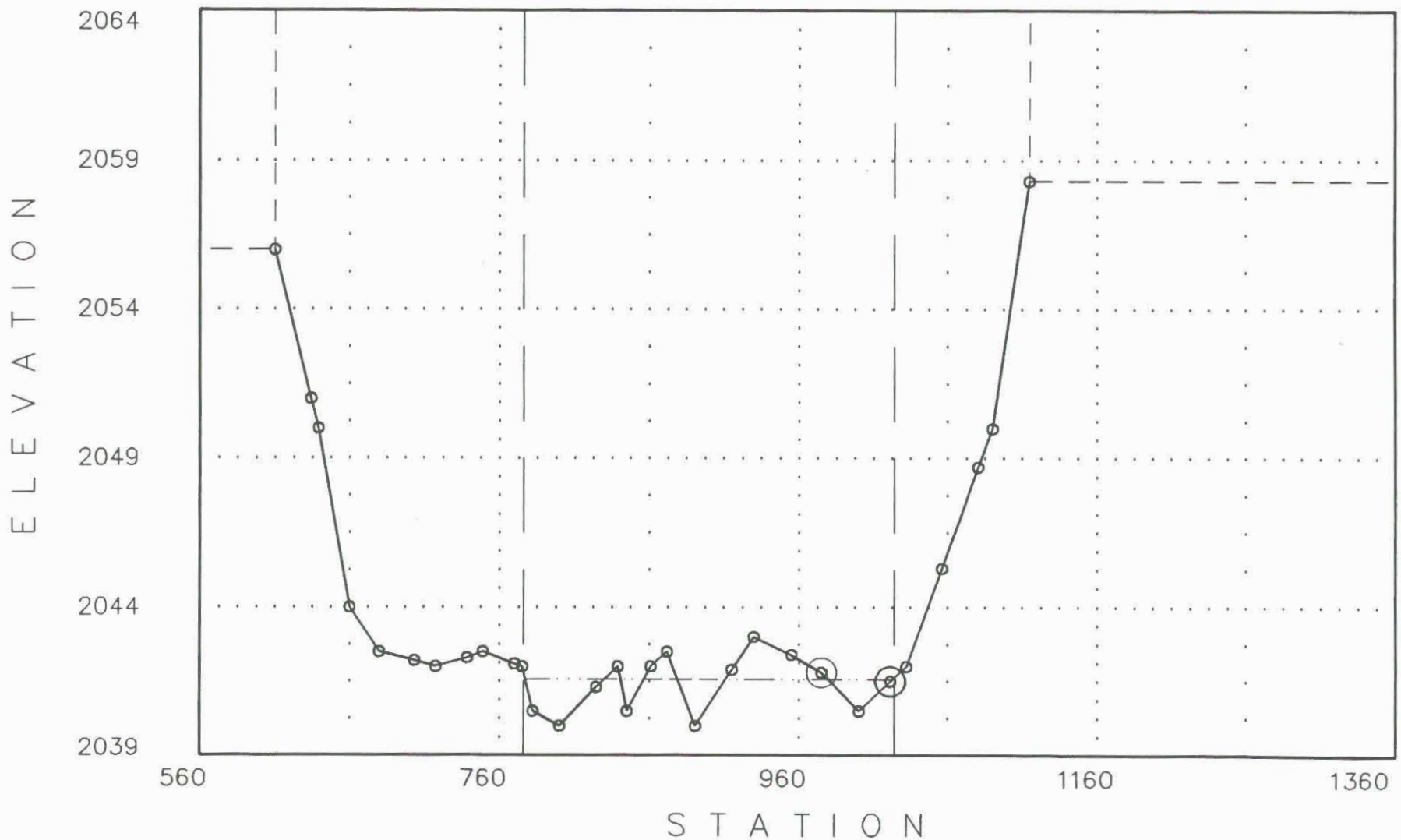


08-20-1992

<<<<<< Cross Section: .473: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2041.58
Q2= 272 WS2= 2041.58

Manning-n's: n-lob = .07 n-ch = .04 n-rob = .065



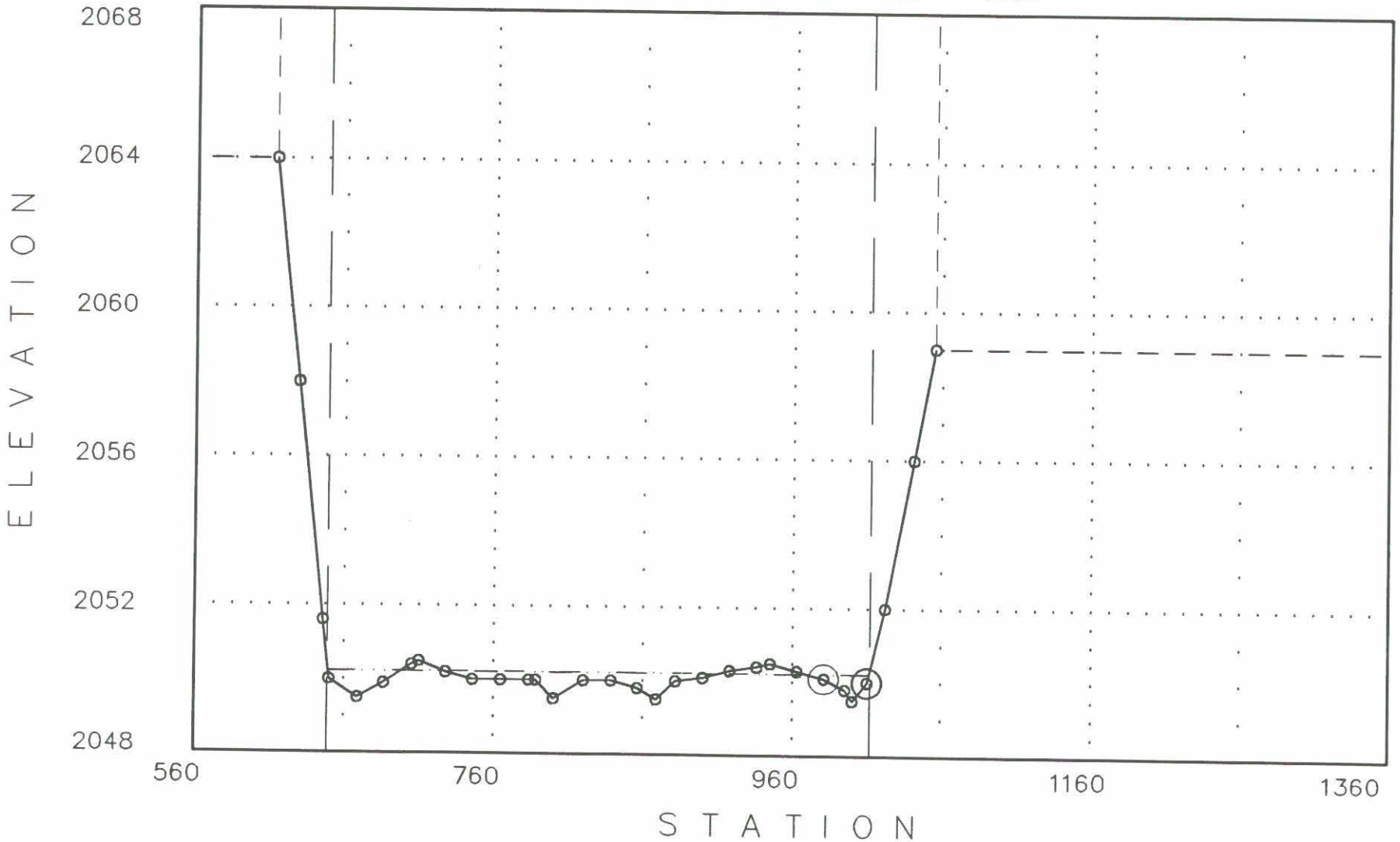
08-20-1992

<<<<<< Cross Section: .536: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2050.23

Q2= 272 WS2= 2050.22

Manning-n's: n-lob = .065 n-ch = .045 n-rob = .065

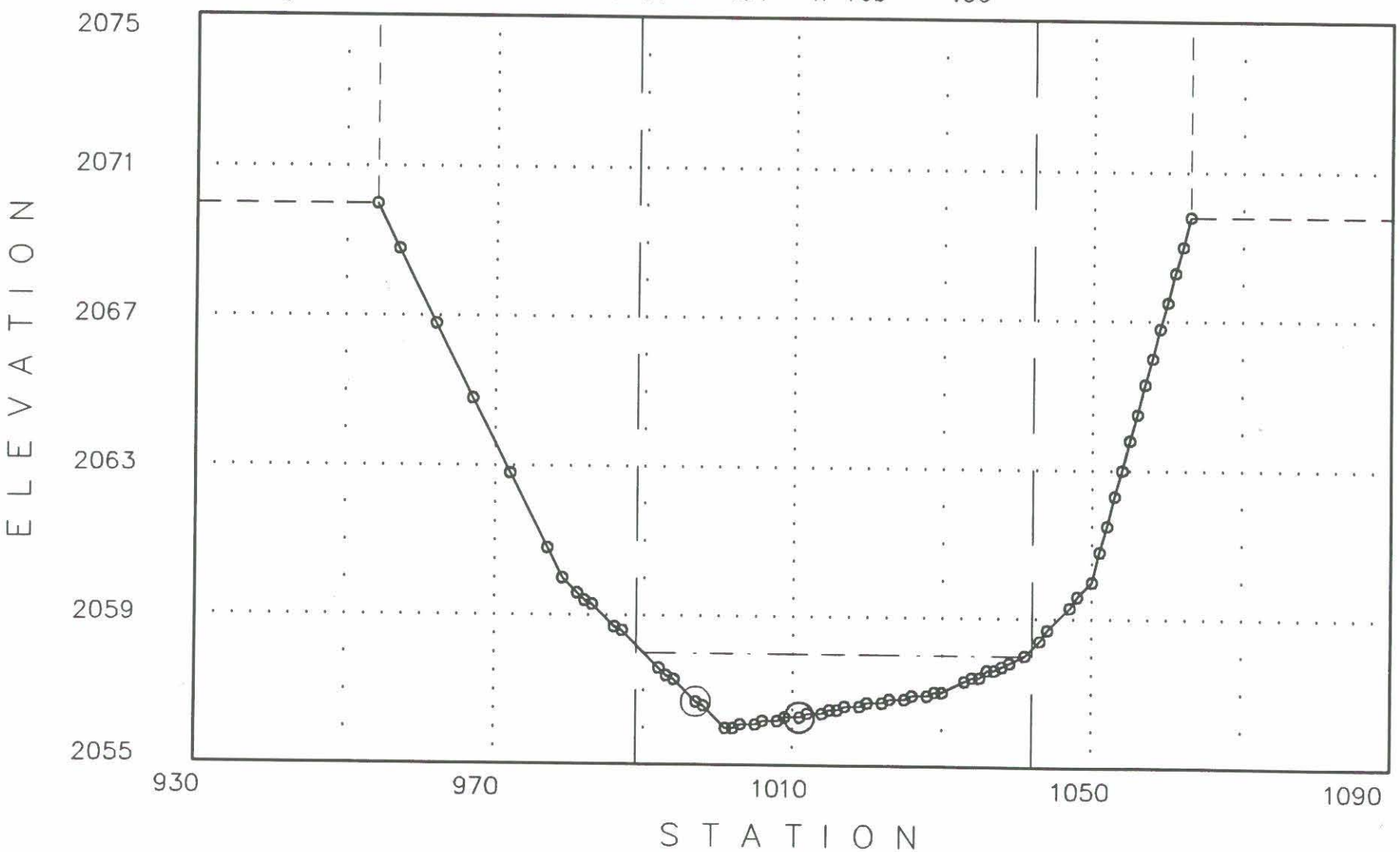


08-20-1992

<<<<<< Cross Section: .597: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2058
Q2= 272 WS2= 2058

Manning-n's: n-lob = .06 n-ch = .04 n-rob = .06

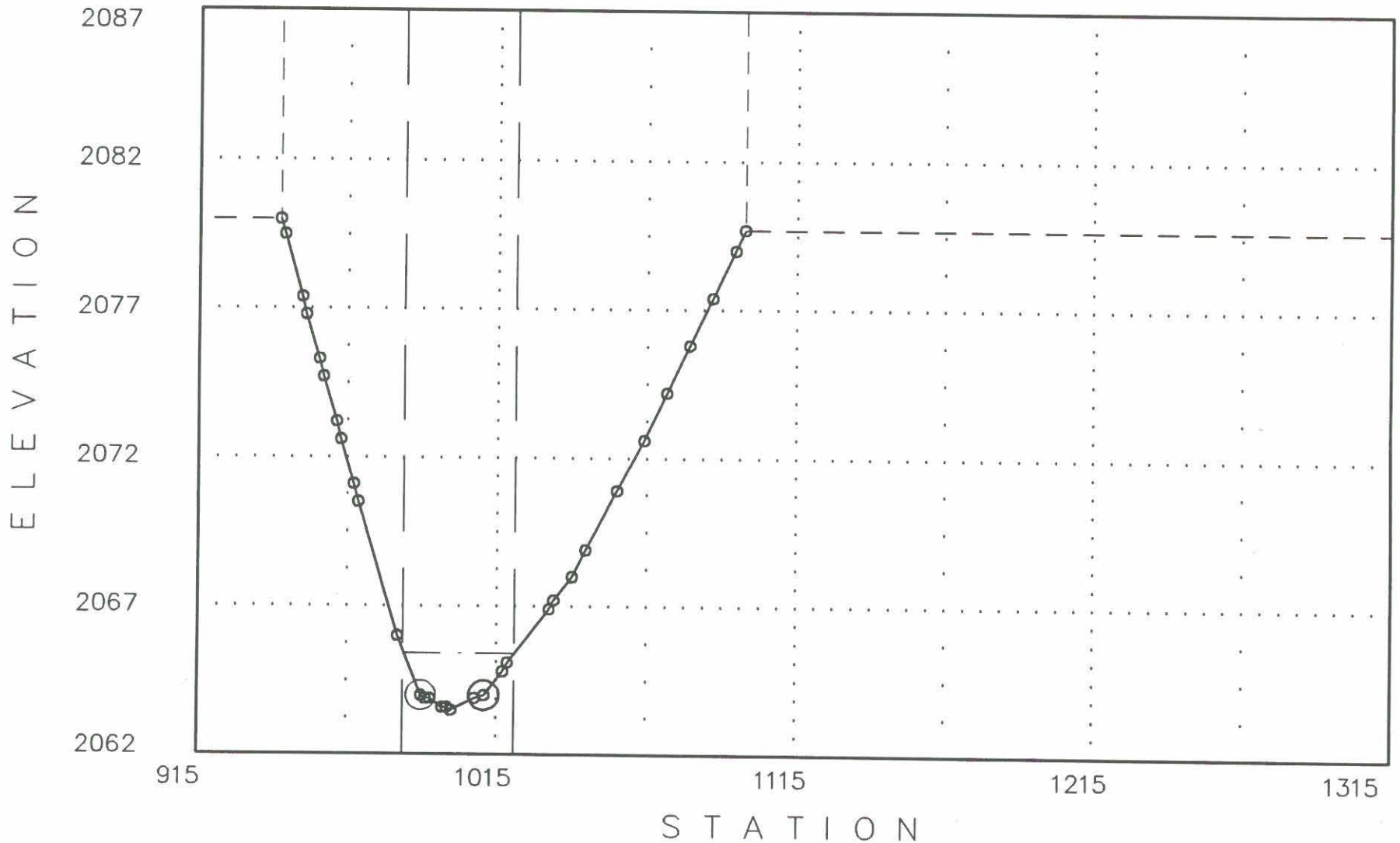


08-18-1992

<<<<<< Cross Section: .669: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2065.41
Q2= 272 WS2= 2065.41

Manning-n's: n-lob = .06 n-ch = .04 n-rob = .06

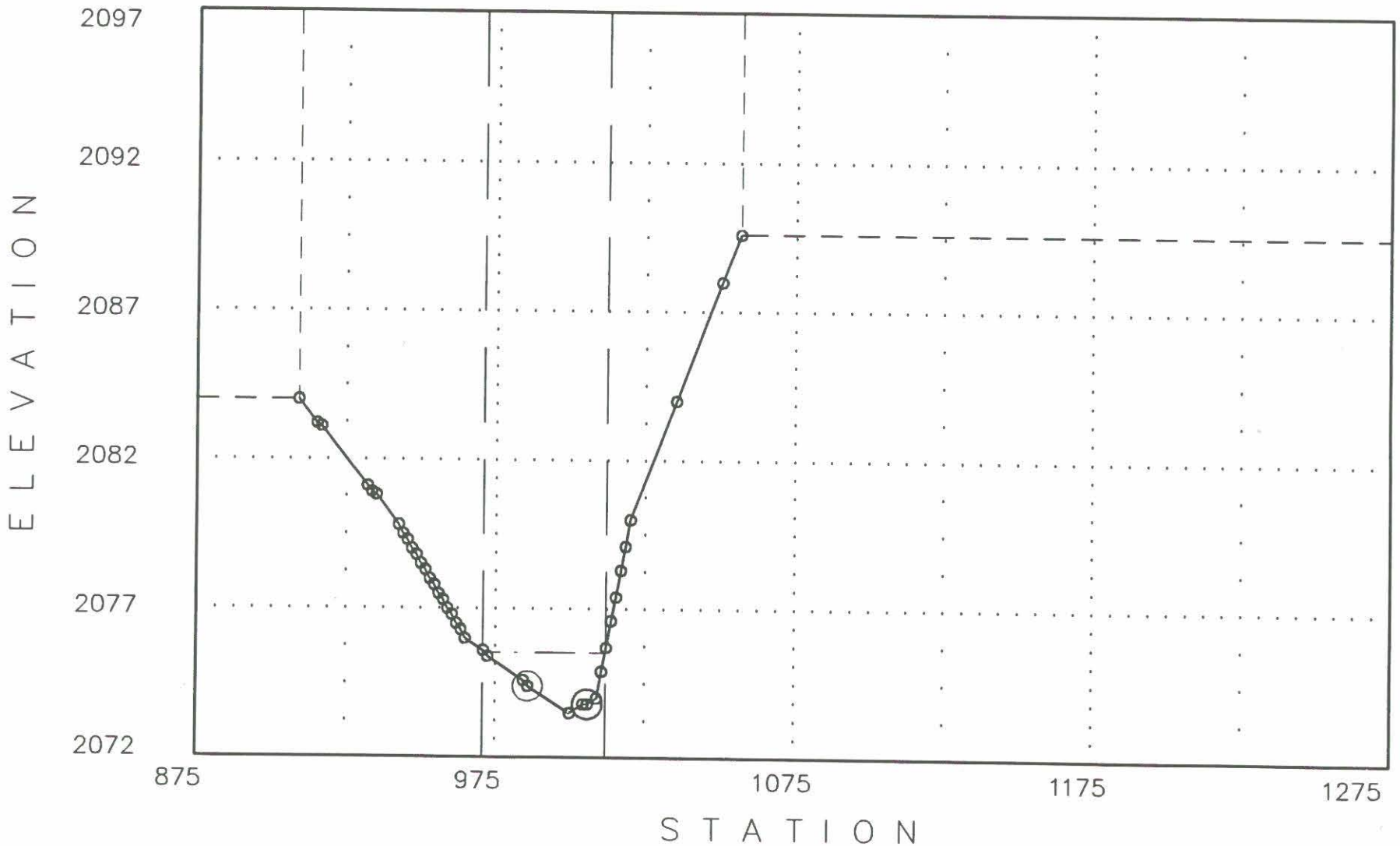


08-18-1992

<<<<<< Cross Section: .763: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2075.52
Q2= 272 WS2= 2075.52

Manning-n's: n-lob = .06 n-ch = .04 n-rob = .06



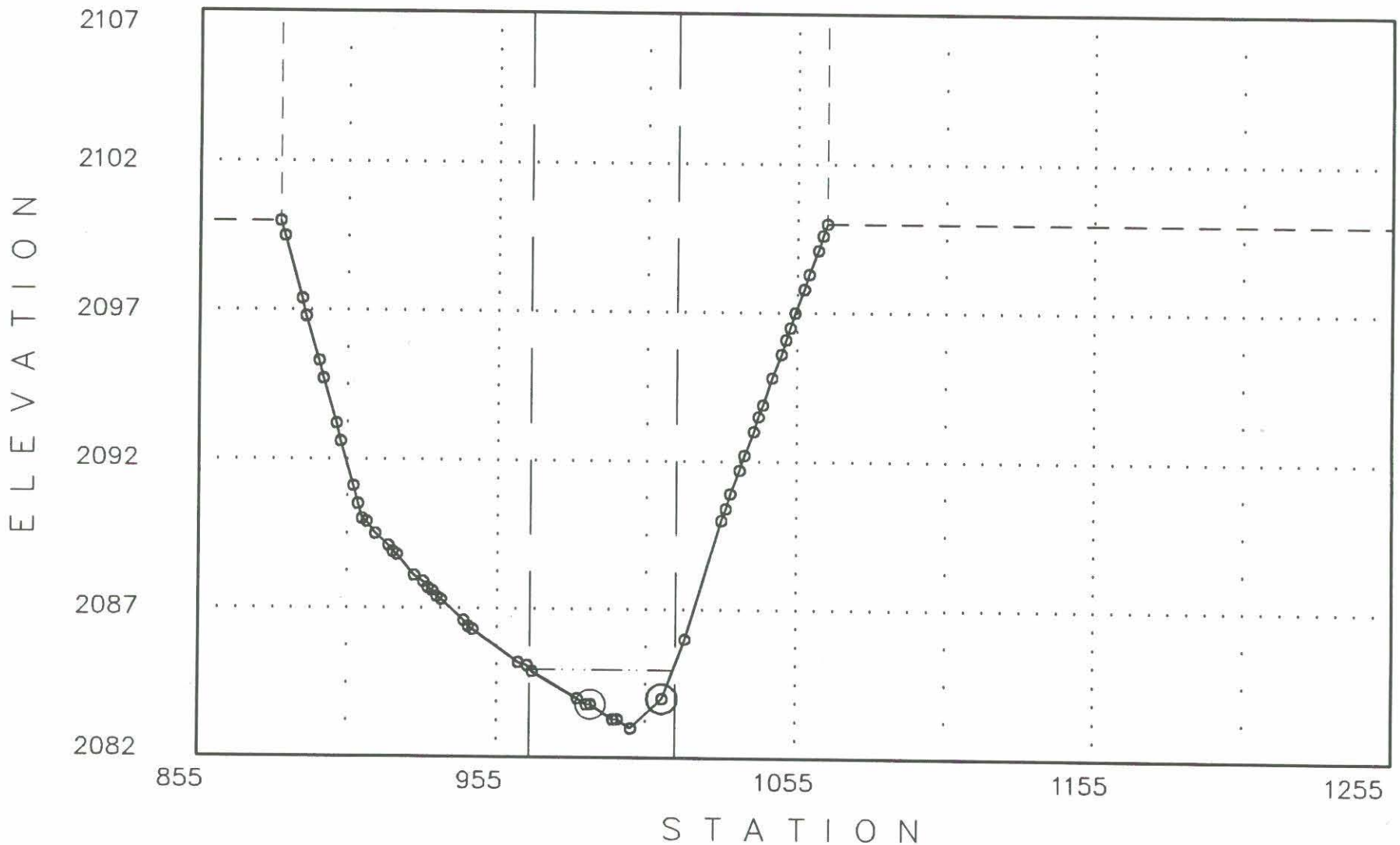
08-18-1992

<<<<<< Cross Section: .845: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2084.97

Q2= 272 WS2= 2084.97

Manning-n's: n-lob = .06 n-ch = .04 n-rob = .06

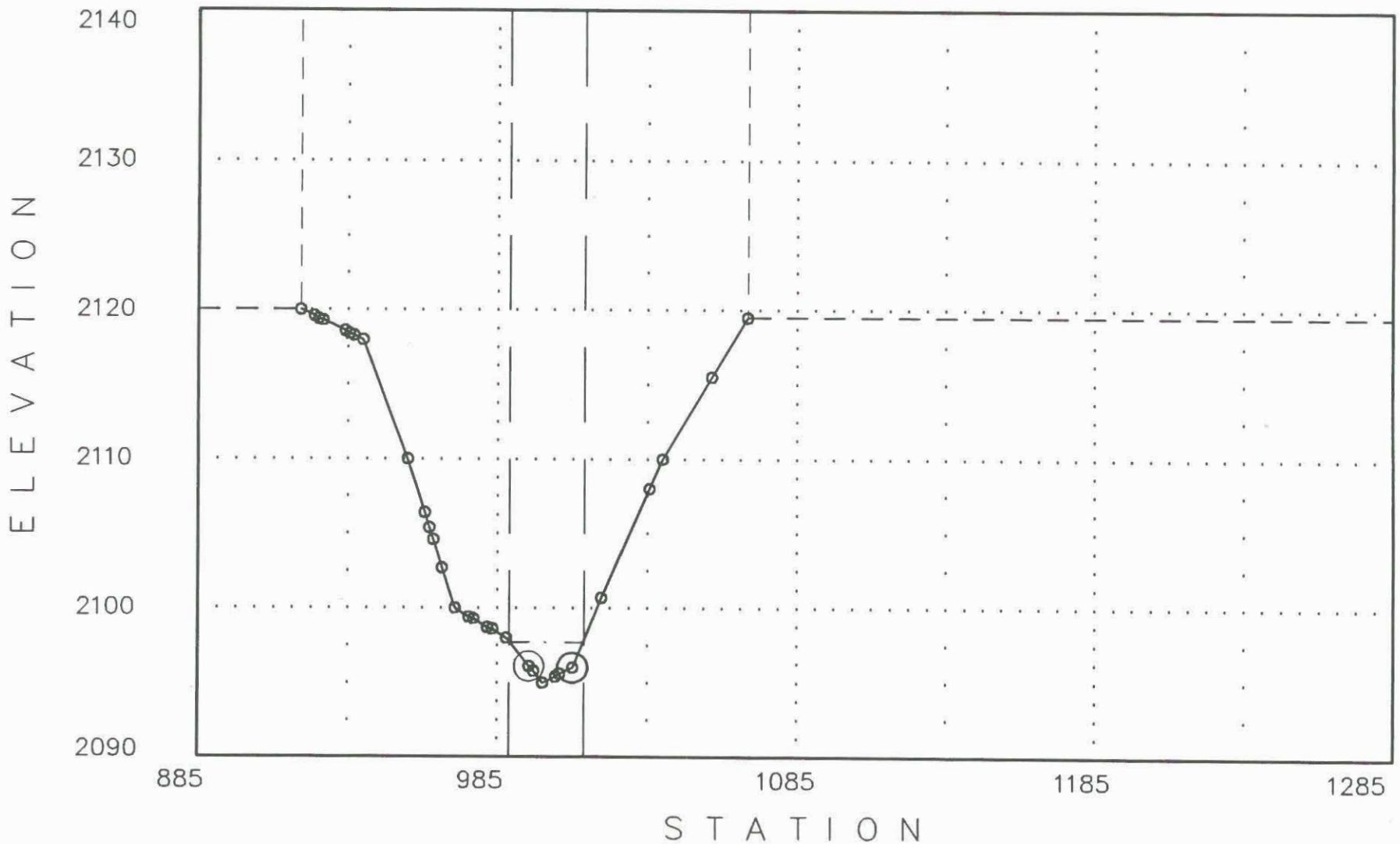


08-18-1992

<<<<<< Cross Section: .955: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2097.71
Q2= 272 WS2= 2097.72

Manning-n's: n-lob = .06 n-ch = .04 n-rob = .06



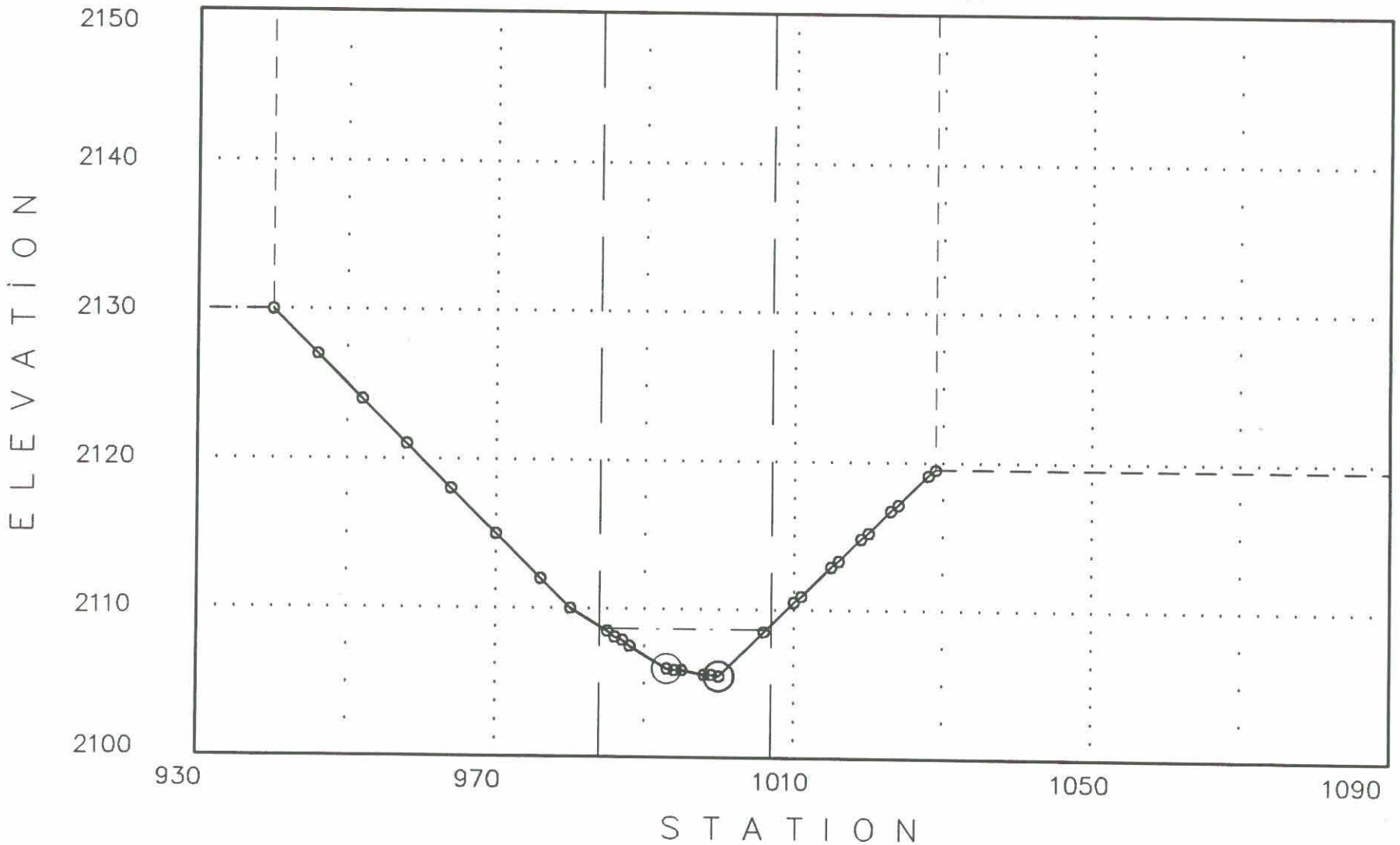
08-18-1992

<<<<<< Cross Section: 1.053: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2108.66

Q2= 272 WS2= 2108.66

Manning-n's: n-lob = .06 n-ch = .04 n-rob = .06

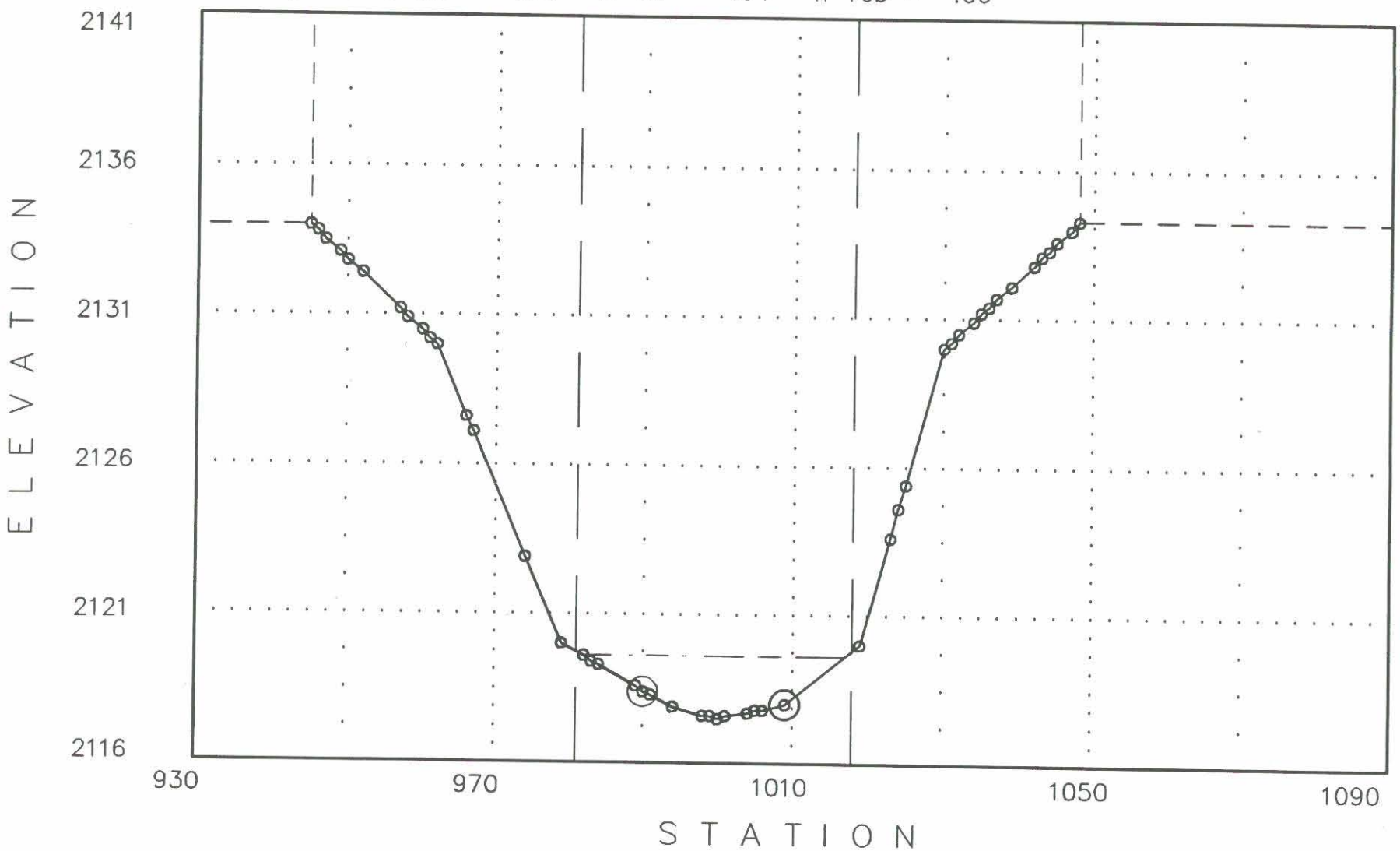


08-18-1992

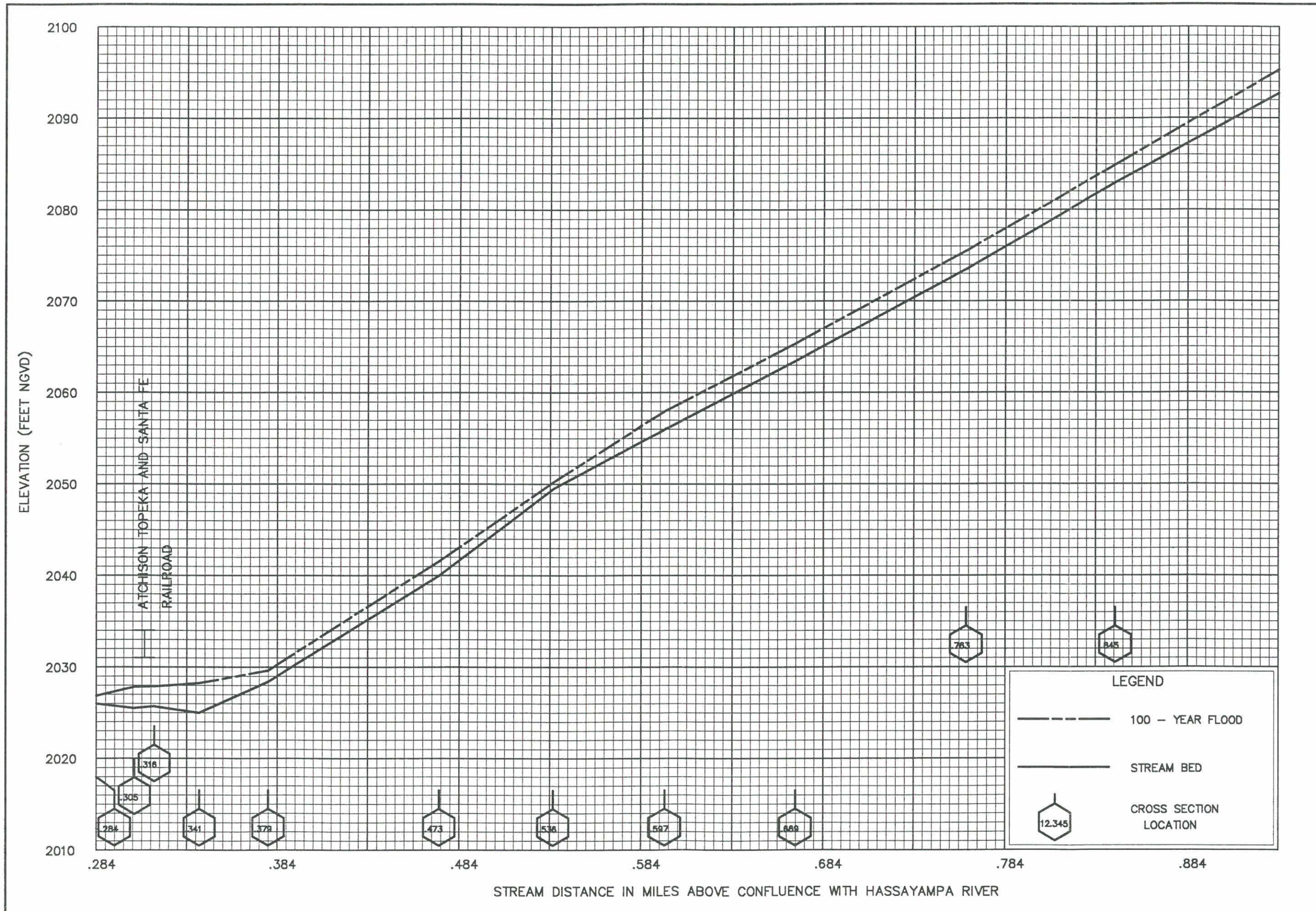
<<<<<< Cross Section: 1.134: (FN = WASHAG.O) >>>>>>

Q1= 272 WS1= 2119.61
Q2= 272 WS2= 2119.61

Manning-n's: n-lob = .06 n-ch = .04 n-rob = .06



08-18-1992



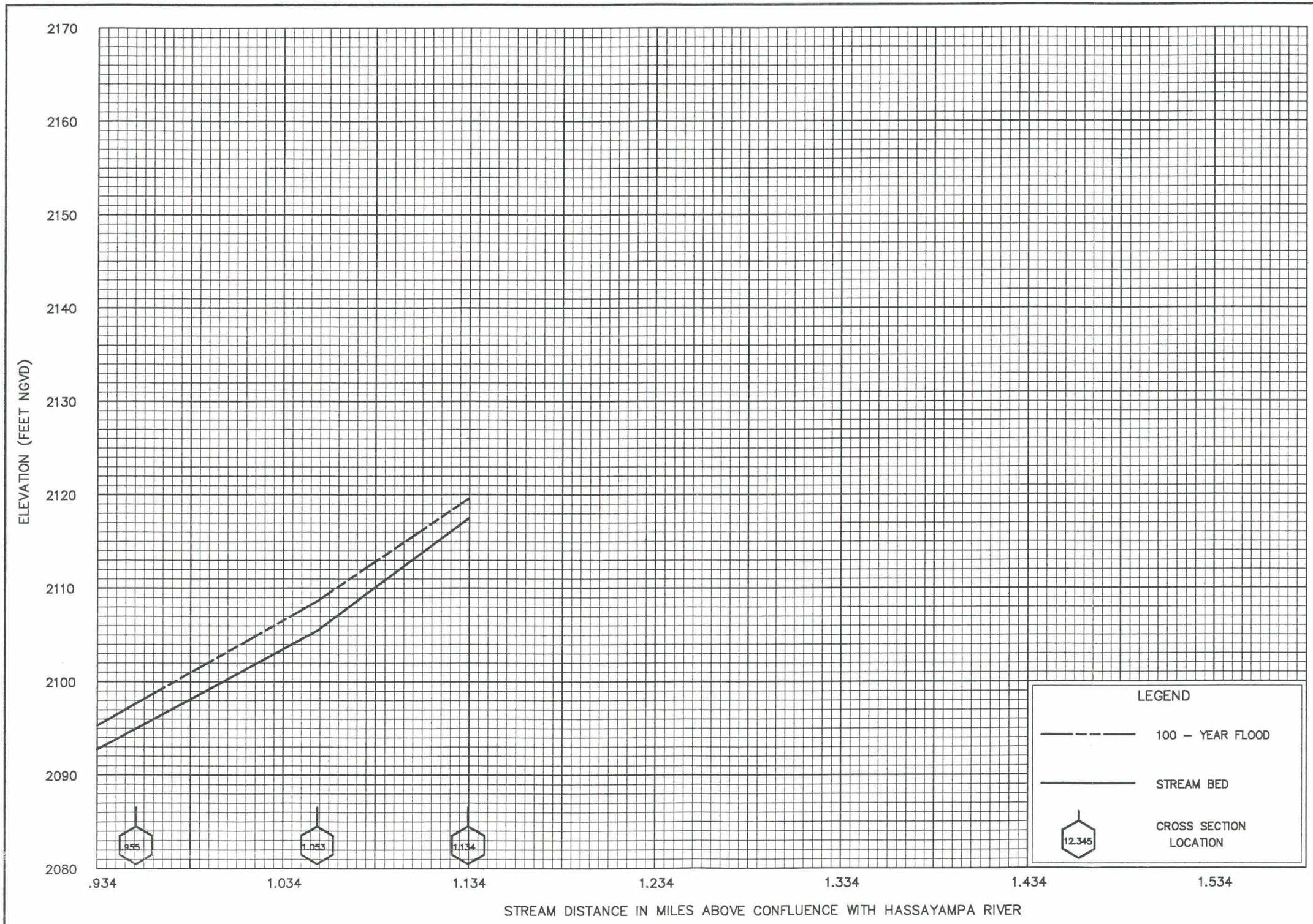
FLOOD PROFILES

UN–NAMED WASH #10 (WASH AG)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

AG–1



FLOOD PROFILES

UN–NAMED WASH #10 (WASH AG)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
RM93	1,992.78	U.S. Geological Survey standard disk 2.4 miles southeast of Wickenburg, approximately 100 feet west of the Atchison, Topeka and Santa Fe Railroad, marked M 24 1 933.
RM94	1,989.29	Monel metal inset in centerline of hacksaw on south side of Atchison, Topeka and Santa Fe Railroad, 2.5 miles southeast of Wickenburg. U.S. Geological Survey designation RV 118
RM411	2,059.80	At Wickenburg, 0.4 mile south of the Atchison, Topeka and Santa Fe Railroad station, 800 feet south of milepost 142, 50 feet west of the centerline of the track, and in the corner of a residence yard. A standard disc stamped N 24 1 933 and set in the top of a concrete post.
RM600	2,036.18	Chiselled 3" x 3" "+" on southwest corner of railroad bridge at Cemetery Wash.
RM601	2,034.84	Chiselled 3" x 3" "+" on top of 3" x 1" concrete headwall on the northwest corner of Calamity Wash bridge on State Route 93, approximately 0.4 mile north of mile post 112
RM602	2,180.87	Chiselled "X" on top of north end of curb at the northeast corner of cattle guard on Kellis Road across from south entrance to cemetery, approximately 0.6 mile south of the intersection of Kellis Road and Whipple Street in Wickenburg
*RM603	2,142.71	Brass cap set in a rock, stamped U.S. Coast and Geodetic Survey HABS 1924, approximately 2 mile north of Wickenburg, 800 feet east of the east bank of the Hassayampa River, shown as triangulation station 2141 on the U.S. Department of Interior Geological Survey, Wickenburg Quadrangle
RM604	2,084.75	Brass cap stamped A.D.O.T. ELEV. 2095.34 STA. 910 + 46.66 1963, set in top of 1' x 3.3' x 1.5' headwall on the west side of Highway 93 approximately 300 feet south of Henson Road, Wickenburg
RM605	2,053.02	Chiselled 2" x 2" "+" on southeast corner of concrete slab at top of transition of a ramp to a fairly straight brother that is the farthest north of 3 and sewers of in a north-south direction, at Double Thoroughbred Farm, Inc. located at the intersection of the east end of Cavaness Street and Wayne Street in Wickenburg
RM608	2,011.16	Brass cap stamped A.D.O.T. Bm 936 + 88, Elev 2011.47 1967, on top of a 1' x 7' x 5.5' high box culvert on the east side of Route 93, where Turtleback Wash crosses under the highway, 0.25 mile north of north end of a median and 4.50 miles north of mile post 113, brass cap is approximately 15' below highway elevation.
RM607	2,012.02	Brass cap stamped Arizona Highway Department, STA. & ELEV. set on 8" x 10.5" x 2" high headwall at north end of a cattleguard crossing at the entrance to Rock House Ranch, located approximately 1/8 feet north of entrance to Foothills Trailer Park on a driveway that is parallel to and on the west side of Highway 93. Foothills Trailer Park entrance is west from the median crossing on Highway 93 that is 0.40 mile north of mile post 114.

*OUTSIDE CORPORATE LIMITS

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A — No 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 - -D 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 on 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 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment; and to update map format.

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.

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

N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 255 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	0255	F
WICKENBURG, TOWN OF	040056	0255	F

REVISED: OCT 9 1991

MAP NUMBER 04013C0255 F

MAP REVISED: SEPTEMBER 4, 1991

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM93	1,992.78	U.S. Geological Survey standard disk 3.4 miles southeast of Wickenburg, approximately 100 feet west of the Atchison, Topeka and Santa Fe Railroad, marked M 24 1 933
RM94	1,989.29	Monel metal rivet in centerline of headwall on south side of Atchison, Topeka and Santa Fe Railroad, 2.5 miles southeast of Wickenburg. U.S. Geological Survey designation RV 119
RM411	2,059.80	At Wickenburg, 0.4 mile south of the Atchison, Topeka and Santa Fe Railroad station, 800 feet south of milepost 140, 55 feet west of the centerline of the track, and in the corner of a residence yard. A standard disc stamped N 24 1 933 and set in the top of a concrete post.
RM600	2,036.16	Chiselled 2" x 2" "+" on southwest corner of railroad bridge at Cemetery Wash.
RM601	2,034.84	Chiselled 2" x 2" "+" on top of 2" x 1" concrete headwall on the northwest corner of Calamity Wash bridge on State Route 93, approximately 0.4 mile north of mile post 112
RM602	2,180.87	Chiselled "X" on top of north and of curb at the northeast corner of cattle guard on Kelke Road across from south entrance to cemetery, approximately 0.6 mile south of the intersection of Kelke Road and Wrapole Street in Wickenburg
*RM603	2,142.71	Brass cap set in a rock, stamped U.S. Coast and Geodetic Survey HASS 1924, approximately 2 mile north of Wickenburg, 800 feet east of the east bank of the Hassayampa River, shown as triangulation station 2141 on the U.S. Department of Interior Geological Survey, Wickenburg Quadrangle
RM604	2,084.75	Brass cap stamped A.D.O.T. ELEV. 2080.34 STA. 910+48.88 1963, set in top of 1" x 33" x 12" headwall on the west side of Highway 89 approximately 300 feet south of Rincon Road, Wickenburg
RM605	2,053.02	Chiselled 3" x 3" "+" on southeast corner of concrete slab at top of transition of a ramp to a hay storage shelter that is the farthest north of 3 and orient rt in a north-south direction, at Double Thoroughbred Farm, Inc., located at the intersection of the east end of Cavaness Street and Wauone Street in Wickenburg
RM608	2,011.16	Brass cap stamped A.D.O.T., Bk 938 - 88, Elev. 2011.47 1967, on top of a 1" x 7" x 5.5' high box culvert on the east side of Route 93, where Turtleback Wash crosses under the highway, 0.25 mile north of north end of a median and 4.50 miles north of mile post 113, brass cap is approximately 10 below highway elevation.
RM607	2,012.02	Brass cap stamped Arizona Highway Department, STA. & ELEV. set on 8" x 10.5" x 2" high headwall at north end of a cattleguard crossing at the entrance to Rock House Ranch, located approximately 165 feet north of entrance to Foothills Trailer Park on a driveway that is parallel to and on the west side of Highway 93. Foothills Trailer Park entrance is west from the median crossing on Highway 93 that is 0.40 mile north of mile post 114

*OUTSIDE CORPORATE LIMITS

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- ZONE A — No 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 - +0 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 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment, and to update map format.

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.

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

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 255 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	0255	F
WICKENBURG, TOWN OF	040056	0255	F

RECEIVED

OCT 9 1992

MAP NUMBER
04013C0255 F

MAP REVISED:
SEPTEMBER 4, 1991

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM93	1,993.78	U.S. Geological Survey standard disk 2.4 miles southeast of Wickenburg, approximately 100 feet west of the Atchison, Topeka and Santa Fe Railroad, marked M 24 1933.
RM94	1,989.29	Metal metal post in centerline of handball on south side of Atchison, Topeka and Santa Fe Railroad, 2.5 miles southeast of Wickenburg. U.S. Geological Survey designation RV 118.
RM411	2,059.80	At Wickenburg, 0.4 mile south of the Atchison, Topeka and Santa Fe Railroad station, 800 feet south of milepost 140, 55 feet west of the centerline of the track, and in the corner of a residence yard. A standard disc stamped N 24 1 933 and set in the top of a concrete post.
RM600	2,036.18	Chiseled 2" x 2" "+" on southwest corner of railroad bridge at Cemetery Wash.
RM601	2,054.84	Chiseled 3" x 3" "+" on top of 2" x 1" concrete headwall on the northwest corner of Calamity Wash bridge on State Route 93, approximately 0.4 mile north of mile post 112.
RM602	2,180.87	Chiseled "X" on top of north end of curb at the northeast corner of cattle guard on Kellis Road across from south entrance to cemetery, approximately 0.8 mile south of the intersection of Kellis Road and Whipple Street in Wickenburg.
* RM603	2,142.71	Brass cap set in a rock, stamped U.S. Coast and Geodetic Survey HABS 1924, approximately 2 mile north of Wickenburg, 800 feet east of the east bank of the Hassayampa River, shown as triangulation station 2141 on the U.S. Department of Interior Geological Survey, Wickenburg Quadrangle.
RM604	2,084.75	Brass cap stamped A.D.O.T. ELEV. 2091.34 STA. 910+48.88 1963, set in top of 1" x 33" x 12" headwall on the west side of Highway 89 approximately 300 feet south of Rincon Road, Wickenburg.
RM605	2,053.02	Chiseled 2" x 2" "+" on southeast corner of concrete slab at top of transition of a ramp to a hay storage shelter that is the farthest north of 3 and lines it in a north-south direction, at Double Thoroughbred Farm, Inc., located at the intersection of the east end of Cavaness Street and Weaver Street in Wickenburg.
RM606	2,011.16	Brass cap stamped A.D.O.T. Bm 938+88, Elev. 2011.47 1967, on top of a 1" x 7" x 5.5' high box culvert on the east side of Route 93, where Turtleback Wash crosses under the highway, 0.25 mile north of north end of a median and 4.50 miles north of mile post 113. Brass cap is approximately 15' below highway elevation.
RM607	2,012.02	Brass cap stamped Arizona Highway Department, STA. & ELEV. set on 8" x 16.5" x 2" high headwall at north end of a cattleguard crossing at the entrance to Rock House Ranch, located approximately 165 feet north of entrance to Foothills Trailer Park on a driveway that is parallel to and on the west side of Highway 93. Foothills Trailer Park entrance is west from the median crossing on Highway 93 that is 0.40 mile north of mile post 114.

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Floodway Boundary

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

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N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 255 OF 4350

CONTAINS

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MAP NUMBER
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MAP REVISED:
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Federal Emergency Management Agency